

Christian County
Missouri
2025 Multi-Jurisdictional
Natural Hazard Mitigation Plan



CONTRIBUTORS

Christian County Hazard Mitigation Planning Committee

Jurisdictional and Stakeholder Representatives

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Jarrett Metheny	Fire Chief	Ozark Fire Protection District
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Jennifer Belin	Administrator	Ozark Special Road District
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EXECUTIVE SUMMARY

The purpose of hazard mitigation is to reduce or eliminate long-term risk to people and property from hazards. Christian County and all participating jurisdictions (municipalities, school districts, and special districts) developed this multi-jurisdictional local hazard mitigation plan update to reduce future losses from hazard events to the County and its communities. This plan is an update of the previous plan that was approved by FEMA on February 2, 2021. The plan and the update were prepared pursuant to the requirements of the Disaster Mitigation Act of 2000 to result in eligibility for the Federal Emergency Management Agency (FEMA) Hazard Mitigation Assistance Grant Programs.

The County Multi-Hazard Mitigation Plan is a multi-jurisdictional plan that covers the following jurisdictions that participated in the planning process:

- Unincorporated Christian County
- City of Fremont Hills
- City of Highlandville
- City of Nixa
- City of Ozark
- Village of Saddlebrooke
- City of Sparta
- Billings R-IV School District
- Clever R-V School District
- Nixa Public Schools
- Ozark R-VI School District
- Sparta R-III School District
- Ozark Technical Community College - Richwood Valley
- Christian County Ambulance District
- Christian County Emergency Services 911
- Logan-Rogersville Fire Protection District
- Ozark Fire Protection District
- Ozark Special Road District

Local jurisdictions that were invited to participate but did not include:

- City of Billings
- City of Clever
- Chadwick R-I School District
- Spokane R-VII School District
- Billings Fire Protection District
- Billings Special Road District
- Chadwick Rural Fire Protection District
- Clever Fire Protection District
- Garrison Road District
- Highlandville Rural Fire Protection District
- Nixa Fire Protection District
- Selmore Special Road District
- South Sparta Road District
- Sparta Fire Protection District
- Stoneshire Road District

When the future five-year update is developed for this plan, these jurisdictions will be invited to participate.

Christian County and the participating entities listed above followed a plan update process using a methodology in accordance with FEMA guidance, which began with the formation of a Mitigation Planning Committee (MPC) comprised of representatives from the county and all participating jurisdictions. The MPC updated the risk assessment that identified and profiled hazards that pose a risk to the county and analyzed jurisdictional vulnerability to these hazards. The MPC also examined the capabilities in place to mitigate the hazard damages, with emphasis on changes that have occurred since the previously approved plan was adopted. The MPC determined that the planning area is vulnerable to several hazards that are identified, profiled, and analyzed in this plan. Riverine and flash flooding, winter storms, severe thunderstorms (hail, lightning, high winds), and tornados are among the hazards that historically have had a significant impact.

Based upon the risk assessment, the MPC updated goals for reducing risk from hazards. The goals are listed below:

1. Protect the lives and livelihoods of all citizens.
2. Reduce the potential impact of natural disasters to property, infrastructure, and the local economy.
3. Ensure continued operation of government, emergency functions, and critical infrastructure in a disaster.

To advance the identified goals, the MPC developed recommended mitigation actions, as summarized in the table on the following pages. The MPC developed an implementation plan for each action, which identifies priority level, background information, ideas for implementation, responsible agency, timeline, cost estimate, potential funding sources, and more. These additional details are provided in Chapter 4.

Table I. Mitigation Action Matrix

#	Action	Jurisdiction	Priority	Goal Addressed	Hazards Addressed	Address Current Development	Address Future Development	Continued Compliance with NFIP
Prevention								
1.4	Low water crossing markings	Christian County		1	Flooding	X	X	X
1.6	Safe Refuge Area Plan	Christian County	26	1	Tornado, Severe Thunderstorm	X		
1.7	Community Extreme Temperature Refuge Areas	Christian County	24	1	Extreme Temperature, Severe Winter Weather	X		
2.3	Burn Bans	Christian County	29	2	Drought, Wildfire			
2.4	Monitor Funding Programs	Christian County	30	2	All		X	
2.5	Geographic Information	Christian County	25	2	All			
3.1	NFIP Participation	Christian County	26	3	Flooding	X	X	X
3.2	Storm Ready	Christian County	31	3	Severe Thunderstorm, Tornado			X
1.9	Emergency Management Website	Christian County	31	1	All			X
1.4	Enforce Building Codes	Fremont Hills	35	1	Earthquake, tornado, severe winter weather, flooding	X	X	
2.1	NFIP Participation	Fremont Hills	25	2	Flooding	X	X	X
2.2	Storm Ready Community	Fremont Hills	25	2	Tornado, Severe Thunderstorm, Flooding, Severe Winter Weather			X
2.4	Subsidence Development Management	Fremont Hills	33	2	Sinkhole	X	X	
3.3	Severe Winter Weather Preparedness	Fremont Hills	29	3	Severe Winter Weather, Tornado, Severe Thunderstorm	X	X	
3.2	Water Conservation	Highlandville	29	3	Drought			
3.3	Monitor Funding Programs	Highlandville	33	3	All	X	X	
3.4	Drought Monitoring	Highlandville		3	Drought			

#	Action	Jurisdiction	Priority	Goal Addressed	Hazards Addressed	Address Current Development	Address Future Development	Continued Compliance with NFIP
3.5	Earthquake Vulnerability Assessment	Highlandville	43	3	Earthquake	X		
2.5	NFIP Participation	Highlandville	36	2	Flooding	X	X	X
3.7	Land Subsidence Vulnerability Assessment	Highlandville	34	3	Sinkhole	X		
2.6	Enforce 2006 IBC building codes	Highlandville	45	3	Severe Thunderstorm, Tornado, Earthquake	X	X	
1.3	Private Property Hazard Insurance	Nixa	33	1	Flooding, Sinkhole	X	X	
1.5	Safe Refuge Area Plan	Nixa	28	1	Severe Thunderstorm, Tornado	X		
1.6	OACAC Programs	Nixa	33	1	Extreme Temperatures, Severe Winter Weather			
1.7	Community Extreme Temperature Refuge Areas	Nixa	33	1	Extreme Temperature, Severe Winter Weather	X		
1.10	Enforce Building Codes	Nixa	35	1	Tornado, Severe Thunderstorm, Earthquake, Wildfire, Flooding	X	X	
2.1	Geographic Information	Nixa	34	2	All			
2.2	Monitor Funding Programs	Nixa	30	2	All	X	X	
2.3	Water Conservation	Nixa	25	2	Drought			
2.6	NFIP Participation	Nixa	37	2	Flooding	X	X	X
2.7	Storm Ready	Nixa	29	2	Tornado, Severe Winter Weather, Severe Thunderstorm			X
2.8	Subsidence Development Management	Nixa	33	2	Sinkhole	X	X	
1.5	Safe Refuge Area Plan	Ozark	37	1	Severe Thunderstorm, Tornado	X		
1.6	Finley River Gauge	Ozark	37	1	Flooding	X		
1.7	Building Codes	Ozark	39	1	Tornado, Severe Thunderstorm, Wildfire, Earthquake, Flooding	X	X	

#	Action	Jurisdiction	Priority	Goal Addressed	Hazards Addressed	Address Current Development	Address Future Development	Continued Compliance with NFIP
2.1	NFIP Participation	Ozark	45	2	Flooding	X	X	X
2.3	Manage New Development Flooding	Ozark	39	2	Flooding		X	X
2.6	Wind-Resistant Construction	Ozark	42	2	Tornado, Severe Thunderstorm	X	X	
3.2	Water Conservation	Ozark	38	3	Drought			
3.3	Monitor Funding Programs	Ozark	42	3	All	X	X	
3.4	GIS Development	Ozark	38	3	All			
1.3	Safe Place Awareness	Saddlebrooke	22	1	Tornado, Severe Thunderstorm	X		
1.5	Wildfire Buffer	Saddlebrooke	18	1	Wildfire	X		
2.1	NFIP Enforcement	Saddlebrooke	25	2	Flooding	X	X	X
2.2	Waterway Maintenance	Saddlebrooke	21	2	Flooding	X		
2.4	Stormproof Development	Saddlebrooke	37	2	Severe Thunderstorm, Severe Winter Weather, Tornado	X	X	
3.2	Monitor Funding Programs	Saddlebrooke	40	3	All	X	X	
3.3	Infrastructure Coordination	Saddlebrooke	38	3	Flooding	X		
1.4	Building Codes	Sparta	42	1	Tornado, Earthquake, Severe Thunderstorm, Severe Winter Weather, Flooding	X	X	
2.1	NFIP Participation	Sparta	45	2	Flooding	X	X	X
2.2	Storm Ready	Sparta	46	2	Flooding, Tornado, Severe Thunderstorm, Severe Winter Weather			
2.3	Stormwater Management	Sparta	45	2	Flooding	X		
1.2	Building Safety Inspections	Billings R-IV	34	1	Tornado, Earthquake, Severe Thunderstorm	X	X	
1.3	OACAC Programs	Nixa Public Schools	33	1	Extreme Temperatures, Severe Winter Weather			

#	Action	Jurisdiction	Priority	Goal Addressed	Hazards Addressed	Address Current Development	Address Future Development	Continued Compliance with NFIP
1.5	Building Safety Inspections	Nixa Public Schools	40	1	Tornado, Severe Thunderstorm, Earthquake, Severe Winter Weather, Wildfire	X		
2.1	Windproof Construction	Nixa Public Schools	30	2	Tornado, Severe Thunderstorm	X	X	
3.2	Monitor Funding Programs	Nixa Public Schools	25	3	All	X	X	
1.3	Safe Refuge Area Plan	Ozark R-VI	43	1	Tornado, Severe Thunderstorm	X		
1.6	Building Safety Inspections	Ozark R-VI	43	1	Earthquake, Severe Thunderstorm, Tornado	X		
3.2	Monitor Funding Programs	Ozark R-VI	26	3	All	X	X	
1.1	Building Safety Inspections	Sparta R-III	37	1	Earthquake, Flooding, Sinkhole, Severe Thunderstorm, Severe Winter Weather, Tornado	X		
3.1	Water Conservation	Sparta R-III	32	3	Drought			
1.2	Building Inspections	OTC Richwood Valley	43	1	Severe Thunderstorm, Tornado, Wildfire, Severe Winter Weather, Earthquake	X		
1.4	Heating and Cooling Center	OTC Richwood Valley	37	1	Extreme Temperature, Severe Winter Weather	X		
2.1	Water Conservation	OTC Richwood Valley	38	2	Drought			
1.4	Smoke Detector Distribution	Logan-Rogersville Fire Protection District	31	1	Wildfire			
1.1	Dam Failure Vulnerability Assessment	Ozark Fire Protection District	40	1	Dam Failure	X		
1.3	Evacuation Routes Review	Ozark Fire Protection District	34	1	Dam Failure	X		
3.1	Drought conditions monitoring	Ozark Fire Protection District	33	3	Drought			
1.4	Building Safety Inspections	Ozark Fire Protection District	34	1	Earthquake	X		

#	Action	Jurisdiction	Priority	Goal Addressed	Hazards Addressed	Address Current Development	Address Future Development	Continued Compliance with NFIP
1.8	Land Subsidence Vulnerability Assessment	Ozark Fire Protection District	31	1	Sinkhole	X		
1.10	Severe Winds Vulnerability Assessment	Ozark Fire Protection District	31	1	Severe Thunderstorm	X		
1.12	Establish heating and cooling centers	Ozark Fire Protection District	39	1	Severe Winter Weather, Extreme Temperatures	X		
3.2	Wildfire Vulnerability Assessment	Ozark Fire Protection District	31	3	Wildfire	X		
3.1	Dam Failure Vulnerability Assessment	Ozark Special Road District	28	3	Dam Failure	X		
3.2	Drought Planning	Ozark Special Road District	27	3	Drought			
1.3	Land Subsidence Vulnerability Assessment	Ozark Special Road District	31	1	Sinkhole	X		
3.4	Wildfire Vulnerability Assessment	Ozark Special Road District	28	3	Wildfire	X		
1.3	Building Safety Inspections	Clever R-V	43	1	Earthquake	X	X	
1.8	Bus Route Mitigation	Clever R-V	41	1	Flooding			
3.1	Drought Vulnerability Assessment	Clever R-V	31	3	Drought	X		
3.2	Severe Wind Vulnerability Assessment	Clever R-V	31	3	Severe Thunderstorm	X		
Structure and Infrastructure Projects								
1.5	Safe Room Construction	Christian County	30	1	Tornado, Severe Thunderstorm	X	X	
2.2	Low Water Crossing Improvements	Christian County	29	2	Flooding	X		
2.3	Floodproofing	Fremont Hills	25	2	Flooding	X	X	
2.5	Lightning-proofing	Fremont Hills	29	2	Severe thunderstorm	X	X	
3.2	911 Addressing For Structures	Fremont Hills	26	3	All	X		
1.1	Outdoor Warning Sirens	Highlandville	40	1	Tornado, Severe Thunderstorm	X		

#	Action	Jurisdiction	Priority	Goal Addressed	Hazards Addressed	Address Current Development	Address Future Development	Continued Compliance with NFIP
3.1	911 Addressing for Structures	Highlandville	40	3	Flood, Tornado, Severe Thunderstorm, Severe Winter Storm, Wildfire	X		
3.6	Seismic Standards Upgrades	Highlandville	41	3	Earthquake	X		
3.8	Surge Protection Installation	Highlandville	39	3	Severe Thunderstorm	X		
3.9	Road maintenance	Highlandville	38	3	Severe Winter Weather, Severe Thunderstorm, Tornado	X	X	
1.5	Safe Room Grant Program	Highlandville	38	1	Tornado, Severe Thunderstorm	X	X	
1.1	Safe Room Construction	Nixa	29	1	Tornado, Severe Thunderstorm	X	X	
2.4	Underground Utilities	Nixa	37	2	Tornado, Severe thunderstorm, Severe Winter Weather, Earthquake, Wildfire	X	X	
2.5	Hazard Area Property Protection	Nixa	30	2	Flooding	X		
2.9	Electric Grid Protections	Nixa	35	2	Severe Thunderstorm	X		
2.10	Wind and Fire Resistant Construction	Nixa	32	2	Tornado, Severe Thunderstorm, Wildfire	X		
2.2	Reduce Urban Heat Island Effect	Ozark	34	2	Extreme Temperatures	X		
2.4	Floodproofing	Ozark	37	2	Flooding	X	X	X
2.5	Flood Reduction	Ozark	35	2	Flooding	X	X	X
3.5	Power Line Protection	Ozark	40	3	Tornado, Severe Thunderstorm, Wildfire	X		
3.6	Underground Power Lines	Ozark	35	3	Severe Winter Weather, Tornado, Severe Thunderstorm	X	X	
3.8	Hydrant Maintenance	Ozark	43	3	Wildfire	X		
1.2	Safe Room Construction	Sparta	39	1	Tornado, Severe Thunderstorm	X	X	
3.2	Snow Clearing Plan	Sparta	24	3	Severe Winter Weather	X		
1.3	Safe Room Construction	Billings R-IV	34	1	Tornado, Severe Thunderstorm	X	X	

#	Action	Jurisdiction	Priority	Goal Addressed	Hazards Addressed	Address Current Development	Address Future Development	Continued Compliance with NFIP
3.1	Retrofit Water Supply	Billings R-IV	22	3	Drought	X		
1.2	Safe Room Construction	Nixa Public Schools	30	1	Tornado, Sever Thunderstorm	X	X	
1.4	Protective Filming and Blast Proof Doors	Nixa Public Schools	28	1	Tornado, Severe Thunderstorm	X		
1.6	Reduce Urban Heat Island Effect	Nixa Public Schools	29	1	Extreme Temperatures	X		
3.3	Underground Power Lines	Nixa Public Schools	25	3	Severe Winter Weather, Severe Thunderstorm, Tornado	X		
1.5	Protective Film and Blast Proof Doors	Ozark R-VI	25	1	Tornado, Severe Thunderstorm	X		
1.2	Reduce Urban Heat Island Effect	Sparta R-III	30	1	Extreme Temperature	X		
1.3	Safe Room Construction	Sparta R-III	30	1	Severe Thunderstorm, Tornado	X	X	
1.4	Surge Protection	Sparta R-III	27	1	Severe Thunderstorm, Tornado	X		
1.1	Emergency Alert System Updates	OTC Richwood Valley	40	1	Earthquake, Flooding, Severe Thunderstorm, Severe Winter Weather, Tornado, Land Subsidence	X		
1.3	Reduce Urban Heat Island Effect	OTC Richwood Valley	39	1	Extreme Temperature	X		
2.2	Surge Protection	OTC Richwood Valley	34	2	Severe Thunderstorm, Tornado	X		
3.1	Building Improvements	Christian County Emergency Services 911	38	3	Tornado, Severe Thunderstorm, Earthquake, Land Subsidence	X		
1.9	Safe Room Construction	Ozark Fire Protection District	43	1	Severe Thunderstorm, Tornado	X	X	
1.13	Safe Room Grant Program	Ozark Fire Protection District	43	1	Severe Thunderstorm, Tornado	X	X	
1.1	Earthquake-Proofing	Ozark Special Road District	29	1	Earthquake	X		
2.1	Building relocation	Ozark Special Road District	33	2	Flooding	X		
3.3	Infrastructure Floodproofing	Ozark Special Road District	35	3	Flooding	X		

#	Action	Jurisdiction	Priority	Goal Addressed	Hazards Addressed	Address Current Development	Address Future Development	Continued Compliance with NFIP
2.2	Surge Protection	Ozark Special Road District	35	2	Severe Thunderstorm	X		
1.5	Saferoom construction	Ozark Special Road District	31	1	Tornado	X	X	
1.1	Implement Building Codes	Clever R-V	32	1	Earthquake, wildfire, severe winter weather, sinkhole/land subsidence, tornado, severe thunderstorm	X	X	
1.2	Earthquake Planning	Clever R-V	30	1	Earthquake			
1.7	Protect Critical Facilities	Clever R-V	29	1	Flooding	X	X	
1.10	Safe room construction	Clever R-V	41	1	Severe thunderstorm, tornado	X	X	
2.3	Surge Protections	Clever R-V	41	2	Severe Thunderstorm	X		
2.4	Insulation Installation	Clever R-V	41	2	Severe Winter Weather	X		
3.3	Fire Maintenance	Clever R-V	36	3	Wildfire	X		
Natural Systems Protection								
3.5	Debris Disposal Plan	Christian County	3	26	Tornado, Earthquake, Severe Thunderstorm			
2.3	Restrict Floodplain Development	Saddlebrooke	29	2	Flooding	X	X	X
Emergency Services								
3.4	911 Addressing for Structures	Christian County	27	3	All	X	X	
3.6	Road Maintenance Capabilities	Christian County	31	3	Tornado, Severe Thunderstorm, Severe Winter Weather	X		
1.2	Safe Refuge Area Plan	Fremont Hills	26	1	Tornado, Severe thunderstorm	X		
1.2	Safe Refuge Area Plan	Highlandville	30	1	Tornado	X		
1.3	Community Extreme Temperature Refuge Areas	Highlandville	38	1	Extreme Temperatures, Severe Winter Weather	X		
2.1	Storm Ready	Highlandville	40	2	Tornado, Severe Thunderstorms, Severe Winter Weather			

#	Action	Jurisdiction	Priority	Goal Addressed	Hazards Addressed	Address Current Development	Address Future Development	Continued Compliance with NFIP
1.8	911 Addressing for Structures	Nixa	28	1	All	X	X	
3.2	Snow and Debris Clearing	Nixa	30	3	Severe Winter Weather, Severe Thunderstorm, Tornado	X		
3.3	Hydrant Maintenance	Nixa	31	3	Wildfire			
3.7	Debris Clearing Plan	Ozark	39	3	Severe Winter Weather, Tornado, Thunderstorm	X		
1.4	Heating and Cooling Centers	Saddlebrooke	18	1	Extreme Temperature, Severe Winter Weather	X		
1.3	Establish Refuge Areas	Sparta	32	1	Tornado, Severe Thunderstorm	X		
3.1	Enforce Visible 911 Addressing	Sparta	25	3	All	X	X	
3.1	NIMS Training	Ozark R-VI	28	3	All			
1.1	Evacuation and emergency access	Christian County Ambulance District	43	1	Dam Failure	X		
1.1	Flood Rescue Plan	Logan-Rogersville Fire Protection District	32	1	Flooding	X		
1.2	Equipment Improvements	Ozark Fire Protection District	28	1	All			
1.4	Roadway Clearing	Ozark Special Road District	38	1	Severe Winter Weather	X		
1.6	Heating and Cooling Centers	Clever R-V	28	1	Extreme Temperature, Severe Winter Weather	X		
Education and Outreach								
1.1	Social Media and Public Information	Christian County	30	1	All			
1.2	Citizen Preparedness	Christian County	35	1	All			
1.3	NOAA Radios	Christian County	32	1	Tornado, Severe Thunderstorm, Severe Winter Weather, Earthquake, Flooding, Wildfire			
1.8	Residential Safe-room Construction	Christian County	28	1	Tornado, Severe Thunderstorm		X	

#	Action	Jurisdiction	Priority	Goal Addressed	Hazards Addressed	Address Current Development	Address Future Development	Continued Compliance with NFIP
2.1	Private Property Hazard Insurance	Christian County	24	2	Sinkhole, Flooding			
3.3	NIMS Training	Christian County	27	3	All			
1.1	Private Property Hazard Insurance	Fremont Hills	25	1	Sinkhole, Flooding			
1.3	Citizen Preparedness	Fremont Hills	28	1	All			
1.5	Extreme Temperature Outreach	Fremont Hills	22	1	Extreme Temperature, Severe Winter Weather			
1.6	Tornado Awareness	Fremont Hills	26	1	Tornado			
3.1	NIMS Training	Fremont Hills	20	3	Flood, Tornado, Severe Storm, Severe Winter Weather			
2.2	Severe Winter Weather Awareness	Highlandville	32	2	Extreme Temperatures, Severe Winter Weather			
2.3	Restrict Floodplain Development	Highlandville	35	2	Flooding	X	X	X
2.4	Stormwater Management Planning	Highlandville	32	2	Flooding	X		X
1.4	Severe Winter Weather Awareness	Highlandville	35	1	Severe Winter Weather			
1.2	Citizen Preparedness	Nixa	28	1	All			
1.4	Ozark and Nixa Expo	Nixa	23	1	All			
1.9	Natural Hazard Awareness	Nixa	33	1	All			
3.1	NIMS Training	Nixa	28	3	All			
1.1	Ozark Expo	Ozark	37	1	All			
1.2	Fire resistant construction and landscaping	Ozark	40	1	Wildfire			
1.3	Private Property Hazard Insurance	Ozark	36	1	Flooding, Sinkhole			
1.4	Citizen Preparedness	Ozark	37	1	All			
3.1	NIMS Training	Ozark	38	3	All			
1.1	Awareness Program	Saddlebrooke	30	1	All			
1.2	Citizen NOAA Radios	Saddlebrooke	28	1	Tornado, Severe Thunderstorm, Severe Winter Weather			
1.1	Natural Hazard Community Expos	Sparta	41	1	All			
1.5	Public Awareness	Sparta	35	1	All			

#	Action	Jurisdiction	Priority	Goal Addressed	Hazards Addressed	Address Current Development	Address Future Development	Continued Compliance with NFIP
1.1	School Education Program	Billings R-IV	36	1	All			
1.1	Hazard Awareness Program for Schools	Nixa Public Schools	30	1	All			
3.1	NIMS Training	Nixa Public Schools	39	3	All			
1.1	Hazard Awareness Program for Schools	Ozark R-VI	35	1	All			
1.2	Citizen Preparedness	Ozark R-VI	37	1	All			
1.4	OACAC Programs	Ozark R-VI	28	1	Extreme Temperature, Severe Winter Weather			
1.5	Heating and Cooling Center	Sparta R-III	24	1	Severe Winter Weather, Extreme Temperature			
1.6	Hazard Awareness	Sparta R-III	32	1	All			
1.5	Hazard Awareness	OTC Richwood Valley	41	1	All			
1.2	Hazard Awareness	Christian County Ambulance District	40	1	All			
1.1	Hazard Awareness	Christian County Emergency Services 911	34	1	All			
1.2	Firewise Program	Logan-Rogersville Fire Protection District	33	1	Wildfire			
1.3	School Fire Programs	Logan-Rogersville Fire Protection District	35	1	Wildfire			
1.5	Hazard Awareness	Logan-Rogersville Fire Protection District	22	1	All			
1.5	Structural Improvements Outreach	Ozark Fire Protection District	33	1	Earthquake			
1.6	Extreme Temperature Awareness	Ozark Fire Protection District	31	1	Extreme Temperature			
1.7	Flooding Outreach	Ozark Fire Protection District	31	1	Flooding			
1.11	Carbon Monoxide Alarm Outreach	Ozark Fire Protection District	45	1	Severe Winter Weather			
1.14	Tornado Awareness Activities	Ozark Fire Protection District	33	1	Tornado			
1.15	Fire-Resistant Construction Techniques	Ozark Fire Protection District	35	1	Wildfire			

#	Action	Jurisdiction	Priority	Goal Addressed	Hazards Addressed	Address Current Development	Address Future Development	Continued Compliance with NFIP
1.16	Fire Awareness	Ozark Fire Protection District	37	1	Wildfire			
1.2	Extreme Temperature Awareness	Ozark Special Road District	35	1	Extreme Temperatures			
1.4	Earthquake Risk Awareness	Clever R-V	37	1	Earthquake			
1.5	Extreme Temperature Awareness	Clever R-V	40	1	Extreme Temperatures			
1.9	Land Subsidence Awareness	Clever R-V	31	1	Sinkhole			
1.11	Hail awareness	Clever R-V	31	1	Severe thunderstorm			
1.12	Thunderstorm Awareness	Clever R-V	31	1	Severe thunderstorm			
1.13	Severe Winter Weather Awareness	Clever R-V	31	1	Severe Winter Weather			
1.14	Tornado Awareness	Clever R-V	31	1	Tornado			
1.15	Wildfire Education and Awareness	Clever R-V	31	1	Wildfire			

PREREQUISITES

44 CFR requirement 201.6(c)(5): The local hazard mitigation plan shall include documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval of the plan. For multi-jurisdictional plans, each jurisdiction requesting approval of the plan must document that it has been formally adopted.

This plan has been reviewed by and adopted with resolutions or other documentation of adoption by all participating jurisdictions and schools/special districts. The documentation of each adoption is included in **Appendix D**, and a model resolution is included on the following page.

The jurisdictions listed in the Executive Summary participated in the development of this plan and have adopted the multi-jurisdictional plan.

Model Resolution

(LOCAL GOVERNING BODY/SCHOOL DISTRICT), Missouri RESOLUTION NO. _____

A RESOLUTION OF THE (LOCAL GOVERNING BODY /SCHOOL DISTRICT) ADOPTING THE
(PLAN NAME)

WHEREAS the (local governing body/school district) recognizes the threat that natural hazards pose to people and property within (local government); and

WHEREAS the (*local government/school district*) has prepared a multi-hazard mitigation plan, hereby known as (*title and date of mitigation plan*) in accordance with federal laws, including the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended; the National Flood Insurance Act of 1968, as amended; and the National Dam Safety Program Act, as amended; and

WHEREAS (*title and date of mitigation plan*) identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in (*local government/school district*) from the impacts of future hazards and disasters; and

WHEREAS adoption by the (*local governing body/school district*) demonstrates its commitment to hazard mitigation and achieving the goals outlined in the *Plan*.

NOW THEREFORE, BE IT RESOLVED BY THE (LOCAL GOVERNMENT/SCHOOL DISTRICT), in the State of Missouri, THAT:

Section 1. In accordance with (*local rule for adopting resolutions*), the (*local governing body/school district*) adopts the (*title and date of mitigation plan*). While content related to (*local government/school district*) may require revisions to meet the plan approval requirements, changes occurring after adoption will not require (*local government/school district*) to re-adopt any further iterations of the plan. Subsequent plan updates following the approval period for this plan will require separate adoption resolutions.

ADOPTED by a vote of _____ in favor and ____ against, and __ abstaining, this _____ day of _____, _____.

By (Sig): _____
Print name: _____

ATTEST:
By (Sig.): _____
Print name: _____

APPROVED AS TO FORM:
By (Sig.): _____
Print name: _____

1 INTRODUCTION AND PLANNING PROCESS

1	INTRODUCTION AND PLANNING PROCESS	1.1
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1.2	Background and Scope	1.1
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1.1 PURPOSE

Hazard Mitigation is the process of preparing for and taking action in order to reduce the long-term risk of natural disasters to financial and human consequences. Mitigation actions may be implemented prior to, during, or after a hazard event. However, it has been demonstrated that hazard mitigation is most effective when based on an inclusive, comprehensive, long-term plan that is developed before a disaster occurs (<https://www.fema.gov/grants/mitigation>).

By participating in the planning process and meeting the necessary requirements to do so, communities, school districts, and other special districts become eligible to apply for mitigation grant funding.

FEMA has implemented various hazard mitigation provisions through the Code of Federal Regulations (CFR) at 44 CFR Part 201. The CFR provisions set forth the mitigation plan requirements for local and tribal governments as a condition of receiving FEMA hazard mitigation assistance. Local governments, schools, or other publicly funded districts that do not participate or adopt a hazard mitigation plan will not be eligible to apply for grants as stated under the Robert T. Stafford Disaster Relief and Emergency Act (Public Law 93-288) as amended by the Disaster Mitigation Act of 2000 (Public Law 106-390) and the implementing regulations set forth by the Interim Final Rule published in the *Federal Register* on February 26, 2002, (44 CFR §201.6) and finalized on October 31, 2007. This plan was written with guidance from FEMA's Local Mitigation Planning Handbook, May 2023, and Local Mitigation Planning Policy Guide April 19, 2023.

1.2 BACKGROUND AND SCOPE

As required by 44 CFR §201.6(d)(3), a local jurisdiction must review and revise its plan to reflect changes in development, progress in local mitigation efforts and changes in priorities, and resubmit it for approval every five (5) years in order to continue to be eligible for mitigation project grant funding. The 2025 Christian County Multi-Jurisdictional Natural Hazard Mitigation Plan, from here on referred to as the Plan, is a revision of the previous five-year update approved on February 2, 2021.

The 2025 Plan is a major rewrite of the previous plan and reflects changes in priorities and development, and the continued commitment of local governments to mitigate the impact of natural hazards in Christian County. Local participating jurisdictions include:

- Unincorporated Christian County
- City of Fremont Hills
- City of Highlandville
- City of Nixa
- City of Ozark
- Village of Saddlebrooke
- City of Sparta
- Billings R-IV School District
- Clever R-V School District
- Nixa Public Schools
- Ozark R-VI School District
- Sparta R-III School District
- Ozark Technical Community College - Richwood Valley
- Christian County Ambulance District
- Christian County Emergency Services 911
- Logan-Rogersville Fire Protection District
- Ozark Fire Protection District
- Ozark Special Road District

All jurisdictions received email and phone communications notifying representatives of upcoming meetings and participation requirements.

The local mitigation plan is the representation of the jurisdictions' commitment to reduce risks from natural hazards, serving as a guide for decision makers as they commit resources to reducing the effects of natural hazards. Information in the Plan will be used to help guide and coordinate mitigation activities and decisions for local land use policy in the future

1.3 PLAN ORGANIZATION

The Plan is organized into five chapters. The format of the Plan was changed to conform to the local hazard mitigation plan outline template released by the Missouri State Emergency Management Agency (SEMA). The Plan chapters include:

- Chapter 0: Executive Summary
- Chapter 1: Introduction and Planning Process
- Chapter 2: Planning Area Profile and Capabilities
- Chapter 3: Risk Assessment
- Chapter 4: Mitigation Strategy
- Chapter 5: Plan Implementation and Maintenance
- Appendices

Table 1.1 summarizes the changes made in the Plan by chapter.

Table 1.1. Changes Made in Plan Update

Plan Section	Summary of Updates
Chapter 1 - Introduction and Planning Process	- Updated list of participating jurisdictions - Combined jurisdiction and stakeholder representative tables into one table - Reduced the total number of meetings from five to three
Chapter 2 - Planning Area Profile and Capabilities	- Updated watershed map so it focuses on the county rather than the entire state - Removed some topography information - Removed age composition table - Added agriculture table - Swapped the order of Public School District Profiles and Special District Profiles - Added a school district map - Added tables showing school name, address, and enrollment for each school district
Chapter 3 - Risk Assessment	- Changed the 'Parks in Christian County' table to 'Conservation Areas in Christian County' - Slightly changed the formatting on the flood event tables - Added a second table detailing NFIP info - Removed the 'Changing Future Conditions Considerations' section for all hazards - Removed low water crossing map in flood section - Added a table showing survey results in the 'Community Comments on Hazard' section for each hazard - Removed mines from sinkhole map - Removed wildfire risk area map
Chapter 4 - Mitigation Strategy	Grouped all mitigation actions based on jurisdiction rather than goal
Chapter 5 - Plan Implementation and Maintenance	No significant changes were made

1.4 PLANNING PROCESS

44 CFR Requirement 201.6(c)(1): [The plan shall document] the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.

The Southwest Missouri Council of Governments (SMCOG) was contracted to facilitate the plan development process. SMCOG staff coordinated with the Christian County EMD to gather contact information for area stakeholders and local jurisdiction representatives to establish the Mitigation Planning Committee (MPC). Meeting locations and schedules were discussed, and the most effective way to inform and include the public was determined. It was determined that the document had not been officially updated over the previous five years.

The planning process included the kick-off meeting and two subsequent MPC meetings. SMCOG staff were responsible for producing the draft and final plan update in a FEMA-approvable

document, as well as coordinating with SEMA and FEMA plan reviewers. Specific information about agenda items for the MPC meetings is presented in **Section 1.4.2**. SMCOG also assisted in soliciting public involvement in the planning process by creating a community survey. Notification of all three MPC meetings were sent via phone and/or email to all jurisdictions within the county. **Appendix B** provides documentation of the planning process including public involvement solicitations and meeting notices.

Input from jurisdiction officials was solicited through distribution of drafts of plan elements for discussion and review at scheduled meetings and other communications with individual community representatives and elected officials.

A complete listing of agencies invited to participate in the planning process and what meetings they were invited to attend is included in **Appendix B**.

Table 1.2 shows the jurisdictional and stakeholder representatives.

Table 1.2. Jurisdictional and Stakeholder Representatives

Name	Title	Organization
Phil Amtower	Emergency Management Director	Christian County
Jamie Orlando	Assistant Emergency Management Director	Christian County
Cheryl Mitchell	Emergency Management Administrator	Christian County
Jake Phillips	Senior Planner	Christian County
Todd Wiesehan	Director of Planning and Development	Christian County
Scott Hayes	Planning and Development Administrator	Christian County
Luke Davis	Mayor	Fremont Hills
Susan Wilson	Alderwoman	Fremont Hills
Kay O'Neill	City Clerk	Fremont Hills
Elissa Puryear	City Clerk	Highlandville
Clint Ellingsworth	Mayor	Highlandville
Jarad Giddens	Mayor	Nixa
Rebekka Coffey	City Clerk	Nixa
Brendan Justin	Planner I	Nixa
Scott Godbey	Director of Planning and Development	Nixa
Don Currence	Mayor	Ozark
Chandra Hodges	City Clerk	Ozark
Megan Bischof	Principal Planner	Ozark
Beckie Vessar	City Clerk	Sparta
Shawna Bush	Administrative Assistant	Sparta
Robert Benke	Water/Building Inspector	Sparta
Misty Holt	Mayor	Sparta
Terry Heinzler	Floodplain Administrator	Saddlebrooke
Cynthai Brandt	Superintendent	Billings R-IV School District
Brian Breeden	Superintendent	Clever R-V School District
Kainon Bouldin	Director of Police Program	Clever R-V School District
Zac Rantz	Chief Communications and Safety Coordinator	Nixa Public Schools
Dennis Faught	Director of Custodial/Maintenance	Ozark R-VI School District
Richie Fretwell	Executive Director of Operations	Ozark R-VI School District
Eric Russell	Superintendent	Sparta R-III School District
Trish Loveland	Receptionist	Sparta R-III School District
Katie Kingry	Environmental Safety and Compliance Coordinator	OTC Richwood Valley
Christin Gilchrist	Environmental Safety and Compliance Coordinator	OTC Richwood Valley
Raymond Wade	Director of Facility Operations	OTC Richwood Valley
Christie Thompson	Director	Christian County Ambulance District

David Hoover	Paramedic	Christian County Ambulance District
Becky Bacon	Executive Director	Christian County Emergency Services 911
David Driskell	Deputy Director	Christian County Emergency Services 911
Tim Clarkson	Assistant Fire Chief	Logan-Rogersville Fire Protection District
Jarrett Metheny	Fire Chief	Ozark Fire Protection District
Aaron Heaton	Assistant Fire Chief	Ozark Fire Protection District
Melinda York	Administrator	Ozark Fire Protection District
Jennifer Belin	Administrator	Ozark Special Road District
Jerry Countryman	Commissioner	Ozark Special Road District

Table 1.3. MPC Capability with Six Mitigation Categories

Community Department/Office	Preventive Measures	Structure and Infrastructure Projects		Natural Resource Protection	Public Information	Emergency Services
		Property Protection	Structural Flood Control Projects			
Christian County Emergency Management	X	X	X	X	X	X
Christian County Planning and Development	X	X	X	X	X	X
Fremont Hills Administration	X	X			X	
Highlandville Administration	X	X			X	
Nixa Administration	X	X			X	
Nixa Planning and Zoning	X	X	X	X	X	X
Ozark Administration	X	X			X	
Ozark Planning and Zoning	X	X	X	X	X	X
Sparta Administration	X	X			X	
Sparta Building Department	X	X	X			
Sparta Utilities Department	X	X			X	X
Saddlebrooke Floodplain Administrator	X	X	X	X		X
Billings R-IV Superintendent					X	
Clever R-V Superintendent					X	
Clever R-V School Police					X	X
Nixa Public Schools Communication and Safety					X	X
Ozark R-VI Maintenance	X	X	X			X
Ozark R-VI Operations	X	X	X			X

Ozark R-VI Superintendent					X	
OTC Richwood Valley Environmental Safety	X	X	X	X	X	
OTC Richwood Valley Operations	X	X	X	X		X
Christian County Ambulance District Administration	X	X			X	X
Christian County Emergency Services 911 Administration	X	X			X	X
Logan-Rogersville Fire Protection District Fire Chief	X	X		X	X	X
Ozark Fire Protection District Fire Chief	X	X		X	X	X
Ozark Fire Protection District Administration	X	X	X	X	X	X
Ozark Special Road District Administration	X	X	X	X	X	X

1.4.1 Multi-Jurisdictional Participation

44 CFR Requirement §201.6(a)(3): Multi-jurisdictional plans may be accepted, as appropriate, as long as each jurisdiction has participated in the process and has officially adopted the plan.

The Plan serves as a written document of the planning process. Active participation of local jurisdiction representatives and stakeholders in the hazard mitigation planning process is essential if the Plan is to have value. To be eligible for mitigation funding, local governments must adopt the FEMA-approved update of the Plan. The participation of the local government stakeholders in the planning process is considered critical to successful implementation of this plan. Each jurisdiction that is seeking approval for the Plan must have its governing body adopt the updated plan, regardless of the degree of modifications. SMCOG collaborated with the local governments in Christian County to ensure participation in the planning process and the development of a plan that represents the needs and interests of the county and its local jurisdictions. **Appendix D** contains resolutions for jurisdictions adopting the Plan.

County Commissioners, incorporated communities, public schools, special districts, and various stakeholders in mitigation planning were invited to a kick-off meeting for the Plan update on November 5, 2025, in Ozark. At this meeting it was explained that the Disaster Mitigation Act (DMA) requires each jurisdiction participating in the planning process must officially adopt the Plan. The criteria for participation that each jurisdiction must meet in order to be considered a “participant” in the Plan was established at this meeting and includes the following:

- Attend at least two MPC meetings, by either direct participation or authorized representation
- Complete all required documents, including the data collection questionnaire, STAPLEE

sheets, and action sheets

- Provide documentation to show time donated to the planning effort
- Formally adopt the mitigation plan through an adoption resolution

Some jurisdictions were able to adopt the plan before it received final SEMA/FEMA approval, while others had to wait for SEMA/FEMA to first approve the plan before they could formally adopt it. Jurisdictions that met the minimum requirements are considered to have satisfactorily participated in the planning process. In addition to public outreach solicited through SMCOG, each participating jurisdiction was strongly encouraged to seek public input at an open public meeting or through various forms of input solicitation.

Table 1.4 shows the representation of each participating jurisdiction at the planning meetings and the provision of responses to the data collection questionnaire. All jurisdictions participating in the Plan either reviewed or commented on the draft Plan, participated in the update and development of mitigation actions, documented the donation of time, completed all required documents, and passed an adoption resolution. Meeting sign-in sheets are located in **Appendix B**.

Table 1.4. Jurisdictional Participation in Planning Process

Jurisdiction	Mtg #1	Mtg #2	Mtg #3	Data Collection Questionnaire	Documented Donated Time	Adoption Resolution
Christian County	X	X	X	X	X	X
Fremont Hills	X	X	X	X	X	X
Highlandville	X	X	X	X	X	X
Nixa	X	X	X	X	X	X
Ozark	X	X	X	X	X	X
Saddlebrooke		X	X	X	X	X
Sparta	X	X		X	X	X
Billings R-IV*				X	X	X
Clever R-V		X	X	X	X	X
Nixa Public Schools	X	X		X	X	X
Ozark R-VI	X	X		X	X	X
Sparta R-III*				X	X	X
Ozark Technical Community College – Richwood Valley	X		X	X	X	X
Christian County Ambulance District	X	X	X	X	X	X
Christian County Emergency Services 911*				X	X	X
Logan-Rogersville Fire Protection District		X	X	X	X	X
Ozark Fire Protection District	X		X	X	X	X
Ozark Special Road District	X	X	X	X	X	X

*Some jurisdictions were unable to attend certain meetings. In lieu of these meetings, SMCOG staff conducted one on one meetings over the phone to ensure these jurisdictions were up to date on the project and their specific participation requirements.

1.4.2 The Planning Steps

FEMA's *Local Mitigation Planning Handbook* (May 2023), *Local Mitigation Planning Policy Guide* (April 19, 2023), and *Integrating Hazard Mitigation into Local Planning: Case Studies and Tools for Community Officials* (March 1, 2013) were used as the sources for developing the Plan update process. The development of the plan followed the 10-step planning process adapted from FEMA's Community Rating System (CRS) and Flood Mitigation Assistance programs. The 10-step process allows the Plan to meet funding eligibility requirements of the Hazard Mitigation Grant Program, Pre-Disaster Mitigation Program, Community Rating System, and Flood Mitigation Assistance Program.

Table 1.5 is a summary of how SMCOG staff used the Nine Task Process to develop the update to the Plan.

Table 1.5. County Mitigation Plan Update Process

Community Rating System (CRS) Planning Steps (Activity 510)	Local Mitigation Planning Handbook (2023) Tasks (44 CFR Part 201)
Step 1. Organize	Task 1: Determine the Planning Area and Resources
	Task 2: Build the Planning Team 44 CFR 201.6(c)(1)
Step 2. Involve the public	Task 3: Create an Outreach Strategy 44 CFR 201.6(b)(1)
Step 3. Coordinate	Task 5: Review Community Capabilities 44 CFR 201.6(b)(2) & (3)
Step 4. Assess the hazard	Task 4: Conduct a Risk Assessment 44 CFR 201.6(c)(2)(i) 44 CFR 201.6(c)(2)(ii) & (iii)
Step 5. Assess the problem	
Step 6. Set goals	Task 6: Develop a Mitigation Strategy 44 CFR 201.6(c)(3)(i); 44 CFR 201.6(c)(3)(ii); and 44 CFR 201.6(c)(3)(iii)
Step 7. Review possible activities	
Step 8. Draft an action plan	
Step 9. Adopt the plan	Task 8: Review and Adopt the Plan
Step 10. Implement, evaluate, revise	Task 7: Keep the Plan Current
	Task 9: Create a Safe and Resilient Community 44 CFR 201.6(c)(4)

Step 1: Organize the Planning Team

In June 2025, SMCOG entered into cooperative agreements with SEMA and Christian County to prepare this multi-jurisdictional plan for public entities in Christian County. Discussions on the

development of the Plan began in July 2025 with SMCOG staff coordinating with Christian County Emergency Management personnel. This discussion centered on the timeline for developing the hazard mitigation plan and the planning process. County Emergency Management personnel and SMCOG staff identified prospective participant representatives and stakeholders and a contact list was prepared for the kick-off meeting. The list of invitees included local elected officials, municipal government staff, emergency services personnel, and public school administrators. A complete list of invites is in **Appendix B**.

The MPC met for three meetings from November 2025 to April 2026 to collaborate on the development of the Plan update. Participants assisted in data collection; reviewed and revised the Plan's goals and mitigation strategies; and provided reviews and comments on the Plan throughout the update process. Communication with MPC members occurred throughout the planning process through phone conversations and email correspondence in addition to committee meetings. **Table 1.6** shows the meeting schedule and items discussed for MPC meetings.

Table 1.6. Schedule of MPC Meetings

Meeting	Topic	Date
Kick-off Meeting	Introduction to hazard mitigation planning, participation requirements, planning process, and the data collection questionnaire	11/05/2025
Planning Meeting #2	Review of participation requirements, risk assessment for all hazards across the county, and introduction to developing mitigation actions	01/29/2026
Planning Meeting #3	Review of participation requirements and in-depth discussion about mitigation actions	04/16/2026

Step 2: Plan for Public Involvement

44 CFR Requirement 201.6(b): An open public involvement process is essential to the development of an effective plan. In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include: (1) An opportunity for the public to comment on the plan during the drafting stage and prior to plan approval.

Options for soliciting public input on the Plan were discussed with the MPC at the kick-off meeting. SMCOG staff explained the importance of public involvement during the planning process. Meeting invitations were sent to all committee members at least two weeks before each meeting took place. It was also discussed at the kick-off meeting that solicitation of public input would be sought by members of the MPC through announcements at gatherings and other public meetings, such as board of aldermen, county commission, board of education, and local emergency planning committee meetings. Progress on the plan was shared at each meeting in order to keep the committee involved in the update process.

It was also decided that SMCOG staff would assist in developing an online community survey. SMCOG staff created the survey and sent it to the MCP to share with their communities. The survey was open for one month and received 658 responses. Some of the findings include:

- 251 out of 658 (38%) survey respondents indicated that they had been personally impacted by a disaster
- Respondents shows the highest level of concern for tornadoes and severe thunderstorms and the lowest for dam failure, earthquakes, and wildfires
- When presented with a list of 10 potential mitigation projects for their communities, they prioritized 'structural retrofitting of existing buildings to add tornado safe rooms', followed by 'new tornado safe room construction' and 'minor localized flood reduction projects (storm water management or localized flood control projects)'

More summaries are provided in **Chapter 3** for each hazard profile.

Step 3: Coordinate with Other Departments and Agencies and Incorporate Existing Information

44 CFR Requirement 201.6(b): An open public involvement process is essential to the development of an effective plan. In order to develop a more comprehensive approach to reducing the effects of natural disasters, the planning process shall include: (2) An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and non-profit interests to be involved in the planning process. (3) Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.

As stated in **Section 1.4**, neighboring communities and local stakeholders were contacted via email and/or phone calls. A notification was sent to adjacent emergency management offices in Greene, Webster, Douglas, Taney, Stone, and Lawrence Counties. A complete listing of all agencies invited to participate in the planning process is included in **Appendix B**.

Integration of Other Data, Reports, Studies, and Plans

A significant amount of information presented in the Plan has been updated and revised based on the review and incorporation of existing plans, studies, reports, and technical information. **Appendix A** contains a list of references to plans, studies, reports, and technical information to incorporate into hazard profiles, risk assessment, and profile and capability sections. Plan participants and stakeholders were asked to provide any relevant information and data for inclusion in the document. A few examples of information incorporated from the review of existing plans, etc. include:

- 2023 Missouri State Hazard Mitigation Plan
- The National Inventory of Dams (NID)
- Missouri Department of Conservation (MDC) wildfires statistics
- Wildland/Urban Interface and Intermix areas from the SILVIS Lab
- Previous Christian County Hazard Mitigation Plan

Step 4: Assess the Hazard: Identify and Profile Hazards

At the second MPC meeting, profiles of identified hazards from the previous Hazard Mitigation Plan were presented. 20 years of storm event data from the National Centers for Environmental Information were included in the hazard profiles. The presentation incorporated

data from studies, reports, and technical information available through internet research. During the process of identifying hazards the MPC reviewed:

- Previous disaster declarations in the county
- Hazards in the most recent State Hazard Mitigation Plan
- Hazards identified in the previously approved hazard mitigation plan

The MPC was asked to prioritize the identified hazards based on probability of occurrence, human impact, and property impact. Additional information about the conclusions drawn can be found in the Risk Assessment chapter of the Plan.

Step 5: Assess the Problem: Identify Assets and Estimate Losses

Identified assets in the planning area include population, structures, critical facilities/infrastructure, and other important assets that may be at risk to hazards. The inventory of assets for each jurisdiction was derived from parcel data from the County Assessor, the Missouri Spatial Data Information Service, local jurisdiction data collection questionnaires, and the U.S. Census. Potential losses to existing development were estimated based on hazard event scenarios. In most cases the assessor values were used to estimate structure losses in impacted areas for structure occupancy types. The methodology for estimating losses varies by hazard. Loss estimates are included in each hazard profile of the Risk Assessment chapter.

Most jurisdictions estimated local capabilities and assets based on the best available data and staff knowledge. In some cases, MPC members were not able to fully complete questionnaires due to limited local information being available.

Step 6: Set Goals

The MPC decided to keep the same goals from the previous Christian County HMP. The goals are:

Goal 1: Protect the lives and livelihood of all citizens.

Goal 2: Reduce the potential impact of natural disasters to property, infrastructure, and the local economy.

Goal 3: Ensure continued operation of government, emergency functions, and critical infrastructure in a disaster.

These goals and the identified mitigation actions are discussed in more detail in Chapter 4.

Step 7: Review Possible Mitigation Actions and Activities

In addition to discussing the overall goals at the second and third meetings, the MPC also reviewed mitigation actions from the previous plan and any potential new actions. For a comprehensive range of mitigation actions to be considered, the MPC reviewed the following information during the meeting:

- A list of actions proposed in the previous mitigation plan
- Input during meetings
- Responses to Data Collection Questionnaires where jurisdictions reported progress made on previous actions

- FEMA publications *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards (January 2013)* and *Hazard Mitigation Assistance Program and Policy Guide (January 2025)*

Jurisdiction representatives on the MPC were encouraged to review the details of the risk assessment vulnerability analysis specific to their jurisdiction, as well as the previously identified mitigation actions prior to the meeting. Representatives were provided a link to the FEMA's publication, *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards (January 2013)*. This document was developed by FEMA as a resource for identification of a range of potential mitigation actions for reducing risk to natural hazards and disasters. Additionally, survey responses which identified community support for specific mitigation actions were reviewed and discussed. During these meetings, a few new actions were proposed by the committee and numerous actions were re-worded. Much of the discussion surrounded making actions SMART: Specific, Measurable, Achievable, Relevant, and Time-bound.

Step 8: Draft an Action Plan

During the MPC meetings, SMCOG staff explained the importance of STAPLEE sheets and how they can be used to help prioritize mitigation actions. Using this system, some actions were eliminated due to non-applicability or low feasibility scores. MPC members were also given action sheets that corresponded to the STAPLEE sheets. SMCOG staff reviewed the action sheets in detail and discussed what department or position would be responsible for implementing the action, potential funding sources, timeline for completion, and local planning mechanisms for implementation. The action plans are listed for each jurisdiction in the Mitigation Strategy chapter.

Step 9: Adopt the Plan

The final meeting provided a wrap-up and opportunity to answer any questions pertaining to plan adoption. The final plan must be approved by the governing body of each jurisdiction by resolution to be eligible for hazard mitigation assistance. Adoption resolutions are included in **Appendix D**.

Step 10: Implement, Evaluate, and Revise the Plan

At the final meeting, MPC members briefly reviewed potential funding sources for mitigation projects and the process for reviewing and monitoring the plan. The overall strategy has been updated and is presented in the Plan Maintenance chapter.

2 PLANNING AREA PROFILE AND CAPABILITIES

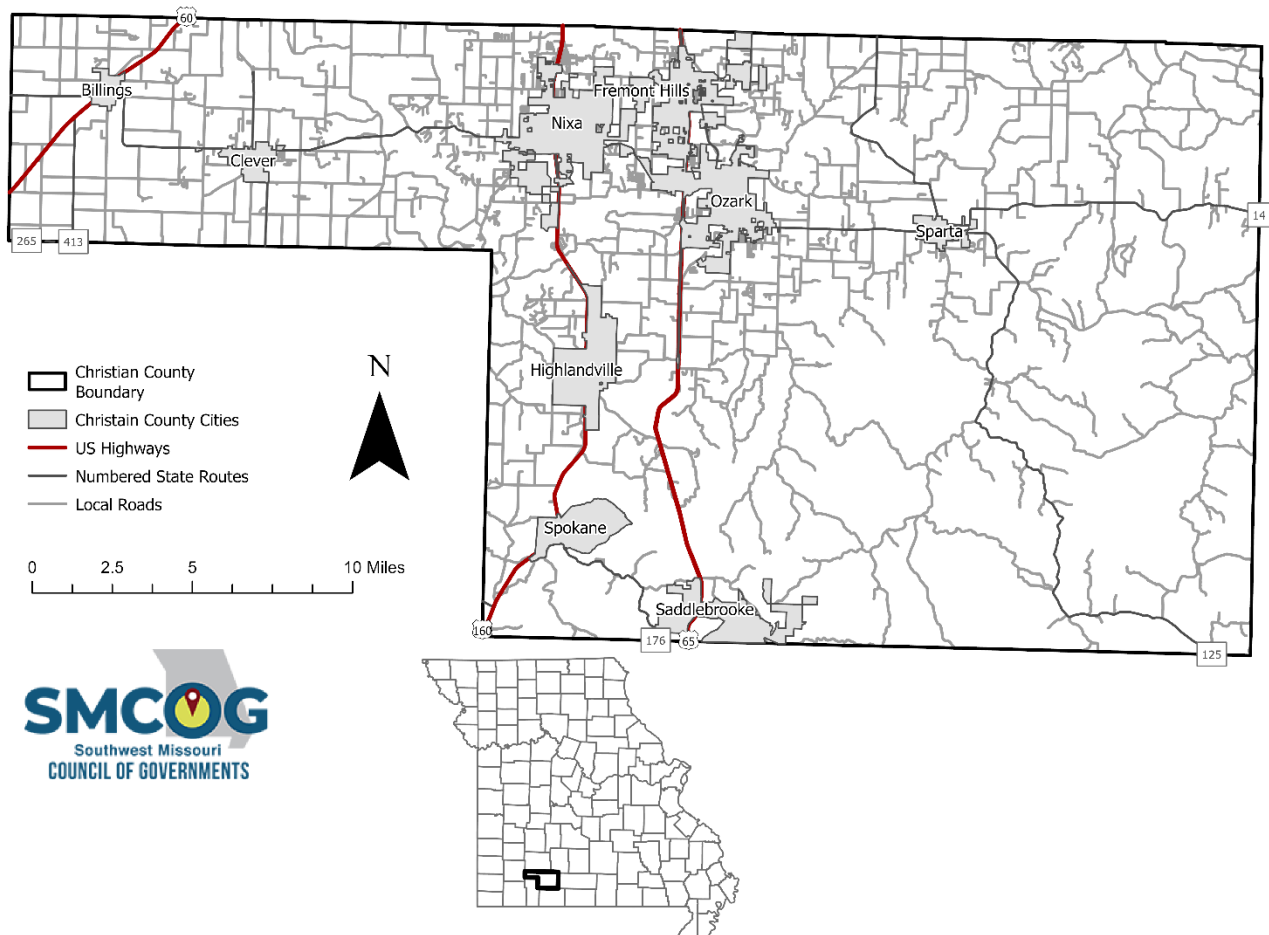
2	PLANNING AREA PROFILE AND CAPABILITIES	2.1
2.1	<i>Christian County Planning Area Profile.....</i>	2.2
2.1.1	Geography, Geology and Topography	2.2
2.1.2	Climate	2.4
2.1.3	Population/Demographics	2.4
2.1.4	History.....	2.5
2.1.5	Occupations	2.6
2.1.6	Agriculture	2.6
2.1.7	FEMA Hazard Mitigation Assistance (HMA) Grants in Planning Area.....	2.7
2.1.8	FEMA Public Assistance (PA) Grants in Planning Area	2.7
2.2	<i>Jurisdictional Profiles and Mitigation Capabilities.....</i>	2.12
2.2.1	Municipalities (County, City, and Village)	2.12
2.2.2	Public School District Profiles and Mitigation Capabilities	2.37
2.2.3	Special Districts	2.45

2.1 CHRISTIAN COUNTY PLANNING AREA PROFILE

Christian County is bordered by Greene, Lawrence, Stone, Taney, Douglas, and Webster Counties in Southwest Missouri. Christian County is one of the fastest growing counties in Missouri and is considered part of the Springfield Metropolitan Statistical Area. Incorporated communities include Billings, Clever, Fremont Hills, Highlandville, Nixa, Ozark, Sparta and Saddlebrooke. The county has a total area of 564 square miles, of which 1.2 square miles are covered by water. Ozark is the county seat.

Figure 2.1 is a map of Christian County showing the cities, village, and overall location of the county within the state.

Figure 2.1. Map of Christian County



According to the 2024 American Community Survey, the population of Christian County is 96,045. This is an 8% increase compared to 2020 US Census. During that same time, Missouri increased 1.5% and the nation increased 2.6%.

2.1.1 Geography, Geology and Topography

Christian County comprises 564 square miles in southwest Missouri. Of the total square miles, 99.998% is land area and .002% is water area. The county is in the southwest portion of the Ozark

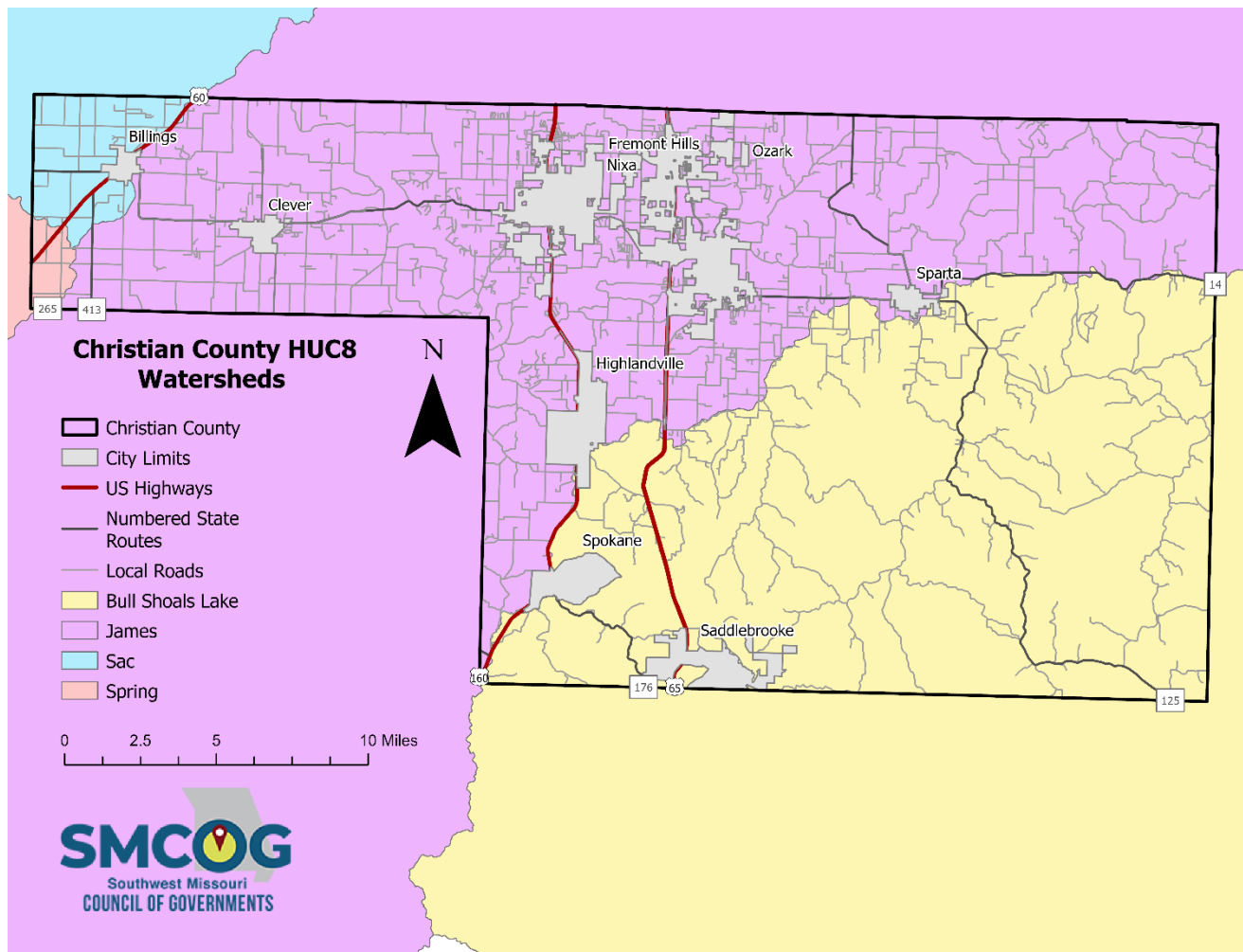
Highlands ecoregion in Missouri. According to Nature Conservancy, the Ozark Highlands is diverse biologically and geographically with rugged hills, prairies, savannas, and open woodlands. The predominant underlying bedrock is carbonate (limestone and dolomite), giving rise to karst topographic features such as caves, underground streams, springs and sinkholes (The Nature Conservancy, 2003. Ozarks Ecoregional Conservation Assessment).

Christian County lies within the Osage River Basin, the Upper White River Basin, and the Spring River Basin. A small portion of the western panhandle of Christian County, including the City of Billings, lies within the Sac River watershed, which drains northwest to the Osage River. Also, a small portion of the panhandle area west of MO Highway 13 and south of the City of Billings lies within the Spring River Basin. Most of the county lies within the James River Basin and the Bull Shoals Lake Basin, sub-basins of the Upper White River Basin.

The northern third of the county is located in the James River Basin. From its headwaters in Webster County, the James traverses nearly ninety-nine miles through southern Greene County and Christian County, flowing in a southerly direction to where it is impounded in Table Rock Lake in Stone County. Major tributaries to the James flowing in Christian County include Finley Creek, Flat Creek, Terrell Creek, and Wilson's Creek.

Figure 2.2 provides a map of Christian County Watersheds

Figure 2.2. Christian County Watersheds



2.1.2 Climate

Christian County lies within a temperate continental climate region characterized by warm summers and moderately cool winters with heavy precipitation distributed throughout the year. Snow and ice accumulate nearly every winter, but the snow cover usually lasts for only a few days. Based on information from the Midwest Regional Climate Center, Christian County area has an average annual temperature of 60° Fahrenheit. The highest average monthly temperature of 79°F occurs in July, and the lowest average monthly temperature of 38°F occurs in January. The average annual precipitation accumulation is 44.5 inches.

2.1.3 Population/Demographics

Table 2.1 provides population statistics for Christian County and the participating jurisdictions.

Table 2.1. Christian County Population 2010-2020 by Jurisdiction

Jurisdiction	2010 Census Population	2020 Census Population	2024 ACS Population	# Change (2010-2024)	% Change (2010-2024)
Unincorporated Christian County**	33,711	36,102	36,596	2,885	8.6%
Fremont Hills	826	1,049	1,574	748	90.6%
Highlandville	911	963	950	39	4.3%
Nixa	19,022	23,257	24,836	5,814	30.6%
Ozark	17,820	21,284	22,417	4,597	25.8%
Saddlebrooke*	202	309	337	135	66.8%
Sparta	1,756	1,876	2,331	575	32.7%

Source: U.S. Bureau of the Census, Decennial Census, annual population estimates/ 5-Year American Community Survey 2024;

*Figures for Saddlebrooke are for the entire Village, including those who live in the non-Christian County portions of the community.

**The Census Bureau does not provide figures for Unincorporated Counties. Data in this row was calculated using population of the Christian County minus the population of people living in incorporated areas mostly in the County.

The University of South Carolina developed an index to evaluate and rank the ability to respond to, cope with, recover from, and adapt to disasters. The index synthesizes 29 socioeconomic variables which research literature suggests contribute to reduction in a community's ability to prepare for, respond to, and recover from hazards. SoVI® data sources include primarily those from the United States Census Bureau.

The index is a comparative metric that facilitates the examination of the differences in social vulnerability among counties. SoVI® is a valuable tool for policy makers and practitioners. It graphically illustrates the geographic variation in social vulnerability. It shows where there is uneven capacity for preparedness and response and where resources might be used most effectively to reduce the pre existing vulnerability. SoVI® also is useful as an indicator in determining the differential recovery from disasters.

Christian County's 2019 SoVI® score is -3.43. This score was -2.309999943 in 2014, which placed it in the 18.3 percentile. This means that only 18.3% of the country was more resilient to hazards and disasters than Christian County at that time. The percentile score was not provided for 2019 data. The main determinants of the score are qualities of the population based on race and class, wealth, elderly residents, Hispanic ethnicity, special needs individuals, Native American ethnicity, and the service industry employment.

Table 2.2 shows employment statistics for Christian County.

Table 2.2. Unemployment, Poverty, Education, and Language Percentage Demographics, Christian County, Missouri

Jurisdiction	Total in Labor Force	Percent of Population Unemployed	Percent of Families Below the Poverty Level	Percentage of Population (High School graduate)	Percentage of Population (Bachelor's degree or higher)	Percentage of population with spoken language other than English
Unincorporated Christian County*	18,916	3.0%	n/a	94.6%	32.5%	2.5%
Fremont Hills	681	1.1%	2.9%	97.3%	62.2%	3.0%
Highlandville	428	4.7%	9.9%	90.9%	21.4%	1.8%
Nixa	12,290	2.1%	4.5%	94.7%	36.7%	6.0%
Ozark	11,316	2.9%	9.3%	91.9%	30.7%	6.1%
Saddlebrooke	113	1.3%	3.0%	97.2%	56.2%	3.1%
Sparta	1,121	0.9%	9.7%	92.0%	12.1%	1.3%

Source: U.S. Census, 2024 American Community Survey, 5-year Estimates.

* The Census Bureau does not provide figures for Unincorporated Counties. Data and percentages for this row were calculated from data from jurisdictions and the County as a whole.

2.1.4 History

When the first European trappers and hunters entered the Southwest Missouri region in the early 1800s, the Christian County area was occupied by the Osage Indians. The region passed from the control of the Osage to the Spanish and French until it became a territory of the United States through the Louisiana Purchase of 1803 (Christian County Centennial, 1959, p. 1). Henry Rowe Schoolcraft explored the region in 1819 and the first permanent settlers arrived within two years. The area's rivers served as the avenues for exploration and focal point for the development of the first permanent communities, such as the City of Ozark, which developed along the banks of Finley Creek. Created from territories of Greene, Taney and Webster counties, Christian County was formally organized as a county by an act of the Missouri Legislature on March 8, 1859 (Christian County Centennial, 1959). Ozark was selected as the county seat because of its central location and accessibility.

Trade roads and the advent of the railroads brought new settlement patterns and economic growth to Christian County in the later 1800s. The railroad utilized the area's timber reserves for tie production and industry. While Chadwick and Ozark became shipping centers for agricultural products to and from southern Missouri and northern Arkansas, Sparta became a center for shipping railroad ties and timber. Growth of the City of Billings, located in the fertile agricultural area in the western panhandle of Christian County, was also spurred by the extension of the St. Louis and San Francisco railroad through the area. The communities of Nixa and Clever developed along road/trade routes. Nixa developed at the intersection of the Wilderness Road leading south from Springfield and a road leading west (currently Missouri Highway 14) from the Ozark area. Clever developed as a trading post along the Old Wire Road, a principal road west of the Mississippi River running from St. Louis to the southwest United States.

Rapid industrial growth in the Springfield area during the 1960s and 1970s provided employment opportunities within commuting distance for Christian County residents. During the 1980s, the county continued to attract new residents, many who desired to live in a more rural atmosphere but within proximity to the amenities of the Springfield metropolitan area. The growth of the tourism and recreation economy in the Branson area since 1990 has served as a catalyst for rapid population growth and new residential and commercial development. Transportation system improvements to the Springfield-Branson corridor have also spurred the in-migration of residents who are within commuting

distance of employment centers in Springfield and the Branson area. Overall, Christian county has been one of the fastest growing counties in Missouri since 2000. Northern Christian County continues to urbanize while the southern portions of the county remain relatively undeveloped, due principally to large acreages in the Busiek State Forest and the Mark Twain National Forest.

2.1.5 Occupations

Occupation information comes from the American Community Survey 5-year Estimates. Management, Business, Science, and Arts Occupations includes education and healthcare practitioner and technician occupations among others. Service Occupation includes healthcare support and protective services, such as firefighters and law enforcement in addition to food preparation and personal care services. The other occupation classifications are well defined.

Table 2.3. Christian County Occupation Statistics

Place	Management, Business, Science, and Arts Occupations	Service Occupations	Sales and Office Occupations	Natural Resources, Construction, and Maintenance Occupations	Production, Transportation, and Material Moving Occupations
Unincorporated Christian County*	7,716	2,563	3,834	2,232	1,891
Fremont Hills	472	27	158	7	4
Highlandville	165	59	72	50	47
Nixa	5,904	1,453	2,071	644	1,824
Ozark	4,343	1,539	2,353	1,142	1,453
Saddlebrooke	72	9	26	0	2
Sparta	302	176	305	188	133

Source: U.S. Census, 2024 American Community Survey, 5-year Estimates.

* The Census Bureau does not provide figures for Unincorporated Counties. So, data and percentages for this row were calculated from data from jurisdictions and the County as a whole. Since Saddlebrooke is in multiple Counties, this figure will not be accurate.

2.1.6 Agriculture

According to the United States Department of Agriculture 2022 Agricultural Census, there were 1,137 farms covering 174,620 acres across Christian County. The average farm size was 154 acres, which is a 16.7% increase from 2017. The table below provides further agricultural information.

Table 2.4. Agricultural Overview

	2022	Change from 2017
Number of farms	1,137	-2.8%
Land in farms (acres)	174,620	13.4%
Average size of farm (acres)	154	16.7%
Totals		
Market value of products sold	\$36,527,000	26.6%
Government payments	\$1,665,000	1,485.7%
Farm-related income	\$7,059,000	470.2%
Total farm production expenses	\$44,235,000	52.6%
Net cash farm income	\$1,015,000	-16.0%
Per Farm Average		
Market value of products sold	\$32,125	30.1%
Government payments	\$1,464	1,530.3%
Farm-related income	\$6,208	486.2%
Farm production expenses	\$38,905	55.6%

Net cash income	\$893	-13.6%

Source: <https://www.nass.usda.gov/AgCensus/> More detailed agricultural data is available under the 2022 Agricultural Census, this table provides a brief overview.

2.1.7 FEMA Hazard Mitigation Assistance (HMA) Grants in Planning Area

From 1993 to 2024, public jurisdictions in Christian County received \$21,954,927.30 in Hazard Mitigation Assistance Grants. These grants have been primarily used to fund safe room projects. **Table 2.5** provides full details.

Table 2.5. FEMA HMA Grants in Christian County from 1993-2024

Disaster Declaration	Project Type	Sub-Grantee	Date Approved	Project Total
DR-4451-0003-R	Safe Room (Tornado and Severe Wind Shelter) - Public Structures	Nixa	06/13/2024	\$ 1,396,844.00
DR-4490-0004-R	Infrastructure Protective Measures (Roads and Bridges)	Christian County	02/27/2024	\$ 230,041.00
PDMC-PJ-07-MO-2017-002	Safe Room (Tornado and Severe Wind Shelter) - Public Structures	Sparta R-III School District	12/18/2018	\$ 1,944,000.00
DR-4238-0004-R	Safe Room (Tornado and Severe Wind Shelter) - Public Structures	Billings School District	09/26/2016	\$ 1,500,000.00
DR-4238-0007-R	Safe Room (Tornado and Severe Wind Shelter) - Public Structures	Highlandville School	09/08/2016	\$ 922,500.00
DR-1980-0052-R	Safe Room (Tornado and Severe Wind Shelter) - Public Structures	Nixa Public Schools	03/17/2016	\$ 2,486,668.00
DR-1980-0051-R	Safe Room (Tornado and Severe Wind Shelter) - Public Structures	Nixa Public Schools	03/09/2016	\$ 3,208,374.00
DR-1980-0025-R	Safe Room (Tornado and Severe Wind Shelter) - Public Structures	Christian County	02/18/2016	\$ 1,258,544.00
DR-1934-0003-R	Safe Room (Tornado and Severe Wind Shelter) - Public Structures	Clever District 5	11/21/2014	\$ 1,803,752.00
DR-1822-0010-R	Safe Room (Tornado and Severe Wind Shelter) - Public Structures	Clever District 5	04/03/2014	\$ 648,896.00
DR-1822-0014-R	Safe Room (Tornado and Severe Wind Shelter) - Public Structures	Nixa Public Schools	10/22/2013	\$ 1,563,577.00
DR-1773-0002-R	Safe Room (Tornado and Severe Wind Shelter) - Public Structures	Nixa Public Schools	07/31/2013	\$ 734,580.00
DR-1635-0011-R	Safe Room (Tornado and Severe Wind Shelter) - Public Structures	Chadwick R-I School District	11/08/2012	\$ 817,482.00
RFC-PJ-07-MO-2009-001	Acquisition of Private Real Property (Structures and Land) - Riverine	Christian County Commission	09/09/2009	\$ 1,029,216.30
PDMC-PJ-07-MO-2007-012	Safe Room (Tornado and Severe Wind Shelter) - Public Structures	City of Ozark Safe Room	03/20/2008	\$ 926,000.00
PDMC-PJ-07-MO-2007-001	Safe Room (Tornado and Severe Wind Shelter) - Public Structures	Ozarks Technical Community College	09/25/2007	\$ 1,484,453.00
Total				\$ 21,954,927.30

Source: Federal Emergency Management Agency, 2025

2.1.8 FEMA Public Assistance (PA) Grants in Planning Area

From 1993-2025, public jurisdictions in Christian County received \$9,468,858.73 in public assistance due to natural hazard damages. **Table 2.6** provides full details. Data was retrieved from the FEMA public assistance dataset.

Table 2.6. FEMA Public Assistance (PA) Grants in Christian County from 1993-2025

Disaster Declaration	Project Type	Project Size	Applicant	Project Total
4317	Emergency Protective Measures	Small	Christian County	\$ 5,389.16
4317	Debris Removal	Small	Village of Saddlebrooke	\$ 6,345.00
4317	Roads and Bridges	Small	Village of Saddlebrooke	\$ 3,445.00
4317	Buildings and Equipment	Small	Ozark Fire Protection District	\$ 36,576.64
4317	Utilities	Small	City of Ozark	\$ 3,499.24
4317	Roads and Bridges	Small	Christian County	\$ 23,720.64
4317	Debris Removal	Small	Christian County	\$ 7,657.02
4317	Emergency Protective Measures	Small	Ozark Fire Protection District	\$ 10,474.11
4317	Roads and Bridges	Small	City of Ozark	\$ 3,701.81
4317	Utilities	Small	City of Ozark	\$ 6,851.60
4317	Roads and Bridges	Small	Christian County	\$ 41,439.34
4317	Roads and Bridges	Small	Christian County	\$ 5,220.00
4317	Parks, Recreational Facilities, and Other Items	Small	City of Ozark	\$ 8,679.47
4317	Roads and Bridges	Large	Christian County	\$ 392,237.76
1463	Emergency Work Donated Resources	Small	Christian County	\$ 5,240.63
4238	Utilities	Small	City of Highlandville	\$ 7,825.00
4238	Roads and Bridges	Large	Ozark Special Road District	\$ 987,991.00
4238	Roads and Bridges	Small	Ozark Special Road District	\$ 20,574.05
4238	Roads and Bridges	Small	Christian County	\$ 20,184.90
4238	Utilities	Small	City of Billings	\$ 500.00
4238	Utilities	Small	City of Fremont Hills	\$ 6,066.27
4238	Roads and Bridges	Small	City of Fremont Hills	\$ 5,669.00
4238	Debris Removal	Small	Village of Saddlebrooke	\$ 4,265.00
4238	Roads and Bridges	Small	City of Billings	\$ 21,632.50
4238	Roads and Bridges	Small	Christian County	\$ 39,361.67
4238	Utilities	Small	City of Ozark	\$ 74,897.66
4238	Roads and Bridges	Small	Selmore Special Road District	\$ 13,394.95
4238	Roads and Bridges	Small	Village of Saddlebrooke	\$ 3,999.97
4238	Roads and Bridges	Small	City of Highlandville	\$ 10,212.48
4238	Buildings and Equipment	Small	Ozark Fire Protection District	\$ 18,887.42
4238	Parks, Recreational Facilities, and Other Items	Small	City of Ozark	\$ 28,176.12
4238	Roads and Bridges	Small	Christian County	\$ 28,156.50
4238	Roads and Bridges	Small	Christian County	\$ 44,198.51
4238	Roads and Bridges	Small	Christian County	\$ 43,010.02
4238	Roads and Bridges	Small	Christian County	\$ 20,631.69
4238	Roads and Bridges	Large	Christian County	\$ 161,291.48
4238	Roads and Bridges	Small	Christian County	\$ 19,369.75
4238	Roads and Bridges	Small	Christian County	\$ 62,439.78

4238	Roads and Bridges	Small	Village of Saddlebrooke	\$ 5,089.16
4238	Roads and Bridges	Small	Christian County	\$ 64,914.56
4238	Roads and Bridges	Small	Christian County	\$ 66,801.50
1631	Emergency Work Donated Resources	Small	Billings Fire Protection District	\$ 1,875.58
1631	Emergency Work Donated Resources	Small	Nixa Fire Protection District	\$ 2,328.00
1631	Emergency Work Donated Resources	Large	Christian County	\$ 87,297.05
1631	Emergency Work Donated Resources	Small	Clever Fire Protection District	\$ 1,756.35
1676	Emergency Work Donated Resources	Small	Christian County	\$ 40,214.21
1676	Emergency Work Donated Resources	Small	City of Clever	\$ 5,115.83
1676	Emergency Work Donated Resources	Small	City of Billings	\$ 2,260.33
1676	Emergency Work Donated Resources	Small	Billings Fire Protection District	\$ 405.35
1749	Emergency Work Donated Resources	Small	Christian County	\$ 5,785.00
1748	Emergency Work Donated Resources	Small	City of Sparta	\$ 173.40
1748	Emergency Work Donated Resources	Small	City of Ozark	\$ 481.10
1749	Emergency Work Donated Resources	Small	City of Ozark	\$ 1,737.59
1412	Roads and Bridges	Small	Christian County	\$ 15,695.00
1412	Roads and Bridges	Small	Christian County	\$ 1,928.51
1412	Roads and Bridges	Small	Christian County	\$ 4,902.50
1412	Roads and Bridges	Small	Christian County	\$ 36,602.00
1412	Parks, Recreational Facilities, and Other Items	Small	City of Ozark	\$ 35,975.56
1412	Buildings and Equipment	Small	City of Nixa	\$ 18,640.82
1412	Roads and Bridges	Small	Christian County	\$ 16,423.84
1809	Emergency Work Donated Resources	Small	City of Ozark	\$ 1,245.20
1463	Debris Removal	Small	Christian County	\$ 11,533.48
1463	Emergency Protective Measures	Small	Christian County	\$ 4,188.42
4490	Emergency Protective Measures	Small	Ozark R-VI School District	\$ 18,429.67
4490	Emergency Protective Measures	Small	Chadwick R-I School District	\$ 16,032.93
4490	Emergency Protective Measures	Small	Ozark R-VI School District	\$ 116,035.84
1631	Emergency Protective Measures	Small	Billings Fire Protection District	\$ 5,626.75
1631	Emergency Protective Measures	Small	Christian County	\$ 9,058.81
1631	Emergency Protective Measures	Small	Nixa Fire Protection District	\$ 9,892.78
1631	Debris Removal	Small	Christian County	\$ 48,830.91
1631	Emergency Protective Measures	Small	Billings Special Road District	\$ 1,046.00
1631	Debris Removal	Small	Billings Special Road District	\$ 5,119.15
1631	Emergency Protective Measures	Small	Clever Fire Protection District	\$ 5,269.06
1631	Emergency Protective Measures	Small	Christian County	\$ 15,127.94
1631	Emergency Protective Measures	Small	Christian County	\$ 1,624.47

1631	Debris Removal	Large	Christian County	\$ 187,249.28
1676	Emergency Protective Measures	Small	City of Billings	\$ 6,781.01
1676	Emergency Protective Measures	Small	City of Nixa	\$ 41,628.14
1676	Debris Removal	Small	Nixa Municipal Utilities	\$ 27,392.92
1676	Debris Removal	Large	Christian County	\$ 2,974,950.76
1676	Debris Removal	Large	Christian County	\$ 171,032.01
1676	Emergency Protective Measures	Small	Billings Fire Protection District	\$ 1,216.04
1676	Utilities	Small	City of Clever	\$ 972.94
1676	Emergency Protective Measures	Small	City of Clever	\$ 39,620.92
1676	Debris Removal	Large	City of Nixa	\$ 60,774.57
1676	Emergency Protective Measures	Small	City of Ozark	\$ 9,481.64
1676	Debris Removal	Small	Christian County	\$ 3,195.98
1676	Emergency Protective Measures	Small	Christian County	\$ 41,561.69
1676	Utilities	Large	Nixa Municipal Utilities	\$ 324,960.76
1676	Debris Removal	Small	Billings Special Road District	\$ 15,398.51
4741	Buildings and Equipment	Small	Christian County	\$ 3,945.52
4741	Debris Removal	Small	City of Ozark	\$ 50,996.38
4741	Debris Removal	Small	City of Nixa	\$ 85,701.05
4741	Water Control Facilities	Small	City of Nixa	\$ 19,500.00
4741	Roads and Bridges	Small	Christian County	\$ 51,727.48
4741	Buildings and Equipment	Small	City of Ozark	\$ 5,000.00
4741	Management Costs	Small	Christian County	\$ 7,456.00
4741	Parks, Recreational Facilities, and Other Items	Small	City of Ozark	\$ 7,208.00
4741	Debris Removal	Small	Christian County	\$ 235,688.03
4741	Emergency Protective Measures	Small	City of Nixa	\$ 9,317.67
4741	Debris Removal	Small	Ozark Special Road District	\$ 20,869.96
4741	Utilities	Small	City of Nixa	\$ 132,584.38
1748	Debris Removal	Large	Christian County	\$ 359,261.98
1748	Emergency Protective Measures	Small	City of Sparta	\$ 2,078.10
1748	Buildings and Equipment	Small	City of Sparta	\$ 500.00
1748	Debris Removal	Small	City of Sparta	\$ 4,392.24
1748	Emergency Protective Measures	Small	City of Fremont Hills	\$ 3,451.49
1748	Emergency Protective Measures	Large	Christian County	\$ 61,245.21
1748	Emergency Protective Measures	Small	City of Nixa	\$ 26,749.17
1748	Buildings and Equipment	Small	City of Nixa	\$ 3,077.29
1748	Debris Removal	Large	Christian County	\$ 132,933.28
1749	Roads and Bridges	Small	City of Sparta	\$ 3,950.49
1749	Roads and Bridges	Small	City of Sparta	\$ 3,837.52
1749	Roads and Bridges	Small	City of Ozark	\$ 5,502.08
1749	Emergency Protective Measures	Small	Christian County	\$ 1,384.45
1749	Debris Removal	Small	Christian County	\$ 3,795.00
1749	Emergency Protective Measures	Small	Christian County	\$ 1,809.10

1749	Debris Removal	Small	City of Ozark	\$ 2,085.71
1748	Debris Removal	Small	City of Fremont Hills	\$ 6,020.00
1748	Emergency Protective Measures	Small	Christian County	\$ 49,332.88
1748	Emergency Protective Measures	Small	City of Ozark	\$ 19,100.59
1748	Utilities	Small	City of Nixa	\$ 46,559.41
1748	Debris Removal	Small	City of Ozark	\$ 8,345.92
1749	Utilities	Small	City of Sparta	\$ 16,655.52
1749	Emergency Protective Measures	Small	City of Ozark	\$ 3,127.06
1749	Roads and Bridges	Small	Christian County	\$ 8,157.49
1749	Roads and Bridges	Large	Christian County	\$ 87,937.34
1749	Emergency Protective Measures	Small	Christian County	\$ 10,497.51
1749	Parks, Recreational Facilities, and Other Items	Small	City of Ozark	\$ 17,016.91
1749	Roads and Bridges	Small	Christian County	\$ 35,277.05
1749	Roads and Bridges	Small	Christian County	\$ 34,612.70
1749	Roads and Bridges	Small	Christian County	\$ 19,928.08
1749	Roads and Bridges	Small	Christian County	\$ 1,770.51
1749	Roads and Bridges	Small	Christian County	\$ 9,175.04
1749	Roads and Bridges	Small	Christian County	\$ 44,155.83
1749	Roads and Bridges	Large	Christian County	\$ 219,776.05
1749	Roads and Bridges	Small	Christian County	\$ 28,225.82
1749	Roads and Bridges	Small	Christian County	\$ 1,944.33
1749	Roads and Bridges	Small	Christian County	\$ 13,824.84
1773	Debris Removal	Small	Christian County	\$ 1,193.18
1773	Roads and Bridges	Large	Christian County	\$ 157,632.61
1773	Roads and Bridges	Small	Christian County	\$ 50,709.89
1773	Roads and Bridges	Small	Christian County	\$ 17,556.81
1809	Utilities	Small	City of Sparta	\$ 3,902.77
1809	Debris Removal	Small	Christian County	\$ 8,350.31
1809	Parks, Recreational Facilities, and Other Items	Small	City of Ozark	\$ 1,799.04
1809	Debris Removal	Small	Christian County	\$ 22,377.16
1809	Debris Removal	Small	City of Ozark	\$ 1,949.73
1809	Roads and Bridges	Large	Christian County	\$ 88,063.58
1809	Roads and Bridges	Small	Christian County	\$ 34,913.42
1809	Debris Removal	Small	Christian County	\$ 17,884.60
1809	Debris Removal	Large	Christian County	\$ 71,129.48
1809	Roads and Bridges	Small	Christian County	\$ 3,101.40
1809	Roads and Bridges	Small	Christian County	\$ 1,049.22
1809	Roads and Bridges	Small	Christian County	\$ 3,973.24
1809	Roads and Bridges	Large	Christian County	\$ 65,503.97
1980	Roads and Bridges	Small	Christian County	\$ 1,131.53
1980	Roads and Bridges	Small	Christian County	\$ 3,383.22
1980	Emergency Protective Measures	Small	Christian County	\$ 2,912.60
1980	Roads and Bridges	Small	Christian County	\$ 7,001.12

1980	Roads and Bridges	Small	Christian County	\$ 5,295.52
1980	Roads and Bridges	Small	Christian County	\$ 33,818.63
1980	Debris Removal	Small	Christian County	\$ 1,821.19
1980	Roads and Bridges	Small	Christian County	\$ 7,138.34
1980	Roads and Bridges	Small	Christian County	\$ 11,295.15
1980	Emergency Protective Measures	Small	Christian County	\$ 1,298.75
1980	Emergency Protective Measures	Small	Christian County	\$ 3,299.09
1980	Roads and Bridges	Small	Christian County	\$ 12,859.06
1980	Roads and Bridges	Small	Christian County	\$ 8,942.51
1980	Roads and Bridges	Small	Christian County	\$ 15,754.19
1980	Roads and Bridges	Small	Christian County	\$ 14,071.58
1980	Roads and Bridges	Small	Christian County	\$ 3,520.26
1980	Roads and Bridges	Small	Christian County	\$ 4,746.46
1980	Roads and Bridges	Small	Christian County	\$ 12,867.85
1980	Roads and Bridges	Small	Christian County	\$ 8,893.99
1980	Roads and Bridges	Small	Christian County	\$ 34,083.87
3232	Emergency Protective Measures	Small	Christian County	\$ 1,249.99
Total				\$9,468,858.73

Source: Federal Emergency Management Agency, 3/26/26

2.2 JURISDICTIONAL PROFILES AND MITIGATION CAPABILITIES

This section includes profiles for each participating jurisdiction. In those summaries are previous mitigation initiatives and the capabilities of each jurisdiction. The unincorporated county is profiled first, followed by the incorporated communities, the special districts, and public-school districts.

2.2.1 Municipalities (County, City, and Village)

Unincorporated Christian County

Christian County's jurisdiction includes all unincorporated areas within the county boundaries. On January 1, 2015, Christian County became a first-class county without a charter form of government. The governing body of Christian County is the County Commission, which consists of the Presiding Commissioner, Eastern Commissioner, and Western Commissioner.

The County's elected governing body, the Board of County Commissioners, directs the general administration of County Government. The Commission sets broad operating policies, enacts ordinances and establishes budgets as mandated by State law. The County enters contracts with other public agencies to ensure the smooth flow of services including law enforcement, construction and maintenance of public roads and bridges, and the operations of county offices, equipment and services. The departments of the County government include:

- Board of Commissioners
- County Assessor
- County Auditor
- County Collector
- County Coroner
- County Clerk

- County Courts
- County Prosecutor
- County Administration
- County Recorder
- County Sheriff's Office
- County Treasurer
- Planning and Development
- Resource Management
- Health Department
- Emergency Management

Christian County has many facilities within its borders. Christian County owns several properties and buildings, the largest being the Judicial Building, while even more public buildings within the county are owned by other jurisdictions. Semi-public exposures within the County include:

- Healthcare facilities
- Places of Worship
- Childcare facilities
- Assisted living facilities

Christian County has been struck by several natural disasters in recent years. In May 2003, a tornado killed 1, injured 4, and destroyed dozens of properties. In March 2006, a tornado injured 3, destroyed over 100 homes, and caused several hundred thousand dollars' worth of damages. In January 2007, an ice storm made several homes uninhabitable and required a multi-million-dollar cleanup project. More information about past events can be found in chapter 3 of this plan.

Mitigation Initiatives/Capabilities

Staff capabilities to mitigate the impact of natural hazards include the planning and zoning administrator, the building code inspector, and enforcement officer. There is a Certified Floodplain Manager in the planning and development department, and zoning regulations in the county prohibit development in SFHAs with violations enforced under the adopted floodplain ordinance. The building inspector is responsible for the enforcement of IBC 2012 building codes.

The roles and responsibilities of the County Emergency Management Department include coordinating with local government officials and cooperating private organizations to: 1) prevent avoidable disasters and reduce the vulnerability of the residents to any disaster that may strike; 2) establish capabilities for protecting citizens from the effects of disasters; 3) respond effectively to the actual occurrence of disasters; and 4) provide for recovery in the aftermath of any emergency involving extensive damage within the county. The EMD is responsible for the development and maintenance of the Local Emergency Operations Plan.

Additional capabilities include:

- Public acquisitions
- CERT Program
- Smart911
- Public awareness programs
- Youth safety training
- Fire prevention education

In order to expand these mitigation capabilities, the County could look to implement a capital improvement plan, a critical facilities inventory/plan, and an evacuation route map. They could also

update to a newer version of the International Building Codes (IBC).

Table 2.7. Unincorporated Christian County Mitigation Capabilities

Capabilities	Status, Including Date of Document or Policy
Planning Capabilities	
Comprehensive Plan	Yes, 2022
Builder's Plan	No
Capital Improvement Plan	No
City Emergency Operations Plan	n/a
County Emergency Operations Plan	Yes, 2021
Local Recovery Plan	n/a
County Recovery Plan	Yes, 2017
City Mitigation Plan	n/a
County Mitigation Plan	Yes, 2020
Debris Management Plan	Yes, 2021
Economic Development Plan	Yes, 2024
Transportation Plan	Yes, 2025
Land-use Plan	Yes, located in comprehensive plan, 2022
Flood Mitigation Assistance (FMA) Plan	No
Watershed Plan	Yes, 2021
Firewise or other fire mitigation plan	No
Critical Facilities Plan	No
Policies/Ordinance	
Zoning Ordinance	Yes, 2024
Building Code	Yes, 2012 IBC and 2012 IRC
Floodplain Ordinance	Yes, 2023
Subdivision Ordinance	Yes, 2023
Tree Trimming Ordinance	No
Nuisance Ordinance	Yes, 2024
Stormwater Ordinance	Yes, 2023
Drainage Ordinance	Yes, 2023
Site Plan Review Requirements	Yes, 2024
Historic Preservation Ordinance	No
Landscape Ordinance	Yes, 2024
Program	
Zoning/Land Use Restrictions	Yes, 2024
Codes Building Site/Design	Yes
Hazard Awareness Program	Yes
National Flood Insurance Program (NFIP)	Yes
NFIP Community Rating System (CRS) program	Yes
Capabilities	Status, Including Date of Document or Policy
National Weather Service (NWS) Storm Ready	Yes
Firewise Community Certification	No
Building Code Effectiveness Grading (BCEGs)	No
ISO Fire Rating	Varies
Economic Development Program	Yes
Land Use Program	Yes
Public Education/Awareness	CERT
Property Acquisition	Yes
Planning/Zoning Boards	Yes
Stream Maintenance Program	Yes
Tree Trimming Program	No

Engineering Studies for Streams (Local/County/Regional)	Yes, 2023
Mutual Aid Agreements	Yes
Studies/Reports/Maps	
Hazard Analysis/Risk Assessment (Local)	n/a
Hazard Analysis/Risk Assessment (County)	Yes
Flood Insurance Maps	11/02/2023
FEMA Flood Insurance Study (Detailed)	No
Evacuation Route Map	No
Critical Facilities Inventory	No
Vulnerable Population Inventory	No
Land Use Map	Yes
Staff/Department	
Building Code Official	Yes, Part-time (PT)
Building Inspector	Yes, 2.5 Full-time equivalent (FTE)
Mapping Specialist (GIS)	Yes
Engineer	Yes, Full-time (FT)
Development Planner	Yes, FT
Public Works Official	Yes, FT
Emergency Management Director	Yes, FT
NFIP Floodplain Administrator	Yes, FT
Emergency Response Team	Yes, CERT
Hazardous Materials Expert	No
Local Emergency Planning Committee	Yes
County Emergency Management Commission	Yes
Sanitation Department	No
Transportation Department	Yes
Economic Development Department	Yes
Housing Department	No
Historic Preservation	No
Non-Governmental Organizations (NGOs)	
American Red Cross	Yes
Salvation Army	Yes
Veterans Groups	Yes
Local Environmental Organization	Yes
Homeowner Associations	Yes
Neighborhood Associations	Yes
Chamber of Commerce	Yes
Community Organizations (Lions, Kiwanis, etc.)	Yes
Capabilities	Status, Including Date of Document or Policy
Local Funding Availability	
Apply for Community Development Block	Yes
Fund projects through Capital	Yes
Authority to levy taxes for a specific purpose	Yes
Fees for water, sewer, gas, or electric services	No
Impact fees for new development	Yes
Ability to incur debt through general obligation bonds	Yes
Ability to incur debt through special tax bonds	Yes
Ability to incur debt through private activities	No
Withhold spending in hazard prone areas	No

Source: Data Collection Questionnaire, 2025

City of Fremont Hills

The City of Fremont Hills was incorporated in 1986 and is located between Nixa and Ozark along Route CC. The City had an estimated population of 1,574 in 2024, and its government consists of a Mayor and six additional Council members representing three wards. City departments include:

- Mayor & City Council
- City Clerk
- Planning and Zoning
- Project Management

Fremont Hills is almost fully developed, with only around 9 undeveloped parcels in the City. Sites owned by the City include City Hall, the wastewater treatment plant, and a sewer lift station. The City itself does not have any outdoor sirens, but is in close proximity to Nixa's sirens, which are audible within city limits. Additional mitigation abilities include:

- CERT training for residents and city officials
- Smart911
- Building Code enforcement

Fremont Hills is a unique community in that it is built around Fremont Hills Country Club and it is almost entirely residential. Because of this, many of the traditional mitigation capabilities that work in other communities may not be needed here. However, the city could look to become more resilient by implementing a storm water ordinance and creating a comprehensive plan with a strong emphasis on housing. They could also create an evacuation route map and expand mutual aid agreements with nearby communities and emergency response organizations.

Table 2.8. City Fremont Hills Mitigation Capabilities

Capabilities	Status, Including Date of Document or Policy
Planning Capabilities	
Comprehensive Plan	Under County plan
Builder's Plan	No
Capital Improvement Plan	No
City Emergency Operations Plan	No
County Emergency Operations Plan	n/a
Local Recovery Plan	No
County Recovery Plan	n/a
City Mitigation Plan	No
County Mitigation Plan	n/a
Debris Management Plan	No
Economic Development Plan	No
Transportation Plan	No
Land-use Plan	Yes, 2000
Flood Mitigation Assistance (FMA) Plan	No
Watershed Plan	Under County plan
Firewise or other fire mitigation plan	No
Critical Facilities Plan	no
Policies/Ordinance	
Zoning Ordinance	Yes, 2000
Building Code	Yes, 2012, IGA with County
Floodplain Ordinance	Yes, 2023
Subdivision Ordinance	Yes

Tree Trimming Ordinance	Yes
Nuisance Ordinance	Yes
Stormwater Ordinance	No
Drainage Ordinance	No
Site Plan Review Requirements	Yes
Historic Preservation Ordinance	No
Landscape Ordinance	Yes
Program	
Zoning/Land Use Restrictions	Yes
Codes Building Site/Design	Yes
Hazard Awareness Program	Yes
National Flood Insurance Program (NFIP)	Yes
NFIP Community Rating System (CRS) program	No
Capabilities	Status, Including Date of Document or Policy
National Weather Service (NWS) Storm Ready	No
Firewise Community Certification	No
Building Code Effectiveness Grading (BCEGs)	No
ISO Fire Rating	4
Economic Development Program	No
Land Use Program	Yes
Public Education/Awareness	Yes
Property Acquisition	Yes
Planning/Zoning Boards	Yes
Stream Maintenance Program	n/a
Tree Trimming Program	Yes
Engineering Studies for Streams (Local/County/Regional)	n/a
Mutual Aid Agreements	No
Studies/Reports/Maps	
Hazard Analysis/Risk Assessment (Local)	Yes
Hazard Analysis/Risk Assessment (County)	n/a
Flood Insurance Maps	11/02/2023
FEMA Flood Insurance Study (Detailed)	No
Evacuation Route Map	No
Critical Facilities Inventory	Yes
Vulnerable Population Inventory	No
Land Use Map	Yes
Staff/Department	
Building Code Official	Yes, Full-time (FT) IGA with County
Building Inspector	Yes, FT IGA with County
Mapping Specialist (GIS)	Yes, Part-time (PT)
Engineer	Yes, PT
Development Planner	Yes, PT
Public Works Official	Yes, PT
Emergency Management Director	Yes
NFIP Floodplain Administrator	Yes, PT
Emergency Response Team	Yes, PT
Hazardous Materials Expert	No
Local Emergency Planning Committee	Yes, PT
County Emergency Management Commission	n/a
Sanitation Department	No
Transportation Department	No
Economic Development Department	No
Housing Department	No
Historic Preservation	No

Non-Governmental Organizations (NGOs)	
American Red Cross	No
Salvation Army	No
Veterans Groups	No
Local Environmental Organization	No
Homeowner Associations	Yes
Neighborhood Associations	Yes
Chamber of Commerce	No
Community Organizations (Lions, Kiwanis, etc.)	No
Capabilities	Status, Including Date of Document or Policy
Local Funding Availability	
Apply for Community Development Block	Yes
Fund projects through Capital	Yes
Authority to levy taxes for a specific purpose	Yes
Fees for water, sewer, gas, or electric services	Yes, sewer only
Impact fees for new development	Yes
Ability to incur debt through general obligation bonds	Yes
Ability to incur debt through special tax bonds	Yes
Ability to incur debt through private activities	Yes
Withhold spending in hazard prone areas	Yes

Source: Data Collection Questionnaire

City of Highlandville

Highlandville is along US Highway 160, approximately 12 miles south of the city limits of Springfield. Highlandville had an estimated population of 950 in 2024, slightly lower than the 2020 population of 963. The city is led by a Mayor and four Aldermen. City Departments include:

- Board of Aldermen
- City Administration
- City Clerk
- Water and Sewer
- Planning and Zoning

Several essential and high-risk facilities exist within Highlandville, including two fire stations, City Hall, and Affordable Propane. Highlandville's mitigation abilities include:

- Reverse 911
- National Flood Insurance Program
- Designated FEMA tornado shelter

The city is currently in the process of updating their comprehensive plan. Once updated, this should include a land use map which will greatly expand their mitigation capabilities. The city could also look to update their building codes, adopt a storm water ordinance, develop mutual aid agreements with nearby communities and emergency response agencies, and create a critical facilities inventory/map.

Table 2.9. City of Highlandville Mitigation Capabilities

Capabilities	Status, Including Date of Document or Policy
Planning Capabilities	
Comprehensive Plan	Yes, 2007
Builder's Plan	No
Capital Improvement Plan	No
City Emergency Operations Plan	Yes, 2017
County Emergency Operations Plan	n/a
Local Recovery Plan	No
County Recovery Plan	n/a
City Mitigation Plan	No
County Mitigation Plan	Yes, 2015
Debris Management Plan	No
Economic Development Plan	No
Transportation Plan	No
Land-use Plan	No
Flood Mitigation Assistance (FMA) Plan	No
Watershed Plan	No
Firewise or other fire mitigation plan	No
Critical Facilities Plan	No
Policies/Ordinance	
Zoning Ordinance	Yes
Building Code	Yes, 2006
Floodplain Ordinance	Yes, 2010
Subdivision Ordinance	Yes
Tree Trimming Ordinance	No
Nuisance Ordinance	Yes
Stormwater Ordinance	No

Drainage Ordinance	No
Site Plan Review Requirements	No
Historic Preservation Ordinance	No
Landscape Ordinance	No
Program	
Zoning/Land Use Restrictions	Yes
Codes Building Site/Design	Yes
Hazard Awareness Program	No
National Flood Insurance Program (NFIP)	Yes
NFIP Community Rating System (CRS) program	No
Capabilities	Status, Including Date of Document or Policy
National Weather Service (NWS) Storm Ready	No
Firewise Community Certification	No
Building Code Effectiveness Grading (BCEGs)	No
ISO Fire Rating	5
Economic Development Program	No
Land Use Program	Yes
Public Education/Awareness	No
Property Acquisition	No
Planning/Zoning Boards	Yes
Stream Maintenance Program	No
Tree Trimming Program	No
Engineering Studies for Streams (Local/County/Regional)	No
Mutual Aid Agreements	No
Studies/Reports/Maps	
Hazard Analysis/Risk Assessment (Local)	No
Hazard Analysis/Risk Assessment (County)	No
Flood Insurance Maps	11/02/2023
FEMA Flood Insurance Study (Detailed)	No
Evacuation Route Map	No
Critical Facilities Inventory	No
Vulnerable Population Inventory	No
Land Use Map	No
Staff/Department	
Building Code Official	Yes
Building Inspector	Yes
Mapping Specialist (GIS)	No
Engineer	Yes
Development Planner	No
Public Works Official	Yes
Emergency Management Director	No
NFIP Floodplain Administrator	Yes
Emergency Response Team	No
Hazardous Materials Expert	No
Local Emergency Planning Committee	No
County Emergency Management Commission	No
Sanitation Department	No
Transportation Department	No
Economic Development Department	No
Housing Department	No
Historic Preservation	No
Non-Governmental Organizations (NGOs)	
American Red Cross	No
Salvation Army	No

Veterans Groups	No
Local Environmental Organization	No
Homeowner Associations	Yes
Neighborhood Associations	No
Chamber of Commerce	No
Community Organizations (Lions, Kiwanis, etc.)	No
Capabilities	Status, Including Date of Document or Policy
Local Funding Availability	
Apply for Community Development Block	No
Fund projects through Capital	No
Authority to levy taxes for a specific purpose	No
Fees for water, sewer, gas, or electric services	Yes
Impact fees for new development	Yes
Ability to incur debt through general obligation bonds	Yes
Ability to incur debt through special tax bonds	No
Ability to incur debt through private activities	Yes
Withhold spending in hazard prone areas	No

Source: Data Collection Questionnaire, 2025

City of Nixa

Nixa is the largest city within Christian County, with an estimated population of 26,352 in 2024. In April 2010, Nixa citizens voted to become a home rule charter city. The city is governed by a Mayor and six City Council members. City departments include:

- Mayor/City Council
- Communications
- Finance
- Human Resources
- Legal
- Parks and Recreation
- Planning and Development
- Police Department
- Public Works
- Utilities
- City Administration
- City Clerk

Nixa provides electric, water, and sewer services within the City. Several essential and high-risk facilities exist within the City, including municipal buildings, schools, healthcare facilities, and utility stations. The City also has the following hazard mitigation abilities:

- Eight (8) outdoor warning sirens
- Reverse & Swift 911
- Designated FEMA tornado shelters
- Youth safety programs
- Homeowner awareness and preparedness programs

The city could increase their mitigation capabilities by hiring/appointing a dedicated emergency management coordinator (they currently receive assistance from the county for this position), creating an evacuation route map, and expanding their hazard awareness public education programs.

Table 2.10. City of Nixa Mitigation Capabilities

Capabilities	Status, Including Date of Document or Policy
Planning Capabilities	
Comprehensive Plan	Yes, 2024
Builder's Plan	No
Capital Improvement Plan	Yes, 2024
City Emergency Operations Plan	No
County Emergency Operations Plan	n/a
Local Recovery Plan	No
County Recovery Plan	n/a
City Mitigation Plan	No
County Mitigation Plan	n/a
Debris Management Plan	No
Economic Development Plan	Yes, 2013
Transportation Plan	Yes
Land-use Plan	Yes, 2024
Flood Mitigation Assistance (FMA) Plan	n/a
Watershed Plan	Part of Stormwater Management Plan
Firewise or other fire mitigation plan	n/a
Critical Facilities Plan	n/a
Policies/Ordinance	

Zoning Ordinance	Yes
Building Code	Yes, IBC 2018
Floodplain Ordinance	Yes, 2023
Subdivision Ordinance	Yes
Tree Trimming Ordinance	Yes
Nuisance Ordinance	Yes
Stormwater Ordinance	Yes
Drainage Ordinance	Yes
Site Plan Review Requirements	Yes
Historic Preservation Ordinance	No
Landscape Ordinance	Yes
Program	
Zoning/Land Use Restrictions	Yes
Codes Building Site/Design	No
Hazard Awareness Program	No
National Flood Insurance Program (NFIP)	Yes
NFIP Community Rating System (CRS) program	No
Capabilities	Status, Including Date of Document or Policy
National Weather Service (NWS) Storm Ready	No
Firewise Community Certification	No
Building Code Effectiveness Grading (BCEGs)	No
ISO Fire Rating	3
Economic Development Program	Yes, Show Me Christian County
Land Use Program	Yes
Public Education/Awareness	No
Property Acquisition	Yes
Planning/Zoning Boards	Yes
Stream Maintenance Program	Yes
Tree Trimming Program	Yes
Engineering Studies for Streams (Local/County/Regional)	No
Mutual Aid Agreements	Yes
Studies/Reports/Maps	
Hazard Analysis/Risk Assessment (Local)	No
Hazard Analysis/Risk Assessment (County)	n/a
Flood Insurance Maps	11/02/2023
FEMA Flood Insurance Study (Detailed)	No
Evacuation Route Map	No
Critical Facilities Inventory	Yes
Vulnerable Population Inventory	No
Land Use Map	Yes
Staff/Department	
Building Code Official	Yes, Full-time (FT)
Building Inspector	Yes, Full-time (FT)
Mapping Specialist (GIS)	Yes, Full-time (FT)
Engineer	No
Development Planner	Yes, Full-time (FT)
Public Works Official	Yes, Full-time (FT)
Emergency Management Director	No
NFIP Floodplain Administrator	Yes, Full-time (FT)
Emergency Response Team	Yes, Full-time (FT)
Hazardous Materials Expert	No
Local Emergency Planning Committee	No
County Emergency Management Commission	No
Sanitation Department	Yes, Full-time (FT)

Transportation Department	Yes, Full-time (FT)
Economic Development Department	No
Housing Department	No
Historic Preservation	No
Non-Governmental Organizations (NGOs)	
American Red Cross	No
Salvation Army	No
Veterans Groups	Yes
Local Environmental Organization	No
Homeowner Associations	Yes
Neighborhood Associations	No
Chamber of Commerce	Yes
Community Organizations (Lions, Kiwanis, etc.)	Yes
Capabilities	Status, Including Date of Document or Policy
Local Funding Availability	
Apply for Community Development Block	Yes
Fund projects through Capital	Yes
Authority to levy taxes for a specific purpose	Yes
Fees for water, sewer, gas, or electric services	Yes
Impact fees for new development	Yes
Ability to incur debt through general obligation bonds	Yes
Ability to incur debt through special tax bonds	Yes
Ability to incur debt through private activities	Yes
Withhold spending in hazard prone areas	No

Source: Data Collection Questionnaire, 2025

City of Ozark

Ozark is the county seat and second largest city within Christian County, with an estimated population of 23,248 in 2024. Ozark is governed by a Mayor and six Aldermen. City departments include:

- Mayor and Board of Aldermen
- City Administration
- City Attorney
- City Clerk
- Finance
- Human Resources
- Public Works
- Police Department
- Planning and Development
- Parks and Recreation
- Utility Billing
- Municipal Court

Ozark has several essential and high-risk facilities, including municipal buildings, churches, preschool, nursing homes, and medical facilities. In recent years, Ozark has been hit by several disasters, including a flood in May of 2025 with over \$250,000 in damages, and a severe storm in July of 2023 with over \$35,000 in damages. More information about past hazards can be found in Chapter 3 of this plan. Mitigation capabilities in Ozark include:

- Eleven (11) storm sirens
- Smart 911
- Two (2) FEMA tornado shelters
- Capital Infrastructure funding
- Public preparedness programs
- Public education programs

In order to expand their mitigation capabilities, the city could review their 2019 comprehensive plan and update any sections that are out of state, specifically any that deal with land use or hazard mitigation.

Table 2.11. City of Ozark Mitigation Capabilities

Capabilities	Status, Including Date of Document or Policy
Planning Capabilities	
Comprehensive Plan	Yes, 2019
Builder's Plan	No
Capital Improvement Plan	Yes, 2025
City Emergency Operations Plan	No
County Emergency Operations Plan	n/a
Local Recovery Plan	No
County Recovery Plan	n/a
City Mitigation Plan	No
County Mitigation Plan	n/a
Debris Management Plan	Yes
Economic Development Plan	No
Transportation Plan	Yes
Land-use Plan	No
Flood Mitigation Assistance (FMA) Plan	No
Watershed Plan	No

Firewise or other fire mitigation plan	No
Critical Facilities Plan	No
Policies/Ordinance	
Zoning Ordinance	Yes
Building Code	Yes, 2018
Floodplain Ordinance	Yes, 2023
Subdivision Ordinance	Yes
Tree Trimming Ordinance	Yes
Nuisance Ordinance	Yes
Stormwater Ordinance	Yes
Drainage Ordinance	Yes
Site Plan Review Requirements	Yes
Historic Preservation Ordinance	Yes
Landscape Ordinance	Yes
Program	
Zoning/Land Use Restrictions	Yes
Codes Building Site/Design	Yes
Hazard Awareness Program	Yes
National Flood Insurance Program (NFIP)	Yes
NFIP Community Rating System (CRS) program	No
Capabilities	Status, Including Date of Document or Policy
National Weather Service (NWS) Storm Ready	Yes
Firewise Community Certification	No
Building Code Effectiveness Grading (BCEGs)	No
ISO Fire Rating	3
Economic Development Program	Yes, Show Me Christian County
Land Use Program	Yes
Public Education/Awareness	Yes
Property Acquisition	Yes
Planning/Zoning Boards	Yes
Stream Maintenance Program	Yes
Tree Trimming Program	Yes
Engineering Studies for Streams (Local/County/Regional)	Yes
Mutual Aid Agreements	yes
Studies/Reports/Maps	
Hazard Analysis/Risk Assessment (Local)	No
Hazard Analysis/Risk Assessment (County)	n/a
Flood Insurance Maps	11/02/2023
FEMA Flood Insurance Study (Detailed)	No
Evacuation Route Map	Yes, 2020 HMP
Critical Facilities Inventory	No
Vulnerable Population Inventory	No
Land Use Map	Yes
Staff/Department	
Building Code Official	Yes, Full-time (FT)
Building Inspector	Yes, FT
Mapping Specialist (GIS)	Yes, FT
Engineer	Yes, FT
Development Planner	Yes, Part-time (PT)
Public Works Official	Yes, FT
Emergency Management Director	Yes, PT
NFIP Floodplain Administrator	Yes, PT
Emergency Response Team	No
Hazardous Materials Expert	Yes, FT

Local Emergency Planning Committee	Yes, PT
County Emergency Management Commission	n/a
Sanitation Department	Yes, FT
Transportation Department	Yes, FT
Economic Development Department	Yes, partially funded by city
Housing Department	Yes, PT
Historic Preservation	Yes, PT
Non-Governmental Organizations (NGOs)	
American Red Cross	Yes
Salvation Army	Yes
Veterans Groups	Yes
Local Environmental Organization	Yes
Homeowner Associations	Yes
Neighborhood Associations	No
Chamber of Commerce	Yes
Community Organizations (Lions, Kiwanis, etc.)	Yes
Capabilities	Status, Including Date of Document or Policy
Local Funding Availability	
Apply for Community Development Block	No
Fund projects through Capital	Yes
Authority to levy taxes for a specific purpose	Yes
Fees for water, sewer, gas, or electric services	Yes
Impact fees for new development	Yes
Ability to incur debt through general obligation bonds	Yes
Ability to incur debt through special tax bonds	Yes
Ability to incur debt through private activities	Yes
Withhold spending in hazard prone areas	yes

Source: Data Collection Questionnaire, 2025

Village of Saddlebrooke

The Village of Saddlebrooke is along US Highway 65, approximately 28 miles south of the city limits of Springfield and about 13 miles south of the center of Ozark. The Village had an estimated population of 337 in 2024, who live in the communities approximately 175 homes. Saddlebrooke is governed by a Board of Trustees, which consists of five (5) Trustees. Other Village departments include:

- Administration
- Board of Adjustment
- Planning and Zoning
- Floodplain Administration

In 2021, flooding caused approximately \$85,000 damage and required the replacement of approximately 300 feet of Brookside Drive. More information about past hazards can be found in chapter three (3) of this plan. The community also has several bridges that may be at risk during flood events, like the Sunset Street Bridge and the Ranch Road Bridge. Hazard Mitigation capabilities include:

- NFIP participation
- Ability to fund projects with Capital Improvement Funding
- Floodplain Ordinance
- City Mitigation Plan

In order to expand the their mitigation capabilities, the village could adopt and enforce building codes and a stormwater ordinance, develop mutual aid agreements with nearby communities and emergency response agencies, and create a capital improvement plan.

Table 2.12. Village of Saddlebrooke Mitigation Capabilities

Capabilities	Status, Including Date of Document or Policy
Planning Capabilities	
Comprehensive Plan	Yes
Builder's Plan	No
Capital Improvement Plan	No
City Emergency Operations Plan	No
County Emergency Operations Plan	n/a
Local Recovery Plan	n/a
County Recovery Plan	n/a
City Mitigation Plan	Yes, 2021
County Mitigation Plan	n/a
Debris Management Plan	No
Economic Development Plan	No
Transportation Plan	n/a
Land-use Plan	Yes
Flood Mitigation Assistance (FMA) Plan	n/a
Watershed Plan	n/a
Firewise or other fire mitigation plan	n/a
Critical Facilities Plan	n/a
Policies/Ordinance	
Zoning Ordinance	Yes
Building Code	No
Floodplain Ordinance	Yes, 12/4/2023
Subdivision Ordinance	Yes
Tree Trimming Ordinance	No
Nuisance Ordinance	Yes

Stormwater Ordinance	No
Drainage Ordinance	No
Site Plan Review Requirements	Yes
Historic Preservation Ordinance	No
Landscape Ordinance	No
Program	
Zoning/Land Use Restrictions	Yes
Codes Building Site/Design	Yes
Hazard Awareness Program	No
National Flood Insurance Program (NFIP)	Yes
NFIP Community Rating System (CRS) program	No
Capabilities	Status, Including Date of Document or Policy
National Weather Service (NWS) Storm Ready	No
Firewise Community Certification	No
Building Code Effectiveness Grading (BCEGs)	No
ISO Fire Rating	
Economic Development Program	No
Land Use Program	No
Public Education/Awareness	No
Property Acquisition	No
Planning/Zoning Boards	Yes
Stream Maintenance Program	No
Tree Trimming Program	No
Engineering Studies for Streams (Local/County/Regional)	No
Mutual Aid Agreements	No
Studies/Reports/Maps	
Hazard Analysis/Risk Assessment (Local)	No
Hazard Analysis/Risk Assessment (County)	n/a
Flood Insurance Maps	11/02/2023
FEMA Flood Insurance Study (Detailed)	No
Evacuation Route Map	No
Critical Facilities Inventory	No
Vulnerable Population Inventory	No
Land Use Map	Yes
Staff/Department	
Building Code Official	No
Building Inspector	No
Mapping Specialist (GIS)	No
Engineer	No
Development Planner	No
Public Works Official	No
Emergency Management Director	No
NFIP Floodplain Administrator	Yes
Emergency Response Team	No
Hazardous Materials Expert	No
Local Emergency Planning Committee	No
County Emergency Management Commission	No
Sanitation Department	No
Transportation Department	No
Economic Development Department	No
Housing Department	No
Historic Preservation	No
Non-Governmental Organizations (NGOs)	
American Red Cross	No

Salvation Army	No
Veterans Groups	No
Local Environmental Organization	No
Homeowner Associations	Yes
Neighborhood Associations	Yes
Chamber of Commerce	No
Community Organizations (Lions, Kiwanis, etc.)	No
Capabilities	Status, Including Date of Document or Policy
Local Funding Availability	
Apply for Community Development Block	Yes
Fund projects through Capital	Yes
Authority to levy taxes for a specific purpose	Yes
Fees for water, sewer, gas, or electric services	No
Impact fees for new development	Yes
Ability to incur debt through general obligation bonds	Yes
Ability to incur debt through special tax bonds	Yes
Ability to incur debt through private activities	No
Withhold spending in hazard prone areas	no

Source: Data Collection Questionnaire, 2026

City of Sparta

Sparta is located approximately 3 miles east of Ozark and has an estimated population of 2,331 in 2024. Sparta's government is led by a Mayor and four Aldermen. City departments include:

- Mayor and Board of Aldermen
- City Clerk
- Police
- Public Works
- Utilities
- Parks Board

Sparta has several essential and high-risk facilities, including municipal buildings and utility stations. The City also has several developments located within the 100-year floodplain. Mitigation capabilities in Sparta include:

- One (1) outdoor siren
- One (1) FEMA designated tornado shelter
- Youth education programs
- Capital improvements funding

Sparta has many opportunities to expand their mitigation capabilities, including the development of a comprehensive plan and capital improvement plan, adoption of a zoning ordinance, and expansion of hazard awareness public education programs. If the city cannot fund the comprehensive plan itself, they have the capacity to apply for grant funding.

Table 2.13. City of Sparta Mitigation Capabilities

Capabilities	Status, Including Date of Document or Policy
Planning Capabilities	
Comprehensive Plan	No
Builder's Plan	No
Capital Improvement Plan	No
City Emergency Operations Plan	Yes
County Emergency Operations Plan	n/a
Local Recovery Plan	No
County Recovery Plan	n/a
City Mitigation Plan	No
County Mitigation Plan	n/a
Debris Management Plan	No
Economic Development Plan	No
Transportation Plan	No
Land-use Plan	No
Flood Mitigation Assistance (FMA) Plan	No
Watershed Plan	No
Firewise or other fire mitigation plan	No
Critical Facilities Plan	No
Policies/Ordinance	
Zoning Ordinance	No
Building Code	Yes, 2018
Floodplain Ordinance	Yes
Subdivision Ordinance	No
Tree Trimming Ordinance	No
Nuisance Ordinance	Yes
Stormwater Ordinance	Yes

Drainage Ordinance	No
Site Plan Review Requirements	Yes
Historic Preservation Ordinance	No, work in progress
Landscape Ordinance	No
Program	
Zoning/Land Use Restrictions	No
Codes Building Site/Design	No
Hazard Awareness Program	No
National Flood Insurance Program (NFIP)	Yes
NFIP Community Rating System (CRS) program	No
Capabilities	Status, Including Date of Document or Policy
National Weather Service (NWS) Storm Ready	No
Firewise Community Certification	No
Building Code Effectiveness Grading (BCEGs)	No
ISO Fire Rating	5
Economic Development Program	No
Land Use Program	No
Public Education/Awareness	No
Property Acquisition	No
Planning/Zoning Boards	No
Stream Maintenance Program	No
Tree Trimming Program	No
Engineering Studies for Streams (Local/County/Regional)	No
Mutual Aid Agreements	No
Studies/Reports/Maps	
Hazard Analysis/Risk Assessment (Local)	No
Hazard Analysis/Risk Assessment (County)	n/a
Flood Insurance Maps	11/02/2023
FEMA Flood Insurance Study (Detailed)	No
Evacuation Route Map	No
Critical Facilities Inventory	No
Vulnerable Population Inventory	No
Land Use Map	No
Staff/Department	
Building Code Official	Yes, 1 Part-time (PT)
Building Inspector	Yes, 1 Full-time (FT)
Mapping Specialist (GIS)	Yes, PT
Engineer	Yes, PT
Development Planner	No
Public Works Official	Yes, 2 FT
Emergency Management Director	No
NFIP Floodplain Administrator	Yes
Emergency Response Team	No
Hazardous Materials Expert	No
Local Emergency Planning Committee	No
County Emergency Management Commission	No
Sanitation Department	No
Transportation Department	No
Economic Development Department	No
Housing Department	No
Historic Preservation	No
Non-Governmental Organizations (NGOs)	
American Red Cross	No
Salvation Army	No

Veterans Groups	No
Local Environmental Organization	No
Homeowner Associations	No
Neighborhood Associations	No
Chamber of Commerce	Yes, part time
Community Organizations (Lions, Kiwanis, etc.)	Yes
Capabilities	Status, Including Date of Document or Policy
Local Funding Availability	
Apply for Community Development Block	Yes
Fund projects through Capital	Yes
Authority to levy taxes for a specific purpose	Yes
Fees for water, sewer, gas, or electric services	Yes
Impact fees for new development	Yes
Ability to incur debt through general obligation bonds	Yes
Ability to incur debt through special tax bonds	Yes
Ability to incur debt through private activities	Yes
Withhold spending in hazard prone areas	Yes

Source: Data Collection Questionnaire, 2025

Summary of Municipal Capabilities

Table 2.14. Municipal Mitigation Capabilities Summary Table

CAPABILITIES	Unincorporated Christian County	City of Fremont Hills	City of Highlandville	City of Nixa	City of Ozark	Village of Saddlebrooke	City of Sparta
Planning Capabilities							
Comprehensive Plan	Yes, 2022	No	Yes, 2007	Yes, 2024	Yes, 2019	Yes	No
Builder's Plan	No	No	No	No	No	No	No
Capital Improvement Plan	No	No	No	Yes, 2024	Yes, 2025	No	No
Local Emergency Plan	n/a	No	Yes, 2017	No	No	No	Yes
County Emergency Plan	Yes, 2021	No	n/a	n/a	n/a	n/a	n/a
Local Recovery Plan	n/a	No	No	No	No	n/a	No
County Recovery Plan	Yes, 2017	No	n/a	n/a	n/a	n/a	n/a
Local Mitigation Plan	n/a	No	No	No	No	Yes, 2021	No
County Mitigation Plan	Yes, 2020	No	Yes, 2015	n/a	n/a	n/a	n/a
Debris Management Plan	Yes, 2021	No	No	No	Yes	No	No
Economic Development Plan	Yes, 2024	No	No	Yes, 2013	No	No	No
Transportation Plan	Yes, 2025	No	No	Yes	Yes	n/a	No
Land-use Plan	Yes, 2022	Yes	No	Yes, 2024	No	Yes	No
Flood Mitigation Assistance (FMA) Plan	No	No	No	n/a	No	n/a	No
Watershed Plan	Yes, 2021	No	No	Yes	No	n/a	No
Firewise or other fire mitigation plan	No	No	No	n/a	No	n/a	No
Critical Facilities Plan (Mitigation/Response/Recovery)	No	No	No	n/a	No	n/a	No
Policies/Ordinance							
Zoning Ordinance	Yes, 2024	Yes	Yes	Yes	Yes	Yes	No
Building Code	Yes, 2012 IBC and 2012 IRC	Yes, 2012	Yes, 2006	Yes, IBC 2018	Yes, 2018	No	Yes, 2018
Floodplain Ordinance	Yes, 2023	Yes, 2013	Yes, 2010	Yes, 2023	Yes, 2023	Yes, 2023	Yes
Subdivision Ordinance	Yes, 2023	Yes	Yes	Yes	Yes	Yes	No
Tree Trimming Ordinance	No	Yes	No	Yes	Yes	No	No
Nuisance Ordinance	Yes, 2024	Yes	Yes	Yes	Yes	Yes	Yes
Storm Water Ordinance	Yes, 2023	No	No	Yes	Yes	No	Yes
Drainage Ordinance	Yes, 2023	No	No	Yes	Yes	No	No
Site Plan Review Requirements	Yes, 2024	Yes	No	Yes	Yes	Yes	Yes
Historic Preservation Ordinance	No	No	No	No	Yes	No	No, work in progress
Landscape Ordinance	Yes, 2024	Yes	No	Yes	Yes	No	No
Program							
Zoning/Land Use Restrictions	Yes, 2024	Yes	Yes	Yes	Yes	Yes	No

CAPABILITIES	Unincorporated Christian County	City of Fremont Hills	City of Highlandville	City of Nixa	City of Ozark	Village of Saddlebrooke	City of Sparta
Codes Building Site/Design	Yes	Yes	Yes	No	Yes	Yes	No
Hazard Awareness Program	Yes	Yes	No	No	Yes	No	No
National Flood Insurance Program (NFIP) Participant	Yes	Yes	Yes	Yes	Yes	Yes	Yes
NFIP Community Rating System (CRS) Participating Community	Yes	No	No	No	No	No	No
Capabilities							
National Weather Service (NWS) Storm Ready	Yes	No	No	No	Yes	No	No
Firewise Community Certification	No	No	No	No	No	No	No
Building Code Effectiveness Grading (BCEGs)	No		No	No	No	No	No
ISO Fire Rating	No	4	No	No	No	No	5
Economic Development Program	Yes	No	No	Yes	Yes	No	No
Land Use Program	Yes	Yes	Yes	Yes	Yes	No	No
Public Education/Awareness	CERT	Yes	No	No	Yes	No	No
Property Acquisition	Yes	Yes	No	Yes	Yes	No	No
Planning/Zoning Boards	Yes	Yes	Yes	Yes	Yes	Yes	No
Stream Maintenance Program	Yes	No	No	Yes	Yes	No	No
Tree Trimming Program	No	Yes	No	Yes	Yes	No	No
Engineering Studies for Streams	Yes, 2023	No	No	No	Yes	No	No
Mutual Aid Agreements	Yes	No	No	Yes	Yes	No	No
Studies/Reports/Maps							
Hazard Analysis/Risk Assessment (Local)	n/a	Yes	No	No	No	No	No
Hazard Analysis/Risk Assessment (County)	Yes	No	No	n/a	n/a	n/a	n/a
Flood Insurance Maps	11/02/2023	11/02/2023	11/02/2023	11/02/2023	11/02/2023	11/02/2023	11/02/2023
Evacuation Route Map	No	No	No	No	Yes, 2020 HMP	No	No
Critical Facilities Inventory	No	Yes	No	Yes	No	No	No
Vulnerable Population Inventory	No	No	No	No	No	No	No
Land Use Map	Yes	Yes	No	Yes	Yes	Yes	No
Staff/Department							
Building Code Official	Yes	Yes	Yes	Yes	Yes	No	Yes
Building Inspector	Yes	Yes	Yes	Yes	Yes	No	Yes
Mapping Specialist (GIS)	Yes	Yes	No	Yes	Yes	No	Yes
Engineer	Yes	Yes	Yes	No	Yes	No	Yes
Development Planner	Yes	Yes	No	Yes	Yes	No	No
Public Works Official	Yes	Yes	Yes	Yes	Yes	No	Yes

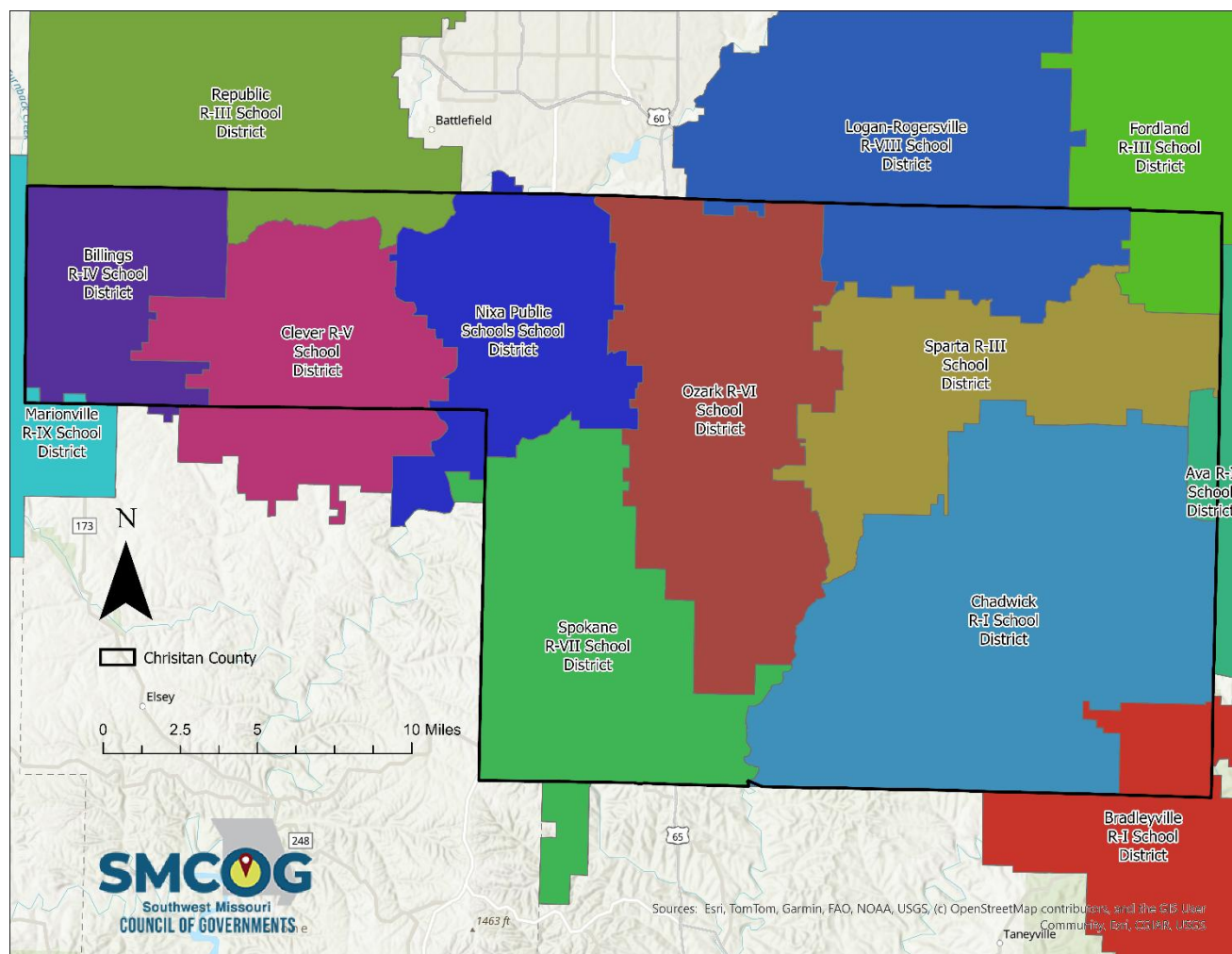
CAPABILITIES	Unincorporated Christian County	City of Fremont Hills	City of Highlandville	City of Nixa	City of Ozark	Village of Saddlebrooke	City of Sparta
Emergency Management Coordinator	Yes	Yes	No	No	Yes	No	No
NFIP Floodplain Administrator	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Emergency Response Team	Yes	Yes	No	Yes	No	No	No
Hazardous Materials Expert	No	No	No	No	Yes	No	No
Local Emergency Planning Committee	Yes	Yes	No	No	Yes	No	No
County Emergency Management Commission	Yes	Yes	No	No	n/a	No	No
Sanitation Department	No	No	No	Yes	Yes	No	No
Transportation Department	Yes	No	No	Yes	Yes	No	No
Economic Development Department	Yes	No	No	No	Yes	No	No
Housing Department	No	No	No	No	Yes	No	No
Historic Preservation	No	No	No	No	Yes	No	No
Non-Governmental Organizations (NGOs)							
American Red Cross	Yes	No	No	No	Yes	No	No
Salvation Army	Yes	No	No	No	Yes	No	No
Veterans Groups	Yes	No	No	Yes	Yes	No	No
Environmental Organization	Yes	No	No	No	Yes	No	No
Homeowner Associations	Yes	Yes	Yes	Yes	Yes	Yes	No
Neighborhood Associations	Yes	Yes	No	No	No	Yes	No
Chamber of Commerce	Yes	No	No	Yes	Yes	No	Yes
Community Organizations (Lions, Kiwanis, etc.)	Yes	No	No	Yes	Yes	No	Yes
Financial Resources							
Apply for Community Development Block Grants	Yes	Yes	No	Yes	No	Yes	Yes
Fund projects through Capital Improvements funding	Yes	Yes	No	Yes	Yes	Yes	Yes
Authority to levy taxes for specific purposes	Yes	Yes	No	Yes	Yes	Yes	Yes
Fees for water, sewer, gas, or electric services	No	Yes	Yes	Yes	Yes	No	Yes
Impact fees for new development	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Incur debt through general obligation bonds	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Incur debt through special tax bonds	Yes	Yes	No	Yes	Yes	Yes	Yes
Incur debt through private activities	No	Yes	Yes	Yes	Yes	No	Yes
Withhold spending in hazard prone areas	No	Yes	No	No	Yes	No	Yes

Source: Data Collection Questionnaire

2.2.2 Public School District Profiles and Mitigation Capabilities

There are thirteen K-12 public school districts located within Christian. However, six of those districts are primarily located in neighboring counties, so they participate in those county HMPs. Ozarks Tech (a public community college) also has a campus in Christian County (Richwood Valley Campus).

Figure 2.3 is a map of the public school district boundaries in Christian County.



Billings R-IV

Table 2.15. Billings R-IV School District Enrollment, 2024-2025

School Name	Address	School Enrollment
Billings Elementary	118 West Mt. Vernon	249
Billings Senior High	118 West Mt. Vernon	149

Source: <https://nces.ed.gov/ccd/districtsearch/>, 2024-2025 School Year

Billings R-IV School District serves the City of Billings and the surrounding area in western Christian County, serving a small area of Stone County as well. The district had just under 400 students during the 2024-2025 school year, with that number expected to grow in the coming years. The district is governed by a seven-member Board of Education.

In recent years, the district has been hit by several tornadoes, resulting in injuries and property damage. More information about past hazards can be found in Chapter 3 of this plan. The district underwent safety renovations in 2008 and has the following mitigation capabilities:

- Public addressing (PA) system
- One saferoom built to FEMA standards
- Campus police
- School emergency plan
- Emergency Manager

The district indicated they expect a 25% increase in enrollment over the next five years due to multiple large housing developments. However, they also indicated they do not have any plans to remodel or construct any additional facilities to accommodate this growth. In order to ensure their mitigation capabilities remain up to date, the district must take into account this growth and the strain it will put on district resources and plan accordingly.

Table 2.20 on page **2.43** provides a full summary of the school district's mitigation capabilities.

Clever R-V

Table 2.16. Clever R-V School District Enrollment, 2024-2025

School Name	Address	School Enrollment
Clever Elementary	103 South Public Ave	872
Clever High	103 South Public Ave	401

Source: <https://nces.ed.gov/ccd/districtsearch/>, 2024-2025 School Year

Clever R-V School District serves portions of western Christian County in and around the City of Clever, while also serving a small portion of northern Stone County. The District is governed by a seven-member Board of Education and served 1,244 students during the 2023-2024 school year. The District has the following departments:

- Administration
- Communications
- Maintenance
- Operations
- Special Services
- Technology
- Transportation

Clever R-V School District has two campuses, with preschool through eighth grade and administration at one campus and the high school at a separate campus. Both campuses have added FEMA shelters within the past 20 years, and both campuses are undergoing construction to facilitate the 8-10% annual growth the district expects in the upcoming years.

Clever R-V School District has been impacted by several disasters since the most recent HMP update. In February 2021, a winter storm caused a power outage that led to the freezing and bursting of several high school sprinklers, causing over \$100,000 in water damage. In September 2024, high winds caused over \$100,000 in damages to the District Administration Office. More information about past hazards can be found in Chapter 3 of this Plan. Clever R-V's mitigation capabilities include:

- Two saferooms built to FEMA standards

- NOAA Weather Radios
- Public Addressing (PA) system
- Mass notification systems
- Drills and trainings for emergency events
- School Emergency Plan
- Emergency Manager

The district indicated they expect 8-10% annual growth and that both of their campuses are currently undergoing construction. However, they did not specify what type of construction and if new facilities are being built or if current facilities are just being remodeled. In order to expand their mitigation capabilities, it is important that the two saferooms are large enough to accommodate for this growth. If the school enrollment number surpasses the maximum occupancy number of the saferooms, then additional saferooms will need to be constructed.

Table 2.20 on page **2.43** provides a full summary of the school district's mitigation capabilities.

Nixa Public Schools

Table 2.17. Nixa Public Schools Enrollment, 2024-2025

School Name	Address	School Enrollment
John Thomas School of Discovery	312 N. Market Street	493
Espy Elementary	301 S. Main Street	371
Century Elementary	732 North Street	593
Matthews Elementary	605 S. Gregg Road	459
High Pointe Elementary	900 N. Cheyenne Road	619
Early Childhood Center	304 S. Little Eagle Drive	88
Early Learning Center	301 S. Main Street	194
Nixa High School	514 S. Nicholas Road	2,045
Nixa Junior High	205 North Street	1,034
Inman Intermediate	1300 N. Nicholas Road	397
Summit Intermediate	890 N. Cheyenne Road	507

Source: <https://nces.ed.gov/ccd/districtsearch/>, 2024-2025 School Year

Nixa Public Schools is a school district that serves the City of Nixa and surrounding areas to the north, south, and west. Nixa Public Schools is governed by the Board of Education, which consists of eight Board members. During the 2024-2025 school year, the district had close to 6,800 students and over 450 classroom teachers. District departments include:

- Business Office
- Communication
- Custodial and Maintenance
- Education Office
- Food Service
- Human Resources
- Health Services
- School Police
- Special Services
- Technology
- Transportation

In recent years, Nixa Schools have seen many expansions and improvements, including the construction of several saferooms. The district currently has 14 facilities, but as the district continues to grow, new buildings are being constructed and new schools may need to be added. Hazard Mitigation Capabilities include:

- Eight (8) FEMA designated saferooms, of which three (3) are open to the public.
- NOAA Weather radios at schools
- Fire alarms at all schools
- PA systems at some schools
- Ability to fund capital improvement projects
- Emergency Manager
- District police

The district expects a 5-10% increase in enrollment over the next five years. In order to expand its mitigation capabilities, the district can continue to update its plans (master plan, capital improvement plan, emergency plan, etc.) and add new safe rooms (if needed) to accommodate for this growth.

Table 2.20 on page **2.43** provides a full summary of the school district's mitigation capabilities.

Ozark R-VI

Table 2.18. Ozark R-VI School District Enrollment, 2024-2025

School Name	Address	School Enrollment
East Elementary	2449 E Hartley	516
North Elementary	3608 N Highway NN	516
Ozark High	1350 W Bluff Drive	1,798
Ozark Jr High	1109 W Jackson	949
Ozark Middle School	3600 N Highway NN	881
Ozark Tigerpaw Early Childhood Center	302 N 4 th Avenue	252
South Elementary	1250 W South Street	507
West Elementary	3105 W State Highway CC	595

Source: <https://nces.ed.gov/ccd/districtsearch/>, 2024-2025 School Year

Ozark R-VI School District is a school district that serves the Cities of Ozark and Fremont Hills, along with unincorporated areas to the north, east, and south of the City of Ozark. The district is governed by the Board of Education, which consists of seven (7) board members. During the 2024-2025 school year, the district had just under 6,000 students and over 450 classroom teachers. Enrollment has been decreasing recently, dropping by around 2% over the last three years. District departments include:

- Benefits
- Communications
- Business Services
- Health Services
- Human Resources
- Learning Department
- Nutrition Services
- Operations Department
- School Police
- Special Services
- Student Services

- Wellness

In April 2025, the District's career center received around \$160,000 worth of water damage from a flood. More information about past hazards can be found in chapter three (3) of this plan. The district owns approximately 27 buildings, with over half of these having FEMA designated storm shelters. Hazard mitigation capabilities include:

- Fifteen (15) FEMA designated storm shelters
- Quarterly safety drills
- NOAA Weather radios at schools
- PA and fire alarm systems at each school
- Emergency manager
- Ability to fund capital improvement projects

The district does not have any new construction planned for the next five years and they have seen a slight (2%) decline in enrollment over the previous 3 years. In order to expand its mitigation capabilities, the district can continue to update its plans (master plan, capital improvement plan, emergency plan, etc.) and add new safe rooms when needed.

Table 2.20 on page **2.43** provides a full summary of the school district's mitigation capabilities.

Sparta R-III

Table 2.19. Sparta R-III School District Enrollment, 2024-2025

School Name	Address	School Enrollment
Sparta Elementary	522 State Hwy. 125	263
Sparta Middle	217 Division	187
Sparta High	8520 State Hwy. 14	227
Sparta Preschool	113 Division	58

Source: <https://nces.ed.gov/ccd/districtsearch/>, 2024-2025 School Year

Sparta R-III School District is located in north-central Christian County, and serves the communities of Sparta, Bruner, and Elkhead. The District had an estimated 735 students during the 2024-2025 school year, with enrollment not expected to change much within the next 5 years. The District has the following departments:

- Human Resources
- Parents as Teachers
- Special Services
- School Police
- Federal Programs
- Technology
- Food Service
- Transportation

Sparta R-III School District has been struck by several hailstorms in recent years, necessitating the replacement of the middle school roof in 2021 and the high school roof in 2025. More information about past hazards can be found in Chapter 3 of this plan. In recent years, Sparta R-III has constructed a FEMA shelter at the elementary/middle school campus and will be constructing new athletic facilities in the coming years. Sparta R-III School District's mitigation capabilities include:

- NOAA Weather Radios at all schools

- Public Address System
- Emergency Drills
- Annual staff emergency training
- School Resource Officer
- One (1) saferoom built to FEMA standards
- School Emergency Plan
- Emergency Manager

The district indicated their enrollment numbers were on a decline recently, but they didn't indicate the exact amount. They anticipate flat growth over the next five years. In order to expand its mitigation capabilities, the district could consider adopting a master plan.

Ozarks Technical Community College - Richwood Valley

Ozarks Technical Community College (OTC), Richwood Valley is a community college on State Route 14, at the western edge of the City of Ozark. Opened in 2007, OTC Richwood Valley hosts general education, health, agriculture, and electric distribution programs. OTC Richwood Valley is governed by the OTC Board of Trustees, which consists of six (6) members. As of fall 2024, the campus had 552 students enrolled, with enrollment expected to grow by roughly 3% per year for the next five (5) years. Campus facilities include:

- Richwood Valley Annex
- Life Science and Technology Building
- Agriculture Training Center
- Greenhouse
- Pump House
- 1.3 mile trail system

In the past few years, OTC Richwood Valley has been affected by several severe storms. It's greenhouse was struck by lightning three times in the period of about a year, resulting in several thousand dollars' worth of damage. More information about past hazards can be found in chapter three of this plan. OTC Richwood Valley's hazard mitigation capabilities include:

- One (1) FEMA designated tornado shelter (Richwood Valley Annex)
- Underbrush clearing for fire prevention
- Life safety mass communication system
- Safety and Security Department
- Ability to fund capital improvement projects
- Emergency Manager
- Shelter in Place protocols
- Evacuation protocols

Table 2.20 on page **2.43** provides a full summary of the school district's mitigation capabilities.

The district expects a 3% growth in enrollment over the next five years. In order to expand its mitigation capabilities, the district could consider adopting a master plan. They could also update their school emergency plan, which was last done in 2010.

Summary of Public School District Capabilities

Table 2.20. Public School District Mitigation Capabilities Summary Table

Capability	Billings R-IV	Clever R-V	Nixa Public Schools	Ozark R-VI	Sparta R-III	OTC – Richwood Valley
Planning Elements						
Master Plan/ Date	Yes, April 2025	Yes, 2020	Yes, 2025	Yes, August 2025	No	No
Capital Improvement Plan/Date	Yes, April 2025	Yes, 2020	Yes, 2025	Yes, August 2025	Yes, July 2026	Yes, 2025
School Emergency Plan / Date	Yes, February 2026	Yes, 2025	Yes, 2025	Yes, August 2025	Yes, August 2025	Yes, 2010
Weapons Policy/Date	Yes, July 2025	Yes, 2025	Yes, 2025	Yes, August 2025	Yes	Yes, 2003
Planning Resources						
Full-Time Building Official (Principal)	Yes	Yes	Yes	Yes	Yes	Yes
Emergency Manager	Yes	Yes	Yes	Yes	Yes	Yes
Grant Writer	Yes	Yes	Yes	Yes	No	Yes
Public Information Officer	Yes	Yes	Yes	Yes	No	Yes
Financial Resources						
Capital Improvements Project Funding	Yes	Yes	Yes	Yes	Yes	Yes
Local Funds	Yes	Yes	Yes	Yes	Yes	No
General Obligation Bonds	No	Yes	Yes	Yes	No	Yes
Special Tax Bonds	No	No	Yes	Yes	No	No
Private Activities/Donations	Yes	No	Yes	Yes	No	Yes
State and Federal Funds/Grants	No	Yes	Yes	Yes	Yes	Yes
Other						
Public Education Programs						
Privately or Self- Insured?						
Fire Evacuation Training	Yes	Yes	Yes	Yes	Yes	
Tornado Sheltering Exercises	Yes	Yes	Yes	Yes	Yes	
Public Address/Emergency Alert System	Yes	Yes	Yes	Yes	Yes	Yes

NOAA Weather Radios	Yes	Yes	Yes	Yes	Yes	No
Lock-Down Security Training	Yes	Yes	Yes	Yes	Yes	
Mitigation Programs					Yes	Yes
Tornado Shelter/Saferoom	Yes	Yes	Yes	Yes	Yes	Yes
Campus Police	Yes, One (1) Christian County Deputy	Yes	Yes	Six (6) Christian County Deputies employed as School Resource Officers	Yes, One (1) Sparta Police Officer employed as School Resource Officer	No, Campus Safety and Security instead

Source: Data Collection Questionnaire, 2025-2026

2.2.3 Special Districts

Christian County Ambulance District

Christian County Ambulance District (CCAD) is an advanced life support, property tax based Ambulance District that services all but the western portion of Christian County, Missouri. The district’s service area covers 562.65 square miles. CCAD is licensed by the Missouri Bureau of Emergency Medical Services and currently contracts EMS to CoxHealth, which is a hospital-based EMS system. CCAD is very active in public education programs and contributes to the community in various forms from working with the local school districts for community education programs, partnering with local business organizations for public health issues and planning. CCAD is governed by a six-member Board of Directors, with day-to-day operations being overseen by the District Director. The district’s facilities includes:

- Five (5) permanent base stations
- Twelve (12) ambulances
- Miscellaneous equipment and contents

The Christian County Ambulance District provides free and discounted CPR certification and First Aid courses. They also provide free “Stop the Bleed” training and education. Mitigation capabilities include:

- Citizen preparedness programs
- Mutual aid agreements in place
- EMT training and public safety training
- Community outreach and education programs
- Capital Improvements funding

Table 2.21 on page **2.47** provides a summary of the district’s mitigation capabilities.

Christian County Emergency Services 911

Christian County Emergency Services 911 (CCES) is the sole Public Safety Answering Point (PSAP) in Christian County, meaning all 911 calls in the County are answered here. CCES also serves as dispatch for seven law enforcement agencies, seven fire protection districts, and as secondary dispatch for several other jurisdictions. CCES is governed by a seven-member Board of Directors, each of whom serves as a head of an emergency services agency within Christian County. CCES’s hazard mitigation capabilities include:

- Education programs
- Education materials published on website

Table 2.21 on page **2.47** provides a summary of the district’s mitigation capabilities.

Logan-Rogersville Fire Protection District

Logan-Rogersville Fire Protection District is a combination (paid and volunteer) fire department located in portions of Christian, Greene, and Webster Counties, with a service area of approximately 160 square miles. The district is governed by a five (5) member Board of Directors and is comprised of six (6) fire stations. The district’s mitigation capabilities include:

- Hydrant flushing program
- Youth education program

- Mutual aid agreements (with surrounding jurisdictions and the state)
- Smoke detector distribution program

Table 2.21 on page **2.47** provides a summary of the district's mitigation capabilities.

Ozark Fire Protection District

The Ozark Fire Protection District provides emergency services over a 110 square mile service area, serving Ozark, Fremont Hills, and parts of unincorporated Christian County. The District is governed by a 5-member Board of Directors, who appoints a Fire Chief that manages day-to-day operations. The district's exposures include:

- Three (3) Fire Stations
- 41 personnel
- Eighteen plus (18+) vehicles

The Ozark Fire Protection District offers many community outreach programs, including fire education sessions, home inspections, and yearly CPR and fire extinguisher trainings. The district also uses Community Connect, which is a voluntary database for residents and businesses to report information about their property that would be helpful in the event of an emergency. The district's other mitigation capabilities include:

- Mutual and Automatic Aid Agreements
- Capital Improvements Funding Capability
- Smoke detector distribution and instillation

Table 2.21 on page **2.47** provides a summary of the district's mitigation capabilities.

Ozark Special Road District

The Ozark Special Road District serves an area of approximately 37.83 square miles in and around the City of Ozark. The district is responsible for maintaining roads, culverts, and bridges within its service area. The district is governed by a three (3) member elected commission, and is funded through the state fuel tax, funds distributed by the County Commission, and through rural land valuations. Exposures include:

- One (1) building (office/maintenance shop)
- 139 miles of asphalt roads
- 326 culverts
- Ten (10) bridges
- One (1) low water crossing

In May 2025, flooding caused over \$60,000 in damages to roads and the maintenance shop of the district. More information about past hazards is available in chapter three (3) of this plan. Hazard mitigation capabilities include:

- Pavement and stormwater infrastructure assessment
- Regular tree trimmings
- Ability to fund projects with Capital Improvement Funding
- Bridge repair and upkeep
- Culvert upsizing
- Road signage with high intensity facing

Table 2.21 on page 2.47 provides a summary of the district's mitigation capabilities.

Summary of Special District Capabilities

Table 2.21. Special District Mitigation Capabilities Summary Table

Element	Christian County Ambulance District	Christian County Emergency Services 911	Logan-Rogersville Fire Protection District	Ozark Fire Protection District	Ozark Special Road District
Planning Capabilities					
Capital Improvement Plan	n/a	n/a	n/a	Yes, 2021	No
Emergency Operations Plan	No	n/a	n/a	EMA	No
Continuity of Operations Plan	Yes, through Cox	n/a	n/a	EMA	No
Community Wildfire Protection Plan	n/a	n/a	n/a	EMA	No
Programs					
Cross-Connection Program	n/a	n/a	No	n/a	No
Hydrant Flushing Program	n/a	n/a	Yes	Through City of Ozark	n/a
Public Education/Awareness	Yes	Yes	Yes	Yes	No
Tree Trimming Program	n/a	n/a	No	n/a	Trim trees in Nov./Dec. and as needed
Mutual Aid Agreements	Yes	n/a	Yes	Yes	No
Studies/Reports/Maps					
Evacuation Route Map	Yes	No	No	EMA	No
Critical Facilities Inventory	No	No	Yes	EMA	No
Financial Resources					
Fund projects through Capital Improvement funding	Yes	Yes	No	Yes	Yes
Fees for water, sewer, gas, or electric services	Yes	n/a	No	No	No
Incur debt through general obligation bonds	Yes	Yes	No	Yes	No
Incur debt through special tax bonds	Yes	Yes	No	No	No
Incur debt through private activities	No	Yes	No	No	No
Withhold spending in hazard prone areas	Yes	No	No	No	n/a

Source: Data Collection Questionnaire, 2025-2026

3 RISK ASSESSMENT

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44 CFR Requirement §201.6(c)(2): [The plan shall include] A risk assessment that provides the factual basis for activities proposed in the strategy to reduce losses from identified hazards. Local risk assessments must provide sufficient information to enable the jurisdiction to identify and prioritize appropriate mitigation actions to reduce losses from identified hazards.

The goal of the risk assessment is to estimate the potential loss in the planning area, including loss of life, personal injury, property damage, and economic loss, from a hazard event. The risk assessment process allows communities and school/special districts in the planning area to better understand their potential risk to the identified hazards. It will provide a framework for developing and prioritizing mitigation actions to reduce risk from future hazard events.

This chapter is divided into four main parts:

- **Section 3.1 Hazard Identification** identifies the hazards that threaten the planning area and provides a factual basis for elimination of hazards from further consideration;
- **Section 3.2 Assets at Risk** provides the planning area's total exposure to natural hazards, considering critical facilities and other community assets at risk;
- **Section 3.3 Land Use and Development** discusses development that has occurred since the last plan update and any increased or decreased risk that resulted. This section also discusses areas of planned future development and any implications on risk/vulnerability;
- **Section 3.4 Hazard Profiles and Vulnerability Analysis** provides more detailed information about the hazards impacting the planning area. For each hazard, there are three sections: 1) Hazard Profile provides a general description and discusses the threat to the planning area, the geographic location at risk, potential Strength/Magnitude/Extent, previous occurrences of hazard events, probability of future occurrence, risk summary by jurisdiction, impact of future development on the risk; 2) Vulnerability Assessment further defines and quantifies populations, buildings, critical facilities, and other community/school or special district assets at risk to natural hazards; and 3) Problem Statement briefly summarizes the problem and develops possible solutions.

3.1 HAZARD IDENTIFICATION

Requirement §201.6(c)(2)(i): [The risk assessment shall include a] description of the type...of all natural hazards that can affect the jurisdiction.

The Plan profiles all natural hazards that can impact Christian County. These hazards were also identified in the previous county plan and the 2023 Missouri State Hazard Mitigation Plan. Natural hazards are naturally-occurring climatological, hydrological, or geologic events that have a negative effect on people and the built environment. Natural hazards identified include:

- Riverine and Flash Flood
- Dam Failure • Earthquake
- Land Subsidence/Sinkholes
- Drought
- Extreme Temperatures
- Severe Thunderstorm/High Winds/Lightning/Hail
- Severe Winter Weather
- Tornado
- Wildfire

3.1.1 Review of Existing Mitigation Plans

The State Plan also includes levee failure. Levee failure was excluded from the mitigation planning process as there are no mapped levees nor associated levee protected areas within or immediately upstream of the county.

Human-caused and technological hazards identified in the State Plan include:

- CBRNE Attack
- Civil Disorder
- Cyber Disruption
- Structural and Urban Fires
- Hazardous Materials
- Mass Transportation Accidents
- Nuclear Power Plants
- Public Health Emergencies/Environmental Issues
- Special Events
- Terrorism
- Utility Interruptions and System Failures

In Missouri, local plans customarily include only natural hazards, as only natural hazards are required by federal regulations to be included. The MPC agreed that human-caused and technological hazards are addressed in a Regional Homeland Security Oversight Committee (RHSOC) Threat and Hazard Identification Risk Assessment (THIRA) and that including only natural hazards would meet the needs of local entities participating in the plan update.

3.1.2 Review of Disaster Declaration History

Christian County has experienced a number of natural disasters like severe storms, severe ice storms, and floods. Federal and/or state declarations may be granted when the severity and magnitude of an event surpasses the ability of a local government to respond and recover. Disaster assistance is supplemental and sequential. When the local government's capacity has been surpassed, a state disaster declaration may be issued, allowing for the provision of state assistance. If the disaster is so severe that both the local and state governments' capacities are exceeded; a federal emergency or disaster declaration may be issued allowing for the provision of federal assistance.

The Robert T. Stafford Disaster Relief and Emergency Assistance Act, (PL 100-707) requires that all requests for a declaration by the president must be made by the governor of the affected state. State and federal officials conduct a Preliminary Damage Assessment (PDA) to show that the disaster is of such severity and magnitude that effective response is beyond state and local capabilities. Based on the governor's request, the president may declare that a major disaster or emergency exists, thus activating federal programs to assist in the response and recovery effort. Not all programs are activated for every disaster. Some declarations will provide only individual assistance or public assistance, while others provide both.

FEMA also issues emergency declarations, which are more limited in scope and do not include the long-term federal recovery programs of major disaster declarations. Determinations for declaration type are based on scale and type of damages and institutions or industrial sectors affected.

Since 2000, Christian County has been included in 20 disaster declarations. The most recent occurred in 2023. **Table 3.1** provides more details.

Table 3.1. FEMA Disaster Declarations that included Christian County, 2000-Present

Disaster Number	Description	Declaration Date	Individual Assistance (IA) and/or Public Assistance (PA)
4741	Severe Storms, Straight-Line Winds, Tornadoes, and Flooding	September 21, 2023	Public Assistance
3482	COVID-19 Pandemic	March 26, 2020	Public Assistance
4490	COVID-19	March 13, 2020	Public Assistance
4317	Severe Storms, Tornadoes, Straight-Line Winds, Flooding	June 2, 2017	Public Assistance
3374	Severe Storms, Tornadoes, Straight-Line Winds, Flooding	January 2, 2016	Public Assistance
4238	Severe Storms, Tornadoes, Straight-line Winds, Flooding	August 7, 2015	Public Assistance
1980	Severe Storms, Tornadoes, and Flooding	May 9, 2011	Public Assistance
3317	Severe Winter Storm	February 3, 2011	Public Assistance
1847	Severe Storms, Tornadoes, Flooding	June 19, 2009	Public Assistance
3303	Severe Winter Storms	January 30, 2009	Public Assistance
1809	Severe Storms, Flooding, Tornado	November 13, 2008	Public Assistance
1773	Severe Storms, Flooding	June 25, 2008	Individual & Public Assistance
1749	Severe Storms, Flooding	March 19, 2008	Individual & Public Assistance
1748	Severe Winter Storms, Flooding	March 12, 2008	Public Assistance
3281	Severe Winter Storms	December 12, 2007	Public Assistance
1676	Severe Winter Storms, Flooding	January 15, 2007	Public Assistance
1631	Severe Storms, Tornadoes, Flooding	March 16, 2006	Individual & Public Assistance
3232	Hurricane Katrina Evacuation	September 10, 2005	Public Assistance
1463	Severe Storms, Tornadoes, Flooding	May 6, 2003	Individual & Public Assistance
1412	Severe Storms, Tornadoes, Flooding	May 6, 2002	Individual & Public Assistance

Source: Federal Emergency Management Agency, <https://www.fema.gov/openfema-data-page/disaster-declarations-summaries-v2>

3.1.3 Research Additional Sources

A variety of sources were researched for data on natural hazards. Primary sources included FEMA, State Emergency Management Agency (SEMA), and the National Centers for Environmental Information's (NCEI) National Oceanic and Atmospheric Administration (NOAA). The U.S. Geological Survey (USGS) and the Center for Earthquake Research and Information (CERI) were major sources for earthquake information. The Missouri Department of Natural Resources (MDNR) Dam Safety Division provided information concerning dams and the Missouri Department of

Conservation (MDC). Other information sources included county officials; existing city, county, regional and state plans; and information from local officials. The additional sources of data on locations and past impacts of hazards in the county include:

- Missouri Hazard Mitigation Plans (2023)
- Previously approved Christian County Hazard Mitigation Plan (2020)
- Federal Emergency Management Agency (FEMA)
- Missouri Department of Natural Resources
- National Drought Mitigation Center Drought Reporter
- US Department of Agriculture's (USDA) Risk Management Agency Crop Insurance Statistics
- Data Collection Questionnaires completed by each jurisdiction
- State of Missouri GIS data
- Environmental Protection Agency
- Flood Insurance Administration
- Hazards US (Hazus)
- Missouri Department of Transportation
- Missouri Public Service Commission
- National Fire Incident Reporting System (NFIRS)
- National Oceanic and Atmospheric Administration's (NOAA) National Centers for Environmental Information (NCEI)
- County and local Comprehensive Plans to the extent available
- County Emergency Management • County Flood Insurance Rate Map, FEMA
- Flood Insurance Study, FEMA
- SILVIS Lab, Department of Forest Ecology and Management, University of Wisconsin
- U.S. Army Corps of Engineers
- U.S. Department of Transportation
- United States Geological Survey (USGS)

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The only centralized source of data for many of the weather-related hazards is the National Oceanic and Atmospheric Administration's (NOAA) National Centers for Environmental Information (NCEI). Although it is usually the best and most current source, there are limitations to the data which should be noted. The NCEI documents the occurrence of storms and other significant weather phenomena having sufficient intensity to cause loss of life, injuries, significant property damage, and/or disruption to commerce. In addition, it is a partial record of other significant meteorological events, such as record maximum or minimum temperatures or precipitation that occurs in connection with another event. Some information appearing in the NCEI may be provided by or gathered from sources outside the National Weather Service (NWS), such as the media, law enforcement and/or other government agencies, private companies, individuals, etc. An effort is made to use the best available information but because of time and resource constraints, information from these sources may be unverified by the NWS. Those using information from NCEI should be cautious as the NWS does not guarantee the accuracy or validity of the information.

The NCEI damage amounts are estimates received from a variety of sources, including those listed above in the Data Sources section. For damage amounts, the NWS makes a best guess using all available data at the time of the publication. Property and crop damage figures should be considered as a broad estimate. Damages reported are in dollar values as they existed at the time of the storm event. They do not represent current dollar values. The database currently contains data as far back as January 1950, as entered by the NWS. Due to changes in the data collection and processing procedures over time, there are unique periods of record available depending on the event type. The following timelines show the different time spans for each period of unique data collection and processing procedures:

1. Tornado: From 1950 through 1954, only tornado events were recorded.
2. Tornado, Thunderstorm Wind and Hail: From 1955 through 1992, only tornado, thunderstorm wind and hail events were keyed from the paper publications into digital data. From 1993 to 1995, only tornado, thunderstorm wind and hail events have been extracted from the Unformatted Text Files.
3. All Event Types (48 from Directive 10-1605): From 1996 to present, 48 event types are recorded as defined in NWS Directive 10-1605.

It should also be noted that injuries and deaths caused by a storm event are reported on an area wide basis. When reviewing a table resulting from an NCEI search by county, the death or injury listed in connection with that county search did not necessarily occur in that county.

3.1.4 Hazards Identified

The natural hazards that may impact Christian County are profiled below. **Table 3.2** provides a summary. An “X” in the table indicates that jurisdiction is affected by the hazard, and a “-” indicates the hazard is not applicable to that jurisdiction.

Table 3.2. Hazards Identified for Each Jurisdiction

Jurisdiction	Dam Failure	Drought	Earthquake	Extreme Temperatures	Flooding (River and Flash)	Land Subsidence/ Sinkholes	Severe Winter Weather	Thunderstorm/Lightning/ Hail/High Wind	Tornado	Wildfire
Christian County	X	X	X	X	X	X	X	X	X	X
Fremont Hills	-	X	X	X	X	X	X	X	X	X
Highlandville	-	X	X	X	X	X	X	X	X	X
Nixa	-	X	X	X	X	X	X	X	X	X
Ozark	-	X	X	X	X	X	X	X	X	X
Saddlebrooke	-	X	X	X	X	X	X	X	X	X
Sparta	-	X	X	X	X	X	X	X	X	X
Billings R-IV	-	X	X	X	X	X	X	X	X	X
Clever R-V	-	X	X	X	X	X	X	X	X	X
Nixa Public Schools	-	X	X	X	X	X	X	X	X	X
Ozark R-VI	-	X	X	X	X	X	X	X	X	X
Sparta R-III	-	X	X	X	X	X	X	X	X	X
Ozarks Technical College – Richwood Valley	-	X	X	X	X	X	X	X	X	X
Christian County Ambulance District	X	X	X	X	X	X	X	X	X	X
Christian County Emergency Services 911	X	X	X	X	X	X	X	X	X	X
Logan-Rogersville Fire Protection District	-	X	X	X	X	X	X	X	X	X
Ozark Fire Protection District	X	X	X	X	X	X	X	X	X	X
Ozark Special Road District	-	X	X	X	X	X	X	X	X	X

Dam failure was only included as a hazard for Christian County because this is a very localized threat and the dams within the county are only located within the unincorporated portions of the county. Some dams are located within a school district; however, those districts do not have any facilities located near the dams nor do they have any plans to expand near those dams. There are no dams threatening facilities owned by the Christian County Ambulance District, Christian County Emergency Services 911, or Ozark Fire Protection District. However, there are dams located within the service area for those districts, so they would potentially respond to calls relating to dam failure.

3.1.5 Multi-Jurisdictional Risk Assessment

The risk assessment assesses each participating jurisdiction's vulnerability to each hazard that can affect the planning area. Many of the hazards identified in the risk assessment have the same probability of occurrence throughout the planning area. The hazards that vary across the planning area in terms of risk include dam failure, flash flood, grass or wildland fire, river flood, and sinkholes/land subsidence. These differences are detailed in each hazard profile under geographic location and vulnerability.

Christian County is fairly uniform in terms of climate, however, topography and building construction characteristics vary within the county. Christian County has experienced rapid growth in population and development since 2000. Most of this growth has occurred in the north central portion of the county and western panhandle due to its proximity to the Springfield metropolitan area. As these areas have urbanized, the capability to manage growth has increased as well. Mitigation capabilities of each jurisdiction are profiled chapter 2.

The urbanized areas within the planning area, which have more assets at a greater density, have greater vulnerability to weather-related hazards. However, the vulnerability to future development can be mitigated through updated building codes and code enforcement as well as smart land use planning. These capabilities and resources to mitigate the impact of natural hazards vary across jurisdictions in the planning area. These differences will be discussed in greater detail in the vulnerability sections of each hazard.

3.2 ASSETS AT RISK

This section assesses Christian County population, structures, critical facilities and infrastructure, and other important assets that may be at risk to hazards. The inventory of assets for each jurisdiction were derived from parcel data from the Christian County Assessor, the Christian County Structures dataset downloaded from Missouri Spatial Data information Service (MSDIS), and local jurisdiction data collection questionnaires. The Missouri Mitigation Viewer was also referenced to ensure that total counts looked accurate.

3.2.1 Total Exposure of Population and Structures

Missouri Spatial Data Information Service (MSDIS) data was used for structure points and paired with Christian County Assessors data for values.

Unincorporated County and Incorporated Cities

In the following three tables, building counts and exposure values are based on parcel data developed by the University of Missouri GIS Department (MSDIS). Data from FEMA's National Structure Inventory (NSI) and the Christian County Assessor were also referenced.

Contents exposure values were calculated by factoring a multiplier to the building exposure values based on usage type – Residential 50%, Commercial 50%, Industrial 150%, and Agricultural 100%. Land values have been purposely excluded from consideration because land remains following disasters, and subsequent market devaluations are frequently short term and difficult to quantify. Another reason for excluding land values is that state and federal disaster assistance programs generally do not address loss of land (other than crop insurance). In addition, government-owned properties are usually taxed differently or not at all, and so may not be an accurate representation of

true value. Note that public school district assets and special districts assets are included in the total exposure tables assets by community and county.

Table 3.3 shows the building count, estimated value of buildings, estimated value of contents, and estimated total exposure to parcels for each participating municipal jurisdiction. **Table 3.4** provides the building value exposures broken down by usage type. Finally, **Table 3.5** provides the building count totals broken down by building usage types. To accommodate for mixed-use parcels, the data has been based on the lowest class of use for each parcel (e.g. residential-agricultural mixture is considered residential).

Table 3.3. Total Building Count and Exposure

Jurisdiction	Building Count	Building Exposure	Contents Exposure	Total Exposure
Unincorporated Christian County*	32,234	\$2,571,566,000	\$1,385,850,000	\$3,957,416,000
Fremont Hills	397	\$40,800,000	\$20,990,000	\$61,790,000
Highlandville	804	\$67,456,000	\$35,373,000	\$102,829,000
Nixa	7,952	\$866,005,000	\$484,386,000	\$1,350,391,000
Ozark	8,948	\$982,040,000	\$555,118,000	\$1,537,158,000
Saddlebrooke	180	\$17,327,000	\$9,379,000	\$26,706,000
Sparta	894	\$101,336,000	\$55,997,000	\$157,333,000
Total	51,409	\$4,646,530,000	\$2,547,093,000	\$7,193,623,000

Source: U.S. Bureau of the Census, Annual population estimates/ 5-Year American Community Survey 2024; Building Count and Building Exposure, Missouri GIS Database from SEMA Mitigation Management; Contents Exposure derived by applying multiplier to Building Exposure based on Hazus 6.0 standard contents multipliers per usage type as follows: Residential (50%), Commercial (100%), Industrial (150%), Agricultural (100%). For purposes of these calculations, government, school, and utility were calculated at the commercial contents rate. *Due to portions of Saddlebrooke being within Taney County, and portions of Republic being within Christian County, the Unincorporated Christian County population estimate will be slightly inaccurate.

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Table 3.4. Building Exposure by Usage Type

Jurisdiction	Agriculture	Commercial	Education	Government	Industrial	Residential	Total
Unincorporated Christian County	\$31,198,000	\$102,457,000	\$15,690,000	\$3,561,000	\$70,502,000	\$2,348,158,000	\$2,571,566,000
Fremont Hills	\$0	\$1,180,000	\$0	\$0	\$0	\$39,619,000	\$40,800,000
Highlandville	\$779,000	\$6,138,000	\$2,942,000	\$317,000	\$278,000	\$57,003,000	\$67,456,000
Nixa	\$219,000	\$62,560,000	\$16,671,000	\$1,583,000	\$27,757,000	\$757,216,000	\$866,005,000
Ozark	\$299,000	\$121,107,000	\$12,748,000	\$2,928,000	\$8,605,000	\$836,354,000	\$982,040,000
Saddlebrooke	\$64,000	\$1,416,000	\$0	\$79,000	\$0	\$15,767,000	\$17,327,000
Sparta	\$45,000	\$12,276,000	\$4,903,000	\$554,000	\$1,388,000	\$82,170,000	\$101,336,000
Total	\$32,604,000	\$307,134,000	\$52,954,000	\$9,022,000	\$108,530,000	\$4,136,287,000	\$4,646,530,000

Source: University of Missouri GIS Department (MSDIS)

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Table 3.5. Building Counts by Usage Type

Jurisdiction	Agriculture	Commercial	Education	Government	Industrial	Residential	Total
Unincorporated Christian County	8,252	434	16	45	254	23,233	32,234
Fremont Hills	0	5	0	0	0	392	397
Highlandville	206	26	3	4	1	564	804
Nixa	58	265	17	20	100	7,492	7,952
Ozark	79	513	13	37	31	8,275	8,948
Saddlebrooke	17	6	0	1	0	156	180
Sparta	12	52	5	7	5	913	894
Total	,9624	1,301	54	114	391	41,025	51,409

Source: University of Missouri GIS Department (MSDIS)

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Table 3.6 provides the building count and exposure for public school districts. This information was provided by the school districts in the data collection questionnaire.

Table 3.6. Building Exposure for Public School Districts

Public School District	Building Exposure	Contents Exposure	Total Exposure
Billings R-IV	\$29,927,508	\$1,989,807	\$31,917,315
Clever R-V	\$50,669,631	\$4,929,151	\$55,598,782
Nixa Public Schools*	-	-	-
Ozark R-VI	\$290,974,373	\$24,708,387	\$315,682,760
Sparta R-III	\$39,275,640	\$9,272,495	\$48,548,135
Ozark Technical Community College – Richwood Valley	\$30,062,006	\$2,509,276	\$35,571,282

Source: Data collection questionnaires

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*Nixa Public Schools did not supply this data.

3.2.2 Critical and Essential Facilities and Infrastructure

This section will include information from the Data Collection Questionnaire and other sources concerning the vulnerability of participating jurisdictions' critical, essential, high potential loss, and transportation/lifeline facilities to identified hazards. Definitions of each of these types of facilities are provided below.

- Critical Facility: Those facilities essential in providing utility or direction either during the response to an emergency or during the recovery operation.
- Essential Facility: Those facilities that if damaged, would have devastating impacts on disaster response and/or recovery.
- High Potential Loss Facilities: Those facilities that would have a high loss or impact on the community.
- Transportation and lifeline facilities: Those facilities and infrastructure critical to transportation, communications, and necessary utilities.

Table 3.7 includes a summary of the inventory of critical and essential facilities and infrastructure in the planning area.

Table 3.7. Inventory of Critical/Essential Facilities and Infrastructure by Jurisdiction

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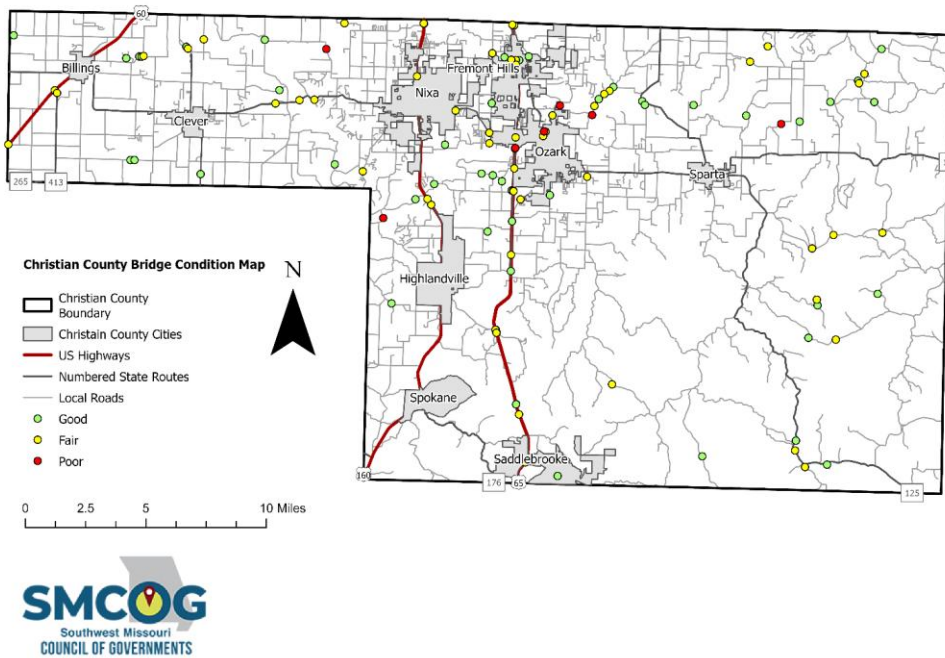
Jurisdiction	Airport Facility	Bus Facility	Childcare Facility	Communications Tower	Electric Power Facility	Emergency Operations	Fire Service	Government	Housing	Shelters	Highway Bridge	Hospital/Health Care	Military	Natural Gas Facility	Nursing Homes	Police Station	Potable Water Facility	Rail	Sanitary Pump Stations	School Facilities	Stormwater Pump Stations	Tier II Chemical Facility	Wastewater Facility	TOTAL
Unincorporated Christian County	4	0	4	33	10	0	9	7	34,792	0	71	0	7	9	0	0	0	Y	0	9	0	0	0	34,955
Fremont Hills	0	0	0	0	0	0	0	0	442	0	1	0	0	0	0	0	0	N	1	0	0	0	2	446
Highlandville	0	0	0	0	0	0	1	3	474	1	0	0	0	0	0	1	0	N	0	1	0	0	0	481
Nixa	0	0	4	1	4	0	2	9	8,757	1	0	4	1	0	6	1	9	N	15	8	0	0	1	8,823
Ozark	0	1	7	4	2	0	2	8	7,718	1	4	6	0	0	7	1	14	N	18	7	0	0	2	7,802
Saddlebrooke	0	0	0	0	0	0	0	1	105	0	2	0	0	0	0	0	0	N	0	0	0	0	0	108
Sparta	0	0	1	0	0	0	1	2	752	0	0	1	0	0	0	1	0	N	0	4	0	0	0	762
Totals	4	0	14	39	16	3	16	33	54,065	4	74	8	8	9	11	6	11	-	34	21	0	0	6	54,382

Source: Missouri 2023 State Hazard Mitigation Plan and Hazard Mitigation Viewer; Data Collection Questionnaires; Hazus, etc.

Figure 3.1 is a map that shows the locations of bridges in Christian County included in the National Bridge Inventory (NBI) data set. These bridges and additional low water crossings are further explored in **section 3.4.1**.

Commented [TC12]: Add a sentence that says "There are XX classified as "poor" condition, XX as "fair" condition, and XX as "good" condition."

Figure 3.1. Christian County Bridges



3.2.3 Other Assets

Assessing the vulnerability of the planning area to disaster also requires data on the natural, historic, cultural, and economic assets of the area. This information is important for many reasons.

- These types of resources warrant a greater degree of protection due to their unique and irreplaceable nature and contribution to the overall economy.
- Knowing about these resources in advance allows for consideration immediately following a hazard event, which is when the potential for damages is higher.
- The rules for reconstruction, restoration, rehabilitation, and/or replacement are often different for these types of designated resources.
- The presence of natural resources can reduce the impacts of future natural hazards, such as wetlands and riparian habitats which help absorb floodwaters.
- Losses to economic assets like these (e.g., major employers or primary economic sectors) could have severe impacts on a community and its ability to recover from disaster.

Threatened and Endangered Species: **Table 3.8** displays Federally Threatened, Endangered, Proposed, and Candidate Species in the county.

Table 3.8. Threatened and Endangered Species in Christian County

Common Name	Scientific Name	Status
Gray Bat	<i>Myotis grisescens</i>	Endangered
Indiana Bat	<i>Myotis sodalis</i>	Endangered
Northern Long-eared Bat	<i>Myotis septentrionalis</i>	Endangered
Tricolored Bat	<i>Perimyotis subflavus</i>	Proposed Endangered
Alligator Snapping Turtle	<i>Macrochelys temminckii</i>	Proposed Threatened
Ozark Cavefish	<i>Amblyopsis rosae</i>	Threatened
Neosho Mucket	<i>Lampsilis rafinesqueana</i>	Endangered
Rabbitsfoot	<i>Quadrula cylindrica cylindrica</i>	Threatened
Monarch Butterfly	<i>Danaus plexippus</i>	Proposed Threatened
Western Regal Fritillary	<i>Argynnis idalia occidentalis</i>	Proposed Threatened
Missouri Bladderpod	<i>Physaria filiformis</i>	Threatened
Virginia Sneezeweed	<i>Helenium virginicum</i>	Threatened

Source: <https://ecos.fws.gov/ipac/>

Natural Resources: The Missouri Department of Conservation (MDC) provides a database of lands the MDC owns, leases, or manages for public use. **Table 3.9** provide the names and locations of parks and conservation areas in Christian County.

Table 3.9. Conservation Areas in Christian County

Conservation Area	Location	Things to Do When You Visit
Delaware Town Access	From Nixa, take Highway 14 west 5 miles, then Delaware Town Road north.	Bird Watching, Fishing
Shelvin Rock Access	From Nixa, take Highway 14 west, then Route M south 4 miles, and Shelvin Rock Road west 2 miles.	Bird Watching, Fishing
Busiek State Forest and Wildlife Area	From Springfield, take Highway 65 south 18 miles.	Shooting Range, Trails, Biking, Horseback, Hiking, Bird Watching, Camping, Hunting

Source: <https://mdc.mo.gov/conservation-areas-search>

Historic Resources: The National Register of Historic Places is the official list of registered cultural resources worthy of preservation. It was authorized under the National Historic Preservation Act of 1966 as part of a national program. The purpose of the program is to coordinate and support public and private efforts to identify, evaluate, and protect our historic and archeological resources. The National Register is administered by the National Park Service under the Secretary of the Interior. Properties listed in the National Register include districts, sites, buildings, structures and objects that are significant in American history, architecture, archeology, engineering, and culture.

There are three registered historic properties in Christian County. See **Table 3.10** for information about these properties.

Commented [TC13]: Click that link, search for county, draw boundary around county

Commented [TC14R13]: Alt source: [Map: U.S. Threatened and Endangered Species by County](#)

Table 3.10. Christian County Properties on the National Register of Historic Places

Property	Address	City	Date Listed
Ozark Courthouse Square Historic District	Portions of 2nd. Ave., Church, Elm, and 2nd Sts. on the Courthouse Square	Ozark	2/5/2009
Smallin Cave Historic District	3575 N Smallin Road	Ozark	3/8/2018
Southwest Missouri Prehistoric Rock Shelter and Cave Sites Discontiguous Archeological District	Address Restricted	Chadwick	10/24/1991

Source: National Register of Historic Places – Spreadsheet of NRHP Listed Properties <https://www.nps.gov/subjects/nationalregister/data-downloads.htm>

Economic Resources: Major non-government employers in Christian County are provided in **Table 3.11.**

Table 3.11. Major Non-Government Employers in Christian County

Employer Name	Location	Product or Service	Employees
Cassville Processing Inc	Ozark	Poultry Processing	800
Diversified Plastics Corp	Nixa	Plastics Product Manufacturing	385
OTC Richwood Valley	Nixa	Junior College	300
Och Sparta Clinic	Sparta	Offices of Physicians	300
Walmart Supercenter	Nixa	Department Store	300
Walmart Supercenter	Ozark	Department Store	300
Lambert Café	Ozark	Full-Service Restaurant	220
Superior Linen Service	Ozark	Linen Supply	200
K2 Mac	Nixa	Full-Service Restaurant	161
Sgl Sales & Marketing	Ozark	Department Store	150

Source: Lightcast <https://lightcast.io/>

Commented [TC15]: Source: lightcast, industry tab on left, business table box at the bottom

According to the United States Department of Agriculture 2022 Agricultural Census, there were a total of 475 paid farm workers and 1,016 unpaid farm workers (typically consisting of farm owners and their families) employed in Christian County. **Table 3.12** has more information about agriculture-related jobs.

Table 3.12. Agriculture-Related Jobs in Christian County 2022

Workers	
Hired workers	475
Hired worker payroll	\$4,020,000
Worked 150 days or more	164
Worked less than 150 days	311
Migrant workers	6
Unpaid workers	1,016
Farms	
Farms with hired workers	227
Farms with 1-4 hired workers	211
Farms with 5-9 hired workers	11
Farms with 10 or more hired workers	5

Source: https://www.nass.usda.gov/Publications/AgCensus/2022/Full_Report/Volume_1_Chapter_2_County_Level/Missouri/st29_2_007_007.pdf

Commented [TC16]: List of Reports and Publications | 2022 Census of Agriculture | USDA/NASS

3.3 LAND USE AND DEVELOPMENT

3.3.1 Development Since Previous Plan Update

Table 3.13 provides population growth statistics for participating municipalities in Christian County from 2010 to 2024.

Table 3.13. Christian County Population Growth, 2010-2024

Jurisdiction	2010 Population	2024 Annual Population Estimate or ACS Population	# Change (2010-2024)	% Change (2010-2024)
Christian County	77,422	92,915	15,493	20.0%
Fremont Hills	826	1,574	748	90.6%
Highlandville	911	950	39	4.3%
Nixa	19,022	24,836	5,814	30.6%
Ozark	17,820	22,417	4,597	25.8%
Saddlebrooke	202	337	135	66.8%
Sparta	1,756	2,331	575	32.7%

Source: U.S. Bureau of the Census, Decennial Census, Annual Population Estimates, American Community Survey 5-year Estimates; Population Statistics are for entire incorporated areas as reported by the Census bureau

Population growth or decline is generally accompanied by increases or decreases in the number of housing units. Increases in population add to the built environment and increase risk and exposure to hazard events. **Table 3.14** provides the change in numbers of housing units in Christian County from 2010 to 2020.

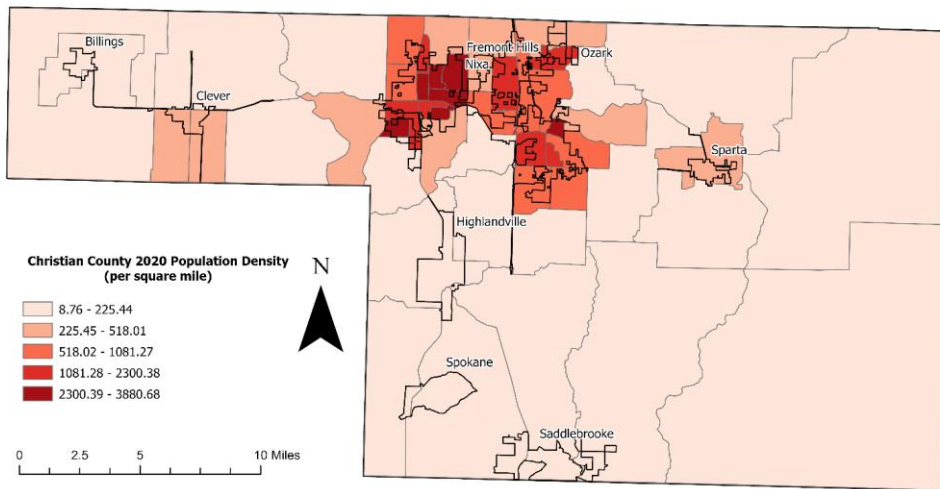
Table 3.14. Change in Housing Units, 2010-2024

Jurisdiction	2010 Housing Units, ACS Estimate	2024 Housing Units, ACS Estimate	# Change (2010-2024)	% Change (2010-2024)
Christian County	30,504	36,643	6,139	20.1%
Fremont Hills	376	527	151	40.2%
Highlandville	348	479	131	37.6%
Nixa	7,262	9,415	2,153	29.6%
Ozark	7,034	8,742	1,708	24.3%
Saddlebrooke	104	154	50	48.1%
Sparta	796	1,016	220	27.6%

Source: U.S. Bureau of the Census, Decennial Census, American Community Survey 5-year Estimates; Population Statistics are for entire incorporated areas as reported by the U.S. Census Bureau

Figure 3.2 shows population density for Christian County in 2020.

Figure 3.2. Christian County Population Density 2020



The following section describes each participating jurisdiction's development since the previous plan update five years ago as indicated by their questionnaires. While none of this development took place in a known hazard area, new development, by its very nature, increases a community's total exposure and thus increases the overall vulnerability to hazards. Additionally, general construction trends are less equitable towards vulnerable populations (including the elderly, those under 5 years old, and low-income individuals).

Christian County

Since 2022, there have been 633 residential structures, 83 manufactured homes, 555 accessory buildings, and 33 commercial structures built within the unincorporated parts of Christian County.

Fremont Hills

The city indicated that a new brewery opened in March 2023 (4 by 4 Brewing Company) and a new city hall building was completed in March 2024. Since the last update, there was approximately 4% growth in residential development.

Highlandville

New construction since the last plan update includes Midwest Laminating, Outdoor Wonders, and Canon Concrete. Completion dates for these facilities were not provided.

Nixa

Numerous residential subdivisions and several commercial buildings were constructed, but specific details were not provided.

Ozark

The city provided a list of all building permits issued from 2020-2025 which included 73 commercial projects, 45 duplexes, 2 industrial facilities, 20 multi-family buildings, 21 public works buildings (cell/water tower, and 764 single family residences.

Saddlebrooke

175 new residential homes and a club house with offices for BOT and POA were built in the last five years.

Sparta

The city indicated that 3 new subdivisions were built that include residential homes and commercial buildings. These areas received upgrades to water systems including a new water tower.

Billings R-IV

The district did not have any new construction in the past five years.

Clever R-V

The district is currently undergoing construction, but no specific details were provided about the type of construction or when it was completed.

Nixa Public Schools

A number of construction projects were completed since the last plan update. At the high school, a third flood classroom was completed, a wing was added on to the school, a FEMA safe room was built, the wrestling room was remodeled into classrooms, the Aetos Center for the Performing Arts was built, the Apex Activity Center was built, and Eagle Stadium was remodeled. At Nixa Junior High, new wings were built, the front and commons area was built, a FEMA safe room was added, and the cafeteria was remodeled into classrooms. FEMA safe rooms were added at Inman Intermediate, JTSD, Mathews Elementary, High Point Elementary, Espy Elementary, and Century. New buildings were added to the Early Childhood Center, Summit Intermediate, and the Nixa Operations Campus.

Ozark R-VI

Storm shelters were added at East Elementary, South Elementary, North Elementary, West Elementary, Middle School, Junior High School, High School, Ozark Innovation Center, and Tiger Paw. Additional construction took place at the Tiger Activity Center, the District Office, The Ozark Innovation Center, the Finley River School, the Transportation Department, and the Dolby Building.

Sparta R-III

The district built a FEMA shelter in 2020 that houses the district office and the PK students.

OTC Richwood Valley

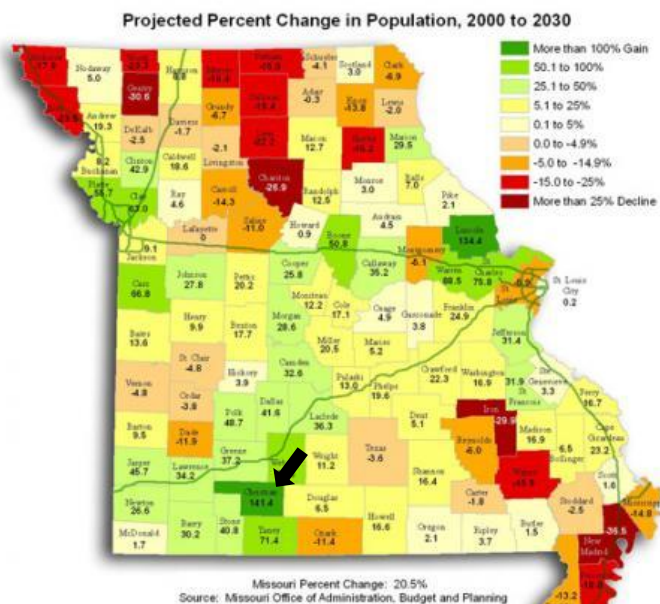
The Agriculture Training Center and the Greenhouse were built in 2019. The Technical Training Center, designed for education of the Electrical Distribution Services program, was completed in August 2025.

3.3.2 Future Land Use and Development

Christian County anticipates substantial development and growth over the next five-years. According to the Missouri Office of Administration, Christian County is expected to more than double in size from 2000 to 2030 and is in the top 10 fastest growing counties in Missouri. **Figure 3.3** shows the expected

population change for each county in the state of Missouri. Christian County is the fastest growing county in the state of Missouri, at a projected growth of 141.4% from 2000 - 2030.

Figure 3.3. Projected Change in Population in Missouri, 2000 - 2030



The remaining discussion in this section provides future growth and development information, where available, relative to each participating jurisdiction. This information was provided by the data collection questionnaire.

Christian County

Improvements to Red Bridge, Hawkins Bridge, and State Highway EE are planned. No new development will occur in the SFHA unless it complies with the NFIP requirements.

Fremont Hills

The city does not expect any new significant construction. No new development will occur in floodplain areas. Some residential growth is expected as there are approximately eight residential and one commercial lot remaining for development.

Highlandville

The city does not anticipate any new major developments.

Nixa

The city is planning for future development to the west. They discourage development in floodplain and hazardous areas. A new police station on Leann Dr, a new regional lift station in southwest Nixa, a sub-station expansion possibly behind Espy, and new water towers are planned. Improvements to CC and Main Road includes the construction of a roundabout.

Ozark

The City of Ozark has a sprawling development pattern, as can be seen by the city limits. The City promotes infill of the gaps within city limits. The major corridors that have have seen interest in new development include Hwy CC and NN; Hwy 65 frontage; N. 20th Street; the Intersection of South Street and Hwy 65.

There are potential city projects that lie in the floodplain by the Elk Valley Treatment Plant. Staff have been fielding inquiries along the Bluestem creek corridor. And there is one proposed development along the Finley River that has undergone project review (including compliance with the Floodplain Management Ordinance) but has not been issued. All upcoming projects have been notified that they will have to comply with the Floodplain Management Ordinance.

A number of new facilities and construction projects are expected to occur over the next five years, including a new Parks Maintenance Shop (910 E Parkview Street), Grubaugh Pavilion and Bathroom (910 E Parkview Street); a new Police Department HQ (TBD location); Canine Control Facility (191 N 18TH ST); a new Police Firing Range (2979 McLean Rd); a new Public Works Facility (North 18th Avenue); a new Water Satellite Building (4104 N Fremont Road); 18th Street reroute (construction of a new roadway and the rehabilitation/expansion of existing roadways); Lambert's Lift Station improvements (1953 W Boat St), Lloyd Street extension; Ballpark Utilities (extend water and sewer services to the city-owned property located on the northwest corner of the intersection of Missouri State Highway 14 and Route JJ); Elk Valley improvements (2979 McLean Rd - a 100' x 50' outbuilding, biosolids centrifuge, a biosolids cake storage pad, and an additional oxidation ditch); Jackson Street Connection (construct a new water main along Missouri Highway 14 between mains near N. 15th Street and N. 12th Street); a new Northeast Tower and Well (2200 Block of E Melton - 1.1-million-gallon water tower); Spring Valley infrastructure improvements; MO Hwy 14 improvements; and Northeast Water Redundancy (installation of approximately 7,200 feet of 12" water main connecting to the existing water infrastructure).

Saddlebrooke

The city does not anticipate any new major developments.

Sparta

The cited noted that they have plans to add to existing infrastructure, but did not provide specific details.

Billings R-IV

The district does not have plans to make any significant changes over the next five years.

Clever R-V

The district is currently undergoing construction, but no specific details were provided about the type of construction or the anticipated completion date.

Nixa Public Schools

The district has plans to add to the elementary schools as needed to accommodate for population growth. This growth is expected to be 5-10%.

Ozark R-VI

The district does not have plans to make any significant changes over the next five years.

Sparta R-III

A new softball/baseball stadium is planned at the high school and several spaces will be remodeled at the middle school. Specific details were not provided.

OTC Richwood Valley

The Life Science and Technology building is scheduled to receive a new roof in the 2026/2027 fiscal year.

3.4 HAZARD PROFILES, VULNERABILITY, AND PROBLEM STATEMENTS

Each hazard will be analyzed individually in a hazard profile. The profile will consist of a general hazard description, location, strength/magnitude/extent, previous events, future probability, a discussion of risk variations between jurisdictions, and how anticipated development could impact risk. At the end of each hazard profile will be a vulnerability assessment, followed by a summary problem statement.

Hazard Profiles

Requirement §201.6(c)(2)(i): [The risk assessment shall include a] description of the...location and extent of all natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.

Each hazard identified in **Section 3.1.4** will be profiled individually in this section. The level of information presented in the profiles will vary by hazard based on the information available. With each update of this plan, new information will be incorporated to provide better evaluation and prioritization of the hazards that affect the planning area. Detailed profiles for each of the identified hazards include information categorized as follows:

- **Hazard Description:** This section consists of a general description of the hazard and the types of impacts it may have on a community or school/special district.
- **Geographic Location:** This section describes the geographic areas in the planning area that are affected by the hazard. Where available, use maps to indicate the specific locations of the planning area that are vulnerable to the subject hazard. For some hazards, the entire planning area is at risk.
- **Strength/Magnitude/Extent:** This includes information about the strength, magnitude, and extent of a hazard. For some hazards, this is accomplished with description of a value on an established scientific scale or measurement system, such as an EF2 tornado on the Enhanced Fujita Scale. This section should also include information on the typical or expected strength/magnitude/extent of the hazard in the planning area. Strength, magnitude, and extent can also include the speed of onset and the duration of hazard events. Describing the strength/magnitude/extent of a hazard is not the same as describing its potential impacts on a community. Strength/magnitude/extent defines the characteristics of the hazard regardless of the people and property it affects.
- **Previous Occurrences:** This section includes available information on historic incidents and their impacts. Historic event records form a solid basis for probability calculations.
- **Probability of Future Occurrence:** The frequency of recorded past events is used to estimate the likelihood of future occurrences. Probability can be determined by dividing the number of recorded events by the number of years of available data and multiplying by 100. This gives the percent chance of the event happening in any given year. For events occurring more than once annually, the probability should be reported as 100% in any given year, with a statement of the average number of events annually. For hazards such as drought that may have gradual onset and extended duration, probability can be based on the number of months in drought in a given time-period and expressed as the probability for any given month to be in drought.

Vulnerability Assessments

Requirement §201.6(c)(2)(ii) : [The risk assessment shall include a] description of the jurisdiction's vulnerability to the hazards described in paragraph (c)(2)(i) of this section. This description shall include an overall summary of each hazard and its impact on the community.

Requirement §201.6(c)(2)(ii)(A) : The plan should describe vulnerability in terms of the types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard areas.

Requirement §201.6(c)(2)(ii)(B) : [The plan should describe vulnerability in terms of an] estimate of the potential dollar losses to vulnerable structures identified in paragraph (c)(2)(i)(A) of this section and a description of the methodology used to prepare the estimate.

Requirement §201.6(c)(2)(ii)(C) : [The plan should describe vulnerability in terms of] providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.

Requirement §201.6(c)(2)(ii) : (As of October 1, 2008) [The risk assessment] must also address National Flood Insurance Program (NFIP) insured structures that have been repetitively damaged in floods.

Following the hazard profile for each hazard will be the vulnerability assessment. The vulnerability assessment further defines and quantifies populations, buildings, critical facilities, and other community assets at risk to damages from natural hazards. The vulnerability assessments should be based on the best available data, including data collected from the 2023 State Hazard Mitigation Plan.

The vulnerability assessments in the Christian County plan will also be based on:

- Written descriptions of assets and risks provided by participating jurisdictions;
- Existing plans and reports;
- Personal interviews with planning committee members and other stakeholders; and
- Other sources as cited.

In the Vulnerability Assessment, the following sub-headings will be addressed:

- **Vulnerability Overview:** An overall summary of each jurisdiction's vulnerability to the identified hazards. The overall summary of vulnerability identifies structures, systems, populations, or other community assets as defined by the community that are susceptible to damage and loss for hazard events.
- **Potential Losses to Existing Development:** Includes the types and numbers of building and critical facilities
- **Previous and Future Development:** This section will include information on how changes in development have impacted the community's vulnerability to this hazard. It also includes a description of how changes in development that occurred in known hazard prone areas since the previous plan have increased or decreased the community's vulnerability, and any anticipated future development in the county, and how that would impact hazard risk in the County.
- **Hazard Summary by Jurisdiction:** For hazard risks that vary by jurisdiction, this section will provide an overview of the variation and the factual basis for that variation. For example, a community that has adopted more recent building codes and constructed safe rooms would be less vulnerable to the impact of tornados.

Commented [TC17]: With the 2023 Hazard Mitigation Plan Update, SEMA is pleased to provide online access to the risk assessment data and associated mapping for the 114 counties in the State, including the independent City of St. Louis. Through the web-based Missouri Hazard Mitigation Viewer, local planners or other interested parties can obtain all State Plan datasets. This effort removes from local mitigation planners a barrier to performing all the needed local risk assessments by providing the data developed during the 2023 State Plan Update. The Missouri Hazard Mitigation Viewer includes a Map Viewer with a legend of clearly labeled features, a north arrow, a base map that is either aerial imagery or a street map, risk assessment data symbolized the same as in the 2023 State Plan for easy reference, search and query capabilities, ability to zoom to county level data and capability to download PDF format maps. The Missouri Hazard Mitigation Viewer can be found at this link: <http://bit.ly/MoHazardMitigationPlanViewer2023>.

Problem Statements

Each hazard analysis will conclude with a brief summary of the problems created by the hazard in Christian County, and possible ways to resolve those problems. Jurisdiction-specific information in those cases where the risk varies across the county is included.

3.4.1 Flooding (Riverine and Flash)

Hazard Profile

Hazard Description

A flood is partial or complete inundation of normally dry land areas. Riverine flooding is defined as the overflow of rivers, streams, drains, and lakes due to excessive rainfall, rapid snowmelt, or ice. There are several types of riverine floods, including headwater, backwater, interior drainage, and flash flooding. The areas adjacent to rivers and stream banks that carry excess floodwater during rapid runoff are called floodplains. A floodplain is defined as the lowland and relatively flat area adjoining a river or stream. The terms “base flood” and “100- year flood” refer to the area in the floodplain that is subject to a one percent or greater chance of flooding in any given year. Floodplains are part of a larger entity called a basin, which is defined as all the land drained by a river and its branches.

Flooding caused by dam failure is discussed in **Section 3.4.2**. It will not be addressed in this section.

A flash flood occurs when water levels rise at an extremely fast rate as a result of intense rainfall over a brief period, sometimes combined with rapid snowmelt, ice jam release, frozen ground, saturated soil, or impermeable surfaces. Flash flooding can happen in Special Flood Hazard Areas (SFHAs) as delineated by the National Flood Insurance Program (NFIP) and can also happen in areas not associated with floodplains.

Ice jam flooding is a form of flash flooding that occurs when ice breaks up in moving waterways, and then stacks on itself where channels narrow. This creates a natural dam, often causing flooding within minutes of the dam formation.

In some cases, flooding may not be directly attributable to a river, stream, or lake overflowing its banks. Rather, it may simply be the combination of excessive rainfall or snowmelt, saturated ground, and inadequate drainage. With no place to go, the water will find the lowest elevations – areas that are often not in a floodplain. This type of flooding, often referred to as sheet flooding, is becoming increasingly prevalent as development outstrips the ability of the drainage infrastructure to properly carry and disburse the water flow.

Most flash flooding is caused by slow-moving thunderstorms or thunderstorms repeatedly moving over the same area. Flash flooding is a dangerous form of flooding which can reach full peak in only a few minutes. Rapid onset allows little or no time for protective measures. Flash flood waters move at very fast speeds and can move boulders, tear out trees, scour channels, destroy buildings, and obliterate bridges. Flash flooding can result in higher loss of life, both human and animal, than slower developing river and stream flooding.

In certain areas, aging storm sewer systems are not designed to carry the capacity currently needed to handle the increased storm runoff. Typically, the result is water backing into basements, which damages mechanical systems and can create serious public health and safety concerns. This combined with rainfall trends and rainfall extremes all demonstrate the highly probable, yet generally unpredictable nature of flash flooding in the county.

Although flash floods are somewhat unpredictable, there are factors that can point to the likelihood of flash floods occurring. Weather surveillance radar is being used to improve monitoring capabilities of intense rainfall. This, along with knowledge of watershed characteristics, modeling techniques, monitoring, and advanced warning systems, has increased the warning time for flash floods.

Geographic Location

Riverine flooding is most likely to occur in Special Flood Hazard Areas (SFHAs) where the 100- year floodplain has been mapped. Areas along the Finley and James Rivers, specifically the city of Ozark and Nixa and developed parts of the unincorporated county, experience the greatest impact of riverine flooding. These events are typically regional in nature and affect rivers, streams, and tributaries across a wide area. The following figures are mapped SFHAs for communities and unincorporated areas in Christian County.

Figure 3.4. Christian County SFHA

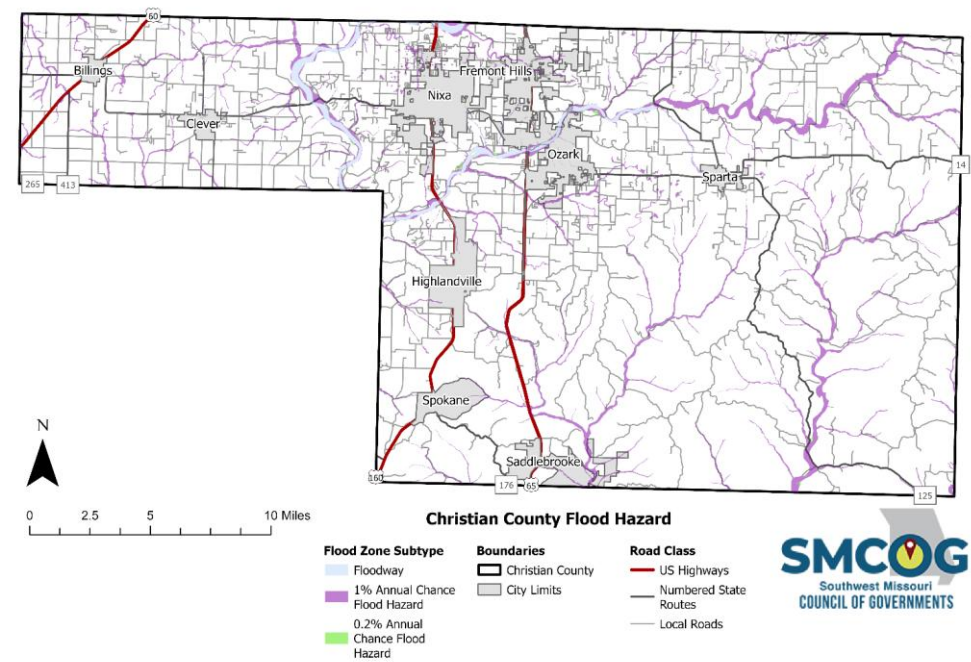


Figure 3.5. Fremont Hills SFHA

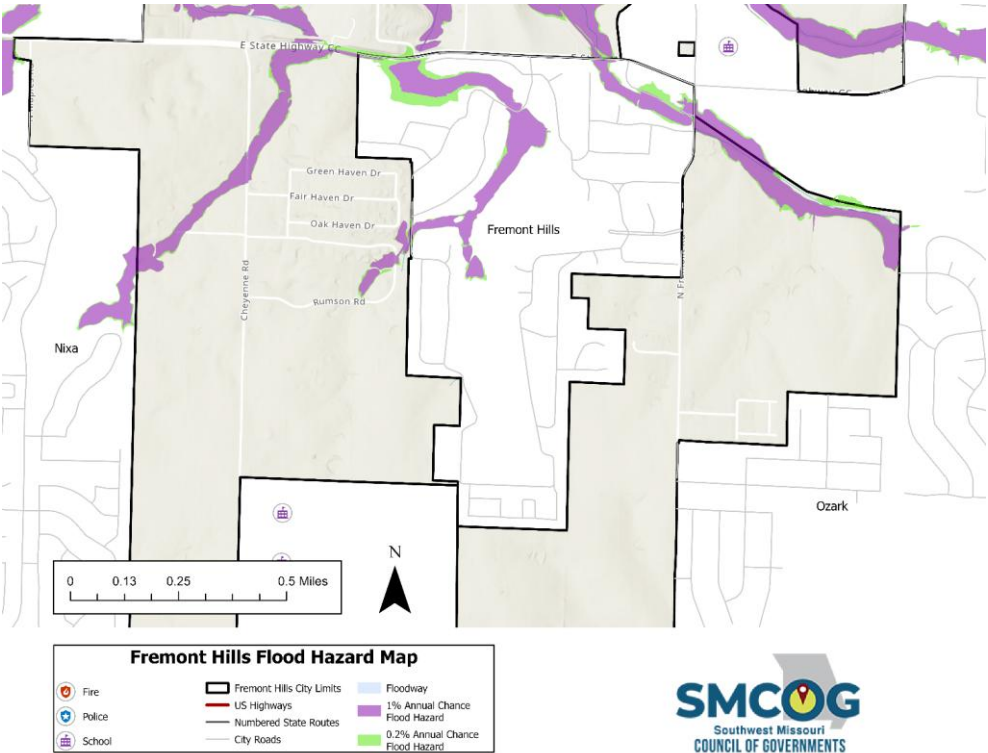


Figure 3.6. Highlandville SFHA

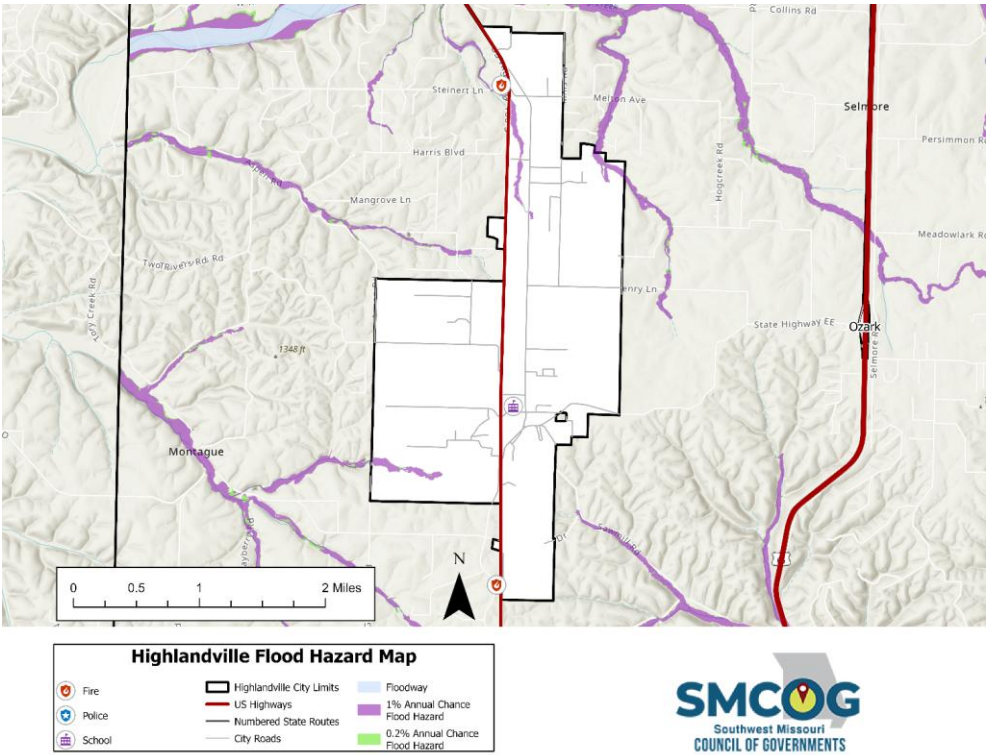


Figure 3.7. Nixa SFHA

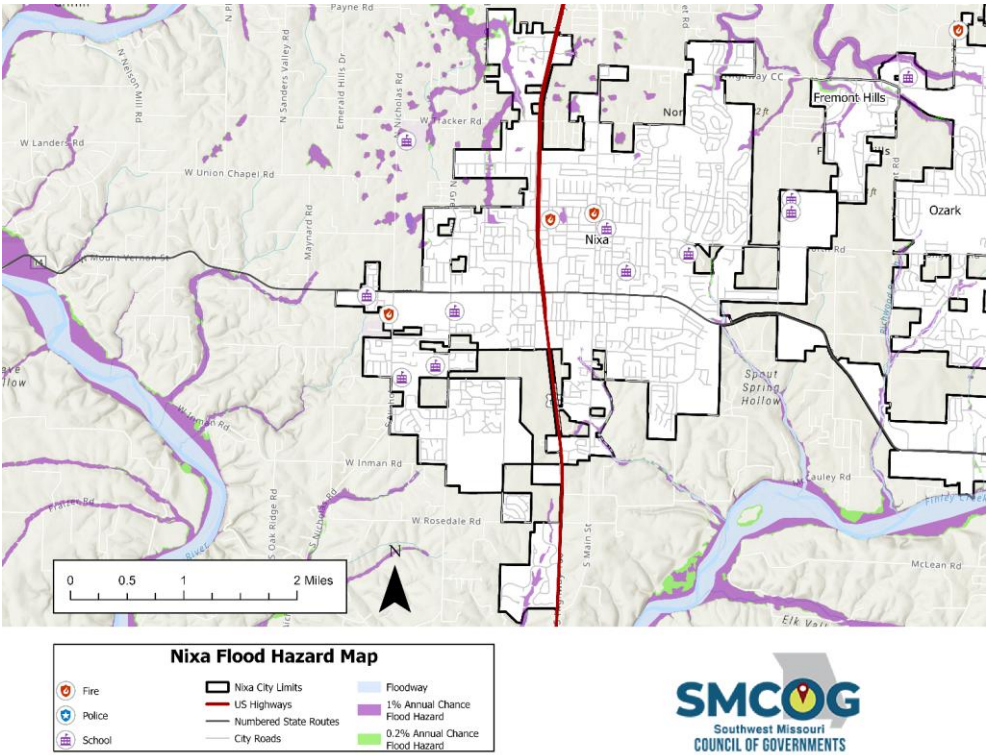
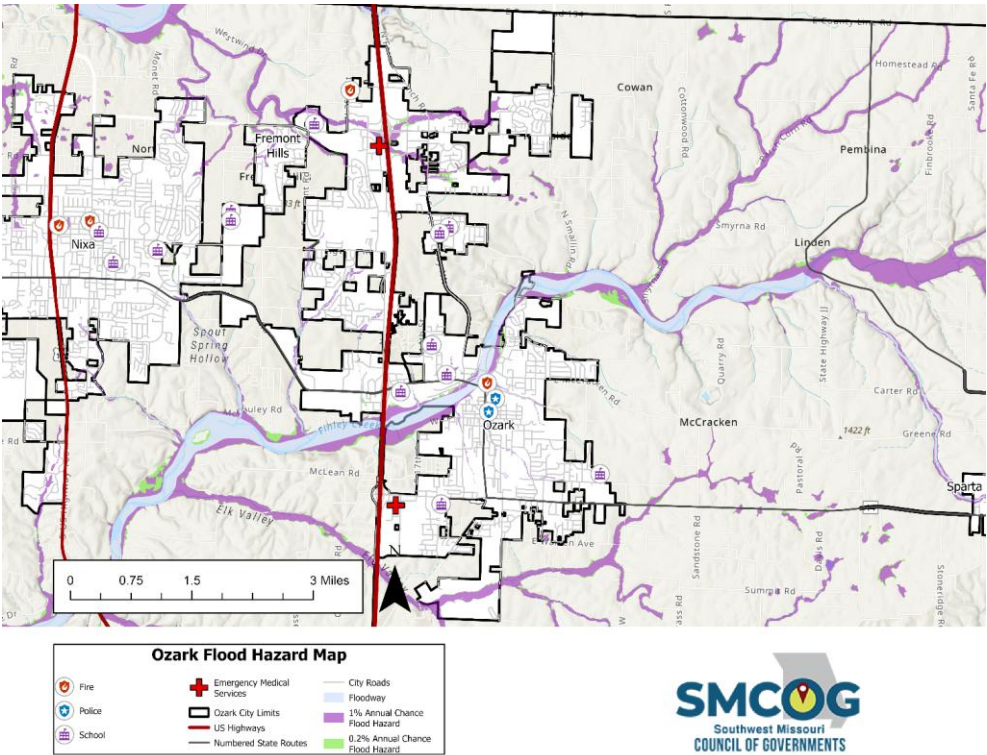


Figure 3.8. Ozark SFHA



Commented [TC18]: Add saddlebrooke SFHA under this one

Figure 3.9. Saddlebrooke SFHA

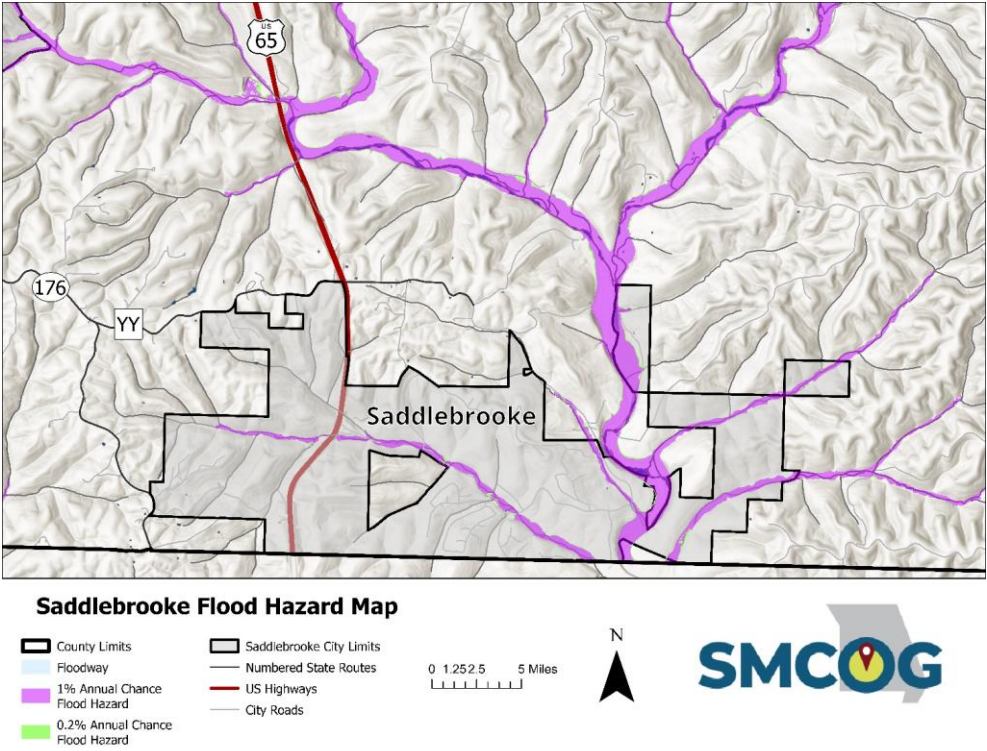
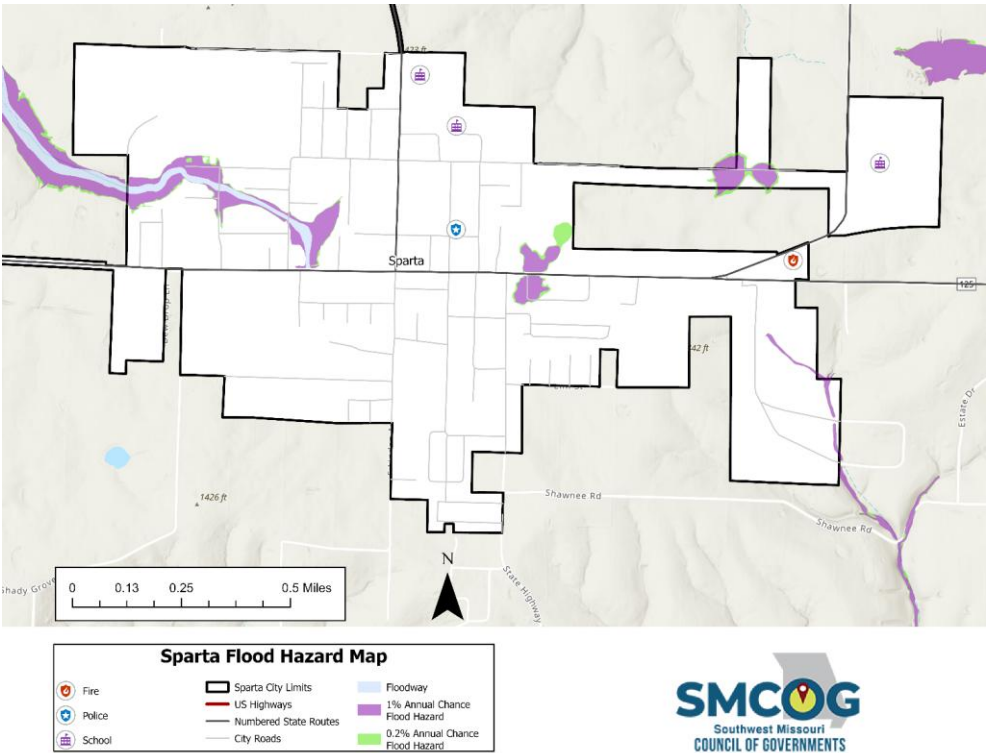


Figure 3.10. Sparta SFHA



Flash flooding events pose the most pervasive hazard of the two flood types in the county due to permeability of soils, slopes, increasing urban development, and an extensive network of streams and rivers. Sustained rainfall or downpours at the rate of one inch per hour have caused street flooding in incorporated areas and made a significant number of low-water crossings impassable. Flash flooding occurs in the floodplain while low-lying areas in all jurisdictions are susceptible to flash floods outside the 100-year floodplain. They also occur in areas without adequate drainage to carry away the amount of water that falls during intense rainfall events.

The NCEI storm event data lists flash flood events according to the nearest community or place. Most of these events cover larger areas than the smaller geographic areas reported in the data. Although some events may not be within the corporate limits of the community identified in the narrative, they are in such proximity that the community named would be the most affected by impassable roads. It is safe to assume that numerous low water crossings would be impacted by heavy rains that exacerbate flash flooding across the county. In addition, multiple records are related to the same event and vice versa.

Table 3.15 shows all flash flood and riverine flood events within the county from 2005-2024.

Table 3.15. Christian County NCEI Flood Events by Location, 2005-2024

Location	Flood Events	Flash Flood Events
Unincorporated Christian County	16	56
Fremont Hills	0	0
Highlandville	1	3
Nixa	5	15
Ozark	4	12
Saddlebrooke	0	0
Sparta	1	8
Total	27	94

Source: National Centers for Environmental Information

Strength/Magnitude/Extent

Missouri has a long and active history of flooding over the past century, according to the 2023 State Hazard Mitigation Plan. Flooding along Missouri's major rivers generally results in slow-moving disasters. River crest levels are forecast several days in advance, allowing communities downstream sufficient time to take protective measures, such as sandbagging and evacuations. Nevertheless, floods exact a heavy toll in terms of human suffering and losses to public and private property. By contrast, flash flood events in recent years have caused a higher number of deaths and major property damage in many areas of Missouri.

According to the U.S. Geological Survey, two critical factors affect flooding due to rainfall: rainfall duration and rainfall intensity – the rate at which it rains. These factors contribute to a flood's height, water velocity and other properties that reveal its magnitude.

Flooding may impact Christian County, its municipalities, and public school districts by damaging homes, businesses, roads, bridges, utilities, and other critical facilities, while also disrupting transportation and access to essential services. Flash flooding and riverine flooding may isolate residents and communities, require evacuations, and cause temporary school or government closures. This hazard is especially dangerous in communities with more exposure to floodplains and waterways.

National Flood Insurance Program (NFIP) Participation

Table 3.16 provides details on NFIP ordinance enforcement, **Table 3.17** shows NFIP mapping information, and **Table 3.18** shows the number of policies in force, amount of insurance in force, number of closed losses, and total payments, where applicable.

Table 3.16. NFIP Ordinance Enforcement in Christian County

Community ID #	Community Name	NFIP Participant (Y/N/Sanctioned)	Adoption Date of Current Flood Damage Prevention Ordinance	Floodplain Administrator and/or Agency
290847B	Christian County	Yes	August 2023	Todd Wiesehan
290755B	Fremont Hills	Yes	June 2023	Dale Batson
290773B	Highlandville	Yes	2010	Clint Ellingsworth
290078B	Nixa	Yes	October 2023	Scott Godbey
290079B	Ozark	Yes	November 2023	Megan Bischof
290993E	Saddlebrooke	Yes	December 2023	Terry Heinzler
290529B	Sparta	Yes	October 2023	Andy Novinger

Source: NFIP Community Status Book, [Community Status Book | FEMA.gov](#)

Table 3.17. NFIP Participation in Christian County

Community ID #	Community Name	Current Effective Map Date	Regular- Emergency Program Entry Date
290847B	Christian County	11/02/2023	04/04/2004
290755B	Fremont Hills	11/02/2023	10/21/2010
290773B	Highlandville	11/02/2023	12/17/2010
290078B	Nixa	11/02/2023	04/22/1983
290079B	Ozark	11/02/2023	02/01/1985
290993E	Saddlebrooke	11/02/2023 (M)	08/16/2012
290529B	Sparta	11/02/2023	08/09/2011

Source: NFIP Community Status Book, [Community Status Book | FEMA.gov](#)

Table 3.18. NFIP Policy and Claim Statistics

Community Name	Policies in Force	Insurance in Force	Closed Losses	Total Payments
Christian County	28	\$6,682,000.00	48	\$996,546.12
Fremont Hills	0	\$0.00	0	\$0.00
Highlandville	0	\$0.00	0	\$0.00
Nixa	1	\$350,000.00	5	\$37,435.68
Ozark	7	\$2,876,000.00	28	\$1,908,539.23
Saddlebrooke	0	\$0.00	0	\$0.00
Sparta	1	\$121,000.00	0	\$0.00

Source: NFIP Community Status Book, [Community Status Book | FEMA.gov](#)

Repetitive Loss/Severe Repetitive Loss Properties

Repetitive Loss Properties are those properties with at least two flood insurance payments of \$1,000 or more in a 10-year period.

A SRL property is defined it as a single family property (consisting of one-to-four residences) that is covered under flood insurance by the NFIP; and has (1) incurred flood-related damage for which four or more separate claims payments have been paid under flood insurance coverage with the amount of each claim payment exceeding \$5,000 and with cumulative amounts of such claims payments exceeding \$20,000; or (2) for which at least two separate claims payments have been made with the cumulative amount of such claims exceeding the reported value of the property.

Table 3.19. Repetitive Loss (RL) and Severe Repetitive Loss (SRL) Properties in Christian County

Jurisdiction	RL Properties	SRL Properties	Mitigated	Non-Mitigated	Residential Properties	Commercial Properties	Total Building Payment	Total Contents Payment
Christian County*	37	0	7	37	29	15	\$2,033,652.00	\$339,482.00
Ozark	20	16	7	21	15	12	\$1,604,269.00	\$321,354.00

Source: Flood Insurance Administration. *Christian County covers the entire county

If a developer wants to build within a floodplain, they must first submit a floodplain development application. There are nuances and specific processes that are unique to each jurisdiction; however, it

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is generally understood that any new development must result in no changes to the 100-year floodplain elevations. **Figure 3.11** provides an example of the floodplain development permitting process.

Figure 3.11. Sample Floodplain Permit Process



Previous Occurrences

Table 3.19 and **Table 3.20** provide information about flood events in Christian County from 2005 to 2024. During this period, there were 103 flash floods and 29 riverine flood events, causing over \$10,000,000 in damages. There was one fatality – a 72-year-old woman who drowned in her car during a 2017 flash flood near Clever. Other costly or notable flood events include: March 17, 2008, eight inches of rainfall led to flash floods along the James and Finley Rivers, causing \$5,000,000 in damages to homes and businesses near Ozark and Nixa; April 25, 2011, where flash flooding led to the closure of 14 rural roads resulting in around \$1,000,000 in damages; and July 10, 2015, where a riverine flood of the Finley River caused damage to homes and businesses, closed state Highways 14 and 125, and led to the cancellation of the Country Fair, altogether totaling around \$2,000,000 in damages.

Table 3.20. NCEI Christian County Flash Flood Events Summary, 2005 to 2024

Year	# of Events	# of Deaths	# of Injuries	Property Damages	Crop Damages
2005	2	0	0	\$0	\$0
2006	2	0	0	\$0	\$0
2007	5	0	0	\$0	\$0
2008	11	0	0	\$5,500,000	\$0
2009	6	0	0	\$0	\$0
2010	7	0	0	\$10,000	\$0
2011	3	0	0	\$1,000,000	\$0
2012	0	0	0	\$0	\$0
2013	10	0	0	\$0	\$0
2014	1	0	0	\$0	\$0
2015	11	0	0	\$870,000	\$0
2016	2	0	0	\$0	\$0
2017	6	1	0	\$752,000	\$0
2018	4	0	0	\$0	\$0
2019	2	0	0	\$0	\$0
2020	12	0	0	\$0	\$0
2021	4	0	0	\$10,000	\$0
2022	5	0	0	\$0	\$0
2023	3	0	0	\$0	\$0
2024	7	0	0	\$10,000	\$0
Total	103	1	0	\$8,152,000.00	\$0

Source: NCEI

Table 3.21. NCEI Christian County Riverine Flood Events Summary, 2005-2024

Year	# of Events	# of Deaths	# of Injuries	Property Damages	Crop Damages
2005	2	0	0	\$0	\$0
2006	0	0	0	\$0	\$0
2007	1	0	0	\$0	\$0
2008	1	0	0	\$0	\$0
2009	1	0	0	\$0	\$0
2010	2	0	0	\$0	\$0
2011	0	0	0	\$0	\$0
2012	0	0	0	\$0	\$0
2013	0	0	0	\$0	\$0
2014	0	0	0	\$0	\$0
2015	2	0	0	\$2,100,000	\$0
2016	0	0	0	\$0	\$0
2017	0	0	0	\$0	\$0
2018	6	0	0	\$5,000	\$0
2019	1	0	0	\$0	\$0
2020	4	0	0	\$0	\$0
2021	0	0	0	\$0	\$0
2022	6	0	0	\$0	\$0
2023	2	0	0	\$0	\$0
2024	1	0	0	\$0	\$0
Total	29	0	0	\$2,105,000.00	\$0

Source: NCEI

Probability of Future Occurrence

There were 132 total flood events reported in Christian County from 2005 to 2024. Of the 132 total, 29 were riverine floods. In this 20-year time-period, there were 12 years with a riverine flood and two years with property damage. This equates to a 100% probability for a riverine flood in any given year and a 10% probability that a damaging event will occur. Based on the number of events and years, the average number of riverine flood events per year is 1.16.

During the same time-period, there were 103 flash floods reported in the county. These floods occurred in 19 of the 20 years, giving a 95% probability of occurrence in any given year. Damages occurred in seven years, giving a 35% probability of a damaging event occurring in any given year. The average amount of flash floods per year is 5.15.

Vulnerability**Vulnerability Overview**

Flooding presents a danger to life and property, often resulting in injuries, and in some cases, fatalities. Floodwaters themselves can interact with hazardous materials. Hazardous materials, such as bulk propane tanks stored in large containers, could break loose or puncture as a result of flood activity. When this happens, evacuation of citizens is necessary.

Public health concerns may result from flooding, requiring disease and injury surveillance. Community sanitation to evaluate flood-affected food supplies may also be necessary. Private water and sewage sanitation could be impacted, and vector control (for mosquitoes and other entomology concerns) may be necessary.

When roads and bridges are inundated by water, damage can occur as the water scours materials around bridge abutments and gravel roads. Poor conditioned bridges identified in **Figure 3.1** show

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specific locations that might be more vulnerable to high- or fast-moving floods. Floodwaters can also cause erosion undermining roadbeds. In some instances, steep slopes that are saturated with water may cause mud or rockslides onto roadways. These damages can cause costly repairs for state, county, and city road and bridge maintenance departments. When sewer back-up occurs, this can result in costly clean-up for home and business owners as well as present a health hazard.

Potential Losses to Existing Development

Flood loss estimates were developed by selecting all parcels located in a floodplain. Building counts of the selected parcels were then sorted by participating jurisdictions and type. **Table 3.22** presents the building counts for each type of use that are located within a floodplain for each participating jurisdiction. "Residential-Sub" refers to sheds and outbuildings with structure-areas less than 400 square ft.

Table 3.22. Building Counts of Structures Within a Floodplain

Jurisdiction	Agriculture	Commercial	Education	Government	Industrial	Residential	Residential-Sub*	Total
Christian County	194	16	0	3	14	323	473	1,023
Fremont Hills	0	0	0	0	0	6	2	8
Highlandville	0	0	0	0	0	0	0	0
Nixa	1	2	0	0	6	13	6	28
Ozark	1	32	1	0	2	59	56	151
Saddlebrooke	1	0	0	0	0	4	5	10
Sparta	0	1	0	1	0	16	11	29
Total	197	51	1	4	22	421	553	1,249

Source: University of Missouri GIS Department (MSDIS)

*Residential-Sub property type refers to structures that are less than 400 square feet (sheds, outbuildings, etc.).

It's also important to note that flash flooding damage has the potential to impact all structures in a community, whether they are located in a floodplain or not. A damage factor of 5% was applied to the overall exposure for each participating jurisdiction to simulate this damage. These numbers are provided below in **Table 3.23**.

Table 3.23. Total Flood Exposure and Estimated Losses

Jurisdiction	Agriculture	Commercial	Education	Government	Industrial	Residential	Total
Christian County	\$1,559,906	\$10,245,671	\$784,501	\$356,088	\$8,812,763	\$176,111,887	\$197,870,817
Fremont Hills	\$0	\$118,038	\$0	\$0	\$0	\$2,971,457	\$3,089,495
Highlandville	\$38,941	\$613,796	\$147,094	\$31,652	\$34,696	\$4,275,260	\$5,141,439
Nixa	\$10,964	\$6,255,997	\$833,533	\$158,262	\$3,469,592	\$56,791,213	\$67,519,561
Ozark	\$14,934	\$12,110,667	\$637,407	\$292,784	\$1,075,573	\$62,726,547	\$76,857,912
Saddlebrooke	\$3,214	\$141,645	\$0	\$1,335,290	\$0	\$1,182,519	\$1,335,290
Sparta	\$2,268	\$1,227,592	\$245,157	\$55,392	\$173,480	\$6,162,741	\$7,866,629
Total	\$1,630,227	\$30,713,406	\$2,647,692	\$2,229,468	\$13,566,104	\$310,221,624	\$359,681,143

Source: University of Missouri GIS Department (MSDIS)

Impact of Previous and Future Development

Future development could impact flash and riverine flooding in Christian County. Development in low lying areas near rivers and streams or where interior drainage systems are not adequate to provide drainage during heavy rainfall events will be at risk to flash flooding. Future development would also

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increase impervious surfaces causing additional water run-off and drainage problems during heavy rainfall events.

Hazard Summary by Jurisdiction

All jurisdictions within the county are at risk of flood hazards. However, as demonstrated in **Table 3.22** and **Table 3.23**, exposure of assets near SFHAs varies among jurisdictions. More exposure leads to higher risk. Based on the SFHA figures for jurisdiction, the unincorporated portions of Christian County are at the highest risk of flood damage. All participating municipalities participate in the NFIP, which should help reduce the overall risk of this hazard.

Community Comments on Hazard

251 survey respondents noted that they had been impacted by a disaster in the past. Of those, 36 of them specifically mentioned that they had been impacted by a flood.

The survey included questions gauging the public's perception of each hazard. **Table 3.24** below provides a summary of these responses.

Table 3.24. Flooding Community Survey Responses

Likelihood of Occurrence		Level of Concern		Magnitude of Impact	
Unlikely	15.0%	Not at all Concerned	9.9%	No Impact	5.6%
Occasionally	30.7%	Not so Concerned	26.9%	Limited Impact	39.4%
Likely	30.4%	Somewhat Concerned	42.2%	Critical Impact	45.3%
Highly Likely	23.9%	Very Concerned	16.3%	Catastrophic Impact	9.7%
-	-	Extremely Concerned	4.7%	-	-

Problem Statement

Floods are frequent events and have been listed in 14 out of 20 presidential disaster declarations for Christian County dating back to 2000. From 2003 to 2022, flooding caused over \$10,000,000 in property damage and resulted in one fatality. Significant debris accumulation and damage at low water crossings are a regular occurrence due to flash flooding throughout the county.

All participating municipal jurisdictions are participants in the National Flood Insurance Program (NFIP). These communities have passed floodplain management ordinances and have the ability to substantially regulate development in the floodplain. Their participation in the NFIP enables residents to purchase flood insurance. Street flooding in incorporated areas can be addressed through storm water management projects and enforcement of storm water management regulations, where applicable.

Several low water crossings at numerous locations throughout the county have been affected by floods and flash flooding. All warning signs and gauges should be installed and replaced at frequently flooded low water crossings to provide warning to motorists. Hazard awareness programs and education during and prior to flood events in the county broadcasted by the media can mitigate future risks to motorists at low water crossings.

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3.4.2 Dam Failure

Hazard Profile

Hazard Description

A dam is defined as a barrier constructed across a watercourse for the purpose of storage, control, or diversion of water. Dams are typically constructed of earth, rock, concrete, or mine tailings. Dam failure is the uncontrolled release of impounded water resulting in downstream flooding, affecting both life and property. Dam failure can be caused by any of the following:

1. **Overtopping:** Inadequate spillway design, debris blockage of spillways or settlement of the dam crest.
2. **Piping:** Internal erosion caused by embankment leakage, foundation leakage and deterioration of pertinent structures appended to the dam.
3. **Erosion:** Inadequate spillway capacity causing overtopping of the dam, flow erosion, and inadequate slope protection.
4. **Structural Failure:** Caused by an earthquake, slope instability or faulty construction.

According to the 2023 State Plan, Missouri has 5,363 total dams recording in the National Inventory of Dams. Dam owners are charged with the primary responsibility for the safe design, operation, and maintenance of their dams. They are also responsible for providing early warning of problems at the dam, for developing an effective emergency action plan, and for coordinating that plan with local officials.

Missouri's topography allows lakes to be built easily and inexpensively, contributing to the high number of dams. Despite the large number of total dams in the state, there are only 699 (13%) state regulated dams, with an additional 59 federally regulated dams. The remaining 4,605 dams are unregulated.

Dams that fall under state regulation are non-federally regulated dams that are more than 35 feet in height. Most nonfederal dams are privately owned structures built either for agricultural, water supply or recreational use. The Department of Natural Resources (MDNR) Water Resources Center maintains the Dam and Reservoir Safety Program in Missouri. The program ensures that dams over 35 feet in height are safely constructed, operated, and maintained pursuant to Chapter 236 of Revised Statutes of Missouri.

The Department of Natural Resources provides information about regulated and unregulated dams in Missouri. The information includes details of the dam dimensions, date of construction, approximate reservoir volume, contributing drainage basin area and hazard classification. In addition, USACE maintains the National Inventory of Dams (NID). The information in the NID database matches the list from the MDNR website with some additional details for dams in the county. Although both agencies provide a hazard classification for dams, the dam classification systems differ.

The Missouri Dam and Reservoir Safety Council Rules and Regulations uses three classes of downstream environmental zone used when considering permits. The downstream environment zone is the area below the dam that would become inundated should the dam fail. Inundation is defined as water two feet or more over the submerged ground outside of the stream channel. These classes are based on the number of structures and types of development contained within the inundation area as presented in **Table 3.25**. The downstream environment zone classification is also used to prescribe the frequency of inspection.

Table 3.25. MoDNR Dam Hazard Classification Definitions

Hazard Class	Definition
Class I	High hazard dam: Dam with downstream environment zone containing 10 or more permanent dwellings or any public building.
Class II	Intermediate hazard dam: Dam with downstream environment containing one to nine permanent dwellings or one or more campgrounds with permanent water, sewer and electrical services or one or more industrial buildings.
Class III	Low hazard dam: Everything else.

Source: Missouri Department of Natural Resources <https://dnr.mo.gov/land-geology/dams-reservoirs/types>

Dams in the NID are classified according to hazard potential, an indicator of the consequences of dam failure. A dam's hazard potential classification, presented in **Table 3.26**, does not indicate its condition. Dams assigned to the high hazard potential classification are those where failure will potentially result in loss of human life. Significant hazard potential are those dams where failure results in no probable loss of human life but can cause economic loss. Dams assigned to the low hazard potential classification are those where failure or results in no probable loss of human life and low economic or environmental losses. Losses are principally limited to the owner's property.

Table 3.26. NID Dam Hazard Classification Definitions

Hazard Class	Definition
Low Hazard	Dams are typically equal to or exceed 25 feet in height and exceed 15 acre-feet in storage, or equal to or exceeding 50 acre-feet storage and exceeding 6 feet in height. These dams do not pose same level of life or economic risk of higher hazard dams.
Significant Hazard	Dams where downstream flooding would likely result in disruption of access to critical facilities, damage to public and private facilities, and require difficult mitigation efforts.
High Hazard	Dams where downstream flooding would likely result in loss of human life.

Source: National Inventory of Dams, <https://www.fema.gov/grants/mitigation/learn/dam-safety/national-inventory-dams>

There is not a direct correlation between the State Hazard classification and the NID classifications. However, most dams that are in the State's Classes I and II are considered NID High Hazard Dams.

Geographic Location

Dams Located Within the Planning Area

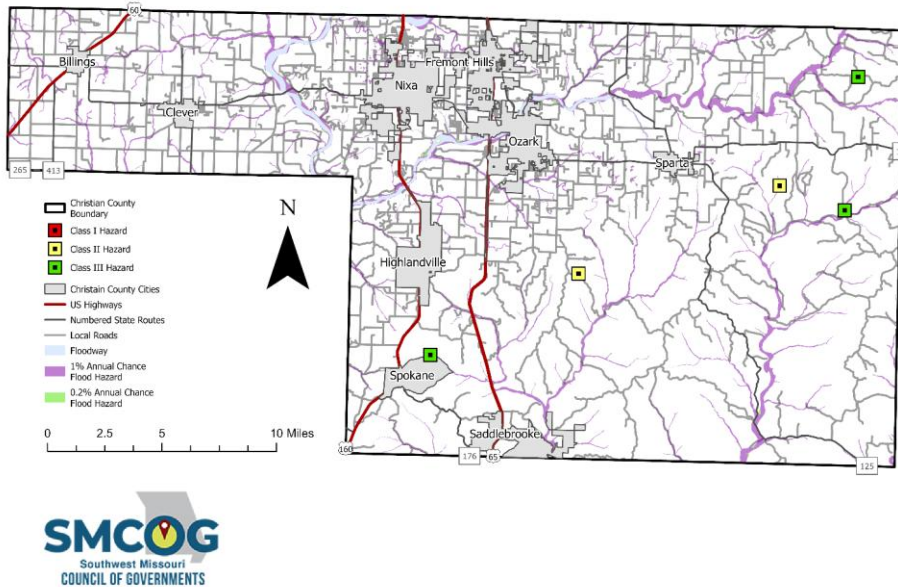
There are six recorded dams in Christian County according to the NID. Two of these are classified as high hazard (Liars Lake Dam and Elk Horn Ranch Lake), while the rest are low hazard. **Table 3.27** provides a summary of the dams located in the county, **Figure 3.12** shows the dam locations within the county, and **Figures 3.13 – 3.18** show the specific dams and any nearby structures.

Table 3.27. Summary of Dams in Christian County

Dam Name	Emergency Action Plan (EAP)	Dam Height (Ft)	Normal Storage (Acre-Ft)	Last Inspection Date	River	Dam Owner	Hazard Potential Classification	Primary Purpose
Galindo Family Dam	No	48	90	03/07/2019	Unknown	Unknown	Low	Recreation
Liars Lake Dam	Yes	39	420	10/27/2020	Tr – Elkhorn	Cindy Winship	High	Recreation
Elk Horn Ranch Lake	No	36	0	09/07/2021	Stewart Creek	Randall Miller	High	Other
Sugar Camp Creek Dam	Not Required	34	691	n/a	Tributary Swan	Bruce Winship	Low	Unknown
Stoneshire Lake #2 Dam	Not Required	25	67	n/a	Unknown	Unknown	Low	Unknown
Paul's Lake Dam	Not Required	25	40	n/a	Tr – Finley Creek	Fred Paul	Low	Recreation

Source: National Inventory of Dams. <https://nid.sec.usace.army.mil/#/>

Figure 3.12. Dams in Christian County



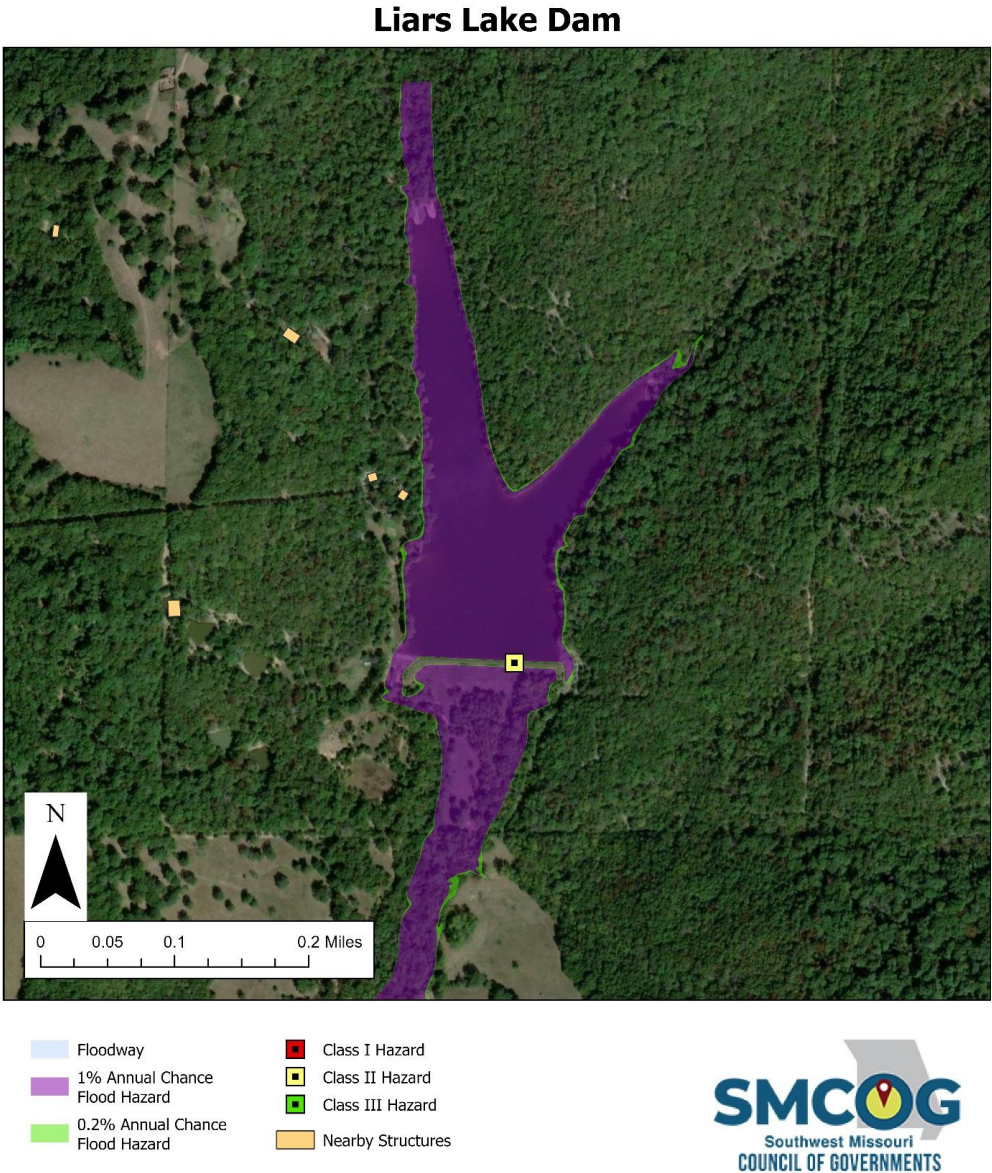
Galindo Family Dam

This aerial map displays the Galindo Family Dam and its surrounding area. The map includes a legend, a north arrow, and a scale bar. The legend identifies the following features:

- Floodway (light blue)
- 1% Annual Chance Flood Hazard (purple)
- 0.2% Annual Chance Flood Hazard (green)
- Class I Hazard (red square)
- Class II Hazard (yellow square)
- Class III Hazard (green square)
- Nearby Structures (orange rectangle)

The map shows the dam structure and the reservoir. The area around the dam is heavily forested. The road, labeled "Center Rd", runs through the area. The map also shows several buildings and structures, some of which are highlighted in orange, indicating they are nearby structures. The flood hazard areas are shown in various colors, with the 1% Annual Chance Flood Hazard area being purple and the 0.2% Annual Chance Flood Hazard area being green. The floodway is shown in light blue. The Class II Hazard area is highlighted in yellow. The Class I Hazard area is highlighted in red. The Class III Hazard area is highlighted in green. The map also shows a north arrow and a scale bar.

Figure 3.14. Liars Lake Dam (High Hazard)



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Figure 3.15. Elk Horn Ranch Dam (High Hazard)



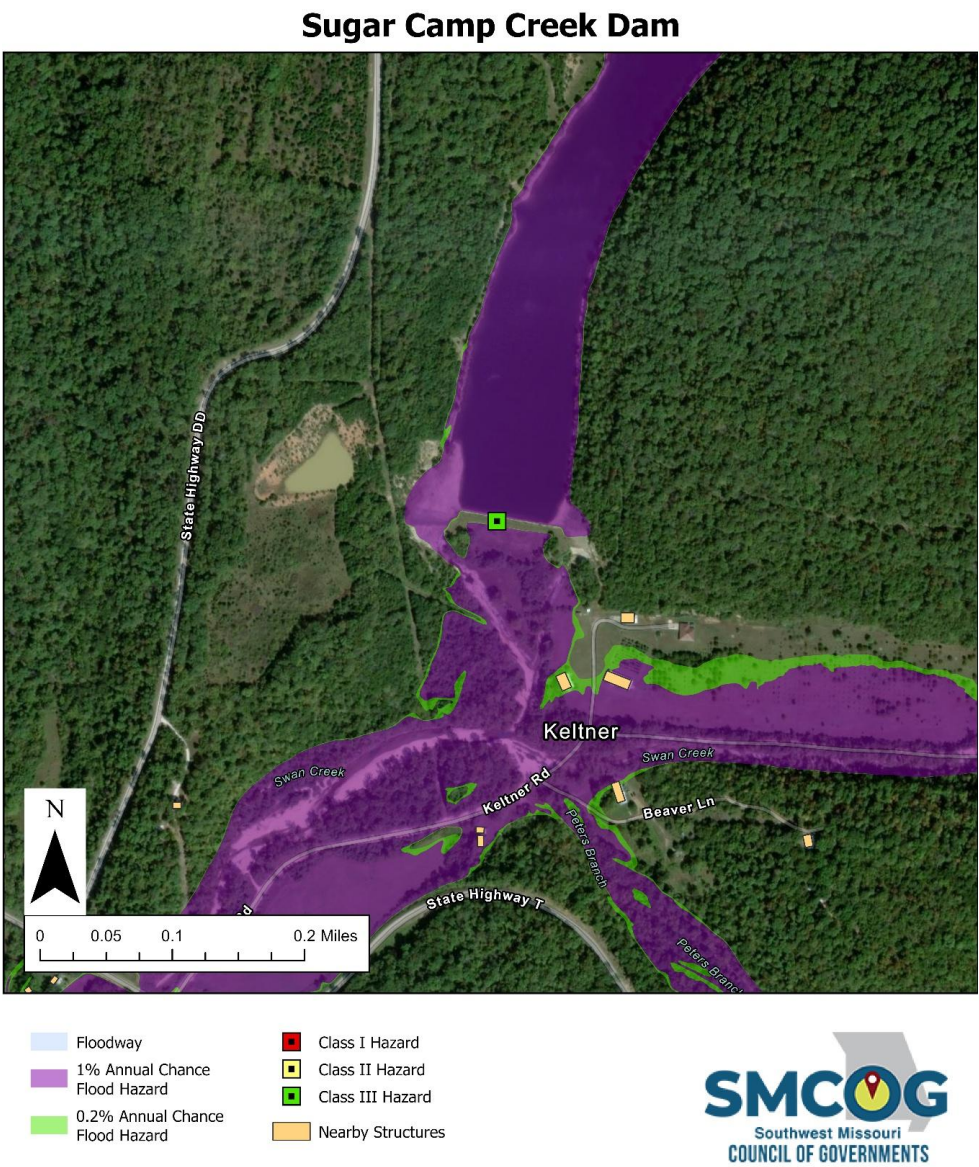
Figure 3.16. Paul's Lake Dam



Figure 3.17. Stoneshire Lake #2 Dam



Figure 3.18. Sugar Camp Creek Dam



Upstream Dams Outside the Planning Area

The Springfield Lake Dam in southern Greene County on the James River would have moderate impact if it were to flood. The majority of the water would flow into the James River; however, overtopping would result in flooding of the immediate areas around it. This includes a nearby neighborhood to the left side and the Power Station to the right. Many roads and areas of nature would also be flooded. At its full capacity, the dam has potential to reach all the way to Branson, MO, where it would cease flooding at Table Rock Lake.

Strength/Magnitude/Extent

It can be stated that the strength/magnitude of dam failure would be similar in some cases to flood events (see the flood hazard vulnerability analysis and discussion). The strength/magnitude/extent of dam failure is related to the volume of water behind the dam as well as the potential speed of onset, depth, and velocity. For this reason, dam failures could flood areas outside of mapped flood hazards.

Failure of a dam could result in rapid flooding downstream, threatening lives, property, transportation infrastructure, utilities, and public facilities. Municipalities, schools, and other jurisdictions within potentially affected inundation areas could experience significant damage and disruption with limited time for evacuation. While this hazard is only a direct threat for a small number of participating jurisdictions, there are two high hazard dams within the county that have the potential to cause serious damage if they were to fail. First responder organizations like the Christian County Ambulance District, and Christian County Emergency Services 911 would likely be contacted in the event of a failure.

Previous Occurrences

According to the 2023 State Hazard Mitigation Plan and other available records, there were no instances of recorded dam failure within Christian County in the past 20 years. From 1975-2016, there were 91 recorded incidents of dam failure statewide, most occurring in the 1990s.

Probability of Future Occurrence

Without any records of dam failure in Christian County, it is impossible to calculate the probability of a future dam failure. The County has 2 dams classified as "High Hazard" by the NID, and both dams have been inspected in the past six years. Regular inspection and maintenance of dams will lower the probability of a future dam failure, especially for high hazard dams.

Vulnerability

Vulnerability Overview

Vulnerability to dam failure in Christian County is limited to structures and critical infrastructure located in dam inundation zones. All dams are located in unincorporated parts of the county. The Springfield Lake Dam is upstream of the County on the James River and the mapped inundation zone for dam failure only includes unincorporated parts of the county along the James River.

Potential Losses to Existing Development

According to the 2023 Missouri Hazard Mitigation Plan, there are 49 structures located within the inundation area for state-regulated dams within the county. The estimated value of these structures is \$4,645,582. To determine potential losses, a damage estimated of 20 percent of the total structure value was used. The high hazard dams (Liars Lake Dam and Elk Horn Ranch Lake Dam) have the highest vulnerability.

Impact of Previous and Future Development

It is possible that future development will occur in the downstream environment of dams within the county, however no major development is expected. Christian County is a participant of the NFIP and can regulate development within SFHAs that overlap with dam inundation zones. Prohibiting development in the floodplain will somewhat mitigate potential damages to future development.

Hazard Summary by Jurisdiction

The unincorporated portion of Christian County is the only area in the county vulnerable to dam failure. There are no mapped inundation areas or potential inundation areas within cities. No school district facilities or special district facilities are located within inundation areas or downstream environments from existing dams.

Community Comments on Hazard

Overall, survey responders were not concerned with the possibility of dam failure impacting their communities. No one indicated they had been impacted by this hazard in the past, nor did they mention it in any comments. This is consistent with the county's overall vulnerability rating.

The survey included questions gauging the public's perception of each hazard. **Table 3.28** below provides a summary of these responses.

Table 3.28. Dam Failure Community Survey Responses

Likelihood of Occurrence		Level of Concern		Magnitude of Impact	
Unlikely	93.3%	Not at all Concerned	79.2%	No Impact	56.4%
Occasionally	4.4%	Not so Concerned	15.3%	Limited Impact	34.0%
Likely	1.7%	Somewhat Concerned	4.0%	Critical Impact	7.6%
Highly Likely	0.6%	Very Concerned	0.9%	Catastrophic Impact	2.0%
-	-	Extremely Concerned	0.6%	-	-

Problem Statement

There are two dams in the county with a high hazard potential. Both of these dams are state regulated, however, only the Liar's Lake Dam has a mapped dam inundation zone or has an emergency action plan in place. Neither DNR nor Christian County have the regulatory authority to regulate the Springfield Lake Dam, however, this dam is federally regulated. Although the probability of dam failure in the county is very low, the potential for damage remains.

Residents near a Class I or Class II hazard dams should become familiar with the dam's emergency action plans, if available. Emergency plans written for dams include procedures for notification and coordination with local law enforcement and other governmental agencies, information on the potential inundation area, plans for warning and evacuation, and procedures for making emergency repairs.

3.4.3 Earthquakes

Hazard Profile

Hazard Description

An earthquake is a sudden motion or trembling that is caused by a release of energy accumulated within or along the edge of the earth's tectonic plates. Earthquakes occur primarily along fault zones and tears in the earth's crust. Along these faults and tears in the crust, stresses can build until one side of the fault slips, generating compressive and shear energy that produces the shaking and damage to the built environment. Heaviest damage generally occurs nearest the earthquake epicenter, which is that point on the earth's surface directly above the point of fault movement. The composition of geologic materials between these points is a major factor in transmitting the energy to buildings and other structures on the earth's surface.

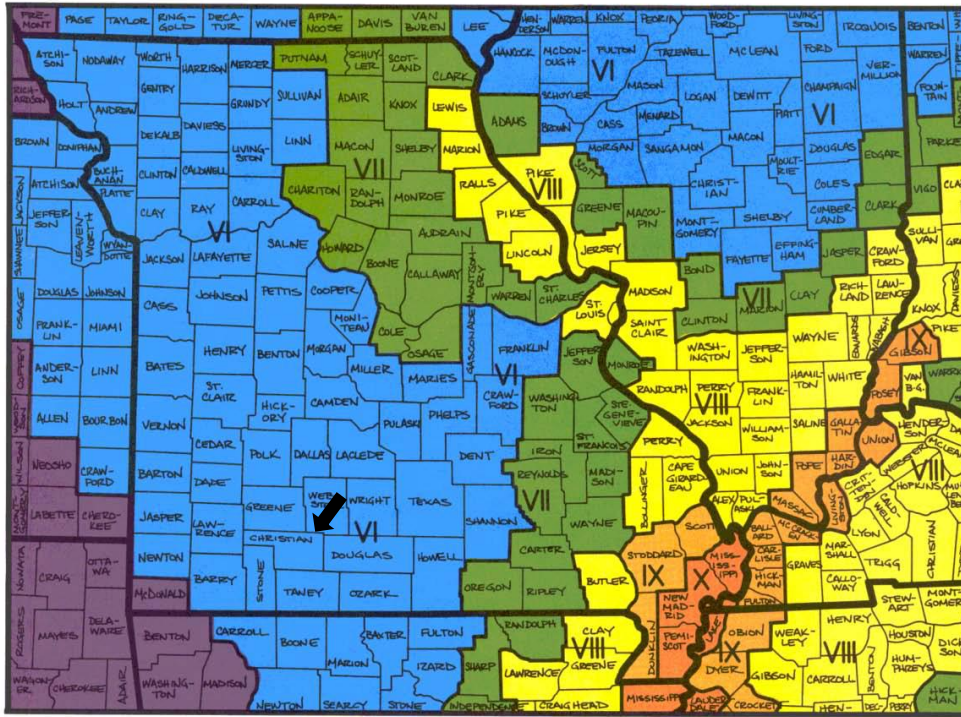
The subterranean faults were formed many millions of years ago on or near the surface of the earth. Subsequent to that time, these ancient faults subsided, while the areas adjacent were pushed up. As this fault zone (also known as a rift) lowered, sediments filled in the lower areas. Under pressure, the sediments hardened into limestones, sandstones, and shales – thus burying the rifts. The pressures on the North American plate and the movements along the San Andreas Fault by the Pacific plate have reactivated the buried rift(s) in the Mississippi embayment. This rift system is called the Reelfoot Rift and underlies the New Madrid Seismic Zone (Braile et al., 1986).

Geographic Location

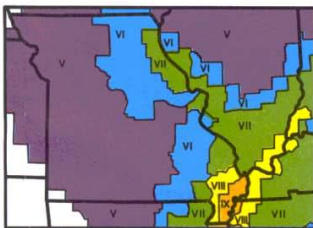
The greatest hazard from earthquakes in Christian County comes from the New Madrid Seismic Zone situated in the boot heel area of southeast Missouri. The potential of high magnitude earthquakes occurring along the New Madrid fault presents risk that does not vary across the planning area. The Nemaha uplift in central Kansas is also prone to seismic activity, however, the center of the Humbolt fault zone near the Nemaha Uplift is approximately 180 to 220 mile west of Christian County and produces lower magnitude seismic events.

Figure 3.19 shows the highest projected Modified Mercalli intensities by county from a potential magnitude 7.6 earthquake whose epicenter could be anywhere along the length of the New Madrid Seismic Zone. The secondary maps in **Figure 3.19** show the same regional intensities for 6.7 and 8.6 earthquake, respectively.

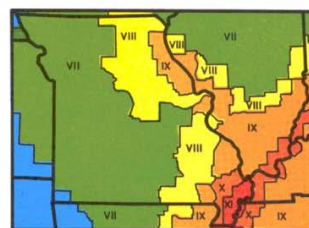
Figure 3.19. Impact Zones for Earthquake Along the New Madrid Fault



This map shows the highest projected Modified Mercalli intensities by county from a potential magnitude - 7.6 earthquake whose epicenter could be anywhere along the length of the New Madrid seismic zone.



This map shows the highest projected Modified Mercalli intensities by county from a potential magnitude - 6.7 earthquake whose epicenter could be anywhere along the length of the New Madrid seismic zone.



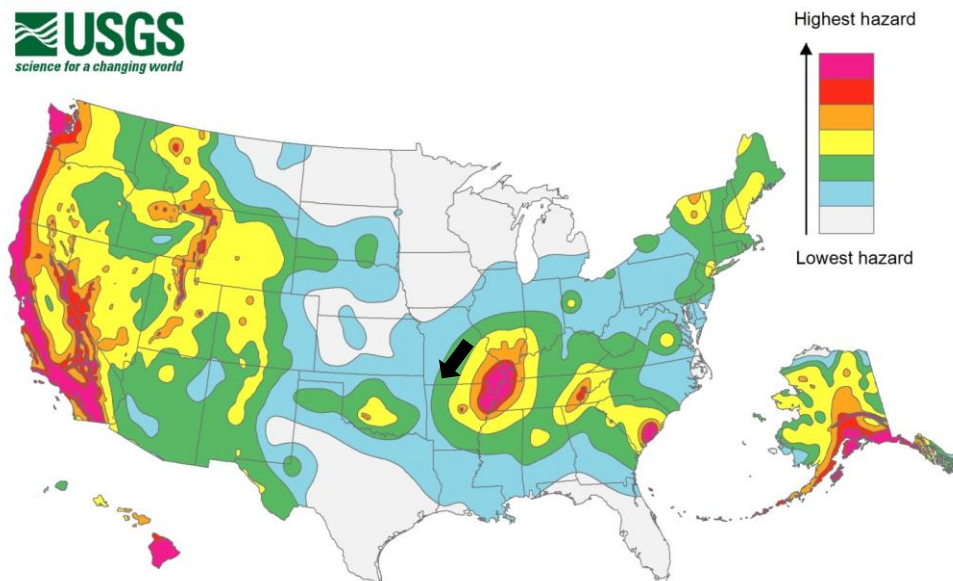
This map shows the highest projected Modified Mercalli intensities by county from a potential magnitude - 8.6 earthquake whose epicenter could be anywhere along the length of the New Madrid seismic zone.

Source: https://sema.dps.mo.gov/docs/EQ_Map.pdf

The 2014 USGS National Seismic Hazard Maps display earthquake ground motions for various probability levels across the United States and are applied in seismic provisions of building codes, insurance rate structures, risk assessments, and other public policy. The update maps represent an assessment of the best available science in earthquake hazards and incorporates new findings on earthquake ground shaking, faults, seismicity, and geodesy. The USGS National Seismic Hazard Mapping Project developed these maps by incorporating information on potential earthquakes and associated ground shaking obtained from interaction in science and engineering workshops involving hundreds of participants, review by several science organizations and state surveys, and advice from expert panels and Steering Committee.

Figure 3.20 illustrates seismicity in the United States.

Figure 3.20. United States Seismic Hazard Map



Source: United States Geological Survey at <https://www.usgs.gov/programs/earthquake-hazards/hazards>

Strength/Magnitude/Extent

The extent or severity of earthquakes is generally measured in two ways: 1) the Richter Magnitude Scale is a measure of earthquake magnitude; and 2) the Modified Mercalli Intensity Scale is a measure of earthquake severity. The two scales are defined as follows:

Richter Magnitude Scale

The Richter Magnitude Scale was developed in 1935 as a device to compare the size of earthquakes. The magnitude of an earthquake is measured using a logarithm of the maximum extent of waves recorded by seismographs. Adjustments are made to reflect the variation in the distance between the various seismographs and the epicenter of the earthquakes. On the Richter Scale, magnitude is

expressed in whole numbers and decimal fractions. For example, comparing a 5.3 and a 6.3 earthquake shows that the 6.3 quake is ten times bigger in magnitude. Each whole number increase in magnitude represents a tenfold increase in measured amplitude because of the logarithm. Each whole number step in the magnitude scale represents a release of approximately 31 times more energy.

Modified Mercalli Intensity Scale

The intensity of an earthquake is measured by the effect of the earthquake on the earth's surface. The intensity scale is based on the responses to the quake, such as people awakening, movement of furniture, damage to chimneys, etc. The intensity scale currently used in the United States is the Modified Mercalli (MM) Intensity Scale, shown below in **Table 3.29**. It was developed in 1931 and is composed of 12 increasing levels of intensity. They range from imperceptible shaking to catastrophic destruction, and each of the twelve levels is denoted by a Roman numeral. The scale does not have a mathematical basis but is based on observed effects. Its use gives the laymen a more meaningful idea of the severity.

Table 3.29. Modified Mercalli Intensity Scale

Intensity Level	Description
I	People do not feel any movement.
II	A few people might notice movement.
III	Many people indoors feel movement; Hanging objects swing.
IV	Most people indoors feel movement; Dishes, windows, and doors rattle; Walls, frames and structures creak; Liquids in open vessels are slightly disturbed; Parked cars rocked.
V	Almost everyone feels movement. Most people are awakened; Doors swing open or closed; Dishes are broken; Pictures on the wall move; Windows crack in some cases; Small objects move or are turned over; Liquids might spill out of open containers.
VI	Almost everyone feels movement. Most people are awakened; Considerable quantities of dishes, glassware, and windows are broken; People have trouble walking; Pictures fall off walls; Objects fall from shelves; Plaster in walls might crack; Some furniture is overturned; Small bells in churches, chapels, and schools ring.
VII	People have difficulty standing; Considerable damage in poorly built or badly designed buildings, adobe houses, old walls, and spires; Damage is slight to moderate in well-built buildings; Numerous windows are broken; Weak chimneys break at rooflines; Cornices from towers and high buildings fall; Loose bricks fall from buildings; Heavy furniture is overturned and damaged; Some sand and gravel stream banks cave in.
VIII	Drivers have trouble steering; Poorly built structures suffer severe damage; Ordinary substantial buildings partially collapse; Damage slight in structures especially built to withstand earthquakes; Tree branches break; Houses not bolted down may shift on foundations; Tall structures such as towers and might chimneys twist and fall; Temporary or permanent changes in springs and wells; Sand and mud is ejected.
IX	Most buildings suffer damage; Houses not bolted down move off their foundations; Some underground pipes are broken; The ground cracks conspicuously; Reservoirs suffer damage.
X	Well-built wooden structures destroyed; most masonry and frame structures destroyed, including foundations; Rails bent; Dams seriously damaged; Cracks open in pavement.
XI	Few, if any masonry structures remain standing; Large well-built bridges destroyed; Rails bent greatly; Buried pipelines are rendered completely useless. Water mixed with sand and mud ejected in large amounts.
XII	Damage is total, and nearly all works of construction are damaged greatly or destroyed. Objects are thrown into the air. The ground moves in waves or ripples. Large amounts of rock may move. Lakes are dammed, waterfalls formed, and rivers are deflected.

Earthquakes may damage buildings, roads, bridges, utilities, and other infrastructure throughout Christian County and its jurisdictions, particularly older or structurally vulnerable facilities. This damage may also disrupt essential services and cause injuries, requiring coordinated response efforts from local governments, emergency services, and school districts.

Previous Occurrences

There are no historical records of earthquakes in Christian County. The southeastern portion of Missouri is most susceptible to earthquakes because it overlies the New Madrid Seismic Zone. Earthquake hazards in western Missouri also exist, due to historical earthquakes in eastern Kansas and Nebraska. No area of Missouri is immune from the danger of earthquakes, as minor but potentially damaging earthquakes can occur anywhere in the state.

Probability of Future Occurrence

Without a historical record for earthquakes in Christian County, it is not possible to calculate a precise probability of earthquake occurrence. The US Geological Survey estimates that there is a 25-40% chance of a magnitude 6.0 or greater earthquake in the New Madrid Seismic Zone over the next 50 years, although exact locations of events cannot be predicted.

Vulnerability

Vulnerability Overview

Ground shaking is the most damaging effect from earthquakes. Ground shaking will impact all structures and critical infrastructure such as roads and electrical transmission systems. The greatest earthquake risk to Christian County is the New Madrid fault in the boot-heel region of Missouri. A 7.6 magnitude earthquake would result in damage to poorly built buildings; considerable quantities of dishes, glassware and windows breaking; people having trouble walking; pictures falling off walls; objects falling from shelves; plaster in walls cracking; and furniture overturning. Damage to structures will occur but will vary on the quality of construction. In addition, underground utilities may be damaged and some injuries may occur, but fatalities are unlikely.

Potential Losses to Existing Development

Potential losses to existing development would be based on the total exposure for all communities in the planning area. The total exposure for each participating jurisdiction was used to estimate losses due to a 7.6 earthquake along the New Madrid Fault. A damage factor of 0.5% was applied to each jurisdiction's total building and contents based on the expected impact for Zone VI on the Modified Mercalli Scale. **Table 3.28** summarizes the estimated losses for each jurisdiction.

Table 3.30. Estimated Potential Earthquake Losses

Jurisdiction	Total Exposure	Potential Losses
Christian County	\$6,829,630,607	\$3,414,815.30
Fremont Hills	\$366,422,252	\$183,211.13
Highlandville	\$117,266,849	\$58,633.42
Nixa	\$3,850,426,904	\$1,925,213.45
Ozark	\$3,195,799,464	\$1,597,899.73
Saddlebrooke	\$155,068,568	\$77,534.28
Sparta	\$185,775,378	\$92,887.69
Total	\$14,700,390,022	\$7,350,195.01

Commented [Tc27]: Placeholder data from 2020 plan. Update with new data

Impact of Previous and Future Development

Future development is not expected to increase the risk other than contributing to the overall exposure of what could become damaged as a result of an event.

Hazard Summary by Jurisdiction

Earthquake intensity is not likely to vary greatly throughout the county, as the risk of occurrence is the same throughout. However, potential damages will be more significant in communities with a higher number of structures built during or before 1939. The table below provides a summary.

Table 3.31. Occupied Housing Units Built in 1939 or Earlier by Jurisdiction (Estimates)

Jurisdiction	Built 1939 or earlier (#)	Built 1939 or earlier (%)
Christian County	1,195	3.4%
Fremont Hills	0	0.0%
Highlandville	22	6.1%
Nixa	123	1.3%
Ozark	174	2.1%
Saddlebrooke	0	0.0%
Sparta	32	3.4%

Source: American Community Survey 5-Year Estimates, 2024

Community Comments on Hazard

Survey respondents generally viewed earthquakes as having a low likelihood of occurrence with a mild level of concern. The survey included questions gauging the public's perception of each hazard. **Table 3.32** below provides a summary of these responses.

Table 3.32. Earthquake Community Survey Responses

Likelihood of Occurrence		Level of Concern		Magnitude of Impact	
Unlikely	55.9%	Not at all Concerned	35.0%	No Impact	18.5%
Occasionally	32.1%	Not so Concerned	40.3%	Limited Impact	43.0%
Likely	10.2%	Somewhat Concerned	20.7%	Critical Impact	27.8%
Highly Likely	1.8%	Very Concerned	3.2%	Catastrophic Impact	10.6%
-	-	Extremely Concerned	0.9%	-	-

Problem Statement

Based on likely damage from a 7.6 magnitude earthquake along the New Madrid fault line, older, poorly built structures will suffer slight damage. The majority of these are located within the more populated communities of Nixa and Ozark. However, the county as a whole has relatively few of these structures. This is because of the county's rapid growth over the past decade.

Adopting, updating, and enforcing building codes would assist in mitigating damages associated with earthquake events. Introducing public awareness programs that teach residents of the risks to older structures in earthquake events may motivate the public to support such legislation, as well as cooperate with its enforcement.

3.4.4 Land Subsidence/Sinkholes

Hazard Profile

Hazard Description

Sinkholes are common where the rock below the land surface is limestone, carbonate rock, salt beds, or rocks that naturally can be dissolved by ground water circulating through them. As the rock dissolves, spaces and caverns develop underground. The sudden collapse of the land surface above them can be dramatic and range in size from broad, regional lowering of the land surface to localized collapse. However, the primary causes of most subsidence are human activities: underground mining of coal, groundwater or petroleum withdrawal, and drainage of organic soils. In addition, sinkholes can develop as a result of subsurface void spaces created over time due to the erosion of subsurface limestone (karst).

Land subsidence occurs slowly and continuously over time, as a general rule. On occasion, it can occur abruptly, as in the sudden formation of sinkholes. Sinkhole formation can be aggravated by flooding.

In the case of sinkholes, the rock below the surface is rock that has been dissolving by circulating groundwater. As the rock dissolves, spaces and caverns form, and ultimately the land above the spaces collapse. In Missouri, sinkhole problems are usually a result of surface materials above openings into bedrock caves eroding and collapsing into the cave opening. These collapses are called "cover collapses" and geologic information can be applied to predict the general regions where collapse will occur. Sinkholes range in size from several square yards to hundreds of acres and may be quite shallow or hundreds of feet deep.

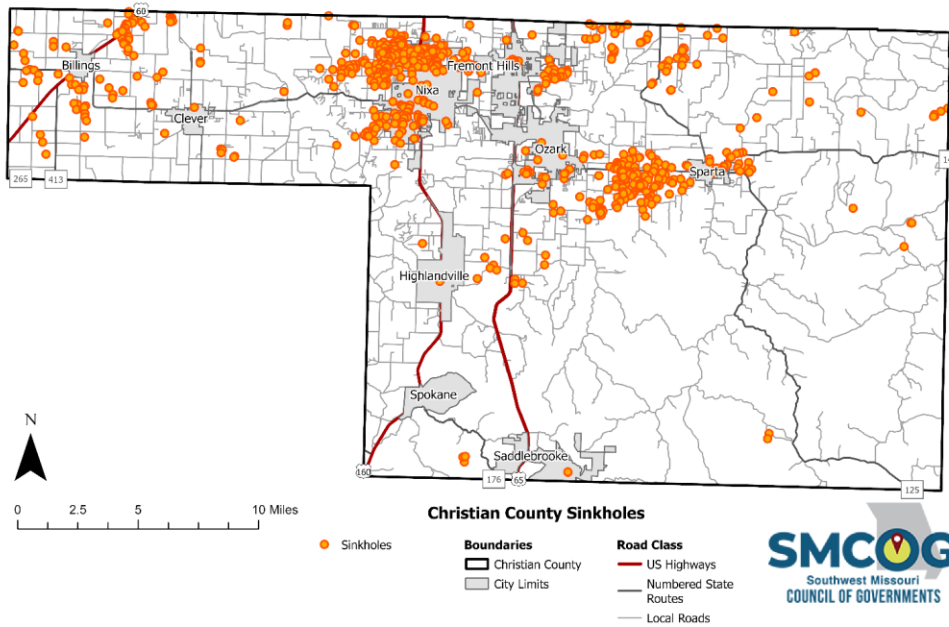
According to the U.S. Geological Survey (USGS), the most damage from sinkholes tends to occur in Florida, Texas, Alabama, Missouri, Kentucky, Tennessee, and Pennsylvania. Fifty-nine percent of Missouri is underlain by thick, carbonate rock that makes Missouri vulnerable to sinkholes. Sinkholes occur in Missouri on a fairly frequent basis. Most of Missouri's sinkholes occur naturally in the state's karst regions (areas with soluble bedrock). They are a common geologic hazard in southern Missouri, but also occur in the central and northeastern parts of the State. Missouri sinkholes have varied from a few feet to hundreds of acres and from less than one to more than 100 feet deep. The largest known sinkhole in Missouri encompasses about 700 acres in western Boone County southeast of where Interstate 70 crosses the Missouri River. Sinkholes can also vary in shape like shallow bowls or saucers whereas others have vertical walls. Some hold water and form natural ponds.

Geographic Location

According to the 2023 Missouri HMP, there are 662 identified sinkholes within Christian County. **Figure 3.21** shows the locations of these sinkholes

Commented [TC28]: 2023 missouri hmp, appendix a, page 74

Figure 3.21. Sinkholes in Christian County



It's important to note that, while that figure provides the location of identified sinkholes, the vast majority of the county is located within a karst region. Karst is a type of landscape characterized by the presence of springs, caves, and sinkholes, created as groundwater dissolves soluble rock such as limestone. This means that the risk of land subsidence, notably sinkholes, is relatively uniform across the entire county. There are also 250 identified mines and 373 caves located within the county.

Strength/Magnitude/Extent

Sinkholes vary in size and location, and these variances will determine the impact of the hazard. Most are located within unincorporated portions of the county. However, a number of them are also located in more densely populated communities like Nixa and Ozark. A sinkhole could result in the loss of a personal vehicle, a building collapse, or damage to infrastructure such as roads, water, or sewer lines. Groundwater contamination is also possible from a sinkhole. Because of the relationship of sinkholes to groundwater, pollutants captured or dumped in sinkholes could affect a community's groundwater system. Sinkhole collapse could be triggered by large earthquakes and heavy rain. Sinkholes located in floodplains can absorb floodwaters but make detailed flood hazard studies difficult to model. County and municipal governments may face increased costs associated with repairs and mitigation, while affected school and special districts could experience disruptions if sinkholes threaten facilities or transportation routes.

Previous Occurrences

As noted in the 2023 State Hazard Mitigation Plan, sinkholes occur frequently in Missouri, with Christian County having a high number of sinkholes. Despite the large number of sinkholes in the county, property damages and disruptions because of sinkholes remain relatively rare. In August 2025, a sinkhole formed in an under-construction subdivision in Nixa, damaging sewer lines and leading to a halt in construction. In May 2024, a sinkhole opened on Richwood Road in Ozark, leading to that road's closure.

Probability of Future Occurrence

Due to a lack of a centralized database that records sinkhole events, it is difficult to calculate the probability of future occurrence of sinkholes. Since the last Hazard Mitigation Plan update, there have been 2 sinkholes that have received local media coverage (KY3 and Springfield News-Leader).

Vulnerability

Vulnerability Overview

Sinkholes in Missouri are a common feature where limestone and dolomite outcrop. Dolomite is a rock similar to limestone with magnesium as an additional element along with the calcium normally present in the minerals that form rocks. While some sinkholes may be considered a slow changing nuisance, other more sudden, catastrophic collapses can destroy property, delay construction projects, contaminate ground water resources, and damage underground utilities.

According to the 2023 Missouri State Hazard Mitigation Plan, Christian County's overall sinkhole vulnerability rating is medium-high.

Potential Losses to Existing Development

Sinkhole losses can be estimated by assessing the building type and value of any structures located within a 50 ft. radius of an identified sinkhole. Data from the 2023 Missouri HMP was used for this analysis. Table 3.33 provides the details.

Table 3.33. Christian County Sinkhole Exposure

Type of Structure	Number of Sinkholes in Structure Area	Total Exposure Value	Population Impacted
Agriculture	26	\$98,298	0
Commercial	15	\$7,082,261	0
Industrial	5	\$3,468,592	0
Residential	196	\$29,754,998	527
Total	242	\$40,405,148	527

Source: 2023 Missouri Hazard Mitigation Plan

Impact of Previous and Future Development

Future development over abandoned mines and in areas of known risk to sinkhole formation in the planning area will increase the vulnerability to this hazard. Population increases and new development in these areas, including certain portions of the unincorporated county, will increase exposure to sinkhole occurrence. Future development may also change storm runoff patterns and cause expansion of existing or formation of new sinkholes.

Commented [TC29]: 2023 missouri hmp, appendix a, page 75

Commented [TC30]: This is data from the 2023 missouri hmp. Update with data for each municipal jurisdiction (data from google drive)

Hazard Summary by Jurisdiction

Sinkholes in Christian County pose the biggest threat closest to urban areas, or just outside city limits. Two of the largest concentrations of sinkholes are located in/around Nixa and east of Ozark.. These areas contain structures and have potential to harm both the life and property in the area. It is because of this that Christian County works to regulate limiting construction near existing sinkholes.

Community Comments on Hazard

Only one survey respondent mentioned that they had been impacted by a sinkhole in the past. Overall, they view sinkholes as only a mild concern.

The survey included questions gauging the public's perception of each hazard. **Table 3.24** below provides a summary of these responses.

Table 3.34. Land Subsidence/Sinkholes Community Survey Responses

Likelihood of Occurrence		Level of Concern		Magnitude of Impact	
Unlikely	20.1%	Not at all Concerned	15.5%	No Impact	10.0%
Occasionally	37.7%	Not so Concerned	33.1%	Limited Impact	46.2%
Likely	28.7%	Somewhat Concerned	34.3%	Critical Impact	33.3%
Highly Likely	13.5%	Very Concerned	10.9%	Catastrophic Impact	10.5%
-	-	Extremely Concerned	6.1%	-	-

Problem Statement

It is likely that more sinkholes will occur as development increases within the county. Sinkholes can be remediated with fill material. Once a sinkhole has been remediated, building should be prohibited at the site. Existing sinkholes can expand if surface runoff erodes the edges of the sinkhole. Storm water runoff should be diverted away from known sinkholes. Jurisdictions may adopt regulations prohibiting construction at least 30 feet from known sinkholes. Undeveloped land that is in a sinkhole risk area can be used for park space or other recreational purposes. Additionally, jurisdictions can utilize public awareness campaigns about sinkholes and risks associated with developing in prone areas. Maps of sinkholes and prone areas should be available to members of the public.

3.4.5 Drought

Hazard Profile

Hazard Description

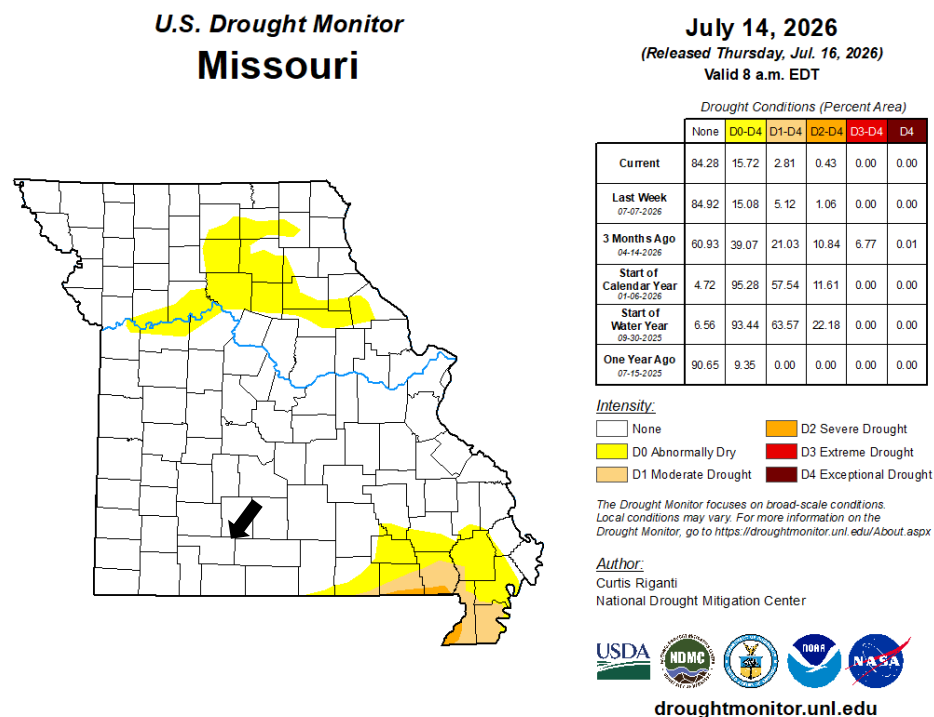
Drought is generally defined as a condition of moisture levels significantly below normal for an extended period of time over a large area that adversely affects plants, animal life, and humans. A drought period can last for months, years, or even decades. There are four types of drought conditions relevant to Missouri, according to the State Plan, which are as follows.

- Meteorological drought is defined in terms of the basis of the degree of dryness (in comparison to some “normal” or average amount) and the duration of the dry period. A meteorological drought must be considered as region-specific since the atmospheric conditions that result in deficiencies of precipitation are highly variable from region to region.
- Hydrological drought is associated with the effects of periods of precipitation (including snowfall) shortfalls on surface or subsurface water supply (e.g., streamflow, reservoir and lake levels, ground water). The frequency and severity of hydrological drought is often defined on a watershed or river basin scale. Although all droughts originate with a deficiency of precipitation, hydrologists are more concerned with how this deficiency plays out through the hydrologic system. Hydrological droughts are usually out of phase with or lag the occurrence of meteorological and agricultural droughts. It takes longer for precipitation deficiencies to show up in components of the hydrological system such as soil moisture, streamflow, and ground water and reservoir levels. As a result, these impacts also are out of phase with impacts in other economic sectors.
- Agricultural drought focus is on soil moisture deficiencies, differences between actual and potential evaporation, reduced ground water or reservoir levels, etc. Plant demand for water depends on prevailing weather conditions, biological characteristics of the specific plant, its stage of growth, and the physical and biological properties of the soil.
- Socioeconomic drought refers to when physical water shortage begins to affect people.

Geographic Location

Droughts are regional climatic events that can impact large areas and multiple counties. The entire county is at risk to the impacts of drought. However, drought most directly impacts the agricultural sector, so areas within the county where there is extensive agricultural land use can experience significant impacts. **Figure 3.22** is a recent map from the U.S. Drought Monitor. At this time, no part of Christian County is experiencing drought conditions.

Figure 3.22. U.S. Drought Monitor Map of Missouri July 22, 2026



Source: U.S. Drought Monitor, <https://droughtmonitor.unl.edu/Maps/MapArchive.aspx>

Strength/Magnitude/Extent

The Palmer Drought Indices measure dryness based on recent precipitation and temperature. The indices are based on a “supply-and-demand model” of soil moisture. Calculation of supply is relatively straightforward, using temperature and the amount of moisture in the soil. However, demand is more complicated as it depends on a variety of factors, such as evapotranspiration and recharge rates. These rates are harder to calculate. Palmer tried to overcome these difficulties by developing an algorithm that approximated these rates and based the algorithm on the most readily available data — precipitation and temperature.

The Palmer Index has proven most effective in identifying long-term drought of more than several months. However, the Palmer Index has been less effective in determining conditions over a matter of weeks. It uses a “0” as normal, and drought is shown in terms of negative numbers; for example, negative 2 is moderate drought, negative 3 is severe drought, and negative 4 is extreme drought. Palmer’s algorithm also is used to describe wet spells, using corresponding positive numbers.

Palmer also developed a formula for standardizing drought calculations for each individual location based on the variability of precipitation and temperature at that location. The Palmer index can therefore be applied to any site for which sufficient precipitation and temperature data is available.

Drought may affect all jurisdictions within Christian County by reducing water availability, affecting agricultural activities, and increasing stress on water and utility systems. County and municipal governments may need to implement water conservation measures, while school districts and other public institutions could experience increased operational costs and challenges maintaining facilities and services.

Previous Occurrences

According to the NCEI storm events database, there were a total of 22 months with drought events from 2005-2024. Many of these months were part of much longer drought periods that lasted several months. The table below provides a summary of these events.

Table 3.35. Previous Drought Occurrences, 2005-2024

Year	Months	Property Damage	Crop Damage
2006	January-April	0	0
2011	July-November	0	\$5,000
2012	July-December	0	\$2,470,000
2013	January	0	0
2020	August-October	0	0
2022	July-August	\$250,000	0
2024	September-November	0	\$120,000

Source: <https://www.ncei.noaa.gov/stormevents/>

According to the USDA Cause of Loss historical data files, there were 18 policies with reported loss from drought from 2016-2025, resulting in the loss of corn, soy, and other crops. The table below provides details.

Table 3.36. Crop Loss by Year Because of Drought, 2016 to 2025

Year	Number of Policies with Reported Loss	Total Value of Crop Loss
2016	2	\$18,953.00
2017	0	\$0
2018	0	\$0
2019	0	\$0
2020	3	\$122,411.00
2021	0	\$0
2022	3	\$497,026.00
2023	4	\$45,432.00
2024	3	\$97,782.00
2025	3	\$125,654.00
Total	18	\$907,258.00

Source: <https://public-rma.fpac.usda.gov/apps/SummaryOfBusiness>

Probability of Future Occurrence

Over the 20-year period from 2005-2024, Christian County was in drought for 22 months. Given 240 months during this period, there is just over a 9% probability of drought in any given month. Although drought is not predictable, long-range outlooks and predicted impacts of climate change could indicate an increased chance of occurrence and severity.

Commented [BH31]: SEMA provided us the data in an easy to read format, but this is the link they gave us, which has text files. The other link is a database at the same agency with similar data

Commented [TC32R31]: [Cause of Loss | Risk Management Agency](#)

Vulnerability

Vulnerability Overview

Southwest Missouri has moderate drought susceptibility. Groundwater resources are adequate to meet domestic and municipal water needs, but due to required well depths, irrigation wells are very expensive. The topography is generally unsuitable for row-crop irrigation. During extended time periods without precipitation, municipal water sources may be at risk for contamination as the concentration of natural minerals, such as lead, will increase with low water levels.

Potential Losses to Existing Development

The National Drought Monitor Center at the University of Nebraska at Lincoln summarized the potential impacts of drought as follows: Drought can create economic impacts on agriculture and related sectors, including forestry and fisheries, because of the reliance of these sectors on surface and subsurface water supplies. In addition to losses in yields in crop and livestock production, drought is associated with increases in insect infestations, plant disease, and wind erosion. Droughts also bring increased problems with insects and disease to forests and reduce growth. The incidence of forest and range fires increases substantially during extended droughts, which in turn place both human and wildlife populations at higher levels of risk. Income loss is another indicator used in assessing the impacts of drought because so many sectors are affected. Finally, while drought is rarely a direct cause of death, the associated heat, dust, and stress can all contribute to increased mortality.

According to data from the USDA Risk Management Agency, there was \$907,258 in insured crop loss payments in Christian County from 2016 to 2025. Therefore, it is probable that future droughts will result in crop losses. There are no anticipated structural losses.

Impact of Previous and Future Development

Increases in crop acreage would add to exposure to drought-related agricultural losses. In addition, any increases in population result in increased demand for treated water and increased wastewater discharge, adding additional strain on water systems.

Hazard Summary by Jurisdiction

Although drought most likely will not cause structural damage, the impact is greatest on the agriculture sector and, if persistent enough, could cause reductions in groundwater and water shortages in communities that provide potable water services. Potential actions to mitigate the impact of drought would be for communities to develop public information campaigns regarding water conservation techniques and measures and provide notification mechanisms for community members to know when drought conditions may occur. Some methods may include restricting the use of public water resources for non-essential usage, such as landscaping, washing cars, filling swimming pools, etc. during extreme drought periods. School and special districts can implement water conservation measures at all district facilities as well. Additionally, Christian County should encourage the use of drought-resistant farming practices to help reduce the negative impacts on crops and municipal drinking water supplies.

Community Comments on Hazard

Five of the survey respondents indicated they had been impacted by droughts in the past. Overall, they showed a mild level of concern.

The survey included questions gauging the public's perception of each hazard. **Table 3.37** provides a

summary of these responses.

Table 3.37. Drought Community Survey Responses

Likelihood of Occurrence		Level of Concern		Magnitude of Impact	
Unlikely	15.2%	Not at all Concerned	14.4%	No Impact	6.2%
Occasionally	37.5%	Not so Concerned	31.5%	Limited Impact	50.6%
Likely	31.9%	Somewhat Concerned	36.5%	Critical Impact	40.0%
Highly Likely	15.3%	Very Concerned	13.8%	Catastrophic Impact	3.2%
-	-	Extremely Concerned	3.8%	-	-

Problem Statement

Although drought most likely will not cause structural damage, the impact is greatest on the agriculture sector and, if persistent enough, could cause reductions in groundwater and water shortages in communities that provide potable water services. Potential actions to mitigate the impact of drought would be for communities to develop public information campaigns regarding water conservation techniques and measures and provide notification mechanisms for community members to know when drought conditions may occur. Some methods may include restrict the use of public water resources for non-essential usage, such as landscaping, washing cars, filling swimming pools, etc. during extreme drought periods. School and special districts can also implement water conservation measures at all district facilities as well. Additionally, Christian County should encourage the use of drought-resistant farming practices to help reduce the negative impacts on crops and municipal drinking water supplies.

3.4.6 Extreme Temperatures

Hazard Profile

Hazard Description

Extreme temperature events, both hot and cold, can impact human health and mortality, natural ecosystems, agriculture, and other economic sectors. According to information provided by FEMA, extreme heat is defined as temperatures that hover 10 degrees or more above the average high temperature for the region and last for several weeks. Ambient air temperature is one component of heat conditions, with relative humidity being the other. The relationship of these factors creates what is known as the apparent temperature. The Heat Index chart shown in **Figure 3.23** uses both factors to produce a guide for the apparent temperature or relative intensity of heat conditions.

Extreme cold often accompanies severe winter storms and can lead to hypothermia and frostbite in people without adequate clothing protection. Cold can cause fuel to congeal in storage tanks and supply lines, stopping electric generators. Cold temperatures can also overpower a building's heating system and cause water and sewer pipes to freeze and rupture. Extreme cold also increases the likelihood for ice jams on flat rivers or streams. When combined with high winds from winter storms, extreme cold becomes extreme wind chill, which is hazardous to health and safety.

The National Institute on Aging estimates that more than 2.5 million Americans are elderly and especially vulnerable to hypothermia, with the isolated elders being most at risk. About 10 percent of people over the age of 65 have some kind of bodily temperature-regulating defect, and 3-4 percent of all hospital patients over 65 are hypothermic.

Also at-risk are those without shelter, those who are stranded, or who live in a home that is poorly insulated or without heat. Other impacts of extreme cold include asphyxiation (unconsciousness or death from a lack of oxygen) from toxic fumes from emergency heaters; household fires, which can be caused by fireplaces and emergency heaters; and frozen/burst pipes.

Geographic Location

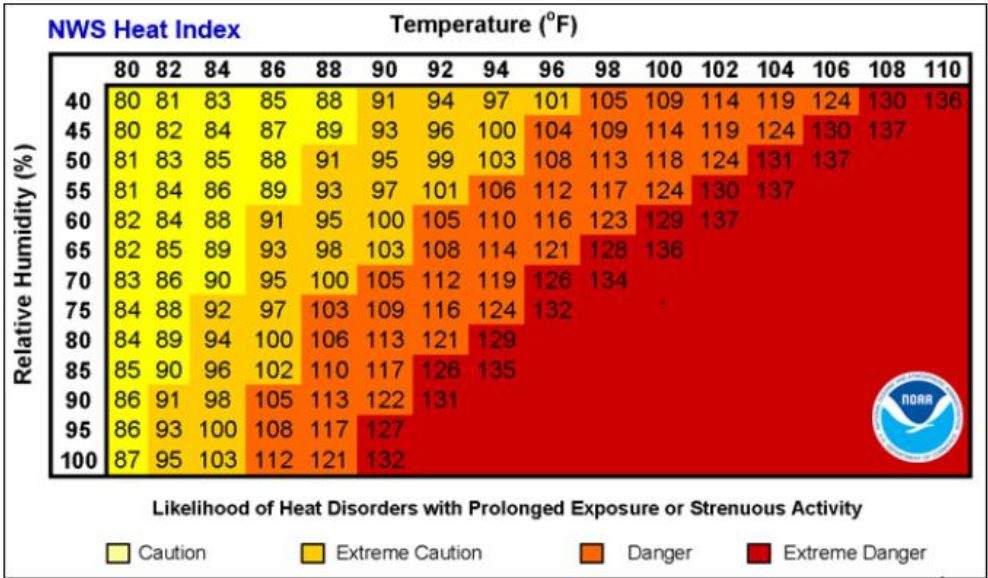
Extreme heat is an area-wide hazard event, the risk of extreme heat does not vary across Christian County.

Strength/Magnitude/Extent

The National Weather Service (NWS) has an alert system in place (advisories or warnings) when the Heat Index is expected to have a significant impact on public safety. The expected severity of the heat determines whether advisories or warnings are issued. A common guideline for issuing excessive heat alerts is when there are two or more consecutive days where the maximum daytime Heat Index is expected to equal or exceed 105 degrees Fahrenheit (°F) and the nighttime minimum Heat Index is 80°F or above. A heat advisory is issued when temperatures reach 105 degrees and a warning is issued at 115 degrees.

Extreme heat and cold may affect residents throughout Christian County and its municipalities while placing additional strain on public utilities, emergency services, and community resources. County and municipal governments may need to provide or coordinate warming and cooling resources, while school districts may modify activities, transportation, or facility operations to protect students and staff.

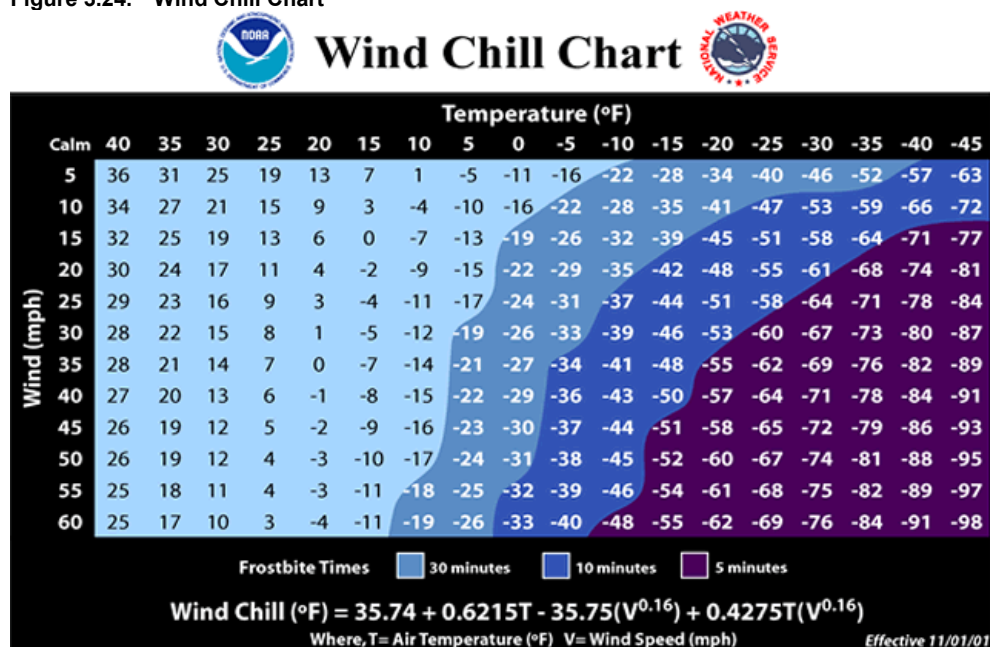
Figure 3.23. Heat Index (HI) Chart



Source: National Weather Service (NWS); <https://www.weather.gov/safety/heat-index>
Note: Exposure to direct sun can increase Heat Index values by as much as 15°F. The shaded zone above 105°F corresponds to a HI that may cause increasingly severe heat disorders with continued exposure and/or physical activity.

The NWS Wind Chill Temperature (WCT) index uses advances in science, technology, and computer modeling to provide an accurate, understandable, and useful formula for calculating the dangers from winter winds and freezing temperatures. **Figure 3.24** below presents wind chill temperatures which are based on the rate of heat loss from exposed skin caused by wind and cold. As the wind increases, it draws heat from the body, driving down skin temperature and eventually the internal body temperature.

Figure 3.24. Wind Chill Chart



Source: <https://www.weather.gov/safety/cold-wind-chill-chart>

Previous Occurrences

According to the National Centers for Environmental Information (NCEI) database, there were zero recorded events of excessive heat and three recorded events of heat in Christian County from 2005-2024. The events of heat occurred in June, July, and August of 2012 with no injuries, deaths, or damages to property or crops.

According to the National Centers for Environmental Information (NCEI) database, there were two recorded events of extreme cold/wind chill and zero recorded events of cold/wind chill in Christian County from 2005-2024. The extreme cold/wind chill events occurred in February 2021 and December 2022 with no injuries, deaths, or damages to property/crops.

According to the USDA Cause of Loss historical data files, there were 3 policies with reported crop loss from heat-related events over the past ten years, all affecting corn crops. The table below provides more information about these events.

Table 3.38. Crop Loss by Year Because of Extreme Heat, 2016-2025

Year	Number of Policies with Reported Loss	Total Value of Crop Loss
2016	0	\$0
2017	0	\$0
2018	0	\$0
2019	0	\$0
2020	0	\$0
2021	0	\$0

Commented [TC33]: Source: [Cause of Loss | Risk Management Agency](#)

Commented [TC34R33]: Use this source for all crop loss data tables

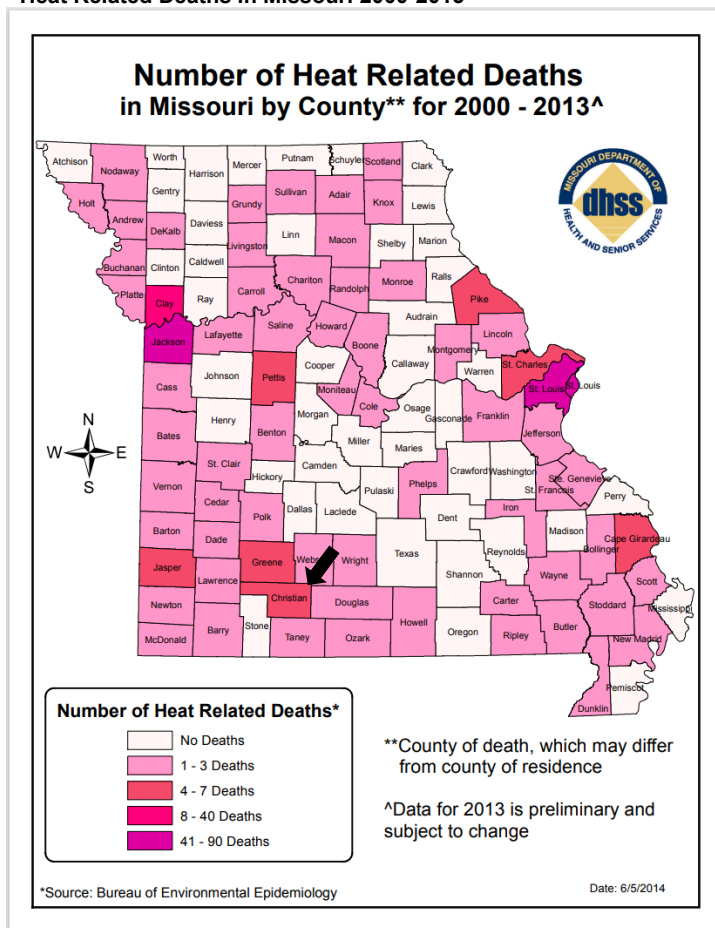
2022	1	\$6,405.00
2023	1	\$18,531.00
2024	0	\$0
2025	1	\$9,955.00
Total	3	\$34,891.00

Source: <https://public-rma.fpac.usda.gov/apps/SummaryOfBusiness>

For more detailed information regarding crop loss caused by extreme cold, see the *Severe Winter Weather* hazard profile.

Figure 3.25 is a map created by The Missouri Department of Health and Senior Services (DHSS) for heat related fatalities by county. The map indicates that there have been between 4-7 heat related fatalities in Christian County from 2000 to 2013.

Figure 3.25. Heat Related Deaths in Missouri 2000-2013



Source: <https://health.mo.gov/living/healthcondiseases/hyperthermia/pdf/hyper2b.pdf>

Probability of Future Occurrence

With zero excessive heat events and three heat events in the 20 years from 2005-2024, there is a 15% chance of a heat event in any given year, and a much lower risk of extreme heat in a given year. With two extreme cold events in the 20 years from 2005-2024, there is a 10% chance of an extreme cold event in any given year. These figures come from the National Centers for Environmental Information storm events database, so it is possible that other extreme weather events went unreported or underreported. If that is the case, the actual chance of extreme temperature in a year would be higher.

Vulnerability

Vulnerability Overview

High humidity, which often accompanies heat in Missouri, can make the effects of heat even more harmful. While heat-related illness and death can occur from exposure to intense heat in just one afternoon, heat stress on the body has a cumulative effect. Consequently, the persistence of a heat wave increases the threat to public health. Those at greatest risk for heat-related illness include infants and children up to five years of age, people 65 years of age and older, people who are overweight, and people who are ill or on certain medications. However, even young and healthy individuals are susceptible if they participate in strenuous physical activities during hot weather. In agricultural areas, the exposure of farm workers, as well as livestock, to extreme temperatures is a major concern.

Christian County received an overall vulnerability rating of medium low for both extreme heat and extreme cold in the 2023 State HMP.

Table 3.39 lists typical symptoms and health impacts due to exposure to extreme heat. Exposures to extreme cold can result in frostbite and hypothermia.

Table 3.39. Typical Health Impacts of Extreme Heat

Heat Index (HI)	Disorder
80-90° F (HI)	Fatigue possible with prolonged exposure and/or physical activity
90-105° F (HI)	Sunstroke, heat cramps, and heat exhaustion possible with prolonged exposure and/or physical activity
105-130° F (HI)	Heatstroke/sunstroke highly likely with continued exposure

Source: National Weather Service Heat Index Program, www.weather.gov/os/heat/index.shtml

Potential Losses to Existing Development

Over a 10-year period from 2016-2025, Christian County experienced only three heat related events which damaged crops. The total damage was \$34,891. This averages out to \$3,489 per year. According to the NCEI disaster database, in a 20-year period (2005-2024) Christian County experienced no deaths, injuries, or property damage from extreme temperatures.

Impact of Previous and Future Development

Population growth can result in increases in the age-groups that are most vulnerable to extreme temperatures. Population growth also increases the strain on electricity infrastructure, as more electricity is needed to accommodate the growing population.

Hazard Summary by Jurisdiction

Those at greatest risk for heat-related illnesses and deaths include children up to five years of age, people 65 years of age and older, people who are overweight, and people who are ill or on certain medications. To determine jurisdictions within the planning area with populations more vulnerable to extreme heat, demographic data was obtained from the 2024 American Community Survey. Data was not available for overweight individuals and those on medications vulnerable to extreme heat. **Table 3.40** below summarizes vulnerable populations in the participating jurisdictions. Note that school and special districts are not included in the table because students and those working for the special districts are not customarily in these age groups.

Table 3.40. Christian County Population Under Age 5 and Over Age 65

Jurisdiction	Population Under 5 yrs	Population 65 yrs and over	Percent of Total Population
Christian County	5,537	15,557	22.7%
Fremont Hills	72	331	25.6%
Highlandville	64	192	26.9%
Nixa	1,964	3,758	23.0%
Ozark	1,487	3,268	21.2%
Saddlebrooke Village	16	173	56.0%
Sparta	188	455	27.6%

Source: American Community Survey 2024

Community Comments on Hazard

There were 16 comments that explicitly referred to extreme temperatures. Overall, survey respondents had an elevated level of concern for this hazard.

The survey included questions gauging the public's perception of each hazard. **Table 3.41** below provides a summary of these responses.

Table 3.41. Extreme Temperatures Community Survey Responses

Likelihood of Occurrence		Level of Concern		Magnitude of Impact	
Unlikely	5.6%	Not at all Concerned	5.3%	No Impact	2.6%
Occasionally	36.4%	Not so Concerned	24.6%	Limited Impact	48.3%
Likely	35.6%	Somewhat Concerned	41.8%	Critical Impact	44.7%
Highly Likely	32.4%	Very Concerned	20.1%	Catastrophic Impact	4.4%
-	-	Extremely Concerned	8.2%	-	-

Problem Statement

Older and younger segments of the population are more vulnerable to the impact of extreme heat. In addition, people living below the poverty level may be more vulnerable during periods of extreme temperatures due to a lack of air conditioning or heating in their homes. Institutionalized populations, such as those living in nursing homes, become more vulnerable to extreme temperatures due to power outages.

To help reduce the risk of death, heating and cooling centers should be promoted and known to the public, especially to those who have young children or are over the age of 65. Partnering with local community organizations to continue to donate fans and offer weatherization programs would mitigate the impact on vulnerable populations in the county. Additionally, backup generators should be installed in critical facilities, especially those housing vulnerable populations, to ensure property heating and cooling during extreme temperature events.

3.4.7 Severe Thunderstorms (Including High Winds, Hail, and Lightning)

Hazard Profile

Hazard Description

Thunderstorms

A thunderstorm is defined as a storm that contains lightning and thunder which is caused by unstable atmospheric conditions. When cold upper air sinks and warm moist air rises, storm clouds or 'thunderheads' develop resulting in thunderstorms. This can occur singularly as well as in clusters or lines. The National Weather Service defines a thunderstorm as "severe" if it includes hail that is one inch or more, or wind gusts that are at 58 miles per hour or higher. At any given moment across the world, there are about 1,800 thunderstorms occurring. Severe thunderstorms most often occur in Missouri in the spring and summer during the afternoon and evenings, but can occur at any time. Other hazards associated with thunderstorms are heavy rains resulting in flooding (discussed separately in Section 3.4.1) and tornadoes (discussed separately in Section 3.4.9).

High Winds

A severe thunderstorm can produce winds causing as much damage as a weak tornado. The damaging winds of thunderstorms include downbursts, microbursts, and straight-line winds. Downbursts are localized currents of air blasting down from a thunderstorm which induce an outward burst of damaging wind on or near the ground. Microbursts are minimized downbursts covering an area of less than 2.5 miles across. They include a strong wind shear (a rapid change in the direction of wind over a short distance) near the surface. Microbursts may or may not include precipitation and can produce winds at speeds of more than 150 miles per hour. Damaging straight-line winds are high winds across a wide area that can reach speeds of 140 miles per hour.

Lightning

All thunderstorms produce lightning which can strike outside of the area where it is raining and has been known to fall more than 10 miles away from the rainfall area. Thunder is simply the sound that lightning makes. Lightning is a huge discharge of electricity that shoots through the air causing vibrations and creating the sound of thunder.

Hail

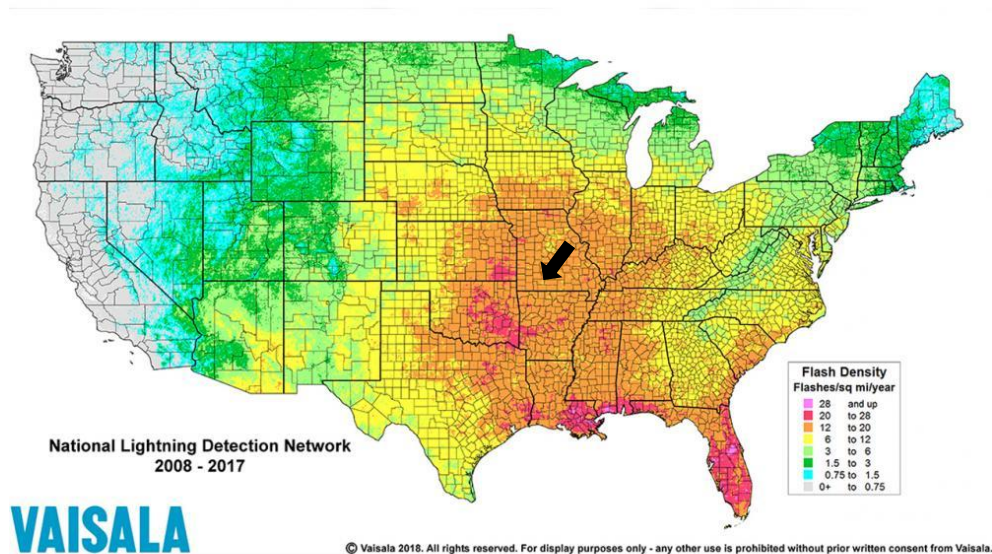
According to the National Oceanic and Atmospheric Administration (NOAA), hail is precipitation that is formed when thunderstorm updrafts carry raindrops upward into extremely cold atmosphere causing them to freeze. The raindrops form into small frozen droplets. They continue to grow as they come into contact with super-cooled water which will freeze on contact with the frozen rain droplet. This frozen droplet can continue to grow and form hail. As long as the updraft forces can support or suspend the weight of the hailstone, hail can continue to grow before it hits the earth. At the time when the updraft can no longer support the hailstone, it will fall down to the earth. For example, a 1/4" diameter or pea sized hail requires updrafts of 24 miles per hour, while a 2 3/4" diameter or baseball sized hail requires an updraft of 81 miles per hour. According to the NOAA, the largest hailstone in diameter recorded in the United States was found in Vivian, South Dakota on July 23, 2010. It was eight inches in diameter, almost the size of a soccer ball. Soccer-ball-sized hail is the exception, but even small pea-sized hail can do damage.

Geographic Location

Thunderstorms/high winds/hail/lightning events are an area-wide hazard that can happen anywhere in the county. Although these events occur similarly throughout the planning area, they are more frequently reported in more urbanized areas. In addition, damages are more likely to occur in more densely developed urban areas.

Figure 3.26 shows lightning frequency in the United States. Christian County is located in an area with an average flash density between 6 and 20.

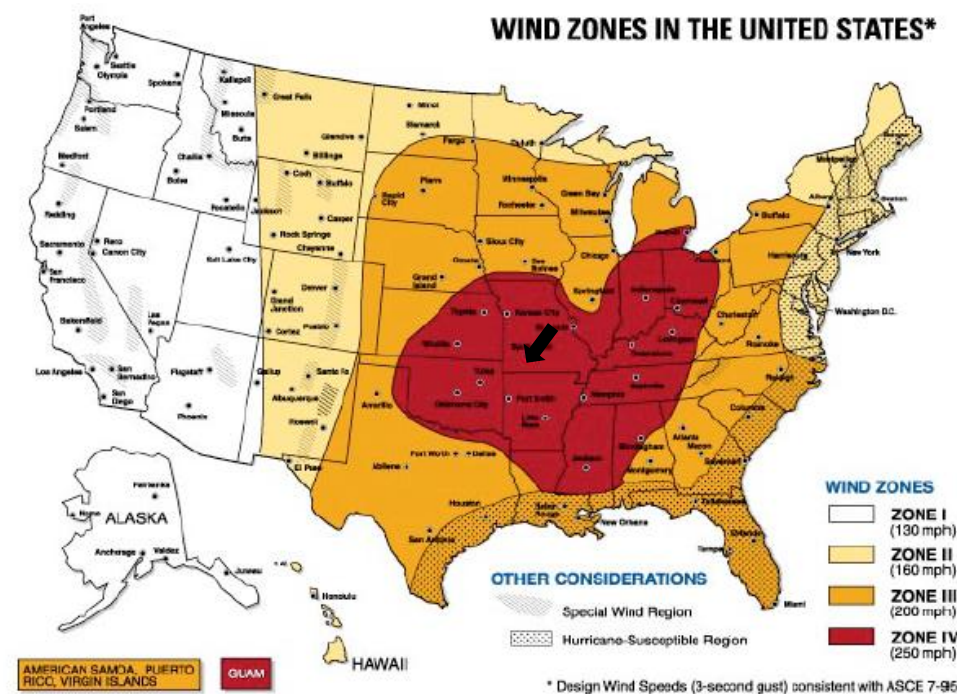
Figure 3.26. Location and Frequency of Lightning in Missouri



Source: National Weather Service, <http://www.vaisala.com/en/products/thunderstormandlightningdetectionsystems/Pages/NLDN.aspx>.

Figure 3.27 shows wind zones in the United States. Christian County lies in Zone IV, the zone with the highest possible wind speeds in the country.

Figure 3.27. Wind Zones in the United States



Source: FEMA 320, Taking Shelter from the Storm, 3rd edition, https://www.fema.gov/pdf/library/ism2_s1.pdf

Strength/Magnitude/Extent

Based on information provided by the Tornado and Storm Research Organization (TORRO), **Table 3.42** below describes typical damage impacts of the various sizes of hail.

Table 3.42. Tornado and Storm Research Organization Hailstorm Intensity Scale

Intensity Category	Diameter (mm)	Diameter (inches)	Size Description	Typical Damage Impacts
Hard Hail	5-9	0.2-0.4	Pea	No damage
Potentially Damaging	10-15	0.4-0.6	Mothball	Slight general damage to plants, crops
Significant	16-20	0.6-0.8	Marble, grape	Significant damage to fruit, crops, vegetation
Severe	21-30	0.8-1.2	Walnut	Severe damage to fruit and crops, damage to glass and plastic structures, paint and wood scored
Severe	31-40	1.2-1.6	Pigeon's egg > squash ball	Widespread glass damage, vehicle bodywork damage
Destructive	41-50	1.6-2.0	Golf ball > Pullet's egg	Wholesale destruction of glass, damage to tiled roofs, significant risk of injuries
Destructive	51-60	2.0-2.4	Hen's egg	Bodywork of grounded aircraft dented, brick walls pitted
Destructive	61-75	2.4-3.0	Tennis ball >	Severe roof damage, risk of serious injuries

Intensity Category	Diameter (mm)	Diameter (inches)	Size Description	Typical Damage Impacts
			cricket ball	
Destructive	76-90	3.0-3.5	Large orange > Soft ball	Severe damage to aircraft bodywork
Super Hailstorms	91-100	3.6-3.9	Grapefruit	Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open
Super Hailstorms	>100	4.0+	Melon	Extensive structural damage. Risk of severe or even fatal injuries to persons caught in the open

Source: Tornado and Storm Research Organization (TORRO), Department of Geography, Oxford Brookes University

Notes: In addition to hail diameter, factors including number and density of hailstones, hail fall speed and surface wind speeds affect severity. <http://www.torro.org.uk/site/hscale.php>

Straight-line winds are defined as any thunderstorm wind that is not associated with rotation (i.e., is not a tornado). It is these winds, which can exceed 100 miles per hour, which represent the most common type of severe weather. They are responsible for most wind damage related to thunderstorms. Since thunderstorms do not have narrow tracks like tornadoes, the associated wind damage can be extensive and affect entire (and multiple) counties. Objects like trees, barns, outbuildings, high-profile vehicles, and power lines/poles can be toppled or destroyed, and roofs, windows, and homes can be damaged as wind speeds increase.

The onset of thunderstorms with lightning, high wind, and hail is generally rapid. Duration is less than six hours and warning time is generally six to twelve hours. Nationwide, lightning kills 75 to 100 people each year. Lightning strikes can also start structural and wildland fires, as well as damage electrical systems and equipment.

Severe thunderstorms may impact multiple municipal jurisdictions simultaneously through damaging winds, hail, lightning, and heavy rainfall, causing damage to county and municipal facilities, utilities, roads, and other infrastructure. School districts may experience power outages, transportation disruptions, facility damage, and interruptions to classes or extracurricular activities.

Previous Occurrences

Thunderstorm Winds

Table 3.43. NCEI Thunderstorm Wind Events in Christian County, 2005-2024

Location	Events	Deaths	Injuries	Property Damage	Crop Damage
Unincorporated Christian County	85	0	0	\$923,500	\$0
Fremont Hills	0	0	0	0	\$0
Highlandville	21	0	0	\$181,000	\$0
Nixa	48	0	0	\$221,500	\$0
Ozark	47	0	0	\$332,000	\$0
Saddlebrooke	0	0	0	0	\$0
Sparta	16	0	0	\$72,000	\$0
Total	244	0	0	\$1,730,000	\$0

Source: NCEI Storm Events Database <https://www.ncdc.noaa.gov/stormevents/>

High Wind

Table 3.44. NCEI High Wind Events in Christian County, 2005-2024

Location	Events	Deaths	Injuries	Property Damage	Crop Damage
Unincorporated Christian County	3	0	0	\$10,000.00	\$0
Fremont Hills	0	0	0	\$0	\$0
Highlandville	0	0	0	\$0	\$0
Nixa	0	0	0	\$0	\$0
Ozark	0	0	0	\$0	\$0
Saddlebrooke	0	0	0	\$0	\$0
Sparta	0	0	0	\$0	\$0
Total	3	0	0	\$10,000.00	\$0

Source: NCEI Storm Events Database <https://www.ncdc.noaa.gov/stormevents/>

Lightning

Table 3.45. NCEI Lightning Events in Christian County, 2005-2024

Location	Events	Deaths	Injuries	Property Damage	Crop Damage
Unincorporated Christian County	1	0	0	\$30,000	\$0
Fremont Hills	0	0	0	\$0	\$0
Highlandville	2	0	0	\$325,000	\$0
Nixa	2	0	0	\$260,000	\$0
Ozark	2	0	0	\$75,000	\$0
Saddlebrooke	0	0	0	\$0	\$0
Sparta	0	0	0	\$0	\$0
Total	7	0	0	\$690,000	\$0

Source: NCEI Storm Events Database <https://www.ncdc.noaa.gov/stormevents/>

Limitations to the use of NCEI reported lightning events include the fact that only lightning events that result in fatality, injury and/or property and crop damage are in the NCEI.

Hail

Table 3.46. NCEI Hail Events in Christian County, 2005-2024

Location	Events	Deaths	Injuries	Property Damage	Crop Damage
Unincorporated Christian County	58	0	0	\$70,000	\$0
Fremont Hills	0	0	0	\$0	\$0
Highlandville	17	0	0	\$0	\$0
Nixa	33	0	0	\$15,000	\$0
Ozark	36	0	0	\$0	\$0
Saddlebrooke	0	0	0	\$0	\$0
Sparta	10	0	0	\$0	\$0
Total	154	0	0	\$85,000	\$0

Source: NCEI Storm Events Database <https://www.ncdc.noaa.gov/stormevents/>

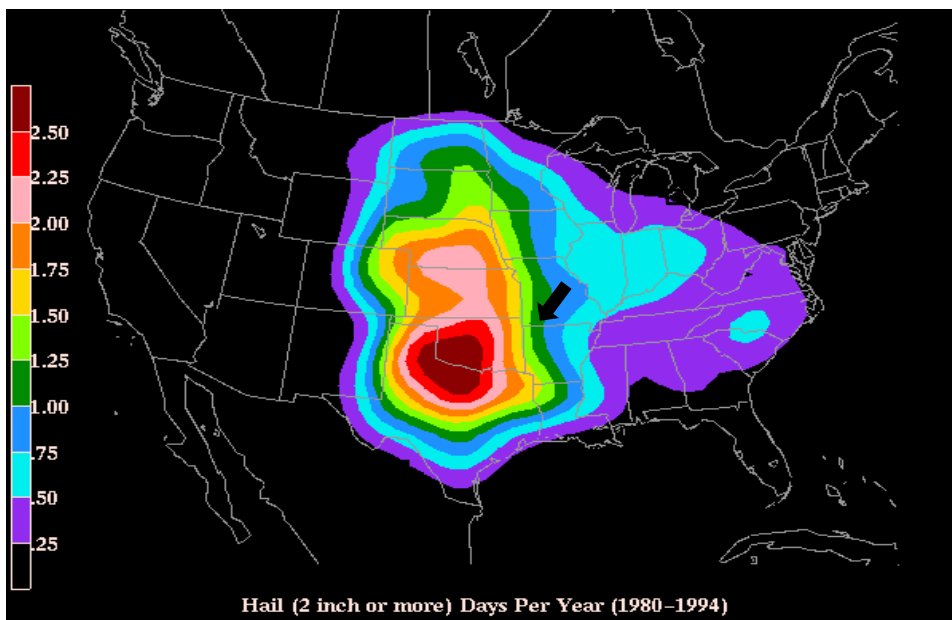
According to the USDA, there were no reported crop losses as a result of thunderstorms, high winds, lightning, or hail from 2016-2025.

Probability of Future Occurrence

Based on the average number of severe thunderstorm wind events in Christian County from 2005-2024, the county can expect 12 thunderstorm wind, 0.15 high wind, 0.35 lightning, and 7.7 hail events per year.

Figure 3.28 is a map based on hailstorm data from 1980-1994. It shows the probability of hailstorm occurrence (2" diameter or larger based on number of days per year). Christian County is located in a zone that should experience hail with a diameter of 2" or more up to 1.25 times per year.

Figure 3.28. Annual Hailstorm Probability (2 inch diameter or larger) 1980- 1994



Source: NSSL, http://www.nssl.noaa.gov/users/brooks/public_html/big_hail.gif

Vulnerability

Vulnerability Overview

Severe thunderstorm losses are usually attributed to the associated hazards of hail, downburst winds, lightning and heavy rains. Losses due to hail and high wind are typically insured losses that are localized and do not result in presidential disaster declarations. However, in some cases, impacts are severe and widespread and assistance outside state capabilities is necessary. Hail and wind also can have devastating impacts on crops. Severe thunderstorms/heavy rains that lead to flooding are discussed in the flooding hazard profile. Hailstorms cause damage to property, crops, and the environment, and can injure and even kill livestock. In the United States, hail causes more than \$1 billion in damage to property and crops each year. Even relatively small hail can shred plants to ribbons in a matter of minutes. Vehicles, roofs of buildings and homes, and landscaping are also commonly damaged by hail. Hail has been known to cause injury to humans, occasionally fatal injury.

In general, assets in the County vulnerable to thunderstorms with lightning, high winds, and hail include people, crops, vehicles, and built structures. Although this hazard results in high annual losses, private property insurance and crop insurance usually cover the majority of losses. Considering insurance coverage as a recovery capability, the overall impact on jurisdictions is reduced.

Most lightning damages occur to electronic equipment located inside buildings. But structural damage can also occur when a lightning strike causes a building fire. In addition, lightning strikes can cause damages to crops, if fields or forested lands are set on fire. Communications equipment and warning transmitters and receivers can also be knocked out by lightning strikes.

Potential Losses to Existing Development

The average annual losses determined from historical losses for severe thunderstorm events are indicators of the potential losses to existing development. These events can damage critical facilities, schools, government buildings, and private property. Based on NCEI data, Christian County can expect the following in potential property damage per year:

Thunderstorm Wind- \$86,500.00
High Winds - \$500.00
Lightning - \$34,500.00
Hail - \$4,250.00

Previous and Future Development

Development and population growth within Unincorporated Christian County, as well as in specific jurisdictions, including school and special districts, results in the increase of population and buildings. Development occurring in these areas will result in more exposure that is vulnerable to damages from thunderstorms, heavy winds, lightning, and precipitation.

Hazard Summary by Jurisdiction

Thunderstorms, heavy winds, lightning, hail, and heavy precipitation affect areas with more structures built prior to 1939. All participating jurisdictions have a significant amount of these homes with the exception of Arcola. Additionally, jurisdictions which have building plans or enforce building codes (Greenfield and Lockwood) will be more effective in mitigating the effects of these hazards.

Community Comments on Hazard

There were more than 100 comments that specifically referenced severe thunderstorms of some kind (including thunderstorms, high wind, hail, and lightning).

The survey included questions gauging the public's perception of each hazard. **Table 3.47** below provides a summary of these responses.

Table 3.47. Severe Thunderstorm Community Survey Responses

Likelihood of Occurrence		Level of Concern		Magnitude of Impact	
Unlikely	1.1%	Not at all Concerned	2.9%	No Impact	1.4%
Occasionally	5.8%	Not so Concerned	11.4%	Limited Impact	29.6%
Likely	22.0%	Somewhat Concerned	35.4%	Critical Impact	59.3%
Highly Likely	71.1%	Very Concerned	31.6%	Catastrophic Impact	9.7%
-	-	Extremely Concerned	18.7%	-	-

Problem Statement

Poorly built structures, barns, and outbuildings are more vulnerable to the impact of high winds during thunderstorms. High winds can topple utility poles and lead to power outages. Both high winds and hail can damage roofs. Hail can also damage crops and dent cars and trucks. People are also at risk to injury and death during high wind events. Crop insurance mitigates the risk to farmers and the agriculture sector within the county. Lightning events have caused structural fires, can strike electrical utilities leading to power outages, or strike municipal water systems causing water supply outages.

The risk of property damage, injury, and death in the county can be mitigated by identifying safe refuge areas in public buildings, nursing homes and other facilities that house vulnerable populations that do not have a safe room. The purchasing and installation of NOAA weather radios in schools, government buildings and public areas may assist in providing early warning to allow for public to seek shelter during high wind events. These radios are more reliable if internet/cell service is interrupted as a result of storm damage. Education and hazard awareness programs in public schools would also increase public safety in the event of severe thunderstorm events.

3.4.8 Severe Winter Weather

Hazard Profile

Hazard Description

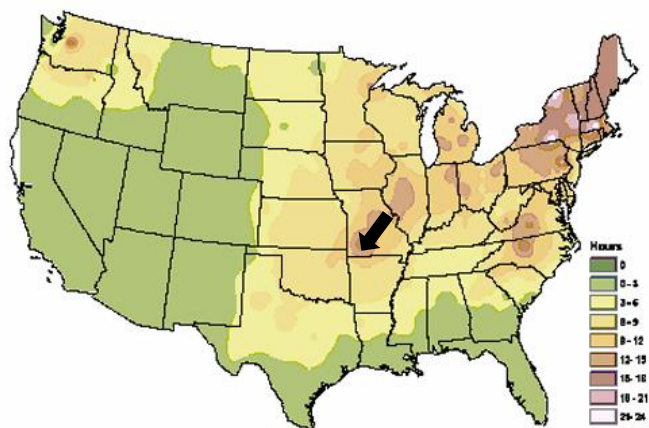
A major winter storm can last for several days and be accompanied by high winds, freezing rain or sleet, heavy snowfall, and cold temperatures. The National Weather Service describes different types of winter storm events as follows.

- **Blizzard**—Winds of 35 miles per hour or more with snow and blowing snow reducing visibility to less than $\frac{1}{4}$ mile for at least three hours.
- **Blowing Snow**—Wind-driven snow that reduces visibility. Blowing snow may be falling snow and/or snow on the ground picked up by the wind.
- **Snow Squalls**—Brief, intense snow showers accompanied by strong, gusty winds. Accumulation may be significant.
- **Snow Showers**—Snow falling at varying intensities for brief periods of time. Some accumulation is possible.
- **Freezing Rain**—Measurable rain that falls onto a surface with a temperature below freezing. This causes it to freeze to surfaces, such as trees, cars, and roads, forming a coating or glaze of ice. Most freezing-rain events are short lived and occur near sunrise between the months of December and March.
- **Sleet**—Rain drops that freeze into ice pellets before reaching the ground. Sleet usually bounces when hitting a surface and does not stick to objects.

Geographic Location

The entire county is vulnerable to heavy snow, ice, extreme cold temperatures, and freezing rain. **Figure 3.29** depicts the average number of hours per year with freezing rain. Christian County is located in a zone that can expect 12-18 hours of freezing rain per year.

Figure 3.29. NWS Statewide Average Number of Hours per Year with Freezing Rain



Source: American Meteorological Society. "Freezing Rain Events in the United States." <http://ams.confex.com/ams/pdfpapers/71872.pdf>

Strength/Magnitude/Extent

Severe winter storms include heavy snowfall, ice, and strong winds which can push the wind chill well below zero degrees in the planning area.

For severe weather conditions, the National Weather Service issues some or all of the following products as conditions warrant across the State of Missouri. NWS local offices in Missouri may collaborate with local partners to determine when an alert should be issued for a local area.

- **Winter Weather Advisory** — Winter weather conditions are expected to cause significant inconveniences and may be hazardous. If caution is exercised, these situations should not become life threatening. Often the greatest hazard is to motorists.
- **Winter Storm Watch** — Severe winter conditions, such as heavy snow and/or ice are possible within the next day or two.
- **Winter Storm Warning** — Severe winter conditions have begun or are about to begin.
- **Blizzard Warning** — Snow and strong winds will combine to produce a blinding snow (near zero visibility), deep drifts, and life-threatening wind chill.
- **Ice Storm Warning** -- Dangerous accumulations of ice are expected with generally over one quarter inch of ice on exposed surfaces. Travel is impacted, and widespread downed trees and power lines often result.
- **Wind Chill Advisory** -- Combination of low temperatures and strong winds will result in wind chill readings of -20 degrees F or lower.
- **Wind Chill Warning** -- Wind chill temperatures of -35 degrees F or lower are expected. This is a life-threatening situation.

Severe winter weather may disrupt transportation and essential services throughout Christian County, including within incorporated municipalities and unincorporated areas. County and municipal governments may need to coordinate road treatment and emergency response, while public school districts may delay or cancel classes due to hazardous road conditions or unsafe facility conditions.

Previous Occurrences

Table 3.48. NCEI Christian County Winter Weather Events Summary, 2005-2024

Type of Event	Inclusive Dates	# of Injuries	Property Damages	Crop Damages
Blizzard	02/01/2011	0	\$0	\$0
Extreme Cold/Wind Chill	02/14/2021, 12/22/2022	0	\$0	\$0
Heavy Snow	03/04/2008	0	\$0	\$0
Ice Storm	01/12/2007, 02/11/2008, 02/21/2008, 01/26/2009, 01/11/2019	0	\$100,000	\$0
Sleet	None	0	\$0	\$0
Winter Storm	11/30/2006, 01/20/2007, 01/28/2010, 03/20/2010, 02/21/2013, 12/05/2013, 01/05/2014, 03/02/2014, 02/15/2015, 02/20/2015, 03/04/2015, 02/14/2021, 02/02/2022, 02/23/2022, 12/22/2022, 01/24/2023, 01/29/2023, 02/12/2024	0	\$0	\$0
Winter Weather	02/10/2018, 02/15/2019, 12/13/2020, 12/31/2020, 01/01/2021, 01/27/2021, 02/17/2021, 01/06/2022, 01/15/2022, 12/22/2022, 01/12/2023, 01/31/2023, 01/14/2024, 01/22/2024	0	\$5,000	\$0

Source: NCEI

In January 2007, an ice storm caused extensive damage to power lines, trees, and structures in northern Christian County. 4 structures caught fire due to electrical issues caused by the storm, and 25,000 residents lost power, with some being without power for nearly 2 weeks. This storm caused an estimated \$100,000 in damages.

According to the USDA, there were no reported crop losses as a result of winter weather events from 2016-2025.

Probability of Future Occurrence

There were a total of 41 winter weather events in the 20 years from 2005-2024, meaning Christian County can expect just over two winter weather events per year.

Vulnerability

Vulnerability Overview

Heavy snow can bring a community to a standstill by inhibiting transportation (in whiteout conditions), weighing down utility lines, and by causing structural collapse in buildings not designed to withstand the weight of the snow. Repair and snow removal costs can be significant. Ice buildup can collapse utility lines and communication towers, as well as make transportation difficult and hazardous. Ice can also become a problem on roadways if the air temperature is high enough that precipitation falls as freezing rain rather than snow.

Buildings with overhanging tree limbs are more vulnerable to damage during winter storms when limbs fall. Businesses experience loss of income as a result of closure during power outages. In general heavy winter storms increase wear and tear on roadways though the cost of such damages is difficult to determine. Businesses can experience loss of income as a result of closure during winter storms.

Overhead power lines and infrastructure are also vulnerable to damages from winter storms. In particular ice accumulation during winter storm events damage to power lines due to the ice weight on the lines and equipment. Damages also occur to lines and equipment from falling trees and tree limbs weighted down by ice. Potential losses could include cost of repair or replacement of damaged facilities, and lost economic opportunities for businesses.

Secondary effects from loss of power could include burst water pipes in homes without electricity during winter storms. Public safety hazards include risk of electrocution from downed power lines. Specific amounts of estimated losses are not available due to the complexity and multiple variables associated with this hazard. Standard values for loss of service for utilities reported in FEMA's BCA Toolkit 6.0 Release Notes, the economic impact as a result of loss of power is \$174 per person per day of lost service.

Potential Losses to Existing Development

Based on NCEI storm data, Christian County suffered a total of \$105,000 of winter weather related storm damages from 2005-2024. This averages out to \$5,250 per year.

Previous and Future Development

Increased development and any resulting increases in population will increase exposure to damage from severe winter weather. Future commercial development can expect functional downtime and decreased revenues during periods of severe winter weather. Future construction of facilities that will serve vulnerable populations will need to be prepared for extreme weather conditions. Road

construction in the county will increase the need for snow removal and salt to keep transportation lifelines open during periods of severe winter weather. Any increase in agriculture crop production will also increase the risk of exposure.

Hazard Summary by Jurisdiction

Severe winter weather can cause power outages and put structures at risk to fires when individuals in homes resort to fuel heaters. The risk of extreme cold deaths and frostbite varies among segments of the populations. People over 65 and those living below the poverty level have an increased vulnerability to severe winter weather. Special road districts may be affected by this, as their workload will increase as they try to help clean up roadways. Actions taken to improve road work will be halted as attention is shifted towards cleaning up the roads.

Community Comments on Hazard

There were 79 comments on the survey that directly referenced some type of severe winter weather event. Overall, survey respondents recognized that this event has a high likelihood of happening and that it has the potential to cause substantial damage.

The survey included questions gauging the public's perception of each hazard. **Table 3.49** below provides a summary of these responses.

Table 3.49. Severe Winter Weather Community Survey Responses

Likelihood of Occurrence		Level of Concern		Magnitude of Impact	
Unlikely	1.5%	Not at all Concerned	4.1%	No Impact	1.4%
Occasionally	24.2%	Not so Concerned	20.5%	Limited Impact	34.0%
Likely	36.5%	Somewhat Concerned	35.4%	Critical Impact	54.7%
Highly Likely	37.8%	Very Concerned	31.6%	Catastrophic Impact	9.9%
-	-	Extremely Concerned	18.7%	-	-

Problem Statement

Heavy snow can bring a community to a standstill by inhibiting transportation (in whiteout conditions), weighing down utility lines, and by causing structural collapse in buildings not designed to withstand the weight of the snow. Repair and snow removal costs can be significant. Ice buildup can collapse utility lines and communication towers, as well as make transportation difficult and hazardous. People over 65 and those living in poverty have an increased risk of hypothermia and frostbite due to extreme cold and wind chill.

Organizing outreach to at-risk populations, including establishing and promoting accessible heating and cooling centers can help reduce the potential exposure to harsh winter weather. Additionally, identifying debris disposal and burning locations can assist in facilitating recovery efforts after a significant winter storm or ice incident. An automated alert system could also be utilized to notify residents of the coming winter weather and warming locations in the community.

3.4.9 Tornado

Hazard Profile

Hazard Description

Tornadoes are a vortex storm with two components of winds. The first is the rotational winds that can measure up to 500 miles per hour, and the second is an uplifting current of great strength. The dynamic strength of both these currents can cause vacuums that can overpressure structures from the inside.

Although tornadoes have been documented in all 50 states, most of them occur in the central United States. The unique geography of the central United States allows for the development of thunderstorms that spawn tornadoes. The jet stream, which is a high-velocity stream of air, determines which area of the central United States will be prone to tornado development. The jet stream normally separates the cold air of the north from the warm air of the south. During the winter, the jet stream flows west to east from Texas to the Carolina coast. As the sun "moves" north, so does the jet stream, which at summer solstice flows from Canada across Lake Superior to Maine. During its move northward in the spring and its recession south during the fall, the jet stream crosses Missouri, causing the large thunderstorms that breed tornadoes.

Tornadoes spawn from the largest thunderstorms. The associated cumulonimbus clouds can reach heights of up to 55,000 feet above ground level and are commonly formed when Gulf air is warmed by solar heating. The moist, warm air is overridden by the dry cool air provided by the jet stream. This cold air presses down on the warm air, preventing it from rising, but only temporarily. Soon, the warm air forces its way through the cool air and the cool air moves downward past the rising warm air. This air movement, along with the deflection of the earth's surface, can cause the air masses to start rotating. This rotational movement around the location of the breakthrough forms a vortex, or funnel. If the newly created funnel stays in the sky, it is referred to as a funnel cloud. However, if it touches the ground, the funnel officially becomes a tornado.

A typical tornado can be described as a funnel-shaped cloud that is "anchored" to a cloud, usually a cumulonimbus that is also in contact with the earth's surface. This contact on average lasts 30 minutes and covers an average distance of 15 miles. The width of the tornado (and its path of destruction) is usually about 300 yards. However, tornadoes can stay on the ground for upward of 300 miles and can be up to a mile wide. The National Weather Service, in reviewing tornadoes occurring in Missouri between 1950 and 1996, calculated the mean path length at 2.27 miles and the mean path area at 0.14 square mile.

The average forward speed of a tornado is 30 miles per hour but may vary from nearly stationary to 70 miles per hour. The average tornado moves from southwest to northeast, but tornadoes have been known to move in any direction. Tornadoes are most likely to occur in the afternoon and evening, but have been known to occur at all hours of the day and night.

Geographic Location

There are no specific geographic locations as the threat from this hazard is countywide.

Strength/Magnitude/Extent

Tornadoes are the most violent of all atmospheric storms and are capable of tremendous destruction. Wind speeds can exceed 250 miles per hour and damage paths can be more than one mile wide and 50 miles long. Tornadoes have been known to lift and move objects weighing more than 300 tons a

distance of 30 feet, toss homes more than 300 feet from their foundations, and siphon millions of tons of water from water bodies. Tornadoes also can generate a tremendous amount of flying debris or “missiles,” which often become airborne shrapnel that causes additional damage. If wind speeds are high enough, missiles can be thrown at a building with enough force to penetrate windows, roofs, and walls. However, the less spectacular damage is much more common.

Tornado magnitude is classified according to the EF- Scale (or the Enhance Fujita Scale, based on the original Fujita Scale developed by Dr. Theodore Fujita, a renowned severe storm researcher). The EF- Scale (**Table 3.50** below) attempts to rank tornadoes according to wind speed based on the damage caused. This update to the original F Scale was implemented in the U.S. on February 1, 2007.

Table 3.50. Enhanced F Scale for Tornado Damage

FUJITA SCALE			DERIVED EF SCALE		OPERATIONAL EF SCALE	
F Number	Fastest ¼-mile (mph)	3 Second Gust (mph)	EF Number	3 Second Gust (mph)	EF Number	3 Second Gust (mph)
0	40-72	45-78	0	65-85	0	65-85
1	73-112	79-117	1	86-109	1	86-110
2	113-157	118-161	2	110-137	2	111-135
3	158-207	162-209	3	138-167	3	136-165
4	208-260	210-261	4	168-199	4	166-200
5	261-318	262-317	5	200-234	5	Over 200

Source: The National Weather Service, www.spc.noaa.gov/faq/tornado/ef-scale.html

The wind speeds for the EF scale and damage descriptions are based on information on the NOAA Storm Prediction Center as listed in **Table 3.51**. The damage descriptions are summaries. For the actual EF scale it is necessary to look up the damage indicator (type of structure damaged) and refer to the degrees of damage associated with that indicator. Information on the Enhanced Fujita Scale’s damage indicators and degrees of damage is located online at www.spc.noaa.gov/efscale/ef-scale.html.

Table 3.51. Enhanced Fujita Scale with Potential Damage

Enhanced Fujita Scale			
Scale	Wind Speed (mph)	Relative Frequency	Potential Damage
EF0	65-85	53.5%	Light. Peels surface off some roofs; some damage to gutters or siding; branches broken off trees; shallow-rooted trees pushed over. Confirmed tornadoes with no reported damage (i.e. those that remain in open fields) are always rated EF0).
EF1	86-110	31.6%	Moderate. Roofs severely stripped; mobile homes overturned or badly damaged; loss of exterior doors; windows and other glass broken.
EF2	111-135	10.7%	Considerable. Roofs torn off well-constructed houses; foundations of frame homes shifted; mobile homes complete destroyed; large trees snapped or uprooted; light object missiles generated; cars lifted off ground.
EF3	136-165	3.4%	Severe. Entire stores of well-constructed houses destroyed; severe damage to large buildings such as shopping malls; trains overturned; trees debarked; heavy cars lifted off the ground and thrown; structures with weak foundations blown away some distance.
EF4	166-200	0.7%	Devastating. Well-constructed houses and whole frame houses completely levelled; cars thrown and small missiles generated.
EF5	>200	<0.1%	Explosive. Strong frame houses levelled off foundations and swept away; automobile-sized missiles fly through the air in excess of 300 ft.; steel reinforced concrete structure badly damaged; high rise buildings have significant structural deformation; incredible phenomena will occur.

Source: NOAA Storm Prediction Center, <http://www.spc.noaa.gov/efscale/ef-scale.html>

Enhanced weather forecasting has provided the ability to predict severe weather likely to produce tornadoes days in advance. Tornado watches can be delivered to those in the path of these storms several hours in advance. Lead time for actual tornado warnings is about 30 minutes. Tornadoes have been known to change paths very rapidly, thus limiting the time in which to take shelter. Tornadoes may not be visible on the ground if they occur after sundown or due to blowing dust or driving rain and hail.

Tornadoes may cause significant damage across county and municipal jurisdictions, affecting homes, businesses, public facilities, infrastructure, and utilities. Public school districts may face direct damage to school facilities and must maintain procedures for warning, sheltering, evacuation, and continuity of operations, while county and municipal governments coordinate response and recovery efforts.

Previous Occurrences

There are limitations to the use of NCEI tornado data that must be noted. For example, one tornado may contain multiple segments as it moves geographically. A tornado that crosses a county line or state line is considered a separate segment for the purposes of reporting to the NCEI. Also, a tornado that lifts off the ground for less than 5 minutes or 2.5 miles is considered a separate segment. If the tornado lifts off the ground for greater than 5 minutes or 2.5 miles, it is considered a separate tornado. Tornadoes reported in Storm Data and the Storm Events Database are in segments.

Table 3.52. Recorded Tornadoes in Christian County, 2005-2024

Date	Beginning Location	Ending Location	Length (miles)	Width (yards)	F/EF Rating	Death	Injury	Property Damage	Crop Damages
11/05/2005	Garrison	Garrison	4	530	F1	0	0	0	0
03/12/2006	Clever	Clever	17	250	F3	0	3	\$50,000,000	0
06/18/2007	Ozark	Ozark	1	75	EF0	0	1	0	0
06/30/2007	Ozark	Ozark	0.1	50	EF0	0	0	0	0
09/06/2007	Clever	Clever	0.5	50	EF0	0	0	\$2,000	0
01/07/2008	Billings	Billings	0.04	50	EF0	0	0	0	0
01/07/2008	Riverdale	Riverdale	0.36	100	EF1	0	1	\$200,000	0
01/08/2008	Montague	Selmore	4.98	100	EF1	0	0	\$250,000	0
04/09/2009	Nixa	Nixa	1.64	150	EF0	0	0	\$100,000	0
05/08/2009	Garrison	Garrison	7.19	880	EF1	0	0	\$2,000,000	0
05/13/2010	Sparta	Bruner	4.25	200	EF0	0	0	\$50,000	0
09/15/2010	Boaz	Boaz	0.43	100	EF0	0	0	0	0
12/31/2010	Bruner	Abadyl	5.27	250	EF1	0	2	\$200,000	0
05/19/2017	Chadwick	Oldfield	3	500	EF0	0	0	\$100,000	0
05/03/2018	Ozark	Ozark	1.5	100	EF1	0	0	\$100,000	0
12/01/2018	Clever	Clever	2.11	40	EF0	0	0	\$190,000	0
12/01/2018	Billings	Billings	1.24	75	EF1	0	0	\$150,000	0
04/30/2019	Keltner	Keltner	0.02	50	EF0	0	0	0	0
04/30/2019	Ozark	Linden	1.93	400	EF2	0	2	\$6,800,000	0
04/30/2019	Spokane	Christian	12.15	100	EF1	0	0	\$85,000	0
10/20/2019	Terrell	Terrell	4.2	100	EF0	0	0	\$30,000	0
10/21/2019	Highlandville	Sparta	11.88	150	EF1	0	0	0	0
10/21/2019	Linden	Abadyl	4.46	250	EF1	0	0	\$65,000	0
04/28/2021	Chadwick	Chadwick	0.42	50	EF0	0	0	\$5,000	0
12/05/2021	Selmore	Christian	3.43	100	EF1	0	0	\$150,000	0
03/14/2024	McCracken	McCracken	0.96	50	EF0	0	0	\$15,000	0
Total						0	9	\$60,492,000	0

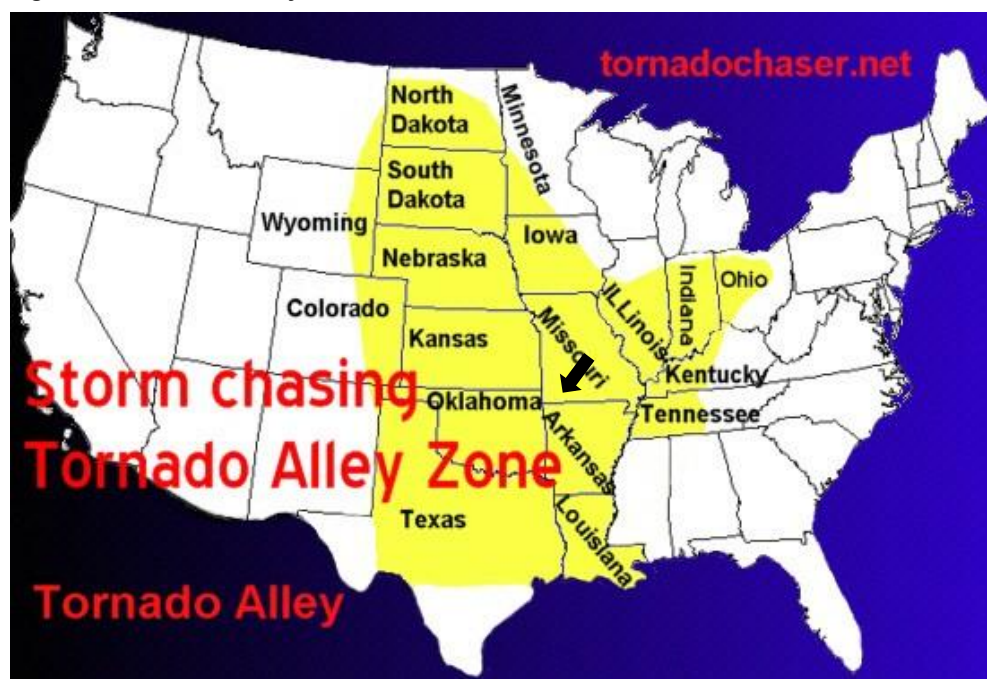
Source: National Centers for Environmental Information, <http://www.NCEI.noaa.gov/stormevents/>.

- Population density – Medium Low
- Social vulnerability – Medium Low
- Percentage of mobile homes – Medium Low
- Likelihood of occurrence – High
- Annual property loss – Medium

This equates to an overall vulnerability rating of Medium High.

Figure 3.31 illustrates areas where dangerous tornadoes historically have occurred.

Figure 3.31. Tornado Alley in the U.S.



Source: <http://www.tornadochaser.net/tornalley.html>

Potential Losses to Existing Development

During the 20-year period from 2005 to 2024, 26 tornadoes caused \$60,492,000 in property damage. One was classified as F3, one as F2, 11 as F/EF1, and 13 as F/EF0. Based on this information, the county can expect to see an estimated \$3,024,000 in property damage per year caused by tornadoes. One tornado in 2006 caused \$50,000,000 in property damage alone. If you remove that tornado, then the average damage per year decreases to \$524,600.

Previous and Future Development

Christian County is one of the fastest growing counties in Missouri. Development is anticipated to continue in the communities of Clever, Nixa, Ozark, and unincorporated areas in the north central part

of the county. Development across the county and within incorporated jurisdictions increases the potential for losses. During the 20-year period, the average annual losses countywide were \$3,024,000 (\$524,600 if you remove the one significant event in 2006). This number is expected to increase with continued population growth and increased development.

Hazard Summary by Jurisdiction

While tornado events are a county-wide hazard, communities with a greater percentage of structures built prior to 1939 are considered to be more vulnerable to this type of event. However, the county has a relatively small amount of these structure types, so that decreases their vulnerability.

School districts can be especially at risk of this hazard. However, all participating districts have a designated campus tornado shelter ready to be used in the event of a tornado.

Community Comments on Hazard

76 survey respondents said they had been impacted by a tornado in the past. Most of these comments said the tornados caused damage to their home, outbuildings, fences, and other structures. Of all hazards, this scored the highest on likelihood of occurrence, level of concern, and magnitude of impact.

The survey included questions gauging the public’s perception of each hazard. **Table 3.53** below provides a summary of these responses.

Table 3.53. Tornado Community Survey Responses

Likelihood of Occurrence		Level of Concern		Magnitude of Impact	
Unlikely	1.1%	Not at all Concerned	1.5%	No Impact	0.5%
Occasionally	20.2%	Not so Concerned	6.1%	Limited Impact	6.7%
Likely	35.7%	Somewhat Concerned	35.7%	Critical Impact	42.2%
Highly Likely	43.0%	Very Concerned	29.9%	Catastrophic Impact	50.6%
-	-	Extremely Concerned	26.7%	-	-

Problem Statement

Tornadoes are the most violent of all atmospheric storms and are capable of tremendous destruction. Wind speeds can exceed 250 miles per hour and damage paths can be more than one mile wide and 50 miles long. From 2005 to 2024, tornado events in Christian County resulted in zero deaths, nine injuries, and \$60,492,000 in property damage. Information in the 2023 State Plan indicates that Christian County has a Medium High overall vulnerability to tornadoes.

The risk of property damage, injury, and death in the county can be mitigated by constructing FEMA saferooms in facilities that house vulnerable populations such as nursing homes, government buildings, and schools. Additionally, identifying safe refuge areas in public buildings, nursing homes and other facilities that house vulnerable populations that do not have a safe room can mitigate injury and loss of life. Retrofitting school district facilities with protective film of windows and installation of storm proof doors will provide more protection for students and staff at school facilities. Promoting the installation of NOAA weather radios, and additional warnings and alerts systems such as Swift 911 or Nixle, will also provide the public and schools with more time to find shelter during tornado events.

3.4.10 Wildfire

Hazard Profile

Hazard Description

The fire incident types for wildfires include: 1) natural vegetation fire, 2) outside rubbish fire, 3) special outside fire, and 4) cultivated vegetation, crop fire.

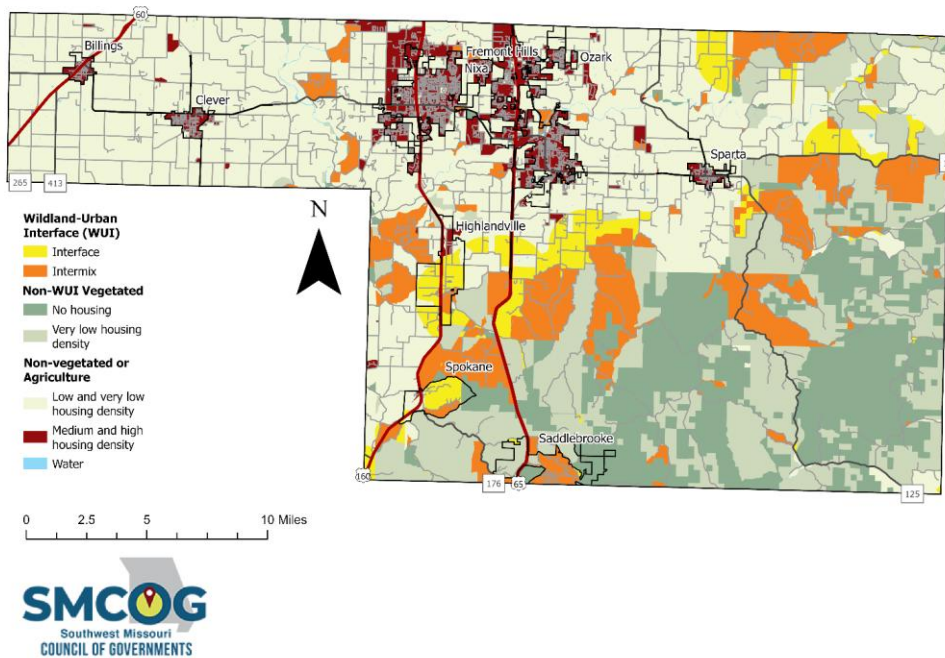
The Forestry Division of the Missouri Department of Conservation (MDC) is responsible for protecting privately owned and state-owned forests and grasslands from wildfires. To accomplish this task, eight forestry regions have been established in Missouri for fire suppression. The Forestry Division works closely with volunteer fire departments and federal partners to assist with fire suppression activities. Currently, more than 900 rural fire departments in Missouri have mutual aid agreements with the Forestry Division to obtain assistance in wildfire protection if needed.

Most of Missouri fires occur during the spring season between February and May. The length and severity of wildland fires depend largely on weather conditions. Spring in Missouri is usually characterized by low humidity and high winds. These conditions result in higher fire danger. In addition, due to the recent lack of moisture throughout many areas of the state, conditions are likely to increase the risk of wildfires. Drought conditions can also hamper firefighting efforts, as decreasing water supplies may not prove adequate for firefighting. It is common for rural residents to burn their garden spots, brush piles, and other areas in the spring. Some landowners also believe it is necessary to burn their forests in the spring to promote grass growth, kill ticks, and reduce brush. Therefore, spring months are the most dangerous for wildfires. The second most critical period of the year is fall. Depending on the weather conditions, a sizeable number of fires may occur between mid-October and late November.

Geographic Location

Damages due to wildfires are higher in communities with more Wildland-Urban Interface (WUI) areas. The term refers to the zone of transition between unoccupied land and human development. Within the WUI, there are two specific areas identified: 1) Interface and 2) Intermix. The interface areas are those areas that abut wildland vegetation and the intermix areas are those areas that intermingle with wildland areas. **Figure 3.32** shows the WUI for Christian County

Figure 3.32. Wildland Urban Interface



Strength/Magnitude/Extent

Wildfires damage the environment, killing some plants and occasionally animals. Firefighters have been injured or killed, and structures can be damaged or destroyed. The loss of plants can heighten the risk of soil erosion and landslides. Although Missouri wildfires are not the size and intensity of those in the Western United States, they could impact recreation and tourism in and near the fires.

Wildland fires in Missouri have been mostly a result of human activity rather than lightning or some other natural event. Wildfires in Missouri are usually surface fires, burning the dead leaves on the ground or dried grasses. They do sometimes "torch" or "crown" out in certain dense evergreen stands like eastern red cedar and shortleaf pine. However, Missouri does not have the extensive stands of evergreens found in the western US that fuel the large fire storms seen on television news stories.

While very unusual, crown fires can and do occur in Missouri native hardwood forests during prolonged periods of drought combined with extreme heat, low relative humidity, and high wind. Tornadoes, high winds, wet snow and ice storms in recent years have placed a large amount of woody material on the forest floor that causes wildfires to burn hotter and longer. These conditions also make it more difficult for fire fighters to suppress fires safely.

Often wildfires in Missouri go unnoticed by the general public because the sensational fire behavior that captures the attention of television viewers is rare in the state. Yet, from the standpoint of destroying homes and other property, Missouri wildfires can be quite destructive.

Wildfires may threaten unincorporated areas of Christian County as well as incorporated municipalities, particularly where development is located near wooded or grassland areas. County and municipal governments, fire protection agencies, and school districts may experience disruptions from evacuations, road closures, smoke, or damage to public infrastructure and facilities.

Previous Occurrences

According to the Missouri Department of Conservation (MDC) Wildfire Data, there were a total of 94 wildfires in Christian County from 2015-2024. 1,235 acres were burned, 27 buildings were threatened, 2 buildings were damaged, and 0 buildings were destroyed. **Table 3.54** shows MDC wildfire statistics by year.

Table 3.54. Christian County Wildfires, 2015-2024

Year	Number of Wildfires	Buildings Threatened	Buildings Damaged	Buildings Destroyed	Acres Burned
2015	51	6	0	0	325
2016	21	13	2	0	231
2017	7	3	0	0	97
2018	2	3	0	0	81
2019	6	1	0	0	5
2020	1	0	0	0	3
2021	1	0	0	0	54
2022	3	1	0	0	59
2023	1	0	0	0	364
2024	1	0	0	0	17
Total	94	27	2	0	1,235

Source: <https://mdc12.mdc.mo.gov/Applications/FireReporting/wildfire-search>

Probability of Future Occurrence

There were 94 reported wildfires from 2015-2024, with several events taking place in most years. This equates to a 100% probability of wildfire events in the county in any given year, with an average of 9.4 events per year.

Vulnerability

Vulnerability Overview

Wildfires occur throughout wooded and open vegetation areas of Missouri. They can occur any time of the year, but mostly occur during long, dry hot spells. Any small fire, if not quickly detected and suppressed, can get out of control. Most wildfires are caused by human carelessness or negligence. However, some are precipitated by lightning strikes and in rare instances, spontaneous combustion. Structures and people in WUI areas in the county and cities are more vulnerable to the impact of wildfires due to the level of fuel mixed with structures.

Potential Losses to Existing Development

Based on historical data, we can estimate that 0.7 buildings are threatened, 0.1 buildings are damaged, 0 buildings are destroyed, and 62 acres of land are burned per year as a result of wildfires.

Impact of Previous and Future Development

It is anticipated that there will be limited future development in WUI areas throughout the incorporated and unincorporated parts of the county. Future growth in WUI areas of the county will increase the risk and exposure to wildfires. It is expected that WUI development in cities can be mitigated by development regulations reducing the risk of potential wildfires.

Hazard Summary by Jurisdiction

There are few areas of moderate risk that fall within jurisdictional boundaries; many areas at risk are under the jurisdiction of the county. Much of the county consists of grasslands, however, and lower risk areas could quickly become dangerous in the event of a wildfire.

This hazard is the primary focus of participating fire protection districts in the county like the Logan-Rogersville Fire Protection District and the Ozark Fire Protection District. As some local jurisdictions may not have municipal fire departments, these special districts are important to all communities for protection against wildfire and assist in reducing exposure to wildfire risk.

Community Comments on Hazard

There were only 8 comments referencing wildfires in the public survey. Overall, respondents did not view this hazard as a significant threat.

The survey included questions gauging the public's perception of each hazard. **Table 3.55** below provides a summary of these responses.

Table 3.55. Wildfire Community Survey Responses

Likelihood of Occurrence		Level of Concern		Magnitude of Impact	
Unlikely	49.5%	Not at all Concerned	32.4%	No Impact	19.5%
Occasionally	35.4%	Not so Concerned	39.7%	Limited Impact	42.2%
Likely	12.8%	Somewhat Concerned	21.9%	Critical Impact	25.8%
Highly Likely	2.3%	Very Concerned	4.0%	Catastrophic Impact	12.5%
-	-	Extremely Concerned	2.1%	-	-

Problem Statement

When compared to nearby counties, wildfire occurrences are not very frequent within Christian County. However, these events can threaten, damage, and destroy structures in hazard prone areas. Populations and structures in WUI areas of the county have an increased risk to wildfires due to the level of fuel mixed with structures. Cities may adopt landscape ordinances that include fire safe landscape design requirements in these areas. They may also adopt building codes or design requirements that encourage non-combustible materials for new construction. The unincorporated portions of the county have the highest risk and exposure to wildfires. County officials and fire departments can implement burn restrictions during weather conditions conducive to the spread of wildfire. Additionally, understanding the highest risk locations and developing safe evacuation routes that members of the public are aware of can reduce the risk of loss of life or injury.

4 MITIGATION STRATEGY

4	MITIGATION STRATEGY	4.1
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44 CFR Requirement §201.6(c)(3): The plan shall include a mitigation strategy that provides the jurisdiction’s blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools.

This section presents the mitigation strategy updated by the Mitigation Planning Committee (MPC) based on the [updated] risk assessment. The mitigation strategy was developed through a collaborative group process. The process included review of [updated] general goal statements to guide the jurisdictions in lessening disaster impacts as well as specific mitigation actions to directly reduce vulnerability to hazards and losses. The following definitions are taken from FEMA’s *Local Mitigation Planning Policy Guide (2023)*.

- **Goals** are broad, long-term policy and vision statements that explain what is to be achieved by implementing the mitigation strategy.
- A **mitigation action** is a measure, project, plan or activity proposed to reduce current and future vulnerabilities described in the risk assessment.

4.1 Goals

44 CFR Requirement §201.6(c)(3)(i): [The hazard mitigation strategy shall include a] description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.

This planning effort is an update to Christian County's existing hazard mitigation plan approved by FEMA on February 2, 2021. Therefore, the goals from the previous plan were reviewed to see if they were still valid, feasible, practical, and applicable to the defined hazard impacts. The MPC conducted a discussion session during their second meeting to review and update the plan goals. To ensure that the goals developed for this update were comprehensive and supported State goals, the 2023 State Hazard Mitigation Plan goals were reviewed. The MPC also reviewed the goals from current surrounding county plans.

4.2 Identification and Analysis of Mitigation Actions

44 CFR Requirement §201.6(c)(3)(ii): The mitigation strategy shall include a section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure.

During the second MPC meeting, the results of the risk assessment update were provided to the MPC members for review and the key issues were identified for specific hazards. Changes in risk since adoption of the previously approved plan were discussed. Actions from the previous plan included completed actions, on-going actions, and actions upon which progress had not been made. The MPC discussed SEMA's identified funding priorities and the types of mitigation actions generally recognized by FEMA.

The MPC included problem statements in the plan update at the end of each hazard profile. The problem statements summarize the risk to the planning area presented by each hazard and include possible methods to reduce that risk. Use of the problem statements allowed the MPC to recognize new and innovative strategies for mitigating risks in the planning area.

The focus of Meeting #3 was update of the mitigation strategy. For a comprehensive range of mitigation actions to consider, the MPC reviewed the following information during Meeting #3:

- A list of actions proposed in the previous mitigation plan, the current 2023 State Plan, and approved plans in surrounding counties,
- Key issues from the risk assessments, including the problem statements concluding each hazard profile and vulnerability analysis,
- State priorities established for HMA grants, and
- Public input during meetings, responses to data collection questionnaires, and other efforts to involve the public in the plan development process.

For Meeting #3, individual jurisdictions, including school and special districts, developed final mitigation strategy for submission to the MPC. They were encouraged to review the details of the risk assessment vulnerability analysis specific to their jurisdiction. They were also provided a link to the FEMA's publication, *Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards (January 2013)*. This document was developed by FEMA as a resource for identification of a range of potential mitigation actions for reducing risk to natural hazards and disasters.

The MPC reviewed the actions from the previously approved plan for progress made since the plan had been adopted, using worksheets included in Appendix B of this plan. Prior to Meeting #3, the

list of actions for each jurisdiction was emailed to that jurisdiction's MPC representative along with the worksheets. Each jurisdiction was instructed to provide information regarding the "Action Status" with one of the following status choices:

- Completed, with a description of the progress;
- Ongoing, with a description of the progress made to date; or
- Not Yet Started, with a discussion of the reasons for lack of progress.

Additionally, the future inclusion of each mitigation action in the plan update was identified as either keep, delete, or modify. Based on the status updates, there were 2 completed actions, 100 continuing actions (either ongoing or modified), and 11 deleted actions.

Table 4.1 provides a summary of the action statuses for each jurisdiction:

Table 4.1. Action Status Summary

Jurisdiction	Completed Actions	Continuing Actions (ongoing or modify)	Deleted Actions
Christian County	0	19	6
Fremont Hills	0	7	0
Highlandville	1	8	1
Nixa	0	17	0
Ozark	0	10	0
Saddlebrooke	0	9	4
Sparta	0	8	0
Nixa Public Schools	1	6	0
Ozark R-VI	0	8	0
Sparta R-III	0	1	0
OTC Richwood Valley	0	1	0
Christian County Ambulance District	0	6	0

Table 4.2 provides a summary of the completed and deleted actions from the previous plan.

Table 4.2. Summary of Completed and Deleted Actions from the Previous Plan

Jurisdiction	Completed Action	Completion Details (date, amount, funding source)
Highlandville	Safe Room Construction	1 saferoom located in elementary school
Nixa Public Schools	Safe refuge area plan	Tornado safe rooms are located in nearly all buildings and safe area in others have been identified
Jurisdiction	Deleted Action	Reason for Deletion
Christian County	OACAC Programs	No reason given
Christian County	Fire resistant construction and landscaping	No reason given
Christian County	Underground utility construction methods	No reason given
Christian County	Natural area preservation in hazard prone areas	No reason given
Christian County	Tree Ordinance	No reason given
Christian County	Snow and debris cleaning	No reason given
Highlandville	Underground Utilities	No progress was made
Saddlebrooke	NOAA Radio Purchase	No radios were purchased
Saddlebrooke	NIMS Training	Not relevant for this community
Saddlebrooke	Hazard Mitigation in Plans	Lack of funding

Saddlebrooke	GIS Development	Lack of funding

Source: Previously approved County Hazard Mitigation Plan; Data Collection Questionnaires.

*Billings R-IV, Clever R-V, Christian County Emergency Services 911, Logan-Rogersville Fire Protection District, Ozark Fire Protection District, and Ozark Special Road District did not participate in the previous plan.

4.3 Implementation of Mitigation Actions

44 CFR Requirement §201.6(c)(3)(ii): The mitigation strategy shall include an action strategy describing how the actions identified in paragraph (c)(2)(ii) will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefits review of the proposed projects and their associated costs.

Jurisdictional MPC members were encouraged to meet with others in their community to finalize the actions to be submitted for the updated mitigation strategy. Throughout the MPC consideration and discussion, emphasis was placed on the importance of a benefit-cost analysis in determining project priority. The Disaster Mitigation Act requires benefit-cost review as the primary method by which mitigation projects should be prioritized. The MPC decided to pursue implementation according to when and where damage occurs, available funding, political will, jurisdictional priority, and priorities identified in the 2023 Missouri State Hazard Mitigation Plan. The benefit/cost review at the planning stage primarily consisted of a qualitative analysis and was not the detailed process required grant funding application. For each action, the plan sets forth a narrative describing the types of benefits that could be realized from action implementation. The cost was estimated as closely as possible, with further refinement to be supplied as project development occurs.

FEMA's STAPLEE methodology was used to assess the costs and benefits, overall feasibility of mitigation actions, and other issues impacting project. During the prioritization process, the jurisdictions used worksheets to assign scores. The worksheets posed questions based on the STAPLEE elements as well as the potential mitigation effectiveness of each action. Scores were based on the responses to the questions as follows:

Definitely YES = 3 points
Maybe YES = 2 points
Probably NO = 1 points
Definitely NO = 0 points

The following questions were asked for each proposed action.

S: Is the action socially acceptable?
T: Is the action technically feasible and potentially successful?
A: Does the jurisdiction have the administrative capability to successfully implement this action?
P: Is the action politically acceptable?
L: Does the jurisdiction have the legal authority to implement the action?
E: Is the action economically beneficial?
E: Will the project have an environmental impact that is either beneficial or neutral? (score "3" if positive and "2" if neutral)

Will the implemented action result in lives saved?
Will the implanted action result in a reduction of disaster damage?

The final scores are listed below in the analysis of each action. The worksheets are attached to this plan as Appendix B. The STAPLEE final score for each action, absent other considerations, such as a localized need for a project, determined the priority. Low priority action items were those that had a total score of between 0 and 24. Moderate priority actions were those scoring between 25 and 29. High priority actions scored 30 or above. A blank STAPLEE worksheet is shown in **Figure 4.1**.

Figure 4.1. Blank STAPLEE Worksheet

STAPLEE Worksheet		
Name of Jurisdiction:		
Action or Project		
Action/Project Number:	Insert a unique action number for this action for future tracking purposes. This can be a combination of the jurisdiction name, followed by the goal number and action number (i.e. Joplin1.1)	
Name of Action or Project:		
Mitigation Category:	Prevention; Structure and Infrastructure Projects; Natural Systems Protection; Education and Outreach; Emergency Services	
STAPLEE Criteria Evaluation Rating Definitely YES = 3 Maybe YES = 2 Probably NO = 1 Definitely NO = 0		Score
S: Is it Socially Acceptable		
T: Is it Technically feasible and potentially successful?		
A: Does the jurisdiction have the Administrative capacity to execute this action?		
P: Is it Politically acceptable?		
L: Is there Legal authority to implement?		
E: Is it Economically beneficial?		
E: Will the project have either a neutral or positive impact on the natural Environment ?		
Will historic structures be saved or protected?		
Could it be implemented quickly?		
STAPLEE SCORE		
Mitigation Effectiveness Criteria	Evaluation Rating	Score
Will the implemented action result in lives saved?	Assign from 5-10 points based on the likelihood that lives will be saved.	
Will the implemented action result in a reduction of disaster damages?	Assign from 5-10 points based on the relative reduction of disaster damages.	
MITIGATION EFFECTIVENESS SCORE		
TOTAL SCORE (STAPLEE + Mitigation Effectiveness)		
☐ High Priority (30+ points)	☐ Medium Priority (25 - 29 points)	☐ Low Priority (<25 points)

Completed by
(Name, Title, Phone Number)

In addition to the STAPLEE cost benefit review prioritization, an implementation plan for each action was discussed. An action worksheet was used to develop the implementation plan. The action worksheet format is shown in **Figure 4.2.**

Figure 4.2. ACTION WORKSHEET

Action Worksheet	
Name of Jurisdiction:	
Risk / Vulnerability	
Hazard(s) Addressed:	
Problem being Mitigated:	
Action or Project	
Applicable Goal Statement:	
Action/Project Number:	
Name of Action or Project:	
Mitigation Category:	
Action or Project Description:	
Estimated Cost:	
Benefits:	
Plan for Implementation	
Responsible Organization/Department:	
Supporting Organization/Department:	
Action/Project Priority:	
Timeline for Completion:	
Potential Fund Sources:	
Local Planning Mechanisms to be Used in Implementation, if any:	
Progress Report	
Action Status:	
Report of Progress:	

4.3.1 Christian County Mitigation Actions

Action Worksheet	
Name of Jurisdiction:	Christian County
Risk / Vulnerability	
Hazard(s) Addressed:	Dam Failure, Drought, Earthquake, Extreme Temperatures, Flooding (Flash & Riverine), Severe Thunderstorms, Severe Winter Weather, Tornado, Wildfire, and Land Subsidence/Sinkholes
Problem being Mitigated:	Limited public knowledge of vulnerability, mitigation activities, and emergent hazards
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Christian County 1.1
Name of Action or Project:	Social Media and Public Information
Mitigation Category:	Education and Outreach
Action or Project Description:	Encourage the media and leverage social media platforms to publish or broadcast information about natural hazard vulnerability, preparedness plans and mitigation efforts throughout the county.
Estimated Cost:	Can be accomplished with current staff/budget
Benefits:	Improved public awareness of hazards and mitigation actions
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	30
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	Christian County's social media presence is growing and increasing in followers

Action Worksheet	
Name of Jurisdiction:	Christian County
Risk / Vulnerability	
Hazard(s) Addressed:	Dam Failure, Drought, Earthquake, Extreme Temperatures, Flooding (Flash & Riverine), Severe Thunderstorms, Severe Winter Weather, Tornado, Wildfire, and Land Subsidence/Sinkholes
Problem being Mitigated:	Limited public knowledge on how to reduce risk
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Christian County 1.2
Name of Action or Project:	Citizen Preparedness
Mitigation Category:	Education and Outreach
Action or Project Description:	Increase, promote, establish and maintain participation in citizen preparedness activities, such as; Citizen Corps, CERT, COAD, Neighborhood Watch, Fire Corps, Amateur Radio, etc.
Estimated Cost:	Can be accomplished with current staff/budget
Benefits:	Prevent loss of life and property
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	35
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	Continue to hold classes and increase volunteer memberships. Hold training, participate in community events and incident responses.

Action Worksheet	
Name of Jurisdiction:	Christian County
Risk / Vulnerability	
Hazard(s) Addressed:	Tornado, Severe Thunderstorm, Severe Winter Weather, Earthquake, Flooding, Wildfire
Problem being Mitigated:	Limited ability to disperse information during a disaster
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Christian County 1.3
Name of Action or Project:	NOAA Radios
Mitigation Category:	Education and Outreach
Action or Project Description:	Seek and utilize funding mechanisms to establish and maintain programs enabling the distribution of free and low-cost NOAA all-hazard radios for continuous operation in homes, businesses, schools, nursing homes, all facilities for public accommodation, vulnerable populations, and low-income senior citizens
Estimated Cost:	\$10,000
Benefits:	Improved communications during a disaster
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	32
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Funds, FEMA grants
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Emergency Operations Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	Christian County encourages the use of NOAA radios and distributes them when funds allow.

Action Worksheet	
Name of Jurisdiction:	Christian County
Risk / Vulnerability	
Hazard(s) Addressed:	Tornado, Severe Thunderstorm, Severe Winter Weather, Earthquake, Flooding, Wildfire
Problem being Mitigated:	Limited ability to disperse information during a disaster
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Christian County 1.4
Name of Action or Project:	NOAA Radios
Mitigation Category:	Education and Outreach
Action or Project Description:	Seek and utilize funding mechanisms to establish and maintain programs enabling the distribution of free and low-cost NOAA all-hazard radios for continuous operation in homes, businesses, schools, nursing homes, all facilities for public accommodation, vulnerable populations, and low-income senior citizens
Estimated Cost:	\$10,000
Benefits:	Improved communications during a disaster
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	31
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Funds, FEMA grants
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Emergency Operations Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	Christian County encourages the use of NOAA radios and distributes them when funds allow.

Action Worksheet	
Name of Jurisdiction:	Christian County
Risk / Vulnerability	
Hazard(s) Addressed:	Tornado, Severe Thunderstorm
Problem being Mitigated:	Residents unable to safely shelter during storms
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Christian County 1.5
Name of Action or Project:	Safe Room Construction
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Integrate safe room construction in new community buildings, schools, large facilities, and other establishments serving the public in areas of population concentrations where feasible
Estimated Cost:	\$50,000-\$1,000,000
Benefits:	Prevent loss of life
Plan for Implementation	
Responsible Organization/Department:	Emergency Management
Supporting Organization/Department:	
Action/Project Priority:	30
Timeline for Completion:	5 years
Potential Fund Sources:	Capital Improvements Funding, BRIC Grants
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Emergency Operations Plan
Progress Report	
Action Status:	Continuing Not Started
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Christian County
Risk / Vulnerability	
Hazard(s) Addressed:	Tornado, Severe Thunderstorm
Problem being Mitigated:	Limited public knowledge of where to shelter during a hazard
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Christian County 1.6
Name of Action or Project:	Safe Refuge Area Plan
Mitigation Category:	Prevention
Action or Project Description:	Create and update tornado/severe storm plans and identify refuge areas that comply with FEMA publication 431 Selecting Refuge Areas in Buildings, in schools, large facilities and other establishments serving the public.
Estimated Cost:	Can be accomplished with current staff/budget.
Benefits:	Prevent loss of life.
Plan for Implementation	
Responsible Organization/Department:	Emergency Management
Supporting Organization/Department:	Planning and Zoning
Action/Project Priority:	26
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Emergency Operations Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	We continue to visit business to help them with refuge areas. Participate in National Weather Service Storm Ready Program designate businesses as being Storm Ready.

Action Worksheet	
Name of Jurisdiction:	Christian County
Risk / Vulnerability	
Hazard(s) Addressed:	Extreme Temperature, Severe Winter Weather
Problem being Mitigated:	Lack of climate-controlled refuge areas for residents
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Christian County 1.7
Name of Action or Project:	Community Extreme Temperature Refuge Areas
Mitigation Category:	Prevention
Action or Project Description:	Encourage local organizations, public buildings make available space in their facility for at-risk and vulnerable populations to seek refuge during extreme temperature events
Estimated Cost:	Can be accomplished with current staff/budget
Benefits:	Prevent loss of life
Plan for Implementation	
Responsible Organization/Department:	Emergency Management
Supporting Organization/Department:	
Action/Project Priority:	24
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Emergency Operations Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	Working with 211 and local businesses and gov buildings to designate places.

Action Worksheet	
Name of Jurisdiction:	Christian County
Risk / Vulnerability	
Hazard(s) Addressed:	Tornado, Severe Thunderstorm
Problem being Mitigated:	Lack of private shelter locations for residents and businesses
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Christian County 1.8
Name of Action or Project:	Residential Safe-room Construction
Mitigation Category:	Education and Outreach
Action or Project Description:	Promote and distribute FEMA publication 320 which provides information on construction plans and cost estimates for building safe rooms in homes or small business and cost estimates for construction.
Estimated Cost:	Can be accomplished with current staff/budget
Benefits:	Prevent loss of life
Plan for Implementation	
Responsible Organization/Department:	Emergency Management
Supporting Organization/Department:	
Action/Project Priority:	28
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	Christian County provides safe-room brochures.

Action Worksheet	
Name of Jurisdiction:	Christian County
Risk / Vulnerability	
Hazard(s) Addressed:	Dam Failure, Drought, Earthquake, Extreme Temperatures, Flooding (Flash & Riverine), Severe Thunderstorms, Severe Winter Weather, Tornado, Wildfire, and Land Subsidence/Sinkholes
Problem being Mitigated:	Limited public knowledge on how to reduce risk.
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Christian County 1.9
Name of Action or Project:	Emergency Management Website
Mitigation Category:	Prevention
Action or Project Description:	Establish an emergency management website that includes hazard mitigation educational information.
Estimated Cost:	\$5,000
Benefits:	Prevent loss of life, increased communications before and during disaster
Plan for Implementation	
Responsible Organization/Department:	Emergency Management
Supporting Organization/Department:	
Action/Project Priority:	31
Timeline for Completion:	2 years
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Christian County
Risk / Vulnerability	
Hazard(s) Addressed:	Land subsidence, Flooding
Problem being Mitigated:	Lack of hazard insurance among home and business owners
Action or Project	
Applicable Goal Statement:	Goal 2: Reduce the potential impact of natural disasters to property, infrastructure, and the local economy.
Action/Project Number:	Christian County 2.1
Name of Action or Project:	Private Property Hazard Insurance
Mitigation Category:	Education and Outreach
Action or Project Description:	Promote homeowner purchase of flood insurance and Missouri FAIR Plan sinkhole loss policies for dwellings in hazard prone areas
Estimated Cost:	\$1,000
Benefits:	Mitigate financial burden to property owners caused by hazards
Plan for Implementation	
Responsible Organization/Department:	Emergency Management
Supporting Organization/Department:	
Action/Project Priority:	24
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	Continuing Not Started
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Christian County
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding
Problem being Mitigated:	Low-water crossing are dangerous and impede mobility when flooded
Action or Project	
Applicable Goal Statement:	Goal 2: Reduce the potential impact of natural disasters to property, infrastructure, and the local economy.
Action/Project Number:	Christian County 2.2
Name of Action or Project:	Low Water Crossing Improvements
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Replace and improve low water crossings where identified as effective
Estimated Cost:	\$50,000- \$5,000,000
Benefits:	Prevent loss of life and property, improve emergency response times
Plan for Implementation	
Responsible Organization/Department:	Highway Department
Supporting Organization/Department:	
Action/Project Priority:	29
Timeline for Completion:	5 years
Potential Fund Sources:	Capital Improvements Funding, BRIC Grants
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Capital Improvement Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	Limited progress due to lack of funds

Action Worksheet	
Name of Jurisdiction:	Christian County
Risk / Vulnerability	
Hazard(s) Addressed:	Drought, Wildfire
Problem being Mitigated:	Intentional fires can become wildfires in dry/windy weather conditions
Action or Project	
Applicable Goal Statement:	Goal 2: Reduce the potential impact of natural disasters to property, infrastructure, and the local economy.
Action/Project Number:	Christian County 2.3
Name of Action or Project:	Burn Bans
Mitigation Category:	Prevention
Action or Project Description:	Implement burn restrictions during times of weather conditions conducive to the spread of wildfires
Estimated Cost:	Can be accomplished with current staff/budget
Benefits:	Reduce risk of wildfire
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	29
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Emergency Operations Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	County resolution drafted and policies developed

Action Worksheet	
Name of Jurisdiction:	Christian County
Risk / Vulnerability	
Hazard(s) Addressed:	Dam Failure, Drought, Earthquake, Extreme Temperatures, Flooding (Flash & Riverine), Severe Thunderstorms, Severe Winter Weather, Tornado, Wildfire, and Land Subsidence/Sinkholes
Problem being Mitigated:	Lack of funding for mitigation activities
Action or Project	
Applicable Goal Statement:	Goal 2: Reduce the potential impact of natural disasters to property, infrastructure, and the local economy.
Action/Project Number:	Christian County 2.4
Name of Action or Project:	Monitor Funding Programs
Mitigation Category:	Prevention
Action or Project Description:	Continue to monitor and identify funding from state and federal programs for hazard mitigation activities
Estimated Cost:	Can be accomplished with current staff/budget
Benefits:	Secure funding for mitigation activities
Plan for Implementation	
Responsible Organization/Department:	Emergency Management
Supporting Organization/Department:	
Action/Project Priority:	30
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	County is on several funding email/notification lists

Action Worksheet	
Name of Jurisdiction:	Christian County
Risk / Vulnerability	
Hazard(s) Addressed:	Dam Failure, Drought, Earthquake, Extreme Temperatures, Flooding (Flash & Riverine), Severe Thunderstorms, Severe Winter Weather, Tornado, Wildfire, and Land Subsidence/Sinkholes
Problem being Mitigated:	Lack of awareness of vulnerability and risk of hazards
Action or Project	
Applicable Goal Statement:	Goal 2: Reduce the potential impact of natural disasters to property, infrastructure, and the local economy.
Action/Project Number:	Christian County 2.5
Name of Action or Project:	Geographic Information
Mitigation Category:	Prevention
Action or Project Description:	Continue development of GIS database to further identify, analyze, map, and track the impact of natural hazards to enhance decision-making and facilities management for agencies and stakeholders
Estimated Cost:	Can be accomplished with current staff/budget
Benefits:	Improved awareness of hazard vulnerability
Plan for Implementation	
Responsible Organization/Department:	Planning and Development
Supporting Organization/Department:	Assessor
Action/Project Priority:	25
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	Maps are continuously updated and revised

Action Worksheet	
Name of Jurisdiction:	Christian County
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding
Problem being Mitigated:	Lack of flood insurance among property owners
Action or Project	
Applicable Goal Statement:	Goal 3: Ensure continued operation of government, emergency functions, and critical infrastructure in a disaster.
Action/Project Number:	Christian County 3.1
Name of Action or Project:	NFIP Participation
Mitigation Category:	Prevention
Action or Project Description:	Enforce floodplain management requirements, including regulating all new and substantially improved construction in the Special Flood Hazard Areas (SPFAs), floodplain identification and mapping, including local requests for map updates.
Estimated Cost:	Can be accomplished with current staff/budget
Benefits:	Lowered financial burden to flood-stricken property owners
Plan for Implementation	
Responsible Organization/Department:	Environmental Division
Supporting Organization/Department:	
Action/Project Priority:	26
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, NFIP Flood Risk Maps
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	Christian County has and will continue to participate and comply with NFIP policies.

Action Worksheet	
Name of Jurisdiction:	Christian County
Risk / Vulnerability	
Hazard(s) Addressed:	Thunderstorm, Tornado
Problem being Mitigated:	Limited public knowledge on how to reduce risk.
Action or Project	
Applicable Goal Statement:	Goal 3: Ensure continued operation of government, emergency functions, and critical infrastructure in a disaster.
Action/Project Number:	Christian County 3.2
Name of Action or Project:	Storm Ready
Mitigation Category:	Prevention
Action or Project Description:	Maintain Storm Ready status with the National Weather Service
Estimated Cost:	Can be accomplished with current staff/budget
Benefits:	Improved public awareness and preparedness of hazards
Plan for Implementation	
Responsible Organization/Department:	Emergency Management
Supporting Organization/Department:	
Action/Project Priority:	31
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Emergency Operations Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	Christian County has been and will remain a Storm Ready community.

Action Worksheet	
Name of Jurisdiction:	Christian County
Risk / Vulnerability	
Hazard(s) Addressed:	Dam Failure, Drought, Earthquake, Extreme Temperatures, Flooding (Flash & Riverine), Severe Thunderstorms, Severe Winter Weather, Tornado, Wildfire, and Land Subsidence/Sinkholes
Problem being Mitigated:	Lack of staff preparedness for emergencies
Action or Project	
Applicable Goal Statement:	Goal 3: Ensure continued operation of government, emergency functions, and critical infrastructure in a disaster.
Action/Project Number:	Christian County 3.3
Name of Action or Project:	NIMS Training
Mitigation Category:	Education and Outreach
Action or Project Description:	Encourage all elected officials, public administrators, community stakeholders and responders to participate in National Incident Management System (NIMS) training and compliance programs.
Estimated Cost:	Can be accomplished with current staff/budget
Benefits:	Improved emergency response capabilities among County staff
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	27
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Emergency Operations Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	Continue to seek training, provide training and encourage staff to complete training

Action Worksheet	
Name of Jurisdiction:	Christian County
Risk / Vulnerability	
Hazard(s) Addressed:	Dam Failure, Drought, Earthquake, Extreme Temperatures, Flooding (Flash & Riverine), Severe Thunderstorms, Severe Winter Weather, Tornado, Wildfire, and Land Subsidence/Sinkholes
Problem being Mitigated:	Poor addressing impedes emergency response
Action or Project	
Applicable Goal Statement:	Goal 3: Ensure continued operation of government, emergency functions, and critical infrastructure in a disaster.
Action/Project Number:	Christian County 3.4
Name of Action or Project:	911 Addressing for Structures
Mitigation Category:	Emergency Services
Action or Project Description:	Enforce highly visible 911 addressing for residences and businesses through building and business permitting as well as public education of existing ordinances.
Estimated Cost:	Can be accomplished with current staff/budget
Benefits:	Improved emergency response times
Plan for Implementation	
Responsible Organization/Department:	Planning and Development
Supporting Organization/Department:	
Action/Project Priority:	27
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Christian County
Risk / Vulnerability	
Hazard(s) Addressed:	Tornado, Earthquake, Severe Thunderstorm
Problem being Mitigated:	Inadequate storage/disposal locations for debris from disasters
Action or Project	
Applicable Goal Statement:	Goal 3: Ensure continued operation of government, emergency functions, and critical infrastructure in a disaster.
Action/Project Number:	Christian County 3.5
Name of Action or Project:	Debris Disposal Plan
Mitigation Category:	Natural Systems Protection
Action or Project Description:	Identify debris disposal and burning locations in the county to facilitate recovery from large scale hazard events
Estimated Cost:	Can be accomplished with current staff/budget
Benefits:	Ensures debris from disasters can be managed/disposed of in a timely manner
Plan for Implementation	
Responsible Organization/Department:	Emergency Management
Supporting Organization/Department:	
Action/Project Priority:	26
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Emergency Operations Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	Continue to work with cities to identify sites

Action Worksheet	
Name of Jurisdiction:	Christian County
Risk / Vulnerability	
Hazard(s) Addressed:	Tornado, Severe Thunderstorm, Severe Winter Weather
Problem being Mitigated:	Debris and snow in roadway impedes travel and delays emergency response vehicles
Action or Project	
Applicable Goal Statement:	Goal 3: Ensure continued operation of government, emergency functions, and critical infrastructure in a disaster.
Action/Project Number:	Christian County 3.6
Name of Action or Project:	Road Maintenance Capabilities
Mitigation Category:	Emergency Services
Action or Project Description:	Plan for and maintain adequate road and debris clearing capabilities.
Estimated Cost:	Can be completed with current staff/budget
Benefits:	Ensures movement of people and emergency vehicles
Plan for Implementation	
Responsible Organization/Department:	Highway Department
Supporting Organization/Department:	Emergency Management
Action/Project Priority:	31
Timeline for Completion:	1 year
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Emergency Operations Plan
Progress Report	
Action Status:	New
Report of Progress:	

4.3.2 Fremont Hills Mitigation Actions

Action Worksheet	
Name of Jurisdiction:	City of Fremont Hills
Risk / Vulnerability	
Hazard(s) Addressed:	Flood, Sinkhole/Land Subsidence
Problem being Mitigated:	Insufficient flood/sinkhole insurance for properties within jurisdiction
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Fremont Hills 1.1
Name of Action or Project:	Private Property Hazard Insurance
Mitigation Category:	Education and Outreach
Action or Project Description:	Promote homeowner purchase of flood insurance and Missouri FAIR Plan sinkhole loss policies for dwellings in hazard prone areas
Estimated Cost:	\$100,000
Benefits:	Minimize financial burden to property owners due to hazards
Plan for Implementation	
Responsible Organization/Department:	Project Manager
Supporting Organization/Department:	Administration
Action/Project Priority:	25
Timeline for Completion:	6 months
Potential Fund Sources:	General funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, County sinkhole maps
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	Along with encouraging the purchase of flood insurance, the City maintains and enforces a floodplain ordinance to discourage development of flood prone properties.

Action Worksheet	
Name of Jurisdiction:	City of Fremont Hills
Risk / Vulnerability	
Hazard(s) Addressed:	Tornado, Severe thunderstorm
Problem being Mitigated:	Unpreparedness of residents
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens
Action/Project Number:	Fremont Hills 1.2
Name of Action or Project:	Safe Refuge Area Plan
Mitigation Category:	Emergency Services
Action or Project Description:	Create and update tornado/severe storm plans and identify refuge areas that comply with FEMA publication 431 Selecting Refuge Areas in Buildings, in schools, large facilities, and other establishments serving the public
Estimated Cost:	Can be completed with current funding
Benefits:	Prevent loss of life, ensure faster evacuations
Plan for Implementation	
Responsible Organization/Department:	Project Manager
Supporting Organization/Department:	Administration
Action/Project Priority:	26
Timeline for Completion:	6 months
Potential Fund Sources:	General Fund
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	Continuing Not Started
Report of Progress:	There are no tornado shelters within the City of Fremont Hills, and no formal refuge plan has been adopted.

Action Worksheet	
Name of Jurisdiction:	City of Fremont Hills
Risk / Vulnerability	
Hazard(s) Addressed:	Dam Failure, Drought, Earthquake, Extreme Temperatures, Flooding (Flash & Riverine), Severe Thunderstorms, Severe Winter Weather, Tornado, Wildfire, and Land Subsidence/Sinkholes
Problem being Mitigated:	Lack of community preparedness
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the Lives and Livelihoods of All Citizens
Action/Project Number:	Fremont Hills 1.3
Name of Action or Project:	Citizen Preparedness
Mitigation Category:	Education and Outreach
Action or Project Description:	Increase, promote, establish, and maintain participation in citizen preparedness activities such as Citizen Corps, CERT, COAD, Neighborhood Watch, Fire Corps, Amateur Radio, etc.
Estimated Cost:	\$1,000
Benefits:	Better prepared and informed citizens are less susceptible to disaster losses
Plan for Implementation	
Responsible Organization/Department:	Public Safety Dept.
Supporting Organization/Department:	Administration
Action/Project Priority:	28
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	The City of Fremont Hills promotes preparedness activities via email, and an Emergency Response Team meets several times a year to discuss preparedness topics.

Action Worksheet	
Name of Jurisdiction:	City of Fremont Hills
Risk / Vulnerability	

Hazard(s) Addressed:	Earthquake, tornado, severe winter weather, flooding
Problem being Mitigated:	Substandard construction likely to fail during hazard
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the Lives and Livelihoods of All Citizens
Action/Project Number:	Fremont Hills 1.4
Name of Action or Project:	Enforce Building Codes
Mitigation Category:	Prevention
Action or Project Description:	Enforce the International Building Code for structures within the City.
Estimated Cost:	Can be accomplished with current funds and staffing
Benefits:	Prevent loss of life and property
Plan for Implementation	
Responsible Organization/Department:	Project Manager
Supporting Organization/Department:	
Action/Project Priority:	35
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, 2012 International Building Code
Progress Report	
Action Status:	New
Report of Progress:	The City of Fremont Hills currently uses and enforces the 2012 International Building Code.

Action Worksheet	
Name of Jurisdiction:	City of Fremont Hills
Risk / Vulnerability	
Hazard(s) Addressed:	Extreme Temperature, Severe Winter Weather
Problem being Mitigated:	Lack of public awareness of how to reduce risk.
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Fremont Hills 1.5
Name of Action or Project:	Extreme Temperature Outreach
Mitigation Category:	Education and Outreach
Action or Project Description:	Increase awareness of extreme temperature risk and safety. Educate residents on how to protect themselves and their property during extreme temperature events.
Estimated Cost:	\$1,000
Benefits:	Prevent loss of life and property
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	22
Timeline for Completion:	6 months
Potential Fund Sources:	General funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	City of Fremont Hills
Risk / Vulnerability	
Hazard(s) Addressed:	Tornado
Problem being Mitigated:	Lack of public knowledge on how to reduce risk.
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Fremont Hills 1.6
Name of Action or Project:	Tornado Awareness
Mitigation Category:	Education and Outreach
Action or Project Description:	Conduct tornado awareness activities and tornado drills in public buildings.
Estimated Cost:	\$1,000
Benefits:	Prevent loss of life and property
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	26
Timeline for Completion:	1 year
Potential Fund Sources:	General funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	City of Fremont Hills
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding
Problem being Mitigated:	Property damage caused by flooding
Action or Project	
Applicable Goal Statement:	Goal 2: Reduce the potential impact of natural disasters to property, infrastructure, and the local economy.
Action/Project Number:	Fremont Hills 2.1
Name of Action or Project:	NFIP Participation
Mitigation Category:	Prevention
Action or Project Description:	Enforce floodplain management requirements, including regulating all new and substantially improved construction in Special Flood Hazard Areas (SFHAs), floodplain identification and mapping, including local requests for map updates
Estimated Cost:	Can be completed with current funds.
Benefits:	Prevent damage to personal property and the City's wastewater treatment plant
Plan for Implementation	
Responsible Organization/Department:	Project Manager
Supporting Organization/Department:	Administration
Action/Project Priority:	25
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, NFIP Policies and Guidelines
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	The City of Fremont Hills participates in NFIP and enforces a floodplain ordinance

Action Worksheet	
Name of Jurisdiction:	City of Fremont Hills
Risk / Vulnerability	
Hazard(s) Addressed:	Tornado, Severe Thunderstorm, Flooding, Severe Winter Weather
Problem being Mitigated:	Unpreparedness of residents
Action or Project	
Applicable Goal Statement:	Goal 2: Reduce the potential impact of natural disasters to property, infrastructure, and the local economy.
Action/Project Number:	Fremont Hills 2.2
Name of Action or Project:	Storm Ready Community
Mitigation Category:	Prevention
Action or Project Description:	Maintain StormReady status with the National Weather Service
Estimated Cost:	\$10,000
Benefits:	Prevent loss of life and property
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	Project Manager
Action/Project Priority:	25
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	The City of Fremont Hills is not currently a StormReady community, but does already utilize Smart911 and promotes hazard readiness to the public

Action Worksheet	
Name of Jurisdiction:	City of Fremont Hills
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding
Problem being Mitigated:	Infrastructure susceptible to damage during flooding
Action or Project	
Applicable Goal Statement:	Goal 2: Reduce the potential impact of natural disasters to property, infrastructure, and the local economy.
Action/Project Number:	Fremont Hills 2.3
Name of Action or Project:	Floodproofing
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Floodproof the municipal wastewater treatment plant
Estimated Cost:	\$100,000
Benefits:	Ensure continued water treatment in event of flooding
Plan for Implementation	
Responsible Organization/Department:	Project Manager
Supporting Organization/Department:	
Action/Project Priority:	25
Timeline for Completion:	5 years
Potential Fund Sources:	General Funds, Capital Improvement Funding
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	City of Fremont Hills
Risk / Vulnerability	
Hazard(s) Addressed:	Land Subsidence/Sinkhole
Problem being Mitigated:	New construction on land with high risk of subsidence
Action or Project	
Applicable Goal Statement:	Goal 2: Reduce the potential impact of natural disasters to property, infrastructure, and the local economy.
Action/Project Number:	Fremont Hills 2.4
Name of Action or Project:	Subsidence Development Management
Mitigation Category:	Prevention
Action or Project Description:	Prohibit development in areas identified as high-risk of subsidence
Estimated Cost:	Can be accomplished with current staff and budget
Benefits:	Prevent construction in hazard prone areas, minimize potential damages
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	33
Timeline for Completion:	6 months
Potential Fund Sources:	n/a
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	City of Fremont Hills
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Thunderstorm
Problem being Mitigated:	Critical equipment vulnerable to lightning and electrical surges
Action or Project	
Applicable Goal Statement:	Goal 2: Reduce the potential impact of natural disasters to property, infrastructure, and the local economy.
Action/Project Number:	Fremont Hills 2.5
Name of Action or Project:	Lightning-proofing
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Protect critical facilities from lightning/electric surges by installing surge protection.
Estimated Cost:	\$5,000
Benefits:	Prevent property damage, ensure continued operation of critical facilities in a disaster
Plan for Implementation	
Responsible Organization/Department:	Project Manager
Supporting Organization/Department:	
Action/Project Priority:	29
Timeline for Completion:	2 years
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	City of Fremont Hills
Risk / Vulnerability	
Hazard(s) Addressed:	Flood, Tornado, Severe Storm, Severe Winter Weather
Problem being Mitigated:	Lack of community preparedness and response
Action or Project	
Applicable Goal Statement:	Goal 3: Ensure continued operation of government, emergency functions, and critical infrastructure in a disaster.
Action/Project Number:	Fremont Hills 3.1
Name of Action or Project:	NIMS Training
Mitigation Category:	Education and Outreach
Action or Project Description:	Encourage all elected officials, public administrators, community stakeholders, and responders to participate in National Incident Management System (NIMS) training and compliance programs
Estimated Cost:	\$1,000
Benefits:	Provides coordinated approach to disaster response
Plan for Implementation	
Responsible Organization/Department:	Emergency Planning Committee
Supporting Organization/Department:	Administration
Action/Project Priority:	20
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	Newly appointed elected officials and employees are encouraged to complete two FEMA online courses (IS-100.C and IS-700.B).

Action Worksheet	
Name of Jurisdiction:	City of Fremont Hills
Risk / Vulnerability	
Hazard(s) Addressed:	Dam Failure, Drought, Earthquake, Extreme Temperatures, Flooding (Flash & Riverine), Severe Thunderstorms, Severe Winter Weather, Tornado, Wildfire, and Land Subsidence/Sinkholes
Problem being Mitigated:	Delayed emergency response due to poor addressing
Action or Project	
Applicable Goal Statement:	Goal 3: Ensure continued operation of government, emergency functions, and critical infrastructure in a disaster.
Action/Project Number:	Fremont Hills 3.2
Name of Action or Project:	911 Addressing For Structures
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Enforce highly visible 911 addressing for residences and businesses through building and business permitting as well as public education of existing ordinances.
Estimated Cost:	Can be accomplished with current staff and funding
Benefits:	Faster response of emergency services to disasters
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	26
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, 2012 International Building Code
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	New constructions are required to have visible addressing

Action Worksheet	
Name of Jurisdiction:	City of Fremont Hills
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Winter Weather, Tornado, Severe Thunderstorm
Problem being Mitigated:	Debris making roads impassable
Action or Project	
Applicable Goal Statement:	Goal 3: Ensure continued operation of government, emergency functions, and critical infrastructure in a disaster.
Action/Project Number:	Fremont Hills 3.3
Name of Action or Project:	Severe Winter Weather Preparedness
Mitigation Category:	Prevention
Action or Project Description:	Maintain adequate road and debris clearing capabilities
Estimated Cost:	Can be completed with current budget/staff
Benefits:	Ensure roads remain passable during severe winter weather and storms, for both the public and emergency vehicles
Plan for Implementation	
Responsible Organization/Department:	Project Manager
Supporting Organization/Department:	
Action/Project Priority:	29
Timeline for Completion:	Ongoing
Potential Fund Sources:	N/a
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

4.3.3 Highlandville Mitigation Actions

Action Worksheet	
Name of Jurisdiction:	City of Highlandville
Risk / Vulnerability	
Hazard(s) Addressed:	Tornado, Severe Thunderstorm
Problem being Mitigated:	Inadequate public alert to hazard events
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Highlandville 1.1
Name of Action or Project:	Outdoor Warning Sirens
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Increase the number of warning sirens in developing areas, make sure all warning sirens are radio activated, and ensure warning siren coverage remains consistent with current standards.
Estimated Cost:	\$82,000
Benefits:	Prevent loss of life
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	40
Timeline for Completion:	5 years
Potential Fund Sources:	General Funds, BRIC Grant
Local Planning Mechanisms to be Used in Implementation, if any:	Emergency Operations Plan, Hazard Mitigation Plan
Progress Report	
Action Status:	Continuing Not Started
Report of Progress:	Not started due to lack of funds and limited staff availability

Action Worksheet	
Name of Jurisdiction:	City of Highlandville
Risk / Vulnerability	
Hazard(s) Addressed:	Tornado, high wind events
Problem being Mitigated:	Identifying safe refuge areas in existing facilities
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all residents.
Action/Project Number:	Highlandville 1.2
Name of Action or Project:	Safe Refuge Area Plan
Mitigation Category:	Emergency Services
Action or Project Description:	Create and update tornado/severe storm plans and identify refuge areas that comply with FEMA publication 431 Selecting Refuge Areas in Buildings, in schools, large facilities, and other establishments serving the public.
Estimated Cost:	\$1,000
Benefits:	Prevent loss of life
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	30
Timeline for Completion:	5 years
Potential Fund Sources:	General funds, sales tax revenue
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Emergency Operations Plan
Progress Report	
Action Status:	Continuing Not Started
Report of Progress:	Not started due to limited staff availability

Action Worksheet	
Name of Jurisdiction:	City of Highlandville
Risk / Vulnerability	
Hazard(s) Addressed:	Extreme Temperatures, Severe Winter Weather
Problem being Mitigated:	Extreme temperature fatalities
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Highlandville 1.3
Name of Action or Project:	Community Extreme Temperature Refuge Areas
Mitigation Category:	Emergency Services
Action or Project Description:	Open City Hall as a cooling/heating center during times of extreme temperatures
Estimated Cost:	\$5,000
Benefits:	Prevent loss of life
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	Mayor
Action/Project Priority:	38
Timeline for Completion:	-
Potential Fund Sources:	General funds
Local Planning Mechanisms to be Used in Implementation, if any:	Emergency Operations Plan, Hazard Mitigation Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	City Hall currently acts as cooling center during extreme heat events.

Action Worksheet	
Name of Jurisdiction:	City of Highlandville
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Winter Weather
Problem being Mitigated:	Lack of Carbon Monoxide Detectors
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Highlandville 1.4
Name of Action or Project:	Severe Winter Weather Awareness
Mitigation Category:	Education and Outreach
Action or Project Description:	Encourage homeowners to install and maintain Carbon Monoxide detectors
Estimated Cost:	\$1,000
Benefits:	Prevent loss of life and property, prevent fires
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	35
Timeline for Completion:	1 year
Potential Fund Sources:	General funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	City of Highlandville
Risk / Vulnerability	
Hazard(s) Addressed:	Tornado, Severe thunderstorm
Problem being Mitigated:	Inadequate shelter for residents during tornadoes and high wind events
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens
Action/Project Number:	Highlandville 1.5
Name of Action or Project:	Safe Room Grant Program
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Develop a local grant program to assist homeowners who construct a safe room.
Estimated Cost:	Development of program: \$1,000
Benefits:	Prevent loss of life
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	38
Timeline for Completion:	2 years
Potential Fund Sources:	General funds, BRIC grant
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	City of Highlandville
Risk / Vulnerability	
Hazard(s) Addressed:	Tornado, Severe Thunderstorms, Severe Winter Weather
Problem being Mitigated:	Vulnerability to severe weather events
Action or Project	
Applicable Goal Statement:	Goal 2: Reduce the potential impact of natural disasters to property, infrastructure, and the local economy.
Action/Project Number:	Highlandville 2.1
Name of Action or Project:	Storm Ready
Mitigation Category:	Emergency Services
Action or Project Description:	Maintain Storm Ready status with National Weather Service
Estimated Cost:	\$5,000,000
Benefits:	Prevent loss of life and property
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	40
Timeline for Completion:	3 years
Potential Fund Sources:	General funds
Local Planning Mechanisms to be Used in Implementation, if any:	Emergency Operations Plan, Hazard Mitigation Plan
Progress Report	
Action Status:	Continuing Not Started
Report of Progress:	Not started due to lack of funding and staff.

Action Worksheet	
Name of Jurisdiction:	City of Highlandville
Risk / Vulnerability	
Hazard(s) Addressed:	Extreme Temperatures, Severe Winter Weather
Problem being Mitigated:	Limited public knowledge on how to reduce risk.
Action or Project	
Applicable Goal Statement:	Goal 2: Reduce the potential impact of natural disasters to property, infrastructure, and the local economy.
Action/Project Number:	Highlandville 2.2
Name of Action or Project:	Severe Winte Weather Awareness
Mitigation Category:	Education and Outreach
Action or Project Description:	Educate property owners about how to prevent pipe freezes and other cold weather hazards.
Estimated Cost:	\$1,000
Benefits:	Prevent property damage
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	32
Timeline for Completion:	1 year
Potential Fund Sources:	General funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	City of Highlandville
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding
Problem being Mitigated:	Properties in flood prone areas face repetitive losses
Action or Project	
Applicable Goal Statement:	Goal 2: Reduce the potential impact of natural disasters to property, infrastructure, and the local economy.
Action/Project Number:	Highlandville 2.3
Name of Action or Project:	Restrict Floodplain Development
Mitigation Category:	Prevention
Action or Project Description:	Develop an ordinance to restrict development in floodplain areas.
Estimated Cost:	Can be implemented with current staff/budget
Benefits:	Reduce development of flood prone areas
Plan for Implementation	
Responsible Organization/Department:	Board of Aldermen
Supporting Organization/Department:	
Action/Project Priority:	35
Timeline for Completion:	6 months
Potential Fund Sources:	n/a
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	City of Highlandville
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding
Problem being Mitigated:	Insufficient management of stormwater
Action or Project	
Applicable Goal Statement:	Goal 2: Reduce the potential impact of natural disasters to property, infrastructure and the local economy.
Action/Project Number:	Highlandville 2.4
Name of Action or Project:	Stormwater Management Planning
Mitigation Category:	Prevention
Action or Project Description:	Require stormwater drainage studies for new developments
Estimated Cost:	Can be implemented with current staff/budget
Benefits:	Reduces risk of stormwater damage to community
Plan for Implementation	
Responsible Organization/Department:	Board of Aldermen
Supporting Organization/Department:	
Action/Project Priority:	32
Timeline for Completion:	6 months
Potential Fund Sources:	n/a
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	City of Highlandville
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding
Problem being Mitigated:	Flood insurance availability to residents
Action or Project	
Applicable Goal Statement:	Goal 2: Reduce the potential impact of natural disasters to property, infrastructure, and the local economy.
Action/Project Number:	Highlandville 2.5
Name of Action or Project:	NFIP Participation
Mitigation Category:	Prevention
Action or Project Description:	Continue compliance with NFIP
Estimated Cost:	Can be implemented with current staff/budget
Benefits:	Reduce losses for insured properties
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	36
Timeline for Completion:	n/a
Potential Fund Sources:	n/a
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	Highlandville has and will continue to participate in NFIP

Action Worksheet	
Name of Jurisdiction:	City of Highlandville
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Thunderstorm, Tornado, Earthquake
Problem being Mitigated:	Construction standards not high enough to prevent damage caused by hazards
Action or Project	
Applicable Goal Statement:	Goal 2: Reduce the potential impact of natural disasters to property, infrastructure, and the local economy.
Action/Project Number:	Highlandville 2.6
Name of Action or Project:	Building Code Enforcement
Mitigation Category:	Prevention
Action or Project Description:	Enforce 2006 IBC building codes
Estimated Cost:	Can be implemented with current staff/budget
Benefits:	Minimizes damage to hazard-struck properties
Plan for Implementation	
Responsible Organization/Department:	Code Enforcement
Supporting Organization/Department:	
Action/Project Priority:	45
Timeline for Completion:	n/a
Potential Fund Sources:	n/a
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	Highlandville has and will continue to enforce building codes (2006 IBC).

Action Worksheet	
Name of Jurisdiction:	City of Highlandville
Risk / Vulnerability	
Hazard(s) Addressed:	Flood, Tornado, Severe Thunderstorm, Severe Winter Storm, Wildfire
Problem being Mitigated:	Emergency Response Capability
Action or Project	
Applicable Goal Statement:	Goal 3: Ensure continued operations of government, emergency functions, and critical infrastructure in a disaster.
Action/Project Number:	Highlandville 3.1
Name of Action or Project:	911 Addressing for Structures
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Enforce highly visible 911 addressing for residences and businesses through building and business permitting, as well as public education of ordinances.
Estimated Cost:	\$1,000
Benefits:	Prevent loss of life and property, improve emergency response times
Plan for Implementation	
Responsible Organization/Department:	Board of Aldermen
Supporting Organization/Department:	
Action/Project Priority:	40
Timeline for Completion:	2 years
Potential Fund Sources:	Sales tax, general funds
Local Planning Mechanisms to be Used in Implementation, if any:	Emergency Operations Plan, Hazard Mitigation Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	Highly visible addressing is currently encouraged, but not enforced due to lack of funds/staff.

Action Worksheet	
Name of Jurisdiction:	City of Highlandville
Risk / Vulnerability	
Hazard(s) Addressed:	Drought
Problem being Mitigated:	Water shortages during severe drought events
Action or Project	
Applicable Goal Statement:	Goal 3: Ensure continued operation of government and emergency functions and critical infrastructure in a disaster.
Action/Project Number:	Highlandville 3.2
Name of Action or Project:	Water Conservation
Mitigation Category:	Prevention
Action or Project Description:	Develop an ordinance to restrict use of public water resources for non-essential usage, such as landscaping, washing cars, filling swimming pools, etc.
Estimated Cost:	\$1,000
Benefits:	Prevent water shortage
Plan for Implementation	
Responsible Organization/Department:	Board of Aldermen
Supporting Organization/Department:	
Action/Project Priority:	29
Timeline for Completion:	2 years
Potential Fund Sources:	General funds, sales tax
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	No water conservation ordinance, but water conservation encouraged by City officials

Action Worksheet	
Name of Jurisdiction:	City of Highlandville
Risk / Vulnerability	
Hazard(s) Addressed:	Drought, extreme temperatures, flood, sinkholes, severe thunderstorms, severe winter weather, tornado, wildfire
Problem being Mitigated:	Adequate funding sources for mitigation activities
Action or Project	
Applicable Goal Statement:	Goal 3: Ensure continued operation of government, emergency functions, and critical infrastructure in a disaster.
Action/Project Number:	Highlandville 3.3
Name of Action or Project:	Monitor Funding Programs
Mitigation Category:	Prevention
Action or Project Description:	Monitor and identify funding from state and federal programs for hazard mitigation activities.
Estimated Cost:	\$10,000
Benefits:	Funding can be used for various mitigation activities to protect lives and property
Plan for Implementation	
Responsible Organization/Department:	Mayor
Supporting Organization/Department:	
Action/Project Priority:	33
Timeline for Completion:	5 years
Potential Fund Sources:	General funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	Continuing Not Started
Report of Progress:	Not started due to limited staffing.

Action Worksheet	
Name of Jurisdiction:	City of Highlandville
Risk / Vulnerability	
Hazard(s) Addressed:	Drought
Problem being Mitigated:	Limited knowledge of drought conditions and water supply
Action or Project	
Applicable Goal Statement:	Goal 3: Ensure continued operation of government, emergency functions, and critical infrastructure in a disaster.
Action/Project Number:	Highlandville 3.4
Name of Action or Project:	Drought Monitoring
Mitigation Category:	Prevention
Action or Project Description:	Monitor drought conditions and water supply on a monthly basis.
Estimated Cost:	\$1,000
Benefits:	Awareness and ability to respond to drought conditions
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	Public Works
Action/Project Priority:	
Timeline for Completion:	1 year
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Emergency Operations Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	City of Highlandville
Risk / Vulnerability	
Hazard(s) Addressed:	Earthquake
Problem being Mitigated:	Limited knowledge of vulnerability to earthquakes
Action or Project	
Applicable Goal Statement:	Goal 3: Ensure continued operation of government, emergency functions, and critical infrastructure in a disaster.
Action/Project Number:	Highlandville 3.5
Name of Action or Project:	Earthquake Vulnerability Assessment
Mitigation Category:	Prevention
Action or Project Description:	Use Hazus to quantitatively estimate potential losses from an earthquake.
Estimated Cost:	\$1,000
Benefits:	Increased awareness of threat of earthquakes, better ability for emergency services to respond to earthquake
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	43
Timeline for Completion:	2 years
Potential Fund Sources:	General funds
Local Planning Mechanisms to be Used in Implementation, if any:	Emergency Operations Plan, Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	City of Highlandville
Risk / Vulnerability	
Hazard(s) Addressed:	Earthquake
Problem being Mitigated:	Critical buildings and equipment not structurally sound during earthquake
Action or Project	
Applicable Goal Statement:	Goal 3: Ensure continued operations of government, emergency functions, and critical infrastructure in a disaster.
Action/Project Number:	Highlandville 3.6
Name of Action or Project:	Seismic Standards Upgrades
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Identify and harden critical systems to meet seismic standards.
Estimated Cost:	\$100,000
Benefits:	Prevent loss of life and property, ensure city services remain operational after earthquake.
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	
Timeline for Completion:	5 years
Potential Fund Sources:	BRIC Grant, General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	City of Highlandville
Risk / Vulnerability	
Hazard(s) Addressed:	Land subsidence/sinkhole
Problem being Mitigated:	Lack of awareness of hazard
Action or Project	
Applicable Goal Statement:	Goal 3: Ensure continued operation of government, emergency functions, and critical infrastructure in a disaster.
Action/Project Number:	Highlandville 3.7
Name of Action or Project:	Land Subsidence Vulnerability Assessment
Mitigation Category:	Prevention
Action or Project Description:	Use GIS to map areas susceptible to land subsidence
Estimated Cost:	\$1,000
Benefits:	Improved understanding and awareness of subsidence-prone areas
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	34
Timeline for Completion:	1 year
Potential Fund Sources:	General funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	City of Highlandville
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Thunderstorm
Problem being Mitigated:	Critical equipment vulnerable to electricity surges
Action or Project	
Applicable Goal Statement:	Goal 3: Ensure continued operation of government, emergency functions, and critical infrastructure in a disaster.
Action/Project Number:	Highlandville 3.8
Name of Action or Project:	Surge Protection Installation
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Install and maintain surge protection on critical electronic equipment.
Estimated Cost:	\$1,000
Benefits:	Prevents property damage, ensures services can operate during and after a disaster.
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	39
Timeline for Completion:	2 years
Potential Fund Sources:	General funds, BRIC Grant
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	City of Highlandville
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Winter Weather, Severe Thunderstorm, Tornado
Problem being Mitigated:	Debris blocks roadways and impedes travel and emergency response
Action or Project	
Applicable Goal Statement:	Goal 3: Ensure continued operation of government, emergency functions, and critical infrastructure in a disaster.
Action/Project Number:	Highlandville 3.9
Name of Action or Project:	Road maintenance
Mitigation Category:	Prevention
Action or Project Description:	Plan for and maintain adequate road clearing capabilities.
Estimated Cost:	\$10,000
Benefits:	Ensures freedom of travel for residents and effective operation of emergency services
Plan for Implementation	
Responsible Organization/Department:	Public Works
Supporting Organization/Department:	
Action/Project Priority:	38
Timeline for Completion:	3 years
Potential Fund Sources:	General Funds, BRIC Grant
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Emergency Operations Plan
Progress Report	
Action Status:	New
Report of Progress:	

4.3.4 Nixa Mitigation Actions

Action Worksheet	
Name of Jurisdiction:	City of Nixa
Risk / Vulnerability	
Hazard(s) Addressed:	Tornado, Severe Thunderstorm
Problem being Mitigated:	Inadequate places to safely shelter
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Nixa 1.1
Name of Action or Project:	Safe Room Construction
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Integrate safe room construction in new community buildings, schools, large facilities, and other establishments serving the public in areas of population concentration where feasible.
Estimated Cost:	\$50,000-\$1,000,000
Benefits:	Prevent loss of life and property
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	29
Timeline for Completion:	End of 2026
Potential Fund Sources:	General Funds, Capital Improvements Funding
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Emergency Operations Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	The new Nixa Police Department building (set to open in late 2026) will include a saferoom built to FEMA standards.

Action Worksheet	
Name of Jurisdiction:	City of Nixa
Risk / Vulnerability	
Hazard(s) Addressed:	Dam Failure, Drought, Earthquake, Extreme Temperatures, Flooding (Flash & Riverine), Severe Thunderstorms, Severe Winter Weather, Tornado, Wildfire, and Land Subsidence/Sinkholes
Problem being Mitigated:	Lack of citizen preparedness
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens
Action/Project Number:	Nixa 1.2
Name of Action or Project:	Citizen Preparedness
Mitigation Category:	Education and Outreach
Action or Project Description:	Increase, promote, establish, and maintain participation in citizen preparedness activities, such as Citizen Corps, CERT, COAD, Neighborhood Watch, Fire Corps, Amateur Radio, etc.
Estimated Cost:	\$10,000
Benefits:	Prevent loss of life and property
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	28
Timeline for Completion:	6 months
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard mitigation plan
Progress Report	
Action Status:	Continuing in progress
Report of Progress:	Most of these programs have been and will continue to be available to citizens.

Action Worksheet	
Name of Jurisdiction:	City of Nixa
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding, Sinkhole
Problem being Mitigated:	Lack of property insurance
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Nixa 1.3
Name of Action or Project:	Private Property Hazard Insurance
Mitigation Category:	Prevention
Action or Project Description:	Promote homeowner purchase of flood insurance and Missouri FAIR Plan sinkhole loss policies for dwellings in hazard prone areas.
Estimated Cost:	\$1,000
Benefits:	Lower financial burden to property owners in event of disaster.
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	26
Timeline for Completion:	1 year
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, NFIP Flood Insurance Maps
Progress Report	
Action Status:	Continuing Not Started
Report of Progress:	There has been no progress towards this goal, and many insurance companies are encouraging homeowners to buy additional insurance policies.

Action Worksheet	
Name of Jurisdiction:	City of Nixa
Risk / Vulnerability	
Hazard(s) Addressed:	Dam Failure, Drought, Earthquake, Extreme Temperatures, Flooding (Flash & Riverine), Severe Thunderstorms, Severe Winter Weather, Tornado, Wildfire, and Land Subsidence/Sinkholes
Problem being Mitigated:	Limited public knowledge on how to reduce risk.
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Nixa 1.4
Name of Action or Project:	Ozark and Nixa Expo
Mitigation Category:	Education and Outreach
Action or Project Description:	Continue collaboration between local government, community organization, and businesses to host community expos to promote public awareness health and safety during natural hazard events.
Estimated Cost:	Can be accomplished with current staff/budget.
Benefits:	Prevent loss of life and property
Plan for Implementation	
Responsible Organization/Department:	Chamber of Commerce
Supporting Organization/Department:	
Action/Project Priority:	23
Timeline for Completion:	Annual expo
Potential Fund Sources:	General funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	Nixpo is a yearly expo hosted by the Nixa Chamber of Commerce.

Action Worksheet	
Name of Jurisdiction:	City of Nixa
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Thunderstorm, Tornado
Problem being Mitigated:	Lack of knowledge of best place to shelter during storm.
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Nixa 1.5
Name of Action or Project:	Safe Refuge Area Plan
Mitigation Category:	Prevention
Action or Project Description:	Create and update tornado / severe storm plans and identify refuge areas that comply with FEMA publication 431 Selecting Refuge Areas in buildings, in schools, large facilities and other establishments serving the public.
Estimated Cost:	\$10,000
Benefits:	Prevent loss of life and property
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	28
Timeline for Completion:	1 year
Potential Fund Sources:	General funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Emergency Operations Plan
Progress Report	
Action Status:	Continuing Not Started
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	City of Nixa
Risk / Vulnerability	
Hazard(s) Addressed:	Extreme Temperatures, Severe Winter Weather
Problem being Mitigated:	Residents have inadequate temperature regulation in homes
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Nixa 1.6
Name of Action or Project:	OACAC Programs
Mitigation Category:	Prevention
Action or Project Description:	Encourage local community organizations to continue and augment programs to provide fans, air conditioners, and winter weatherization for those at risk.
Estimated Cost:	\$1,000
Benefits:	Prevent loss of life and property.
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	33
Timeline for Completion:	1 year
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Emergency Operations Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	City encourages/promotes OACAC programs when need arises.

Action Worksheet	
Name of Jurisdiction:	City of Nixa
Risk / Vulnerability	
Hazard(s) Addressed:	Extreme Temperature, Severe Winter Weather
Problem being Mitigated:	Inadequate temperature regulation in homes.
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Nixa 1.7
Name of Action or Project:	Community Extreme Temperature Refuge Areas
Mitigation Category:	Prevention
Action or Project Description:	Identify and designate heating and cooling refuge areas in community buildings and make these locations available to the public during extreme temperature events.
Estimated Cost:	Can be accomplished with current staff/budget
Benefits:	Prevent loss of life.
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	33
Timeline for Completion:	n/a
Potential Fund Sources:	General funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Emergency Operations Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	Public facilities are open to the public during extreme weather.

Action Worksheet	
Name of Jurisdiction:	City of Nixa
Risk / Vulnerability	
Hazard(s) Addressed:	Dam Failure, Drought, Earthquake, Extreme Temperatures, Flooding (Flash & Riverine), Severe Thunderstorms, Severe Winter Weather, Tornado, Wildfire, and Land Subsidence/Sinkholes
Problem being Mitigated:	Poor addressing leads to delayed emergency response times
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Nixa 1.8
Name of Action or Project:	911 Addressing for Structures
Mitigation Category:	Emergency Services
Action or Project Description:	Enforce highly visible 911 addressing for residences and businesses through building and business permitting as well as public education of existing ordinances.
Estimated Cost:	Can be completed with current staff/budget
Benefits:	Prevent loss of life and property, improved emergency response times
Plan for Implementation	
Responsible Organization/Department:	Planning and Development
Supporting Organization/Department:	
Action/Project Priority:	28
Timeline for Completion:	n/a
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	Adopted building codes require visible addressing on the structure before a certificate of occupancy is issued

Action Worksheet	
Name of Jurisdiction:	City of Nixa
Risk / Vulnerability	
Hazard(s) Addressed:	Dam Failure, Drought, Earthquake, Extreme Temperatures, Flooding (Flash & Riverine), Severe Thunderstorms, Severe Winter Weather, Tornado, Wildfire, and Land Subsidence/Sinkholes
Problem being Mitigated:	Limited public knowledge on how to reduce risk.
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Nixa 1.9
Name of Action or Project:	Natural Hazard Awareness
Mitigation Category:	Education and Outreach
Action or Project Description:	Provide educational materials on ways to reduce risk from hazards. There can be posted on social media and the City website and mailed to homeowners.
Estimated Cost:	\$5,000
Benefits:	Prevent loss of life and property
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	33
Timeline for Completion:	2 years
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	City of Nixa
Risk / Vulnerability	
Hazard(s) Addressed:	Tornado, Severe Thunderstorm, Earthquake, Wildfire, Flooding
Problem being Mitigated:	Substandard construction poses risk during hazards
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Nixa 1.10
Name of Action or Project:	Enforce Building Codes
Mitigation Category:	Prevention
Action or Project Description:	Enforce 2018 IBC Building Codes
Estimated Cost:	Can be completed with current staff/budget
Benefits:	Prevent loss of life and property
Plan for Implementation	
Responsible Organization/Department:	Planning and Development
Supporting Organization/Department:	
Action/Project Priority:	35
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Municipal Code, 2018 International Building Code
Progress Report	
Action Status:	New
Report of Progress:	City of Nixa has and will continue to enforce 2018 IBC codes.

Action Worksheet	
Name of Jurisdiction:	City of Nixa
Risk / Vulnerability	
Hazard(s) Addressed:	Dam Failure, Drought, Earthquake, Extreme Temperatures, Flooding (Flash & Riverine), Severe Thunderstorms, Severe Winter Weather, Tornado, Wildfire, and Land Subsidence/Sinkholes
Problem being Mitigated:	Lack of awareness of vulnerability and likeliness of hazards.
Action or Project	
Applicable Goal Statement:	Goal 2: Reduce the potential impact of natural disasters to property, infrastructure, and the local economy.
Action/Project Number:	Nixa 2.1
Name of Action or Project:	Geographic Information
Mitigation Category:	Prevention
Action or Project Description:	Continue development of Geographic Information Systems (GIS) to further identify, analyze, map and track the impact of natural hazards to enhance decision making and facilities management for agencies and stakeholders.
Estimated Cost:	Can be completed with current staff/budget.
Benefits:	Improved awareness of vulnerability to hazards
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	34
Timeline for Completion:	1 year
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	City of Nixa is working on creating more maps and sharing information and maps with the public.

Action Worksheet	
Name of Jurisdiction:	City of Nixa
Risk / Vulnerability	
Hazard(s) Addressed:	Dam Failure, Drought, Earthquake, Extreme Temperatures, Flooding (Flash & Riverine), Severe Thunderstorms, Severe Winter Weather, Tornado, Wildfire, and Land Subsidence/Sinkholes
Problem being Mitigated:	Lack of funding for mitigation projects.
Action or Project	
Applicable Goal Statement:	Goal 2: Reduce the potential impact of natural disasters to property, infrastructure, and the local economy.
Action/Project Number:	Nixa 2.2
Name of Action or Project:	Monitor Funding Programs
Mitigation Category:	Prevention
Action or Project Description:	Continue to monitor and identify funding from state and federal programs for hazard mitigation activities.
Estimated Cost:	Can be completed with current staff/budget
Benefits:	Increased funding for mitigation projects.
Plan for Implementation	
Responsible Organization/Department:	Planning and Development
Supporting Organization/Department:	Administration
Action/Project Priority:	30
Timeline for Completion:	Ongoing
Potential Fund Sources:	n/a
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	The City of Nixa is always searching for possible funding sources.

Action Worksheet	
Name of Jurisdiction:	City of Nixa
Risk / Vulnerability	
Hazard(s) Addressed:	Drought
Problem being Mitigated:	Non-essential water usage during drought conditions
Action or Project	
Applicable Goal Statement:	Goal 2: Reduce the potential impact of natural disasters to property, infrastructure, and the local economy.
Action/Project Number:	Nixa 2.3
Name of Action or Project:	Water Conservation
Mitigation Category:	Prevention
Action or Project Description:	Enforce an ordinance restricting the use of public water resources for non-essential usage, such as landscaping, washing cars, filling swimming pools, etc.
Estimated Cost:	Can be completed with current staff/budget
Benefits:	Lowered water usage
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	25
Timeline for Completion:	Ongoing
Potential Fund Sources:	n/a
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	Sec. 22-22 of Nixa Municipal Code

Action Worksheet	
Name of Jurisdiction:	City of Nixa
Risk / Vulnerability	
Hazard(s) Addressed:	Tornado, Severe thunderstorm, Severe Winter Weather, Earthquake, Wildfire
Problem being Mitigated:	Disruption of electric service due to hazards
Action or Project	
Applicable Goal Statement:	Goal 2: Reduce the potential impact of natural disasters to property, infrastructure, and the local economy.
Action/Project Number:	Nixa 2.4
Name of Action or Project:	Underground utilities
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Encourage electrical utilities to use underground construction methods where possible to reduce disruptions of service due to natural hazard events.
Estimated Cost:	Can be completed with current staff/budget
Benefits:	Reduced electric disruptions during hazard.
Plan for Implementation	
Responsible Organization/Department:	Planning and Development
Supporting Organization/Department:	
Action/Project Priority:	37
Timeline for Completion:	Ongoing
Potential Fund Sources:	n/a
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Municipal Code
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	City of Nixa requires new developments to use underground electric when possible.

Action Worksheet	
Name of Jurisdiction:	City of Nixa
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding
Problem being Mitigated:	Flood-damage to flood-prone properties
Action or Project	
Applicable Goal Statement:	Goal 2: Reduce the potential impact of natural disasters to property, infrastructure, and the local economy.
Action/Project Number:	Nixa 2.5
Name of Action or Project:	Hazard Area Property Protection
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Acquire, elevate or flood-proof properties and critical infrastructure within hazard areas.
Estimated Cost:	\$10,000-\$1,000,000
Benefits:	Prevent property damage
Plan for Implementation	
Responsible Organization/Department:	Planning and Development
Supporting Organization/Department:	
Action/Project Priority:	30
Timeline for Completion:	5 years
Potential Fund Sources:	General Funds, BRIC Grants
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, NFIP Flood Risk Maps
Progress Report	
Action Status:	Continuing Not Started
Report of Progress:	Not started due to lack of flooding incidences since last plan update.

Action Worksheet	
Name of Jurisdiction:	City of Nixa
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding
Problem being Mitigated:	Lack of flooding insurance
Action or Project	
Applicable Goal Statement:	Goal 2: Reduce the potential impact of natural disasters to property, infrastructure, and the local economy.
Action/Project Number:	Nixa 2.6
Name of Action or Project:	NFIP Participation
Mitigation Category:	Prevention
Action or Project Description:	Enforce floodplain management requirements.
Estimated Cost:	Can be accomplished with current staff/budget.
Benefits:	Lower economic burden for flooded property owners
Plan for Implementation	
Responsible Organization/Department:	Planning and Development
Supporting Organization/Department:	
Action/Project Priority:	37
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, NFIP Flood Risk Maps
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	City of Nixa is compliant with NFIP and has a floodplain management ordinance.

Action Worksheet	
Name of Jurisdiction:	City of Nixa
Risk / Vulnerability	
Hazard(s) Addressed:	Tornado, Serve Winter Weather, Severe Thunderstorm
Problem being Mitigated:	Community preparedness for hazard
Action or Project	
Applicable Goal Statement:	Goal 2: Reduce the potential impact of natural disasters to property, infrastructure, and the local economy.
Action/Project Number:	Nixa 2.7
Name of Action or Project:	Storm Ready
Mitigation Category:	Prevention
Action or Project Description:	Maintain Storm Ready status with the National Weather Service
Estimated Cost:	\$10,000
Benefits:	Prevent loss of life and property
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	29
Timeline for Completion:	1 year
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Emergency Operations Plan
Progress Report	
Action Status:	Continuing No Progress
Report of Progress:	Christian County has this designation. City of Nixa will continue to evaluate the benefits

Action Worksheet	
Name of Jurisdiction:	City of Nixa
Risk / Vulnerability	
Hazard(s) Addressed:	Sinkhole/Land subsidence
Problem being Mitigated:	Development in areas prone to subsidence can lead to damages
Action or Project	
Applicable Goal Statement:	Goal 2: Reduce the potential impact of natural disasters to property, infrastructure, and the local economy.
Action/Project Number:	Nixa 2.8
Name of Action or Project:	Subsidence Development Management
Mitigation Category:	Prevention
Action or Project Description:	Prohibit development in areas at high risk of subsidence
Estimated Cost:	Can be accomplished with current staff/budget
Benefits:	Prevent subsidence damage to new properties
Plan for Implementation	
Responsible Organization/Department:	Planning and Development
Supporting Organization/Department:	
Action/Project Priority:	33
Timeline for Completion:	1 year
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	City of Nixa
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Thunderstorms
Problem being Mitigated:	Lightning strikes damaging electric equipment and electric infrastructure
Action or Project	
Applicable Goal Statement:	Goal 2: Reduce the potential impact of natural disasters to property, infrastructure, and the local economy.
Action/Project Number:	Nixa 2.9
Name of Action or Project:	Electric Grid Protections
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Protect the electric grid and critical infrastructure from damage from lightning strikes and downed trees, by surge protecting critical infrastructure and establishing tree-pruning procedures around power lines.
Estimated Cost:	\$100,000
Benefits:	Prevent damage to critical equipment and disruptions to electrical grid
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	Public Works
Action/Project Priority:	35
Timeline for Completion:	5 years
Potential Fund Sources:	General Funds, Capital Improvements Funding
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Capital Improvement Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	City of Nixa
Risk / Vulnerability	
Hazard(s) Addressed:	Tornado, Severe Thunderstorm, Wildfire
Problem being Mitigated:	High winds damage buildings.
Action or Project	
Applicable Goal Statement:	Goal 2: Reduce the potential impact of natural disasters to property, infrastructure, and the local economy.
Action/Project Number:	Nixa 2.10
Name of Action or Project:	Wind- and Fire-Resistant Construction
Mitigation Category:	Prevention
Action or Project Description:	Require wind- and fire-resistant building techniques in new construction whenever possible. This includes enclosing foundations, interlocking shingles, etc.
Estimated Cost:	Can be implemented with current staff/budget
Benefits:	Prevent loss of life and property
Plan for Implementation	
Responsible Organization/Department:	Planning and Development
Supporting Organization/Department:	
Action/Project Priority:	32
Timeline for Completion:	2 years
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	City of Nixa
Risk / Vulnerability	
Hazard(s) Addressed:	Dam Failure, Drought, Earthquake, Extreme Temperatures, Flooding (Flash & Riverine), Severe Thunderstorms, Severe Winter Weather, Tornado, Wildfire, and Land Subsidence/Sinkholes
Problem being Mitigated:	Lack of elected official and staff preparedness for hazards
Action or Project	
Applicable Goal Statement:	Goal 3: Ensure continued operation of government, emergency functions, and critical infrastructure in a disaster.
Action/Project Number:	Nixa 3.1
Name of Action or Project:	NIMS Training
Mitigation Category:	Education and Outreach
Action or Project Description:	Encourage all elected officials, public administrators, community stakeholders and responders to participate in National Incident Management System (NIMS) training and compliance programs.
Estimated Cost:	Can be accomplished with current staff/budget.
Benefits:	Improved public response to hazards
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	28
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Emergency Operations Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	City staff participate in NIMS training.

Action Worksheet	
Name of Jurisdiction:	City of Nixa
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Winter Weather, Severe Thunderstorm, Tornado
Problem being Mitigated:	Debris and snow blocks roadway
Action or Project	
Applicable Goal Statement:	Goal 3: Ensure continued operation of government, emergency functions, and critical infrastructure in a disaster.
Action/Project Number:	Nixa 3.2
Name of Action or Project:	Snow and Debris Clearing
Mitigation Category:	Emergency Services
Action or Project Description:	Plan for and maintain adequate snow and debris clearing capabilities.
Estimated Cost:	Can be accomplished with current staff/budget.
Benefits:	Improved emergency response times, improved mobility for residents
Plan for Implementation	
Responsible Organization/Department:	Public Works
Supporting Organization/Department:	
Action/Project Priority:	30
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Funds, Capital Improvements Funding
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Capital Improvement Plan, Emergency Operations Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	New equipment is routinely budgeted for to ensure City is ready for storm events.

Action Worksheet	
Name of Jurisdiction:	City of Nixa
Risk / Vulnerability	
Hazard(s) Addressed:	Wildfire
Problem being Mitigated:	Substandard maintenance can impede emergency services
Action or Project	
Applicable Goal Statement:	Goal 3: Ensure continued operations of government, emergency functions, and critical infrastructure in a disaster.
Action/Project Number:	Nixa 3.3
Name of Action or Project:	Hydrant Maintenance
Mitigation Category:	Emergency Services
Action or Project Description:	Routinely inspect hydrants to ensure their functionality.
Estimated Cost:	\$5,000
Benefits:	Prevent loss of life and property, ensures effective emergency response
Plan for Implementation	
Responsible Organization/Department:	Public Works
Supporting Organization/Department:	
Action/Project Priority:	31
Timeline for Completion:	1 year
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	



4.3.5 Ozark Mitigation Actions

Action Worksheet	
Name of Jurisdiction:	City of Ozark
Risk / Vulnerability	
Hazard(s) Addressed:	Dam Failure, Drought, Earthquake, Extreme Temperatures, Flooding (Flash & Riverine), Severe Thunderstorms, Severe Winter Weather, Tornado, Wildfire, and Land Subsidence/Sinkholes
Problem being Mitigated:	Limited public awareness on how to reduce risk
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Ozark 1.1
Name of Action or Project:	Ozark Expo
Mitigation Category:	Education and Outreach
Action or Project Description:	Continue collaboration between local government, community organization, and businesses to host community expos to promote public awareness, health, and safety during natural hazard events.
Estimated Cost:	Can be accomplished with current staff/budget
Benefits:	Prevent loss of life and property
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	37
Timeline for Completion:	Annually
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	The City continues to participate in the Ozark Expo event each year, where we display materials that provide information to the public about flooding hazard. Staff are available at the event to answer natural hazard-related questions. The City's website has an emergency management page, which includes contact information for different emergency management agencies. The Communications Department also posts information on social media to provide updates on Watches and Warnings as well as general information on preparation for natural hazards.

Action Worksheet	
Name of Jurisdiction:	City of Ozark
Risk / Vulnerability	
Hazard(s) Addressed:	Wildfire
Problem being Mitigated:	Construction and landscaping that promotes wildfire spread
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Ozark 1.2
Name of Action or Project:	Fire resistant construction and landscaping
Mitigation Category:	Education and Outreach
Action or Project Description:	Increase public awareness on techniques to reduce risk, such as the use of fire-resistant materials in construction, landscaping techniques, and planting materials that are more resistant to the spread of wildfires
Estimated Cost:	Can be accomplished with current budget/staff
Benefits:	Prevent spread of wildfires
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	40
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	The City Partners with the Ozark Fire District enforce the International Fire Code. The District participates in plan review and inspections during the building process. They have increased the emphasis on fire-resistant materials use for construction and landscaping materials during plan review.

Action Worksheet	
Name of Jurisdiction:	City of Ozark
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding, Land Subsidence
Problem being Mitigated:	Lack of hazard insurance among property owners
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Ozark 1.3
Name of Action or Project:	Private Property Hazard Insurance
Mitigation Category:	Education and Outreach
Action or Project Description:	Promote homeowner purchase of flood insurance and Missouri FAIR Plan sinkhole loss policies for dwellings in hazard prone areas.
Estimated Cost:	Can be accomplished with current staff/budget
Benefits:	Lowered financial burden to hazard-stricken property owners
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	36
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	The city's website has floodplain and flood insurance links and information. Staff provide information to property owners on the National Flood Insurance Program.

Action Worksheet	
Name of Jurisdiction:	City of Ozark
Risk / Vulnerability	
Hazard(s) Addressed:	Dam Failure, Drought, Earthquake, Extreme Temperatures, Flooding (Flash & Riverine), Severe Thunderstorms, Severe Winter Weather, Tornado, Wildfire, and Land Subsidence/Sinkholes
Problem being Mitigated:	Lack of public knowledge on how to reduce risk
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Ozark 1.4
Name of Action or Project:	Citizen Preparedness
Mitigation Category:	Education and Outreach
Action or Project Description:	Increase, promote, establish, and maintain participation in citizen preparedness activities, such as: Citizen Corps, CERT, COAD, Neighborhood Watch, Fire Corps, Amateur Radio, etc
Estimated Cost:	Can be accomplished with current staff/budget
Benefits:	Prevent loss of life and property
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	37
Timeline for Completion:	Ongoing
Potential Fund Sources:	General funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	The City's Safety Compliance & MS4 Coordinator is a board member of both the COAD and LEPC (Local Emergency Planning Committee) boards.

Action Worksheet	
Name of Jurisdiction:	City of Ozark
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Thunderstorm, Tornado
Problem being Mitigated:	Limited public awareness of when/where to evacuate
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Ozark 1.5
Name of Action or Project:	Safe Refuge Area Plan
Mitigation Category:	Prevention
Action or Project Description:	Create and update tornado/severe storm plans and identify refuge areas that comply with FEMA public 431 Selecting Refuge Areas in Buildings, in schools, large facilities, and other establishments serving the public
Estimated Cost:	Can be accomplished with current staff/budget
Benefits:	Prevent loss of life
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	37
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Emergency Operations Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	The Ozark Community Center (OC) is in the midst of updating the inclement weather policy with guidance from Christian County Emergency Management, focusing more on warning polygons, and going into more detail on how to safely move through the facility (avoiding glass windows, when to evacuate various program areas such as the pool, etc). External storm signage was updated and replaced at The OC with solar lighting installed for it in July 2024. The OC became a "StormReady" certified facility by the National Weather Service in December 2024. City buildings now have tornado shelters identified in case of emergency.

Action Worksheet	
Name of Jurisdiction:	City of Ozark
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding
Problem being Mitigated:	Delayed notification of Finley River Flooding
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Ozark 1.6
Name of Action or Project:	Finley River Gauge
Mitigation Category:	Prevention
Action or Project Description:	Add a river gauge to the Finley River upstream, to allow for more timely evacuation of parks and low lying areas
Estimated Cost:	\$30,000
Benefits:	Prevent loss of life
Plan for Implementation	
Responsible Organization/Department:	Public Works
Supporting Organization/Department:	
Action/Project Priority:	37
Timeline for Completion:	2 years
Potential Fund Sources:	General Funds, BRIC grants
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	City of Ozark
Risk / Vulnerability	
Hazard(s) Addressed:	Tornado, Severe Thunderstorm, Wildfire, Earthquake, Flooding
Problem being Mitigated:	Insufficient building design and construction at risk of failure/damage during hazards
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Ozark 1.7
Name of Action or Project:	Building Codes
Mitigation Category:	Prevention
Action or Project Description:	Enforce 2018 International Building Code within the City of Ozark.
Estimated Cost:	Can be implemented with current staff/budget.
Benefits:	Prevent loss of life and property
Plan for Implementation	
Responsible Organization/Department:	Planning and Development
Supporting Organization/Department:	Code Compliance
Action/Project Priority:	39
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	City has been and will continue to enforce 2018 IBC codes.

Action Worksheet	
Name of Jurisdiction:	City of Ozark
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding
Problem being Mitigated:	Lack of flood insurance among property owners
Action or Project	
Applicable Goal Statement:	Goal 2: Reduce the potential impact of natural disasters to property, infrastructure, and the local economy.
Action/Project Number:	Ozark 2.1
Name of Action or Project:	NFIP Participation
Mitigation Category:	Prevention
Action or Project Description:	Enforce floodplain management requirement (NFIP)
Estimated Cost:	Can be accomplished with current staff/budget
Benefits:	Lower financial burden to flood-stricken property owners
Plan for Implementation	
Responsible Organization/Department:	Planning and Development
Supporting Organization/Department:	
Action/Project Priority:	45
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, NFIP Flood Risk Maps
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	Impacts to the floodplain are required to be permitted to ensure the city's floodplain management ordinance is complied with.

Action Worksheet	
Name of Jurisdiction:	City of Ozark
Risk / Vulnerability	
Hazard(s) Addressed:	Extreme Temperature
Problem being Mitigated:	Abundance of concrete and lack of greenery worsens extreme high temperatures
Action or Project	
Applicable Goal Statement:	Goal 2: Reduce the potential impact of natural disasters to property, infrastructure, and the local economy.
Action/Project Number:	Ozark 2.2
Name of Action or Project:	Reduce Urban Heat Island Effect
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Plant trees along public rights-of-way and encourage property owners to plant trees around buildings and parking lots to reduce the urban heat island effect
Estimated Cost:	\$1,000 - \$1,000,000
Benefits:	Reduced temperatures during sunny periods
Plan for Implementation	
Responsible Organization/Department:	Planning and Development
Supporting Organization/Department:	
Action/Project Priority:	34
Timeline for Completion:	2 years
Potential Fund Sources:	General Funds, grants
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	City of Ozark
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding
Problem being Mitigated:	New developments susceptible to flooding or cause flooding elsewhere
Action or Project	
Applicable Goal Statement:	Goal 2: Reduce the potential impact of natural disasters to property, infrastructure, and the local economy.
Action/Project Number:	Ozark 2.3
Name of Action or Project:	Manage New Development Flooding
Mitigation Category:	Prevention
Action or Project Description:	Restrict development in floodplain areas and require stormwater drainage studies for new developments.
Estimated Cost:	Can be accomplished with current budget/staff.
Benefits:	Prevent flood damage to new and existing buildings.
Plan for Implementation	
Responsible Organization/Department:	Planning and Development
Supporting Organization/Department:	
Action/Project Priority:	39
Timeline for Completion:	1 year
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Floodplain Ordinance, NFIP Flood Risk Maps, Stormwater Management Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	City of Ozark
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding
Problem being Mitigated:	Floodwater damages buildings
Action or Project	
Applicable Goal Statement:	Goal 2: Reduce the potential impact of natural disasters to property, infrastructure, and the local economy.
Action/Project Number:	Ozark 2.4
Name of Action or Project:	Floodproofing
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Floodproof municipal buildings prone to flooding and educate residents about benefits of floodproofing
Estimated Cost:	\$1,000,000-\$2,000,000
Benefits:	Reduces damages when flooding occurs
Plan for Implementation	
Responsible Organization/Department:	Public Works
Supporting Organization/Department:	
Action/Project Priority:	37
Timeline for Completion:	5 years
Potential Fund Sources:	Capital Improvements, BRIC Grants
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Capital Improvement Plan, NFIP Flood Risk Maps
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	City of Ozark
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding
Problem being Mitigated:	Finley River and other floodways cannot accommodate floodwater, causing flooding of developed lands
Action or Project	
Applicable Goal Statement:	Goal 2: Reduce the potential impact of natural disasters to property, infrastructure, and the local economy.
Action/Project Number:	Ozark 2.5
Name of Action or Project:	Flood Reduction
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Minimize flooding by increasing capacity of stormwater drainage systems and by adding vegetation around Finley River to slow flooding.
Estimated Cost:	\$100,000-\$10,000,000
Benefits:	Reduced flooding, reduced property damage
Plan for Implementation	
Responsible Organization/Department:	Public Works
Supporting Organization/Department:	
Action/Project Priority:	35
Timeline for Completion:	5 years
Potential Fund Sources:	BRIC Grants, Capital Improvements Funding
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Stormwater Management Plan, NFIP Flood Risk Maps
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	City of Ozark
Risk / Vulnerability	
Hazard(s) Addressed:	Tornado, Sever Thunderstorm
Problem being Mitigated:	Current construction standards do not prevent damages from high winds
Action or Project	
Applicable Goal Statement:	Goal 2: Reduce the potential impact of natural disasters to property, infrastructure, and the local economy.
Action/Project Number:	Ozark 2.6
Name of Action or Project:	Wind-Resistant Construction
Mitigation Category:	Prevention
Action or Project Description:	Require new developments be constructed with wind resistant building techniques like structural bracing, window shutters, etc.
Estimated Cost:	Can be accomplished with current budget/staff.
Benefits:	Prevent property damage from high winds
Plan for Implementation	
Responsible Organization/Department:	Planning and Development
Supporting Organization/Department:	
Action/Project Priority:	42
Timeline for Completion:	1 year
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	City of Ozark
Risk / Vulnerability	
Hazard(s) Addressed:	Dam Failure, Drought, Earthquake, Extreme Temperatures, Flooding (Flash & Riverine), Severe Thunderstorms, Severe Winter Weather, Tornado, Wildfire, and Land Subsidence/Sinkholes
Problem being Mitigated:	Lack of staff preparedness for emergency response
Action or Project	
Applicable Goal Statement:	Ensure continued operation of government, emergency functions, and critical infrastructure in a disaster.
Action/Project Number:	Ozark 3.1
Name of Action or Project:	NIMS Training
Mitigation Category:	Education and Outreach
Action or Project Description:	Encourage all elected officials, public administrators, community stakeholders and responders to participate in National Incident Management System (NIMS) training and compliance programs.
Estimated Cost:	Can be accomplished with current staff/budget
Benefits:	Improved emergency response/management
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	38
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Emergency Operations Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	Public Works staff have obtained NIMS certifications.

Action Worksheet	
Name of Jurisdiction:	City of Ozark
Risk / Vulnerability	
Hazard(s) Addressed:	Drought
Problem being Mitigated:	Limited water available during drought conditions
Action or Project	
Applicable Goal Statement:	Ensure continued operation of government, emergency functions, and critical infrastructure in a disaster.
Action/Project Number:	Ozark 3.2
Name of Action or Project:	Water Conservation
Mitigation Category:	Prevention
Action or Project Description:	Enforce an ordinance to restrict the use of public water resources for non-essential usage, such as landscaping, washing cars, filling swimming pools, etc.
Estimated Cost:	Can be accomplished with current staff/budget
Benefits:	Conserved water in times of drought
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	38
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Emergency Operations Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	The City passed an ordinance to conserve water during times of drought conditions.

Action Worksheet	
Name of Jurisdiction:	City of Ozark
Risk / Vulnerability	
Hazard(s) Addressed:	Dam Failure, Drought, Earthquake, Extreme Temperatures, Flooding (Flash & Riverine), Severe Thunderstorms, Severe Winter Weather, Tornado, Wildfire, and Land Subsidence/Sinkholes
Problem being Mitigated:	Lack of funds for mitigation activities.
Action or Project	
Applicable Goal Statement:	Ensure continued operation of government, emergency functions, and critical infrastructure in a disaster.
Action/Project Number:	Ozark 3.3
Name of Action or Project:	Monitor Funding Programs
Mitigation Category:	Prevention
Action or Project Description:	Continue to monitor and identify funding from state and federal programs for hazard mitigation activities
Estimated Cost:	Can be accomplished with current budget/staff
Benefits:	Increased funding for mitigation activities
Plan for Implementation	
Responsible Organization/Department:	Grants Coordinator
Supporting Organization/Department:	
Action/Project Priority:	42
Timeline for Completion:	Ongoing
Potential Fund Sources:	State and Federal grants
Local Planning Mechanisms to be Used in Implementation, if any:	
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	Hired a grants coordinator in 2023.

Action Worksheet	
Name of Jurisdiction:	City of Ozark
Risk / Vulnerability	
Hazard(s) Addressed:	Dam Failure, Drought, Earthquake, Extreme Temperatures, Flooding (Flash & Riverine), Severe Thunderstorms, Severe Winter Weather, Tornado, Wildfire, and Land Subsidence/Sinkholes
Problem being Mitigated:	Lack of awareness of vulnerability and risk of hazards
Action or Project	
Applicable Goal Statement:	Ensure continued operation of government, emergency functions, and critical infrastructure in a disaster.
Action/Project Number:	Ozark 3.4
Name of Action or Project:	GIS Development
Mitigation Category:	Prevention
Action or Project Description:	Continue development of GIS database to further identify, analyze, and map hazard prone areas to enhance decision making and facilities management. Map ongoing hazards like drought, land subsidence, flooding.
Estimated Cost:	Can be accomplished with current staff/budget
Benefits:	Increased awareness of hazard risk and vulnerability
Plan for Implementation	
Responsible Organization/Department:	Public Works
Supporting Organization/Department:	
Action/Project Priority:	38
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	GIS staff have updated and provided mapping layers for hazards in the City limits, which include floodplain, sinkholes, etc.)

Action Worksheet	
Name of Jurisdiction:	City of Ozark
Risk / Vulnerability	
Hazard(s) Addressed:	Tornado, Severe Thunderstorm, Wildfire
Problem being Mitigated:	Trees and branches damaged or fell by high winds can damage power lines, cause a loss of power, or start an electric fire
Action or Project	
Applicable Goal Statement:	Ensure continued operation of government, emergency functions, and critical infrastructure in a disaster.
Action/Project Number:	Ozark 3.5
Name of Action or Project:	Power Line Protection
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Establish standards for pruning trees around power and other utility lines.
Estimated Cost:	\$20,000
Benefits:	Reduced risk of power outages, electrical fires, and utility damage
Plan for Implementation	
Responsible Organization/Department:	Public Works
Supporting Organization/Department:	
Action/Project Priority:	40
Timeline for Completion:	2 Years
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	City of Ozark
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Winter Weather, Tornado, Severe Thunderstorm
Problem being Mitigated:	Hazards damage or destroy power lines, causing financial damages and power outages
Action or Project	
Applicable Goal Statement:	Ensure continued operation of government, emergency functions, and critical infrastructure in a disaster.
Action/Project Number:	Ozark 3.6
Name of Action or Project:	Underground Power Lines
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Bury existing overhead powerlines and require underground power lines for new developments when possible.
Estimated Cost:	Existing Powerline burial varies site by site New development powerline burial can be accomplished with existing staff/budget
Benefits:	Improved reliability of electric grid, reduced damages
Plan for Implementation	
Responsible Organization/Department:	Planning and Development
Supporting Organization/Department:	Public Works
Action/Project Priority:	35
Timeline for Completion:	3 years
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	City of Ozark
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Winter Weather, Tornado, Thunderstorm
Problem being Mitigated:	Snow and debris in roadway impedes travel and emergency response vehicles
Action or Project	
Applicable Goal Statement:	Ensure continued operation of government, emergency functions, and critical infrastructure in a disaster.
Action/Project Number:	Ozark 3.7
Name of Action or Project:	Debris Clearing Plan
Mitigation Category:	Emergency Services
Action or Project Description:	Plan for and maintain adequate snow and debris clearing capabilities.
Estimated Cost:	Can be accomplished with current staff/budget
Benefits:	Improved mobility for citizens and emergency vehicles
Plan for Implementation	
Responsible Organization/Department:	Public Works
Supporting Organization/Department:	
Action/Project Priority:	39
Timeline for Completion:	1 year
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Emergency Operations Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	City of Ozark
Risk / Vulnerability	
Hazard(s) Addressed:	Wildfire
Problem being Mitigated:	Poorly maintained fire hydrants impede emergency response efforts
Action or Project	
Applicable Goal Statement:	Ensure continued operation of government, emergency functions, and critical infrastructure in a disaster.
Action/Project Number:	Ozark 3.8
Name of Action or Project:	Hydrant Maintenance
Mitigation Category:	Structure or Infrastructure Projects
Action or Project Description:	Regularly inspect functionality of fire hydrants.
Estimated Cost:	Can be accomplished with current staff/budget.
Benefits:	Ensures effective emergency response for fires
Plan for Implementation	
Responsible Organization/Department:	Public Works
Supporting Organization/Department:	
Action/Project Priority:	43
Timeline for Completion:	6 months
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	



4.3.6 Saddlebrooke Mitigation Actions

Action Worksheet	
Name of Jurisdiction:	Village of Saddlebrooke
Risk / Vulnerability	
Hazard(s) Addressed:	Dam Failure, Drought, Earthquake, Extreme Temperatures, Flooding (Flash & Riverine), Severe Thunderstorms, Severe Winter Weather, Tornado, Wildfire, and Land Subsidence/Sinkholes
Problem being Mitigated:	Public awareness of hazard vulnerability and mitigation measures.
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Saddlebrooke 1.1
Name of Action or Project:	Awareness Program
Mitigation Category:	Education and Outreach
Action or Project Description:	Use local and regional traditional media, and social media platforms, to raise awareness of mitigation activities.
Estimated Cost:	Can be accomplished with current staff/budget.
Benefits:	Prevent loss of life and property.
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	30
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	Facebook and email used to inform citizens of mitigation activities.

Action Worksheet	
Name of Jurisdiction:	Village of Saddlebrooke
Risk / Vulnerability	
Hazard(s) Addressed:	Tornado, Severe Thunderstorm, Severe Winter Weather
Problem being Mitigated:	Limited communication with public during disaster.
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Saddlebrooke 1.2
Name of Action or Project:	Citizen NOAA Radios
Mitigation Category:	Education and Outreach
Action or Project Description:	Promote the use of NOAA weather radios by residents and businesses.
Estimated Cost:	Can be accomplished with current staff/budget.
Benefits:	Improve communication before and during a disaster.
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	28
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	Village of Saddlebrooke reminds citizens of importance of NOAA weather radios.

Action Worksheet	
Name of Jurisdiction:	Village of Saddlebrooke
Risk / Vulnerability	
Hazard(s) Addressed:	Tornado, Severe Thunderstorm
Problem being Mitigated:	Lack of private shelters and citizen awareness of public shelters.
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Saddlebrooke 1.3
Name of Action or Project:	Safe Place Awareness
Mitigation Category:	Prevention
Action or Project Description:	Create and update tornado/severe storm plans and identify strong, safe places in schools, large facilities, and other establishments serving the public.
Estimated Cost:	Can be accomplished with current staff/budget.
Benefits:	Prevent loss of life and property.
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	22
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	Currently, Community Center is the only public shelter in Saddlebrooke.

Action Worksheet	
Name of Jurisdiction:	Village of Saddlebrooke
Risk / Vulnerability	
Hazard(s) Addressed:	Extreme Temperature, Severe Winter Weather
Problem being Mitigated:	Vulnerable populations lack adequate shelter during extreme temperature events.
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Saddlebrooke 1.4
Name of Action or Project:	Heating and Cooling Centers
Mitigation Category:	Emergency Services
Action or Project Description:	Establish heating and cooling centers to assist vulnerable populations during extreme temperature events.
Estimated Cost:	\$1,000
Benefits:	Prevent loss of life
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	18
Timeline for Completion:	1 year
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Village of Saddlebrooke
Risk / Vulnerability	
Hazard(s) Addressed:	Wildfire
Problem being Mitigated:	Lack of fire buffer means fires can spread quickly.
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Saddlebrooke 1.5
Name of Action or Project:	Wildfire Buffer
Mitigation Category:	Prevention
Action or Project Description:	Require new developments to have vegetation buffer around structures, including vertical clearance of tree branches.
Estimated Cost:	Can be accomplished with current staff/budget.
Benefits:	Prevent loss of life and property.
Plan for Implementation	
Responsible Organization/Department:	Zoning Administrator
Supporting Organization/Department:	
Action/Project Priority:	18
Timeline for Completion:	6 months
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Village of Saddlebrooke
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding
Problem being Mitigated:	Lack of flood insurance among residents, buildings located in floodplain.
Action or Project	
Applicable Goal Statement:	Goal 2: Reduce the potential impact of natural disasters to property, infrastructure, and the local economy.
Action/Project Number:	Saddlebrooke 2.1
Name of Action or Project:	NFIP Enforcement
Mitigation Category:	Prevention
Action or Project Description:	Continue to enforce NFIP floodplain management requirements.
Estimated Cost:	Can be accomplished with current staff/budget.
Benefits:	Prevent loss of life and property.
Plan for Implementation	
Responsible Organization/Department:	Floodplain Administrator
Supporting Organization/Department:	
Action/Project Priority:	25
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, NFIP Flood Risk Maps
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	Saddlebrooke has been and will remain compliant with NFIP requirements.

Action Worksheet	
Name of Jurisdiction:	Village of Saddlebrooke
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding
Problem being Mitigated:	Flooding impact worsened without maintenance of waterway.
Action or Project	
Applicable Goal Statement:	Goal 2: Reduce the potential impact of natural disasters to property, infrastructure, and the local economy.
Action/Project Number:	Saddlebrooke 2.2
Name of Action or Project:	Waterway Maintenance
Mitigation Category:	Prevention
Action or Project Description:	Work with regulatory agencies to obtain permits to maintain waterways in order to reduce impact of flooding.
Estimated Cost:	Can be accomplished with current staff/budget.
Benefits:	Prevent loss of life and property.
Plan for Implementation	
Responsible Organization/Department:	Floodplain Administrator
Supporting Organization/Department:	
Action/Project Priority:	21
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Village of Saddlebrooke
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding
Problem being Mitigated:	Development in floodplain leads to flood losses/damages
Action or Project	
Applicable Goal Statement:	Goal 2: Reduce the potential impact of natural disasters to property, infrastructure, and the local economy.
Action/Project Number:	Saddlebrooke 2.3
Name of Action or Project:	Restrict Floodplain Development
Mitigation Category:	Natural Systems Protection
Action or Project Description:	Limit development in floodplain areas, preserving floodplains as open space.
Estimated Cost:	Can be accomplished with current staff/budget.
Benefits:	Prevent loss of life and property, protect natural floodplains
Plan for Implementation	
Responsible Organization/Department:	Floodplain Administrator
Supporting Organization/Department:	
Action/Project Priority:	29
Timeline for Completion:	6 months
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, NFIP Flood Risk Maps
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Village of Saddlebrooke
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Thunderstorm, Severe Winter Weather, Tornado
Problem being Mitigated:	Construction and design standards do not sufficiently prevent damages.
Action or Project	
Applicable Goal Statement:	Goal 2: Reduce the potential impact of natural disasters to property, infrastructure, and the local economy.
Action/Project Number:	Saddlebrooke 2.4
Name of Action or Project:	Stormproof Development
Mitigation Category:	Prevention
Action or Project Description:	Require building design standards to protect against severe winds, require new developments to bury power lines when possible.
Estimated Cost:	Can be accomplished with current staff/budget
Benefits:	Prevent loss of life and property
Plan for Implementation	
Responsible Organization/Department:	Zoning Administrator
Supporting Organization/Department:	
Action/Project Priority:	37
Timeline for Completion:	6 months
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Municipal Code
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Village of Saddlebrooke
Risk / Vulnerability	
Hazard(s) Addressed:	Dam Failure, Drought, Earthquake, Extreme Temperatures, Flooding (Flash & Riverine), Severe Thunderstorms, Severe Winter Weather, Tornado, Wildfire, and Land Subsidence/Sinkholes
Problem being Mitigated:	Poor addressing delays emergency response times
Action or Project	
Applicable Goal Statement:	Goal 3: Ensure continued operation of government, emergency functions, and critical infrastructure in a disaster.
Action/Project Number:	Saddlebrooke 3.1
Name of Action or Project:	911 Addressing for Structures
Mitigation Category:	Emergency Services
Action or Project Description:	Enforce visible 911 addressing and educate the public on its importance.
Estimated Cost:	Can be accomplished with current staff/budget
Benefits:	Improves emergency response times.
Plan for Implementation	
Responsible Organization/Department:	Zoning Administrator
Supporting Organization/Department:	
Action/Project Priority:	36
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Village of Saddlebrooke
Risk / Vulnerability	
Hazard(s) Addressed:	Dam Failure, Drought, Earthquake, Extreme Temperatures, Flooding (Flash & Riverine), Severe Thunderstorms, Severe Winter Weather, Tornado, Wildfire, and Land Subsidence/Sinkholes
Problem being Mitigated:	Lack of funds for hazard mitigation activities.
Action or Project	
Applicable Goal Statement:	Goal 3: Ensure continued operation of government, emergency functions, and critical infrastructure in a disaster.
Action/Project Number:	Saddlebrooke 3.2
Name of Action or Project:	Monitor Funding Programs
Mitigation Category:	Prevention
Action or Project Description:	Continue to monitor and identify funding from state and federal programs for hazard mitigation activities.
Estimated Cost:	Can be accomplished with current staff/budget.
Benefits:	Increased funding for hazard mitigation activities.
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	40
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	All board members are always looking for funds.

Action Worksheet	
Name of Jurisdiction:	Village of Saddlebrooke
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding
Problem being Mitigated:	Poor communication between jurisdictions causes worsens flooding issues.
Action or Project	
Applicable Goal Statement:	Goal 3: Ensure continued operation of government, emergency functions, and critical infrastructure in a disaster.
Action/Project Number:	Saddlebrooke 3.3
Name of Action or Project:	Infrastructure Coordination
Mitigation Category:	Prevention
Action or Project Description:	Continue coordination to promote infrastructure development practices that reduce damages from flooding.
Estimated Cost:	Can be accomplished with current staff/budget.
Benefits:	Minimize flood damages at local and regional level.
Plan for Implementation	
Responsible Organization/Department:	Floodplain Administrator
Supporting Organization/Department:	
Action/Project Priority:	38
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	



4.3.7 Sparta Mitigation Actions

Action Worksheet	
Name of Jurisdiction:	City of Sparta
Risk / Vulnerability	
Hazard(s) Addressed:	Dam Failure, Drought, Earthquake, Extreme Temperatures, Flooding (Flash & Riverine), Severe Thunderstorms, Severe Winter Weather, Tornado, Wildfire, and Land Subsidence/Sinkholes
Problem being Mitigated:	Limited public knowledge on how to reduce risk.
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Sparta 1.1
Name of Action or Project:	Natural Hazard Community Expos
Mitigation Category:	Education and Outreach
Action or Project Description:	An expo with community leaders and experts to provide education about hazards, emphasizing how to save lives and protect homes/other community buildings.
Estimated Cost:	\$5,000
Benefits:	Prevent loss of life and property
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	41
Timeline for Completion:	1 year
Potential Fund Sources:	General Funds, Community Sponsors
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	Most recent expo in October 2025

Action Worksheet	
Name of Jurisdiction:	City of Sparta
Risk / Vulnerability	
Hazard(s) Addressed:	Tornado, Severe Thunderstorm
Problem being Mitigated:	Lack of adequate shelter for community members.
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Sparta 1.2
Name of Action or Project:	Safe Room Construction
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Construction of a FEMA shelter that will be open to the public during severe weather.
Estimated Cost:	\$50,000 - \$300,000
Benefits:	Prevent loss of life
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	39
Timeline for Completion:	3 years
Potential Fund Sources:	BRIC Grants, Capital Improvements Funding
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Emergency Operations Plan, Capital Improvement Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	Saferoom constructed at Sparta R-III School District in 2020.

Action Worksheet	
Name of Jurisdiction:	City of Sparta
Risk / Vulnerability	
Hazard(s) Addressed:	Tornado, Severe Thunderstorm
Problem being Mitigated:	Limited shelter locations within community.
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Sparta 1.3
Name of Action or Project:	Establish Refuge Areas
Mitigation Category:	Emergency Services
Action or Project Description:	Establish refuge areas for use during/after severe weather.
Estimated Cost:	Can be accomplished with current staff/budget.
Benefits:	Prevent loss of life.
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	32
Timeline for Completion:	2 years
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Emergency Operations Plan
Progress Report	
Action Status:	Continuing Not Started
Report of Progress:	Not started due to change in administration.

Action Worksheet	
Name of Jurisdiction:	City of Sparta
Risk / Vulnerability	
Hazard(s) Addressed:	Tornado, Earthquake, Severe Thunderstorm, Severe Winter Weather, Flooding
Problem being Mitigated:	Substandard construction more prone to damages/failure
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Sparta 1.4
Name of Action or Project:	Building Codes
Mitigation Category:	Prevention
Action or Project Description:	Enforce building codes within the City.
Estimated Cost:	Can be accomplished with current staff/budget.
Benefits:	Prevent loss of life and property.
Plan for Implementation	
Responsible Organization/Department:	Code Inspector
Supporting Organization/Department:	
Action/Project Priority:	42
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Building Code, Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	The City of Sparta enforces the 2018 International Building Code.

Action Worksheet	
Name of Jurisdiction:	City of Sparta
Risk / Vulnerability	
Hazard(s) Addressed:	Dam Failure, Drought, Earthquake, Extreme Temperatures, Flooding (Flash & Riverine), Severe Thunderstorms, Severe Winter Weather, Tornado, Wildfire, and Land Subsidence/Sinkholes
Problem being Mitigated:	Limited public knowledge on how to reduce risk.
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Sparta 1.5
Name of Action or Project:	Public Awareness
Mitigation Category:	Education and Outreach
Action or Project Description:	Educate and provide information to the community about local hazards. Use City website, social media, and newsletter to educate residents on mitigation activities.
Estimated Cost:	\$3,000
Benefits:	Prevent loss of life and property.
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	35
Timeline for Completion:	1 year
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	City of Sparta
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding
Problem being Mitigated:	Development of floodplain subject to damages/flooding.
Action or Project	
Applicable Goal Statement:	Goal 2: Reduce the potential impact of natural disasters to property, infrastructure, and the local economy.
Action/Project Number:	Sparta 2.1
Name of Action or Project:	NFIP Participation
Mitigation Category:	Prevention
Action or Project Description:	Enforce floodplain management requirements.
Estimated Cost:	Can be accomplished with current staff/budget.
Benefits:	Prevent loss of life/property.
Plan for Implementation	
Responsible Organization/Department:	Floodplain manager
Supporting Organization/Department:	
Action/Project Priority:	45
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, NFIP Flood Risk Maps
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	City created 'floodplain manager' role to manage NFIP requirements/floodplain development.

Action Worksheet	
Name of Jurisdiction:	City of Sparta
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding, Tornado, Severe Thunderstorm, Severe Winter Weather
Problem being Mitigated:	Limited public knowledge on how to reduce risk.
Action or Project	
Applicable Goal Statement:	Goal 2: Reduce the potential impact of natural disasters to property, infrastructure, and the local economy.
Action/Project Number:	Sparta 2.2
Name of Action or Project:	Storm Ready
Mitigation Category:	Prevention
Action or Project Description:	Maintain Storm Ready status with the National Weather Service.
Estimated Cost:	Can be accomplished with current staff/budget.
Benefits:	Prevent loss of life and property.
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	46
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Emergency Operations Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	City participates in Countywide siren testing and forwards Christian County Emergency Management alerts to community.

Action Worksheet	
Name of Jurisdiction:	City of Sparta
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding
Problem being Mitigated:	Excess stormwater overwhelms stormwater management facilities and causes flooding.
Action or Project	
Applicable Goal Statement:	Goal 2: Reduce the potential impact of natural disasters to property, infrastructure, and the local economy.
Action/Project Number:	Sparta 2.3
Name of Action or Project:	Stormwater Management
Mitigation Category:	Prevention; Structure and Infrastructure Projects
Action or Project Description:	Require stormwater drainage studies for new developments, increase capacity of stormwater drainage system as needed.
Estimated Cost:	\$25,000 - \$500,000
Benefits:	Prevent loss of life and property
Plan for Implementation	
Responsible Organization/Department:	Public Works
Supporting Organization/Department:	
Action/Project Priority:	45
Timeline for Completion:	5 years
Potential Fund Sources:	BRIC Grants, Capital Improvements Funding
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Capital Improvement Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	City of Sparta
Risk / Vulnerability	
Hazard(s) Addressed:	Dam Failure, Drought, Earthquake, Extreme Temperatures, Flooding (Flash & Riverine), Severe Thunderstorms, Severe Winter Weather, Tornado, Wildfire, and Land Subsidence/Sinkholes
Problem being Mitigated:	Poor addressing slows emergency response times.
Action or Project	
Applicable Goal Statement:	Goal 3: Ensure continued operation of government, emergency functions, and critical infrastructure in a disaster.
Action/Project Number:	Sparta 3.1
Name of Action or Project:	Enforce Visible 911 Addressing
Mitigation Category:	Emergency Services
Action or Project Description:	Enforce highly visible 911 addressing for structures through ordinances and permitting process.
Estimated Cost:	Can be accomplished with current staff/budget.
Benefits:	Improved emergency response times.
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	25
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	City of Sparta
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Winter Weather
Problem being Mitigated:	Snow buildup blocks roads for citizens and emergency vehicles.
Action or Project	
Applicable Goal Statement:	Goal 3: Ensure continued operation of government, emergency functions, and critical infrastructure in a disaster.
Action/Project Number:	Sparta 3.2
Name of Action or Project:	Snow Clearing Plan
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Outfit the public works department with the appropriate equipment to clear roads during winter weather events
Estimated Cost:	\$5,000 - \$20,000
Benefits:	Improved emergency response times.
Plan for Implementation	
Responsible Organization/Department:	Public Works
Supporting Organization/Department:	
Action/Project Priority:	24
Timeline for Completion:	3 years
Potential Fund Sources:	BRIC Grants, Capital Improvements Funding
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Emergency Operations Plan, Capital Improvement Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	Snowplow and salt spreader purchased and enough personnel to keep up with demand. Plans for a secondary snowplow.

4.3.8 Billings R-IV Mitigation Actions

Action Worksheet	
Name of Jurisdiction:	Billings R-IV School District
Risk / Vulnerability	
Hazard(s) Addressed:	Dam Failure, Drought, Earthquake, Extreme Temperatures, Flooding (Flash & Riverine), Severe Thunderstorms, Severe Winter Weather, Tornado, Wildfire, and Land Subsidence/Sinkholes
Problem being Mitigated:	Limited public knowledge on how to reduce risk.
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Billings R-IV 1.1
Name of Action or Project:	School Education Program
Mitigation Category:	Education and Outreach
Action or Project Description:	Educate students and parents about local hazards and how to reduce risk. Provide awareness information to parents via newsletters and other communications and incorporate hazard mitigation education into curriculum when possible. Hold regular drills for tornadoes, earthquakes, etc.
Estimated Cost:	\$5,000
Benefits:	Prevent loss of life and property
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	36
Timeline for Completion:	2 years
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Billings R-IV School District
Risk / Vulnerability	
Hazard(s) Addressed:	Tornado, Earthquake, Severe Thunderstorm
Problem being Mitigated:	Building contents may become hazardous during a disaster.
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Billings R-IV 1.2
Name of Action or Project:	Building Safety Inspections
Mitigation Category:	Regularly inspect for structural and non-structural hazards in and around school buildings.
Action or Project Description:	Structure and Infrastructure Projects
Estimated Cost:	\$10,000
Benefits:	Prevent loss of life and property
Plan for Implementation	
Responsible Organization/Department:	Maintenance
Supporting Organization/Department:	
Action/Project Priority:	34
Timeline for Completion:	1 year
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Billings R-IV School District
Risk / Vulnerability	
Hazard(s) Addressed:	Tornado, Severe Thunderstorm
Problem being Mitigated:	Lack of adequate shelter during disaster.
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Billings R-IV 1.3
Name of Action or Project:	Safe Room Construction
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Locate saferoom at each school campus to provide shelter for students, staff, and community members.
Estimated Cost:	\$200,000 - \$1,000,000
Benefits:	Prevent loss of life
Plan for Implementation	
Responsible Organization/Department:	Maintenance
Supporting Organization/Department:	
Action/Project Priority:	31
Timeline for Completion:	5 years
Potential Fund Sources:	BRIC Grants, Capital Improvements Funding
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Capital Improvement Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Billings R-IV School District
Risk / Vulnerability	
Hazard(s) Addressed:	Drought
Problem being Mitigated:	Faulty water supply system wastes water and raises costs.
Action or Project	
Applicable Goal Statement:	Goal 3: Ensure continued operation of government, emergency functions, and critical infrastructure in a disaster.
Action/Project Number:	Billings R-IV 3.1
Name of Action or Project:	Retrofit Water Supply Systems
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Retrofit water supply system to eliminate breaks and leaks.
Estimated Cost:	\$50,000 - \$200,000
Benefits:	Prevent water waste, reduce water spending
Plan for Implementation	
Responsible Organization/Department:	Maintenance Dept.
Supporting Organization/Department:	
Action/Project Priority:	22
Timeline for Completion:	5 years
Potential Fund Sources:	BRIC grants, Capital Improvements Funding
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Capital Improvement Plan
Progress Report	
Action Status:	New
Report of Progress:	



4.3.9 Clever R-V Mitigation Actions

Action Worksheet	
Name of Jurisdiction:	Clever R-V School District
Risk / Vulnerability	
Hazard(s) Addressed:	Earthquake, wildfire, severe winter weather, sinkhole/land subsidence, tornado, severe thunderstorm
Problem being Mitigated:	Construction standards not high enough to prevent damage caused by severe weather events
Action or Project	
Applicable Goal Statement:	Goal 1: Protect lives and livelihoods of all residents
Action/Project Number:	Clever R-V 1.1
Name of Action or Project:	Implement Building Codes
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Adopt building codes, such as the International Building Code, in the design and construction of facilities.
Estimated Cost:	Can be implemented with current staff/budget
Benefits:	Better quality buildings more resilient to hazards
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	Maintenance
Action/Project Priority:	32
Timeline for Completion:	2 years
Potential Fund Sources:	n/a
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Capital Improvement Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Clever R-V School District
Risk / Vulnerability	
Hazard(s) Addressed:	Earthquake
Problem being Mitigated:	Construction standards not high enough to prevent damage caused by severe weather events.
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Clever R-V 1.2
Name of Action or Project:	Earthquake Planning
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Incorporate Earthquake Mitigation into Local Planning. This can take the form of incorporating structural and non-structural seismic actions into ongoing building plans and activities in the capital improvement plan to ensure that facilities remain operational for years to come.
Estimated Cost:	Can be implemented with current staff/budget
Benefits:	Better quality buildings that are more resilient
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	Maintenance
Action/Project Priority:	30
Timeline for Completion:	2 years
Potential Fund Sources:	n/a
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Capital Improvement Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Clever R-V School District
Risk / Vulnerability	
Hazard(s) Addressed:	Earthquake
Problem being Mitigated:	Presence of structural and non-structural hazards in the event of a disaster or hazard
Action or Project	
Applicable Goal Statement:	Goal 1: Protect lives and livelihoods of all citizens.
Action/Project Number:	Clever R-V 1.3
Name of Action or Project:	Building Safety Inspections
Mitigation Category:	Prevention
Action or Project Description:	Conduct Inspections of Building Safety. This can take the form of establishing a school survey procedure and guidance document to inventory structural and non-structural hazards in and around school buildings.
Estimated Cost:	Can be implemented with current staff/budget
Benefits:	Awareness of hazards present in event of earthquake
Plan for Implementation	
Responsible Organization/Department:	Maintenance
Supporting Organization/Department:	Administration
Action/Project Priority:	43
Timeline for Completion:	2 years
Potential Fund Sources:	n/a
Local Planning Mechanisms to be Used in Implementation, if any:	Emergency Plan, Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Clever R-V School District
Risk / Vulnerability	
Hazard(s) Addressed:	Earthquake
Problem being Mitigated:	Limited public knowledge on how to reduce risk.
Action or Project	
Applicable Goal Statement:	Goal 1: Protect lives and livelihoods of all citizens.
Action/Project Number:	Clever R-V 1.4
Name of Action or Project:	Earthquake Risk Awareness
Mitigation Category:	Education and Outreach
Action or Project Description:	Increase earthquake risk awareness, such as by educating students and staff on safety techniques to follow during and after an earthquake.
Estimated Cost:	\$1,000
Benefits:	Prevent loss of life and property
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	37
Timeline for Completion:	2 years
Potential Fund Sources:	General funds
Local Planning Mechanisms to be Used in Implementation, if any:	Emergency Plan, Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Clever R-V School District
Risk / Vulnerability	
Hazard(s) Addressed:	Extreme Temperature
Problem being Mitigated:	Limited public knowledge on how to reduce risk.
Action or Project	
Applicable Goal Statement:	Goal 1: Protect lives and livelihoods of all citizens.
Action/Project Number:	Clever R-V 1.5
Name of Action or Project:	Extreme Temperature Awareness
Mitigation Category:	Education and Outreach
Action or Project Description:	Increase awareness of extreme temperature risk and safety, such as by educating students and staff regarding the dangers of extreme heat and cold and the steps they can take to protect themselves when extreme temperatures occur.
Estimated Cost:	\$1,000
Benefits:	Prevent loss of life and property
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	40
Timeline for Completion:	2 years
Potential Fund Sources:	General funds
Local Planning Mechanisms to be Used in Implementation, if any:	Emergency Plan, Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Clever R-V School District
Risk / Vulnerability	
Hazard(s) Addressed:	Extreme Temperature, Severe Winter Weather
Problem being Mitigated:	Unsafe conditions for vulnerable populations during extreme temperature events.
Action or Project	
Applicable Goal Statement:	Goal 1: Protect lives and livelihoods of all citizens.
Action/Project Number:	Clever R-V 1.6
Name of Action or Project:	Heating and Cooling Centers
Mitigation Category:	Emergency Services
Action or Project Description:	Assist vulnerable populations, such as organizing outreach to vulnerable populations, including establishing and promoting accessible heating and cooling centers in the community.
Estimated Cost:	\$10,000
Benefits:	Prevent loss of life and property
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	Maintenance
Action/Project Priority:	28
Timeline for Completion:	3 years
Potential Fund Sources:	General funds, BRIC grant
Local Planning Mechanisms to be Used in Implementation, if any:	Emergency Plan, Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Clever R-V School District
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding
Problem being Mitigated:	Floodwater damaging facilities and endangering citizens
Action or Project	
Applicable Goal Statement:	Goal 1: Protect lives and livelihoods of all citizens.
Action/Project Number:	Clever R-V 1.7
Name of Action or Project:	Protect Critical Facilities
Mitigation Category:	Structure and infrastructure Projects
Action or Project Description:	Install/upgrade stormwater pumping stations, install watertight covers/inflow guards on sewer manholes
Estimated Cost:	\$100,000
Benefits:	Prevent loss of life and property
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	Maintenance
Action/Project Priority:	29
Timeline for Completion:	5 years
Potential Fund Sources:	General funds, capital improvement funds, BRIC Grant
Local Planning Mechanisms to be Used in Implementation, if any:	Emergency Plan, Hazard Mitigation Plan, Capital Improvement Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Clever R-V School District
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding
Problem being Mitigated:	Bus routes traversing flood-prone areas
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Clever R-V 1.8
Name of Action or Project:	Bus Route Mitigation
Mitigation Category:	Prevention
Action or Project Description:	Identify and mitigate bus routes that cross known areas likely to flood.
Estimated Cost:	\$5,000
Benefits:	Prevent loss of life and property
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	Maintenance
Action/Project Priority:	41
Timeline for Completion:	5 years
Potential Fund Sources:	General funds
Local Planning Mechanisms to be Used in Implementation, if any:	Emergency Plan, Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Clever R-V School District
Risk / Vulnerability	
Hazard(s) Addressed:	Land subsidence/Sinkhole
Problem being Mitigated:	Limited public knowledge on how to reduce risk.
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Clever R-V 1.9
Name of Action or Project:	Land Subsidence Awareness
Mitigation Category:	Education and Outreach
Action or Project Description:	Educate community members about subsidence, such as by promoting community awareness of subsidence risks and impacts.
Estimated Cost:	\$1,000
Benefits:	Prevent loss of life and property
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	31
Timeline for Completion:	2 years
Potential Fund Sources:	General funds
Local Planning Mechanisms to be Used in Implementation, if any:	Emergency Plan, Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Clever R-V School District
Risk / Vulnerability	
Hazard(s) Addressed:	Severe thunderstorm, tornado
Problem being Mitigated:	Inadequate places to shelter during hazard events
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Clever R-V 1.10
Name of Action or Project:	Safe room construction
Mitigation Category:	Structure and infrastructure projects
Action or Project Description:	Construct additional saferoom
Estimated Cost:	\$1-\$2 million
Benefits:	
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	41
Timeline for Completion:	5 years
Potential Fund Sources:	General funds, capital improvements funding, BRIC grant
Local Planning Mechanisms to be Used in Implementation, if any:	Emergency Plan, Hazard Mitigation Plan, Capital Improvement Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Clever R-V School District
Risk / Vulnerability	
Hazard(s) Addressed:	Severe thunderstorm
Problem being Mitigated:	Limited public knowledge on how to reduce risk.
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Clever R-V 1.11
Name of Action or Project:	Hail awareness
Mitigation Category:	Education and outreach
Action or Project Description:	Increase hail risk awareness by mailing safety brochures with other mailed materials and posting warning signage at schools and other district facilities.
Estimated Cost:	\$1,000
Benefits:	Prevent loss of life and property
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	31
Timeline for Completion:	1 year
Potential Fund Sources:	General funds
Local Planning Mechanisms to be Used in Implementation, if any:	Emergency Plan, Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Clever R-V School District
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Thunderstorm
Problem being Mitigated:	Limited public knowledge on how to reduce risk.
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Clever R-V 1.12
Name of Action or Project:	Thunderstorm Awareness
Mitigation Category:	Education and Outreach
Action or Project Description:	Increased severe wind and thunderstorm risk awareness, by using outreach activities to instruct community members on how to properly install temporary window coverings before a storm.
Estimated Cost:	\$1,000
Benefits:	Prevent loss of life and property
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	31
Timeline for Completion:	1 year
Potential Fund Sources:	General funds
Local Planning Mechanisms to be Used in Implementation, if any:	Emergency Plan, Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Clever R-V School District
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Winter Weather
Problem being Mitigated:	Limited public knowledge on how to reduce risk.
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Clever R-V 1.13
Name of Action or Project:	Severe Winter Weather Awareness
Mitigation Category:	Education and outreach
Action or Project Description:	Conduct winter weather risk awareness activities, like encouraging community members to install carbon monoxide monitors and alarms
Estimated Cost:	\$1,000
Benefits:	Prevent loss of life and property
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	31
Timeline for Completion:	1 year
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Emergency Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Clever R-V School District
Risk / Vulnerability	
Hazard(s) Addressed:	Tornado
Problem being Mitigated:	Limited public knowledge on how to reduce risk.
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Clever R-V 1.14
Name of Action or Project:	Tornado Awareness
Mitigation Category:	Education and Outreach
Action or Project Description:	Conduct tornado drills and other tornado awareness activities.
Estimated Cost:	Can be implemented with current staff/budget
Benefits:	Prevent loss of life and property
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	31
Timeline for Completion:	3 months
Potential Fund Sources:	n/a
Local Planning Mechanisms to be Used in Implementation, if any:	Emergency Plan, Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Clever R-V School District
Risk / Vulnerability	
Hazard(s) Addressed:	Wildfire
Problem being Mitigated:	Limited public knowledge on how to reduce risk.
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of residents.
Action/Project Number:	Clever R-V 1.15
Name of Action or Project:	Wildfire Education and Awareness
Mitigation Category:	Education and Outreach
Action or Project Description:	Improve and promote awareness of wildfires and their risks, by participating in a Firewise Program, bringing in local fire departments to conduct education programs in schools, and educating community members about safe yard and waste disposal.
Estimated Cost:	\$1,000
Benefits:	Prevent loss of life and property.
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	31
Timeline for Completion:	1 year
Potential Fund Sources:	General funds
Local Planning Mechanisms to be Used in Implementation, if any:	Emergency Plan, Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Clever R-V School District
Risk / Vulnerability	
Hazard(s) Addressed:	Extreme Temperatures, extreme winter weather
Problem being Mitigated:	Limited public knowledge on how to reduce risk.
Action or Project	
Applicable Goal Statement:	Goal 2: Reduce the potential impact of natural disasters to property, infrastructure, and the local economy.
Action/Project Number:	Clever R-V 2.1
Name of Action or Project:	Pipe-Freeze Education
Mitigation Category:	Education and Outreach
Action or Project Description:	Educate community members about freezing pipes, such as by informing homeowners that letting a faucet drip during extreme cold weather can prevent buildup of excessive pressure in the pipeline and avoid bursting.
Estimated Cost:	\$1,000
Benefits:	Prevent loss of life and property
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	32
Timeline for Completion:	2 years
Potential Fund Sources:	General funds
Local Planning Mechanisms to be Used in Implementation, if any:	Emergency Plan, Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Clever R-V School District
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding
Problem being Mitigated:	Limited public knowledge on how to reduce risk.
Action or Project	
Applicable Goal Statement:	Goal 2: Reduce the potential impact of natural disasters to property, infrastructure, and the local economy.
Action/Project Number:	Clever R-V 2.2
Name of Action or Project:	Flood Mitigation Awareness
Mitigation Category:	Education and Outreach
Action or Project Description:	Educate property owners about flood mitigation techniques, such as encouraging homeowners to install backflow valves to prevent reverse-flow flood damages.
Estimated Cost:	\$1,000
Benefits:	Prevent loss of life and property
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	31
Timeline for Completion:	2 years
Potential Fund Sources:	General funds
Local Planning Mechanisms to be Used in Implementation, if any:	Emergency Plan, Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Clever R-V School District
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Thunderstorm
Problem being Mitigated:	Facilities and equipment vulnerable to lightning strikes
Action or Project	
Applicable Goal Statement:	Goal 2: Reduce the potential impact of natural disasters to property, infrastructure, and the local economy.
Action/Project Number:	Clever R-V 2.3
Name of Action or Project:	Surge Protections
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Protect critical facilities and equipment from lightning damage by installing and maintaining surge protection on critical electronic equipment.
Estimated Cost:	\$150,000
Benefits:	Safe and reliable use of devices during lightning storm, prevent damage to electrical equipment
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	Maintenance
Action/Project Priority:	41
Timeline for Completion:	5 years
Potential Fund Sources:	General funds, Capital Improvement Funds, BRIC Grant
Local Planning Mechanisms to be Used in Implementation, if any:	Emergency Plan, Hazard Mitigation Plan, Capital Improvement Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Clever R-V School District
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Winter Weather
Problem being Mitigated:	Poor insulation leads to increased energy usage
Action or Project	
Applicable Goal Statement:	Goal 2: Reduce the potential impact of natural disasters to property, infrastructure, and the local economy.
Action/Project Number:	Clever R-V 2.4
Name of Action or Project:	Insulation Installation
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Protect buildings and infrastructure, by adding building insulation to walls and attics
Estimated Cost:	\$50,000
Benefits:	Decreased energy usage, mitigate effects of power outages
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	Maintenance
Action/Project Priority:	41
Timeline for Completion:	5 years
Potential Fund Sources:	General funds, capital improvement funding, BRIC Grant
Local Planning Mechanisms to be Used in Implementation, if any:	Emergency Plan, Hazard Mitigation Plan, Capital Improvement Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Clever R-V School District
Risk / Vulnerability	
Hazard(s) Addressed:	Drought
Problem being Mitigated:	Lack of knowledge about drought vulnerability and risk.
Action or Project	
Applicable Goal Statement:	Goal 3: Ensure continued operation of government, emergency functions, and critical infrastructure in a disaster.
Action/Project Number:	Clever R-V 3.1
Name of Action or Project:	Drought Vulnerability Assessment
Mitigation Category:	Prevention
Action or Project Description:	Assess vulnerability to drought risk. This can take the form of gathering and analyzing water and climate data to gain a better understanding of local climate and drought history.
Estimated Cost:	\$1,000
Benefits:	Increased awareness of likelihood and extent of droughts, ability to better prepare for and manage drought conditions
Plan for Implementation	
Responsible Organization/Department:	Maintenance
Supporting Organization/Department:	Administration
Action/Project Priority:	31
Timeline for Completion:	2 years
Potential Fund Sources:	General funds
Local Planning Mechanisms to be Used in Implementation, if any:	Emergency Plan, Hazard Mitigation Plan, Watershed Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Clever R-V School District
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Thunderstorm
Problem being Mitigated:	Limited knowledge of likelihood and effect of thunderstorms to the district.
Action or Project	
Applicable Goal Statement:	Goal 3: Ensure continued operations of government, emergency functions, and critical infrastructure in a disaster.
Action/Project Number:	Clever R-V 3.2
Name of Action or Project:	Severe Wind Vulnerability Assessment
Mitigation Category:	Prevention
Action or Project Description:	Assess vulnerability to severe wind by developing and maintaining a database to track district vulnerability to severe wind.
Estimated Cost:	\$5,000
Benefits:	Better understand vulnerabilities, better preparations for and response to high winds
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	31
Timeline for Completion:	2 years
Potential Fund Sources:	General funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Emergency Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Clever R-V School District
Risk / Vulnerability	
Hazard(s) Addressed:	Wildfire
Problem being Mitigated:	Poor maintenance can threaten emergency response and worsen hazard impacts
Action or Project	
Applicable Goal Statement:	Goal 3: Ensure continued operation of government, emergency functions, and critical infrastructure in a disaster.
Action/Project Number:	Clever R-V 3.3
Name of Action or Project:	Fire Maintenance
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Conduct maintenance to reduce fire risk, like routinely inspecting fire hydrants and sprinkler systems.
Estimated Cost:	Can be implemented with current staff/budget
Benefits:	Prevent loss of life and property
Plan for Implementation	
Responsible Organization/Department:	Maintenance
Supporting Organization/Department:	
Action/Project Priority:	36
Timeline for Completion:	3 months
Potential Fund Sources:	n/a
Local Planning Mechanisms to be Used in Implementation, if any:	Emergency Plan, Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

4.3.10 Nixa Public Schools Mitigation Actions

Action Worksheet	
Name of Jurisdiction:	Nixa Public Schools
Risk / Vulnerability	
Hazard(s) Addressed:	Dam Failure, Drought, Earthquake, Extreme Temperatures, Flooding (Flash & Riverine), Severe Thunderstorms, Severe Winter Weather, Tornado, Wildfire, and Land Subsidence/Sinkholes
Problem being Mitigated:	Limited student knowledge on how to reduce risk
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	NPS 1.1
Name of Action or Project:	Hazard Awareness Program for Schools
Mitigation Category:	Education and Outreach
Action or Project Description:	Continue to promote and expand education programs regarding natural hazard and preparedness in school newsletter and seek to integrate information on natural hazards into school curriculum where feasible
Estimated Cost:	Can be accomplished with current budget/staff
Benefits:	Prevent loss of life
Plan for Implementation	
Responsible Organization/Department:	Safety Coordinator
Supporting Organization/Department:	
Action/Project Priority:	30
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Emergency Operations Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	We have added in reminders to students on hazards, done videos with them, and talk about natural hazards in various lessons.

Action Worksheet	
Name of Jurisdiction:	Nixa Public Schools
Risk / Vulnerability	
Hazard(s) Addressed:	Tornado, Severe Thunderstorm
Problem being Mitigated:	Lack of sheltering point during severe weather
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	NPS 1.2
Name of Action or Project:	Safe Room Construction
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Integrate safe room construction in new community buildings, schools, large facilities, and other establishments serving the public in areas of population concentrations where feasible
Estimated Cost:	\$50,000-\$1,000,000
Benefits:	Prevent loss of life
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	30
Timeline for Completion:	5 years
Potential Fund Sources:	Capital Improvements Funding, BRIC Grants
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Emergency Operations Plan, Capital Improvement Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	NPS now has tornado shelters at 8 buildings and a high wind shelter at one building. Students at Summit can access the tornado safe room at High Pointe. Ultimately, NPS only has 3 campuses without a tornado safe room.

Action Worksheet	
Name of Jurisdiction:	Nixa Public Schools
Risk / Vulnerability	
Hazard(s) Addressed:	Extreme Temperature, Severe Winter Weather
Problem being Mitigated:	Community members do not have adequate climate-controlled shelter causing safety hazard
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	NPS 1.3
Name of Action or Project:	OACAC Programs
Mitigation Category:	Prevention
Action or Project Description:	Encourage local community organizations to continue and augment programs to provide fans, air conditioners, and winter weatherization for those at risk.
Estimated Cost:	Can be accomplished with current staff/budget
Benefits:	Prevent loss of life
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	33
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	NPS provides information to families on how to access programs, has a family resources page on its website, and has a Back-to-School event where families can connect with various organizations.

Action Worksheet	
Name of Jurisdiction:	Nixa Public Schools
Risk / Vulnerability	
Hazard(s) Addressed:	Tornado, Severe Thunderstorm
Problem being Mitigated:	Doors are susceptible to damage/failure during high winds and when struck by debris
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	NPS 1.4
Name of Action or Project:	Protective Filming and Blast Proof Doors
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Retrofit doors to all vulnerable facilities with metal doors, or place protective film on glass doors and windows
Estimated Cost:	Varies, around \$3,500 per door
Benefits:	Prevent loss of life and property
Plan for Implementation	
Responsible Organization/Department:	Safety Coordinator
Supporting Organization/Department:	
Action/Project Priority:	28
Timeline for Completion:	5 years
Potential Fund Sources:	BRIC Grants, Capital Improvements Funding
Local Planning Mechanisms to be Used in Implementation, if any:	Emergency Operations Plan, Capital Improvement Plan, Hazard Mitigation Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	All exterior doors have protective film

Action Worksheet	
Name of Jurisdiction:	Nixa Public Schools
Risk / Vulnerability	
Hazard(s) Addressed:	Tornado, Severe Thunderstorm, Earthquake, Severe Winter Weather, Wildfire
Problem being Mitigated:	Building condition and equipment could become hazardous in event of disaster.
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	NPS 1.5
Name of Action or Project:	Building Safety Inspections
Mitigation Category:	Prevention
Action or Project Description:	Routinely inspect schools for structural and non-structural hazards.
Estimated Cost:	\$20,000
Benefits:	Prevent loss of life and property.
Plan for Implementation	
Responsible Organization/Department:	Safety Coordinator
Supporting Organization/Department:	Maintenance
Action/Project Priority:	40
Timeline for Completion:	1 year
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Nixa Public Schools
Risk / Vulnerability	
Hazard(s) Addressed:	Extreme Temperature
Problem being Mitigated:	Abundance of exposed concrete raises temperature on sunny days.
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	NPS 1.6
Name of Action or Project:	Reduce Urban Heat Island Effect
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Plant trees around buildings and parking lots to reduce the effects of the urban heat island effect.
Estimated Cost:	\$500,000
Benefits:	Lower temperatures on hot and sunny days.
Plan for Implementation	
Responsible Organization/Department:	Maintenance
Supporting Organization/Department:	
Action/Project Priority:	29
Timeline for Completion:	5 years
Potential Fund Sources:	BRIC Grants, Capital Improvements Funding
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Capital Improvement Plan
Progress Report	
Action Status:	New, Continuing Not Started, or Continuing in Progress
Report of Progress:	If the action is New , indicate any potential barriers you might encounter while implementing it. If the action is Continuing Not Started , indicate why the action hasn't been implemented yet (lack of funds, limited staff availability, new administration, etc.). If the action is Continuing in Progress , indicate any progress that has been made over the past 5 years.

Action Worksheet	
Name of Jurisdiction:	Nixa Public Schools
Risk / Vulnerability	
Hazard(s) Addressed:	Tornado, Severe Thunderstorm
Problem being Mitigated:	High winds can damage structurally insufficient buildings
Action or Project	
Applicable Goal Statement:	Goal 2: Reduce the potential impact of natural disasters to property, infrastructure, and the local economy.
Action/Project Number:	NPS 2.1
Name of Action or Project:	Windproof Construction
Mitigation Category:	Prevention
Action or Project Description:	Require new buildings to be constructed to design standards that minimize wind damage, by using natural features, creating wind buffers, etc.
Estimated Cost:	Can be accomplished with current staff/budget
Benefits:	Prevent loss of life and property
Plan for Implementation	
Responsible Organization/Department:	Maintenance
Supporting Organization/Department:	Safety Coordinator
Action/Project Priority:	30
Timeline for Completion:	6 months
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Nixa Public Schools
Risk / Vulnerability	
Hazard(s) Addressed:	Dam Failure, Drought, Earthquake, Extreme Temperatures, Flooding (Flash & Riverine), Severe Thunderstorms, Severe Winter Weather, Tornado, Wildfire, and Land Subsidence/Sinkholes
Problem being Mitigated:	Lack of emergency preparedness among staff
Action or Project	
Applicable Goal Statement:	Goal 3: Ensure continued operation of government, emergency functions, and critical infrastructure in a disaster.
Action/Project Number:	NPS 3.1
Name of Action or Project:	NIMS Training
Mitigation Category:	Education and Outreach
Action or Project Description:	Encourage all elected officials, public administrators, community stakeholders and responders to participate in National Incident Management System (NIMS) training and compliance programs.
Estimated Cost:	Can be accomplished with current budget/staff
Benefits:	Improved emergency response/operations
Plan for Implementation	
Responsible Organization/Department:	Safety Coordinator
Supporting Organization/Department:	
Action/Project Priority:	39
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Emergency Operations Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	Staff currently participate in NIMS training.

Action Worksheet	
Name of Jurisdiction:	Nixa Public Schools
Risk / Vulnerability	
Hazard(s) Addressed:	Dam Failure, Drought, Earthquake, Extreme Temperatures, Flooding (Flash & Riverine), Severe Thunderstorms, Severe Winter Weather, Tornado, Wildfire, and Land Subsidence/Sinkholes
Problem being Mitigated:	Lack of funding for mitigation activities.
Action or Project	
Applicable Goal Statement:	Goal 3: Ensure continued operation of government, emergency functions, and critical infrastructure in a disaster.
Action/Project Number:	NPS 3.2
Name of Action or Project:	Monitor Funding Programs
Mitigation Category:	Prevention
Action or Project Description:	Continue to monitor and identify funding from state and federal programs for hazard mitigation activities
Estimated Cost:	Can be accomplished with current budget/staff
Benefits:	Increased funding for mitigation activities.
Plan for Implementation	
Responsible Organization/Department:	Grant Writer
Supporting Organization/Department:	
Action/Project Priority:	25
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	NPS has grant writer that monitors funding programs.

Action Worksheet	
Name of Jurisdiction:	Nixa Public Schools
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Winter Weather, Severe Thunderstorm, Tornado
Problem being Mitigated:	Above-ground power lines may fail if hit by debris or covered in ice.
Action or Project	
Applicable Goal Statement:	Goal 3: Ensure continued operation of government, emergency functions, and critical infrastructure in a disaster.
Action/Project Number:	NPS 3.3
Name of Action or Project:	Underground Power Lines
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Bury existing power lines and require new construction to use buried power lines whenever possible.
Estimated Cost:	\$50,000 - \$1,000,000
Benefits:	Minimize risk of power outages.
Plan for Implementation	
Responsible Organization/Department:	Maintenance
Supporting Organization/Department:	
Action/Project Priority:	25
Timeline for Completion:	5 years
Potential Fund Sources:	BRIC Grants, Capital Improvements Funding
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Capital Improvement Plan
Progress Report	
Action Status:	New
Report of Progress:	

4.3.11 Ozark School District Mitigation Actions

Action Worksheet	
Name of Jurisdiction:	Ozark School District
Risk / Vulnerability	
Hazard(s) Addressed:	Dam Failure, Drought, Earthquake, Extreme Temperatures, Flooding (Flash & Riverine), Severe Thunderstorms, Severe Winter Weather, Tornado, Wildfire, and Land Subsidence/Sinkholes
Problem being Mitigated:	Limited community knowledge on how to reduce risk.
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Ozark R-VI 1.1
Name of Action or Project:	Hazard Awareness Program for Schools
Mitigation Category:	Education and Outreach
Action or Project Description:	Continue to promote and expand educational programs regarding natural hazard mitigation and preparedness in school newsletters and seek to integrate information on natural hazards into school curriculum where feasible.
Estimated Cost:	Can be accomplished with current budget/staff.
Benefits:	Prevent loss of life and property
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	35
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Ozark School District
Risk / Vulnerability	
Hazard(s) Addressed:	Dam Failure, Drought, Earthquake, Extreme Temperatures, Flooding (Flash & Riverine), Severe Thunderstorms, Severe Winter Weather, Tornado, Wildfire, and Land Subsidence/Sinkholes
Problem being Mitigated:	Limited community knowledge on how to reduce risk.
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Ozark R-VI 1.2
Name of Action or Project:	Citizen Preparedness
Mitigation Category:	Education and Outreach
Action or Project Description:	Increase, promote, establish, and maintain participation in citizen preparedness activities, such as; Citizen Corps, CERT, COAD, Neighborhood Watch, Fire Corps, Amateur Radio, etc.
Estimated Cost:	Can be accomplished with current staff/budget.
Benefits:	Prevent loss of life and property
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	37
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Ozark School District
Risk / Vulnerability	
Hazard(s) Addressed:	Tornado, Severe Thunderstorm
Problem being Mitigated:	Lack of awareness of sheltering procedure puts lives at risk.
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Ozark R-VI 1.3
Name of Action or Project:	Safe Refuge Area Plan
Mitigation Category:	Prevention
Action or Project Description:	Create and update tornado/severe storm plans that identify refuge areas that comply with FEMA publication 431.
Estimated Cost:	Can be accomplished with current staff/budget.
Benefits:	Prevent loss of life.
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	Emergency Manager
Action/Project Priority:	43
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Emergency Operations Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	District holds tornado drills at each school quarterly.

Action Worksheet	
Name of Jurisdiction:	Ozark School District
Risk / Vulnerability	
Hazard(s) Addressed:	Extreme Temperature, Severe Winter Weather
Problem being Mitigated:	Vulnerable populations lack adequate shelter from elements during extreme temperatures.
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Ozark R-VI 1.4
Name of Action or Project:	OACAC Programs
Mitigation Category:	Education and Outreach
Action or Project Description:	Encourage local community organizations to continue and augment programs to provide fans, air conditioners, and winter weatherization for those at risk.
Estimated Cost:	\$5,000
Benefits:	Prevent loss of life
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	28
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	District working to develop budget for this program.

Action Worksheet	
Name of Jurisdiction:	Ozark School District
Risk / Vulnerability	
Hazard(s) Addressed:	Tornado, Severe Thunderstorm
Problem being Mitigated:	Debris and severe winds could damage/breach unprotected doors and windows
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Ozark R-VI 1.5
Name of Action or Project:	Protective Film and Blast Proof Doors
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Retrofit doors to all vulnerable facilities with metal doors or place protective film on glass doors and windows.
Estimated Cost:	\$50,000 - \$1,000,000
Benefits:	Prevent loss of life and property
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	25
Timeline for Completion:	5 years
Potential Fund Sources:	BRIC Grants, Capital Improvements Funding
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Capital Improvement Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	Have installed some glass protection, developing plan and budget for other doors.

Action Worksheet	
Name of Jurisdiction:	Ozark School District
Risk / Vulnerability	
Hazard(s) Addressed:	Earthquake, Severe Thunderstorm, Tornado
Problem being Mitigated:	Equipment/structures inside schools may become dangerous in event of hazard.
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Ozark R-VI 1.6
Name of Action or Project:	Building Safety Inspections
Mitigation Category:	Prevention
Action or Project Description:	Regularly inspect for structural and non-structural hazards in and around school buildings.
Estimated Cost:	\$20,000
Benefits:	Prevent loss of life and property
Plan for Implementation	
Responsible Organization/Department:	Maintenance
Supporting Organization/Department:	
Action/Project Priority:	43
Timeline for Completion:	1 year
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Ozark School District
Risk / Vulnerability	
Hazard(s) Addressed:	Dam Failure, Drought, Earthquake, Extreme Temperatures, Flooding (Flash & Riverine), Severe Thunderstorms, Severe Winter Weather, Tornado, Wildfire, and Land Subsidence/Sinkholes
Problem being Mitigated:	Limited staff knowledge on how to manage emergency.
Action or Project	
Applicable Goal Statement:	Goal 3: Ensure continued operation of government, emergency functions, and critical infrastructure in a disaster.
Action/Project Number:	Ozark R-VI 3.1
Name of Action or Project:	NIMS Training
Mitigation Category:	Emergency Services
Action or Project Description:	Encourage all elected officials, public administrators, community stakeholders, and responders to participate in National Incident Management System (NIMS) training and compliance programs.
Estimated Cost:	Can be accomplished with current staff/budget.
Benefits:	Improved emergency management.
Plan for Implementation	
Responsible Organization/Department:	Emergency Manager
Supporting Organization/Department:	Administration
Action/Project Priority:	28
Timeline for Completion:	2 years
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Emergency Operations Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	District is developing a new emergency response committee.

Action Worksheet	
Name of Jurisdiction:	Ozark School District
Risk / Vulnerability	
Hazard(s) Addressed:	Dam Failure, Drought, Earthquake, Extreme Temperatures, Flooding (Flash & Riverine), Severe Thunderstorms, Severe Winter Weather, Tornado, Wildfire, and Land Subsidence/Sinkholes
Problem being Mitigated:	Lack of funding for hazard mitigation activities.
Action or Project	
Applicable Goal Statement:	Goal 3: Ensure continued operation of government, emergency functions, and critical infrastructure in a disaster.
Action/Project Number:	Ozark R-VI 3.2
Name of Action or Project:	Monitor Funding Programs
Mitigation Category:	Prevention
Action or Project Description:	Continue to monitor and identify funding from state and federal programs for hazard mitigation activities.
Estimated Cost:	Can be accomplished with current staff/budget
Benefits:	Increased funding for hazard mitigation activities.
Plan for Implementation	
Responsible Organization/Department:	Grant Writer
Supporting Organization/Department:	Emergency Coordinator
Action/Project Priority:	26
Timeline for Completion:	Ongoing
Potential Fund Sources:	Grants
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	District applies for grants and other hazard mitigation funding opportunities.

4.3.12 Sparta R-III Mitigation Actions

Action Worksheet	
Name of Jurisdiction:	Sparta R-III School District
Risk / Vulnerability	
Hazard(s) Addressed:	Earthquake, Flooding, Land Subsidence, Severe Thunderstorm, Severe Winter Weather, Tornado
Problem being Mitigated:	Substandard construction poses safety hazard during disaster.
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Sparta R-III 1.1
Name of Action or Project:	Building Safety Inspections
Mitigation Category:	Prevention
Action or Project Description:	Regularly inspect for structural and non-structural hazards in and around school buildings.
Estimated Cost:	\$10,000
Benefits:	Prevent loss of life and property.
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	37
Timeline for Completion:	2 years
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Sparta R-III School District
Risk / Vulnerability	
Hazard(s) Addressed:	Extreme Temperature
Problem being Mitigated:	Abundance of exposed concrete raises temperature on hot and sunny days.
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Sparta R-III 1.2
Name of Action or Project:	Reduce Urban Heat Island Effect
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Plant trees around buildings and parking lots to reduce the urban heat island effect.
Estimated Cost:	\$30,000 - \$60,000
Benefits:	Lower temperature on hot and sunny days
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	30
Timeline for Completion:	5 years
Potential Fund Sources:	BRIC Grants, Capital Improvements Funding
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Capital Improvement Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Sparta R-III School District
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Thunderstorm, Tornado
Problem being Mitigated:	Lack of sheltering location for students, staff, and community members.
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Sparta R-III 1.3
Name of Action or Project:	Safe Room Construction
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Construct a saferoom at Sparta High School.
Estimated Cost:	\$100,000 - \$1,000,000
Benefits:	Prevent loss of life
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	30
Timeline for Completion:	5 years
Potential Fund Sources:	BRIC Grants, Capital Improvements Funding
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Capital Improvement Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Sparta R-III School District
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Thunderstorm, Tornado
Problem being Mitigated:	Electric surge can damage or destroy critical electronics.
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Sparta R-III 1.4
Name of Action or Project:	Surge Protection
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Install surge protection to protect critical electronic equipment.
Estimated Cost:	\$10,000 - \$30,000
Benefits:	Protect critical electronic equipment.
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	27
Timeline for Completion:	5 years
Potential Fund Sources:	BRIC Grants, Capital Improvements Funding
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Capital Improvement Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Sparta R-III School District
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Winter Weather, Extreme Temperature
Problem being Mitigated:	Lack of shelter for vulnerable populations during extreme temperature events.
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Sparta R-III 1.5
Name of Action or Project:	Heating and Cooling Center
Mitigation Category:	Education and Outreach
Action or Project Description:	Open a Sparta school as a Cooling and Heating Center during periods of extreme heat/cold.
Estimated Cost:	\$5,000
Benefits:	Prevent loss of life.
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	24
Timeline for Completion:	1 year
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Crisis Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Sparta R-III School District
Risk / Vulnerability	
Hazard(s) Addressed:	Dam Failure, Drought, Earthquake, Extreme Temperatures, Flooding (Flash & Riverine), Severe Thunderstorms, Severe Winter Weather, Tornado, Wildfire, and Land Subsidence/Sinkholes
Problem being Mitigated:	Limited public knowledge on how to reduce risk.
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	Sparta R-III 1.6
Name of Action or Project:	Hazard Awareness
Mitigation Category:	Education and Outreach
Action or Project Description:	Educate students, parents, and community members about hazards, risks, and mitigation activities. Provide mitigation activities information to parents and community members via email, school website, and social media. Conduct regular tornado, earthquake, etc. drills. Incorporate hazard mitigation education into curriculum where possible.
Estimated Cost:	\$5,000
Benefits:	Prevent loss of life and property.
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	32
Timeline for Completion:	1 year
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Sparta R-III School District
Risk / Vulnerability	
Hazard(s) Addressed:	Drought
Problem being Mitigated:	Non-essential water use during drought may lead to water shortage.
Action or Project	
Applicable Goal Statement:	Goal 3: Ensure continued operation of government, emergency functions, and critical infrastructure in a disaster.
Action/Project Number:	Sparta R-III 3.1
Name of Action or Project:	Water Conservation
Mitigation Category:	Prevention
Action or Project Description:	Reduce water usage for non-essential purposes during drought. Restrict watering of lawns and landscaping, utilize low-flow fixtures, and educate students and staff about water saving techniques.
Estimated Cost:	Can be accomplished with current staff/budget.
Benefits:	Conserving water ensures more water is available for essential uses.
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	32
Timeline for Completion:	6 months
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Crisis Plan
Progress Report	
Action Status:	New
Report of Progress:	

4.3.13 OTC Richwood Valley Mitigation Actions

Action Worksheet	
Name of Jurisdiction:	Ozarks Technical College – Richwood Valley Campus
Risk / Vulnerability	
Hazard(s) Addressed:	Earthquake, Flooding, Severe Thunderstorm, Severe Winter Weather, Tornado, Land Subsidence
Problem being Mitigated:	Lack of communication before and during a disaster puts lives at risk.
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	OTC 1.1
Name of Action or Project:	Emergency Alert System Updates
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Update security and fire alarm system.
Estimated Cost:	Can be accomplished with current staff/budget.
Benefits:	More effective communication in event of disaster.
Plan for Implementation	
Responsible Organization/Department:	Operations
Supporting Organization/Department:	
Action/Project Priority:	40
Timeline for Completion:	1 year
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Emergency Operations Plan
Progress Report	
Action Status:	Continuing in Progress
Report of Progress:	Improvements are still in progress. OTC can now more effectively utilize emergency alert system.

Action Worksheet	
Name of Jurisdiction:	Ozarks Technical College – Richwood Valley Campus
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Thunderstorm, Tornado, Wildfire, Severe Winter Weather, Earthquake
Problem being Mitigated:	Building conditions and equipment may become hazardous in event of disaster.
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	OTC 1.2
Name of Action or Project:	Building Inspections
Mitigation Category:	Prevention
Action or Project Description:	Regularly inspect for structural and non-structural hazards in and around campus buildings.
Estimated Cost:	\$10,000
Benefits:	Prevent loss of life and property
Plan for Implementation	
Responsible Organization/Department:	Maintenance
Supporting Organization/Department:	
Action/Project Priority:	43
Timeline for Completion:	6 months
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Ozarks Technical College – Richwood Valley Campus
Risk / Vulnerability	
Hazard(s) Addressed:	Extreme Temperature
Problem being Mitigated:	Abundance of exposed concrete raises temperatures on hot/sunny days.
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	OTC 1.3
Name of Action or Project:	Reduce Urban Heat Island Effect
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Plant trees around parking lots and buildings to reduce the urban heat island effect.
Estimated Cost:	\$50,000
Benefits:	Lower temperatures during times of extreme heat.
Plan for Implementation	
Responsible Organization/Department:	Operations
Supporting Organization/Department:	
Action/Project Priority:	39
Timeline for Completion:	5 years
Potential Fund Sources:	BRIC grants, Capital Improvements Funding
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Capital Improvement Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Ozarks Technical College – Richwood Valley Campus
Risk / Vulnerability	
Hazard(s) Addressed:	Extreme Temperature, Severe Winter Weather
Problem being Mitigated:	Lack of shelter for vulnerable communities during extreme temperature events.
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	OTC 1.4
Name of Action or Project:	Heating and Cooling Center
Mitigation Category:	Prevention
Action or Project Description:	Open OTC Richwood Valley as a heating and cooling center during times of extreme heat/cold.
Estimated Cost:	\$5,000
Benefits:	Prevent loss of life
Plan for Implementation	
Responsible Organization/Department:	Operations
Supporting Organization/Department:	
Action/Project Priority:	37
Timeline for Completion:	6 months
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Emergency Operations Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Ozarks Technical College – Richwood Valley Campus
Risk / Vulnerability	
Hazard(s) Addressed:	Dam Failure, Drought, Earthquake, Extreme Temperatures, Flooding (Flash & Riverine), Severe Thunderstorms, Severe Winter Weather, Tornado, Wildfire, and Land Subsidence/Sinkholes
Problem being Mitigated:	Limited public knowledge on how to reduce risk.
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	OTC 1.5
Name of Action or Project:	Hazard Awareness
Mitigation Category:	Education and Outreach
Action or Project Description:	Educate students, staff, and the surrounding community about hazards, their risks, and appropriate mitigation activities. Publish educational materials on OTC website, newsletter, and other mediums
Estimated Cost:	\$5,000
Benefits:	Prevent loss of life and property
Plan for Implementation	
Responsible Organization/Department:	Safety Coordinator
Supporting Organization/Department:	
Action/Project Priority:	41
Timeline for Completion:	1 year
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Ozarks Technical College – Richwood Valley Campus
Risk / Vulnerability	
Hazard(s) Addressed:	Drought
Problem being Mitigated:	Overconsumption of water in drought can lead to water shortage.
Action or Project	
Applicable Goal Statement:	Goal 2: Reduce the potential impact of natural disasters to property, infrastructure, and the local economy.
Action/Project Number:	OTC 2.1
Name of Action or Project:	Water Conservation
Mitigation Category:	Prevention
Action or Project Description:	Require water conservation during drought conditions. Avoid watering lawns and landscaping, utilize low-flow fixtures, and inform staff and students about water-saving measures.
Estimated Cost:	Can be implemented with current staff/budget.
Benefits:	Conserve water for more essential uses.
Plan for Implementation	
Responsible Organization/Department:	Operations
Supporting Organization/Department:	
Action/Project Priority:	38
Timeline for Completion:	6 months
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation, Emergency Operations Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Ozarks Technical College – Richwood Valley Campus
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Thunderstorm, Tornado
Problem being Mitigated:	Electric surges from lightning strikes damages critical equipment.
Action or Project	
Applicable Goal Statement:	Goal 2: Reduce the potential impact of natural disasters to property, infrastructure, and the local economy.
Action/Project Number:	OTC 2.2
Name of Action or Project:	Surge Protection
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Install surge protection to protect electronic equipment.
Estimated Cost:	\$10,000
Benefits:	Prevent damage or loss of electronics.
Plan for Implementation	
Responsible Organization/Department:	Operations
Supporting Organization/Department:	
Action/Project Priority:	34
Timeline for Completion:	3 years
Potential Fund Sources:	General Funds, BRIC Grants
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

4.3.14 Christian County Ambulance District Mitigation Actions

Action Worksheet	
Name of Jurisdiction:	Christian County Ambulance District
Risk / Vulnerability	
Hazard(s) Addressed:	Dam Failure
Problem being Mitigated:	Emergency access and evacuation routes
Action or Project	
Applicable Goal Statement:	Goal 1.1 Protect the lives and livelihoods of all citizens.
Action/Project Number:	CC Ambulance District 1.1
Name of Action or Project:	Evacuation and emergency access
Mitigation Category:	Emergency Services
Action or Project Description:	Review emergency access routes and evacuation routes and work with the responsible entities to minimize or reduce identified problems.
Estimated Cost:	Can be implemented with current staff/budget
Benefits:	Improved emergency response times and evacuation times
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	-
Action/Project Priority:	43
Timeline for Completion:	2 years
Potential Fund Sources:	n/a
Local Planning Mechanisms to be Used in Implementation, if any:	Emergency Plan, Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Christian County Ambulance District
Risk / Vulnerability	
Hazard(s) Addressed:	Extreme Temperature
Problem being Mitigated:	Limited public knowledge on how to reduce risk
Action or Project	
Applicable Goal Statement:	Goal 1: Protect lives and livelihoods of all citizens
Action/Project Number:	CC Ambulance District 1.2
Name of Action or Project:	Extreme Temperature Awareness
Mitigation Category:	Education and Outreach
Action or Project Description:	Increase Awareness of Extreme Temperature Risk and Safety, such as by educating citizens regarding the dangers of extreme heat and cold and the steps they can take to protect themselves when extreme temperatures occur.
Estimated Cost:	\$1,000
Benefits:	Prevent loss of life and property
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	47
Timeline for Completion:	2 years
Potential Fund Sources:	General funds
Local Planning Mechanisms to be Used in Implementation, if any:	Emergency Plan, Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

4.3.15 Christian County Emergency Services 911 Mitigation Actions

Action Worksheet	
Name of Jurisdiction:	Christian County Emergency Services 911
Risk / Vulnerability	
Hazard(s) Addressed:	Dam Failure, Drought, Earthquake, Extreme Temperatures, Flooding (Flash & Riverine), Severe Thunderstorms, Severe Winter Weather, Tornado, Wildfire, and Land Subsidence/Sinkholes
Problem being Mitigated:	Limited public knowledge on how to reduce risk.
Action or Project	
Applicable Goal Statement:	Goal 1
Action/Project Number:	CCES 1.1
Name of Action or Project:	Hazard Awareness
Mitigation Category:	Education and Outreach
Action or Project Description:	Provide information about hazards and educate community members about their risks. Educate community members about mitigation activities they can take. Post on CCES website about upcoming hazards and possible mitigation activities.
Estimated Cost:	\$3,000
Benefits:	Prevent loss of life and property.
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	34
Timeline for Completion:	1 year
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Christian County Emergency Services 911
Risk / Vulnerability	
Hazard(s) Addressed:	Tornado, Severe Thunderstorm, Earthquake, Land Subsidence
Problem being Mitigated:	Substandard construction at risk of failure during a disaster.
Action or Project	
Applicable Goal Statement:	Goal 3: Ensure continued operation of government, critical infrastructure, and emergency services in a disaster.
Action/Project Number:	CCES 3.1
Name of Action or Project:	Building Improvements
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Make improvements to CCES building to protect against seismic activity, high winds, and land subsidence. Add surge protection to protect critical electronics.
Estimated Cost:	\$20,000 - \$100,000
Benefits:	Prevent loss of life, ensure 911 remains functional during hazard.
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	38
Timeline for Completion:	5 years
Potential Fund Sources:	BRIC Grants, Capital Improvements Funding
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Capital Improvement Plan
Progress Report	
Action Status:	New
Report of Progress:	

4.3.16 Logan-Rogersville Fire Protection District Mitigation Actions

Action Worksheet	
Name of Jurisdiction:	Logan-Rogersville Fire Protection District
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding
Problem being Mitigated:	Difficulty responding to emergencies at flooded locations.
Action or Project	
Applicable Goal Statement:	Goal 1
Action/Project Number:	LRFPD 1.1
Name of Action or Project:	Flood Rescue Plan
Mitigation Category:	Emergency Services
Action or Project Description:	Preplan rescue efforts for flood prone areas. Identify accessible access routes and vulnerable locations.
Estimated Cost:	Can be accomplished with current staff/budget.
Benefits:	Prevent loss of life and property.
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	32
Timeline for Completion:	1 year
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Logan-Rogersville Fire Protection District
Risk / Vulnerability	
Hazard(s) Addressed:	Wildfire
Problem being Mitigated:	Limited public knowledge on how to reduce risk.
Action or Project	
Applicable Goal Statement:	Goal 1
Action/Project Number:	LRFPD 1.2
Name of Action or Project:	Firewise Program
Mitigation Category:	Education and Outreach
Action or Project Description:	Provide resources and materials for home and business owners about how to keep their properties safe from fires.
Estimated Cost:	Can be accomplished with current staff/budget.
Benefits:	Prevent loss of life and property.
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	33
Timeline for Completion:	1 year
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Logan-Rogersville Fire Protection District
Risk / Vulnerability	
Hazard(s) Addressed:	Wildfire
Problem being Mitigated:	Limited child/student knowledge of how to reduce risk.
Action or Project	
Applicable Goal Statement:	Goal 1
Action/Project Number:	LRFPD 1.3
Name of Action or Project:	School Fire Programs
Mitigation Category:	Education and Outreach
Action or Project Description:	Conduct fire education training/programs in local schools.
Estimated Cost:	Can be accomplished with current staff/budget.
Benefits:	Prevent loss of life.
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	35
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	LRFPD conducts fire safety trainings at local schools.

Action Worksheet	
Name of Jurisdiction:	Logan-Rogersville Fire Protection District
Risk / Vulnerability	
Hazard(s) Addressed:	Wildfire
Problem being Mitigated:	Lack of smoke detectors leads to loss of life and larger fires.
Action or Project	
Applicable Goal Statement:	Goal 1
Action/Project Number:	LRFPD 1.4
Name of Action or Project:	Smoke Detector Distribution
Mitigation Category:	Prevention
Action or Project Description:	Distribute and install smoke detectors for local residents.
Estimated Cost:	Can be accomplished with current staff/budget.
Benefits:	Prevent loss of life and property.
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	31
Timeline for Completion:	Ongoing
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	LRFPD already distributes smoke detectors to community.

Action Worksheet	
Name of Jurisdiction:	Logan-Rogersville Fire Protection District
Risk / Vulnerability	
Hazard(s) Addressed:	Dam Failure, Drought, Earthquake, Extreme Temperatures, Flooding (Flash & Riverine), Severe Thunderstorms, Severe Winter Weather, Tornado, Wildfire, and Land Subsidence/Sinkholes
Problem being Mitigated:	Limited public knowledge on how to reduce risk.
Action or Project	
Applicable Goal Statement:	Goal 1
Action/Project Number:	LRFPD 1.5
Name of Action or Project:	Hazard Awareness
Mitigation Category:	Education and Outreach
Action or Project Description:	Educate community members about local hazards, their risks, and possible mitigation activities. Publish educational materials on LRFPD website and social media pages.
Estimated Cost:	\$3,000
Benefits:	Prevent loss of life and property.
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	22
Timeline for Completion:	1 year
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

4.3.17 Ozark Fire Protection District Mitigation Actions

Action Worksheet	
Name of Jurisdiction:	Ozark Fire Protection District
Risk / Vulnerability	
Hazard(s) Addressed:	Dam Failure
Problem being Mitigated:	Lack of knowledge about vulnerability to dam failure
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens
Action/Project Number:	OFPD 1.1
Name of Action or Project:	Dam Failure Vulnerability Assessment
Mitigation Category:	Prevention
Action or Project Description:	Map and assess vulnerability to dam failure, and share findings with all applicable jurisdictions
Estimated Cost:	\$1,000
Benefits:	Improved understanding of vulnerability to dam failure, ability to prepare for dam failure
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	40
Timeline for Completion:	1 year
Potential Fund Sources:	General funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Emergency Operations Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Ozark Fire Protection District
Risk / Vulnerability	
Hazard(s) Addressed:	Dam Failure, Flood, Tornado, Severe Thunderstorm, Severe Winter Weather, Extreme Temperature, Earthquake, Land Subsidence, Wildfire, Drought
Problem being Mitigated:	Lack of equipment to effectively respond to hazards
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens
Action/Project Number:	OFPD 1.2
Name of Action or Project:	Equipment Improvements
Mitigation Category:	Emergency Services
Action or Project Description:	Review and upgrade equipment and budget for additional equipment to enhance protection when a disaster arises.
Estimated Cost:	Review of equipment: can be implemented with current staff. Cost of new equipment will vary based on findings.
Benefits:	Improved ability to effectively react to disasters.
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	28
Timeline for Completion:	1 year
Potential Fund Sources:	General funds, capital improvements funding, BRIC Grant
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Capital Improvement Plan, Emergency Operations Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Ozark Fire Protection District
Risk / Vulnerability	
Hazard(s) Addressed:	Dam Failure
Problem being Mitigated:	Lack of emergency/evacuation route planning
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens
Action/Project Number:	OFPD 1.3
Name of Action or Project:	Evacuation Routes Review
Mitigation Category:	Prevention; Emergency Services
Action or Project Description:	Review emergency access and evacuation routes and work with responsible entities to minimize identified issues.
Estimated Cost:	\$1,000
Benefits:	Improved evacuation/emergency access routes, preventing loss of life and property
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	34
Timeline for Completion:	1 year
Potential Fund Sources:	General funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Emergency Operations Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Ozark Fire Protection District
Risk / Vulnerability	
Hazard(s) Addressed:	Earthquake
Problem being Mitigated:	Structural and non-structural hazards present in event of earthquake
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	OFPD 1.4
Name of Action or Project:	Building Safety Inspections
Mitigation Category:	Prevention
Action or Project Description:	Establish a procedure and guidance document to inventory structural and non-structural hazards in structures.
Estimated Cost:	\$1,000
Benefits:	Increased awareness of hazardous objects/construction in event of earthquake
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	34
Timeline for Completion:	1 year
Potential Fund Sources:	General Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Emergency Operations Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Ozark Fire Protection District
Risk / Vulnerability	
Hazard(s) Addressed:	Earthquake
Problem being Mitigated:	Homeowners and residents unaware of building safety in event of earthquake
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens
Action/Project Number:	OFPD 1.5
Name of Action or Project:	Structural Improvements Outreach
Mitigation Category:	Education and Outreach
Action or Project Description:	Provide information to homeowners and residents about ways to structurally or non-structurally retrofit their homes for earthquake safety
Estimated Cost:	\$1,000
Benefits:	Increases awareness of earthquake-proofing measures for homeowners
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	33
Timeline for Completion:	1 year
Potential Fund Sources:	General funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Emergency Operations Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Ozark Fire Protection District
Risk / Vulnerability	
Hazard(s) Addressed:	Extreme Temperature
Problem being Mitigated:	Limited public knowledge about how to reduce risk.
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	OFPD 1.6
Name of Action or Project:	Extreme Temperature Awareness
Mitigation Category:	Education and Outreach
Action or Project Description:	Increase awareness of extreme temperature risk and safety by educating citizens of proper precautions during extreme heat and cold. Also educate homeowners about how to prevent freezing pipes.
Estimated Cost:	1,000
Benefits:	Prevent loss of life and property
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	31
Timeline for Completion:	1 year
Potential Fund Sources:	General funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Emergency Operations Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Ozark Fire Protection District
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding
Problem being Mitigated:	Limited knowledge about how to reduce risk.
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	OFPD 1.7
Name of Action or Project:	Flooding Outreach
Mitigation Category:	Education and Outreach
Action or Project Description:	Educate property owners about flood mitigation techniques.
Estimated Cost:	\$1,000
Benefits:	Prevent loss of life and property
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	31
Timeline for Completion:	1 year
Potential Fund Sources:	General funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Emergency Operations Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Ozark Fire Protection District
Risk / Vulnerability	
Hazard(s) Addressed:	Land Subsidence/Sinkhole
Problem being Mitigated:	Limited knowledge about location and severity of sinkholes
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens
Action/Project Number:	OFPD 1.8
Name of Action or Project:	Land Subsidence Vulnerability Assessment
Mitigation Category:	Prevention
Action or Project Description:	Use GIS to map areas susceptible to land subsidence.
Estimated Cost:	\$1,000
Benefits:	Prevent loss of life and property.
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	31
Timeline for Completion:	1 year
Potential Fund Sources:	General funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Emergency Operations Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Ozark Fire Protection District
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Thunderstorm, Tornado
Problem being Mitigated:	Insufficient shelter in event of hazard
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	OFPD 1.9
Name of Action or Project:	Safe Room Construction
Mitigation Category:	Structure and Infrastructure Project
Action or Project Description:	Construct tornado/severe winds safe room in fire stations to protect firefighters and the public.
Estimated Cost:	\$5,000,000
Benefits:	Prevent loss of life and property, ensure emergency response capabilities after a disaster
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	43
Timeline for Completion:	5 years
Potential Fund Sources:	BRIC Grant, General Funds, Capital Improvement Funds
Local Planning Mechanisms to be Used in Implementation, if any:	Emergency Operations Plan, Hazard Mitigation Plan, Capital Improvement Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Ozark Fire Protection District
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Thunderstorm
Problem being Mitigated:	Limited knowledge of potential threat of severe winds
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	OFPD 1.10
Name of Action or Project:	Severe Winds Vulnerability Assessment
Mitigation Category:	Prevention
Action or Project Description:	Develop and maintain a database to track community vulnerability to severe wind.
Estimated Cost:	\$1,000
Benefits:	Prevent loss of life and property
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	31
Timeline for Completion:	1 year
Potential Fund Sources:	General funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Emergency Operations Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Ozark Fire Protection District
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Winter Weather
Problem being Mitigated:	Limited knowledge on how to reduce risk, lack of Carbon Monoxide Detectors in homes
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens
Action/Project Number:	1.11
Name of Action or Project:	Carbon Monoxide Alarm Outreach
Mitigation Category:	Education and Outreach
Action or Project Description:	Educate residents about the importance of Carbon Monoxide Detectors, provide guidance to residents installing Carbon Monoxide Monitors
Estimated Cost:	\$1,000
Benefits:	Prevent loss of life and property, reduce risk of gas fire
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	45
Timeline for Completion:	1 year
Potential Fund Sources:	General funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Ozark Fire Protection District
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Winter Weather, Extreme Temperatures
Problem being Mitigated:	No safe place for residents to shelter during extreme temperatures
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all residents.
Action/Project Number:	OFPD 1.12
Name of Action or Project:	Establish heating and cooling centers
Mitigation Category:	Prevention
Action or Project Description:	Assist vulnerable populations by establishing heating and cooling centers at fire stations during extreme temperature events.
Estimated Cost:	\$20,000
Benefits:	Prevent loss of life
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	39
Timeline for Completion:	2 years
Potential Fund Sources:	General funds
Local Planning Mechanisms to be Used in Implementation, if any:	Emergency Operations Plan, Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Ozark Fire Protection District
Risk / Vulnerability	
Hazard(s) Addressed:	Tornado, Severe Thunderstorm
Problem being Mitigated:	No safe place to shelter during severe weather events
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all residents.
Action/Project Number:	OFPD 1.13
Name of Action or Project:	Safe Room Grant Program
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Develop a grant program to assist homeowners in the construction of saferooms
Estimated Cost:	Grant program administration: \$1,000
Benefits:	Prevent loss of life and property
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	43
Timeline for Completion:	3 years
Potential Fund Sources:	General funds, BRIC grant
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Ozark Fire Protection District
Risk / Vulnerability	
Hazard(s) Addressed:	Tornado
Problem being Mitigated:	Limited public knowledge of how to reduce risk.
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	OFPD 1.14
Name of Action or Project:	Tornado Awareness Activities
Mitigation Category:	Education and Outreach
Action or Project Description:	Conduct tornado awareness activities for community members.
Estimated Cost:	\$1,000
Benefits:	Prevent loss of life and property
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	33
Timeline for Completion:	1 year
Potential Fund Sources:	General funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Ozark Fire Protection District
Risk / Vulnerability	
Hazard(s) Addressed:	Wildfire
Problem being Mitigated:	Buildings are susceptible to catching fire
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens
Action/Project Number:	OFP 1.15
Name of Action or Project:	Fire-Resistant Construction Techniques
Mitigation Category:	Education and Outreach
Action or Project Description:	Encourage fire-resistant construction techniques for homes and businesses within Ozark Fire Protection District.
Estimated Cost:	\$1,000
Benefits:	Prevent loss of life and property, minimize spread of wildfires
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	35
Timeline for Completion:	1 year
Potential Fund Sources:	General funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	Ozark Fire Protection cannot regulate how buildings are constructed within the District and is only able to encourage fire-resistant construction.

Action Worksheet	
Name of Jurisdiction:	Ozark Fire Protection District
Risk / Vulnerability	
Hazard(s) Addressed:	Wildfire
Problem being Mitigated:	Limited public knowledge on how to reduce risk
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens
Action/Project Number:	OFP 1.16
Name of Action or Project:	Fire Awareness
Mitigation Category:	Education and Outreach
Action or Project Description:	Conduct fire education programs in schools
Estimated Cost:	Can be implemented with current staff/budget
Benefits:	Prevent loss of life and property
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	37
Timeline for Completion:	n/a
Potential Fund Sources:	General funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	Continuing
Report of Progress:	Ozark Fire Protection District has and will continue to provide fire safety education to local schools.

Action Worksheet	
Name of Jurisdiction:	Ozark Fire Protection District
Risk / Vulnerability	
Hazard(s) Addressed:	Drought
Problem being Mitigated:	Lack of awareness of drought conditions
Action or Project	
Applicable Goal Statement:	Goal 3: Ensure continued operation of government, emergency functions, and critical infrastructure in a disaster.
Action/Project Number:	OFPD 3.1
Name of Action or Project:	Drought conditions monitoring
Mitigation Category:	Prevention; Emergency Services
Action or Project Description:	Regularly monitor drought conditions and monitor water supply, ensuring there are no leaks, hydrants function properly, etc.
Estimated Cost:	Can be implemented with current staff/budget
Benefits:	Ensures OFPD is prepared for drought conditions and can effectively respond to incidences during drought periods
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	33
Timeline for Completion:	3 months
Potential Fund Sources:	General funds
Local Planning Mechanisms to be Used in Implementation, if any:	Emergency Operations Plan, Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Ozark Fire Protection District
Risk / Vulnerability	
Hazard(s) Addressed:	Wildfire
Problem being Mitigated:	Insufficient assessment of wildfire risk
Action or Project	
Applicable Goal Statement:	Goal 3: Ensure continued operation of government, emergency functions, and critical infrastructure in a disaster.
Action/Project Number:	OFPD 3.2
Name of Action or Project:	Wildfire Vulnerability Assessment
Mitigation Category:	Prevention
Action or Project Description:	Map wildfire hazard areas to facilitate planning decisions.
Estimated Cost:	\$1,000
Benefits:	Predict and mitigate potential fires, develop a plan for hazard prone sites
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	31
Timeline for Completion:	1 year
Potential Fund Sources:	General funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Emergency Operations Plan
Progress Report	
Action Status:	New
Report of Progress:	

4.3.18 Ozark Special Road District Mitigation Actions

Action Worksheet	
Name of Jurisdiction:	Ozark Special Road District
Risk / Vulnerability	
Hazard(s) Addressed:	Earthquake
Problem being Mitigated:	Construction standards not high enough to prevent damage caused by severe weather events.
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	OSRD 1.1
Name of Action or Project:	Earthquake-Proofing
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Implement structure mitigation techniques to reduce damage from seismic events at Road District Building, like veneer improvements
Estimated Cost:	\$20,000
Benefits:	Prevent loss of life or property, ensure OSRD can function following an earthquake
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	29
Timeline for Completion:	5 years
Potential Fund Sources:	General Funds, BRIC Grant
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Ozark Special Road District
Risk / Vulnerability	
Hazard(s) Addressed:	Extreme Temperatures
Problem being Mitigated:	Limited public knowledge on how to reduce risk.
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	OSRD 1.2
Name of Action or Project:	Extreme Temperature Awareness
Mitigation Category:	Education and Outreach
Action or Project Description:	Increase awareness of extreme temperature risk and safety, by educating citizens on the dangers of extreme heat and cold and the steps they can take to protect themselves when extreme temperatures occur.
Estimated Cost:	\$1,000
Benefits:	Prevent loss of life and property
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	35
Timeline for Completion:	1 year
Potential Fund Sources:	General funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Ozark Special Road District
Risk / Vulnerability	
Hazard(s) Addressed:	Land Subsidence/Sinkhole
Problem being Mitigated:	Lack of awareness of sinkhole risk
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	OSRD 1.3
Name of Action or Project:	Land Subsidence Vulnerability Assessment
Mitigation Category:	Prevention
Action or Project Description:	Map and assess vulnerability to subsidence
Estimated Cost:	\$1,000
Benefits:	Awareness and ability to plan for subsidence issues
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	31
Timeline for Completion:	1 year
Potential Fund Sources:	General funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Ozark Special Road District
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Winter Weather
Problem being Mitigated:	Roads become impassable/dangerous after severe winter weather
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all residents
Action/Project Number:	OSRD 1.4
Name of Action or Project:	Roadway Clearing
Mitigation Category:	Emergency Services
Action or Project Description:	Plan for and maintain adequate road and debris clearing capabilities.
Estimated Cost:	Can be implemented with current staff/budget
Benefits:	Ensures OSRD can plow and improve roadways during instances of severe weather.
Plan for Implementation	
Responsible Organization/Department:	Foreman
Supporting Organization/Department:	Alt-foreman
Action/Project Priority:	38
Timeline for Completion:	6 months
Potential Fund Sources:	n/a
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Ozark Special Road District
Risk / Vulnerability	
Hazard(s) Addressed:	Tornado
Problem being Mitigated:	Inadequate shelter at current facility
Action or Project	
Applicable Goal Statement:	Goal 1: Protect the lives and livelihoods of all citizens.
Action/Project Number:	OSRD 1.5
Name of Action or Project:	Saferoom construction
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Construct a saferoom built to FEMA standards at OSRD Building.
Estimated Cost:	\$10,000
Benefits:	Prevent loss of life and property
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	31
Timeline for Completion:	3 years
Potential Fund Sources:	General funds, BRIC Grant
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Ozark Special Road District
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding
Problem being Mitigated:	Critical infrastructure located within floodplain
Action or Project	
Applicable Goal Statement:	Goal 2: Reduce the potential impact of natural disasters to property, infrastructure, and the local economy.
Action/Project Number:	OSRD 2.1
Name of Action or Project:	Building relocation
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Remove existing building from flood-prone area. Consider relocating OSRD building to less flood-prone land.
Estimated Cost:	\$3,000,000
Benefits:	Prevent loss of life and property, ensure OSRD functionality in event of flooding
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	33
Timeline for Completion:	10 years
Potential Fund Sources:	General Funds, BRIC Grant, FMA Grant
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Ozark Special Road District
Risk / Vulnerability	
Hazard(s) Addressed:	Severe Thunderstorm
Problem being Mitigated:	Critical equipment subject to lightning damages
Action or Project	
Applicable Goal Statement:	Goal 2: Reduce the potential impact of natural disasters to property, infrastructure, and the local economy.
Action/Project Number:	OSRD 2.2
Name of Action or Project:	Surge Protection
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Protect crucial equipment from lighting damage with measures such as installing and maintaining surge protection on electronic equipment.
Estimated Cost:	\$3,000
Benefits:	Mitigate damages to electrical equipment from lightning strikes or electric surges
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	35
Timeline for Completion:	3 years
Potential Fund Sources:	General Funds, BRIC Grant
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Ozark Special Road District
Risk / Vulnerability	
Hazard(s) Addressed:	Dam Failure
Problem being Mitigated:	Lack of awareness of risk of dam failure
Action or Project	
Applicable Goal Statement:	Goal 3: Ensure continued operation of government, emergency functions, and critical infrastructure in a disaster.
Action/Project Number:	OSRD 3.1
Name of Action or Project:	Dam Failure Vulnerability Assessment
Mitigation Category:	Prevention
Action or Project Description:	Map and assess vulnerability to dam failure
Estimated Cost:	\$1,000
Benefits:	Increased awareness of risk of dam failure, increased preparedness in case of dam failure
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	28
Timeline for Completion:	1 year
Potential Fund Sources:	General funds
Local Planning Mechanisms to be Used in Implementation, if any:	Emergency Plan, Stormwater Infrastructure Assessment
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Ozark Special Road District
Risk / Vulnerability	
Hazard(s) Addressed:	Drought
Problem being Mitigated:	Unprepared for drought
Action or Project	
Applicable Goal Statement:	Goal 3: Ensure continued operation of government, emergency functions, and critical infrastructure in a disaster.
Action/Project Number:	OSRD 3.2
Name of Action or Project:	Drought Planning
Mitigation Category:	Prevention
Action or Project Description:	Plan for drought, consider implementing drought emergency plan.
Estimated Cost:	\$1,000
Benefits:	Increased preparedness for drought, ensure functional and effective road network in event of drought
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	27
Timeline for Completion:	1 year
Potential Fund Sources:	General funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Ozark Special Road District
Risk / Vulnerability	
Hazard(s) Addressed:	Flooding
Problem being Mitigated:	Infrastructure is unusable or damaged in event of flooding.
Action or Project	
Applicable Goal Statement:	Goal 3: Ensure continued operation of government, emergency functions, and critical infrastructure in a disaster.
Action/Project Number:	OSRD 3.3
Name of Action or Project:	Infrastructure Floodproofing
Mitigation Category:	Structure and Infrastructure Projects
Action or Project Description:	Protect infrastructure by implementing mitigation techniques like culvert expansion or raising low-lying bridges and water crossings
Estimated Cost:	\$500,000
Benefits:	Prevent loss of life and property, ensure functional road network in event of flooding
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	35
Timeline for Completion:	5 years
Potential Fund Sources:	General Funds, BRIC Grant
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan, Stormwater Infrastructure Assessment
Progress Report	
Action Status:	New
Report of Progress:	

Action Worksheet	
Name of Jurisdiction:	Ozark Special Road District
Risk / Vulnerability	
Hazard(s) Addressed:	Wildfire
Problem being Mitigated:	Limited awareness of vulnerability to wildfires
Action or Project	
Applicable Goal Statement:	Goal 3: Ensure continued operation of government, emergency functions, and critical infrastructure in a disaster.
Action/Project Number:	OSRD 3.4
Name of Action or Project:	Wildfire Vulnerability Assessment
Mitigation Category:	Prevention
Action or Project Description:	Map and assess vulnerability to wildfires to facilitate emergency planning.
Estimated Cost:	\$1,000
Benefits:	Increased awareness of vulnerability to wildfires, ability to plan for wildfire event
Plan for Implementation	
Responsible Organization/Department:	Administration
Supporting Organization/Department:	
Action/Project Priority:	28
Timeline for Completion:	1 year
Potential Fund Sources:	General funds
Local Planning Mechanisms to be Used in Implementation, if any:	Hazard Mitigation Plan
Progress Report	
Action Status:	New
Report of Progress:	

4.4 Mitigation Action Matrix

Table 4.3. Mitigation Action Matrix

#	Action	Jurisdiction	Priority	Goal Addressed	Hazards Addressed	Address Current Development	Address Future Development	Continued Compliance with NFIP
Prevention								
1.4	Low water crossing markings	Christian County		1	Flooding	X	X	X
1.6	Safe Refuge Area Plan	Christian County	26	1	Tornado, Severe Thunderstorm	X		
1.7	Community Extreme Temperature Refuge Areas	Christian County	24	1	Extreme Temperature, Severe Winter Weather	X		
2.3	Burn Bans	Christian County	29	2	Drought, Wildfire			
2.4	Monitor Funding Programs	Christian County	30	2	All		X	
2.5	Geographic Information	Christian County	25	2	All			
3.1	NFIP Participation	Christian County	26	3	Flooding	X	X	X
3.2	Storm Ready	Christian County	31	3	Severe Thunderstorm, Tornado			X
1.9	Emergency Management Website	Christian County	31	1	All			X
1.4	Enforce Building Codes	Fremont Hills	35	1	Earthquake, tornado, severe winter weather, flooding	X	X	
2.1	NFIP Participation	Fremont Hills	25	2	Flooding	X	X	X
2.2	Storm Ready Community	Fremont Hills	25	2	Tornado, Severe Thunderstorm, Flooding, Severe Winter Weather			X
2.4	Subsidence Development Management	Fremont Hills	33	2	Sinkhole	X	X	
3.3	Severe Winter Weather Preparedness	Fremont Hills	29	3	Severe Winter Weather, Tornado, Severe Thunderstorm	X	X	
3.2	Water Conservation	Highlandville	29	3	Drought			
3.3	Monitor Funding Programs	Highlandville	33	3	All	X	X	

#	Action	Jurisdiction	Priority	Goal Addressed	Hazards Addressed	Address Current Development	Address Future Development	Continued Compliance with NFIP
3.4	Drought Monitoring	Highlandville		3	Drought			
3.5	Earthquake Vulnerability Assessment	Highlandville	43	3	Earthquake	X		
2.5	NFIP Participation	Highlandville	36	2	Flooding	X	X	X
3.7	Land Subsidence Vulnerability Assessment	Highlandville	34	3	Sinkhole	X		
2.6	Enforce 2006 IBC building codes	Highlandville	45	3	Severe Thunderstorm, Tornado, Earthquake	X	X	
1.3	Private Property Hazard Insurance	Nixa	33	1	Flooding, Sinkhole	X	X	
1.5	Safe Refuge Area Plan	Nixa	28	1	Severe Thunderstorm, Tornado	X		
1.6	OACAC Programs	Nixa	33	1	Extreme Temperatures, Severe Winter Weather			
1.7	Community Extreme Temperature Refuge Areas	Nixa	33	1	Extreme Temperature, Severe Winter Weather	X		
1.10	Enforce Building Codes	Nixa	35	1	Tornado, Severe Thunderstorm, Earthquake, Wildfire, Flooding	X	X	
2.1	Geographic Information	Nixa	34	2	All			
2.2	Monitor Funding Programs	Nixa	30	2	All	X	X	
2.3	Water Conservation	Nixa	25	2	Drought			
2.6	NFIP Participation	Nixa	37	2	Flooding	X	X	X
2.7	Storm Ready	Nixa	29	2	Tornado, Severe Winter Weather, Severe Thunderstorm			X
2.8	Subsidence Development Management	Nixa	33	2	Sinkhole	X	X	
1.5	Safe Refuge Area Plan	Ozark	37	1	Severe Thunderstorm, Tornado	X		
1.6	Finley River Gauge	Ozark	37	1	Flooding	X		

#	Action	Jurisdiction	Priority	Goal Addressed	Hazards Addressed	Address Current Development	Address Future Development	Continued Compliance with NFIP
1.7	Building Codes	Ozark	39	1	Tornado, Severe Thunderstorm, Wildfire, Earthquake, Flooding	X	X	
2.1	NFIP Participation	Ozark	45	2	Flooding	X	X	X
2.3	Manage New Development Flooding	Ozark	39	2	Flooding		X	X
2.6	Wind-Resistant Construction	Ozark	42	2	Tornado, Severe Thunderstorm	X	X	
3.2	Water Conservation	Ozark	38	3	Drought			
3.3	Monitor Funding Programs	Ozark	42	3	All	X	X	
3.4	GIS Development	Ozark	38	3	All			
1.3	Safe Place Awareness	Saddlebrooke	22	1	Tornado, Severe Thunderstorm	X		
1.5	Wildfire Buffer	Saddlebrooke	18	1	Wildfire	X		
2.1	NFIP Enforcement	Saddlebrooke	25	2	Flooding	X	X	X
2.2	Waterway Maintenance	Saddlebrooke	21	2	Flooding	X		
2.4	Stormproof Development	Saddlebrooke	37	2	Severe Thunderstorm, Severe Winter Weather, Tornado	X	X	
3.2	Monitor Funding Programs	Saddlebrooke	40	3	All	X	X	
3.3	Infrastructure Coordination	Saddlebrooke	38	3	Flooding	X		
1.4	Building Codes	Sparta	42	1	Tornado, Earthquake, Severe Thunderstorm, Severe Winter Weather, Flooding	X	X	
2.1	NFIP Participation	Sparta	45	2	Flooding	X	X	X
2.2	Storm Ready	Sparta	46	2	Flooding, Tornado, Severe Thunderstorm, Severe Winter Weather			
2.3	Stormwater Management	Sparta	45	2	Flooding	X		
1.2	Building Safety Inspections	Billings R-IV	34	1	Tornado, Earthquake, Severe Thunderstorm	X	X	
1.3	OACAC Programs	Nixa Public Schools	33	1	Extreme Temperatures, Severe Winter Weather			

#	Action	Jurisdiction	Priority	Goal Addressed	Hazards Addressed	Address Current Development	Address Future Development	Continued Compliance with NFIP
1.5	Building Safety Inspections	Nixa Public Schools	40	1	Tornado, Severe Thunderstorm, Earthquake, Severe Winter Weather, Wildfire	X		
2.1	Windproof Construction	Nixa Public Schools	30	2	Tornado, Severe Thunderstorm	X	X	
3.2	Monitor Funding Programs	Nixa Public Schools	25	3	All	X	X	
1.3	Safe Refuge Area Plan	Ozark R-VI	43	1	Tornado, Severe Thunderstorm	X		
1.6	Building Safety Inspections	Ozark R-VI	43	1	Earthquake, Severe Thunderstorm, Tornado	X		
3.2	Monitor Funding Programs	Ozark R-VI	26	3	All	X	X	
1.1	Building Safety Inspections	Sparta R-III	37	1	Earthquake, Flooding, Sinkhole, Severe Thunderstorm, Severe Winter Weather, Tornado	X		
3.1	Water Conservation	Sparta R-III	32	3	Drought			
1.2	Building Inspections	OTC Richwood Valley	43	1	Severe Thunderstorm, Tornado, Wildfire, Severe Winter Weather, Earthquake	X		
1.4	Heating and Cooling Center	OTC Richwood Valley	37	1	Extreme Temperature, Severe Winter Weather	X		
2.1	Water Conservation	OTC Richwood Valley	38	2	Drought			
1.4	Smoke Detector Distribution	Logan-Rogersville Fire Protection District	31	1	Wildfire			
1.1	Dam Failure Vulnerability Assessment	Ozark Fire Protection District	40	1	Dam Failure	X		
1.3	Evacuation Routes Review	Ozark Fire Protection District	34	1	Dam Failure	X		
3.1	Drought conditions monitoring	Ozark Fire Protection District	33	3	Drought			
1.4	Building Safety Inspections	Ozark Fire Protection District	34	1	Earthquake	X		

#	Action	Jurisdiction	Priority	Goal Addressed	Hazards Addressed	Address Current Development	Address Future Development	Continued Compliance with NFIP
1.8	Land Subsidence Vulnerability Assessment	Ozark Fire Protection District	31	1	Sinkhole	X		
1.10	Severe Winds Vulnerability Assessment	Ozark Fire Protection District	31	1	Severe Thunderstorm	X		
1.12	Establish heating and cooling centers	Ozark Fire Protection District	39	1	Severe Winter Weather, Extreme Temperatures	X		
3.2	Wildfire Vulnerability Assessment	Ozark Fire Protection District	31	3	Wildfire	X		
3.1	Dam Failure Vulnerability Assessment	Ozark Special Road District	28	3	Dam Failure	X		
3.2	Drought Planning	Ozark Special Road District	27	3	Drought			
1.3	Land Subsidence Vulnerability Assessment	Ozark Special Road District	31	1	Sinkhole	X		
3.4	Wildfire Vulnerability Assessment	Ozark Special Road District	28	3	Wildfire	X		
1.3	Building Safety Inspections	Clever R-V	43	1	Earthquake	X	X	
1.8	Bus Route Mitigation	Clever R-V	41	1	Flooding			
3.1	Drought Vulnerability Assessment	Clever R-V	31	3	Drought	X		
3.2	Severe Wind Vulnerability Assessment	Clever R-V	31	3	Severe Thunderstorm	X		
Structure and Infrastructure Projects								
1.5	Safe Room Construction	Christian County	30	1	Tornado, Severe Thunderstorm	X	X	
2.2	Low Water Crossing Improvements	Christian County	29	2	Flooding	X		
2.3	Floodproofing	Fremont Hills	25	2	Flooding	X	X	
2.5	Lightning-proofing	Fremont Hills	29	2	Severe thunderstorm	X	X	
3.2	911 Addressing For Structures	Fremont Hills	26	3	All	X		
1.1	Outdoor Warning Sirens	Highlandville	40	1	Tornado, Severe Thunderstorm	X		

#	Action	Jurisdiction	Priority	Goal Addressed	Hazards Addressed	Address Current Development	Address Future Development	Continued Compliance with NFIP
3.1	911 Addressing for Structures	Highlandville	40	3	Flood, Tornado, Severe Thunderstorm, Severe Winter Storm, Wildfire	X		
3.6	Seismic Standards Upgrades	Highlandville	41	3	Earthquake	X		
3.8	Surge Protection Installation	Highlandville	39	3	Severe Thunderstorm	X		
3.9	Road maintenance	Highlandville	38	3	Severe Winter Weather, Severe Thunderstorm, Tornado	X	X	
1.5	Safe Room Grant Program	Highlandville	38	1	Tornado, Severe Thunderstorm	X	X	
1.1	Safe Room Construction	Nixa	29	1	Tornado, Severe Thunderstorm	X	X	
2.4	Underground Utilities	Nixa	37	2	Tornado, Severe thunderstorm, Severe Winter Weather, Earthquake, Wildfire	X	X	
2.5	Hazard Area Property Protection	Nixa	30	2	Flooding	X		
2.9	Electric Grid Protections	Nixa	35	2	Severe Thunderstorm	X		
2.10	Wind and Fire Resistant Construction	Nixa	32	2	Tornado, Severe Thunderstorm, Wildfire	X		
2.2	Reduce Urban Heat Island Effect	Ozark	34	2	Extreme Temperatures	X		
2.4	Floodproofing	Ozark	37	2	Flooding	X	X	X
2.5	Flood Reduction	Ozark	35	2	Flooding	X	X	X
3.5	Power Line Protection	Ozark	40	3	Tornado, Severe Thunderstorm, Wildfire	X		
3.6	Underground Power Lines	Ozark	35	3	Severe Winter Weather, Tornado, Severe Thunderstorm	X	X	
3.8	Hydrant Maintenance	Ozark	43	3	Wildfire	X		
1.2	Safe Room Construction	Sparta	39	1	Tornado, Severe Thunderstorm	X	X	
3.2	Snow Clearing Plan	Sparta	24	3	Severe Winter Weather	X		
1.3	Safe Room Construction	Billings R-IV	34	1	Tornado, Severe Thunderstorm	X	X	

#	Action	Jurisdiction	Priority	Goal Addressed	Hazards Addressed	Address Current Development	Address Future Development	Continued Compliance with NFIP
3.1	Retrofit Water Supply	Billings R-IV	22	3	Drought	X		
1.2	Safe Room Construction	Nixa Public Schools	30	1	Tornado, Sever Thunderstorm	X	X	
1.4	Protective Filming and Blast Proof Doors	Nixa Public Schools	28	1	Tornado, Severe Thunderstorm	X		
1.6	Reduce Urban Heat Island Effect	Nixa Public Schools	29	1	Extreme Temperatures	X		
3.3	Underground Power Lines	Nixa Public Schools	25	3	Severe Winter Weather, Severe Thunderstorm, Tornado	X		
1.5	Protective Film and Blast Proof Doors	Ozark R-VI	25	1	Tornado, Severe Thunderstorm	X		
1.2	Reduce Urban Heat Island Effect	Sparta R-III	30	1	Extreme Temperature	X		
1.3	Safe Room Construction	Sparta R-III	30	1	Severe Thunderstorm, Tornado	X	X	
1.4	Surge Protection	Sparta R-III	27	1	Severe Thunderstorm, Tornado	X		
1.1	Emergency Alert System Updates	OTC Richwood Valley	40	1	Earthquake, Flooding, Severe Thunderstorm, Severe Winter Weather, Tornado, Land Subsidence	X		
1.3	Reduce Urban Heat Island Effect	OTC Richwood Valley	39	1	Extreme Temperature	X		
2.2	Surge Protection	OTC Richwood Valley	34	2	Severe Thunderstorm, Tornado	X		
3.1	Building Improvements	Christian County Emergency Services 911	38	3	Tornado, Severe Thunderstorm, Earthquake, Land Subsidence	X		
1.9	Safe Room Construction	Ozark Fire Protection District	43	1	Severe Thunderstorm, Tornado	X	X	
1.13	Safe Room Grant Program	Ozark Fire Protection District	43	1	Severe Thunderstorm, Tornado	X	X	
1.1	Earthquake-Proofing	Ozark Special Road District	29	1	Earthquake	X		
2.1	Building relocation	Ozark Special Road District	33	2	Flooding	X		
3.3	Infrastructure Floodproofing	Ozark Special Road District	35	3	Flooding	X		

#	Action	Jurisdiction	Priority	Goal Addressed	Hazards Addressed	Address Current Development	Address Future Development	Continued Compliance with NFIP
2.2	Surge Protection	Ozark Special Road District	35	2	Severe Thunderstorm	X		
1.5	Saferoom construction	Ozark Special Road District	31	1	Tornado	X	X	
1.1	Implement Building Codes	Clever R-V	32	1	Earthquake, wildfire, severe winter weather, sinkhole/land subsidence, tornado, severe thunderstorm	X	X	
1.2	Earthquake Planning	Clever R-V	30	1	Earthquake			
1.7	Protect Critical Facilities	Clever R-V	29	1	Flooding	X	X	
1.10	Safe room construction	Clever R-V	41	1	Severe thunderstorm, tornado	X	X	
2.3	Surge Protections	Clever R-V	41	2	Severe Thunderstorm	X		
2.4	Insulation Installation	Clever R-V	41	2	Severe Winter Weather	X		
3.3	Fire Maintenance	Clever R-V	36	3	Wildfire	X		
Natural Systems Protection								
3.5	Debris Disposal Plan	Christian County	3	26	Tornado, Earthquake, Severe Thunderstorm			
2.3	Restrict Floodplain Development	Saddlebrooke	29	2	Flooding	X	X	X
Emergency Services								
3.4	911 Addressing for Structures	Christian County	27	3	All	X	X	
3.6	Road Maintenance Capabilities	Christian County	31	3	Tornado, Severe Thunderstorm, Severe Winter Weather	X		
1.2	Safe Refuge Area Plan	Fremont Hills	26	1	Tornado, Severe thunderstorm	X		
1.2	Safe Refuge Area Plan	Highlandville	30	1	Tornado	X		
1.3	Community Extreme Temperature Refuge Areas	Highlandville	38	1	Extreme Temperatures, Severe Winter Weather	X		
2.1	Storm Ready	Highlandville	40	2	Tornado, Severe Thunderstorms, Severe Winter Weather			

#	Action	Jurisdiction	Priority	Goal Addressed	Hazards Addressed	Address Current Development	Address Future Development	Continued Compliance with NFIP
1.8	911 Addressing for Structures	Nixa	28	1	All	X	X	
3.2	Snow and Debris Clearing	Nixa	30	3	Severe Winter Weather, Severe Thunderstorm, Tornado	X		
3.3	Hydrant Maintenance	Nixa	31	3	Wildfire			
3.7	Debris Clearing Plan	Ozark	39	3	Severe Winter Weather, Tornado, Thunderstorm	X		
1.4	Heating and Cooling Centers	Saddlebrooke	18	1	Extreme Temperature, Severe Winter Weather	X		
1.3	Establish Refuge Areas	Sparta	32	1	Tornado, Severe Thunderstorm	X		
3.1	Enforce Visible 911 Addressing	Sparta	25	3	All	X	X	
3.1	NIMS Training	Ozark R-VI	28	3	All			
1.1	Evacuation and emergency access	Christian County Ambulance District	43	1	Dam Failure	X		
1.1	Flood Rescue Plan	Logan-Rogersville Fire Protection District	32	1	Flooding	X		
1.2	Equipment Improvements	Ozark Fire Protection District	28	1	All			
1.4	Roadway Clearing	Ozark Special Road District	38	1	Severe Winter Weather	X		
1.6	Heating and Cooling Centers	Clever R-V	28	1	Extreme Temperature, Severe Winter Weather	X		
Education and Outreach								
1.1	Social Media and Public Information	Christian County	30	1	All			
1.2	Citizen Preparedness	Christian County	35	1	All			
1.3	NOAA Radios	Christian County	32	1	Tornado, Severe Thunderstorm, Severe Winter Weather, Earthquake, Flooding, Wildfire			
1.8	Residential Safe-room Construction	Christian County	28	1	Tornado, Severe Thunderstorm		X	

#	Action	Jurisdiction	Priority	Goal Addressed	Hazards Addressed	Address Current Development	Address Future Development	Continued Compliance with NFIP
2.1	Private Property Hazard Insurance	Christian County	24	2	Sinkhole, Flooding			
3.3	NIMS Training	Christian County	27	3	All			
1.1	Private Property Hazard Insurance	Fremont Hills	25	1	Sinkhole, Flooding			
1.3	Citizen Preparedness	Fremont Hills	28	1	All			
1.5	Extreme Temperature Outreach	Fremont Hills	22	1	Extreme Temperature, Severe Winter Weather			
1.6	Tornado Awareness	Fremont Hills	26	1	Tornado			
3.1	NIMS Training	Fremont Hills	20	3	Flood, Tornado, Severe Storm, Severe Winter Weather			
2.2	Severe Winter Weather Awareness	Highlandville	32	2	Extreme Temperatures, Severe Winter Weather			
2.3	Restrict Floodplain Development	Highlandville	35	2	Flooding	X	X	X
2.4	Stormwater Management Planning	Highlandville	32	2	Flooding	X		X
1.4	Severe Winter Weather Awareness	Highlandville	35	1	Severe Winter Weather			
1.2	Citizen Preparedness	Nixa	28	1	All			
1.4	Ozark and Nixa Expo	Nixa	23	1	All			
1.9	Natural Hazard Awareness	Nixa	33	1	All			
3.1	NIMS Training	Nixa	28	3	All			
1.1	Ozark Expo	Ozark	37	1	All			
1.2	Fire resistant construction and landscaping	Ozark	40	1	Wildfire			
1.3	Private Property Hazard Insurance	Ozark	36	1	Flooding, Sinkhole			
1.4	Citizen Preparedness	Ozark	37	1	All			
3.1	NIMS Training	Ozark	38	3	All			
1.1	Awareness Program	Saddlebrooke	30	1	All			
1.2	Citizen NOAA Radios	Saddlebrooke	28	1	Tornado, Severe Thunderstorm, Severe Winter Weather			
1.1	Natural Hazard Community Expos	Sparta	41	1	All			
1.5	Public Awareness	Sparta	35	1	All			

#	Action	Jurisdiction	Priority	Goal Addressed	Hazards Addressed	Address Current Development	Address Future Development	Continued Compliance with NFIP
1.1	School Education Program	Billings R-IV	36	1	All			
1.1	Hazard Awareness Program for Schools	Nixa Public Schools	30	1	All			
3.1	NIMS Training	Nixa Public Schools	39	3	All			
1.1	Hazard Awareness Program for Schools	Ozark R-VI	35	1	All			
1.2	Citizen Preparedness	Ozark R-VI	37	1	All			
1.4	OACAC Programs	Ozark R-VI	28	1	Extreme Temperature, Severe Winter Weather			
1.5	Heating and Cooling Center	Sparta R-III	24	1	Severe Winter Weather, Extreme Temperature			
1.6	Hazard Awareness	Sparta R-III	32	1	All			
1.5	Hazard Awareness	OTC Richwood Valley	41	1	All			
1.2	Hazard Awareness	Christian County Ambulance District	40	1	All			
1.1	Hazard Awareness	Christian County Emergency Services 911	34	1	All			
1.2	Firewise Program	Logan-Rogersville Fire Protection District	33	1	Wildfire			
1.3	School Fire Programs	Logan-Rogersville Fire Protection District	35	1	Wildfire			
1.5	Hazard Awareness	Logan-Rogersville Fire Protection District	22	1	All			
1.5	Structural Improvements Outreach	Ozark Fire Protection District	33	1	Earthquake			
1.6	Extreme Temperature Awareness	Ozark Fire Protection District	31	1	Extreme Temperature			
1.7	Flooding Outreach	Ozark Fire Protection District	31	1	Flooding			
1.11	Carbon Monoxide Alarm Outreach	Ozark Fire Protection District	45	1	Severe Winter Weather			
1.14	Tornado Awareness Activities	Ozark Fire Protection District	33	1	Tornado			
1.15	Fire-Resistant Construction Techniques	Ozark Fire Protection District	35	1	Wildfire			

#	Action	Jurisdiction	Priority	Goal Addressed	Hazards Addressed	Address Current Development	Address Future Development	Continued Compliance with NFIP
1.16	Fire Awareness	Ozark Fire Protection District	37	1	Wildfire			
1.2	Extreme Temperature Awareness	Ozark Special Road District	35	1	Extreme Temperatures			
1.4	Earthquake Risk Awareness	Clever R-V	37	1	Earthquake			
1.5	Extreme Temperature Awareness	Clever R-V	40	1	Extreme Temperatures			
1.9	Land Subsidence Awareness	Clever R-V	31	1	Sinkhole			
1.11	Hail awareness	Clever R-V	31	1	Severe thunderstorm			
1.12	Thunderstorm Awareness	Clever R-V	31	1	Severe thunderstorm			
1.13	Severe Winter Weather Awareness	Clever R-V	31	1	Severe Winter Weather			
1.14	Tornado Awareness	Clever R-V	31	1	Tornado			
1.15	Wildfire Education and Awareness	Clever R-V	31	1	Wildfire			

5 PLAN MAINTENANCE PROCESS

5 PLAN MAINTENANCE PROCESS	5.1
<i>5.1 Monitoring, Evaluating, and Updating the Plan.....</i>	<i>5.1</i>
5.1.1 Responsibility for Plan Maintenance	5.1
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This chapter provides an overview of the overall strategy for plan maintenance and outlines the method and schedule for monitoring, updating and evaluating the plan. The chapter also discusses incorporating the plan into existing planning mechanisms and how to address continued public involvement.

5.1 Monitoring, Evaluating, and Updating the Plan

44 CFR Requirement 201.6(c)(4): The plan maintenance process shall include a section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle.

5.1.1 Responsibility for Plan Maintenance

The Mitigation Planning Committee (MPC) has served as an advisory body during the plan update process, but it is not a standing committee. Many MPC representatives and stakeholders are also represented on the Local Emergency Planning Committee (LEPC), as well as several other committees and groups in Christian County. The County Emergency Management Director oversees the LEPC and will be charged with reconvening the MPC, either as part of the already established LEPC or as a separate group, if necessary. However, it will be up to the County Commission, Office of Emergency Management, and local jurisdictions to carry out the goals and actions outlined. Maintenance will involve agreement of the participating jurisdictions, including schools and special districts, to:

- Meet annually and after disasters to monitor and evaluate the implementation of the plan
- Act as a forum for hazard mitigation issues
- Disseminate hazard mitigation ideas and activities to all participants
- Pursue the implementation of high priority, low- or no-cost actions
- Monitor multi-objective, cost-share, and other funding opportunities to help the community implement the plan's actions for which no current funding exists
- Monitor and assist in implementation and update of this plan
- Keep the concept of mitigation in the forefront of community decision making by identifying plan recommendations when other community goals, plans, and activities overlap, influence, or directly affect increased community vulnerability to disasters
- Report on plan progress and recommended changes to the County Board of Supervisors and governing bodies of participating jurisdictions
- Inform and solicit input from the public

The MPC is an advisory body and can only make recommendations to county, city, town, or district elected officials. Its primary duty is to see the plan successfully carried out and to report to the community governing boards and the public on the status of plan implementation and mitigation opportunities. Other duties include reviewing and promoting mitigation proposals, hearing stakeholder concerns about hazard mitigation, passing concerns on to appropriate entities, and posting relevant information in areas accessible to the public.

5.1.2 Plan Maintenance Schedule

The MPC (or other designated responsible entity) agrees to meet annually and after a state or federally declared hazard event as appropriate to monitor progress and update the mitigation strategy. The County “A” Emergency Management Director will be responsible for initiating the plan reviews and will invite members of the MPC (or other designated responsible entity) to the meeting.

In coordination with all participating jurisdictions, the Emergency Management Director will be responsible for initiating a five-year written update of the plan to be submitted to the Missouri State Emergency Management Agency (SEMA) and FEMA Region VII per Requirement §201.6(c)(4)(i) of the Disaster Mitigation Act of 2000, unless disaster or other circumstances (e.g., changing regulations) require a change to this schedule.

5.1.3 Plan Maintenance Process

Progress on the proposed actions can be monitored by evaluating changes in vulnerabilities identified in the plan. The MPC (or other designated responsible entity) should review changes in vulnerability identified as follows:

- Decreased vulnerability as a result of implementing recommended actions,
- Increased vulnerability as a result of failed or ineffective mitigation actions,
- Increased vulnerability due to hazard events, and/or
- Increased vulnerability as a result of new development (and/or annexation).

Future 5-year updates to this plan will include the following activities:

- Consideration of changes in vulnerability due to action implementation,
- Documentation of success stories where mitigation efforts have proven effective,
- Documentation of unsuccessful mitigation actions and why the actions were not effective,
- Documentation of previously overlooked hazard events that may have occurred since the previous plan approval,
- Incorporation of new data or studies with information on hazard risks,
- Incorporation of new capabilities or changes in capabilities,
- Incorporation of growth data and changes to inventories, and
- Incorporation of ideas for new actions and changes in action prioritization.

In order to best evaluate any changes in vulnerability as a result of plan implementation, the participating jurisdictions will adopt the following process:

- Each proposed action in the plan identified an individual, office, or agency responsible for action implementation. This entity will track and report on an annual10(b) basis to the jurisdictional MPC (or designated responsible entity) member on action status. The entity will provide input on whether the action as implemented meets the defined objectives and is likely to be successful in reducing risk.

- If the action does not meet identified objectives, the jurisdictional MPC (or designated responsible entity) member will determine necessary remedial action, making any required modifications to the plan.

Changes will be made to the plan to remedy actions that have failed or are not considered feasible. Feasibility will be determined after a review of action consistency with established criteria, time frame, community priorities, and/or funding resources. Actions that were not ranked high but were identified as potential mitigation activities will be reviewed as well during the monitoring of this plan. Updating of the plan will be accomplished by written changes and submissions, as the (MPC or designated responsible entity) deems appropriate and necessary. Changes will be approved by the Christian County Commissioners and the governing boards of the other participating jurisdictions.

5.2 Incorporation into Existing Planning Mechanisms

44 CFR Requirement §201.6(c)(4)(ii): [The plan shall include a] process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvement plans, when appropriate.

Where possible, plan participants, including school and special districts, will use existing plans and/or programs to implement hazard mitigation actions. Based on the capability assessments of the participating jurisdictions, communities in Christian County will continue to plan and implement programs to reduce losses to life and property from hazards. This plan builds upon the momentum developed through previous and related planning efforts and mitigation programs and recommends implementing actions, where possible, through the following plans:

- General or master plans of participating jurisdictions;
- Ordinances of participating jurisdictions;
- County Emergency Operations Plan;
- Capital improvement plans and budgets;
- Other community plans within the County, such as water conservation plans, storm water management plans, and parks and recreation plans;
- School and Special District Plans and budgets; and
- Other plans and policies outlined in the capability assessment sections for each jurisdiction in Chapter 2 of this plan.

The MPC (or designated responsible entity) members involved in updating these existing planning mechanisms will be responsible for integrating the findings and actions of the mitigation plan, as appropriate. The MPC (or designated responsible entity) is also responsible for monitoring this integration and incorporation of the appropriate information into the five-year update of the multi-jurisdictional hazard mitigation plan.

Additionally, after the annual review of the Hazard Mitigation Plan, the Christian County Emergency Management Director will provide the updated Mitigation Strategy with current status of each mitigation action to the County (Boards of Supervisors or Commissions) as well as all Mayors, City Clerks, and School District Superintendents. The Emergency Management Director will request that the mitigation strategy be incorporated, where appropriate, in other planning mechanisms.

Table 5.1 below lists the planning mechanisms by jurisdiction into which the Hazard Mitigation Plan will be integrated.

Table 5.1. Planning Mechanisms Identified for Integration of Hazard Mitigation Plan

Jurisdiction	Planning Mechanisms	Integration Process for Previous Plan	Integration Process for Current Plan
Christian County	Comprehensive Plan Hazard Mitigation Plan Debris Management Plan Economic Development Plan Transportation Plan Land Use Plan Zoning Ordinance Building Code Floodplain Ordinance Stormwater Ordinance	Annual budget Hazard mitigation plan Local ordinance Local building codes Planning and zoning regulations GIS applications NFIP policies County emergency plan NIMS resolutions	Hazard Mitigation Plan Emergency Operations Plan Capital Improvement Plan NFIP Flood Risk Maps
Fremont Hills	Comprehensive Plan Hazard Mitigation Plan Land Use Plan Zoning Ordinance Building Code Floodplain Ordinance	County sinkhole map Annual budgeting NFIP policies Emergency plan Building code	Hazard Mitigation Plan County Sinkhole Maps NFIP Policies and Guidelines 2012 International Building Code
Highlandville	Comprehensive Plan Hazard Mitigation Plan Zoning Ordinance Building Code Floodplain Ordinance	Annual budgeting City ordinances Building codes Emergency plan Subdivision ordinances Public safety ordinance	Hazard Mitigation Plan Emergency Operations Plan
Nixa	Comprehensive Plan Capital Improvement Plan Hazard Mitigation Plan Economic Development Plan Transportation Plan Land Use Plan Zoning Ordinance Building Code Floodplain Ordinance Stormwater Ordinance	Annual budgeting Public safety ordinances Comprehensive plan Capital improvement plan Crisis management plan Site plan review Building permit process Emergency plan Floodplain ordinances Road maintenance plans	Hazard Mitigation Plan Emergency Operations Plan NFIP Flood Insurance Maps Capital Improvement Plan 2018 International Building Code
Ozark	Comprehensive Plan Hazard Mitigation Plan Debris Management Plan Transportation Plan Zoning Ordinance Building Code Floodplain Ordinance Stormwater Ordinance	Annual budget Storm water ordinance Floodplain ordinance NFIP policies	Hazard Mitigation Plan Emergency Operations Plan NFIP Flood Risk Maps Floodplain Ordinance Stormwater Management Plan Capital Improvement Plan
Saddlebrooke	Comprehensive Plan Hazard Mitigation Plan Land Use Plan Zoning Ordinance Floodplain Ordinance	Annual budgeting	Hazard Mitigation Plan NFIP Flood Risk Maps Municipal Code
Sparta	Comprehensive Plan Hazard Mitigation Plan Building Code Floodplain Ordinance Stormwater Ordinance	Annual budget Floodplain ordinance NFIP policies	Hazard Mitigation Plan Emergency Operations Plan Capital Improvement Plan NFIP Flood Risk Maps Emergency Operations

			Plan
Billings R-IV	Master Plan Capital Improvement Plan Emergency Plan Emergency Manager Grant Writer	*Did not participate in previous plan	Hazard Mitigation Plan Capital Improvement Plan
Clever R-V	Master Plan Capital Improvement Plan Emergency Plan Emergency Manager Grant Writer Obligation Bonds	*Did not participate in previous plan	Emergency Plan Hazard Mitigation Plan Watershed Plan Capital Improvement Plan
Nixa Public Schools	Master Plan Capital Improvement Plan Emergency Plan Emergency Manager Grant Writer Obligation Bonds Special Tax Bonds	Curriculum plans Annual budgeting Safety plans	Hazard Mitigation Plan Emergency Operations Plan Capital Improvement Plan
Ozark R-VI	Master Plan Capital Improvement Plan Emergency Plan Emergency Manager Grant Writer Obligation Bonds Special Tax Bonds	Curriculum plans Annual budgeting Safety plans Master plan Capital improvement plan Emergency operations plan Critical facilities plan Crisis management plan	Hazard Mitigation Plan Emergency Operations Plan Capital Improvement Plan
Sparta R-III	Capital Improvement Plan Emergency Plan Emergency Manager	*Did not participate in previous plan	Hazard Mitigation Plan Crisis Plan Capital Improvement Plan
OTC Richwood Valley	Capital Improvement Plan Emergency Plan Emergency Manager Grant Writer Obligation Bonds	Annual budgeting	Hazard Mitigation Plan Emergency Operations Plan Capital Improvement Plan
Christian County Ambulance District	Continuity of Operations Plan Evacuation Route Map Fund Projects Through Capital Improvement Funding	Annual budgeting Emergency operations plan	Emergency Plan Hazard Mitigation Plan
Christian County Emergency Services	Fund Projects Through Capital Improvement Funding	*Did not participate in previous plan	Hazard Mitigation Plan Capital Improvement Plan
Logan-Rogersville Fire Protection District	Critical Facilities Inventory Fund Projects Through Capital Improvement Funding	*Did not participate in previous plan	Hazard Mitigation Plan
Ozark Fire Protection District	Continuity of Operations Plan Fund Projects Through Capital Improvement Funding	*Did not participate in previous plan	Hazard Mitigation Plan Emergency Operations Plan Capital Improvement Plan
Ozark Special Road District	Tree Trimming Program Fund Projects Through Capital Improvement Funding	*Did not participate in previous plan	Emergency Plan Stormwater Infrastructure Assessment Hazard Mitigation Plan

It should be noted, however, that throughout the course of plan update process, it was determined that incorporating the previous hazard mitigation plan into other plans and projects was generally not a focus over the last five years. Hazard mitigation principles were broadly considered when developing yearly budgets, and some of the larger communities with more staff and departments

dedicated to emergency management were able to focus more on this topic, but those communities generally focused on their own planning independent of the county hazard mitigation plan. Moving forward, all participants should work to incorporate this plan update into any other relevant plans they might have, including emergency management plans, capital improvement plans, master plans, floodplain management plans, etc.

5.3 Continued Public Involvement

44 CFR Requirement §201.6(c)(4)(iii): [The plan maintenance process shall include a discussion on how the community will continue public participation in the plan maintenance process.]

Maintaining a hazard mitigation plan is crucial for the safety and resiliency of a community. Continued public participation is an important step in that process, as it is key to ensuring that the plan reflects the needs and concerns of the community. Participating jurisdictions (including municipalities, school districts, and special districts) will actively solicit public participation through a combination of the following methods:

- **Public Meetings and Workshops:** Host public meetings and workshops organized by local government or emergency management agencies. These events provide opportunities to learn about the hazard mitigation plan, ask questions, and provide input.
- **Community Surveys:** Craft community surveys designed to gather opinions and feedback on hazard mitigation priorities. These surveys may be conducted online, by mail, or in person at community events.
- **Open Houses:** Host open houses dedicated to hazard mitigation planning. These events often include displays, presentations, and interactive activities to inform the public about the plan and gather input on future changes.
- **Advisory Committees:** Create hazard mitigation planning advisory committees. These committees often include representatives from various community sectors, and they play a role in decision-making and plan development.
- **Online Platforms:** Post information and updates about the hazard mitigation plan, mitigation actions, and ongoing efforts to increase resiliency on official websites and social media platforms.
- **Educational Programs:** Host educational programs and outreach initiatives. These programs can provide information on hazards, risk reduction strategies, and the importance of community involvement.
- **Collaborative Initiatives:** Engage in collaborative initiatives with local organizations, non profits, and businesses that focus on hazard mitigation.
- **Emergency Preparedness Events:** Host events related to emergency preparedness, where hazard mitigation planning may be discussed. These events often provide opportunities for dialogue between the public and emergency management professionals.
- **Media Engagement:** News articles, radio broadcasts, and other media may highlight updates and opportunities for public involvement in hazard mitigation planning.

By actively participating in these activities, community members can contribute valuable insights, share local knowledge, and play a role in shaping hazard mitigation strategies that enhance the overall resilience of their community.