



## Rural Viability Index: A Tool for Assessing Rural Communities

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**OFFICE OF RURAL COMMUNITY AFFAIRS**

## Executive Summary

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As in many parts of the United States, Texas is increasingly divided, with rural and urban residents competing for the limited resources of government. Especially in this period of difficult budget restrictions, public officials can only fund the projects that will produce the most for their communities. The Rural Viability Index is designed to provide public officials with critical information that will help them decide where they might best spend their budget dollars.

The Rural Viability Index (Index) is an easy-to-use survey that measures the current status of Texas' rural communities. The Index helps to identify the community's strengths and the areas that need a community leader's attention. In so doing, it is our expectation that the process of planning and development in rural Texas will improve, and the future viability of rural communities will be assured.

The Index combines expertise from academia and practicing rural leaders and was designed to identify and organize a thorough set of research specific to rural sustainability. While it is not intended to prescribe policy, it should serve to inform rural leaders and legislators in critical policy decisions.

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## Introduction

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The essence of American values, beliefs, and character are represented in our rural towns and communities. With such a strong connection between these communities and our identity and heritage, we must make every effort to guarantee their survival.

As in many parts of the United States, Texas is increasingly divided, with rural and urban interests competing for limited government resources. The challenges facing rural Texas are amplified by the very nature of our state.

In Texas, 196 of 254 counties (77%) are classified as rural. The state has a rural population that numbers over 3.6 million, greater than the total population of 22 other states, while it is the second largest state in the union and home to 3 of the ten largest U.S. cities (U.S. Department of Commerce 2000). The priorities and challenges of rural communities are sufficiently different than those of urban centers as to merit specific research.

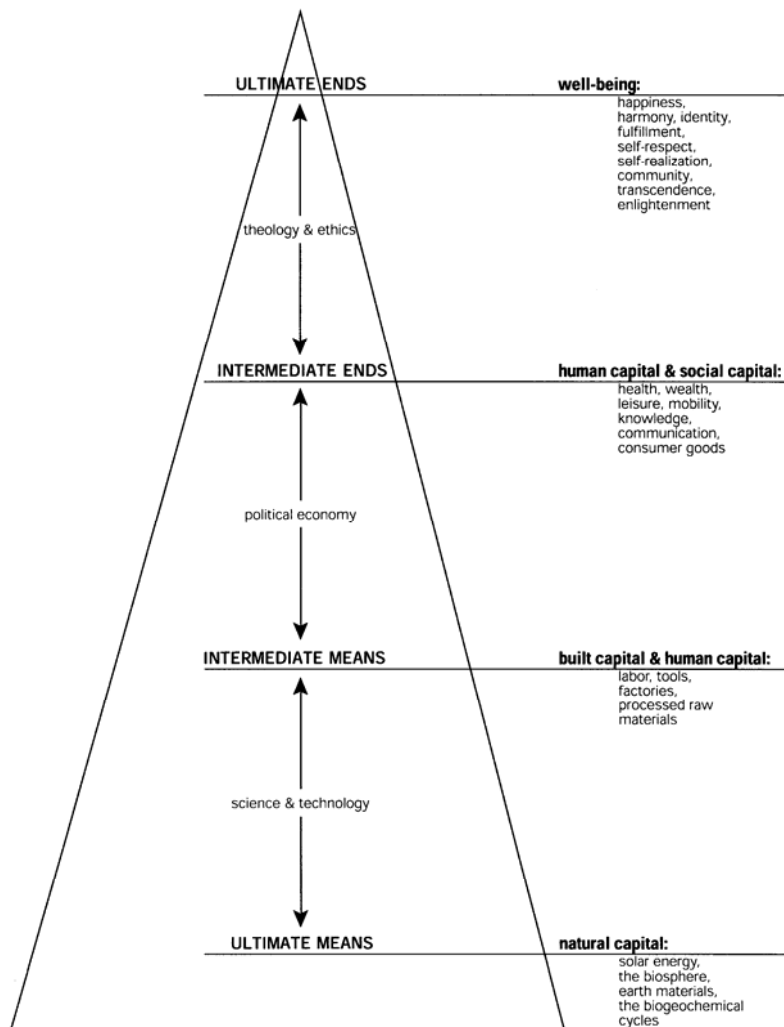
Particularly in this period of budget restrictions, only the best-informed community projects and proposals will be funded. The Rural Viability Index was created to measure the current status of rural communities and to help inform policy makers – both rural and urban – who are confronted with limited resources.

Working from existing research in sustainable development, we built a theoretical framework for rural viability and explored ten areas of concern in a holistic approach to assessing community viability. Below we explain the development of our survey, and discuss our methodology and statistical analysis.

# Theoretical Framework

Many international organizations have explored the issue of sustainability. The ecological footprint, a nation's impact and relationship to its environmental surroundings, is the focus of the majority of these efforts. Each organization has a different perspective and different resulting priorities that influence their discussion of sustainable development. Meadows (1998) expanded on this base of research to develop a theoretical framework for sustainable development.

Meadows (1998) argues that community development occurs along a continuum from basic resources to wellbeing. Figure one illustrates this theoretical framework of community development.



**Figure 1. Meadows' (1998) theoretical framework**

## Theoretical Framework

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Natural capital, the community's existing natural resources, is the foundation of this continuum. Built capital, physical goods built by society that produce economic output, develops through science and technology. Human capital, the demographic structure and abilities of the population, is the final element required to achieve the next level of development, social capital. Social capital is the attributes of society, such as knowledge and trust, which are commonly shared and allow for the achievement of wellbeing (Meadows 1998, 15).

This relationship between natural, built, and human inputs and the output of social wellbeing serves as an important theoretical framework that clarifies the evolution of communities from basic sustainability to organizational and personal development.

Meadows' sustainability-development theory, while revolutionary and holistic in nature, still does not identify the specific priorities and challenges that face rural communities. For example, limited financial and governmental resources, affordability, and accessibility of goods and services restrict a rural community's viability.

In a 2003 editorial for the Rural Policy Research Institute, Thomas Rowley addressed these concerns with a holistic and interactional approach to rural viability. Mr. Rowley argued that rural community viability is not dependent on one factor, but rather many factors, each a spoke on a wheel, and together these factors are essential to viability. With this holistic approach in mind, we define a ***viable community*** as one that is able to succeed by using available physical and human resources to provide for the economic, social, and physical needs of community members.

To measure each community's capacity to provide for the economic, social, and physical needs of its residents, we developed a survey that addresses ten areas of concern. Researchers often use surveys to collect data that are statistically analyzed and then used to draw conclusions.

We developed our survey based on American Statistical Association (1995) guidelines, concepts from rural sustainability research (see Bukenya, Gebremedhin, and Schaffer 2003; Meter 1999; Wackernagel 2002; and Meadows 1998), and advice from experts in statistical methods (Jenkins-Smith 2004, Moon 2004, and Richardson 2004). The ten areas measured in our survey of rural communities are economy, education, environment, health, housing, demographics, society and culture, transportation, government, and technology.

Each area consists of several indicators or "small bits of information that reflect the status of larger systems" (Wackernagel 2002, 4). Each indicator can take two forms; one measures the current status and the other measures a change over time of a specific aspect of the area of concern. Both types of measures provide valuable information regarding community viability. Each indicator (or question) was chosen based on current academic research that shows a relationship between that particular area of the community and the community's overall viability. The indicators are easy to understand and can inspire action to improve the community.

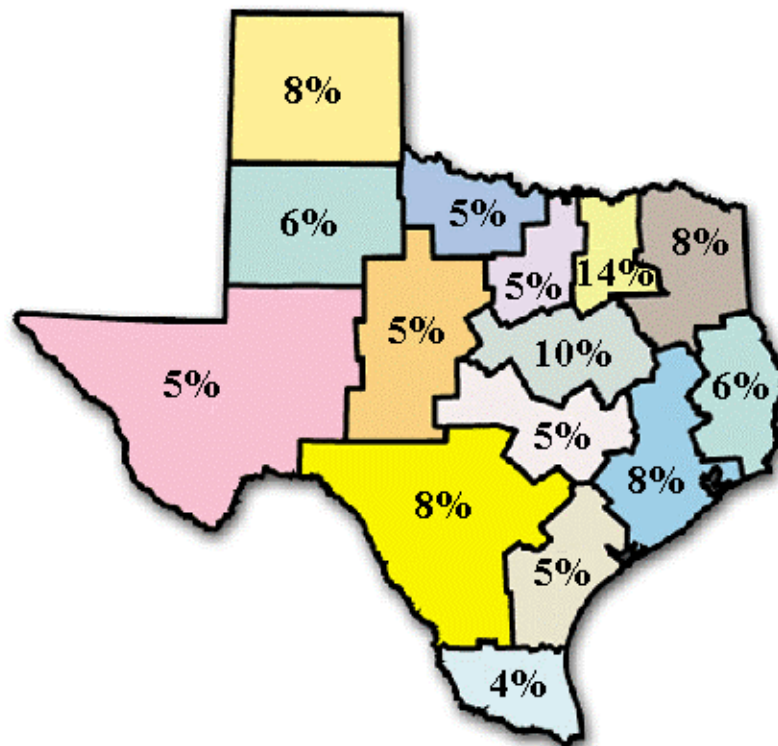
Using criteria taken from current literature we selected appropriate indicators that reflect an important aspect of its area of concern, are measurable, show change over time, and have reliable data sources. Each indicator has an accompanying data source including (but not limited to): government websites from the U.S. Census Bureau, the Texas Department of Health, the Texas Commission on Environmental Quality, and the Texas Education Agency. While most of our indicators could be assessed using existing data, some data could only be obtained by community leaders such as city managers, administrators, or city secretaries.

## Survey Development

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From a list of communities in Texas with a population of 10,000 or less, we randomly selected a sample of 148 communities. This number ensures a 90% confidence that our sample is representative of the larger population. Although Census Designated Places were included in the list we were provided, they were omitted from the survey process because the available data on them is limited.

As shown in Figure 2, the sample communities are distributed throughout the Texas Municipal League regions in proportion to the density of rural communities in each region. By meeting the 90% confidence interval requirement, we can apply our findings to all of rural Texas.



**Figure 2. Distribution of Surveyed Cities in Texas Municipal League Regions.**

After the research and survey design phase, we collected data about the selected communities using the existing data sets and through telephone interviews. During this process we found that the questions contained in the survey sparked other



inquiries from the rural leaders. As Wackernagel (2002, 6) argues “the ultimate test of ...[a community viability] project is the change in societal behavior that is stimulated as a result of gathering and publicizing this information.” Our survey can give community leaders insight into the successes and problems in their communities. Using the data, they will be able to determine the specific areas in which their community needs to focus.

“Simply making information visible can strongly affect what people do. For example, when new Dutch houses were built with electric meters in the front hall where they are easily visible, instead of down in the cellar where they are normally placed, people began paying more attention to their electricity consumption. They were able to see the connection between their energy use and their energy bill. Household electricity use decreased by one-third, which helped local communities meet energy conservation goals.” (Wackernagel 2002, 4).

This survey considers the community as a whole entity. It is important for leaders to use the whole-community view as they look at their own communities. This Index provides them with the first glimpse their community’s problems and strengths, and we believe that studying this data will lead to better community decision-making.

## Rural Viability Index

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The Rural Viability Index was developed using a three-step process: the control group, the survey, and the baseline. The control group was selected by ORCA, and was intended to be a representative sample of viability in rural Texas communities. Thirty communities in all were included in the control group, and of these, ten were expected to be highly viable, ten mid-level, and ten of lower viability.

The control group cities were surveyed using the standard method of telephone surveys and data collection. In addition, a group of 25 rural experts were asked to score these cities on a scale from 0-100 based on their opinion of each community's viability. The experts were instructed to assign highly viable communities with a score of 100 and nonviable communities with a score of zero. If an expert was not familiar with a city or could not find enough information to assign an accurate score for that community they were instructed to leave that community's score blank. Once the data were collected, the average score was tabulated for each community in the control group.

The average scores for each city in the control group were compared to the actual scores from our survey using linear regression, with the expert score being the observed value, and our survey result being the predicted value. This process yielded the following result:

	<b>Intercept</b>	<b>Slope Coefficient</b>
<b>Beta</b>	<b>20.669</b>	<b>0.422</b>
<b>t-statistic</b>	3.409**	7.320**
<b>R<sup>2</sup></b>	0.682	<b>F-test=53.58</b>
<b>Standard Deviation Residuals= 7.209</b>		

\*\*Significant at the .99 level.

The R<sup>2</sup> of 0.682 indicates that we have explained 68.2% of the variance between the observed and predicted values. Further, the intercept and slope coefficient are highly statistically significant, easily exceeding the criteria for 99% confidence that our sample accurately represents the population.

## Rural Viability Index

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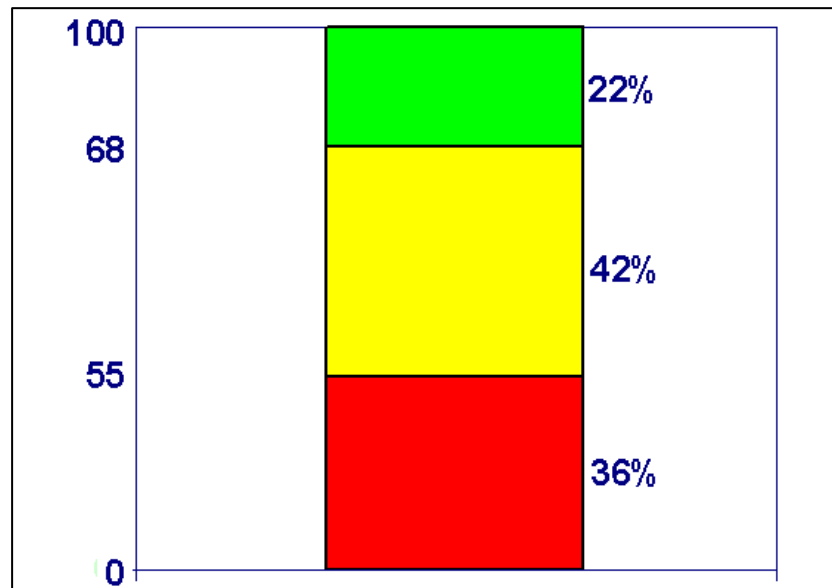
The Rural Viability Score (RVS) for each of the control group communities was calculated by applying the regression equation as follows:

$$RVS = (Intercept) + (Slope\ Coefficient)(Raw\ Score).$$

After conducting the survey, we calculated the score for each of our 148 sample communities by applying the formula above to the raw score to obtain the RVS. The scores for all communities were then ranked into a 100-point 3-tier system.

While our intention was to find a baseline, as the control group data were arranged, it became clear that a three-tier index system would be more analytically meaningful. Therefore, we set two cut-off points for our sample cities.

Cities with a score of 68 or above were placed in the top tier, while cities with a score of less than 55 were placed in the lowest tier. Twenty-two percent of our sample cities were in the top tier, 42 percent in the middle tier, and 36 percent in the lowest tier (see Figure 3).



**Figure 3. Rural Viability Index Distribution Chart**

## Rural Viability Index

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Currently, this tool has shown the relative ranking of 148 rural communities in Texas. While we cannot report specific information about surveyed cities, this survey is easily replicable, and an individual city may find their place on the Index with little time or effort.

## Literature Review and Survey Questions

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We conducted an exhaustive review of the academic literature on each of ten areas of concern in sustainability in order to formulate our survey questions. For each area we have included a summary paragraph explaining the area's inclusion in the index, and a brief explanation for each survey question (or indicator) with reference to literature as appropriate. The areas of concern are arranged in descending order of importance. Each survey question is in italics and is followed by its role in assessing rural viability.

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### **Economy**

The economic base of the community defines its ability to grow, to provide jobs, and to raise government revenue. Key factors for rural economies include a diverse job market, low unemployment, minimal dependence on government transfer payments, and economic planning.

#### ***What is the net change per capita income over the last inter-census period?***

Rising per capita income indicates that a community's economic wellbeing is increasing, which allows it to provide services that attract more individuals to the community. Per capita income represents the relative wealth of a community and thus their ability to raise local revenue (Warner 1998).

#### ***Has unemployment increased or decreased over the time between the 1990 and 2000 census?***

Unemployment drains the rural community to a greater degree than in urban centers, as job creation in rural areas lags behind that in urban centers. Periods of high or sustained unemployment may result in out-migration from small towns and high levels of government dependence (Aldrich and Kusmin 1997.)

#### ***Is your community a regional commercial center?***

This indicator measures the ability of a community to attract business from surrounding towns. Regional trade centers in rural communities play an important role in the ability to grow and maintain the economic base, and sets these communities at an advantage (Outlaw et al. 1989).

## Literature Review and Survey Questions

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***What is the percentage of the population that receives transfer payments from the state or federal government?***

Dependence on government transfer payments illustrates a lower labor force participation rate, and speaks to the general economic health of the community. Higher than average dependence on government transfer payments, here measured at social security disability and welfare payments, demonstrates a diminished ability to meet the needs citizens to find work (Aldrich and Kusmin 1997).

***What percentage of your labor force works for the government?***

***Starting with the largest industry, how many separate industries make up 50% of your economy?***

These two questions, in combination, measure the breadth of the labor market. A highly diverse economic base, which is not dependant on government jobs, will allow a community to maintain viability. High level of dependence on one or two large employers sets rural communities at risk for failure should the main employer cease operations. Further, government budget constraints are increasing consolidation of government operations, primarily into urban-based call centers (Aldrich and Kusmin 1997).

***Does your community have a chamber of commerce?***

An active chamber of commerce is vital to business development, marketing and advertising, and economic planning. This asset can prove invaluable in small communities, where co-operative marketing and advertising are essential for small business owners (Texas Department of Agriculture 2003).

### Education

The stability of education in rural communities is vital to both retaining current residents and attracting new families (Beeson and Strange 2003). The following indicators will measure the stability of education within a rural community. A community with a high score in this area has a better chance of remaining viable because it is actively contributing to the youth, thereby increasing the likelihood that they will remain in the community to live and raise families.

#### ***What rating did your school receive on the TAKS test?***

While standardized tests are not the best indicator of a school's ability to educate students, the Texas Assessment of Knowledge and Skills (TAKS) rating includes information in addition to the test scores, and does provide a general description of school quality.

This indicator is often the first thing potential residents consider when they evaluate a school district, and TAKS ratings are often included in real estate information. Because TAKS ratings may be included in the decision to move to a new community, this is a measure of viability.

#### ***Do any of the schools and/or colleges within your county offer vocational or technical courses?***

Research confirms that higher educational attainment adds to the human capital. Additionally, when schools provide courses in computer technology and the Internet, they become indispensable to the infrastructure of a rural community.

This indicator shows the availability of higher education to rural communities. The availability and proximity of courses increases the likelihood of student attendance. Additionally, because the school is close to home, the students are more likely to stay within the community for a lifetime, rather than moving away to college and opting for life elsewhere (Hernon and Pittman 1995).

## Literature Review and Survey Questions

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### ***What is the turnover rate for teachers in your school district?***

A school with a low turnover rate signifies that the school has the ability to recruit and retain teachers. Rural schools have difficulty attracting and keeping teachers and staff for several reasons, including working conditions, low salary, and social and geographic isolation. Turnover is detrimental to school budgets, improvement efforts, and the quality of education (Hammer 2003). Having a low turnover rate signifies the stability of a school, which contributes to the stability of a community.

### ***Does your school offer any form of Advanced Placement or Honors Courses?***

Students who participate in Advanced Placement or Honors Courses have an advantage in the college admissions process. This advantage has been examined thoroughly and it extends beyond college admissions to lower drop out rates and better college performance (Santoli 2002). Advanced Placement and Honors courses also benefit economically disadvantaged students because they are able to earn college credit - free of charge - while they are still in high school, thus reducing the total cost of college education. Many rural schools do not have the resources to offer AP/Honors courses directly, however, there are several options available for offer such courses. Schools can allow students to attend classes at a local college or they can provide them through distance education.

### ***In the past five years has your school's UIL Rating changed? Has it increased or decreased?***

The University Interscholastic League measures and categorizes school districts based on the size of their enrollment. If the district serving a community has seen an increase in its UIL rating, the local population is growing, and if the UIL rating has decreased the population is shrinking. Rural communities where the population is declining face many risks, including school consolidation, bussing, and school closure (Howley & Howley 2001).



### Health Care

The ability of a community to provide health care services to its citizens is more than a question of sustainability - it is a question of safety. Rural areas have unique characteristics that drive the demand for health services, and these have been highlighted in this study. Citizens do not want to live in a community in which they cannot access even basic health services, and individual populations, such as the elderly, are unlikely to reside in a community that cannot meet their healthcare needs (Borders, et al. 2000).

#### ***Can citizens access acute care and surgical services at a hospital located within 25 miles of your community?***

This question is a matter of safety more than convenience. Certain medical conditions, such as heart attack, require immediate medical attention, and outcomes for patients experiencing such trauma are directly related to their ability to receive prompt medical attention. A study conducted by Cornell University (2004) finds that for each five-minute increase in distance from a hospital the probability of getting to the hospital in time to survive in an emergency decreases by 1.25 percent.

The absence of a hospital indicates that a community is not able to support such a critical service, either because it does not have a population size to support, or the resources to maintain, the facility.

#### ***What is the distance to the nearest hospital providing acute care and surgical services?***

This is a matter of supply and demand - the population size of a community may not allow it to support the operations of a hospital if the facility would be underutilized. Having a hospital in close proximity, perhaps in the next town, may accommodate for the absence of a hospital in a community (Bogue and Harmata 1997).

## Literature Review and Survey Questions

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***Do any of the following providers practice in your community: Primary Care Physician; Physician Assistant/Nurse Practitioner; Dentist/Orthodontist; Obstetrician/Nurse Midwife, Chiropractor?***

The above referenced health care professionals were included to evaluate a community's ability to provide basic medical services to its residents. This measure is related to community sustainability in much the same way as the hospital indicator; however, it represents another dimension of health care needs. There is an element beyond supply and demand that links this indicator to sustainability, as research shows that quality of life is an important factor in a health care professionals' decision of where to practice (Richardson and Rosenblatt 2002). From a holistic point of view a community's ability to attract and retain health care professionals is indicative of the overall success of the community.

### **Primary Care Physician**

Access to Primary Care Physicians is one of the criteria included in the Federal Medically Underserved Area (MUA) designation. The MUA measures the areas at the county level on their ability to meet the medical needs of their citizens.

### **Physicians Assistant/Nurse Practitioner**

Physicians Assistants and Nurse Practitioners are becoming increasingly valuable as care providers (Martin 2000). They are able to perform a wide range of duties and services. For rural hospitals, they provide a more cost-effective way to provide services to patients.

### **Dentist/Orthodontist**

This category of health care professionals was included because dental care is vital to any discussion of general health. The U.S. Department of Health and Human Services includes dental care as a measure in designation of Health Professional Shortage Areas.

## Literature Review and Survey Questions

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### **Obstetrician/Nurse Midwife**

A study by the University of Washington (Nesbitt 1997) finds a correlation between an increase in infant mortality rates and rural areas that is attributed to a lack of access to prenatal care. Infant mortality rate is also included in the federal definition of Medically Underserved Areas.

### **Chiropractic care or other forms of alternative medicine**

Communities benefit when health care professionals that specialize in chiropractic care or another form of alternative medicine are available to citizens because although such services may not be as critical as the others included in the survey they do contribute to overall health (Smith 2002). Furthermore, the ability to retain such health care professionals speaks to the overall viability of the community.

### **Optometrist**

Although health conditions addressed by physicians that specialize in optometry are not life threatening it is convenient for citizens to have immediate access to such care. Furthermore, the ability to retain these health care professionals speaks to the overall viability of the community.

### ***Is any form of care that is directed to elderly populations provided in your community? (Home-health services, senior citizens centers, nursing homes)***

Elderly citizens comprise a large portion of the population of most rural communities (Chester and Rosenthal 2000). These citizens have unique medical needs that include long-term, acute and preventive services. Though it is desirable for a community to have the resources to meet all the needs of elderly citizens a community will receive credit if they at least provide some form of care that is specifically tailored for elderly citizens.

## Literature Review and Survey Questions

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***Does your community have emergency response services? Either volunteer fire/EMS or professional.***

Emergency Medical Service professionals who have access to and knowledge of emergency medical resources are critical to the survival of a trauma patient. EMS professionals also provide critical services to patients without life threatening conditions but who do not have access to a hospital.

***What percentage of your community hospital beds are utilized on a daily basis?***

This indicator measures the utilization of community hospitals. Hospitals that are underutilized are at risk of limiting the services to patients or even closure. Hospital underutilization can be linked to two conditions; either the demand as a result of population size is smaller than the hospitals capacity or citizens are bypassing rural hospitals (Bogue and Harmata 1997). The reasons behind underutilization are not examined in this study; however, it would be prudent of rural communities to examine the underlying cause.

# Literature Review and Survey Questions

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## Housing

Many challenges exist that are specific to rural housing, and research shows that solutions must be tailored specifically to rural areas for the most effective outcomes to occur. One of the main issues driving rural housing concerns is the amount of poverty found within rural communities.

Some argue that the level of poverty is primarily driven by the change in the U.S. economy from a goods-producing nation to a service-producing nation, which left many in rural communities little opportunity to participate. (Duncan and Tickamyer 1990) Because of this, the highest concern for rural communities should be increasing the ability to provide affordable housing to citizens.

Many issues from the concept of affordable housing, such as the number of cost-burdened households within a community, homeownership rate, vacancy rates for housing and rental units, rental prices, mortgage rates, housing prices, infrastructure concerns, the increasing number of manufactured housing, and the availability of federal housing programs. Included in the research index are four of these indicators: homeownership, the number of cost-burdened households, the number of manufactured homes, and rental and home vacancy rates.

### ***What percentage of citizens are homeowners?***

Housing research concludes that homeownership is the preferred option of those who live in rural communities. (George and Holden 2000) This signifies that affordable housing is a key factor in the satisfaction of rural residents.

A high percentage of homeowners within a rural community show that the community provides a stock of affordable housing or mortgage rates. A large amount of affordable housing lends to the stability of a rural community, which is an important factor in its viability.

## Literature Review and Survey Questions

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### ***What percentage of households is spending more than 30% of its income on rent or mortgage?***

The Housing Assistance Council (2001) defines a cost-burdened household as one that spends more than 30 percent of its income on housing. It can be evidence of several effects: the lack of affordable housing within a community, the lack of access to affordable mortgages, and the inability of homeowners to bring their homes to code if necessary. A community that has a high percentage of cost-burdened households is at risk of becoming less viable.

### ***Has the number of mobile homes in your community increased?***

Collins (2003) explores the disadvantages and advantages of manufactured housing with regards to rural communities. The fastest growing segment of housing in rural areas is the manufactured homes sector; this fact may be attributed to the affordability of these homes compared to other housing options.

Although manufactured homes are affordable, some disadvantages accompany their ownership. Perhaps the most significant is that a majority of manufactured homeowners do not own the land on which the home sits, which forces the homeowners to classify their homes as personal property rather than real estate. When this occurs, homeowners typically face far higher mortgage and loan rates than if they were able to classify their homes as real estate. Another disadvantage that has been documented is that the increase in the ownership of manufactured homes may have a detrimental effect on local construction rates because these homes are usually built elsewhere before being brought to the community. Finally, Collins notes the disadvantage of managing an inventory of aging manufactured homes; problems associated with this issue include health, safety, and aesthetic concerns.

Kochera (2003) echoes some of Collins arguments about manufactured homes. Most significantly, he argues that a disadvantage of manufactured homes is the high mortgage and loan rates that are typically associated with classifying these homes as personal

## Literature Review and Survey Questions

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property, which many must do because they are not the owners of the land that is the site of the home. He asserts that this greatly affects the population over age 65, who typically live on fixed incomes, therefore making it difficult to pay the high rates. This argument is especially crucial to rural communities, which generally have a large population over age 65.

This indicator will show whether the amount of mobile homes has increased in an area. An increase is evidence of a continuing lack of other affordable housing options. Manufactured housing creates difficulties for rural communities that will have to be dealt with in order to remain viable.

### ***What is the rental vacancy rate? Home vacancy rate?***

Friedman (2003) writes that affordable housing is necessary to rural communities because it allows homeowners stability in other aspects of their lives. Adding to this argument George and Holden (2001) of the Housing Assistance Council, state that affordable housing is crucial, especially to the rural elderly population who typically live on fixed incomes. Additionally, they argue that rental housing is the second-best choice after homeownership. In a separate article provided by the Housing Assistance Council (George and Holden 2000), the assertion is made that affordable rental housing should be available in rural communities, especially as rural renters are typically those who suffer multiple housing concerns. A community should have rental and home vacancies, but too large an amount indicates that the population is decreasing and/or that affordable housing is scarce.

# Literature Review and Survey Questions

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## Society and Culture

Measures of society and culture involve the social interaction within the community and the outside world that promotes value to the community and its residents. Methods to enhance society and culture include: promoting tourism; providing recreation sites, cultural centers, libraries, youth and civic organizations; and encouraging visitors to the community through hosting events. By providing venues such as these, communities lead residents and visitors to hold a connection with the community and these connections instill values that lead individuals to stay in communities and invest time and effort toward community enhancement.

### ***Does the Texas Historical Commission designate you as a Main Street Community?***

In 1981 The Texas Historical Commission started the Texas Main Street program to help communities fund revitalization initiatives. Since its creation, the program has been used by over 130 communities to assist in restoring and preserving downtowns and main street areas. This question addresses the efforts taken to enhance the community's appeal to visitors and residents.

### ***Have you applied or received funds to enhance your Main Street or downtown?***

Since the Main Street Program, and other programs like it, have limited funds available to provide to communities, this question addresses other efforts communities have taken to gain funds to enhance their community. The self-development strategies communities use to improve their surroundings indicates a strong relationship and sense of responsibility to the aesthetic value and well-being of a community (Sharp et al. 2002).



## Literature Review and Survey Questions

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***Do you have any of the following in your community: Recreation sites, Private businesses that target recreational activities, Civic organizations, Tourism-oriented organization, Cultural arts, Public Library?***

Research indicates that social interaction in communities is connected to the sustainability of the community itself (Putnam 2001). The following six questions encompass this aspect of sustainability.

### **Recreation sites**

Sites such as ballparks and playgrounds are attractive to all ages and ultimately encourage family interactions and togetherness. Parks and recreational services act as great ways to attract visitors, and encourage positive renovation of open spaces (Johnson and Beale 2002).

### **Private businesses that target recreational**

Private businesses that participate in recreational tourism provide attractions beyond community initiatives, and speaks to the marketability of the community to visitors and the community in general. Further, recreational businesses are usually indicators of tourist activity which enhances community viability (Brown 2004).

### **Civic organizations**

Research indicates that individuals belonging to such organizations are less likely to migrate (Myers 2000) and more likely to value the community as a whole (Putnam 2001).

### **Tourism-oriented organization**

Rural communities that capitalize on local/rural appeal and attributes, and sell their “product” to those escaping from urban life have the potential to become successful economically (Coates, Jarratt and Ragunas 1992). Research indicates that communities working together to enhance tourism realize more benefits than communities working alone (The Finance Project 2002).

## Literature Review and Survey Questions

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### **Cultural arts (museum, theater, or historical sites)**

Research indicates that cultural arts, such as those provided through museums, theaters, and historical preservation sites are very attractive to residents and visitors to a community (Walker, Jackson and Rosenstein 2003). Communities that have these types of institutions have taken initiatives for funding and dedicated time and efforts in facilitating culture in communities. Walker, Jackson, and Rosenstein state that an investment in the cultural arts is an investment in the communities that support them (2003).

### **Public Library**

Research indicates that communities that invest in the future through additions such as public libraries, showing the importance they put on self-development and the future of the community as a whole (Sharp et al. 2002). By having a library, a community indicates support for its residents' educational needs. Libraries are indicative of community development beyond the necessities, which shows that a community has the time and resources beyond focusing on basic survival.

### **Are there active youth organizations, after school clubs, or sports clubs in your community?**

In many rural communities, the school is considered to be a place of social interaction and fosters the connection between the youth and their community (Salant & Waller 1998). After-school clubs and organizations dedicated to children show that a community invests in the future generations of their community and their upbringing.

### ***Does your community host an annual event?***

### ***Is the attendance at this event growing?***

For many communities hosting an annual event is a way to bring capital to the community, but events also provide a means for a community to attract outside visitors (Coates, Jarratt and Ragunas 1992). By hosting events, communities show their ability to organize and foster community involvement.

### Technology

The evolution of technology continues to bring our nation into a new and changing world that looks towards economic prosperity and an idealistic future. Rural communities, with their strong cultural heritage, are caught between a world rushing towards change and a strong desire from the local residents to maintain the community's unique character. Technological advancements, specifically in the area of the telecommunications industry (including residential telephones, mobile phones, cable television, internet access, and electronically-based commerce), have "become an increasingly important factor in the growth of the economy" (Stenberg 2002, 1).

#### ***What percentages of households are without telephone service?***

The telephone has been the standard of technological diffusion throughout the United States since its invention at the end of the 19<sup>th</sup> Century. While it took nearly 100 years for telephone service to reach 95% of U.S. residences, the rate has remained stable for the past 20 years (Stenberg 2003a). Stenberg states, "the rate for rural areas, in the aggregate and largely as a consequence of Federal and State policies, is comparable to urban areas" (2003a, 1).

The Telecommunications Act of 1996, the first major rewrite of the 1934 Communications Act, included several reforms of federal legislation to shrink the "digital divide," as it were, between those who have telecommunication technology and those who do not. This legislation expanded the definition of universal service or the "universal availability of a minimum level of service at affordable rates" (Stenberg 2002, 25) with specific attention to rural, poor, or high-cost areas for infrastructure development or service delivery for a broader spectrum of technology to include Internet service.

Telephone penetration rates are the current measure of universal service. Stenberg et al. argues that "without the provisions [the 1996 Act], rural areas may

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rapidly fall behind urban areas in our increasingly competitive economy” (1997 ,37).

### ***Does your community have cable television access?***

This indicator continues the argument above as an indicator of the current status and “quality of telecommunication services [that] can encourage business activity to remain or develop in rural areas” (Stenberg et al. 1997, 32).

The current availability of cable television services in the rural community is an indicator of the level of local interest and information technology (IT) producing and consuming companies’ willingness to invest in the community (Staihr 2000). “The size and scale of existing telephone or cable TV provider can affect the likelihood of DSL or cable modems being offered in small communities or rural areas” (Staihr 2000, 2-3). Kathleen McMahan and Priscilla Salant (1999) support this contention that the current level of infrastructure and access is an indication of the both the supply and demand for tele-communications services.

### ***What types of Internet service is available for your community? Dial-up service; Broadband service; Wireless service***

“A generation ago, the economic well-being of rural communities often depended on how close they were to an interstate highway. In the next century, their vitality may depend more on the sophistication of their communication services” (McMahan and Salant 1999, 2). This question will gather important data on the current availability of Internet access for a community. Wireless technology offers specific advantages for use in rural areas because it requires less capital and expense in establishing infrastructure, but the cost of this newer technology is still higher than existing technology for the consumer (see Stenberg 2003b, Leatherman 2000, Stenberg 2002, Stenberg et al. 1997, Abraham 2003, Staihr 2000). If a community already has access to broadband or wireless Internet, it shows that there is sufficient local capacity to support it.

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***Has your community taken any actions to continue finding funding for a telecommunications network including but not limited to the following: Public-private partnerships; Grants; Adding internet as a service provided by municipal utilities or rural electric cooperatives***

Information technology offers specific advantages for rural communities. “Recent advances in telecommunications can help address these rural concerns (emigration) and help mitigate the negative effects of shifting demographics on rural education...and stem the tide of rural population outflows” (Staihr and Shaeff 2001, 2). A concern arises at this point; rural areas need to attract IT producing and consuming companies to grow their economy, but they cannot effectively build infrastructure investment needed to attract these companies (see Leatherman 2000, Stenberg 2002, McMahon and Salant 1999, Stenberg et al. 1997, Abraham 2003, Henderson 2001, Staihr and Shaeff 2001, and Staihr 2001).

If a local community has taken the initiative to apply for any of the numerous grant programs that facilitate the growth of technology in rural, low-income, or high-cost areas, it reflects on local capacity and ultimately their sustainability. These proven actions to bring technology to the community will alone strengthen the community and the results of their action to build infrastructure will also have a positive effect on the community.

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### Government

The key to community sustainability lies at the heart of a community and its leadership. The local capacity for government leadership, strategic planning, and quality public service delivery is crucial. “The health of rural communities,” according to Dr. Lynn Harvey (2001, 1) “is in part linked to an effective local governance structure.” Without this fundamental government capacity, a community’s viability and sustainability is in jeopardy.

***Do you have a city manager, administrator, or secretary with professional training (public administration, public policy, urban planning, MBA, or city management degree or comparative experience)?***

The level of professional training and/or experience in the position of the city manager has an impact on a city’s sustainability. The city manager (also administrator or secretary) is a full-time professional position that lies outside the sphere of political influence and solely concentrates on the development and implementation of public policy for the community. The Reason Public Policy Institute’s study on efficiency in public service delivery at the city level found that “cities with a manager are almost 50% more likely to be efficient than those with an elected mayor” (Moore et al 2001, 8).

***Do you have a strategic plan that incorporates a budget? An economic development plan? A telecommunications plan? An environmental plan?***

Strategic planning has found a crucial place in the both the public and private sectors. Companies develop comprehensive plans to guide actions and inform stockholders and use profit figures as a clear-cut indicator of economic success and corporate viability. Government organizations, in a sense, do the same. Academic research, supported by professional experience, argues that organizations should have comprehensive strategic planning coupled with a performance measurement plan that links planning to organizational results to budgeting. “When there is

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broad-based understanding of community need and consensus among local institutions emerges, there is greater likelihood that the community will take successful action. This will be true in relation to community technology needs just as it is for local economic development, health care, or any community problem” (Leatherman 2000, 13). Strategic planning provides a solid foundation of assessment, planning, consensus building, and action that can have a strong positive impact on a community’s sustainability.

***Do you have a leadership development program for elected officials and/or managers in the city government?***

Rural government systems and training for the elected officials are crucial to the community (Harvey 2001). The State Rural Development Council, for example, serves as a public-private partnership that provides training material to local leaders. The Texas Municipal League (TML) also serves to facilitate training for elected officials or city managers. Regardless of whether the program is initiated by the city secretary or TML, it is important that city officials and managers recognize the importance of a continuous development program.

***Is your community a member of a regional organization of any kind?***

The community’s involvement in a regional organization, regardless of the type, is an indicator of sustainability. A community’s involvement or membership in a regional water planning or development organization brings specific advantages that otherwise would not be available. The State Rural Development Council or TML, for example, offer resources for community leaders as well as serve as a means to coordinate the statewide rural development agenda (Radin 1996). Through involvement in a regional organization, communities have the advantage of an expanded pool of resources and ideas. With many other indicators, a community involved in a regional organization has demonstrated capacity and commitment to improving the community (Harvey 2001).

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***Does the city or county government provide the following public services: Fire Department; Police Department; Street Department Public Utilities***

City governments have varying levels of ability to provide fire, police, street, and public utility services such as power, water, garbage, and wastewater service (Moore et al. 2001), but their ability to provide the service alone shows strength and independence. In this section, the common theme and emphasis is local capacity. The ability to provide public safety and maintenance services for community businesses and residents reflects positively on capacity and, therefore, sustainability.

***Does your community rely on an organized wastewater collection system or on septic tanks or both?***

Many rural households rely on their own septic tank as a sewer collection system due to their remote location. As communities grow in population and strengthen in infrastructure capacity, organized wastewater systems are one of the services governments provide their citizens. The development and maintenance of a wastewater collection/treatment system demonstrates an immediate and long-term capacity and commitment to the citizens and business owners. Governments with this emphasis on the customer (citizen) perspective have a proven strategic focus on neighborhood viability (Abbott, Johnson, and Dieckhoner N.D.).

***What is the ratio of average voter turnout rate to voter registration?***

Knack argues “it is important for citizens to articulate their preferences, through voting and other means, to provide guidance to those officials as to what constitutes the public interest” (2002, 773). Further, “knowledge of politics and public affairs by large numbers of citizens, coupled with their participation through voting and other modes of citizen voice, are crucial for accountable government” (Knack 2002, 773). Public participation in civic affairs can be measured by the ratio between the average voter turnout to voter registration rates in the city (Liebl et al 1998). This measurement is a reflection on public



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interest translated into public participation, and where these are present government performance improves.

### ***Does the city council reflect the ethnic diversity of the community?***

City councils are a structural form of a representative government. Council members are elected as representatives of their constituent's political views and personal interests. Texas is a very culturally and racially diverse state with strong German and Polish heritages, and a growing Hispanic population. While political party platforms and affiliations are less important on the local level than on the state and certainly the federal level of government, appropriate representation of cultural diversity is important.

### ***What is your bond rating?***

This question represents an important perspective of community viability—the financial perspective. A community's bond rating is a measure of the community's economic efficiency and fiscal integrity (Abbott, Johnson, and Dieckhoner N.D.). Further, being rated implies that the community has the ability to raise revenue when necessary for infrastructure or other capital investments.

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### Environment

Our focus is on the community and governmental structures set in place to ensure natural resource viability for the future. This view takes into account the current status of natural amenities in the area, and the preventative and proactive steps communities are taking towards future availability of these resources.

***Does your community currently have any nature tourism sites, private natural amenity, or attractions within close proximity? This can include state or national parks, lakes, rivers, or canyons.***

The natural environment is very attractive to tourists and specific sites such as lakes, rivers, and canyons are just a few of the attractions communities capitalize on to become more successful. Research shows that rural communities within close proximity to natural amenities such as these, and protected places such as state and national parks, have a natural means of attracting visitors and new residents to their community. “Where natural resources once attracted people seeking fertile land, minerals, and timber, they now attract people in search of a pleasant environment for recreation and residence” (McGranahan, 1999).

***Was your community an active participant in the regional water planning process?***

Planning is important for the sustained and ongoing development process of a community. Holistic and long-term planning requires communities to implement structures, manage, and prepare for the future. Starting in 1997, the State of Texas passed legislation supporting a more bottom-up form of statewide water planning. This legislation asked individuals from around the state to incorporate regional water plans which “map out how to conserve water supplies, meet future water supply needs and respond to future droughts in the planning areas”(Texas Water Development Board, 2004).

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### ***According to your regional water plan, will your community have water available until the Year 2050?***

According to environmental research on the importance of natural resources, water always is a primary concern. It has been argued, “water is needed for all aspects of life” and without sustainable water supplies, life as we know it will change dramatically (United Nations Department of Economics and Social Affairs 2003). Beginning in 1997, regional water plans have been developed to forecast the expected future of water supplies until 2050. These forecasts provide detailed expectancies of the duration of expected water according to future growth projections and resource availability. From these plans, communities should have a detailed understanding of their water expectancy for the year 2050.

### ***Is there a local groundwater district, or soil conservation district?***

Throughout Texas there are numerous groundwater districts, and their mission are to conserve, preserve, protect, and recharge ground water. These districts, along with soil conservation districts, are public organizations that attempt to preserve and plan for current and future needs. While these groups are not frequently directly associated with community interaction, they do provide a service from which the community benefits.

### ***Is there extra capacity for water in your community’s public water system?***

For rural communities there is an “overwhelming majority of drinking water systems that are small” these communities therefore have issues associated with them if they do not plan appropriately for droughts or population influxes (Bagi 2002). Research shows that rural communities are “less able to operate near capacity, and experience greater fluctuations in daily water production” (Bagi 2002, 46). A rural community running at full capacity indicates a system that can adequately serve its residents and sustain their water needs adequately.

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***Do you currently have a back-up water supply in case the main supply source of potable water is disrupted?***

A back-up water supply is another indicator of community effort to ensure water availability to residents. A back-up supply is indicative of the community planning for future problems with water availability and the chance of disruption of the main supply (Texas USDA State Office, 2001).

***What is your current TCEQ status?***

The Texas Commission on Environmental Quality is a statewide environmental organization which provides supervision of public water supplies. TCEQ indicates the safety of public drinking water systems by rating the system as inactive or cancelled, proposed or unlisted, active and superior or approved.

### Transportation

Transportation is essential for rural economic development. A good infrastructure connects rural residents to jobs and services and links rural industries to their markets. Without a strong transportation system in place a rural community's economy will suffer.

***What is the distance to the closest major airport where residents can get connecting flights outside of Texas?***

Businesses are more likely to relocate to a rural area that has access to an airport with commercial flights. Air transportation is becoming essential to American businesses as they strive for greater efficiency and more timely order fulfillment. Therefore poor access to air transportation can handicap many rural communities hoping to attract and retain cutting-edge businesses. In addition, rural communities within 50 miles of a passenger service airport are more likely to see economic growth (Gail and Brown 2000).

***What is the distance to the closest airport where residents can get commuter flights to major airports?***

Businesses may relocate to a rural area that has access to an airport with commuter flights to major airports. While these airports are not as beneficial as those above, many businesses will relocate to rural communities that are pleasing to them in other ways and these commuter airports are amenities that aid in their attraction to an area (Gail and Brown 2000).

***How many Interstates and/or highways run through your community?***

Interstate and/or highway access enhances a community's ability to increase their economic wellbeing. In addition, added road networks have the ability to bring new jobs to rural communities in both the short- and long-run. Finally, a community with a high number of interstates and/or highways passing through has a greater ability to become a regional trade center (Wilbur Smith Associates 1998).

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***Does your county have access to a railroad with the ability to ship and receive?***

Direct railroad access decreases transportation costs, and the loss of a railroad to a community can raise the cost of marketing agricultural products and may reduce agricultural income, raise rural unemployment, and jeopardize economic development potential (Brown 1998). However, other research shows that few communities have been hurt in the long run because reasonably priced transportation alternatives, usually trucking, are almost always available (Brown 1998).

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### Demographics

Demographic factors play a large role in the success of rural communities however these characteristics are often unresponsive to policy changes. It remains critical to measure these factors as they do play a major role in policy formation and implementation.

#### ***What is your county's Rural-Urban Continuum Code?***

The rural-urban continuum code is a countywide measure of proximity to an urban area. Communities within close proximity to an urban center have access to goods and services demanded by their citizens. Communities without access to an urban center are at a disadvantage for economic growth and development (Miller and Weber 2004).

#### ***Has the population increased or decreased in the last 10 years?***

A stable or increasing population demonstrates the ability of a rural community to maintain viability (Cromartie 2002). Rural communities that demonstrate the ability to retain residents are implicitly able to provide jobs, schools and services to those residents, thereby demonstrating viability.

#### ***Has your community had persistent poverty over the last 2 census cycles?***

Persistent poverty is defined as poverty of over 20% of the population for four census cycles. Due to limitations in the availability of census data, we limited our scope to include only the 1990 and 2000 census'. Poverty is a drain on the economic resources of a community, places extra demands on school and health care providers, and implies generally poor community viability (Miller and Weber 2004).

#### ***What percentage of population with Bachelor's degree or higher? Has the percentage of population with Bachelor's degree or higher declined or risen between 1990 and 2000?***

The ability to attract and retain highly educated citizens is a sign of a viable community. This measure is critical not only in the current level, but also in the

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change over time. Communities that are losing college-educated citizens may be lacking the ability to provide the quality of employment opportunities and services demanded by this group (Fuguitt, Fulton and Beale 2001).