Long Branch Watershed Baseline:
Adair and Macon Counties
2000-2010

October 2002

The Community Policy Analysis Center

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Long Branch Watershed Baseline: 2000-2010

by

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# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acknowledgements</td>
<td>1</td>
</tr>
<tr>
<td>Executive Summary</td>
<td>2</td>
</tr>
<tr>
<td>Long Branch Watershed Baseline: Summary Tables</td>
<td>4</td>
</tr>
<tr>
<td>Issues for the Future</td>
<td>6</td>
</tr>
<tr>
<td>Introduction</td>
<td>7</td>
</tr>
<tr>
<td>I. Demographics and Economics</td>
<td>7</td>
</tr>
<tr>
<td>Population Characteristics</td>
<td>7</td>
</tr>
<tr>
<td>Workforce Characteristics</td>
<td>14</td>
</tr>
<tr>
<td>Income Characteristics</td>
<td>22</td>
</tr>
<tr>
<td>II. Fiscal Characteristics</td>
<td>24</td>
</tr>
<tr>
<td>Show Me Model and Scenario Development</td>
<td>30</td>
</tr>
<tr>
<td>References</td>
<td>30</td>
</tr>
</tbody>
</table>
Acknowledgements

A number of people made valuable contributions to the preparation of this report. The Community Policy Analysis Center wishes to thank the hard work and dedication of the Long Branch Economic Advisory Panel that contributed insights, questions and important comments throughout the project. CPAC accepts full responsibility for the research findings and any errors in this report.

Long Branch Economic Advisory Panel

Harold Brown       Rich Rhea
Howard Byram       Michael Seipel
Barton Davidson    Mark Snyder
Tony Di Varmo      Mike Teeter
Steven Fuller      Dan Wilt
Jeff Glover        Frank Withrow
Scott Nelson       Mary Beth Wyatt
Executive Summary

This report describes a set of annual baseline projections on demographic, economic, and fiscal conditions through 2010 for Adair County and Macon County, Missouri. Estimates of the labor market in the Long Branch Watershed are also made. Findings are based on a comprehensive statistical analysis of the most recent secondary data available, as well as important input provided by the Community Advisory Panel. Dollar figures are reported in constant 2001 terms, with no attempt to estimate future inflation rates. The first Long Branch Watershed baseline report released by CPAC in August 2000 was based on 1998 data and generated projections between 1999 and 2009. In January 2000, the Toastmaster plant located in Macon County experienced extensive layoffs that had not been taken into consideration by the first baseline report. The forecasts in this report are based on the updated information and do reflect the Toastmaster plant's layoffs, since they would have been reflected in the Census 2000 and other data sources.

The following average annual growth rates for independent variables that guide the forecasts in the statistical model were chosen:

<table>
<thead>
<tr>
<th>Variable</th>
<th>First 2 years</th>
<th>Remaining 8 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment growth rate in Adair County</td>
<td>0.16%</td>
<td>0.46%</td>
</tr>
<tr>
<td>Labor Force growth rate in surrounding counties</td>
<td>-0.41%</td>
<td>0.60%</td>
</tr>
<tr>
<td>Employment growth rate in surrounding counties</td>
<td>1.15%</td>
<td>1.15%</td>
</tr>
<tr>
<td>Real Per Capita Income growth rate in Adair County</td>
<td>1.59%</td>
<td>1.59%</td>
</tr>
<tr>
<td>Employment growth rate in Macon County</td>
<td>-0.13%</td>
<td>0.90%</td>
</tr>
<tr>
<td>Labor Force growth rate in surrounding counties</td>
<td>-0.05%</td>
<td>0.35%</td>
</tr>
<tr>
<td>Employment growth rate in surrounding counties</td>
<td>1.04%</td>
<td>1.04%</td>
</tr>
<tr>
<td>Real Per Capita Income growth rate in Macon County</td>
<td>0.88%</td>
<td>1.58%</td>
</tr>
</tbody>
</table>

where the first set of growth rates is chosen for the first 2 years of the forecast, and the second – for the remaining 8 years of the forecast. Two different sets of the growth rates that guide the forecasts were chosen to reflect the dip in the economy in response to the nation-wide recession. These growth rates were selected after a careful study of trends in these variables over the past 10 years, as well as current economic conditions in the region.

Findings

- Macon County has a relatively low population density of 19 persons per square mile, compared to 44 persons per square mile in Adair County and 81 persons per square mile in the State of Missouri (for year 2000).
• For Adair County, the service sector provides the largest number of jobs in the County, followed by retail sales sector. For Macon County, government provides the largest number of jobs in the County. Farm and non-farm proprietors, services and retail sectors also provide a large number of jobs in Macon County.

• In examining fiscal conditions, it is worth noting that Macon County depends rather heavily on intergovernmental revenues in financing demand for public goods and services. This type of revenues ranged anywhere between 29 and 44 percent of County’s total revenues between 1990 and 2000.

• Over the next 10 years, both Adair and Macon Counties are expected to experience a moderate growth in a host of socio-demographic variables. Thus, the Adair County population is projected to grow at an annual growth rate of 0.4 percent, and Macon County – at 0.7 percent over the baseline period.

• More Macon County residents will continue to commute outside the County boundaries to work, than the number of non-County residents commuting to Macon to local jobs. The reverse is true for Adair County.

• In the Long Branch Watershed, the population is projected to grow at 0.5 percent per year.

• The labor force and employment in the Long Branch Watershed are expected to grow at 0.7 percent per year, each.

• Growth over the baseline period will stimulate demand for 470 additional housing units in Adair County, and approximately 450 units in Macon County.

• Per capita income – before inflation – is projected to grow by 1.7 percent annually through 2010 for Adair County, and by 1.5 percent – for Macon County. Total personal income is expected to exhibit a real growth rate of 2.2 percent per year for Adair County, and 2.3 percent for Macon County.

• Changes in county income and employment will lead to 1.2 percent in annual growth of taxable retail sales for Adair County, and 2.4 percent - for Macon County.

• For both Adair County and Macon County, the demand for county governmental expenditures is expected to grow at a faster rate than the growth in total revenues, if current economic conditions in the two counties prevail.

• In absolute terms, this will mean that demand for publicly provided goods and services is expected to exceed total revenues during the years of the forecast. Thus, county governments will be challenged in the future to deliver public services more efficiently, and/or generate new revenues.
### Baseline Summary Table, 2000-2010
#### Adair County
*(All fiscal variables are reported in 2001 dollars)*

<table>
<thead>
<tr>
<th>Variables</th>
<th>Base Year 2000</th>
<th>2010</th>
<th>Absolute Change$^a$</th>
<th>Annual Growth Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Demographics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Population</td>
<td>24,947</td>
<td>26,029</td>
<td>1,082</td>
<td>0.4%</td>
</tr>
<tr>
<td>Persons 17 and Younger</td>
<td>4,796</td>
<td>5,064</td>
<td>268</td>
<td>0.6%</td>
</tr>
<tr>
<td>Persons 65 and Over</td>
<td>3,050</td>
<td>3,231</td>
<td>171</td>
<td>0.6%</td>
</tr>
<tr>
<td>School Enrollment</td>
<td>2,954</td>
<td>3,080</td>
<td>126</td>
<td>0.4%</td>
</tr>
<tr>
<td><strong>Workforce Characteristics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Labor force</td>
<td>13,595</td>
<td>14,293</td>
<td>700</td>
<td>0.5%</td>
</tr>
<tr>
<td>Employment by Workplace</td>
<td>18,107</td>
<td>16,766</td>
<td>659</td>
<td>0.4%</td>
</tr>
<tr>
<td>Unemployed</td>
<td>297</td>
<td>325</td>
<td>38</td>
<td>1.3%</td>
</tr>
<tr>
<td>Incommuters</td>
<td>2,342</td>
<td>2,498</td>
<td>157</td>
<td>0.7%</td>
</tr>
<tr>
<td>Outcommuters</td>
<td>1,224</td>
<td>1,444</td>
<td>220</td>
<td>1.8%</td>
</tr>
<tr>
<td><strong>Demand for Housing</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>10,847</td>
<td>11,317</td>
<td>470</td>
<td>0.4%</td>
</tr>
<tr>
<td><strong>Economics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Real Per Capita Income ($)</td>
<td>$20,789</td>
<td>$24,332</td>
<td>$3,543</td>
<td>1.7%</td>
</tr>
<tr>
<td>Real Total Personal Income ($1,000)</td>
<td>$518,629</td>
<td>$633,332</td>
<td>$114,703</td>
<td>2.2%</td>
</tr>
<tr>
<td>Assessed Property Value ($1,000)</td>
<td>$199,311</td>
<td>$229,053</td>
<td>$30,742</td>
<td>1.6%</td>
</tr>
<tr>
<td>Taxable Retail Sales ($1,000)</td>
<td>$245,451</td>
<td>$274,684</td>
<td>$29,233</td>
<td>1.2%</td>
</tr>
<tr>
<td><strong>Revenue Sources ($1,000)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>County Sales Tax Receipts</td>
<td>$2,637</td>
<td>$2,884</td>
<td>$247</td>
<td>0.9%</td>
</tr>
<tr>
<td>County Property Tax Receipts</td>
<td>$475</td>
<td>$737</td>
<td>$262</td>
<td>5.5%</td>
</tr>
<tr>
<td>Intergovernmental Revenues</td>
<td>$1,675</td>
<td>$1,752</td>
<td>$77</td>
<td>0.6%</td>
</tr>
<tr>
<td>Other Revenues</td>
<td>$724</td>
<td>$1,137</td>
<td>$413</td>
<td>5.7%</td>
</tr>
<tr>
<td>**Total Revenue ($1,000)$^1$</td>
<td>$5,511</td>
<td>$6,510</td>
<td>$999</td>
<td>1.8%</td>
</tr>
<tr>
<td>**Total Demand for Expenditures ($1,000)$^1$</td>
<td>$4,880</td>
<td>$7,009</td>
<td>$2,149</td>
<td>4.4%</td>
</tr>
<tr>
<td>**Revenues minus Expenditures ($1,000)$^2$</td>
<td>$651</td>
<td>-$499</td>
<td>-$1,150</td>
<td></td>
</tr>
</tbody>
</table>

---

1. Excludes Operating Transfers  
2. Often, actual spending alternates from a budget surplus to a deficit. However, on average, Missouri local governments must operate from a balanced budget.  
3. The term 'Absolute Change' denotes the absolute difference (i. e., in numerical terms) between the two numbers. This is in contrast to the 'Relative Change' that calculates the change in percentage terms.
## Baseline Summary Table, 2000-2010
### Macon County
(All fiscal variables are reported in 2001 dollars)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Base Year 2000</th>
<th>2010</th>
<th>Absolute Change$^3$</th>
<th>Annual Growth Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Demographics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Population</td>
<td>15,749</td>
<td>16,827</td>
<td>1,078</td>
<td>0.7%</td>
</tr>
<tr>
<td>Persons 17 and Younger</td>
<td>3,820</td>
<td>4,087</td>
<td>267</td>
<td>0.7%</td>
</tr>
<tr>
<td>Persons 65 and Over</td>
<td>2,999</td>
<td>3,169</td>
<td>170</td>
<td>0.6%</td>
</tr>
<tr>
<td>School Enrollment</td>
<td>2,491</td>
<td>2,683</td>
<td>192</td>
<td>0.8%</td>
</tr>
<tr>
<td><strong>Workforce Characteristics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Labor force</td>
<td>7,416</td>
<td>8,097</td>
<td>681</td>
<td>0.9%</td>
</tr>
<tr>
<td>Employment by Workplace</td>
<td>9,559</td>
<td>9,170</td>
<td>381</td>
<td>0.7%</td>
</tr>
<tr>
<td>Unemployed</td>
<td>388</td>
<td>427</td>
<td>39</td>
<td>1.0%</td>
</tr>
<tr>
<td>Incommuters</td>
<td>842</td>
<td>921</td>
<td>78</td>
<td>0.9%</td>
</tr>
<tr>
<td>Outcommuters</td>
<td>1,726</td>
<td>1,684</td>
<td>158</td>
<td>0.9%</td>
</tr>
<tr>
<td><strong>Demand for Housing</strong></td>
<td>8,582</td>
<td>7,011</td>
<td>449</td>
<td>0.7%</td>
</tr>
<tr>
<td><strong>Economics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Real Per Capita Income ($)</td>
<td>$20,681</td>
<td>$23,861</td>
<td>$3,179</td>
<td>1.5%</td>
</tr>
<tr>
<td>Real Total Personal Income ($1,000)</td>
<td>$325,714</td>
<td>$401,508</td>
<td>$75,794</td>
<td>2.3%</td>
</tr>
<tr>
<td>Assessed Property Value ($1,000)</td>
<td>$133,076</td>
<td>$155,745</td>
<td>$22,669</td>
<td>1.7%</td>
</tr>
<tr>
<td>Taxable Retail Sales ($1,000)</td>
<td>$95,309</td>
<td>$117,751</td>
<td>$22,442</td>
<td>2.4%</td>
</tr>
<tr>
<td><strong>Revenue Sources ($1,000)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>County Sales Tax Receipts</td>
<td>$1,120</td>
<td>$1,457</td>
<td>$338</td>
<td>3.0%</td>
</tr>
<tr>
<td>County Property Tax Receipts</td>
<td>$747</td>
<td>$659</td>
<td>$112</td>
<td>1.5%</td>
</tr>
<tr>
<td>Intergovernmental Revenues</td>
<td>$1,927</td>
<td>$1,991</td>
<td>$64</td>
<td>0.3%</td>
</tr>
<tr>
<td>Other Revenues</td>
<td>$597</td>
<td>$651</td>
<td>$54</td>
<td>0.9%</td>
</tr>
<tr>
<td><strong>Total Revenue ($1,000)$^1</strong></td>
<td>$4,391</td>
<td>$4,959</td>
<td>$568</td>
<td>1.3%</td>
</tr>
<tr>
<td><strong>Total Demand for Expenditures ($1,000)$^1</strong></td>
<td>$4,379</td>
<td>$5,599</td>
<td>$1,220</td>
<td>2.8%</td>
</tr>
<tr>
<td>Revenues minus Expenditures ($1,000)$^2</td>
<td>$12</td>
<td>-$639</td>
<td>-$852</td>
<td></td>
</tr>
</tbody>
</table>

1. Excludes Operating Transfers
2. Often, actual spending alternates from a budget surplus to a deficit.
   However, on average, Missouri local governments must operate from a balanced budget.
3. The term ‘Absolute Change’ denotes the absolute difference (i.e., in numerical terms) between the two numbers. This is in contrast to the ‘Relative Change’ that calculates the change in percentage terms.
Baseline Summary Table, 2000-2010
Long Branch Watershed

<table>
<thead>
<tr>
<th>Variables</th>
<th>Base Year</th>
<th>2000</th>
<th>2010</th>
<th>Absolute Change</th>
<th>Annual Growth Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td></td>
<td>1,401</td>
<td>1,478</td>
<td>77</td>
<td>0.5%</td>
</tr>
<tr>
<td>Workforce Characteristics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Labor force</td>
<td></td>
<td>679</td>
<td>729</td>
<td>50</td>
<td>0.7%</td>
</tr>
<tr>
<td>Employment by Residence</td>
<td></td>
<td>648</td>
<td>694</td>
<td>47</td>
<td>0.7%</td>
</tr>
<tr>
<td>Employment by Workplace*</td>
<td></td>
<td>788</td>
<td>839</td>
<td>51</td>
<td>0.7%</td>
</tr>
<tr>
<td>Unemployed</td>
<td></td>
<td>31</td>
<td>35</td>
<td>3</td>
<td>1.0%</td>
</tr>
<tr>
<td>Incommuters</td>
<td></td>
<td>256</td>
<td>290</td>
<td>34</td>
<td>1.3%</td>
</tr>
<tr>
<td>Outcommuters</td>
<td></td>
<td>551</td>
<td>557</td>
<td>6</td>
<td>0.1%</td>
</tr>
</tbody>
</table>

* Employment by Workplace is the total number of full- and part-time jobs, not expressed in FTE (Full Time Equivalent)

Issues for the Future

Regional economic development brings both opportunities and challenges. As future population and income levels in Adair and Macon Counties, and specifically in the region encompassing the Long Branch Watershed increase, this will lead to new demands for both public and private sectors. For example, as the number of housing starts in the countryside rise, it will place new pressures on water and sewage treatment systems. Local governments will need to play a more active role in developing public infrastructure as part of the overall economic development to assure drinking water quality, sufficient law enforcement, and adequate transportation system, among other things, for the watershed residents in the 21st century.

Among the issues for the future that require further consideration, the Watershed Advisory Panel identified the expansion of the ethanol plant in Macon County and the increase in the CRP acres through participation in the Missouri Conservation Reserve Enhancement Program (MOCREP) in the Long Branch Watershed. These and other issues need to be addressed in order to make Macon and Adair Counties a nice place to work, live and grow, providing high overall quality of life for citizens.
Introduction

The Show-Me Model and the baseline forecasts described in this report are intended to assist public officials and community residents in addressing economic changes.

Findings in this report are discussed in two separate sections. The first section describes future socio-demographic and economic conditions in Macon and Adair Counties, as well as in Long Branch Watershed with no major changes. The second section reports related fiscal implications for Macon and Adair County government under these conditions. At the end of the report, a brief overview of the Show Me model and Scenario Development is presented.

I. Demographics and Economics

The following population figures can help citizens understand trends in their communities that can be used to analyze future service needs for communities’ population. Trends of particular interest are total population, population by age group and public school enrollment.

Both Adair and Macon Counties are Class 3 MO Counties\(^1\). Macon County is sparsely populated: in 2000, there were 19.6 persons per square mile in the county, vs. 81.2 persons per square mile in the State of Missouri, as a whole. The Adair County population density is twice as much as that of Macon County (44.1 persons per square mile), but is still almost half the density of the State as a whole. According to Census 2000, the median age is 28 years for Adair County and 40 – for Macon County, vs. 36 years for the State of Missouri. Thus, Adair has a relatively young population base.

Figure 1 illustrates the population change in Adair and Macon Counties since 1990. The actual data in this and following figures are separated from their projected counterparts by dotted line. Last decade was characterized by a period of slow population growth for both Adair and Macon Counties. Thus, in 2000, the Adair County population increased by only 1.5 percent over its 1990 level, and Macon’s – by 2.7 percent. In the current baseline, Adair County population increases from 24,947 to 26,029 persons between 2000 and 2010 – an annual growth rate of 0.4 percent. Similarly, Macon County population is projected to increase from 15,749 to 16,827 persons by the end of the decade – an annual growth rate of 0.7 percent. For comparison, the average annual population growth rate for the State of Missouri has been 0.93 percent since 1990.

\(^1\) As defined by Missouri Revised Statutes-1997, Chapter 48, “County Classification”, Missouri counties are grouped into four classes. Class 1 counties are those counties with an assessed valuation of $450 million and above. Class 2 counties have an assessed valuation of $300 million and above and less than $450 million. Class 3 counties have an assessed valuation of less than $300 million. Finally, Class 4 includes counties that attained Class 2 status but would have returned to Class 3 status after August 13, 1988 due to changes in assessed valuation. Class 4 counties operate under the laws of Class 2 counties.
The Long Branch Watershed population is expected to increase slightly over the next 10 years due to the projected increases in Adair and Macon County populations (Figure 2). There is an expected change of 77 people in the watershed, from the estimated 2000 population of approximately 1,400 persons.
We also examined the two population groups that are generally not part of the labor force: young persons in the two counties (people 17 and younger), as well as older population (persons 65 and above). The young people usually do not make moving/allocation decisions themselves, but rather follow their families. The older part of the population typically constitutes retirees who may, and often do, have a profound effect on a county’s economy.

Figure 3 illustrates the change in persons 17 years and younger in Adair and Macon Counties between 1990 and 2010. In examining the actual data for this segment of the population, one can notice that in Adair County, this group was growing steadily in numbers between 1990 and 1995, after which it experienced gradual decline up to year 2000. In the current baseline, the “young” population in Adair County is expected to increase from 4,796 to 5,064 persons and in Macon County – from 3,820 to 4,087 persons between 2000 and 2010. This represents a moderate annual growth rate of 0.6 and 0.7 percent for Adair and Macon Counties, respectively.

**Figure 3. Persons 17 and Younger, 1990-2010**
*Adair and Macon Counties*

Figure 4 represents the changes in persons 65 years and older in Adair and Macon Counties between 1990 and 2010. In examining the actual data for this segment of the population, one can notice, that unlike the previous two graphs (when total population and young population were examined), both Adair and Macon persons 65 and above experienced a continuous decline between 1990 and 1996 (by approximately 1 percent per year). In the current baseline, the “older” population in both Adair and Macon Counties are expected to increase by approximately 170 persons each, with an annual average growth rate of 0.6 percent.

Source: US Census Bureau
Analysis by CPAC
The largest segment of the population in Adair County are young adults between the ages of 18 and 24: they comprised over 27% of total population in 2000, followed by baby-boom category (ages 35-54) that comprised almost 23% in 2000 (Figure 5). Children of ages 0-5 and elderly persons of 85 and older represent the smallest segment of the Adair County population (5 and 2 percent, respectively).

Unlike Adair County, age distribution of Macon County tends to follow the State pattern. The largest segment of the population in Macon County, as well as in the State as a whole, are baby boomers (persons between the ages of 35 and 54): they comprised 27.5% of Macon County total population in 2000. Elderly persons (ages 85 and older) represent the smallest segment of the Macon County population, amounting to a mere 3 percent of total population in 2000.
Elderly persons represent the fastest growing segment of the Adair County population: between the years 1990 and 2000, this age category grew by 20 percent (Figure 6). Baby boomers and the middle age group (ages 55-64) also experienced sizable increase between years 1990 and 2000 (17 and 15 percent, respectively). Interestingly, two age cohorts, 25-34 and 65-84 years of age, actually experienced a sizable negative growth between 1990 and 2000 (by 18.5 and 10 percent, respectively).

Figure 6. Age Distribution, 1990, 2000
Adair County

Source: US Census Bureau
Analysis by CPAC

Baby boomers represent the fastest growing segment of Macon’s population: between the years 1990 and 2000, this age category grew by almost 21 percent (Figure 7). The second fastest growing age category is children of ages 0-5: it increased by over 14 percent between years 1990 and 2000. As in the case with Adair County, two age cohorts, 25-34 and 65-84 years of age, experienced a negative growth of about 11 percent each between 1990 and 2000. If the actual population grows through the baseline period as expected, this growth will lead to increased demands for health services, higher and continuing education, and family and senior adult recreation activities.

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2 The growth appears to be dramatic because we are operating with small base.
Figure 7. Age Distribution, 1990, 2000
Macon County

Figure 8 shows the forecasted school enrollment that is similar to the population trend in school age children. Actual school enrollment in both Adair and Macon Counties experienced a decline of 5 percent for Adair County and 9 percent for Macon County between 1990 and 2001. The projected growth rate in school enrollment is 0.4 percent per year for Adair County and 0.8 percent – for Macon County.

Figure 8. School Enrollment, 1990-2010
Adair and Macon Counties
We also examined the ranking of Adair and Macon Counties in the Kids Count from OSEDA’s (Office for Social and Economic Data Analysis) website (http://oseda.missouri.edu/kidscount/00). Adair County ranked number 39, and Macon County – number 72 in the composite county ranking for year 2001 (with rank of 1 being the best, and 115 – the worst). Thus, Adair County performs much better than Macon County with regards to children’s well-being. In fact, Adair County has been improving its ranking since 1999. Macon County, on the other hand, had a significant rank improvement from 1997 to 1999, but has drastically dropped in ranking in the last two years.

### Kids Count

**Composite County Ranking**

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<td>Adair</td>
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<td>37</td>
<td>47</td>
<td>47</td>
<td>42</td>
<td>39</td>
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<tr>
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<td>54</td>
<td>45</td>
<td>95</td>
<td>85</td>
<td>36</td>
<td>52</td>
<td>72</td>
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According to Census 2000, there are 2.5 persons per household in the State of Missouri. This is slightly higher than the 2.3 persons per household reported for Adair County, and 2.4 – for Macon County. Figure 9 represents the projected demand for housing for Macon and Adair Counties for years 2001 – 2010. The demand for housing in Adair County is expected to increase by 470 housing units over the 10 years of the projection, at an average annual rate of 0.4 percent. The demand for housing in Macon County is expected to increase by about 450 housing units between 2000 and 2010, at an average annual rate of 0.7 percent.

![Figure 9. Projected Housing Demand, 2001-2010](image)

Adair and Macon Counties

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3 From OSEDA’s website, the composite county rank is based on seven of the ten outcome measures that describe the overall well-being of children. Two measures, "deaths of children ages 1-14" and "violent deaths of teens, ages 15-19" are not used to calculate this rank because there are so few occurrences of these measures on the county level that their rates are extremely unstable and would inappropriately skew the rankings. "Child abuse and neglect" is not used because a change in protocol is being implemented that apparently affects the consistency of the data.
Workforce Characteristics

Workforce characteristics include labor force, employment and unemployment levels, and commuting patterns.

Figure 10 illustrates expected growth in the civilian labor force. Civilian labor force represents the number of adults who live in the county of interest and are now either gainfully employed or actively seeking work. Between 1990 and 1996, actual labor force in Adair County grew continuously (by 2,059 persons, or 16 percent), following national trend of increased labor force participation. However, between the years 1996 and 2000, the Adair County labor force decreased by 1,536 persons, or 10 percent, with 7 percent reduction between the years 1997 and 1998 alone. The labor force in Macon County increased by 9 percent between 1990 and 1997, but then experienced a decrease of 5.7 percent between 1997 and 2000. In this baseline, the Adair County labor force is expected to increase by slightly over 700 persons by 2010, representing a modest 0.5 percent annual growth. At the same time, the Macon County labor force is expected to increase by approximately 680 persons by 2010, representing a 0.9 percent average annual growth.

Figure 10. Labor Force, 1990-2010
Adair and Macon Counties

The labor force of the Long Branch Watershed is expected to increase at an average rate of 0.7 percent per year, adding 50 new entrants into the labor force by 2010 (Figure 11).

Figure 11 also depicts projected employment by workplace and by residence in Long Branch Watershed. For the 10-year forecast, both variables are expected to experience small but steady increase of 0.7 percent per year each.
Figure 11. Projected Labor Force and Employment, 2000-2010
Long Branch Watershed

Note: Employment by workplace represents the total number of full- and part-time jobs, not expressed in FTE (Full-Time Equivalent)

Figure 12 represents employment by workplace, i.e., the number of jobs located in each county. Between the years 1991 and 1996, Adair County employment grew by approximately 18 percent. Macon County employment increased by 12 percent between 1991 and 1997. Employment in both Adair and Macon Counties experienced a slight decrease from 1999 to 2000 which can be partly explained by the slow-down in the national economy in year 2000.

Figure 12. Employment by Workplace, 1990-2010
Adair and Macon Counties

Source: Missouri Department of Labor and Industrial Relations and Bureau of Economic Analysis, REIS.
Note: 1. Employment data reported by REIS includes both full- and part-time jobs.
2. Employment data reported by MO Dept of Economic Development uses different methodology. In particular, their employment data represents employment by residence and is equal to Labor Force - Unemployment (i.e., it already accounts for the net commuting).
Analysis by CPAC
For an overall projection, Adair County employment is expected to increase at an average rate of 0.4 percent per year through 2010, thus gaining approximately 660 jobs by 2010 over its 2000 level. At the same time, Macon County employment is expected to rise at an average rate of 0.7 percent per year through 2010, which will amount to a total of over 610 jobs between 2000 and 2010.

Fifty-one of the new jobs projected for Adair and Macon Counties are expected to be located within the Long Branch Watershed area. These additional jobs represent an average growth rate of 0.7 percent per year.

Our data for employment by workplace variable comes from the Missouri Department of Labor and Industrial Relations, and Bureau of Economic Analysis (REIS). There are a couple of points worth mentioning with regards to data interpretation:

1. Employment by workplace is the number of jobs in the community, regardless of who is taking those jobs – local residents or in-commuters. This is in contrast to employment by residence that represents the number of community residents who are currently employed, regardless of where they hold jobs – in their own community or outside its boundaries;

2. Employment data by workplace reported by REIS includes both full- and part-time jobs. Therefore, REIS data for employment tend to overestimate actual employment since it does not report employment in FTE (full time equivalent). It therefore represents number of jobs, not number of people;

3. REIS data is different from employment by residence data reported by Missouri Department of Economic Development (as well as by ‘Missouri Works!’ website). In particular, employment by residence data from Missouri Department of Economic Development is equal to Labor Force - Unemployment (i.e., it already accounts for the net commuting); and, finally,

4. In our model, we explicitly consider commuters, rather than implicitly accounting for net commuters, i.e., we use the following identity: Labor Force = Employment (by workplace) + Unemployment + Outcommuters – Incommuters.

Figure 13 compares employment by workplace in Adair County vs. adjacent counties (i.e., counties bordering Adair) for year 2000. Adair County clearly provides the highest number of jobs held in the area, followed by Macon and Linn Counties. Schyler County, on the other hand, has the smallest, and Knox County – the second smallest number of jobs in the area.
In examining the Macon County labor market (Figure 14), Adair County still provides the highest number of jobs held in the area, followed by Randolph and Macon Counties. Knox County, on the other hand, has the smallest number of jobs in the area.
Figure 15 represents employment by major industry in Adair County for the years 1990 and 2000. As evident from the graph, for those sectors that have disclosure, services provide the largest number of jobs in the county, followed by the retail sales sector. Between 1990 and 2000, the number of jobs increased by 15 percent in services sector, and by 11 percent – in retail sector. Note that non-farm proprietors\(^4\) experienced the largest growth between 1990 and 2000, followed by governmental jobs. This growth amounted to 60 and 40 percent, respectively. On the other hand, agriculture, wholesale and transportation sectors provide the smallest number of jobs in the County for both years. Nationally, employment is now growing fastest in the services and retail trade sectors.

![Figure 15. Employment by Major Industry. 1990-2000](image)

Adair County

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4 A sole proprietorship is an unincorporated business owned by a person. A partnership is an unincorporated business association of two or more partners. A tax-exempt cooperative is a nonprofit business organization that is collectively owned by its members.

Farm proprietors' income consists of the income that is received by the sole proprietorships and the partnerships that operate farms. It excludes the income that is received by corporate farms.

5 Data came from MO ag. statistics service website, [www.mda.state.mo.us](http://www.mda.state.mo.us)
Figure 17 shows the number of unemployed adults in the Adair County and Macon County labor forces. From the actual data, unemployment in each county seems to fluctuate from year to year. Between 1990 and 1992, Adair County unemployment decreased by 56 percent, and Macon County – by 21.5 percent. However, between 1992 and 1993, Adair County unemployment increased by 58 percent, and Macon County – by approximately 90 percent. High unemployment during 1993 was occurring throughout the State. Between 1995 and 1999, the unemployment in the two counties tended to decline, decreasing by 42 percent in Adair, and by more than 44 percent – in Macon. Both counties have experienced an increase in unemployment from 1999 to 2000 (by 16 percent in Adair, and 29 percent – in Macon) reflecting nation-wide recession of 2000.

Source: Missouri Department of Labor and Industrial Relations
Analysis by CPAC
According to the Missouri Department of Economic Development, the annual unemployment rate in the base year (2000) in Adair County was lower than in the State as a whole (2.1 vs. 3.5 percent, respectively). This is in contrast to 5.3 percent of unemployment in Macon County in 2000. Both Adair County and Macon County unemployment rates increased from 2000 to 2001, with the Macon County unemployment rate almost doubling over its 2000 figure. Thus, 2001 unemployment rate was 3.5 percent for Adair, and 10.3 percent for Macon, vs. 4.7 percent for the State. In our forecast, the number of unemployed persons is expected to rise by an average of 1.3 percent per year for Adair County and 1.0 percent per year for Macon County in the next ten years, increasing the number of unemployed by about 40 persons in each county.

Figure 18 presents the unemployment pattern in the Long Branch Watershed. It virtually mimics the unemployment trends in Macon and Adair Counties. The number of unemployed persons in the watershed is rather small, and is not expected to grow by many people during the forecasted period.

Figure 18. Long Branch Watershed Unemployment Estimates 1990-2010

Figures 19 and 20 represent expected changes in the number of commuters in the two counties. Incommuters are people who live outside of the county, but whose place of employment is within the county. Outcommuters are residents of the county who work outside of the county. Commuting patterns in most Missouri counties changed tremendously since 1990. Thus, per our estimations, incommuting increased by almost 19 percent in Adair County and 17 percent in Macon County between 1990 and 2000. Similarly, outcommuting increased by 43 percent in Adair County and by 15 percent – in Macon County over their respective 1990 levels.6

Projections on commuting patterns are especially important in estimating changes in retail sales. In the baseline, forecasted incommuting experiences a growth of 0.7 percent in Adair County and 0.9 percent - in Macon County annually through 2010. Incommuters are expected

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6 At the time when this report was written, Census 2000 data on commuting was not yet released. Therefore, we used our own projections for in- and out-commuting between the years 1990 and 2000.
to take up a rather large portion of Adair County employment (around 15 percent in both 2000 and 2010). At the same time, outcommuting from Adair County is expected to grow much faster (by 1.8 percent annually) than the incommuters because of the number of jobs becoming available in the surrounding counties. Macon County outcommuting is expected to grow at an average of 0.9 percent per year over the years of the projection – the same growth rate as Macon County incommuters. Outcommuting affects employment by residence, resulting in different behavior.

For Long Branch Watershed, outcommuting is defined as those who live within the watershed area, but who work outside of the watershed. The higher number of outcommuters versus incommuters is due to the relatively small number of jobs located within this area.
**Income Characteristics**

Figure 21 shows an expected annual increase of 1.7 and 1.5 percent in real per capita income for the next ten years for Adair and Macon Counties, respectively. Thus, both Adair County and Macon County per capita income will continue to lag behind the per capita income for the State of Missouri. Note, that for the actual portion of the data, the per capita income in Adair County is much smaller than that of the State. For example, in 2000, Adair County per capita income was $20,790 vs. $27,980 of the State average, which comprised about 74 percent of the state level. This is consistent with the large number of lower paying jobs in the retail and service sectors in Adair County. Similarly, in 2000, Macon County per capita income was $20,680 vs. $27,980 of the State average, which comprised about 74 percent of the state level. The gap between State per capita income and that of the two counties is expected to remain approximately the same for the years of the projection. As mentioned previously, all dollar figures are standardized to 2001 dollars to discount any changes in income caused by inflation.

**Figure 21. Real Per Capita Income, 1990-2010**

*Adair and Macon Counties (real 2001 dollars)*

The Macon County 1995 level of real per capita income was virtually the same as its 1990 level. In 1990, there was a gap between Adair and Macon County per capita income, with Macon County per capita income exceeding that of Adair County by approximately $1,840. However, this gap decreased over time and became virtually nonexistent in 1994.

Income measures are an important part of a community’s profile. Changes in income can give important indications about the well being of the community. The per capita income indicator is often used to measure both local quality of life and productivity growth in a local economy. Typically, real per capita income growth of one percent per year is considered desirable in most areas. In the baseline period, Adair County real per capita income (i.e., per capita income adjusted for inflation) grows at an annual average rate of 1.7 percent, thus exceeding the
desirable one percent figure. The same is true for Macon County per capita income. If the growth rate included inflation (i.e., if it were given in nominal terms), the rate would be higher. For example, if inflation were measured at 2 percent per year, the nominal per capita income growth for Adair County would be 3.7 percent.

Total personal income is higher in Adair County than in Macon County because of the larger population in Adair County. Figure 22 shows both Adair and Macon County total personal income (in 2000 dollars) growing through the projection period at the average rates of 2.2 and 2.3 percent annually for Adair and Macon County, respectively. This growth reflects the growth in both population and real per capita income in the two counties. The pattern in the actual data of the total income in the counties is very similar to that of per capita income data. In fact, the 1995 level of Macon County total personal income is slightly lower than its 1990 level. Overall, total personal income has been increasing in both counties.

**Figure 22. Total Personal Income, 1990-2010**
Adair and Macon Counties (2001 Dollars)

Source: Bureau of Economic Analysis REIS
Analysis by CPAC
II. Fiscal Characteristics

Services in Macon County are funded primarily through sales taxes, intergovernmental revenues and property taxes, with intergovernmental revenues comprising over 37 percent, and sales tax approximately 28 percent of total county revenues (in year 2001). Sales taxes in Adair County comprised almost 50 percent of county total revenues. Because of their direct link to the county financial statement, knowing the total assessed property value and retail sales levels in the county can play an important role in the planning process.

Figure 23 represents the value of assessed real and personal property in Adair and Macon Counties. Between 1990 and 2001, assessed property value in Adair County grew by 10 percent. The assessed property value in Macon County grew by 11 percent in the same time period. Between 2000 and 2010, assessed property value is expected to grow on average by 1.6 percent in Adair County and by 1.7 percent in Macon County annually. This increase is driven by the expected increase in the demand for housing caused by in-migration, as well as population growth. The increased valuation is projected as if the reassessment were to take place each year. Actual assessed valuation will vary according to the assessment process.

Figure 23. Assessed Property Values, 1990-2010
Adair and Macon Counties (2001 Dollars)

![Assessed Property Values Graph]

Source: University of Missouri Economic and Policy Analysis Research Center, Missouri State Tax Commission
Note: Data for Property Values include real and personal property, and utilities.
Analysis by CPAC

Figure 24 contains the actual and anticipated levels of taxable retail sales in Adair and Macon Counties, measured in 2001 dollars. The numbers are not surprising given the employment level in retail sectors in the two counties. Total taxable retail sales in Adair County are much higher than in Macon County. There was an increase in the level of retail sales in the early 1990s in Adair County, peaking in 1995 before falling down to a much lower level. In fact, in 1995, retail sales in Adair County were 1.9 times larger than their 1990 level. However, only between 1995 and 1996, Adair County retail sales declined by 39 percent. Retail sales in Macon County have remained fairly constant in real terms during the 1990s.
Over the next 10 years, taxable sales in both counties are expected to grow at the annual rates of 1.2 and 2.4 percent for Adair and Macon Counties, respectively. Changes in employment and population size, changes in commuting patterns, and growth in personal income all contribute to changes in retail sales.

**Figure 24. Taxable Retail Sales, 1990-2010**
*Adair and Macon Counties (2001 Dollars)*

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One should keep in mind that nationally, taxable retail sales are a declining portion of personal income, because more and more people spend more money on non-taxable sales, such as services and Internet sales.

Figures 25 and 26 represent the actual as well as the expected growth in both total revenues and demand for total expenditures for Adair and Macon county governments in 2001 dollars. For Adair County, total revenues (i.e., revenues from county property taxes, sales taxes, charges, licenses and fees, as well as from intergovernmental transfers, and other revenues) is expected to increase at an average annual rate of 1.8 percent over the next decade. At the same time, demand for Adair County total expenditures is expected to grow annually at a much faster rate of 4.4 percent. If actual Adair County revenues and expenditures behave as projected, the revenues will fall $500,000 short of the demand for public goods and services in the county in 2010.

Similarly, for Macon County, total county revenues are expected to increase at an average annual rate of 1.3 percent over the next decade. At the same time, demand for Macon County total expenditures is expected to grow annually at a somewhat faster rate of 2.8 percent. If actual Macon County revenues and expenditures behave as projected, the revenues will fall approximately $640,000 short of the demand for public goods and services in the county in 2010.

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7 such as legal, health, personal services, etc.
Figure 25. Revenues and Expenditures, 1990-2010
Adair County (2001 Dollars)

Note: Total Revenues and Expenditures do not include operating transfers.
Source: County Clerk's Office and State Auditor's Office
Analysis by CPAC

Figure 26. Revenues and Expenditures, 1990-2010
Macon County (2001 Dollars)

Note: Total Revenues and Expenditures do not include operating transfers.
Source: County Clerk's Office and State Auditor's Office
Analysis by CPAC
By Missouri law, a county is not authorized to spend more than it takes in over time. However, for the years of the projection, revenues for both counties are expected to fall behind the demand for locally provided public goods and services, with Macon County exhibiting a somewhat larger gap. This gap can be at least partially explained by the effect of the nationwide recession of 2000, worsened by September 11th events. Thus, the growth in demand for services – particularly to insure public safety – suggests that county government will be challenged in the future to deliver public services more efficiently, as well as to generate new sources of government revenues. It is important to note that many of the investments needed to serve a growing population base, such as expansion for schools, and water and sewer infrastructure, are managed by other local government jurisdictions.

As mentioned earlier, in 2001, sales taxes comprised almost 50 percent of Adair County total revenues. Sales taxes started to occupy a large portion of Adair’s total revenues since 1998, when sales tax rate went up from ½ cent to 1 cent. This tax rate does not include any rates levied by municipalities. In general, retail sales tax revenues follow the level of retail sales.

**Figure 27. Revenues by Category, 1990-2010**

Adair County (2001 Dollars)

Adair County property taxes contribute a relatively small portion to the County revenues (they range from 3 percent of total revenues in 1993 to almost 12 percent in 1994). After 1994, property taxes stayed fairly constant over time as a percentage of total revenues. The Adair County total levy rate is 46 cents per $100 valuation. The County levies the tax for road and bridge, and health funds. At the same time, for year 2001, intergovernmental revenues constitute only 15 percent of county total revenues. This is the lowest percentage for Adair County intergovernmental revenues for the entire 1992-2001 period. The highest contribution of intergovernmental transfers to total revenues was in 1996, when intergovernmental revenues comprised 37 percent of total revenues. In general, the majority of intergovernmental revenues tend to be for roads and bridges, and are formula driven.
“Other” revenues, which include charges for services, licenses and fees, interest, and miscellaneous revenues comprised almost 26 percent of county total revenues in 2001. This is quite an increase for this category of revenues from 13 percent in 2000. On the graph, both intergovernmental revenues and “other” revenues for Adair County appear to be rather volatile, changing by as much as 54 percent and 86 percent from year to year, respectively.

For the baseline, property tax receipts are expected to increase as assessed valuation increases (for this analysis, the levy rate is assumed to remain constant over time). Intergovernmental revenues for Adair County are projected to grow at an average rate of 0.5 percent per year between 2000 and 2010; property taxes – at a rate of 5.5 percent; sales taxes – at a rate of 0.9 percent; and other revenues - at a rate of 5.7 percent per year.

As mentioned earlier, in 2001, intergovernmental revenues comprised over 37 percent of Macon County’s total revenues. This is actually a drop from 43 percent of total revenues in both 1999 and 2000. This is in comparison with the sales taxes that comprised approximately 28 percent of County’s total revenues in 2001. Intergovernmental revenues appeared to be highly volatile over the last decade. There were two major decreases in intergovernmental revenues fund: by 28 percent in 1995 and by almost 23 percent in 2001 over the previous years’ levels. Both retail sales taxes and intergovernmental revenues showed a spike in 1994 with sales taxes increasing by almost 19 percent, and intergovernmental revenues – by about 23 percent over their respective 1993 levels. As noted earlier, in general, retail sales tax revenues follow the level of retail sales.

Figure 28. Revenues by Category, 1990-2010
Macon County (2001 Dollars)

In 2001, Macon County property taxes were the 3rd largest source of County revenues after intergovernmental revenues and sales taxes. They comprised almost 20 percent of total revenues. Macon County property taxes stayed fairly constant over time as a percentage of total revenues. Macon County levies property taxes for several funds: General Revenues,
Parks and Recreations, Health, Developmentally Disabled, Common Road District and Special Road and Bridge fund. The levy rates vary from fund to fund.

For the baseline, intergovernmental revenues for Macon County are projected to grow at an average rate of 0.3 percent per year between 2000 and 2010; property taxes – at a rate of 1.5 percent; sales taxes – at a rate of 3.0 percent; and “other” revenues - at a rate of 0.9 percent per year.

Since Macon County relies heavily on transfers it receives from the State and the Federal Government (which ranged from 28.5 percent of total revenues in 1990 to 44 percent in 2000), this might constitute a problem, as the process of devolution – the shifting of responsibilities from federal to the lower levels of government – continues to evolve over time.

While the U.S. federal government continues to represent a single powerful bureaucratic force that develops guidelines for state and local government operations, it does show certain signs of devolution (Loveridge). Thus, in recent years, state and local governments have assumed increasing obligations for providing public goods and services as devolution has gained ground. As Hyman notes, the effects of devolution have been especially pronounced in the areas of education and infrastructure. The federal government has been steadily relinquishing its control over these areas, ceding these responsibilities to state and local governments. Among the major factors that are enabling state and local governments to assume their new role are widespread usage of computers on the local level, globalization of the economy, sustained economic growth in the '90s and increased environmental awareness.

Such a fluid environment of changing demands on local governments impacts the way community governances operate in order to achieve the specific goals that their communities might have in mind for present and future development.
Show Me Model and Scenario Development

The Show Me model uses statistically estimated relationships to forecast changes in economic, social, and fiscal conditions for Missouri communities under alternative economic conditions. The heart of the model is a series of labor market relationships—the demand for workers (local and nearby jobs), and the supply of workers (local and external labor forces). The labor market module allocates all members of the available labor force between local jobs, external jobs, and unemployment. The fiscal module measures: 1) the costs of providing public services, 2) the demand for public services, and 3) the size of the local tax base. Together these estimates of public costs and revenues lead to forecasts of changes in fiscal deficits or surpluses. The forecasts generated by the model are also shown in a series of graphs for ease of interpretation. The model does not account for changes due to the national business cycle or other macroeconomic effects.

By employing the Show Me model, alternative scenarios can be compared to baseline projections. Baselines are typically 10-year projections that assume no changes in policy or economic trends in the community. Scenarios, on the other hand, reflect a shock (a real or a hypothetical one) that is expected in the local growth rates of independent variables (employment, external labor force, external employment and total personal income). Questions such as: “Something just happened or is about to happen in our community…what does it mean?” or “How important is this industry to our economy?” can be answered with the creation of a scenario. Both baselines and scenarios are developed collaboratively with residents of the community. The baseline does not represent a forecast of local economic conditions. Rather, it is a tool designed to help decision-makers see local economic activity as a comprehensive system that is both logically consistent and statistically valid. The basic calculations underlying baselines and scenarios are frequently generated from sources outside the Show Me model. Trend analysis is often used to make preliminary estimates of baselines. Input-output models such as IMPLAN are frequently used to generate estimates of total employment and income changes associated with certain scenarios.

Once a scenario is created, the employment and income impacts are used as inputs into the baseline model, creating new forecasts for variables included in the model. On the graphs generated by the model, two lines would exist for each variable – one representing the level of the variable with the change, and one – without a change. This process of examining the impact of various policy choices provides a valuable method for community residents to understand the consequences of current trends and alternative policies.

References


References do not include data sources that were referenced throughout the report.
The Community Policy Analysis Center provides objective analysis and policy decision support for Missouri Communities. Located at the University of Missouri-Columbia, CPAC is part of the Social Sciences Unit of MU’s College of Agriculture, Food and Natural Resources. Significant funding for the Center is provided by University of Missouri Outreach and Extension.

CPAC scientists work closely with state and local government leaders, local businesses and community groups to provide research and educational programs that will inform key decisions, and assist them in understanding how policy decisions at all levels of government affect their community’s quality of life.

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