Special Topics

Kingfisher 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 (Kingfisher, Okarche, Hennessey, Cashion, Dover, Loyal). No comprehensive plans were found.

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.

Kingfisher County does have a Hazard Mitigation Plan, but was unavailable for this study.

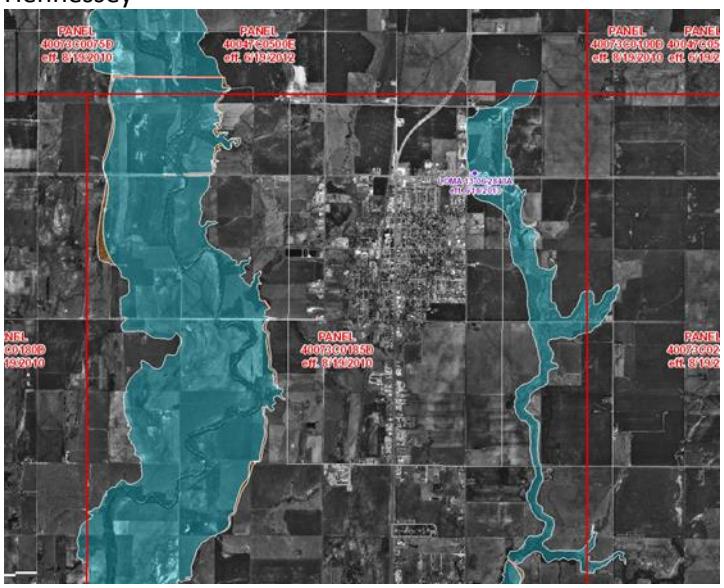
C.2.1.1. Historical Data on Natural Disasters and Other Hazards

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.

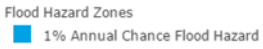
Flooding

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.

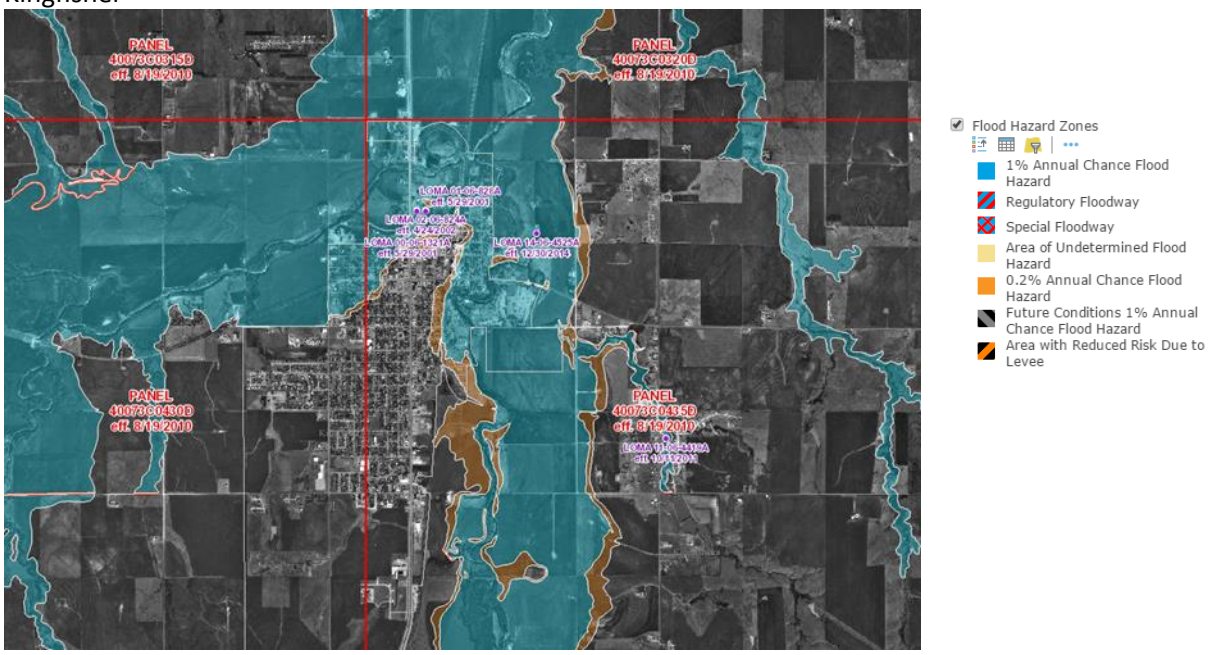
Hennessey



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



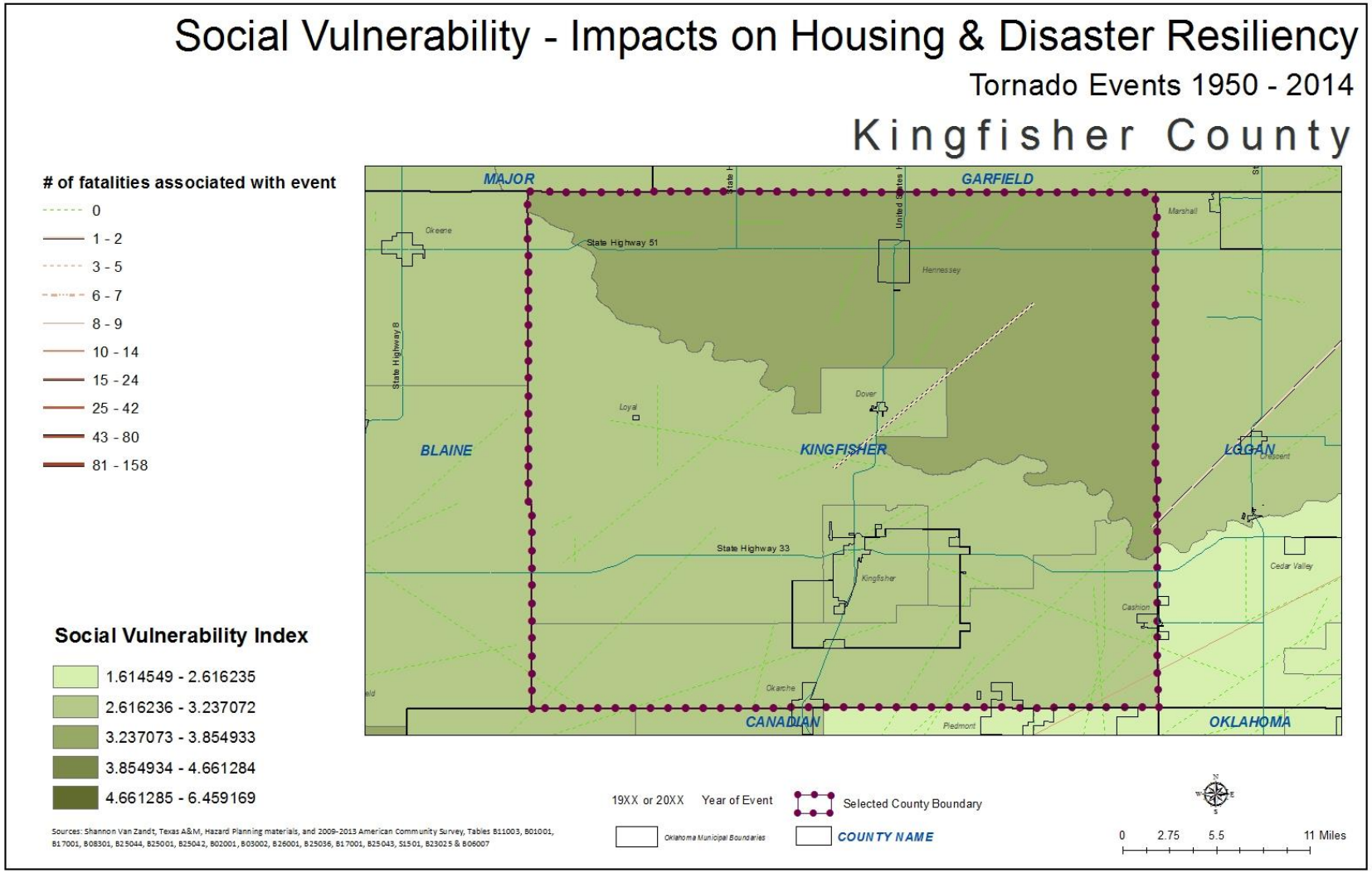
Kingfisher

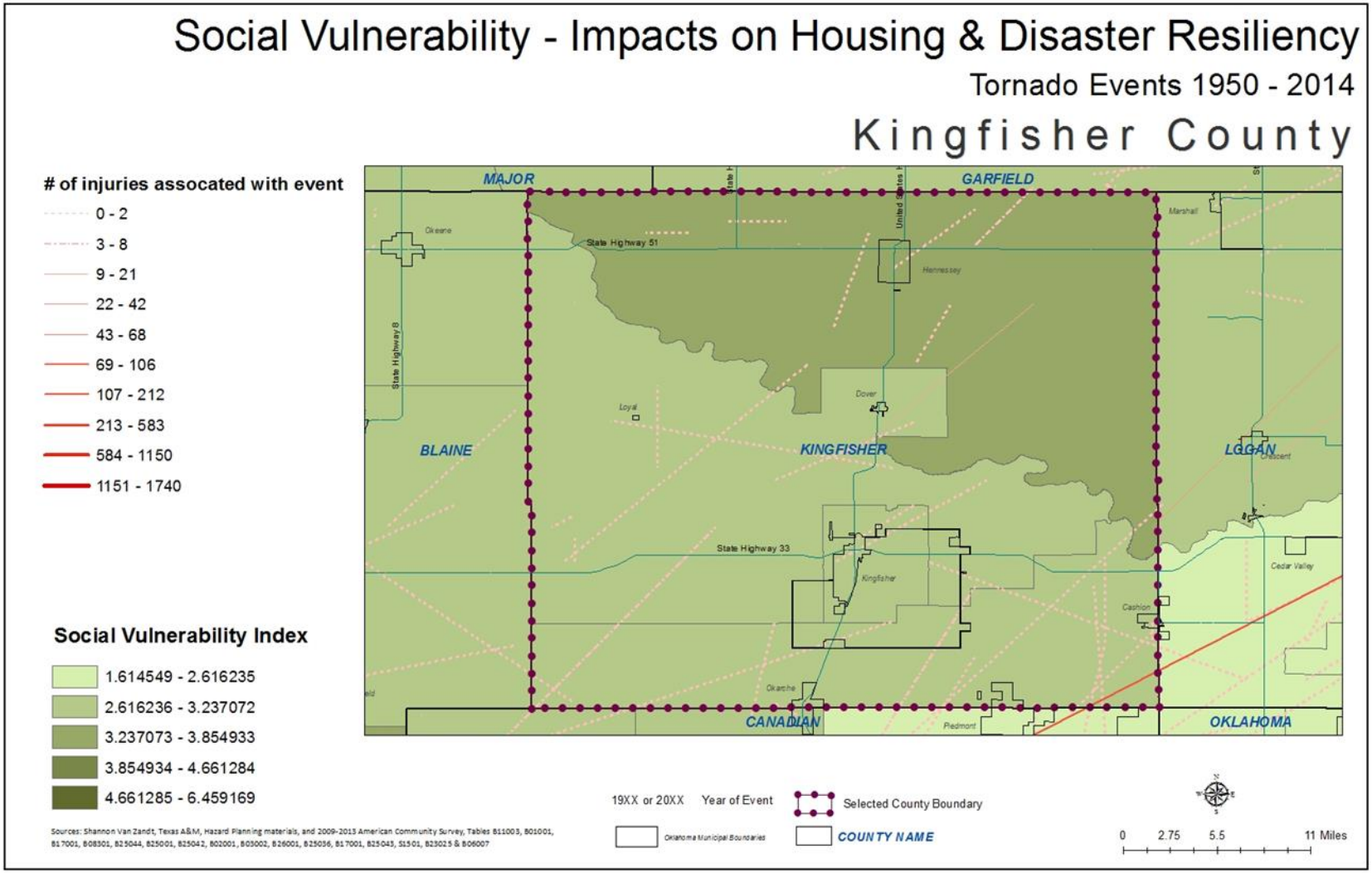


FEMA's National Flood Hazard Layer http://fema.maps.arcgis.com/

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

Historic data on tornados between 1950-2014 there are 69 tornados documented. There were 242 injuries that occurred connected to these tornados, with 181 of those injuries happening in the 2011 tornado. There were 12 fatalities connected to tornadoes during this time period, 9 of which occurred in 2011. Property losses between 1950-1996 ranged from $857,602.00 to $8,576,100.00. (The accounting methods used for losses changed in 1996.) The losses estimated between 1996-2014 was $18,750,000.00.


Social Vulnerability - Impacts on Housing & Disaster Resiliency
Tornado Events 1950 - 2014
Kingfisher 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
MAJOR
GARFIELD
BLAINE
KINGFISHER
LOGAN
CANADIAN
OKLAHOMA
State Highway 51
State Highway 33
State Highway 8
Okeene
Hennessey
Marshall
Loyal
Dover
Kingfisher
Cashion
Cedar Valley
Crescent
Okarche
Piedmont
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


Social Vulnerability - Impacts on Housing & Disaster Resiliency
Tornado Events 1950 - 2014
Kingfisher County
# of injuries assocated with event
0 - 2
3 - 8
9 - 21
22 - 42
43 - 68
69 - 106
107 - 212
213 - 583
584 - 1150
1151 - 1740
MAJOR
GARFIELD
BLAINE
KINGFISHER
LOGAN
CANADIAN
OKLAHOMA
State Highway 51
State Highway 33
State Highway 8
Okeene
Hennessey
Marshall
Loyal
Dover
Kingfisher
Cashion
Cedar Valley
Okarche
Piedmont
Social Vulnerability Index
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19XX or 20XX Year of Event
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Oklahoma Municipal Boundaries
COUNTY NAME
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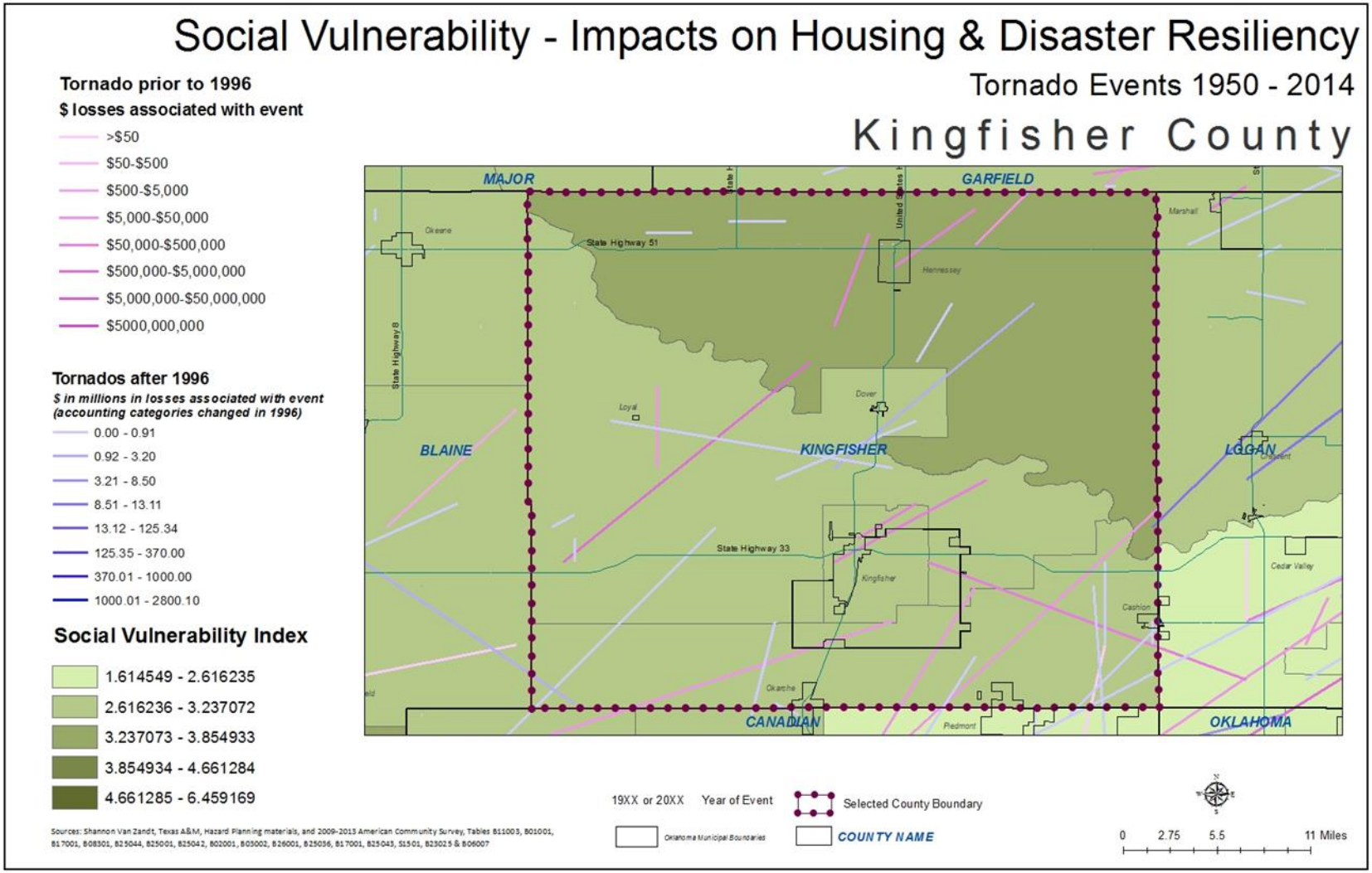
Sources: Shannon Van Zandt, Texas A&M, Hazard Planning materials, and 2009-2013 American Community Survey, Tables B11003, B01001, B17001, B08301, B25044, B25001, B25042, B02001, B03002, B26001, B25036, B17001, B25043, S1501, B23025 & B06007


Social Vulnerability - Impacts on Housing & Disaster Resiliency
Tornado Events 1950 - 2014
Kingfisher 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
$5000,000,000
Tornados 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
MAJOR
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Okarche
Piedmont
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

Public shelter in Kingfisher County Annex Building, 124 E Sheridan (http://newsok.com/article/1453988) and Kingfisher County Sheriff's Office, 119 S Main; Hennessey has one public shelter located next to the old gymnasium at 601 S. Main

Kingfisher County Online registration

http://gcem.org/storm-shelter-registration/kingfisher-county/

C.2.1.3 Public Policy and Governance to Build Disaster Resiliency

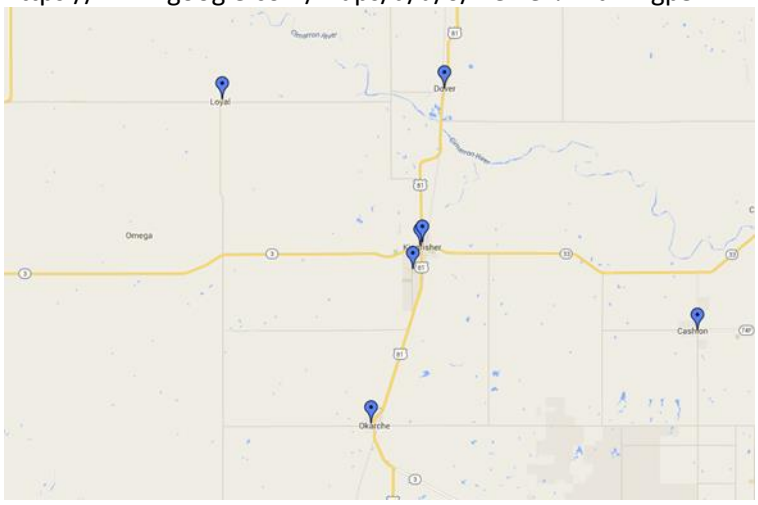
C.2.1.4 Local Emergency Response Agency Structure

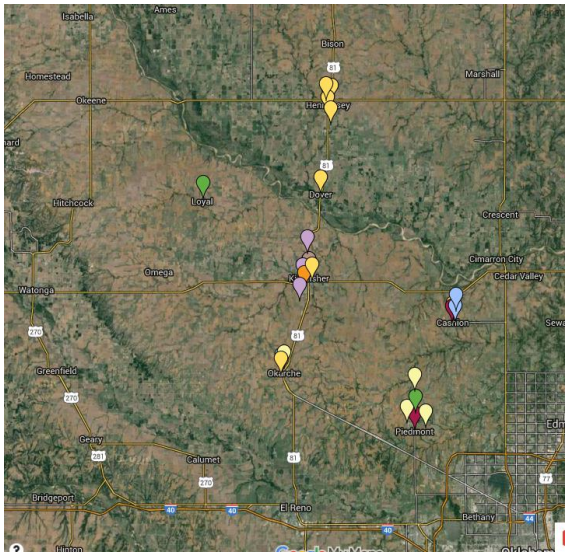
C.2.1.5 Threat & Hazard Warning Systems

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

- ☐ Sirens (four tornado sirens in Kingfisher)

Google Mapped sirens in Oklahoma:
https://www.google.com/maps/d/u/0/viewer?mid=zkgp3PmLxLzg.kXQeGF45FpQg&hl=en





https://www.google.com/maps/d/viewer?mid=z5OW0RCkua68.k38F0h8Y50bs&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.

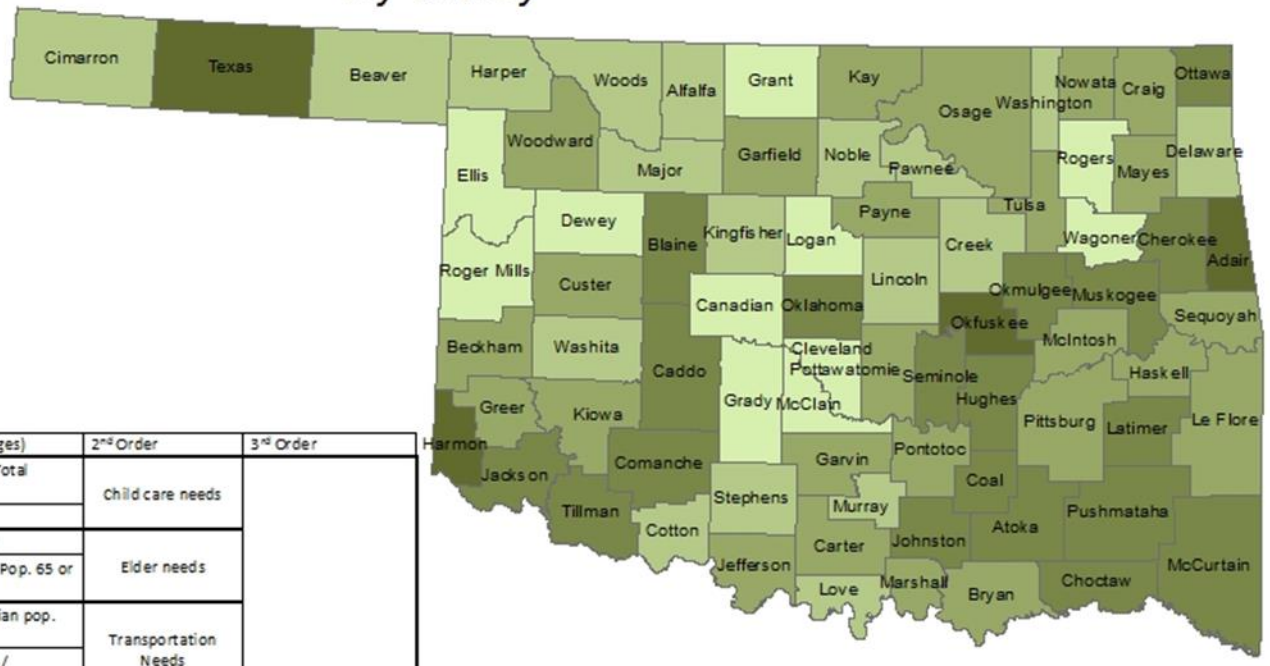
Social Vulnerability Analysis - Kingfisher County

Base Social Vulnerability Indicators (%)		2nd Order	3rd Order
1.) Single Parent Households	12.39%	0.193 (Child Care Needs)	**3.115 Social Vulnerability 'Hotspot' or Area of Concern**
2.) Population Under 5	6.95%		
3.) Population 65 or Above	15.31%	0.243 (Elder Needs)	
4.) Population 65 or Above & Below Poverty Rate	9.03%		
5.) Workers Using Public Transportation	0.06%	0.03 (Transportation Needs)	
6.) Occupied Housing Units w/o Vehicle	2.90%		
7.) Housing Unit Occupancy Rate	89.42%	2.379 (Temporary Shelter and Housing Recovery Needs)	
8.) Rental Occupancy Rate	22.82%		
9.) Non-White Population	20.61%		
10.) Population in Group Quarters	1.48%		
11.) Housing Units Built Prior to 1990	78.00%		
12.) Mobile Homes, RVs, Vans, etc.	17.24%		
13.) Poverty Rate	8.31%		
14.) Housing Units Lacking Telephones	2.74%	0.27 (Civic Capacity Needs)	
15.) Age 25+ With Less Than High School Diploma	13.70%		
16.) Unemployment Rate	4.53%		
17.) Age 5+ Which Cannot Speak English Well or Not At All	6.03%		

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 Index

By County



Levels of Social Vulnerability Analysis

Base Social Vulnerability Indicators (Percentages)	2nd Order	3rd Order
1. Single parent households with children/ Total Households	Child care needs	Social vulnerability "Hotspot" or area of concern
2. Population 5 or below/Total Population		
3. Population 65 or above/Total Population	Elder needs	
4. Population 65 or above & below poverty/Pop. 65 or above		
5. Workers using public transportation/Civilian pop. 16+ and employed	Transportation Needs	
6. Occupied housing units without a vehicle / Occupied housing units (Hus)		
7. Occupied housing units / Total housing units	Temporary Shelter and housing Recovery needs	
8. Persons in renter occupied housing units/ Total housing units		
9. Non-white population/Total population		
10. Population in group quarters / Total population		
11. Housing units built 20 years ago / Total housing units		
12. Mobile Homes/ Total housing units		
13. Persons in poverty / Total population		
14. Occupied housing units without a telephone/ Total occupied HU	Civic Capacity needs	
15. Population above 25 with less than high school/ Total pop above 25		
16. Population 16+ in labor force an unemployed/ Pop in Labor force 16+		
17. Population above 5 that speak English not well or not at all / Pop >5		

Source: Shannon Van Zandt, Texas A&M, Hazard Planning materials; 2008-2013 American Community Survey, Tables B11003, B01001, B17001, B08201, B25044, B25091, B25042, B01001, B08007, B16001, B25026, B17001, B25042, B1501, B19058 & B08007

Legend

Social Vulnerabiity "Hot Spots"

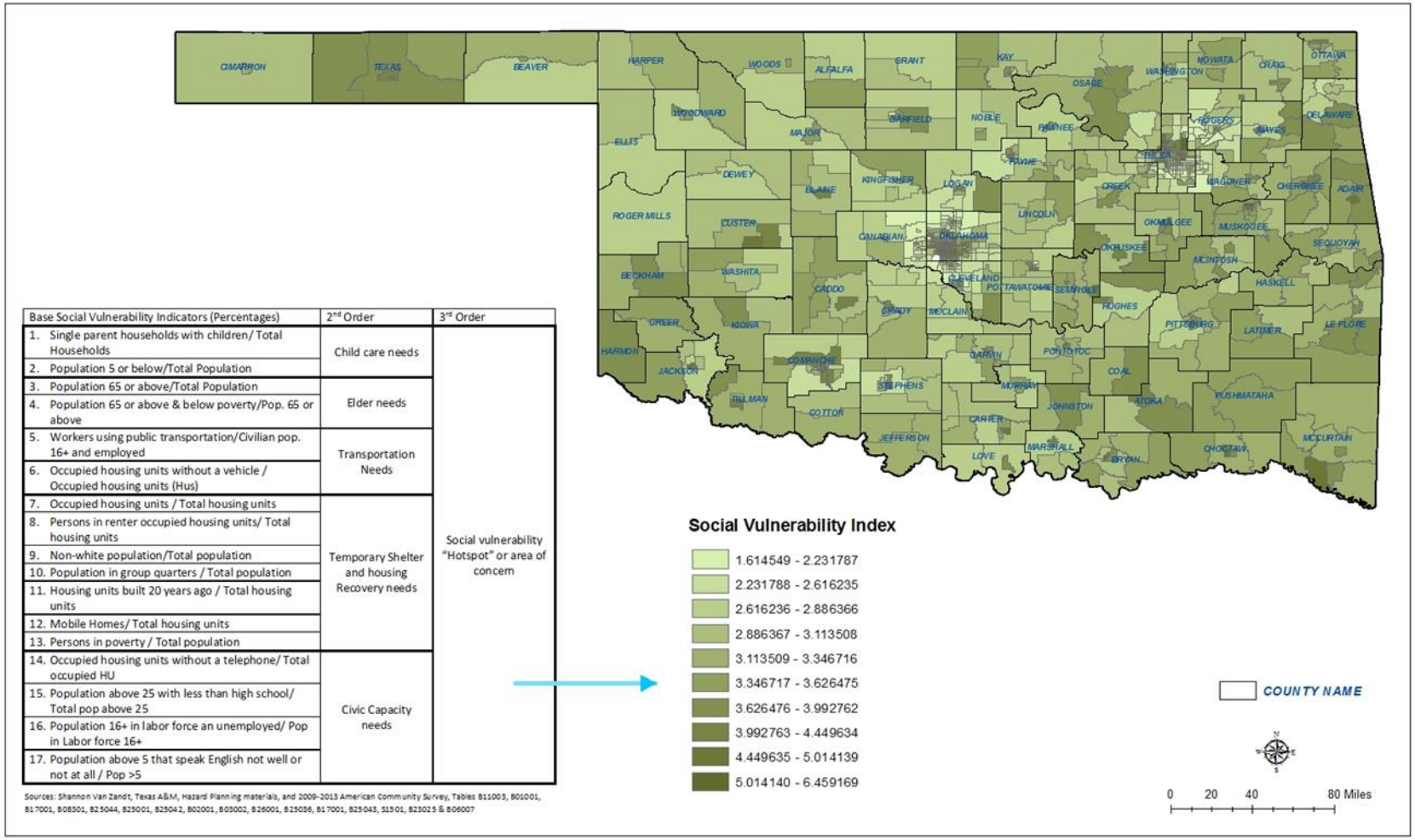
- 2.6340 - 2.9760
- 2.9761 - 3.2170
- 3.2171 - 3.4180
- 3.4181 - 3.6370
- 3.6371 - 3.9500

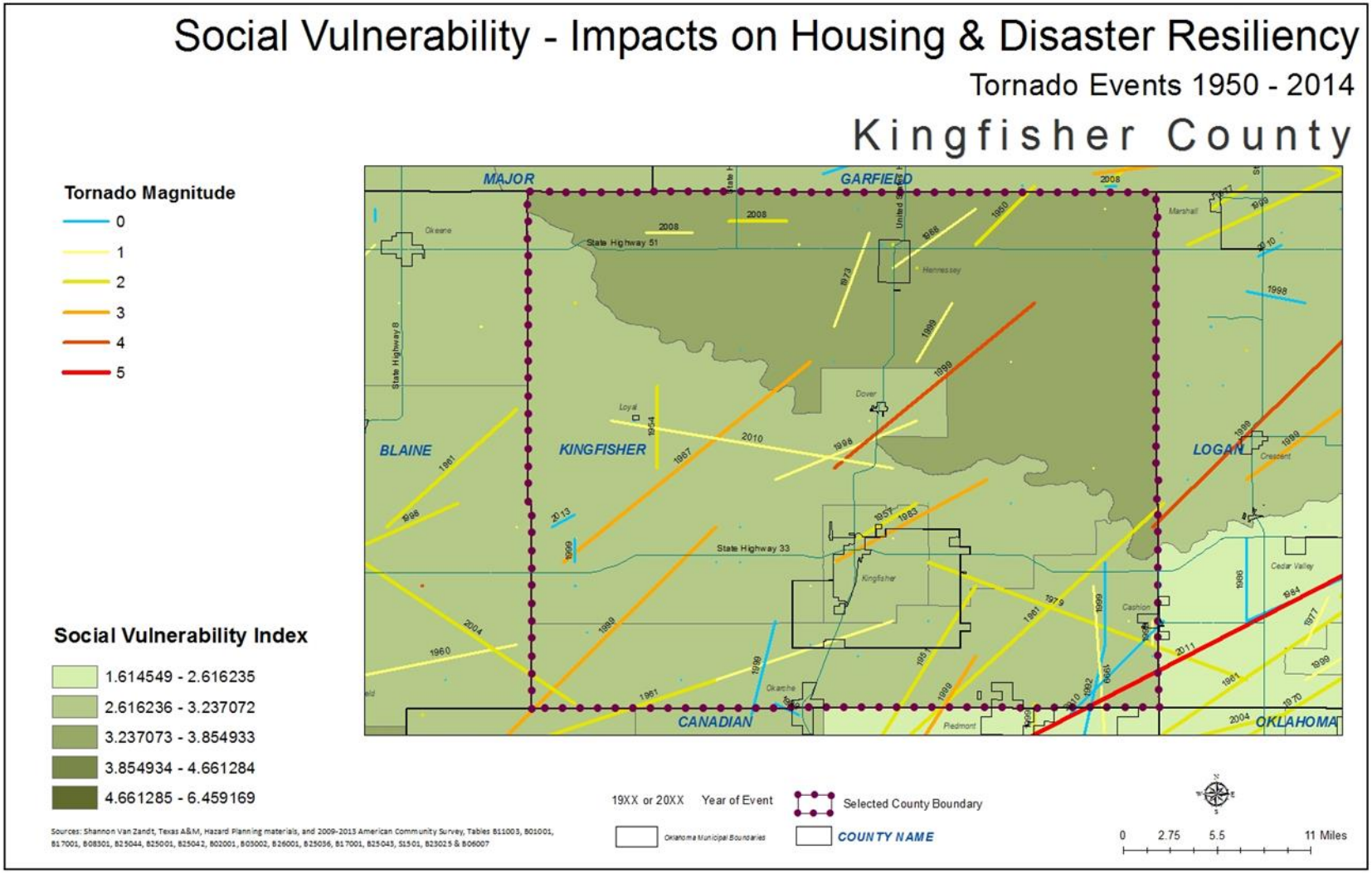
0 25 50 100 Miles

Social Vulnerability - Impacts on Housing & Disaster Resiliency

Base Social Vulnerability Indicators (Percentages)	2nd Order	3rd Order
1. Single parent households with children/ Total Households	Child care needs	Social vulnerability "Hotspot" or area of concern
2. Population 5 or below/Total Population		
3. Population 65 or above/Total Population	Elder needs	
4. Population 65 or above & below poverty/Pop. 65 or above		
5. Workers using public transportation/Civilian pop. 16+ and employed	Transportation Needs	
6. Occupied housing units without a vehicle / Occupied housing units (Hus)		
7. Occupied housing units / Total housing units	Temporary Shelter and housing Recovery needs	
8. Persons in renter occupied housing units/ Total housing units		
9. Non-white population/Total population		
10. Population in group quarters / Total population		
11. Housing units built 20 years ago / Total housing units		
12. Mobile Homes/ Total housing units		
13. Persons in poverty / Total population		
14. Occupied housing units without a telephone/ Total occupied HU	Civic Capacity needs	
15. Population above 25 with less than high school/ Total pop above 25		
16. Population 16+ in labor force an unemployed/ Pop in Labor force 16+		
17. Population above 5 that speak English not well or not at all / Pop >5		

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
Tornado Events 1950 - 2014
Kingfisher County
Tornado Magnitude
0
1
2
3
4
5
Social Vulnerability Index
1.614549 - 2.616235
2.616236 - 3.237072
3.237073 - 3.854933
3.854934 - 4.661284
4.661285 - 6.459169
MAJOR
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Crescent
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Marshall
19XX or 20XX Year of Event
Selected County Boundary
Oklahoma Municipal Boundaries
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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 great 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. Looking at the census tract level, the north and northeastern tracts of the county have elevated scores for social vulnerability.

Recommendations for this county:

- Continue to 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.