

## Special Topics

## Nowata 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 as recovery can be improved with good planning.

### C.0 Comprehensive Plans & Hazard Mitigation Plans

There are 6 cities and towns within the county. The key city within the county is the City of Nowata. Towns include Delaware, Lenapah, Wann, South Coffeyville and New Alluwe. **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 Land Use Plans were identified in Nowata County.

The other key plan for a city to manage, mitigate and plan for recovery related to disasters are county or city **Hazard Mitigation Plans (HMP) and/or Emergency Management Plans (EMP)**. Nowata County had an HMP that expired in March 2015 that is being updated.

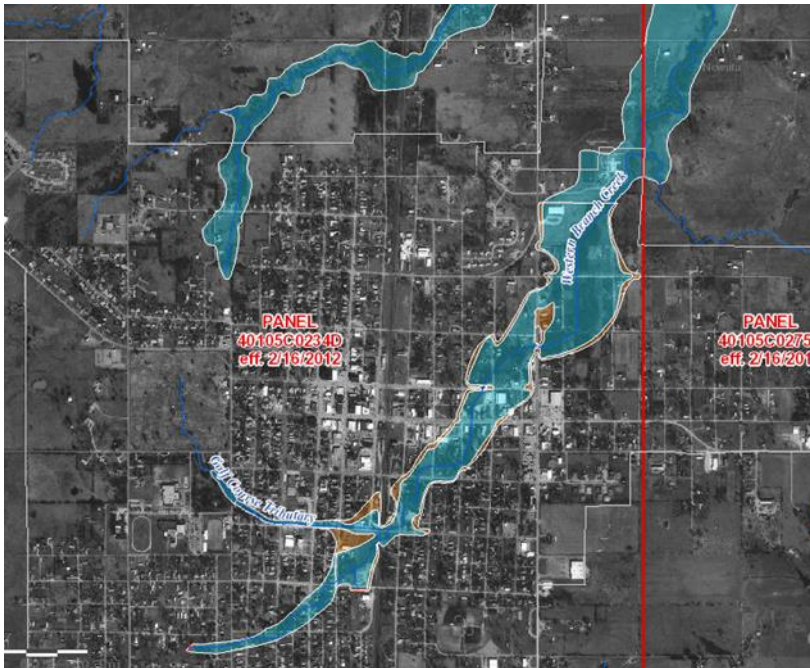
#### C.2.1.1. Historical Data on Natural Disasters and Other Hazards

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. However, given no HMP is available, use of NOAA data on tornados (shapefile) will provide some insight on one risks to the area.

##### Flooding

The primary water feature, California Creek, may cause flooding in parts of the county flood. 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.

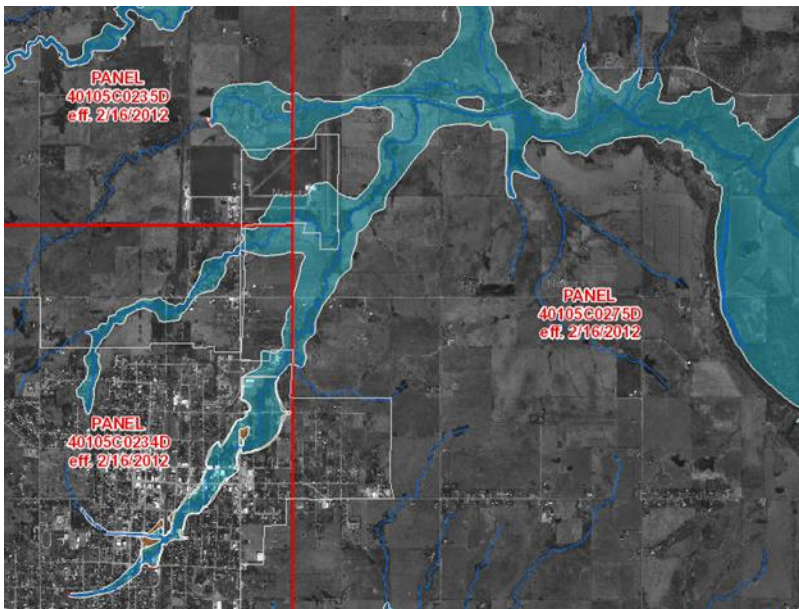
Nowata – floodplain area is within the developed town; considerations for reducing development in this area should be a part of future planning.



Flood Hazard Zones  
■ 1% Annual Chance Flood Hazard

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

Nowata (second map)



Flood Hazard Zones  
■ 1% Annual Chance Flood Hazard

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

Delaware- some areas of concern for flooding



Flood Hazard Zones  
■ 1% Annual Chance Flood Hazard

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

Lenepah – primarily developed outside of floodplain



Flood Hazard Zones  
■ 1% Annual Chance Flood Hazard

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

FEMA's

### Tornados

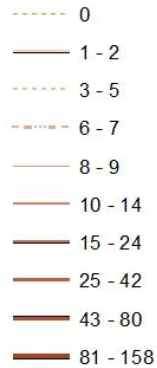
Historic data on tornados between 1950-2014 there are 42 tornados documented. There were 3 injuries that occurred connected to these tornados, with 2 of those injuries happening in the 1992 tornado. There were 0 fatalities connected to tornadoes during this time period. Property losses between 1961-1996 ranged from \$172,553 to \$1,735,650. (The accounting methods used for losses changed in 1996.) The losses estimated between 1996-2014 was \$450,000

# Social Vulnerability - Impacts on Housing & Disaster Resiliency

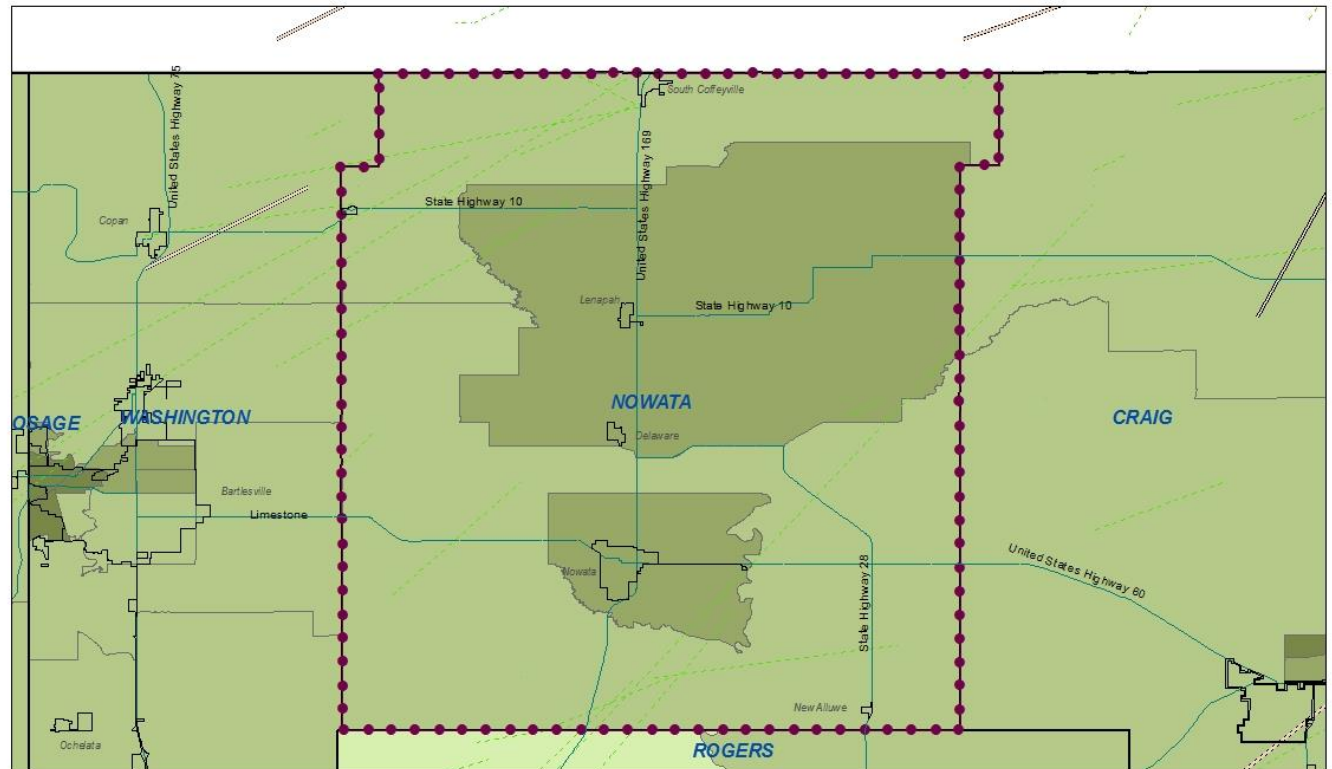
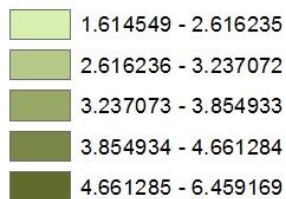
## Tornado Events 1950 - 2014

### Nowata County

**# of fatalities associated with event**

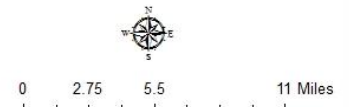


**Social Vulnerability Index**



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, B23025 & B06007

19XX or 20XX Year of Event  
 [Line with dots] Selected County Boundary  
 [Outline] Oklahoma Municipal Boundaries  
 [Box] COUNTY NAME

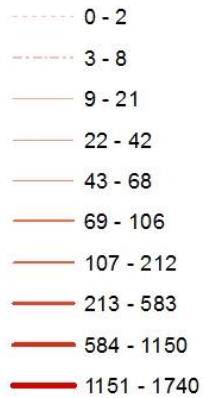


# Social Vulnerability - Impacts on Housing & Disaster Resiliency

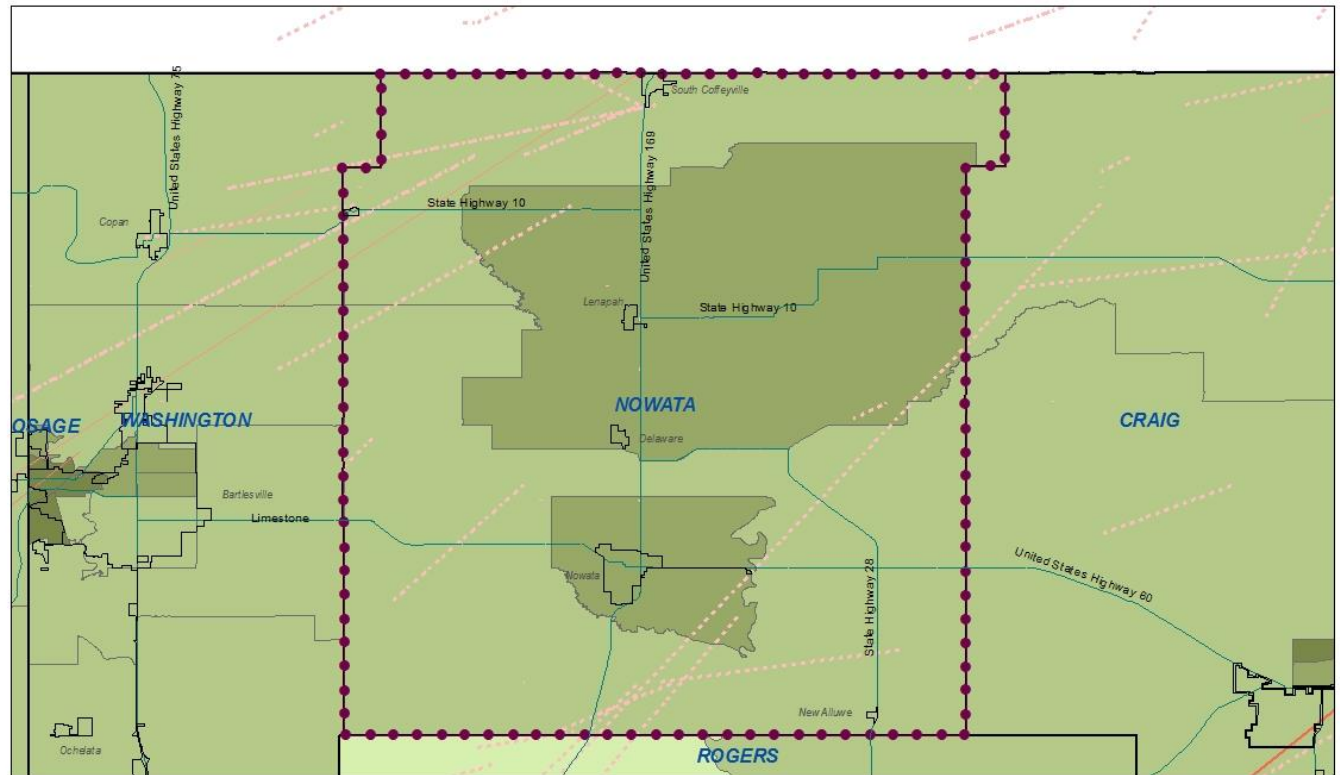
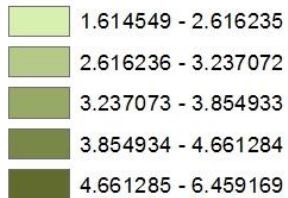
## Tornado Events 1950 - 2014

### Nowata County

**# of injuries associated with event**



**Social Vulnerability Index**



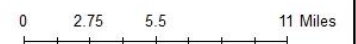
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19XX or 20XX Year of Event

Oklahoma Municipal Boundaries

Selected County Boundary

COUNTY NAME



# Social Vulnerability - Impacts on Housing & Disaster Resiliency

## Tornado Events 1950 - 2014 Nowata 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

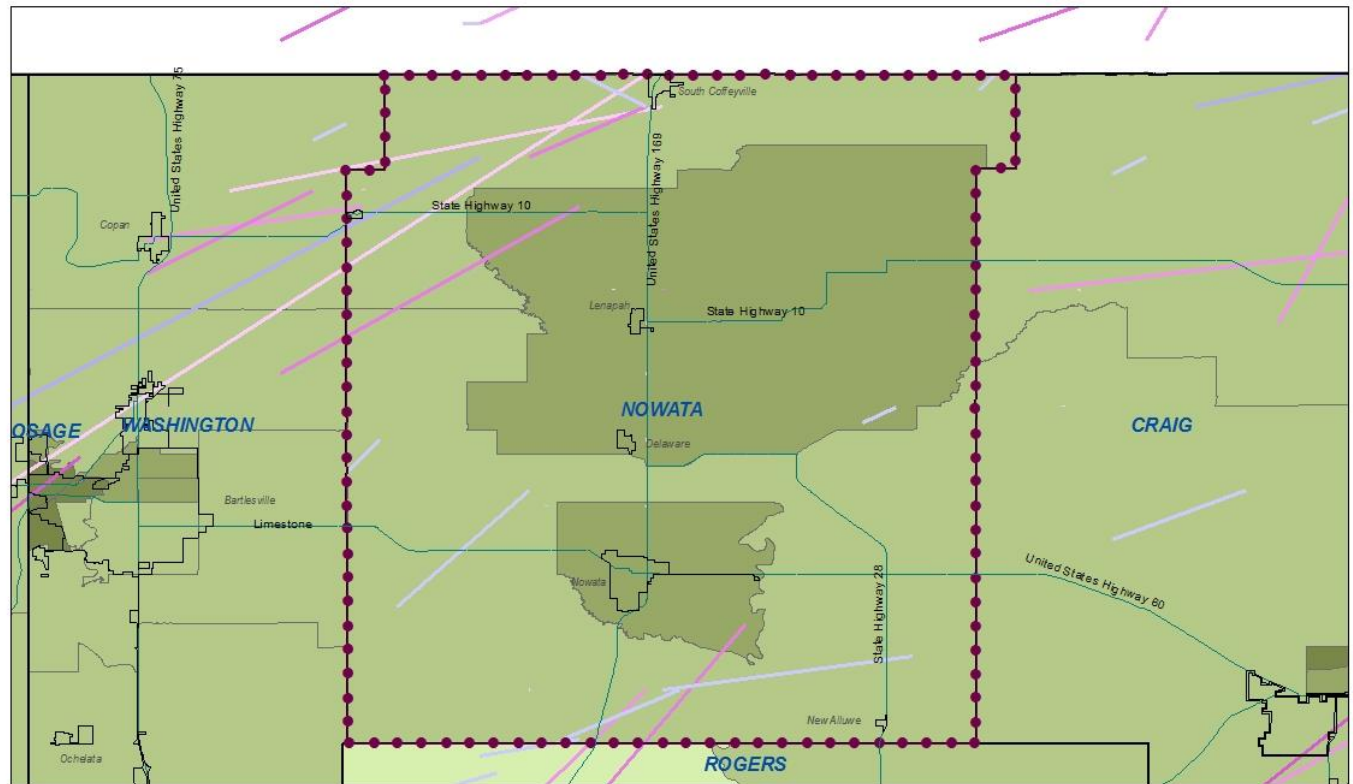
### Tornadoes after 1996

#### \$ 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

### 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

Oklahoma Municipal Boundaries

Selected County Boundary

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, B25042, B25042, B02001, B03002, B03002, B26001, B25036, B17001, B25043, S1501, B23025 & B08007



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

Most jurisdictions have elected to not have public shelters in order to discourage people from leaving safe places and ultimately be caught on the road trying to reach a public shelter.

- There are three public shelters in Nowata County located in the Towns of New Alluwe, Lenapah, and Wann.
- Oklahoma Union High School has two rooms that are designated as Safe Rooms.

Nowata County has a storm shelter program whereby residents can register their shelters at the Nowata City Clerk's office. To date, there are around 25-30 registered storm shelters in Nowata 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**

No information available.

### **C.2.1.5 Threat & Hazard Warning Systems**

Warning systems may be activated from any level of government by agencies having responsibility to notify the public of imminent danger. At the local level, these warnings are channeled through the Emergency Management Director in order to assign responsibility and ensure control of the warning process.

There are warning sirens in Nowata and in the towns. No sirens exist in the rural areas of the county.

### **Social Vulnerability**

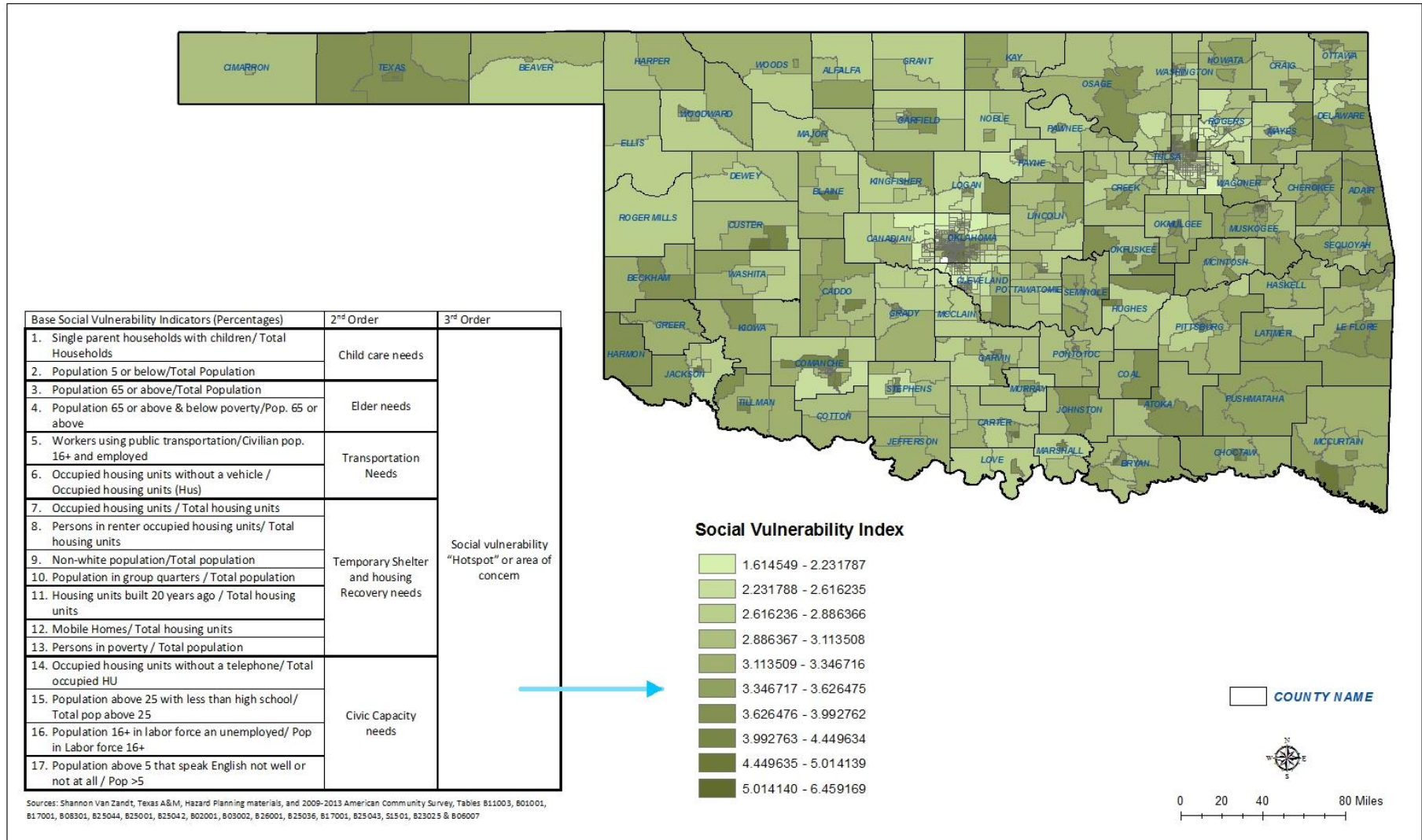
Based on the research work done by the Texas A&M University Hazard Reduction and Recovery Center, an added component is being included in this section. Social vulnerability can place households at a further disadvantage during and after a disaster. This analysis is assessing for the county the levels 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.

<b>Social Vulnerability Analysis - Nowata County</b>		
<b>Base Social Vulnerability Indicators (%)</b>	<b>2nd Order</b>	<b>3rd Order</b>
1.) Single Parent Households	12.11%	0.175
2.) Population Under 5	5.37%	(Child Care Needs)
3.) Population 65 or Above	18.31%	0.292
4.) Population 65 or Above Poverty Rate	10.93%	(Elder Needs)
5.) Workers Using Public Transportation	0.00%	0.04
6.) Occupied Housing Units w/o Vehicle	4.00%	(Transportation Needs)
7.) Housing Unit Occupancy Rate	84.29%	
8.) Rental Occupancy Rate	18.84%	2.54
9.) Non-White Population	32.30%	(Temporary Shelter and Housing Recovery Needs)
10.) Population in Group Quarters	1.87%	
11.) Housing Units Built Prior to 1990	79.53%	
12.) Mobile Homes, RVs, Vans, etc.	20.60%	
13.) Poverty Rate	16.56%	
14.) Housing Units Lacking Telephones	2.72%	
15.) Age 25+ With Less Than High School Diploma	15.80%	0.295
16.) Unemployment Rate	10.28%	(Civic Capacity Needs)
17.) Age 5+ Which Cannot Speak English Well or Not At All	0.71%	
		<b>3.342 Social Vulnerability 'Hotspot' or Area of Concern</b>
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



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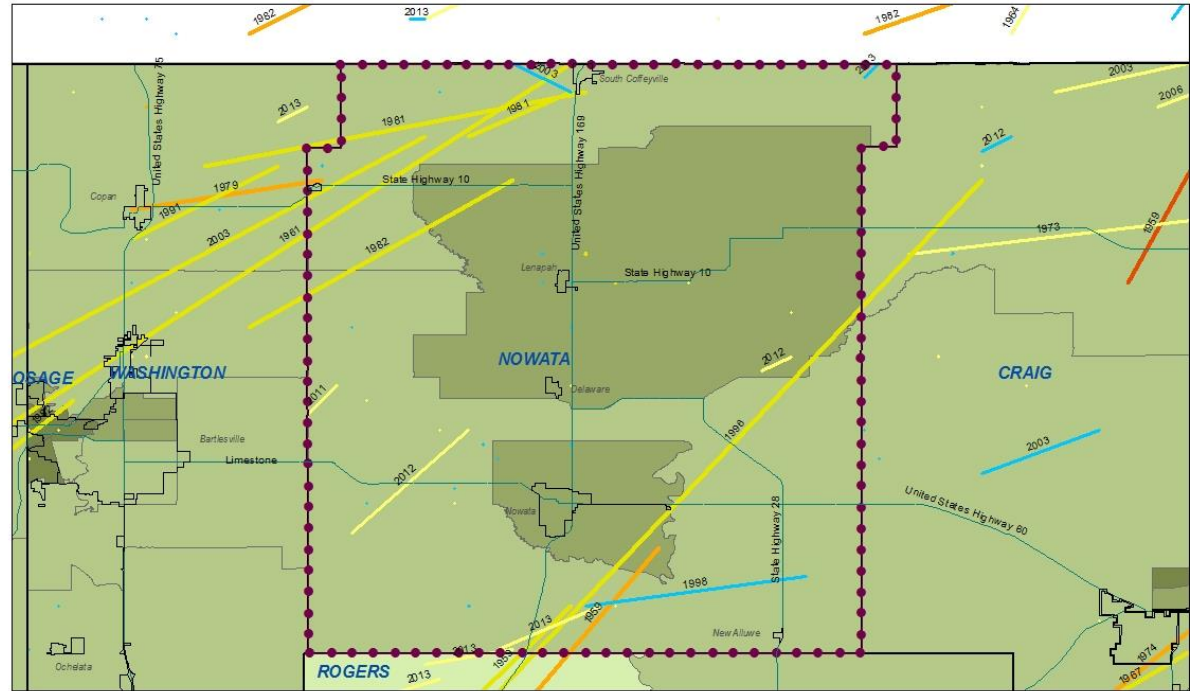
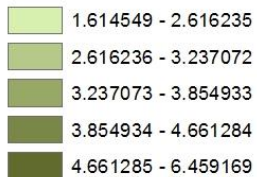
## Tornado Events 1950 - 2014

### Nowata County

**Tornado Magnitude**



**Social Vulnerability Index**

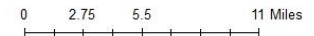


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19XX or 20XX Year of Event



Selected County Boundary



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 about average in hotspots per this index for social vulnerability when comparing as a county to other counties in the state. This may mean that people in the county as a whole may have a more difficult time during recovery. The populated areas of the county, as shown in the census tract version of the vulnerability index, shows increased vulnerability in the Lenapah, Delaware, and Nowata, as might be expected given these are the major urbanized areas of the county.

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.