

Special Topics

Pawnee 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 6 key cities within the county (Pawnee, Cleveland, Terlton, Jennings, Ralston, Maramec).

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.

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.

Pawnee County does not have a current Hazard Mitigation Plan.

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 30 tornados documented. There were 282 injuries that occurred connected to these tornados, with 24 of those injuries happening in the 1991 tornado. There were 19 fatalities connected to tornadoes during this time period, 14 of which occurred in 1974. Property losses between 1950-1996 ranged from \$6,525,602.00 to \$65,256,100.00. (The accounting methods used for losses changed in 1996.) The losses estimated between 1996-2014 was \$1,010,000.00.

Social Vulnerability - Impacts on Housing & Disaster Resiliency

Tornado Events 1950 - 2014

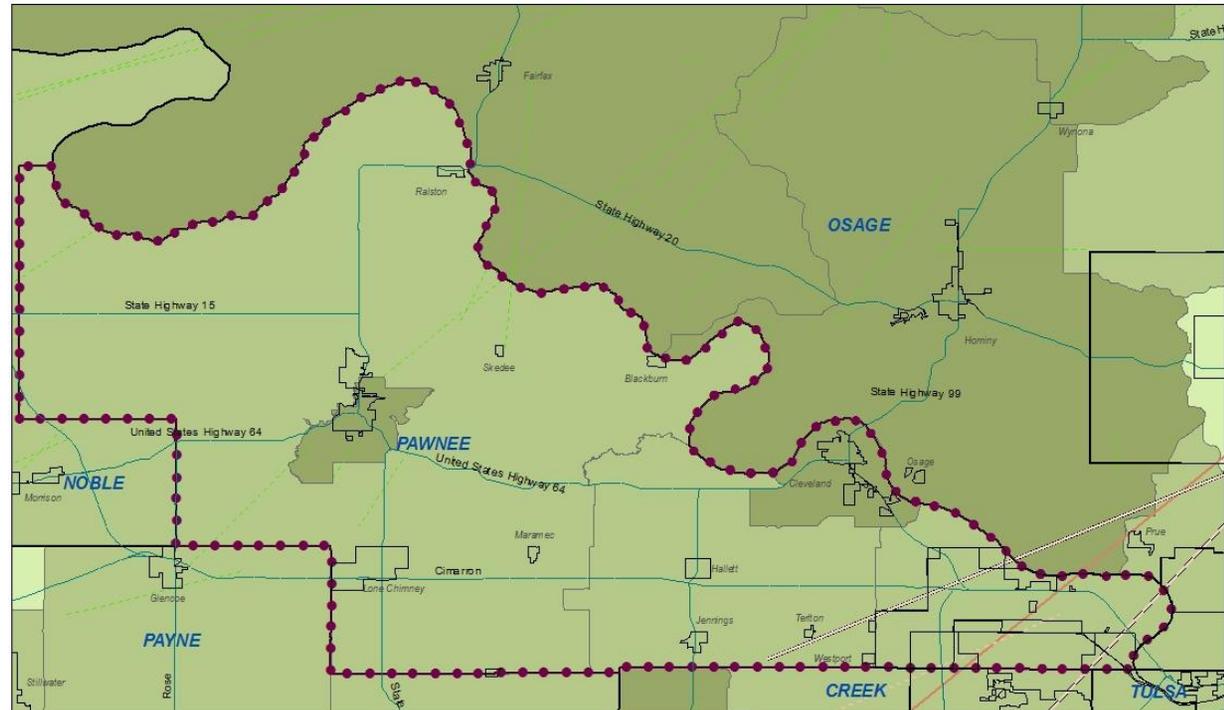
Pawnee County

of fatalities associated with event

- 0
- 1 - 2
- 3 - 5
- 6 - 7
- 8 - 9
- 10 - 14
- 15 - 24
- 25 - 42
- 43 - 80
- 81 - 158

Social Vulnerability Index

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



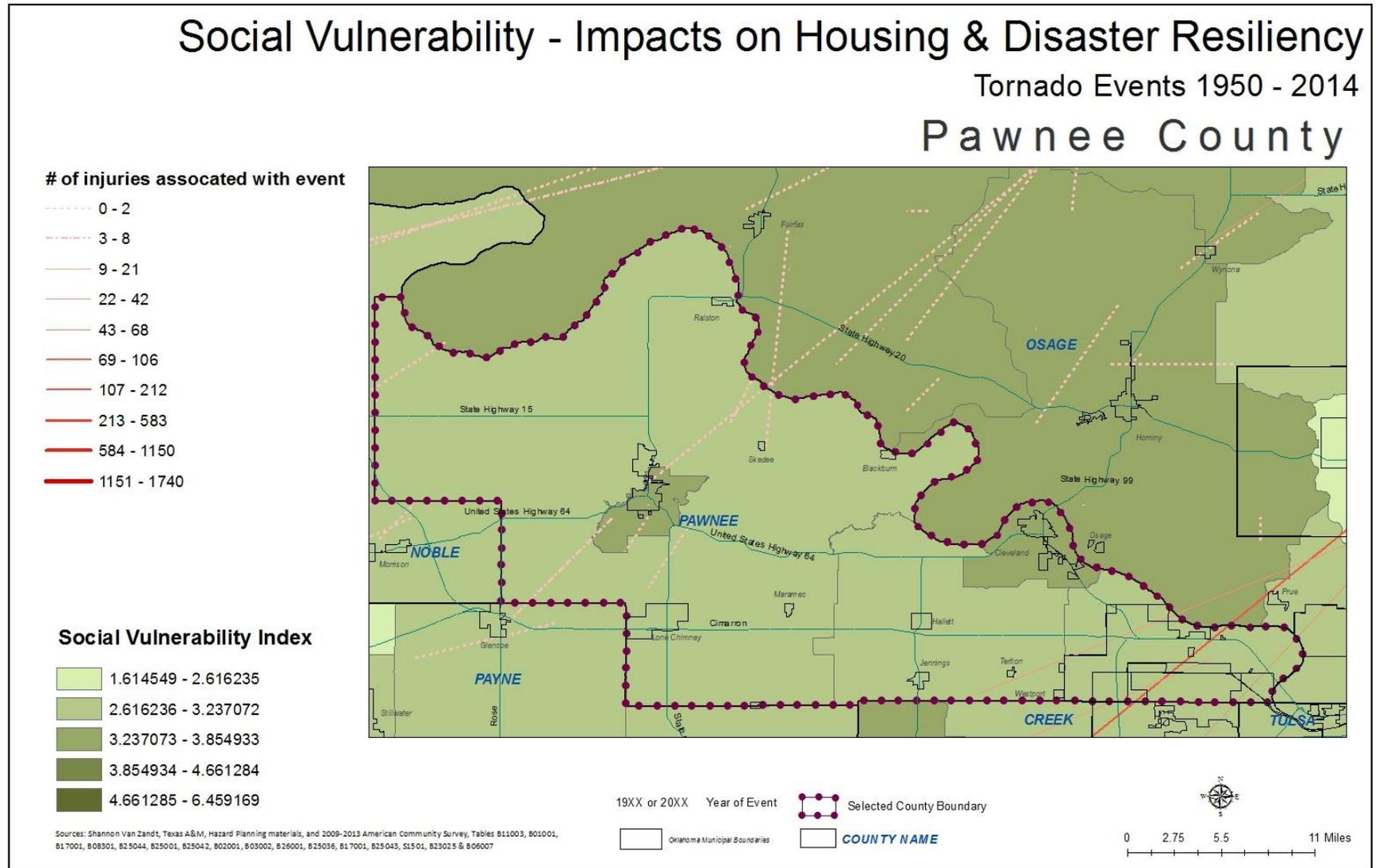
19XX or 20XX Year of Event
 Selected County Boundary
 Oklahoma Municipal Boundaries
 COUNTY NAME

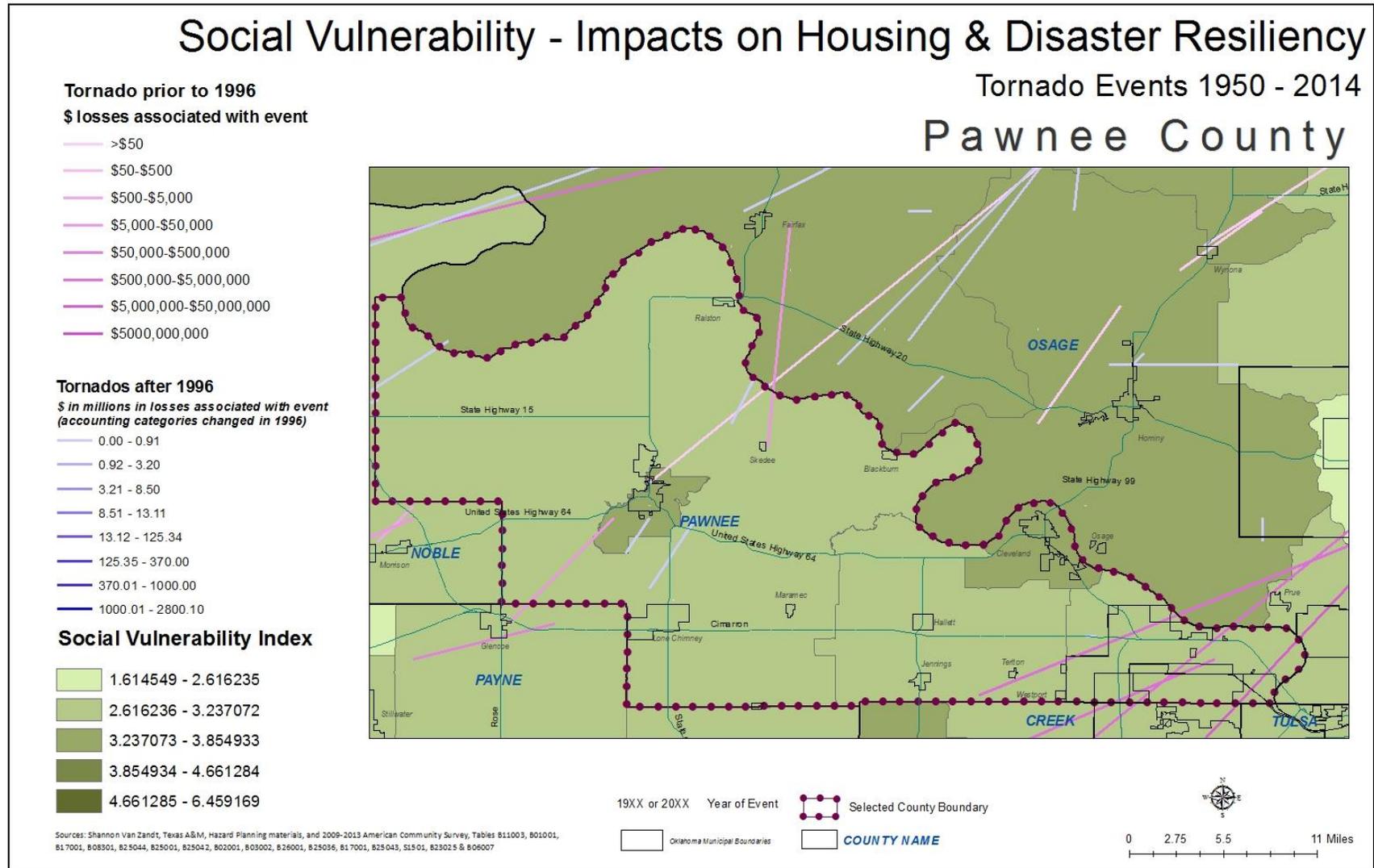


0 2.75 5.5 11 Miles

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







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

Pawnee voters approved to fund the \$1.6 million shelter in November 2012. The shelter is being built next to the elementary school. There's a very old underground facility over on the middle and high school campus where students can go during severe weather. It should be able to fit between 1,000 and 1,500 people inside (<http://www.newson6.com/story/25135834/pawnee-fast-tracks-building-of-domed-tornado-shelter>)

C.2.1.3 Public Policy and Governance to Build Disaster Resiliency

No information available.

C.2.1.4 Local Emergency Response Agency Structure

No information available.

C.2.1.5 Threat & Hazard Warning Systems

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

- Sirens
- Phone notification
- Emergency Broadcast System
- Facebook page

Google Mapped sirens in Oklahoma:

<https://www.google.com/maps/d/u/0/viewer?mid=zkgp3PmLxLzg.kXQeGF45FpOg&hl=en>



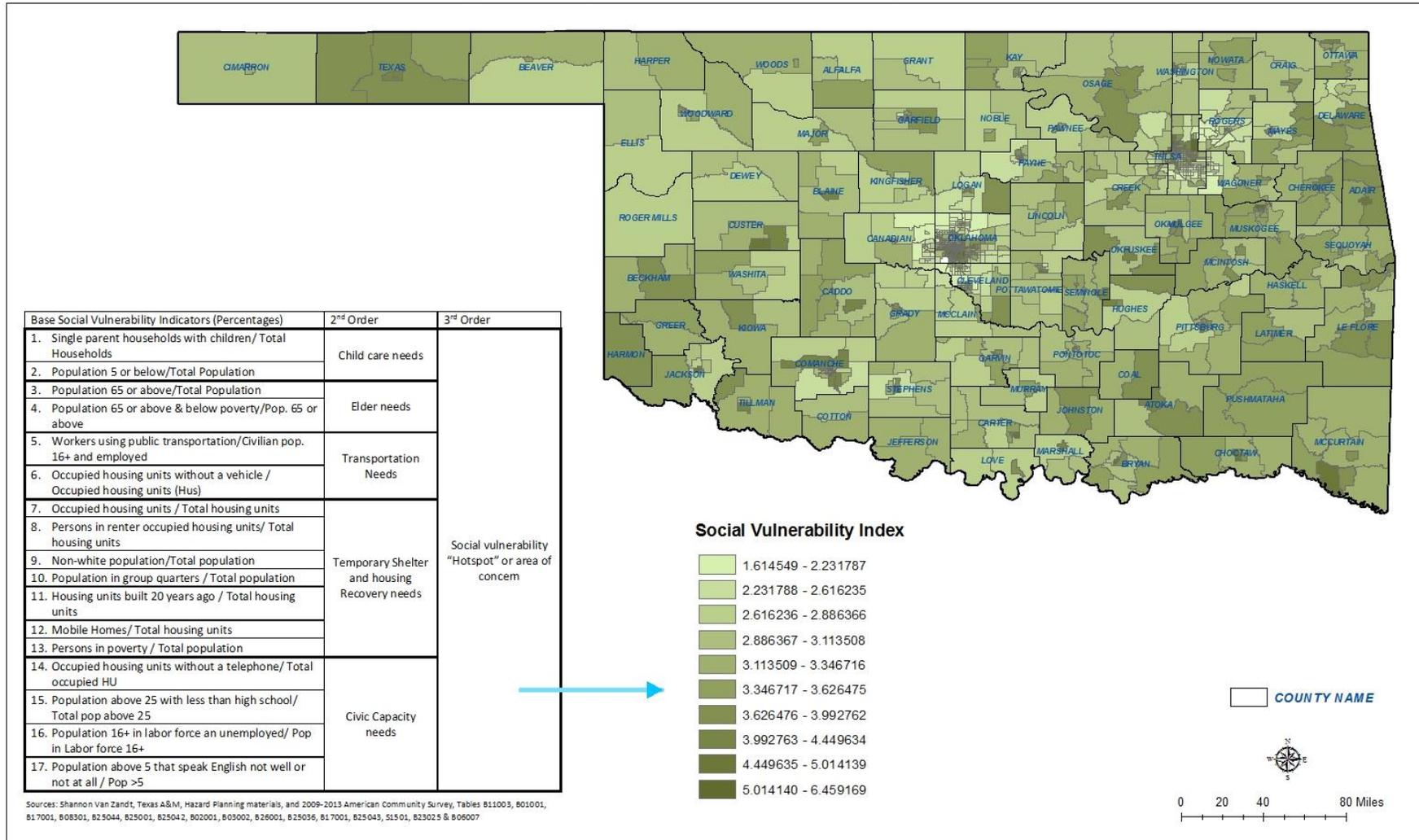
Social Vulnerability

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 - Pawnee County			
Base Social Vulnerability Indicators (%)		2nd Order	3rd Order
1.) Single Parent Households	12.90%	0.193	3.158 Social Vulnerability 'Hotspot' or Area of Concern
2.) Population Under 5	6.38%	(Child Care Needs)	
3.) Population 65 or Above	16.98%	0.24	
4.) Population 65 or Above & Below Poverty Rate	6.99%	(Elder Needs)	
5.) Workers Using Public Transportation	0.00%	0.039	
6.) Occupied Housing Units w/o Vehicle	3.90%	(Transportation Needs)	
7.) Housing Unit Occupancy Rate	82.14%	2.417 (Temporary Shelter and Housing Recovery Needs)	
8.) Rental Occupancy Rate	23.45%		
9.) Non-White Population	20.99%		
10.) Population in Group Quarters	1.11%		
11.) Housing Units Built Prior to 1990	76.03%		
12.) Mobile Homes, RVs, Vans, etc.	23.86%		
13.) Poverty Rate	14.15%	0.269 (Civic Capacity Needs)	
14.) Housing Units Lacking Telephones	5.27%		
15.) Age 25+ With Less Than High School Diploma	12.50%		
16.) Unemployment Rate	8.14%		
17.) Age 5+ Which Cannot Speak English Well or Not At All	1.02%		

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

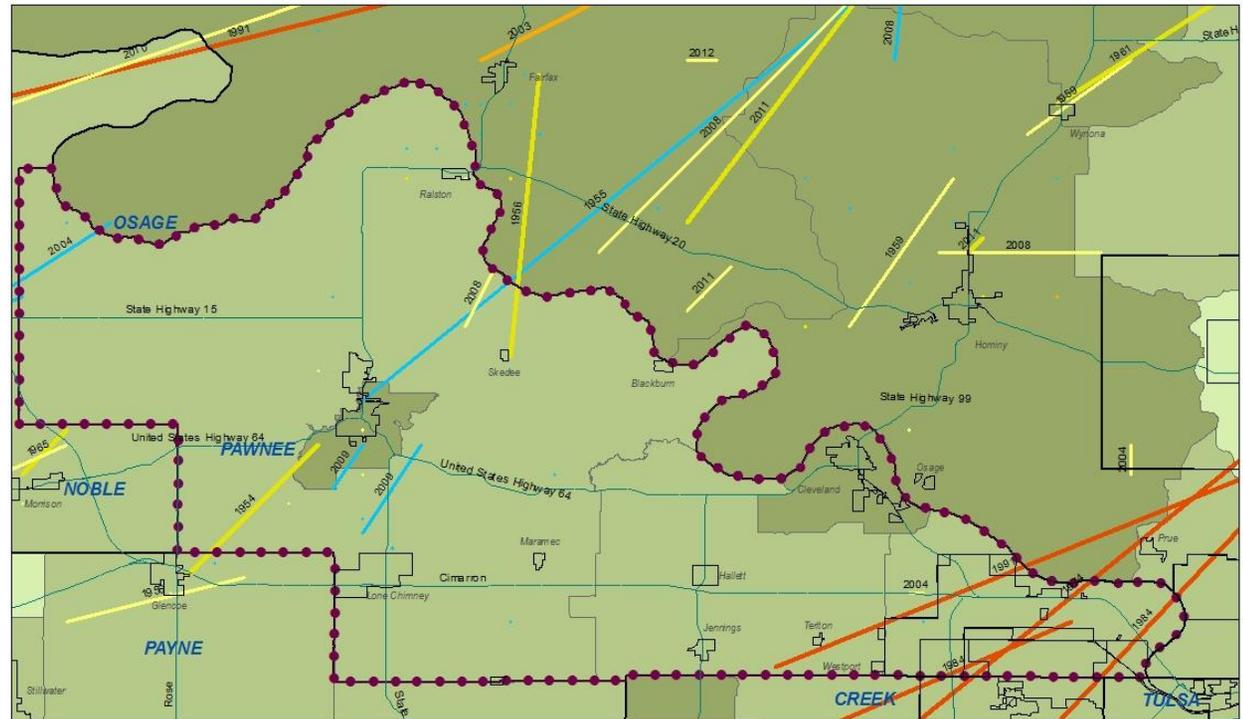
Tornado Events 1950 - 2014

Pawnee County

Tornado Magnitude



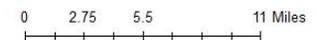
Social Vulnerability Index



19XX or 20XX Year of Event Selected County Boundary

Oklahoma Municipal Boundaries

COUNTY NAME



Sources: Shannon Van Zandt, Texas A&M, Hazard Planning materials, and 2009-2013 American Community Survey, Tables B11003, B01001, B17001, B08301, B25044, B25041, B25042, B02001, B03002, B26001, B25036, B17001, 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 below the state score per this index for social vulnerability when comparing as a county to other counties in the state. The area most vulnerable by census tract is in the populated area of Pawnee.

Recommendations for this county:

- Update 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.