



WORKING PAPER IPP/03¹

Emergency Management in Six Disaster-Prone Missouri Counties

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Introduction

This working paper is the second contribution to The Missouri Transect Project Community Team's *Integrating Responses to Climate Change within a Regional Resilience Framework*. The eventual aim is to provide communities with the capacity and tools to prepare resilience plans that can respond to a range of natural and human-made threats, include climate change. This paper should be read in conjunction with Working Paper IPP/02 *Missouri Emergency Management Preliminary Analysis*.

Emergency management in Missouri begins and ends at the local level, with support from the state and federal government. Chapter 44 of the *Missouri Revised Statutes* requires that every political subdivision establish a local emergency management organization, and that the authority and responsibility for emergency management rests with the executive officer of each subdivision. To better understand emergency management at the local level, this paper examines six Missouri counties: Andrew, Cape Girardeau, Miller, Newton, Sullivan, and Webster. These six were chosen to reflect the high frequency of federal disaster declarations (see Appendix A), the range of disaster types, and a broad geographical diversity. Detailed demographic comparisons of these counties can be found in Appendix B.

County-Level Emergency Management Responsibilities

In many ways, the emergency management structure in these six counties is similar. Emergency management planning, response and recovery is primarily a local effort supported by state and federal resources. In each county, the Presiding County Commissioner has the authority and responsibility for emergency management, and appoints the county's Emergency Management Director (EMD). During a disaster, the Presiding Commissioner can delegate emergency management authority to the county's EMD. The EMD is responsible for coordinating all emergency management functions, including fire and police, emergency, medical service, public works, and volunteers. Each county's EMD is also responsible for developing and maintaining the Local Emergency Operations Plan (LEOP), attending regional and state training and exercises, and educating the public about emergency preparedness.

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Operating costs for all of the emergency managers in our sample are funded in part by the Emergency Management Performance Grant (EMPG) which is administered by the Federal Emergency Management Agency’s (FEMA). Each EMD is responsible for submitting an annual budget to the county commissioners and to the State Emergency Management Agency (SEMA), which submits a state-wide request for EMPG funds based on these budgets. The EMPG grant requires that each county provide a 50 percent match, which comes from general revenue funds. Either the EMD or another designated county employee, such as the county auditor, is responsible for documenting operating expenditures in quarterly reports to SEMA. Every county is in one of SEMA’s nine regions, and each EMD works closely with a SEMA Regional Coordinator, including attending quarterly planning meetings, training and exercises.

Emergency Management Structure Comparison

	Full-time, paid EMD			Part-time, paid EMD		Part-time, volunteer EMD
SEMA Region	Cape Girardeau County E	Newton County D	Webster County D	Andrew County H	Miller County F	Sullivan County B
EMPG/County revenue funded	✓	✓	✓	✓	✓	✓
Additional emergency department staff	✓	✓	✓		✓	✓
Active Community/Voluntary Organizations Active in Disaster (COAD/VOAD)	✓	✓	✓			
Active Community Emergency Response Team (CERT)			✓		✓	

Andrew County

Andrew County sits in the northeast corner of the state and includes the cities of Amazonia, Bolckow, Fillmore, Rosendale and Savannah, which is the county seat. The Missouri River forms the southwest corner of the county. Of the six counties in our analysis, Andrew County has the highest median household income, and lowest unemployment rate and percentage of people living in poverty (Appendix B, Figures 1-3).



Emergency Management Structure

Andrew County has a part-time, paid EMD. Most of the first responders in Andrew County are volunteers, including all of the fire fighters. Only the Sheriff’s department and a small ambulance staff are paid, full-time positions. The Emergency Management Department is located in the county jail offices, which also houses the Emergency Operations Center (EOC). The EMD is responsible for requesting and tracking EMPG funding, as well as FEMA disaster funding. There are no other EMDs in Andrew County.

Strengths and Challenges

Savannah, the county seat, is home to a number of retirees from nearby St. Joseph and as well as local farmers. Ensuring their safety during disasters, such as the 2007 ice storm, is a significant consideration. Because several nursing facilities lost power in that storm, the EMD called on SEMA for assistance with securing and delivering several generators from the nearby Air Force National Guard base in St. Joseph to power nursing home and water treatment plants. Andrew County’s EMD has found SEMA to be a very important resource when planning for and responding to disasters. In addition, daily conference calls with SEMA and the State Emergency Operations Center (SEOC) during disasters provide him with support and information that would be lacking otherwise in a smaller county such as Andrew.

Because so many first responders are volunteers, Andrew County’s EMD cannot require volunteer staff to participate in SEMA regional training and exercises, especially if attending would require them to take a day off from their paid jobs. This makes it more difficult to involve all of the emergency management players in planning and preparing for disasters. To help compensate for having fewer paid members of the emergency response community, the EMD has implemented some changes to improve efficiency. These include working with the Public Works and Roads and Bridges departments to develop damage report forms that align with SEMA and FEMA reporting requirements, reducing the amount of paperwork the EMD has to complete, and maintaining a database of individuals who have submitted a request to receive emergency notification by mass phone call in an effort to improve communications.

Andrew County Demographics

County Size	People	Households	Economy
<ul style="list-style-type: none"> • 433 square miles • Population density is 40 persons per square mile • Projected population growth from 2010-2030 is 15% 	<ul style="list-style-type: none"> • The median age is 41.9 years • 17% of residents are 65 or older • 54% have completed at least some college • 13% of residents are persons with disabilities • Minority population is 3% 	<ul style="list-style-type: none"> • 79% of residents live in owner-occupied dwellings • 21% of households are cost burdened • 4% of households have no vehicle • 3% of households have no telephone service 	<ul style="list-style-type: none"> • Median Income is \$54,185 • 25% of the county is employed in education, health care and social services • Unemployment Rate is 3.8% • 10% of families live below the federal poverty level

Cape Girardeau County

Cape Girardeau County is located in the southeast corner of the state, in the New Madrid Seismic Zone Impact Area. The Mississippi River forms the eastern border of the county and the county seat is Jackson. Significant employers include healthcare, a Procter & Gamble manufacturing plant, and Southeast Missouri State University. Of the six counties in this analysis, Cape Girardeau County has the most residents per square mile (Appendix B, Figure 4).



Emergency Management Structure

The Emergency Management Department is located in the Jackson County Administrative Office Building in Jackson, and is staffed by a full-time EMD, a full-time Assistant Director, and a full-time Administrative Assistant. The EOC is in the same building. The County Auditor assists with financial paperwork related to EMPG funding and FEMA disaster funding.

In addition to three paid staff members, Cape Girardeau County has an active Community Organizations Active in Disasters (COAD), and an active ham radio volunteer community which is part of the state's Amateur Radio Emergency Service (ARES) team. The cities of Jackson and Cape Girardeau each have designated EMDs embedded in full-time fire and rescue departments.

Strengths and Challenges

The geography of Cape Girardeau County poses unique challenges for emergency management. Because of its close proximity to the New Madrid fault line, the county is always at risk of a major earthquake. However, because there are few cost-effective measures the county can undertake to mitigate against an earthquake, the EMD focuses instead on planning for response and recovery, working closely with the Missouri Seismic Safety Commission (MSSC) and the Missouri Emergency Response Commission (MERC).

Flooding has also been a significant challenge, but its impact has been effectively mitigated in recent years through the county's participation in FEMA's Hazard Mitigation Assistance – Property Acquisition Program (Buyouts). The Buyout program is administered by the state and county, with FEMA providing 75 percent of the program's funding. To qualify, state, county, and local officials work with the EMD to identify which residential areas are at the highest risk for flooding, and secure the residents' agreement to sell their homes to the county and relocate. Local officials submit the Buyout request to the state, which reviews it and then submits it to FEMA. If FEMA grants its approval, the county or municipality conducts the purchase and title transfer, and agrees not to develop or sell any of the purchased land. In Cape Girardeau County, almost every residential area at high risk for flooding has participated in the Buyout program, which has significantly decreased the risk to life and property due to flooding.

Cape Girardeau County Demographics

County Size	People	Households	Economy
<ul style="list-style-type: none">• 132 square miles• Population density is 132 persons per square mile• Projected population growth from 2010-2030 is 14%	<ul style="list-style-type: none">• The median age is 36 years• 14% of residents are 65 or older• 54% have completed at least some college• 14% of residents are persons with disabilities• Minority population is 11%	<ul style="list-style-type: none">• 66% of residents live in owner-occupied dwellings• 27% of households are cost burdened• 6% of households have no vehicle• 3% of households have no telephone service	<ul style="list-style-type: none">• Median Income is \$44,248• 25% of the county is employed in education, health care and social services• Unemployment Rate is 4.9%• 16% of families live below the federal poverty level

Miller County

Miller County is located in the Lake of the Ozarks area in mid-Missouri. The county is home to the towns of Eldon, Lake Ozark, Osage Beach and Iberia, and the county seat is Tuscumbia. Of the six counties in this analysis, Miller County has the lowest median income, highest unemployment rate, the largest percentage of people living in poverty, and the largest percentage of residents with disabilities (Appendix B, Figures 1, 2, 3, 6). Significant employers in the county include Lake Regional Health Systems, public schools, and Keiper manufacturing plant. As part of the Lake of the Ozarks area, retail jobs are also a significant part of the local economy.



Emergency Management Structure

The Emergency Management Department is located in the Miller County Courthouse in Tuscumbia, which also houses the EOC. The EMD is assisted by one part-time Administrative Assistant. The EMD is responsible for submitting EMPG paperwork to SEMA, and also for documenting and submitting for reimbursement all FEMA disaster relief expenditures. Miller County's EMD has developed a large and active Community Emergency Management Response Team (CERT) program which trains volunteers to assist others following a disaster event when professional responders are not immediately available to help. The county has more than 100 CERT volunteers who serve on logistics, administration, planning, and operations teams. This extra support is critical because, although Miller County is sparsely populated, tourism at the Lake of the Ozarks triples its population during the summer months, while the county's emergency management capabilities and resources are the same year-round. In an emergency or disaster scenario, this population increase presents a significant burden for the county.

Strengths and Challenges

The most common disaster risks to the county are roads made impassible by flooding, heavy snowfall, or wildfires. Many of the roads and streets in the county are gravel, and there are 63 low water roads which flood with even a moderate amount of rainfall. Due to funding constraints, mitigating low water roads has not been feasible because the cost to do so is greater than the cost of responding to the flooding. Consequently, the EMD has focused less on mitigation efforts and more on trying to secure resources and planning for effective disaster responses, such as creating charts and maps documenting each low-water road so 911 dispatchers can direct first responders and the public to the safest routes during a flood. In addition to environmental disasters, Miller County is vulnerable to economic disaster as well.

The county is home to a number of turkey farms which raise contract turkeys with Cargill and Tyson corporations so is vulnerable to agricultural disasters such as avian flu. In March of 2015, avian flu was identified in neighboring Moniteau County. If such an outbreak would become widespread and infect several farms in Miller County, the farmers would lose their flocks and the farms would be quarantined, halting economic activity for these businesses and delivering a serious economic blow to the county. The EMD works closely with the Missouri Department of Agriculture to develop a coordinated response to such an outbreak.

Miller County Demographics

County Size	People	Households	Economy
<ul style="list-style-type: none"> • 592 square miles • Population density is 42 persons per square mile • Projected population growth from 2010-2030 is 18% 	<ul style="list-style-type: none"> • The median age is 40.6 years • 17% of residents are 65 or older • 43% have completed at least some college • 20% of residents are persons with disabilities • Minority population is 3% 	<ul style="list-style-type: none"> • 77% of residents live in owner-occupied dwellings • 31% of households are cost burdened • 6% of households have no vehicle • 2% of households have no telephone service 	<ul style="list-style-type: none"> • Median Income is \$36,552 • 19% of the county is employed in education, health care and social services • Unemployment Rate is 8.9% • 21% of families live below the federal poverty level

Newton County

Newton County lies in the southwest corner of Missouri, and shares its western border with Kansas. The county seat is Neosho, and it shares a small part of the town of Joplin with neighboring Jasper County. Employers in Newton include Sunbeam Products distribution center and Twin Rivers Foods poultry plant. Six percent of occupied households in Newton County have no phone service available, which is the largest percentage in our sample (Appendix B, Figure 11).



Emergency Management Structure

In addition to a full-time EMD, Newton County's Emergency Management Department employs a full-time Operations Chief and a full-time Administrative Assistant, who is also the county's floodplain administrator. They work in the Emergency Management Department/911 Center Building in Neosho, which also houses the EOC. The Administrative Assistant is responsible to submitting all requests for EMPG funding, and the County Auditor handles most of the paperwork for FEMA disaster relief funding.

Newton County also receives some grant funds from the Region M Solid Waste Management District for administering a community service program which requires parolees to collect 40 bags of trash to complete their court-mandated 40 hours of community service. The Emergency Management Department's Administrative Assistant administers this program, including tracking hours worked and bags collected. The department receives 30 percent of the county's Waste Management Grant funding to help cover operating costs.

Strengths and Challenges

One of the most significant challenges in Newton County has been maintaining effective communication during disasters. For example, when a large tornado struck in 2008, the EOC had just been built, and radio equipment had not yet been installed. The EMD and first responders had to rely on cell phones, making it difficult to know how widespread the storm damage was. Since then, the county has worked closely with volunteers in the Missouri Amateur Radio Emergency Service organization (ARES) who assist with emergency communications when disasters strike. SEMA's WebEOC, an interactive web-based EOC, is also an important tool for communicating needs and resources during a disaster.

Regional Collaboration

Three counties in our sample were members of regional groups organized to facilitate a more collaborative approach to emergency planning and response. **Miller County** is part of the *Region F Multi-Agency Coordination group (FMAC)*, which can be activated in the event of a large disaster to gather EMDs to discuss common needs. An FMAC activation is the first coordinated action taken in this region before escalating a request for help from the state.

Newton County is part of the *Four Corners Group*, which includes EMDs, first responders, and law enforcement from the border counties in Arkansas, Missouri, Kansas and Oklahoma, including several tribal nations. The Four Corners Group works to ensure that all members are prepared to collaborate fully in case of a disaster. **Newton and Webster counties** are also part of the *Southwest Missouri Emergency Support Organization (SMESO)*, which includes representatives from emergency management, hospitals, fire and rescue, and law enforcement, and meets quarterly to share ideas, needs and resources.

Another challenge in Newton County is the fairly large proportion of Hispanic and Micronesian immigrants who have moved to the area to work in the poultry processing plants, most of whom do not speak English. The language barrier has made it difficult to educate this population in emergency preparedness. There are also cultural differences for responding to emergencies. For example, during a recent tornado warning when the sirens were activated, approximately 100 members of the Micronesian community went to the county hospital because this was the practice in their home country. However, the local hospital is not large enough nor equipped to shelter non-injured people during a storm, and explaining this was difficult because of the language barrier. The Emergency Operations Chief is working on improving outreach and communication with the community through an Emergency Department Facebook page.

Newton County Demographics

County Size	People	Households	Economy
<ul style="list-style-type: none"> • 625 square miles • Population density is 94 persons per square mile • Projected population growth from 2010-2030 is 16% 	<ul style="list-style-type: none"> • The median age is 39 years • 16% of residents are 65 or older • 52% have completed at least some college • 16% of residents are persons with disabilities • Minority population is 9% 	<ul style="list-style-type: none"> • 75% of residents live in owner-occupied dwellings • 26% of households are cost burdened • 6% of households have no vehicle • 6% of households have no telephone service 	<ul style="list-style-type: none"> • Median Income is \$41,440 • 31% of the county is employed in education, health care and social services • Unemployment Rate is 4.9% • 16.1% of families live below the federal poverty level

Sullivan County

Sullivan County in the north central part of the state is comprised of 12 townships. The town of Milan is the county seat, which is also the site of a Farmland Foods hog processing plant. Of the counties in this analysis, Sullivan County has the largest percentage of residents age 65 and older, and is by far the least population dense county in this sample (Appendix B, Figures 4 and 6). Most of the population resides in rural areas.



Emergency Management Structure

Sullivan County has a part-time, volunteer EMD. The current EMD has assembled a staff of part-time volunteers, including a Deputy EMD, a Public Affairs Officer, a Spanish Language Interpreter, a Mass Care Coordinator, and an Operations Officer. Three townships in the county also have a designated EMDs embedded in a first responder unit. All of the county's fire fighters are volunteers, and there is one paid sheriff with three deputies, and one paid chief of police with three officers.

The EMD works out of his home, and the EOC is located in the computer lab of the Milan C-2 School District building. Although the EMD serves as a volunteer, the unpaid hours he works can be counted as part of the county's 50 percent match for FEMA funding. He documents his time, the presiding commissioner approves his timesheet, and whatever his pay equivalent would be counts as "like kind" funding for the EMPG application, and is applied to the total the county is paying for emergency services. The county's presiding commissioner is responsible for signing and submitting funding requests to the state, and the County Clerk is responsible for tracking expenditures and FEMA reimbursements following a federal disaster declaration.

Strengths and Challenges

As a former public affairs officer for FEMA's Region VII office, the Sullivan County's current EMD understands the resources available from the state and federal government. For example, one section of a state highway running through the county floods often, and the EMD is trying to secure funding to mitigate the road. Because it is a state highway, getting the funding will be difficult, because so many roads in the state are in need of repair, and counties with small populations do not receive high priority. However, because this particular highway provides the main route for ambulances travelling to the hospital, the EMD is requesting the mitigation funding from the Life Safety section of SEMA's Hazard Mitigation program, improving the county's chances of being awarded the funds. Understanding how to access resources and funding is critical for smaller counties, and the current EMD's experience is an important asset in Sullivan County.

The current EMD has found a lack of public interest in emergency preparedness to be a significant challenge. Sullivan County has not experienced a major human disaster in recent memory, and those which did cause damage to roads and power lines were more of an inconvenience than a danger to residents. All recent federal disaster declarations in the past decade were issued to assist public works and rebuild roads after ice damage or flooding, and there have been no disaster-related fatalities. Also, many residents are reluctant to work with state and local government. Consequently, the EMD has encountered some community resistance to the idea that emergency preparedness is important. However, the current county

commissioners do understand the importance of emergency preparedness, and are supportive of the EMD’s efforts.

Sullivan County Demographics

County Size	People	Households	Economy
<ul style="list-style-type: none"> •648 square miles •Population density is 10 persons per square mile •Population is projected to decrease 11% from 2010-2030 	<ul style="list-style-type: none"> •The median age is 41 years •18% of residents are 65 or older •36% have completed at least some college •18% of residents are persons with disabilities •Minority population is 7% 	<ul style="list-style-type: none"> •69% of residents live in owner-occupied dwellings •27% of households are cost burdened •8% of households have no vehicle •2% of households have no telephone service 	<ul style="list-style-type: none"> •Median Income is \$37,039 •34% of the county is employed in manufacturing •Unemployment Rate is 7.1% •17% of families live below the federal poverty level

Webster County

Webster County is in south central Missouri, and is home to six small incorporated communities: Diggins, Fordland, Niangua, Rogersville, Seymour and Marshfield, which is the county seat. Most of the county’s population live in rural areas. Education, health care a social services comprise the largest employers in the county.



Emergency Management Structure

Webster County has a full-time, paid EMD and a full-time paid Assistant Director. The work in the Emergency Management Office building in Marshfield, which also houses the county’s EOC. The department receives EMPG funds and county general revenue funds, including proportional support from each city and township within the county. The Assistant Director also actively seeks out other grant funding as needed. The EMD is responsible for submitting all requests and documentation for EMPG funding, while the Assistant Director is responsible for FEMA emergency expenditure documentation.

Strengths and Challenges

One significant challenge in Webster County is the unmet needs of the rural population after a disaster. For example, FEMA does not reimburse for fencing, nor is this an item that is typically donated. Consequently, when tornadoes or high winds destroy fences on farms and cattle operations, the county has large numbers of roaming cattle and horses, which adds to the chaos of the storm. Also, some residents live in such isolated areas that it can take several days after a storm to discover that a home was damaged or that its residents require assistance. In general, the EMD has found that resources for rural-impact storms are more difficult to find than for urban-impact storms.

In Webster County, most of the federal disaster declarations in the last decade have been due to flooding. The county has over 135 low-water crossings, which increase the likelihood of

flooding. The Emergency Management staff has made mitigating these roads a priority, and have replaced 20 of the roads since 2002 with in-house and federal funds. Once a federal disaster is declared, FEMA will provide funding to return a low-water road to its pre-flood condition. The Assistant EMD has pursued funds through the federal government’s Hurricane Sandy Reform Recovery Act to fund the difference in cost between returning the roads to pre-flood conditions and mitigating them to prevent future flooding. The ability to secure additional grant funds beyond EMPG and FEMA disaster funds is a significant strength of Webster County.

Finally, Webster County has a network of faith-based organizations that support emergency response teams. For example, the Mennonites have an emergency response team that it deploys within its own community, and also assists the county as needed. The Amish community makes itself available to assist with rebuilding and debris removal, and have a representative on the county’s COAD. The “Baptists with Chainsaws” organization also deploys volunteers to assist with debris removal, while the local Catholic churches provide food to emergency volunteers. These community groups are organized to respond to disasters and provide important support to first responders and emergency management.

Webster County Demographics

County Size	People	Households	Economy
<ul style="list-style-type: none"> •592 square miles •Population density is 61 persons per square mile •Projected population growth from 2010-2030 is 40% 	<ul style="list-style-type: none"> •The median age is 38 years •14% of residents are 65 or older •57% have completed at least some college •15% of residents are persons with disabilities •Minority population is 3% 	<ul style="list-style-type: none"> •76% of residents live in owner-occupied dwellings •25% of households are cost burdened •7% of households have no vehicle •5% of households have no telephone service 	<ul style="list-style-type: none"> •Median Income is \$44,069 •18% of the county is employed in education, health care and social services •Unemployment Rate is 5.9% •20% of families live below the federal poverty level

Conclusion

The six counties in this analysis share a statutory structure for establishing a county EMD and EOC, and work closely with SEMA Regional Coordinators. Most have experienced flooding more than any other type of disaster. However, the level of available resources in each county, including personnel, funding, and public support, varies greatly. Further evaluations of community resilience will require a careful consideration of the emergency management structure, strengths and challenges that are unique to each county in Missouri.

A further analysis of FEMA data for 1965-2012 downloaded from www.communitycommons.org provides a longer-term perspective:

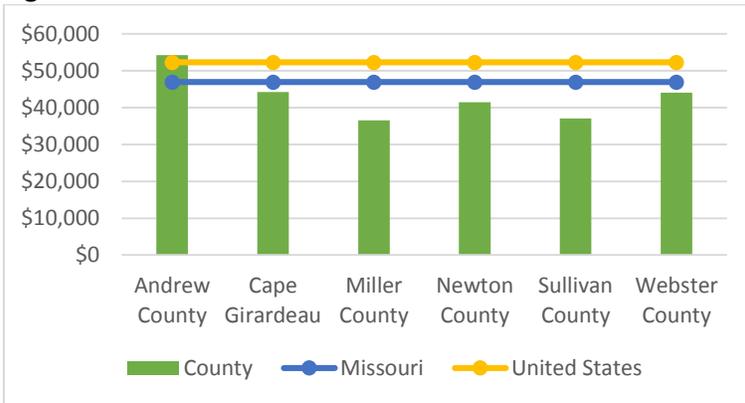
Severe storms: All but six counties have been included in six disaster declarations involving severe storms.

Flooding: 108 counties have been impacted at least once, with the greatest concentration of events along the length of the Missouri River, where 28 counties have seen 4-6 flooding disasters, and nine counties in northwest Missouri seven or more.

Tornadoes: 27 counties have been included in tornado disaster declarations at least once. There have been six clusters of events: the greater Kansas City area (Caldwell, Carroll, Cass, Clay, Jackson, Lafayette, Ray, and Pettis); north central region (Macon and Shelby); the greater St. Louis area (Jefferson, Lincoln, Pike, St. Charles, St. Louis, St. Louis City, and Ste. Genevieve); the Bootheel region (Cape Girardeau, Dunklin, Mississippi, New Madrid, Pemiscot, Scott, and Stoddard); the south central region (Phelps, Pulaski, and Texas); and Newton in the southwest.

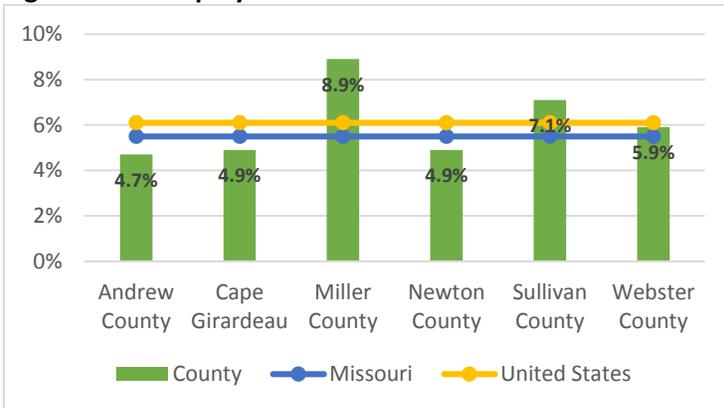
Appendix B: County Demographic Data Comparison

Figure 1: Median Household Income



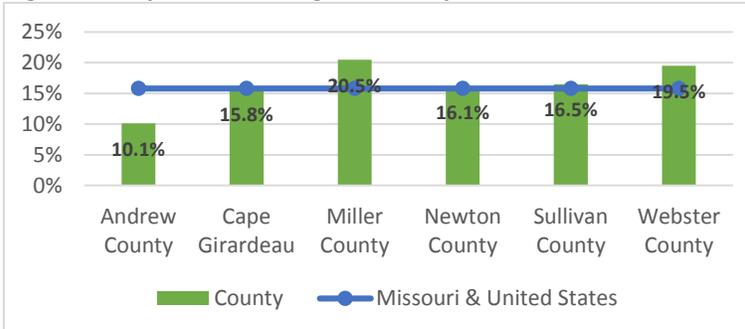
Source: 2013 Poverty and Median Household Income Estimates – State and National, U.S. Census Bureau, Small Area Income and Poverty Estimates (SAIPE) Program, December 2014

Figure 2: Unemployment Rate



Source: Unemployment Rate by County, Bureau of Labor Statistics, December, 2014

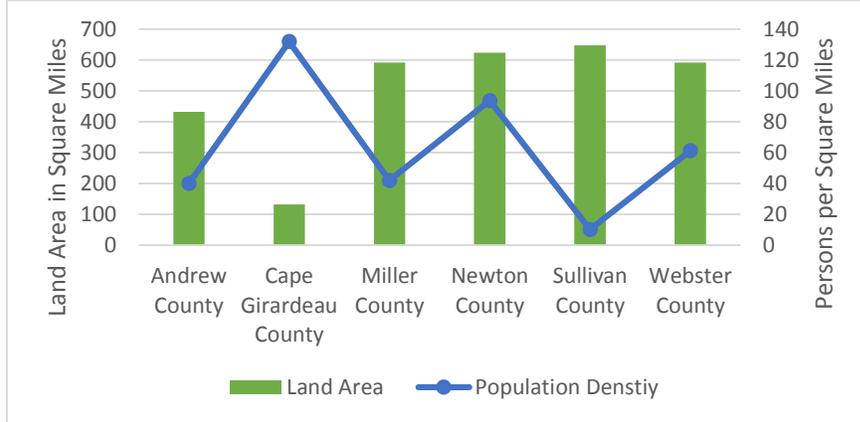
Figure 3: Population Living In Poverty



Source: Population below the Poverty Level, Adult (Age 18-64), Percent by County, American Community Survey (ACS) 2009-13

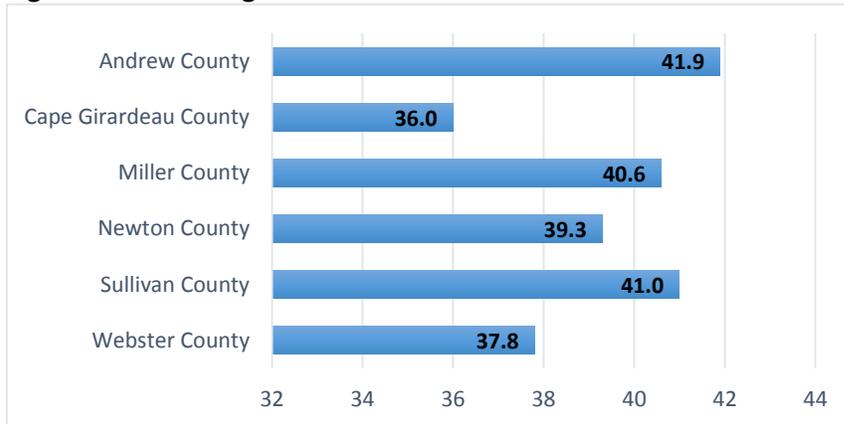
Note: Missouri and the United States had an identical 15.8 percent of families living below the poverty threshold.

Figure 4: Population Density



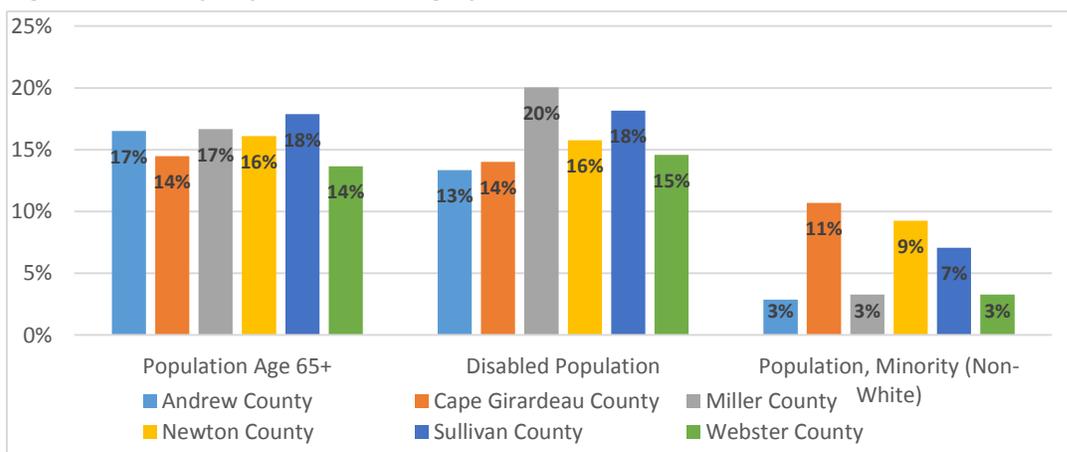
Source: Population Density (Persons per Square Mile) by County, ACS 2009-13

Figure 5: Median Age



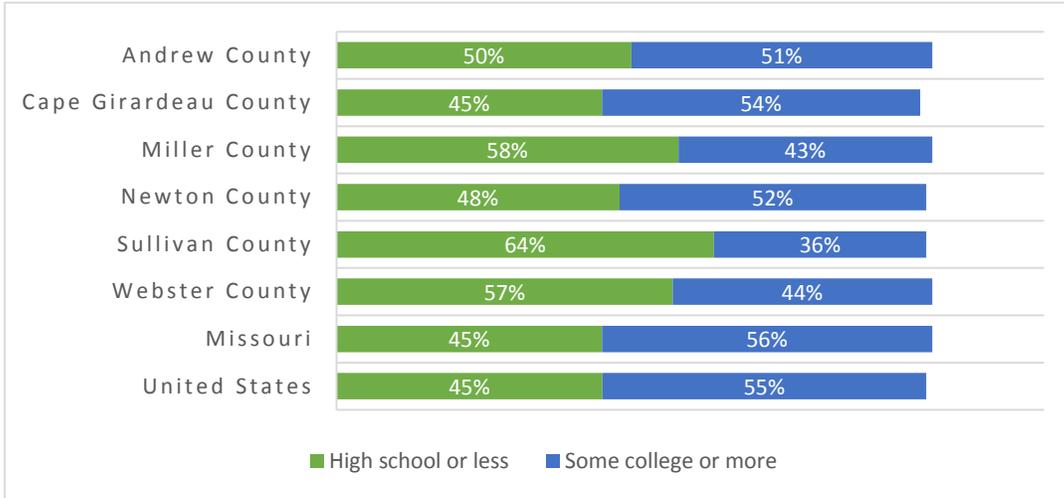
Source: Median Age by County, ACS 2009-2013

Figure 6: County Population Demographics



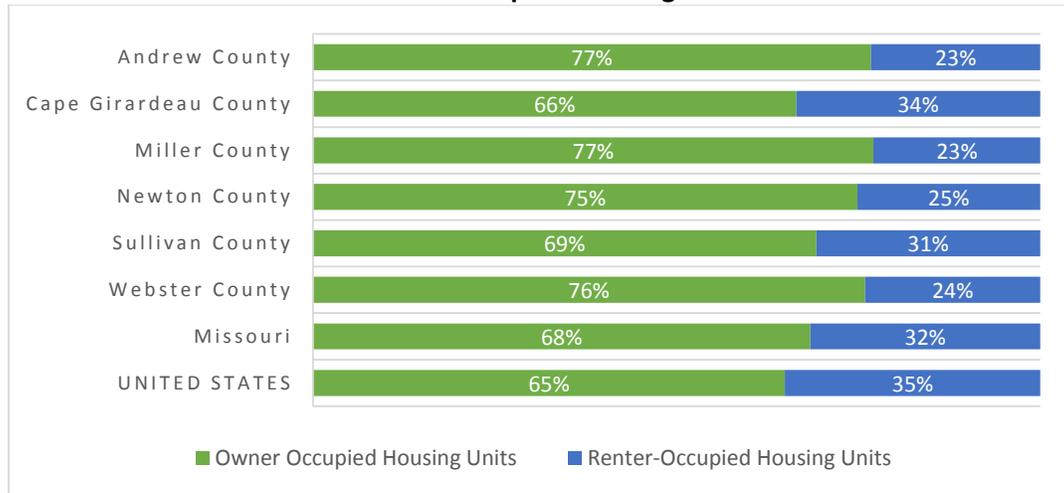
Source: Percent by County of Population over Age 65, Disabled Population, and Minority Population, ACS 2009-13

Figure 7: Educational Attainment



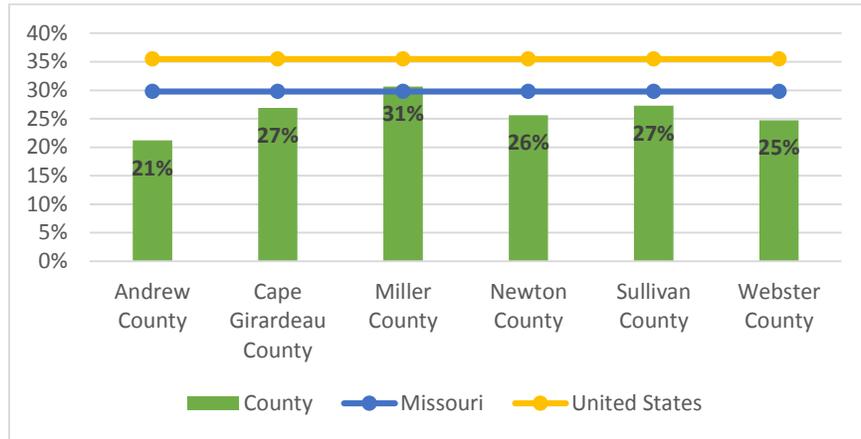
Source: Educational Attainment Aged 18+, Percent by County, ACS 2009-2013

Figure 8: Percent of Owner- and Renter-Occupied Dwellings



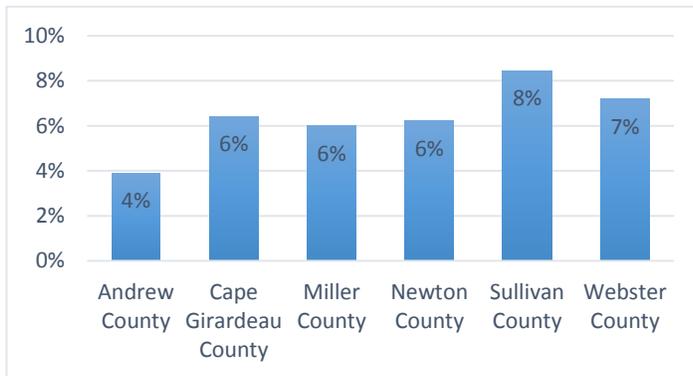
Source: Owner-Occupied Dwelling, Percent by County, ACS 2009-2013

Figure 9: Percent of Cost-Burdened Households³



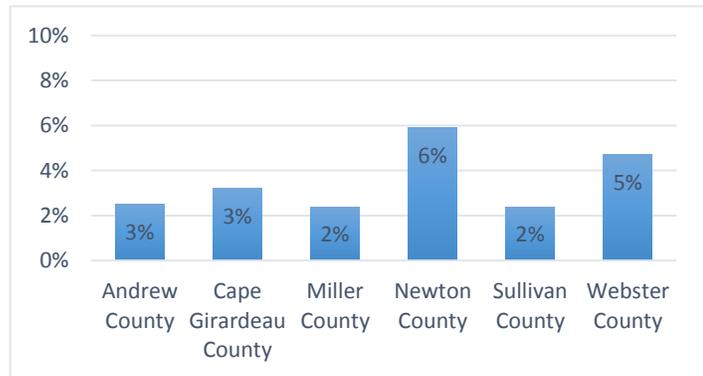
Source: Cost-Burdened Households, Percent by County, ACS 2009-2013

Figure 10: Occupied Households with No Vehicle



Source: Occupied Housing Units with No Vehicles, Percent by County, ACS 2009-13

Figure 11: Occupied Households with No Phone Service Available



Source: Households with No Phone Service Available, by County, ACS 2008-12

³ The U.S. Census Bureau defines cost-burdened households as households which spend 30 percent or more of their income on housing costs.

⁴ The Census Bureau’s American Community Survey includes questions regarding home phone service and access to a vehicle per household. A household must have a land-line or cellular telephone in working order and service available to answer “yes” to having phone service. Likewise, a household must possess at least one vehicle in working order which is kept at the household to answer “yes” to having a vehicle.