

Special Topics

Bryan County Disaster Resiliency Assessment

The purpose of this section is to assess at the county level key components of disaster resiliency. Housing location and quality as well as planning activities can help reduce impacts from disaster events and allow for faster recovery. Disasters can include tornadoes, extreme weather, high winds, as well as man-made events. These events may largely be inevitable, but the ability to reduce damage and casualties as well recovery can be improved with good planning.

C.0 Comprehensive Plans & Hazard Mitigation Plans

There are 7 key cities within Bryan County (Durant, Caddo, Calera, Colbert, Bokchito, Bennington, Mead). The Choctaw Nation Headquarters is also located within the City of Durant.

Bryan County

Comprehensive plans are the guiding documents for cities of various sizes to address key aspects of their community from land use, transportation, environment, housing, and economic development.

No comprehensive plan for the City of Durant was acquired. However some data related to development and building codes was found on the Durant City website and in the city Code of Ordinances and can be found below. This information is highlighted in the public policy section.

- [http://library.amlegal.com/nxt/gateway.dll/Oklahoma/durant/durantoklahomacodeofordinances?f=templates\\$fn=default.htm\\$3.0\\$vid=amlegal: Durant_ok](http://library.amlegal.com/nxt/gateway.dll/Oklahoma/durant/durantoklahomacodeofordinances?f=templates$fn=default.htm$3.0$vid=amlegal: Durant_ok)
- <http://durant.org/page/communitydevelopment>

The other key plan for a city to manage, mitigate and plan for recovery related to disasters is a **Hazard Mitigation Plan** (or Emergency Management Plan). Often low density counties, the Hazard Mitigation Plan is done at the county level, though some cities may augment the county plan with a city plan.

No HMP was found for Bryan County (or the City of Durant). However, the county does have an identified emergency management director. The city website does have an Emergency Management page with safety recommendations for common hazards in Bryan County. These include: earthquake, flood, lightning, tornado, wildfire, and winter weather.

Choctaw Nation

According to a 2014 Choctaw Publication, "In 2012 the Nation hired a full time Emergency Manager and began to expand the development of the program. As of July this year the Nation has developed a joint Continuity of Operations/Continuity of Government or COO/COG plan, emergency communications plan, and is updating our Emergency Operations Plan or EOP. In addition the Nation will be developing several other plans to meet our needs and FEMA requirements (e.g., warning notification, public assistance administration, donation/volunteer management, other needs assistance, strategic development, and debris management)."

C.2.1.1. Historical Data on Natural Disasters and Other Hazards

Data on historical damages and casualties is typically collected as part of a **Hazard Mitigation Plan** preparation to determine the appropriate planning measures and actions to take before and after an event.

Choctaw Nation

According to a 2014 Choctaw Nation Publication, found at:

<http://www.indian.senate.gov/sites/default/files/upload/files/7.30.14%20SCIA%20Witness%20Testimony%20-%20Matt%20Gregory%20-%20Choctaw.pdf>

“Throughout our history the Choctaw Nation has been plagued by significant disasters that disrupt our lives. According to the National Climatic Data Center, between 1950 and 2014, Choctaw Nation communities experienced 336 tornado events, with 48 deaths, and a total of \$73 million in damages. In the last decade alone, Choctaw Nation communities lived through more than 1,450 events from all hazards and suffered damage totaling nearly \$37 million, half of which was associated with 16 ice storms. NOAA data shows the following historic data on disaster events for the county.”

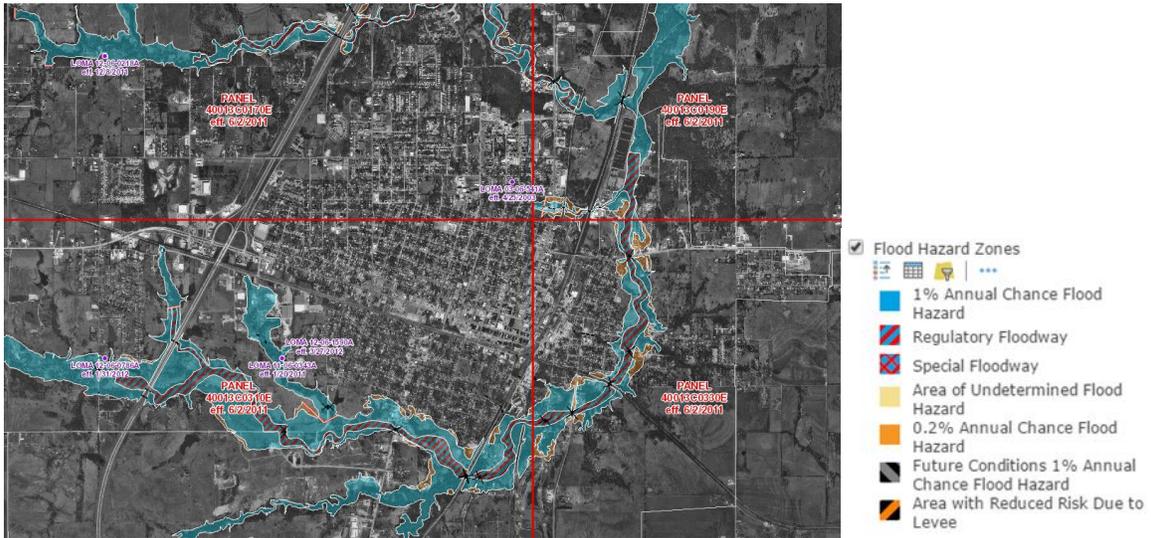
“The 2007 winter ice storm had a significant impact on the citizens of Pittsburg and surrounding counties. 28,399 power outages were reported lasting for approximately two weeks. The Choctaw Nation responded immediately and worked with city, county, and state agencies to help those in need.”

“In April 2011 an EF3 tornado (winds measuring between 136-165 mph) struck the town of Tushka, just 26 miles from our Choctaw Tribal Headquarters, killing two people and injuring 40. The Choctaw Nation had many tribal members, employees, and neighbors deeply affected by this storm. The Choctaw Nation again responded immediately and had support on the ground within hours after the storm hit. At one point there were 100+ volunteers working in the area.”

Flooding

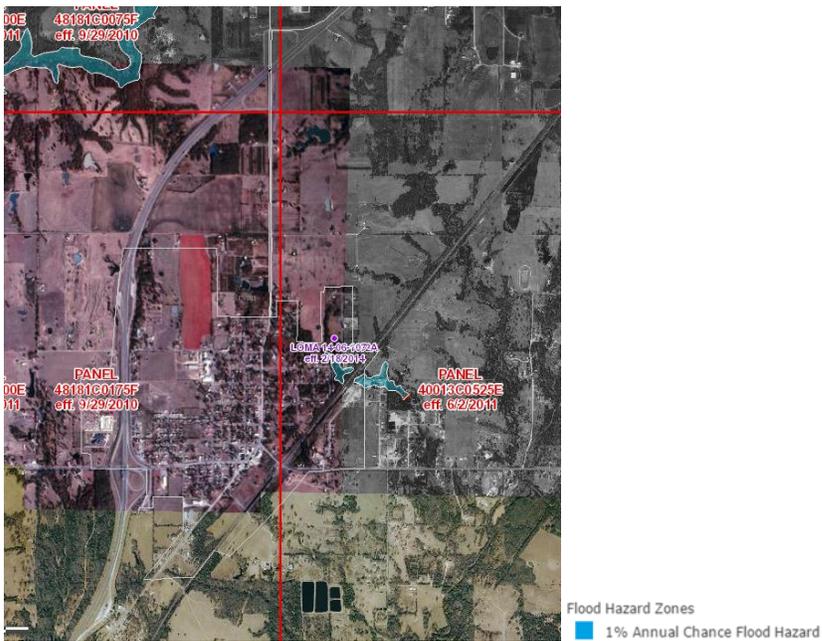
All parts of the county may be subject to flash flooding, freeze-thaw flooding and extreme precipitation that can cause flooding, unrelated to the streams and rivers. Development in the floodplain that has caused repeated damages should be avoided in the future. In fact development in the floodplain altogether should be avoided as part of development practices in any city or town.

Durant



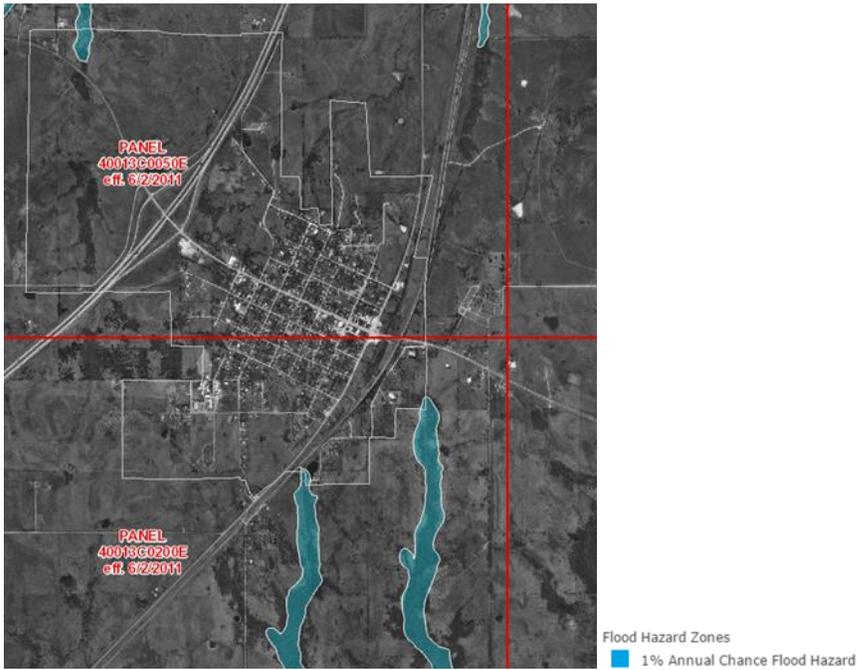
FEMA's National Flood Hazard Layer <http://fema.maps.arcgis.com/>

Colbert



FEMA's National Flood Hazard Layer <http://fema.maps.arcgis.com/>

Town of Caddo



FEMA's National Flood Hazard Layer <http://fema.maps.arcgis.com/>

Bokchito



FEMA's National Flood Hazard Layer <http://fema.maps.arcgis.com/>

Bennington



FEMA's National Flood Hazard Layer <http://fema.maps.arcgis.com/>

Kemp



FEMA's National Flood Hazard Layer <http://fema.maps.arcgis.com/>

Hendrix



FEMA's National Flood Hazard Layer <http://fema.maps.arcgis.com/>

Kenefic



FEMA's National Flood Hazard Layer <http://fema.maps.arcgis.com/>

NOAA data shows the following historic data on disaster events for the county:

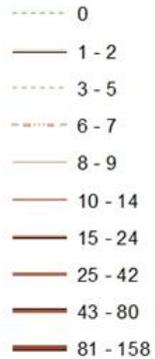
Historic data on tornados between 1950-2014 there are 28 tornados documented. There were 14 injuries that occurred connected to these tornados, with 4 of those injuries happening in the 1971 tornado. There were 3 fatalities connected to tornadoes during this time period, all of which occurred in same 1957 tornado. Property losses between 1950-1996 ranged from \$902,501.00 to \$9,025,050.00. (The accounting methods used for losses changed in 1996.) The losses estimated between 1996-2014 was \$0.

Social Vulnerability - Impacts on Housing & Disaster Resiliency

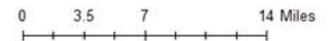
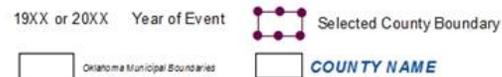
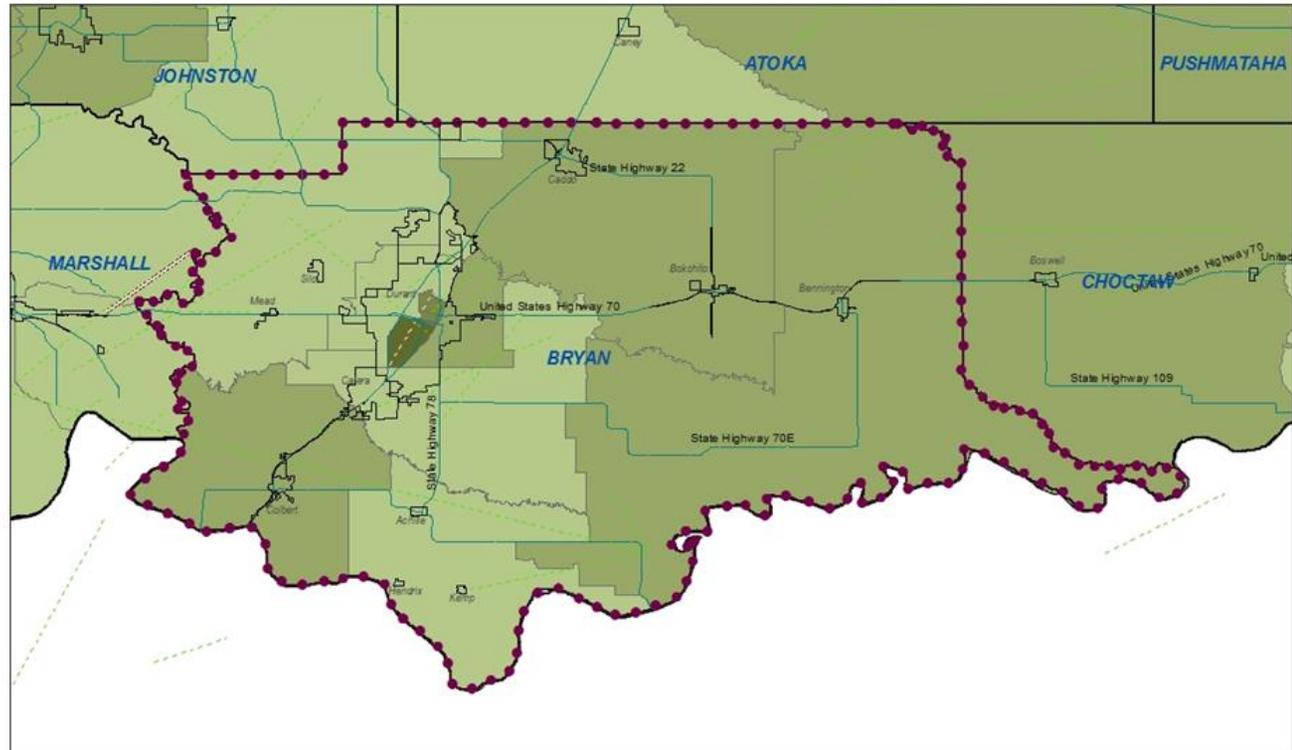
Tornado Events 1950 - 2014

Bryan County

of fatalities associated with event



Social Vulnerability Index



Sources: Shannon Van Zandt, Texas A&M, Hazard Planning materials, and 2009-2013 American Community Survey, Tables 811003, 801001, 817001, 808301, 825044, 825001, 825042, 802001, 803002, 826001, 825036, 817001, 825043, 51501, 823025 & 806007

Social Vulnerability - Impacts on Housing & Disaster Resiliency

Tornado Events 1950 - 2014

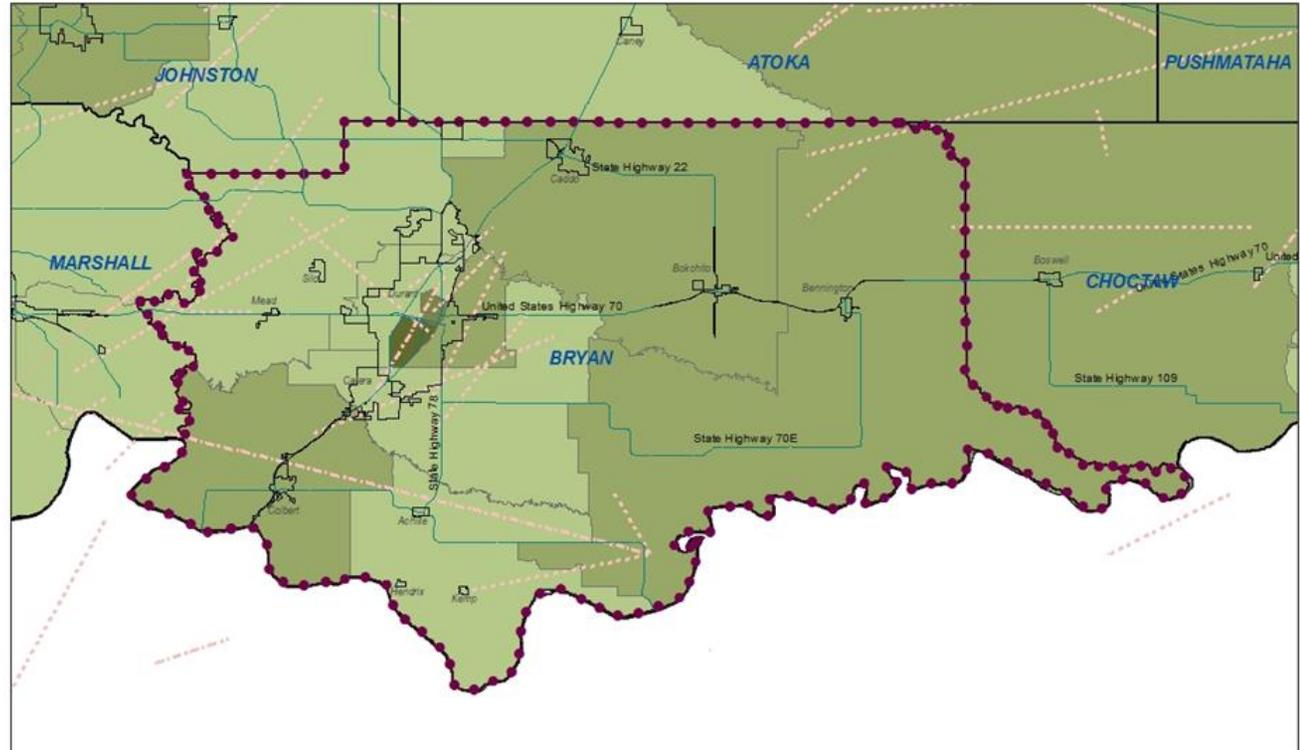
Bryan County

of injuries associated with event

- 0 - 2
- 3 - 8
- 9 - 21
- 22 - 42
- 43 - 68
- 69 - 106
- 107 - 212
- 213 - 583
- 584 - 1150
- 1151 - 1740

Social Vulnerability Index

- 1.614549 - 2.616235
- 2.616236 - 3.237072
- 3.237073 - 3.854933
- 3.854934 - 4.661284
- 4.661285 - 6.459169

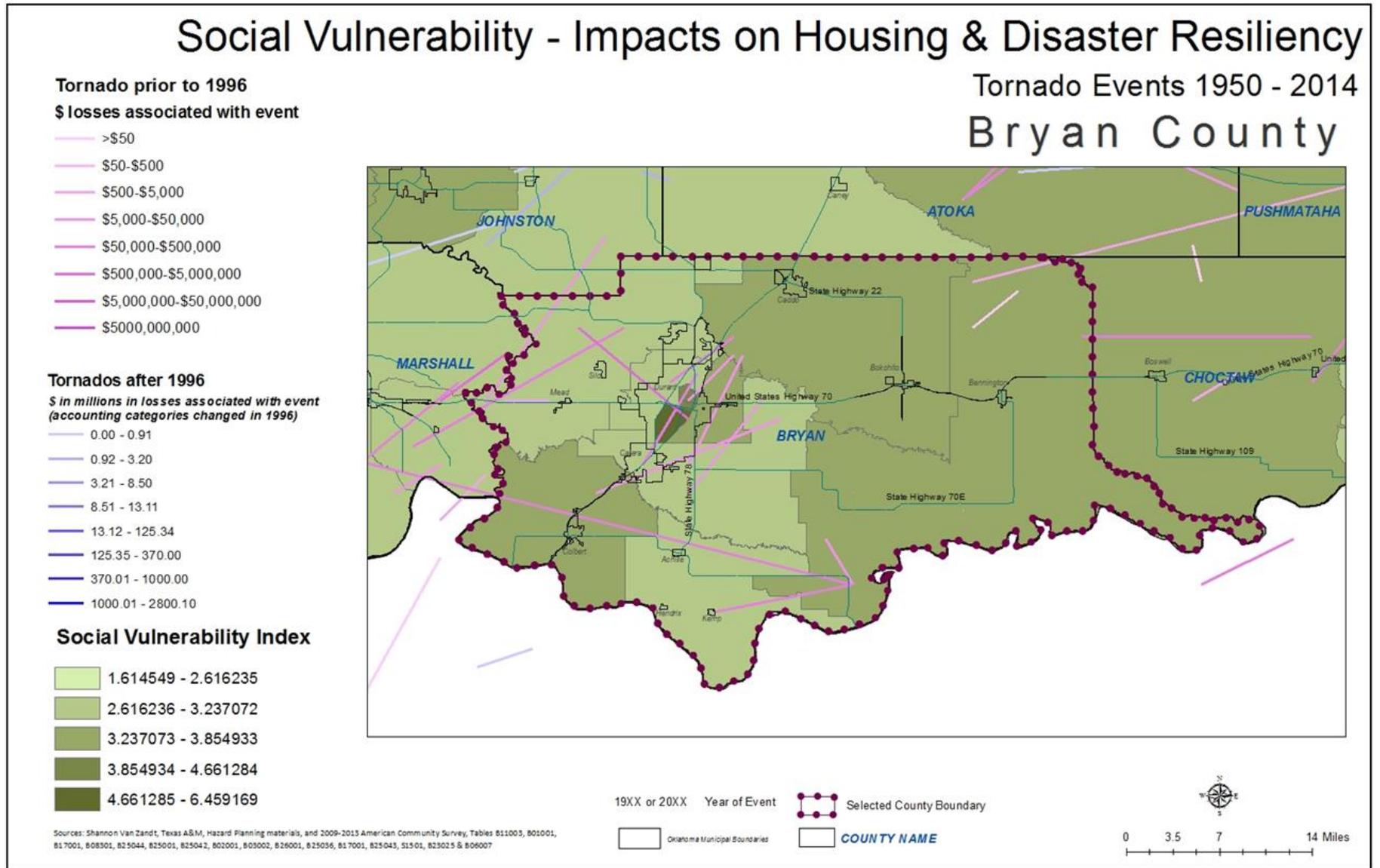


19XX or 20XX Year of Event
 Selected County Boundary
 Oklahoma Municipal Boundaries
 COUNTY NAME



0 3.5 7 14 Miles

Sources: Shannon Van Zandt, Texas A&M, Hazard Planning materials, and 2009-2013 American Community Survey, Tables B11003, B01001, B17001, B08301, B25044, B25042, B25041, B02001, B03002, B26001, B25036, B17001, B25043, S1501, B23025 & B06007



C.2.1.2; C.2.1.6; C.2.1.7; C.2.1.8 Shelters from Disaster Event

Bryan County

An online storm shelter registry for Bryan County was found. See the following link:
<http://www.durantemergencymgt.org/shelter-registration.html>

However no data was found regarding public shelters for disaster events.

Choctaw Nation

According to the Choctaw Nation website, the Nation has implemented a storm shelter/safe room program and funded 1,136 shelters for elder and special needs tribal members

C.2.1.3 Public Policy and Governance to Build Disaster Resiliency

Bryan County

According to the Durant, OK City website:

“..All construction within the City of Durant conforms to the International Building Codes that the city had adopted as ordinance.”

“Ensures that all property within the Federal designated floodplain, within the City of Durant conforms to the 44CFR (Code of Federal Regulations) City Ordinance as well as State Law.”

The following language comes from the City of Durant Code of Ordinances:

Regarding flood management-

“New construction and substantial improvement of any residential structure shall have the lowest floor (including basement), shall be elevated a minimum of two foot above the base flood elevation. A registered professional engineer, architect, or land surveyor shall submit a certification to the Floodplain Administrator that the standard of this division as proposed in § 151.04(C)(1), is satisfied.”

Choctaw Nation

According to a 2014 Choctaw Nation Publication, “The Choctaw Nation is an active member of the Oklahoma Emergency Management Association (OEMA) and of the Inter-Tribal Emergency Management Coalition (ITEMC). ITEMC was developed to allow tribes to coordinate and share information regarding disaster response and preparedness activities. ITEMC has worked very closely with the State of Oklahoma and FEMA Region VI to bring training opportunities and vital information to the tribes regarding hazard mitigation and preparedness activities.”

The Choctaw Nation has completed several mitigation projects, including the following activities (<http://www.choctawnation.com/news-room/press-room/media-releases/when-catastrophe-strikes-responses-to-natural-disasters-in-indian-country/>):

- Installed generators at several critical facilities;

- Developed a public information campaign;
- Implemented a storm shelter/safe room program and funded 1,136 shelters for elder and special needs tribal members;
- Purchased equipment for the delivery of supplies;
- Established a GIS department;
- Developed an EOP and response team;
- Secured equipment for our Public Safety division for disaster response; and
- Secured an off-site solution for data backup and recovery.

C.2.1.4 Local Emergency Response Agency Structure

Bryan County

The structure for response and to address any perceived vulnerabilities in the county should be included in the Hazard Mitigation Plan. No HMP was acquired for Bryan County. However, according to the City of Durant: 2014 Community Profile, the city has 1 Director, 1 Assistant Director, 1 Safety Officer, and 22 volunteers for emergency management. This data can be found at: <http://www.ok-durant.org/files/profiles/16/Community%20Profile%202014.pdf>

Choctaw Nation

The Choctaw Nation is an active member of the Oklahoma Emergency Management Association (OEMA) and of the Inter-Tribal Emergency Management Coalition (ITEMC). ITEMC was developed to allow tribes to coordinate and share information regarding disaster response and preparedness activities. ITEMC has worked very closely with the State of Oklahoma and FEMA Region VI to bring training opportunities and vital information to the tribes regarding hazard mitigation and preparedness activities.

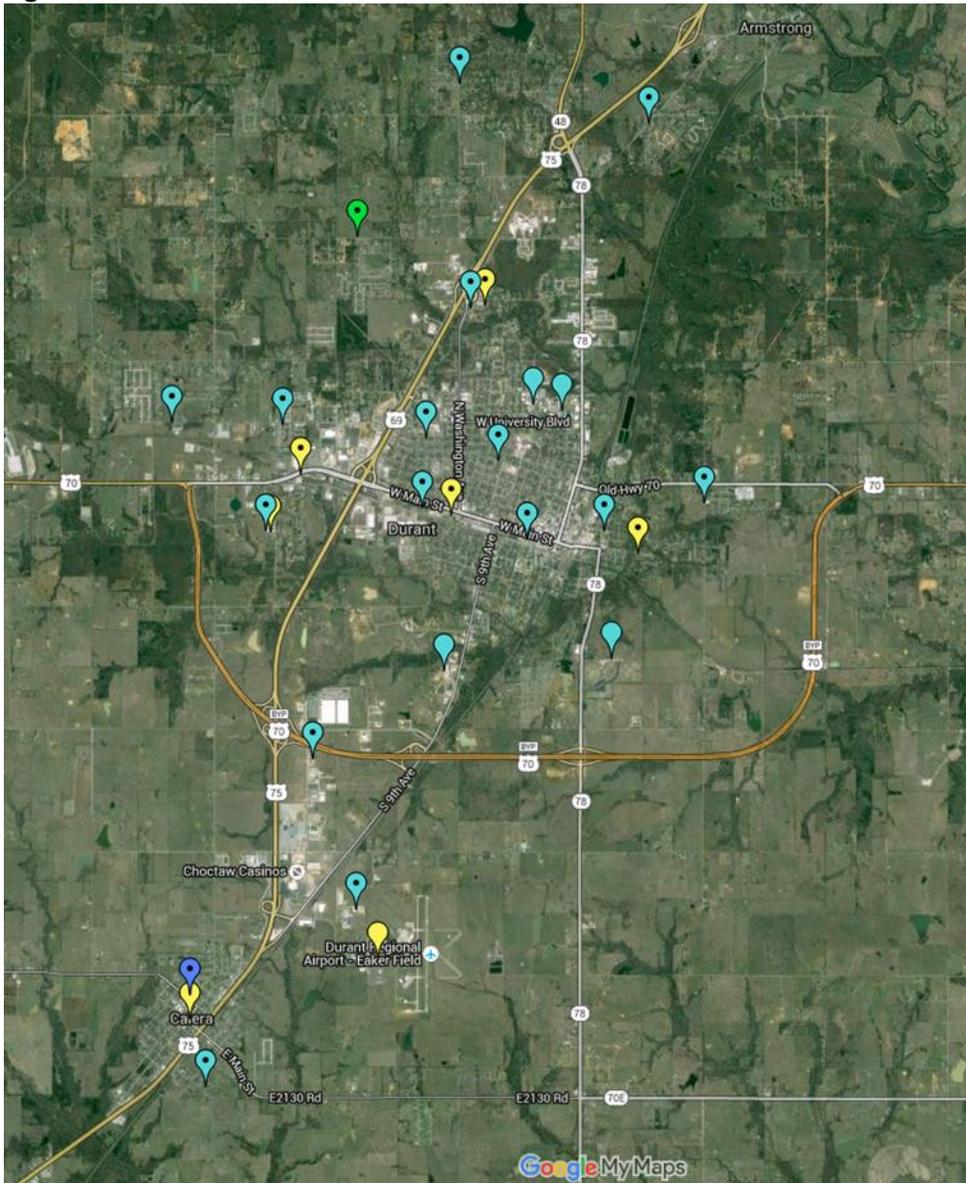
C.2.1.5 Threat & Hazard Warning Systems

The identified Threat & Hazard Warning Systems for Bryan County include:

- Sirens (31 sirens identified in Bryan County; including 1 in Colbert, 3 in Calera, and 2 in Caddo. Open Source via: <https://www.google.com/maps/d/viewer?mid=zfPHcYksmyVQ.k2QUg3PZTBbU&hl=en>)
- Emergency Broadcast System (Emergency Management frequency for real-time storm tracking. The Frequency is 156.240 narrow band FM analog on a conventional repeater.)
- Social Media (maintains Facebook page for Durant/Bryan County Emergency Management updates and notices)
- Phone notification (Black Board Connect emergency notification system for land lines and cells phones. As of July 2011 the county had over 4,000 households signed up- according to: http://www.kxii.com/home/headlines/Durant_emergency_notification_system_now_online_125923353.html)

Note: Southeastern University does have capability for text alerts however these are not typically used for severe weather.

Figure 1



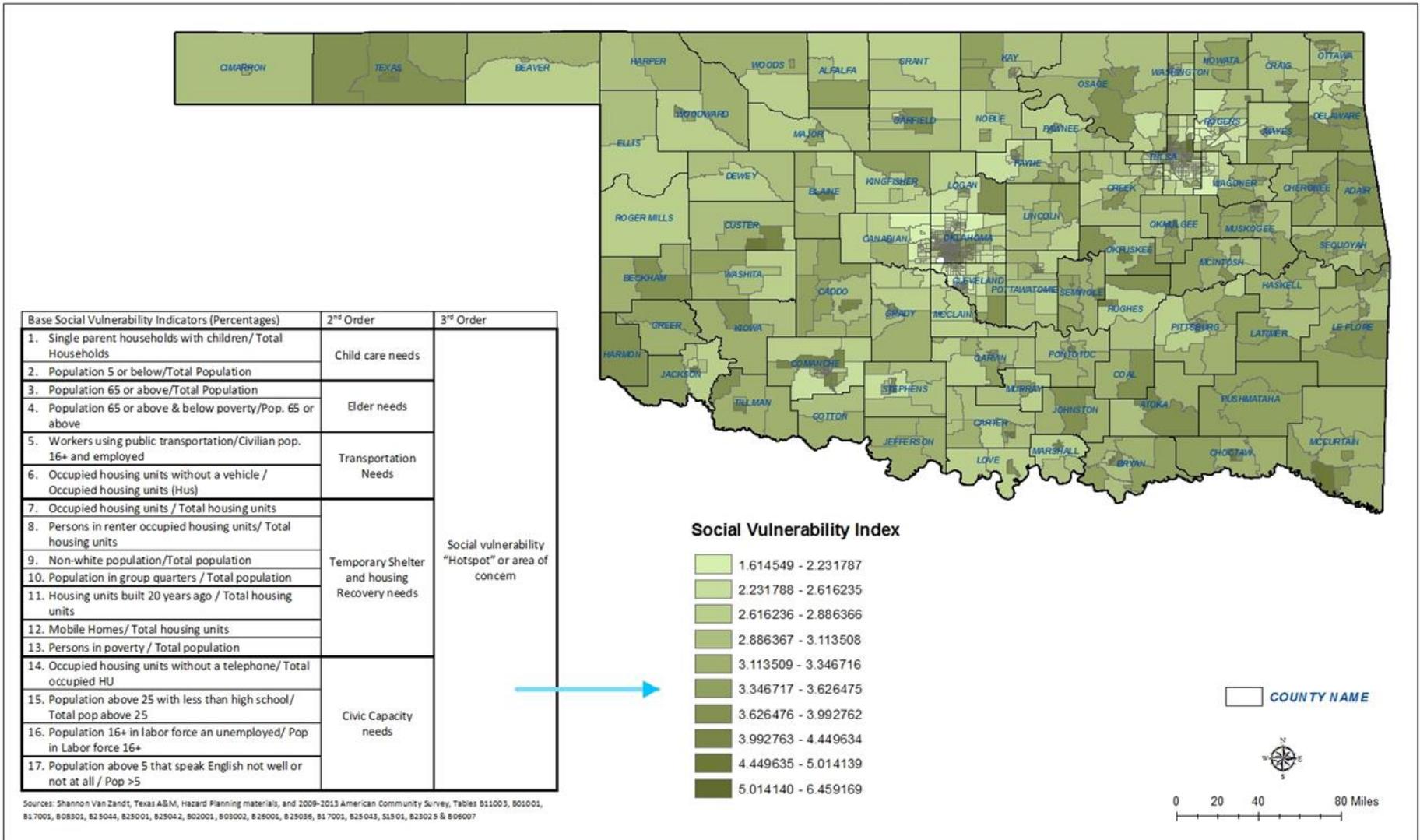
Social Vulnerability

Based on the research work done by the Texas A&M University Hazard Reduction and Recovery Center, an added component is being included in this section. Social vulnerability can place households at a further disadvantage during and after a disaster. This analysis is assessing for the county the levels of social vulnerability based on demographic indicators to highlight 'hotspots' or counties that have higher social vulnerability. That combined with Hazard Mitigation Plans – or lack thereof – can highlight places where additional work is needed to reduce impacts on households.

Social Vulnerability Analysis - Bryan County		
Base Social Vulnerability Indicators (%)	2nd Order	3rd Order
1.) Single Parent Households	14.58%	0.214
2.) Population Under 5	6.79%	(Child Care Needs)
3.) Population 65 or Above	16.20%	0.276
4.) Population 65 or Above Poverty Rate	11.40%	(Elder Needs)
5.) Workers Using Public Transportation	0.34%	0.07
6.) Occupied Housing Units w/o Vehicle	6.67%	(Transportation Needs)
7.) Housing Unit Occupancy Rate	84.45%	2.525 (Temporary Shelter and Housing Recovery Needs)
8.) Rental Occupancy Rate	36.71%	
9.) Non-White Population	26.59%	
10.) Population in Group Quarters	2.79%	
11.) Housing Units Built Prior to 1990	65.89%	
12.) Mobile Homes, RVs, Vans, etc.	17.63%	
13.) Poverty Rate	18.42%	
14.) Housing Units Lacking Telephones	4.60%	0.317 (Civic Capacity Needs)
15.) Age 25+ With Less Than High School Diploma	17.00%	
16.) Unemployment Rate	8.83%	
17.) Age 5+ Which Cannot Speak English Well or Not At All	1.29%	
3.402 Social Vulnerability 'Hotspot' or Area of Concern		

Sources: Shannon Van Zandt, Texas A&M, Hazard Planning materials, and 2009-2013 American Community Survey, Tables B11003, B01001, B17001, B08301, B25044, B25001, B25042, B02001, B03002, B26001, B25036, B17001, B25043, S1501, B23025 & B06007

Social Vulnerability - Impacts on Housing & Disaster Resiliency



Sources: Shannon Van Zandt, Texas A&M, Hazard Planning materials, and 2009-2013 American Community Survey, Tables B11003, B01001, B17001, B08301, B25044, B25001, B25042, B02001, B03002, B26001, B25056, B17001, B25043, S1501, B23025 & B06007

Social Vulnerability - Impacts on Housing & Disaster Resiliency

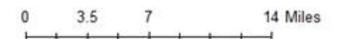
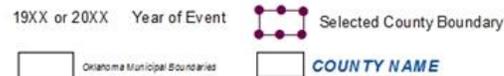
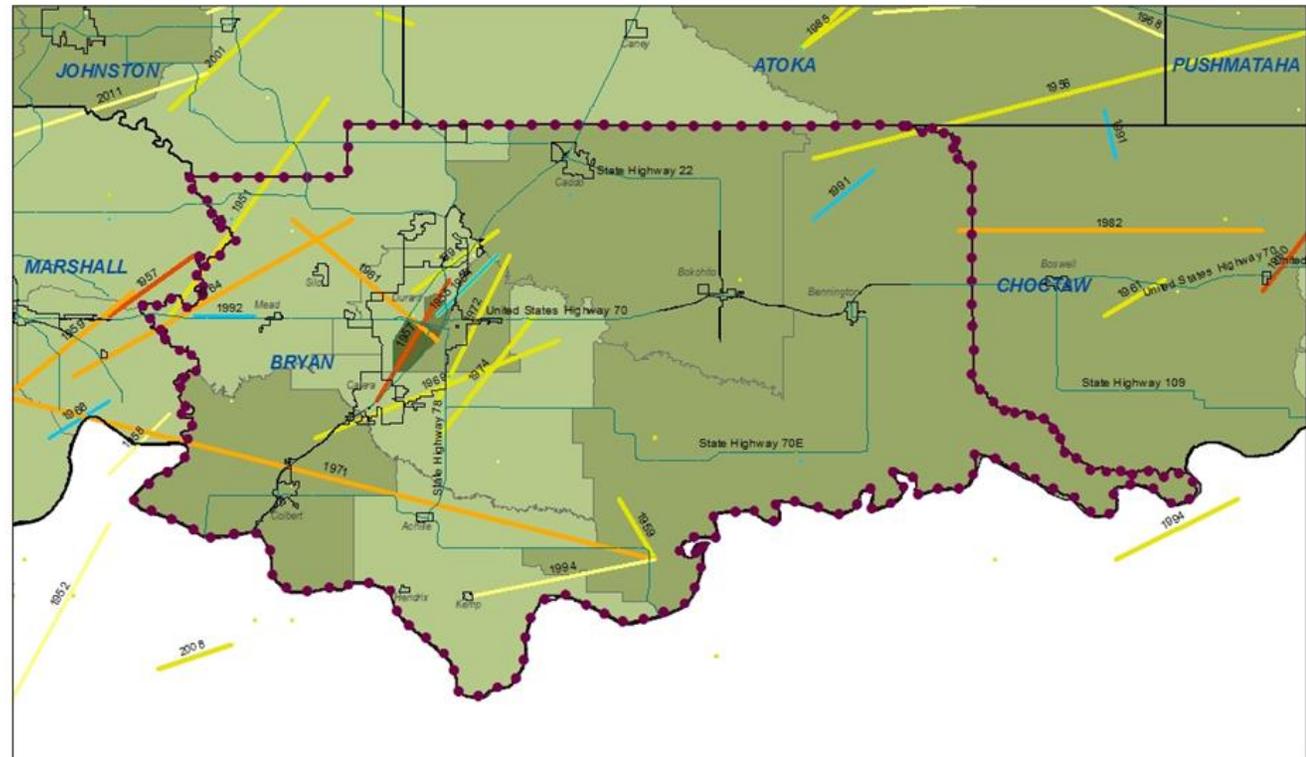
Tornado Events 1950 - 2014

Bryan County

Tornado Magnitude



Social Vulnerability Index



Sources: Shannon Van Zandt, Texas A&M, Hazard Planning materials, and 2009-2013 American Community Survey, Tables B11003, B01001, B17001, B08301, B25044, B25001, B25042, B02001, B03002, B26001, B29036, B17002, B25043, S1501, B23025 & B06007

Social vulnerability combined with the devastating impacts of a natural or man-made disaster can compound a household's ability to recover and in fact can place those individuals at an even greater gap or disadvantage prior to the event (Shannon Van Zandt, Texas A&M, Hazard Planning).

This county falls above average per this index for social vulnerability when comparing as a county to other counties in the state. Looking at the census tract level, the Durant area and eastern portion of the county have elevated social vulnerability scores.

Recommendations for this county:

- Update HMP for Bryan County; the county should pursue funding/grants for the development of an HMP and have the plan approved by the state and FEMA. The county should also continually maintain and update the HMP.
- Special efforts to strengthen building codes related to tornadoes and natural disasters should be considered for all building codes; such as the suggestion of using "hurricane clips" in new residential development.
- Bryan County should pursue funding/grants for public storm shelters.
- Planning for shelters from disaster events for multifamily, HUD and LIHTC units, in addition to all housing in the community should be incorporated with any effort to increase housing.