McClain County

Multi-Jurisdictional Multi-Hazard Mitigation Plan Update

May
2021

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Acknowledgements

The McClain County Multi-Jurisdictional Multi-Hazard Mitigation Plan includes the communities of Blanchard, Purcell, Byars, Cole, Dibble, Goldsby, Rosedale, Washington, and Wayne, and the public schools of Blanchard, Dibble, Purcell, Washington, and Wayne, and Mid-America Technology Center. The McClain County Multi-Jurisdictional Multi-Hazard Mitigation Plan was prepared under the direction of the McClain County Board of County Commissioners.

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Pam Beller	McClain County Clerk

Numerous other government and educational officials, agencies, organizations and individuals participated in the study. Acknowledgments of these important contributors appear throughout the Plan document.

Executive Summary

Oklahoma's location at the intersection of the hot arid zone to the west, the temperate zone to the northeast, and the hot humid zone to the southeast make it subject to a wide variety of potentially violent weather and natural hazards.

Making people and businesses as safe as possible from a variety of natural and man-made hazards is the first step in making the area attractive for new residents and expanding businesses. The McClain County Multi-Jurisdictional Multi-Hazard Mitigation Plan is a comprehensive effort to identify potential hazards and develop a sound plan to mitigate their impacts, with the goal of saving the lives and property of the citizens of McClain County, the incorporated and unincorporated communities, and the public-school systems of McClain County. This plan fulfills the requirements of the Pre-Disaster Mitigation (PDM) Grant Program and Hazard Mitigation Grant Program (HMGP) of the Federal Emergency Management Agency (FEMA) and Oklahoma Emergency Management (OEM).

In December 2005, the Multi-hazard Mitigation Council of the National Institute of Building Sciences completed a study to assess future savings from mitigation activities. Their findings reflected the fact that mitigation activities in general produced over $4 in savings for every $1 invested in mitigation actions, with the greatest savings in the areas of flood-related events (5:1) and wind-related events (3.9:1). In addition, the report concluded, *"Mitigation is most effective when carried out on a comprehensive, community-wide, and long-term basis. Single activities can help but carrying out a slate of coordinated mitigation activities over time is the best way to ensure that communities will be physically, socially, and economically resilient to future hazard impacts."*

Approval of this plan will qualify all unincorporated areas of McClain County, the incorporated communities of Blanchard, Purcell, Byars, Cole, Dibble, Goldsby, Rosedale, Washington, and Wayne, and the public schools of Blanchard, Dibble, Purcell, Washington, and Wayne, and Mid-America Technology Center, to apply for Pre-Disaster Mitigation (PDM) as well as Hazard Mitigation Grant Program (HMGP) disaster mitigation funds following a federal disaster declaration, as provided under Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended

Background

McClain County and the included communities and school districts are vulnerable to natural and man-made hazards. The McClain County Hazard Mitigation Advisory Committee identified the 11 hazards most likely to affect the County as a whole. These hazards include Dam Failure, Drought, Earthquake, Extreme Heat, Flood, Hail, High Winds, Lightning, Severe Winter Storms, Tornado, and Wildfire.

Purpose

The purpose of this plan is to:

- Assess the ongoing mitigation activities within each jurisdiction
- Identify and assess the hazards that pose a threat to citizens and property
- Evaluate additional mitigation measures that should be undertaken
- Outline a strategy for implementation of mitigation projects

The objective of this plan is to provide guidance for community activities for the next five years. It will ensure that McClain County will implement activities that are most effective and appropriate for mitigating the 16 identified natural and manmade hazards.

McClain County Hazard Mitigation Advisory Committee (HMAC)

Citizens and professionals active in disasters provided important input in the development of the plan and recommended goals and objectives, mitigation measures, and priorities for actions. The HMAC is comprised of citizen leaders of the County and the various communities appointed by the County Commissioners and representatives of the included public-school districts appointed by their various boards of education.

The Planning Process

Planning for the McClain County Multi-Jurisdictional Multi-Hazard Mitigation Plan followed a ten-step process, based on guidance and requirements of FEMA for the PDM grant program, HMGP, the Flood Mitigation Assistance (FMA) program, and the Community Rating System (CRS).

1. Organize to prepare the plan
2. Involve the public
3. Coordinate with other agencies and organizations
4. Assess the hazard
5. Assess the problem
6. Set goals
7. Review possible activities
8. Draft the action plan
9. Adopt the plan
10. Implement, evaluate, and revise

Plan Summary

The McClain County Multi-Jurisdictional Multi-Hazard Mitigation Plan provides guidance to help citizens protect life and property from natural hazards. The plan identifies the hazards that are most likely to strike each jurisdiction, provides a profile and risk assessment of each hazard, identifies mitigation measures for each hazard, and presents an action plan for the implementation of the mitigation measures.

Mitigation Action Plan

The mitigation Action Plan includes strategies for implementing the mitigation measures, including information on the responsible agency, time frame, cost estimate, funding sources, and a statement of the measurable results.

For further information about the McClain County Multi-Jurisdictional Multi-Hazard Mitigation Plan, contact:

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Chapter 1: Introduction

1.1 About the Plan

This document is the Multi-Jurisdictional Multi-Hazard Mitigation Plan 2021 Update for McClain County. This strategic plan follows the provisions of the Hazard Mitigation Grant Program (HGMP) of the Federal Emergency Management Agency (FEMA) in accordance with the U.S. Stafford Disaster Relief and Emergency Assistance Act, as amended as administered by the Oklahoma Department of Emergency Management (OEM). The Stafford Act provides the opportunity for federal assistance to state and local governments to alleviate suffering and damage from disasters. Amendments to the Act have broadened regulations to provide for programs to encourage strategies and measures to mitigate the impact of natural and man-made hazards, as well as continuation long-standing programs for disaster preparedness and emergency operations plans and flood insurance coverage. The revisions to the Act make it clear that no federal assistance is available to an otherwise eligible jurisdiction if no Hazard Mitigation Plan has been adopted and is in effect.

This Plan Update is developed in accordance with and guidance from, and fulfills requirements for, the Hazard Mitigation Grant Program (HMGP). The Plan addresses 11 natural hazards that can affect people and property in McClain County.

Purpose

The purpose of this Plan Update is to:

- Describe the Multi-Hazard Mitigation Planning Process used to identify and select natural and man-made hazards, identify appropriate mitigation measures, and to develop the plan
- Provide a description of the planning area and assess the ongoing mitigation activities in McClain County
- Identify and assess the hazards that pose a threat to residents, businesses and property in the County its incorporated communities, and Public-School Districts.
- Identify Goals and Objectives of the County, communities and public-school districts to lessen and eliminate the loss of life and property damage due to natural and man-made hazards.
- Evaluate mitigation measures that should be undertaken by the County, cities, and towns to protect residents, businesses, and property, and by public schools to protect students, faculty, and staff Identify and recommend an Action Plan for implementation of mitigation strategies and measures.
- Develop a strategy for the adoption, maintenance, upkeep, and revision of the McClain County Multi-Jurisdictional Multi-Hazard Mitigation Plan.

The objective of this plan is to provide guidance for countywide mitigation activities for the next five years. It will ensure that McClain County and other partners implement hazard mitigation activities that are most effective and appropriate for the natural and man-made hazards that threaten the County, Communities, and School Districts of McClain County.

Scope

The scope of the McClain County Multi-Hazard Mitigation Plan 2021 Update includes the areas of incorporated and unincorporated McClain County. The McClain County Hazard Mitigation Plan addresses all-natural hazards deemed a threat to the citizens of McClain County. Both short-term and long-term hazard mitigation opportunities are addressed, beyond existing federal, state, and local funding programs.

Participating Jurisdictions

Planning Area includes unincorporated areas of McClain County, incorporated cities and towns including the Cities of Blanchard and Purcell; the Towns of Byars, Cole, Dibble, Goldsby, Rosedale, Washington, Wayne; and the public-school districts including Blanchard Public Schools, Dibble Public Schools, Purcell Public Schools, Washington Public Schools, and Wayne Public Schools. Mid-America Technology Center's Wayne Campus is also included in this plan.

Plan Goals

The McClain County Hazard Mitigation Planning Advisory Committee (HMPAC) developed the goals for the *McClain County and McClain County Public Schools Multi-Jurisdictional Multi-Hazard Mitigation Plan*, with input from interested citizens. The local goals were developed considering the hazard mitigation strategies and goals of the federal and state governments.

McClain County's Multi-Jurisdictional Goal

To improve the safety and well-being of the citizens residing and working in the McClain County, and attending and working at McClain County Public Schools, by reducing the potential of deaths, injuries, property damage, environmental and other losses from natural and man-made hazards in a manner that creates a disaster-resistant community, enhances economic development opportunities, and advances community goals and quality of life, resulting in more livable, viable, and sustainable communities.

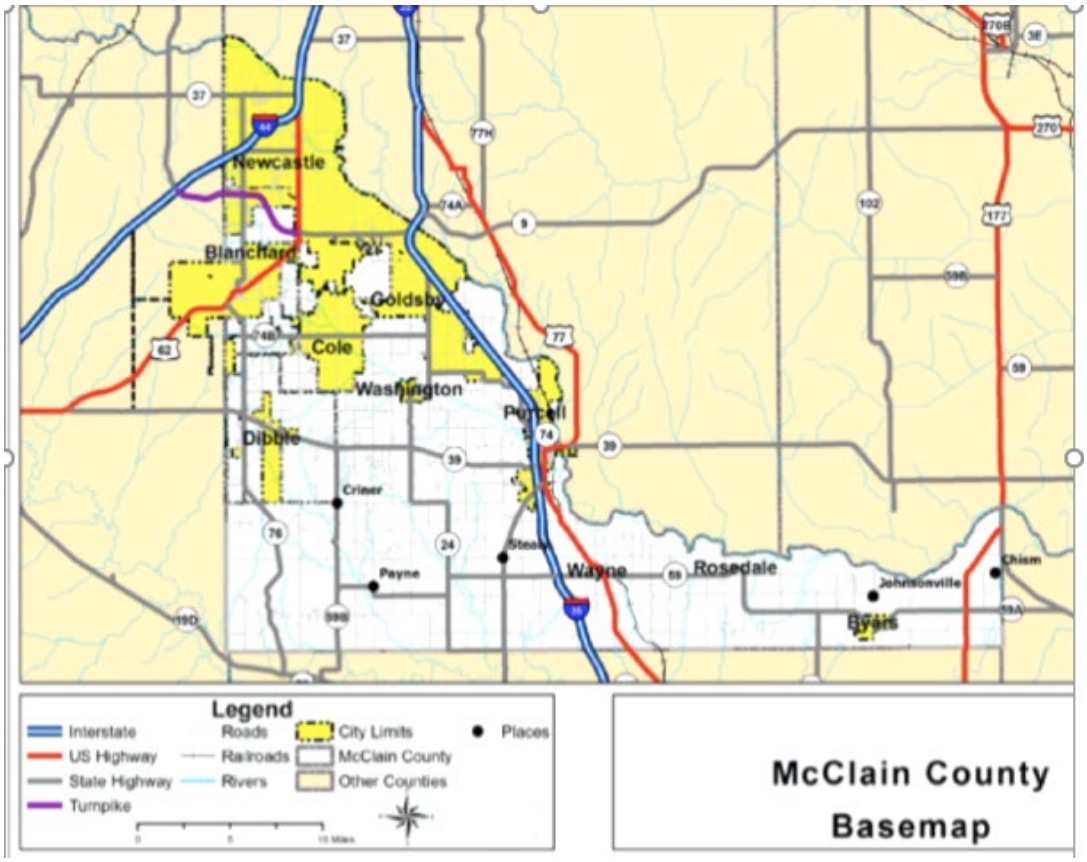
McClain County Public Schools' Goal

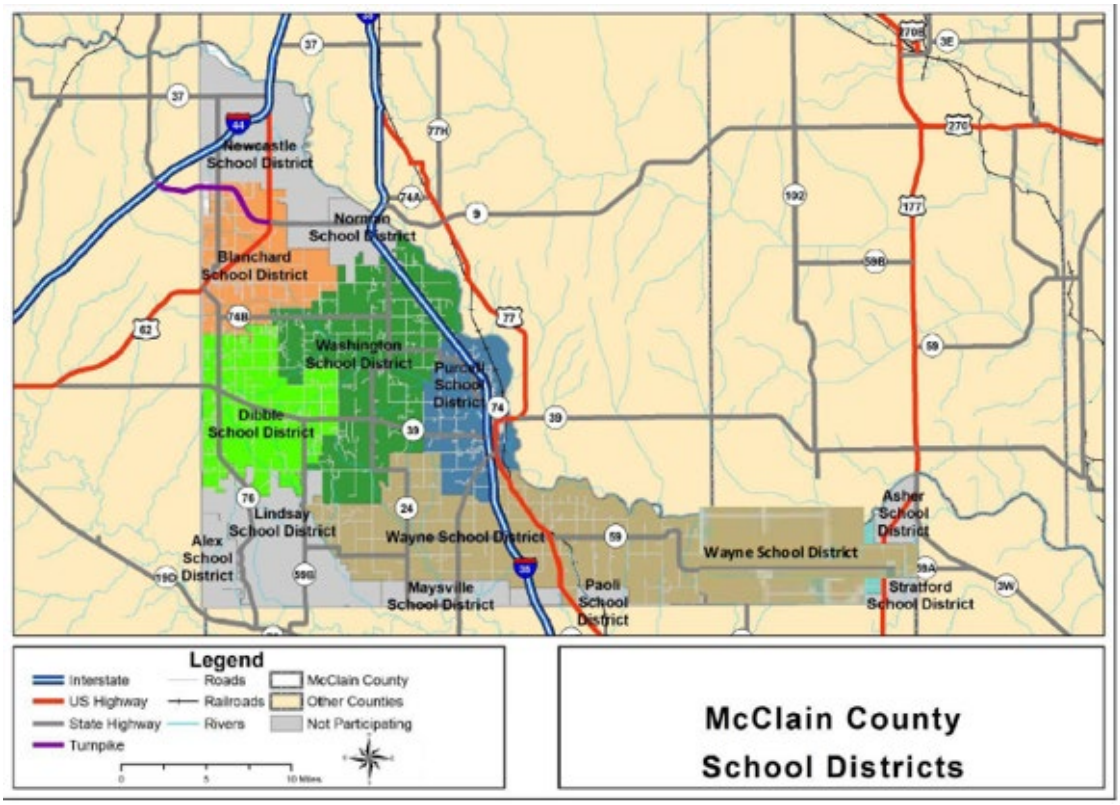
The primary goal of McClain County Public Schools Systems s to collaborate with the McClain County to identify potential natural hazards and to plan mitigation action plans that would prevent or soften the impact of the identified hazards on sites that comprise the Public-School District. Particularly, Participating School Districts would like to develop safe rooms/buildings to protect school communities from weather related hazards and provide neighborhood residents with an all-hazard shelter option near their homes. These safe structures during non-emergency times could be used to enhance instruction, and provide much needed space for fine arts programs, student activities, spectator events, and community meetings.

1.2 McClain County Overview

McClain County consists of 580 square miles (570 sq. miles of land and 10 sq. miles of water) in the Red Beds Plains of Central Oklahoma. McClain County is faced with a variety of both natural and man-made hazards. In recent years tornadoes, Severe Winter Storms, lightning, floods, and wildfires have made the national headlines. In fact, any part of the county can be impacted by high winds, drought, hail, urban fires, hazardous

materials events, earthquakes and other threats. In some cases, such as flooding and dam failure, the area's most at risk have been mapped and delineated.





Governance

Since achieving Statehood in 1907, each of Oklahoma's counties have had identical forms of government. All 77 counties have, as their chief administrative body, a three-member board of county commissioners. One commissioner is elected from each of three county election districts, each district being approximately equal in population in accordance with the decennial U.S. Census. Each board elects its chairman annually. The towns that are participating in the Plan Update are governed either by elected city councils or elected boards of trustees. Each body elects its own mayor. The independent public-school districts participating in the Plan Update are governed by boards of education whose members are elected from districts. Each board of education elects its own chairperson or president.

Geography

Latitude: 35.000 N Longitude: 97.440 W
FIPS Code: 40087
McClain County consists of 580 square miles in central Oklahoma (570 square miles of land and 10 square miles of water). Purcell serves as the County Seat. McClain County is part of the Oklahoma City Metropolitan Statistical Area. Five other counties border McClain. They are Pottawatomie, Cleveland, Garvin, Grady, and Pontotoc counties.
McClain County lies in the Red Beds Plains, a sub-region of the Osage Plains, and encompasses some of the best agricultural land in Oklahoma. The elevation is 1,102 feet at Purcell in the north-central part of the county. The South Canadian River's deep basin forms the northern boundary. The western part of the county is a relatively high plateau dissected by numerous drainage ways and streams. Black Jack oak trees heavily populate this area. Several creeks have cut valleys that extend in a north-south direction through the center of the county. The eastern part of the county consists of intermingled areas of prairies and oak-savannahs on rolling uplands. The Washita River flows west to southeast in Garvin County, near the southern boundary, with several McClain County creeks feeding into it.

Climate

McClain County's average annual precipitation generally increases from 33 inches in the western areas to 39 inches in the eastern portions of the county. Most precipitation occurs in the spring through fall, with May and October being the wettest months on average. Most winters
experience at least one inch of snow, with one in four years having 10 or more inches. Temperatures are relatively uniform, with a mean of 61. Temperatures range from an average daytime high of 94 degrees in July and August to an average low of 28 degrees in January. McClain County averages a growing season of 224 days, but plants that can withstand short periods of colder temperatures may have an additional five weeks.
Winds across McClain County are predominantly from the south to southwest, averaging about nine miles-per hours. The average relative humidity ranges from 39% to 94% during the day. June generally records the highest humidity and August records the lowest. Winter months tend to be cloudier than summer months. The percentage of possible sunshine ranges from an average of 55% in winter to nearly 80% in summer.

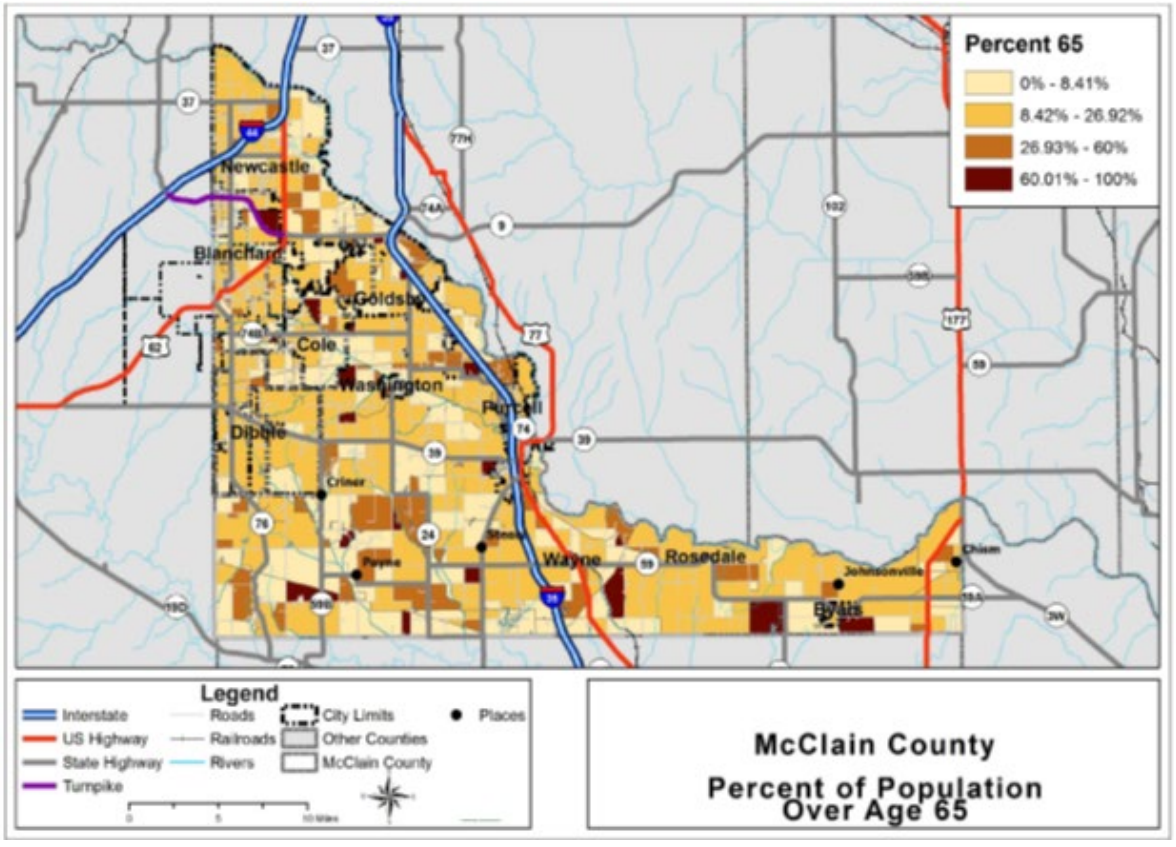
Demographics

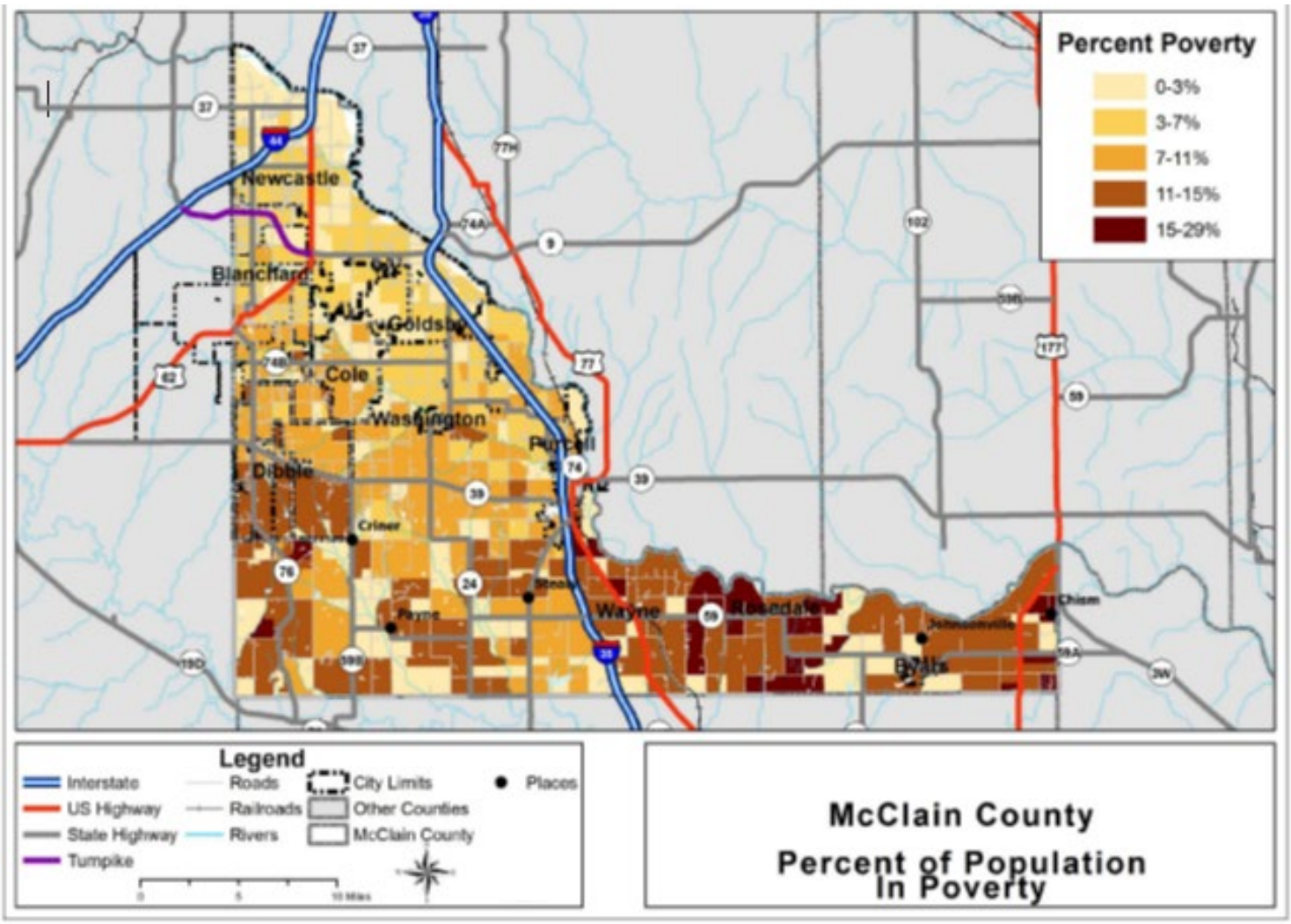
Between the Census of 2000 and 2010, McClain County grew from a population of 27,740 to 34,506—a growth rate of 24.4%, which made it the third fastest growing county in Oklahoma, behind Canadian and Wagoner counties. The county ranked as Oklahoma's fourth wealthiest in terms of median household income at $53,708. Although estimates vary, McClain had one of the state's lowest "population in poverty rates" at 9.4%--second only to Canadian County's 7.9%. About 8.2% of families were below the poverty line.

McClain County Population Data

Subject	Number	%	State %
Total Population	34,506	100	100
Under 5 years old	2,418	7	6.9
18 years and over	25,430	73.7	75.4
65 years and older	4,554	13.2	14
White	29,168	84.5	72.2
African-American	239	0.7	7.4
Native American	2,218	6.4	8.6
Hispanic	2,400	7	8.9
Poverty Status in 2010 * (families)	2,725	7.9	12.0
Poverty Status in 2010 * (all people)	4,002	11.6	16.3

* Source: U.S. Census 2010




Percent Poverty
0-3%
3-7%
7-11%
11-15%
15-29%
Newcastle
Blanchard
Goldsby
Cole
Washington
Purcell
Dibble
Criner
Wayne
Rosedale
Chism
Legend
Interstate
US Highway
State Highway
Turnpike
Roads
Railroads
Rivers
City Limits
Other Counties
McClain County
Places
McClain County
Percent of Population
In Poverty

Lifelines

Lifelines are the systems that are necessary for human life and community function, especially during emergencies. Transportation, utilities, and emergency services are considered the lifelines of a community. Transportation systems include interstate, US, and state highways, roadways, railways, waterways, ports, harbors, and airports. Utility systems consist of electric power, gas and liquid fuels, telecommunications, water, and wastewater. Emergency service facilities include Emergency Alert System (EAS) communication facilities, hospitals, and the police and fire departments.

Utility Systems

Utilities are one of the primary lifelines for individuals and business in any community and county. The table below contains a summary of the utility companies present in McClain County and the subsequent sections discuss each area in more detail. Although Newcastle and Cole utility providers are included in the following section, they are not participating in the Multi-Hazard Mitigation Plan.

Utility Suppliers for McClain County

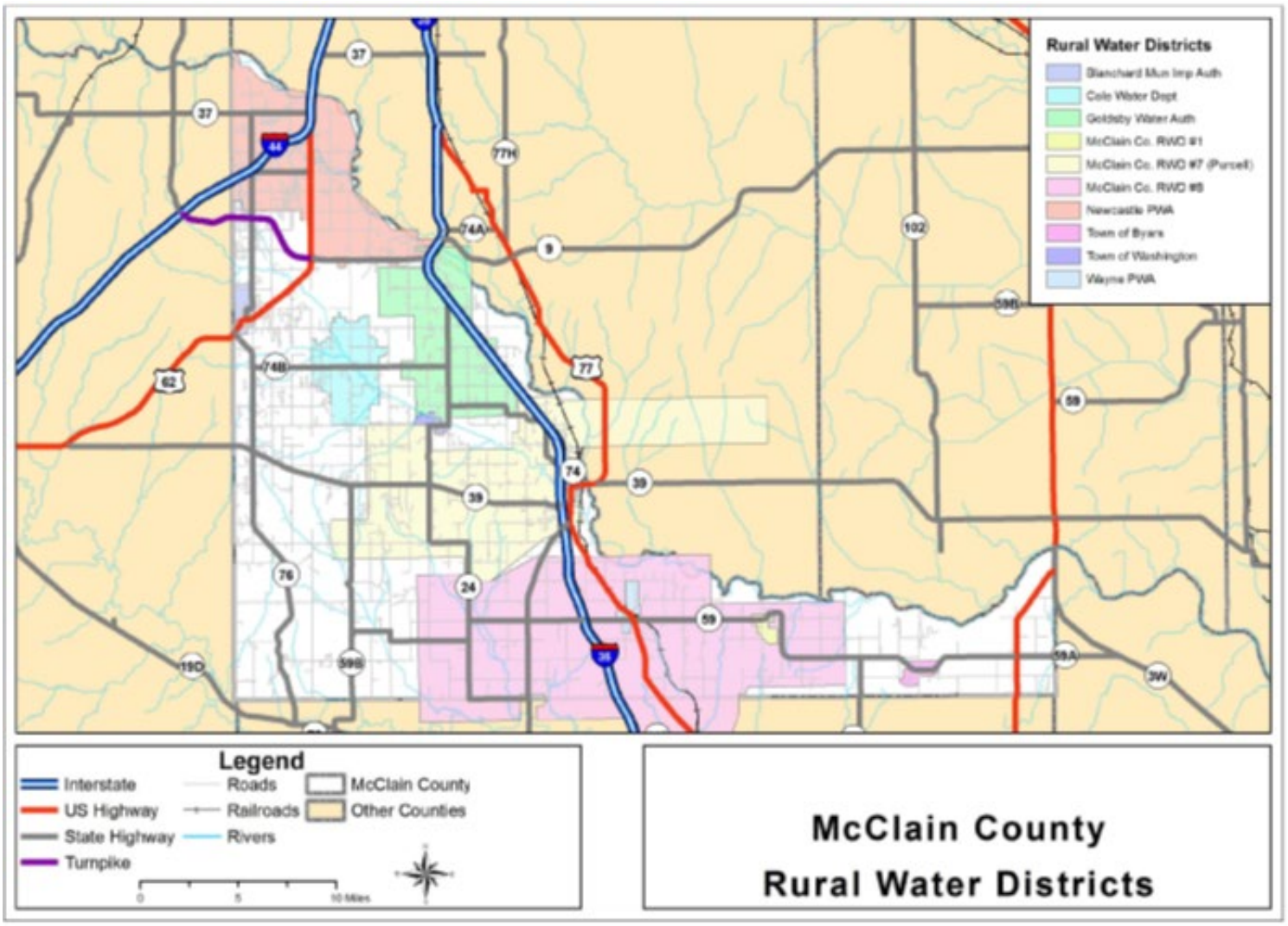
Community	Population	Natural Gas	Electric	Telephone
Blanchard	2,816	ONG	PSO, OEC	AT&T OK, Pioneer
Byars	280	OG&E	OG&E	AT&T OK
Cole	555	ONG	OEC	AT&T OK, Pioneer
Dibble	878	ONG	REC, OEC	AT&T OK.
Goldsby	1,204	ONG	OEC	Windstream
Newcastle	7,528	ONG	PSO, OEC	AT&T OK, Pioneer
Purcell	6,224	ONG	City of Purcell Electric	Windstream
Rosedale	66	OG&E	OG&E	AT&T OK
Washington	520	ONG	OEC, REC	AT&T OK, Pioneer
Wayne	714	ONG, OG&E	OG&E	AT&T OK

Electricity

McClain County's electrical service is provided by American Electric Power (dba Public Service Company of Oklahoma PSO), Oklahoma Electric Cooperative (OEC), Oklahoma Gas & Electric, Rural Electric Cooperative, and through Purcell Electric.

Wastewater Treatment

In the unincorporated areas of the County, most wastewater is treated by individual septic tank systems. Of McClain County's 9,300 housing units in 2000, 3,740 were on public sewer systems and 5,369 were on individual septic systems, while 191 units disposed of waste water by other means.



Community Water Systems

Population Served	Water System Name	Primary Source Water Type
150	Adkins Hill Village	Ground Water Purchased
2,966	Blanchard	Surface Water Purchased
280	Byars	Ground Water
473	Cole	Surface Water Purchased
289	Dibble	Surface Water Purchased
200	Dibble School	Ground Water
1,447	Garvin County RWD #2 (Lindsay)	Ground Water
100	Garretts TP	Ground Water Purchased
1,300	Goldsby Water Authority Trust	Ground Water
971	McClain Co. RWD #1 (Rosedale)	Ground Water, Purchased
300	McClain Co. RWD #2	Ground Water, Purchased
200	McClain Co. RWD #3	Ground Water, Purchased
600	McClain Co. RWD #7	Ground Water, Purchased
1,450	McClain Co. RWD #8	Ground Water
5,700	Newcastle	Ground Water, Surface Water Purchased
8,118	Purcell	Ground Water
72	Purcell MHP	Ground Water Purchased
80	Tri-City MHP	Ground Water Purchased
520	Washington	Ground Water
741	Wayne	Ground Water
83	Whippoorwill Estates	Ground Water

From OK Department of Environmental Quality

Natural Gas Service

The natural gas service in McClain County is provided by Oklahoma Natural Gas (ONG), Oklahoma Gas & Electric, and Oklahoma Liquefied Gas. In the locations not served by these companies, the communities rely on propane only.

Telephone, Internet, and Cable Service

With some exceptions telephone service for McClain County is provided by AT&T-Oklahoma, which also provides high-speed Internet to the area. In addition, Pioneer Telephone provides phone services within the county, primarily in Newcastle and Goldsby.

Transportation Systems

Highways and Roads

Several major US highways and Interstates cross McClain County along with a number of State highways. These are described below.

- Interstate 35 runs north-south through the central portion of Oklahoma for 236 miles (372 km). This interstate connects the Dallas-Ft. Worth area through Purcell and Goldsby in McClain County, to Norman, Oklahoma City, Kansas City, Minneapolis and Duluth, Minnesota.
- Interstate 44 runs diagonally northeast-southwest through Oklahoma for 329 miles (529 km), connecting Wichita Falls, Texas, to Lawton, Oklahoma City, Tulsa, and St. Louis, Missouri. I-44 cuts through the northwestern portion of McClain County and the City of Newcastle.
- US Highway 62 runs from the US-Mexico border at El Paso, Texas to Niagara Falls, New York. It is the only east-west US Route that connects Mexico and Canada. Parts of US Hwy 62 follow what once was the Ozark Trail, including the historic bridge across the South Canadian River in Newcastle, which was the first structure built with federal highway funds in Oklahoma. US Hwy 62 runs diagonally from the Texas state line near Hollis to the Arkansas state line near Fayetteville. The highway passes through Lawton, Chickasha, Blanchard, Newcastle and Oklahoma City, then on to Henryetta, Okmulgee, Muskogee and Tahlequah.US Highway 77 runs from Brownsville, Texas to Sioux City, Iowa, passing through the Dallas-Ft. Worth area, Ardmore, Wayne and Purcell in McClain County, and on to Norman and Oklahoma City. US Hwy 77 runs parallel I-35 in Oklahoma. It was the first Oklahoma highway to be paved from the Texas to Kansas borders.
- US Highway 177 is a north-south route that runs from South Haven, Kansas to Madill, Oklahoma. The highway cuts briefly across the extreme eastern end of McClain County, duplexed for about 5 miles with OK Hwy 59.
- US Highway 277 runs from south to north beginning at Del Rio, Texas and terminating at I44 in Newcastle. From Chickasha to Newcastle US 277 is duplexed with US Hwy 62 and is a 4-lane expressway from Blanchard north to Newcastle, where it becomes the city's Main St. and Meridian Ave.
- Oklahoma State Highway 9 is a major east-west route that begins at the Texas line west of Magnum and runs east through Granite, Anadarko and Chickasha before entering McClain County at Blanchard. From Anadarko to its junction with H.E. Bailey Turnpike Norman Spur, OK Hwy 9 is duplexed with US Hwy 62 and US 277. OK Hwy 9 turns east on the Spur to its junction with I-35, where it crosses the Canadian River, then branches eastward through Norman to Tecumseh, Seminole, Eufaula and Fort Smith, Arkansas. OK Hwy 9 is a four-lane, divided expressway from Blanchard to Norman. At 348 miles, OK Hwy 9 is Oklahoma's second longest State highway.
- Oklahoma State Highway 24 runs north-south entirely within McClain County, for 21.1 miles. The highway travels west 3 miles from OK Hwy 74 on the McClain-Garvin County line, then goes north past Woody Chapel and Washington until terminating again at OK Hwy 74 one mile north of Washington.
- Oklahoma State Highway 37 is a 66-mile, east-west highway that connects Hinton and Moore. It is four-lanes from Tuttle east to Newcastle, where it is known as NW 32nd St. In Newcastle, OK Hwy 34 is duplexed with I-44 north to SW 134th St. in South Oklahoma City, where it turns east through Moore before dead-ending at OK Hwy 77H.

- Oklahoma State Highway 39 is a 68-mile-long east-west highway that begins at Tabler in Grady County and connects Dibble, Woody Chapel and Purcell in McClain County, before continuing east and terminating at US Hwy 377 east of Konawa.
- Oklahoma State Highway 59 runs east-west in Central Oklahoma for 93 miles. It begins at OK Hwy 39 east of Dibble, travels south for 7 miles before turning east through the towns of Payne, Wayne, Rosedale, and Byars in McClain County. Spur 59A extends 4 miles east to OK Hwy 3W in Pontotoc County, and OK Hwy 59B is a spur extending south from 2 miles west of Payne to OK Hwy 19 near Lindsay in Garvin County.
- Oklahoma State Highway 74 is a north-south route that runs for a total of 144 miles. It begins at OK Hwy 7, three miles east of Tatums and travels north through Maysville, Purcell and Goldsby, where it joins I-35 into Norman and Oklahoma City. OK 74 continues north out of Oklahoma City to Crescent and Garber before terminating at OK Hwy 11 west of Blackwell. OK 74B is an east-west spur that passes through Cole and connects to OK Hwy 76 south of Blanchard.
- Oklahoma State Highway 76 runs north-south for 110 miles, beginning at Leon, near the Texas border and passing through Lindsay and Blanchard before terminating at OK Hwy 37 in Newcastle.

Airports

McClain County is served by 12 airports and one heliport, listed below:

- **David Jay Perry:** Located at 35.1550675 / -97.4703939 within the Town of Goldsby. This publically-owned facility has two runways and an automated refueling station.
- **Dick's Airport:** Private facility located at 35.1108333 / -97.4816667 south of Goldsby. Has a turf runway. Dick's Airport co-exists with Paradise Air Haven.
- **Pacer Field:** Privately owned turf runway at 35.1170131 / -97.4505872 just southeast of Goldsby.
- **Paradise Air Haven:** Located south of Goldsby at 35.1114833 / -97.4792528, this privately owned facility has a turf runway and several hangers. Paradise Air Haven co-exists with Dick's Airport.
- **Wyatt:** Also, south of Goldsby, at 35.0986797 / -97.4697539, this is another privately held airport with a turf runway.
- **Cole Landing Area:** Private airport located in Newcastle at 35.2583969 / -97.6628172. Cole Landing Area has a turf runway and several aircraft stored on site.
- **Odom's Roost:** Located between I-44 and OK Hwy 37 west of Newcastle at 35.2847856 / -97.6169831, Odom's Roost is a privately owned airport with a turf runway.
- **Purcell Municipal Airport- Steven E. Shephard Field:** Located at 34.9833497 / -97.3826383 in southeastern Purcell, this public airport has an asphalt runway and averages 38 operations a week. There are 4 aircraft based at the airport.
- **Low Pass:** Located at 35.2875628 / -97.6642064 near the intersection of OK Hwy 37 and OK Hwy 76, this is a private airport with a turf runway. A single ultralight is stored at the field.
- **Purcell Municipal Hospital- Heliport:** Located at 35.028406/-97.365583, this private helipad serves the Purcell Municipal Hospital.
- **Beefor Ranch:** Located at 35.0722927/-97.3839185, this is a private field with one turf runway, oriented NE-SW. Although visible from Google Maps, is unknown whether the field is still in use.
- **Flying A Ranch Airport:** Located at 35.0911796/-97.5011436, this is a private field with one turf runway, oriented NE-SW. Visible from Google Maps, it is unknown if the field is still in use.

Railroads

McClain County is served by one railroad, the Burlington Northern Santa Fe (BNSF), on tracks that connect Dallas/Ft. Worth to Wichita, Kansas and beyond. This BNSF line passes through Ardmore, Pauls Valley, Wayne, Purcell, Oklahoma City, Guthrie and Perry. The Heartland Flyer offers passenger service between Oklahoma City and Ft. Worth, with stops in Oklahoma at Norman, Purcell, Pauls Valley and Ardmore.

Bus Transport

Delta Public Transit of Lindsay, a program of Delta Community Action FND., INC., provides public transit services to residents of McClain, Garvin and parts of Cleveland counties. In McClain County, the towns of Blanchard, Byars, Dibble, Goldsby, Newcastle, Purcell, Rosedale, Washington and Wayne are included in the service area.

Economy

McClain County's historic economy largely revolved around agriculture. After the Civil War, Native Americans and white cattlemen operated large ranches on much of the land that would become McClain County. Farming was also pursued, as McClain County is blessed with some of the best soil in the state. Cotton was a major crop and cotton gins operated in all the small towns during the early 20th Century. Broomcorn was another important product. Ranching and farming have both continued into the present day, with wheat, soybeans and alfalfa becoming the major crops. In 2007 there were 1,318 farms in McClain County (up from 1,273 in 2002), with 336,852 acres being farmed (up from 307,330 acres), that produced $41,984,000 in sales (up from $34,853,000). About 75% of farm revenue was from livestock sales, and 25% from crops. About 57.5% of McClain County farmland is devoted to pasture and 32.8% to crops.

The major employers in McClain County, include the Chickasaw Nation, McClain County, the various Public-School Districts, Walmart, Troy Wesnidge, Newcastle and Riverwind Casinos, Purcell Municipal Hospital, B&H Construction, Marcum's Nursery, and Mid-America Technology Center.

McClain County Major Employers

Employer	Community	Activity
Riverwind Casino	Goldsby	Casino
Newcastle Gaming Center	Newcastle	Casino
Purcell Municipal Hospital	Purcell	Hospital
Blanchard School District	Blanchard	Education
Bridge Creek School District	Blanchard	Education
Mid-America Technology Center	Wayne	Education
B&H Construction	Goldsby	Drilling
Marcum's Nursery	Washington	Landscaping
Newcastle Public Schools	Newcastle	Education
Dibble School District	Dibble	Education
Newcastle Water Department	Newcastle	Government
Walmart	Newcastle	Retail
Walmart	Purcell	Retail

Source: Oklahoma Dept. of Commerce

The majority of McClain County residents commute to either Oklahoma or Cleveland Counties for employment, 41% and 23% respectively, while 27% of residents work in McClain County. Employment within the county spreads across a diverse mixture of industries: Agriculture, transportation/warehousing, retail, construction, and government-related jobs are the major employment types. In terms of education, 88% of the county has a high school diploma, and 13% are college graduates.

According to the 2013-2017 American Community Survey (ACS), there were 29,158 people over 16 years of age in McClain County and 18,403 people in the labor force. Only 693 of those in the labor force, or 2.4%, were unemployed. The median household income for McClain County in 2017 was $62,081, the median family income $72,700, the median income per worker $34,032, and the per capita income $28,353. The percentage of people in poverty was 9.5%.
(https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=CF)

The wealthiest communities in McClain County were: Newcastle, which had a per capita income of $34,364, median household income of $80,489, and median family income of $85,682; followed by Blanchard with a per capita income of $31,470, median household income of $70,094, and median family income of $79,890; and Goldsby, with a per capita income of $34,435, median household income of $78,750, and median family income of $85,893.

In summary, McClain County's economy is moderately dependent upon educational, health and social services (21.7%, 3,337 jobs), construction (9.7%, 1,546 jobs), retail (11.6%, 1,865 jobs), public administration (8.4%, 1,338 jobs), and agriculture (8.1%, 1,293 jobs). Together, these sectors provide over half (59.5%) of the jobs in the jurisdiction.

Development

Future Development

McClain County is one of the fastest growing counties in Oklahoma. This growth is largely tied to the economies of Norman, Ada, and the Oklahoma City Metropolitan Area. The fastest growing cities in the county are Goldsby and Newcastle, both of which are largely commuter communities with upscale homes on large lots and excellent school systems

Growth Trends

According to the 2000 census, McClain County's population was 27,740. By the time of the 2010 Census, the population had grown to 34,506, an increase of about 24%. Growth has spread south and west from Newcastle, Goldsby and Purcell, and to the north, east and south of Blanchard. All of these communities are served by major highways that provide easy and rapid access to Norman and the Oklahoma City Metro area.

Chapter 2: Planning Process

2.1 Overview of the Planning Process

Citizens, community leaders, government staff personnel, and professionals provided important input into the development of the Plan and recommended goals and objectives, mitigation measures, and priorities for actions. Some of the participants have been or are active in disaster response and emergency planning. Meetings to discuss the updates to the Hazard Mitigation Plan started in January of 2019, and occurred every other month until April of 2021.

Many public agencies, private organizations, and businesses contend with natural hazards. Management team members contacted them to collect their data on the hazards and determine how their programs can best support the McClain County Multi-Jurisdictional Multi-Hazard Mitigation planning program. The Emergency Operations Plan is administered under McClain County's Department of Emergency Management. The Public Works and Planning Departments play key roles during most emergencies.

Citizen participants – those who were not engaged in emergency management, disaster response or hazard mitigation – brought perspective from their personal lives, their respective communities, and from their knowledge of the impacts of some or all of the hazards. Some had experienced the results of one or more hazards or had seen and/or read about incidents elsewhere and were interested in working toward an Action Plan that would reduce community and personal vulnerability to the various hazards.

The McClain County Hazard Mitigation Planning Advisory Committee (HMPAC) was appointed to oversee the planning effort. The HMPAC also includes representatives of departments that have roles in multi-hazard planning, response, protection, and mitigation. Meetings were held quarterly to discuss updates to the McClain County Hazard Mitigation Plan.

2.2 Planning Committee Team Members

Name:	Title:	Jurisdiction Represented:	Primary POC Y/N	Contribution to Planning Process
Ron Johnson	Director	McClain County Emergency Management	Y	Served as project Coordinator. Provided Critical information on McClain County's Emergency Management, Historic events, and input on mitigation strategies.
Kristi Smith	Director	Town of Wayne	Y	Provided critical Information on Town of Wayne's Emergency Management, historic Events, and mitigation Strategies.
Chad Clanton	Superintendent	Dibble Schools	Y	Provided information on Dibble Public Schools and its vulnerabilities and Future.
Greg Cypert	Fire Chief	City of Purcell	N	Provided input on the City of Purcell's fire awareness and response capability and input on mitigation Measures from a fire/first Responder point of view.
Terry Daniel	County Commissioner	McClain County	N	Provided information and Perspectives on McClain Infrastructure and provided feedback on hazard's impacts and Mitigation strategies.
Nathan Dowden	Fire Chief	Town of Cole	Y	Provided input on Town of Cole's facilities, resources and historic events.
William Farmer	Fire Chief	Town of Rosedale	Y	Provided input from a fire chief perspective on hazard mitigations.
Paul Aday	Town Administrator	Town of Washington	Y	Provided input on Town of Washington's facilities, resources, and historic events.
Chris Reynolds	Superintendent	Washington Public Schools	Y	Provided input from a law enforcement perspective on hazard mitigation strategies
Doug Gilleland	Mayor	Town of Dibble	Y	Provided input in regards to Town of Dibble from a mayor perspective.
Charlie Largent	Fire Chief	City of Blanchard	Y	Provided a Fire Chief perspective on hazards and hazards mitigation Projects.
Dwight McCullar	Fire Chief	Town of Byars	Y	Provided a Fire Chief perspective on hazards and hazards mitigation Projects.
Ronny Nelson	Public Works Director	Town of Goldsby	Y	Input on various Hazards and Mitigation strategies.
Denny Prince	Assistant Superintendent	Mid-America Technology Center	Y	Provided information on Mid-America Technology Center and

				An education perspective on various hazards and mitigation strategies.
Kevin Rhoads	Emergency Management Director	City of Purcell	Y	Provided information On Purcell's Emergency response capabilities and Procedures. Helped with Purcell's Planning documents and future plans.
Earl Myers	Director of Operations	Blanchard Public Schools	Y	Provided input on various mitigation strategies related to public schools.
Sheli McAdoo	Superintendent	Purcell Public Schools	Y	Provided input from an education perspective on various hazard and mitigation strategies.
Don Hewitt	McClain County Sheriff	McClain County Sheriff's Office	N	Provided input from a law enforcement prospective.
Toby Ringwald	Superintendent	Wayne Public Schools	Y	Provided input on various mitigation strategies related to public schools.

2.3 Stakeholder's Involved in the Planning Process

Name	**Title**	**Agency Represented**	**How agency was invited**	**Contribution to Planning Process**
Jackie Wadley	Owner/VP	Wadley's EMS Incorporated	Telephone	Provided information regarding Wadley's EMS Incorporated and first responder Point of View.
Kim O'Brien	Disaster Specialist	American Red Cross	Telephone	Provided input on hazards, mitigations, and disasters.
Scott Carroll	Lead Field Environmentalist	BP-L48 MidCon	Email	Provided input on hazards, mitigations, and disasters.
Tux Jackson	Damage Prevention	Plains Pipeline	Telephone	Provided input on hazards, mitigations and disasters.
Patti Maness	Veterinarian	Maness Vet Services	In Person	Provided input on hazards, mitigations, and disasters.
Jordan Powell	Owner	ESI Environmental Cleanup Inc.	Telephone/Email	Provided input on hazards and disaster cleanups.

Dave Johnson	Emergency Management Director	Garvin County	In Person	Provided input on Emergency Management Hazards and Disasters.
Donnie Sullins	Emergency Management Director	City of Newcastle	In Person	Provided input on Emergency Management Hazards and Disasters.

State and Federal Agencies Contacted

Agency Represented	**Contribution:**
Chickasaw Nation	Provided input on the different hazards, mitigations and disasters from a tribal view.
Oklahoma State Health Department	Provided input on how to prevent and reduce the loss of life, injury, and public health impacts.
National Weather Service	Provided input on weather, climate data, forecasts and warning for the protection of life and property.
US Army Corps of Engineers	Provided input on how to reduce the risk of disasters, as well as input on dam safety.
Oklahoma Water Resource Board	Provided input on dam safety.

2.4 Public Involvement in the Planning Process

The Planning Committee Team undertook projects to inform the public of this effort and to solicit its input. All meetings were publicly posted, as required by ordinances and rules of the jurisdiction, and residents of McClain County were invited to fully participate in the planning process. Public meetings were held at the Purcell Fire Department, Goldsby's Community Center, Blanchard Old City Hall and Mid-America Technology Center. In all public meetings, surveys were made available to the participants to review concerns and questions. Information provided by the public was incorporated throughout this plan. Public input was especially important when identifying sound and much needed mitigation measures to include in the plan. Public input also helped to summarize past hazard events and impacts in each respective community and school district that were not included in the National Climatic Data Center Storm Events Database.

2.5 Plans, Studies, Reports, and Technical Information Reviewed

The planning team reviewed relevant community studies, plans reports and technical documents in the inventory, evaluation and plan phases of the Multi-Hazard Mitigation Plan development. Interviews with public officials were used to determine jurisdictional growth patterns and identify areas of future development.

Plan, Studies, Reports, and Technical Info	Relevant Information incorporated into the Plan
National Climatological Date Center (NCDC)	Historical hazard data used for Previous occurrence sections
US Census Bureau Population Data, 2010	Identified vulnerable populations for hazards.
OK State Hazard Mitigation Plan	Hazard Description and Extent information used for hazard profiles
Capital Improvement Plan, City of Blanchard	The process used for approving new project funding
Hazus Damage Estimation Model	Calculated damages from flooding and earthquakes.
McClain Co 5-Tier Capital Improvement Plan	Identified areas of future growth and development so that hazardous areas could be identified, evaluated, planned for, and appropriate mitigation measures taken.
Emergency Operations Plans	Identify current resources and current capabilities.

2.6 Continued Public Participation in the Plan

The Planning Committee is committed to involving the public directly in updating and maintaining the Multi-jurisdictional Multi-Hazard Mitigation Plan. Copies of the plan will be maintained at the McClain County Courthouse and Public Libraries. A public meeting will be conducted annually, and advertised to the general public, using our McClain County Mass Notification System. This meeting will be updated residents on the progress that has been made implementing the plan. Input from the public will be solicited as to how the mitigation process can be more effective.

2.7 Plan Monitoring, Evaluating, and Updating

The McClain County Emergency Management Director will be responsible for monitoring, evaluating, and updating all aspects and components of the Hazard Mitigation Plan in accordance with 44 CFR. The plan will be updated and resubmitted through the State Hazard Mitigation officer for review and approval, and to FEMA no later than six months prior to the end of the original performance period.

Monitor.

Monitoring the plan, the action plan, and mitigation measures is the responsibility of the McClain County Emergency Manager. The jurisdictional POC's will assist this effort by being responsible for the implementation of the Action Plan and the Mitigation Measures for their respective jurisdictions. Their progress will be documented to the McClain Emergency Manager in an annual progress report. These reports will be provided to the planning committee, and the progress and/or impediments to progress of the mitigation measures will be discussed.

Evaluate.

The McClain County Emergency Manager, in conjunction with the jurisdictional POC's, will review the Hazard Mitigation Plan annually to ensure it sufficiently fulfills mitigation objectives. The evaluation will assess:

- Adequacy of adopted goals and objectives in addressing current and future expected conditions.
- Whether the nature and magnitude of the risks have changed;
- To what extent the outcomes of the Mitigation measures occurred as expected;
- Whether agencies, departments and other partners participated as originally anticipated.

Update.

The McClain County Multi-Hazard Mitigation Plan will be updated according to the following schedule.

1. The Planning Committee will reconvene to discuss plan update two years before plan expiration. The McClain County Emergency Manger will be responsible for scheduling all Planning Committee Meetings.
2. Revise and Update-the McClain Emergency Manager will incorporate revisions to the plan document identified during the monitoring and evaluation period.
3. Submit for Review-the revised plan will be submitted to OEM and FEMA for review and approval.

Chapter 3: Hazard Identification and Risk Assessment

3.1 Introduction:

According to the Federal Emergency Management Agency, a hazard is defined as an event or physical condition that has the potential to cause fatalities, injuries, property damage, infrastructure damage, or agriculture loss, among other types of loss or harm. Hazards are generally defined as one of two categories based on their source: natural hazards and man-made hazards.

The previous McClain Co HM Plan listed Expansive Soils as a hazard that affects the planning area. This plan update does not include this hazard because the Planning Area has not had any recorded instances of this hazard occurring within McClain County. In addition, the Oklahoma State Hazard Mitigation Plan Update (OSHMPU) shows that McClain Co has a low-medium Relative Abundance of Expansive Soils. The 2019 OSHMPU also states there are no reported losses that can be identified as being caused by Expansive Soils. Due to this lack of data, and the Planning Area's inability to effectively mitigate a hazard with no discernable occurrence, the planning team decided not to include Expansive Soils in this plan update.

3.2 Disaster History:

Federal Disaster Declarations in McClain County 1995 to 2021

Disaster Number	Incident	Declaration Date	Assistance Received
FEMA-DR-4222-OK	Severe Storms, Tornados, Straight Line Winds, and Flooding	May 26, 2015	Individual Assistance, Public Assistance
FEMA-DR-4117-OK	Severe Storms and Tornadoes	May 21, 2013	Individual Assistance, Public Assistance
FEMA-DR-1989- OK	Severe Storms, Tornadoes, Straight Line Winds, and Flooding	June 6, 2011	Individual Assistance, Public Assistance
FEMA-DR-1883- OK	Severe Winter Storm	March 5, 2010	Public Assistance
FEMA-DR-1876- OK	Severe Winter Storm	February 25, 2010	Public Assistance
FEMA-DR-1846- OK	Wildfires	June 19, 2009	Individual Assistance
FEMA-DR-1735- OK	Severe Winter Storms	December 18, 2007	Public Assistance
FEMA- DR-1718- OK	Severe Storms, Tornadoes, and Flooding	August 24, 2007	Public Assistance
FEMA- DR-1712- OK	Severe Storms, Flooding, and Tornadoes	July 7, 2007	Individual Assistance, Public Assistance
FEMA- DR-1707- OK	Severe Storms, Tornadoes, and Flooding	June 7, 2007	Public Assistance
FEMA- DR-1678- OK	Severe Winter Storms	February 1, 2007	Public Assistance
FEMA- DR-1623- OK	Severe Wildfire Threat	January 10, 2006	Public Assistance, Category B
FEMA- DR-1465- OK	Severe Storms and Tornadoes	May 10, 2003	Individual Assistance
FEMA- DR-1401 -OK	Ice Storm	February 1, 2002	Individual Assistance
FEMA- DR-1384- OK	Severe Storms	June 29, 2001	Public Assistance
FEMA- DR-1355 -OK	Severe Winter Storm	January 5, 2001	Individual Assistance, Public Assistance
FEMA- DR-1349 -OK	Severe Storms and Flooding	November 27, 2000	Public Assistance
FEMA- DR-1272 -OK	Tornadoes, Storms, and Flooding	May 3, 1999	Individual Assistance, Public Assistance

Source: www.FEMA.gov

3.3 Hazard Probability Rating:

A Hazard Risk Analysis provides a quantitative process for assessing and evaluating hazards. It promotes a common base for performing the analysis by defining criteria and establishing a rating/scoring system.

Probability Rating	Explanation
High	More than 90% probability.
Medium	Between 30%-90% probability.
Low	Between 10%-29% probability.
Very Low	Less than 10% probability.

Probability can be determined by calculating the:
Total number of events = Probability % of event occurring each year
Total number of years

3.4 Profiled Hazards

3.4.1 Dam Failure

Description

Dam Failure: A dam failure is the collapse, breach, or other failure resulting in downstream flooding. A dam is an artificial barrier usually constructed across a stream channel to impound water. Timber, rock, concrete, earth, steel, or a combination of these materials may be used to build the dam. A dam that impounds water in the upstream area is referred to as a reservoir. The amount of water impounded is measured in acre-feet. An acre-foot is the volume of water that covers an acre of land to a depth of one foot. As a function of upstream topography, even a very small dam may impound or detain acre-feet of water. Two factors influence the potential severity of a full or partial dam failure: the amount of water impounded, and the density, type, and value of development and infrastructure located downstream.

Location

There are eighteen dams classified as high hazard by the Oklahoma Water Resources Board that would impact the Planning Area.

McClain County High Hazard Dams

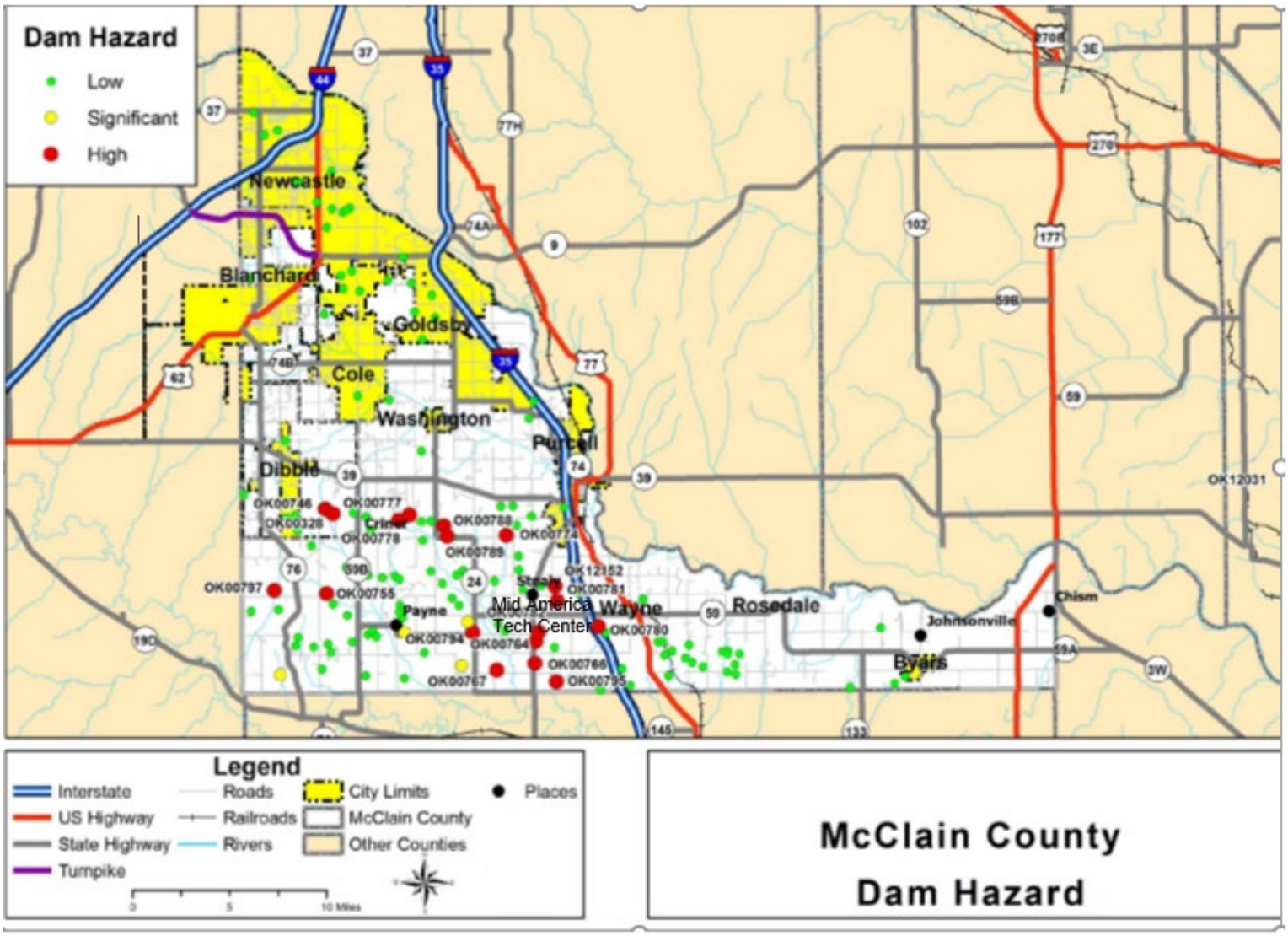
Dam ID #	Dam Name	Maintenance	Year	Jurisdictions Affected:	Jurisdictions Not Affected:
OK00797	Colbert Dam 2	McC Co CD	1958	McClain County	Blanchard, Byars, Cole, Dibble Goldsby, Purcell, Rosedale, Washington, Wayne, Blanchard School District, Dibble Public Schools, Purcell School District, Washington School District, Wayne School District, Mid-America Technology Center.

OK00328	Criner Dam 2	McC Co CD	1959	McClain County	Portions of the Dibble School District would be tangentially affected if a breach were to occur. Some transportation routes in outlying areas of the school boundary are located in the unincorporated McClain County dam failure inundation area, but none of the school structures or associated properties are located in the inundation area. The dam inundation area is NOT within the boundaries of Blanchard, Byars, Cole, Goldsby, Purcell, Rosedale, Washington, Wayne, Blanchard School District, Purcell School District, Washington School District, Wayne School District, Mid-America Technology Center.
OK00746	Criner Dam 3	McC Co CD	1960	McClain County	Portions of the Dibble School District would be tangentially affected if a breach were to occur. Some transportation routes in outlying areas of the school boundary are located in the unincorporated McClain County dam failure inundation area, but none of the school structures or associated properties are located in the inundation area. The dam inundation area is NOT within the boundaries of Blanchard, Byars, Cole, Goldsby, Purcell, Rosedale, Washington, Wayne, Blanchard School District, Purcell School District, Washington School District, Wayne School District, Mid-America Technology Center.
OK00755	Criner Dam 13	McC Co CD.	1961	McClain County	Blanchard, Byars, Cole, Dibble, Goldsby, Purcell, Rosedale, Washington, Wayne, Blanchard School District, Dibble School District, Purcell School District, Washington School District, Wayne School District, Mid-America Technology Center.
OK00795	Finn Site 002	McC Co CD	1966	McClain County	Blanchard, Byars, Cole, Dibble, Goldsby, Rosedale, Purcell, Washington, Wayne, Blanchard School District, Dibble School District, Purcell Public Schools, Washington School District, Wayne School District Mid-America Technology Center.
OK00794	Finn Site 003A	McC Co CD	1964	McClain County	Portions of the Wayne School District would be tangentially affected if a breach were to occur. Some transportation routes in outlying areas of the school boundary are located in the unincorporated McClain County dam failure inundation area, but none of the school structures or associated properties are located in the inundation area. The dam inundation area is NOT within the boundaries of Blanchard, Byars, Cole, Dibble, Goldsby, Purcell, Rosedale, Washington, Wayne, Blanchard School District, Dibble School District, Purcell School District. Washington School District, Mid-America Technology Center.
OK00789	Finn Site 008	McC Co CD	1964	McClain County	Portions of the Washington School District would be tangentially affected if a breach were to occur. Some transportation routes in outlying areas of the school boundary are located in the unincorporated McClain County dam failure inundation area, but none of the school structures or associated properties are located in the inundation area. The dam inundation area is NOT within the boundaries of Blanchard, Byars, Cole, Dibble, Goldsby, Purcell, Rosedale, Washington, Wayne, Blanchard School District, Dibble School District, Purcell Public School, Wayne School District Mid-America Technology Center.
OK00788	Finn Site 009	McC Co CD	1964	McClain County	Portions of the Washington School District would be tangentially affected if a breach were to occur. Some transportation routes in outlying areas of the school boundary are located in the unincorporated McClain County dam failure inundation area, but none of the school structures or associated properties are located in the inundation area. The dam inundation area is NOT within the boundaries of Blanchard, Byars, Cole, Dibble, Goldsby, Purcell, Rosedale, Washington, Wayne, Blanchard School District, Dibble School District, Purcell Public School, Wayne School District Mid-America Technology Center.
OK12152	Finn Site 015	McC Co CD	1967	McClain County	Portions of the Wayne School District would be tangentially affected if a breach were to occur. Some transportation routes in outlying areas of the school boundary are located in the unincorporated McClain County dam failure inundation area, but none of the school structures or associated properties are located in the inundation area. The dam inundation area is NOT within the boundaries of Blanchard, Byars, Cole, Dibble, Goldsby, Purcell, Rosedale, Washington, Wayne, Blanchard School District, Dibble School District, Purcell School District. Washington School District, Mid-America Technology Center.
OK00782	Finn Site 016	McC Co CD	1968	McClain County	Portions of the Wayne School District would be tangentially affected if a breach were to occur. Some transportation routes in outlying areas of the school boundary are located in the unincorporated McClain County dam failure inundation area, but none of the school structures or associated properties are located in the inundation area. The dam inundation area is NOT within the boundaries of Blanchard, Byars, Cole, Dibble, Goldsby, Purcell, Rosedale, Washington, Wayne, Blanchard School District, Dibble School District, Purcell School District. Washington School District, Mid-America Technology Center.
OK00781	Finn Site 018	McC Co CD	1967	McClain County	Portions of the Wayne School District would be tangentially affected if a breach were to occur. Some transportation routes in outlying areas of the school boundary are located in the unincorporated McClain County dam failure inundation area, but none of the school structures or associated properties are located in the inundation area. The dam inundation area is NOT within the boundaries of Blanchard, Byars, Cole, Dibble, Goldsby, Purcell, Rosedale, Washington, Wayne, Blanchard School District, Dibble School District, Purcell School District. Washington School District, Mid-America Technology Center.

OK00780	Finn Site 019	McC Co CD	1967	McClain County	Portions of the Wayne School District would be tangentially affected if a breach were to occur. Some transportation routes in outlying areas of the school boundary are located in the unincorporated McClain County dam failure inundation area, but none of the school structures or associated properties are located in the inundation area. The dam inundation area is NOT within the boundaries of Blanchard, Byars, Cole, Dibble, Goldsby, Purcell, Rosedale, Washington, Wayne, Blanchard School District, Dibble School District, Purcell School District. Washington School District, Mid-America Technology Center.
OK00778	Finn Site 021	McC Co CD	1965	McClain County	Portions of the Washington School District would be tangentially affected if a breach were to occur. Some transportation routes in outlying areas of the school boundary are located in the unincorporated McClain County dam failure inundation area, but none of the school structures or associated properties are located in the inundation area. The dam inundation area is NOT within the boundaries of Blanchard, Byars, Cole, Dibble, Goldsby, Purcell, Rosedale, Washington, Wayne, Blanchard School District, Dibble School District, Purcell Public School, Wayne School District Mid-America Technology Center.
OK00777	Finn Site 022	McC Co CD	1965	McClain County	Portions of the Washington School District would be tangentially affected if a breach were to occur. Some transportation routes in outlying areas of the school boundary are located in the unincorporated McClain County dam failure inundation area, but none of the school structures or associated properties are located in the inundation area. The dam inundation area is NOT within the boundaries of Blanchard, Byars, Cole, Dibble, Goldsby, Purcell, Rosedale, Washington, Wayne, Blanchard School District, Dibble School District, Purcell Public School, Wayne School District Mid-America Technology Center.
OK00774	Finn Site 025	McC Co CD	1964	McClain County	Portions of the Wayne School District would be tangentially affected if a breach were to occur. Some transportation routes in outlying areas of the school boundary are located in the unincorporated McClain County dam failure inundation area, but none of the school structures or associated properties are located in the inundation area. The dam inundation area is NOT within the boundaries of Blanchard, Byars, Cole, Dibble, Goldsby, Purcell, Rosedale, Washington, Wayne, Blanchard School District, Dibble School District, Purcell School District. Washington School District, Mid-America Technology Center.
OK00767	Finn Site 033	McC Co CD	1967	McClain County	Blanchard, Byars, Cole, Dibble, Goldsby, Purcell, Rosedale, Washington, Wayne, Blanchard School District, Dibble School District, Purcell School District, Washington School District, Wayne School District, Mid-America Technology Center.
OK00766	Finn Site 034	Maysville	1971	McClain County	Blanchard, Byars, Cole, Dibble, Goldsby, Purcell, Rosedale, Washington, Wayne, Blanchard School District, Dibble School District, Purcell School District, Washington School District, Wayne School District, Mid-America Technology Center.
OK00764	Finn Site 036	McC Co CD	1967	McClain County	Portions of the Wayne School District would be tangentially affected if a breach were to occur. Some transportation routes in outlying areas of the school boundary are located in the unincorporated McClain County dam failure inundation area, but none of the school structures or associated properties are located in the inundation area. The dam inundation area is NOT within the boundaries of Blanchard, Byars, Cole, Dibble, Goldsby, Purcell, Rosedale, Washington, Wayne, Blanchard School District, Dibble School District, Purcell School District. Washington School District, Mid-America Technology Center.

Source: Oklahoma Water Resources Board

Location Map for the dams located in McClain County



The McClain County Hazard Mitigation Plan 2015-2020 plan included the Sanford Dam. This dam is located in the panhandle of Texas. Sanford Dam is operated by the Bureau of Reclamation under normal conditions, and by the US Army Corps of Engineers when the pool behind the dam reaches a certain elevation. This dam is not being included in the McClain County Hazard Mitigation Plan 2021-2026 plan because should a breach occur, none of the inundation area would impact the Planning Area.

Extent

The Planning Area measures and categorizes Dam Failure Extent using inundation maps that depict flood depth and speed of flood onset. Oklahoma Conservation Commission inundation maps are provided for each of the eighteen dams that affect the Planning Area, along with a narrative on the flood depth and speed of onset time for each dam, should a breach occur.

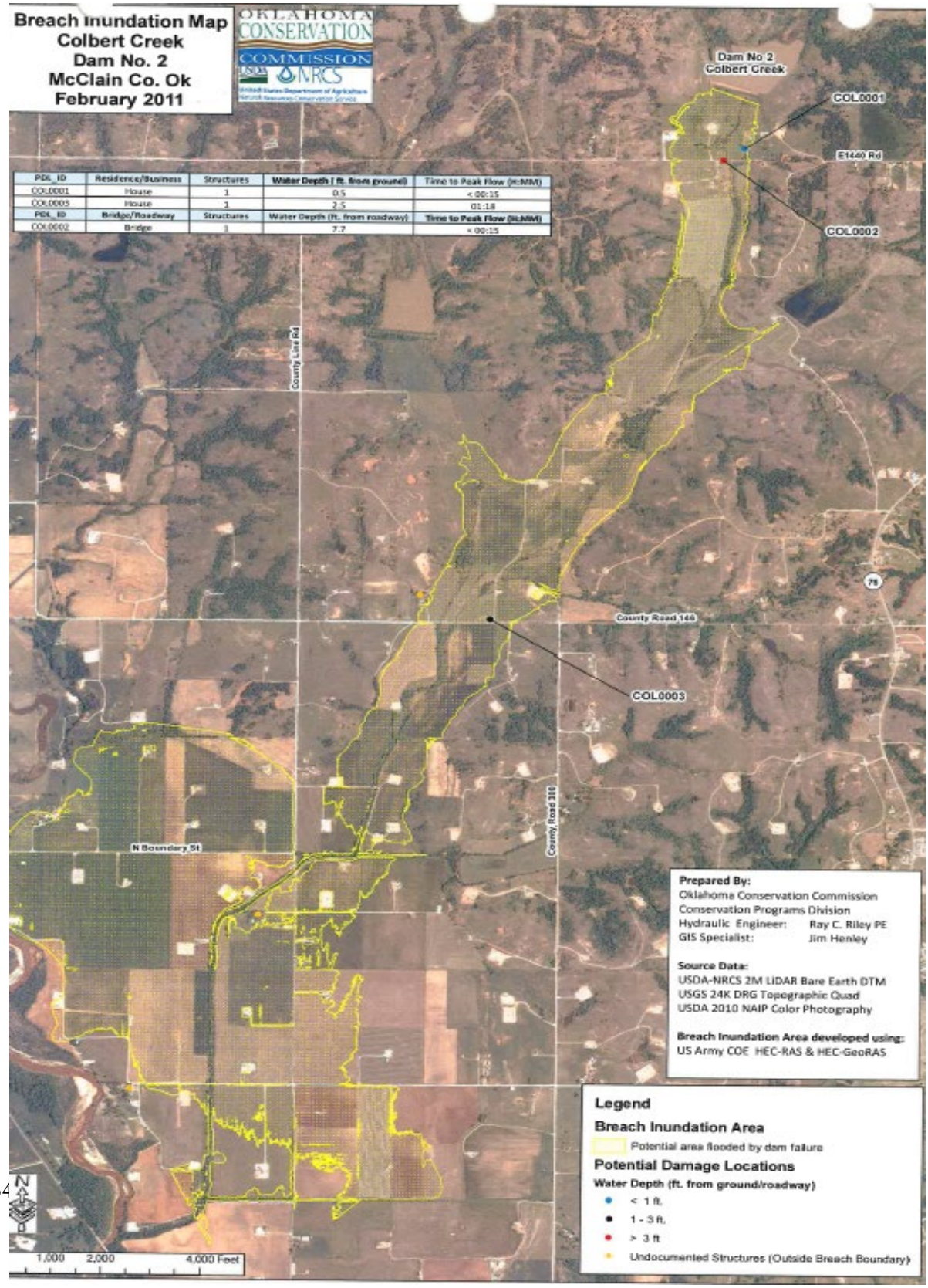
Overview of Dam Capacity and Water Storage

Dam ID #	Dam Name	Dam Length	Dam Height	Max Storage	Normal Storage	Surface Area
OK00797	Colbert Dam 2	1,580	28	1,263	325	49
OK00328	Criner Dam 2	1,401	36	1,667	116	29
OK00746	Criner Dam 3	1,008	37	396	61	11
OK00755	Criner Dam 13	2,000	42	1,213	258	45
OK00795	Finn Site 002	1,400	21	532	133	31
OK00794	Finn Site 003A	750	21	96	48	3
OK00789	Finn Site 008	1,080	37	488	131	19
OK00788	Finn Site 009	1,200	32	448	131	23
OK12152	Finn Site 015	1,610	38	685	89	19
OK00782	Finn Site 016	1,110	29	151	34	8
OK00781	Finn Site 018	820	35	155	23	4
OK00780	Finn Site 019	1,300	23	163	21	7
OK00778	Finn Site 021	1,290	52	371	76	11
OK00777	Finn Site 022	1,250	50	403	114	20
OK00774	Finn Site 025	1,000	39	623	138	22
OK00767	Finn Site 033	1,230	26	210	31	8
OK00766	Finn Site 034	3,100	38	6,045	2,082	302
OK00764	Finn Site 036	1,420	36	450	50	11

Source: Oklahoma Water Resources Board

The map below illustrates the dam failure inundation area and speed of flood onset of the Colbert Creek Dam No. 2, as depicted in the yellow shaded area. Should the dam fail, floodwaters would reach the first residential structure and bridge in less than 15 minutes. Further South of the dam is a residential structure which would experience inundation in 1.18 hours. There are 2 knows residential structures and 1 bridge in the inundation area. A flood depth of less than 0.5 foot to greater than 7.7 feet is expected in the inundation area.

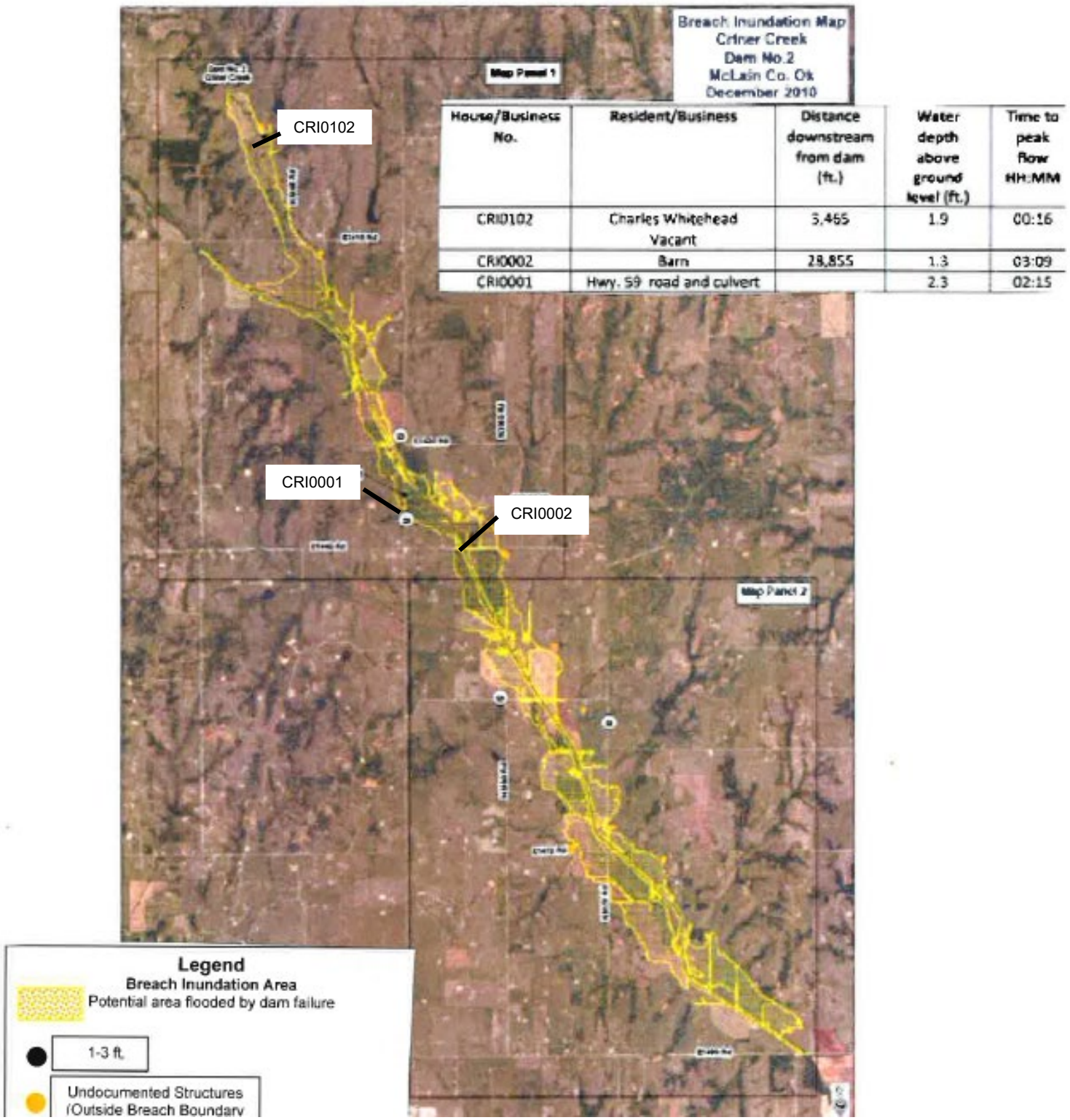
Breach Inundation Map Colbert Creek Dam No. 2



The map below illustrates the dam failure inundation area and speed of flood onset of the Criner Creek Watershed Dam No.2, as depicted in the yellow shaded area. Should the dam fail, floodwaters would reach the first Residential Structure in less than 16 minutes. Further South of the dam is a barn and Hwy.59 road and culvert which would experience inundation in less than 3.09 hours. There is 1 known residential structure and 1 barn and Hwy.59 road and culvert in the inundation area. A flood depth 1 foot to 3 feet is expected in the inundation area.

Breach Inundation Map

Criner Creek Watershed Dam No. 2

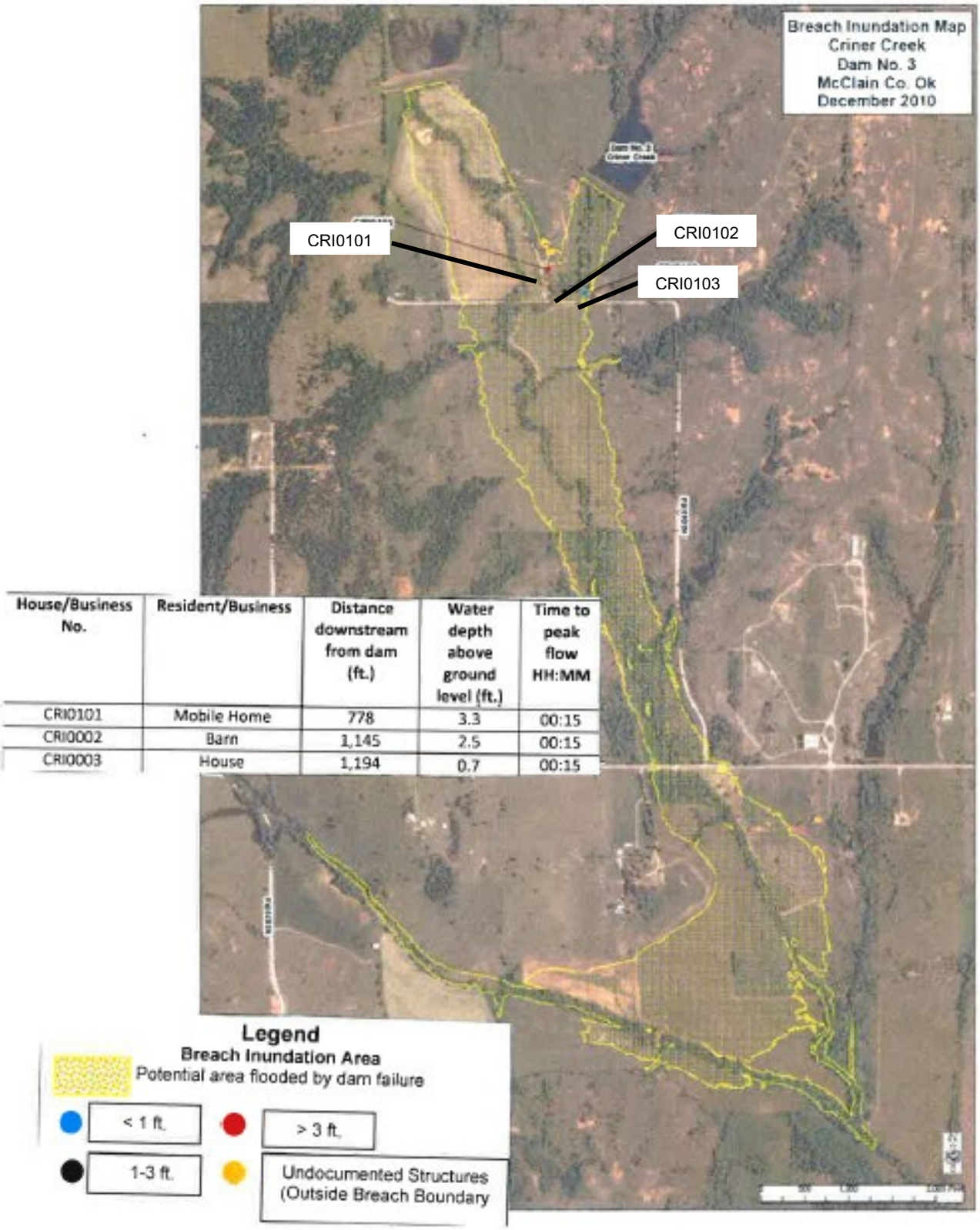


House/Business No.	Resident/Business	Distance downstream from dam (ft.)	Water depth above ground level (ft.)	Time to peak flow HH:MM
CRI0102	Charles Whitehead Vacant	3,465	1.9	00:16
CRI0002	Barn	28,855	1.3	03:09
CRI0001	Hwy. 59 road and culvert		2.3	02:15

The map below illustrates the dam failure inundation area and speed of flood onset of the Criner Creek Watershed Dam No.3, as depicted in the yellow shaded area. Should the dam fail, floodwaters would reach 2 Residential Structures, and a barn in less than 15 minutes. There is 2 known residential structures and 1 barn in the inundation area. A flood depth of less than 0.7 feet to greater than 3.3 feet is expected in the inundation area.

Breach Inundation Map

Criner Creek Watershed Dam No. 3

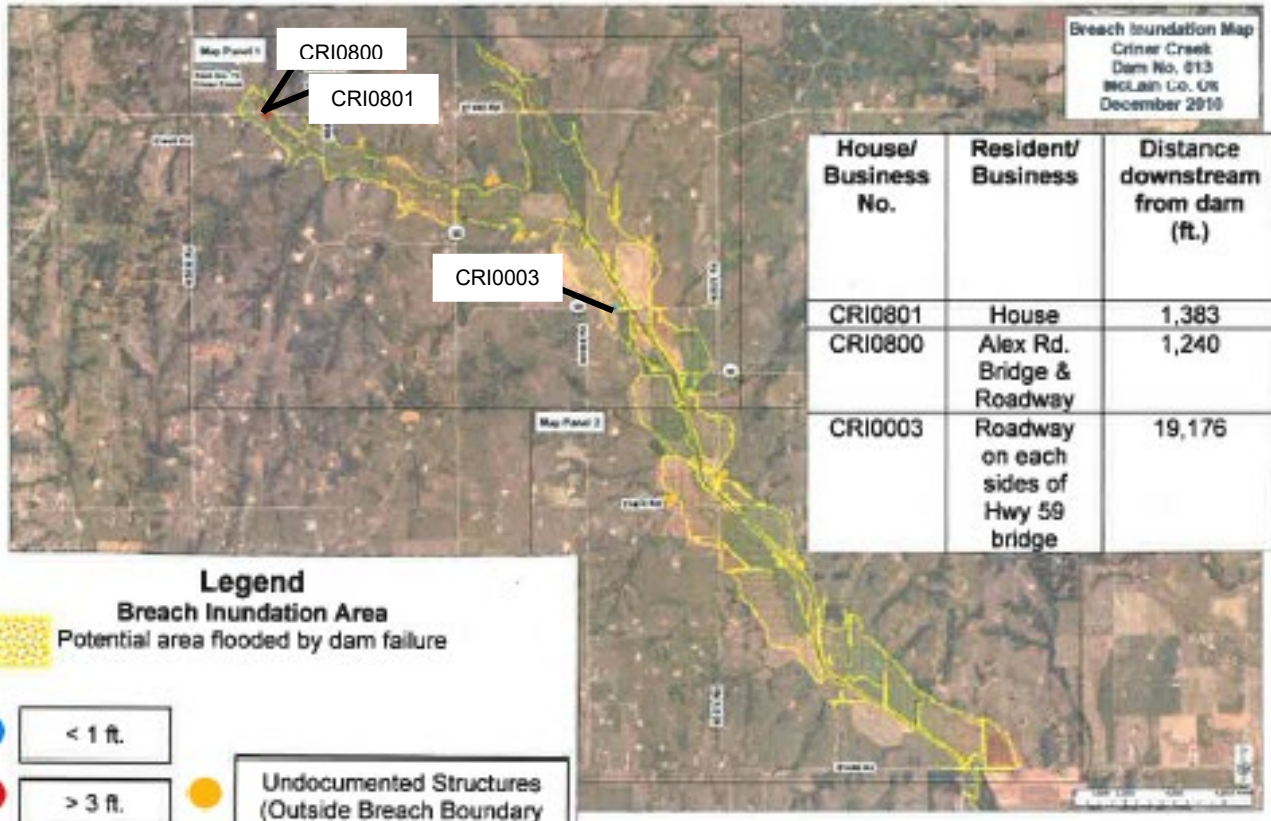


House/Business No.	Resident/Business	Distance downstream from dam (ft.)	Water depth above ground level (ft.)	Time to peak flow HH:MM
CRI0101	Mobile Home	778	3.3	00:15
CRI0002	Barn	1,145	2.5	00:15
CRI0003	House	1,194	0.7	00:15

The map below illustrates the dam failure inundation area and speed of flood onset of the Criner Creek Watershed Dam No.13, as depicted in the yellow shaded area. Should the dam fail, floodwaters would reach 1 Residential Structure, and a bridge and roadway in less than 15 minutes. The only exception is a roadway on each sides of Hwy 59 bridge located south of the dam which would experience inundation in 1:56 hours. There is 1 known residential structure and 2 bridges in the inundation area. A flood depth of less than 1 foot to greater than 6.1 feet is expected in the inundation area.

Breach Inundation Map

Criner Creek Watershed Dam No. 13



House/ Business No.	Resident/ Business	Distance downstream from dam (ft.)	Water depth above ground level (ft.)	Time to peak flow HH:MM
CRI0801	House	1,383	6.1	00:15
CRI0800	Alex Rd. Bridge & Roadway	1,240	5.1	00:15
CRI0003	Roadway on each sides of Hwy 59 bridge	19,176	1.0	01:56

Legend

Breach Inundation Area

Potential area flooded by dam failure

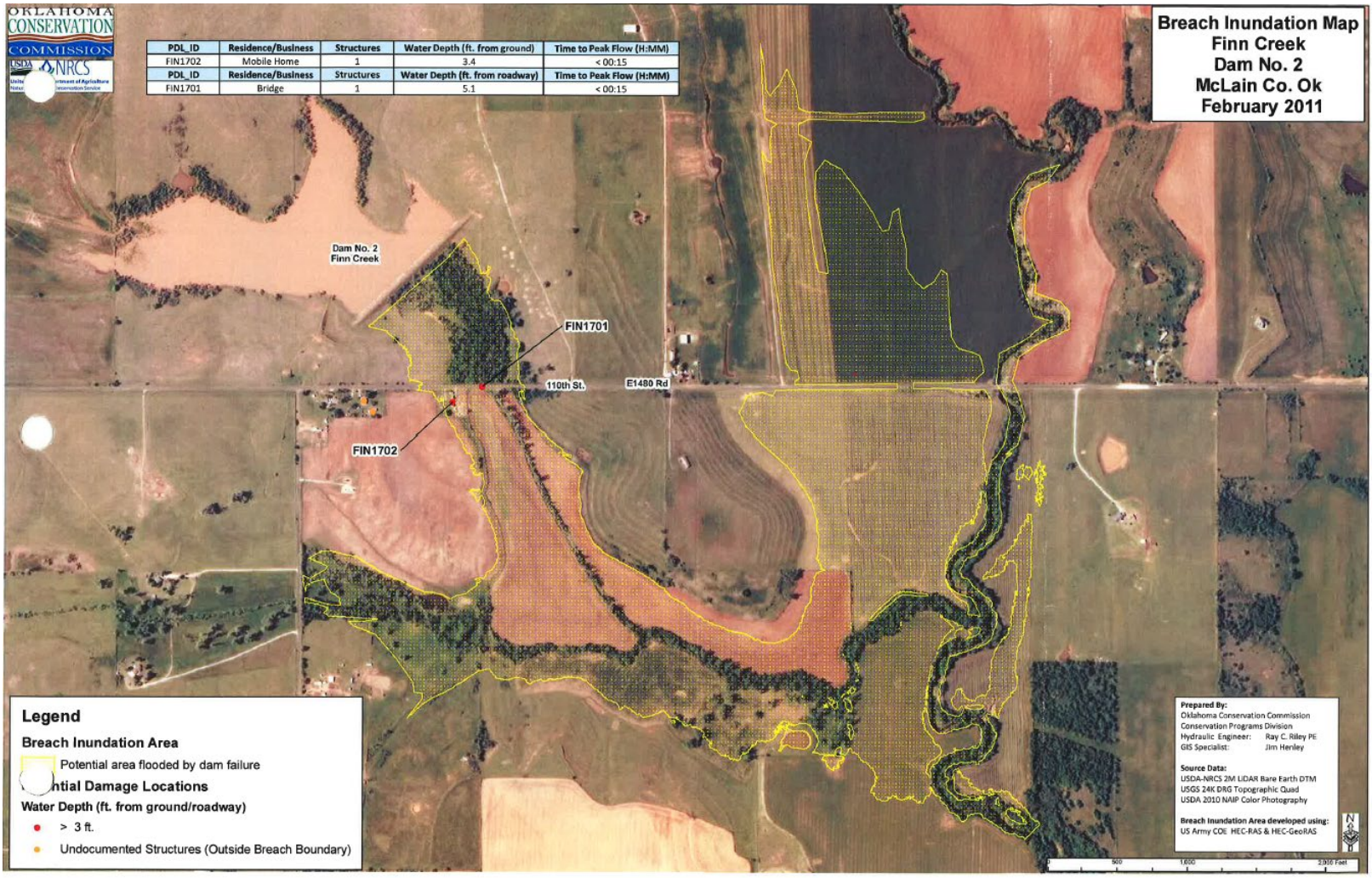
< 1 ft.

> 3 ft.

Undocumented Structures (Outside Breach Boundary

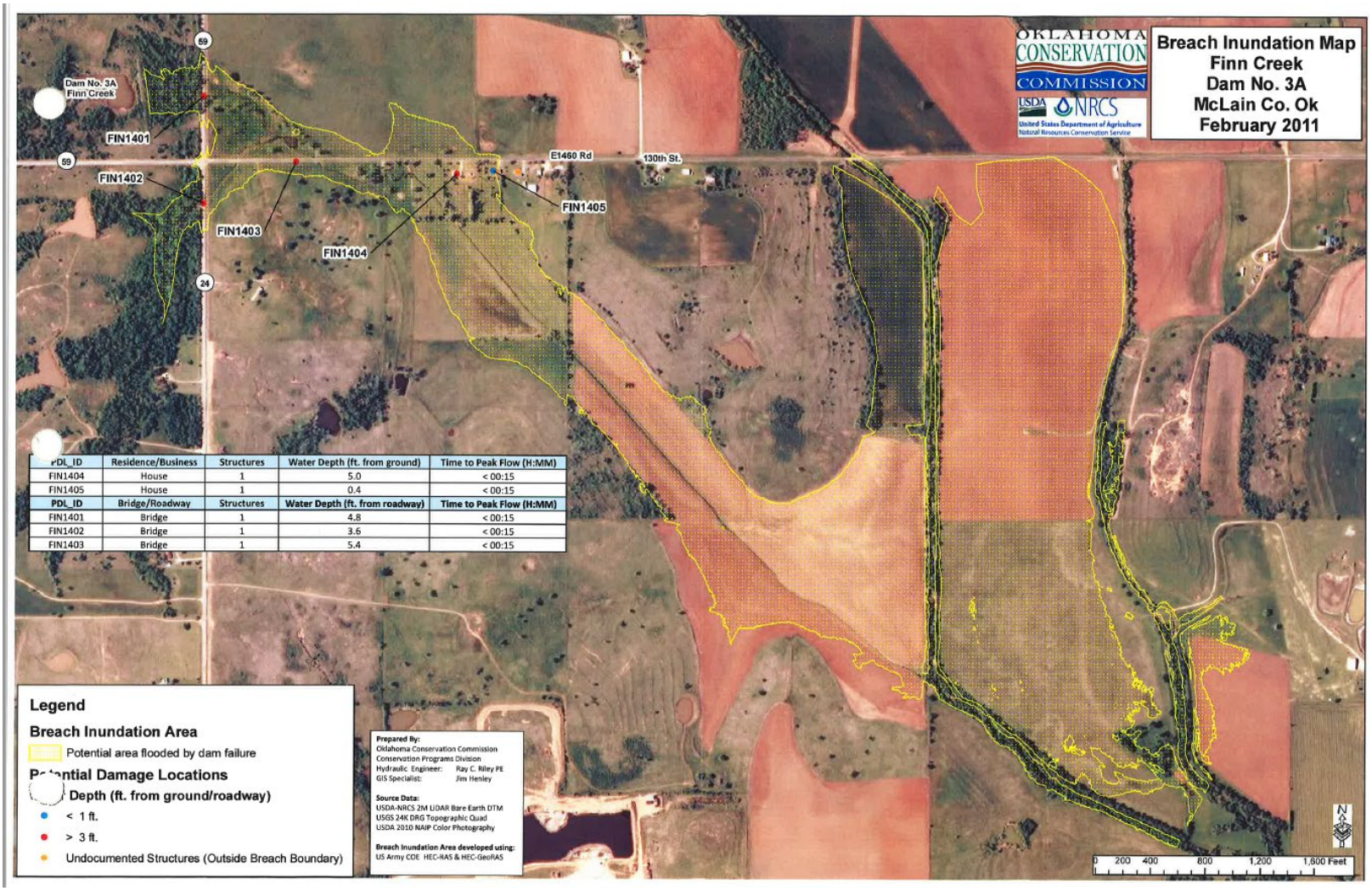
The map below illustrates the dam failure inundation area and speed of flood onset of the Finn Creek Dam No. 2, as depicted in the yellow shaded area. Should the dam fail, floodwaters would reach 1 Residential Structure, and a bridge in less than 15 minutes. There is 1 known residential structure and 1 bridge in the inundation area. A flood depth of less than 3.4 feet to greater than 5.1 feet is expected in the inundation area.

Breach Inundation Map
Finn Creek Dam No. 2



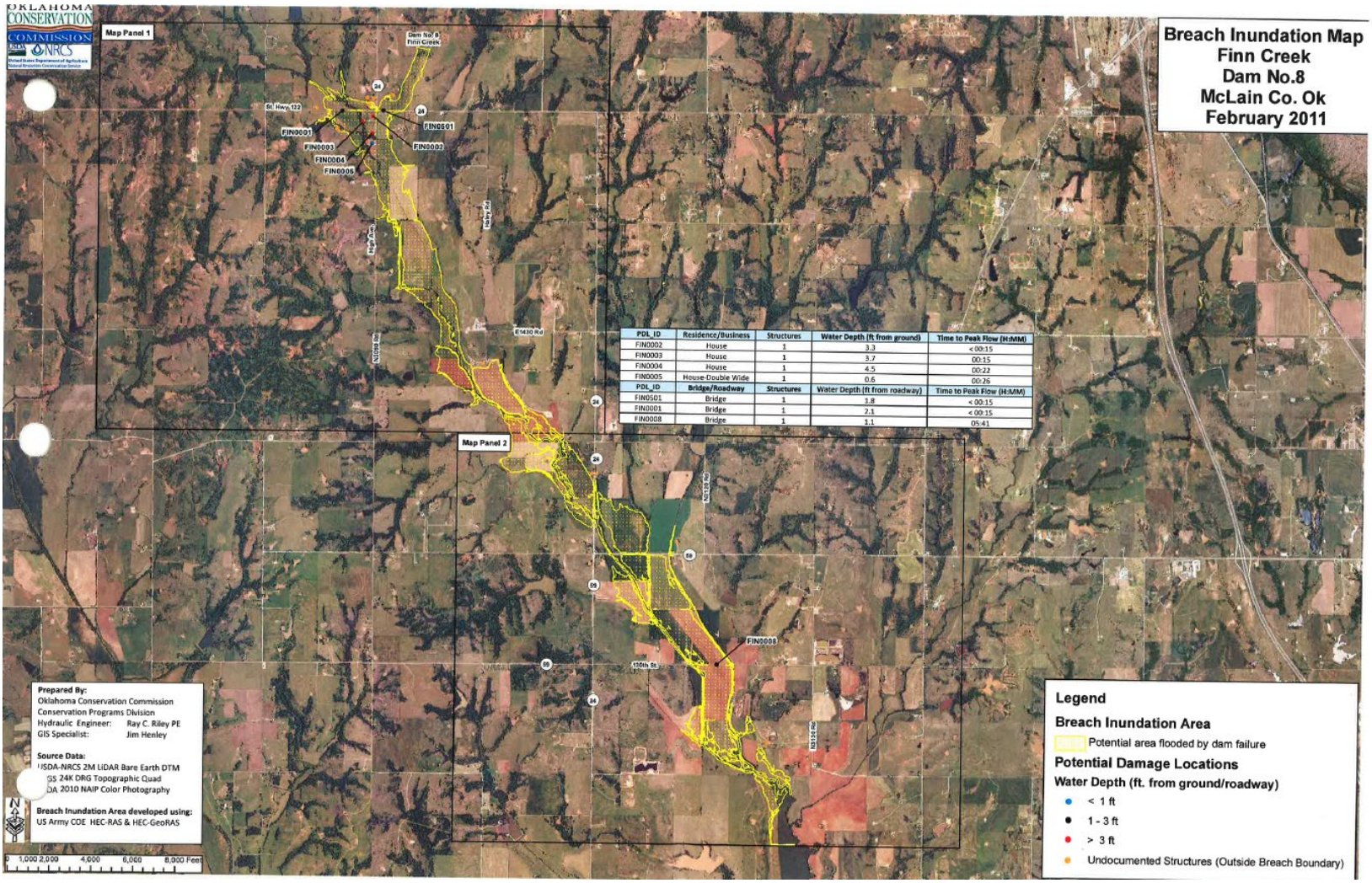
The map below illustrates the dam failure inundation area and speed of flood onset of the Finn Creek Dam No. 3A, as depicted in the yellow shaded area. Should the dam fail, floodwaters would reach 2 Residential Structure, and 3 bridges in less than 15 minutes. There is 2 known residential structure and 3 bridges in the inundation area. A flood depth of less than 0.4 foot to greater than 5.4 feet is expected in the inundation area.

Breach Inundation Map
Finn Creek Dam No. 3A



The map below illustrates the dam failure inundation area and speed of flood onset of the Finn Creek Dam No. 8, as depicted in the yellow shaded area. Should the dam fail, floodwaters would reach 1 Residential Structure in less than 15 minutes, and then would reach the majority of other residential structures and bridges within 26 minutes. The only exception is a bridge located further south of the dam which would experience inundation in 5.41 hours. There are four known residential structures and three bridges in the inundation area. A flood depth of less than 1 foot to greater than 3 feet is expected in the inundation area.

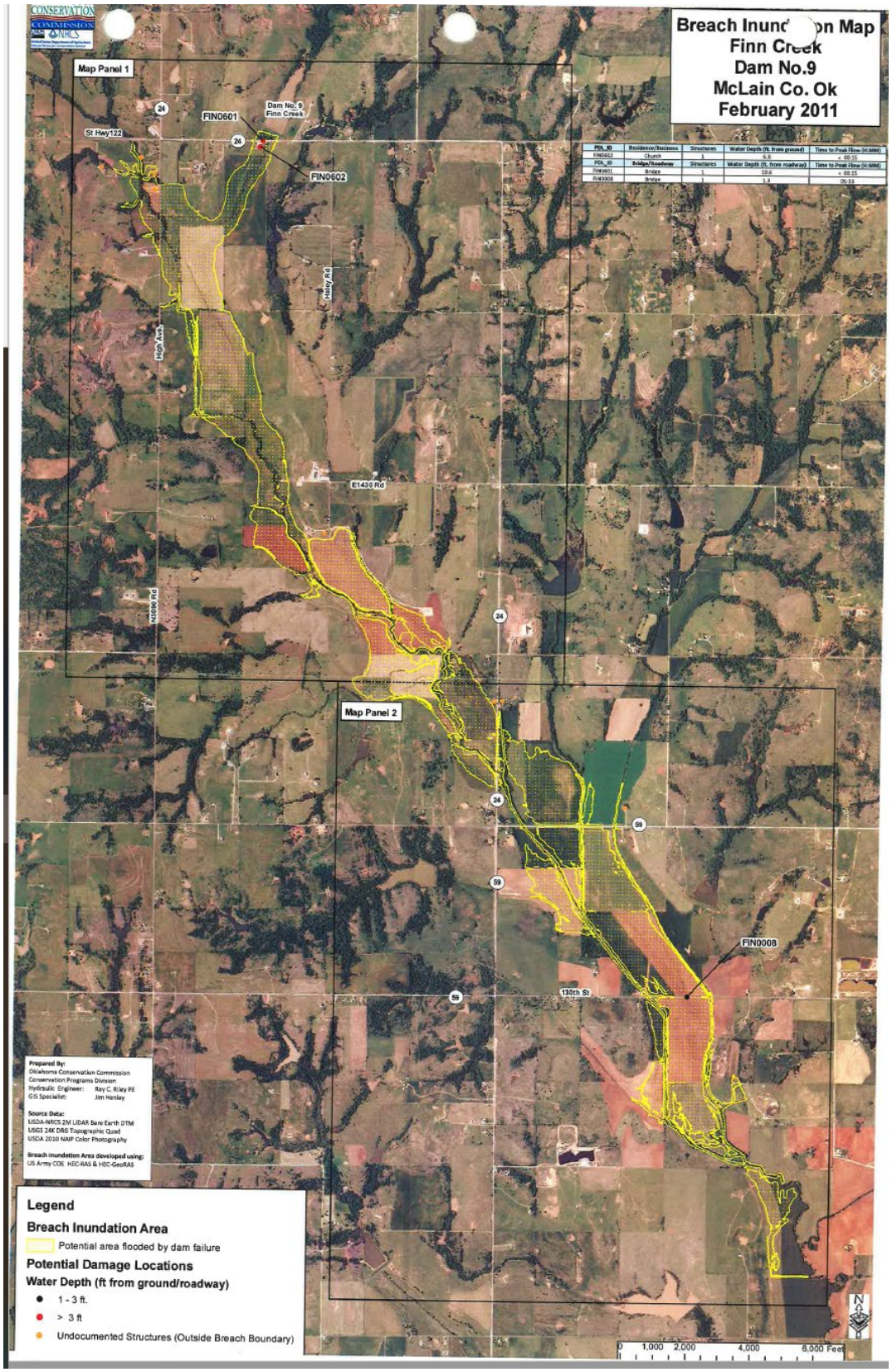
Breach Inundation Map
Finn Creek Dam No. 8



PDL_ID	Residence/Business	Structures	Water Depth (ft from ground)	Time to Peak Flow (H:MM)
FIN0002	House	1	3.3	< 00:15
FIN0003	House	1	3.7	00:15
FIN0004	House	1	4.5	00:22
FIN0005	House-Double Wide	1	0.6	00:26
PDL_ID	Bridge/Roadway	Structures	Water Depth (ft from roadway)	Time to Peak Flow (H:MM)
FIN0501	Bridge	1	3.8	< 00:15
FIN0001	Bridge	1	2.1	< 00:15
FIN0008	Bridge	1	1.1	05:41

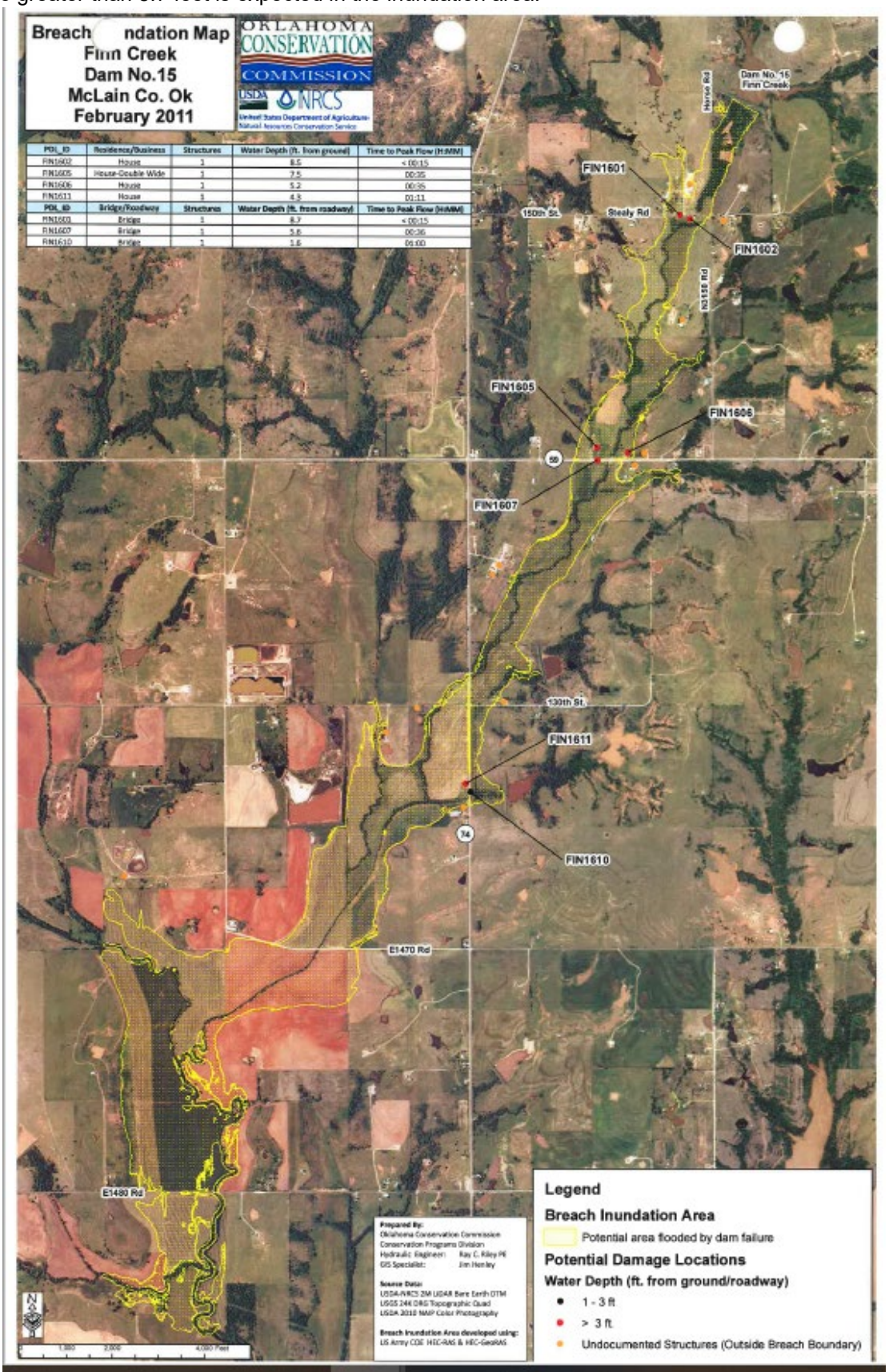
The map below illustrates the dam failure inundation area and speed of flood onset of the Finn Creek Dam No. 9, as depicted in the yellow shaded area. Should the dam fail, floodwaters would reach 1 Church and a bridge in less than 15 minutes. The only exception is a bridge located further south of the dam which would experience inundation in 5.13 hours. There is one church and 2 bridges in the inundation area. A flood depth of less than 1.3 feet to greater than 10.6 feet is expected in the inundation area.

Breach Inundation Map Finn Creek Dam No. 9



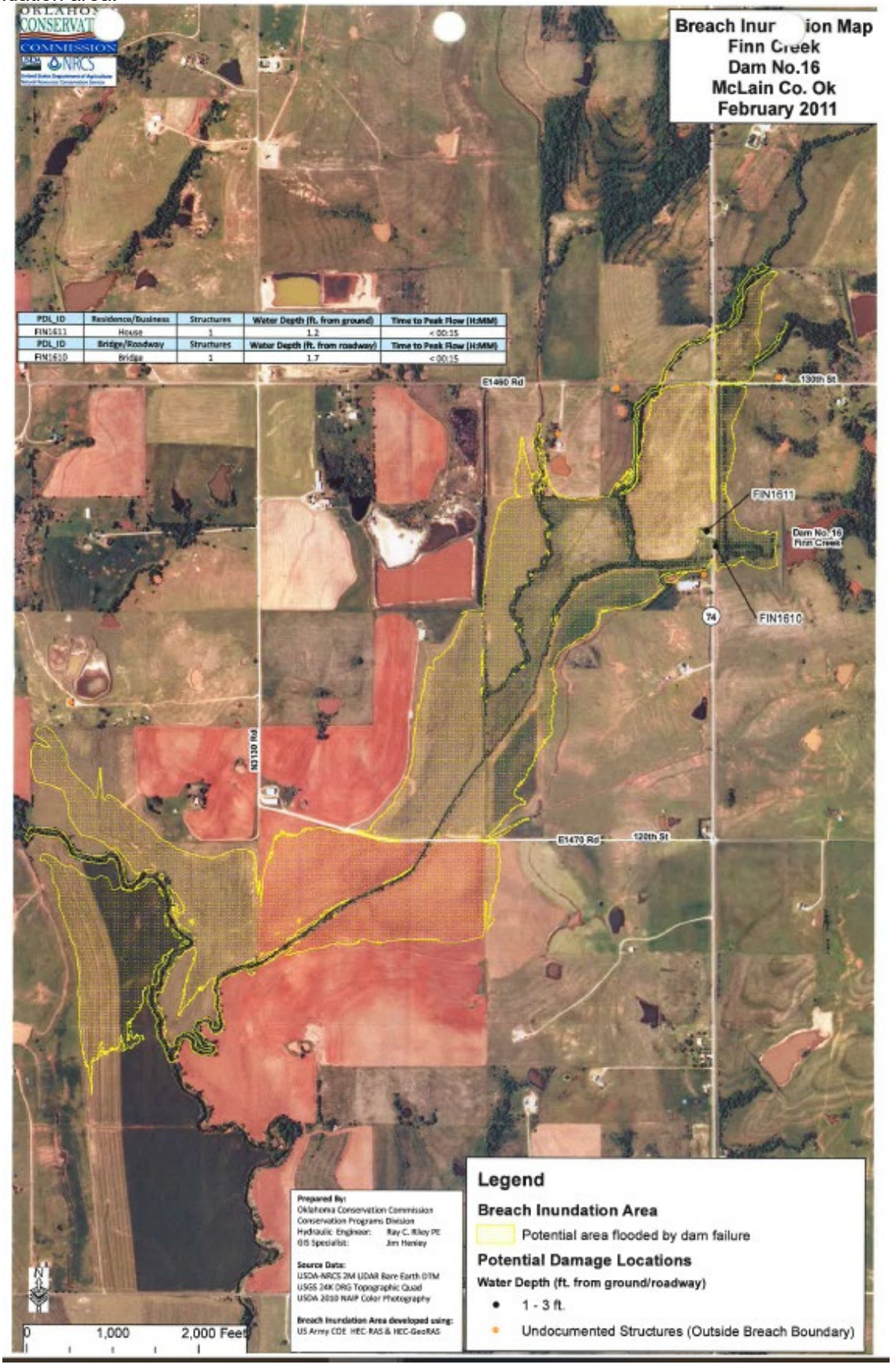
Breach Inundation Map Finn Creek Dam No. 15

The map below illustrates the dam failure inundation area and speed of flood onset of the Finn Creek Dam No. 15, as depicted in the yellow shaded area. Should the dam fail, floodwaters would reach 1 Residential Structure in less than 15 minutes, and then would reach the majority of other residential structures and bridges within 36 minutes. The only exception is a Residential structure and bridge located further south of the dam which would experience inundation in 1.11 hours. There are four known residential structures and three bridges in the inundation area. A flood depth of less than 1.6 feet to greater than 8.7 feet is expected in the inundation area.



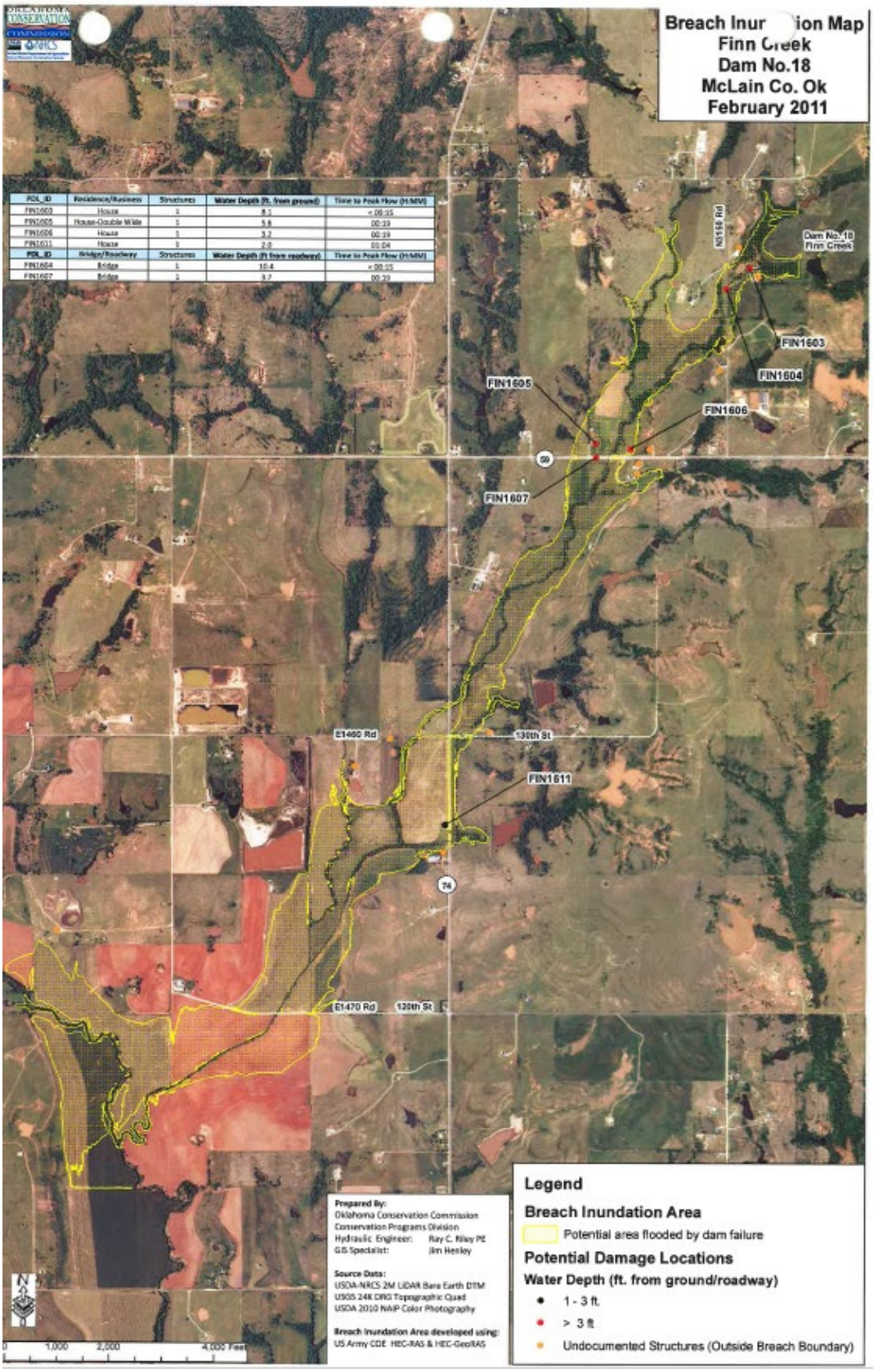
Breach Inundation Map Finn Creek Dam No. 16

The map below illustrates the dam failure inundation area and speed of flood onset of the Finn Creek Dam No. 16, as depicted in the yellow shaded area. Should the dam fail, floodwaters would reach 1 Residential Structure and 1 bridge in less than 15 minutes. There is one known residential structure and one bridge in the inundation area. A flood depth of less than 1 foot to 3 feet is expected in the inundation area.



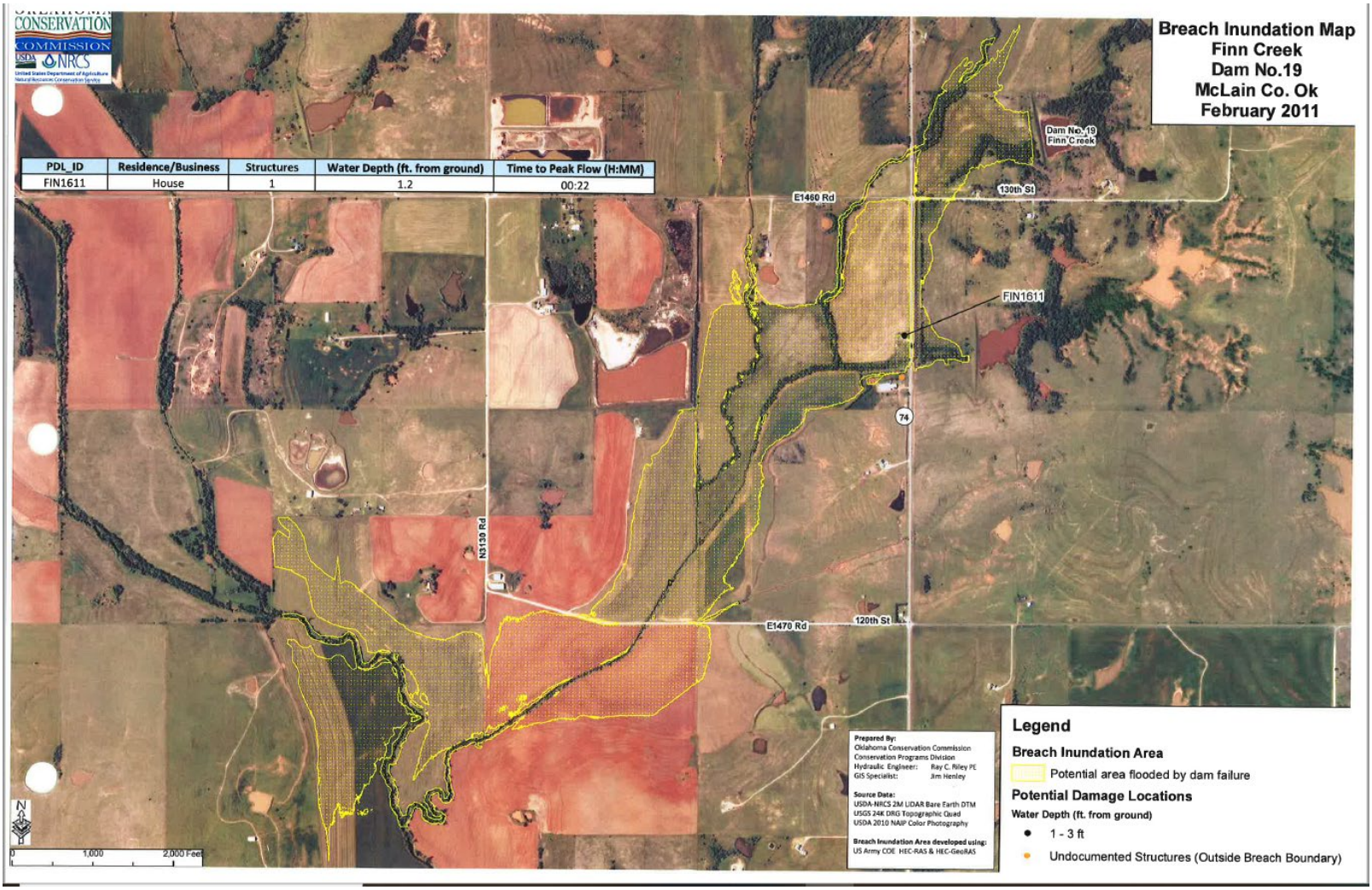
Breach Inundation Map Finn Creek Dam No. 18

The map below illustrates the dam failure inundation area and speed of flood onset of the Finn Creek Dam No. 18, as depicted in the yellow shaded area. Should the dam fail, floodwaters would reach the first residential structure in less than 15 minutes, and then would reach the majority of other residential structures and bridges within 19 minutes. The only exception is a residential structure located further south of the dam which would experience inundation in 1:04 hours. There is four known residential structure and two bridges in the inundation area. A flood depth of less than 2.0 feet to greater than 10.4 feet is expected in the inundation area.



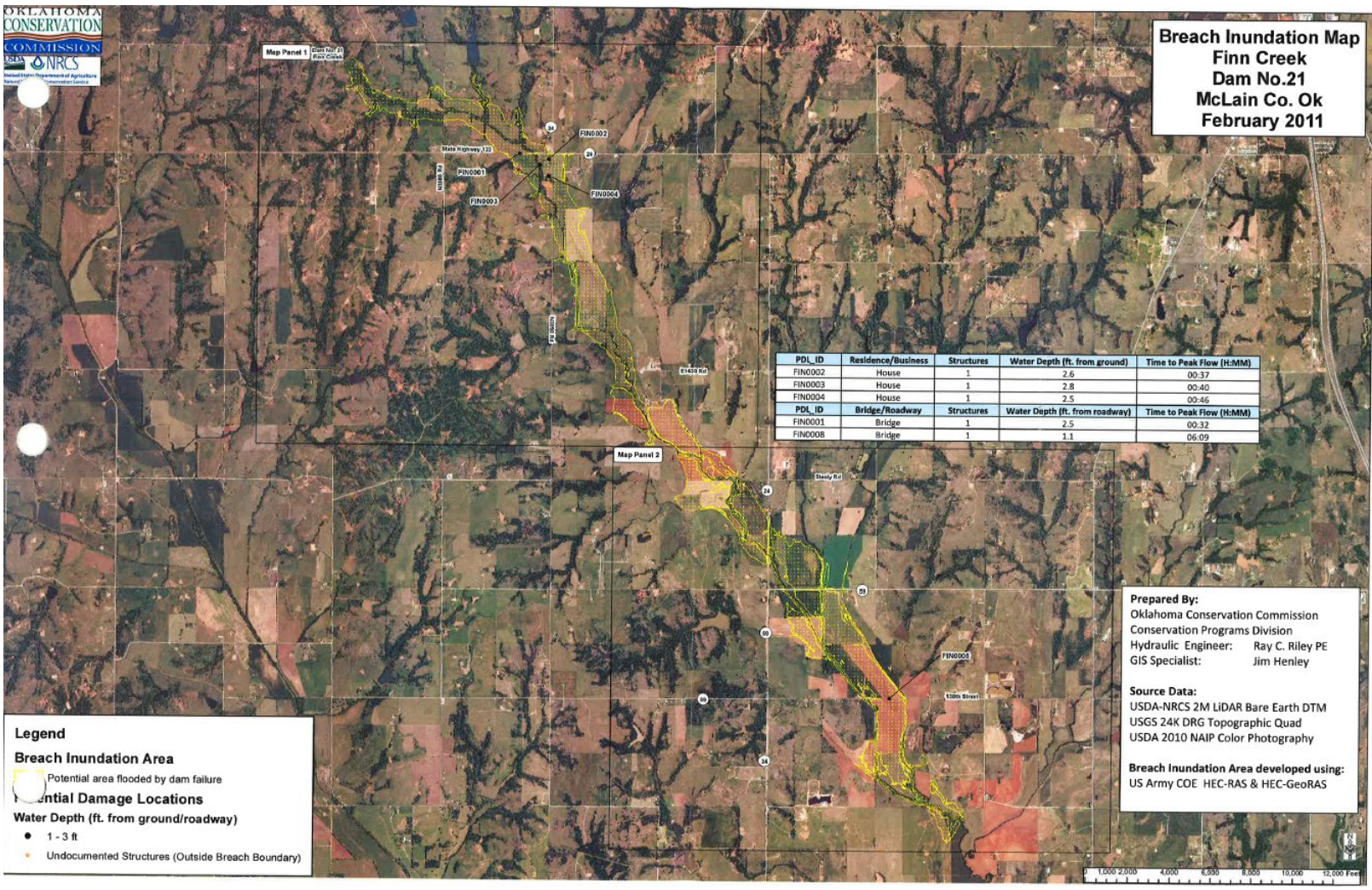
Breach Inundation Map
Finn Creek Dam No. 19

The map below illustrates the dam failure inundation area and speed of flood onset of the Finn Creek Dam No. 19, as depicted in the yellow shaded area. Should the dam fail, floodwaters would reach a residential structure in less than 22 minutes. There is only one known residential structure in the inundation area. A flood depth of 1 foot to 3 feet is expected in the inundation area.



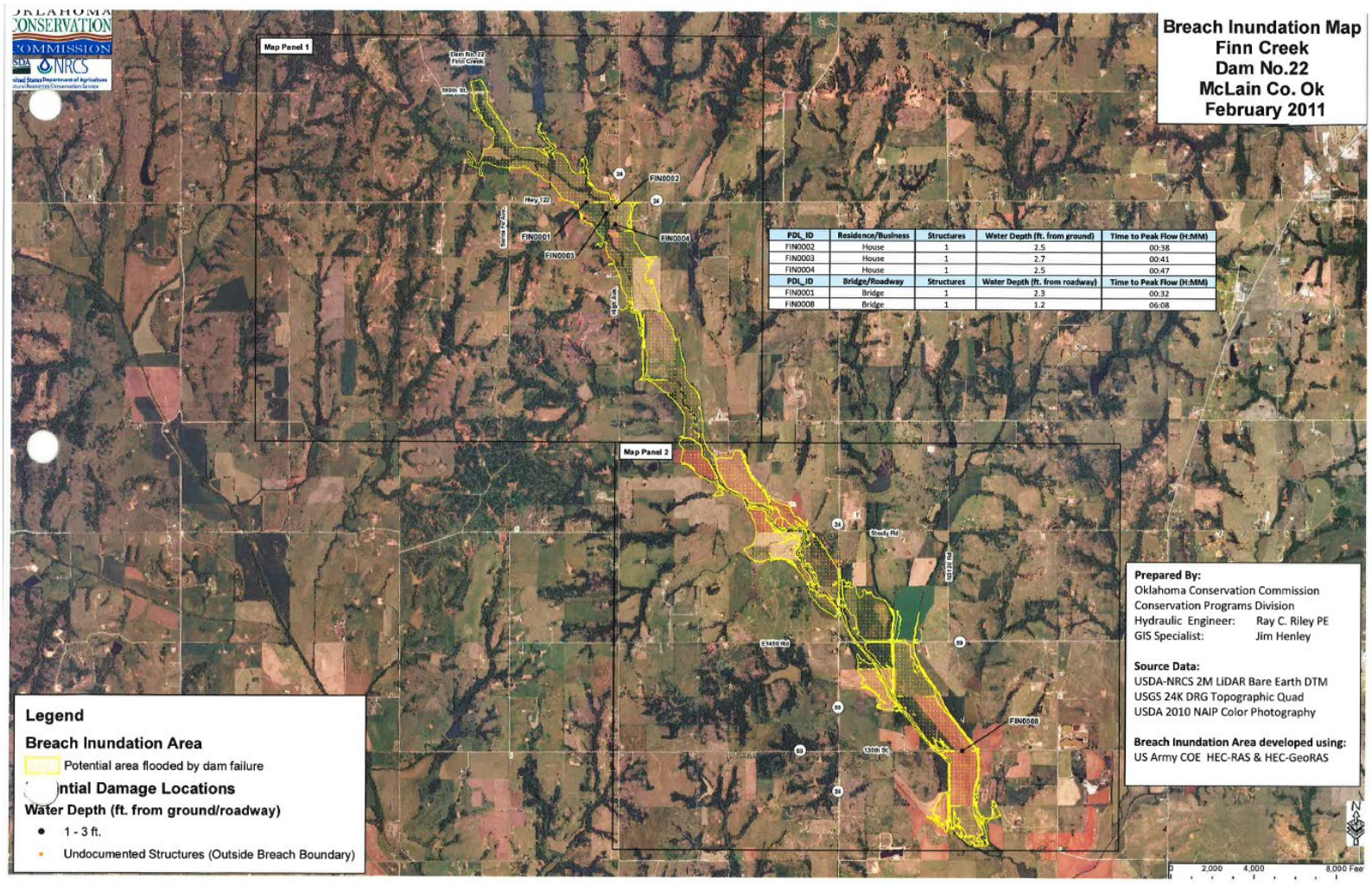
Breach Inundation Map
Finn Creek Dam No. 21

The map below illustrates the dam failure inundation area and speed of flood onset of the Finn Creek Dam No. 21, as depicted in the yellow shaded area. Should the dam fail, floodwaters would reach the first bridge in less than 32 minutes, and then would reach the majority of other residential structures within 46 minutes. The only exception is a bridge located further south of the dam which would experience inundation in 6:09 hours. There is three known residential structure and two bridges in the inundation area. A flood depth of 1 foot to 3 feet is expected in the inundation area.



Breach Inundation Map
Finn Creek Dam No. 22

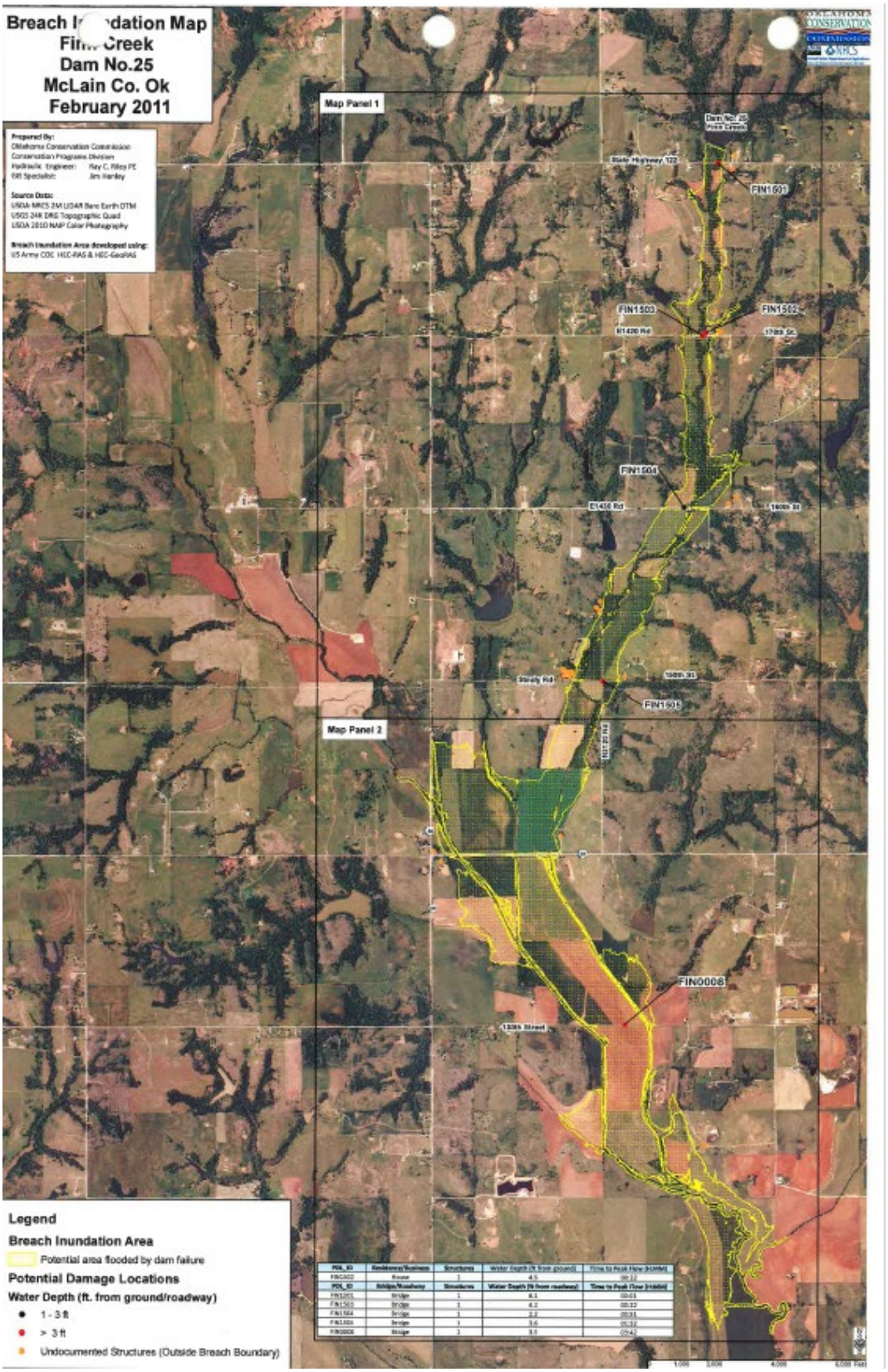
The map below illustrates the dam failure inundation area and speed of flood onset of the Finn Creek Dam No. 22, as depicted in the yellow shaded area. Should the dam fail, floodwaters would reach the first bridge in less than 32 minutes, and then would reach the majority of other residential structures within 47 minutes. The only exception is a bridge located further south of the dam which would experience inundation in 6:08 hours. There is three known residential structure and two bridges in the inundation area. A flood depth of 1 foot to 3 feet is expected in the inundation area.



PDL_ID	Residence/Business	Structures	Water Depth (ft. from ground)	Time to Peak Flow (H:MM)
FIN0002	House	1	2.5	00:38
FIN0003	House	1	2.7	00:41
FIN0004	House	1	2.5	00:47
PDL_ID	**Bridge/Roadway**	**Structures**	**Water Depth (ft. from roadway)**	**Time to Peak Flow (H:MM)**
FIN0001	Bridge	1	2.3	00:32
FIN0008	Bridge	1	1.2	06:08

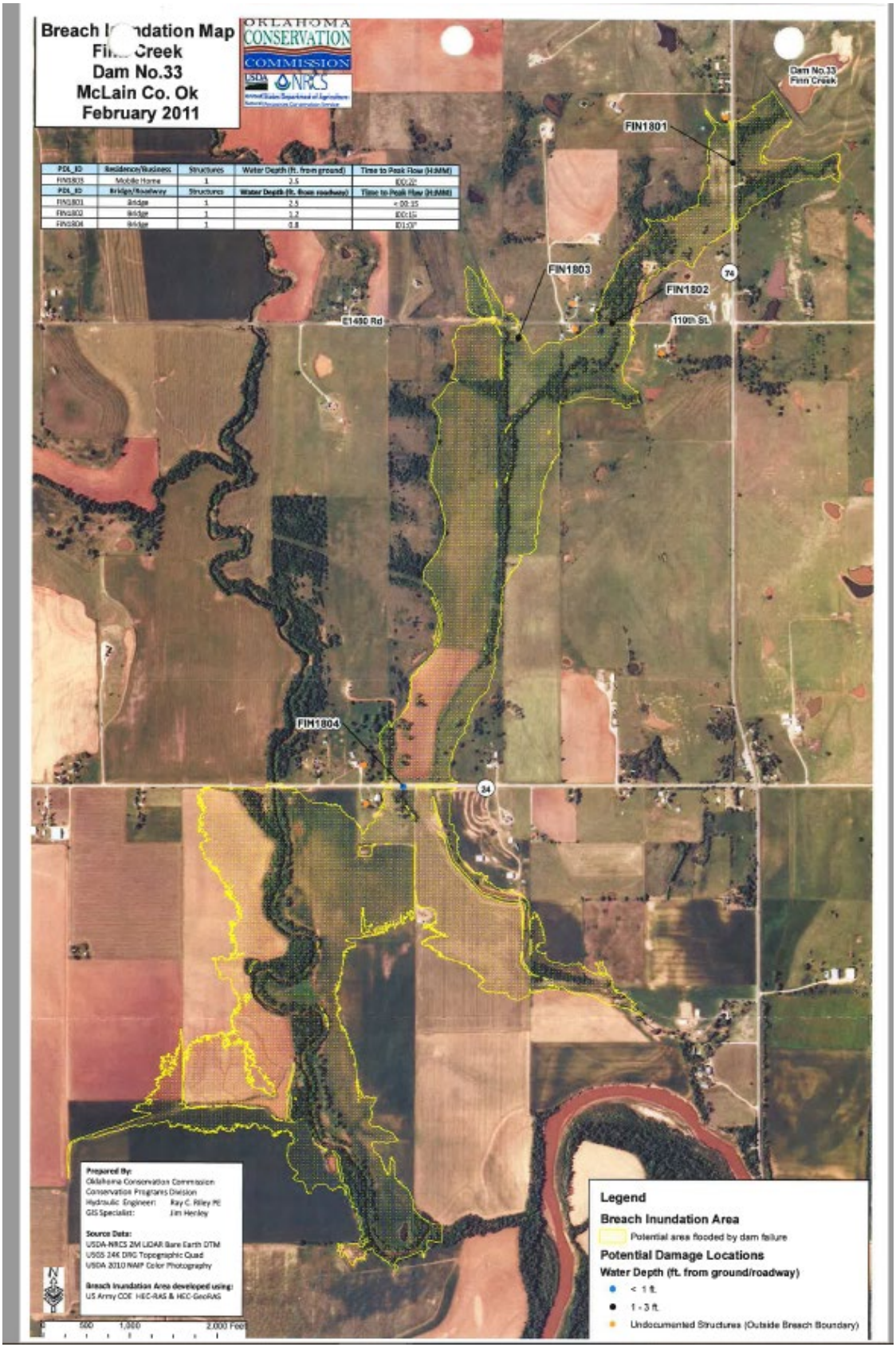
Breach Inundation Map Finn Creek Dam No. 25

The map below illustrates the dam failure inundation area and speed of flood onset of the Finn Creek Dam No. 25, as depicted in the yellow shaded area. Should the dam fail, floodwaters would reach the first bridge in less than 1 minute, and then would reach the majority of other bridges and a residential structure within 1:32 minutes. The only exception is a bridge located further south of the dam which would experience inundation in 3:42 hours. There is five known bridges and one residential structure in the inundation area. A flood depth of 1 foot to 3 feet is expected in the inundation area.



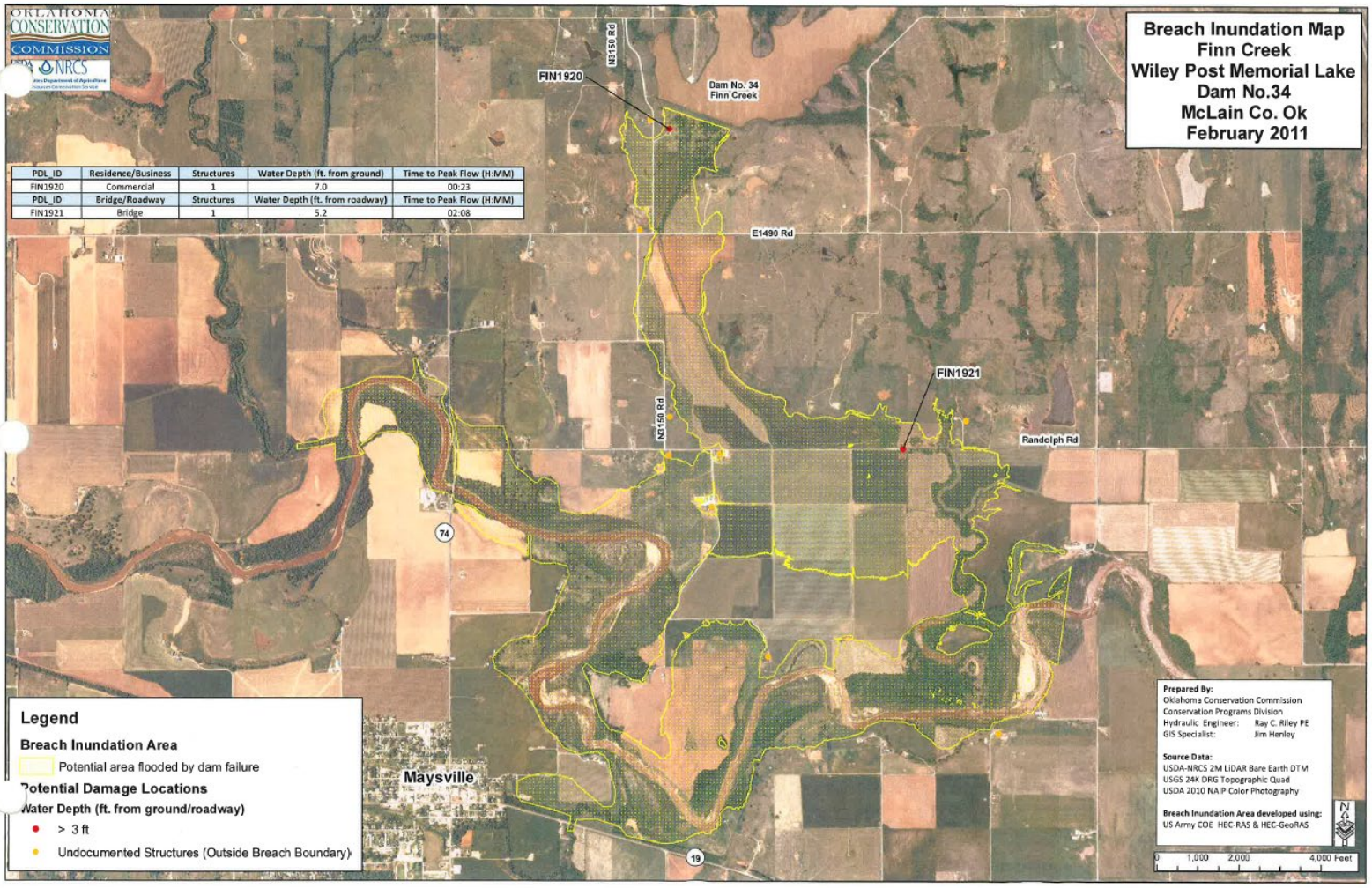
Breach Inundation Map Finn Creek Dam No. 33

The map below illustrates the dam failure inundation area and speed of flood onset of the Finn Creek Dam No. 33, as depicted in the yellow shaded area. Should the dam fail, floodwaters would reach the first bridge in less than 15 minutes, and then would reach the majority of other bridges and a residential structure within 22 minutes. The only exception is a bridge located further south of the dam which would experience inundation in 1:07 hours. There is three known bridges and one residential structure in the inundation area. A flood depth of less than 0.8 feet to greater than 2.5 feet is expected in the inundation area.



Breach Inundation Map
Finn Creek Dam No. 34

The map below illustrates the dam failure inundation area and speed of flood onset of the Finn Creek Dam No. 34, as depicted in the yellow shaded area. Should the dam fail, floodwaters would reach a commercial business in less than 23 minutes. The only exception is a bridge located further south of the dam which would experience inundation in 2:08 hours. There is one known bridge and one commercial business in the inundation area. A flood depth of less than 5.2 feet to greater than 7.0 feet is expected in the inundation area.



Breach Inundation Map Finn Creek Dam No. 36

The map below illustrates the dam failure inundation area and speed of flood onset of the Finn Creek Dam No. 36, as depicted in the yellow shaded area. Should the dam fail, floodwaters would reach the first residential structure in less than 15 minutes, and then would reach three bridges within 52 minutes. There is three known bridges and one residential structure in the inundation area. A flood depth of less than 1.3 feet to greater than 5.6 feet is expected in the inundation area.

Previous Occurrence
There have been no recorded dam failures or breaches of high hazard dams in the Planning Area during the time period of 2010-2020.

Probability of Future Events
The probability of dam failure within McClain County is very low according to the Hazard Probability Rating.

Vulnerability and Impact
The highest vulnerability from a dam breach is in McClain County. The areas located in the breach zone of a dam failure would be immediately impacted by the force of water that has been released. If a breach were to occur it would affect 34 bridges, 32 residential homes, 2 barns, 1 church, and 1 commercial business. Most of the high hazard dams in the planning area are generally in non-populated areas, with no large communities being impacted.

The High Hazard dams are located in the southern half of the jurisdiction. The impact of a High Hazard Dam Failure can cause loss of property and possible loss of life, loss of business, and agriculture. Transportation would be impacted as well if a bridge was to flood due to breach of dam. Dam failure can occur over a prolonged period of time, giving people time to prepare for the imminent breach, or can be sudden, with little to no warning. The Oklahoma Water Resources Board coordinates the Oklahoma Dam Safety Program to ensure the safety of the dams in the planning area, especially those that could impact downstream life and property. The program requires inspections annually for high hazard dams.

3.4.2 Drought

Description

Drought is a normal, recurrent feature of climate, although many erroneously consider it a rare and random event. It occurs in virtually all climatic zones, but its characteristics vary significantly from one region to another. Oklahoma's State Emergency Management Office defines drought as "a persistent and abnormal moisture deficiency having adverse impacts on vegetation, animals or people." Drought is caused by a deficiency of precipitation, which can be aggravated by high temperatures, high winds, and low relative humidity. Duration and severity are usually measured by deviation from norms of annual precipitation and stream flows.

Drought is an insidious hazard of nature, characterized as a "creeping phenomenon." It is often difficult to recognize the occurrence of drought before being in the middle of one. Drought analysis is more subjective than that for floods, because droughts do not occur suddenly. They evolve over time as certain conditions are met and spread over a large geographical area. Drought severity depends on its duration, intensity, geographic extent, and the regional water supply demands made by human activities and vegetation. This multi-dimensional nature makes it difficult to define a drought and to perform comprehensive risk assessments. This leads to the lack of accurate, reliable, and timely estimates of drought severity and effects, and ultimately slows the development of drought contingency plans.

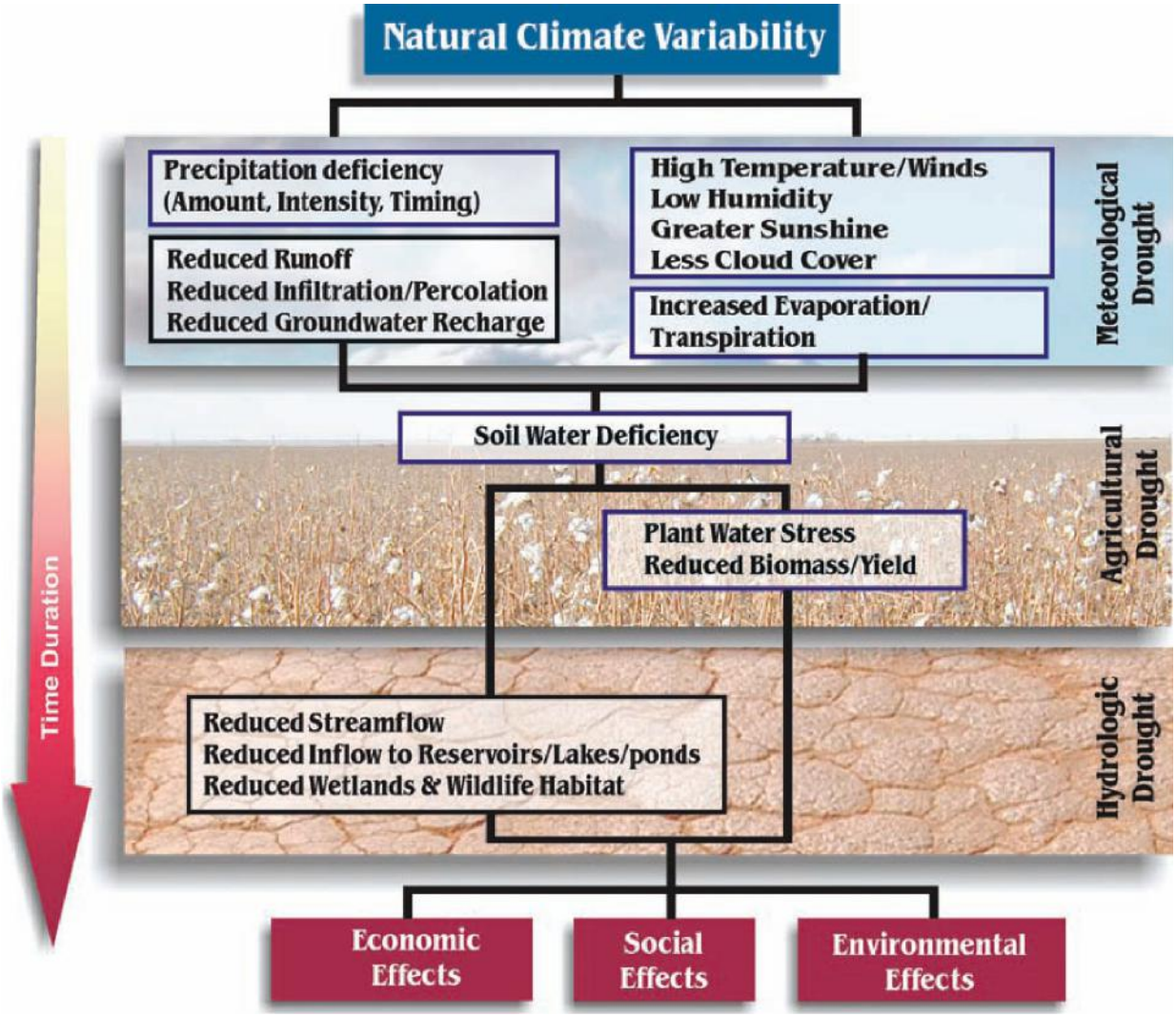
According to the National Drought Mitigation Center at the University of Nebraska-Lincoln, there are four kinds of drought, which occur at different stages.

Meteorological drought is usually an expression of precipitation's departure from normal over some period of time. These definitions are usually region-specific, and based on a thorough understanding of regional climatology.

Agricultural drought occurs when there isn't enough soil moisture to meet the needs of a particular crop at a particular time. Agricultural drought happens after meteorological drought but before hydrological drought. Agriculture is usually the first economic sector to be affected by drought.

Hydrological drought refers to deficiencies in surface and subsurface water supplies. It is measured as streamflow and as lake, reservoir, and groundwater levels. There is a time lag between lack of rain and less water in streams, rivers, lakes, and reservoirs, so hydrological measurements are not the earliest indicators of drought. When precipitation is reduced or deficient over an extended period of time, this shortage will be reflected in declining surface and subsurface water levels.

Socioeconomic drought occurs when physical water shortage starts to affect people, individually and collectively. Or, in more abstract terms, most socioeconomic definitions of drought associate it with the supply and demand of an economic good.



Location

The entire Planning Area is affected by Drought. Drought is a widespread phenomenon that occurs over broad regions encompassing not only multiple communities, but frequently multiple states. Over the last few years, western Oklahoma has been hit harder by water shortages than eastern Oklahoma, but no location in the state is immune.

Extent

The Planning Area uses the Palmer Drought Severity Index (PDSI). The PDSI uses readily available temperature and precipitation data to estimate relative dryness. It incorporates temperature, precipitation, evaporation, runoff, and soil moisture when designating the degree of drought. Hydrologic indices (such as groundwater levels, reservoir volumes, or water levels) may be used to determine surface water supplies.

The PDSI uses a range from +4 (extremely wet) to -4 (extremely dry), as shown in the table below. Weekly Palmer Index values are calculated for the Climate Divisions during every growing season and are posted online by the National Drought Mitigation Center.

The Planning Area can experience any value on the PDSI.

PDSI Classifications for Dry and Wet Periods

Rating	Condition
4.00 or more	Extremely wet
3.00 to 3.99	Very wet
2.00 to 2.99	Moderately wet
1.00 to 1.99	Slightly wet
0.50 to 0.99	Incipient wet spell
0.49 to -0.49	Near normal
-0.50 to -0.99	Incipient dry spell
-1.00 to -1.99	Mild drought
-2.00 to -2.99	Moderate drought
-3.00 to -3.99	Severe drought
-4.00 or less	Extreme drought

Source: http://drought.unl.edu/whatis/indices.htm

The Planning Area also uses the Keetch-Byram Drought Index (KDBI) to measure Drought. The KDBI is a mathematical system for relating current and recent weather conditions to potential or expected fire behavior. This system was originally developed for the southeastern United States and is based on recent rainfall patterns. The KBDI is the most widely used drought index system by fire managers in the South. It is also one of the only drought index systems specifically developed to equate the effects of drought with potential fire activities. The result of this system is a drought index number ranging from 0 to 800 that accurately describes the amount of moisture that is **missing**. A rating of zero defines the point where there is no moisture deficiency and 800 is the maximum drought possible. The Planning Area can experience all categories on the Keetch-Byram Drought Index.

The Keetch-Byram Drought Index (KBDI)

Rating	Description
0 - 200	Soil and fuel moisture are high. Most fuels will not readily ignite or burn. However, with sufficient sunlight and wind, cured grasses and some light surface fuels will burn in spots and patches.
200 – 400	Fires more readily burn and will carry across an area with no gaps. Heavier fuels will still not readily ignite and burn. Also, expect smoldering and the resulting smoke to carry into and possibly through the night.
400 – 600	Fire intensity begins to significantly increase. Fires will readily burn in all directions exposing mineral soils in some locations. Larger fuels may burn or smolder for several days creating possible smoke and control problems.
600 – 800	Fires will burn to mineral soil. Stumps will burn to the end of underground roots and spotting will be a major problem. Fires will burn through the night and heavier fuels will actively burn and contribute to fire intensity.

Source: Oklahoma Hazard Mitigation Plan

Previous Occurrence

Drought Events, 2010-2020
From the NOAA National Centers for Environmental Information
https://www.ncdc.noaa.gov/stormevents

Date	Description

2011 January - November	Because of several months of below normal, and in some cases well below normal, precipitation, the Climate Prediction Center declared parts of central Oklahoma in a D2 drought. The continuation of much needed rainfall occurred during the month of November, which helped alleviate the devastating drought somewhat over Oklahoma.
2012 July - December	As a mid-level ridge of high pressure built into the Southern Plains late in July, few opportunities for rain lead to expanding drought conditions across much of Oklahoma. Very few rainfall events occurred during the month of December over Oklahoma. This allowed drought conditions to persist or even worsen in some areas. D3 (extreme) drought continued through the month in McClain County with persistent dry conditions.
2013 January – April September	Very few rainfall events occurred during the month of January over Oklahoma. This allowed drought conditions to persist or even worsen in some areas. Drought conditions persisted across much of Oklahoma during the month of April, however, several rainfall events allowed for modest improvement across portions of central and even southwest Oklahoma. Extreme to exceptional drought persisted over much of western Oklahoma. Rainfall ranged from somewhat below to somewhat above average during September in Oklahoma. The northern half of the state generally saw a marginal improvement in drought conditions, while the southern half saw marginal worsening with less rainfall.
2014 May - November	Despite several rounds of shower and thunderstorm activity, rain was fairly sparse through the month. A bout of very warm temperatures through the first half of the May allowed for substantial surface drying and drought conditions worsened across all of Oklahoma. Drought persisted with minor improvements in November in the absence of meaningful rainfall.
2015 April - May	With persistent dry weather, a D2 (severe) drought continued across the southwest portion of the county, while the remainder of the county remained under a D1 (moderate) drought. With record rains throughout the month of May, drought was completely eradicated in the county.
2016 December	With a lack of any significant rainfall, severe drought conditions continued over south-central Oklahoma and spread into central and northwest Oklahoma through the month of December.
2017 January – April December	With a lack of significant rainfall, severe drought conditions persisted over central Oklahoma and northwest Oklahoma. With the return of abundant rainfall in April, severe drought was eliminated from the region. With a lack of rainfall, severe drought began to develop across western Oklahoma in December and persisted across south central Oklahoma.

2018 January - February	With a lack of rainfall, severe drought spread over the western two thirds of Oklahoma and extreme drought encroached upon much of western Oklahoma. Extreme and severe drought spread further through Oklahoma through the first half of the month. Toward the last week of February, rainfall brought some relief to the central third of Oklahoma, confining the severe and extreme drought areas to western Oklahoma.
2019 August	Severe drought expanded across southwest into central Oklahoma and intensified into the extreme category in some areas of southwest Oklahoma later in the month.

Probability of Future Events
The probability of Drought affecting the Planning Area is High.

Vulnerability and Impact
The Planning Area's greatest vulnerability to Drought is the impact on the county's ranching and farming community. The farmers and ranchers in McClain County are the populations most vulnerable. Drought can cause monetary losses for farmers if crops are destroyed, or if cattle/horses must be released or sold for low dollar amounts because of the high cost of feed. Reduced income in the agricultural community can significantly impact the economy of the county, and its communities, from the resulting drop in tax revenues. When small communities are struggling financially, the impact of long-term drought can be devastating.

Another vulnerability is the demand on water sources during severe drought conditions. There is no central water supply and distribution system for McClain County. The Planning Area can be roughly divided into communities that rely on surface water from the Oklahoma City Water Utilities Trust, and the South Canadian Alluvial aquifer. Blanchard and Dibble draw water from the Oklahoma City Water Utilities Trust. Cole, Purcell, Washington, Wayne, Goldsby, Rosedale and Byars draw water from the South Canadian Alluvial Aquifer.

The communities that draw backup water from Oklahoma City also meet some percentage of their water needs from local aquifers. The groundwater is hard, and in places suffers from contamination by arsenic, chromium, iron and manganese. The best quality water comes from the Garber-Wellington and Gerty Sand aquifers. The groundwater is expensive for small communities to access, and in places overuse and drought have resulted in dry private wells and increased salinity.

At present, McClain County has adequate supplies of groundwater to meet its needs. If growth and climate change occur it will require that more abundant supplies be acquired. Some amount of future need can be met through increased groundwater withdrawals and conservation. The OWRB has identified a 19,000 acre-feet per year (AFY) reservoir site on Walnut Creek west of Purcell. Another avenue would be the creation of a more extensive regional water infrastructure linking the Oklahoma City Metro Area with a series of regional lakes, one of which could be the proposed Purcell reservoir. Another approach to solving long-term drought in central Oklahoma is artificial groundwater recharge. The Garber-Wellington aquifer near Norman has been studied by the OWRB as a potential candidate for recharge.

Jurisdiction	Vulnerability	Impact
McClain Co	Most of unincorporated McClain County is ranching and farming. Poverty level in the unincorporated areas of McClain County is as high as 20%. Some of the farmers and ranchers rely on private wells.	When drought is high in the summertime this impacts the farmers and ranchers with agricultural crops and livestock resulting in reduced income, and not having enough water from a dry private well. It can also increase the risk of wildfire.
Blanchard	Blanchard Water District receives water from Oklahoma City Water Utilities Trust. There is a line that supplies water to the city. When Oklahoma City imposes rationing due to water shortage the City of Blanchard also has to force water rationing. The residents lack education on the importance of water rationing, and risk depleting the water supply when they do not adhere to restrictions.	When water rationing guidance is not adhered to, this can lead to water shortages and the possibility of the city having to purchase water from other sources. This can put a financial strain on the municipality and the residents.
Purcell	Purcell water district draws water from the South Canadian Alluvial Aquifer. The surrounding communities also draw water from the same aquifer. During the summer months the city will enforce water rationing. The residents lack education on the importance of water rationing, and risk depleting the water supply when they do not adhere to restriction.	When water rationing guidance is not adhered to, this can lead to water shortages and the possibility of the city having to purchase water from other sources. This can put a financial strain on the municipality and the residents.
Byars	Byars water district draws water from the South Canadian Alluvial Aquifer. Byars often faces water shortages in the summer, and water rationing is enforced during those months. Severe water shortages require an alternate water source, and Byars has limited options. If water must be transported to residents, this would be expensive. Approximately 15% of residents are considered socially vulnerable because they live below the poverty line.	If water sources are diminished, then alternative water sources must be utilized. This can impose a financial burden on families who are already financially strained. In addition, this is a strain for municipal budgets as well.
Cole	Cole water district draws water from the South Canadian Alluvial Aquifer. Cole is primarily a farming and ranching community. This is a mainstay of the local economy. Drought depletes the water sources used to sustain crops and livestock. Agriculture is usually the first sector to be affected by the onset of Drought because it relies on precipitation and soil moisture availability during various crop growth stages.	Drought during the summer months, when crop growth is at its peak and the air temperatures are at the hottest, could result in agricultural and livestock losses. This results in loss of revenue for ranchers and farmers. In addition, this impacts consumer and other businesses the ranchers and farmers supply, and the supporting businesses that provide supplies to ranchers and farmers.

Dibble	Dibble Water District receives water from Oklahoma City Water Utilities Trust. There is a line that supplies water to the city. When Oklahoma City imposes rationing due to water shortage the Town of Dibble also has to impose water rationing. The residents lack education on the importance of water rationing, and risk depleting the water supply when they do not adhere to restrictions.	When the Citizens of Dibble do not pay attention to the water rationing that is set in place during the summer months, it can lead to water shortage and possibly the city having to purchase water from other sources. This could put a strain on the towns and the residents' budget.
Goldsby	Goldsby water district draws water from the South Canadian Alluvial Aquifer. Goldsby is primarily a farming and ranching community. This is a mainstay of the local economy. Drought depletes the water sources used to sustain crops and livestock. Agriculture is usually the first sector to be affected by the onset of Drought because it relies on precipitation and soil moisture availability during various crop growth stages.	Drought during the summer months, when crop growth is at its peak and the air temperatures are at the hottest, could result in agricultural and livestock losses. This results in loss of revenue for ranchers and farmers. In addition, this impacts consumer and other businesses the ranchers and farmers supply, and the supporting businesses that provide supplies to ranchers and farmers.
Rosedale	Rosedale water district draws water from the South Canadian Alluvial Aquifer. Rosedale often faces water shortages in the summer, and water rationing is enforced during those months. Severe water shortages require an alternate water source, and Rosedale has limited options. If water must be transported to residents, this would be expensive. Approximately 45% of residents are considered socially vulnerable because they live below the poverty line.	If water sources are diminished, then alternative water sources must be utilized. This can impose a financial burden on families who are already financially strained. In addition, this is a strain for municipal budgets as well.
Washington	Washington water district draws water from the South Canadian Alluvial Aquifer. The surrounding communities also draw water from the same aquifer. During the summer months the city will enforce water rationing. The residents lack education on the importance of water rationing, and risk depleting the water supply when they do not adhere to restriction.	When water rationing guidance is not adhered to, this can lead to water shortages and the possibility of the city having to purchase water from other sources. This can put a financial strain on the municipality and the residents.
Wayne	Wayne water district draws water from the South Canadian Alluvial Aquifer. Wayne is primarily a farming and ranching community. This is a mainstay of the local economy. Drought depletes the water sources used to sustain crops and livestock. Agriculture is	Drought during the summer months, when crop growth is at its peak and the air temperatures are at the hottest, could result in agricultural and livestock losses. This results in loss of revenue for

	usually the first sector to be affected by the onset of Drought because it relies on precipitation and soil moisture availability during various crop growth stages.	ranchers and farmers. In addition, this impacts consumer and other businesses the ranchers and farmers supply, and the supporting businesses that provide supplies to ranchers and farmers.
Blanchard PS	Blanchard Public School receives water from the City of Blanchard. With the water rationing in the summer months the school is not able to water the playgrounds and recreational fields.	Due to Blanchard Public Schools not being able to water in the summer months can cause the soil to crack on the playgrounds and recreational fields. This could result in an injury to a student or even faculty.
Dibble PS	Dibble Public School receives water from the Town of Dibble. With water shortage in the summer months the school would have to follow the enforced water rationing guidelines. Dibble Public Schools also has natural turf fields. During water rationing, the school is unable to water the fields properly.	If a turf field is not maintained properly, it can have a long-term effect on the soil causing it to crack and become uneven. Uneven surfaces could lead to an injury of a student or faculty member. A damaged field could also make the field unusable, and cause disruptions to school activities.
Mid-America Tech Center	Mid-America Tech Center receives water from the Town of Wayne. During Drought events, Mid-America is required to follow the enforced water rationing guidelines of Wayne. Mid-America has horticulture and agriculture courses which are reliant on an adequate water supply. These classes are vulnerable to a diminished water supply.	Water restrictions that affect the horticulture and agriculture classes can result in a disruption to class operations and coursework. This affects both the students, staff, and the school.
Purcell PS	Purcell Public School receives water from the City of Purcell. With water shortage in the summer months the school would have to follow the enforced water rationing guidelines. Purcell Public Schools also has natural turf fields. During water rationing, the school is unable to water the fields properly.	If a turf field is not maintained properly, it can have a long-term effect on the soil causing it to crack and become uneven. Uneven surfaces could lead to an injury of a student or faculty member. A damaged field could also make the field unusable, and cause disruptions to school activities.
Washington PS	Washington Public School receives water from the Town of Washington. With water shortage in the summer months the school would have to follow the enforced water rationing guidelines. Washington Public Schools also has natural turf fields. During water rationing,	If a turf field is not maintained properly, it can have a long-term effect on the soil causing it to crack and become uneven. Uneven surfaces could lead to an injury of a student or faculty

	the school is unable to water the fields properly.	member. A damaged field could also make the field unusable, and cause disruptions to school activities.
Wayne PS	Wayne Public School receives water from the Town of Wayne. With water shortage in the summer months the school would have to follow the enforced water rationing guidelines. Wayne Public Schools also has natural turf fields. During water rationing, the school is unable to water the fields properly.	If a turf field is not maintained properly, it can have a long-term effect on the soil causing it to crack and become uneven. Uneven surfaces could lead to an injury of a student or faculty member. A damaged field could also make the field unusable, and cause disruptions to school activities.

3.4.3 Earthquake

Description

An earthquake is a sudden, rapid shaking of the ground caused by the fracture and movement of rock beneath the Earth's surface. Most severe earthquakes take place where the huge tectonic plates that form the Earth's surface collide and slide slowly over, under, and past each other. They can also occur along any of the multitude of fault and fracture lines within the plates themselves.

As the Earth's crust moves and bends, stresses are built up, sometimes for hundreds of years, before suddenly breaking or slipping. This abrupt release of accumulated tension can be devastating to human communities on the surface. The destructiveness of an earthquake depends upon a number of factors, including the magnitude of the tremor, direction of the fault, distance from the epicenter, regional geology, local soils, and the design characteristics of buildings and infrastructure, such as roads, bridges, and pipelines.

The faults most likely to affect Oklahoma are:

1) The New Madrid Fault located in the center of Missouri and included several large earthquakes in the early 1800s that were widely felt in the region, including in Oklahoma.

2) The Meers Fault located in southwestern Oklahoma, running northwest to southeast through Kiowa and Comanche counties north of Lawton.

3) The Nemaha Fault which runs north from Oklahoma City through Topeka, KS.

4) The Wilzetta Fault which runs from Pottawatomie County north through Lincoln into Creek counties.

The majority of Oklahoma earthquakes have historically been concentrated in the area of the Meers Fault in Garvin, Grady, and McClain counties, where the Cherokee Platform, Anadarko Basin and Arbuckle Uplift converge.

Location

McClain County, the communities of Blanchard, Purcell, Byars, Cole, Dibble, Goldsby, Rosedale, Washington, and Wayne, and the participating public-school systems of Blanchard, Dibble, Purcell, Washington and Wayne, and Mid-America Technology Center are affected by earthquakes.

The Planning Area is at risk from earthquakes occurring along McClain County Fault, the Meers fault, or the New Madrid fault in Missouri.

Extent

The Planning Area uses the Modified Mercalli Scale with Richter Magnitude Approximations to measure Earthquakes. The following scale depicts two standard measurements to classify an earthquake's extent: *magnitude* and *intensity*. These measures are sometimes referred to as the Richter Scale (magnitude) and the Modified Mercalli (intensity).

Given the unpredictability of earthquake events, the Planning Area expects to experience Earthquakes that range from 1-IV.

The Modified Mercalli Scale with Richter Magnitude Approximations

Richter Magnitude (Approx.)	Mercalli	Description	Earthquake Effects
1-2	I	Instrumental	Not felt except by a very few under especially favorable conditions.
2-3	II	Feeble	Felt only by a few persons at rest, especially on upper floors of buildings.

Richter Magnitude (Approx.)	Mercalli	Description	Earthquake Effects
3-4	III	Slight	Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibrations similar to the passing of a truck. Duration estimated.
4	IV	Moderate	Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.
4-5	V	Rather Strong	Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop.
5-6	VI	Strong	Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight.
6	VII	Very Strong	Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken.
6-7	VIII	Destructive	Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned.
7	IX	Ruinous	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations.
7-8	X	Disastrous	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent.
8	XI	Very Disastrous	Few, if any (masonry) structures remain standing. Bridges destroyed. Rails bent greatly.
8+	XII	Catastrophic	Damage total. Lines of sight and level are distorted. Objects thrown into the air.

Source: http://earthquake.usgs.gov/learn/topics/mercalli.php

Previous Occurrences

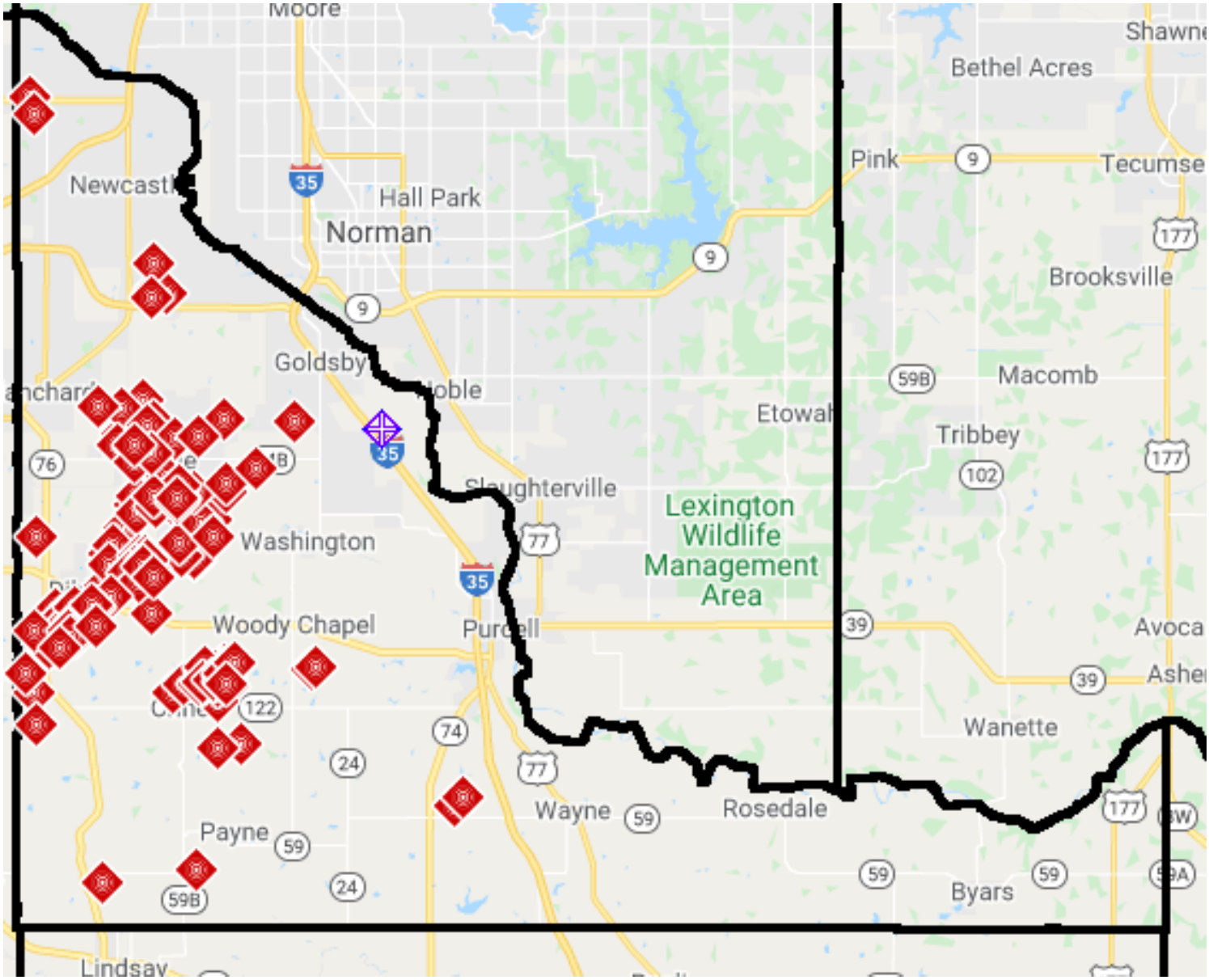
McClain Co Annual Earthquake Events

Year	# Of Earthquake Events	Range of Magnitude of Earthquake Events
2010	5	Undetected - 2.7
2011	4	Undetected – 1.8
2012	29	Undetected – 2.8
2013	15	Undetected – 2.9
2014	3	1.6 – 2.2
2015	5	2.1 – 2.6

2016	39	1.4 – 3.2
2017	20	1.4 – 3.6
2018	91	1 - 3.4
2019	116	0.6 - 2.8
2020	152	0.4-3.00

Source: https://www.ou.edu/ogs/research/earthquakes/catalogs

McClain County Earthquakes 2015-2021



Probability of Future Events
The probability of earthquake occurrences in the Planning Area is HIGH.

Vulnerability and Impact
A major earthquake centered in or near the McClain County Planning area could have a wide-reaching impact. People, structures, property, transportation, utilities, and the economy are all vulnerable to the effects of earthquakes. The Local Emergency Planning Committee (LEPC) participates annually in the Great Central U.S. Shakeout, a national Earthquake Exercise.

Jurisdiction	Vulnerability	Impact
McClain Co	Most of the bridges and roadways in McClain County are not able to withstand the impact of an Earthquake.	Blocking emergency personally from reporting to duty or reaching patients in a timely manner. This could cause serious injury or death.
Blanchard	The Residents lack education on the importance of planning for an earthquake event, and how an event might damage transportation routes. They have not been educated on the importance of having a preparedness kit of food and supplies to sustain them for 72 hours to a week.	Lack of Preparedness for an earthquake event puts families at risk if transportation routes and critical services are disrupted.
Purcell	The City of Purcell has a majority of older structures. Many of them are not built to sustain an Earthquake. Structures are vulnerable to damage or total collapse during earthquakes.	Severe Injury or Death due to the collapse of a structure. Potential loss of wages or employment due to extended injury, time away from work while dealing with damaged/destroyed homes.
Byars	The Residents lack education on the importance of planning for an earthquake event, and how an event might damage transportation routes. They have not been educated on the importance of having a preparedness kit of food and supplies to sustain them for 72 hours to a week. With approximately 15% of residents living below the poverty line, preparedness kits are a financial strain on the budget.	Lack of Preparedness for an earthquake event puts families at risk if transportation routes and critical services are disrupted.

Cole	The Town of Cole has many older structures that are not protected against earthquakes. A lot of the structures in Cole are often used for decades before being replaced or substantially altered. Structures are vulnerable to damage or total collapse during earthquakes.	Severe Injury or Death due to the collapse of a structure. Potential loss of wages or employment due to extended injury, time away from work while dealing with damaged/destroyed homes.
Dibble	The town of Dibble has approximately 40.2% of residents living below the poverty line. The houses in this area are generally lower value, often older and more vulnerable to earthquakes.	Severe Injury or Death due to the collapse of a structure. The Residents in Dibble are to have less ability to recover from earthquake damage due to the poverty level.
Goldsby	The Residents lack education on the importance of planning for an earthquake event, and how an event might damage transportation routes. They have not been educated on the importance of having a preparedness kit of food and supplies to sustain them for 72 hours to a week.	Lack of Preparedness for an earthquake event puts families at risk if transportation routes and critical services are disrupted.
Rosedale	The Residents lack education on the importance of planning for an earthquake event, and how an event might damage transportation routes. They have not been educated on the importance of having a preparedness kit of food and supplies to sustain them for 72 hours to a week. With approximately 45% of residents living below the poverty line, preparedness kits are a financial strain on the budget.	Lack of Preparedness for an earthquake event puts families at risk if transportation routes and critical services are disrupted.
Washington	Public Facilities in the Town of Washington are older structures. Many of them would not be able to sustain an Earthquake, making them vulnerable to damage or total collapse.	Severe Injury or Death due to the collapse of a structure. An earthquake would render many of these facilities inoperable, leading to difficulties in organizing the recovery. The temporary loss of businesses and financial loss.

Wayne	The Town of Wayne has a majority of older structures. Many of them are not built to sustain an Earthquake. Structures are vulnerable to damage or total collapse during earthquakes.	Severe Injury or Death due to the collapse of a structure. Potential loss of wages or employment due to extended injury, time away from work while dealing with damaged/destroyed homes.
Blanchard PS	Blanchard Public School does not have straps or buckles to secure tall shelving and equipment during an Earthquake Event.	This can cause the equipment or shelving to topple. Unstable equipment can cause injury to a student or faculty member during an Earthquake.
Purcell PS	The school does not have straps or buckles to secure tall shelving and critical equipment during an Earthquake event.	Unstable equipment can cause injury to a student or facility member during an Earthquake.
Washington PS	Washington Public School does not have any straps or buckles to secure necessary equipment, shelving, file cabinets, and materials located above head level during an earthquake event.	Unstable equipment can cause injury to a student or facility member during an Earthquake.
Wayne PS	Wayne Public School does not have straps or buckles to secure tall shelving and equipment during an Earthquake Event.	This can cause the equipment or shelving to topple. Unstable equipment can cause injury to a student or faculty member during an Earthquake. Damage to equipment can result in an economic loss to schools. This can cause a disruption to school operations and financial burden.
Mid-America Tech Center	Students and faculty members are unaware of the issues related to earthquakes.	Students and faculty have not been educated on what to do during an Earthquake event and how to mitigate risk.

3.4.4 Extreme Heat

Description

Temperatures that hover 10 degrees or more above the average high temperature for the region are defined as extreme heat. Humid or muggy conditions, which add to the discomfort of high temperatures, occur when a "dome" of high atmospheric pressure traps hazy, damp air near the ground. Excessively dry and hot conditions can provoke dust storms and low visibility. Droughts occur when a long period passes without substantial rainfall. A heat wave combined with a drought is a very dangerous situation. A heat wave occurs when such conditions persist over long periods. A lack of nighttime cooling can exacerbate the conditions when community infrastructure fails to release ambient heat increases gained during the day.

According to the National Weather Service, heat is the number one weather-related killer in the United States. Despite the history of adverse effects, there is consensus that most of these deaths are preventable. Extreme heat can cause heat-illnesses to develop among even the healthiest and active individuals. Students and staff participating in outdoor summer school activities are particularly at risk. Heat also affects workforce capabilities. Outdoor maintenance workers should be monitored for heat exhaustion and heat stroke.

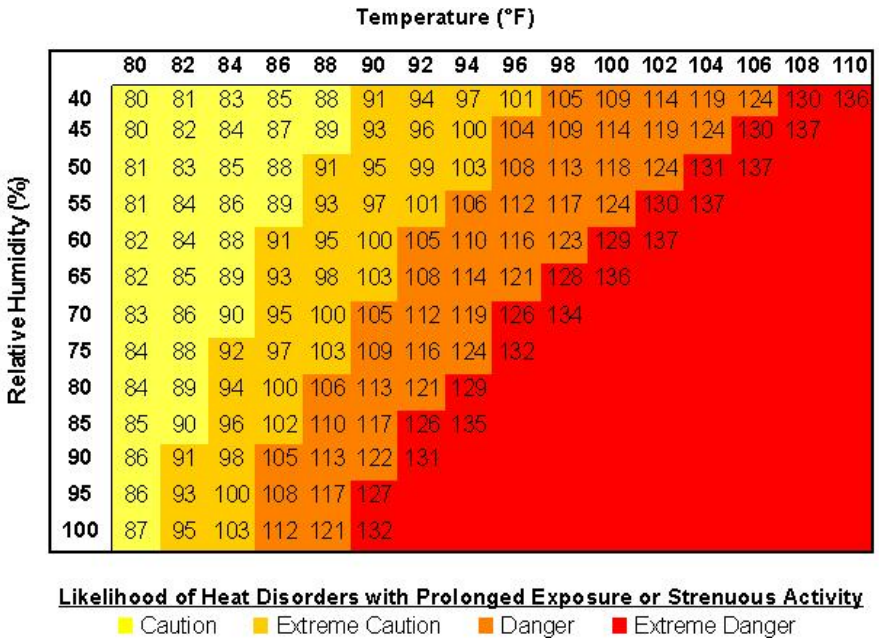
Extreme summer temperatures can also cause water shortages, increase fire hazards, and prompt excessive demands for energy.

Location

The entire planning Area is affected by Extreme Heat

Extent

The Planning Area uses the Heat Index Scale below to classify Extreme Heat. The heat index illustrates how the human body experiences the combined effects of high temperature and humidity. It more accurately reflects what the body experiences than simply measuring the air temperature. The Heat Index Scale displays varying degrees of caution depending on the relative humidity combined with the temperature. The shaded zones on the chart indicate varying symptoms or disorders that could occur depending on the magnitude or intensity of the event. “Caution” is the first level of intensity where fatigue due to heat exposure is possible. “Extreme Caution” indicates that sunstroke, muscle cramps or heat exhaustion are possible, whereas a “Danger” level means that these symptoms are likely. “Extreme Danger” indicates that heat stroke or sunstroke are highly likely. The Planning Area can experience any heat index values within the Caution to the Extreme Danger categories.



Previous Occurrence

In Oklahoma, July is generally the hottest month of the year, closely followed by August. The NWS compiled a 106-year record of monthly and annual average temperatures in Oklahoma, and the Dust Bowl years of 1921, 1931, and 1936 show the highest average temperatures across a 12-month span for the past 100 years. Oklahoma and McClain County experienced their hottest summer on record in 2011. During this year there were 71 days of temperatures above 100°F recorded at the Washington Mesonet Station, including an unbroken run of triple digit days from June 29th to August 10th. In addition, there were six days in a row with temperatures between 108°F and 111°F in early August.

Number of Days with Temperatures Over 100 deg F, 2010-2020

Year	Days with Temperatures over 100 deg F
2010	13
2011	71
2012	35
2013	5
2014	9
2015	3
2016	7
2017	1
2018	5
2019	11
2020	1

Source: https://www.mesonet.org/index.php/weather/daily_data_retrieval

Probability of Future Events
The probability of Extreme Heat occurrences in the Planning Area is HIGH.

Vulnerability and Impact

Population
Heat kills by pushing the human body beyond its limits. Heat has consistently caused the highest number of fatalities, over all other hazards. Extreme heat can take its toll on all the populations of McClain County, as even the most physically fit individuals can succumb to the effects of heat. However, certain segments of the population are at higher risk. These populations include the following:

- Individuals 65 years and older
- Infants
- Socially isolated individuals
- Mentally & mobility challenged individuals
- Obese individuals
- Individuals under the influence of alcohol/drugs or a number of medications
- Individuals and families living below the poverty line
- Outdoor workers
- Of particular interest are individuals over the age of 65 AND below the poverty line. These are at the greatest risk of loss of lif due to extreme heat conditions.

According to the 2010 United States Census in McClain County, persons aged 65 years of age and older make up 13.24% of the total population. Children under the age of 5 years account for 7.01% of the McClain County population. 12.52% of the McClain County population is living in poverty, included 11% of those under 18 years of age and 8% of those 65 years of age and older.

Also, even if cooling centers are set up, these populations may not be notified of their locations or have transportation to access them. This is especially concerning when heat waves continue for days and weeks, and when low-income populations consist of young children and elderly adults. Cooling assistance programs are made available to low-income populations enabling them to afford air conditioning during times of extreme heat; however, according to county representatives the programs never last long.

In McClain County, cooling shelters are made available to the public during periods of extreme heat. These facilities are not available during the evening times; few people typically take advantage of the facilities. The County does not have a heat-action plan. Public education and outreach should continue to inform McClain County populations of high heat impacts and resources available to them. The County should also consider drafting a heat emergency plan in preparation of future extreme heat events.

Utility Infrastructure
Water Treatment – Water demand increases significantly during extreme heat events, and can sometimes exceed the delivery capacity of some of the treatment plants of McClain County. Although northern McClain County, Blanchard, and Dibble receive water from wells and from the Oklahoma City system, the rest of the county is largely

supplied by wells drilled into the Canadian River aquifer, Washita River aquifer and the Gerty Sands. Water shortages occur on occasion, most recently due to drought. Ordinances are in place to restrict outdoor and non-essential water use during times of water emergency. Given that extreme heat conditions also increase the demand for electricity, and occasionally cause lines to sag and flash over to ground, power outages can be a potential secondary effect.

Wastewater Treatment – The most significant threat of extreme heat to the operation of wastewater treatment plants in McClain County would be a wide-scale power outage. Most residences in unincorporated areas of the county make use of individual septic systems.

Electricity - During periods of extreme heat, providers of electrical service could experience any combination of the following challenges in meeting the needs of the jurisdictions: Failure of vital delivery components due to high heat, outages or brownouts due to peak loads, or insufficient field and/or office staff to effectively handle the workload. High temperatures and heavy loading can also cause transmission lines to sag into trees and flashover to ground, potentially resulting in widespread power outages.

Transportation Systems (Highways, Railway, Airports) – Although no significant vulnerabilities to McClain County's transportations systems during an extreme heat event have been identified, sustained high temperatures can result in damage to asphalt highways and railway tracks.

Emergency Services- Fire, Police and Medical services would all be similarly exposed to the effects of an extreme heat event. Fire and Medical services typically receive a higher volume of heat-related calls, taxing the response capabilities of both services. Fire and Police services would both be exposed to secondary effects of extreme heat by having to perform inherently stressful outdoor work under heavy clothing in high temperatures. While extreme heat is not an immediate threat to delivery of Police and Fire services, the demand for additional personnel could potentially increase the cost for these resources.

Jurisdiction-Specific Vulnerabilities to Extreme Heat

Jurisdiction	Vulnerability	Impact
McClain Co	Many long-term care facilities across McClain Co do not have a back-up generator.	Power outages during extreme heat events puts residents and staff at risk for heat-related illness and injury.
Blanchard	Some residents are unaware of the location of public cooling shelters, and know about the air conditioner loan program.	Residents who are unaware of support services are more at-risk during times of Extreme Heat.
Purcell	1. 15.1% of residents are over 65, and in some community sectors as many as 22% of residents live below the poverty line.	1. Older residents and those in poverty are more vulnerable to heat-related illness and injury. Having a larger population of vulnerable people means

	2. Some residents are unaware of the location of public cooling shelters, and know about the air conditioner loan program.	emergency response instances increase during times of Extreme Heat. 2. Residents who are unaware of support services are more at-risk during times of Extreme Heat.
Byars	1. 20% of residents are over 65, and in some community sectors as many as 15.2% of residents live below the poverty line. 2. Families living in poverty may not be able to afford the costs of air conditioning, in terms of the equipment costs and/or repairs, and also in terms of the electrical costs.	1. Older residents and those in poverty are more vulnerable to heat-related illness and injury. Populations living in poverty, and those on a fixed income, often struggle with an increase in high utility costs during an Extreme Heat event. 2. Residents who do not have access to air conditioning during extreme heat events are more at risk for serious heat-related illness requiring medical care, and potentially death.
Cole	1. 11.53% of residents are over 65, and in some community sectors as many as 10.2% of residents live below the poverty line. The Town of Cole does not have a cooling station for residents.	2. Older residents and those in poverty are more vulnerable to heat-related illness and injury. Populations living in poverty, and those on a fixed income, often struggle with an increase in high utility costs during an Extreme Heat event.
Dibble	1. 10.9% of residents are over 65, and in some community sectors as many as 40.2% of residents live below the poverty line. 2. Some residents are unaware of the location of public cooling shelters, and know about the air conditioner loan program.	1. Older residents and those in poverty are more vulnerable to heat-related illness and injury. Populations living in poverty, and those on a fixed income, often struggle with an increase in high utility costs during an Extreme Heat event. 2. Residents who are unaware of support services are more at-risk during times of Extreme Heat.
Goldsby	1. 6.3% of residents are over 65, and in some community sectors as many as 15% of residents live below the poverty line. 2. Some residents are unaware of the location of public cooling	1. Older residents and those in poverty are more vulnerable to heat-related illness and injury. Having a larger population of vulnerable people means emergency response

	shelters, and know about the air conditioner loan program.	instances increase during times of Extreme Heat. 2. Residents who are unaware of support services are more at-risk during times of Extreme Heat.
Rosedale	1. 8.8% of residents are over 65, and in some community sectors as many as 45% of residents live below the poverty line. 2. Families living in poverty may not be able to afford the costs of air conditioning, in terms of the equipment costs and/or repairs, and also in terms of the electrical costs.	1. Older residents and those in poverty are more vulnerable to heat-related illness and injury. Populations living in poverty, and those on a fixed income, often struggle with an increase in high utility costs during an Extreme Heat event. 2. May include serious heat-related illness requiring medical care, and potentially death.
Washington	1. There are many community sectors where up to 11% of residents live below the poverty line. 2. Some Residents are unaware of the location of public cooling shelters, and know about the air conditioner loan program.	1. Populations living in poverty, and those on a fixed income, often struggle with an increase in high utility costs during an Extreme Heat event. 2. Residents who are unaware of support services are more at-risk during times of Extreme Heat.
Wayne	1. There are many community sectors where up to 15% of residents live below the poverty line. 2. Families living in poverty may not be able to afford the costs of air conditioning, in terms of the equipment costs and/or repairs, and also in terms of the electrical costs	1. Populations living in poverty, and those on a fixed income, often struggle with an increase in high utility costs during an Extreme Heat event. 2. May include serious heat-related illness requiring medical care, and potentially death.
Blanchard PS	Blanchard Public Schools are generally not in session during the summer months; however, they do have summer programs in which students and staff are at school facilities. Blanchard Public School does not have backup cooling units.	Extreme heat without adequate cooling devices would create health risks to students and faculty. If there was an interruption to utility service during an extreme heat event, School events could be reduced or cancelled.
Purcell PS	Purcell Public Schools are generally not in session during	Extreme heat without adequate cooling devices

	the summer months; however, they do have summer programs in which students and staff are at school facilities. Purcell Public School does not have backup cooling units.	would create health risks to students and faculty. If there was an interruption to utility service during an extreme heat event, School events could be reduced or cancelled.
Washington PS	Washington Public Schools are generally not in session during the summer months; however, they do have summer programs in which students and staff are at school facilities. Washington Public School does not have backup cooling units.	Extreme heat without adequate cooling devices would create health risks to students and faculty. If there was an interruption to utility service during an extreme heat event, School events could be reduced or cancelled.
Wayne PS	Wayne Public Schools are generally not in session during the summer months; however, they do have summer programs in which students and staff are at school facilities. Wayne Public School does not have backup cooling units.	Extreme heat without adequate cooling devices would create health risks to students and faculty. If there was an interruption to utility service during an extreme heat event, School events could be reduced or cancelled.
Mid-America Tech Center	Mid-America offers classes during the summer for students. Often Building and Property Maintenance and Horticulture Technician classes are required outdoors. Mid-America lacks shade to cover these areas during extreme heat.	Students and staff who do not have access to shade during extreme heat events might be unable to continue outdoor classroom activities. Not having a reprieve from the heat also puts them at higher risk for serious heat-related illness requiring medical care.

3.4.5 Flood

Description

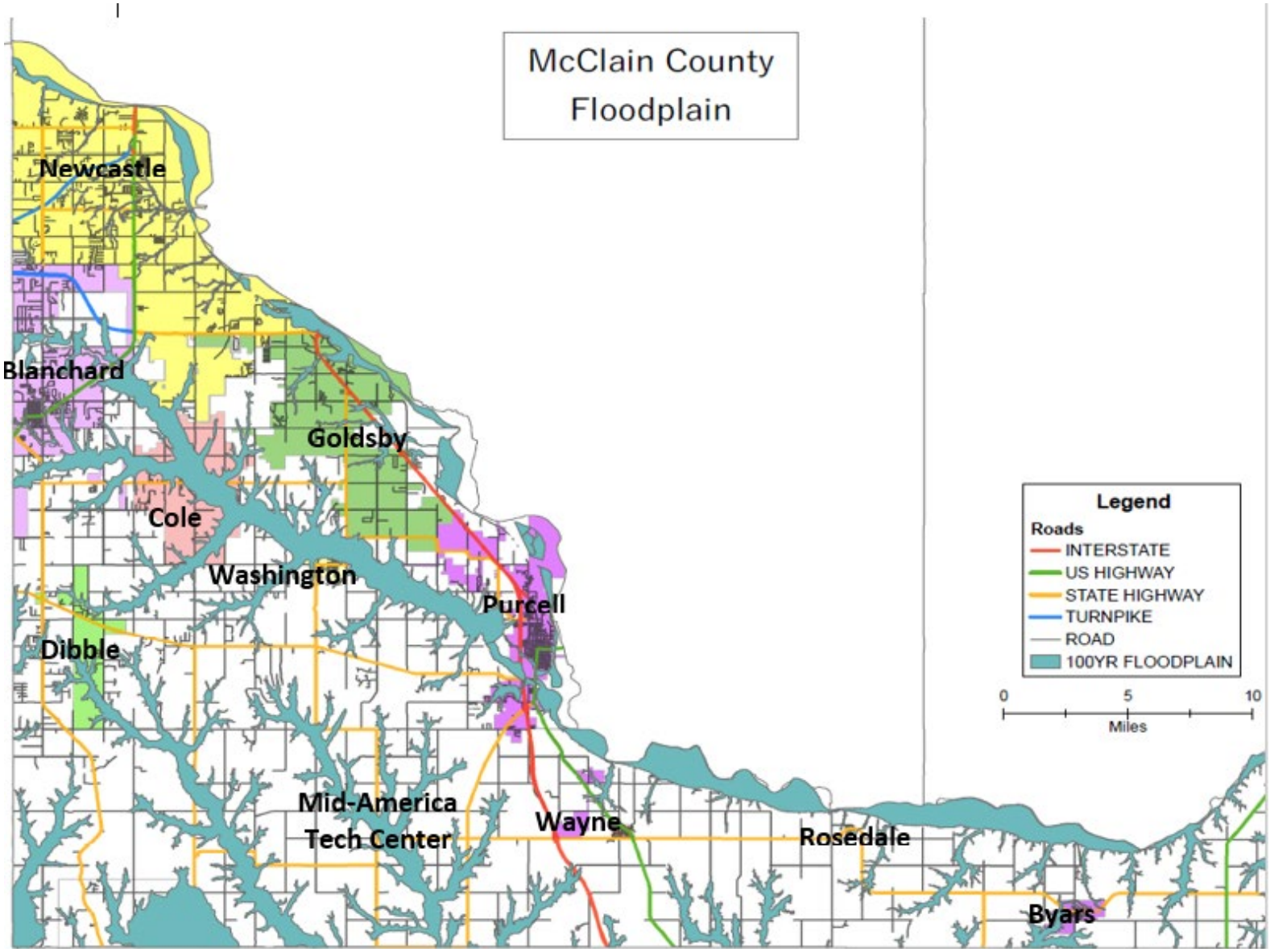
Flooding is the most common and widespread weather hazard in the United States. Most flood dangers and deaths are caused by flash floods. Flash floods usually result from intense storms dropping large amounts of rain within a brief period. The two key elements are rainfall intensity and duration, but topography, soil conditions and ground cover play important roles also. Flash floods occur with little or no warning and can reach peak flow within a few minutes. Waters from flash floods move with great force and velocity and can roll boulders, tear out trees, destroy buildings, and sweep away bridges. These walls of water can reach heights of 10 to 30 feet and generally carry large amounts of debris.
There are three common types of flooding in the Planning Area:

- **Riverine** flooding is usually a gradual process, with several hours to several days of warning time. This type of event usually remains in flood for a longer period than flash or urban flooding, and often causes more damage due to the length of time structures are inundated, the velocity and depth of water, and floating debris. Generally, a river rise of one foot above the SFHA is considered a flood of minor severity, with a major flood being a 500-year event.
- **Flash flooding** in McClain County is associated with the large convective thunderstorms that frequent the region and can drop between 1 and 5 inches of rain in the space of an hour. When the soil is already saturated, rainfall from such storms can converge in creeks and streams suddenly, with little warning. Although potentially hazardous to life and destructive of property, flash flooding usually lasts only a matter of hours.
- **Urban flooding** occurs when heavy rainfall runs off of structures, parking lots and streets and converges in culverts and drainage ways that are often clogged with debris, causing streets to flood and storm sewers to back up.

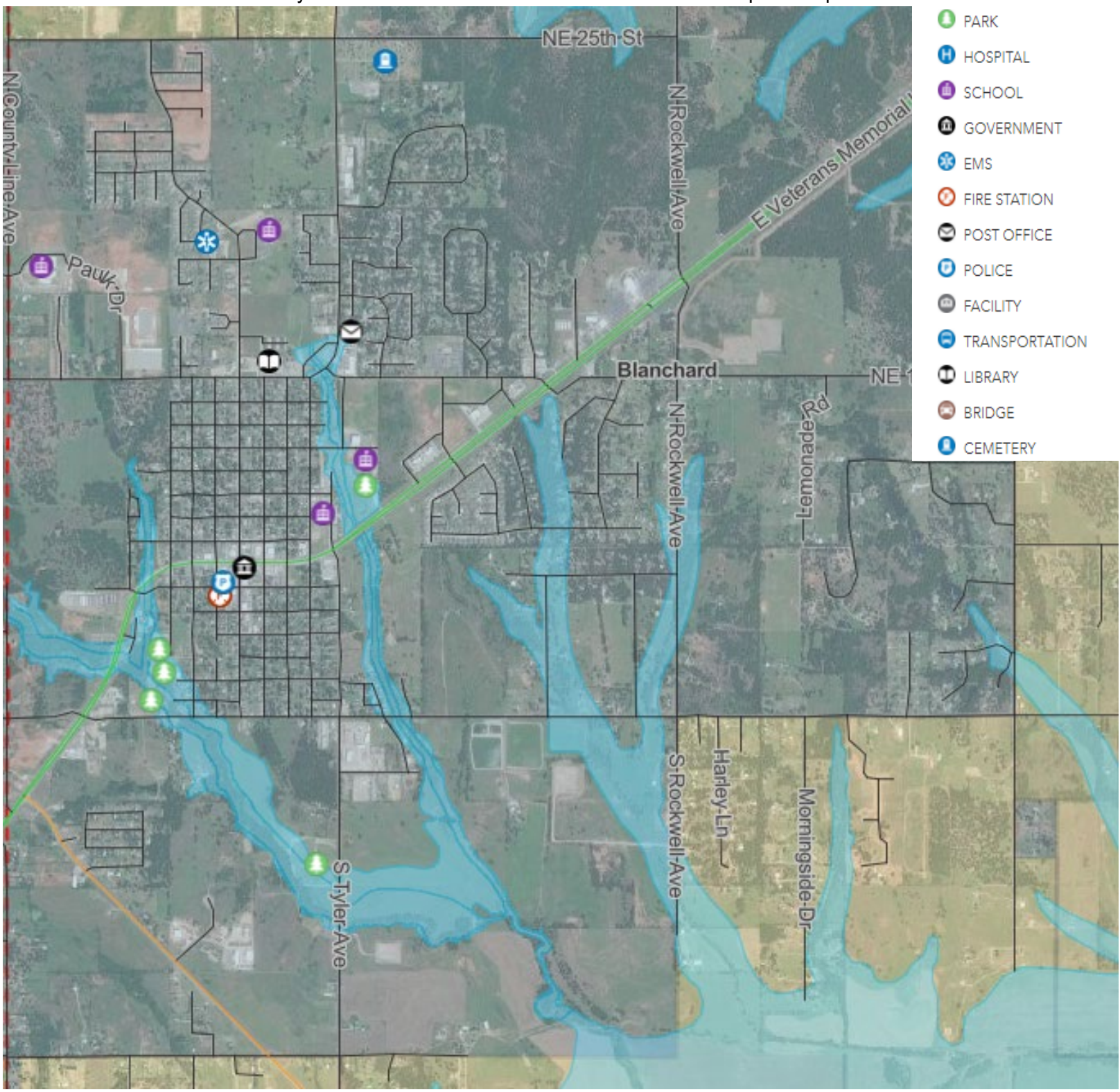
Location

The entire planning area is affected by flooding. Several creeks have cut valleys that extend in a north-south direction through the center of McClain County. The Washita River flows west to southeast in Garvin County, near the southern boundary, with several McClain County creeks feeding into it.

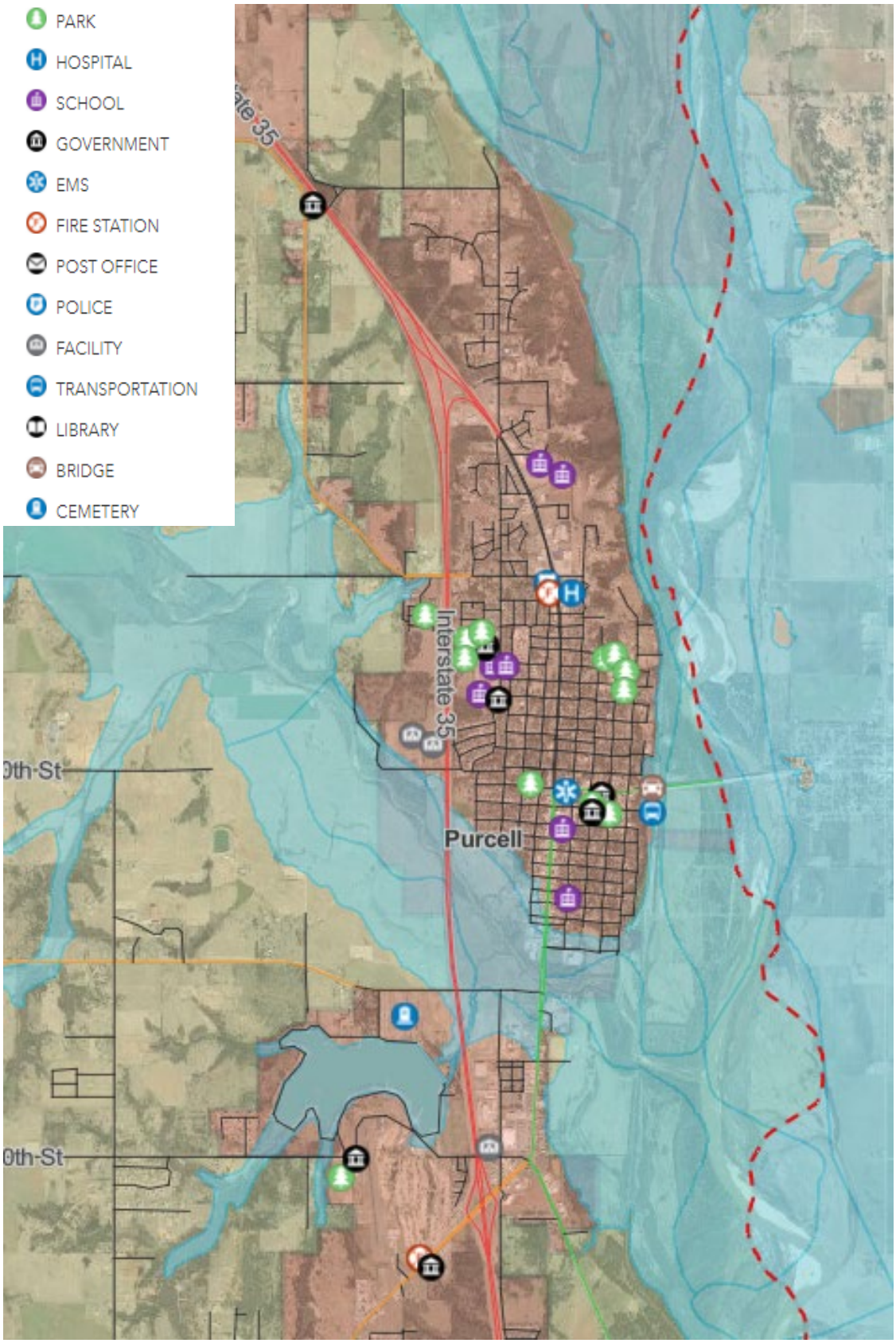
McClain County Floodplain Map



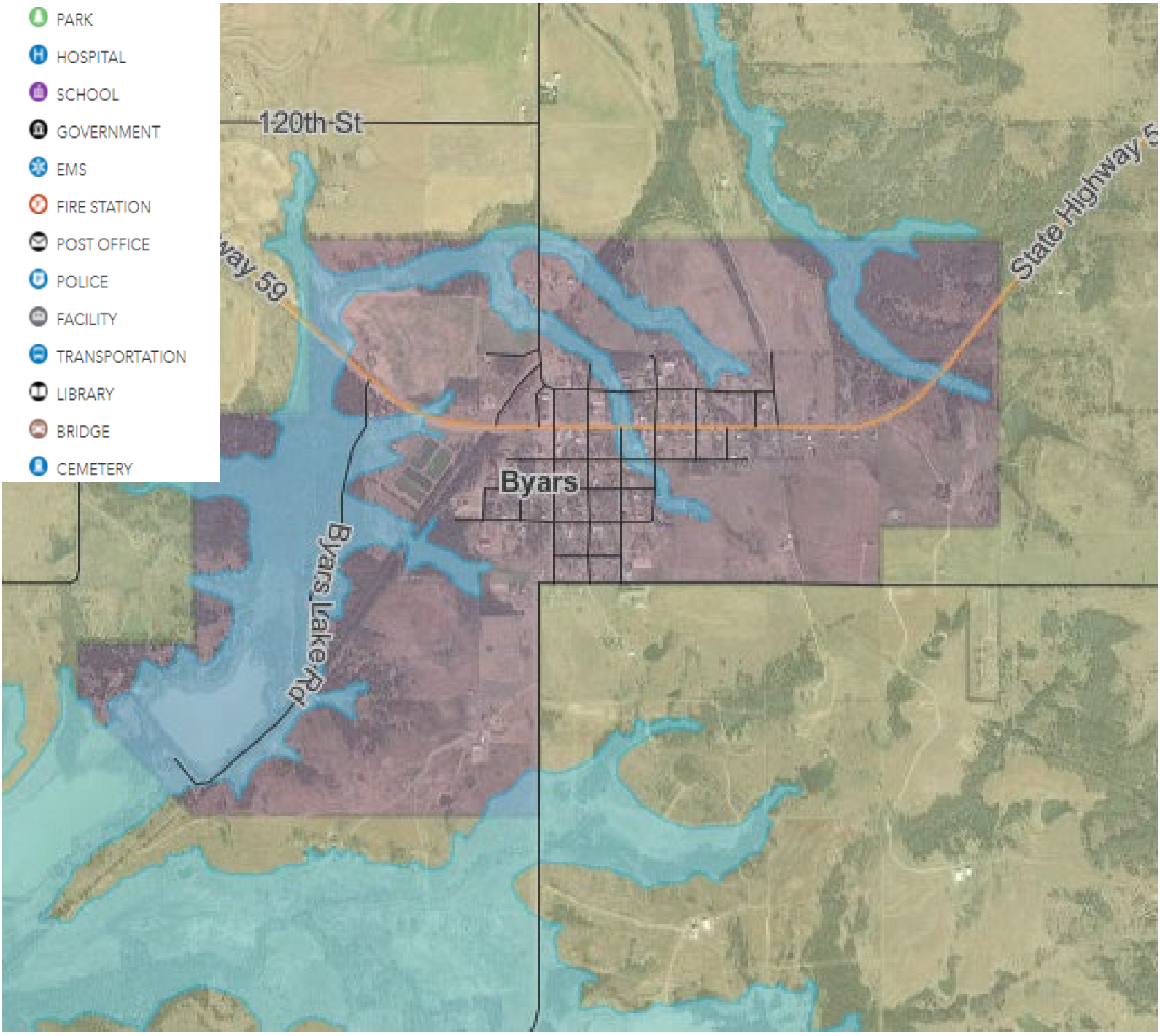
City of Blanchard and Blanchard Public School Floodplain Map



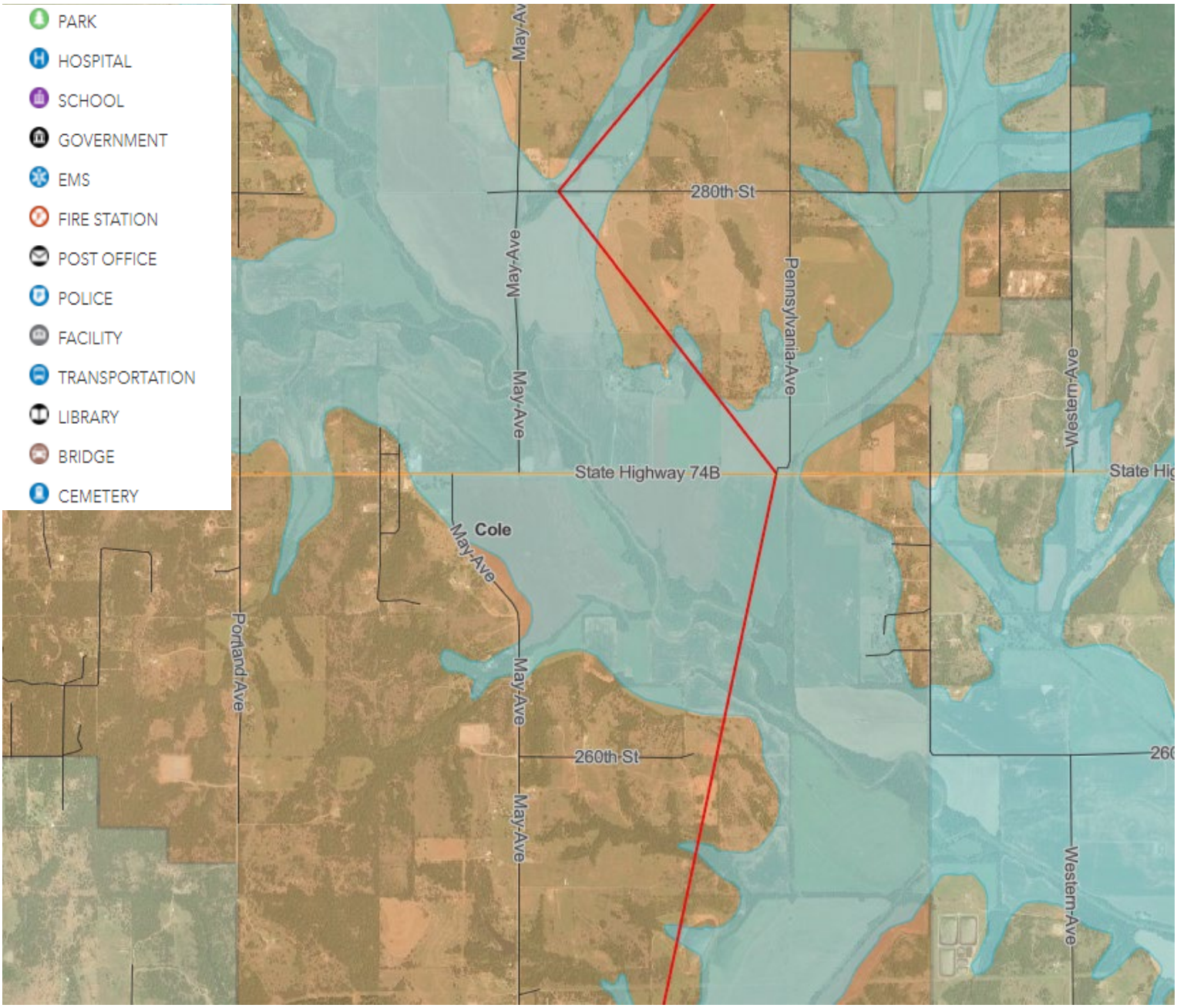
City of Purcell and Purcell Public Schools



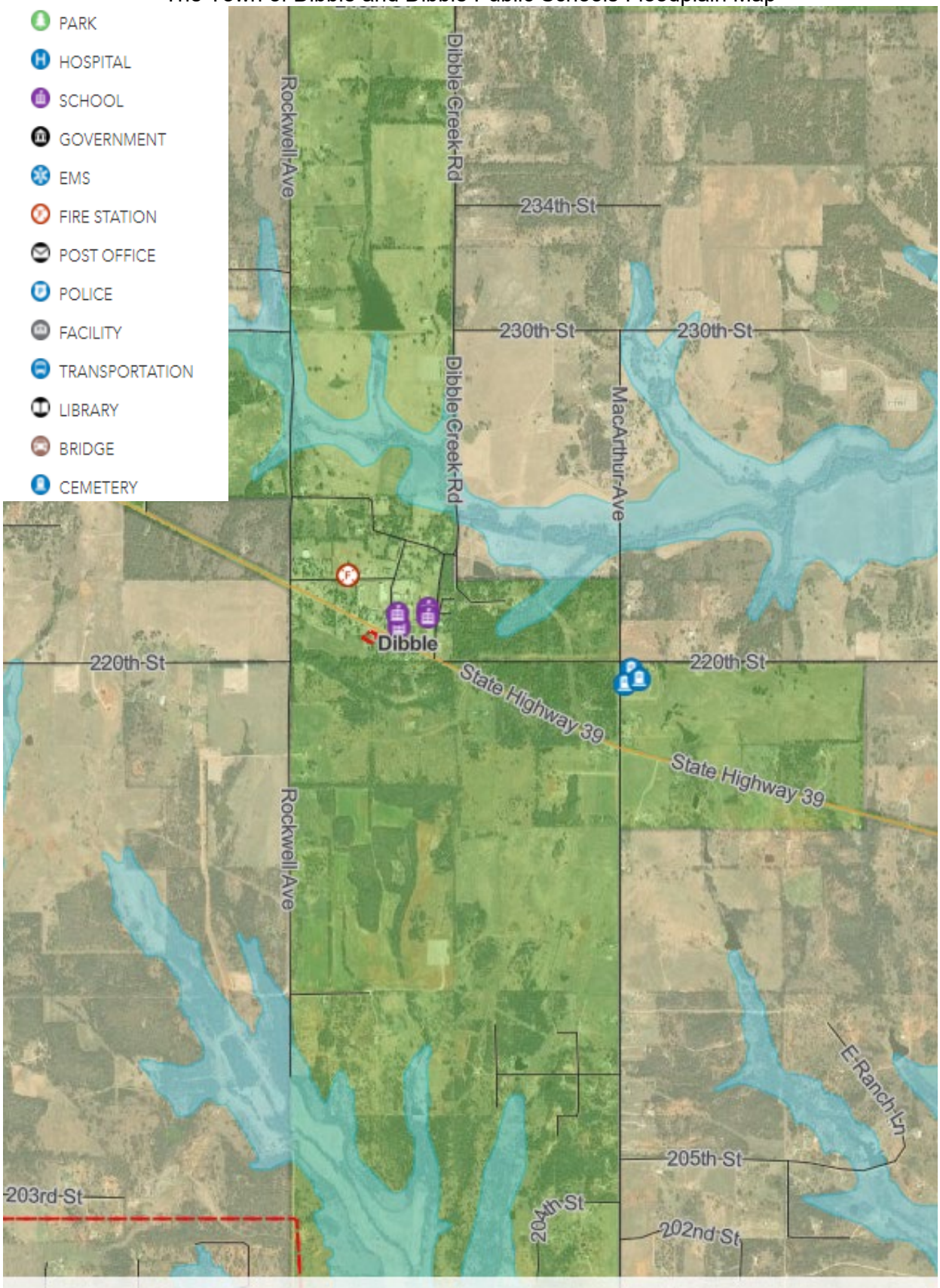
Town of Byars Floodplain Map



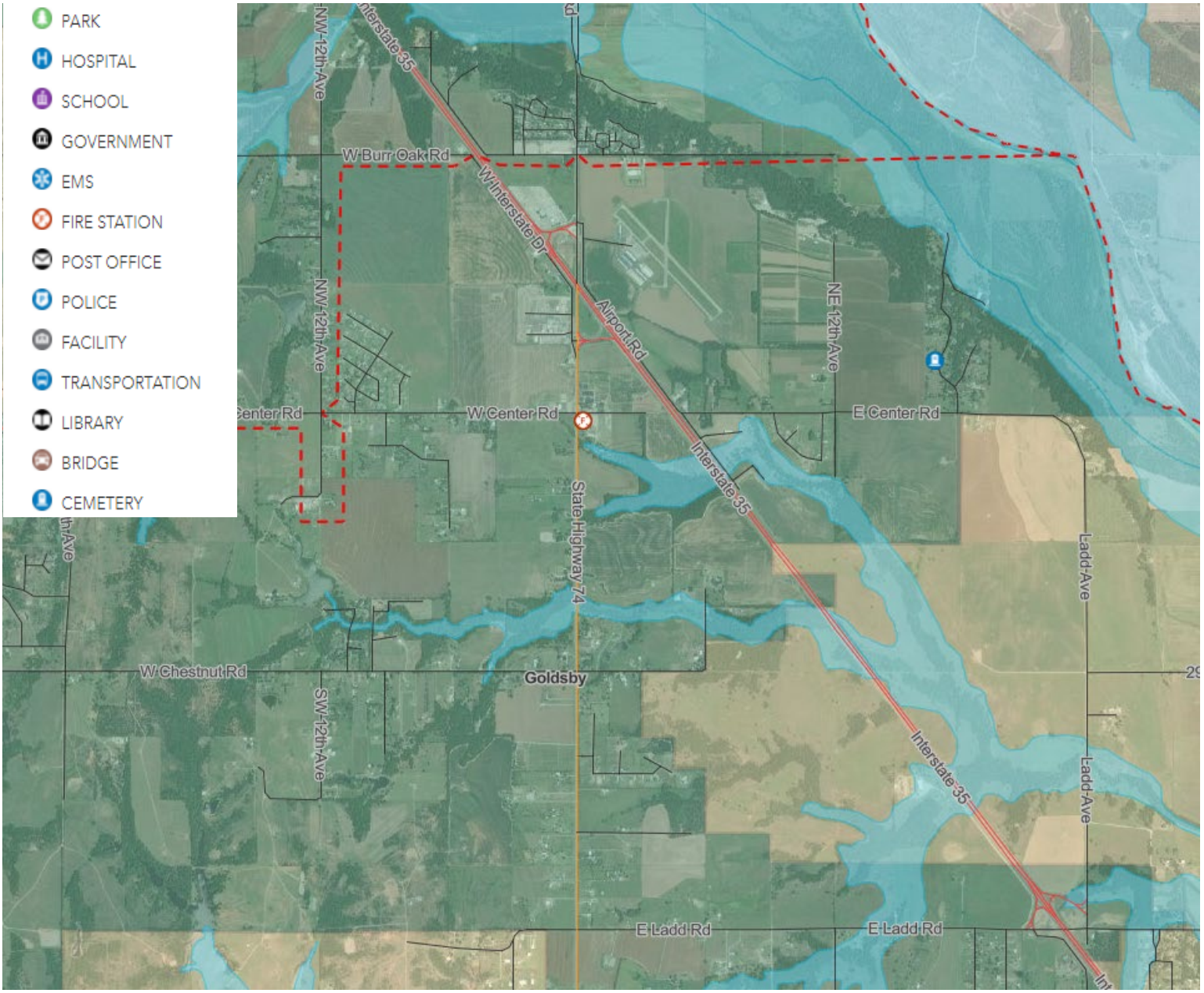
Town of Cole Floodplain Map



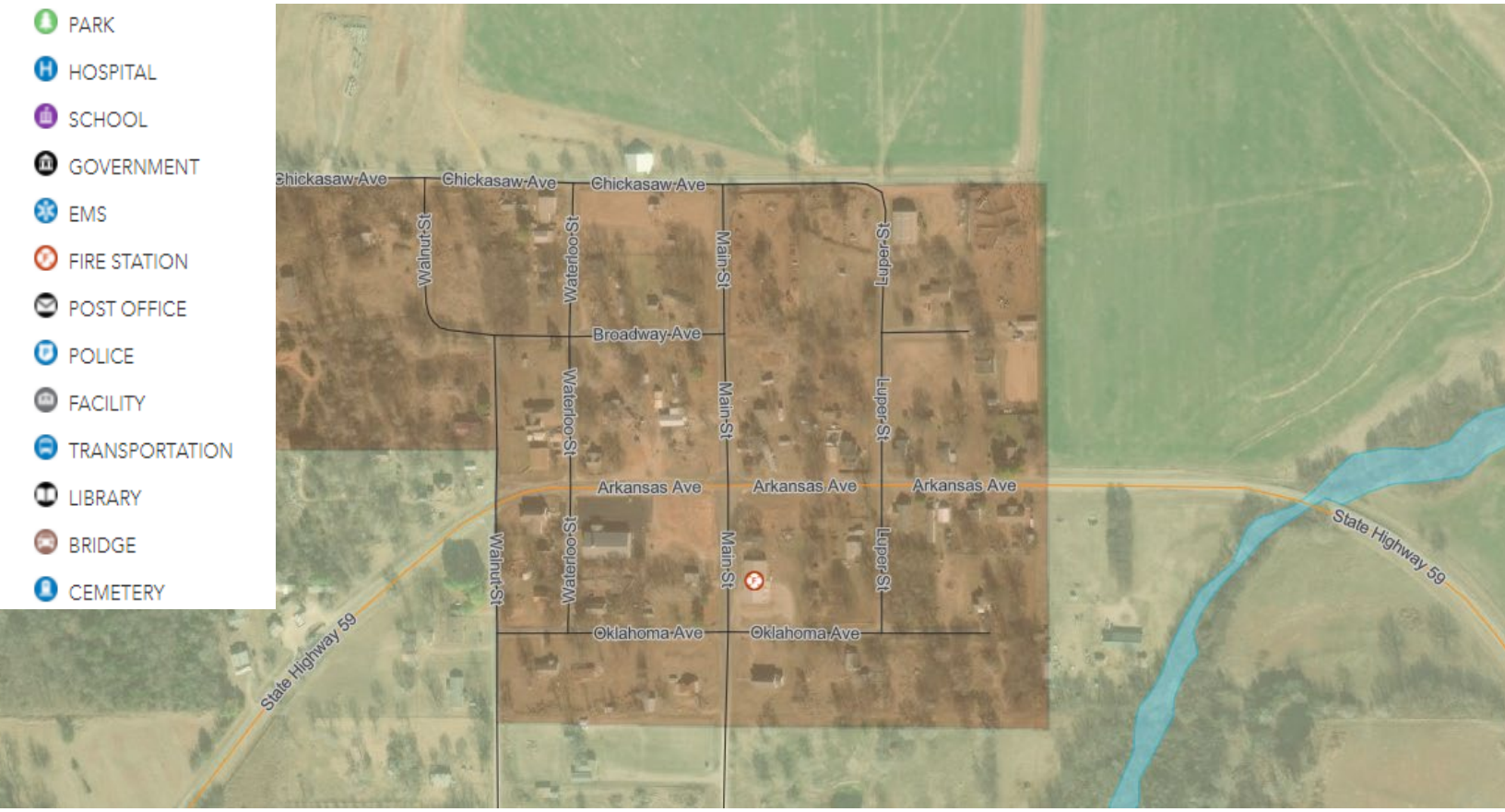
The Town of Dibble and Dibble Public Schools Floodplain Map



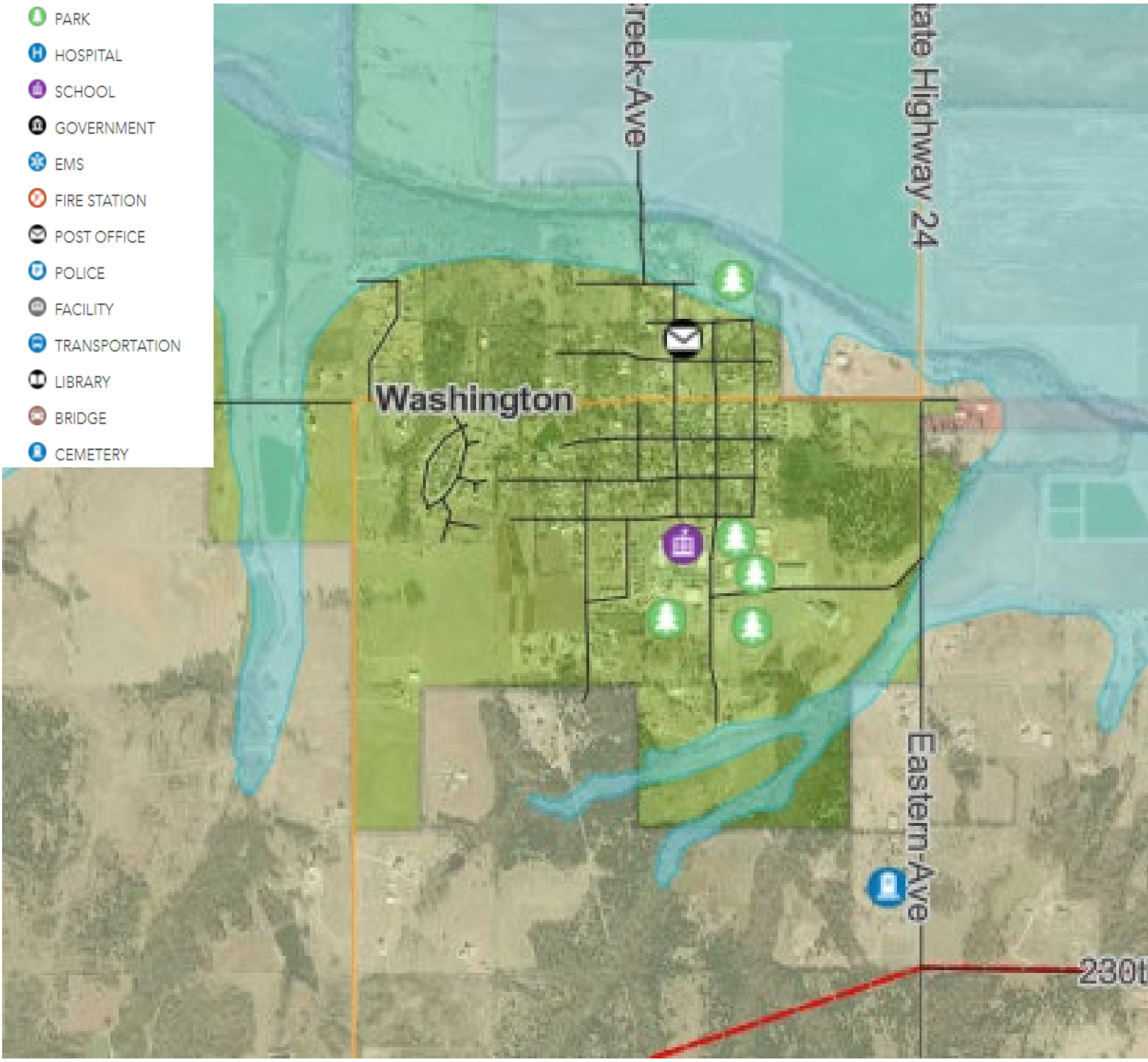
Town of Goldsby Floodplain Map



Town of Rosedale Floodplain Map

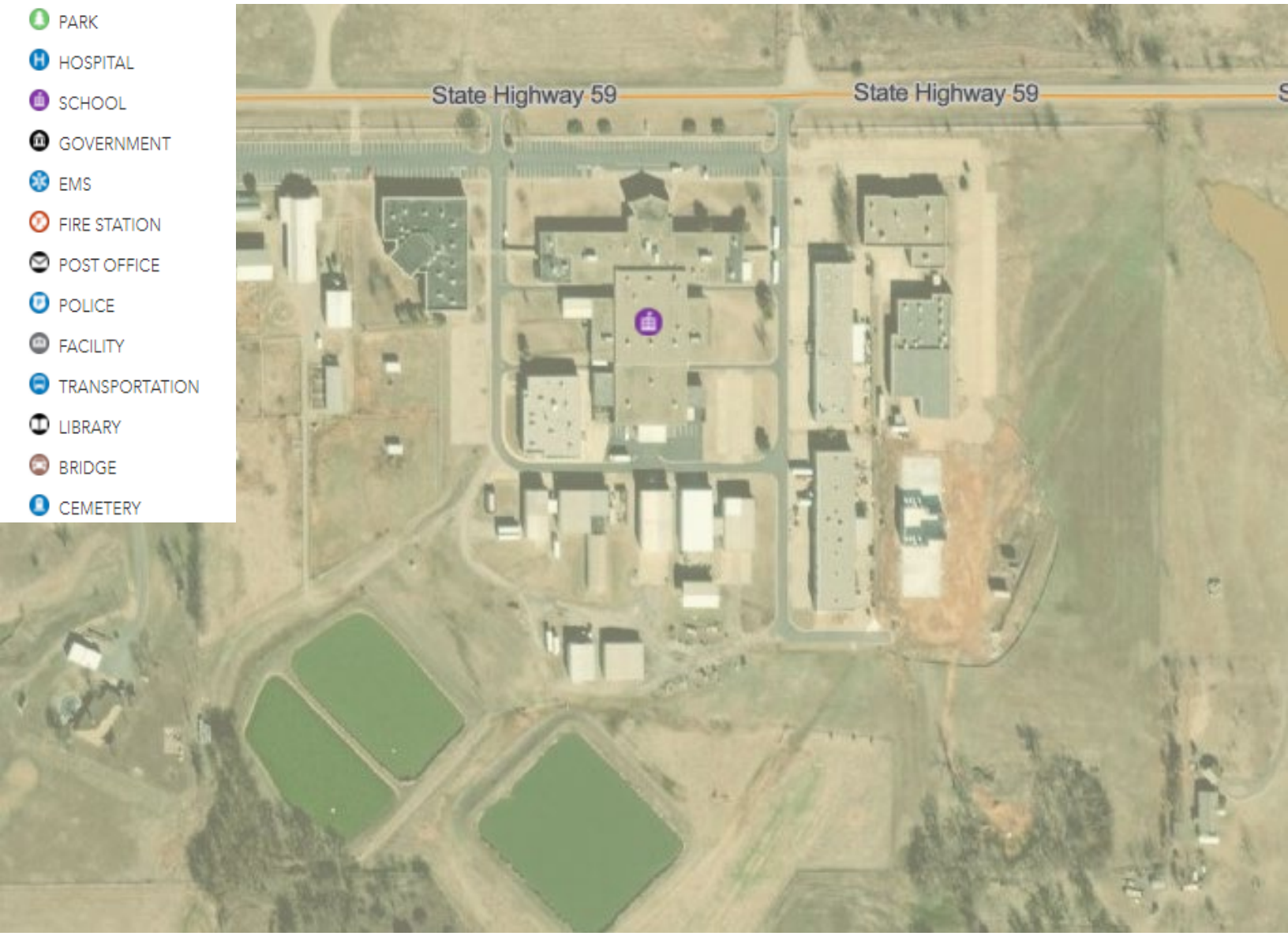


Town of Washington and Washington Public School Floodplain Map

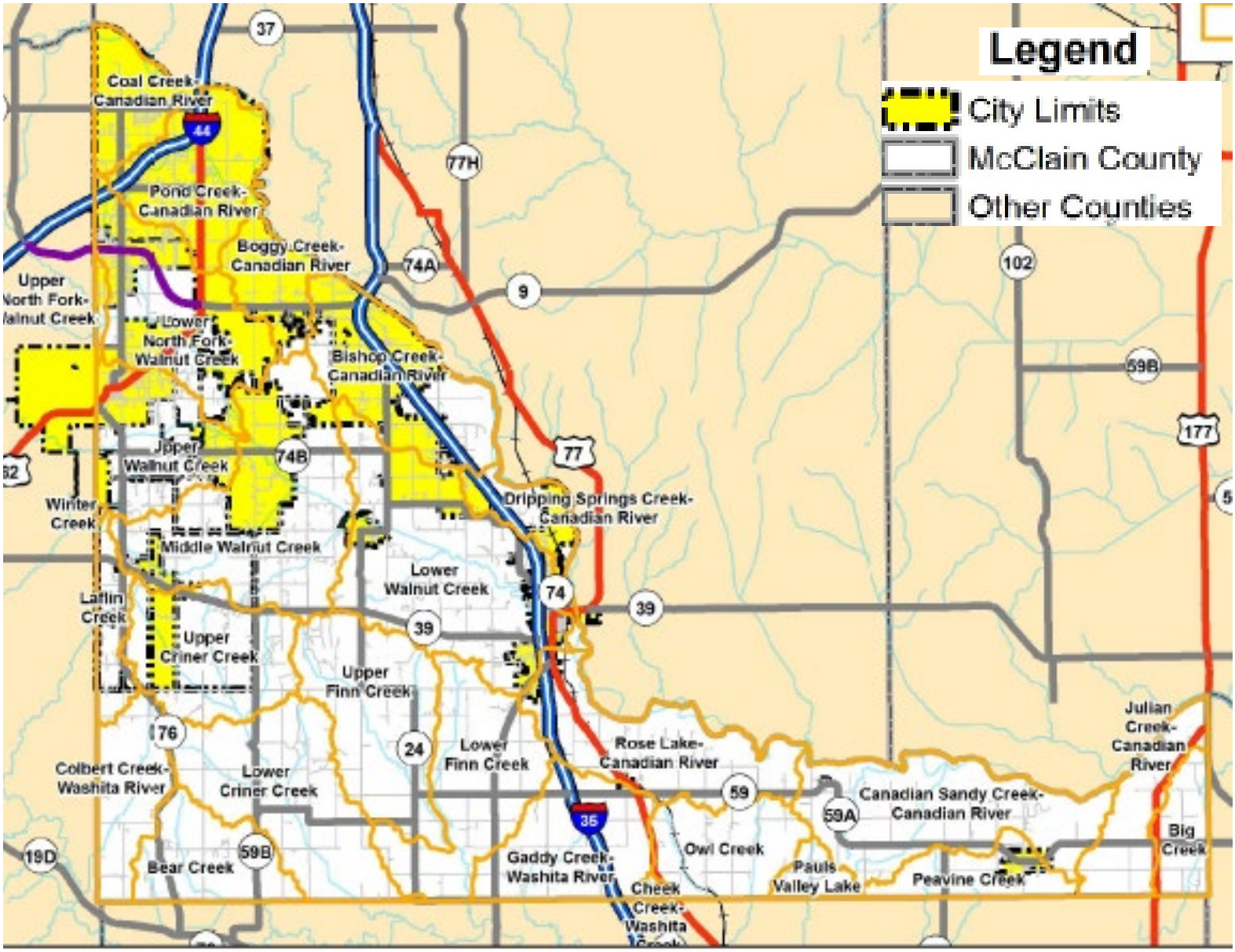


Town of Wayne and Wayne Public School Floodplain Map

Mid-America Technology Center Floodplain Map



McClain County River and Creeks

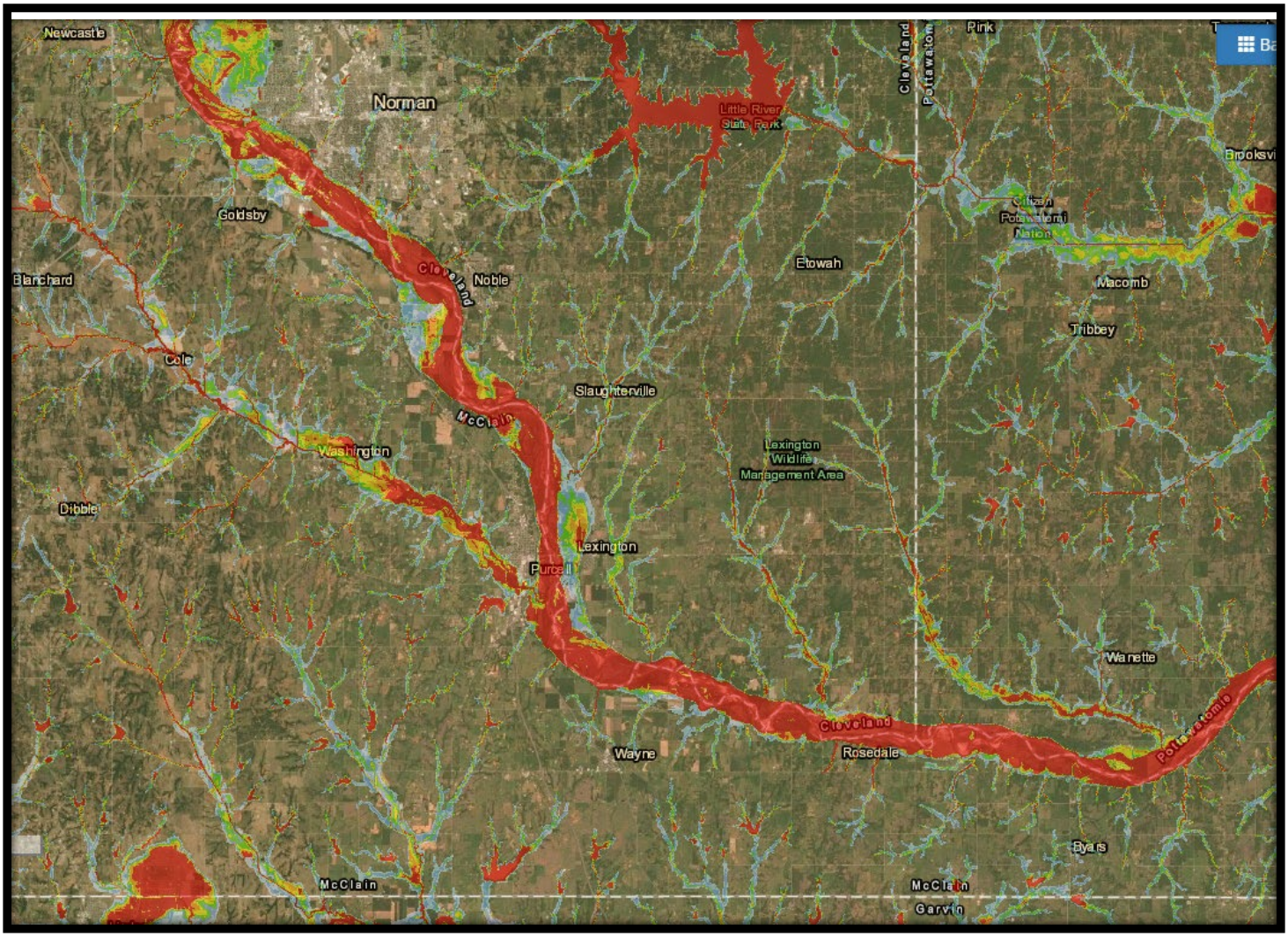


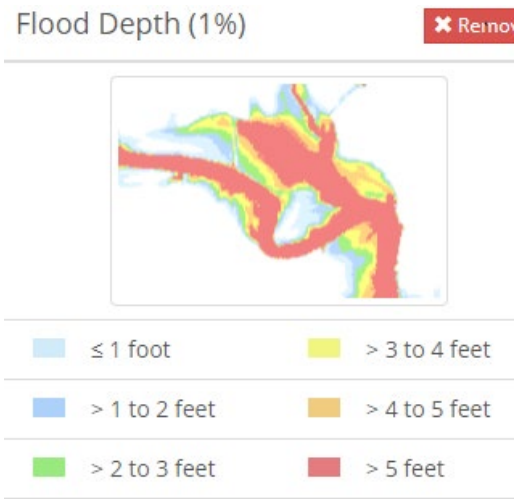
Jurisdiction	In Floodplain (Y/N)	Location of Flood Hazard
McClain County	Y	The main flood hazards of McClain County and its unincorporated communities are located near Walnut Creek and Criner Creek. Walnut Creek affects the Central area of McClain County, and Criner Creek affects the southwestern area of McClain County.
Blanchard	Y	The floodplain area of Blanchard is located in the central portion of the Jurisdiction. Lions Park is located in this Floodplain and is regularly affected during times of heavy rainfall. This also affects roads in this central area, especially Highway 62.
Purcell	Y	Purcell's main flood hazard area is located in the southern area of the town, primarily due to its proximity to lower Walnut Creek. There is also a smaller floodplain area located in the northeast part of town due to its proximity to the Canadian River.
Byars	Y	Byars main flood hazard is in the southern area of the town near Peavine Creek. There is also a smaller floodplain to the north of Byars near the Canadian River.
Cole	Y	Walnut Creek effects the north and south areas of the Town of Cole. Flash Flooding from storms regularly affects roads and highways, especially Highway 74B.
Dibble	Y	The main flood hazards of Dibble are located near Middle Walnut Creek and Upper Criner Creek. Middle Walnut Creek effects the northern areas of Dibble, and Upper Criner Creek affects the south area of Dibble.
Goldsby	Y	The floodplain in Goldsby is located in the north area of the town near the Canadian River. Flash Flooding from storms regularly affects roads and highways near I-35.
Rosedale	Y	Rosedale has floodplain in the east part of the town near the Canadian Sandy Creek. Highway 59A is regularly affected from heavy rainfall.
Washington	Y	The main flood hazards in Washington are located near Middle and Lower Walnut Creek. Middle Walnut Creek affects the Northeastern part of Washington, and Lower Walnut Creek affects the southwest part of Washington.
Wayne	Y	Wayne's main flood hazards is in the northern area of the town near Rose Lake-Canadian River. Flash Flooding from storms regularly affects roads and highways.
Blanchard PS	Y	Blanchard Public School District buildings are not located in a floodplain, but the Football, Baseball, and Softball fields in the central area of Blanchard area in a Floodplain.

Dibble Public Schools	Y	Dibble Public School District buildings are not in a floodplain, but the bus routes in the north and south areas of Dibble are in a floodplain. This primarily affects county roads and highways.
Purcell PS	Y	Purcell Public School District buildings are not in a floodplain, but the bus routes in the south, west, and northeast are in a floodplain. This primarily affects county roads and highways.
Washington PS	Y	Washington Public School District buildings are not in a floodplain, but the bus routes in the northeast and southwest are in a floodplain. A large portion of county roads and several highways are primarily affected by flash flooding due to storms.
Wayne PS	Y	Wayne Public School District Buildings are not located in a floodplain, but bus routes located in northern area of the Town of Wayne are in a floodplain. This primarily affects Highway 77.
Mid-America Tech	Y	Mid-America Technology Center Facilities are not in a floodplain, but Mid-America picks and drops off students at all the schools in McClain County and some of those bus routes are located in floodplain areas. Mid-America property is affected by Urban Flooding during heavy rainfall.

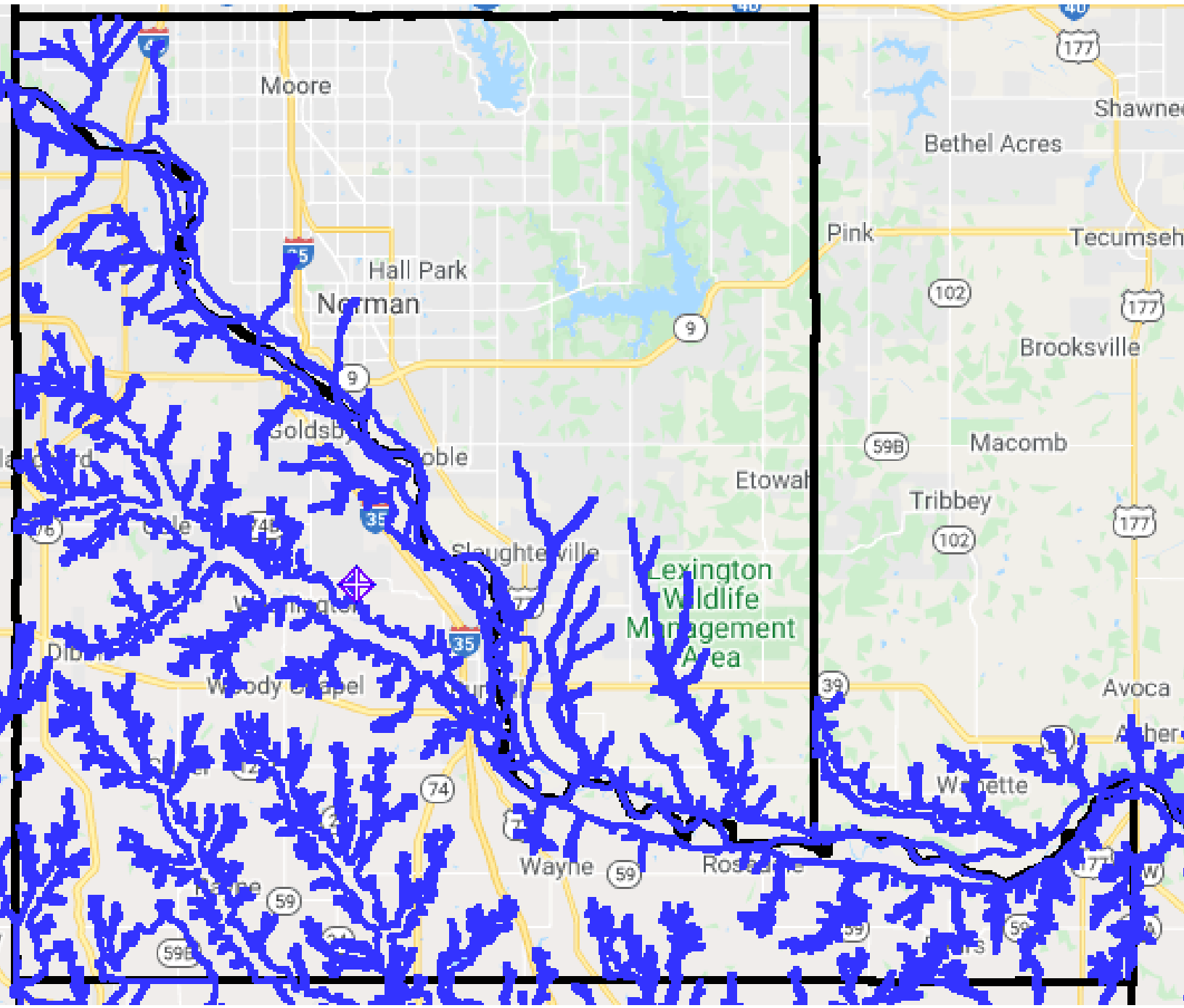
Extent

The Planning Area uses Flood Insurance Rate Maps (FIRM) to categorize Floods. FEMA flood zones are geographic areas that have been defined according to varying levels of flood risk. Zone A (A, AE, AH, AO), or the 100-year flood plain, is a Special Flood Hazard Area (SFHA) with a 1% chance of flooding in a given year. Zone B (X), or the 500-year flood plain, is a Special Flood Hazard Area with a 0.2% chance of flooding in a given year. As estimated by Base Level Engineering Analysis, The Planning Area can experience a flood depth of 1-5 feet during a 1% annual chance storm event. See the flood depth map below.


Newcastle
Norman
Little River State Park
Cleveland
Pottawatomie
Pink
Goldsby
Blanchard
Noble
Etowah
Macomb
Tribbey
Cole
Slaughterville
McClain
Washington
Lexington Wildlife Management Area
Dibble
Lexington
Purcell
Wanette
Cleveland
Wayne
Rosedale
Pottawatomie
Byars
McClain
McClain
Garvin


Flood Depth (1%)
Remov
≤ 1 foot
> 1 to 2 feet
> 2 to 3 feet
> 3 to 4 feet
> 4 to 5 feet
> 5 feet

McClain County Floodplain Map



Previous Occurrences 2010-2020

Date	Description
7/8/2010	Moist, tropical air remained in place over Oklahoma, with scattered showers and thunderstorms remaining a daily afternoon occurrence. A weak boundary stalled close to I-44 by early afternoon. The highest concentration of precipitation occurred near and southeast of this boundary, with intense rainfall rates of over two inches per hour reported at many locations. One location that received some of the heavier rainfall was south Oklahoma City. For the 2nd time in three days, a band of heavy rainfall set up over the southern portion of Oklahoma, causing a localized area of flash flooding. The rain lasted for 2 to 3 hours, and as much as 7 inches of rain was reported. Most of the roadways were quickly flooded. Creeks in the area flooded, flooding several homes with a few feet of water. The rainfall intensity and coverage decreased with the loss of daytime heating.
9/8/2010	The remnants of Tropical Storm Hermine moved north into southern and central Oklahoma, bringing with it heavy rain and three tornadoes. Water flooded over 180th Street, west of Hwy 74. Other county roads also had to be closed due to water running over the top of them.
4/17/2013	A strong warm front became stationary along the interstate 44 corridor during the early afternoon of the 17th. Through the day, areas south of the warm front and east of a well-defined dryline became very unstable. As a large upper trough shifted into the Southern Plains, scattered thunderstorms developed near the dryline/warm front triple point. As these storms moved eastward into the highly unstable warm sector, they became super cellular. These storms produced all facets of severe weather, including very large hail, damaging straight line winds, and a few brief tornadoes. Training of supercells also led to flash flooding over portions of southwest Oklahoma around the Wichita Mountains Wildlife Refuge. Storms eventually shifted eastward and weakened overnight as a cold front pushed through Oklahoma. Persistent heavy rainfall from training supercell thunderstorms led to localized flash flooding in the Newcastle and Blanchard area. No major damage was reported and no injuries or fatalities occurred.
5/31/2013	A tornado outbreak occurred during the late afternoon and early evening hours of the 31st. A stalled front and deeply mixed dryline served as a focus for thunderstorm development. The front/dryline triple point was where the most intense supercells initiated. These storms traveled eastward, eventually impacting the Oklahoma City metropolitan area. Several tornadoes occurred, including the El Reno tornado, which unfortunately claimed several lives. In addition to the tornado, very large hail and heavy rains led to flash flooding in Oklahoma City. This flash flood event ranked as one of the worst in Oklahoma City history in terms of fatalities and damages to property. The event lasted well into the overnight hours. Numerous roads closed in and around Newcastle and Blanchard area. No damage was reported.

5/6/2015	A potent Spring storm system took shape across the Southern and Central Plains. Strong surface cyclogenesis took shape during the day, allowing ample moisture to return northward with strong southerly flow. At the same time, a strong upper-level shortwave trough allowed strong mid-level westerlies to overspread much of the Plains region. With large instability and wind shear, the stage was set for widespread severe storm development. Storms initiated within the open warm sector ahead of the dryline. The first storm developed near Lawton and moved northeast along I-44 into parts of central Oklahoma, resulting in several tornadoes and large hail. Additional supercells spawned tornadoes across northern Oklahoma, and the slow-moving nature of storms lead to several occurrences of flash flooding. Storms continued well into the night. Water over several roads and flowing out of ditches along Hwy 62 in McClain County.
5/19/2015	Severe storms developed near a stalled boundary across Oklahoma and the panhandles and moved eastward through the afternoon and evening of the 19th, causing widespread heavy rainfall and additional flooding. One fatality occurred near Cole in McClain County, as a vehicle was swept into floodwaters.
5/20/2015	Severe storms developed near a stalled boundary across Oklahoma and the panhandles and moved eastward through the afternoon and evening of the 19th, causing widespread heavy rainfall and additional flooding. One fatality occurred near Cole in McClain County, as a vehicle was swept into floodwaters.
5/23/2015	Storms developed in the panhandles on the 23rd under the influence of an upper-level trough. These storms merged into a line and moved eastward over Oklahoma producing widespread flooding.
4/29/2016	Initial storms on the morning of the 29th formed along a stationary boundary. As an upper-level low moved in, more storms formed in the panhandles and moved into Oklahoma toward late morning through the afternoon. Toward evening, some of the last storms formed into a line before exiting the area to the east. Flooding resulted in a closure along interstate 35 near Goldsby, State Highway 74 and State Hwy 74B.
8/31/2016	Scattered showers and isolated storms formed near a weak boundary as a shortwave moved through the area on the evening of the 31st. This produced a case of flooding and a few severe wind gusts. Water was overflowing in Byars making roads impassable. Bar ditches were full or overflowing on county roads.
9/21/2018	Abundant moisture from the gulf and a remnant tropical system converged with a front coming in from northwest early on the morning of the 21st resulting in widespread heavy rain and numerous reports of flash flooding across central and south-central Oklahoma and western north Texas through the day. Purcell had significant water that was reported over roadways.
6/9/2019	A strong line of thunderstorms moved southward across central Oklahoma on the morning of the 9th.Purcell had numerous reports of street flooding with depths over one-half foot.
3/19/2020	A strong upper-level wave provided lift for numerous thunderstorms to develop with reports of hail, wind and flooding. Water flowing over the road near Byars. Other roads were washed out between Byars and Stratford.

From the NOAA National Centers for Environmental Information
https://www.ncdc.noaa.gov/stormevents

Probability
The probability of flooding in the Planning Area is High.

Vulnerability and Impact
Flooding is a destructive force in the Planning Area, where it occurs from rivers, streams, or the flash floods. Flood waters inundate homes, businesses, and roads. Both the forces of the floodwaters and simple inundation can cause severe damage to buildings and wash away roads. While inundated, roads are dangerous and often impassible, causing additional hardships to citizens and school districts.

Jurisdiction	Vulnerability	Impact
McClain Co	A majority of unincorporated McClain is located with streams that repeatedly flood with excess rainfall. These areas are primarily ranching and farming. With Poverty levels in the unincorporated areas of McClain County as high as 20%, these farmers and ranchers are vulnerable when water overruns their fields.	A loss of farm and ranch revenue negatively affects McClain County's economy. In the farming and ranching economy, it also affects secondary businesses that supply goods and services to agricultural businesses.
Blanchard	The City of Blanchard is split between Upper Walnut Creek and Lower North Fork-Walnut Creek Basins. The flood waters from the creeks flood a majority of the main streets and highways.	This type of flooding impedes commuting traffic, causes delays, and creates potentially dangerous areas to cross either by pedestrians or traffic.
Purcell	The Canadian River runs North/South along the Eastern portion of Purcell, and Walnut Creek runs through the Southern portion of the city. Purcell streets and highways flood due to poor drainage.	This type of flooding impedes commuting traffic, causes delays, and creates potentially dangerous areas to cross either by pedestrians or traffic.
Byars	The Town of Byars does not have Storm Drains. This can cause Flooding to the roads and highways for the town.	This can cause a disruption of transportation by hindering commutes, school bus routes, and emergency vehicles.
Cole	A majority of the Town of Cole is located within a Floodplain. Cole is primarily a farming and ranching community. This is a mainstay of the local economy. These farmers and ranchers are	A loss of farm and ranch revenue negatively affects McClain County's economy. In the farming and ranching economy, it also affects secondary businesses that

	vulnerable when water overruns their fields.	supply goods and services to agricultural businesses
Dibble	Dibble Creek runs through the Middle Walnut Creek in the northern portions of Dibble. With approximately 40.2% of the residents living below poverty line, a high percentage of residents live in mobile homes. Flooding can saturate the soil under the mobile home causing its footing to become unstable and unsafe.	The residents are to have less ability to recover from flooding damage due to poverty level.
Goldsby	The floodplain in Goldsby is mainly along the northern area of town near the Canadian River. Adkins Hill Road in Goldsby can become impassable during flooding and flash-flooding events. This area is close to the Canadian River.	This can cause a disruption of transportation by hindering commutes, school bus routes, and emergency vehicles.
Rosedale	The Town of Rosedale does not have Storm Water Drains. This can cause flooding to the roads and highways for the town.	This can cause a disruption of transportation by hindering commutes and school bus access.
Washington	Walnut Creek runs through the northern portion of the Town of Washington, while Sandy Creek flows along the western portion of the town's boundary. Floodplains surround both of the creeks. Due to the poor storm water drainage the flooding can overtop the main streets and highways and make travel impossible.	This can cause a disruption of transportation by hindering commutes, school bus routes, and emergency vehicles.
Wayne	The South Canadian River is the largest body of water near Wayne. The town is primarily a farming and ranching community. These farmers and ranchers are vulnerable when water overruns their fields. This is a mainstay of the local economy.	A loss of farm and ranch revenue negatively affects McClain County's economy. In the farming and ranching economy, it also affects secondary businesses that supply goods and services to agricultural businesses

Blanchard PS	With Walnut Creek close to Blanchard Schools all the Recreational Fields flood with excessive rainfall.	A disruption of practice or even games. It can potentially ruin the fields.
Dibble PS	Dibble Creek is North of Dibble Schools. The streets in front of Dibble Public Schools often flood when excessive rain fall causes flash flooding. These roads provide a main route for buses traveling to the school.	Transportation routes can directly affect school operations, and result in school closures.
Purcell PS	The Canadian River is in proximity of Purcell High School. The flooding from excessive rainfall floods the Purcell High Football Field.	A disruption of practice or even games. It can potentially ruin the fields.
Washington PS	With Walnut Creek close to Washington Public Schools the recreational fields used for sporting events as well as the surrounding buildings used for sporting events are vulnerable to flooding due to excessive rain.	This can impact practice and even games for students. It can potentially ruin the fields and cause infrastructure damage to the buildings used for sporting events.
Wayne PS	With the Canadian River close to the Town of Wayne. Buses that drive routes on the rural county roads in Wayne become vulnerable to flooded roadways due to excessive rainfall.	Transportation routes can directly affect school operations, and result in school closures.
Mid-America Tech Center	Mid-America Tech Center picks and drops off students at all the schools in McClain County. The students and faculty on these buses are vulnerable to flooded streets and highways while traveling to and from the tech center.	Transportation routes can directly affect school operations, and result in school closures.

3.4.6 Hail

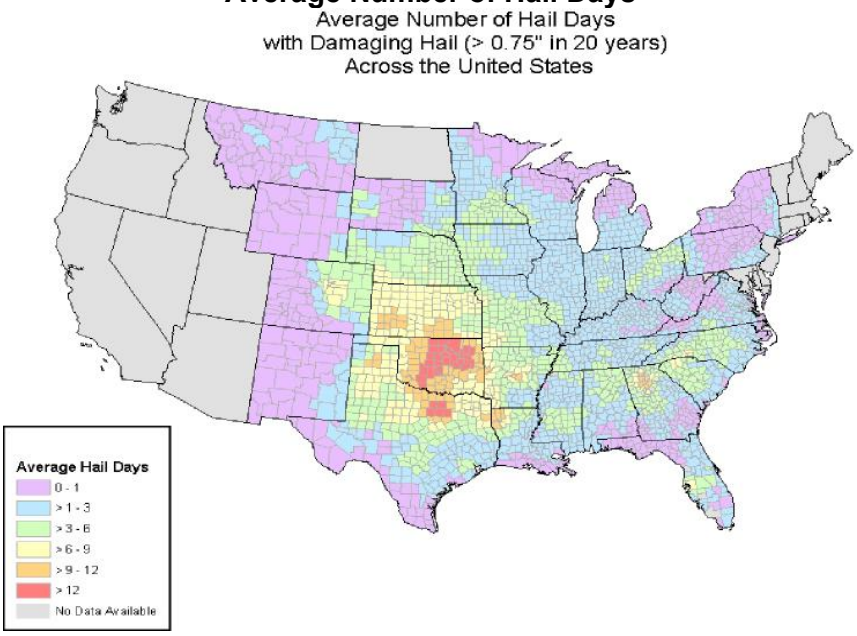
Description

Hail is a frozen form of precipitation that occurs when precipitation has been swept back into the clouds by an updraft. Hailstones larger than the size of a quarter can result in thunderstorms with powerful updrafts. Hail is most likely to accompany supercell storms with a sustained rotating updraft.

Location:

Oklahoma experiences an average of 602 hailstorms each year with hailstones measuring at least one inch in diameter. As indicated in Oklahoma, including the Planning Area, averaged 12 hail days with damaging hail per year, over a 20-year period. All populations, structures, and agricultural areas in the Planning Area are at risk.

Average Number of Hail Days



Extent

Hailstones are typically measured by their diameter. The damages expected from a hail event are a function of the diameter of the hailstones and wind speed, or velocity. Hailstorms are usually considered “destructive” when hail reaches 1.75 inches in diameter and is accompanied by high winds. When hailstones reach such dimensions, they can be extremely dangerous to property, agriculture and people caught outside, without shelter. The Planning Area uses the Hail Description Scale below to categorize hail and can experience the full range of hail sizes on that scale.

Hail Diameter/Description Scale

Hail Diameter (Inches)	Description	Hail Diameter (Inches)	Description
1/4”	Pea	1 3/4”	Golf Ball
1/2”	Small Marble	2”	Hen’s Egg
3/4”	Penny or Large Marble	2 1/2”	Tennis Ball
7/8”	Nickel	2 3/4”	Baseball
1”	Quarter	3”	Teacup Size
1 1/4”	Half Dollar	4”	Grapefruit
1 1/2”	Walnut or Ping Pong Ball	4 1/2”	Softball

Previous Occurrences
Between 2010 and 2020 there were 99 hail events in McClain County.

Hail Storm Events, 2010-2020 `From the NOAA National Centers for Environmental Information https://www.ncdc.noaa.gov/stormevents/choosedates.jsp?statefips=40,OKLAHOMA		
Year	**# Of Hail Storm Events**	**Hail Size (Inch)**
2010	8	0.75-2.75
2011	13	1.00-2.75
2012	13	1.00-2.75
2013	8	1.00-1.75
2014	4	1.00-1.50
2015	6	0.88-1.00
2016	8	1.00-1.25
2017	11	0.88-4.00
2018	2	1.00-1.75
2019	16	1.00-1.50
2020	10	1.00-3.50

Probability
The probability of hail in the Planning Area is High.

Vulnerability and Impact
The Planning Area experiences hail due to the strong storm systems that develop and pass through. When hails hits, it can damage cars, break windows, shred roof coverings, and lead to water damaged ceilings, walls, floors, appliances, and personal possessions.

Jurisdiction	Vulnerability	Impact
McClain Co	A majority of unincorporated McClain County's economy is dependent on ranching and farming. A hail event could damage crops and cause injury to livestock. With poverty levels in the unincorporated areas of McClain County as high as 20%, farmers and ranchers are economically vulnerable to hail events that cause damage to their fields and injury to their livestock.	A loss of farm and ranch revenue negatively affects McClain County's economy. In the farming and ranching economy, agricultural losses are a significant impact for McClain County because of the importance of agriculture in the area.
Blanchard	The City of Blanchard lacks public shelters at Event Gatherings. The City of Blanchard hosts City Wide events all during the year. Holiday parades, singing in park during the summer, and the May Daze festival. All of these events are uncovered and in the open outdoor, not having shelter to seek in the event of a Hail event.	This can cause damages to the vehicles parked at the event, and personal injury to the people in attendance at the event.
Purcell	The City of Purcell has a majority of older structures. A lot of these older structures have weak roofs. These structures would be vulnerable to damage during a hail event.	Hail damages to roofs can cause property owners or business owners to have to find temporary housing or business locations due to the amount of roof damage on their structure. This can cause a loss of wages, business, and employees' loss of wages.
Byars	The Town of Byars has older structures within the community. These older structures have weak roofs and siding, and no covered area for vehicles. Approximately 15% of residents are socially vulnerable because they live below the poverty line.	Damages to roofs, siding, and vehicles in an already economically depressed population can cause a delay or lack of a repairs.
Cole	A hail event could damage crops and cause injury to livestock. Farmers and ranchers are economically	A loss of farm and ranch revenue negatively affects McClain County's economy. In the farming and ranching

	vulnerable to hail events that cause damage to their fields and injury to their livestock.	economy, it also affects secondary businesses that supply goods and services to agricultural businesses
Dibble	Approximately 40.2% of the residents in Dibble live below poverty line with a high percentage of residents living in mobile homes. A hail event will damage the roof on a mobile home and the siding.	The residents are to have less ability to recover from hail damage due to poverty level.
Goldsby	The Town of Goldsby does not have covered parking for the Goldsby Water Department Vehicles or Town Utility Vehicles. In the event of a Hail Storm these vehicles are vulnerable to damage.	Damages to town vehicles can cause disruption of services to the town.
Rosedale	The Town of Rosedale has older structures within the community. These older structures have weak roofs and siding, and no covered area for vehicles. Approximately 45% of residents are socially vulnerable because they live below the poverty line.	Damages to roofs, siding, and vehicles in an already economically depressed population can cause a significant delay in repairs, or can result in a lack of adequate repairs.
Washington	The Town of Washington does not have covered parking for the Town owned vehicles. In the event of a Hail Storm these vehicles are vulnerable to damage.	Damages to town vehicles can cause disruption of services to the town.
Wayne	A majority of the Town of Wayne is primarily a farming and ranching community. A hail event could damage crops and cause injury to livestock. Farmers and ranchers are economically vulnerable to hail events that cause damage to their fields and injury to their livestock.	A loss of farm and ranch revenue negatively affects McClain County's economy. In the farming and ranching economy, it also affects secondary businesses that supply goods and services to agricultural businesses
Blanchard PS	Blanchard Public Schools are vulnerable to hail due to the lack of hail resistant film on the facility windows.	A broken window can injure a faculty member or student during a hail event.

Dibble PS	Dibble Schools does not have covered parking for the school buses or transportation vehicles. This exposes the buses to damage due to a hail event.	This could result in a significant loss to the schools' capabilities, and their ability to operate at normal levels.
Purcell PS	Purcell Public Schools do not have covered sidewalks for students and faculty go between buildings.	This can cause an injury to a student or faculty member who is outside, uncovered during a hail storm.
Washington PS	Washington Schools does not have covered parking for the school buses or transportation vehicles. This exposes the buses to damage due to a hail event.	This could result in a significant loss to the schools' capabilities, and their ability to operate at normal levels.
Wayne PS	Wayne Public Schools are vulnerable to hail due to the lack of hail resistant film on the facility windows.	A broken window can injure a faculty member or student during a hail event.
Mid-America Tech Center	Mid-America offers classes out doors to students. These classes are uncovered and in the open outdoor, not having shelter to seek in the event of a Hail event.	This can cause injury to a student or faculty member.

3.4.7 High Winds

Description

High Wind events are associated with severe thunderstorms, and can accompany tornadoes and downbursts. Winds can be called straight-line with speeds reaching 58 MPH or more. Downdraft winds are small columns of air that sink quickly to the ground. Microbursts (less than 4 kilometers wide) and macrobursts (more than 4 kilometers wide) can also occur with or without precipitation.

Location

The entire Planning Area is affected by High Winds.

Extent

The Beaufort Scale below is used to measure and categorize wind speeds. The Planning Area Can experience any category of wind speed on the chart below.

Beaufort Wind Chart-Estimating Wind Speeds

Beaufort Wind Chart – Estimating Winds Speeds

Beaufort Number	MPH Range	MPH Average	Terminology	Description
0	0	0	Calm	Calm. Smoke rises vertically.
1	1-3	2	Light air	Wind motion visible in smoke.
2	4-7	6	Light breeze	Wind felt on exposed skin. Leaves rustle.
3	8-12	11	Gentle breeze	Leaves and smaller twigs in constant motion.
4	13-18	15	Moderate breeze	Dust and loose paper is raised. Small branches begin to move.
5	19-24	22	Fresh breeze	Smaller trees sway.
6	25-31	27	Strong breeze	Large branches in motion. Whistling heard in overhead wires. Umbrella use becomes difficult.
7	32-38	35	Near gale	Whole trees in motion. Some difficulty when walking into the wind.
8	39-46	42	Gale	Twigs broken from trees. Cars veer on road.
9	47-54	50	Severe gale	**Light structure damage.**
10	55-63	60	Storm	**Trees uprooted. Considerable structural damage.**
11	64-73	70	Violent storm	**Widespread structural damage.**
12	74-95	90	Hurricane	**Considerable and widespread damage to structures.**

Webpage: http://www.weather.gov/iwx
Twitter: @nwsiwx
Facebook: NWSNorthernIndiana

Previous Occurrences

Between 2010 and 2020 there were 6 high wind events in McClain County. The table below represents High Wind examples that have caused damages in the Planning Area. The Planning Area gets High Winds annually, but they may not be reported.

High Wind Events 2010-2020

April 2, 2010	One small scale circulation caused tree and outbuilding damage near Blanchard, while another, about 1.2-mile south of Highway 9 and Western Ave., destroyed one large barn and toppled the concrete wall of another. No damage estimate was given.
July 13, 2011	65-mph winds brought down several power poles at Purcell. Damage was $4,000.
May 20, 2013	90-mph wind developed prior to the formation of the Newcastle-Moore tornado in northeastern Grady northwestern McClain counties. Tree damage occurred throughout the area and a number of homes and mobile homes received damage in McClain County. Losses were estimated at $75,000.
June 5, 2013	65-mph winds caused tree and roof damage in Washington estimated at $15,000.
October 21, 2017	Immediately south of the tornado that moved near State Highway 9, a large area of damaging winds, likely associated with the Rear Flank Downdraft, produced additional damage from near Riverwind Casino and Hotel to the Canadian River. Just east of Interstate 35, this area of damaging winds was its widest at around 500 yards. Roof facade was pulled from the Riverwind Hotel, which damaged the hotel siding and broke a first story window as it fell. Numerous trees were damaged east of Interstate 35 but south of the tornado path with damage consistent with winds of approximately 90 mph.
May 19, 2018	A quasi-linear convective system of thunderstorms produced a large area of wind damage that began about 8 miles southwest of Purcell, and moved northeast through Purcell and then into Cleveland County. This area of wind damage was up to 3 miles wide. Eight to ten homes had shingle or window damage, and trees and power lines were downed throughout the area.

Probability

The probability of High Wind in the Planning Area is High.

Vulnerability and Impact

High Winds can occur any time of the year across the planning area. Trees, homes, infrastructure, livestock, and people are at risk from damages of high winds. High winds accompanied with freezing rain or severe thunderstorms can cause additional damage.

Jurisdiction	Vulnerability	Impact
McClain Co	A majority of the unincorporated areas of McClain County has above-ground utility lines. Underground utilities exist for newer developments, but many areas across McClain County consist of older residential structures and neighborhoods. Overhead utility lines are vulnerable to high wind damage.	This can impact persons and business with loss of power, cause a fire, injury from being in the dark, and temporary loss of business that results in financial loss. It also can impact utility providers with financial loss due to overtime, equipment and supplies needed for repairs.

Blanchard	None of the critical facilities in the City of Blanchard have reinforced roofing. This increases the vulnerability for these critical facilities and can lead to extensive structural damage in the event of High Winds.	These damages can result in personal injury, a disruption of routine operations, and disruption in critical response services.
Purcell	The City of Purcell has a majority of older structures. Older built structures with weakened roofs are vulnerable to wind damage in a high wind event.	Wind damages to roofs can cause property owners or business owners to have to find temporary housing or business locations due to the amount of roof damage on their structure. This can cause a loss of wages, business, and employees' loss of wages.
Byars	The Town of Byars has older structures within the community. These older structures have weak roofs and siding, and no covered area for vehicles. Approximately 15% of residents are socially vulnerable because they live below the poverty line.	Damages to roofs, siding, and vehicles in an already economically depressed population can cause a delay or lack of repairs.
Cole	The Town of Cole has above-ground utility lines that are vulnerable to high, straight-line winds.	This can impact persons and business with loss of power, cause a fire, injury from being in the dark, and temporary loss of business that results in financial loss. It also can impact utility providers with financial loss due to overtime, equipment and supplies needed for repairs.
Dibble	Approximately 40.2% of the residents in Dibble live below poverty line with a high percentage of residents living in mobile homes. With a High Wind Event direct damage often includes blown-off roof panels, loss of roof framing, and loss of wall panels and breakage of	The mobile home can become inhabitable, and homeowners who are typically more economically-challenged must find alternative house. Most importantly, this could result in injury or death of residents.

	unprotected windows to mobile homes.	
Goldsby	The Town of Goldsby does not have enclosed parking for the Goldsby Water Department Vehicles or Town Utility Vehicles. In the event of a High Wind event, these vehicles are vulnerable to damage.	Damages to town vehicles can cause disruption of services to the town.
Rosedale	The Town of Rosedale has older structures within the community. These older structures have weak roofs and siding, and no covered area for vehicles. Approximately 45% of residents are socially vulnerable because they live below the poverty line.	Damages to roofs, siding, and vehicles in an already economically depressed population can cause a delay or lack of a repairs.
Washington	The Town of Washington does not have covered parking for the Town owned vehicles. In the event of a Wind Storm these vehicles are vulnerable to damage.	Damages to town vehicles can cause disruption of services to the town.
Wayne	The Town of Wayne has above-ground utility lines that are vulnerable to high, straight-line winds.	This can impact persons and business with loss of power, cause a fire, injury from being in the dark, and temporary loss of business that results in financial loss. It also can impact utility providers with financial loss due to overtime, equipment and supplies needed for repairs.
Blanchard PS	Blanchard Public Schools does not have shatter-resistance film on any of the school windows. During a high wind event, the school's windows are at increased risk to shattering due to flying debris.	Flying debris impacting a window is an unexpected event. If this were to occur during school hours, it could result in injury to staff or student. A shattered school window could also result in

		disruptions to school operations.
Dibble PS	Dibble Schools does not have covered parking for the school buses or transportation vehicles. This exposes the buses to damage due to a wind event.	This could result in a significant loss to the schools' capabilities, and their ability to operate at normal levels.
Purcell PS	In a High Wind Event, Purcell Public Schools does not have the school windows treated with security film. With this film the glass is more difficult to break than a standard window. If it does break it will not shatter into thousands of tiny pieces.	Damage to equipment can result in economic loss to schools, and can also cause a disruption to daily school operations.
Washington PS	Washington Schools does not have covered parking for the school buses or transportation vehicles. This exposes the buses to damage due to a wind event.	This could result in a significant loss to the schools' capabilities, and their ability to operate at normal levels.
Wayne PS	In a High Wind Event, Wayne Public Schools does not have the school windows treated with security film. With this film the glass is more difficult to break than a standard window. If it does break it will not shatter into thousands of tiny pieces.	Damage to equipment can result in economic loss to schools, and can also cause a disruption to daily school operations.
Mid-America Tech Center	Mid-America offers classes out doors to students. These classes are uncovered and in the open outdoor, not having shelter to seek in the event of a High Wind event.	This can cause injury to a student or faculty as well as a disruption of daily school operations.

3.4.8 Lightning

Description

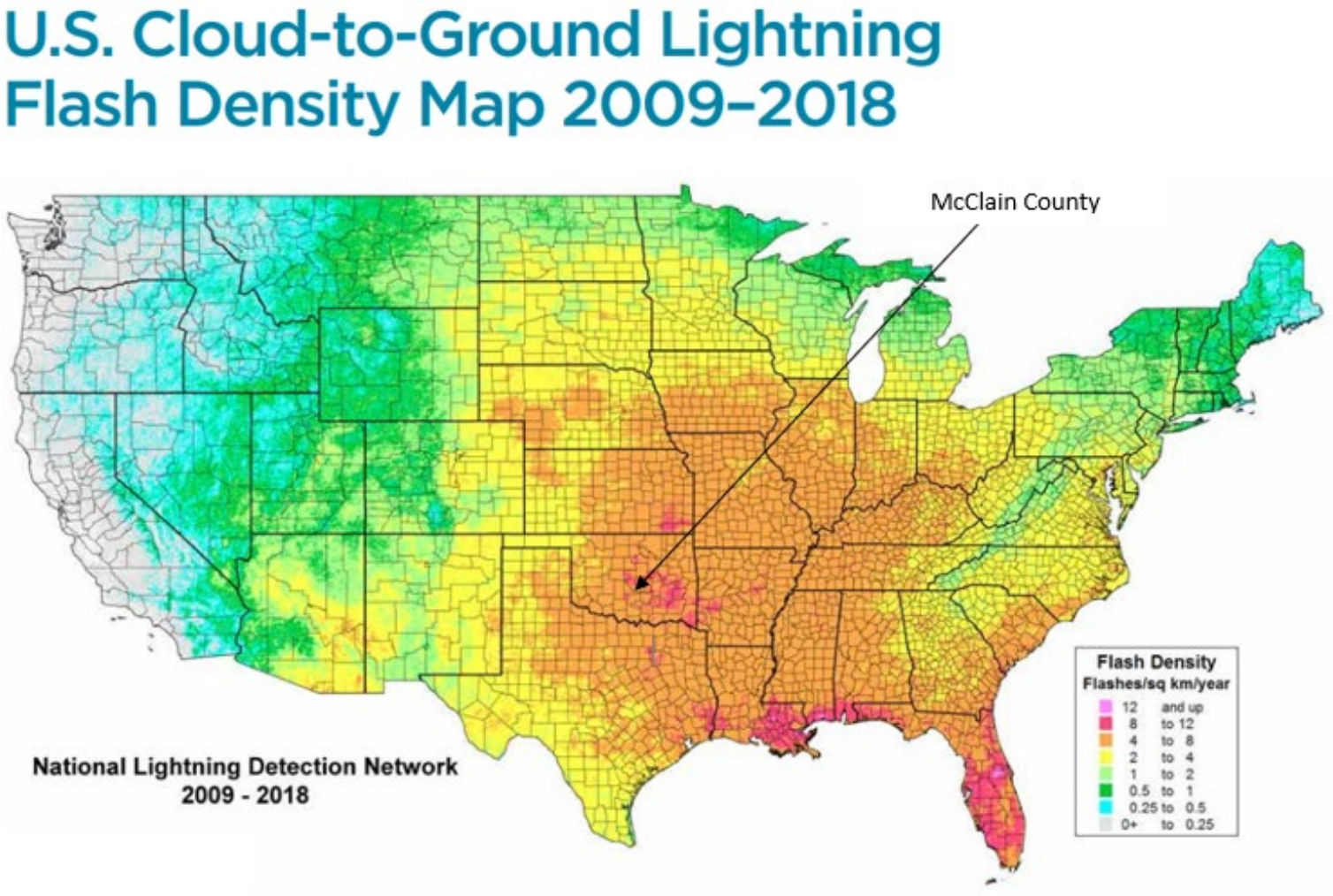
Lightning is generated by the buildup of charged ions in a thundercloud. When the buildup interacts with prime conductive objects or surfaces on the ground, the result is a discharge of a lightning bolt. Thunder is the sound of the shock wave produced by the rapid heating and cooling of the air near the lightning bolt. The air in the channel of a lightning strike can reach temperatures higher than 50,000° Fahrenheit.

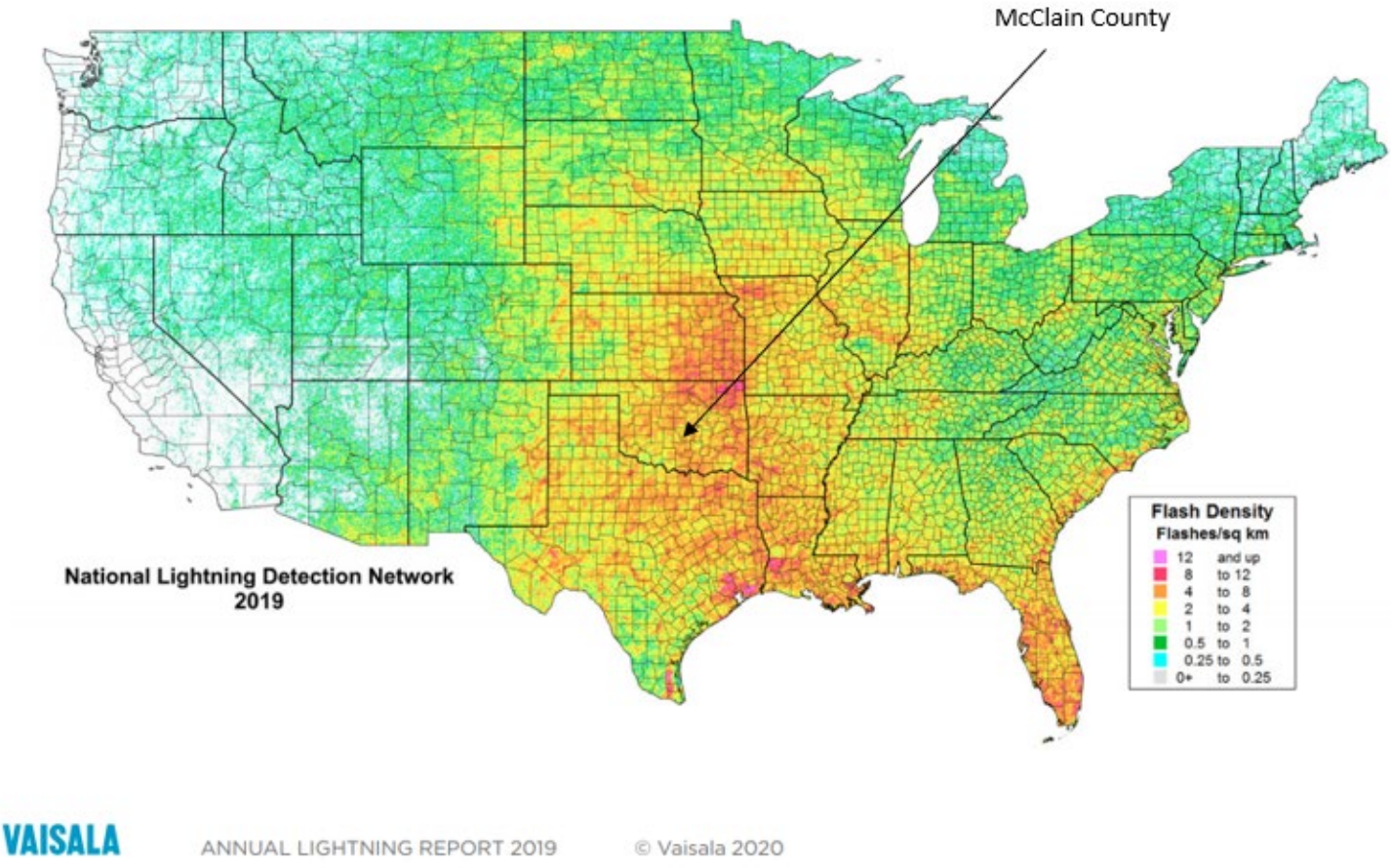
Location

Lightning can strike 10 miles out from the rain column, and lightning deaths often occur under a clear sky ahead of the storm. This is largely because people wait until the last minute to seek shelter – not fully comprehending the behavior and true danger of lightning.
The entire Planning Area is affected by Lightning.

Extent

Lightning can be measured in a variety of ways: lightning flash frequency, flash intensity, and lightning impacts. One method the Planning Area uses is VAISALA's free lightning explorer map, pictured below. The 2009-2018 Cloud to Ground Lightning Flash Density Map and the 2019 Cloud-To-Ground Flash Density Map shows the Planning Area typically received 2-12 flashes per square km/per year. The Planning Area can expect to experience any Lightning flash density value depicted on the below VAISALA map.





Previous Occurrences

The NCDC storm events database does not include information on lightning events prior to 1993. The database contains reports of six lightning events in McClain County since 1997, causing no fatalities or injuries and $75,100 in damage. The Planning Area receives lightning frequently through the year. The data in the Vaisala Cloud-to-Ground Lightning Flash Density Maps shows the Planning Area received approximately 2-12 Lightning flashes per square km/per year from 2010-2020. During that period of time, damage due to lightning events has caused power outages.

McClain County Lightning Event Narratives

Date	Event Narrative
November 9, 1998	A long line of severe thunderstorms moved across most of western and central Oklahoma, producing one tornado, large hail and widespread straight-line wind damage. A small tornado touched down in Purcell and lightning destroyed a tree in the city. Damage was $100.
April 15, 2000	Severe thunderstorms swept across western Oklahoma and into central part of the state before weakening. Lightning struck a transformer on Southeast 4th St. in Blanchard, knocking out power to about 85 homes for 14 hours. Damage was $2,000.

May 26, 2000	Severe thunderstorms developed across western and northern Oklahoma, resulting in four tornadoes, damaging straight-line winds and hail. Lightning struck a new but uninhabited mobile home in Purcell, setting off a fire that destroyed the entire dwelling. Damage was $25,000.
June 17, 2006	Lightning ignited a fire in a storage structure in Blanchard.
July 10, 2006	Lightning struck a home in Newcastle, creating three holes in the roof and igniting a fire. Damage was $18,000.
July 10, 2006	A lightning strike in the Blanchard area damaged electrical equipment operated by Oklahoma Electric Cooperative, leaving about 2,000 Blanchard customers without power for about an hour. Another lightning strike affected 60 more customers in the Blanchard area about 2:00 p.m.
May 7, 2007	A large thunderstorm developed in northwest Oklahoma and moved south and east, producing wind, hail and two small tornadoes. A direct lightning strike on a home in Blanchard resulted in $30,000 in damage.
August 31, 2020	A large house was destroyed after being struck by lightning. Time of strike estimated from radar and surrounding reports.

Source: NCDC Storm Event Database

Probability
The probability of Lightning Events in the Planning Area is High.

Vulnerability and Impact
The Planning Area is subject to frequent thunderstorms and convective weather patterns, and are therefore regularly exposed to lightning, particularly in the spring, summer and autumn months. Anyone outside during a thunderstorm is exposed to and at risk from lightning. All structures and buildings in McClain County are equally at risk of lightning-caused fires and damages. A bolt of lightning can explode walls of brick and concrete and cause fires to ignite within county facilities and those of its participating jurisdictions. Trees are particularly vulnerable, acting as natural conductors. Buildings are vulnerable to “side flashes” if a lightning strike jumps from a tree to a county facility, damaging both.

Jurisdiction	Vulnerability	Impact
McClain Co	The McClain County District Barns have fuel storage tanks located at each of the three district barns. A lightning strike to any of these fuel tanks could ignite an explosion.	This explosion could result in injury and even possible death to an employee. Infrastructure Damage and a loss of resources could impact McClain County if lightning strikes any of these fuel tanks resulting in an explosion.

Blanchard	The City of Blanchard has above-ground utility lines. Underground utilities exist for newer developments, but many areas of Blanchard consist of older residential structures and neighborhoods. Overhead utility lines are vulnerable in a lightning event. This causes frequent power outages in the city.	This can impact persons and business with loss of power, cause a fire, injury from being in the dark, and temporary loss of business that results in financial loss. It also can impact utility providers with financial loss due to overtime, equipment and supplies needed for repairs.
Purcell	The City of Purcell has above-ground utility lines. Underground utilities exist for newer developments, but many areas of Purcell consist of older residential structures and neighborhoods. Overhead utility lines are vulnerable in a lightning event. This causes frequent power outages in the city.	This can impact persons and business with loss of power, cause a fire, injury from being in the dark, and temporary loss of business that results in financial loss. It also can impact utility providers with financial loss due to overtime, equipment and supplies needed for repairs.
Byars	The town of Byars has above-ground utility lines. Underground utilities exist for newer developments, but many areas of Byars consist of older residential structures and neighborhoods. Overhead utility lines are vulnerable in a lightning event. This causes frequent power outages in the Town.	This can impact persons and business with loss of power, cause a fire, injury from being in the dark, and temporary loss of business that results in financial loss. It also can impact utility providers with financial loss due to overtime, equipment and supplies needed for repairs.
Cole	The Town of Cole has above-ground utility lines. Underground utilities exist for newer developments, but many areas of Cole consist of older residential structures and neighborhoods. Overhead utility lines are vulnerable in a lightning event. This causes frequent power outages in the Town.	This can impact persons and business with loss of power, cause a fire, injury from being in the dark, and temporary loss of business that results in financial loss. It also can impact utility providers with financial loss due to overtime, equipment and supplies needed for repairs.

Dibble	The Town of Dibble has above-ground utility lines. Underground utilities exist for newer developments, but many areas of Dibble consist of older residential structures and neighborhoods. Overhead utility lines are vulnerable in a lightning event. This causes frequent power outages in the Town.	This can impact persons and business with loss of power, cause a fire, injury from being in the dark, and temporary loss of business that results in financial loss. It also can impact utility providers with financial loss due to overtime, equipment and supplies needed for repairs.
Goldsby	The Town of Goldsby has above-ground utility lines. Underground utilities exist for newer developments, but many areas of Goldsby consist of older residential structures and neighborhoods. Overhead utility lines are vulnerable in a lightning event. This causes frequent power outages in the Town.	This can impact persons and business with loss of power, cause a fire, injury from being in the dark, and temporary loss of business that results in financial loss. It also can impact utility providers with financial loss due to overtime, equipment and supplies needed for repairs.
Rosedale	The Town of Rosedale has above-ground utility lines. Underground utilities exist for newer developments, but many areas of Rosedale consist of older residential structures and neighborhoods. Overhead utility lines are vulnerable in a lightning event. This causes frequent power outages in the Town.	This can impact persons and business with loss of power, cause a fire, injury from being in the dark, and temporary loss of business that results in financial loss. It also can impact utility providers with financial loss due to overtime, equipment and supplies needed for repairs.
Washington	The Town of Washington has above-ground utility lines. Underground utilities exist for newer developments, but many areas of Washington consist of older residential structures and neighborhoods. Overhead utility lines are vulnerable in a lightning event. This causes frequent power outages in the Town.	This can impact persons and business with loss of power, cause a fire, injury from being in the dark, and temporary loss of business that results in financial loss. It also can impact utility providers with financial loss due to overtime, equipment and supplies needed for repairs.
Wayne	The Town of Wayne has above-ground utility lines. Underground	This can impact persons and business with loss of power,

	utilities exist for newer developments, but many areas of Wayne consist of older residential structures and neighborhoods. Overhead utility lines are vulnerable in a lightning event. This causes frequent power outages in the Town.	cause a fire, injury from being in the dark, and temporary loss of business that results in financial loss. It also can impact utility providers with financial loss due to overtime, equipment and supplies needed for repairs.
Blanchard PS	Blanchard Public Schools lack a handheld lightning detection system that assists school staff and coaches in monitoring the proximity of storms during outdoor sporting events. Blanchard Public Schools use the same utility company as the city and are subject to the same vulnerable results in frequent power outages which can happen during school hours.	The impact of not having a method for determining lightning proximity during outdoor events means that staff members and coaches must rely on personal observation and anecdotal analysis. This judgement is often inconsistent and puts students and staff at risk for personal injury or even death. Damage to school equipment can result in an economic loss to schools, potentially causing a disruption to school operations and the expense of costs for repair and replacement.
Dibble PS	Dibble Public Schools lack a handheld lightning detection system that assists school staff and coaches in monitoring the proximity of storms during outdoor sporting events. Dibble Public Schools use the same utility company as the Town and are subject to the same vulnerable results in frequent power outages which can happen during school hours.	The impact of not having a method for determining lightning proximity during outdoor events means that staff members and coaches must rely on personal observation and anecdotal analysis. This judgement is often inconsistent and puts students and staff at risk for personal injury or even death. Damage to school equipment can result in an economic loss to schools, potentially causing a disruption to school operations and the expense of costs for repair and replacement.
Purcell PS	Purcell Public Schools lack a handheld lightning detection	The impact of not having a method for determining

	system that assists school staff and coaches in monitoring the proximity of storms during outdoor sporting events. Purcell Public Schools use the same utility company as the city and are subject to the same vulnerable results in frequent power outages which can happen during school hours. Purcell Public Schools do not have covered sidewalks for students and faculty go between buildings.	lightning proximity during outdoor events means that staff members and coaches must rely on personal observation and anecdotal analysis. This judgement is often inconsistent and puts students and staff at risk for personal injury or even death. Damage to school equipment can result in an economic loss to schools, potentially causing a disruption to school operations and the expense of costs for repair and replacement. This can cause an injury to a student or faculty member who is outside, uncovered during lightning.
Washington PS	Washington Public Schools lack a handheld lightning detection system that assists school staff and coaches in monitoring the proximity of storms during outdoor sporting events. Washington Public Schools use the same utility company as the Town and are subject to the same vulnerable results in frequent power outages which can happen during school hours.	The impact of not having a method for determining lightning proximity during outdoor events means that staff members and coaches must rely on personal observation and anecdotal analysis. This judgement is often inconsistent and puts students and staff at risk for personal injury or even death. Damage to school equipment can result in an economic loss to schools, potentially causing a disruption to school operations and the expense of costs for repair and replacement.
Wayne PS	Wayne Public Schools lack a handheld lightning detection system that assists school staff and coaches in monitoring the proximity of storms during outdoor sporting events. Wayne Public Schools use the same utility company as the Town and are subject to the	The impact of not having a method for determining lightning proximity during outdoor events means that staff members and coaches must rely on personal observation and anecdotal analysis. This judgement is often inconsistent and puts

	same vulnerable results in frequent power outages which can happen during school hours.	students and staff at risk for personal injury or even death. Damage to school equipment can result in an economic loss to schools, potentially causing a disruption to school operations and the expense of costs for repair and replacement.
Mid-America Tech Center	Mid-America Technology Center has above-ground utility lines. Overhead utility lines are vulnerable in a lightning event. This causes frequent power outages. Mid-America Tech Center does not have covered sidewalks for students and faculty go between buildings.	Damage to school equipment can result in an economic loss to schools, potentially causing a disruption to school operations and the expense of costs for repair and replacement. This can cause an injury to a student or faculty member who is outside, uncovered during lightning.

3.4.9 Severe Winter Storm

Description

Severe Winter Storms can be incredibly difficult to predict since they usually involve any combination of precipitation, including snow, sleet, and freezing rain. A severe winter storm can range from freezing rain or sleet to moderate snow over a few hours, or it might develop into blizzard conditions and extremely cold temperatures that last several days. The effects of the winter storm can also widely vary depending on the ground temperatures and atmospheric conditions. Wind-driven, or blowing, snow reduces visibility and causes significant drifting. Blowing snow can develop into a blizzard, which occurs when falling and blowing snow combine with winds of 35 mph or greater, reducing visibility to near zero.

Sleet is frozen precipitation that melts as it falls through a warm layer of the atmosphere and then refreezes into ice pellets before reaching the ground. Sleet usually bounces when hitting a surface and can accumulate like snow and become a hazard to motorists. Freezing rain falls as liquid and is frozen by a layer of freezing air near the surface. When the precipitation makes contact with the surface; it forms into a coating or glaze of ice and even small accumulations can cause a significant hazard. Freezing rain can accumulate on tree branches and utility wires; if high winds develop, that can cause the wires to “gallop” and potentially cause breakage of the wires, connectors, and poles. This results in widespread power failure. Other winter hazards include wind chill and extreme cold. Wind chill describes the relative discomfort and danger to people from the combination of cold temperatures and wind.

Location

Oklahoma experiences the periodic collision of warm, moist gulf air and arctic air from the Canadian Shield. Because of this climatic positioning, McClain County experiences winter weather ranging from occasional sub-zero temperatures, snow and freezing rain to mild, spring-like days. The entire Planning Area is affected by Severe Winter Storms.

Extent

The Planning Area uses the Sperry-Piltz Ice Accumulation Index for ice damage. The Planning Area can experience any ice damage index value on this chart.

The Planning Area also uses the NOAA NWS Windchill Chart. Due to the unpredictable nature of Winter Storms, the Planning Area can experience a wide range of value on the chart. However, most Wind Chill temperatures are expected to be -34 or warmer.

The Sperry-Piltz Ice Accumulation Index, or "SPIA Index" – Copyright, February, 2009

ICE DAMAGE INDEX	DAMAGE AND IMPACT DESCRIPTIONS
0	Minimal risk of damage to exposed utility systems; no alerts or advisories needed for crews, few outages.
1	Some isolated or localized utility interruptions are possible, typically lasting only a few hours. Roads and bridges may become slick and hazardous.
2	Scattered utility interruptions expected, typically lasting 12 to 24 hours. Roads and travel conditions may be extremely hazardous due to ice accumulation.
3	Numerous utility interruptions with some damage to main feeder lines and equipment expected. Tree limb damage is excessive. Outages lasting 1 – 5 days.
4	Prolonged & widespread utility interruptions with extensive damage to main distribution feeder lines & some high voltage transmission lines/structures. Outages lasting 5 – 10 days.
5	Catastrophic damage to entire exposed utility systems, including both distribution and transmission networks. Outages could last several weeks in some areas. Shelters needed.

(Categories of damage are based upon combinations of precipitation totals, temperatures and wind speeds/directions.)

NWS Windchill Chart

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

Frostbite Times: 30 minutes | 10 minutes | 5 minutes

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

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

Effective 11/01/01

Previous Occurrences

McClain County Severe Winter Storm Event Narratives 2010-2020

Date	Event Narrative
January 29, 2010-January 30, 2010	A major Severe Winter Storm impacted much of Oklahoma beginning on the morning of January 28th and continued through much of the day. While the storm produced a variety of wintry precipitation, its most significant impacts came with an extended period of heavy freezing rain across southern into parts of central Oklahoma. Significant icing on trees and power lines resulted in widespread damage to trees and power lines. Snowfall accumulations averaged three to four inches around the county, with isolated totals up to six inches near the eastern border of the county.
February 11, 2010	Snowfall accumulation averaged one to two inches across the county, with isolated locations reporting three inches. Totals included 2.5 inches three miles of west of Criner, one inch in Purcell, and 1.8 inches measured two miles west of Purcell. Travel problems were relatively minor, as the near or just above freezing surface temperatures kept roadways wet.
January 31-February 1, 2011	A powerful Severe Winter Storm accompanied by thunder snow and sleet and high winds hit Oklahoma on the evening of 31st and lasted into the morning of February 1. Record-setting snow, with accumulations of 12 inches in some places and drifts of 3 to 5 feet, and single-digit temperatures resulted in 150 automobile accidents, four deaths and ten injuries. Norman and the OKC Metro area received 6 inches of snow, with wind-chill temperatures down to minus 15 degrees F.
February 8, 2011	Two to four inches of snow was measured around McClain County, with the highest totals over the northern half of the county. Numerous wind gusts of 25 to 30 mph were reported for several hours greatly reducing visibilities and causing considerable blowing and drifting of the snowfall.
December 24, 2012-December 25, 2012	A strong upper storm system moved into Oklahoma from Christmas Eve through Christmas Day. Much of southern and western Oklahoma received considerable snowfall, while northern and central Oklahoma saw measurable snows. A brief period of blizzard conditions also occurred over southwest Oklahoma, where over 6 inches of snow fell in some areas. Areas west of Purcell measured 2.2 inches of snow.
February 11, 2013-February 12, 2013	A strong upper-level storm system moved across western and central Oklahoma overnight on the 11th into the morning hours of the 12th. As cold air moved in behind the system, moderate to heavy snow fell, especially across west central Oklahoma, where up to 9 inches of snow fell. Blanchard reported one inch of snow.
February 21, 2013	The second in a series of Severe Winter Storms impacted portions of northern and western Oklahoma late on the 20th as a potent upper-level storm moved across western Oklahoma. A narrow corridor of snowfalls greater than one foot occurred across northwest Oklahoma, with many surrounding areas measuring between 4 and 8 inches of snow. A few spots across southeast Oklahoma also saw heavy snow before the storm eventually end. Purcell picked up 2.5 inches of snow.
December 4-6, 2013	A Severe Winter Storm that brought sleet, freezing rain and snow to Oklahoma and McClain County resulted in eight deaths around the state and 262 storm-related injuries. The storm closed schools in parts of McClain County for three days. Temperatures remained below freezing for six days, dropping on several nights into the single digits. A wintry mix of snow and sleet led to substantial accumulation over portions of the county. Around a half inch of sleet feel initially, with 2 to 3 inches of snow falling on top of the sleet. Purcell reported up to 3 inches of snow and sleet with Wayne coming in around 2.5 inches.
December 20, 2013-December 21, 2013	On Friday, December 20th, a shallow but strong cold front surged through southern Oklahoma, bringing a prolonged sub-freezing airmass to all of Oklahoma. From the evening of the 20th through the afternoon of the 21st, a persistent light to moderate freezing rain event occurred, with substantial ice accumulations over a large part of central and southern Oklahoma. Across portions of northern and western Oklahoma, snow accumulations occurred as the cold airmass deepened and an upper trough lifted northeast through central Oklahoma late on the 21st into the 22nd. Freezing rain prevailed through the event with widespread 1/3-to-1/2-inch ice accumulations on trees, power lines and other elevated surfaces. Off duty NWS employee reported 1/2 inch of ice in Newcastle.

December 27, 2014	A strong cold front moved through Oklahoma and north Texas early on the 27th. Several post frontal snow bands developed across southwestern and central Oklahoma. Snow accumulations of 1 to 6 inches were reported with these snow band. Snow began early in the morning and ended by noon. Once the snow tapered off, Newcastle had received 3.5 inches.
January 22, 2015	An Arctic airmass became established across Oklahoma and north Texas late on the 21st. As a strong upper-level storm system moved into the region, sufficient lift overspread the region to foster widespread light precipitation. Several heavier bands of snow developed over far west-central Oklahoma, leading to significant snow accumulations along I-40. Elsewhere, only light snow accumulations occurred. Light snow began early on the 22nd and ended in the morning. Very light snow accumulations occurred across the county, with around a half inch of snow in Purcell.
February 27, 2015	A deep Arctic airmass had settled into the Southern Plains. Several upper-level disturbances moved across the region, bringing moderate to heavy snow to parts of the area. Snow came in two waves, with the heaviest snow being confined to both northwestern Oklahoma and south central and southeastern Oklahoma. Snow began early on the 27th and lasted through the early morning hours of the 28th. By the time snow had ended, around 3 inches of snow were reported in Wayne.
March 4, 2015	A strong cold front surged through Oklahoma early on the 4th, bringing an Arctic airmass into much of the Southern Plains. As this occurred, a large-scale upper-level trough shifted eastward across the Southern and Central Plains region, resulting in widespread wintry precipitation. Several inches of snow and sleet fell, with significant impacts to travel. Widespread snow totals of 1 to 3 inches from Purcell and Dibble to Newcastle.
November 27, 2015	An upper low moving in combined with abundant moisture from the gulf to produce a four-day rain event from the 26th through the 29th. When strong front came down Thursday Night (11/26), temperatures began to drop below freezing across northern, western, and central Oklahoma and parts of western north Texas. These areas experienced a shift from rain to freezing rain. Freezing rain continued into early Sunday Morning as temperatures continued to hover in the 20's to lower 30s. Observed 0.5 inches of ice accumulation.
February 20,2018	A strong, shallow cold front pushed through pulling temperatures below freezing. With abundant moisture in the area, widespread showers developed post-frontal and slowly moved off eastward on the 20th. The tail end of these showers was behind the freezing line, resulting in freezing rain and sleet. A second round of showers developed post-frontal and the 21st under the influence of isentropic lift. With the cold air firmly in place, most of the precipitation that fell was either freezing rain or sleet (sleet was fairly widespread across the area). Yet, a third round of precipitation developed on the 22nd. Subfreezing temperatures persisted into early afternoon allowing more freezing rain and sleet to fall. A quarter inch of ice on branches was reported at 2:35 pm on the 20th. Freezing rain and sleet continued to fall in waves through the 22nd. Though no additional accumulation was reported.
January 01, 2019- January 03, 2019	A closed upper low and an arctic airmass combined to produce heavy snowfall across portions of Oklahoma. Maximum of 4 inches reported in Newcastle.
October 26, 2020- October 28, 2020	A historic early season ice storm occurred the morning of the 26th and continuing into the evening of the 28th. Freezing rain and sleet were reported across much of central and western Oklahoma. Extreme freezing rain accumulations of at least 1.5 inches were reported in west-central Oklahoma over the 3-day period. Hundreds of thousands of people were without power by the 28th and extensive tree and powerline damages was reported across much of the area. Ice accumulation in McClain County was 0.20-0.8. Partial damage estimated reached $250,000.

Source: NCDC Storm Events Database

Probability

The probability of Severe Winter Weather Events in the Planning Area is High.

Vulnerability and Impact

A Severe Winter Storm can affect a region for days, weeks, and even months. Houses, roads, electrical poles and lines, water systems, people, and livestock are all vulnerable to severe winter storms.

Severe Winter Storms can cause great inconvenience, injuries, and even deaths. Loss of mobility affects the entire community.

Jurisdiction	Vulnerability	Impact
McClain Co	A majority of unincorporated McClain County's economy is dependent on ranching. With Severe Winter Storms, farmers that don't have the capabilities to bring their livestock indoors are vulnerable to livestock dying or having serious injury. The Winter Weather also makes it hard for remote ranchers to reach their livestock to feed and even break up water in ponds or stock tank as well as the frigid temperatures. With poverty levels in the unincorporated areas of McClain County as 20%, farmers and ranchers are economically vulnerable to severe winter storm events that cause injury/death to their livestock.	The loss of ranch revenue negatively affects McClain County's economy. In the farming and ranching economy, agricultural losses are a significant impact for McClain County because of the importance of agriculture in the area.
Blanchard	Blanchard's critical facilities consist of older buildings with dated plumbing systems and poor insulation. During winter storm events, these buildings are vulnerable to freezing and rupturing water pipes. In addition, there are many older homes which face the same issues.	A ruptured water pipe will leave a critical facility or home without water for an extended period of time. This compound an already vulnerable situation during a Winter Storm event. Repairing these pipes is costly, and having an abundance of these types of repairs might overwhelm in the capabilities of local trade companies.
Purcell	Purcell's critical facilities consist of older buildings with dated plumbing systems and poor insulation. During winter storm events, these buildings are vulnerable to freezing and rupturing water pipes. In	A ruptured water pipe will leave a critical facility or home without water for an extended period of time. This compound an already vulnerable situation during a Severe Winter Storm event. Repairing these pipes

	addition, there are many older homes which face the same issues.	is costly, and having an abundance of these types of repairs might overwhelm the capabilities of local trade companies.
Byars	Byars has above ground power lines with an older power infrastructure system. During a Severe Winter Storm event, snow and ice accumulate on the power lines causing damage to the lines. The damage results in frequent power outages.	Damage to Power lines and infrastructure systems will cause disruption of service. This can prevent lifesaving services to residents that depend on electricity to give them support for their health.
Cole	The Town of Cole economy is dependent on ranching. With Severe Winter Storms, farmers that don't have the capabilities to bring their livestock indoors are vulnerable to livestock dying or having serious injury. Winter weather makes it hard to get to livestock to feed and even break up water in ponds or stock tank as well as the frigid temperatures. The Town of Cole's farmers and ranchers are economically vulnerable to severe winter storm events that cause injury/death to their livestock.	The loss of ranch revenue negatively affects Cole's economy. In the farming and ranching economy, agricultural losses are a significant impact for Cole because of the importance of agriculture in the area.
Dibble	Dibble is a small community, with most residents living on rural roads. These roads can go days before the District Barn Employees can clear them. Residents are isolated if they can't get out of their driveways or roads.	Uncleared roads make it impossible for residents and responders to have access to critical services.
Goldsby	The Town of Goldsby has a volunteer fire department. They do not have a full-time staff to be able to respond during inclement weather.	Not having a full-time fire department staff means that response times are severely impacted during times of inclement winter weather. This can result in residents being unable to obtain emergency services in a timely manner.

Rosedale	With Rosedale being a small community with a lot of residents living on rural roads. These roads can go days or even weeks before the District Barn Employees can get to them to be cleared. Residents are isolated if they can't get out of their driveways or roads.	Lack of Preparedness puts families at risk if transportation routes and critical services are disrupted.
Washington	The Town of Washington has a volunteer fire department. They do not have a full-time staff to be able to respond during inclement weather.	Not having a full-time fire department staff means that response times are severely impacted during times of inclement winter weather. This can result in residents being unable to obtain emergency services in a timely manner.
Wayne	Byars has above ground power lines with an older power infrastructure system. During a winter storm event, snow and ice accumulate on the power lines causing damage to the lines. The damage results in frequent power outages.	Damage to Power lines and infrastructure systems will cause disruption of service and prevent lifesaving services to residents that depend on electricity to give them support for their health.
Blanchard PS	During a Severe Winter Storm comes cold temperatures. Blanchard Schools have older buildings making it where cold temperatures could cause already weakened water pipes to freeze and burst.	This can cause a disruption to the school that depends on this service for students and faculty. Fixing broken water lines is very costly to repair.
Dibble PS	Dibble Public Schools has buses that drive routes on the rural county roads in Dibble. Dibble rural roads are some of the last roads to be cleared of snow in District 3.	Transportation routes can directly affect school operations, and result in school closures.
Purcell PS	During a Severe Winter Storm comes cold temperatures. Purcell Public Schools has older buildings. These cold temperatures could cause already weakened water pipes	This can cause a disruption to the school that depends on this service for students and faculty. Fixing broken water lines is very costly to repair.

	in Purcell Public Schools to freeze and burst.	
Washington PS	Washington Public Schools does not have buses covered. These transportation vehicles can be rendered inoperable during a winter weather storm.	Damage to equipment can result in an economic and capability loss to schools, potentially causing a disruption to school operations and the burden of unexpected costs for repair and replacement.
Wayne PS	Wayne Public Schools has Rural bus routes that extend over to Rosedale and even close to Byars. These rural roads are some of the last roads to be cleared of snow in District 1.	Transportation routes can directly affect school operations, and result in school closures.
Mid-America Tech Center	Mid-America Tech Center picks and drops off students across many locations throughout McClain County. Their bus routes are dependent on the timelines of many different road clearing agencies. The routes in more rural areas do not get cleared in a timely manner. Mid-America's school operations are affected when the roads become impassable.	Transportation routes can directly affect school operations, and result in school closures.

3.4.10 Tornado

Description

A tornado is a rapidly rotating vortex or funnel of air extending to the ground from a cumulonimbus cloud. When the lower tip of a vortex touches earth, the tornado becomes a force of destruction. The path width of a tornado is generally less than a half-mile, but the path length can vary from a few hundred yards to dozens of miles. A tornado moves at speeds from 30 to 125 mph, but can generate winds exceeding 300 mph. Oklahoma is located in “Tornado Alley,” the most tornado-prone area of the nation. Tornadoes can occur any time of the day, on any day of the year, at any location.

Location

Tornados occur between 3PM and 9PM, between March and May. However, due to the extremely variable nature of weather in Central Oklahoma, tornadoes can and have occurred any time of year if the wind shear, lift, atmospheric instability, and moisture are present. The entire Planning Area is affected by Tornados.

Extent

The Planning Area uses the Enhanced Fujita Scale to categorize Tornado. Almost 70% of all tornadoes are measured EF0 and EF1 on the Enhanced Fujita Scale, causing light to moderate damage, with wind speeds between 40 and 112 miles per hour. EF4 and EF5 tornadoes are considerably less frequent, but cause the most devastating impacts, including loss of life and property. 66% of all tornado deaths were caused by EF4 and EF5 storms, which represent only 1% of all tornadoes. The Enhanced Fujita Scale was adopted in early 2007. The Planning Area can experience any EF value on this scale.

Enhanced F Scale for Tornado Damage

FUJITA SCALE (Used Prior to 2007)			**ENHANCED FUJITA SCALE**	
F Number	Fastest 1/4-mile (mph)	3 Second Gust (mph)	**EF Number**	**3 Second Gust (mph)**
0	40-72	45-78	**0**	**65-85**
1	73-112	79-117	**1**	**86-110**
2	113-157	118-161	**2**	**111-135**
3	158-207	162-209	**3**	**136-165**
4	208-260	210-261	**4**	**166-200**
5	261-318	262-317	**5**	**Over 200**

http://www.spc.noaa.gov/faq/tornado/ef-scale.html

NOTE ABOUT ENHANCED F-SCALE WINDS: The Enhanced F-scale still is a set of wind estimates (not measurements) based on damage. Its uses three-second gusts estimated at the point of damage based on a judgment of 8 levels of damage to the 28 indicators listed below. These estimates vary with height and exposure. Important: The 3 second gust is not the same wind as in standard surface observations. Standard measurements are taken by weather stations in open exposures, using a directly measured, "one-minute mile" speed.

Previous Occurrences

Tornado Events, 2010-2020
From the NOAA National Centers for Environmental Information
https://www.ncdc.noaa.gov/stormevents

May 5, 2010	This storm produced a small tornado that did damage to the Mid-America Technology Center, the roof of the McClain County Communications building (tower), as well as roof/building damage to businesses and homes in the vicinity of the Mid-America Technology Center.
April 22, 2011	An EF1 tornado about 1/4-mile long and 30 yards wide was observed by storm chasers near state OK Hwy 59 east of Byars, where an outbuilding was damaged and several trees downed. A fallen power line caused Byars to be without power for several hours. Estimated damage was $5,000.
May 24, 2011	This EF4, 17.6-mile-long, 880-yard-wide tornado (labeled D1), which moved from 6.6 miles WSW of Criner to 1 mile SW of Goldsby, was Segment #2 of the Washington-Goldsby tornado. EF4 damage occurred as the twister crossed OK Hwy 76. Several homes were reduced to rubble or wiped off their foundations and automobiles mangled beyond recognition. The tornado weakened and narrowed as it crossed E1410 Rd., but was still producing EF2 to EF3 damage as it approached OK Hwy 39, where it strengthened again and produced more EF4 damage. Well-constructed homes were destroyed, with several wiped from their foundations. EF3 to EF4 damage continued until it crossed Highway 74B, west of High Avenue. The tornado lifted west of Goldsby, with EF3 damage continuing until just prior to lifting. The tornado had winds estimated at 200 mph at times, falling just short of the damage indicator for an EF5 tornado. A second EF4 tornado, labeled C1 (Segment #2 of the Chickasha-Blanchard-Newcastle tornado), moved from 3.4 miles N of Blanchard to 3.9 miles N of Newcastle. Significant damage was occurring as the tornado moved across McClain County line. This may have been the strongest portion of the tornado, with wind speeds near 200 mph. Well-built homes were destroyed, with some cleaned off of their foundations. A concrete dome home was severely damaged, mainly by flying debris. Trees were debarked or destroyed. Very little was left standing for the first few miles into McClain County. Fairly consistent EF3, with brief periods of EF4 damage occurred as the tornado neared and crossed OK Hwy 9, near its junction with OK Hwy 76. The tornado began to weaken as it moved toward the Cleveland County border, with mainly trees and power poles/lines snapped. Two smaller, weaker twisters, EF1 and EF0, accompanied these two destructive tornadoes, but caused only minor damage.
November 7, 2011	An EF1 tornado 1.6 miles long and 110 yards wide began 3 miles northeast of Blanchard, paralleling US Hwy 62 on the north side. Most of the damage was confined to trees being snapped, with slightly more severe damage as the tornado crossed US 62, south of OK Hwy 9. A barn lost most of its roof, with other roof/siding/awning damage to a nearby residence. The tornado lifted prior to reaching the H.E. Bailey spur of I-44. No damage estimates were available.
April 13, 2012	This tornado developed just west of the Canadian River, with minor tree damage reported. The tornado continued into Cleveland County.

May 20, 2013	The violent Newcastle-Moore tornado was first observed developing about one-half mile south of OK Hwy 37 in northwest Newcastle, to the east of Rockwell Avenue. The tornado devastated homes in Country Club Estates and Cedar ridge additions and injured one. EF4 damage was observed soon after the tornado crossed OK 37. The tornado continued to expand in size as it approached the Canadian River and moved into Cleveland County, where it turned more east and then east-northeast after crossing I-44. Violent EF4 damage was again observed as it began to move into higher density residential areas approaching May Avenue. Overall, 24 people lost their lives and more than 300 homes experienced EF4/EF5 damage along the tornado path.
May 6, 2015	Storm chasers observed a tornado in the southeast part of Newcastle. Aerial images indicated two outbuildings lost their roofs or were destroyed.
May 19, 2015	A brief tornado was observed by a storm chaser via spotter network. Live coverage from helicopters of OKC television stations also showed a brief tornado develop southwest of Purcell. No damage was reported and the location is estimated. Severe storms developed near a stalled boundary across Oklahoma and the panhandles and moved eastward through the afternoon and evening of the 19th, causing widespread heavy rainfall and additional flooding. One fatality occurred near Cole in McClain County, as a vehicle was swept into floodwaters.
May 23, 2015	A tornado moved north just east of MacArthur Avenue from Southeast 7th Street to near US-62 east of Blanchard. Ten homes were damaged. A storm chaser also observed a tornado estimated to be 1 mile west-southwest of Newcastle. No damage was reported.
December 26, 2015	With abundant moisture in place and strong cold front moving south on the 26th, numerous storms developed across the central and southern parts of Oklahoma and parts of western north Texas. Several of these storms became severe, a few became tornadic, and heavy rains caused some flash flooding. A brief weak tornado was reported.
October 21, 2017	A tornado developed just north of State Highway 9 and just west of Santa Fe Avenue where tree damage was noted. The tornado moved east damaging a business and destroying a shed along Highway 9. The tornado turned southeast crossing Highway 9 and passed near the Riverwind Casino and Hotel along with strong winds on the south flank of the tornado. Trees were snapped just west of the casino. At the casino, two air conditioner units were displaced from their pedestal on the roof of the building, which allowed rain inside the structure. Some roof facade damage was also noted at the casino. Just south at the adjacent hotel, strong winds created some roof facade and siding damage. The tornado crossed Interstate 35 and damaged businesses and destroyed at least one shed between the interstate and the Canadian River before moving into inaccessible areas near the river and crossing into Cleveland County south of Norman.
May 2, 2018	A tornado developed southwest of Purcell and moved northeast passing near Purcell Lake and into the north side of Purcell. Large trees were uprooted and outbuildings destroyed in the north side of Purcell. The tornado crossed the Canadian River into Cleveland County north of Lexington.
May 19, 2018	A small, weak tornado developed within a quasi-linear convective system and moved northeast from west-southwest of Wayne to north of Wayne. The roof of one home was damaged along state highway 74, otherwise the damage was primarily to trees and four outbuildings.
May 21, 2019	A tornado from a Quasi-Linear Convective System (QLCS) developed south of Interstate 35 and Ladd Road. At least four outbuildings were damaged and a number of trees snapped as the tornado moved northeast. The tornado crossed the Canadian River into Cleveland County near Noble.
June 16, 2019	A brief land spout tornado estimated to be about a mile south-southeast of Wayne was observed by a storm chaser. There was no known damage.

Probability
Based on historical data, the probability of future Tornado events in the Planning Area is High.

Vulnerability and Impact
People, Structures and utilities are vulnerable to tornado events.
Persons who are unable to take refuge in an engineered shelter are most vulnerable to tornado events. Persons who are outside or in vehicles are especially vulnerable. Persons may also be impacted by tornadoes by damage to or complete loss of their homes, as well as loss of vehicles and/or personal property. Adding to the impact is the potential loss of wages or employment due to extended injury, time away from work while dealing with damaged/destroyed homes, loss of transportation, and/or the loss of employment due to destruction of their employer's property.

Jurisdiction	Vulnerability	Impact
McClain County	Many residents in the unincorporated McClain County do not have a residential storm shelter. 9.1% of residents live below the poverty line and cannot afford to install one in their home. There are residents in the Planning Area who have residential tornado shelters; however, some of these shelters are not registered with their respective municipalities or with the McClain County Emergency Management.	People who do not have access to a shelter are more at risk from injury and death during a tornado event. Residents who own a storm shelter but have not registered it with the county or municipality, are at risk for being overlooked by response personnel if their shelter became covered in tornado-generated debris.
Blanchard	Blanchard's above ground electric lines, electric poles, and older or deteriorated homes are more vulnerable to tornado damage.	Damage to utilizes can cause a disruption of service and prevent life altering services to those that depend on electricity for health sustaining services. Damage to roadways from downed trees or power lines will disrupt communications and impede emergency response.
Purcell	The City of Purcell does not have a community tornado safe room installed at any of the critical facilities. Purcell's above ground electric lines, electric poles, and older or deteriorated homes are more vulnerable to tornado damage.	People who do not have access to a shelter are more at risk from injury and death during a tornado event. Damage to utilizes can cause a disruption of service and prevent life altering services to those that depend on electricity for health sustaining

		services. Damage to roadways from downed trees or power lines will disrupt communications and impede emergency response.
Byars	Most residents in Byars do not have a shelter. With approximately 15% of the residents living below the poverty line, residents cannot afford to install a shelter.	People who do not have access to a shelter are more at risk from injury and death during a tornado event.
Cole	The Town of Cole does not have a community tornado safe room installed at any critical facilities.	People who do not have access to a shelter are more at risk from injury and death during a tornado event.
Dibble	Approximately 40.2% of residents in Dibble live below poverty line with a high percentage of residents living in mobile homes. Persons living in a mobile home are more vulnerable to the effects of a tornado than any other identifiable population. Tornado wind speeds are known to demolish mobile homes.	People who do not have access to a shelter are more at risk from injury and death during a tornado event. The Residents of Dibble are to have less ability to recover from tornado damage due to the poverty level.
Goldsby	The Town of Goldsby does not have a community tornado safe room installed at any of the critical facilities.	People who do not have access to a shelter are more at risk from injury and death during a tornado event.
Rosedale	Most residents in Rosedale do not have a shelter. With approximately 45% of the residents living below the poverty line, residents cannot afford to install a shelter.	People who do not have access to a shelter are more at risk from injury and death during a tornado event.
Washington	The Town of Washington does not have a community tornado safe room installed at any of the critical facilities.	People who do not have access to a shelter are more at risk from injury and death during a tornado event.

	Washington's above ground electric lines, electric poles, and older or deteriorated homes with mature trees can sustain damage from tornados.	Damage to utilizes can cause a disruption of service and prevent life altering services to those that depend on electricity for health sustaining services. Damage to roadways from downed trees or power lines will disrupt communications and impede emergency response.
Wayne	Most residents in Wayne do not have a shelter. With approximately 15% of the residents living below the poverty line, residents cannot afford to install a shelter.	People who do not have access to a shelter are more at risk from injury and death during a tornado event.
Blanchard PS	Blanchard Middle School does not have a shelter. Students and Faculty have to walk across campus to the Upper Elementary Building for shelter in the event of a tornado or Severe Weather.	Students and Faculty are at a great risk of being killed or seriously injured by flying debris while walking across campus to take shelter.
Dibble PS	Dibble Middle School and High School do not have safe rooms. The students and faculty have to walk across the street to the Dibble Elementary School for shelter in the event of a tornado or severe weather.	Students and Faculty are at a great risk of being killed or seriously injured by flying debris while walking across campus to take shelter.
Purcell PS	Purcell Elementary and Purcell High School do not have safe rooms.	Purcell students and faculty are at risk during school hours from the results of a tornado without proper sheltering at their facilities.
Washington PS	Washington Public Schools does not have covered parking for the school buses or transportation vehicles. This exposes the vehicles to damage from wind-borne debris from a tornado.	This could result in a significant loss to the schools' capabilities, and their ability to operate at normal levels.

Wayne PS	Structures are vulnerable to both tornadic winds and to debris driven in the winds. Wayne Public Schools does not have the school windows treated with security film. With this film the glass is more difficult to break than a standard window. If it does break it will not shatter into thousands of tiny pieces.	Damage to equipment can result in economic loss to schools, and can also cause a disruption to daily school operations.
Mid-America Tech Center	Mid-America has safe rooms that are located in the Stem Building on campus. In the event of a tornado most students and faculty have to walk across campus to seek shelter.	Students and Faculty are at a great risk of being killed or seriously injured by flying debris while walking across campus to take shelter.

3.4.11 Wildfire

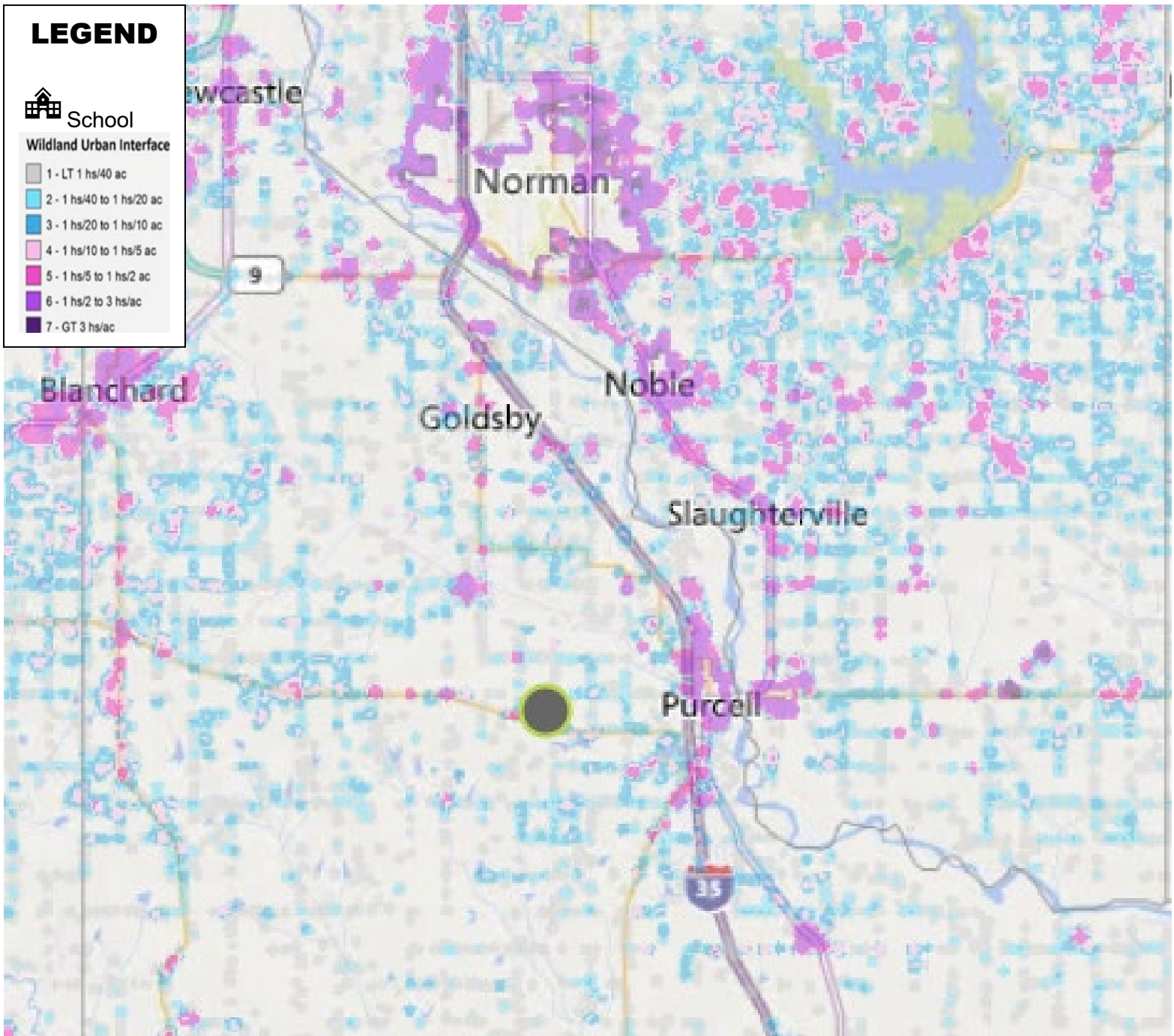
Description

Wildfire is an uncontrolled fire in a rural or wilderness area. Dry vegetation, low levels of precipitation, and high winds create the condition for wildfire to begin unnoticed. However, they can quickly spread to an uncontrollable level if unnoticed for very long. The winds cause the fire to spread quickly, igniting brush, trees, and structures. Wildfire can move on three different levels. A surface fire is the most common type and burns along the surface of grasslands or areas with open vegetation, usually moving quickly through an area. A ground fire is a dense, very hot fire that has a thick fuel source and significantly damages the soil health where it occurs. A crown fire spreads rapidly by wind and moves by jumping along the top of the trees.

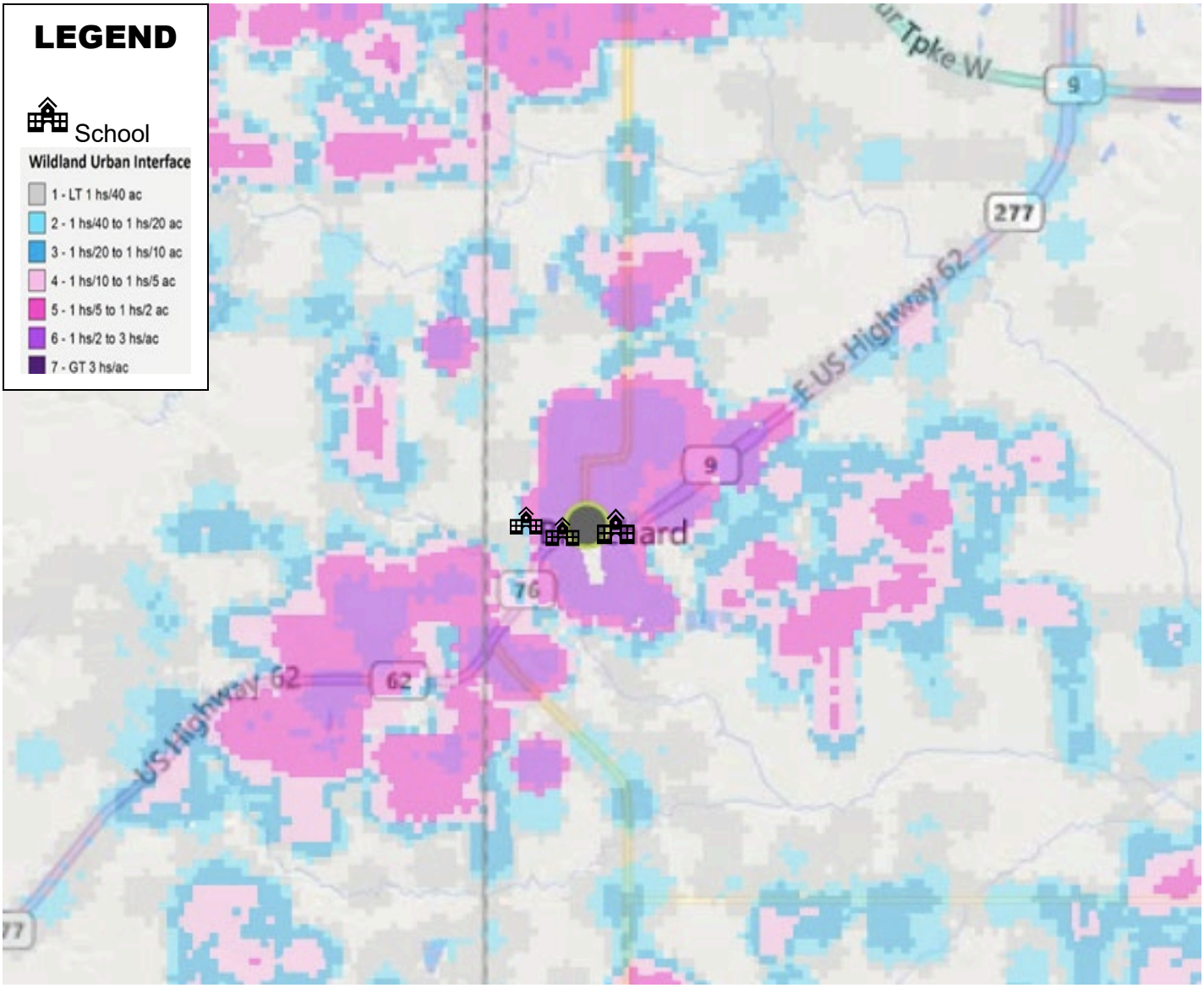
Location

The entire Planning Area is affected by Wildfire.

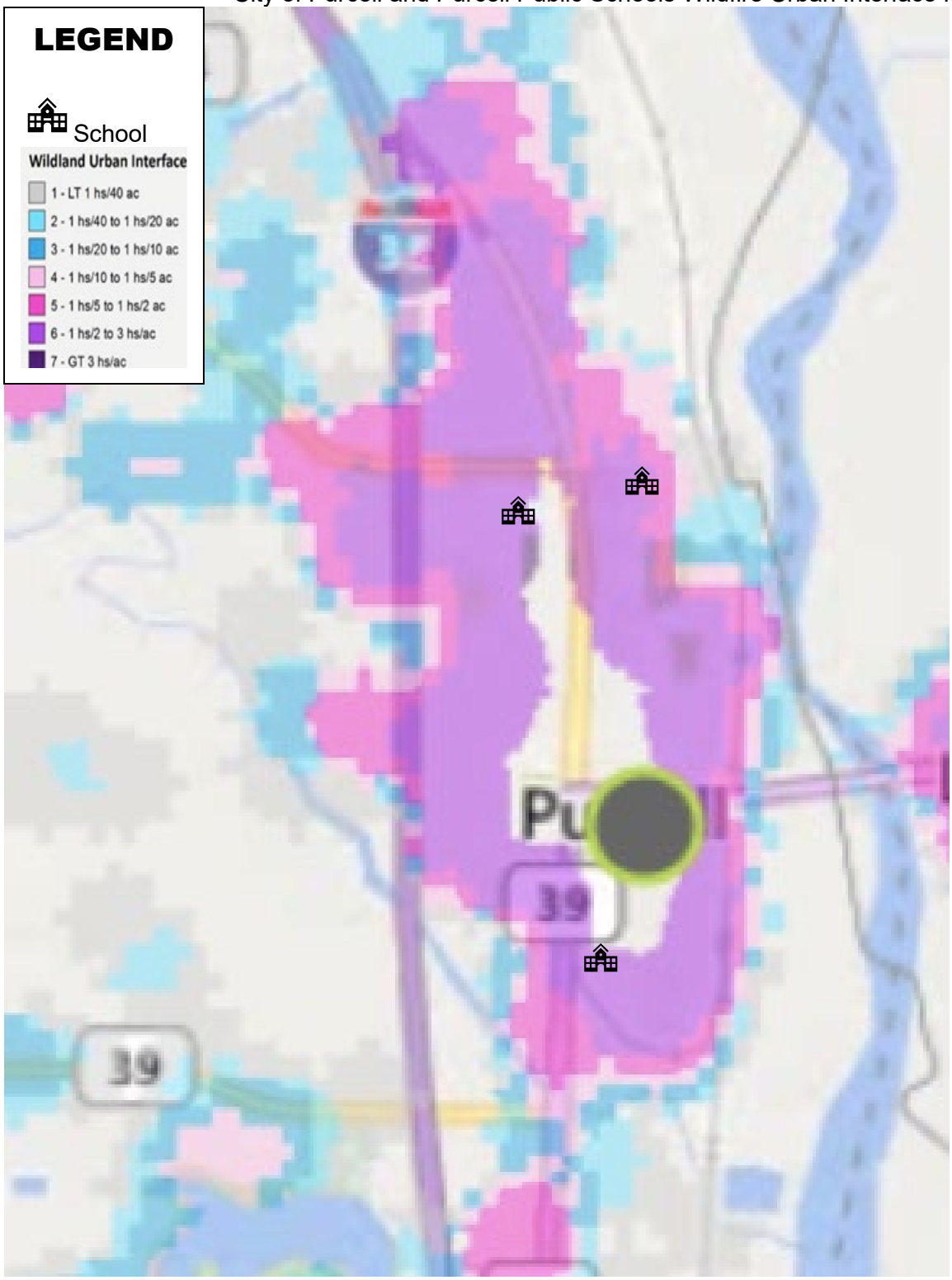
McClain County Wildfire Urban Interface Map



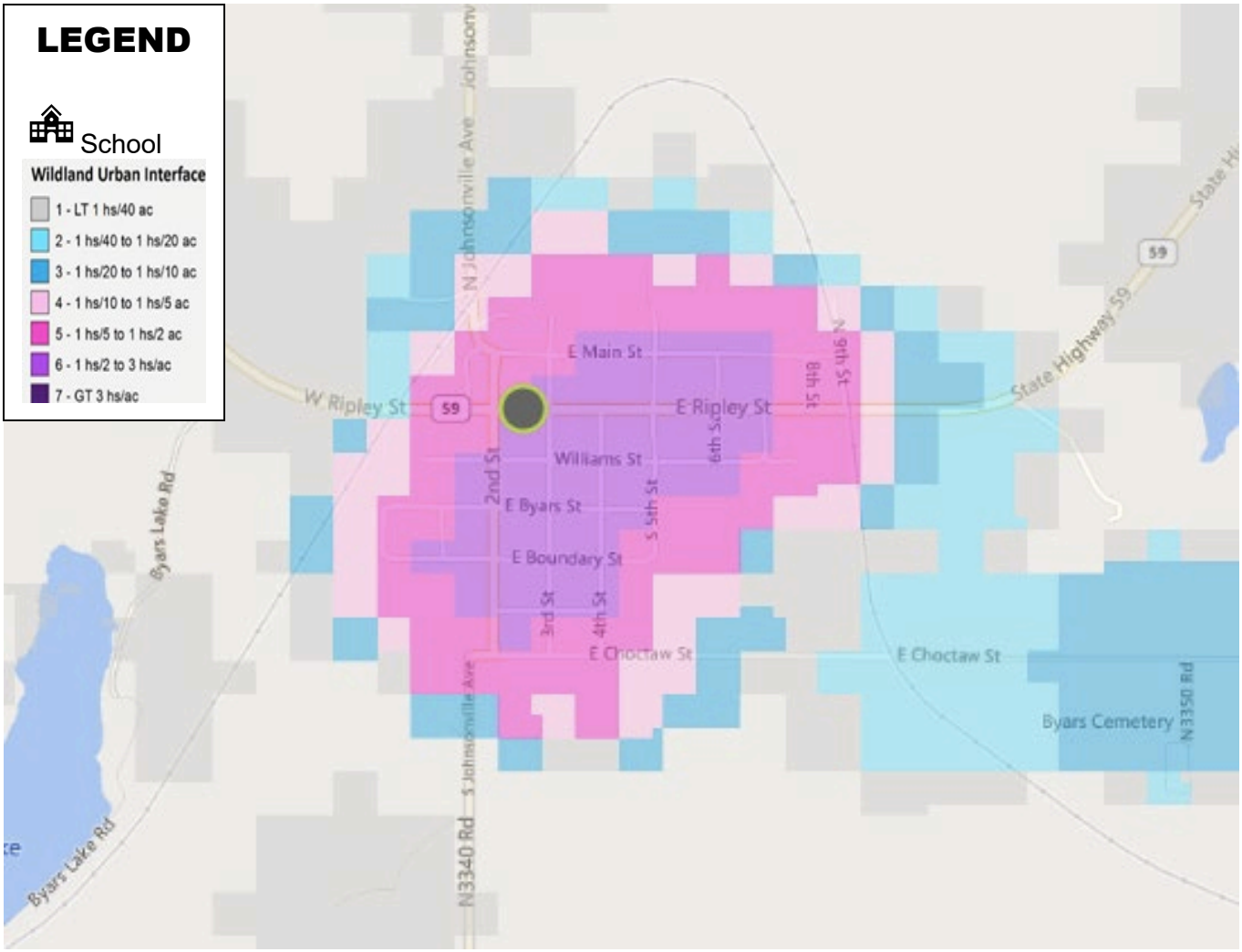
The City of Blanchard and Blanchard Public Schools Wildland Urban Interface Map



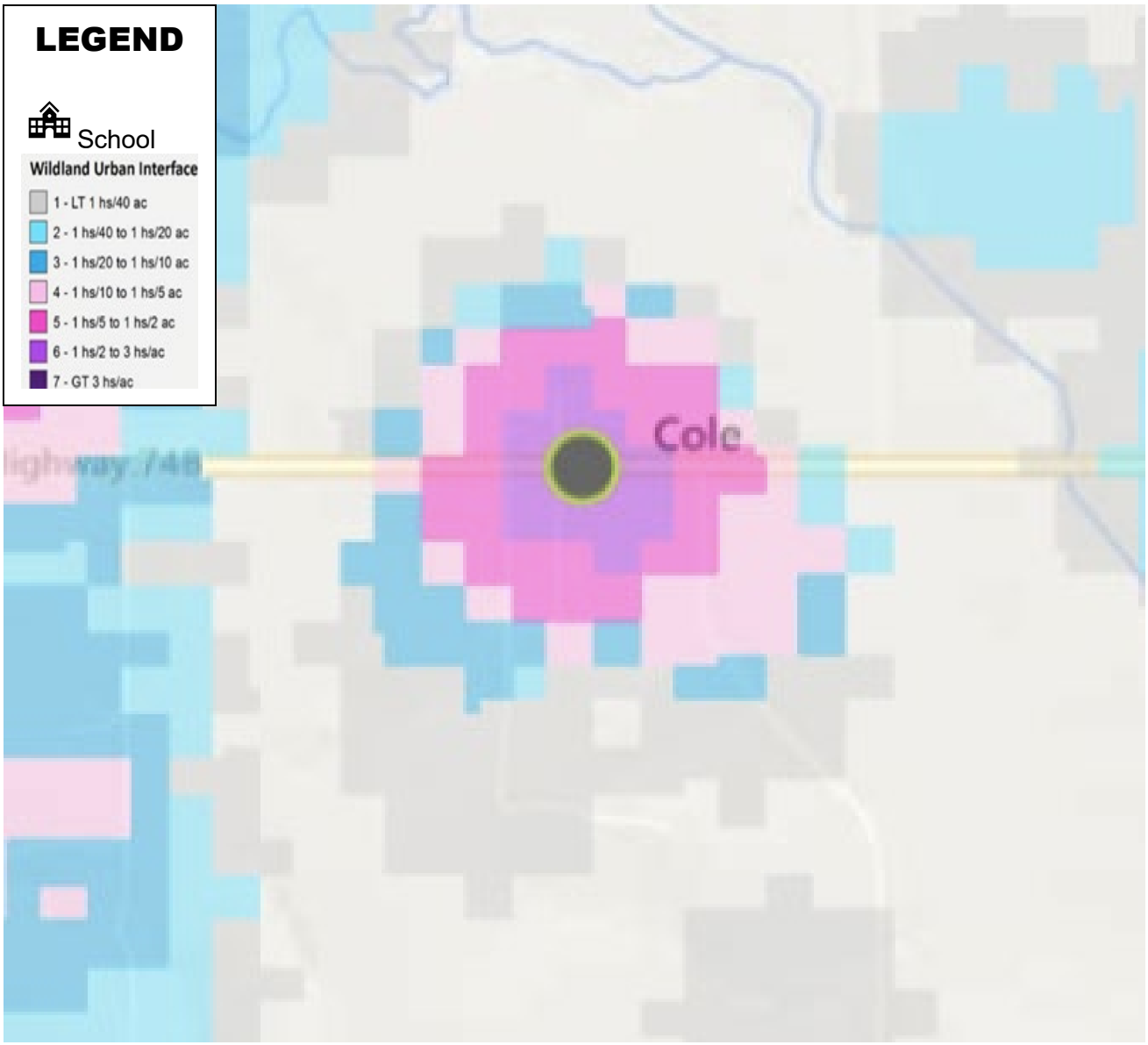
City of Purcell and Purcell Public Schools Wildfire Urban Interface Map



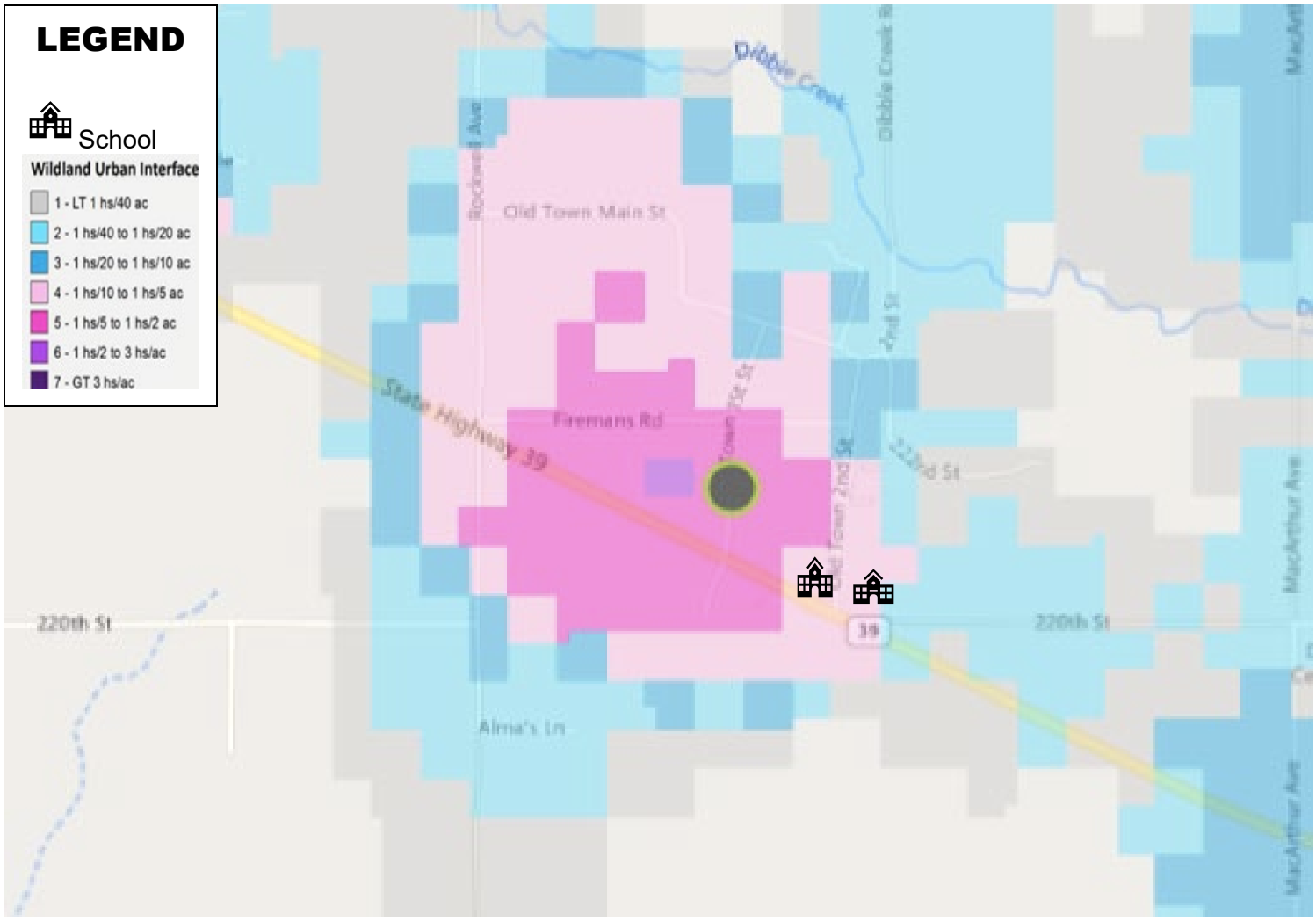
Town of Byars Wildfire Urban Interface Map



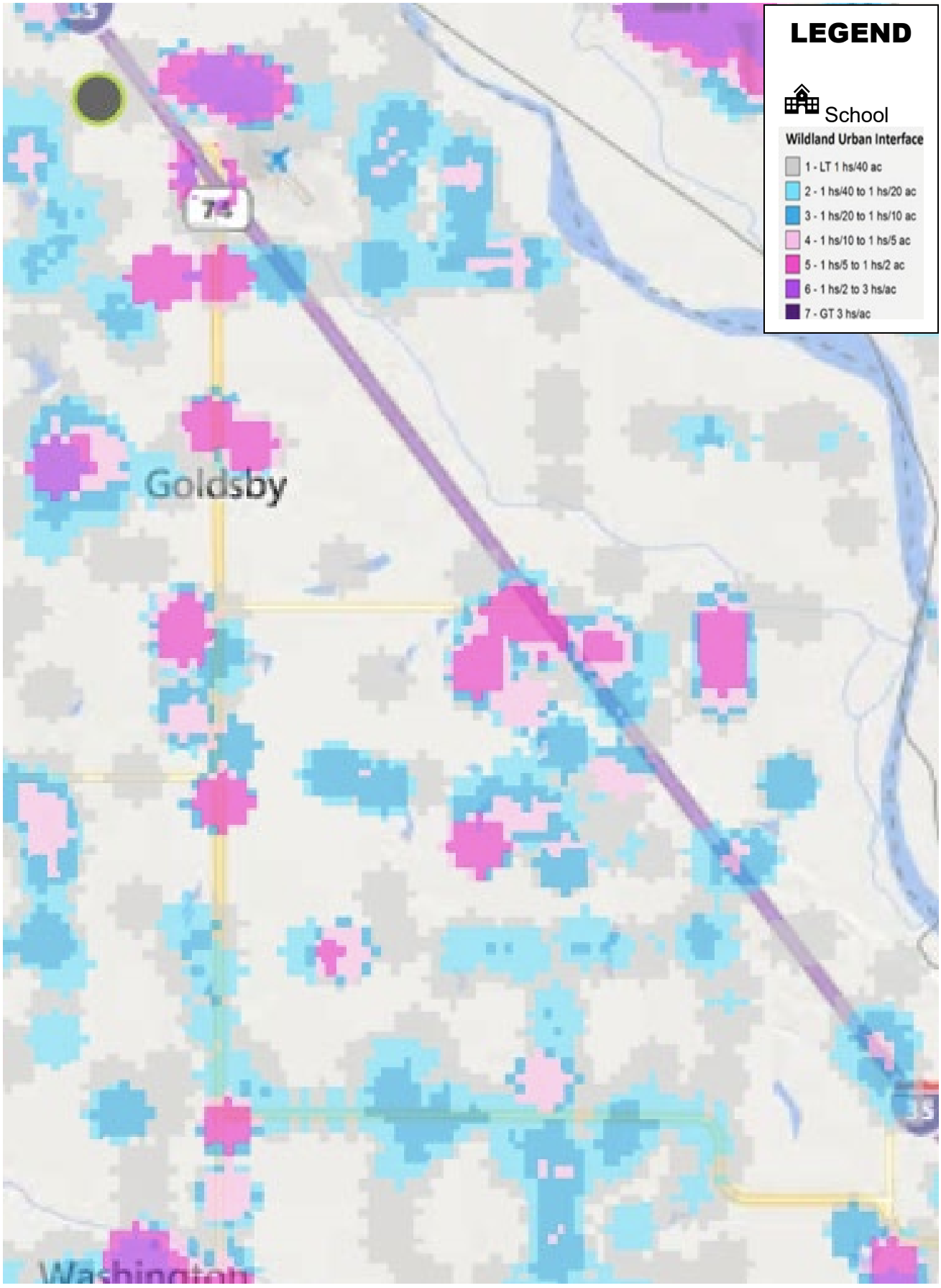
Town of Cole Wildfire Urban Interface Map



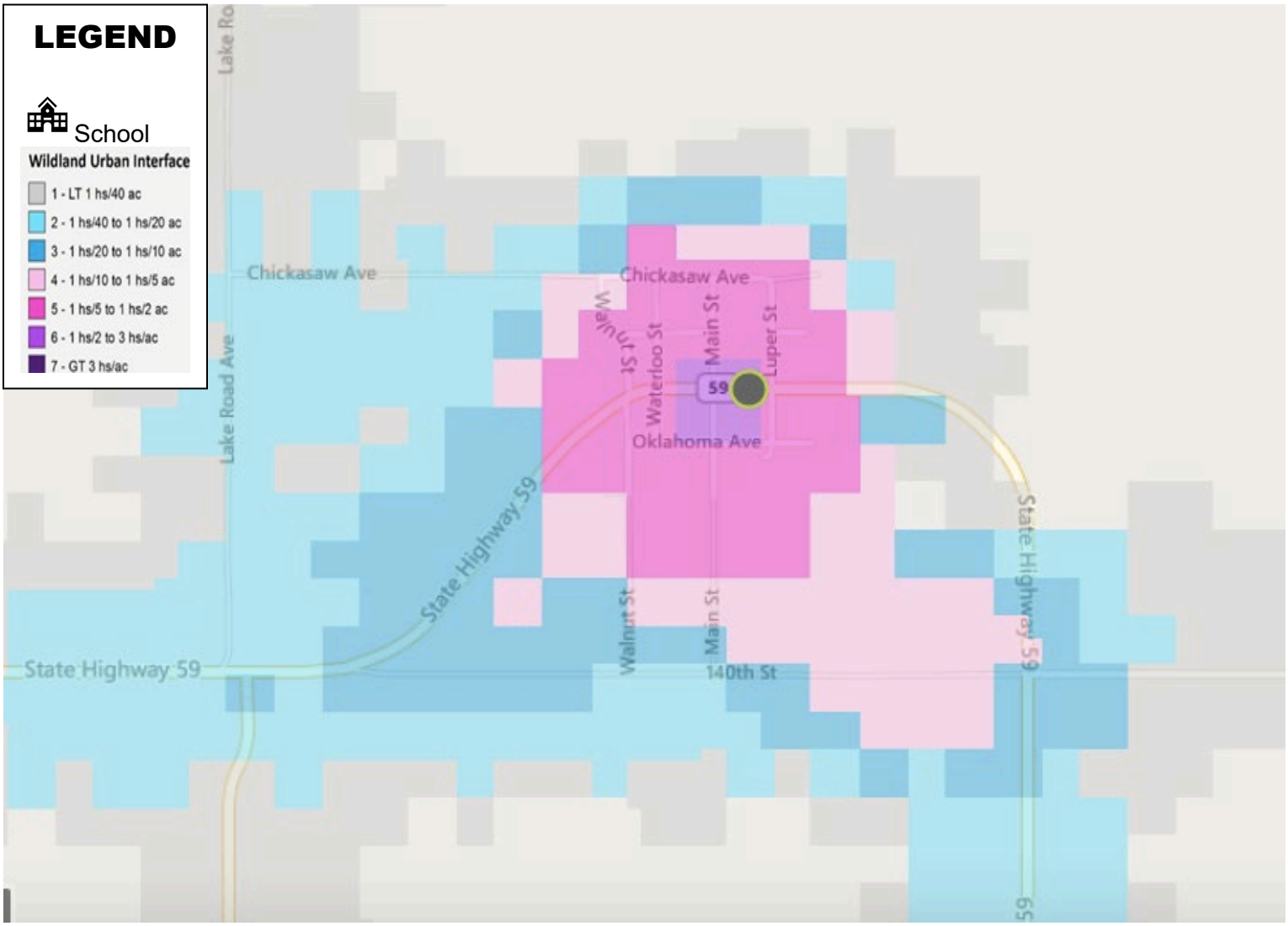
Town of Dibble and Dibble Public School Wildfire Urban Interface Map



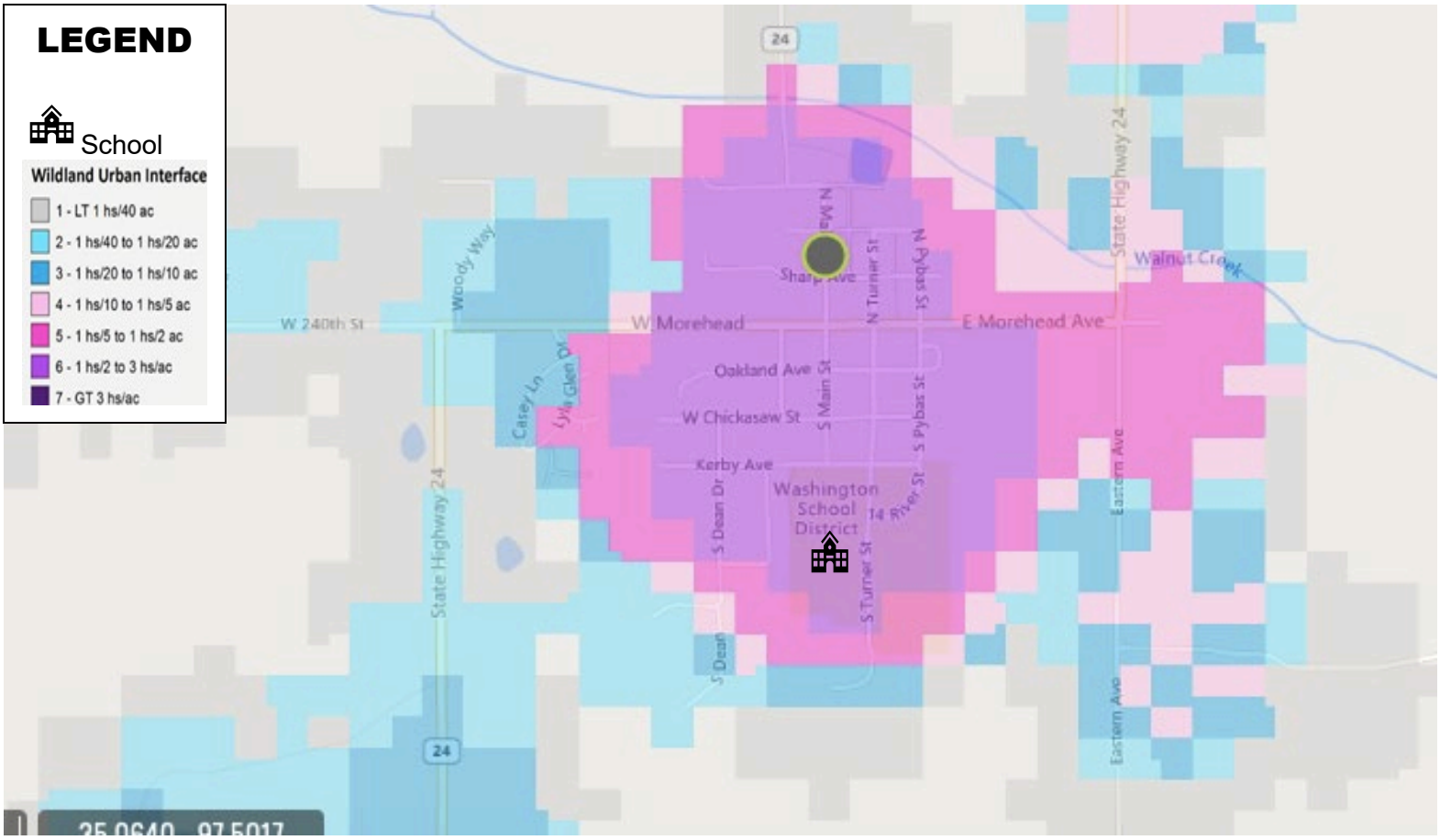
Town of Goldsby Wildfire Urban Interface Map



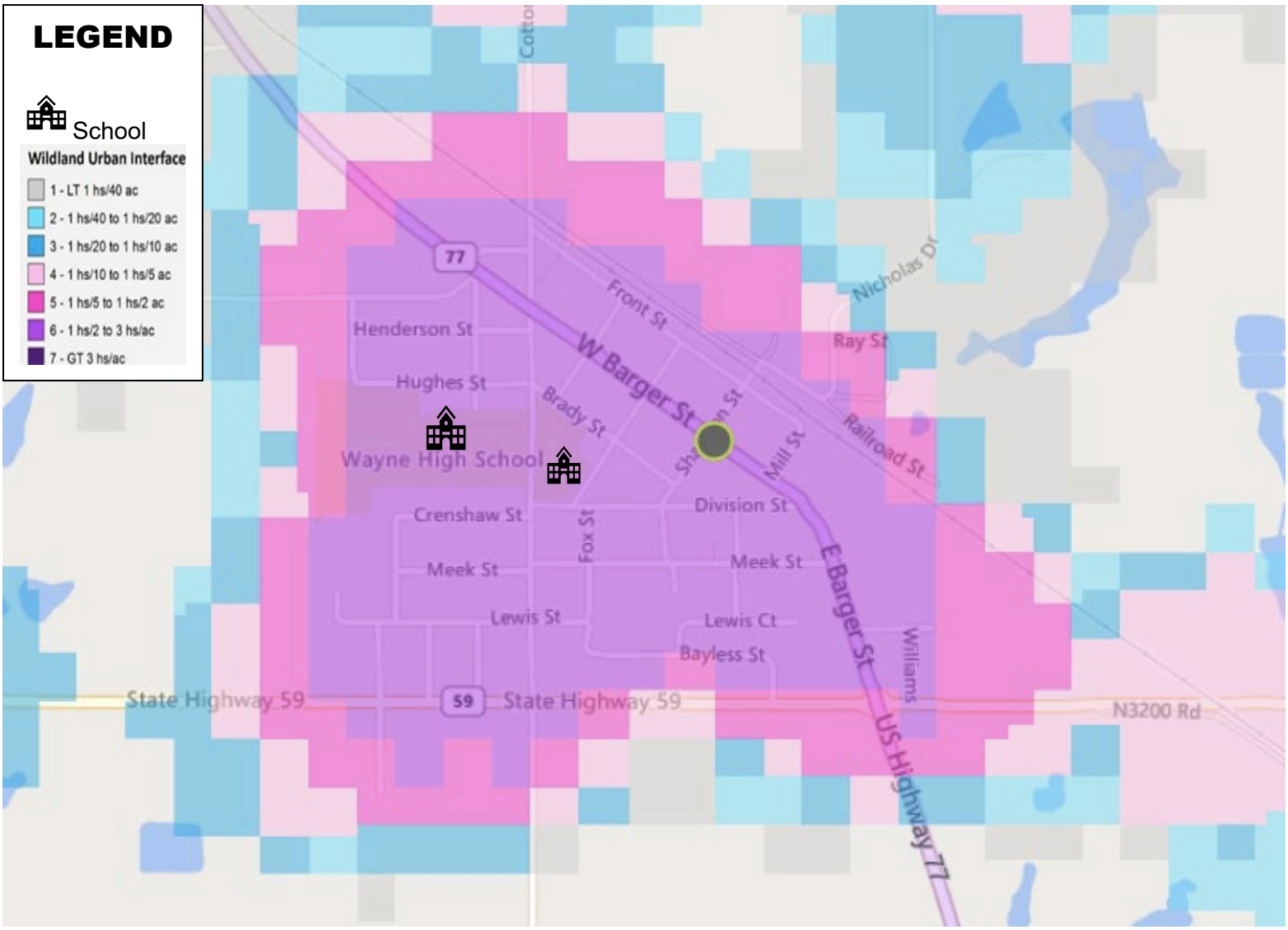
Town of Rosedale Wildfire Urban Interface Map



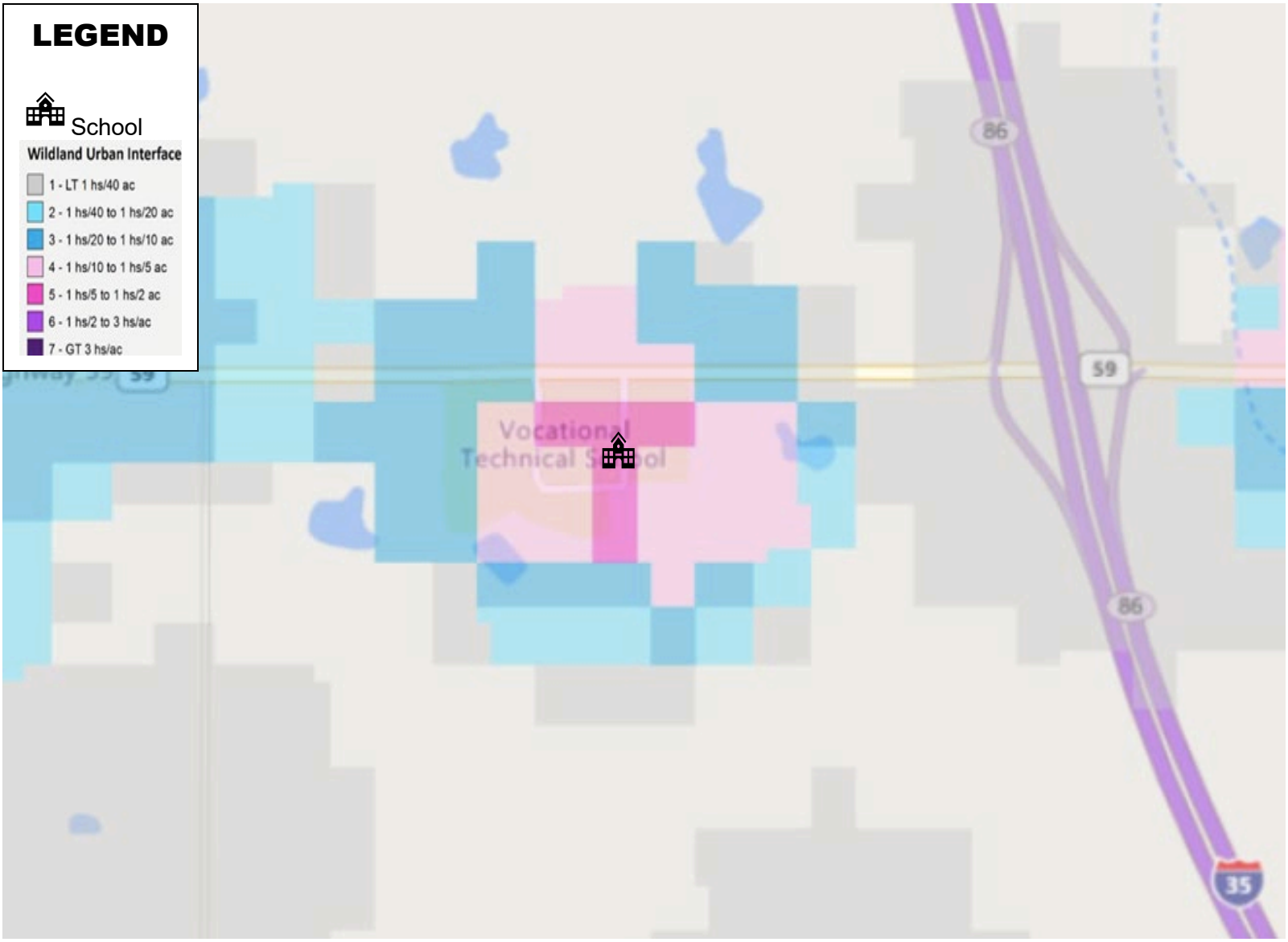
Town of Washington and Washington Public School Wildfire Urban Interface Map



Town of Wayne and Wayne Public School Wildfire Urban Interface Map



Mid-America Technology Center Wildfire Urban Interface Map



Jurisdiction	Location of Wildfire Hazard
McClain Co	The main WUI risk areas are located in the central and northern areas of McClain Co. The southern area of McClain Co is at risk for Wildfire due to the open fields and undeveloped acreage with trees and vegetation.
Blanchard	The WUI risk areas are located in the central areas of Blanchard.
Purcell	The northern and southern portions of Purcell are affected by WUI risk areas.
Byars	The central portion of Byars is affected by WUI risk areas.
Cole	The WUI Risk areas are located in the central areas of Cole.
Dibble	The North, northeastern, and western parts of Dibble are affected by WUI risk areas.
Goldsby	Goldsby is affected by WIU risk areas in the Northern, central, and eastern areas of the town.
Rosedale	The central portion of Rosedale is affected by WUI risk areas.
Washington	The central and southern areas of Washington is affected by WUI risk areas.
Wayne	The WUI Risk areas are located in the Central and northern areas of Wayne.
Blanchard PS	Blanchard Public Schools is located in the central part of Blanchard and within the WUI risk area.
Dibble Public Schools	Dibble Public School District Buildings are located in the central part of Dibble but are right outside the WUI risk area. However, the school bus routes in the north, northeastern, and western parts of Dibble are traveling along open fields and undeveloped acreage with trees and vegetation which are affected by Wildfire.
Purcell PS	Purcell Public School District Buildings are located in the north and south areas of Purcell. These buildings are located in a WUI risk area.
Wayne PS	Wayne Public School District Buildings are located in a high WUI risk area.
Washington PS	Washington Public Schools District buildings are located in a high WUI risk area.
Mid-America Tech	Mid-America is located in Wayne, OK, and its school buildings are located in a high WUI risk area.

Extent

The Planning Area uses the Keetch-Bryan Drought Index with Fire Danger Rating Data Incorporated to categorize Wildfire Extent. The Planning Area can experience any rating value on these charts.

The Keetch-Byram Drought Index with Fire Danger Rating Data Incorporated	
0 – 200	Soil and fuel moisture are high. Most fuels will not readily ignite or burn. However, with sufficient sunlight and wind, cured grasses and some light surface fuels will burn in spots and patches.
200 - 400	Fires more readily burn and will carry across an area with no gaps. Heavier fuels will still not readily ignite and burn. Also, expect smoldering and the resulting smoke to carry into and possibly through the night.

400 - 600	Fire intensity begins to significantly increase. Fires will readily burn in all directions exposing mineral soils in some locations. Larger fuels may burn or smolder for several days creating possible smoke and control problems.
600 - 800	Fires will burn to mineral soil. Stumps will burn to the end of underground roots and spotting will be a major problem. Fires will burn thorough the night and heavier fuels will actively burn and contribute to fire intensity

Source: http://www.wfas.net/content/view/34/51/

Fire Danger Rating System		
Rating	**Basic Description**	**Detailed Description**
CLASS 1: Low Danger (L) COLOR CODE: Green	fires not easily started	Fuels do not ignite readily from small firebrands. Fires in open or cured grassland may burn freely a few hours after rain, but wood fires spread slowly by creeping or smoldering and burn in irregular fingers. There is little danger of spotting.
CLASS 2: Moderate Danger (M) COLOR CODE: Blue	fires start easily and spread at a moderate rate	Fires can start from most accidental causes. Fires in open cured grassland will burn briskly and spread rapidly on windy days. Woods fires spread slowly to moderately fast. The average fire is of moderate intensity, although heavy concentrations of fuel – especially draped fuel -- may burn hot. Short-distance spotting may occur but is not persistent. Fires are not likely to become serious and control is relatively easy.
CLASS 3: High Danger (H) COLOR CODE: Yellow	fires start easily and spread at a rapid rate	All fine dead fuels ignite readily, and fires start easily from most causes. Unattended brush and campfires are likely to escape. Fires spread rapidly and short-distance spotting is common. High intensity burning may develop on slopes or in concentrations of fine fuel. Fires may become serious and their control difficult, unless they are hit hard and fast while small.
CLASS 4: Very High Danger (VH) COLOR CODE: Orange	fires start very easily and spread at a very fast rate	Fires start easily from all causes and immediately after ignition, spread rapidly and increase quickly in intensity. Spot fires are a constant danger. Fires burning in light fuels may quickly develop high-intensity characteristics - such as long-distance spotting - and fire whirlwinds when they burn into heavier fuels. Direct attack at the head of such fires is rarely possible after they have been burning more than a few minutes.
CLASS 5: Extreme (E) COLOR CODE: Red	fire situation is explosive and can result in extensive property damage	Fires under extreme conditions start quickly, spread furiously, and burn intensely. All fires are potentially serious. Development into high intensity burning will usually be faster and occur from smaller fires than in the Very High Danger class (4). Direct attack is rarely possible and may be dangerous, except immediately after ignition. Fires that develop headway in heavy slash or in conifer stands may be unmanageable while the extreme burning condition lasts. Under these conditions, the only effective and safe control action is on the flanks, until the weather changes or the fuel supply lessens.

Previous Occurrences
The following table represents natural vegetation, forest, woods, wildland, brush or brush/grass mixture, and grass fires reported for McClain County. The Planning Area sends reports to National Fire Incident Reporting System. (NFIRS)
The State Fire Marshal's Office does not have 2020 Wildfire Data for McClain County.

Wildfire Events 2010-2019

Incident Type	Description		
Natural Vegetation Fire	2010- 2 2011- 4 2012- 2 2013- 0 2014- 9	2015-1 2016-4 2017-1 2018-1 2019-2	Total:26 (2010-2019)
Forest, Woods, or Wildland Fire	2010- 1 2011- 168 2012- 98 2013- 95 2014- 97	2015-49 2016-106 2017-112 2018-131 2019-181	Total:1,038 (2010-2019)
Brush or brush/grass mixture fire	2010- 60 2011- 39 2012- 3 2013- 0 2014- 10	2015-9 2016-8 2017-9 2018-0 2019-0	Total:138 (2010-2019)
Grass Fire	2010- 30 2011- 99 2012- 19 2013- 23 2014- 115	2015-20 2016-71 2017-48 2018-27 2019-0	Total:452 (2010-2019)

(Oklahoma State Fire Marshal's Office)

Probability
Based on historical data, the probability of Future Wildfire events in the Planning Area is HIGH.

Vulnerability and Impact
Wildfire are most threatening during times of drought accompanied by extreme heat and high winds, but wildfires can occur any time of the year. Wildfire can cause loss of life, homes and business, and result in devasting economic impacts to individual homeowners, ranchers and farmers, and communities.

Jurisdiction	Vulnerability	Impact
McClain County	McClain County is populated with farmers/ranchers, with a lot of their fields being dried grass. With poverty levels in the unincorporated areas of McClain County as high as 20%, ranchers are economically vulnerable to wildfire events that cause damage to their fences, hay, and livestock.	A loss of ranch revenue negatively affects McClain County's economy. Agricultural losses are a significant impact because of the importance of agriculture in the area. Red cedar embers

	Another vulnerability is the number of red cedar trees growing in the rural areas of unincorporated McClain County. These trees are highly combustible and can explode during wildfires.	can ignite any structures in close proximity to houses or other outbuildings.
Blanchard	Blanchard has above-ground utility lines. These lines are vulnerable to the effects of a wildfire. Poles are easily destroyed by fire causing lines to fall, disrupting power and/or connectivity.	Utility disruption will impact homes and businesses with loss of power and/or connectivity. Temporary loss of business and therefore financial loss. Will impact utility workers with financial loss due to overtime, equipment and supplies needed for repairs to their system.
Purcell	Purcell has above-ground utility lines. These lines are vulnerable to the effects of a wildfire. Poles are easily destroyed by fire causing lines to fall, disrupting power and/or connectivity.	Utility disruption will impact homes and businesses with loss of power and/or connectivity. Temporary loss of business and therefore financial loss. Will impact utility workers with financial loss due to overtime, equipment and supplies needed for repairs to their system.
Byars	The Byars Fire Department does not have adequate personal protective equipment, manpower, or trucks. These capability vulnerabilities make the personnel more vulnerable during wildfires because their equipment could fail.	This could cause serious injury and even death to a firefighter who does not have the proper PPE. Not having enough manpower or trucks places extra strain on the responding fire departments needing to respond to fires outside their main jurisdictions.
Cole	The Town of Cole is surrounded by open fields and undeveloped acreage with trees and vegetation which makes them more vulnerable to Wildfire. A wildfire in or around Cole could	This could result in a significant loss to the Towns ability to operate at normal levels. It would also impact

	require mandatory evacuations and cause damage to property and the Town's infrastructure.	businesses that supply goods and services.
Dibble	The Town of Dibble has a volunteer fire department. Volunteer firefighters have varying response times due to having primary occupations. They do not have a full-time staff at the station to respond immediately during a wildfire.	Not having a full-time fire department staff means that response times are severely impacted during times of wildfire events. This can result in residents being unable to obtain emergency services in a timely manner. Also places extra strain on the responding fire departments needing to respond to fires outside their main jurisdictions.
Goldsby	The David J. Perry Airport located in Goldsby is surrounded by open fields and undeveloped land with trees and vegetation, which makes them more vulnerable to Wildfire	A fire at the airport can have an immediate impact on the airport and airport everyday operations.
Rosedale	The Rosedale Fire Department does not have adequate personal protective equipment, manpower, or trucks. These capability vulnerabilities make the personnel more vulnerable during wildfires because their equipment could fail.	This could cause serious injury and even death to a firefighter who does not have the proper PPE. Not having enough manpower or trucks places extra strain on the responding fire departments needing to respond to fires outside their main jurisdictions.
Washington	The Town of Washington has a volunteer fire department. Volunteer Firefighters have varying response times due to having primary occupations. They do not have a full-time staff to immediately respond during a wildfire.	Not having a full-time fire department staff means that response times are severely impacted during times of wildfire events. This can result in residents being unable to obtain emergency services in a timely manner. Also places extra strain on the responding fire departments needing to respond to fires outside their main jurisdictions

Wayne	The Town of Wayne is populated with farmers and ranchers, with a lot of their fields being dried grass. With poverty levels in the Town of Wayne County as high as 15%, farmers/ranchers are economically vulnerable to wildfire events that cause damage to their fences, hay, and livestock.	A loss of ranch revenue negatively affects the town's economy. Agricultural losses are a significant impact because of the importance of agriculture in the area.
Blanchard PS	Blanchard Middle School is surrounded by dried grass fields to the North and trees and overgrown vegetation to the east. The school only has 1 main access road in and out.	If a wildfire were to happen and cut off transportation route, it could make evacuation very difficult.
Dibble PS	State Highway 39 goes by Dibble Public Schools and the chance of cigarette or other burning substance could cause a wildfire.	The students and faculty members are at risk during the school day from the results of a wildfire activity. This could result in a significant loss to the school's capabilities, and their ability to operate at normal levels.
Purcell PS	Purcell High School is surrounded by dried grass fields The High School only has 1 main access road in and out.	If a wildfire were to happen and cut off transportation route, it could make evacuation very difficult.
Washington PS	Washington's School has open fields and undeveloped acreage with trees and vegetation adjacent to the school. A wildfire in or around the school could require mandatory evacuations and cause damage to the school's property.	The students and faculty members are at risk during the school day from the results of a wildfire activity. This could result in a significant loss to the school's capabilities, and their ability to operate at normal levels.
Wayne PS	Wayne High School has practice fields abutting open fields of dried grass. A wildfire in or around the school could require mandatory evacuations and	The students and faculty members are at risk during the school day from the results of a wildfire activity. This could result in a significant loss to the school's

	cause damage to the school's property.	capabilities, and their ability to operate at normal levels.
Mid-America Tech Center	Mid-America Technology Center is most vulnerable to a wildfire being surrounded by open fields and undeveloped acreage with trees and vegetation. A wildfire in or around the Technology Center could require mandatory evacuations and cause damage to the school's property.	The students and faculty members are at risk during the school day from the results of a wildfire activity. This could result in a significant loss to the school's capabilities, and their ability to operate at normal levels.

Chapter 4: Mitigation Strategy

4.1 Capabilities Assessment

Jurisdiction Specific Capabilities

Jurisdiction	Capabilities	How Jurisdiction can build upon their Capabilities
McClain County	**Building Codes**: McClain County has no building codes. **Building Permits/Building Inspections:** McClain County adopted in 2007 a Floodplain Ordinance. Floodplain Permits are required in McClain County. **Capital Improvements:** Yes **Planned Capital Projects for Hazard Mitigation:** Yes **Planned Property Protection Projects:** Yes **Comprehensive Plan:** Yes **Planning and/or Zoning Board:** McClain County does not have any zoning. **Zoning Code:** McClain County has no Zoning Code. **Floodplain Management:** McClain County participates in NFIP. **Floodplain Manager:** Yes **National Flood Insurance Program**: McClain County participates in FEMA's National Flood Insurance Program (NFIP). **Emergency Services and Management** **Ambulance Service:** Wadley EMS and McClain-Grady, provides ambulance services for McClain County. **Emergency Manager:** Yes **Emergency Operations Plan:** McClain County has its own Emergency Operations Plan in place. **McClain County Fire District:** McClain County is protected by Volunteer Fire Departments assembled in 12 districts. **FireWise Program**: McClain County does not participate in the FireWise Program. **Hospitals:** The closest hospital is the Purcell Municipal Hospital at 1500 N. Green Ave, Purcell Oklahoma. **Law Enforcement:** McClain County Sheriff's Office **StormReady Program**: Yes, McClain County participates. **Warning Systems:** McClain County has warning sirens.	McClain County can increase capability by becoming FireWise Certified.

Blanchard	**Land Use Management** **Building Codes:** The City of Blanchard's municipal codes adopted the international building codes for the city's building codes. **Building Permits/Building Inspections:** Yes, Blanchard Has a Code Enforcement Officer. Blanchard has Floodplain Ordinances. **Capital Improvements:** Yes **Planned Capital Projects for Hazard Mitigation:** None **Planned Property Protection Projects:** None **Comprehensive Plan:** Yes **Planning and/or Zoning Board:** Blanchard has planning and zoning in place. **Zoning Code:** Zoning Code is updated annually, so are Subdivision Regulations. **Floodplain Management:** Blanchard currently has a floodplain administrator. **Floodplain Manager:** The current floodplain manager is Ryan Conner, City Planner. **National Flood Insurance Program**. Blanchard does participate in FEMA's National Flood Insurance Program (NFIP). There are no repetitive loss properties in Blanchard, or reported policies. **Emergency Services and Management** **Ambulance Service:** McClain-Grady County EMS provides ambulance services for Blanchard. **Emergency Manager:** Blanchard currently has an emergency manager. **Emergency Operations Plan:** Blanchard has its own Emergency Operations Plan**.** **Fire Protection:** Blanchard Fire Department is located at 106. S Monroe Ave. The department has 4 paid firefighters and 30 volunteer firefighters. 12 of these are trained EMT's and 5 are trained as first responders. The district has 2 pump engines, 4 command SUV, 1 utility truck, 4 brush pumpers, and 2 tanker trucks. The department has 20 hand-held radios and 8 mobile radios, two portable generators, four light systems, and 16 SCBAs (self-contained breathing apparatus) and 16 spare bottles. Other resources include 2 spreaders, 2 cutters, four lift bags, one power unit, and ramps. The district encompasses 69 sq. miles, and extends, generally, from the county line east to May Ave., and extends, generally, from the county line east to May Ave., and from Buffalo Creek Rd. (2601" St.) in the south to SW 24111 St. in the north. The district is bounded by Newcastle, Goldsby, Cole and Dibble fire districts. Blanchard has mutual aid agreements with these fire departments, along with those of Tuttle, Lindsay, Purcell, Mustang, Moore/Norman, Mustang and Bridge Creek.	Blanchard can increase capability by becoming StormReady certified and FireWise Certified.

	FireWise Program: Blanchard does not participate in the Fire Wise Program. **Hospitals:** The closest hospital to Blanchard within McClain County is Purcell Municipal Hospital. Grady-Memorial Hospital and Norman Regional Hospital are both additional options, approximately 20 minutes from Blanchard. **Law Enforcement:** The City of Blanchard Police Department is located at 177 W. Broadway in Blanchard. The Department has 8 officers, 5 dispatchers, and 7 reserve officers/deputies. Their equipment includes 10 vehicles with radios, 14 portable radios, and 1 portable generator. **Mass Communications/Notifications:** Residents of Blanchard can receive notifications from the City of Blanchard Emergency Management through McClain County. **StormReady Program:** Blanchard does not participate in the StormReady program. **Warning Systems:** Blanchard has 7 storm sirens.	
Byars	**Building Codes:** The Town of Byars has no building codes. **Building Permits/Building Inspections:** Byars requires Floodplain Permits for Residents. McClain County handles the permitting for Floodplain. Ordinance was adopted in 2007. **Capital Improvements:** Yes **Planned Capital Projects for Hazard Mitigation:** No projects related to Hazard Mitigation were reported, though HMPAC members reported the Town was working on obtaining back-up generators for its community center and fire department. **Planned Property Protection Projects:** There are no such projects currently anticipated. **Comprehensive Plan:** Yes **Planning and/or Zoning Board:** Byars has no planning or zoning board. **Zoning Code:** Byars has no zoning codes. **Floodplain Management:** Byars participates in the NFIP. **Floodplain Manager:** McClain County Floodplain Administrator assists Byars with Floodplain Management. **National Flood Insurance Program:** Byars participates in FEMA's National Flood Insurance Program (NFIP). **Emergency Services and Management** **Ambulance Service:** Wadley's EMS provides ambulance services for Byars. **Emergency Manager:** Byars has an emergency manager.	Byars can increase capability by becoming StormReady certified and FireWise Certified.

	Emergency Operations Plan: Byars has its own Emergency Operations Plan in place. **Fire Protection:** Byars Fire District has one fire station, located at 2nd and Williams St. in Byars. The department has 10 volunteer firefighters, seven of whom are First Responders. The station is equipped with four brush pumpers, one 1250-gpm pump engine and one 2500-gpm tanker truck. The department has 12 hand-held radios and five mobile radios, one portable generator, and four SCBAs with four spare bottles. Other resources include one defibrillator. The district is 50 square miles, and extends from OK Hwy 133 in the west east to the Pontotoc County line, and from the Canadian River in the north to Garvin County in the south. Byars has mutual aid agreements with McClain County, and with Stratford, Pauls Valley and Wanette fire departments. Water is from groundwater wells supplied by the Town of Byars. **FireWise Program:** Byars does not participate in the FireWise Program. **Hospitals:** The closest hospital is the Purcell Municipal Hospital at 1500 N. Green Ave, Purcell Oklahoma. **Law Enforcement**: Byars relies upon McClain County Sheriff's office for all its law enforcement services. **Mass Communications/Notifications:** Residents of Byars can receive notifications from the Town of Byars through McClain County. **StormReady Program**: Byars does not participate in the StormReady program. **Warning Systems**: Byars has 1 warning siren located at its fire station, shown in Figure 4.2-5. Byars can utilize the County reverse 911 system.	
Dibble	**Building Codes**: The Town of Dibble has building codes. **Building Permits/Building Inspections:** Dibble has a floodplain ordinance and requires floodplain permits. **Capital Improvements:** No **Planned Capital Projects for Hazard Mitigation:** No information on projects was available. **Planned Property Protection Projects:** There are no such projects currently anticipated. **Comprehensive Plan:** Yes **Planning and/or Zoning Board:** Dibble does not have any zoning. **Zoning Code:** Dibble did not report any zoning codes. **Floodplain Management:** Dibble participates in the NFIP. **Floodplain Manager:** Has a flood plain manager. **National Flood Insurance Program**: Dibble participates in FEMA's National Flood Insurance Program (NFIP).	Dibble can increase capability by becoming FireWise Certified and StormReady Certified.

	Ambulance Service: Wadley EMS provides ambulance services for Dibble. **Emergency Manager:** Dibble does not have an emergency manager. **Emergency Operations Plan:** Dibble has its own Emergency Operations Plan in place. **Dibble Fire District:** The community of Dibble has 2 fire stations. The department has 22 volunteer firefighters, 11 of whom are First Responders. Dibble Fire Department has three brush pumpers, one 1000-gpm pump engine, two tanker trucks (2500 and 3000 gal), one command vehicle and one rescue truck. The department has 18 handheld radios and seven mobile radios, three portable generators, one light system, and 10 SCBAs with 30 spare bottles. Other resources include Jaws of Life, backboards, C-collars, and KT-750 carbide saw. The district is 63 square miles, and is bounded by Blanchard, Cole, Washington, Payne and Lindsay fire districts. It extends, generally, from Buffalo Creek Rd. (260th St.) to 150th St. in the south, and from the Grady County line east to just beyond OK Hwy 59. Dibble has mutual aid agreements with all other fire districts in McClain County, and with districts in Garvin and Grady counties. **FireWise Program**: Dibble does not participate in the FireWise Program. **Hospitals:** The closest hospital is the Purcell Municipal Hospital at 1500 N. Green Ave, Purcell Oklahoma. **Law Enforcement:** Dibble has its own police force, which consists of 3 officers. The department has 4 vehicles with radios and two bullhorns. **StormReady Program**: Dibble does not participate in the StormReady program. **Warning Systems:** Dibble has warning sirens.	
Goldsby	**Building Codes:** The Town of Goldsby's building codes were put in place in 2015. **Building Permits/Building Inspections:** Currently, Goldsby has building inspections and permits. Goldsby has floodplain ordinances and requires floodplain permits. **Capital Improvements:** Yes **Planned Capital Projects for Hazard Mitigation:** Yes **Planned Property Protection Projects:** There are no projects currently anticipated. **Comprehensive Plan:** Yes **Planning and/or Zoning Board:** Goldsby has a planning and zoning board. **Zoning Code:** Goldsby's zoning code was put into place in 1983. **Floodplain Management:** Goldsby participates in the NFIP.	Goldsby can increase capability by becoming StormReady certified and Firewise certified.

	Floodplain Manager: Yes **National Flood Insurance Program:** Goldsby participates in FEMA's National Flood Insurance Program (NFIP). **Ambulance Service:** EM Stat, McClain Grady, and Wadley EMS provides ambulance services for Goldsby. **Emergency Manager:** Goldsby has an emergency manager in place. **Emergency Operations Plan:** Goldsby has its own Emergency Operations Plan in place since 2003 **Fire Protection - Goldsby Fire:** The town of Goldsby has one fire station, located at 100 E. Center Rd. The department has three full-time firefighters and 18 volunteers, four of whom are trained EMTs and 10 First Responders. The station is equipped with four brush pumpers, three pump engines (750-gpm and 1250-gpm), and two tanker trucks. The department has 18 hand-held radios and seven mobile radios, three portable generators, three light systems, and 10 SCBAs with 10 spare bottles. Other resources include Jaws of Life, backboards, and one thermal imager. The district is 42 square miles, is bounded by Newcastle, Blanchard, Cole, Washington and Purcell fire districts, and extends, generally, from OK Hwy 9 in the north to OK Hwy 74 and 74B in the south, and from the Canadian River in the east to OK Hwy 74 and May Ave. in the west. Goldsby has mutual aid agreements with Blanchard, Cole, Purcell, Newcastle, Washington and Norman fire districts. **FireWise Program:** Goldsby does not participate in the FireWise Program. **Hospitals:** The closest hospitals are the Purcell Municipal Hospital at 1500 N Green Avenue and Norman Regional Hospital at 901 North Porter Avenue. **Law Enforcement:** Goldsby relies upon McClain County Sheriff's office for all its law enforcement services. **StormReady Program:** Goldsby does not participate in the StormReady program. **Warning Systems**: Goldsby has 4 warning sirens. One is located at Center & Main, one at 135 Ladd Rd, one at Lamar & 24th and one at the Water Plant.	
Purcell	**Building Codes:** The City of Purcell has building codes in place. The City's Code of Ordinances was last updated on December 3, 2018 and filed at the McClain County Court Clerk's Office as mandated by the State Statues. **Building Permits/Building Inspections:** Purcell requires building permits and inspections. Purcell has floodplain ordinances and requires floodplain permits.	Purcell can increase capability by becoming FireWise Certified and StormReady certified.

	Comprehensive Plan: Yes **Planned Capital Projects for Hazard Mitigation:** The City is working on two storm water/flood control projects along drainage ways within the city. **Capital Improvements:** Yes **Planned Property Protection Projects:** There are no such specific property protection projects currently planned. **Planning and/or Zoning Board:** Purcell has planning and zoning in place. **Zoning Code:** Purcell has zoning codes as part of its municipal ordinances. **Floodplain Management:** Purcell participates in the NFIP and has floodplain managers on staff. **Floodplain Manager:** The Oklahoma Floodplain Administrators reported that City of Purcell has a floodplain manager. **National Flood Insurance Program:** Purcell participates in FEMA's National Flood Insurance Program (NFIP). Purcell has ordinances that regulate development in the floodplain. **Ambulance Service:** Wadley EMS provides ambulance services for Purcell. **Emergency Manager:** Purcell has an emergency manager in place. **Emergency Operations Plan:** Purcell has its own Emergency Operations Plan in place. **Fire Protection - Purcell Fire:** Purcell has two fire stations. The base station is located at 1505 N. Green Ave., and Station 2 is south of town at 2611 Oklahoma 74, across from the Oklahoma Dept. of Transportation. The department has 12 paid firefighters and 23 volunteers, 14 of whom are trained EMTs and two First Responders. The station is equipped with four brush pumpers, two tanker truck, one ladder truck, four pump engines, one sedan, three pickups, one command vehicle, one HazMat trailer, and Jaws of Life extraction equipment. The department has 31 handheld radios and 17 mobile radios, three generators, two light systems, and 21 SCBAs with 29 spare bottles. The district is 69 sq. miles, and extends generally, from the Canadian River west to OK Hwy 24 and N3110 Rd. in the south and to N3130 Rd. in the north, and east of 1-35 to about Banner Rd. in the north. It is bounded by Goldsby, Washington, Payne and Wayne fire departments. Purcell has mutual aid agreements with Pauls Valley, Paola, Norman, Lindsay and Maysville fire departments. **FireWise Program:** Purcell does not participate in the FireWise Program. **Hospitals:** Purcell Municipal Hospital at 1500 N. Green Ave, Purcell is the primary hospital for much of	

	the county and surrounding areas to include Southern Cleveland County. **Law Enforcement:** The City of Purcell Police Department is located at 1515 N. Green Ave. in Purcell. The Department has 21 Certified LE officers, 11 Dispatchers, and 3 civilian personnel. Equipment includes 26 vehicles with radios, 21 MDT's, one Mobile Command Trailer, & 24 portable radios. **Warning Systems:** Purcell has 7 warning sirens that can be activated by the fire department. **StormReady Program:** Purcell does not participate in the StormReady program.	
Rosedale	**Building Codes:** The Town of Rosedale's did not report having building codes in place. **Building Permits/Building Inspections:** Currently, Rosedale does not have a building inspector. **Capital Improvements:** The Town of Rosedale did not have a Capital Needs Summary available. **Planned Capital Projects for Hazard Mitigation:** No projects related to Hazard Mitigation were reported. **Planned Property Protection Projects:** There are no such projects currently anticipated. **Comprehensive Plan:** The Town does not have a comprehensive plan. **Planning and/or Zoning Board:** Rosedale has no planning and zoning in place. **Zoning Code:** Rosedale did not report any zoning codes. **Floodplain Management:** The McClain County Floodplain Administrator assist Rosedale with Floodplain Management. **Floodplain Manager:** Rosedale does not have a floodplain manager. **National Flood Insurance Program:** Rosedale does not participate in FEMA's National Flood Insurance Program (NFIP). **Ambulance Service:** Wadley EMS provides ambulance services for Rosedale. **Emergency Manager:** Rosedale has an emergency manager. **Emergency Operations Plan:** Rosedale relies on the County's Emergency Operations Plan **Fire Protection - Rosedale Fire:** The Rosedale Fire District has one fire station, located at the intersection of Oklahoma Ave. and Main St. in Rosedale. The department has 8 volunteer firefighters, none of whom are trained EMTs or First Responders. The station is equipped with two brush pumpers, one 750-gpm pump engine, and one tanker truck. The department has 12 hand-held radios and five mobile radios, one portable generator, two light systems, and eight SCBAs with eight spare bottles. Other resources include one scuba compressor, 50 feet of refill	Rosedale can increase capability by having their own Emergency Operations Plan.

	hose and scuba adaptor. The district is 44 square miles, and is bounded by Wayne and Byars fire districts, and extends, generally, from the Garvin County line north to the Canadian River, and from N3230 Rd. in the west to OK Hwy 133 in the east. Rosedale FD has mutual aid agreements with Wayne, Byars, Paoli and Pauls Valley fire districts, as well as McClain County. **FireWise Program:** Rosedale does not participate in the FireWise Program. **Hospitals:** The closest hospital is the Purcell Municipal Hospital at 1500 N. Green Ave, Purcell Oklahoma. **Law Enforcement:** Rosedale relies upon McClain County Sheriff's office for all its law enforcement services. **StormReady Program:** Rosedale does not participate in the StormReady program. **Warning Systems:** Rosedale has 1 warning siren located at its fire station.	
Washington	**Building Codes:** The town of Washington adopted building codes in 2002. **Building Permits/Building Inspections:** Washington requires Floodplain Permits for Residents. McClain County handles the permitting for Floodplain. Ordinance was adopted in 2007. **Capital Improvements:** The town did not report a Capital Improvement plan. **Planned Capital Projects for Hazard Mitigation:** No projects related to Hazard Mitigation were reported. **Planned Property Protection Projects:** There are no such projects currently anticipated. **Comprehensive Plan:** Yes **Planning and/or Zoning Board:** Washington has planning and zoning policies in place. **Zoning Code:** Washington has subdivision and zoning regulations in place. **Floodplain Management:** Washington does not participate in the NFIP. **Floodplain Manager:** The McClain County Floodplain Administrator assists Washington with Floodplain Management. **National Flood Insurance Program:** Washington does not participate in FEMA's National Flood Insurance Program (NFIP). **Ambulance Service:** Wadley EMS provides ambulance services for Washington. **Emergency Manager:** Washington does not have an emergency manager. **Emergency Operations Plan:** Washington does not have its own Emergency Operations Plan. **Fire Protection -** Washington Fire: The Washington Fire District has one fire station, located at the intersection of OK Hwy 59 and Santa Fe Ave. The department has 17 volunteer firefighters, one of whom is a trained EMT and	Washington can increase capability by participating in FEMA's National Flood Insurance Program (NFIP).

	three First Responders. The station is equipped with four brush pumpers, two 1000-gal pump engines (780- and 750-gpm), two tanker trucks (1300 and 2250 gallons) and one utility/rescue vehicle. The department has 15 hand-held radios and eight mobile radios, four portable generators, three light systems, and 15 SCBAs with 30 spare bottles. The district 50 square miles, is bounded by Dibble, Cole, Goldsby, Purcell and Payne fire districts, and extends, generally, from OK Hwy 24 in the south to OK Hwy 74B in the north, and from N3130 Rd. in the east to as far west as N3070 Rd. Washington FD has mutual aid agreements with Purcell, Goldsby, Cole, Dibble, Payne, Wayne, Rosedale, Byars, Blanchard and Newcastle fire districts, as well as McClain County. **FireWise Program:** Washington does not participate in the FireWise Program. **Hospitals:** The closest hospital is the Purcell Municipal Hospital at 1500 N. Green Ave, Purcell Oklahoma. **Law Enforcement:** Washington Police Department has one officer and two reserve officers/deputies. The department has two vehicles with radios. **StormReady Program:** Washington does not participate in the StormReady program. **Warning Systems:** Washington has 4 warning sirens. Washington can utilize the County reverse 911 systems.	
Wayne	**Building Codes:** The Town of Wayne's building codes were last updated April 5, 2004. **Building Permits/Building Inspections:** Wayne requires Floodplain Permits for Residents. McClain County handles the permitting for Floodplain. Ordinance was adopted in 2007. **Capital Improvements:** The Town's Improvement Plan was updated in 2018. **Planned Capital Projects for Hazard Mitigation:** No Projects **Planned Property Protection Projects:** There are no such projects currently anticipated**.** **Comprehensive Plan:** The Town does not have a comprehensive plan. **Planning and/or Zoning Board:** Wayne does not have planning and zoning in place. **Floodplain Management:** Wayne is not directly impacted by any SFHA areas, but has a floodplain administrator and participates in the NFIP. **Floodplain Manager:** The town of Wayne has a floodplain manager. **National Flood Insurance Program:** Wayne does participate in FEMA's National Flood Insurance Program (NFIP). **Ambulance Service:** Wadley EMS provides ambulance services for Wayne. **Emergency Manager:** Wayne has an emergency manager.	Wayne can increase capability by becoming StormReady Certified and FireWise certified.

	Emergency Operations Plan: Wayne has its own Emergency Operations Plan currently being updated. **Fire Protection:** Wayne Fire Department is located at the intersection of Hwy 59 and Bayless St. The department has 14 volunteer firefighters. Of those, 1 is a trained EMT, 1 advanced EMT, 1 Paramedic, and 2 are First Responders. The station is equipped with three brush pumpers, three pump engines (one 1200-gpm, 1250-gpm, and 1450-gpm) and one tanker truck (2500-gmp). The department has 20 hand-held radios and nine mobile radios, one portable generator, and 12 SCBAs with 10 spare bottles. The district is 50 square miles, is bounded by Payne, Purcell and Rosedale fire districts, and extends, generally, from Garvin County north to the Canadian River, and from OK Hwy 74 in the west to N3230 Rd. in the east. Wayne FD has mutual aid agreements with Purcell, Payne, Rosedale, Byars, Maysville, Pauls Valley, Lexington, Lindsay fire districts, and with McClain County. **FireWise Program:** Wayne does not participate in the FireWise Program. **Hospitals:** The closest hospital is the Purcell Municipal Hospital at 1500 N. Green Ave, Purcell, Oklahoma. **Law Enforcement:** McClain County Sheriff's department provides law enforcement services to the Town of Wayne. Two Deputies assigned full time to the community. **Mass Communications/Notifications:** McClain County Mass Notification Partner **StormReady Program:** Wayne does not participate in the StormReady program. **Warning Systems:** Wayne has 2 warning sirens.	
Cole	**Building Codes:** The Town of Cole did not report having building codes in place. **Building Permits/Building Inspections:** Currently, Cole does not have a building inspector. **Capital Improvements:** The Town of Cole did not have a Capital Needs Summary available. **Planned Capital Projects for Hazard Mitigation:** No projects related to Hazard Mitigation were reported. **Planned Property Protection Projects:** There are no such projects currently anticipated. **Comprehensive Plan:** The Town does not have a comprehensive plan. **Planning and/or Zoning Board:** Cole has no planning and zoning in place. **Zoning Code:** Cole did not report any zoning codes. **Floodplain Management:** The McClain County Floodplain Administrator assists Cole with Floodplain Management. **National Flood Insurance Program:** Cole does not participate in the NFIP. **Ambulance Service:** Wadley EMS provides ambulance services for Cole. **Emergency Manager:** Cole has no emergency manager.	Cole can increase capability by participating in FEMA's National Flood Insurance Program (NFIP).

	Emergency Operations Plan: Cole relies on the County's Emergency Operations Plan. **Fire Protection - Cole Fire:** The Cole Fire District has one fire station, located at 27089 Main Street. The department has 8 volunteer firefighters, none of whom are trained EMTs or First Responders. The station is equipped with two brush pumpers, one 750-gpm pump engine, and one tanker truck. The department has 12 hand-held radios and five mobile radios, one portable generator, two light systems, and eight SCBAs with eight spare bottles. Other resources include one scuba compressor, 50 feet of refill hose and scuba adaptor. The district is 18 square miles, and is bounded by Blanchard, Goldsby, Dibble, and Washington fire districts, and extends, generally, from 240th street north to 290th street, and from Meridian in the west to Western Avenue in the east. Cole FD has mutual aid agreements with as well as McClain County. **FireWise Program:** Cole does not participate in the FireWise Program. **Hospitals:** The closest hospital is the Purcell Municipal Hospital at 1500 N. Green Ave, Purcell Oklahoma. **Law Enforcement:** Cole relies upon McClain County Sheriff's office for all its law enforcement services. **StormReady Program:** Cole does not participate in the StormReady **Warning Systems:** Cole has 1 warning sire located at Highway 74B, just east of the church	
Blanchard Public School	**Capital Improvements Plan:** Yes **Emergency Management Plan and/or procedures in place:** Yes **Budget to raise funds for mitigation (bond):** Yes **Ways to raise funds through public partnerships, corporate donations etc.:** Yes **Designated emergency manager (even as a secondary position):** Yes **PTO/PTA:** Yes **Training for teachers to practice natural hazard response:** Yes **Training for teachers/coaches to ensure consistency in evaluating lightning:** Yes **Post-Disaster Recovery Plan:** Yes **StormReady:** No **Firewise:** No **Building Codes:** Blanchard Public Schools abides by the codes governing the City of Blanchard and the states required codes for the school **Fire Protection:** Blanchard Fire Department is responsible for responding to a fire at Blanchard Public Schools. **Hospitals:** The closest hospital to Blanchard within McClain County is Purcell Municipal Hospital. Grady	Blanchard Public Schools can increase capability by becoming StormReady Certified and FireWise Certified.

	Memorial Hospital and Norman Regional Hospital are both additional options, approximately 20 minutes from Blanchard. **Ambulance Service:** McClain-Grady EMS.	
Dibble Public School	**Capital Improvements Plan:** Yes **Emergency Management Plan and/or procedures in place:** Yes **Budget to raise funds for mitigation (bond):** Yes **Ways to raise funds through public partnerships, corporate donations etc.:** Yes **Designated emergency manager (even as a secondary position):** Yes **PTO/PTA:** Yes **Training for teachers to practice natural hazard response:** Yes **Training for teachers/coaches to ensure consistency in evaluating lightning:** Yes **Post-Disaster Recovery Plan:** Yes **StormReady:** No **Firewise:** No **Building Codes:** Dibble Public Schools abides by the states required codes for the schools. **Fire Protection:** Dibble Fire Department is responsible for responding to a fire at Dibble Public Schools. **Hospitals:** The closest hospital to Dibble within McClain County is Purcell Municipal Hospital. Grady Memorial Hospital and Norman Regional Hospital are both additional options. **Ambulance Service:** McClain-Grady EMS, Wadley's EMS.	Dibble Public Schools can increase capability by becoming FireWise Certified and StormReady Certified.
Purcell Public School	**Capital Improvements Plan:** Yes **Emergency Management Plan and/or procedures in place:** Yes **Budget to raise funds for mitigation (bond):** Yes **Ways to raise funds through public partnerships, corporate donations etc.:** Yes **Designated emergency manager (even as a secondary position):** Yes **PTO/PTA:** Yes **Training for teachers to practice natural hazard response:** Yes **Training for teachers/coaches to ensure consistency in evaluating lightning:** Yes **Post-Disaster Recovery Plan:** Yes **StormReady:** No **FireWise:** No **Building Codes:** Purcell Public Schools abides by the codes governing the City of Purcell and the states required codes for the schools. **Fire Protection:** Purcell Fire Department is responsible for responding to a fire at Purcell Public Schools.	Purcell Public Schools can increase capability by becoming StormReady Certified and FireWise Certified.

	Hospitals: The closest hospital to Purcell is Purcell Municipal Hospital. **Ambulance Service:** Wadley's EMS.	
Washington Public School	**Capital Improvements Plan:** Yes **Emergency Management Plan and/or procedures in place:** Yes **Budget to raise funds for mitigation (bond):** Yes **Ways to raise funds through public partnerships, corporate donations etc.:** Yes **Designated emergency manager (even as a secondary position):** Yes **PTO/PTA:** Yes **Training for teachers to practice natural hazard response:** Yes **Training for teachers/coaches to ensure consistency in evaluating lightning:** Yes **Post-Disaster Recovery Plan:** Yes **StormReady:** No **Firewise:** No **Building Codes:** Washington Public Schools abides by the codes governing the Town of Washington and the states required codes for the school. **Fire Protection:** Washington Fire Department is responsible for responding to a fire at Washington Public Schools. **Hospitals:** The closest hospital to Washington within McClain County is Purcell Municipal Hospital. **Ambulance Service:** Wadley's EMS	Washington Public Schools can increase capability by becoming FireWise Certified and StormReady certified.
Wayne Public School	**Capital Improvements Plan:** Yes **Emergency Management Plan and/or procedures in place:** Yes **Budget to raise funds for mitigation (bond):** Yes **Ways to raise funds through public partnerships, corporate donations etc.:** Yes **Designated emergency manager (even as a secondary position):** Yes **PTO/PTA:** Yes **Training for teachers to practice natural hazard response:** Yes **Training for teachers/coaches to ensure consistency in evaluating lightning:** Yes **Post-Disaster Recovery Plan:** Yes **StormReady:** No **Firewise:** No **Building Codes:** Wayne Public Schools abides by the codes governing the Town of Wayne and the states required codes for the school. **Fire Protection:** Wayne Fire Department is responsible for responding to a fire at Wayne Public Schools. **Hospitals:** The closest hospital to Wayne within McClain County is Purcell Municipal Hospital.	Wayne Public Schools can increase capability by becoming StormReady Certified and FireWise certified.

	Ambulance Service: Wadley's EMS.	
Mid-America Technology Center	**Capital Improvements Plan:** Yes **Emergency Management Plan and/or procedures in place:** Yes **Budget to raise funds for mitigation (bond):** Yes **Ways to raise funds through public partnerships, corporate donations etc.:** Yes **Designated emergency manager (even as a secondary position):** Yes **PTO/PTA:** Yes **Training for teachers to practice natural hazard response:** Yes **Training for teachers/coaches to ensure consistency in evaluating lightning:** Yes **Post-Disaster Recovery Plan:** Yes **StormReady:** No **Firewise:** No **Building Codes:** Mid-America abides by the state's required codes for the schools. **Fire Protection:** Wayne Fire Department is responsible for responding to a fire at Mid-America Technology Center. **Hospitals:** The closest hospital to Mid-America Technology Center is Purcell Municipal Hospital. **Ambulance Service:** Wadley's EMS.	Mid-America Technology Center can increase capability by becoming FireWise Certified and StormReady Certified.

4.2 NIFP Participation

Jurisdictions who Participate in NFIP:

Jurisdiction	How many Repetitive Loss/Severe Repetitive Loss Properties in Jurisdiction and what Type (Residential, Commercial, or Industrial)	How Jurisdiction will Continue to Remain Compliant with NFIP
McClain County	1 Repetitive Loss-Residential	McClain County will continue to enforce Floodplain ordinances in Special Flood Hazard Areas to maintain compliance with NFIP requirements. McClain Co will also increase efforts to educate citizens on the benefits of having NFIP flood insurance.
Blanchard	0	Blanchard will continue to maintain and update floodplain ordinances in line with NFIP Requirements.
Byars	0	Byars will continue to enforce Floodplain ordinances in Special Flood Hazard Areas to maintain compliance with NFIP requirements. Byars will also continue to promote an encourage flood insurance and public participation in the NFIP, through

		public education and public service initiatives.
Dibble	0	Dibble will continue to enforce Floodplain ordinances in Special Flood Hazard Areas to maintain compliance with NFIP requirements.
Goldsby	0	Goldsby will continue to maintain and update floodplain ordinances in line with NFIP Requirements.
Purcell	1 Repetitive Loss-Commercial	Purcell will continue to enforce Floodplain ordinances in Special Flood Hazard Areas to maintain compliance with NFIP requirements. Purcell will also continue to promote an encourage flood insurance and public participation in the NFIP, through public education and public service initiatives.
Wayne	0	Wayne will continue to enforce Floodplain ordinances in Special Flood Hazard Areas to maintain compliance with NFIP requirements. Wayne will also increase efforts to educate citizens on the benefits of having NFIP flood insurance.

Jurisdictions who do not Participate in NFIP

Jurisdiction	Reason for not Participating in NFIP
Cole	Cole has showed no interest in joining the NFIP until this past year. They are in the process now of working with FEMA to become NFIP Compliant.
Rosedale	Rosedale has showed no interest in joining NFIP.
Washington	Washington has showed no interest in joining NFIP.

4.3 Mitigation Goals

Goal 1: Minimize loss of life and property.
Goal 2: Protect public health and safety.
Goal 3: Increase public awareness of risk from natural hazards/disasters.
Goal 4: Reduce risk and effects of natural hazards/disasters.
Goal 5: Identify hazards and assess risk for Planning Area.
Goal 6: Improve building construction to reduce dangers of natural hazards.

4.4 Action Items

Action Item 1	Develop an All-Hazard Public Information, Education, and Awareness Program.
Hazard(s) Addressed	*Dam Failure, Drought, Earthquake, Extreme Heat, Flood, Hail, High Winds, Lightning, Severe Winter Storms, Tornado, Wildfire

Mitigation Action Type (Highlight box that applies.)	Local Plans and Regulations	Structure and Infrastructure Projects	Natural Systems Protection	Education and Awareness Programs	5% Projects
Jurisdiction(s)	All Jurisdictions				
Action	An All-Hazards Public Information and Education Strategy to inform the public of the imminent natural and man-made hazards, and actions the public can take to protect themselves from injury and death to protect their property from damage and destruction.				
Responsible Party	County & Local Emergency Manager				
Potential Implementation Timeline	Ongoing as funding sources become available.				
Cost	$5,000				
Potential Funding Sources	Local/General Budget, Federal Emergency Management Agency (FEMA) PDM and/or HMGP.				

***Dam Failure impacts only Unincorporated McClain County.**

Action Item 2	**Educate the public on the importance of a Family Disaster Plan and Supply Kit.**				
Hazard(s) Addressed	*Dam Failure, Drought, Earthquake, Extreme Heat, Flood, Hail, High Winds, Lightning, Severe Winter Storms, Tornado, Wildfire				
Mitigation Action Type (Highlight box that applies.)	Local Plans and Regulations	Structure and Infrastructure Projects	Natural Systems Protection	Education and Awareness Programs	5% Projects
Jurisdiction(s)	All Jurisdictions				
Action	An informed public that understands the importance of having a Family Disaster Plan and an emergency supply kit.				
Responsible Party	County Emergency Management Manager and all Local Emergency Management Managers.				
Potential Implementation Timeline	Ongoing as funding sources become available.				
Cost	Undetermined				
Potential Funding Sources	Local/General Budget, Federal Emergency Management Agency (FEMA) PDM and/or HMGP.				

***Dam Failure impacts only Unincorporated McClain County.**

Action Item 3	**Develop an inventory, registry and database of Special Needs Populations (elderly, poor, deaf, blind, etc.) that may require special assistance, that tie in with 9-1-1, GIS Systems, etc., so that vulnerable populations within the community can be checked on, notified, or evacuated effectively in the event of disasters.**

Hazard(s) Addressed	*Dam Failure, Drought, Earthquake, Extreme Heat, Flood, Hail, High Winds, Lightning, Severe Winter Storms, Tornado, Wildfire
Mitigation Action Type (Highlight box that applies.)	Local Plans and Regulations (highlighted) | Structure and Infrastructure Projects | Natural Systems Protection | Education and Awareness Programs | 5% Projects
Jurisdiction(s)	All Jurisdictions
Action	Identification and location of most vulnerable populations and incorporation of response plan with existing emergency response providers' response operations.
Responsible Party	County & Local Emergency Manager.
Potential Implementation Timeline	1-2 Years
Cost	$2,000
Potential Funding Sources	Local/General Budget Grant programs administered by FEMA

***Dam Failure impacts only Unincorporated McClain County.**

Action Item 4	**Outdoor Early Warning Devices**
Hazard(s) Addressed	High Winds, Tornado
Mitigation Action Type (Highlight box that applies.)	Local Plans and Regulations | Structure and Infrastructure Projects (highlighted) | Natural Systems Protection | Education and Awareness Programs | 5% Projects
Jurisdiction(s)	All Jurisdictions
Action	Upgrade existing warning systems with updated technology.
Responsible Party	McClain County Emergency Management Director, All Local Emergency Managers, and Fire Chiefs.
Potential Implementation Timeline	1-3 Years
Cost	$75,000

Potential Funding Sources	Local and FEMA HMGP/PDM.

Action Item 5	**Acquire and distribute NOAA Weather Radios to all Critical Facilities and the public.**
Hazard(s) Addressed	*Dam Failure, Flood, High Winds, Tornado, Severe Winter Storm
Mitigation Action Type (Highlight box that applies.)	Local Plans and Regulations | Structure and Infrastructure Projects | Natural Systems Protection | Education and Awareness Programs | 5% Projects
Jurisdiction(s)	All Jurisdictions
Action	All Critical and Essential Facilities, and the public would have NOAA Weather Radios in the offices, businesses and residences to be warned of eminent hazardous weather events
Responsible Party	McClain County Emergency Management Director, All Local Emergency Managers, and Fire Chiefs.
Potential Implementation Timeline	1-5 Years
Cost	$200.00 per year
Potential Funding Sources	Local and FEMA HMGP/PDM.

***Dam Failure impacts only Unincorporated McClain County.**

Action Item 6	**Post-Event Debris Management Program**
Hazard(s) Addressed	Flood, High Wind, Tornado, Wildfire, Severe Winter Storm
Mitigation Action Type (Highlight box that applies.)	Local Plans and Regulations | Structure and Infrastructure Projects | Natural Systems Protection | Education and Awareness Programs | 5% Projects
Jurisdiction(s)	All Jurisdictions
Action	Develop, implement, and provide ordinance for Debris Management according to federal, state, and local guidelines.
Responsible Party	McClain County Emergency Management Director and All Local Emergency Managers.
Potential Implementation Timeline	1 Year
Cost	$1000 annual
Potential Funding Sources	Local Budget

Action Item 7	Individual Backup Generator Program
Hazard(s) Addressed	Flood, High Wind, Tornado, Wildfire, Severe Winter Storm
Mitigation Action Type (Highlight box that applies.)	Local Plans and Regulations; Structure and Infrastructure Projects; Natural Systems Protection; Education and Awareness Programs; 5% Projects
Jurisdiction(s)	All Jurisdictions
Action	Assess which critical facilities and schools do not have back-up generators and create a plan to assist them in obtaining one.
Responsible Party	McClain County Emergency Management Director and All Local Emergency Managers.
Potential Implementation Timeline	1-5 Year.
Cost	Unknown
Potential Funding Sources	Local Budget

Action Item 8	Alternate Power Source
Hazard(s) Addressed	Flood, Earthquake, Hail, High Wind, Lightning, Tornado, Severe Winter Storm
Mitigation Action Type (Highlight box that applies.)	Local Plans and Regulations; Structure and Infrastructure Projects; Natural Systems Protection; Education and Awareness Programs; 5% Projects
Jurisdiction(s)	All Jurisdictions
Action	Provide backup generators for facilities critical for government operations, safety, and health.
Responsible Party	McClain County Emergency Manager and All Local Emergency Managers.
Potential Implementation Timeline	1-5 Years
Cost	300,000
Potential Funding Sources	Local/General Budget, FEMA PDM and/or HMGP.

Action Item 9	Above-Ground Fuel Pump with Backup Generator
Hazard(s) Addressed	*Dam Failure, Flood, Tornado, Wildfire, Severe Winter Storm

Mitigation Action Type (Highlight box that applies.)	Local Plans and Regulations	Structure and Infrastructure Projects	Natural Systems Protection	Education and Awareness Programs	5% Projects
Jurisdiction(s)	All Jurisdictions				
Action	Plan, design and implement above ground fuel pumps to provide priority fuel to emergency/critical vehicles (government, Police, Fire, ambulance, etc.) in times of emergency or power outage, so that emergency and First Responder personnel can meet the needs of the community.				
Responsible Party	McClain County Emergency Manager and All Local Emergency Managers.				
Potential Implementation Timeline	1-5 Years				
Cost	$2,000				
Potential Funding Sources	None anticipated				

***Dam Failure impacts only Unincorporated McClain County.**

Action Item 10	**Protective Window Film**				
Hazard(s) Addressed	Hail, High Wind, Tornado				
Mitigation Action Type (Highlight box that applies.)	Local Plans and Regulations	Structure and Infrastructure Projects	Natural Systems Protection	Education and Awareness Programs	5% Projects
Jurisdiction(s)	All Jurisdictions				
Action	Install protective window film on critical facility windows.				
Responsible Party	McClain County Emergency Manager, All Local Emergency Managers, and All Planning Area School Maintenance Supervisor/Emergency Manager.				
Potential Implementation Timeline	1-3 Years				
Cost	Unknown				
Potential Funding Sources	Local/General Budget, FEMA PDM and/or HMGP.				

Action Item 11	**Tree Trimming and Branch Removal Program**				
Hazard(s) Addressed	*Dam Failure, Flood, Hail, High Wind, Tornado, Wildfire, Severe Winter Storm				
Mitigation Action Type (Highlight box that applies.)	Local Plans and Regulations	Structure and Infrastructure Projects	Natural Systems Protection	Education and Awareness Programs	5% Projects

Jurisdiction(s)	All Jurisdictions
Action	Perform annual maintenance for routine trimming of overhanging tree and branches from power lines and drainage areas.
Responsible Party	McClain County Commissioners, Public Works Director, Local City Manager
Potential Implementation Timeline	Annually
Cost	Unknown
Potential Funding Sources	Local/General budget, Local Utility Providers

***Dam Failure impacts only Unincorporated McClain County.**

Action Item 12	**StormReady Business**				
Hazard(s) Addressed	Drought, Extreme Heat, Flood, Hail, High Wind, Lightning, Tornado, Wildfire, Severe Winter Storm				
Mitigation Action Type (Highlight box that applies.)	Local Plans and Regulations	Structure and Infrastructure Projects	Natural Systems Protection	Education and Awareness Programs	5% Projects
Jurisdiction(s)	All Jurisdictions*				
Action	A public-private partnership in increasing the awareness and preparedness of local businesses and other high-census locations by establishing a "storm ready certification" process with the national Weather Service.				
Responsible Party	County & Local Emergency Managers				
Potential Implementation Timeline	Ongoing, McClain County is certified.				
Cost	Unknown				
Potential Funding Sources	Local/General budget, HMGP				

***Unincorporated McClain County is the only jurisdiction StormReady.**

Action Item 13	**Public School Critical Facilities Safe Room**				
Hazard(s) Addressed	High Wind, Tornado				
Mitigation Action Type (Highlight box that applies.)	Local Plans and Regulations	Structure and Infrastructure Projects	Natural Systems Protection	Education and Awareness Programs	5% Projects
Jurisdiction(s)	Blanchard Public Schools, Dibble Public Schools, Washington Public Schools, Purcell Public Schools, Wayne Public Schools, Mid-America Technology Center				

Action	Provide assistance for safe room installation to critical facilities in the Planning Area Schools.
Responsible Party	County and Local Emergency Managers, School Superintendents
Potential Implementation Timeline	1-5 Years
Cost	Unknown
Potential Funding Sources	School Bond Issues/General budget, Federal Emergency Management Agency (FEMA) PDM and/or HMGP.

Action Item 14	**Individual Safe Room Rebate Program**				
Hazard(s) Addressed	High Wind, Tornado				
Mitigation Action Type (Highlight box that applies.)	Local Plans and Regulations	Structure and Infrastructure Projects	Natural Systems Protection	Education and Awareness Programs	5% Projects
Jurisdiction(s)	Blanchard, Byars, Cole, Dibble, Goldsby, Purcell, Rosedale, Washington, Wayne				
Action	Financial Assistance to provide safe rooms to citizens in all of the planning area.				
Responsible Party	County and Local Emergency Managers				
Potential Implementation Timeline	1-5 Years				
Cost	2,000 rebate per Safe Room Location				
Potential Funding Sources	FEMA PDM and/or HMGP				

Action Item 15	**Safe Room/Storm Shelter Database**				
Hazard(s) Addressed	High Wind, Tornado				
Mitigation Action Type (Highlight box that applies.)	Local Plans and Regulations	Structure and Infrastructure Projects	Natural Systems Protection	Education and Awareness Programs	5% Projects
Jurisdiction(s)	All Jurisdictions				
Action	Develop and maintain a safe room database for each individual safe room, basement, or other area of approved safety.				
Responsible Party	County and Local Emergency Managers				

Potential Implementation Timeline	1-5 Years
Cost	Unknown
Potential Funding Sources	Local Funds

Action Item 16	**Emergency Exercise Training**
Hazard(s) Addressed	*Dam Failure, Drought, Earthquake, Extreme Heat, Flood, Hail. High Winds, Lightning, Severe Winter Storm, Tornado, Wildfire
Mitigation Action Type (Highlight box that applies.)	Local Plans and Regulations | Structure and Infrastructure Projects | Natural Systems Protection | Education and Awareness Programs | 5% Projects
Jurisdiction(s)	All Jurisdictions
Action	Emergency Response Exercises.
Responsible Party	County & Local Emergency Managers
Potential Implementation Timeline	Annual
Cost	Unknown
Potential Funding Sources	General/Local Budget, HMGP and PDM

***Dam Failure impacts only Unincorporated McClain County.**

Action Item 17	**Promote Xeriscaping**
Hazard(s) Addressed	Drought
Mitigation Action Type (Highlight box that applies.)	Local Plans and Regulations | Structure and Infrastructure Projects | Natural Systems Protection | Education and Awareness Programs | 5% Projects
Jurisdiction(s)	All Jurisdictions
Action	Participants will landscape with low impact/xeriscape to reduce water use, reduce storm water runoff.
Responsible Party	County and Local Emergency Managers
Potential Implementation Timeline	1-5 Years
Cost	Variable

Potential Funding Sources	Grant Resources

Action Item 18	**Lightning Detection Systems**
Hazard(s) Addressed	Lightning
Mitigation Action Type (Highlight box that applies.)	Local Plans and Regulations / Structure and Infrastructure Projects / Natural Systems Protection / Education and Awareness Programs / 5% Projects
Jurisdiction(s)	All Jurisdictions
Action	Purchase and install the use of lightning protection systems to prevent structural damage.
Responsible Party	County and Local Emergency Managers
Potential Implementation Timeline	1-5 years
Cost	Unknown
Potential Funding Sources	Local, FEMA HMGP and PDM

Action Item 19	**Surge Protection**
Hazard(s) Addressed	Lightning
Mitigation Action Type (Highlight box that applies.)	Local Plans and Regulations / Structure and Infrastructure Projects / Natural Systems Protection / Education and Awareness Programs / 5% Projects
Jurisdiction(s)	All Jurisdictions
Action	Provide surge protection to critical facilities.
Responsible Party	County and Local Emergency Managers
Potential Implementation Timeline	1-5 years
Cost	TBD
Potential Funding Sources	Local/General Budget, FEMA HMGP and PDM

Action Item 20	**Provide Covered Parking**

Hazard(s) Addressed	Hail
Mitigation Action Type (Highlight box that applies.)	Local Plans and Regulations | Structure and Infrastructure Projects | Natural Systems Protection | Education and Awareness Programs | 5% Projects
Jurisdiction(s)	All Jurisdictions
Action	Covered Parking to provide protection against hail damage for emergency/critical vehicles, busses and school vehicles.
Responsible Party	County and Local Emergency Managers
Potential Implementation Timeline	1-5 years
Cost	TBD
Potential Funding Sources	Local/General Budget, FEMA HMGP and PDM

Action Item 21	**Cooling/Warming Stations/Facilities**
Hazard(s) Addressed	Extreme Heat, Severe Winter Storms
Mitigation Action Type (Highlight box that applies.)	Local Plans and Regulations | Structure and Infrastructure Projects | Natural Systems Protection | Education and Awareness Programs | 5% Projects
Jurisdiction(s)	Blanchard, Byars, Cole, Dibble, Goldsby, Purcell, Rosedale, Washington, Wayne
Action	The Planning Area will work with local churches and other non-profit organizations to inform citizens and deploy cooling/warming stations at designated building providing shelter during extreme heat and Severe Winter Storms.
Responsible Party	County and Local Emergency Managers
Potential Implementation Timeline	Ongoing and continuing
Cost	Unknown
Potential Funding Sources	Local/General Budget

Action Item 22	**Vegetation Management**
Hazard(s) Addressed	Wildfire

Mitigation Action Type (Highlight box that applies.)	Local Plans and Regulations	Structure and Infrastructure Projects	Natural Systems Protection	Education and Awareness Programs	5% Projects
Jurisdiction(s)	All Jurisdictions				
Action	Encourage and assist in the removal and control of the invasive easter red cedar population and other wildland growth to control water consumption and wildfire prevention.				
Responsible Party	County and Local Emergency Managers				
Potential Implementation Timeline	Ongoing and continuing				
Cost	Unknown				
Potential Funding Sources	Local/General Budget, FEMA, Forestry				

Action Item 23	**Adopt more resilient building standards for new or remodeled structures/update existing residential and commercial building codes.**				
Hazard(s) Addressed	Wildfire				
Mitigation Action Type (Highlight box that applies.)	Local Plans and Regulations	Structure and Infrastructure Projects	Natural Systems Protection	Education and Awareness Programs	5% Projects
Jurisdiction(s)	Blanchard, Purcell, Goldsby, Dibble				
Action	New or remodeled public buildings will use more resilient building codes.				
Responsible Party	Local Emergency Mangers, Local City Managers				
Potential Implementation Timeline	Ongoing and continuing				
Cost	Unknown				
Potential Funding Sources	None				

Action Item 24	**FireWise Awareness Program**				
Hazard(s) Addressed	Wildfire				
Mitigation Action Type (Highlight box that applies.)	Local Plans and Regulations	Structure and Infrastructure Projects	Natural Systems Protection	Education and Awareness Programs	5% Projects

Jurisdiction(s)	Blanchard, Byars, Cole, Dibble, Goldsby, Purcell, Rosedale, Washington, Wayne
Action	Works with Forestry Service and other agencies as need to develop a Firewise Plan.
Responsible Party	County and Local Emergency Managers
Potential Implementation Timeline	1-5Years
Cost	TBD
Potential Funding Sources	Local/General Budget

Action Item 25	**Secondary Water Supply**				
Hazard(s) Addressed	Wildfire				
Mitigation Action Type (Highlight box that applies.)	Local Plans and Regulations	Structure and Infrastructure Projects	Natural Systems Protection	Education and Awareness Programs	5% Projects
Jurisdiction(s)	All Jurisdictions				
Action	Implement secondary water source for planning area for availability of water to fight wildfires.				
Responsible Party	County and Local Emergency Managers, Board of Commissioners, Local Fire Departments, Public Works				
Potential Implementation Timeline	On-going				
Cost	TBD				
Potential Funding Sources	Local/General Budget, HMP, PDA				

Action Item 26	**Portable Motorist Information Signs**				
Hazard(s) Addressed	*Dam Failure, Drought, Earthquake, Extreme Heat, Flood, Hail, High Winds, Lightning, Severe Winter Storms, Tornado, Wildfire				
Mitigation Action Type (Highlight box that applies.)	Local Plans and Regulations	Structure and Infrastructure Projects	Natural Systems Protection	Education and Awareness Programs	5% Projects
Jurisdiction(s)	All Jurisdictions				
Action	Acquire portable, solar, programmable message signs to provide safety and mitigation information during hazard occurrences.				
Responsible Party	County and Local Emergency Managers, County Commissioner Board				

Potential Implementation Timeline	On-going
Cost	Variable
Potential Funding Sources	Local/General Budget

***Dam Failure impacts only Unincorporated McClain County.**

Action Item 27	**Underground Electrical Lines**
Hazard(s) Addressed	Hail, High Winds, Lightning, Tornado, Wildfire, Severe Winter Storm
Mitigation Action Type (Highlight box that applies.)	Local Plans and Regulations (highlighted) | Structure and Infrastructure Projects | Natural Systems Protection | Education and Awareness Programs | 5% Projects
Jurisdiction(s)	All Jurisdictions
Action	Planning Area will collaborate with the local utility companies to plan or require the installation of new underground power lines where possible.
Responsible Party	County and Local Emergency Managers, Local Utility Companies
Potential Implementation Timeline	On-going and continuing
Cost	Variable
Potential Funding Sources	Local/General Budget, Local Utility Departments.

Action Item 28	**NFIP Program**
Hazard(s) Addressed	*Dam Failure, Flood
Mitigation Action Type (Highlight box that applies.)	Local Plans and Regulations | Structure and Infrastructure Projects | Natural Systems Protection | Education and Awareness Programs (highlighted) | 5% Projects
Jurisdiction(s)	All Jurisdictions
Action	Educate and encourage participation in the National Flood Insurance Program (NFIP) for all current structures via social media, County Website, Local City/Town Offices, and Courthouse.
Responsible Party	County Floodplain Manager, Local Floodplain Managers
Potential Implementation Timeline	Annually
Cost	TBD

Potential Funding Sources	Local/General Budget

***Dam Failure impacts only Unincorporated McClain County.**

Action Item 29	**Prepare a comprehensive basin-wide Flood and Drainage Annex to the Multi-Hazard Mitigation Plan for all watersheds within the jurisdiction. The Annex should identify all flooding problems within the jurisdiction, and recommend the most cost-effective and politically acceptable solutions.**				
Hazard(s) Addressed	Dam Failure, Flood				
Mitigation Action Type (Highlight box that applies.)	Local Plans and Regulations	Structure and Infrastructure Projects	Natural Systems Protection	Education and Awareness Programs	5% Projects
Jurisdiction(s)	All Jurisdictions				
Action	A comprehensive Flood and Drainage Annex for all watersheds within the planning area that identifies flooding problems and provides guidance for cost-effective and politically acceptable actions to correct the problems, and to address future development impacts and appropriate mitigation measures.				
Responsible Party	County Floodplain Manager, Local Floodplain Managers				
Potential Implementation Timeline	In progress				
Cost	$2000.00				
Potential Funding Sources	Local/General Budget				

Action Item 30	**Acquire and remove floodplain and (future) repetitive loss properties where the community's Repetitive Loss and Flood and Drainage Annex to the Multi-Hazard Mitigation Plans identify acquisition as the most cost-effective and desirable mitigation measure.**				
Hazard(s) Addressed	*Dam Failure, Flood				
Mitigation Action Type (Highlight box that applies.)	Local Plans and Regulations	Structure and Infrastructure Projects	Natural Systems Protection	Education and Awareness Programs	5% Projects
Jurisdiction(s)	McClain County, City of Purcell				
Action	Acquisition of the community's most severely vulnerable flood-risk properties, and relocation of flood victim families to safe homes out of the floodplain and harm's way.				
Responsible Party	County Floodplain Manager, Local Floodplain Managers, Board of County Commissioners				

Potential Implementation Timeline	2019-ongoing
Cost	TBD
Potential Funding Sources	Local/General Budget, FEMA HMGP/PDM

***Dam Failure impacts only Unincorporated McClain County.**

Action Item 31	**At Risk Transportation Routes**
Hazard(s) Addressed	*Dam Failure, Flood
Mitigation Action Type (Highlight box that applies.)	Local Plans and Regulations | Structure and Infrastructure Projects | Natural Systems Protection | Education and Awareness Programs | 5% Projects
Jurisdiction(s)	All Jurisdictions
Action	Identify those transportation routes that at risk of Dam Failure and Flooding.
Responsible Party	County & Local Emergency Managers, County Commissioners
Potential Implementation Timeline	Ongoing
Cost	Variable
Potential Funding Sources	HMGP, General/Local Budget

***Dam Failure impacts only Unincorporated McClain County.**

Action Item 32	**Drainage Improvement**
Hazard(s) Addressed	*Dam Failure, Flood
Mitigation Action Type (Highlight box that applies.)	Local Plans and Regulations | Structure and Infrastructure Projects | Natural Systems Protection | Education and Awareness Programs | 5% Projects
Jurisdiction(s)	All Jurisdictions
Action	Review the infrastructure to minimize flooding, addressing and mitigating such items as drainage improvements and creating reservoir ponds in heavy residential/commercial developments.
Responsible Party	County & Local Emergency Managers, Public Works Departments
Potential Implementation Timeline	Ongoing

Cost	Variable
Potential Funding Sources	HMGP, General/Local Budget

***Dam Failure impacts only Unincorporated McClain County.**

Action Item 33	**Establish Hazard Dam Registration and Safety Checks**
Hazard(s) Addressed	Dam Failure
Mitigation Action Type (Highlight box that applies.)	Local Plans and Regulations (highlighted) | Structure and Infrastructure Projects | Natural Systems Protection | Education and Awareness Programs | 5% Projects
Jurisdiction(s)	McClain County
Action	The Planning Area will establish plans and regulations for Hazard Dams to be registered and inspected on a bi-annual basis.
Responsible Party	County & Local Emergency Managers, Floodplain Managers
Potential Implementation Timeline	Ongoing
Cost	N/A
Potential Funding Sources	General/Local Budget

Action Item 34	**Equipment and Furniture Strap Program**
Hazard(s) Addressed	Earthquake
Mitigation Action Type (Highlight box that applies.)	Local Plans and Regulations | Structure and Infrastructure Projects (highlighted) | Natural Systems Protection | Education and Awareness Programs | 5% Projects
Jurisdiction(s)	All Jurisdictions
Action	To purchase and install equipment and furniture straps for critical facilities and Public-School Jurisdictions to reduce the risk of damage and injury during an earthquake.
Responsible Party	County & Local Emergency Managers, Public School Superintendent or Emergency Manager
Potential Implementation Timeline	1-5 years
Cost	$5,000.00

Potential Funding Sources	General/Local Budget, HMPG, PDM

Action Item 35	**Hurricane Straps**
Hazard(s) Addressed	High Winds, Tornados
Mitigation Action Type (Highlight box that applies.)	Local Plans and Regulations | Structure and Infrastructure Projects | Natural Systems Protection | Education and Awareness Programs | 5% Projects
Jurisdiction(s)	All Jurisdictions
Action	Install Hurricane Straps and other structural projects to better secure mobile homes and roof structures to reduce the risk of damage from high winds and Tornados to critical facilities.
Responsible Party	County & Local Emergency Managers, School Superintendents
Potential Implementation Timeline	1-5 Years
Cost	$5,000 a year
Potential Funding Sources	General/Local Budget, HMPG/PDM or other grants

Action Item 36	**Potable Water Source**
Hazard(s) Addressed	Drought, Extreme Heat, Flood, Tornado, Severe Winter Storm
Mitigation Action Type (Highlight box that applies.)	Local Plans and Regulations | Structure and Infrastructure Projects | Natural Systems Protection | Education and Awareness Programs | 5% Projects
Jurisdiction(s)	All Jurisdictions
Action	Purchase a “water buffalo” as a water source for sanitation purposes.
Responsible Party	County & Local Emergency Managers, Public Works
Potential Implementation Timeline	1-5 Years
Cost	$25,000.00
Potential Funding Sources	General/Local Budget, HMPG/PDM or other grants

Action Item 37	Storm Spotter Training Program
Hazard(s) Addressed	High Wind, Tornado, Severe Winter Storm
Mitigation Action Type (Highlight box that applies.)	Local Plans and Regulations | Structure and Infrastructure Projects | Natural Systems Protection | Education and Awareness Programs | 5% Projects
Jurisdiction(s)	All Jurisdictions
Action	Facilitate annual NWS Storm Spotter Training
Responsible Party	County & Local Emergency Managers
Potential Implementation Timeline	Annual
Cost	$500
Potential Funding Sources	General/Local Budget

Action Item 38	Provide lightning warning systems for Public Schools outdoor sports areas and play grounds.
Hazard(s) Addressed	Lightning
Mitigation Action Type (Highlight box that applies.)	Local Plans and Regulations | Structure and Infrastructure Projects | Natural Systems Protection | Education and Awareness Programs | 5% Projects
Jurisdiction(s)	Public School Jurisdictions
Action	Install Lightning sensing and warning systems for public schools.
Responsible Party	County & Local Emergency Managers, School Superintendents
Potential Implementation Timeline	Annual
Cost	Unknown
Potential Funding Sources	General/Local Budget, HMGP and PDM

4.5 Action Item Prioritization

The Hazard Mitigation Plan Advisory Committee members from each participating jurisdiction in the McClain County Multi-Jurisdictional Multi-Hazard Mitigation Plan Update will take into account five primary considerations when prioritizing mitigation measures: Of most importance when determining priority is the protection of life; mitigation measures that ultimately prevent the loss of life in the Planning Area, its Communities and Public-School Districts will be placed at highest priority. Secondly, the participating jurisdictions will identify which mitigation measures

will prevent loss of property; each jurisdiction will look at which hazards has caused the most property loss based on past event data. Third, the jurisdictions will consider which mitigation measures address multiple hazards in preventing loss of life and/or property; for example, public education and outreach programs mitigate against all hazards where lightning warning systems mitigate against only one hazard.

Next, an estimate will be made to determine the population served by each mitigation measure. Mitigation measures that are determined to do the greatest good for the greatest number of people will be placed at higher priority than those that protect only a small portion of the population overall. Lastly, the cost of each project will be considered by each participating jurisdiction in the prioritization of mitigation measures. Project costs are continually changing. Therefore, a Benefit Cost Analysis (BCA) will be completed as funds become available and during project development. For mitigation measures in which it is not feasible to conduct a BCA, justification of project costs will be identified during project development.

In addition to the five criteria mentioned, the STAPLEE process, recommended by FEMA, will be heavily relied upon in prioritizing mitigation measures for The Planning Area, its Communities and Public-School Districts. Other considerations prioritizing the mitigation measures for each participating jurisdiction include historical considerations and post-disaster conditions.

Evaluation Category	Sources of Information
Social	Members of Local, County and State Government were members of the Hazard Mitigation Planning Committee and had input throughout the planning process. The plan was coordinated with existing community and county mitigation and response plans. Members of the Media were contacted and invited to attend all HMPC meetings.
Technical	The following Persons/Agencies were consulted as to the technical feasibility of the various projects: Oklahoma Emergency Management, Soil Conservation Service, County and State Health Departments, and the Oklahoma Forestry Service. All of these had their comments and suggestions incorporated.
Administrative	Staffing for proper implementation of the plan currently will rely on existing members of the various agencies involved. Technical assistance is available from contractors and various State Agencies. Some local jurisdictions have incorporated Hazard Mitigation efforts into their Capital Improvement Plans. The HMPC, led by the McClain County Emergency Management Director, has agreed to an annual review and assessment of the Plan and its progress. Operations Costs are under discussion by the relevant department heads.
Political	County Commissioners, representatives of Public-School Systems, and a representative of the U.S. Congressman's office participated in the planning process. In addition, representatives of regional, state, Tribal and federal offices were invited to attend the HMPC meetings and were consulted on all aspects of the Plan.
Legal	Members of the HMPC discussed legal issues with City and County officials, and it was their opinion that no significant legal issues were involved in the projects that were selected by the HMPC.
Economic	Economic issues were the predominant issues discussed by all concerned, with an emphasis on benefit/cost review. Each entity felt that the projects selected would have a positive effect in that the projects would attract business and recreation to the area as well as help the community be better prepared for a disaster. Funding for the various projects was the major concern as local budgets were not capable of fulfilling the needs due to the economic down turn. Reliance on outside grants will be relied on heavily for completion of projects.
Environmental	Oklahoma Department of Environmental Quality, Oklahoma Forestry Service, and the Oklahoma Water Resources Board were all consulted as to the environmental impact of the various projects and it was felt that there would be no negative impact. Local governments are currently considering zoning of environmentally sensitive areas.

4.6 Integration of Data, Goals, and Action Items into Other Planning Mechanisms

McClain County's local planning mechanisms available for incorporating the recommendations and requirements of the Hazard Mitigation Measures are listed below. McClain County Multi-Hazard Mitigation Plan will be approved and adopted by the Board of Commissioners as a guide to County mitigation activities.

The Emergency Manager is responsible for overseeing the implementation and integration of the Hazard Mitigation Plan. Appropriate Action Items and Mitigation Measures from the Plan will be incorporated into the following plans and codes:

- Capital Improvements Plan and planning process
- McClain County Unincorporated Building Codes and Ordinances
- McClain County Emergency Operations Plan
- McClain County Bridge Plan
- McClain County Debris Management Plan
- Individual Community Building Codes/Ordinances
- Individual Community and School District Emergency Operations Plans

The process to include the adopted Mitigation Measures into other local planning mechanisms includes the following:

1. The plans above are updated annually by their respective committees.
2. With regard to Unincorporated Building Codes, they are updated annually by their respective committees.

Blanchard
The City's plans and ordinances, identified in Section 4.1, are annually updated and/or reviewed by the city council and administration. The Capital Improvement Plan is updated every 5 years. Prior to updating any plan, the Town Administrator and emergency manager review the hazard mitigation efforts of Blanchard that could be included in the capital improvement plan. The Emergency Response Plan and the Post-Disaster Recovery Plan are reviewed annually by the city emergency manager.

Byars
The Town Administration and city council update their comprehensive plan every 5 years, and review and update the other plans as needed. Ordinances are reviewed continually and revised as needed. The ordinances and plans are identified in Section 4.1 and they are updated and reviewed annually. The mayor and emergency manager review, prioritize, and implement hazard mitigation projects according to the approval of the city council.

Cole
The Mayor and City Council review and update ordinances and plans, identified in Section 4.1, annually. The mayor will review, prioritize, and implement hazard mitigation projects according to the approval of the city council.

Dibble
The Town Administration and city council update their comprehensive plan every 5 years, and review and update the other plans as needed. Ordinances are reviewed continually and revised as needed. The ordinances and plans are identified in Section 4.1 and they are updated and reviewed annually. The mayor will review, prioritize, and implement hazard mitigation projects according to the approval of the city council.

Goldsby
The City's plans and ordinances identified in Sections 4.1 are annually updated and/or reviewed by the city council and administration. The Capital Improvement Plan is updated every 5 years by the Town Administrator. Prior to updating any plan, the Administrator and emergency manager review the hazard mitigation efforts of Goldsby that could be included in the capital improvement plan.

Purcell
The city administration and council review and update ordinances, identified in Section 4.1, annually. The city administration reviews and updates master plans as needed. Upon each plan's renewal cycle, the building inspector, city manager, or emergency manager reviews whether or not hazard mitigation projects can be prioritized, integrated and adopted. These projects are voted on and accepted by the city council according the respective renewal schedule of each plan.

Rosedale
The Town administration and city council review and update ordinances and plans, identified in Section 4.1, annually. The mayor and emergency manager review, prioritize, and implement hazard mitigation projects according to the approval of the city council.

Washington

The Town Administration and city council update their comprehensive plan every 5 years, and review and update the other plans as needed. Ordinances are reviewed continually and revised as needed. The ordinances and plans are identified in Section 4.1 and they are updated and reviewed annually. The mayor will review, prioritize, and implement hazard mitigation projects according to the approval of the city council.

Wayne

The Town's plans and ordinances identified in Section 4.1 are annually updated and/or reviewed by the city council and administration. A Capital Improvement Plan was adopted in 2018 and will be updated every 5 years by the city clerk. Prior to updating any plan, the clerk and emergency manager will review the hazard mitigation efforts of Wayne that could be included in the capital improvement plan.

Blanchard Public Schools

Upon formal adoption of the McClain County Multi-Jurisdictional Multi- Hazard Mitigation Plan by the school board, the Blanchard Public Schools Superintendent is responsible for reviewing the hazard mitigation plan and integrating necessary information into the Blanchard Public Schools Emergency Action Plan. This plan is updated annually. During the update process, the superintendent will meet with the Hazard Mitigation Planning Committee and they will review the hazard profile data.

Upon approval of this plan, the School Superintendent and the School Board will be responsible for recommending hazard mitigation measures and Structural action items from the Plan for inclusion in District capital improvement plans which may determine the site of new facilities and avoid development in hazard prone areas. Approved recommendations will be submitted as bond items and voted on during public school board meetings. Once an action item is complete, it will be documented in the following Capital Improvement Plan Update.

Dibble Public Schools

Upon formal adoption of the McClain County Multi-Jurisdictional Multi- Hazard Mitigation Plan by the school board, the Dibble Public Schools Superintendent is responsible for reviewing the hazard mitigation plan and integrating necessary information into the Dibble Public Schools Emergency Action Plan. This plan is updated annually. During the update process, the superintendent will meet with the Hazard Mitigation Planning Committee and they will review the hazard profile data.

Upon approval of this plan, the School Superintendent and the School Board will be responsible for recommending hazard mitigation measures and Structural action items from the Plan for inclusion in District capital improvement plans which may determine the site of new facilities and avoid development in hazard prone areas. Approved recommendations will be submitted as bond items and voted on during public school board meetings. Once an action item is complete, it will be documented in the following Capital Improvement Plan Update.

Purcell Public Schools

Upon formal adoption of the McClain County Multi-Jurisdictional Multi- Hazard Mitigation Plan by the school board, the Purcell Public Schools Superintendent is responsible for reviewing the hazard mitigation plan and integrating necessary information into the Purcell Public Schools Emergency Action Plan. This plan is updated annually. During the update process, the superintendent will meet with the Hazard Mitigation Planning Committee and they will review the hazard profile data.

Upon approval of this plan, the School Superintendent and the School Board will be responsible for recommending hazard mitigation measures and Structural action items from the Plan for inclusion in District capital improvement plans which may determine the site of new facilities and avoid development in hazard prone areas. Approved recommendations will be submitted as bond items and voted on during public school board meetings. Once an action item is complete, it will be documented in the following Capital Improvement Plan Update.

Washington Public Schools

Upon formal adoption of the McClain County Multi-Jurisdictional Multi- Hazard Mitigation Plan by the school board, the Washington Public Schools Superintendent is responsible for reviewing the hazard mitigation plan and integrating necessary information into the Washington Public Schools Emergency Action Plan. This plan is updated annually. During the update process, the superintendent will meet with the Hazard Mitigation Planning Committee and they will review the hazard profile data.

Upon approval of this plan, the School Superintendent and the School Board will be responsible for recommending hazard mitigation measures and Structural action items from the Plan for inclusion in District capital improvement plans which may determine the site of new facilities and avoid development in hazard prone areas. Approved recommendations will be submitted as bond items and voted on during public school board meetings. Once an action item is complete, it will be documented in the following Capital Improvement Plan Update.

Wayne Public Schools

Upon formal adoption of the McClain County Multi-Jurisdictional Multi- Hazard Mitigation Plan by the school board, the Wayne Public Schools Superintendent is responsible for reviewing the hazard mitigation plan and integrating necessary information into the Wayne Public Schools Emergency Action Plan. This plan is updated annually. During the update process, the superintendent will meet with the Hazard Mitigation Planning Committee and they will review the hazard profile data.

Upon approval of this plan, the School Superintendent and the School Board will be responsible for recommending hazard mitigation measures and Structural action items from the Plan for inclusion in District capital improvement plans which may determine the site of new facilities and avoid development in hazard prone areas. Approved recommendations will be submitted as bond items and voted on during public school board meetings. Once an action item is complete, it will be documented in the following Capital Improvement Plan Update.

Mid-America Technology Center

Mid-America School Board reviews their respective Capital Improvement Plan annually. During this review, the Hazard Mitigation Plan action items will be assessed for potential implementation and feasible projects will be included in any Capital Improvement Plan recommendations. Approved recommendations will be submitted as bond items and voted on during school board meetings. Once an action item is complete, it will be documented in the following capital Improvement Plan Update.

Over the past five years, the Planning Area has incorporated the HM plan into other planning mechanisms such as local EOPs and equipment purchase decisions. The disaster and risk analysis information helped the LEPC craft better severe weather protocols, and the information helped identify a need for back-up generators at critical facilities. Generators were needed because the power kept failing during severe winter weather events. In addition, jurisdictions were able to work out a cooperative agreement with churches and schools for their buildings to be used for warming stations if there was a power outage.

Chapter 5: Plan Update Prioritization and Review

5.1 Changes in Jurisdictional Development

McClain County-McClain County Continues to grow rapidly. According to the 2000 census, McClain County's Population was 27,740. By the time the 2010 Census, the population had grown to 34,506, an increase of about 24%. Little has changed in terms of development during the previous plan period however, as our only significant geographic hazards are floodplains and floodways. We continue to enforce FEMA regulations for development within a floodplain. No major changes in land use over the past 5 years. This has decreased McClain County's vulnerability to hazards.

Blanchard- According to the 2000 Census, Blanchard's population was 2,816, but then underwent a massive growth to 7,670 by the 2010 census. With the rapid growth of Blanchard, the city continues to improve critical infrastructure. With the new growth this has increased Blanchard's vulnerability to hazards.

Byars-Byars population in 2000 was 280 and by 2010 Census it fell to 255. The population has actually decreased. Same as McClain County little has changed in terms of development during the previous plan period. Byars still enforces FEMA regulations for development within a floodplain. This has decreased vulnerability to hazards for the Town of Byars.

Dibble- The 2010 Census reported 878 people living in the Town of Dibble. The town has added new businesses and new single-story apartments for residents. Dibble still continues to enforce FEMA regulations for development within a floodplain. With the new businesses and additional apartments this has increased vulnerability to hazards for dibble.

Goldsby-The 2010 census reported 1,204 residents in Goldsby. In 2010, the total population of Goldsby was reported as 1,801. The Town of Goldsby has developed a new Water Plant since the last plan approval. This has decreased Goldsby's vulnerability to hazards.

Purcell-The City of Purcell population in 2010, according to the U.S. Census, was 5,884 residents. The city has installed an additional Warning Siren in the town to reach more residents in Severe Weather. Installing additional warning sirens in Purcell has decreased the vulnerability to hazards.

Rosedale-The 2010 Census counted 68 residents living in Rosedale. There have been no changes in development for Rosedale that have impacted the overall vulnerability for the Town.

Washington-The population for the Town of Washington, according to the U.S. Census, had reached 618 residents. The West part of Washington is in the process of developing new single-family residential homes. This has increased Washington's vulnerability to hazards.

Wayne-The Town of Wayne population for 2010, according to the U.S. Census, was 699 residents. Wayne has added 2 outdoor warning systems. Adding additional warning sires has decreased Wayne's vulnerability to hazards.

Blanchard Public Schools-Blanchard enrollment for students and staff, according to the 2019 School Report Card from the Office of Educational Quality and Accountability, was 2,136. Blanchard Middle School is adding an additional building to their campus. With adding more students and an additional building this has increased Blanchard Public Schools vulnerability to hazards.

Dibble Public Schools- Dibble enrollment for students and staff, according to the 2019 School Report Card from the Office of Educational Quality and Accountability, was 725. A new Elementary School for Dibble was added to the campus. With adding a new Elementary School this has increased vulnerability to hazards for Dibble Public Schools.

Purcell Public Schools-Purcell enrollment for students and staff, according to the 2019 School Report Card from the Office of Educational Quality and Accountability, was 1,485. Purcell Public Schools has since added a new junior high building next to the high school building since the last plan update. With Purcell adding a new Junior High Building this has increased vulnerability for Purcell Public Schools.

Washington Public Schools -Washington enrollment for students and staff, according to the 2019 School Report Card from the Office of Educational Quality and Accountability, was 1105. Since the last plan update Washington Public Schools has added an Event Center to the campus. This is a multi-purpose building that can be used for Sporting Events and Community Events. With the new Event Center this has increased vulnerability to Hazards for Washington Public Schools.
Wayne Public Schools Wayne Enrollment for students and staff, according to the 2019 School Report Card from the Office of Educational Quality and Accountability, was 567. Wayne Public Schools has added an Early Development Center to the campus since the last plan update. With Wayne Public Schools adding a new Early Development Center to the campus this has increased vulnerability to hazards.
Mid-America Technology Center- Mid-America Technology Center estimated 800 daytime students with about 400 on campus at any time. Another 900 evening and short-term adult students were enrolled, with approximately 300 on site at any time. Mid-America Tech Center has added Safe Rooms in the Stem Building since the last plan update. With adding Safe Rooms to the campus this has decreased the vulnerability for Mid-America Technology Center.

5.2 Status of Previous Mitigation Action Items

Action Items Accomplished

Action Item	Hazard Mitigated	Jurisdiction Impacted
Outdoor Early Warning Devices	High Winds, Tornado	Wayne, Purcell
Safe Room/Storm Shelter Database	High Wind, Tornado	ALL
Individual Safe Room Rebate Program	High Wind, Tornado	ALL

Ongoing Action Items Not Accomplished

Action Item	Hazard Mitigation	Jurisdiction Impacted	Reason Not Accomplished	Is Action Item Still Relevant?
Develop All-Hazard Public Information, Education, Awareness Program	Dam Failure, Drought, Flood, Hail, High Wind, Tornado, Wildfire, Severe Winter Storm, Tornado, Wildfire	All	Lack of funding	Y
Educate the public on the importance of a family disaster plan and supply kit.	Dam Failure, Drought, Flood, Hail, High Wind, Tornado, Wildfire, Severe Winter Storm, Tornado, Wildfire	All	Ongoing	Y
Develop an inventory, registry and database of Special needs population.	Dam Failure, Drought, Flood, Hail, High Wind, Tornado, Wildfire, Severe Winter Storm, Tornado, Wildfire	All	Ongoing	Y
Acquire and distribute NOAA Weather Radios to all Critical Facilities and the public	Dam Failure, Flood, High Winds, Tornado, Severe Winter Storm	All	Ongoing	Y
Post-Event Debris Management Program	Flood, High Wind, Tornado, Wildfire, Severe Winter Storm	All	Lack of Funding	Y

Individual Backup Generator Program	Flood, High Wind, Tornado, Wildfire, Severe Weather	All	Ongoing	Y
Alternate Power Source	Flood, Earthquake, hail, High Wind, Lightning, Tornado, Severe Weather Storm	All	Ongoing	Y
Above Ground fuel Pump with Back Up Generator	Dam Failure, Flood, Tornado, Wildfire, Severe Winter Storm	All	Ongoing	Y
Protective Window Film	Hail, High Wind, Tornado	All	Ongoing	Y
Tree Trimming and Branch Removal Program	Dam Failure, Flood, Hail, High Wind, Tornado, Wildfire, Severe Winter Storm	All	Ongoing	Y
StormReady Business	Drought, Extreme Heat, Flood, Hail, High Wind, Lightning, Tornado, Wildfire, Severe Winter Storm	All	Ongoing	Y
Public School critical Facilities Safe Room	High Wind, Tornado	Blanchard PS, Dibble PS, Washington PS, Purcell PS, Wayne PS, Mid-America Tech Center	Ongoing	Y
Individual Safe Room Rebate Program	High Wind, Tornado	Blanchard, Byars, Cole, Dibble, Goldsby, Purcell, Rosedale, Washington, Wayne	Ongoing	Y
Emergency Exercise Training	Dam Failure, Drought, Flood, Hail, High Wind, Tornado, Wildfire, Severe Winter Storm, Tornado, Wildfire	All	Ongoing	Y
Promote Xeriscaping	Drought	All	Lack of Funding	Y
Lightning Detection Systems	Lightning	All	Lack of Funding	Y
Surge Protection	Lightning	All	Lack of Funding	Y
Provide Covered Parking	Hail	All	Ongoing	Y
Cooling/Warming Station/Facilities	Extreme Heat, Severe Winter Storms	Blanchard, Byars, Cole, Dibble, Goldsby, Purcell, Rosedale,	Ongoing	Y

		Washington, Wayne		
Vegetation Management	Wildfire	All	Ongoing	Y
Adopt more resilient building standards for new or remodeled structures/update existing residential and commercial building codes.	Wildfire	Blanchard, Purcell, Goldsby, Dibble	Ongoing	Y
FireWise Awareness Program	Wildfire	Blanchard, Byars, Cole, Dibble, Goldsby, Purcell, Rosedale, Washington, Wayne	Ongoing	Y
Secondary Water Supply	Wildfire	All	Lack of Funding	Y
Portable Motorist Information Signs	Dam Failure, Drought, Flood, Hail, High Wind, Tornado, Wildfire, Severe Winter Storm, Tornado, Wildfire	All	Lack of Funding	Y
Underground Electrical Lines	Hail, High Winds, Lightning, Tornado, Wildfire, Severe Winter Storm	All	Ongoing	Y
NFIP Program	Dam Failure, Flood	Dam Failure, Flood	Ongoing	Y
Prepare a Comprehensive basin-wide Flood and Drainage Annex to Multi-Hazard Mitigation Plan for all watersheds with the Jurisdictions.	Dam Failure, Flood	All	Ongoing	Y
Acquire and remove floodplain and future repetitive loss properties.	Flood, Dam Failure	McClain County, City of Purcell	Ongoing	Y
At Risk Transportation Routes	Dam Failure, Flood	All	Ongoing	Y
Drainage Improvement	Dam Failure, Flood	All	Ongoing	Y
Establish hazard Dam Registration and Safety Checks	Dam Failure	All	Lack of Funding	Y
Equipment and Furniture Strap Program	Earthquake	All	Lack of Funding	Y
Hurricane Straps	High Winds, Tornados	All	Lack of Funding	Y
Storm Spotter Training Program	High Wind, Tornado, Severe Winter Storm	All	Ongoing	Y

Provie lightning warning systems for Public Schools outdoor sports areas and playgrounds.	Lightning	Public School Jurisdictions	Lack of Funding	Y

5.3 Changes in Jurisdictional Priorities

Since the last plan update in April of 2015, the Planning Area has received 9 Tornado Events. With these events came concerns from citizens who could not afford Safe Rooms for Severe Weather Events. The Planning Area believes having a storm shelter is a priority and encourages all homeowners to participate in the individual safe room reimbursement program.

McClain County, Blanchard, Goldsby, Dibble, Washington, Purcell, Wayne, Rosedale, and Byars all participated in the individual safe room reimbursement program in 2017. With this program 114 residents within the planning area were able to get a storm shelter installed at their residence.

With the recent tornados the Schools in the Planning Area have prioritized having adequate shelter capacity and emergency protocols in place.