

Special Topics

Murray 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 2 key cities within the county: Davis and Sulphur.

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. Of the 2 key cities, no comprehensive plans were found.

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 Hazard Mitigation Plans were found for Murray County.

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.

Flooding

Based on FEMA FIRM maps, does not show floodplain areas in the county. The National Flood Hazard Layer (Official) is not available for this area. Flash flooding is a concern for all parts of the state after heavy precipitation.

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

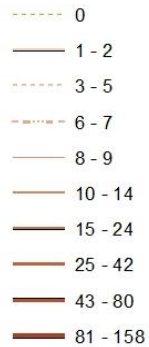
Historic data on tornados between 1950-2014 there are 32 tornados documented. There were 15 injuries that occurred connected to these tornados, with 6 of those injuries happening in the 1972 tornado. There were 7 fatalities connected to tornadoes during this time period, 5 of which occurred in 1972. Property losses between 1950-1996 ranged from \$256,050.00 to \$2,560,500.00. (The accounting methods used for losses changed in 1996.) The losses estimated between 1996-2014 was \$290,000.00.

Social Vulnerability - Impacts on Housing & Disaster Resiliency

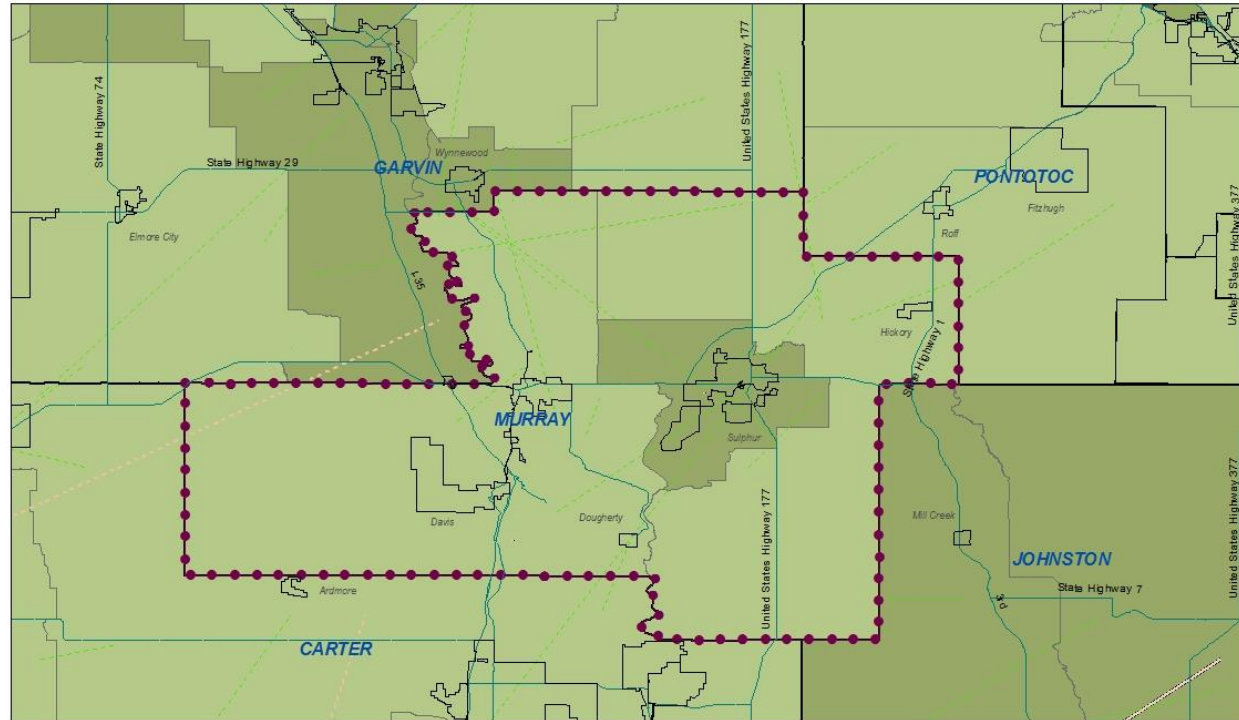
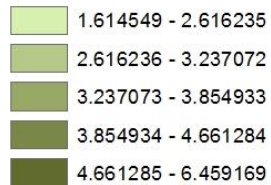
Tornado Events 1950 - 2014

Murray 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 B11003, B01001, B17001, B08301, B25044, B25001, B25042, B02001, B03002, B26001, B25036, B17001, B25043, S1501, B23015 & B06007

19XX or 20XX Year of Event

Oklahoma Municipal Boundaries

Selected County Boundary

COUNTY NAME



0 2.75 5.5 11 Miles

Social Vulnerability - Impacts on Housing & Disaster Resiliency

Tornado Events 1950 - 2014

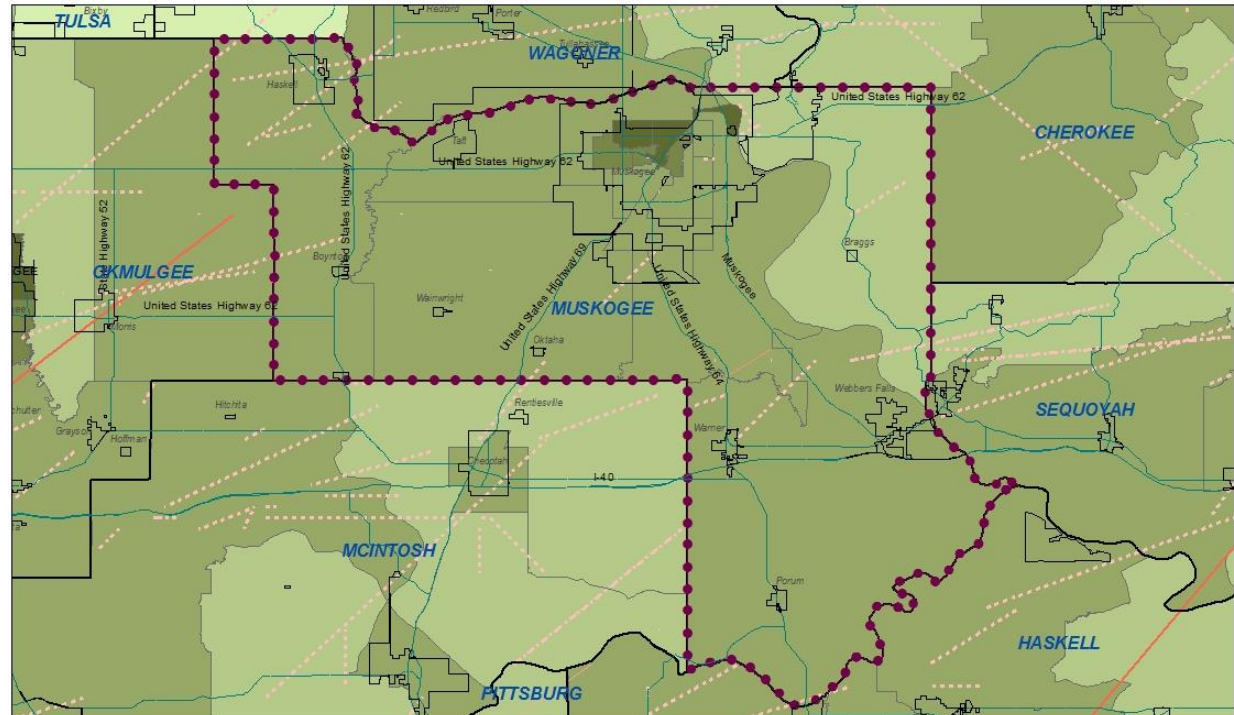
Muskogee County

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

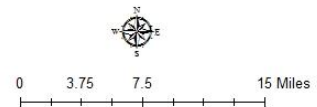
Social Vulnerability Index

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



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

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



Social Vulnerability - Impacts on Housing & Disaster Resiliency

Tornado Events 1950 - 2014
Murray County

Tornado prior to 1996
\$ losses associated with event

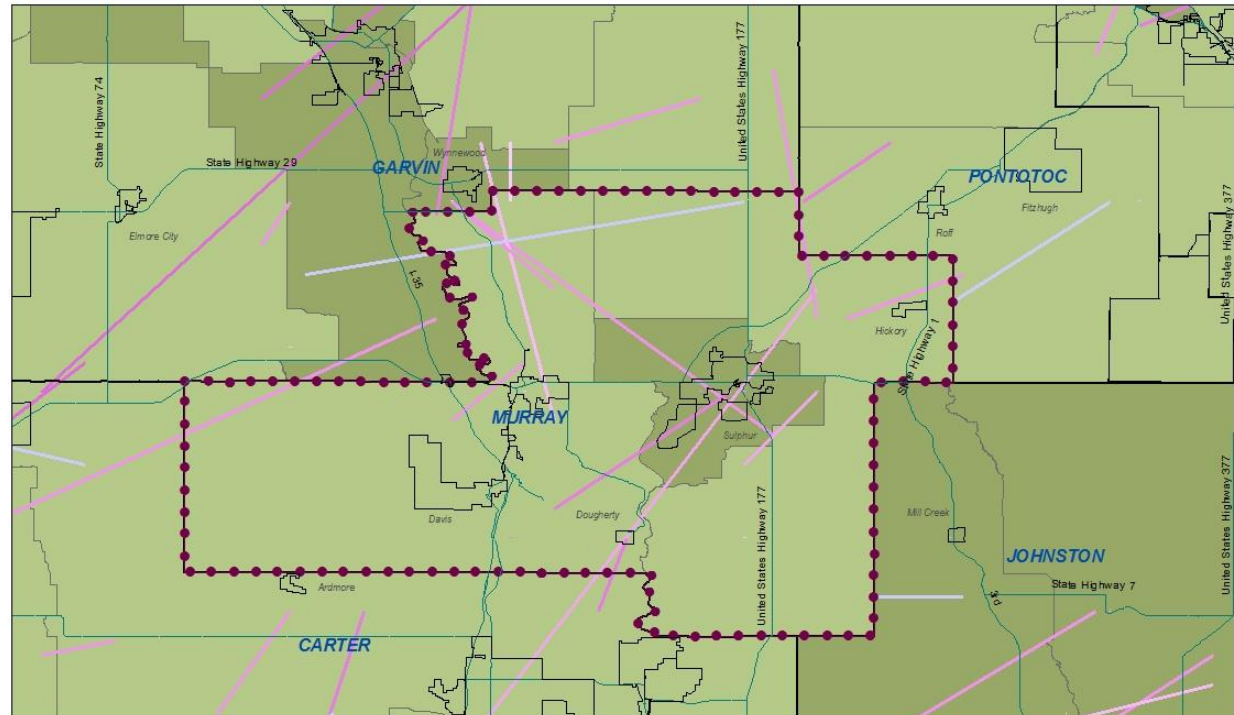
- >\$50
- \$50-\$500
- \$500-\$5,000
- \$5,000-\$50,000
- \$50,000-\$500,000
- \$500,000-\$5,000,000
- \$5,000,000-\$50,000,000
- \$50,000,000

Tornadoes after 1996
\$ in millions in losses associated with event
(accounting categories changed in 1996)

- 0.00 - 0.91
- 0.92 - 3.20
- 3.21 - 8.50
- 8.51 - 13.11
- 13.12 - 125.34
- 125.35 - 370.00
- 370.01 - 1000.00
- 1000.01 - 2800.10

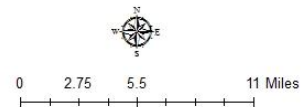
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19XX or 20XX Year of Event
 Oklahoma Municipal Boundaries
 Selected County Boundary
COUNTY NAME



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

Phone interviews with city officials and online searches yielded a total of 2 public shelters in the City of Sulphur. Murray County does have an online registry for private storm shelter however it is not clear how many private shelters are included in the registry. (This information was known but was not able to be released at the time of the phone call.) No shelters were identified as part of HUD/ LIHTC housing that are documented at the city and/or county level.

Based on the limited information acquired it is difficult to determine approximate needs for additional private or public shelters in the county.

C.2.1.3 Public Policy and Governance to Build Disaster Resiliency

No information available.

C.2.1.4 Local Emergency Response Agency Structure

The structure for response to address any perceived vulnerabilities in the county should be included in the Hazard Mitigation Plan.

No Hazard Mitigation Plan was acquired.

C.2.1.5 Threat & Hazard Warning Systems

No online information was available regarding threat and hazard warning systems for the Cities of Sulphur and Davis.

Google Mapped sirens in Oklahoma:

<https://www.google.com/maps/d/u/0/viewer?mid=zkgp3PmLxLzg.kXQeGF45FpQg&hl=en>

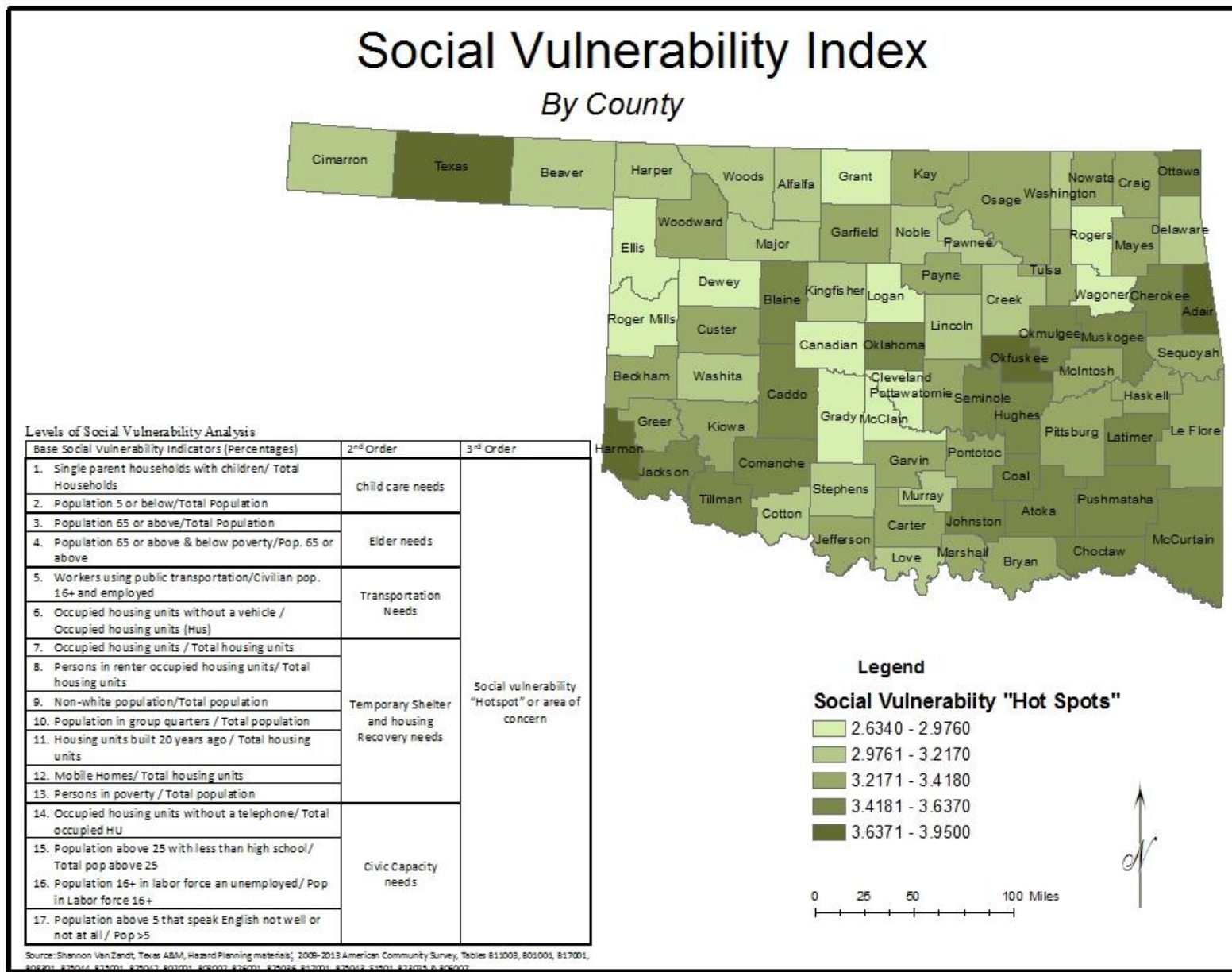


Social Vulnerability

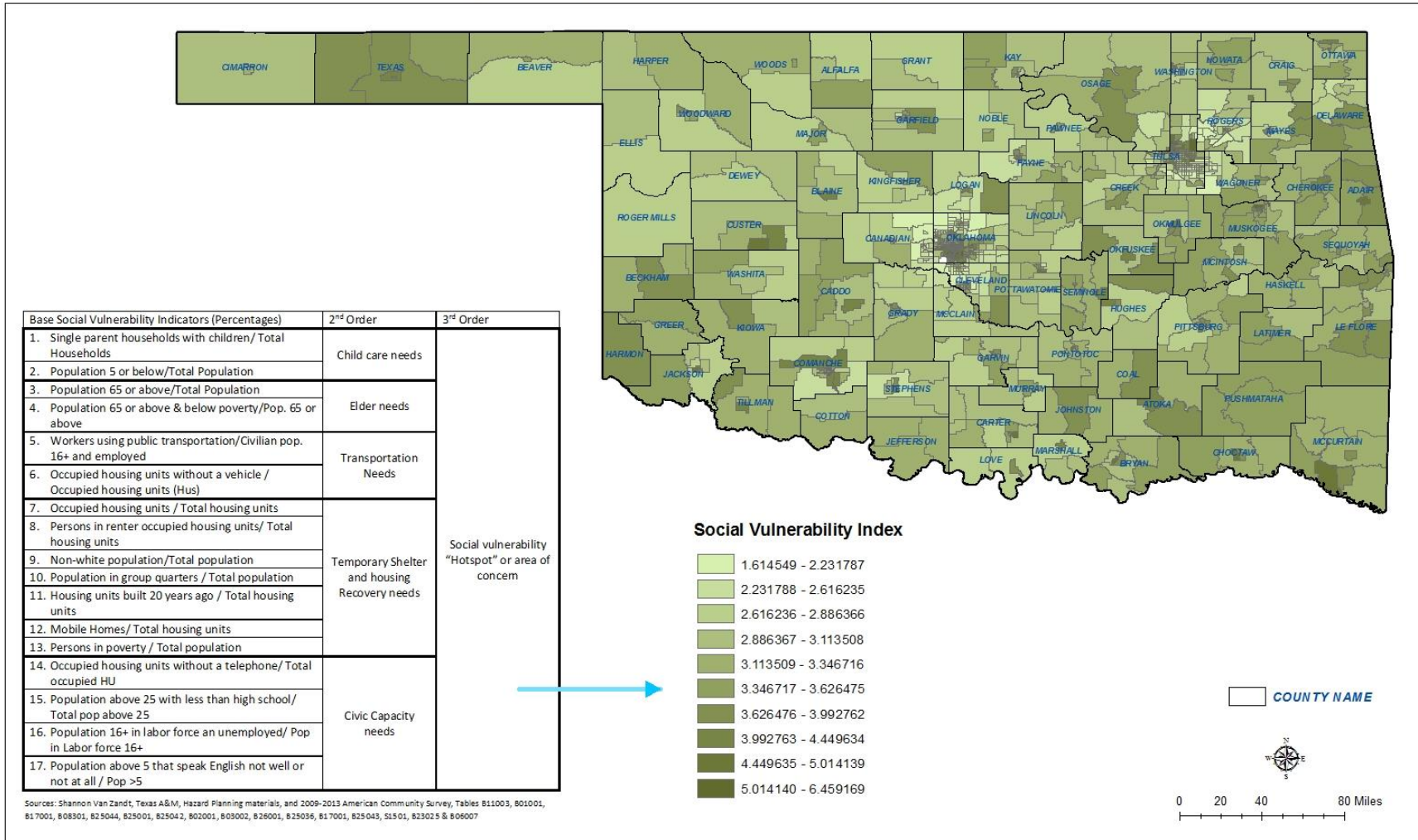
Based on the research work done by the Texas A&M University Hazard Reduction and Recovery Center, an added component is being included in this section. Social vulnerability can place households at a further disadvantage during and after a disaster. This analysis is assessing for the county the levels 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 - Murray County			
Base Social Vulnerability Indicators (%)		2nd Order	3rd Order
1.) Single Parent Households	10.24%	0.164	3.091 Social Vulnerability 'Hotspot' or Area of Concern
2.) Population Under 5	6.18%	(Child Care Needs)	
3.) Population 65 or Above	17.95%	0.237	
4.) Population 65 or Above & Below Poverty Rate	5.70%	(Elder Needs)	
5.) Workers Using Public Transportation	0.29%	0.052	
6.) Occupied Housing Units w/o Vehicle	4.96%	(Transportation Needs)	
7.) Housing Unit Occupancy Rate	76.00%	2.364 (Temporary Shelter and Housing Recovery Needs)	
8.) Rental Occupancy Rate	26.69%		
9.) Non-White Population	24.81%		
10.) Population in Group Quarters	2.70%		
11.) Housing Units Built Prior to 1990	75.94%		
12.) Mobile Homes, RVs, Vans, etc.	15.76%	0.273 (Civic Capacity Needs)	
13.) Poverty Rate	14.53%		
14.) Housing Units Lacking Telephones	3.12%		
15.) Age 25+ With Less Than High School Diploma	17.20%	1.63%	
16.) Unemployment Rate	5.38%		
17.) Age 5+ Which Cannot Speak English Well or Not At All	1.63%		

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



Social Vulnerability - Impacts on Housing & Disaster Resiliency

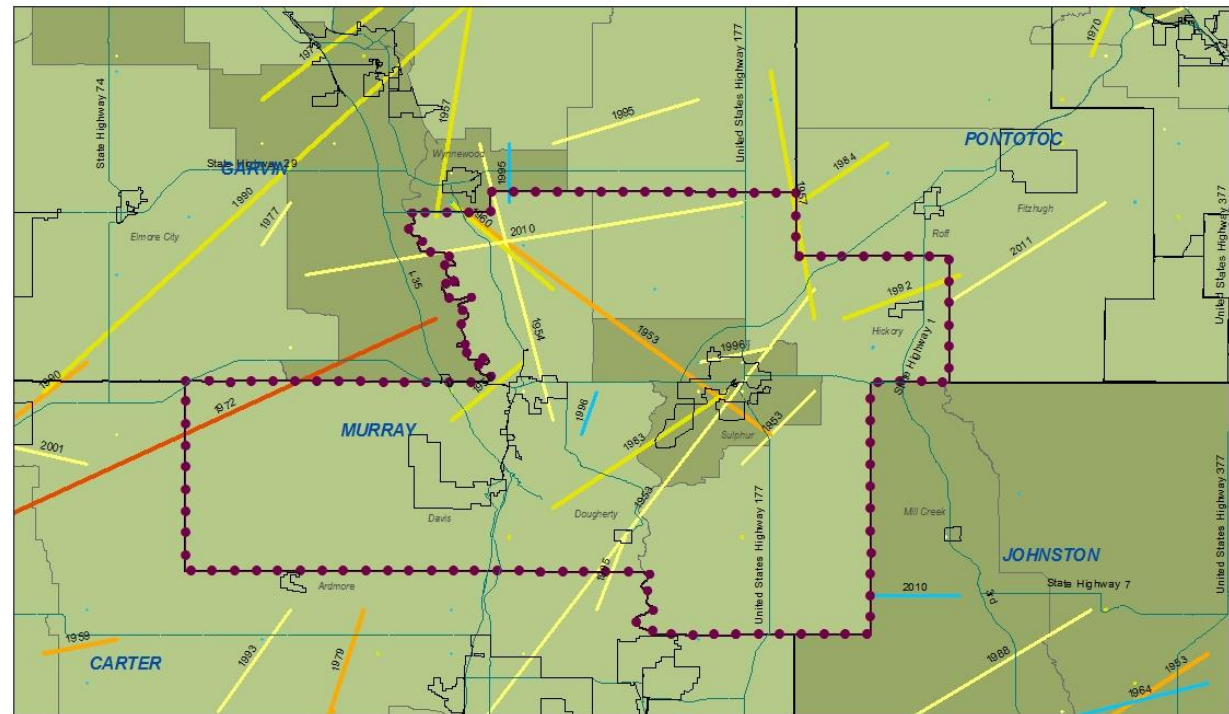
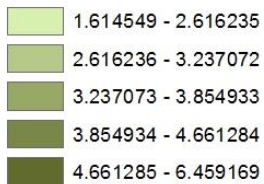
Tornado Events 1950 - 2014

Murray County

Tornado Magnitude

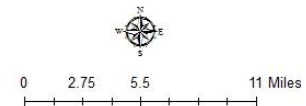


Social Vulnerability Index



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, 52501, 823025 & 806007

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



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 below the state score per this index for social vulnerability when comparing as a county to other counties in the state. The census tract near Sulphur has increased social vulnerability and historically has experienced tornado activity. Attention to providing shelters from storm events as well as attention to recovery efforts may be helpful in these areas during and after an event.

Recommendations for this county:

- Develop and maintain the county HMP and include attention to areas within the county that in addition to physical vulnerability may have compounding social vulnerability factors.
- Efforts to strengthen building codes related to tornadoes and natural disasters should be considered.
- 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.
- Continue to apply for grants and pursue funding for more public emergency shelters.