

Special Topics

Logan 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 10 key cities within the county (Guthrie, Crescent, Mulhall, Coyle, Langston, Meridian, Orlando, Marshall, Cedar Valley, Cimarron City).

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.

City of Guthrie has a comprehensive plan

The plan discusses the historical development pattern that was platted over the top of Cottonwood Creek. This caused repeated flooding whereby the city purchased large amounts of land in the flood-prone areas (Guthrie Comprehensive Plan, p.15)

The plan clearly identifies that addressing the historical flooding through better land use practices is essential:

“Guthrie has experienced excessive flooding in the past due to lower lands in and around the outlet where the Cottonwood Creek conveys directly into the Cimarron River. Flooding along the Cottonwood Creek is worsened by inadequate pipe sizes in key areas within the corporate limits and the age of pipes in the central portion of Guthrie. Future development within Guthrie and in communities south of Guthrie will have a major impact on the city’s storm sewer system if not corrected. In addition, the condition of major portions of the system is unknown, requiring an inspection and inventory of the entire system. 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.” P 119

Logan County does have a Hazard Mitigation Plan, but it was unavailable for use for this study.

Logan County & the City of Guthrie have an Emergency Management Operations 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

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, however, increases risk of damages and property loss potentially repeatedly

Guthrie



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

Flood Hazard Zones
■ 1% Annual Chance Flood Hazard

Cedar Valley



Flood Hazard Zones
■ 1% Annual Chance Flood Hazard

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

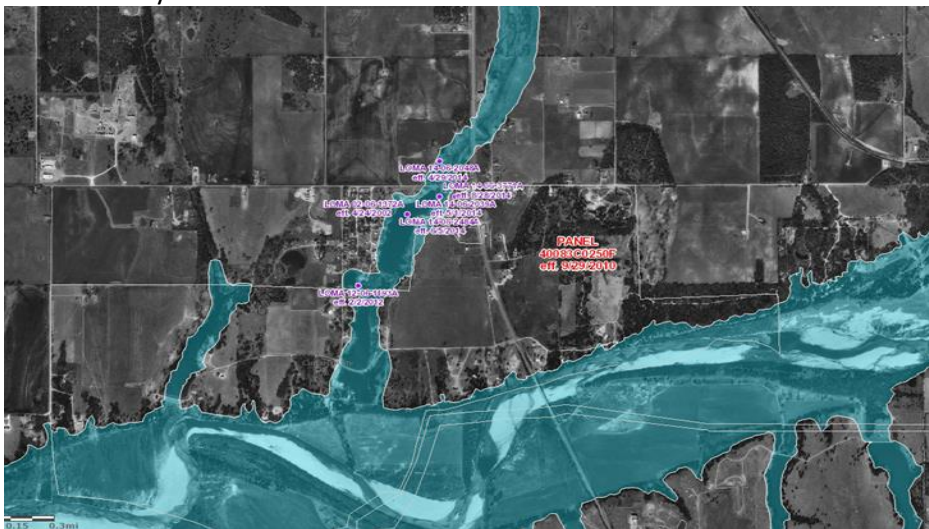
Crescent



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

Flood Hazard Zones
■ 1% Annual Chance Flood Hazard

Cimarron City

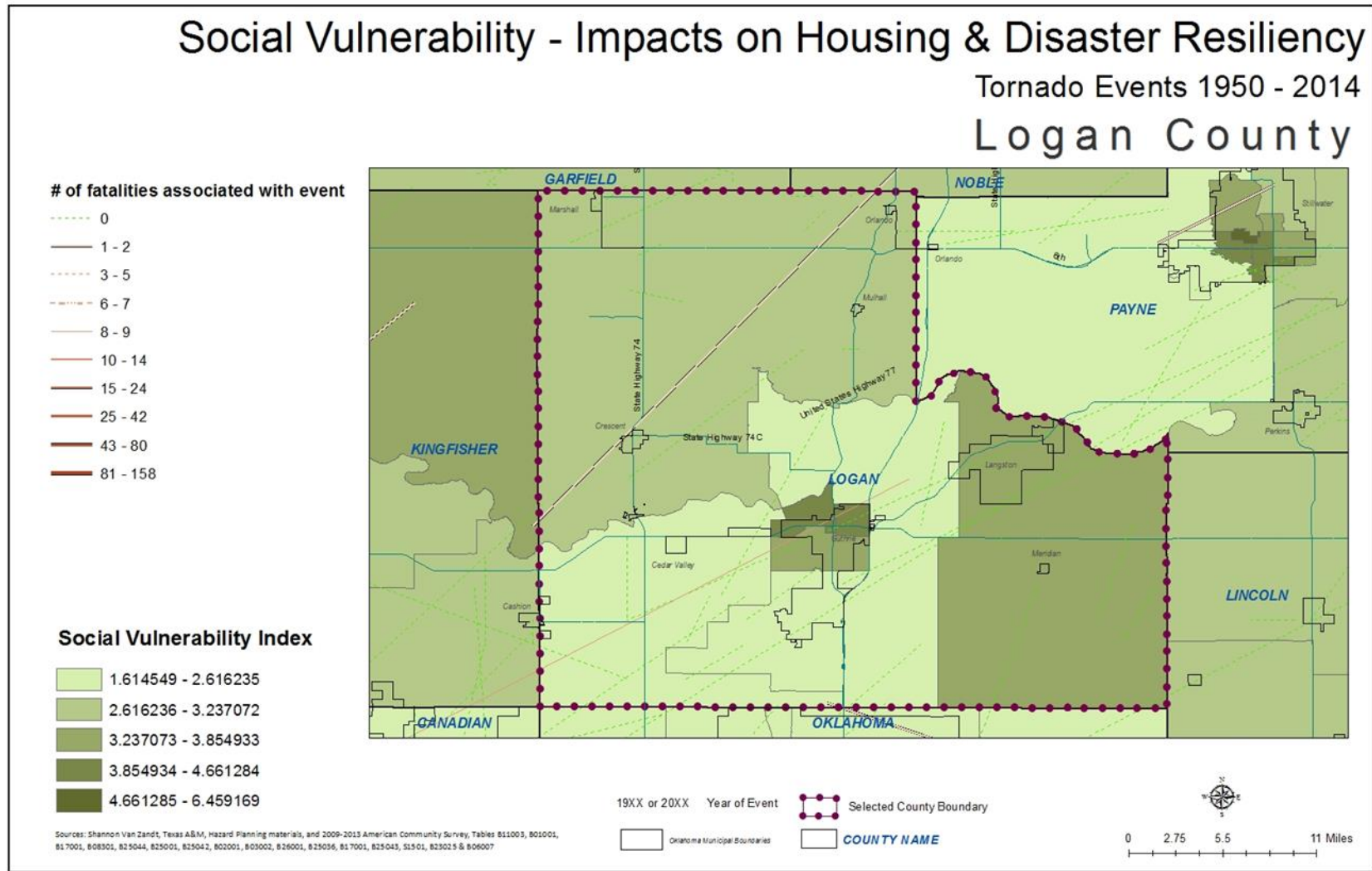


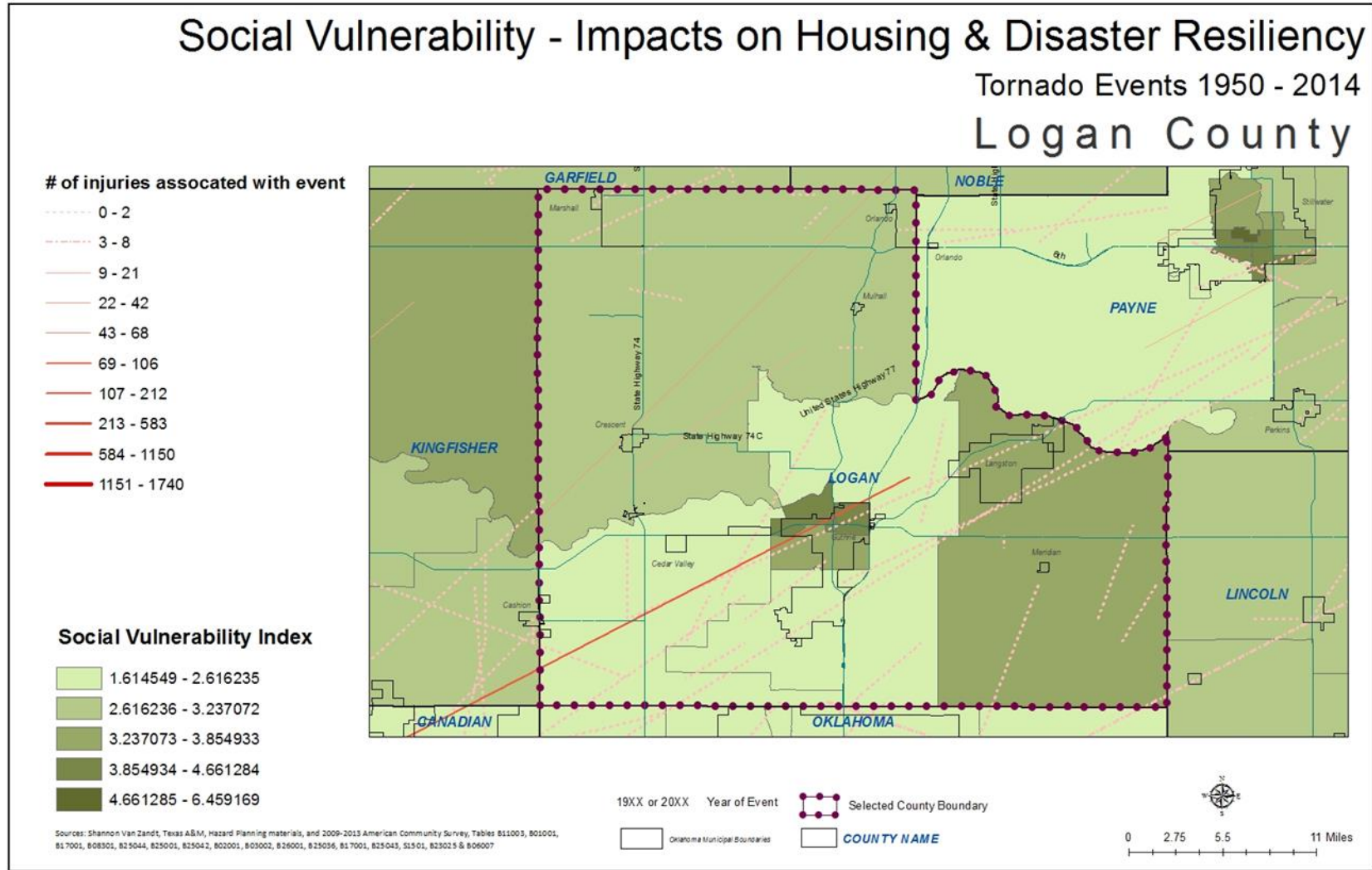
Flood Hazard Zones
■ 1% Annual Chance Flood Hazard

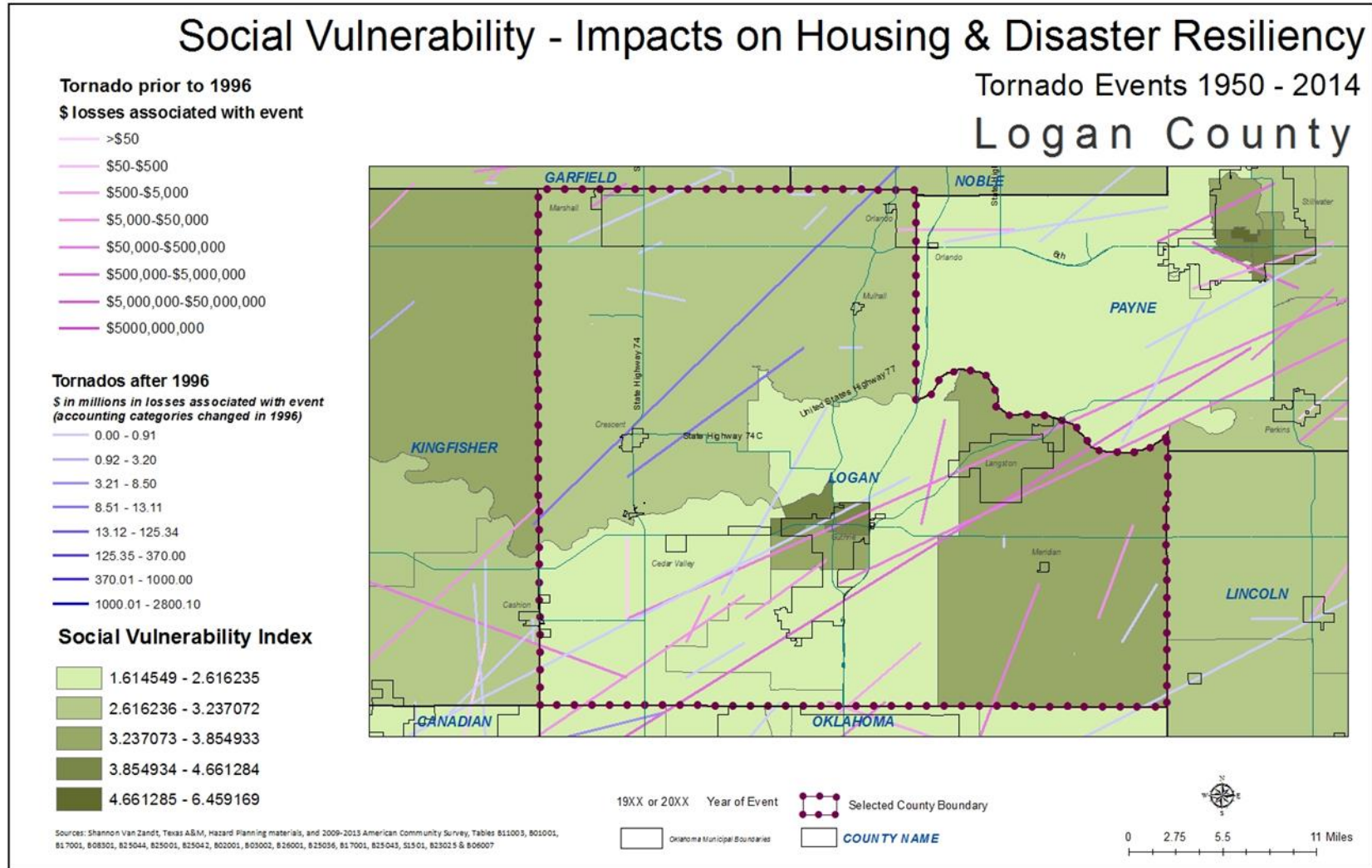
FEMA's National Flood Hazard Layer <http://fema.maps.arcgis.com/>

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

Historic data on tornados between 1961-2014 there are 52 tornados documented. There were 241 injuries that occurred connected to these tornados, with 181 of those injuries happening in the 2011 tornado. There were 11 fatalities connected to tornadoes during this time period, 9 of which occurred in 2011 tornado as well. Property losses between 1961-1996 ranged from \$891,052.00 to \$8,910,600.00. Accounting for losses estimated changed in 1996. The losses estimated between 1996-2014 was \$23,760,000.00.







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

Registry for shelters is handled by calling local fire department to register location.

Logan County Online registration:

<http://gcem.org/storm-shelter-registration/logan-county/>

Guthrie – Woodcrest Fire

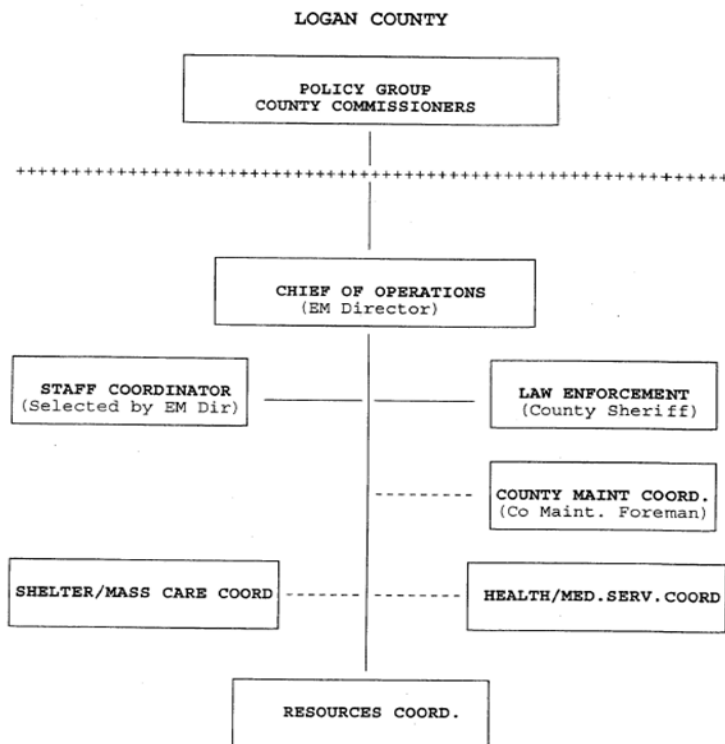
<http://woodcrestfd.com/stormshelter.html>

C.2.1.3 Public Policy and Governance to Build Disaster Resiliency

Information not available.

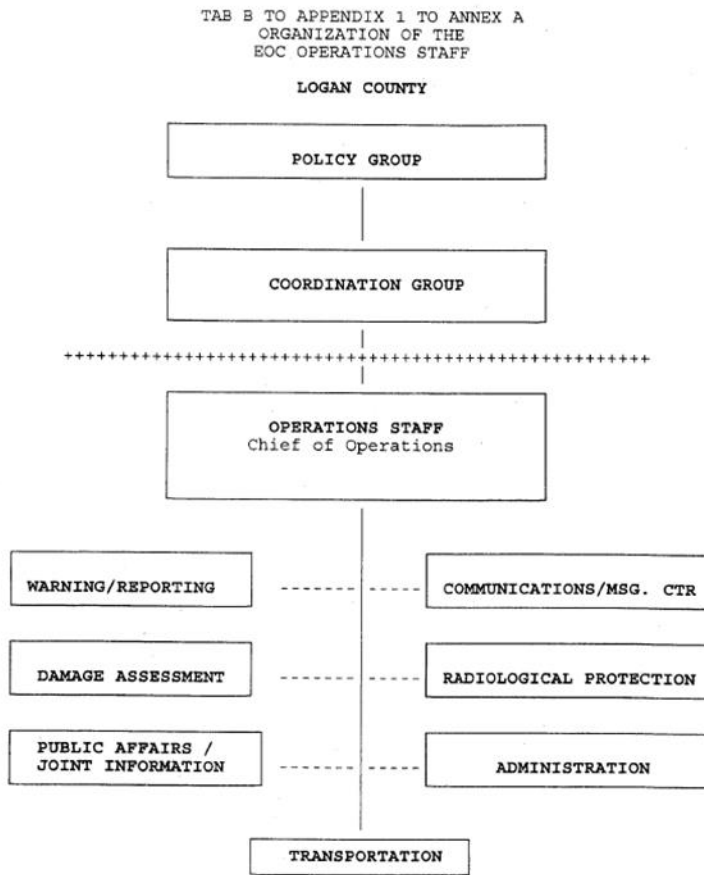
C.2.1.4 Local Emergency Response Agency Structure

Direction and control is explicitly stated in the EOP (p. 10)



Note: See Appendix 2 of Annex A for names of specific positions.





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C.2.1.5 Threat & Hazard Warning Systems

“In 2009, in the interest of public safety, the Logan County Board of Commissioners initiated and began implementing a county-wide outdoor warning system. The county purchased a computer and software to be used by emergency management to activate sirens in rural areas where there was no existing coverage.” (<http://logancountyok.com/index.php?bShow=775&cat=3>)

There ten sirens within the county at the following locations:

“Siren locations are near the intersections of Broadway and Camp, Kelly and Triplett, Hwy 74 and Forrest Hills, and at Seward and May. Others are at Sooner Fire Department at Midwest and Camp and at Woodcrest Fire Department at Douglas and Charter Oak. The remaining four sirens are within Cedar Valley and the Cimarron Golf Course.” (<http://logancountyok.com/index.php?bShow=775&cat=3>)

LOGAN COUNTY STORM SIREN SITES

LO1-Broadway & Camp

LO2-Kelly & Triplett

LO3-Cedar Valley Golf Course (Hwy 33 between Penn & May)

LO4-Cimarron Golf Course (Hwy 33 & Broadway & Santa Fe)

LO5-Cimarron Golf Course (Hwy 33 & Broadway & Santa Fe)

LO6-Cedar Valley Golf Course (Hwy 33 between Penn & May)

LO7-Sooner Fire Station (Midwest & Camp)

LO8-Woodcrest Fire Station (Douglas & Charter Oak)

LO9-Hwy 74 & Forrest Hills

<http://guthrienewspage.com/2012/04/logan-county-outdoor-warning-system-information-2/>

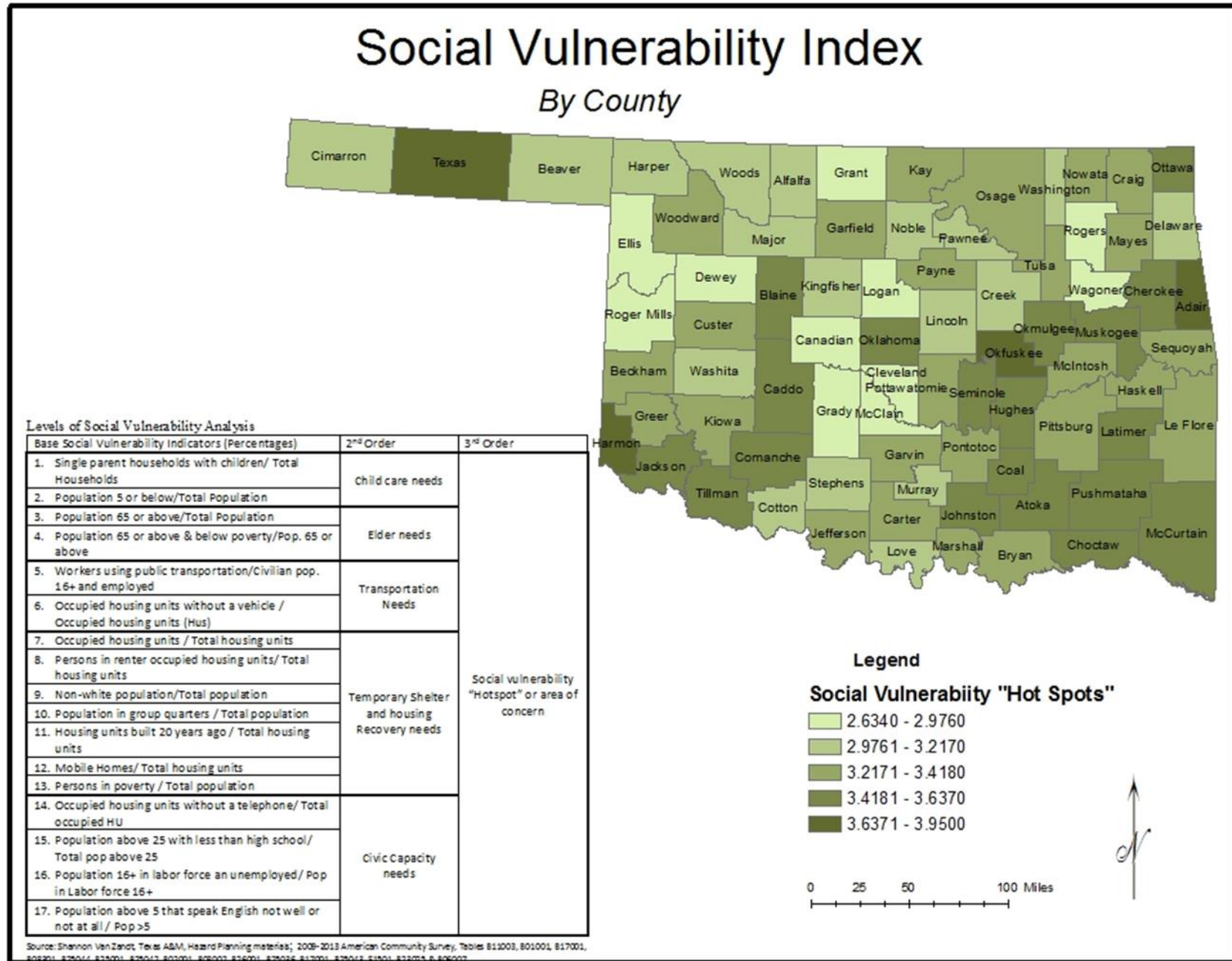
Social Vulnerability

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.

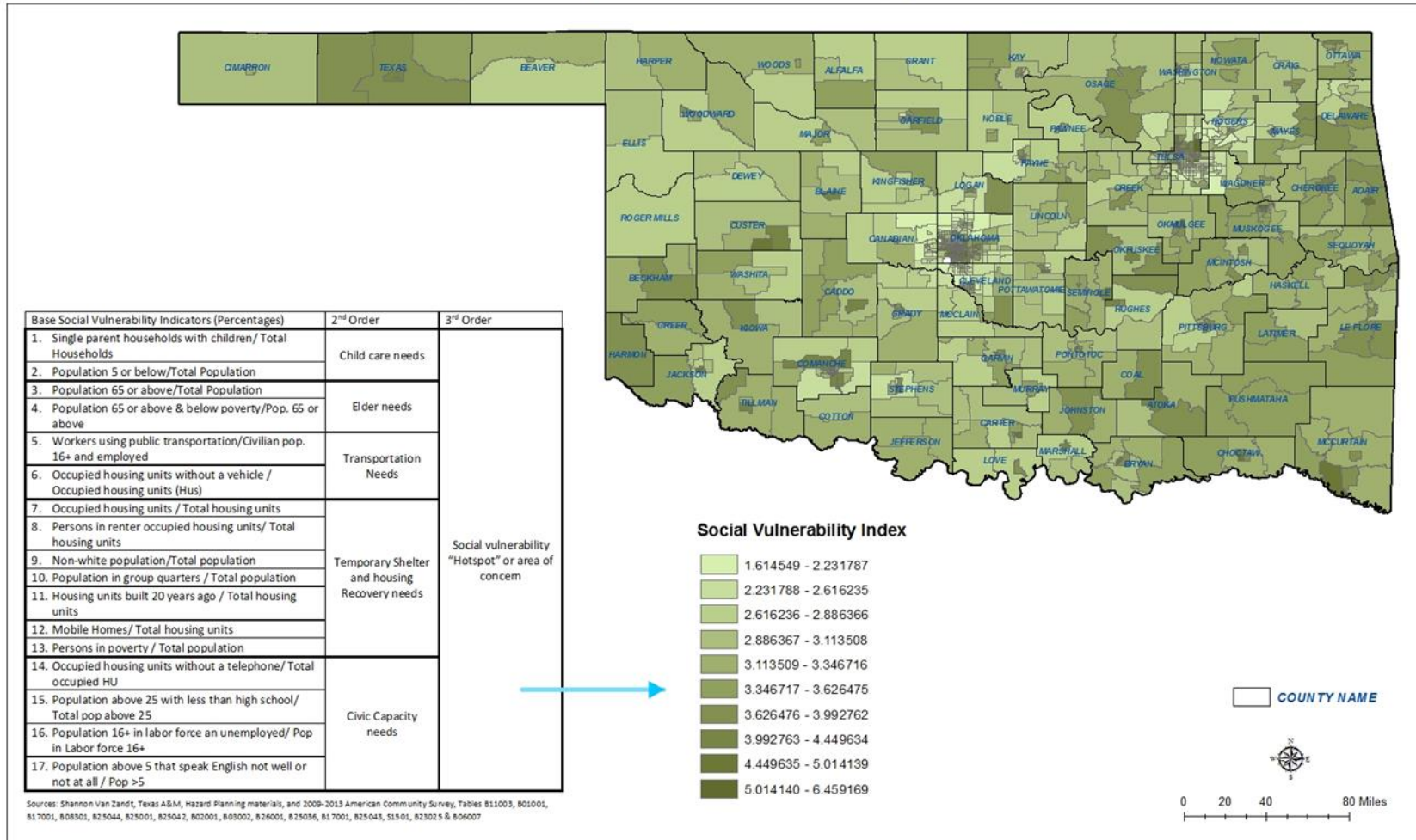
Social Vulnerability Analysis - Logan County			
Base Social Vulnerability Indicators (%)		2nd Order	3rd Order
1.) Single Parent Households	7.58%	0.139	2.92 Social Vulnerability 'Hotspot' or Area of Concern
2.) Population Under 5	6.32%	(Child Care Needs)	
3.) Population 65 or Above	13.88%	0.241	
4.) Population 65 or Above & Below Poverty Rate	10.26%	(Elder Needs)	
5.) Workers Using Public Transportation	0.58%	0.056	
6.) Occupied Housing Units w/o Vehicle	5.00%	(Transportation Needs)	
7.) Housing Unit Occupancy Rate	87.23%	2.277 (Temporary Shelter and Housing Recovery Needs)	
8.) Rental Occupancy Rate	21.42%		
9.) Non-White Population	21.73%		
10.) Population in Group Quarters	4.14%		
11.) Housing Units Built Prior to 1990	59.21%		
12.) Mobile Homes, RVs, Vans, etc.	20.88%		
13.) Poverty Rate	13.08%		
14.) Housing Units Lacking Telephones	2.47%	0.207 (Civic Capacity Needs)	
15.) Age 25+ With Less Than High School Diploma	10.70%		
16.) Unemployment Rate	5.95%		
17.) Age 5+ Which Cannot Speak English Well or Not At All	1.58%		

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

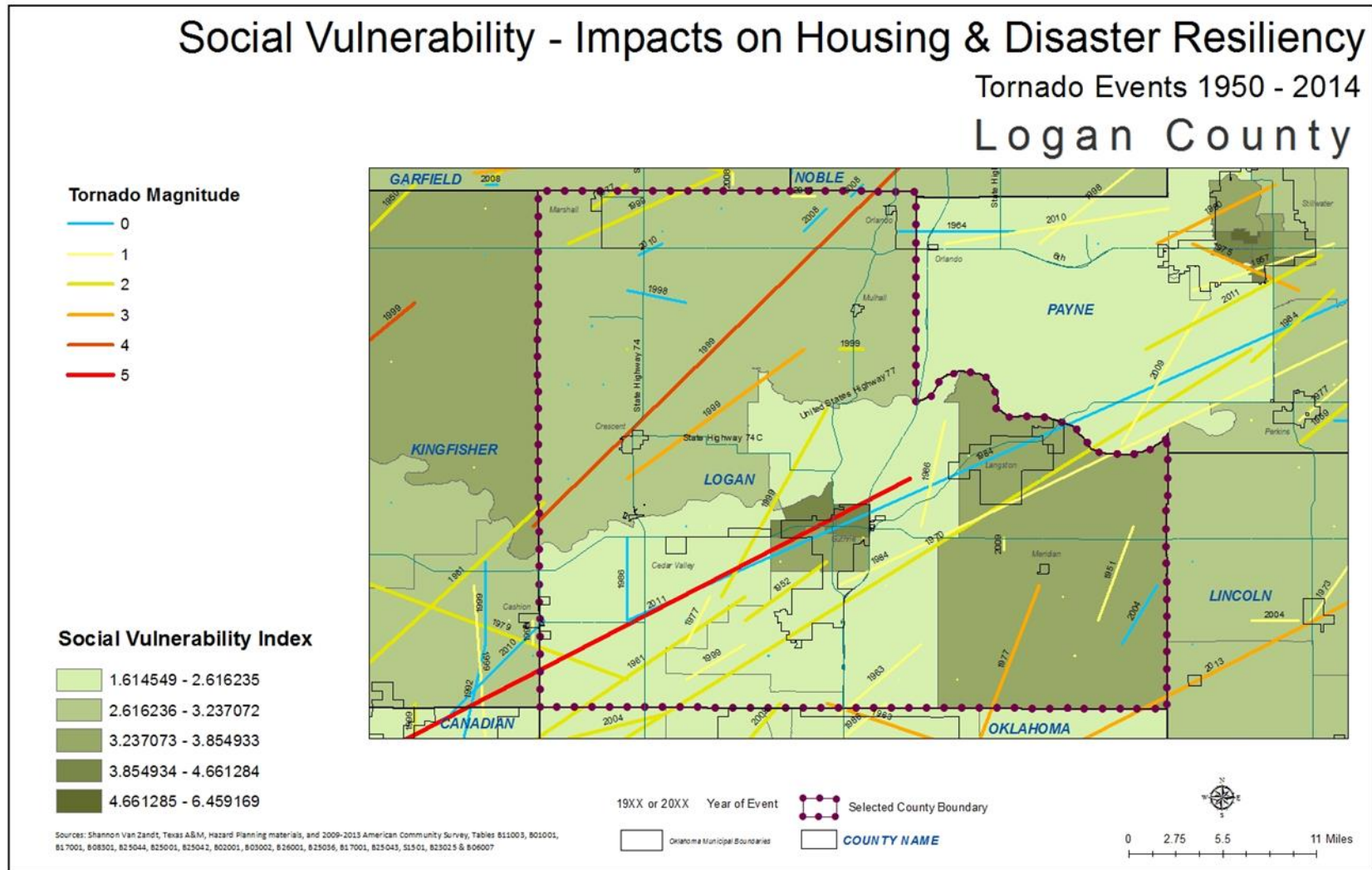




Social Vulnerability - Impacts on Housing & Disaster Resiliency



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, 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. However, the central census tracts of the county, near Guthrie, have particularly elevated scores for social vulnerability. The eastern portion of the county also has increased social vulnerability. Planning for these populations is important as they may have difficulties in preparing for an event, evacuating during an event and struggle more to recover due to the social factors that reveal they are at a disadvantage.

Recommendations for this county:

- Continue to 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.