



WICHITA STATE
UNIVERSITY

Missouri Rural Community Sustainability Assessment

Angela Buzard, Director

Steve Batt, Project Associate

WSU Environmental Finance Center

Cost Analysis (Affordability) Ad-Hoc Workgroup

April 2, 2015

WSU Environmental Finance Center

Overview:

Provides professional training, technical assistance and applied research through a collaborative approach to meet community environmental challenges. The EFC provides services to state, local and tribal governments in EPA Region 7.

EFC Services:

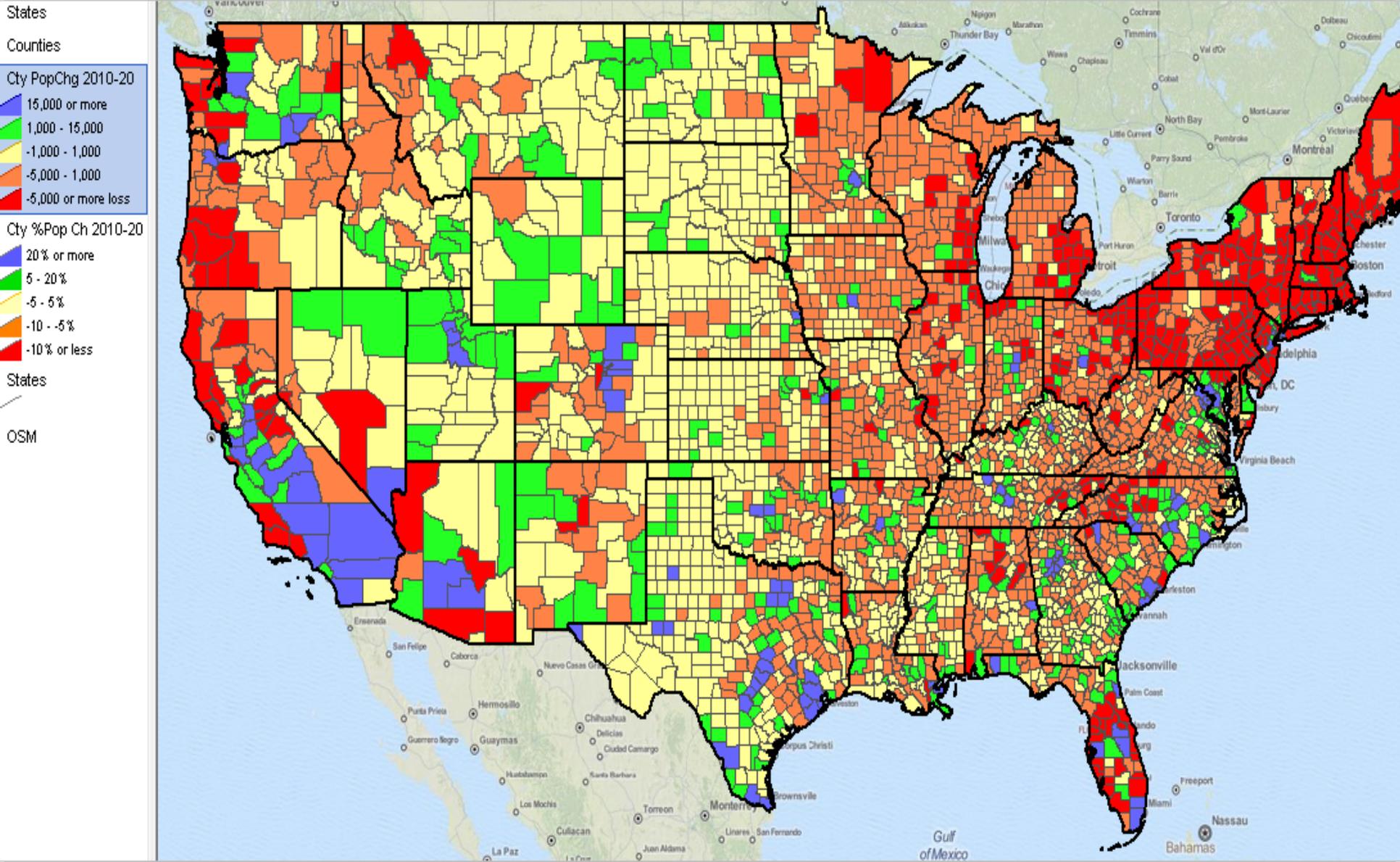
- Training for environmental professionals- Water/WW operators, manager and clerks
- Energy efficiency assessments
- Utility financial analysis
- Conference coordination
- Applied research projects
- Facilitation/focus groups
- Technical Assistance

Today's Presentation

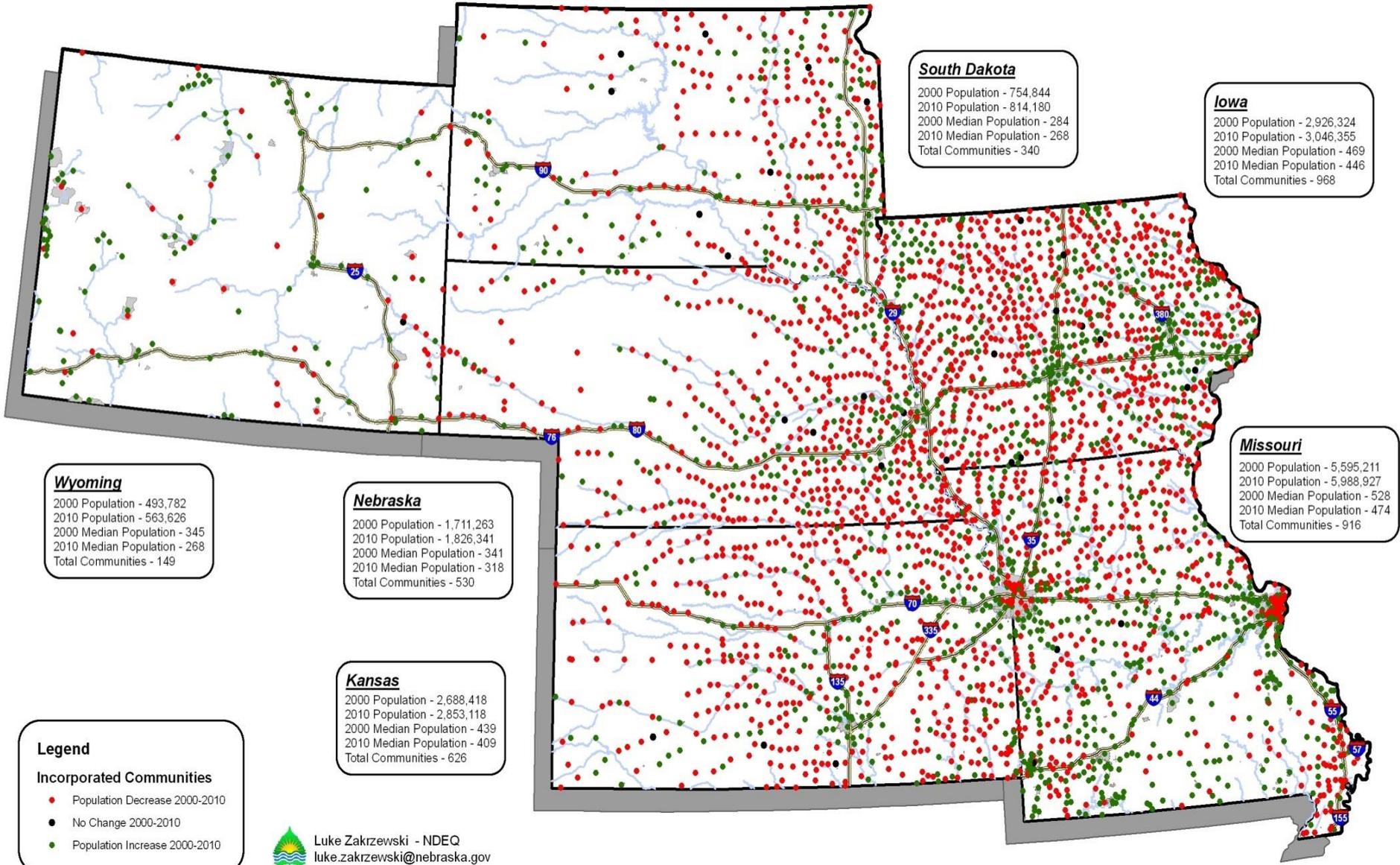
- Framing the Issue
- Project Components
 - Factor Report
 - Data Source Report
 - Significant Factors Report
 - Community Category Summary
 - Sustainability Assessment Tool
 - Validation Report
 - Community Supplemental Survey
- Policy Implications

Framing the Issue

U.S. Census Change 2010 - 2020



Population Change 2000 - 2010 Census



Wyoming

2000 Population - 493,782
 2010 Population - 563,626
 2000 Median Population - 345
 2010 Median Population - 268
 Total Communities - 149

Nebraska

2000 Population - 1,711,263
 2010 Population - 1,826,341
 2000 Median Population - 341
 2010 Median Population - 318
 Total Communities - 530

Kansas

2000 Population - 2,688,418
 2010 Population - 2,853,118
 2000 Median Population - 439
 2010 Median Population - 409
 Total Communities - 626

South Dakota

2000 Population - 754,844
 2010 Population - 814,180
 2000 Median Population - 284
 2010 Median Population - 268
 Total Communities - 340

Iowa

2000 Population - 2,926,324
 2010 Population - 3,046,355
 2000 Median Population - 469
 2010 Median Population - 446
 Total Communities - 968

Missouri

2000 Population - 5,595,211
 2010 Population - 5,988,927
 2000 Median Population - 528
 2010 Median Population - 474
 Total Communities - 916

Legend

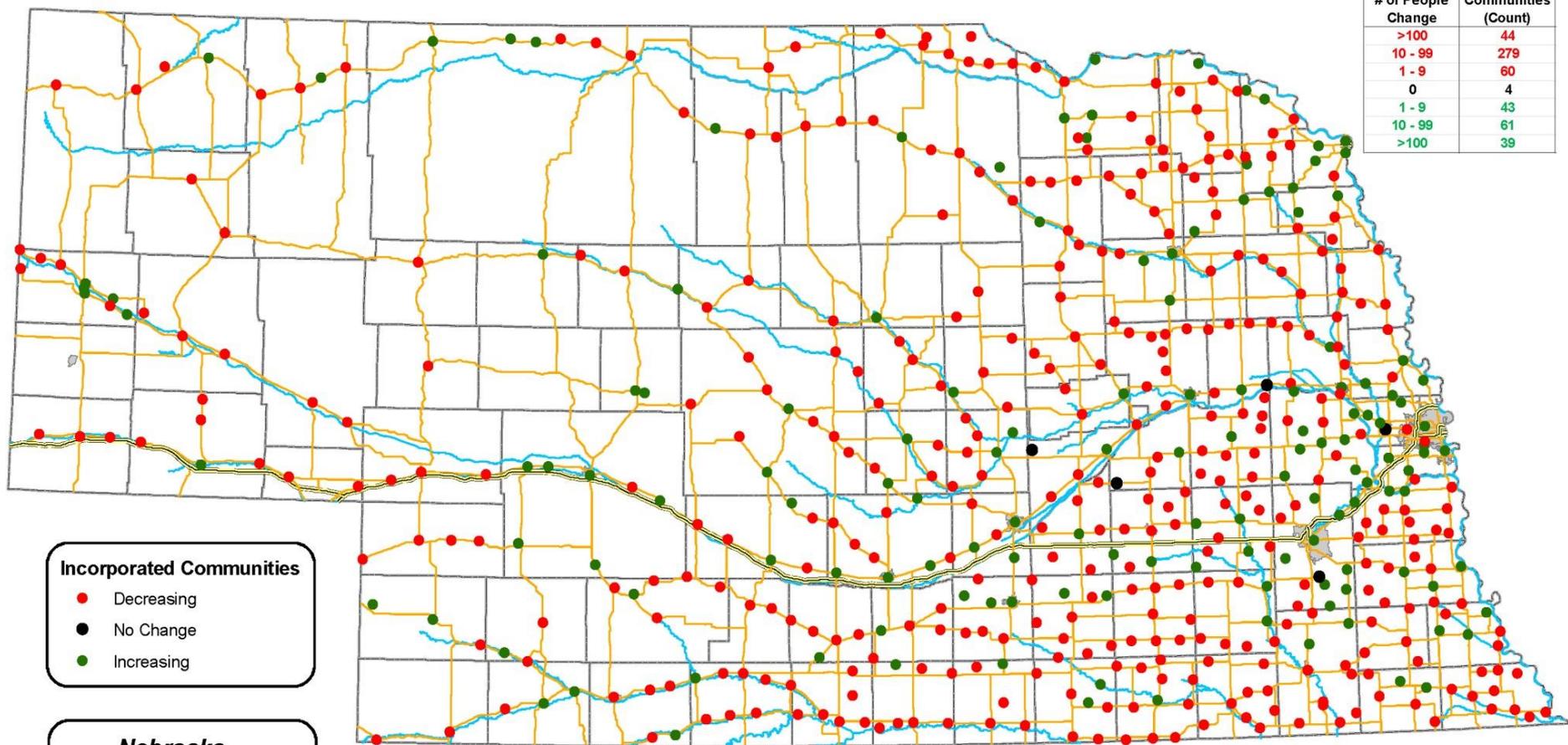
Incorporated Communities

- Population Decrease 2000-2010
- No Change 2000-2010
- Population Increase 2000-2010



Luke Zakrzewski - NDEQ
 luke.zakrzewski@nebraska.gov

Nebraska Population Change 2000 - 2010 Census



# of People Change	Communities (Count)
>100	44
10 - 99	279
1 - 9	60
0	4
1 - 9	43
10 - 99	61
>100	39

Incorporated Communities

- Decreasing
- No Change
- Increasing



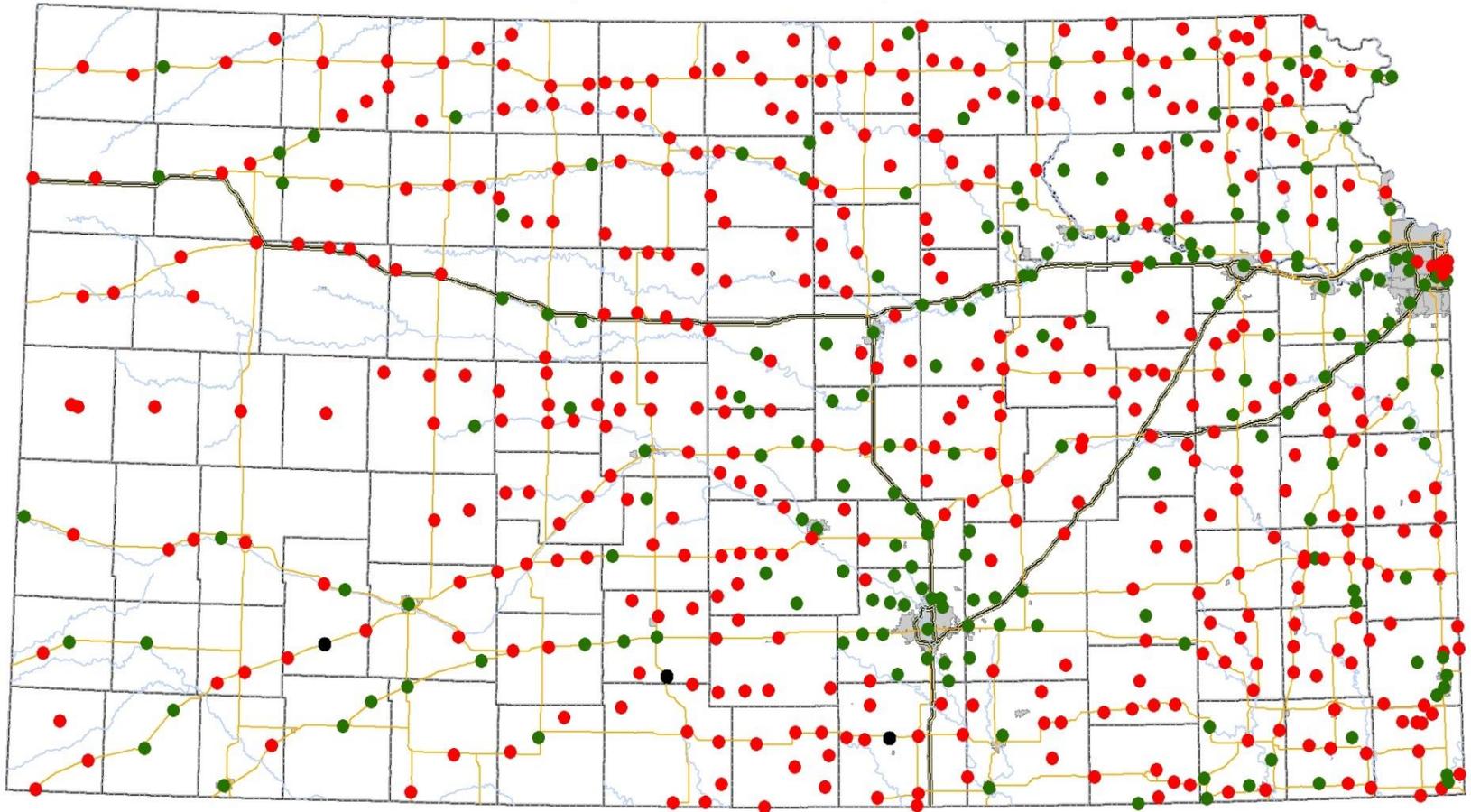
Nebraska

2000 Population - 1,711,263
 2010 Population - 1,826,341
 2000 Median Population - 341
 2010 Median Population - 318
 Total Communities - 530



Luke Zakrzewski - NDEQ
 luke.zakrzewski@nebraska.gov

Kansas Population Change 2000 - 2010 Census



Incorporated Communities

- Decreasing
- No Change
- Increasing

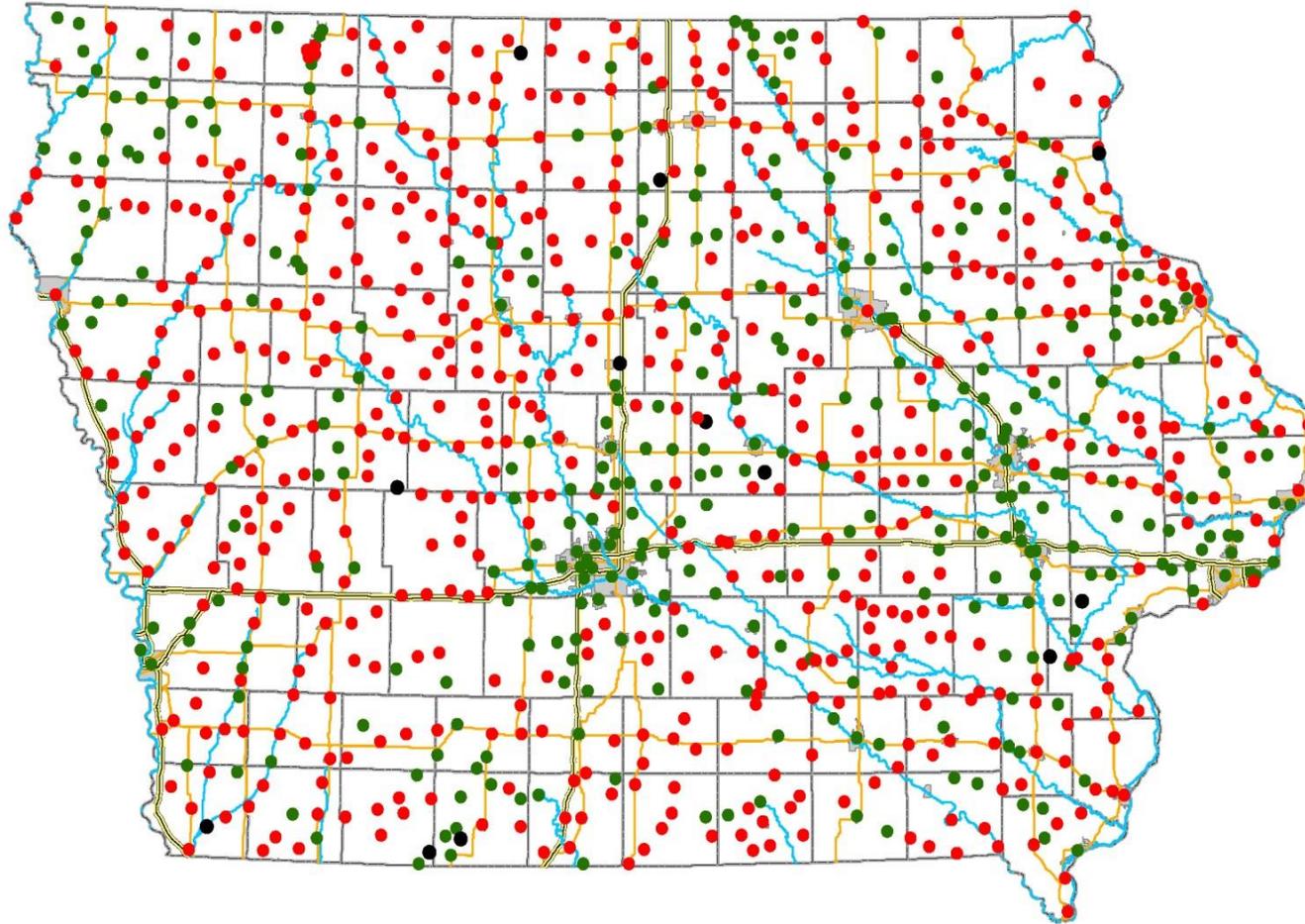
Kansas

2000 Population - 2,688,418
 2010 Population - 2,853,118
 2000 Median Population - 439
 2010 Median Population - 409
 Total Communities - 626



# of People Change	Communities (Count)
>100	82
10 - 99	289
1 - 9	57
0	4
1 - 9	34
10 - 99	71
>100	89

Iowa Population Change 2000 - 2010 Census



# of People Change	Communities (Count)
>100	82
10 - 99	412
1 - 9	103
0	12
1 - 9	68
10 - 99	151
>100	140

Incorporated Communities

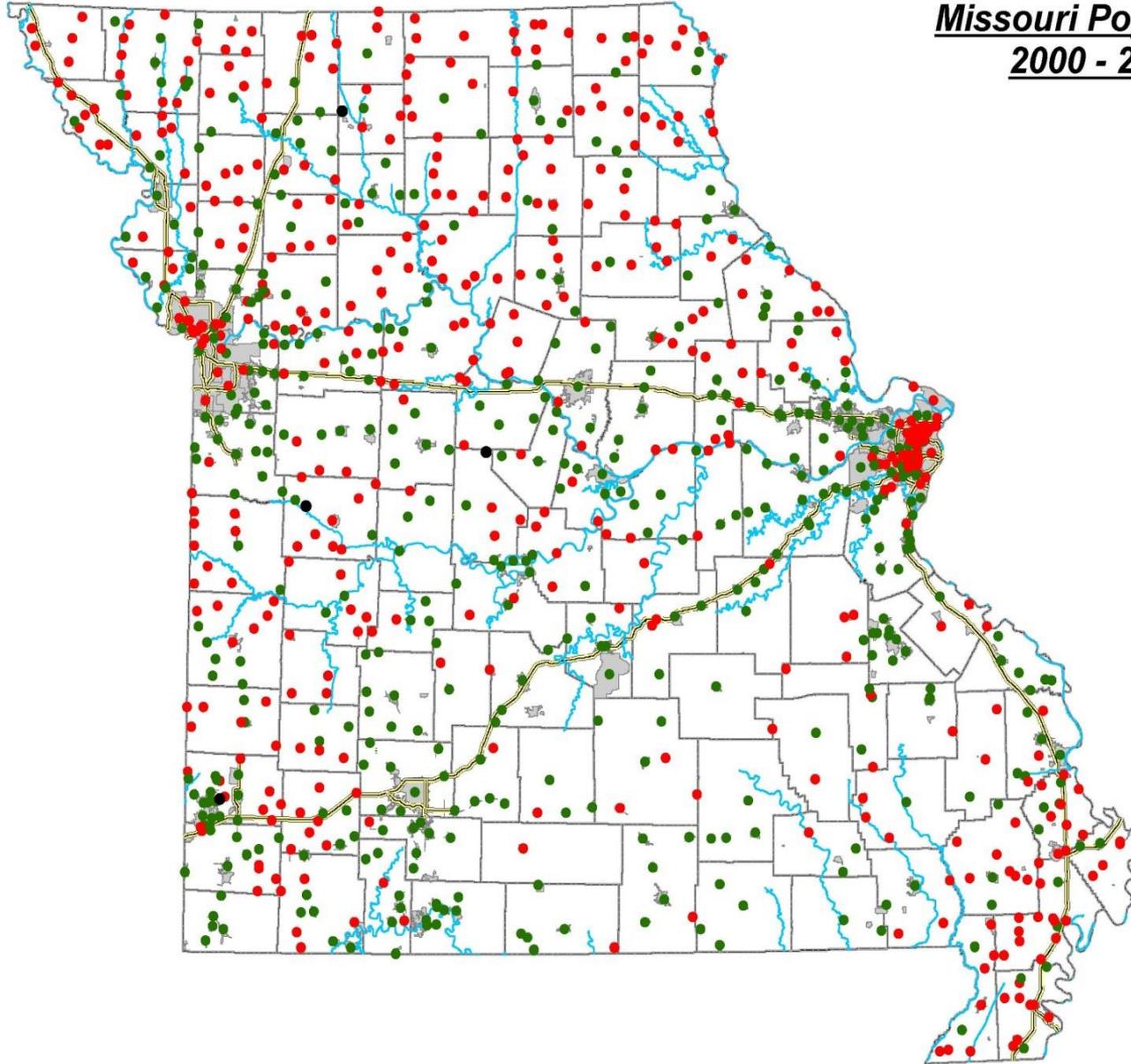
- Decreasing
- No Change
- Increasing

Iowa

2000 Population - 2,926,324
 2010 Population - 3,046,355
 2000 Median Population - 469
 2010 Median Population - 446
 Total Communities - 968



Missouri Population Change 2000 - 2010 Census



# of People Change	Communities (Count)
>100	98
10 - 99	292
1 - 9	70
0	4
1 - 9	66
10 - 99	169
>100	217

Incorporated Communities

- Decreasing
- No Change
- Increasing

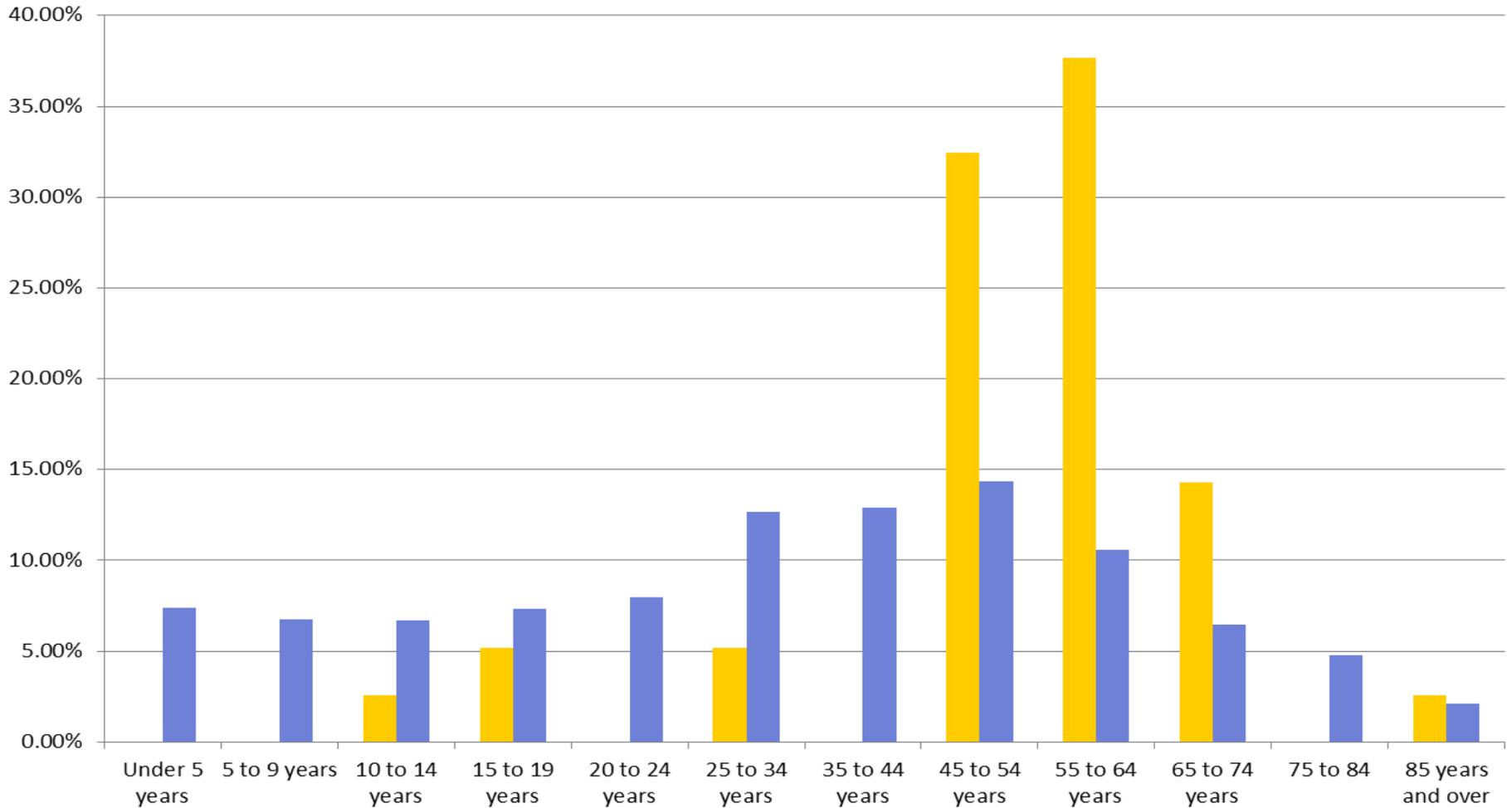
Missouri

2000 Population - 5,595,211
 2010 Population - 5,988,927
 2000 Median Population - 528
 2010 Median Population - 474
 Total Communities - 916



Luke Zakrzewski - NDEQ
 luke.zakrzewski@nebraska.gov

Aging Poulations



Changes in farming practices



Other Factors for Rural Population Decline

- Educational opportunities
- Job opportunities- Income potential
- Housing options
- Access to healthcare
- Cultural amenities
- Entertainment amenities
- Recreational amenities

Local Government Financial Reality

- Increase in shift of Federal funding burden to states
- States shifting larger funding burden to local governments
 - Schools
 - Transportation
 - Environmental Compliance assistance
- Rural communities rely strongly on government transfers
- Less capacity/willingness to raise utility rates or property taxes with competing needs
- Fiscal challenges affect ability to pay for construction and operation and maintenance of infrastructure projects

Ability to Pay Implications

- Ability to pay is decreasing
- Point in time vs change over time- Long-term investments over 20 to 40 year loans
- Other influencing factors?

Framing Summary

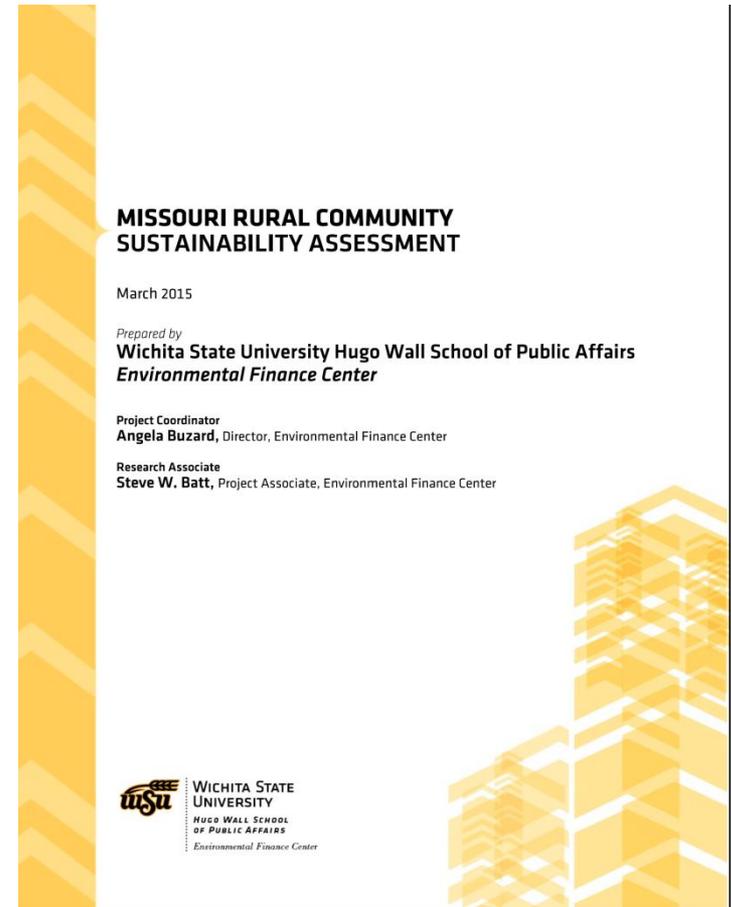
- Rural communities across the Midwest are losing population for a variety of factors
- Rural community age has increased on average
- Tax burden at the local level is increasing
- Ability to pay is lessened

- *Environmental regulations are increasing*

Project Components

Project Components

- Factor Identification Report
- Data Source Report
- Significant Factors Report
- Community Category Summary
- Sustainability Assessment Tool
- Validation Report
- Community Supplemental Survey



Factor Identification Report

- 106 sources cited in national literature review
- Sources discussed 45 unique factors that affect rural population changes
- Reviewed regional reports, U.S. Census reports and case studies
- Used updated sources from 1990 and forward

Rural Population Change Factors

- Migration, births/deaths
- Geography
 - Natural amenities- Lakes, rivers, mountains, ocean, etc
 - Urban Influence- Proximity to a metro area
- Economics
 - Agriculture, Manufacturing, Service Sectors, Government
- Income
 - Household
 - Social Security
 - Poverty
 - Local taxes
- Educational Attainment
 - High school and college

Data Source Report

- Focused on county level data, city level not available on all factors
- Sought data that was collected as frequently as possible
- Sources:
 - U.S. Census Bureau
 - Bureau of Economic Analysis
 - Missouri Department of Economic Development
 - Missouri Department of Revenue
 - Missouri State Auditor's Office
 - Missouri Department of Health and Senior Services

Significant Factors Report

- Literature provided 45 factors identified as influence in rural population change- statistical analysis revealed 20 factors that are predictive in Missouri
 - Factors are change over time from 2000 to 2010, not static numbers
1. Change in population age group 18 to 29
 2. Change in population age group 50 and above
 3. Change in construction employment
 4. Change in the number of public assistance income recipients
 5. Change in the number of bachelor's or higher degree recipients
 6. Change in entertainment, recreation & food service employment
 7. Change in the number of retirement income recipients
 8. Change in the number of social security income recipients
 9. Change in professional services, scientific & management employment
 10. Change in the number of high school graduates
 11. Change in manufacturing employment
 12. Change in finance, insurance & real estate employment
 13. Change in wholesale trade employment
 14. Change in information technologies employment
 15. Change in population density (per square mile)
 16. Natural Amenity Scale Rank (1=Low, 7=High)
 17. Change in the number of immigrants
 18. Migration into the rural community from 2006 to 2010
 19. Change in retail trade employment

Factor Weighting

Predictive Power Rank	Predictive Factor	Weighting Value
1	Overall total rural population change from 2000-2010	8
2	Change in rural population age group 18-29 from 2000 to 2010	7
3	Change in rural population age group 50 and above from 2000 to 2010	6
4	Change in rural construction employment from 2000 to 2010	6
5	Change in the number of rural public assistance income recipients from 2000 to 2010	6
6	Change in the number of rural bachelor's or higher degree recipients from 2000-2010	6
7	Change in rural entertainment, recreation & food service employment from 2000 to 2010	5
8	Change in the number of rural retirement income recipients from 2000 to 2010	5
9	Change in the number of rural social security income recipients from 2000 to 2010	5
10	Change in rural professional services, scientific & management employment from 2000 to 2010	4
11	Change the in number of rural high school diploma recipients from 2000 to 2010	4
12	Change in rural manufacturing employment from 2000 to 2010	3
13	Change in rural finance, insurance & real estate employment from 2000 to 2010	3
14	Change in rural wholesale trade employment from 2000 to 2010	3
15	Change in rural information technologies employment from 2000 to 2010	2
16	Change in rural population density (per sq. mile) from 2000 to 2010	2
17	Natural Amenities Rank (1-7)	2
18	Change in number of rural immigrants from 2000 to 2010	1
19	Population migrating into town from 2006 to 2010	1
20	Change in rural retail trade employment from 2000 to 2010	1

What is Rural Missouri?

- Rural Missouri Communities = 745 non-metro area communities and under 10,000 in population
- 88% of 745 rural communities have populations less than 2,500
- All factors being shared next are shared as a percent of communities from 2000 to 2010

Missouri Factors- Population & Age

Population Factors

- 52% lost population due to deaths surpassing births
- 27% gained population due to minority immigration

Age Factors

- 50% lost population aged 18 to 29 (child bearing age)
- 70% gained population aged 50 and above

Missouri Factors- Employment

Employment Factors

- 40% gained in finance and real estate employment
 - 48% gained in professional services, entertainment and tourism employment
 - 55% gained in education and healthcare employment
-
- 40% decreased in social services employment
 - 65% decreased in manufacturing employment
 - 50% decreased in agricultural employment
 - 50% decreased in retail employment

Missouri Factors- Financial & Education

Financial

- 28% had a poverty rate of 25% or higher in 2010
- \$7,000 increase on average in median household income
- 45% gained in the number of Social Security recipients
- 58% gained in the number receiving retirement and pension income
- *Sales tax is not collected by half of the Missouri communities with populations under 2,500*

Education

- 58% gained in high school graduates
- 66% gained in college graduates

Missouri Findings- Natural Amenities

Natural Amenities

- Missouri has 20,000 acres of natural area including: Tallgrass prairies, forests, lakes and streams
- 16 Missouri counties ranked in the top 25% of all counties in the U.S. on natural amenities
- Nearly all of the top-ranked counties in Missouri are located in the reservoir and national forest regions including: Table Rock Lake, Mark Twain National Forest, Lake of the Ozarks and the Truman Reservoir

Sustainability Assessment Tool

- **Scope:** Included 745 communities
- **Usability:** Excel based, all data is pre-populated
- **Function:** Computations, standardized scoring, weighting and calculation worksheets all automatic
- **Outputs:** Table outputs are automatically generated in a user friendly format

Sustainability Assessment Tool Demonstration

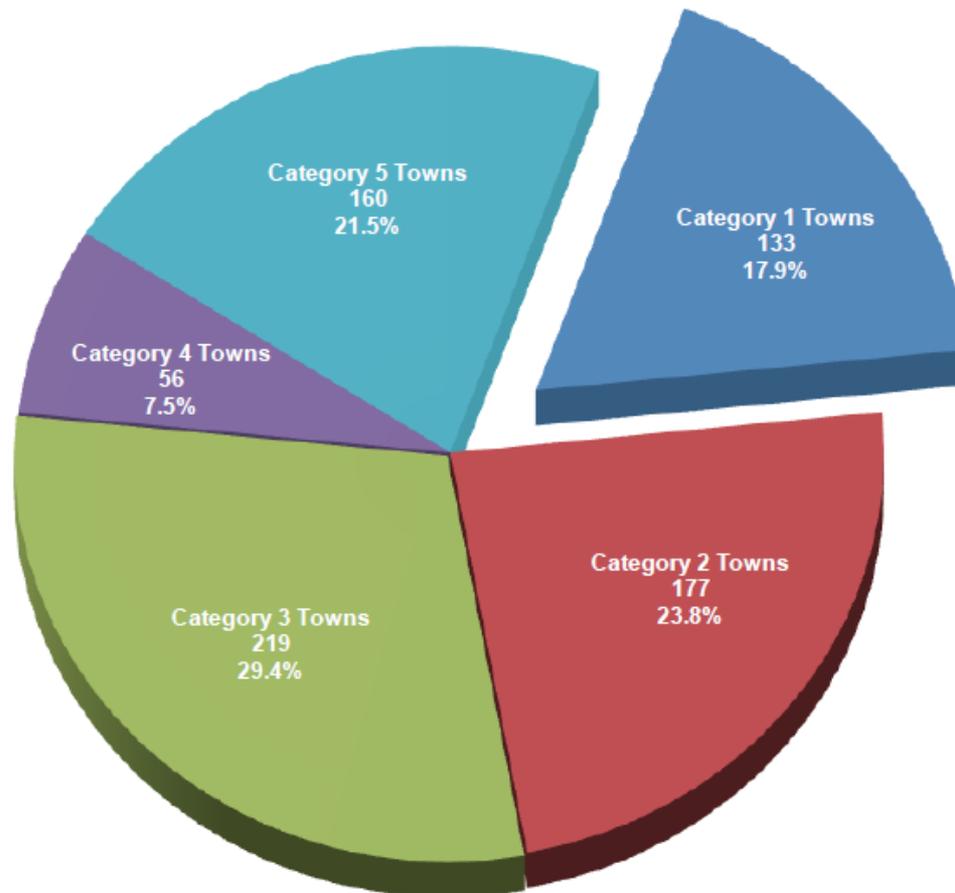
Community Category Summary

- Summary of results from assessment tool
- Provides a breakdown by score to reduce complexity
- Categories can be changed as needed

Category Name	Score Range	Number of Towns
Category 1 Towns	Towns with scores less or equal to -25.0	133
Category 2 Towns	Towns with scores from -24.9 through -10.0	177
Category 3 Towns	Towns with scores from -10.1 through 10.0	219
Category 4 Towns	Towns with scores from 10.1 through 25.0	56
Category 5 Towns	Towns with scores greater than 25.0	160

Community Category Summary

Rural Missouri Towns
Number & Percent by Population Sustainability Category
N-745



Validation Report

- Evidence of the tool's ability to predict population change in rural Missouri
 - Thoroughness of the literature review
 - Quality of the statistical analysis
 - Extensive tool testing for accuracy

Community Supplemental Survey

- Provides communities a chance to “tell their stories”
- Provides subjective community information not available from data sources
 - Financial status- other community projects
 - Status of industry base- increasing/decreasing
 - Regional amenities- recreational/tourist activities
 - Status of schools- consolidation
 - Transportation corridors/investments
- Written for local government officials i.e. City Admin or City Clerk

Community Supplemental Survey



Missouri Rural Community Sustainability Assessment Community Supplemental Survey

- Are there any significant transportation corridors within 20 miles of your community (major interstate, railroad center)? If yes, please explain.
- Are there any significant manufacturing or employment centers within 20 miles of your community? If yes, please explain? (Example: commercial farming, manufacturing, government operation, big box store.)
- Where do the majority of children in your community receive their education? (Please circle one for each educational level)

Elementary	within your community	within 20 miles	farther than 20 miles
Middle School	within your community	within 20 miles	farther than 20 miles
High School	within your community	within 20 miles	farther than 20 miles
- Considering your community's tax base, debt level, ability to bond capital improvement project, or repay loans, how likely is it that your city could afford to pay for.....

An upgrade or replacements to your water system costing \$50,000:

Very Unlikely	Unlikely	Likely	Very Likely
---------------	----------	--------	-------------

An upgrade or replacements to your water system costing \$250,000:

Very Unlikely	Unlikely	Likely	Very Likely
---------------	----------	--------	-------------

An upgrade or replacements to your water system costing \$1 million:

Very Unlikely	Unlikely	Likely	Very Likely
---------------	----------	--------	-------------

5. Which of the following best describes anticipated population change for your city over the next ten years. (Circle One)

Significant Decrease Decrease Remain the same Increase Significant Increase

6. Please circle the number that best describes the truthfulness of the following statements as they relate to the population change you predicted in question 5.

	Definitely False	Probably False	Probably True	Definitely True
6a. The majority of the population in the community are retired or are nearing retirement.....	1	2	3	4
6b. The population is much smaller than it was 20 years ago.....	1	2	3	4
6c. There is little employment opportunity in or around the community.....	1	2	3	4
6d. Most young people leave the community in search of employment or education elsewhere.....	1	2	3	4
6e. It is unlikely that economic activity or employment opportunity will improve in the foreseeable future....	1	2	3	4
6f. The tax base of the community will probably continue to decline for the foreseeable future.....	1	2	3	4
6g. The community is having and will continue to have difficulties meeting its debt obligations for the foreseeable future.....	1	2	3	4

7. What other issues or information should be considered when determining population stability or the financial ability for your community to pay for significant capital investments? (Seasonal population changes, natural resources (lakes, rivers), age of infrastructure, significant employment changes, etc.)

Policy Opportunities

- **Regulations-** Ongoing conversations with EPA and state regulatory agencies for alternatives in the Midwest, continue to consider rural factors with new standards
- **Flexibility-** Extended permitting and compliance schedules
- **Collaborative-** Focus efforts on significant contributors rather than all being equal
- **Integrated Planning-** Schedule for all community permits to allow better planning for funding
- **Trading-** Form a system of trading between communities based on loading to downstream community
- **Additional Allowances-** Allowing variances for “unsustainable” communities

Questions?

Angela Buzard

Director, Environmental Finance Center

Wichita State University

316.978.3401

angela.buzard@wichita.edu