

NCHRP

REPORT 582

NATIONAL
COOPERATIVE
HIGHWAY
RESEARCH
PROGRAM

Best Practices to Enhance the Transportation–Land Use Connection in the Rural United States

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**Best Practices to Enhance the
Transportation–Land Use Connection
in the Rural United States**

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Subject Areas
Planning and Administration

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TRANSPORTATION RESEARCH BOARD

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NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM

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FOREWORD

By Christopher J. Hedges

Staff Officer

Transportation Research Board

This report presents guidance on how best to integrate land use and transportation in rural communities. The study highlights programs and investment strategies that support community development and livability while providing adequate transportation capacity. The research consisted of an extensive review of current literature; a series of focus group discussions with community, tribal, and transportation agency staff and officials; and a survey aimed at a cross section of rural transportation planners. The research identified key principles for successful land use and transportation integration and outlines specific approaches suitable to a range of rural community types. This report will be useful to transportation planners and decisionmakers who deal with land use and transportation issues in rural communities.

Rural communities throughout the United States are facing a wide and complex range of challenges that both affect and are affected by the transportation system. These include economic shifts away from traditional employment in local farming and manufacturing toward industries such as agribusiness and tourism; changing demographics such as rising percentages of elderly residents or new levels of racial and ethnic diversity; rapid growth in some rural areas and population decline in others; and a lack of adequate capacity and/or commitment to engage the public in transportation and land use planning. These trends are further complicated by funding challenges associated with operating, maintaining, and building transportation infrastructure.

Although urban areas may be facing many of the same or similar issues, the presence of such challenges in a rural setting poses a unique set of circumstances that requires a distinctly different approach. Although abundant research findings exist on strategies and measures to address the effects of growth and development on transportation systems and services in urban and metropolitan areas, there has been little corresponding research to address how rural communities can work with transportation agencies to set and reach mutual goals for livability and mobility.

Under NCHRP Project 08-52, a research team led by Hannah Twaddell of Renaissance Planning Group and Dan Emerine of the International City/County Management Association undertook this study to identify (1) common problems related to rural transportation systems and (2) measures to address these problems by enhancing the transportation–land use connection. The report highlights programs that support rural development and land use strategies that maximize transportation capacity as well as community livability.

The research team identified three distinct types of rural communities that can particularly benefit from integrated land use and transportation planning: exurban communities on the fringes of metropolitan centers; destination communities that are attracting tourists

and new residents; and production communities that are struggling with the decline of their key industries. Strategies to address the problems faced by these various types of communities are organized in three major categories: setting a regional framework for development; improving accessibility to targeted activity centers; and enhancing community design.

The report also highlights elements common to successful communities, including collaborative (often regional) partnerships; an active public involvement and education process; a focus on quality of life and a sustainable future; and strong local leadership. Illustrated with numerous case studies, the report will help rural planners and decisionmakers understand the challenges they face and select the most effective and appropriate approach for their own communities.

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SUMMARY

Best Practices to Enhance the Transportation-Land Use Connection in the Rural United States

Significant research and implementation in recent years has helped to identify best practices for integrating land use and transportation in urban areas, but little has addressed how this integration could apply to rural communities. To fill this gap, the Transportation Research Board of the National Academies has funded “*Best Practices to Enhance the Transportation-Land Use Connection in Rural America*” (NCHRP Project 08-52), a study highlighting transportation investments and programs that support successful community development and land use strategies that maximize transportation capacity and community livability. In addition, the project examines how the goals of rural communities and transportation agencies may conflict or support one another.

Three core rural community types with distinct transportation and land use issues are identified in this report as particular focal points for the research:

Exurban communities, which exist on the fringe of most urban areas across the United States. Many of these communities have shifted from a traditional reliance on a local economic base to a level of dependence on jobs outside of the community and are growing at an above-average rate of 5 percent per year.

Destination communities, situated in locations featuring natural amenities such as mountains, lakes, or beaches attract seasonal residents, retirees, and tourists. Located primarily in the West, Upper Great Lakes, and New England, the economic base in these communities has shifted from traditional rural industries (e.g., agriculture, manufacturing, or mining) to a service-based economy built around providing access to natural amenities and support of a recreational or leisure culture. These communities are growing at an above average rate of 6 percent per year.

Production communities, which are typically found in remote areas such as the Great Plains, Corn Belt, Mississippi Delta, and Appalachia. These communities depend on a single industry that has experienced decline, such as agriculture, manufacturing, or mining. These communities have not diversified their job base and are isolated to the extent that they cannot depend on surrounding job centers, leading to a below-average growth rate of 2 percent per year and a loss of jobs.

Rural communities face a number of challenges. Surveys for this project indicated that the number one challenge for rural communities is to provide access within the community to destinations such as jobs, shops, services, education, and healthcare. The particular type of accessibility need for each community varies based on the community’s particular setting and economic base. For example, exurban communities are primarily concerned with providing access to jobs in adjacent urban centers; destination communities focus on bringing visitors into the community and providing access to tourist destinations; and production communities either attempt to improve accessibility between local products and their markets or to diversify the local economy. Other frequently cited challenges include maintaining or

improving water and air quality, improving driver safety, protecting open space and environmentally sensitive lands, and providing access between the community and destinations around the larger region.

Each type of rural community can benefit from addressing these challenges through integrated approaches that simultaneously improve their accessibility and their livability. Best practices and strategies for achieving these results within various types of communities fall into three major activities:

1. Set the **regional framework** for where and how development should occur, through practices such as
 - Growth management and preservation strategies to guide development into suitable locations and
 - Regional access management strategies promoting access to designated development areas as well as discouraging unwanted rural development.
2. Improve **local accessibility** to daily needs such as jobs, shopping, services, and health care, through practices such as
 - Development standards and plans to promote mixed-use, walkable community centers; and
 - Transportation investments focused on improving street connectivity, pedestrian and bicycle facilities, and transit service to community focal points.
3. Enhance **community design**, through practices such as
 - Context-sensitive roadway design techniques that complement natural and built environments; and
 - Local access management and community design strategies, particularly along key commercial corridors.

Major venues for integrated planning approaches include

- Regional plans;
- Corridor plans;
- DOT rural consultation programs; and
- Local comprehensive and master plans (counties, cities, and towns).

Key factors for success include

- Collaborative partnerships;
 - Focusing on quality of life and sustainability;
 - Public involvement and education; and
 - Strong local leadership.
-

CHAPTER 1

Introduction and Research Approach

Significant research and implementation in recent years has helped to identify best practices for integrating land use and transportation in urban areas, but little has addressed how this integration could apply to rural communities. To fill this gap, the Transportation Research Board of the National Academies has funded “Best Practices to Enhance the Transportation-Land Use Connection in Rural America” (NCHRP Project 08-52), a study highlighting transportation investments and programs that support successful community development and land use strategies that maximize transportation capacity and community livability. In addition, the project examines how the goals of rural communities and transportation agencies may conflict or support one another.

The research process included the following elements:

1. A literature review to summarize rural community demographics and issues along with best practices for integrating land use and transportation;
2. A series of focus groups conducted with rural community, tribal, and state DOT planners and other officials;
3. An online survey aimed at all U.S. professional and citizen planners with an interest in rural issues;
4. Paper surveys mailed to a sample of rural local planners and all 50 state DOTs; and
5. A series of case studies illustrating accomplishments and lessons learned by various rural community types.

This final report

1. Provides a snapshot of social, demographic, and economic conditions in the rural United States;
 2. Describes the land use and transportation challenges faced by rural communities;
 3. Identifies the best practices in addressing land use and transportation challenges; and
 4. Provides insights from case studies to assist rural planners and transportation agency staff as they seek to improve the accessibility and livability of the communities they serve.
-

CHAPTER 2

Profile of the Rural United States

Defining “rural” has been a challenge for policymakers and researchers. Although most people have an image of rural areas with dispersed population and an economy based on natural resources, developing a coherent statistical definition is not simple. Definitions range from simply “not urban” to detailed census-tract analyses of community characteristics such as population size and density, proximity and influence of urban centers, and the economic base. The most commonly used stratification is that defined by the Office of Management and Budget (OMB) which classifies counties as

- **Metropolitan:** One or more counties clustered around a city with a population of 50,000 or more that demonstrate an economic dependence on the core city and meet minimum population and density thresholds.
- **Micropolitan:** One or more counties clustered around a city with a population between 10,000 and 50,000 that demonstrate an economic dependence on the core city and meet minimum population and density thresholds.
- **Non-metropolitan, non-core:** All other counties that do not meet the above requirements.

The 2000 U.S. Census classifies counties as either metropolitan or non-metropolitan (the latter includes both OMB-classified micropolitan and non-metropolitan counties). In addition, the Census classifies the population within each county as either “urban” or “rural,” based on the proximity to urban centers and localized population density.

All micropolitan and non-metropolitan, non-core counties were considered “rural” for this study—a total of 2,052 counties and independent municipalities. Recognizing the rural nature of many outlying counties in metropolitan-classified areas, this sample was expanded to include counties in which more than 50 percent of the population is classified as “rural” according to the U.S. Census, totaling 384 additional counties and independent municipalities. The total “rural” sample includes 2,436 counties and independent municipalities, or

roughly two-thirds of all U.S. counties. These are mapped in Figure 1. This sample served as the basis for generating a statistical profile of the rural United States as well as for circulation of the county survey. Throughout the remainder of this report, any reference to “rural counties” includes all 2,436 rural counties and independent municipalities.

Because of variations in county size across the country, the map in Figure 1 (and later figures) may indicate some misleading results for states with large counties. The clearest example is in California, where large county size and the spread of urbanization inward from major cities along the coast preclude these counties from meeting the definition of “rural” as defined in this report. Much of the data used in this report is simply not available at the fine-grained level of detail necessary to most accurately represent large rural counties.

Economic and Social Conditions of the Rural United States

Data from the 2000 U.S. Census and the Economic Research Service (ERS), a division of the U.S. Department of Agriculture, provides a snapshot of economic and social conditions in the rural United States (summarized in Table A-1 in Appendix A). Between 2000 and 2004, the population in the 2,436 sampled counties grew by an average of 2.6 percent. Of these, 734 counties housing over 25 million people grew at a rate faster than the national average, while 1,704 counties housing almost 36 million people grew at a rate slower than the national average. In addition to the national averages, Table A-1 in Appendix A includes data stratified by growing and declining counties.

Rural and Non-Rural Counties

Rural and non-rural populations in the United States differ substantially in the following ways (see also Table A-1 in Appendix A):

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Figure 1. Study sample (2,436 rural counties/municipalities).

- Non-rural communities are much more likely than rural communities to depend on a service economy (consisting of retail trade, financial services, insurance, real estate, tourism, and other services) or on federal and state government employment, whereas a significant number of rural communities depend on farming and mining, two economic drivers almost non-existent in non-rural areas.
- The non-rural population is about 4 times larger than the rural population and grew about 2 times as fast from 2000 to 2004. However, the growing rural counties grew slightly faster than the average non-rural county.
- With 65 percent white residents and several substantial minority populations, non-rural communities tend to be more diverse than rural communities, where 83 percent of the population is white and the minority populations are smaller.
- The median household income in non-rural communities is nearly \$10,000 more per year than in rural communities. Although the poverty rate is similar in both non-rural and rural communities, rural communities are roughly 4 times more likely to suffer from low educational attainment or low employment availability, while non-rural communities are 2 times as likely to suffer from inadequate or unaffordable housing.

Growing and Declining Rural Counties

Within rural counties there are also differences between counties that have been growing faster than the average rural growth rate versus those that have been declining, which also

includes counties that are growing more slowly than the average rural growth rate (see also Table A-1 in Appendix A):

- Growing communities are 3 times as likely to be within a metropolitan area. The higher urban influence score for growing areas indicates that these communities benefit from their proximity to urban areas.
- Economic dependence also indicates some significant differences in the makeup of growing and declining communities. The portion of declining farming communities is 3 times higher than the portion of growing farming communities. By contrast, growing communities are much more likely to be service-dependent or, to a lesser extent, to have a non-specialized economy (i.e., a diverse economy that does not depend heavily on any one sector).
- Although not an indicator of economic dependence, a related measure is that of communities defined as recreation or retirement destinations. The data shows that these two markets are far more developed in growing communities. This is explained to some extent by the higher natural amenity score associated with growing communities.
- The racial composition of growing and declining communities is fairly similar, with a somewhat higher black or African-American population found in declining communities and a slightly higher Hispanic or Latino population found in growing communities.
- The average ages are similar, although the population of senior citizens is typically higher in declining communities.
- Nearly twice as many workers in growing communities commute to adjacent metropolitan areas compared with their declining counterparts and have longer commutes by about 3.5 minutes.
- The number of vehicles available per household is similar between growing and declining communities, but a higher proportion of households do not have access to a vehicle in declining communities.
- Median household income is nearly \$5,000 higher in growing communities, and their poverty rate 4 percent lower than in declining communities. Growing communities are having more difficulty providing adequate and affordable housing while declining communities are having more difficulty providing for education and employment.

The Influence of Urban Proximity on Growth

As described earlier, a county's proximity to an urban area has a strong influence on growth and economic vitality, allowing rural communities to benefit from a nearby urban market if their local markets are declining. Table A-2 of Appendix A demonstrates this using the Urban Influence Codes developed by ERS. The table indicates that counties in any metropolitan area or next to a large metropolitan area are

growing faster than the national average. Counties defined as micropolitan or those adjacent to a small metropolitan area are experiencing slower-than-average growth. Non-metropolitan, non-core counties not adjacent to a metropolitan area are either stagnant or losing population.

The Influence of Economic Dependence on Growth

A second strong influence on rural population growth is the primary economic engine of the county. The population in farming and mining communities remained fairly constant from 2000 to 2004 (see Table A-3 in Appendix A). Growth was just below the national rural county average in manufacturing-and government-dependent communities while growth in service-dependent or non-specialized economies was above the national average. Service-dependent communities are growing the fastest, although the number of service-dependent counties makes up only a small portion of the rural United States.

ERS has also developed two categories identifying counties that serve as destinations for recreational activities or retirees. The population in recreation counties grew at more than twice the national average from 2000 to 2004, while the population in retirement counties grew at triple the national average (see Table A-4 in Appendix A).

Rural Demographic Subgroups

The ERS data indicates that rural U.S. counties are predominantly white, at 83 percent. Hispanics are the fastest growing racial/ethnic group in the rural United States. Table A-5 in Appendix A lists all the demographic percentages of subgroups in the rural United States. Rural Hispanics tend to be younger, have larger families, and have fewer years of formal education than the rural population as a whole. Although an influx of Hispanic migration has revitalized many rural towns, the rapid growth and unique needs of this population have created a strain on housing supplies, public infrastructure, and community services.¹ The data in Table A-5 reveal that counties with comparatively large Hispanic populations depend heavily on farming and mining with very little emphasis on manufacturing. Although counties with large Hispanic populations have, on average, a natural amenity score almost one point higher than the average rural county, the percent of these classified as recreational is slightly less than that of the average rural county. The average age (35) is 3 years younger than the rest of the rural United States (38). Most social and economic indicators put these counties well behind the rural United States as a whole. The Cutler-Orosi case study in Tulare County, California, is representative of rural counties with high and growing Hispanic populations.

By contrast, Native Americans are the fastest declining racial/ethnic group in the rural United States (see Table A-5 in Appendix A). These communities tend to be far more isolated than the average rural county with economies dependent on the federal government or not dependent on any specific sector. Their high natural amenity score corresponds to an above-average percentage of counties classified as recreational. Median household income is \$2,500 less than the average rural county. Relatively few Native American counties are classified as low education, but they experience some of the highest rates of poverty, inadequate/unaffordable housing, and low employment. New casino openings in Native American communities have led to some job and population growth; however, these jobs tend to be relatively low skill and low income.²

Counties with concentrated African-American populations have the grimdest conditions of these four subgroups. These counties are slightly more likely to be near an urban area than the average rural county and are largely dependent on manufacturing. Very few of these counties are classified as recreational or retirement, even though the natural amenity score is only 0.1 points below the rural average. Average travel

time to work is a minute higher than the average rural county, and vehicle ownership rates are the lowest of any subgroup. Counties with African-American populations of 30 percent or greater suffer from the highest poverty rate of all subgroups and median household income is over \$6,000 less than the rural average. In these counties, the percentage experiencing inadequate/unaffordable housing, low employment, and low education is roughly 3 times higher than the rural average.

Of the four subgroups, counties with large elderly populations are the most isolated from metropolitan areas. They are highly farming dependent with very little manufacturing. These are much less racially diverse than the average rural county, with over 90 percent of the population composed of white residents. Although median household income is more than \$3,000 below that of the average rural county, counties with large elderly populations experience below average rates of poverty, inadequate/unaffordable housing, low education, and low employment. Even though vehicle ownership rates are little different than the rural United States on average, elderly residents tend to create additional demand for public transit services.

CHAPTER 3

Rural Community Types and Issues

The data and literature demonstrate that most rural U.S. counties can be classified into three main community types stratified by their economic engine and rate of growth. In general, the growing counties tend to be either *exurban* (i.e., located near to and dependent on an adjacent urban center) or *destination* (i.e., natural amenities attract tourists, seasonal residents, and retirees). In addition to these two general categories of growing communities, growth has come to other rural communities as a result of jobs created by casinos, jails or prisons, industrial agriculture, or through the development of niche economic markets. Declining counties are most typically *production* (i.e., dependent on mining, manufacturing, or farming) and the rate of decline may be exaggerated by the communities' isolation from their economic markets. Of the 2,436 rural counties, 600 (25%) can be classified as exurban, 558 (23%) can be classified as destination, and 1,279 (53%) can be classified as production communities.¹ Table A-6 of Appendix A breaks down the statistical profile into the three community types of exurban, destination, and production. Additional detail on the three main community types follows. As noted earlier in the Profile of Rural America, the maps on the following pages do not portray conditions in large counties as accurately as they do for smaller counties.

Most rural communities can be classified into one of these three types with commonly shared issues. Of course there are always exceptions because of unique community qualities or characteristics. Some case studies illustrate these exceptions. Hutchinson, Minnesota (population 13,722), a predominantly production community is not in decline—primarily because of a committed, successful em-

ployer and its proximity to more urban areas. Hayden, Colorado (population 1,700), is another example of classification complexities. Hayden is a production community that is increasingly taking on exurban or *bedroom community* characteristics with increasing growth. Each rural community is unique, but most share the dominant characteristics and issues of these three rural community types.

Exurban Communities

Exurban communities are all over the country close to urban centers that provide jobs and serve retail, service, health, education, and entertainment needs; these are mapped in Figure 2. Convenient transportation access allows the exurban areas to function as bedroom communities that rely on jobs in the urban center, rather than within the local economy. Exurban communities may also serve employment, shopping, and service needs, but on a smaller scale than the neighboring urban center. Table A-6 in Appendix A shows that exurban employment levels and median household incomes are the highest of the three community types, largely fueled by the broader job market and higher wages and salaries available in the adjacent urban center.

Communities that have shifted from a traditional reliance on a rural economic base to a level of dependence on jobs outside of the community tend to experience significant changes in character and function. The increase in new commuting residents drives a demand for new housing and for basic goods and service needs to be met locally. Community and social welfare typically improve through increased access to jobs, educational opportunities, and health services. Increased land values due to growth can be a positive, although the increase also leads to higher property taxes, less affordable housing, and an overall increase in the cost of living. Rapid residential growth with insufficient planning or funding can lead to strain on public infrastructure (e.g., congested roadways, crowded

¹A community may be classified in more than one category (i.e., a community may be in an exurban location with a production economy) or may not fall into any of the three categories. Therefore, the total number of communities classified as exurban, destination, and production communities will not add up to 2,436.

NCHRP | Exurban Counties

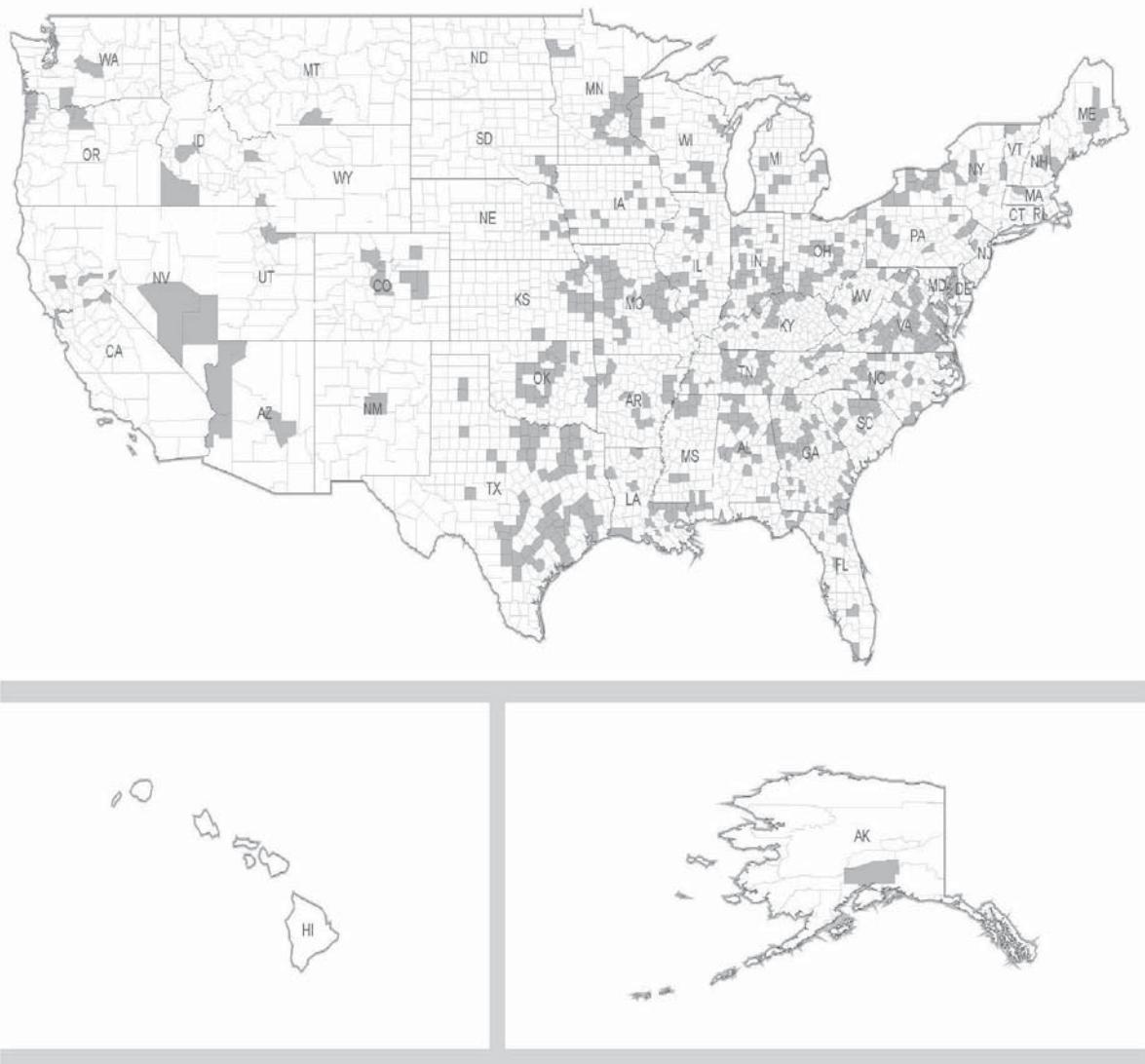


Figure 2. Exurban counties in the United States.

schools, and inadequate water and sewer systems). Other issues related to growth include encroachment on agricultural land, scenic views, and cultural or historic resources, as well as pollution, sprawl, changing community character and values, loss of a sense of place, and competition for traditional, small businesses from large chain stores.

Destination Communities

These communities feature natural amenities (e.g., mountains, lakes, or beaches) that attract seasonal residents, retirees, and tourists. The economic base has shifted in these commu-

nities from traditional rural industries (i.e., agriculture, manufacturing, or mining) to a service-based economy built around providing access to natural amenities and support of a recreational or leisure culture. These communities are focused in the West, Upper Great Lakes, New England, and to a lesser extent, scattered along the East Coast, Appalachian Mountains, the Midwest, and the Sunbelt; these are mapped in Figure 3. Table A-6 in Appendix A shows that destination communities grew by 1.5 percent annually between 2000 and 2004, slightly higher than exurban communities.⁴

The influx of new residents and visitors has breathed new life into many rural communities. The growth of local retail

NCHRP | Destination Counties

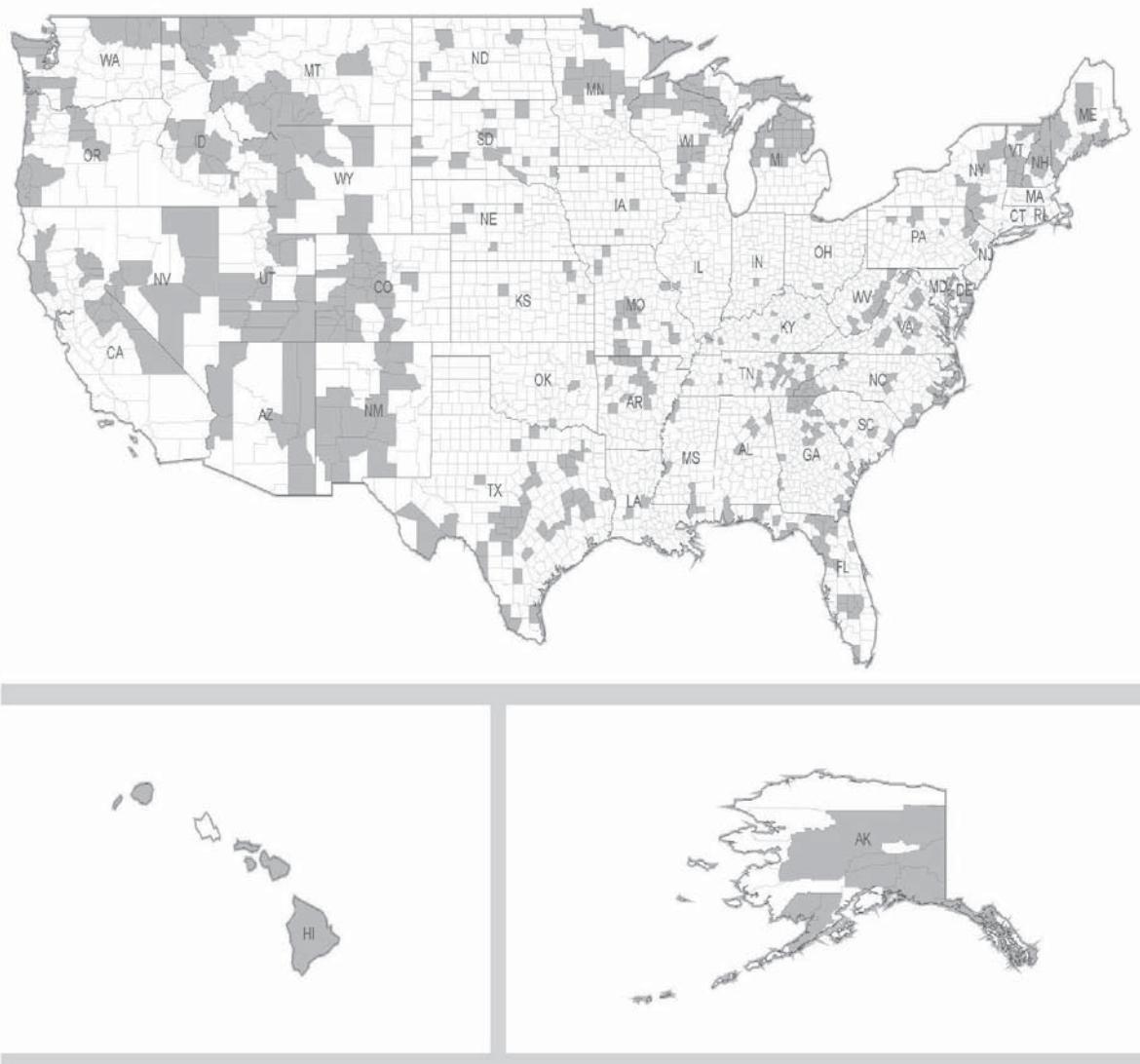


Figure 3. Destination counties in the United States.

and services leads to the creation of new and higher paying jobs and the ability to meet more daily needs locally, including health care and education. Similar to exurban communities, there is a demand for new housing construction and an increase in the cost of living. Higher crime rates have been identified in some destination communities. Destination communities suffer from the same growth-related problems as exurban communities: encroachment on agricultural land, scenic views, and cultural or historic resources, as well as pollution, sprawl, changing community character and values, loss of a sense of place, and competition for traditional, small businesses from large chain stores. Although these concerns should not be understated for ex-

urban communities, the livelihood of destination communities depends more directly on the preservation of local amenities and character—thus preservation becomes an even more urgent need.

Production Communities

Production communities tend to be focused on a single industry that has experienced decline, such as agriculture, manufacturing, or mining. They have not diversified the job base and are isolated to the extent that they cannot depend on surrounding job centers. Evolving the economic base is often slow and difficult. For example, the conditions needed for qual-

ity farming—flat and open land, hot and humid summers, and wet winters, are not the conditions typically associated with high natural amenity areas that attract new residents and in turn a more diverse economy. Declining communities are concentrated in the Great Plains, Corn Belt, Mississippi Delta, and Appalachia; these are mapped in Figure 4.

Production communities are characterized by a loss of population and jobs. More specifically, these communities cannot retain the young and more highly educated segments of the population who leave to seek opportunities elsewhere. Household income is declining in these communities, and poverty levels are rising. Substandard housing is more common in declining production communities and they tend to

lack the capital necessary to improve existing housing or construct new housing. Some have developed large-scale industries that provide jobs, but these may attract more migrant workers than local residents.

The key for declining communities is to sustain their vitality. This requires preserving public infrastructure and resources; developing new economic bases such as niche markets (e.g., handmade tapestries, high-end furniture, and technical equipment); creating collaborative business ventures and consolidated government services to leverage resources; improving physical and virtual connections to regional, national, and international markets; enhancing local education and skills; and maintaining community character.

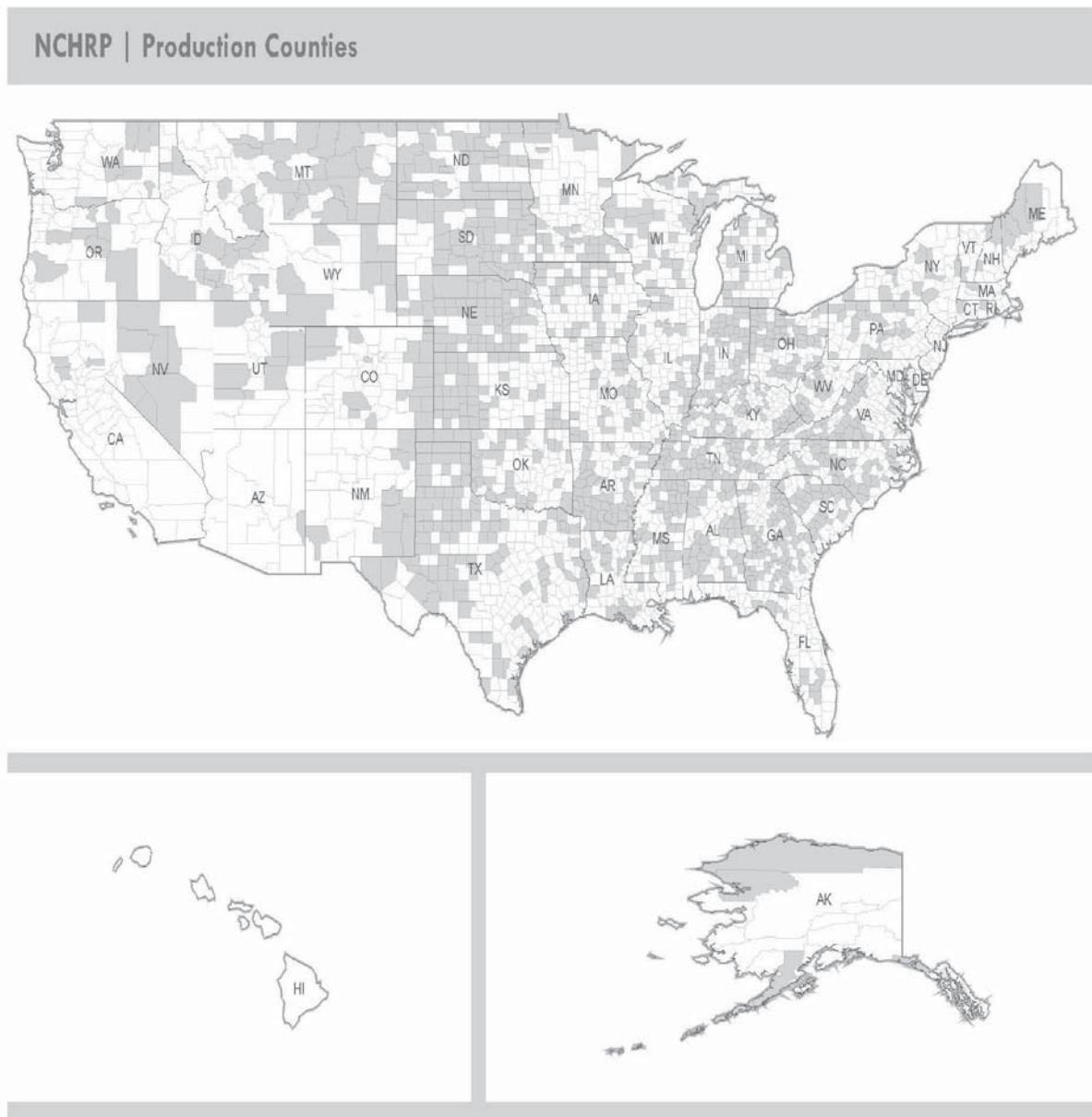


Figure 4. Production counties in the United States.

Accessibility and Livability Challenges Faced by Rural Communities

Rural communities face a number of challenges in providing *accessibility*, the transportation connection between the community and its needs, and *livability*, the characteristics that make the community a desirable place to live. The challenges identified through the project survey, focus groups, and case studies are described in more detail below.

Accessibility

Rural communities depend on accessibility to economic drivers in order to support the community. Accessibility includes regional connections outside of the community (typically for passenger vehicles, freight, or public transit) and local connections within the community (for pedestrians, cyclists, passenger vehicles, or public transit). Challenges to providing access by road range from congestion in growing communities to isolation in declining communities. Rural isolation may be further exacerbated in the future by rising fuel prices, declining oil supplies, and emissions standards tightened to preserve air quality.

Nearly every community struggles with insufficient funding to build new roads, improve substandard or unpaved roads, maintain deteriorating roads, and upgrade or replace substandard and deteriorating bridges. The funding problem is exacerbated by the shift in freight transport from the rail system to trucks. This shift has led to the closures of many railroad lines and to increased truck traffic volumes along rural routes and through town centers, detracting from community livability and increasing road maintenance costs.⁵

An effect of limited funding and the rail-to-truck shift is that traffic fatality rates per vehicle mile of travel on rural roads are almost 3 times higher than on urban roads. Contributing factors include substandard road design, higher travel speeds, driver fatigue, and longer emergency vehicle response times. A high proportion of traffic fatalities involve freight vehicles.⁶ A second safety challenge is with road-rail crossings. Roughly 95 percent of all rail-related fatalities are caused by collisions at road-rail crossings due to inadequate crossing design, warning systems, education, enforcement, or by excessive and poorly located crossings.⁷

Serious challenges also exist to providing accessibility and minimizing isolation for people who cannot drive or do not have access to an automobile. Roughly 50 percent of rural intercity passenger rail service was lost when Amtrak began operating in 1971. The decrease in rural passenger rail services has increased the isolation and automobile dependence of rural communities. Amtrak's funding has been continuously under threat in recent years, putting the remaining rail services at risk.

Only 30 percent of online survey respondents reported that their community is served by passenger rail. More than half of those respondents described their rail service as "poor."

The Bureau of Transportation Statistics (BTS) produces an annual report detailing the coverage of intercity transportation services in rural areas across the country. The 2005 report indicated that 93 percent of the rural population is served by some level of year-round, intercity transportation service, which is defined as the percent of population living within 25 miles of a minor intercity transportation facility or within 75 miles of a major intercity transportation facility (such as a large hub airport). Intercity bus service covers 89 percent of the rural population, air service covers 71 percent, and intercity rail covers 42 percent. The report does not consider the frequency or the quality of the transportation service or the accessibility of the transportation facility to the rural population within the pre-defined radii.⁸

Transit service, within and between communities, is difficult to provide in rural areas due to the high cost of providing service to a dispersed, small population. Nearly 40 percent of rural residents live in communities with no local transit service.⁹ Online survey responses indicate that rural communities are almost twice as likely to be served by demand-responsive transit as by fixed-route transit. The Burlington, Iowa, case study demonstrates an example of providing flexible transit service in a small town (25,000 population). The Burlington Urban Service (BUS) provides service on 40-minute intervals during the morning commute period and demand-responsive service during the rest of the business day.

Internet use in rural areas is roughly 15 percent less than in urban or suburban areas. Contributing factors include the lack of internet service, lack of choice in service, low connection speeds, and low education or income. Rural users are more likely to depend on internet use from a third place (i.e., somewhere other than home or work). This limits opportunities for rural residents to work out of their homes or at local telework centers, contributing to the continued need to drive long distances or move away from rural communities in order to work.¹⁰

Accessibility challenges differ from community to community as discussed below.

Exurban Communities

The main economic driver of an exurban community's economy is a nearby urban center that provides most of its jobs, shops, and services. As such, the accessibility challenge for an exurban community is to maintain or improve automobile and transit mobility between the community and the urban center. As an exurban community grows, the links connecting it to the urban center often become congested, reducing accessibility to economic engines. Meanwhile,

population growth is typically followed by an increase in local shops, services, and entertainment. The local accessibility challenge for exurban communities is to develop appropriate transportation networks to connect residents to these new commercial centers. Hayden, Colorado, is a case study of an emerging exurban community that took steps to ensure appropriate connectivity between new development and their existing road network.

Destination Communities

The economy of a destination community depends on bringing visitors or seasonal residents in from outside the community, thereby generating a need for high accessibility to the community from interstates and highways, airports, or other key links to regional and national population centers. Once in the community, providing accessibility from housing or lodging to the amenities that attract visitors, such as local shops, services, and entertainment, is vitally important. The amenity link is especially challenging for communities adjacent to National Parks or other heavily visited destinations, because access roads can become heavily congested, and parking lots can be overwhelmed. The Sedona, Arizona, case study is an example of a destination community that struggled with this issue and addressed it by integrating multi-modal transit planning, street connectivity, and access management strategies. For amenities and destinations within the community, the challenge is to provide efficient pedestrian, cycling, transit, and automobile connections from hotels, condos, and other short-term or seasonal housing.

Production Communities

Production communities rely on mining, manufacturing, farming, forestry, or other resource-based economies. For these communities, economic vitality depends on the community's ability to access resources and deliver resources or value-added products to market. As a result, heavy truck traffic on main streets or through some production communities, is a common concern. This was a challenge faced in both the Cutler-Orosi, California, and Hutchinson, Minnesota, case studies. Many production communities are attempting to diversify the local economy and may require new types of access to reach new resources or markets. The local accessibility challenge for many production communities is to retain local shops and services and to provide multimodal transportation connections to these destinations. Securing funding for road improvements and transit service in production communities is a major challenge.

Livability

Land use and transportation decisions can influence factors of community livability such as the character of development, quality of the environment, and public health. It is important for a community to recognize the unique, desirable features that originally brought people to the community and/or currently attract new residents. Effective planning of land use and transportation can be used to revitalize, maintain, or enhance those characteristics. For example, one challenge in many towns is that the traditional "Main Street" also serves as a state highway or other high-volume roadway. This can create a barrier to developing safe and accessible town centers that are pedestrian-friendly and serve as an attractive focal point for the community.

Preserving historic and rural character is a major challenge as communities change. More specifically, the challenge is to design new buildings that fit the scale and aesthetics of the community while preserving historic buildings that serve or served an important role in the community. Housing is a particular concern, because exurban and destination communities tend to struggle with maintaining the affordability of housing while production communities strain to maintain or improve the quality of housing. Growth tends to bring additional traffic, so another challenge is to minimize the effect of traffic on the community, especially cut-through traffic in residential areas and truck traffic along main streets.

Rural character is often defined, not by the built environment, but by pastoral, forested, or mountainous landscapes. A challenge in many rural communities is protecting these places from development in an effort to maintain the open and scenic character of the area. The planners and communities in the Northwest Vermont case study struggled to balance regional growth with maintaining their rural characteristics. Within the developed centers, communities must minimize the effects of land use development and transportation systems on air, water, and land quality. In communities with a current or past production economy, environmental challenges may also include the redevelopment of abandoned or contaminated sites and buildings.

Improving public health is another livability challenge—rates of obesity and obesity-related diseases are higher in rural areas than in urban areas. Unhealthy diets, automobile dependence, a built environment that does not encourage recreational activity, and limited opportunities to integrate physical activity into daily life are the major contributing factors.¹¹

CHAPTER 4

Best Practices for Improving Rural Accessibility and Livability

Many of the challenges faced by exurban, destination, and production communities can be addressed through integrated transportation and land use planning and policy. Failure to consider the interaction of the transportation and land use systems has led to several of the problems faced by rural communities, such as sprawling development overrunning a once pristine landscape, wide highways carrying excessive volumes of traffic and rendering a community's Main Street unsafe for pedestrians, or limited travel choices due to the lack of multimodal infrastructure and street connectivity. The practice of integrating transportation and land use offers efficient, sustainable approaches to improve safe, convenient access to jobs, services, and other daily needs, as well as enhancing the attractiveness and character of the community.

More specifically, integrated land use and transportation planning allows rural communities to achieve three major goals: (1) set the regional framework for where and how development should occur, (2) improve local accessibility, and (3) enhance community design. Best practices that rural communities can implement to achieve these three goals are described below, with some examples highlighted from the case studies to illuminate some of the real-life nuances of the challenges and responses faced by these communities.

Setting the Regional Framework

The regional level, often consisting of several communities and counties, is a logical scale for communities to jointly identify suitable areas for development, desired types and forms of development, and appropriate transportation networks for people and freight. Best practices for setting the regional framework focus on providing access to a community's economic base and directing development into existing communities.

Access management is a tool used to preserve capacity and manage land use on arterials and highways. This form may

differ depending on the type of community. For an exurban community economically dependent on an adjacent urban area, community vitality depends on quick access from local housing to neighboring job centers. Driveways and intersections along road connections between local housing and job centers reduce the capacity and increase vehicle conflicts. Access management can be used to limit development between exurban communities and job centers and maximize automobile and transit mobility.¹²

Destination communities depend on bringing visitors into the community and connecting them to natural, historic, or cultural amenities. In this case, access management can still be used to preserve capacity, but is also intended to protect the amenities that attract visitors to the community. Allowing strip commercial development or traffic congestion to reduce access to amenities or even damage the amenities themselves will diminish their attraction and that of the local community.

With production communities, the economy depends on providing connections between local resources and the market for those resources. Production communities tend to generate high volumes of freight trucking to bring in materials and distribute products. Access management for production communities can be used to ensure that truck routes are safe and convenient without putting an unnecessary burden on residential areas and main streets. The Western Piedmont, North Carolina, region exhibits characteristics of all three community types. This case study demonstrates the application of access management standards over a four-county region to preserve capacity on major roadways and direct development to the most appropriate locations.

A set of land use tools is available to manage growth along transportation corridors, direct growth into existing communities, and limit development from encroaching on rural lands. *Overlay districts* are one of the most prescriptive methods of controlling land use along a road corridor. Overlay districts can be used to regulate characteristics of

development such as the type and intensity of development, number and location of driveways allowed, site design, and streetscape design. Growth boundaries or urban service boundaries can be used to direct development to particular locations in a community. Typically, services such as fresh water and sewer systems will not be expanded beyond these boundaries, limiting development potential outside of the directed areas. In the Western Piedmont, North Carolina, case study, “economic development” overlay districts were used to indicate locations and types of growth along major travel corridors.

Overlay districts can be combined with *rural land conservation* strategies that can be used to compensate landowners for leaving areas undeveloped while providing incentives for developing in more appropriate locations or credits for foregoing the opportunity to develop. Some of these tools include transfers or purchase of development rights, conservation easements, and land banking. Finally, a more efficient and less obtrusive way to develop rural lands is through clustering development, rather than subdividing all the land into private lots. By clustering residences and/or commercial activities into compact areas, communities can enhance convenient access to services and to open spaces, as well as making more efficient use of infrastructure. A major purpose of the Hayden, Colorado, and Northwest Vermont cases was to develop rural conservation strategies around the respective regions.

Improving Local Accessibility

Numerous strategies have been implemented in recent years to design or redesign communities to allow for greater accessibility and increase the number of travel choices through improvements to the transportation system and a more efficient arrangement and design of land uses. Generally, these strategies focus on developing in a more compact manner with jobs, services, and other destinations located in close proximity to minimize travel needs. Some of the land use strategies for achieving *compact growth* include transit-oriented development, traditional neighborhood design, mixed-use development, and infill development. These compact development patterns provide opportunities for people to live closer to their daily needs or a more efficient way to address multiple daily needs once arriving by car or transit to a compact, mixed-use area. In addition to the increased transportation efficiency, these community focal points can increase the economic and cultural vitality of a town with the ability to attract new business or tourists or simply provide a safe and vibrant gathering place for the community. The Edgartown, Massachusetts, case study demonstrates the use of compact growth strategies to promote a walkable commercial district to match the character of existing development.

As much as the land use pattern affects the use and performance of the transportation system, the design of the transportation system affects how land is used and developed in proximity to transportation facilities. Minimizing travel distances and increasing travel mode options are essential to an efficient transportation system that will spur a sustainable pattern of land use. The central strategy for road design should be in increasing *street connectivity*. In a connected road network, construction of roads that serve only one development are discouraged. Rather, all future development should be planned around some form of a grid network that allows for more travel path options around the community, thereby minimizing travel distances and increasing opportunities for non-automobile travel. Increasing street connectivity is one of the goals of the Sedona, Arizona, and Hayden, Colorado, case studies.

In areas of the community with a well-connected street network and compact development that includes a mix of housing, jobs, services, and other destinations, designing *complete streets* should be a priority. Complete streets are designed to be used by cars, pedestrians, cyclists, and transit users. Design considerations should include narrow travel lanes to slow automobile travel speeds, sidewalks and bike lanes, on-street parking, and transit stop areas. These streets encourage public activity and allow for easy access to destinations and multiple travel options for users. Sidewalks, bike lanes, and greenway facilities can also be used to connect key focal points within a community or even to connect to adjacent communities. Streets are being redesigned for pedestrians, cyclists, and transit users after being identified as a major need in the Cutler-Orosi, California, charrette.

Intelligent Transportation Systems (ITS), another tool for improving safety, mobility, and tourist information in rural areas, use data processing, communications, and technology to improve system management. Various applications of ITS include alerts to drivers about hazardous conditions, emergency notification, wayfinding information, tourist information, commercial fleet management, transit scheduling and dispatching, and vehicle routing.

Transit planning requires creativity in rural areas because of the lack of density typically required for providing fixed-route transit services. While fixed-route services can be feasible with sufficient grant funding or other subsidies, other transit programs should be pursued in rural areas, including ride-sharing, demand-responsive (dial-a-ride) transit, and car-sharing. Bike-on-bus programs can also extend the accessibility of transit services by allowing cyclists to board transit vehicles with their bicycles. Transit planning should be integrated with compact land use planning so as to concentrate appropriate land uses around transit stops or along transit corridors in order to create activity centers for meeting multiple daily needs. The Traverse City, Michigan, case study illustrates an innovative form of transit planning through the use of a car-sharing program.

Enhancing Community Design

Even with efficient land use design and a multimodal transportation network in place, attention must be placed on such elements as the design of buildings and the creation of safe and functional streets and civic spaces to help create a unique sense of place and make the community a more desirable place to live. One way to ensure that the transportation system is properly balanced with other community needs is through context-sensitive solutions. Context-sensitive solutions (CSS) is defined as “a collaborative, interdisciplinary approach that involves all stakeholders to develop a transportation facility that fits its physical setting and preserves scenic, aesthetic, historic, and environmental resources, while maintaining safety and mobility.”¹³ Examples of CSS in rural areas include designing streets in town centers to limit the speed and volume of through traffic and provide adequate safe space for other road users, installing traffic-calming devices in residential neighborhoods to lower travel speeds, or using access management and overlay zoning to limit development within the view shed of rural road corridors. The Lincoln City, Oregon, case study demonstrates the use of context-sensitive design standards to improve safety and livability along the major road corridor through the city.

One specific example of context-sensitive design is through *road transfers* that facilitate Main Street redesign. The centers of many rural communities have been severed by the construction of multi-lane state highways that limit safety and walkability. Where alternate routes are available, communities have been able to transfer control of the alternate route to

the DOT in exchange for control over the Main Street. With control over the Main Street, or even in partnership with the DOT, the Main Street can be redesigned to be narrower with features such as on-street parking, medians, sidewalks, and other streetscaping elements. The typical result is slower traffic and a safer and more attractive place for various users. A road transfer to shift traffic out of the town center is the key feature of the Hutchinson, Minnesota, case study.

Access management can also be used at the local level. Local access management can be used to preserve capacity on congested local roads by minimizing connections of new development to the local road, but access management is more effective locally for minimizing vehicle conflicts. One access management strategy is to construct a median to limit or direct turning movements from minor streets and driveways onto major streets. Applying this strategy to a community’s main street reduces both the number of turning movements along the road and the roadway crossing distance, resulting in a safer and more attractive place for pedestrian activity. Access management was used to improve safety in Lincoln City, Oregon, and Cutler-Orosi, California.

Land development regulations or design guidelines can be used to encourage private developers to develop in a more integrated and efficient pattern to support the transportation goals of a community. Guidelines can include regulations about the location and design of buildings, streetscaping requirements, or developer provision of sidewalks and bus shelters. Clear design standards tied to the development permitting process in Edgartown, Massachusetts, have been key to successful development within the Upper Main Street corridor.

CHAPTER 5

Facilitating Effective Planning

Public involvement is vital for any planning process for its ability to educate, solicit ideas and feedback, and generate a sense of ownership in the process to carry forward into implementation of the plan. This chapter outlines a proven framework for process design, describes tools for effective planning processes, and summarizes key principles for effective planning and implementation.

Persons interviewed in nearly every case study emphasized the importance of process design, public engagement, communications, and participation for effective planning and community development. The case studies also illustrate many diverse tools, techniques, and approaches for public involvement. Cutler-Orosi (CA) underwent a 5-day intensive, multi-workshop, multi-lingual community design charrette that involved music, food, and daycare to enhance participation and interaction. Hayden (CO) held an intensive evening workshop using GIS-based, 3D-scenario visualization tools and real-time preference polls. Collaboration with ongoing active citizen groups proved successful with the Sedona (AZ) “Active Citizens for Transportation Solutions,” and Unity (ME) “Unity Barn Raisers.” On a regional scale, the Northwest Vermont Planning Project process involved bringing five regional planning commissions together to think together about the relationship between land use and transportation and the relationship between job locations and housing.

Context-Sensitive Solutions: A Proven Process Framework

The design and facilitation of an effective planning process involve as much art as science, but basic steps are common to successful projects. Initial activities center on understanding local issues, identifying stakeholders, and clearly defining the core problem and key issues. Well-designed projects rely on community-generated criteria to evaluate and select alternative solutions and include clear documentation of the steps taken to consider issues and reach decisions.

A useful guidebook for these steps is the “Thinking Beyond the Pavement” approach discussed in *NCHRP Report 480: A Guide to Achieving Best Practices in Context-Sensitive Solutions*.¹⁴ The CSS approach inspires, within an open and interdisciplinary framework, transportation plans that fully consider aesthetic, historic and scenic values, along with safety and mobility. In addition to providing a sound basis for planning and designing individual transportation projects, the CSS approach also helps communities develop and implement long-term, comprehensive, sustainable solutions to a wide variety of land use and transportation issues. A “shorthand” way of summarizing the key factors that distinguish this type of holistic approach is as follows:

- **Listen to the People:** Foster meaningful public involvement from a wide variety of people and interests. Communicate in various ways, using new and traditional technologies.
- **Listen to the Land:** Consider environmental factors as determinants in decisions, rather than impacts to be mitigated.
- **Listen to Each Other:** Use an appropriately structured, interdisciplinary, decision-making process that clearly respects and responds to public input and supports the iterative nature of thoughtful planning.
- **Look at All Possibilities:** Assess a wide variety of options, being fully open to new ideas and perspectives while staying grounded in the particular place, time, and situation at hand.

Increasing Local/State Dialogue Through Rural Consultation

Rural consultation is an ongoing process of dialogue between state DOTs and non-metropolitan local officials and a recent requirement enacted by TEA-21. Rural consultation is intended so that “one party confers with another identified

party in accordance with an established process and, prior to taking action(s), considers that party's views and periodically informs that party about action(s) taken. The actual practice of rural consultation differs from state to state. In general, each state must develop and implement a documented process for local official input, the process must be separate and discrete from existing public involvement processes, and periodically seek feedback from local officials regarding the process.¹⁵

Tools for Effective Planning Processes

Five specific tools used for effective land use and transportation planning have been identified through this research. These tools, or approaches, are *scenario planning, visioning, regional planning, corridor planning, and rural consultation*. These tools often incorporate elements of other planning processes and techniques. Each process needs to be designed for the unique characteristics of a community and the specific challenges it faces. The tools outlined below are not a comprehensive list of process tools, but they have proven effective.

Scenario planning allows a community to develop a better understanding of the alternatives available for the future of their community. In a typical scenario planning process, the community participates in a series of workshops that starts with an analysis of existing conditions and identification of community needs and goals. The community then uses their needs and goals as the framework for brainstorming potential future development scenarios. Each of these scenarios is then analyzed to determine and compare the land use impacts, transportation efficiency, and financial feasibility. The results are then presented to the community to allow for richer discussion with full consideration of the implications of each scenario. Scenario planning techniques have been enhanced by recent advances that use 3D visualization software that allows real-time interactivity with participants. The Hayden (CO) case study is one example where the use of 3D visioning software helped achieve community consensus on future growth and transportation preferences.

Visioning can be used as an early component of the scenario planning process or as a standalone tool. Essentially a consensus-building process, visioning is an invaluable tool to use early in a project to bring all interested and affected parties to the table and establish a framework of goals for the task at hand, whether that may be a comprehensive planning process, the development of design guidelines, or prioritization of transportation investments. A design charrette, a common method for reaching consensus on visioning or scenario planning, is an interactive series of collaborative events engaging design professionals and a diversity of local public, staff, and officials. Through these interactive sessions,

they create a broad, community-based vision for their specific design, growth, transportation, or other planning challenges. The Cutler-Orosi (CA) case study, an excellent example of a successful and intensive design charrette, was considerably tailored to engage a small, rural community with many mono-lingual Spanish-speaking families.

Regional planning provides an opportunity to coordinate decision-making to ensure that the objectives of adjacent communities are all being met and allows an opportunity to pool resources, whether they may be financial, data, or knowledge. Local land use and transportation decisions often have an effect well beyond the borders of a single community, which gives regional planning the potential to solve integrated challenges facing multiple communities. Regional planning can involve a few localities or many counties, depending on the needs of the region. Planning tasks can include comprehensive planning, project prioritization, development of design guidelines, or corridor planning. Hutchinson (MN), Northwest Vermont, and the Western Piedmont (NC) all illustrate examples of approaches to regional planning.

Corridor planning is one of the most concrete tools available to involve new partners in addressing the use and function of roads that span multiple jurisdictions. Decisions with an effect on state and county road corridors have a ripple effect throughout the corridor and should not be made without careful consideration and discussion with regional partners. Corridor planning includes the design of the roadway itself (e.g., the number of lanes and the presence of pedestrian and cycling facilities), transit services spanning communities, land use along the corridor, development design, access management, and streetscaping. An example of both regional planning for multiple corridor studies is the Western Piedmont region of North Carolina. There the Western Piedmont Council of Governments (WPCOG) developed three corridor studies along these two major routes, which resulted in a corridor plan designed to promote safety, traffic efficiency, aesthetics, economic development, and compatible residential uses. On a local scale, the Sedona (AZ), Burlington (IA), Lincoln City (OR), and Edgartown (MA) illustrate processes that involved corridor or main street context-sensitive design.

Key Principles for Successful Land Use and Transportation Integration

The following summary of four key principles for effective planning and implementation were drawn primarily from focus group discussions, survey responses, and case studies (see Appendixes B, C and D).

Form collaborative partnerships: Developing partnerships with other communities, businesses, and state and regional agencies has proved to be key to maximizing the

limited resources available in many communities. Partnerships can lead to data sharing, pooling of financial resources, policy development, education, and training. Developing partnerships is a collaborative way to improve cooperation and establish economies-of-scale to reduce the challenges to implementation. See the Burlington (IA), Sedona (AZ), Unity (ME), and Cutler-Orosi (CA) discussions for specific examples of local community groups forming different types of collaborative partnerships.

Focus on quality of life and sustainability: Transportation and land use decisions are central to community livability and vitality. These decisions are often made without a full appreciation for their implications and can harm a community just as often as they may help. All transportation and land use decisions should be evaluated for their effects on community aesthetics, safety, compatibility, and natural/cultural/historic resources. Transportation and land use decisions can be used to improve travel choices, social interaction, community cohesion, civic pride, affordability, and equity. These factors are important for revitalizing the local economy or for attracting new economic engines. Improving the quality of life of residents was a major factor for residents of Moss Point, Mississippi, while environmental sustainability was a driving force in Northwest Vermont.

Invest in public involvement and education: Holding an open dialogue with the community over transportation and land use decisions is a way to educate the community, receive valuable feedback, and gain community support for project implementation. Case study examples of communities holding open dialogue or education sessions are Hayden (CO), Sedona (AZ), and the Moss Point (MS) and Cutler-Orosi (CA) charrette processes.

Foster strong local leadership: In some communities, the key may lie in one person or a small group of people with an attractive vision for the community and the tools to sell that

vision to the public and bring it to implementation. The success stories behind nearly every case study written can point to one or just a few catalyzing individuals who championed the project or were crucial to the process. The citizens of Unity (ME) became increasingly enthusiastic after a string of local accessibility improvements were accomplished. Their local leadership was strongly supported by the local government and empowered by enabling state legislation.

Rural communities face many common challenges to integrating land use and transportation such as securing funding and resolving conflicts with neighboring jurisdictions and regional and state agencies. Paying for maintenance and preservation of existing infrastructure is a serious challenge to rural communities and can preclude the ability to upgrade or expand transportation systems. Difficulty in obtaining funds to support transit services and pedestrian infrastructure is especially challenging. Rural areas can also struggle with navigating the time-consuming bureaucracy of many grant programs, keeping some funds out of hand due to the lack of available staff or guidance. Many localities are looking toward developers and other private investment sources as a means of financing needed infrastructure improvements.

As is the case in many communities—urban or rural—dealing with neighbors and different levels of government can lead to opposing goals or other conflicts. The challenge is to pursue opportunities for productive dialogue with the various partners involved or parties affected by planning decisions. Effective communication and partnership can ensure that these interactions improve the planning process rather than creating barriers that must be overcome.

Other potential challenges for rural communities include the availability and expertise of planning staff, the ability to involve the public in decision-making, or the lack of political will to implement innovative planning decisions.

CHAPTER 6

Additional Research Needed

Several issues were raised during the course of this study which could not be adequately addressed and are recommended for further research. These topics include public transit, ITS, and planning for Native American communities.

Public Transit

Public transportation in rural areas is a vital contributor to accessibility and quality of life, especially for those who cannot or choose not to drive. The urban connection between transit and land use is the recognition that higher densities and intensities of development provide the ridership necessary to support transit service; conversely, transit service allows higher densities and intensities of development by providing a travel choice between congested roadways or other travel modes. In rural areas, the densities and intensities necessary to support fixed-route transit service typically are undesirable. Rather, demand-responsive service, with the goal of providing coverage to a dispersed population over a large area, is more likely to be the primary transit service in rural areas.

The two most significant concerns raised during the course of this study regarding transit were (1) securing funding to support transit service and (2) improving coordination between neighboring or overlapping transit services. These are absolutely valid concerns, but improved integration between transportation and land use planning is unlikely to address either directly. The one clear opportunity for land use planning to improve the ability to serve transit riders is on the destination end of the transit trip. By concentrating new jobs, healthcare, and services in existing centers and providing safe and direct pedestrian connections between destinations within those centers, there will be increased opportunities for transit riders to meet multiple needs within the center without needing to make additional trips. The center can also serve as a location to provide housing for those who would otherwise be dependent on transit service, thereby bypassing much of the need for transit service entirely.

Intelligent Transportation Systems

Intelligent transportation systems (ITS) can improve safety, efficiency, coordination, and information in rural areas. There are several clear ways that ITS is already being applied. For example, ITS can be used by transit providers to develop efficient routing systems based on the locations and schedules of riders, even linking multiple transit providers for enhanced coordination to avoid overlap and improving connectivity. ITS is also being used to provide drivers with information on road conditions, weather alerts, directions, and tourist information. Similar to the public transit discussion above, there is no obvious link to land use planning where further integration would be mutually beneficially. Innovations in ITS are occurring rapidly with new applications constantly under development. Whether or not any strong connections with land use are developed, ITS applications will be another viable tool in the rural transportation toolbox.

Planning for Native American Communities

Research and interviews with Native American planners and community representatives conducted throughout the course of this project revealed a broad array of unique issues and experiences that deserve deeper examination. Demographics, government structures, economic resources, problems, and opportunities differ widely among the thousands of tribal communities located across the U.S. landscape. In addition, the unique status of Native American tribes as sovereign nations within the United States adds complexity to the already difficult task of communicating and coordinating with the agencies and officials that control the land use and transportation decisions made beyond tribal borders.

Federal and state agencies are making increasing efforts to improve the ability to coordinate land use and transportation

decisions that affect tribal lands. For example, a series of studies and meetings conducted by the New Mexico DOT with 17 tribes across the state in the late 1990s revealed five key issues that echo many of the concerns expressed by participants in this study: sovereignty and jurisdiction; communication, cooperation, and participation; funding; cultural preservation and environment; and safety. In response to these issues, New Mexico has developed an executive committee of representatives from the Navajo Nation, the Mescalero and Jicarilla Apache Tribes, FHWA, and several state and federal agencies representing interests such as land use, energy, and Indian Affairs. The group is engaged in several areas of work, such as the adoption of principles of cooperation to recognize joint sovereignty; adopted joint consultation processes; a Land for Land program, which offers land swaps as an alternative to right-of-way (ROW) purchases; efforts to improve intergovernmental communications in project planning within the federal Indian Reservation Roads (IRR) and bridge programs; and an agreement with the Department of Energy on hazardous materials (HAZMAT) spills on state highways on Native American rights-of-way.²¹ The FHWA tribal planning program www.planning.dot.gov/tribal.asp features many more such case studies as well as information on relevant programs and resources.

Very few tribal governments have the resources and structure for professional planners, but those who do have accomplished some highly innovative projects that integrate environmental stewardship, cultural preservation, and

economic vitality in holistic, principled ways. For example, the Confederated Salish and Kootenai Tribes (www.cskt.org) worked with FHWA to create a plan for the expansion of US 93 through the Flathead Indian Reservation that provides a creative, viable alternative to a highly controversial plan developed by FHWA. According to a report prepared for FHWA by the Iowa State University Center for Transportation Research and Education (www.fhwa.dot.gov/hep/tribaltrans/montsalish.htm), “the ten-year process of developing the plan led to an unprecedented Memorandum of Agreement (MOA) between the Confederated Salish and Kootenai Tribes, the Federal Highway Administration and the Montana Department of Transportation. Since the signing of the MOA in 2000, the process has continued with the three governments as equal partners in negotiating the design that will be used to construct a safe and efficient highway that respects the ‘Spirit of Place’ (the cultural and physical landscape) of the Flathead Nation.”

An expanded body of information on transportation and land use planning for Native American communities would offer two significant benefits: it would provide much-needed resources to tribal nations as they develop their ability to plan and collaborate with federal, state, and local agencies; and it would offer opportunities for planners and communities across the United States to consider new ideas for improving our collective ability to serve as good stewards of our country’s environment and economy while preserving the rich diversity of cultures that makes us unique.

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Glossary

Access management—a tool used to preserve capacity and manage land use on arterials and highways.	ITS—Intelligent Transportation Systems
Accessibility—The transportation connection between the community and its needs	Livability—The characteristics that make the community a desirable place to live
APA—American Planning Association	Metropolitan—One or more counties clustered around a city with a population of 50,000 or more that demonstrate an economic dependence on the core city and meet minimum population and density thresholds. (OMB classification)
Bedroom Communities—are near to and dependent on an adjacent urban center	Micropolitan—One or more counties clustered around a city with a population between 10,000 and 50,000 that demonstrate an economic dependence on the core city and meet minimum population and density thresholds. (OMB classification)
BTS—Bureau of Transportation Statistics	Non-metropolitan, non-core—All other counties that do not meet the above requirements. (OMB classification)
BUS—Burlington Urban Service	OMB—Office of Management and Budget
Complete streets—designed to be used by cars, pedestrians, cyclists, and transit users. Design considerations include narrow travel lanes to slow automobile travel speeds, sidewalks and bike lanes, on-street parking, and transit stop areas. These streets encourage public activity and allow for easy access to destinations and multiple travel options for users.	Overlay districts—a method of controlling land use along a road corridor by regulating the characteristics of development (e.g., the type and intensity of development, number and location of driveways allowed, site design, and streetscape design).
CSS—Context-sensitive solutions. A collaborative, interdisciplinary approach that involves all stakeholders to develop a transportation facility that fits its physical setting and preserves scenic, aesthetic, historic, and environmental resources, while maintaining safety and mobility.	Production communities—Depend on mining, manufacturing, or farming
Destination communities—Have natural amenities that attract tourists, seasonal residents, and retirees	ROW—right-of-way
ERS—Economic Research Service	TTAP—Tribal Transportation Assistance Program
Exurban communities—Are near to and dependent on an adjacent urban center	Visioning—a consensus-building process to use early in a project to bring all interested and affected parties to the table and establish a framework of goals for the task at hand, whether that may be a comprehensive planning process, the development of design guidelines, or prioritization of transportation investments.
HAZMAT—hazardous materials	WPCOG—Western Piedmont Council of Governments
IRR—Indian Reservation Roads	

APPENDIX A

Demographic, Social, and Economic Profile of the Rural United States

Defining “rural” has been a tricky proposition for policymakers and researchers. While most people have an image of rural areas with dispersed population and a natural-resource-based economy, developing a coherent statistical definition is not simple. Definitions range from simply “not urban” to detailed census-tract analyses of community characteristics such as population size and density, proximity and influence of urban centers, and the economic base. The most widely used classification systems are based at countywide levels due to the availability of richer data. Although many counties are composed of both urban and rural populations that are better represented at the census tract level, data limitations and the sheer number of census tracts (66,304 census tracts compared to 3,219 counties and independent municipalities) make analysis at the census-tract level impractical for a nationwide research effort.

The most commonly used stratification is that defined by the Office of Management and Budget (OMB) which classifies counties as

- **Metropolitan:** One or more counties clustered around a city with a population of 50,000 or more that demonstrate an economic dependence on the core city and meet minimum population and density thresholds.
- **Micropolitan:** One or more counties clustered around a city with a population between 10,000 and 50,000 that demonstrate an economic dependence on the core city and meet minimum population and density thresholds.
- **Non-metropolitan, non-core:** All other counties that do not meet the above requirements.

The 2000 U.S. Census classifies counties as either metropolitan and non-metropolitan (the latter includes both OMB-classified micropolitan and non-metropolitan counties). In addition, the Census classifies the population within each county as either “urban” or “rural” based on the proximity to urban centers and localized population density.

All micropolitan and non-metropolitan, non-core counties were considered “rural” for this study—a total of 2,052 counties and independent municipalities. Recognizing the rural nature of many outlying counties in metropolitan-classified areas, this sample was expanded to include counties in which more than 50 percent of the population is classified as “rural” according to the U.S. Census—totaling 384 additional counties and independent municipalities. The total “rural” sample includes 2,436 counties and independent municipalities, or roughly two-thirds of all U.S. counties, as indicated in Figure A-1 below. This sample served as the basis for generating a statistical profile of rural America as well as for circulation of the county survey. The 2,436 rural counties and independent municipalities are mapped in Figure A-1 (see Chapter 2, Profile of the Rural United States). Throughout the remainder of this report, any reference to “rural counties” includes all 2,436 rural counties and independent municipalities.

Due to variations in county size across the country, the map in Figure A-1 (and other maps) may indicate some misleading results for states with large counties. The most clear example is in California, where large county size and the spread of urbanization inward from major cities along the coast preclude these counties from meeting the definition of “rural” as defined in this report. Much of the data used in this report are simply not available at the fine-grained level of detail necessary to most accurately represent large rural counties.

Additional details on the various classification systems can be found at the Rural Policy Research Institute (<http://www.rupri.org/resources/context/rural.html>) with information on the new OMB micropolitan classification available at the Center for the Study of Rural America (http://www.kc.frb.org/RuralCenter/mainstreet/MSE_0704.pdf).^{16, 17}

Economic and Social Conditions of Rural America

Table A-1 summarizes data from the 2000 U.S. Census and the Economic Research Service (ERS), a division of the U.S.

Table A-1. Statistical profile of rural America.

	NON-RURAL COUNTIES		ALL RURAL COUNTIES		GROWING RURAL COUNTIES		DECLINING RURAL COUNTIES	
Number of counties and municipalities	704		2,436		734		1,702	
Counties in metro areas	704	100%	385	16%	228	31%	157	9%
Urban influence (1=highest, 12=lowest) ¹		2		7		5		7
Economy								
Farming dependent ²	7	1%	434	18%	50	7%	384	23%
Mining dependent ²	7	1%	122	5%	23	3%	99	6%
Manufacturing dependent ²	183	26%	723	30%	230	31%	493	29%
Federal/state government dependent ²	127	18%	251	10%	74	10%	177	10%
Services dependent ²	204	29%	138	6%	96	13%	42	3%
Non-specialized economy ²	183	26%	768	32%	261	36%	507	30%
Destination communities								
Recreational communities ²	14	2%	321	13%	155	21%	166	10%
Retirement communities ²	99	14%	342	14%	243	33%	99	6%
Natural amenities (1=fewest, 7=most) ³		3.7		3.4		3.8		3.3
Demographics								
Population	220,560,562		60,857,055		25,010,931		35,846,124	
Annual pop. growth rate (2000-2004)	1.2%		0.7%		1.8%		-0.1%	
White alone	143,364,365	65%	50,554,488	83%	20,911,192	84%	29,643,296	83%
Black or African American alone	28,672,873	13%	5,112,632	8%	1,677,770	7%	3,434,862	10%
Hispanic or Latino	33,084,084	15%	2,965,447	5%	1,403,081	6%	1,562,366	4%
American Indian and Alaska Native alone	1,102,802	0.5%	995,401	2%	368,149	2%	627,252	2%
All other races	15,439,239	7%	1,229,087	2%	650,739	3%	578,348	2%
Population over 65 years old	26,467,267	12%	8,816,617	15%	3,416,948	14%	5,399,669	15%
Transportation								
Workers commuting to adjacent metro area	N/A		11%		15%		9%	
Average travel time to work (minutes)	28		25		28		24	
Average vehicles per household	1.9		1.8		1.9		1.8	
Percent of households with no vehicles	5%		8%		6%		8%	
Poverty								
Median household income	\$43,611		\$33,933		\$36,302		\$31,564	
Percent population in poverty	12%		13%		13%		17%	
Inadequate or unaffordable housing ²	29%		14%		20%		11%	
Low educational attainment ²	6%		24%		21%		25%	
Low employment availability ²	5%		18%		13%		19%	

¹ Urban influence codes : 1 = most urban, 12 = most isolated; ERS, <http://www.ers.usda.gov/Briefing/Rurality/urbaninf/>² County typology codes, ERS, <http://www.ers.usda.gov/Briefing/Rurality/Typology/>³ Natural amenities scale: 1 = fewest amenities, 7 = most amenities; ERS, <http://www.ers.usda.gov/Data/NaturalAmenities/>

Department of Agriculture, to give a snapshot of economic and social conditions in the rural United States. Between 2000 and 2004, the population in the 2,436 sampled counties grew by an average of 2.6 percent. Of these, 734 counties, housing over 25 million people, grew at a rate faster than the national average, while 1,704 counties, housing almost 36 million people, grew at a rate slower than the national average. In addition to the national averages, Table A-1 includes data stratified by growing and declining counties.

Rural and Non-Rural Counties

Table A-1 indicates several substantial differences between rural and non-rural populations in America:

- Non-rural communities are much more likely than rural communities to depend on a service economy (consisting of retail trade, financial services, insurance, real estate, tourism, and other services) or depend on federal and state government employment, whereas a significant number of rural communities depend on farming and mining, two economic drivers almost non-existent in non-rural areas.
- The non-rural population is about four times larger than the rural population and grew about twice as fast from 2000–2004. However, the growing rural counties grew slightly faster than the average non-rural county.
- With 65 percent white residents and several substantial minority populations, non-rural communities tend to be more diverse than rural communities, where 83 percent of the population is white and the minority populations are smaller.
- The median household income in non-rural communities is nearly \$10,000 more per year than in rural communities. Although the poverty rate is similar in both non-rural and rural communities, rural communities are roughly four times more likely to suffer from low educational attainment or low employment availability, while non-rural communities are twice as likely to suffer from inadequate or unaffordable housing.

Growing and Declining Rural Counties

Within rural counties, Table A-1 also indicates differences between counties that have been growing faster than the average rural growth rate versus those that have been declining (which also includes counties that are growing slower than the average rural growth rate):

- Growing communities are three times as likely to be located within a metropolitan area. The higher urban influence score for growing areas indicates that these communities benefit from their proximity to urban areas.

- Economic dependence also indicates some significant differences in the makeup of growing and declining communities. The portion of declining farming communities is three times higher than the portion of growing farming communities. By contrast, growing communities are much more likely to be service dependent or to a lesser extent, to have a non-specialized economy (a diverse economy that is not heavily dependent on any one sector).
- While not an indicator of economic dependence, a related measure is that of communities defined as recreation or retirement destinations. The data show that these two markets are far more developed in growing communities. This is explained to some extent by the higher natural amenity score associated with growing communities.
- The racial composition of growing and declining communities is fairly similar, with a somewhat higher black or African-American population found in declining communities and a slightly higher Hispanic or Latino population found in growing communities.
- The average ages are similar, although the population of senior citizens is typically higher in declining communities.
- Nearly twice as many workers in growing communities commute to adjacent metropolitan areas compared to their declining counterparts and have longer commutes by about 3.5 minutes.
- The number of vehicles available per household is similar between growing and declining communities, but there is a higher proportion of households that do not have access to a vehicle in declining communities.
- Median household income is nearly \$5,000 higher in growing communities, and their poverty rate four percent lower than in declining communities. Growing communities are having more difficulty providing adequate and affordable housing while declining communities are having more difficulty providing for education and employment.

The Influence of Urban Proximity on Growth

As described earlier, a county's proximity to an urban area has a strong influence on growth and economic vitality, allowing rural communities to benefit from a nearby urban market if their local markets are declining. Table A-2 demonstrates this using the Urban Influence Codes developed by ERS. The table indicates that counties in any metro area or adjacent to a large metro area are growing faster than the national average. Counties defined as micropolitan or those adjacent to a small metro area are experiencing slower than average growth. Non-metropolitan, non-core counties that are not adjacent to a metropolitan area are either stagnant or losing population.

Table A-2. County growth stratified by urban influence code.

URBAN INFLUENCE		GROWTH RATE (2000-2004)	NUMBER OF COUNTIES	PERCENT OF SAMPLE
1	In large metro area of 1+ million residents	2.1%	137	6%
2	In small metro area of less than 1 million residents	1.1%	248	10%
3	Micropolitan adjacent to large metro	1.0%	92	4%
4	Non-core adjacent to large metro	0.9%	123	5%
5	Micropolitan adjacent to small metro	0.6%	301	12%
6	Non-core adjacent to small metro with own town	0.4%	357	15%
7	Non-core adjacent to small metro no own town	0.2%	185	8%
8	Micropolitan not adjacent to a metro area	0.3%	282	12%
9	Non-core adjacent to micro with own town	0.0%	201	8%
10	Non-core adjacent to micro with no own town	-0.4%	198	8%
11	Non-core not adjacent to metro or micro with own town	0.0%	138	6%
12	Non-core not adjacent to metro or micro with no own town	-0.2%	174	7%
	National average	0.7%	2,436	100%

The Influence of Economic Dependence on Growth

A second strong influence on rural population growth is the primary economic engine of the county. Table A-3 shows that the population in farming and mining communities remained fairly constant from 2000 to 2004. Growth was just below the national rural county average in manufacturing

and government-dependent communities while growth in service-dependent or non-specialized economies was above the national average. Service-dependent communities are growing the fastest, although the number of service-dependent counties makes up only a small portion of rural America.

ERS has also developed two categories identifying counties that serve as destinations for recreational activities or retirees. Table A-4 shows that the population in recreation counties

Table A-3. County growth stratified by economic dependence.

ECONOMIC DEPENDENCE	ANNUAL GROWTH RATE (2000-2004)	NUMBER OF COUNTIES	PERCENT OF SAMPLE
Services	1.6%	138	18%
Non-specialized	0.8%	768	5%
Federal/State Government	0.5%	251	30%
Manufacturing	0.5%	723	10%
Mining	0.0%	122	6%
Farming	0.0%	434	32%
National average	0.7%	2,436	100%

Table A-4. County growth stratified by destination type.

DESTINATION TYPE	ANNUAL GROWTH RATE (2000-2004)	NUMBER OF COUNTIES	PERCENT OF SAMPLE
Retirement	2.0%	342	13%
Recreation	1.3%	321	14%
National average	0.7%	2,436	100%

grew at more than twice the national average from 2000 to 2004, while the population in retirement counties grew at triple the national average.

Rural Demographic Subgroups

The economic and social data in Table A-5 pertains to counties with high concentrations of Hispanic or Latino residents (more than 20 percent of the county population), American Indian or Alaska Native residents (more than 10 percent), Black or African-American residents (more than 30 percent), or elderly residents (more than 20 percent aged 65 years or older). The thresholds vary by subgroup in order to present a statistically significant sample size while ensuring that the data meaningfully represents each specific subgroup. The statistics in Table A-5 summarize data for the county population as a whole, not only for the specific subgroup population.

Hispanics are the fastest growing racial/ethnic group in the rural United States. Rural Hispanics tend to be younger, have larger families, and have fewer years of formal education than the rural population as a whole. While an influx of Hispanic migration has revitalized many rural towns, the rapid growth and unique needs of this population has created a strain on housing supplies, public infrastructure, and community services.²⁰ The data in Table A-5 reveal that counties with comparatively large Hispanic populations are heavily farming and mining dependent, with very little emphasis on manufacturing. Although counties with large Hispanic populations have, on average, a natural amenity score almost one point higher than the average rural county, the percent of these classified as recreational is slightly less than that of the average rural county. The average age (35) is 3 years younger than the rest of the rural United States (38). Most social and economic indicators put these counties well behind the rural United States as a whole: median household income is more than \$4,000 less, poverty is above 20 percent, and counties with large Hispanic populations are two to three times more likely to be classified as having inadequate/unaffordable housing and low education.

By contrast, Native Americans are the fastest declining racial/ethnic group in rural America. These communities

tend to be far more isolated than the average rural county with economies dependent on the federal government or not dependent on any specific sector. Their high natural amenity score corresponds to an above-average percentage of counties classified as recreational. Median household income is \$2,500 less than the average rural county. Relatively few Native American counties are classified as low education, but they experience some of the highest rates of poverty, inadequate/unaffordable housing, and low employment. New casino openings in Native American communities have led to some job and population growth; however, these jobs tend to be relatively low skill and low income.¹⁸

Counties with concentrated African-American populations have the grimdest conditions of these four subgroups. These counties are slightly more likely to be near an urban area than the average rural county and are largely dependent on manufacturing. Very few of these counties are classified as recreational or retirement, even though the natural amenity score is only 0.1 points below the rural average. Average travel time to work is a minute higher than the average rural county, and vehicle ownership rates are the lowest of any subgroup. Counties with African-American populations of 30 percent or greater suffer from the highest poverty rate of all subgroups, and median household income is over \$6,000 less than the rural average. In these counties, the percentage experiencing inadequate/unaffordable housing, low employment, and low education is roughly three times higher than the rural average.

Of the four subgroups, counties with large elderly populations are the most isolated from metropolitan areas. They are highly farming dependent with very little manufacturing. These are much less racially diverse than the average rural county, with over 90 percent of the population composed of white residents. Although median household income is more than \$3,000 below that of the average rural county, counties with large elderly populations experience below average rates of poverty, inadequate/unaffordable housing, low education, and low employment. Even though vehicle ownership rates are little different than rural America on average, elderly residents tend to create additional demand for public transit services.

Table A-5. Demographic subgroups in rural America.

	ALL RURAL COUNTIES		LARGE HISPANIC POPULATION		LARGE NATIVE AMERICAN POPULATION		LARGE BLACK POPULATION		LARGE ELDERLY POPULATION	
Number of counties	2436		170		113		261		350	
Counties in metro areas	385	16%	11	7%	6	5%	44	17%	3	1%
Urban influence (1=highest, 12=lowest)	7		7		8		6		9	
Economy										
Farming dependent	434	18%	66	39%	17	15%	35	13%	154	44%
Mining dependent	122	5%	25	15%	7	6%	6	2%	9	3%
Manufacturing dependent	723	30%	7	4%	13	12%	112	43%	35	10%
Federal government dependent	251	10%	31	18%	26	23%	38	15%	10	3%
Services dependent	138	6%	4	2%	5	4%	2	1%	20	6%
Non-specialized economy	768	32%	37	22%	45	40%	68	26%	122	35%
Destination communities										
Recreational communities	321	13%	19	11%	36	32%	7	3%	55	16%
Retirement communities	342	14%	25	15%	15	13%	16	6%	70	20%
Natural amenities (1=fewest, 7=most)	3.4		4.3		3.8		3.3		3.2	
Demographics										
County population	60,857,055		2,837,261		2,229,782		6,007,683		3,864,518	
Population growth rate (2000-2004)	0.7%		0.5%		0.5%		0.0%		0.4%	
White alone	50,554,488	83%	1,405,796	50%	1,288,336	58%	3,184,595	53%	3,492,726	90%
Black or African American alone	5,112,632	8%	87,658	3%	89,860	4%	2,625,977	44%	113,161	3%
Hispanic or Latino (any race)	2,965,447	5%	1,251,350	44%	143,652	6%	101,311	2%	15,264	0%
American Indian and Alaska Native alone	995,401	2%	41,682	2%	602,719	27%	30,432	1%	43,433	1%
All other races	1,229,087	2%	50,775	2%	105,215	5%	65,368	1%	56,830	2%
Average age	38		35		36		37		43	
Population over 65 years old	8,816,617	15%	371,292	13%	284,451	13%	812,838	14%	865,838	22%
Transportation										
Workers commuting to adjacent metro area	11%		6%		7%		11%		7%	
Average travel time to work (minutes)	25		22		23		26		21	
Average vehicles per household	1.8		1.8		1.8		1.7		1.8	
Percent of households with no vehicles	8%		8%		10%		12%		6%	
Poverty										
Median household income	\$33,933		\$29,740		\$31,381		\$27,882		\$30,595	
Percent population in poverty	13%		20%		21%		22%		13%	
Inadequate or unaffordable housing	14%		32%		45%		40%		3%	
Low educational attainment	24%		58%		11%		74%		5%	
Low employment availability	18%		24%		44%		45%		11%	

Table A-6. Statistical profile of rural community types.

	ALL RURAL		EXURBAN ¹		DESTINATION ²		PRODUCTION ³	
Number of counties Counties in metro areas Urban influence (1=highest, 12=lowest) ⁴	2,436		600 (25%)		558 (23%)		1,279 (53%)	
	390	16%	384	64%	95	17%	179	14%
	7		2		7			7
Economy								
Farming dependent Mining dependent Manufacturing dependent Federal government dependent Services dependent Non-specialized economy	434	18%	42	7%	45	8%	432	34%
	122	5%	12	2%	17	3%	123	10%
	723	30%	228	38%	83	15%	724	57%
	251	10%	48	8%	78	14%	0	0%
	139	6%	42	7%	137	25%	0	0%
	767	32%	228	38%	199	36%	0	0%
Destination communities								
Recreational communities Retirement communities Natural amenities (1=lowest, 7=highest) ⁴	317	13%	48	8%	324	58%	742	58%
	341	14%	108	18%	340	61%	780	61%
	3.4		3.4		4.1			4.1
Demographics								
Population Population growth rate (2000-2004) White alone Black or African American alone Hispanic or Latino American Indian and Alaska Native alone All other races Population over 65 years old	60,857,055		19,530,770		14,995,078		29,156,678	
	0.7%		1.3%		1.5%		0.4%	
	50,554,488	83%	16,718,339	86%	12,505,895	83%	24,579,080	84%
	5,112,632	8%	1,484,339	8%	794,739	5%	2,711,571	9%
	2,965,447	5%	761,700	4%	944,690	6%	1,253,737	4%
	995,401	2%	195,308	1%	299,902	2%	320,723	1%
	1,229,087	2%	371,085	2%	449,852	3%	291,567	1%
	8,816,617	15%	2,539,000	13%	2,249,262	15%	4,081,935	14%
Transportation								
Workers commuting to adjacent metro area Average travel time to work (minutes) Average vehicles per household Percent of households with no vehicles	11%		20%		10%		12%	
	25		28		25		24	
	1.8		1.9		1.8		1.8	
	8%		7%		6%		8%	
Poverty								
Average household income Percent population in poverty Inadequate or unaffordable housing Low education Low employment	\$33,933		\$36,969		\$34,960		\$32,665	
	13%		12%		13%		14%	
	14%		8%		25%		11%	
	24%		21%		13%		25%	
	18%		9%		23%		19%	

1 All counties with an urban influence code from 1-4.

2 All counties classified as recreational, retirement, or services dependent.

3 All counties classified as mining, manufacturing, or farming dependent.

4 Urban influence codes : 1 = most urban, 12 = most isolated; ERS, <http://www.ers.usda.gov/Briefing/Rurality/urbaninf/>
 Natural amenities scale: 1 = fewest amenities, 7 = most amenities; ERS, <http://www.ers.usda.gov/Data/NaturalAmenities/>

Rural Community Types and Issues

The data and literature demonstrate that most rural American counties can be classified into three main community types stratified by their economic engine and rate of growth. In general, the growing counties tend to be either exurban (located near and dependent on an adjacent urban center) or destination (natural amenities attract tourists, seasonal residents, and retirees). In addition to these two general categorizations of growing communities, growth has come to other rural communities as a result of jobs created by casinos, jails or prisons, industrial agriculture, or through the development of niche economic markets. Declining counties are most typically production (dependent on mining, manufacturing, or farming) and the rate of decline

may be exaggerated by the communities' isolation from their economic markets.¹⁹ Of the 2,436 rural counties, 600 (25%) can be classified as exurban, 558 (23%) can be classified as destination, and 1,279 (53%) can be classified as production communities. Table A-6 breaks down the statistical profile into the three community types of exurban, destination, and production. A community may be classified in more than one category (i.e., a community may be in an exurban location with a production economy) or may not fall into any of the three categories. Therefore, the total number of communities classified as exurban, destination, and production communities will not add up to 2,436. Additional detail on the three main community types is provided in Chapter 3, including maps. As noted earlier in the Profile of the Rural United States these maps do not portray conditions in large counties as accurately as they do for smaller counties.



APPENDIX B

Case Studies

Introduction

The case studies profiled herein are intended to help rural planners and decision makers understand the challenges and processes their peer communities have gone through to identify and solve problems and envision new and specific approaches to improve their own processes. The 13 communities selected for case studies (See Figure B-1 and Table B-1) were chosen on the basis of regional balance and for a diversity of strategies and approaches used. The profiles discuss both the outcomes and the processes used to achieve the community's goals.

While each community's process was tailored to its own situation, each incorporated the elements of the context-sensitive solutions (CSS) approach. As described in Chapter 5, CSS enables communities to develop effective plans in collaborative, creative ways. CSS projects incorporate an understanding of local issues, involvement by key stakeholders, and thoughtful statements of core problems and key issues. They rely on community-generated criteria to evaluate and select alternative solutions and include clear documentation of the steps taken to consider issues and reach decisions. The CSS method inspires, within an open, interdisciplinary framework, a transportation planning process that fully considers aesthetic, historic, and scenic values, along with safety and mobility. A "shorthand" way of summarizing the key factors that distinguish this type of holistic approach is as follows:

- **Listen to the People:** Foster meaningful public involvement from a wide variety of people and interests. Communicate in a variety of ways, using new and traditional technologies,
- **Listen to the Land:** Consider environmental factors as determinants in decisions, rather than impacts to be mitigated
- **Listen to Each Other:** Use an appropriately structured, interdisciplinary, decision-making process that clearly respects and responds to public input and supports the iterative nature of thoughtful planning.
- **Look at All Possibilities:** Assess a wide variety of options, being fully open to new ideas and perspectives while staying grounded in the particular place, time, and situation at hand.

Burlington, Iowa: Revitalizing a Struggling Small Downtown

Major Challenge

How to revitalize a struggling small downtown

Burlington, Iowa, was a significant transportation hub for the Midwest, from its founding in the 1820s until the mid-twentieth century, due to its location on the Mississippi River and its status as the birthplace of the Burlington and Missouri River Railroad in 1852. While Burlington

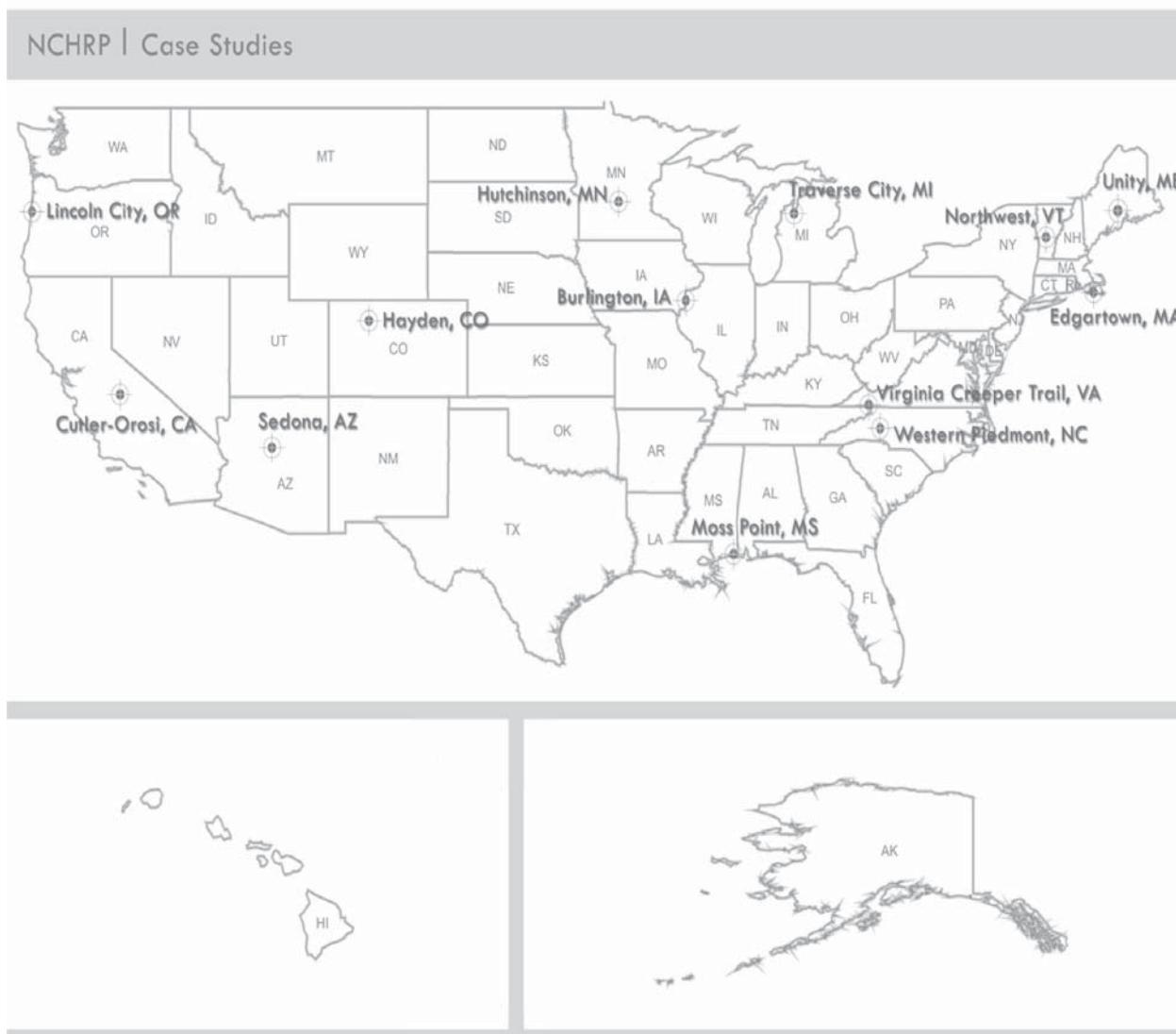


Figure B-1. Case studies locator map.

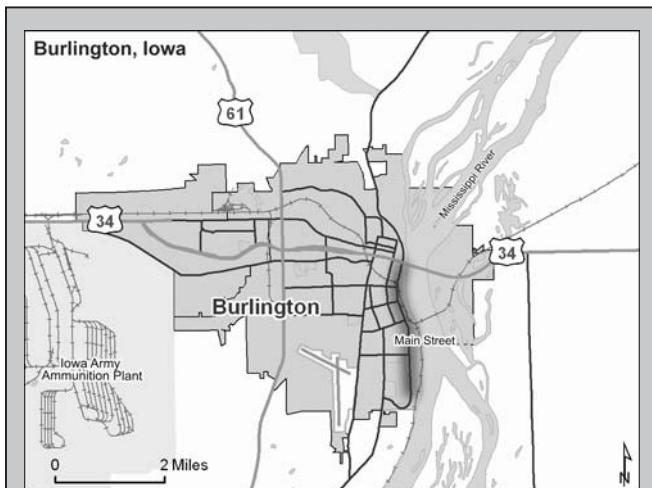
Northern-Santa Fe (the successor railroad) continues to pass through the city, its status as a major port has diminished. Manufacturing remains an important component of the local economy (the city is known as “The Backhoe Capital of the World”), but sprawling development on the city’s outskirts has made it difficult for the downtown area to compete. The city of West Burlington has attracted much of the new development in the area. In the 1960s, the community college moved from downtown to West Burlington. Major retailers, such as J.C. Penney, left for a mall there in the 1970s. And in 2000, Burlington lost 1,500 downtown jobs when the area hospital moved west as well. In the face of these challenges, the Burlington community has rallied around its downtown and formed a successful public-private partnership to support reinvestment.

The Project

In 1986, community leaders applied to the National Trust for Historic Preservation and the newly created Main Street Iowa office (housed in the state Department of Economic Development) to receive funds to become one of Iowa’s first Main Street communities. The community

Table B-1. Matrix of case studies.

Community:	Burlington, IA: Main Street redevelopment and e-commerce	Cutler-Orosi, CA: Community Based transportation Planning	Edgartown, MA: infill & design guidelines	Hayden, CO: scenario planning and 3D visualization	Hutchinson, MN: road transfer & local access management	Lincoln City, OR: CSD street redesign	Moss Point, MS: Post-Katrina revitalization	Northwest VT: regional scenario planning	Sedona, AZ: TSM, multimodal tourism management	Traverse City, MI: car-sharing program	Unity, ME: guiding growth into town, multimodal connections	Virginia Creeper Trail, VA: successful economic development	Western Piedmont Region, NC: corridor plans, access mgmt, overlays
Municipal population:													
< 2,500			x		x								
2,500 - 5,000		x									x		
5,000 - 20,000	x			x		x		x	x	x	x		
> 20,000	x											x	
Region						x							
Population growth rate (from 2000-2004):													
Growing	x	x		x	x		x		x	x	x	x	
Declining	x	x	x			x	x		x		x		
Significant minority, tribal, or elderly population:													
African American						x							
Hispanic		x										x	
Native American													
Elderly					x			x				x	
Economic base:													
Exurban	x					x	x	x					
Destination		x	x		x		x	x	x	x	x		
Production	x	x		x		x			x		x	x	
Strategies employed:													
Regional Framework Strategies													
Access management	x		x	x			x					x	
Overlay districts												x	
Rural land conservation			x				x				x		
Local Accessibility Strategies													
Compact growth	x	x	x	x		x	x	x			x		
Street connectivity	x		x	x		x		x					
Complete streets	x			x		x		x		x	x		
Transit planning	x							x	x	x			
Community Design Strategies													
Context Sensitive Solutions	x	x	x	x		x					x		
Road transfers	x				x		x						
Access management	x		x	x	x								
Land development regulations/design guidelines			x	x							x		
Planning tools:													
Scenario planning				x				x					
Visioning	x						x	x					
Regional planning				x				x	x		x	x	
Corridor planning	x	x	x		x	x						x	
Key principles													
Collaborative partnerships	x	x			x				x		x		
Quality of life/sustainability	x	x	x	x			x	x				x	
Public involvement/education	x		x				x		x		x		
Strong local leadership									x	x	x		



Burlington City Profile:

Population (2005 US Census estimate): 25,436

Annual pop. growth rate (2000-2005): -1.0%

Economic base: Manufacturing

Community Classification: Production.

Strategies employed: Downtown revitalization; compact growth; Context Sensitive Solutions.

partners established Main Street of Burlington to become the organization vehicle for focusing reinvestment efforts. One of Main Street's first successes came in 1988, when the organization got the Hotel Burlington listed on the National Register of Historic Places. This landmark hotel, once known as the finest hotel in the Midwest, fell on hard times with the downtown's decline, eventually closing in 1980 and becoming a major eyesore. After years of struggle, advocates for preserving the hotel put forward a plan to renovate the building and turn it into senior housing, with half of the 75 apartments set aside for lower-income residents. For this project, the city council put up \$1.2 million as an incentive to a private developer, who also received state historic tax credits, tax-increment financing, and Iowa Finance Authority funds.

Other successful restoration projects include the conversion of an old warehouse into a community-run restaurant called Drake's Eatery and establishing an 1860s-era stone mill as the anchor for an antiques district. Schramm's Department Store, which closed in 1996, was purchased by a private developer and now houses 13 luxury condominiums, a bookstore, an insurance agency, and the Southeast Iowa Entrepreneurial Center (SIEC). The SIEC provides low-cost office space to small businesses in their start-up periods and has accommodated as many as six new businesses at once.

Electronic commerce has also played a role in the revitalization of downtown businesses. Several of the businesses participate in a common Web portal, www.ShopDowntownBurlington.com, and the Main Street program has provided training to business owners in managing and marketing their electronic sales.

While the success of downtown Burlington is largely due to well-planned economic initiatives, transportation does play a role. Transportation investments in the 1960s and -70s actually may

have done more harm than good. The reconstruction of US 34 as a freeway through downtown provided easier automobile access, but also required the demolition of more than 100 historic homes and businesses. In an early attempt to revive downtown in the 1970s, city leaders converted one block of Jefferson Street (a major east-west street dividing downtown) into a pedestrian mall. The move proved controversial, disrupted traffic flows through downtown, and arguably hurt some businesses. The mall was removed in the late 1980s, and vehicular traffic was restored. Ten years later, the city embarked on a massive streetscape reconstruction project. As of summer 2006, all but one block had been completed. The reconstructed street provides diagonal parking on one side, and parallel parking on the other. A volunteer-run committee with the Main Street program was heavily involved in the design of the new streetscape and facilitated communications with business owners and customers about the construction timetable. As the result of a downtown plan completed in 2004, the city has identified \$300,000 worth of additional reconstruction work needed on three other streets that intersect with Jefferson.

Burlington also has a reasonably good public transportation system for a city of its size. The Burlington Urban Service (BUS) provides service on 40-minute intervals during the morning commute period and demand-responsive service during the rest of the business day. The Southeast Iowa Regional Planning Commission is planning regional bus service that will feed into the city-based bus system; regional planners expect this service to be operational by early 2007. The city has plans to create a multimodal transportation hub at the edge of downtown, which would incorporate the existing Amtrak station, private long-distance bus services, and the local and regional bus systems.

The Process

Main Street of Burlington was founded in 1986, with support from NTHP's National Main Street Center and the Main Street Iowa office. In 1996, the program reorganized as Downtown Partners, Inc. The new organization has been funded in part for the past 10 years through a Self-Supporting Municipal Improvement District (SSMID). Similar to a Business Improvement District, the SSMID is supported by a voluntary 3 percent add-on to the property tax paid by commercial properties in the district. This covers slightly less than half of the organization's \$166,000 annual budget, with the regional chamber of commerce and other contributors covering the rest. According to Val Giannettino, the executive director of Downtown Partners, Inc., volunteer hours represent a substantial in-kind contribution to the organization's bottom line.

Results and Lessons Learned

This case study highlights the importance of community involvement. As noted, the number of volunteer hours contributed significantly to the success of many of the projects. In some cases, like the Drake Eatery and the Old Stone Mill, sweat equity directly resulted in increased returns to investors, including the Main Street volunteers. This "community-initiated development" is a hallmark of the Main Street approach, which has been successfully implemented in hundreds of communities.

Downtown redevelopment in Burlington has not been without challenges. Maintaining transit operations has been a struggle. At one point, the city purchased a historic trolley, which Downtown Partners, Inc., leased with the intention of using it to provide highly visible and attractive service to the downtown. According to Giannettino, the business plan was not well thought out, and the organization ended up abandoning trolley service when it turned out to be financially unsustainable.

The city also faces parking challenges. Like many in the United States people in Burlington rely heavily on automobiles, even in the walkable downtown area. Some residents and business

owners have complained that too little parking is available, even with the additional parking provided as part of the Jefferson Street project. In an effort to make parking more convenient, the city took out parking meters and replaced them with time limits enforced by a parking officer. Because fines are so low, many people ignore them. Paradoxically, providing lots of free parking often ends up making it more difficult to find parking, as more drivers anticipate cost-free parking and alter their driving habits.¹

Nevertheless, Burlington demonstrates how relatively small amounts of public monies—and a great deal of volunteer effort—can leverage more than \$10 million in private investment.

Transferability

The Burlington case study illustrates that local leaders recognized the interrelated link between transportation, economic development, and revitalization. Their process was characterized by a strong community involvement component that engaged business owners and residents in planning and revitalization. Their experiment with a pedestrian mall did not succeed (similar to many such efforts across the country), but, rather than giving up, they shifted the focus toward streetscaping and reconstruction.

Contact Information

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Websites and Background Articles

Downtown Partners, Inc. www.downtownpartnersinc.com.

National Main Street Center. “2004 Great American Main Street Awards: Burlington, Iowa.” Available at <http://www.mainstreet.org/MediaLibrary/2004GAMSABurlingtonIA.pdf>.

Cutler-Orosi, California: Community-Based Transportation Planning

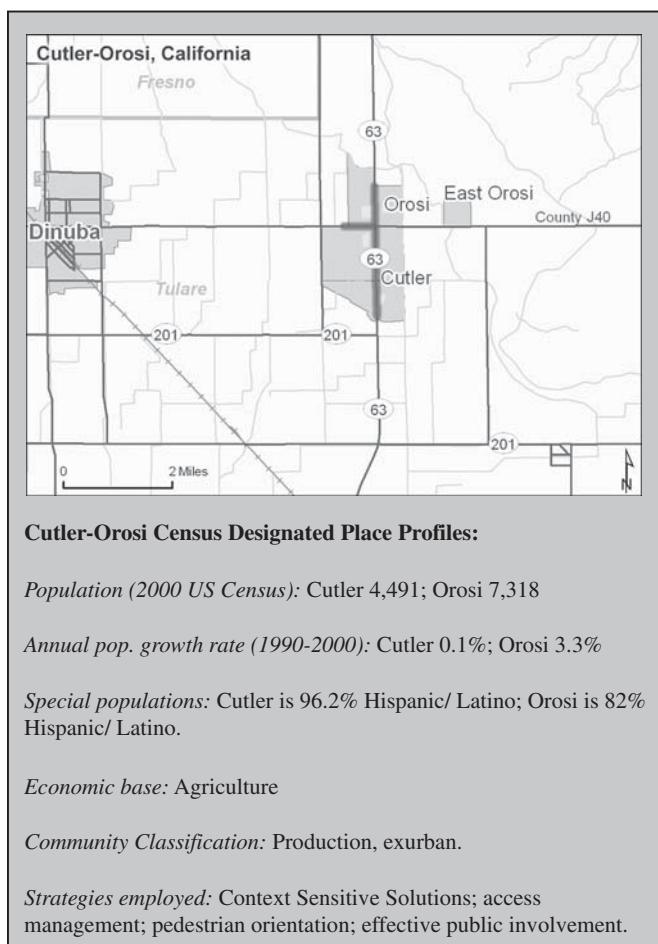
Major Challenge

Transforming a very poor, rural, agriculture-based community that has inadequate water and sewer capacity and whose main street is a state highway

Cutler and Orosi, two rural communities surrounded by agricultural land, are about a half-mile apart, and together constitute the largest unincorporated area in Tulare County, California. They are also one of the poorest communities in California with a combined poverty rate of about 35 percent. Cutler-Orosi’s total population is 12,800, of which 87.5 percent are Latino (2000 Census figures). The majority of Cutler-Orosi’s Latinos are of Mexican descent. Many are agricultural workers for whom employment is closely linked to seasonal harvest periods in both Tulare and surrounding counties. Many families only speak Spanish.

The lack of water and sewer capacity in Cutler-Orosi is a major constraint for any kind of new commercial and industrial development. Because they are unincorporated, they rely upon Tulare

¹This paradox is extensively reviewed in Donald Shoup’s *The High Cost of Free Parking*. A shorter discussion of efficient parking strategies in downtown environments can be found in “Parking Spaces/Community Places: Finding the Balance Through Smart Growth Solutions,” available at <http://www.epa.gov/smartgrowth/parking.htm>.



County for financing, zoning, governance and planning resources and staff. The two towns are linked north-south and intersected by State Route (SR) 63, which had especially high speed as well as high truck traffic although posted at 35 and 40 MPH. Both SR 63 and the east-west El Monte Way of Orosi (Avenue 416) are not pedestrian-friendly. Both SR 63 and Avenue 416 are main streets and have heavy pedestrian use. Along or adjacent these highways are five schools. Many pedestrians are children, and safety is a major concern for area residents.

Transportation needs for a highly migratory, agricultural workforce are also an issue for these communities. In 1999, a van accident in neighboring rural Fresno County killed fourteen farm workers. This focused political attention on the transportation needs and safety for rural workers. This tragic event, as well as a number of pedestrian fatalities along SR 63, helped set the stage for the Caltrans Community-Based Transportation Planning Grant in support of a Cutler-Orosi community design charrette.

The Project

For 5 days in November 2001, Cutler-Orosi conducted a Community Design Charrette, an interactive series of collaborative events engaging design professionals, the general public, environmental justice communities, and local and state government staff. The goal was to create a broad, community-based vision for the design of future development along Highway 63 and its intersecting streets downtown and to improve access, pedestrian, bicycle, and automobile safety. The charrette did not occur in a vacuum. Recommendations would influence a

Commercial Development Plan of the Tulare County Redevelopment Agency (TCRA). Its outputs would offer community input for the Tulare County's Circulation Elements update of its General Plan. It would also provide community-based participation and guidance to Caltrans financing for road improvements, as well as county and school board community investments.

The Process

The charrette was designed and implemented to be authentic, meaningful, and carefully tailored to the community. The workshops were carefully designed to be informal and non-intimidating. An emphasis was made on making them festive and to allow the ability to provide community input. Music and food were provided, and work sessions were kept short, usually no more than 15 to 20 minutes. Numerous breaks were planned that allowed lots of informal chat periods. Child care was provided, allowing mothers to attend. Youth were also encouraged to participate, and special workshops were held at a school and the YWCA. Events were carefully tailored to the Mexican cultural traditions of the area's population. The process intentionally encouraged a family-friendly, multi-generational, festive, and informal atmosphere. An extensive outreach campaign of letters, mailings, announcements, and portable signage in Spanish preceded the charrette events. Participation was high. Over 130 people attended the opening event, and approximately 300 people, including County and Caltrans District 6 staff took part during the 5-day event that included focus groups, multiple venues, field tours, and design sessions.

The charrette events produced a community-based, multi-phased plan with several short-term, low-cost implementation steps, as well as long-term goals for improving community safety, livability, and economic development investments. Recommendations that required more time included interim safety and beautification measures such as sidewalk completion, curb extensions at critical crossings, the narrowing of SR 63 north of Avenue 416, and street tree plantings. Many of these elements have already been completed by Caltrans. Other elements are still pending completion.

There was some discussion of routing commuter and truck traffic off of SR 63 as one of the scenarios. However, business and landowners along SR 63 argued that such re-routing would detract from the life and business vitality of these main streets. Instead an intensive program of traffic calming, signage, and other roadway enhancements appropriate for a pedestrian-friendly town is what has been implemented since the 2001 workshops. A median, on-street parking, bicycle lanes, and the removal of two traffic lanes were recommended for nearly the entire corridor. Safety and beautification measures were all important to the community. A full report detailing the charrette process and outcomes was written by one of the facilitators, Dan Burden of Walkable Communities (<http://www.walkable.org/>).

Results and Lessons Learned

Dedicated and committed staff and citizens are critical to community-based planning efforts. Steve Hoyt of the LGC took particular care to capture participation of the local farmworker community. Caltrans officials interviewed highlighted the invaluable role of Rosalinda Avitia working with Catholic Charities at the time, who was brought in to help with facilitation and public outreach. She knew the community well, including its working schedules and cultural characteristics, and was very effective in building trust in the community that proved useful for this process. She remains involved and active to this day. All charrette events were completely bi-lingual in both Spanish and English. Paul Zykofsky, a planner at the LGC who had lived in Mexico City, was particularly effective at translating the peculiarities of planning and design 'lingo' for a Mexican farmworker audience. Caltrans officials acknowledge that much of the credit needs to be given to the

commitment and involvement of the Local Government Commission² (LGC) staff and chamber of commerce members. The charrette project coordinator for the LGC was very sensitive to the many issues and played a key role in bringing everything together.

The community of Cutler-Orosi made many context-sensitive design recommendations for their main streets to improve pedestrian and bicycle uses, lighting, and sidewalks. Their solutions were geared toward safety and livability. Improved economic development goals were incorporated into the charrette design recommendations as many businesses and landowners who had actively been trying to improve community vitality learned how this could be accomplished through the interrelated issues of safety, access, and design enhancements. Since the 2001 workshop, Caltrans has repaved entire stretches of the study area, using reflective materials for foggy seasons and visibility. All intersections now have crosswalks. ADA-compliant ramps have been added, and tree wells have been put in to make way for tree plantings that are to be contributed and maintained by community and civic groups. New traffic lights are being added or upgraded, as well as new and upgraded signage to alert drivers that they are in downtown and school areas.

Caltrans engineers were introduced to the project immediately upon completion of the charrette, and communications and collaboration with them helped expedite the accelerated process of roadway improvements. Steve Covell, the lead TCRA engineer was very receptive to reviewing the proposals and implementing recommendations and worked closely with Caltrans engineers. The Caltrans Permits Office has special provisions for expediting improvement or maintenance projects if they are recommended by an organized community involvement effort.

The TCRA combined roadway improvements with California Conservation Corps workforce training. In collaboration with Caltrans and local contractors, numerous citizens participated in concrete pours along a 5- to 6-mile stretch. Agricultural workers had an opportunity to learn construction skills and heavy machinery operation.

Funding for implementation has been the typical patchwork of local, state, federal, and private contributions. The County has committed approximately \$900,000 for sidewalks and street and sidewalk beautification. A variety of Caltrans investments have been near \$6,000,000. The school district received \$300,000 in grants for Safe Routes to Schools. A State safety grant in 2005 was awarded to the California Highway Patrol for increased law enforcement. Recommendations from the charrette were taken seriously and many acted upon. Results of efforts since 2001 are already being realized in slowed traffic and fewer accident reports.

Improvement efforts are still underway, and many are by no means complete or even started. The communities are still struggling with funding, and a significant amount of the landscaping is still needed. Tulare County has some important tax allocation decisions on the 2006 election ballot that may influence the feasibility of future projects. Sections of SR 63 and Avenue 416 remain in need of improvements. However, significant progress has been made. Many in the community remain committed to the visions, design elements, and recommendations established in 2001 and momentum has not slowed.

Transferability

The Cutler-Orosi project optimized the local dynamics and cultural character unique to every community. Important investments in funding and resources were made up front to engage local community activists and civic groups. These key individuals and organizations had built strong

²The Local Government Commission is a nonprofit organization based in Sacramento that provides technical assistance to local elected officials and other community leaders. See www.lgc.org.

relationships and trust throughout the community, and they were ideally placed to ensure effective participation.

In addition, the community sought statewide resources such as Caltrans Community-Based Transportation Planning Grants, optimizing the agency's commitment to environmental justice and community-based collaboration. Dialog between the community and Caltrans engineers and staff was established immediately, which increased trust and helped expedite the improvement processes.

Additional benefits accrued from other relationships established as the process moved along. The charrette, for example, opened avenues of communication between different groups within the community and Tulare County. Such relationships helped bring about a half-cent sales tax allocation for public transportation primarily aimed at serving local farmworkers.

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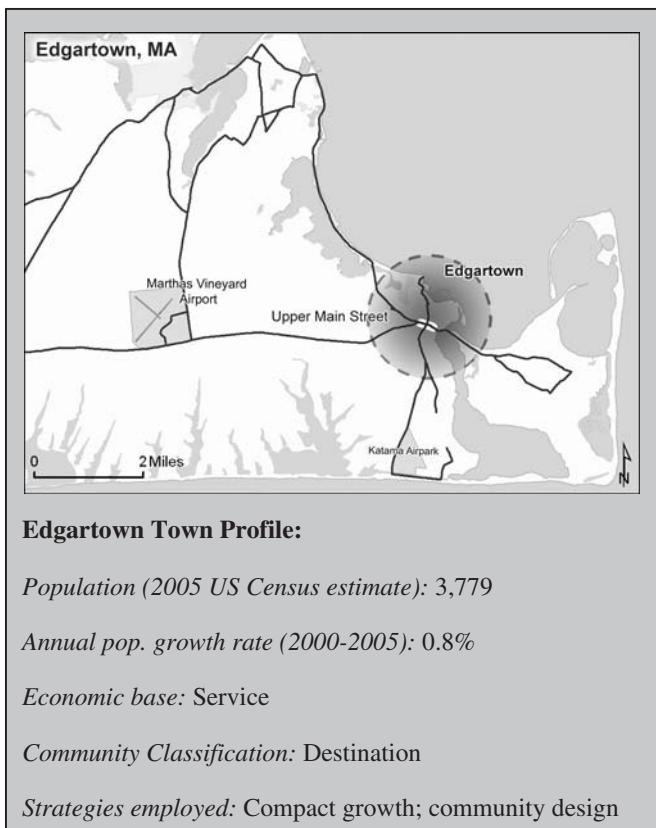
Edgartown, Massachusetts: Promoting Walkable, Attractive Development on Upper Main Street

Major Challenge

How to ensure the character, quality and pedestrian orientation of a historic, downtown main street facing typical, strip commercial, auto-oriented development patterns

Edgartown, Massachusetts, was the first village settled on Martha's Vineyard and thrived during the 19th century as a whaling community and the Dukes County seat. Today, the economy revolves around serving vacationers and retirees drawn to Edgartown by its seaside character, a busy harbor, and a well-preserved town history. The forces that draw visitors to Edgartown have also brought pressure for expanding commercial development outside the historic commercial district and subsequent traffic congestion, especially during the peak summer travel season when the population peaks at nearly 20,000 people in Edgartown alone.

The pressure for growth reached Upper Main Street in the early 1980s, attracted by the highly accessible, undeveloped land along this primary entry corridor into Edgartown. The Upper Main Street commercial district is half a mile northwest of the historic commercial district and



provided an opportunity to develop businesses that would better serve the local population, in contrast to the historic center which became more of a tourist draw with historic attractions and boutique shopping. Early development in the Upper Main Street corridor resembled typical automobile-oriented strip development found in many towns, resulting in development that generated negative aesthetic, traffic, and environmental impacts for the Town.

The Project

In response, the Edgartown Planning Board applied for and received a grant in 1988 from the Massachusetts Council on the Arts and Humanities to address these concerns and develop a new plan for the Upper Main Street commercial district. Following award of the grant, the Planning Board hired a consulting firm to work with a stakeholder group to develop a vision, a master plan, and general recommendations for future development in the Upper Main Street corridor.

The Process

The consulting firm held weekly meetings throughout the winter of 1988 with the stakeholder group, consisting of Upper Main Street land owners, Upper Main Street business operators, the Board of Trade, the Board of Health, the Police Chief, the Board of Selectmen, and the Planning Board. The group determined that the vision was to transform the automobile-oriented strip into a pedestrian-oriented commercial area, and they decided to use innovative site planning and design techniques to help manage growth and generate development better suited to match the existing character of Edgartown.

The consultant developed a set of design guidelines to implement this vision, which included the following recommendations:

- Locate buildings up to the street with parking to the rear and screened with landscaping;
- Encourage building heights from two to three stories to allow for residential uses above shops and offices and to create a sense of enclosure for the pedestrian;
- Scale buildings to the pedestrian and to meet the surrounding character;
- Use variety in building materials and design, and base them in the historic Edgartown context; guidance is included for the design of massing, height, rooflines, fenestration, signage, lighting, and other architectural elements;
- Cluster buildings to retain or create significant open pedestrian spaces;
- Use transfers of commercial development rights to help preserve the remaining open spaces;
- Build sidewalks and plant street trees to create a pleasant pedestrian atmosphere;
- Preserve and re-use existing buildings;
- Consolidate and share parking between buildings for more efficient use of land;
- Create parallel local roads and inter-parcel connections to relieve traffic from Upper Main Street;
- Consolidate driveways into clearly defined entrances and intersections;
- Use the park-and-ride lot outside of town to reduce local traffic; and
- Bury utilities to improve aesthetics.

Results and Lessons Learned

Since the guidelines were developed, some zoning along the Upper Main Street corridor was amended to allow for the recommended type of development. However, the Town chose not to codify most of the design standards into the zoning code and instead pursued a more flexible and creative permitting process. The master plan presents the basic policies and drawings that illustrate the design concepts. To develop and operate a business in the Upper Main Street corridor, an applicant must receive a special permit that acknowledges that the design of the development meets the intent of the master plan. The Master Plan and implementation process were approved by the Town in a public meeting in the Spring of 1989.

Although the Town has not experienced as much pressure for commercial development as anticipated during the planning process, the development that has been proposed has demonstrated that the permitting process is a major success. With some negotiation, developments approved closely meet the intent of the Master Plan. The master plan and illustrations have helped to provide clear expectations for applicants, which they appreciate; clear expectations typically lead to a faster and less contentious review process. In contrast, a few businesses have been proposed that clearly would not meet the design standards; those applicants withdrew their proposals early on in the review process. Upper Main Street business owners continue to be highly involved in the review process, ensuring the continued integrity of the Master Plan goals.

The Martha’s Vineyard Commission (MVC), the regional planning agency for Dukes County, provides complementary strategies to help “protect the unique natural, historical, ecological, scientific, [and] cultural qualities” of Martha’s Vineyard. The MVC is responsible for reviewing the design for any development projected to have a significant regional impact. Through this review process, the MVC promotes infill development and smart growth in existing towns, residential clustering and open space protection outside of towns, and access management, preservation, and context-sensitive building design on the island’s two-lane rural roads. Martha’s Vineyard also has a substantial network of on and off-street cycling facilities with plans to further expand and improve connections within this network.

Recent traffic counts demonstrate that traffic volumes in the Upper Main Street corridor have not increased in the last 10 years. More pedestrian activity can be observed in the Upper Main Street corridor as compared to other commercial corridors on Martha’s Vineyard, although the ingrained culture of driving from business-to-business has yet to change drastically due to the expressed ease of loading into a nearby vehicle after shopping. The park-and-ride lot has been highly successful, with many tourists and some Vineyard residents and employees choosing to use the Vineyard Transit Authority busses that circulate through Edgartown and around the entire island. Despite the numbers, local residents are still concerned about traffic issues and a citizen committee discusses these concerns and potential solutions regularly. Potential strategies include adding a third lane to Upper Main Street, prohibiting left turns on Upper Main Street, or building a bypass road around the northwestern side of Edgartown. Although these strategies warrant continued discussion, the committee has never been able to justify any of these alternatives as being more beneficial for transportation mobility than they would be harmful to the character of the community.

Transferability

Edgartown’s process was locally driven, geared toward the community’s unique context, and structured to engage a diversity of community stakeholders. Town Planner, Christina Brown, also noted the value of finding a good consultant to support the process. She said, “Not only does this person need to be well-educated, the consultant also needs to be patient, kind, and understanding of local concerns.” She adds, “Take your time with public involvement. Get the right people to the table, listen to their concerns, and make sure they are invested in the process. And it doesn’t hurt to provide cold cuts and Oreos.”

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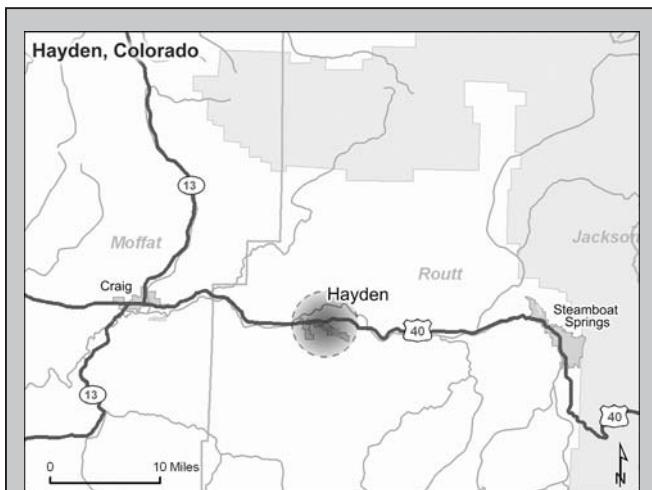
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Hayden, Colorado: Community Visioning Using 3D Scenario Planning Tools

Major Challenge

How to efficiently and quickly determine community preferences for balancing new growth and development in a small, rural, mountain town

Hayden is a rural town of 1,700 in the Yampa Valley of Colorado, 25 miles west of the resort community of Steamboat Springs. Its economic base is agriculture and mining, though many residents also work in Steamboat Springs or in power plants west of town. Hayden sits along Colorado State Highway 40. As the town was largely overlooked during the Colorado real-estate boom cycles of the 1970s, 1980s, and 1990s, its population and character remained fairly consistent as a small, rural, agricultural and mining town.



Hayden Town Profile:

Population (2005 US Census estimate): 1,539

Annual pop. growth rate (2000-2005): -1.2%

Economic base: Service

Community Classification: Destination

Strategies employed: Consensus building for planning and regulation; growth management; compact development; access management; community character

As land became increasingly scarce and housing prices rose in Steamboat Springs, developers began to view Hayden as the next place for residential expansion. When ideas about a subdivision of 2,000 new units were proposed just outside Hayden, many citizens in this town of 1,539 became alarmed. Over the past few decades they had watched many boom-and-bust real-estate cycles transform other small Colorado towns. They knew they needed to act, and soon, if they were to be proactive about future growth. Their existing subdivision ordinances and codes had very little provision for guiding physical development and had not been updated since the 1970s.

Another concern of town officials was that increased residential development would not bring the local tax revenues necessary to meet increased demands on roads, water, and sewer infrastructure, and schools. Town staff and local government officials were keenly aware that new residential growth would need to be balanced with commercial and business development as well. The town residents had their share of pro-growth and anti-growth proponents, but there was no consensus on how to balance growth. Town managers knew they had to be proactive on how to specifically guide streetscape design, access management, and connectivity between older and newer streets, managing the flow of traffic from new development, and ultimately how to pay for new infrastructure. Consensus was needed for a new comprehensive plan and updated land use codes for growth management in Hayden.

The Project

Hayden's response was to postpone a decision on the new subdivision and take proactive steps to create a new comprehensive plan. They needed to engage citizens and build consensus quickly.

Hayden applied successfully for grants to the Gates Foundation and the Orton Family Foundation. An Orton family member residing in Steamboat Springs had recently witnessed the effective use of CommunityViz—a real-time planning and visualization software package based on ESRI's Geographic Information Systems (GIS)—in a Vermont town. Hayden Town staff worked closely with the Gates and Orton Foundations to contract a Boulder-based consulting firm to conduct a Community Visioning Workshop utilizing CommunityViz.

The Process

On November 15th, 2004, over 120 town residents showed up for a Community Visioning Workshop designed around the use of ArcGIS CommunityViz software. According to Russ Martin, Town Manager, many people came out simply because they were curious, as the event had been billed as ‘come see the future of Hayden.’ It attracted a solid cross section of the community: old and new residents, pro-growth and slow-growth proponents. Citizens were enticed by the prospective ‘gee whiz’ element of the new visioning software and planners used this curiosity to market and publicize the event. It was also billed as a keystone event which would have direct impact on plans and policies, with later Town Council meetings to use the input from this event in decision-making. Participants arrived with the expectation that their involvement would make a difference. The meeting lasted from 6 to 9 pm and a buffet dinner was served. The room was set up with numerous screens and tables with keypads which were used by participants for real-time polling on questions posed and scenarios envisioned (see <http://www.yampavalley.info/government096086.asp> for samples of the slides and real-time voting results).

The meeting began with a short presentation and polling exercise on the effectiveness of Hayden’s comprehensive planning, focused on their existing plan directives of (1) fiscally balanced growth, (2) compact growth, (3) compatible land uses, and (4) community character. ArcGIS-based CommunityViz was then used to show a variety of build-out scenarios. Different patterns of growth and different assumptions were shown for various population levels, even one that showed Hayden at a population of 15,000. Three-dimensional fly-overs were displayed for suburban development and compact development patterns. The software also produced real-time fiscal impacts of different growth scenarios. The results of the powerful visualization tools produced in citizens what Martin describes as a ‘eureka’ moment. He observed, *One thing the November [2004] meeting did was establish a unified ‘mindset’ throughout community. This mindset was now less on pro-growth, versus no-growth. Instead there was buy-in about the importance of how to grow, the need for compact form, growing with connectivity, and ultimately the possibility for growth to be positive. The mindset was a buy-in on growing right. The visualization tools helped produce this mindset immensely.*

An example of CommunityViz effectiveness occurred when two contrasting street sections were shown, one with sidewalks and trees, and one without. Participants expressed a clear preference for the landscaped, more walkable street section with trees but discovered through this exercise that their existing code made no provision for this preference. The exercise helped them realize they needed to recommend community design performance standards for new development.

“One thing the November meeting did was establish a unified ‘mindset’ throughout community . . . about the importance of how to grow, the need for compact form, growing with connectivity, and ultimately the possibility for growth to be positive. The mindset was a buy-in on growing right. The visualization tools helped produce this mindset immensely.”

The workshop participants voted the following as their top priorities: preserving town character, encouraging grid streets that extended the existing geometry of the town, improving diversity and quality of retail development downtown and encouraging new commercial development, developing within the town boundaries (infill) with compact growth first and outward later, and growing with compatible land uses.

Results and Lessons Learned

The Hayden experience shows that much can be accomplished with one well-planned, well-run meeting using CommunityViz or other similar real-time, scenario visualization tools. This workshop, using real-time visualization tools for polling community priorities, accomplished in one evening what can traditionally take many workshops or planning commission meetings. Martin attested that, as a visioning tool, CommunityViz was more effective than other paper, dot-mapping, or preference polling exercises he had participated in.

If one is going to invest much time and expense for an intensive, one-evening session using CommunityViz, it is important to invest significantly in advertising to ensure meaningful participation. Hayden already benefited from having an engaged population, but planners made sure the word was spread that this would be a key event. They used the public curiosity in the high-tech, visualization tools to effectively market the event, as “come see the future of Hayden.”

One means of generating interest for the session was to communicate to the public that the input received would be genuinely used to inform Town Council decisions. The CommunityViz workshop preceded Town Council sessions with enough time permitted so that input from the workshop results could influence the comprehensive plan updates. The result was that the Town Council was able to expedite the comprehensive plan updating process because of this pivotal meeting. In April of 2005 the Hayden Town Council voted to approve their updated comprehensive plan. Their land use codes and ordinances were updated by November 2005. The new plan and ordinances clearly required that new development be well connected and that developers would have to provide their share of the cost for new roads, both on site and off. The new codes were not entirely prescriptive on developers and recognized that all new development takes careful negotiation and consideration.

Another lesson learned is that it takes strong public-private partnerships to address connectivity, transportation, and other access management concerns associated with growth. One recommendation was that existing streets should not have to bear the full burden of new development. Proposed site plans would have to add to and connect with Hayden’s existing road network. The town has since developed a transportation master plan that proposes a loop road for Colorado State Highway 40. The purpose of the loop road is to avoid additional traffic on existing streets through neighborhoods and to prevent local commuters from having to go through downtown to get to their jobs in Steamboat Springs or Craig. Hayden is currently working closely with developers on cost-sharing for the loop road and other access management strategies.

Transferability

A key to the transferability of this experience is to assure small town planners, officials, and citizens that it can be worth the extra expense and effort to mobilize the resources necessary to hire competent professionals trained in the use of real-time, visualization, scenario and analysis tools to help communities determine how they want to grow. Obtaining and allocating funding for a visioning process that utilizes high-tech, expensive software and equipment may be difficult to rationalize for many cash-strapped rural local governments. Hayden took an entrepreneurial approach toward solving this problem. The overall comprehensive planning process

received private grants totaling over \$150,000. The private matching funds both made the process possible and helped planners justify the expenditure of their own limited public funds.

Martin attests that the money for the workshop was well spent and that the ‘eureka’ moment that CommunityViz inspired was invaluable in building buy-in on growth management principles. Hayden spent one-third of its \$40,000 scenario planning budget on that one-evening workshop. The visioning process clearly benefited from the use of scenario planning tools to help answer the community’s core questions.

CommunityViz is but one in a growing array of tools continuing to develop rapidly in response to transportation and land use planning requirements and resources. Other commonly used scenario modeling tools include GIS-based software programs such as Plan Builder, Paint the Town, CorPlan, Index, WhatIf?, and Places3. These tools also include GIS computer simulations to develop alternative future land use scenarios and models to assess factors such as land consumption, travel demand, water and sewer demands, and public expenditures.

Communities should be careful when choosing a scenario planning tool to ensure it is appropriate for their context, budget, and technical capabilities. Each tool is designed to address a specific set of questions, using a specific set of assumptions. Some useful questions planners could ask are: What challenges does the community need to address? What challenges is the tool designed to address? What sorts of characteristics or conditions are assumed as part of the analysis? Do these assumptions conflict with the community’s vision for the future? Can the model be modified to reflect different assumptions? What kind of data does the tool require and at what scale? Does the community have the resources available to generate the necessary data? Does the planning team understand the “inner workings” of the tools well enough to answer questions about how information was derived?

Contact Information

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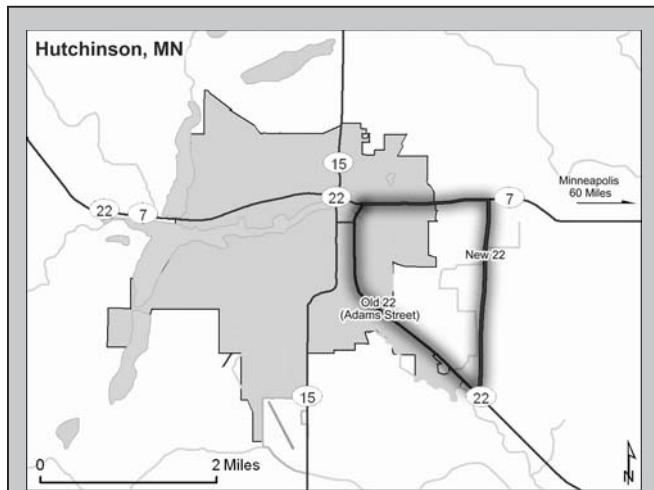
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Hutchinson, Minnesota: Implementing a Transportation Plan to Accommodate Regional Growth

Major Challenge

How to implement a transportation plan to accommodate regional growth

Hutchinson, Minnesota, stands out in this guidebook for a number of reasons. This modestly growing community of over 13,000 people is best characterized as a “production” community for its reliance on manufacturing as its economic base. Locally based Hutchinson Technology, Inc., and consumer products manufacturer, 3M, are two of the largest employers, with long-term commitments to the region. Thus, Hutchinson is an apparent exception to the trend of production-based economies experiencing decline. Hutchinson also stands out from a number of so-called “Rust Belt” communities across the Midwest and Northeast in this



Hutchinson City Profile:

Population (2005 US Census estimate): 13,722

Annual pop. growth rate (2000-2005): 1.0%

Economic base: Manufacturing

Community Classification: Production

Strategies employed: Regional planning and access management; intergovernmental coordination; pedestrian connectivity; compact growth.

regard. Hutchinson's location relative to the Twin Cities metropolitan areas (about 60 miles) also means that, as that region spreads, the Hutchinson region takes on characteristics of an exurb of the larger region. Hutchinson thus has a more diverse economy than many production communities. Nevertheless, the city faces a number of challenges similar to those of other communities in this guidebook. The growing industrial area is within the city limits and contributes to its tax base, but sections of the downtown are struggling. The Hutchinson Economic Development Authority and other partners have embarked on aggressive efforts to implement streetscape improvements and provide financing to downtown projects, including the renovation of a number of historic buildings, such as the 1930s-era State Theatre.

The city, together with McLeod County and the Minnesota Department of Transportation (MnDOT), also embarked on a 2-year area transportation planning process meant to deal with the effects of regional growth. This plan is the focus of the current case study. In this guidebook, Hutchinson also stands out because the plan has already been documented in a previous case study by the Federal Highway Administration. The current case study updates the FHWA report and focuses on the implementation of a number of creative approaches not yet in evidence at the time of the earlier study.

The Project

The Hutchinson Area Transportation Plan (HATP) was developed in 1998 by the city of Hutchinson, McLeod County, and MnDOT. The plan covered a number of important issues related to transportation in the region. Among the most important aspects of the plan was the functioning of four major corridors in the region: Trunk Highway (TH—a designation for state

highways in Minnesota) 7, TH 15, TH 22, and County State Aid Highway (CSAH) 12. TH 15 (the primary north-south route and the city Main Street) and TH 7 (a major east-west route and connector to the Twin Cities) were studied to determine whether bypasses were appropriate. In both cases, an origin-destination study revealed that the vast majority of traffic on these routes was local. Thus, bypasses would have little benefit in reducing congestion. To deal with the congestion on these routes, the plan recommends encouraging local traffic to use adjacent parallel routes. The plan also called for reconstructing portions of TH 7 and TH 15, including making parts of TH 15 a four-lane road. While the four-lane configuration in the downtown area could present challenges for pedestrians, this is mitigated at the intersection of TH 7 and TH 15 by constructing neckdowns at the intersections to reduce crossing width, as well as building median strips to provide pedestrian refuge. Construction on TH 15 and TH 7 (managed by MnDOT) is underway and is expected to be complete by fall 2007.

TH 22 presents a special case which will be of interest to many small communities with large production-oriented facilities. Until recently, TH 22 ran along Adams Street on the east side of the city. The post-World War II location of the 3M plant on Adams Street SE resulted in the southeast quadrant of the city becoming an industrial growth area. Increased truck traffic to and from the industrial sites on Adams Street became a nuisance to residents along the street, leading to calls for an alternate route to serve the “rear” of the industrial area further to the east. At the same time, state, county, and city officials were faced with challenges in coordinating maintenance on their major routes. For example, MnDOT uses large, heavy snowplows to clear its highways, but these vehicles are inappropriate for road sections in the urban areas, where cars park curbside and street widths are narrower. Further complicating matters, differing lines of authority and different priorities may also mean that MnDOT may decide against plowing on a day when the city decides that plowing cannot be avoided. To resolve these operational, maintenance, and quality of life challenges, the city, county, and MnDOT entered into an unusual agreement. Because the county had available funds, it agreed to construct a new TH 22 as an east peripheral route to serve the east side of the industrial area. The county then gave the newly constructed highway to the state, which became responsible for it. The urban section of “Old 22,” now known only as Adams Street, was then transferred to the city.

The Process

The HATP was undertaken by a partnership of the city, county, and MnDOT. The partners established a project management team which included representatives from each of the three jurisdictions, as well as the Mid-Minnesota Development Commission (a regional planning agency). A planner was retained as a consultant to the team to prepare the plan. The planning process included a variety of public participation techniques, including nine small-group stakeholder meetings, additional meetings with business interests and residents to focus on the TH 7 corridor, and two public open house meetings.

The long history of cooperation and coordination among the three levels of government made it relatively easy not only to conduct the plan, but also to coordinate its implementation. High levels of coordination and information-sharing (including sharing information with the public) are evident during the construction phase.

Although not directly a part of HATP, other planning practices adopted around the same time have contributed to the plan’s success. First, in 1998 the city, county, and the four townships adjacent to the city established a Joint Planning Board, with authority to review zoning decisions and conduct long-range planning in a district extending 2 miles beyond the city limits. This gives the local jurisdictions an opportunity to coordinate land use decisions on the major highway

corridors. The city and county have adopted similar access management strategies to maintain the efficiency and safety of these corridors. Second, MnDOT reviews plats, subdivisions, and conditional use permits in the city, to make sure that uses will not adversely impact the highways. According to MnDOT officials, “Often we want the city to be aware that a development off of the highway may have an impact to traffic, access, or the operation of the highway if alternative access to the development is not included. MnDOT generally reviews them all and then only comments on the ones it feels may have an ultimate impact.” This forces planners and engineers at both levels of government to engage in early and frequent communication about site design, access, and compatibility of use. Finally, MnDOT reciprocates this consultative approach on TH 22, as the road transitions from a state highway to a local street. For example, in a situation where MnDOT might prefer to require a right turn lane at a new access point, but the city would not think it necessary, MnDOT would follow the city’s lead.

Results and Lessons Learned

Eight years after the adoption of the HATP, the governmental agencies have made substantial progress toward accomplishing many of the plan’s goals. Construction of the new TH 22 and transfer of “Old 22” to the city are both complete. Reports indicate that the reduction of truck traffic on Adams Street SE has been substantial, and the street has reverted back to a character more in keeping with an urban residential street. Reconstruction of TH 15 and TH 7 is underway and is expected to be complete in November 2007. Extensive information provided by MnDOT, the city of Hutchinson, and the local media keeps residents, businesses, and travelers informed about the progress and the necessary detours.

The stakeholder involvement was important to bringing the community on board with the plan’s recommendations. Particularly significant was the downtown business community. According to Patrick Weidemann with MnDOT, business owners were quick to see the benefits of the plan and became champions of it, once they understood what was proposed. It was also important to assure the businesses that the construction efforts would be relatively quick and not require constant change and adjustment.

Asked to look back on the process, Weidemann can only come up with two aspects he would have approached differently. First, given more resources, the team could have conducted a more sophisticated origin-destination study. Because the survey was conducted only on one day, it missed weekend traffic heading for recreational destinations in the surrounding area. Subsequent observations have suggested that this is a larger component of regional trips than the survey’s findings revealed. A survey conducted on multiple days might have resulted in a more nuanced understanding of traffic patterns, but likely would not have altered the crucial recommendations of the plan (i.e., focusing on improving cross-town routes rather than constructing bypasses). Second, Weidemann notes that the original plan made significant headway on making decisions for implementation, but that the subsequent environmental review process “opened everything up again.” This frustrated some stakeholders, who did not understand why settled issues were being raised again during an alternatives analysis. In later projects, MnDOT has used studies similar to HATP as scoping documents for the environmental review, resulting in a more seamless and efficient planning process.

HATP and the associated planning processes discussed in this case study build on a long legacy of good planning and intergovernmental coordination in Hutchinson. The results of this tradition speak for themselves. Hutchinson grew rapidly in the 1990s as it became more attractive as a bedroom community for the Twin Cities. Nevertheless, it has managed its growth such that it is one of the few communities of its size in Minnesota that actually grew denser as a result of development, with increases in population outpacing the increase in land area. While the fast

changes have resulted in concerns about traffic congestion,³ the city retains a high quality of life and a stable employment base. The city's comprehensive plan was updated in 2002, providing a further opportunity to deal with the challenges of regional growth. Among the strategies proposed in the 2002 plan are working with MnDOT to employ context-sensitive design standards along the trunk highways, developing stricter access management standards, and encouraging urban densities in the designated growth areas and away from places that lack adequate transportation infrastructure.

Transferability

Keys to replicating successes like those in Hutchinson include (1) recruiting local leaders who embrace regional approaches to land use and transportation planning and (2) developing strong public involvement components that engage multiple stakeholders. Their experience was also characterized by close collaboration and dialog among local government, businesses, and MnDOT staff and engineers which made elements of the plan, especially implementation, work effectively.

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Lincoln City, Oregon: Taft Village Redevelopment Plan

Major Challenge

What can be done to revitalize a small urban village in a rural setting with a state highway running through it?

Lincoln City, Oregon, spans eight miles along the Pacific coast. Described as a “string of pearls,” the city is composed of five villages, or neighborhood districts, linked together by State Highway 101, the most heavily trafficked route in the area. The city was incorporated in 1965 by linking the five previously independent villages together. Lincoln City is primarily a tourist and recreation destination with a number of outdoor opportunities, located 90 minutes from Portland and near Devils Lake State Recreation Area. Historically, the regional economy had depended on its once-thriving dairy, fishing, and timber industries. Highway 101 bisects all five villages, causing traffic congestion and other transportation-related challenges that conflict with city goals to improve downtown to support the tourist industry.

The Lincoln City Urban Renewal Agency is the local government department, which oversees economic development efforts in each of the five downtown districts. Established in 1988, the Urban Renewal Agency adopted a “plan area” encompassing 17 percent of Lincoln City and a portion of all five historic business districts within it. The agency generates revenue using tax

³While residents' identification of traffic congestion as a major problem should not be dismissed, perhaps a note of caution is in order. Recent thinking in transportation planning has focused less on reducing congestion and more on increasing accessibility. As Hutchinson grows and experiences challenges common in larger urban areas, it may be better off adopting demand management strategies, rather than trying to ease congestion with additional capacity in its downtown. See Pamela J. Snopl, “Accessibility: Rethinking the Way We Look at Transportation,” published online at http://www1.umn.edu/umnnews/Feature_Stories/Accessibility_Rethinking_the_way_we_look_at_transportation.html.



Lincoln City Profile:

Population (2005 US Census estimate): 7,849

Annual pop. growth rate (2000-2005): 1.1%

Special populations: 19.3% elderly

Economic base: Nonspecialized

Community Classification: Destination.

Strategies employed: Context Sensitive Solutions; community involvement; access management.

increment financing (TIF) to make improvements to the district. In the late 1990s, the Lincoln City Urban Renewal Agency accumulated enough funding to hire consultants to draw up the first long-term redevelopment plan for one of the five city villages.

In 1999, the first redevelopment plan targeted the village of Taft, the most populated city village. The goal of the plan was to create a mixed-use village and implement traffic-calming measures to foster a pedestrian-friendly downtown. Highway 101, a four-lane highway with streetside parking and congestion problems caused both by local and long-distance traffic, was the focus of the plan. Parking, pedestrian safety, and aesthetic issues were of concern to the local residents, who recognized that major roadway improvements would be necessary to redesign the downtown to accommodate all modes of transportation, including biking and walking. The Urban Renewal Agency took on a transportation-oriented project to revitalize the city because of the direct link between transportation and improving the economic base in the historic downtown.

The Project

The *Taft Redevelopment Plan: Rediscovering the Village* and the Taft Mixed Use Village Core Zone were completed in 2000 at the end of a 6-month process. The three stages of the process were a baseline report, an intensive 7-day community-wide involvement process, and an economic development study. These activities were funded by the Urban Redevelopment Agency, which hired planning and design consultants to assist with the process. A team of staff from the Oregon Department of Transportation (ODOT), the Oregon Department of Land Conservation

and Development (DLCD), the Army Corps of Engineers, and local planners and city residents were also involved in all stages of the redevelopment plan process. Almost immediately after the plan was completed, the Lincoln City Council adopted the plan and implementation followed during the next 4 years.

In order to maintain the historic character of downtown Taft through revitalization efforts, the Lincoln City Urban Renewal Agency pursued a special designation from ODOT, which allowed officials to treat Highway 101 differently than most state highways because of its joint function as a main street. The Special Transportation Area (STA) designation was recommended in an ODOT publication, *Main Street-When a Highway Runs Through It: A Handbook for Oregon Communities*, released in November 1999, around the same time the Taft Plan was being developed. Adopting the STA designation was beneficial to Lincoln City because it set an agreement between the local government and ODOT to allow for specific design measures to balance the flow of traffic, local access, and pedestrian movement. Typically, ODOT would have to approve these features on a case-by-case basis, but the STA agreement permitted the entire strip of Highway 101 in downtown Taft to be treated as a main street, allowing for special design elements to be implemented.

The Process

Creating the Taft Redevelopment Plan was a highly collaborative effort between the Urban Renewal Agency and its contractors, state agencies, and local community.

The Lincoln City Urban Renewal Agency utilized innovative strategies to communicate the redevelopment process in Taft to community members and was recognized by the Federal Highway Authority (FHWA), American Planning Association (APA), and Federal Transportation Authority (FTA) for exemplary community involvement in the Taft Redevelopment Plan in 2004. Three months before the consultants began working in the Taft community, the Urban Renewal Agency rented a storefront in downtown Taft and staffed it during the day so that community members could walk in off the street and enter the storefront to speak with city representatives about the activity that would be happening downtown. It was an opportunity for people to share their impressions of the area, offer suggestions, and learn more about the process.

Gaining local support and gathering public input for the redevelopment plan was an important part of the process. An intensive 7-day community charrette kicked off the redevelopment plan, with a number of different activities to encourage community members of all ages to participate in events designed to gather feedback on how to improve the district. These included neighborhood bike rides and walks, design charrettes, even a middle school logo contest. A signage preference survey was also administered, and over 30 in-depth interviews were conducted. More than 1,500 individuals participated in these events—nearly 20 percent of the Lincoln City population. Out of this process, many partnerships were established to build support for the changes downtown.

After the 6-month-long process to complete the redevelopment plan, the Urban Renewal Agency distributed and hung visual renderings of a redeveloped Taft village, called vision posters, in the local businesses, the library, stores, restaurants, and other facilities throughout Lincoln City. This way, all residents and visitors could see the plan they helped to create and imagine what the revitalized community would look like. The city also worked very closely with the local media to ensure consistent coverage about all the events and progress of the plan implementation.

Results and Lessons Learned

Extensive roadway improvements on Highway 101 through Taft were made possible by a \$1.9 million ODOT modernization grant. Traffic-calming features were added to improve pedestrian

safety. A green median was built, sidewalks were widened to 10 feet in either direction of the road, and crosswalks were added to make pedestrian crossing safer across four lanes of traffic. Parking along the highway was an important feature to retain to support the local businesses downtown and “bulb-ins” were built in front of many of the stores by reducing those sections of the sidewalks to five feet, accommodating three to four cars in each section.

A number of streetscape improvements contributed to aesthetic improvements to the area and helped to develop a strong identity and sense of place. A gateway was added along the entrance into the village center along Highway 101 and historic-looking lamp posts placed along the street. Overhead utilities were placed underground. Additionally, the agency created a program to offer zero-percent-interest loans to existing commercial buildings for aesthetic and structural improvements.

Lincoln City was also able to improve sidestreets off Highway 101 to support local traffic through a \$790,000 ODOT grant for off-facility improvements. By improving neighborhood roadways that connected to Main Street/Highway 101 in Taft, traffic flow improved because it created multiple routes for local traffic, relieving congestion on Highway 101.

Overall, the roadway and streetscape improvements were successful in achieving the objectives to develop the local economy, improve traffic flow, and enhance the downtown. Over \$10 million of reinvestment in public infrastructure occurred in Taft since the redevelopment plans were implemented. More than 15 new businesses have opened, many older businesses have grown or been remodeled, and many new jobs have been created.

Part of the success in the Taft Redevelopment Plan was the strong emphasis on collaboration with state agencies and other partners from the earliest stages of the planning process until the very end. Partnering with ODOT from the start contributed to a smooth planning and implementation process because it helped to create ideas and determine what changes in the community would work given the context of downtown. This strong working relationship with the state will help future revitalization efforts in Lincoln City.

The relationship between the Lincoln City Urban Renewal Agency and the planning and design consultants was also strong throughout the planning process. Lincoln City staff worked alongside them, which was important because, once the plan was complete, they were responsible for its implementation. By working side-by-side, the Urban Renewal Agency was able to understand how the consultants developed the recommendations and suggestions in the Taft Redevelopment Plan.

Kurt Olson, director of the Urban Renewal Agency, recognizes that change can be difficult, especially in a small town because the changes may be more apparent. “By engaging the public as much as possible, it really helped as the project moved forward,” he says. Whether community members agreed or not with the changes, they were aware of what was happening, meaning there was more opportunity to get involved and fewer surprises in the end. One of the best ideas, Olson claims, was to create a vision poster after the Taft Redevelopment Plan was drawn up. Residents were proud of the vision they helped to develop and referred to it. For example, in the vision poster, a traffic circle was drawn with flowers planted in the middle. But when it was built, the circle was adorned with driftwood and beach grasses. A few residents held the city accountable, saying the vision poster illustrated flowers, not driftwood and beach grasses. As a result, the city changed the landscaping to reflect the vision that was designed.

Transferability

Adoption of a Special Transportation Area is a transportation planning strategy that can be used by small towns, older neighborhoods in larger cities, and rural communities to balance the

needs of a main street and a major transportation route. This special designation is unique to ODOT, but could be replicated by other state DOTs.

Other keys to success in Lincoln City included the strong collaboration between various governments agencies, consultants, and the public. Frequent dialog and a variety of meeting venues helped each organization and individual determine what the project's goals meant to them and how they could help make it a reality. In addition, the use of graphics such as the vision poster played an important part in ensuring that these goals were properly achieved.

Contact information

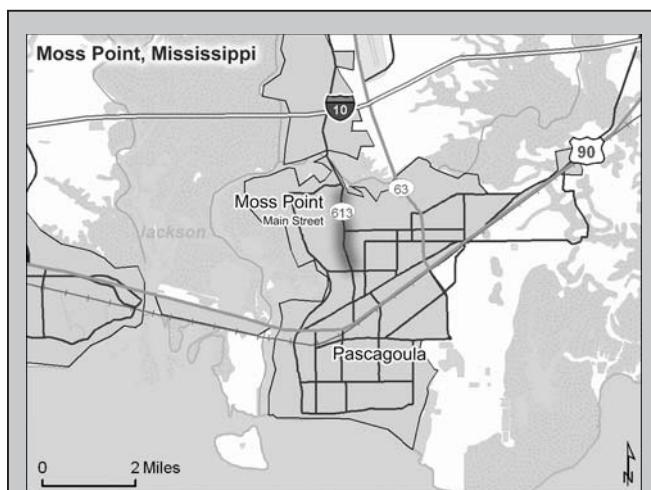
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Moss Point, Mississippi: Rebuilding A Rural Community After Disaster

Major Challenge

How to rebuild a rural community devastated by natural disaster with improved interconnected transportation and land use goals

When Hurricane Katrina slammed into the Gulf Coast August 2005, the low-lying community of Moss Point was devastated. The community had already seen a slow decline of its community and especially of its downtown. The population of the town dropped from 17,000 in 1990



Moss Point Community Profile:

Population (2005 US Census estimate): 15,125

Annual pop. growth rate (2000-2005): -0.9%

Special populations: 70.6% black

Economic base: Manufacturing

Community Classification: Production; exurban.

Strategies employed: Road transfers; compact growth; pedestrian orientation; street connectivity.

to less than 16,000 people by 2000. The community was built around the Escatawpa and Pascagoula Rivers and was a center for shipping and saw mills. As the timber industry declined in Southern Mississippi, so did Moss Point.

When the state DOT widened the Main Street (Highway 613), it became a major state highway and included a high bridge over the bayou that connected with Interstate 10. Instead of having a positive impact on the community by bringing economic development, it helped speed the decline of downtown. The widening from a narrow two-lane to a five-lane road forced the demolition of a number of buildings along Main Street. The changes made the corridor less pedestrian-friendly by making the road difficult to cross and removing many of the businesses that were within walking distance of each other. The traffic light was also placed at one end of the Main Street, offering little in the way of opportunity for folks to safely cross from one side of Main Street to the other. Businesses along one whole side of the center of Main Street were removed, making the town center feel open, deserted and uninviting. Rather than improve the declining town center, the state highway furthered the disconnected feel of the community and increased its slide toward disrepair and economic disinvestment.

When Katrina hit, it destroyed the city hall and the recreation center as well as homes and businesses. Police cars were submerged and fire and emergency response facilities destroyed. The town experienced high winds; however, the worst damage was due to severe flooding from the wetlands that border the town on three sides.

The Project

In the aftermath of Hurricane Katrina, Mississippi Governor Haley Barbour set up a commission to begin rebuilding the Gulf Coast. The Governor's Commission and Mississippi architects asked the Congress for New Urbanism, an organization of planners, architects, and urban designers that advocates for neo-traditional design in city planning, to engage with local communities along the coast as they planned for rebuilding their communities. The Commission saw the tragedy as an opportunity not only to rebuild, but to rebuild in such a way that would revitalize the local communities. The focus was also to get each town engaged in long-term thinking in a time of short-term consequences, such as getting FEMA grants and relocating people from flood-zone areas.

The Moss Point team conducted a charrette in October 2006 with the local community where citizens of Moss Point interacted with top quality planners from around the country. The goal of the charrette was to leverage early opportunities through attracting attention to the community and establishing a plan early on. The project was done very quickly—orientations, meetings, tours and sketch plans were completed the first week, with clean up and finalization of the plans the second week. The plans were mainly an attempt to get something in motion so that the people of Moss Point could see their community rebuild as quickly as possible. The charrette covered three areas: the town center, the Creole area closer to Pascagoula, and the Escatawpa area further north.

The second charrette was held in December 2006 in the town of Moss Point itself. Much of the discussion focused on the town center and on ideas for moving key facilities out of the most dangerous flood zone. These facilities included the city hall, police station, fire station, and recreation center. The idea that emerged was to move city hall and the fire station south along Main Street or McGinnis and realign the street of Denny to make way for a waterfront community park. Ideas for the park aimed to increase use of the town center by making it an attractive place that captured the history and natural beauty of the area, while providing a place to gather and recreate. Just south of the park would be a restored Main Street and town center area with mixed-use buildings and storefronts pulled up to the street in the original style of the town center.

The planning team returned in May 2006 with transportation planner Rick Hall for a public workshop on rebuilding the community. They met with the Mississippi Department of Transportation as well. This process has produced a 90 page report that focuses on transportation and develops a SmartCode⁴ for the town.

The Process

Much of the community charrette process centered on restoring the feeling of community and sense of place that Moss Point had before the community saw disinvestment, population loss and the disfiguring of the town center. Through the charrette process, local citizens worked with city planners from around the country to come up with a range of options for rebuilding their community in the wake of tragedy.

One of the primary topics of conversation was Main Street (Highway 613). Those who attended the charrette wanted to revive the physical heart of their community as a way to bring revival to the extended community. Much of the plan focused around the blocks bordering the intersection of Main Street and Denny. While residents understood that their Main Street was also a state road, they wanted to focus on bringing down the speed of the road, not on decreasing the volume of traffic coming through their community. Residents realized that the road could be used as an asset rather than a liability in the reconstruction of Moss Point.

Results and Lessons Learned

The first charrette only began to scratch the surface of all of the improvements needed for the community. There was only so much that the planners and citizens could do the first go around. The planning team returned a second time with a more detailed plan that focuses on the town center. Another issue with the first charrette was that many families were still displaced by the hurricane and consequently could not make it to the meeting in order to give input on the town's future. Public participation was further harmed by the fact that there were no meeting places in good enough condition to hold the event. The charrette had to be held in the neighboring city of Biloxi at a casino that was not damaged too badly. This was an issue that the planning team could simply not address fully; however, the second charrette did try to address some of the issues by having the event in the city itself.

Transferability

Only time will tell how effective this and similar planning processes will be throughout the Gulf Coast communities affected by Hurricane Katrina. One feature that can be transferred is the use of a charrette as a focused and intense method of meaningfully engaging the public. The charrette compresses what may otherwise be a several month planning process into a shorter (typically one week) time frame where citizens are actively involved in framing the issues, proposing or evaluating solutions, and critiquing the recommendations from the charrette team. This technique has proven to be an effective public involvement strategy around the country. It is critical, however, to follow up a charrette with sustained, detailed planning work in order to ensure the vision is truly feasible and can be implemented.

⁴SmartCode is an emerging practice that combines form-based codes designed to achieve a high-quality built environment with smart growth principles. Some such Smart Growth principles are creating pedestrian-friendly streets, providing a diversity of housing opportunities, providing a mixture of land uses, etc. For more information on Smart Growth principles see <http://www.smartgrowth.org/about/default.asp>. For more information on form based codes see: <http://www.formbasedcodes.org>

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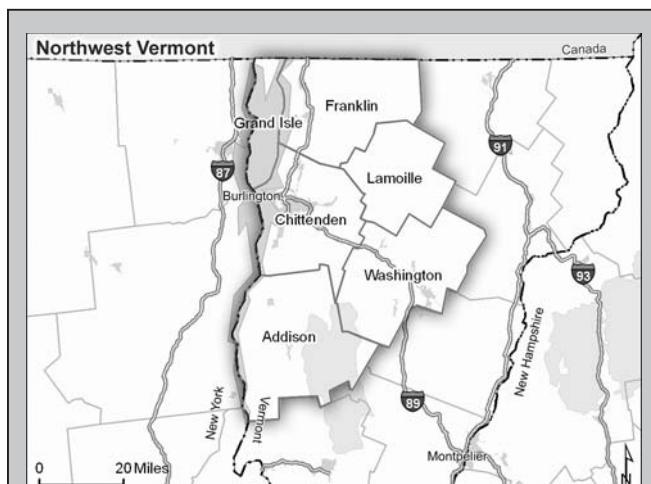
The Northwest Vermont Planning Project: Changing Land Use to Effect Rural Highway Improvements

Major Challenge

How to plan for growth, jobs, housing and transportation on a regional scale

The Northwest Vermont Project was spurred by a controversy over indirect and cumulative impacts of the proposed Chittenden County Circumferential Highway road project (known by most as “the Circ”). “The Circ” was initially conceived in the late 1970s and funds were allocated in 1982 for the two-lane limited access highway. The highway was to bypass the metropolitan region of Burlington, Vermont, improving the transportation connections to the east of the city. The initial impact statement for the project was completed in 1986, with the first section built in 1993. In 2003, a re-evaluation impact statement was conducted by the Vermont Transportation Agency (VTrans) for constructing the remaining sections. This statement was subsequently challenged in court by a collection of concerned environmental and citizens’ groups.

The groups argued that significant changes in the environmental impacts of the proposed roadway made a more thorough analysis necessary. A federal judge agreed and required that



Northwest Vermont Regional Profile:

Population (2005 US Census estimate): 326,168

Annual pop. growth rate (2000-2005): 0.6%

Economic base: Nonspecialized; federal government; service

Community Classification: Exurban; destination

Strategies employed: Regional planning; compact growth; rural land conservation.

"The state realized that much of the growth problem stemmed directly from a lack of resources for growth-related planning at the local and regional levels."

a new impact study be done which considered a wider variety of impacts including induced development from the project. The Environmental impact analysis is now underway and expected to be complete by the spring of 2007. In the interim, VTrans saw the need to assist Northwest Vermont communities in establishing a clearer future vision and supporting land use and transportation infrastructure. The state realized that much of the growth problem stemmed directly from a lack of resources for growth-related planning at the local and regional levels. In turn, this created a situation where VTrans was reacting to transportation issues caused in part by poor land use decisions at the local level.

In 2004, the Federal Highway Administration (FHWA) and VTrans appropriated funding for the Northwest Vermont Project, a regional project that provides selected municipalities in the northwest corner of the state with resources to help establish a community vision. This vision takes into account expected growth and some of the growth management strategies necessary to achieve the vision are identified. This project has been a positive outcome from a litigious beginning in that it has provided a big boost in local planning tools for transportation and land use.

The Project

VTrans asked the five northwest Vermont regional planning commissions—Chittenden County, Northwest Vermont (Franklin and Grand Isle Counties), Lamoille County, Central Vermont (Washington County), and Addison County—to identify how selected communities within their regions might address the following questions:

1. To what extent will your community grow in the future?
2. What is your ability to manage this growth effectively?
3. What tools exist or can you develop to effectively manage this growth and support your community's vision?

The regional planning commissions and VTrans agreed that the \$250,000 available for the project should be spent in the following way: During 2005 and 2006 the regional planning commissions would use roughly two thirds of the dollars addressing the first two questions above in phases one and two of the project. The regions could then serve their unique needs and the needs of their respective communities. Some regions are more rural than others. Some communities have professional planning staff, some do not. The nature and extent of growth pressures also varies.

Once the first two questions regarding projected growth and the ability to manage growth were addressed, the regions would use the last third of the dollars during 2006 and 2007 for phase three to identify tools to help address communities' growth management needs throughout the regions.

VTrans' overall interest in the project is to provide predominately rural communities facing growth pressure access to sophisticated technical tools such as Geography Information Systems and land use build out models, thus allowing them to think strategically through a scenario planning process. In addition the project strengthens intra- and inter-regional ties including coordination of plans and resources, all of which is needed to effectively plan and address growth at all levels. This will help VTrans create a more efficient and rural-friendly transportation infrastructure that will not encourage urban sprawl and will help communities create the kind of places they desire.

Using the project funds, each community has been able to consider a variety of issues including the largest issue that the area is facing: sprawl and piecemeal development on a very limited

“The largest issue that the area is facing is sprawling and piecemeal development on a very limited transportation infrastructure of rural highways and back roads.”

transportation infrastructure of rural highways and back roads. Under development pressure, this not only creates congestion and the need for additional roads or road widening, it causes access management issues as every subdivision, rural acreage, and commercial development empties onto the same rural highway. With the largest growth in Vermont occurring in and around Chittenden County, many people working in Chittenden County can't afford to live there. As rural areas have become bedroom communities, their infrastructure has struggled to keep up. The character of Northwest Vermont is thus changing permanently.

The Process

The Northwest Vermont Planning Project seeks to help communities analyze their growth, and evaluate their plans to manage this growth. In the long run this will help the state identify programs to assist rural communities cope with growth.

The first phase of the project supplied funding to several communities to undertake a build-out analysis. Each community was able to tailor their approach to the task depending on their needs. Some areas had done little planning for or analysis of their growth, while others used the funds to increase the sophistication of their current efforts at projecting growth. In each case, however, technical tools were used to look at the effects of future build out and/or to evaluate the impact of increased development on major corridors. The Chittenden County Regional Planning Commission used a land use modeling software to evaluate future impacts on Routes 7 and 116. The more rural regional planning commissions used this phase of the project to run growth forecasts for local municipalities, sometimes for the first time.

From the analysis done in the first phase, each regional planning commission developed an assessment of their community's ability to handle increased growth in the second phase. For some municipalities, there was no planning staff or resources, while for others there was currently an established planning staff and a planning and zoning process. In those communities with few resources, the funds were used to develop tools the municipalities could use to improve site development, access management along highways, and design guidelines.

The Addison County Regional Planning Commission is developing a publication entitled *The View from the Road—Patterns, Principles, & Guidelines for Roadscape*. The Lamoille County Planning Commission assisted local towns in adopting highway ordinances, sub-division regulations, town zoning, and separation distance requirements for driveways on Route 15 to help with access management on the corridor. The idea is to more closely regulate the type and number of direct access points to regional roads. This effort is aimed at improving congestion along primary highways to improve the flow of goods and services as well as for regional commuters. Central Vermont and Northwest Vermont Regional Planning Commission, the latter of which includes Franklin and Grand Isle Counties, compared build out scenarios with the land use goals and visions of selected towns.

The third and final phase of the project—identifying tools to help address communities' growth management needs throughout the regions—is currently underway. It will seek to address the issues raised in the first two phases through not only improving coordination among the regions with respect to growth management but also may include improving the build-out model used by several of the project communities to improve economic and population forecasting for all of Northwest Vermont.

Results and Lessons Learned

The project is allowing each of the regional planning commissions to consider both land use and transportation impacts on their rural areas. Each region now has a clearer view of the extent of projected growth, how their communities will be able to handle this growth, and some tools to use growth to their advantage, rather than simply reacting to the growth as it happens. It is in VTrans' and FHWA's interest to help the localities in each of these regions better manage their growth through land use policies in order to avoid urban sprawl and congested regional roads. This will also maximize transportation infrastructure investments, preserve the environment, and help preserve the rural community character that many in Northwestern Vermont desire to maintain.

While much was accomplished using the various land use modeling software packages, there were problems with some of the assumptions that limited the effectiveness of the analysis and, in the case of Chittenden County, meant that the results could not be used. Some of the assumptions that proved difficult were the job-growth factors as well as accounting for mixed use development. There are hurdles slowing down the process in towns lacking staff to implement the recommendations. A different approach is required for these towns. This involves training local volunteers as well as providing the towns with guidebooks and draft regulations.

The project has so far been successful in getting each community to consider land use and its effect on the rural transportation infrastructure. Conducting build-out analyses has caused local governments and citizens to better understand the impacts future growth and development patterns could have on their community.

Transferability

One of the highly transferable strategies employed by this project was to gather the regional planning commissions (in this case, a total of five organizations) around the same table to think about the relationship between land use and transportation and the importance of the proximity between jobs and housing. This process, in which participants learned new approaches, considered their applicability, and shared insights with one another, equipped regional leaders to help local towns achieve their vision through better land use and transportation decisions.

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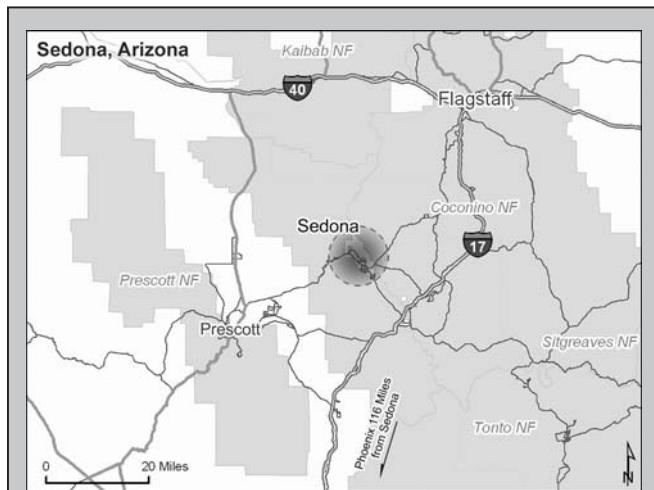
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Sedona, Arizona: Serving Visitors and Preserving the Region's Natural Beauty

Major Challenge

What are innovative and cost effective ways to use transportation to enhance the region's livability and preserve its cultural and environmental assets?

The Sedona/Red Rock region, located 30 miles south of Flagstaff is known internationally for its incredible beauty and natural recreational opportunities. The area currently has from 4-5 million visitors each year, a number that is expected to double in next 20 years. Not only is the city



Sedona Community Profile:

Population (2005 US Census estimate): 11,220

Annual pop. growth rate (2000-2005): 1.8%

Special populations: 25.6% elderly

Economic base: Federal government; service

Community Classification: Exurban; destination

Strategies employed: Local accessibility; community design; compact growth; transit planning; pedestrian orientation; street connectivity.

a popular tourist destination, but Sedona is situated at the base of Oak Creek Canyon where highways 89 and 179 meet, making the community an important transportation crossroads. Transportation options for these visitors as well as community residents were limited to either owning or renting an automobile, causing increasing congestion on the few primary roads in the valley. Due to the valley's geography and pedestrian-unfriendly designs, walking within the picturesque town was difficult. Increasing congestion on both highway 89 and 179 threatened not only to harm air quality, but also to tarnish the attractiveness of the Sedona/Red Rock region to visitors. Residents were concerned that Sedona could lose its scenic beauty through widened roads and an endless line of traffic in the valley.

The Project

To address these issues, a consortium of the regions governments including The City of Sedona, Yavapai and Coconino counties, Coconino National Forest, the Northern Arizona Council of Governments with help from the Arizona Department of Transportation (ADOT) and the Community Transportation Association of America organized to look at regional transportation alternatives. Through this collaborative process, a transportation plan was created that emphasized the following: creating a regional multimodal transportation system, limiting new highway construction, fashioning an effective public transportation system, and changing community design to create a more livable community for pedestrians and bicyclists. A major catalyst to the project was the hope that creating a true multimodal, livable community would both preserve its natural beauty and character and would increase the marketability of the region for visitors to make their stays lengthier.

The transportation solution agreed upon for Sedona includes a mix of infrastructure improvements as well as policy changes. The idea is not only to add transit to the mix, but also to make the transit system viable through transit-oriented designs including pedestrian-friendly shuttle stops as well as transit-oriented development. Real time bus arrival information will be at key stops so that riders can know how long it will be until the next bus. Street configuration changes are planned to increase connectivity. Bicycle and pedestrian connections, including trails and pathways, will complement the system. The aim of the entire system is for tourists to be able to park at designated locations and either walk the town or take transit, thus limiting the number of trips on the main roads through the valley.

Policy changes include those for parking, road design and a permit system for entering the National Forest. A network of four or more gateway sites complete with wayfinding helps for visitors and riders to get information, park, and access the shuttle or transfer shuttles. Through working with ADOT, the 179 highway corridor was turned over to the City to make it more pedestrian and transit-friendly and ADA compliant.

The Sedona Roadrunner bus system will serve both local commuters and tourists. The first phase will include both a high frequency shuttle and a commuter bus. The tourist-oriented shuttle will serve visitors from 9:00 am to 6:30 pm in the three commercial hubs of Sedona: uptown, tlaqueapque and hillside. Several new development projects in the City will be oriented around stops on the shuttle. To fully utilize resources, the buses will be housed in the nearby city of Cottonwood where many workers live and commute to Sedona each day. These buses will be used for morning and evening commuter service between the localities to ease affordable housing pressures. The system will be funded through state and federal dollars with a local match from the City of Sedona's general fund. Systems like the Sedona Roadrunner are also eligible for additional funding under the 2005 federal transportation legislation, SAFETEA-LU.

The Process

Planning for a multi-modal Sedona began at a town hall meeting on transportation. The meeting sparked a discussion within the community on how transportation options could be improved for the city. Out of this initial discussion a group formed, calling themselves Active Citizens for Transportation Solutions. Through the work of this group as well as extensive coordination between the City of Sedona, the County of Coconino, and the Arizona Department of Transportation, the community began to explore transportation options. Active Citizens for Transportation Solutions commissioned an initial Transit Feasibility Study in 1998.

Out of this process came the Sedona Shuttle Feasibility Study that was adopted by the Sedona City Council in 2003. As public discussions continued, it became clear that an efficient, tourist-oriented transit service combined with pedestrian improvements would help preserve the community character through relieving the traffic congestion. The community expressed concerns that the transit system keep with the rural flavor of the community and not make the community feel like the big cities that so many of them had moved from. “Residents wanted to make sure that the bus system was at a scale that fit the community,” recalls County Transportation Planner Geoff Cross. This is currently being achieved through design strategies that both fit the rural character of the community, yet encourage transit-oriented design and mixed use development that complement the transit system.

As the process continued, both the public and elected officials began to realize that a good transit system was not just an additional service to local residents, but it was an economic development strategy for bringing visitors and jobs to the region. Through continued discussions with the public and intergovernmental coordination, the city council authorized an agreement with

Coconino County to examine the feasibility study proposals and create a final implementation plan for bringing cutting-edge transit service to Sedona.

Results and Lessons Learned

The Sedona Transit Plan was adopted in June 2004, with service expected to commence in September 2006. In addition, the Northern Arizona Intergovernmental Public Transportation Authority, a regional transit authority covering the cities of Flagstaff, Sedona, and Cottonwood, Northern Arizona University and Coconino and Yavapai Counties, is being developed. It will administer the Sedona Roadrunner and other regional transit systems ensuring that providing good quality transit service will continue to be a priority for the region. The process was long and involved and did not lead to a single cure-all solution, rather a plan involving multiple levels of government providing a range of solutions addressing the transportation issue. The community decided not to implement the transportation plan halfway, as they knew tourist and other choice riders would not get out of their cars for an inconvenient transit system. As Geoff Cross puts it, "We had to do it really well or not at all." And that is what the City has done: created a plan for a rural, efficient, multimodal transportation system.

Transferability

Coconino County staff identified a few key recommendations for rural communities looking to replicate their success. First, they began by researching what other communities facing similar problems had done. For example, Sedona looked to Zion National Park's transit system and Breckenridge, Colorado, as well as other western resort towns with similar valley geographies and numbers of tourists. Secondly, they paid close attention to public involvement and a high quality process, focused on getting the entire community to see the benefits of a multimodal transportation system that was balanced and tourist-friendly. This process took time and patience, but it yielded a plan that was innovative, representative, and practical. Finally, the solutions Sedona reached were a mixture of infrastructure improvements as well as policy changes. This integrated mixture of physical, programmatic and policy changes was critical to success.

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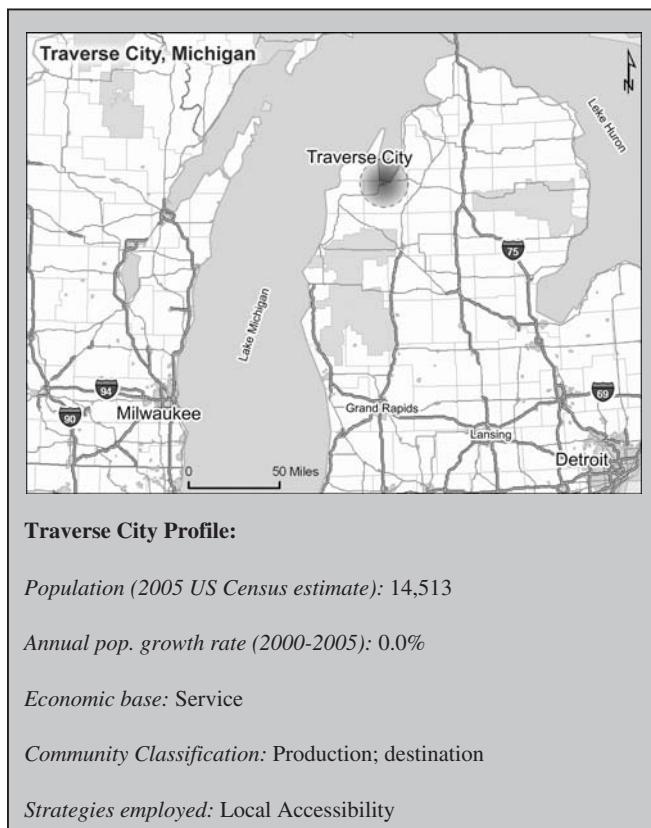
Traverse City, Michigan: Rural Neighbors Sharing Cars to Improve Their Community

Major Challenge

What can be done to increase local access and transportation options for small town residents?

Many rural small towns have tight-knit downtowns that provide excellent opportunities to walk to work, church or to the park. Traverse City is the ideal rural community, with a vibrant downtown center. This center is supported both by tourists who visit the picturesque town on Grand Traverse Bay and a healthy local economy, which is partially based on its status as one of the most important cherry-producing areas in the United States.

Local residents Bob Otwell and friend Sharon Flesher decided this walkable, close knit community was a good place to start a community car-sharing business. Otwell was concerned about



the number of unused automobiles in their little community as well as the environmental impact of 10,000 drivers on the road each day in Traverse City. Extraneous cars take up space and financial resources in a community, for example, Otwell calculated that the space used to house the cars in his 9-block neighborhood was equal to a full city block, a block that could have been used for a neighborhood park. A car-sharing program they reasoned had the potential to increase local accessibility for families dependent on one car as well as those who biked, walked, or took the bus to work. Because the community is sandwiched between two bodies of water and has enough services within walking distance, both felt that a car-sharing program could allow people the option of not owning a car since some of them only needed to run occasional errands or take short trips out of the Traverse City area.

The Project

When Otwell decided to start CarSharing Traverse in the small town of Traverse City, Michigan, the idea had taken root in less than a handful of places in the United States. These included CarSharing Portland, Inc., in Oregon as well as ZipCar in Boston. None of these were rural in nature and most were for-profit business ventures. Otwell and Flesher organized a car-sharing business model that drew from the successes of Portland's innovative program. The CarSharing Traverse model broke new ground in that it had no hired staff, did no marketing other than word of mouth, and was one of the first of its kind in a rural community.

The Process

The business began with two cars and a handful of members and expanded to three cars and about thirty members at its conclusion nearly three years later. In the words of Flesher, the

operation “consisted of lockboxes and a cell phone.” Members would call Sharon’s cell to reserve cars for specific times, would go to one of the three car locations, punch in the lockbox code to get the car keys and log their time in a logbook once they were done borrowing the car. Membership in the program was an inexpensive \$25 to join, \$2 per hour and \$0.50 per mile to rent the cars. Cars could also be rented at a daily rate of \$50. Gasoline and insurance were included in these prices.

Most of the 30 members used the cars for in-town errands such as kid’s soccer games or getting groceries. For the majority, the program allowed them to be a one-car family, while for four or five families, the program was their only access to an automobile.

Results and Lessons Learned

The amazing lesson from the Traverse City car-sharing program process was that it worked for nearly three years without any government subsidies or assistance. It was simply a case of a group of neighbors and others concerned about their community and/or in need of additional transportation options working together.

While the Traverse City program ultimately ended due to volunteer coordinator Flesher’s move to Boulder, Colorado, and the absence of a volunteer coordinator, a number of lessons on rural car sharing can be learned. Flesher suggests that future rural programs operate on a cooperative or nonprofit model or with help from a local government. This is not to say that her business model would not work if there was enough interest. “The program worked for two and a half years on volunteer labor, but that ran out. It would have needed 100 members to sustain a part-time paid staffer,” Flesher estimates. While one might assume that gasoline would be a major cost in operating the program, it actually represented less than five percent of the total cost. Insurance was the key cost factor for the program; however, unlike many other programs in the country, Traverse City was able to work with a local car insurance agent to have the program’s members be insured as any other business would be. This avoided unnecessary insurance costs. During the program’s entire operation there were no issues with there not being enough cars available, cars being returned late or members not paying their bills.

Another key lesson learned was to contact other car-sharing programs to share ideas. The program would never have gotten off the ground without logistical advice from programs operating in more urban areas. One important ally of car sharing in these communities as well as in Traverse City was the presence of public transit. If residents do not have to have a car to commute to work each day, they are much more likely to find a car-sharing program attractive.

Two major goals of the program were achieved: accessibility for members was increased and the number of car trips decreased (in turn decreasing traffic and air pollution). Flesher asserts, “The biggest winner in the car sharing scheme may be the community that hosts it. That’s because studies have shown that participation in a CSO decreases the distances driven by its members by as much as 50 to 70 percent. The community benefits by reduced congestion, pollution, and infrastructure costs.” Yet, some of the most important benefits of the program were intangible. Members switched to a lifestyle of walking and biking, which in turn led to an increased feeling of community. Says Flesher, “We built relationships that enabled most of our members to avoid purchasing their own cars when our operations ceased in June 2002.”

Transferability

Other rural communities have taken a similar approach to the Traverse City model and had more sustained success. For example, the Dancing Rabbit Vehicle Cooperative in rural Missouri owns a small fleet of cars that local coop members collectively use. This cooperative model may work best for a close knit community.

Other communities may find the Aspen, Colorado, model preferable, in which the Roaring Fork Valley Vehicles program was launched with municipal support. This program operates throughout Aspen and charges similar rates to its members as the Traverse City program. The program, in operation since 2001, has a website and a full time employee provided by the City of Aspen. Vehicles are purchased by the City, but operating costs are paid for through members' fees and car rentals. Members can reserve one of the fleet's five cars anywhere from 30 minutes to four days. The group's sixty members can also benefit from various deals offered through sponsoring companies including Alamo rental cars for longer trips. Director and President, Gavin Seedorf, says that most members do not own cars or have unreliable cars, although local businesses also use the service. Some of the members are also part-time residents who come to enjoy the area's scenic beauty and ski slopes.

In larger urban markets, car sharing has become big business. Companies such as ZipCar and Flexcar and City CarShare have established themselves as a part of the transportation network. In December 2005, there were an estimated 105,000 members of car-sharing programs in North America⁵, up from less than a few thousand in 2000.⁶

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Useful Websites

<http://www.roaringforkvehicles.com/index.html>

<http://www.dancingrabbit.org/drvc/>

<http://www.carsharing.net/where.html>

<http://www.record-eagle.com/2000/feb/09share.htm>

http://www.nelsonnygaard.com/articles/tcrp_rpt_108_execsumm.pdf

<http://www.zipcar.com/>

Unity, Maine: Preserving Farmland Through Strengthening Community Character

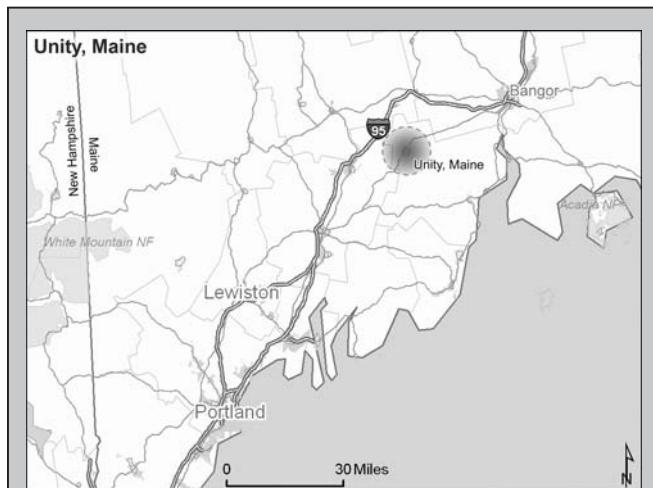
Major Challenge

How to preserve local, community character, and prevent the loss of farmland while going through growth and economic changes

Unity, Maine, is not unlike many farming communities across the country. The small town is located in a very rural portion of the state in Waldo County—one of the poorest counties in Maine. Unity has a small liberal arts college established in the 1960s that specializes in environmental programs. It also has a concentration of senior and low income housing due to the town having

⁵From <http://www.carsharing.net>

⁶From TCRP Report 108 on Car-sharing: http://www.nelsonnygaard.com/articles/tcrp_rpt_108_execsumm.pdf



Unity Town Profile:

Population (2005 US Census estimate): 1,972

Annual pop. growth rate (2000-2005): 0.9%

Economic base: Service (institutional)

Community Classification: Destination

Strategies employed: Transit planning; Compact growth; Pedestrian and cycling connections.

one of the only sewer systems in Waldo County. The town has seen the decline of agricultural jobs and disinvestment in its small town center. In addition, new homes, businesses and even the new Masonic hall were being built out of town on former agricultural lands. In short, Unity was experiencing what many rural communities have witnessed: disappearing farmland and the end to a rural way of life.

The Unity Barn Raisers organization had its start from the town's comprehensive planning process. In 1989, the State Legislature enacted the Growth Management Act. This act allowed towns across the state to pass local comprehensive plans. Unity adopted its first comprehensive plan in 1993. The town adopted a land use ordinance for its comprehensive plan in 1995 and has updated its plan frequently since then. These updates have provided an opportunity for the community to further define the future they desire for Unity. Through the community visioning process of the plan, a number of local citizens became better educated about the future possibilities for their community and excited about shaping Unity's future. They also realized two things through the community visioning process: The first was that they could not accomplish all they wanted for Unity through the comprehensive plan due to the town's limited funds for economic development and limited town staff. The second was that the town no longer had a community meeting place. The planning meetings were held in a local church and had to be scheduled around events held there. The citizens involved in the visioning process decided to establish Unity Barn Raisers with the express goal of serving more needs locally and creating a positive social impact on their community. The organization realized that the town was not likely to have a large amount of growth—it had seen perhaps a total of 20 houses added over the last five years—rather, they could use what growth there was to create pockets of activity within the community.

The Project

The impetus for starting the Unity Barn Raisers was a realization that their community was becoming essentially a bedroom community. Most services had, or were, in the process of leaving the town center. Residents were increasingly forced to work, shop, dine, and play in neighboring communities. The Unity Barn Raisers understood that if their community became solely a bedroom community, it would mean the death of both their town center and the local sense of community. The organization set out to combat the trend by revitalizing the center, bringing essential services back to Main Street, improving the local transportation system, and creating a true sense of community in Unity. The overall goal is to improve their community through locally driven projects and land use changes. The aim is to decrease the distance folks have to drive to work or for goods and services. Decreasing the overall “footprint” of the developed area will not only increase the viability of Unity as a healthy town, but will also help protect the surrounding rural countryside from sprawling development.

Some of the expressed goals of the organization are to: (1) Improve the quality of life for residents of Unity (2) Preserve the town center and have it continue as the market center for surrounding towns (3) Pursue innovative projects that help local businesses, enhance the physical environment, and increase the sense of community (4) Assist existing businesses to thrive (5) Be good stewards of the land (6) Only support projects that foster local self-reliance and will not threaten the natural environment or small town character of Unity.

The Process

The first project the Unity Barn Raisers tackled was getting a community center for the town. The Masonic hall had moved away from the town center due to a lack of available parking. The organization worked with the town to renovate the old hall and use a number of vacant lots in the center of town for parking. Getting the town to embrace the idea of shared parking for businesses and offices in the town center was a critical step towards revitalizing it. Once the community center was built, the organization focused on preserving existing businesses and bringing back businesses that had left. The town amended the land use ordinance to require that all new retail and most new commercial development locate in the town center. Later, the ordinance was also amended to require all new commercial development of more than 10,000 square feet to build so that it encouraged modes of transportation other than the automobile. Although many slow-growing or declining communities would be hesitant to pass such ordinances, fearing it might discourage new businesses, the affect has been just the opposite. Unity has attracted a number of new businesses to their town center including a veterinarian, a health center, an insurance agency, a credit union, and two new restaurants. When the only local gym closed, the Barn Raisers tried to convince a local businessman to reopen the facility. When this proved to be financially unfeasible, they bought the equipment and opened a community gym inside the community center.

The organization plans to continue assisting more businesses to locate or start up in the town center, but also has begun to work on getting more housing in the town center. The town’s ordinance includes guidelines to maintain the small town character that the community values so much. The most striking fact about the revitalization happening in Unity’s town center is that before the intervention by local citizens, eight of ten store fronts on Main Street

“The organization is seeking to improve multimodal transportation within Unity, not only to allow for seniors and others without cars to get around, but also to allow others to commute and recreate within the vicinity without the use of a car.”

were vacant. Now, all have businesses. While there was previously only one restaurant, there are four.

The organization is seeking to improve multimodal transportation within Unity, not only to allow for seniors and others without cars to get around, but also for others to commute and recreate within the vicinity. To this end, the organization has begun the CommUnity Trails project. The network of trails will connect most of the town's amenities and services. The trails network will have a one mile bikeway that will stretch from a public beach on Unity Pond through the town center and then on to Unity College. This bikeway includes a new bridge that creates a scenic short cut between the town and the college. The bikeway is part of a broader plan to encourage more college students, many of whom rent housing in the town center, not to bring cars to college. Much of the trail system is built, with some still under construction. Unity Barn Raisers has also worked with the town to put in quite a few new sidewalks and streetscape improvements. These have included over 85 trees planted to replace the town's original street trees that were wiped out by Dutch Elm Disease and had never been replaced. The organization would also like to initiate a van service for seniors, low income residents, college students, and others without access to cars.

Results and Lessons Learned

The Unity Barn Raisers have had not only great plans for the community, but significant successes as well. They have used very creative mechanisms for attracting and creating locally owned and operated businesses. The accomplishments of the Unity Barn Raisers have not come without struggles. In the beginning, the organization had to work hard to convince local elected officials of their good intentions. Efforts to encourage new residential growth in and around the existing town center (rather than in outlying areas) have been hampered by the fact that the town center includes a stock car track that is very loud two days out of the week. The organization has also faced opposition from some in the community as well. Most of those who were skeptical in the beginning have now been won over by the organization's incredible success in the majority of its undertakings.

As is the case with many small communities, the town of Unity has very few financial resources available for economic development. This created a place for a civic organization like the Unity Barn Raisers to write grants, hold fundraisers such as silent auctions and a golf tournament, and use a team of community volunteers to see their vision for Unity accomplished. Through their work, the organization has been able to secure several Community Development Block Grants as well as several foundation grants.

The organization is to be congratulated on the incredible success they have had in achieving a clear vision of revitalization for their community. They have begun to create a revitalized, beautified, and truly multimodal town center. They have been able to offer numerous community programs and events. Most importantly, they have come a long ways toward meeting their goal of creating and preserving a sense of community in their rural town. Unity Barn Raiser's founding executive director, John Piotti, who also chairs the local planning board, explains that after each successful program or project, "The community gets more excited about the power of planning."

Transferability

Rural American towns facing the same challenges as Unity can learn from their experience in strong civic engagement. Cultivating strong local leadership and empowering citizens were key ingredients for their successes. The enabling growth management legislation passed by the State encouraged this level of involvement in planning. But perhaps the most important ingredient

for success has been the community's continued public and private investments in programs and projects that inspire community residents and foster ongoing participation.

Contact Information

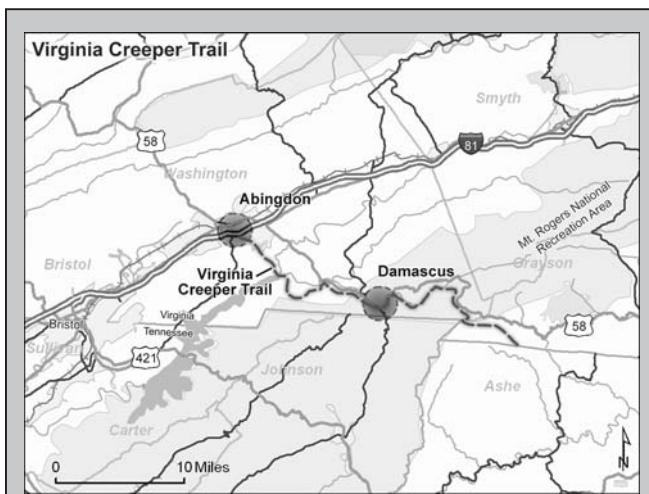
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Virginia Creeper Trail, Washington County, VA: Leveraging Transportation Improvement for Revitalization

Major Challenge

Southeastern Virginia contains some of the Eastern United States' most beautiful landscapes, quaint villages, and rugged mountain terrain. As the area was settled, good trails through the Appalachian Mountains were important for commerce and migration. These routes continued to be important in the 19th and 20th centuries and many became rail lines for the purpose of extracting iron ore, harvesting lumber, and transporting the region's growing population. Shortly after the turn of the century, one such line, the Virginia Carolina Railroad, was constructed from Abingdon to Damascus, Virginia, and on into North Carolina. The line was christened the



Abingdon and Damascus Town Profiles:

Population (2005 US Census estimate): Abingdon 7,925; Damascus 1,083

Annual pop. growth rate (2000-2005): Abingdon 0.4%; Damascus 2.1%

Special populations: 20.7% elderly

Economic base: Manufacturing

Community Classification: Production

Strategies employed: Pedestrian and cycling linkages; land development regulations

“Virginia Creeper” after a local plant species (as well as the fact that the line moved slowly up the area mountainsides carrying many tons of iron ore and lumber, not to mention passengers and supplies).

The line ceased to be profitable after the Great Depression and operations ended in 1977. Led by two citizens, Dr. French Moore Jr. and Dr. Dave Brilhart, the local community actively worked to get the right-of-way preserved as a multi-use trail. Because the land between the Abingdon and Damascus is all privately owned, and in some cases only 80 feet wide, there was a strong backlash from some landowners at the suggestion of building the trail on the old railroad right-of-way. Threats and intimidation were used to stop the project, including a mysterious fire that burned a good portion of one wooden trestle. Washington County was hesitant to support the project due to pressure from land owners; however, in 1982 both towns bought the trail right-of-way for the first 15 miles with Tennessee Valley Authority grant money and help from the railroad company and the Virginia Commission for Outdoor Recreation. The USDA acquired the right-of-way for the remaining miles in the Jefferson National Forest. The trestles were also purchased from the salvage company that had been sold the rights to their lumber. Construction of the trail began shortly after purchase, with the work completed and the trail inaugurated in 1984.

The Project

The Virginia Creeper trail stretches a total of 33.4 miles long from the town of Abingdon through Damascus and on to Whitetop Station to the east. The trail begins at an elevation of 2,000 feet in Abingdon, climbing to 3,600 feet by the time it reaches Whitetop Station. There are an impressive 47 trestles along the trail as it makes its way through the mountains. Although a major regional transportation link in terms of length, the trail is not for motorized vehicles. Only biking, hiking, and horseback riding are allowed. It is currently managed by the towns of Damascus and Abingdon, with the portions in the Jefferson National Forest managed by the Mount Rogers National Recreation Area. The trail includes three visitor centers.

A survey and economic impact study done by the USDA and the University of Georgia in December 2004 found that local users live, on average, eight miles from the portion of the trail they use. Of the local users, 65 percent were from nearby Abingdon. Local users were also found to use the trail about 11 times per month, with 55 percent taking fewer than 10 trips each month. There are some local residents who use the trail very frequently including one older gentleman who bikes to White Top multiple times a week. The main activities on the trail were walking (nearly half of local users), followed by biking and jogging. The opposite was true for out of town visitors to the trail. Three fourths of these nonlocal users came to bike the trail for an average distance of 17 miles per trip. Although the trail could be used for commuting between Damascus and Abingdon, the area has a small population. No survey has been done to determine the recreational usage of the trail versus using it for trips that would have been taken with an automobile; however, it is estimated that few locals use the trail instead of driving.

The town of Damascus has reinvented itself from a quiet small town to a center for recreational tourism along the Virginia Creeper Trail. The town now boasts bike shops, restaurants and other services that cater to those coming from across the region to use the trail. Damascus has been called “Trail Town, USA” due to the fact that five major trails intersect at the town. The town of Abingdon has also benefited from the trail. Since it is a larger community, there are more local residents who run, walk or ride the trail. It is also a known tourist destination, a fact that is increased by its location as the start of the Virginia Creeper Trail.

Washington County has been working on an overlay district for portions of the trail. This would direct land uses and design guidelines to improve the area of the community around the trail in a manner that would enhance the character of the region and its attractiveness as

a regional destination. Most of the zoning around the trail is agricultural in the more rural sections.

Results and Lessons Learned

After over 20 years of use, the trail is more popular than ever and successful in terms of providing regional recreation opportunities and economic benefits to Washington County. Over 100,000 annually use the trail, bringing in somewhere between \$2.3 and \$3.9 million dollars annually to the area. The communities of Abingdon and Damascus have successfully used the trail to improve their historic areas and attract tourists from the region and far beyond.

Transferability

The Virginia Creeper Trail is a model for other communities in that it successfully employs a transportation facility, mainly used for recreational purposes, as a tool for economic development. The Trail is also a model of intergovernmental coordination. Half the trail is owned by the federal government through the National Forest Service, half is owned by two local communities, and much of the maintenance and promotion is through the Virginia Creeper Trail Club, a strong grassroots organization. By using a transportation planning process to help disparate groups come together, establish mutual goals, and work together toward implementation, the project has established a strong base for long-term success.

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Virginia Creeper Trail Club, www.vacreepertrail.org

Western Piedmont Region, North Carolina: Managing Highway Corridors and Guiding Development

Major Challenge

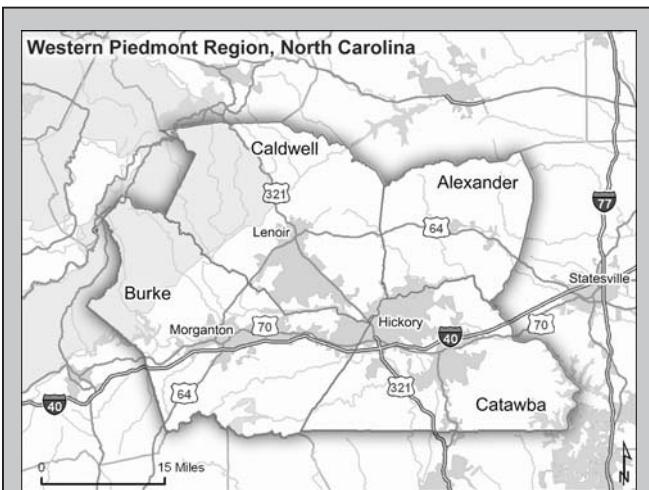
Finding innovative and cost effective ways to use transportation to enhance the region's livability and preserve its cultural and environmental assets

The Western Piedmont region is located approximately 50 miles northwest of Charlotte, in the foothills of the Blue Ridge mountains. The four-county region is defined as the Hickory, N.C., metropolitan statistical area by the Census Bureau. While much of the region's land remains in agricultural production (particularly in Alexander County, the smallest), agriculture accounts for less than 1 percent of regional employment.⁷ The region's economy has depended on manufacturing in recent decades, particularly in furniture and textiles. Downturns in both industries have led to the loss of more than 20,000 jobs in the region since the year 2000, slowing economic and population growth.⁸ According to the Catawba County government, "comprehensive efforts are being directed at identifying and recruiting new sectors in manufacturing such as biomedical, pharmaceutical, technology and building products, and identifying and recruiting non-manufacturing sectors such as retirement and retail development."⁹ Two major highway links

⁷<http://cmidis.commerce.state.nc.us/countyprofiles/default.cfm>

⁸<http://www.wpcog.org/files/variousPDF/einsummer2004mainbody2.pdf>

⁹<http://www.catawbacountync.gov/misc/profile.asp>



Western Piedmont Regional Profile:

Population (2005 US Census estimate): 355,654

Annual pop. growth rate (2000-2005): 0.8%

Economic base: Manufacturing (furniture and textile)

Community Classification: Production

Strategies employed: Regional corridor planning, access management, overlay districts.

cross the region: Interstate 40 (built in the 1960s-70s) and US Highway 321 (completed in 1998). Both highways increased the potential for economic development in the area, by providing more access to the region and by providing opportunities for business locations (such as retail outlets for locally manufactured furniture). At the same time, development along these corridors created challenges, including managing access to properties along the highways, threats to scenic landscapes and the natural environment, and concerns that development would detract from the community's character.

The Projects

Over two decades, local governments partnered with the Western Piedmont Council of Governments (WPCOG), which houses the RPO/MPO for the area, to develop three corridor studies along these two major routes. Each study resulted in a corridor plan (the last plan is still in draft form) designed to (in the words of the I-40 plan) “promote safety, traffic efficiency, aesthetics, economic development, and compatible residential uses.”

The first plan, completed in 1996, covered a newly built section of US 321 in central Catawba County. The corridor was largely undeveloped, so it presented planners with a nearly “blank slate” to ensure that new development would be appropriately sited and that access would not impede the functioning of the highway. US 321 in Catawba County is a limited-access freeway with only four interchanges, so development along the highway itself is not a major issue. Instead, the plan focuses on siting, design, and access points of development at the four interchanges, and along the intersecting thoroughfares close to those interchanges. The major accomplishment in the plan was the creation of an economic development (ED) district with uniform classifications for mixed-use development in nodes at the interchanges.

The district encourages residential development to take shape in clustered and zero-lot-line developments.

The I-40 Corridor Plan in Burke County (adopted in 2003) addressed a different problem. I-40 has been functioning since the 1960s. Along the corridor in Burke County (the westernmost of the four), it has already become inundated with commercial strip development. Like US 321 in Catawba, I-40 is a limited-access freeway. Thus, the major access management challenges are on other major thoroughfares in the corridor. However, the plan also addressed problems at the interchanges on I-40. An important issue was that the 15 interchanges were built based on 1960s design standards, and each had its own safety deficiencies. Prior to the Corridor Plan, no one in the county had been able to agree on the priority of fixing these interchanges, given limited resources. A major accomplishment of the plan was to recommend improvements and a ranking of priorities. For example, for Exit 111, considered the most dangerous in the county, the plan recommends that it be first in line for a redesign of the ramps, and calls for reserving right-of-way for ramp expansions. The plan also recommends holding off on zoning changes around this interchange until the redesign takes place, to highlight the importance of addressing this problem.

Like the US 321 Plan in Catawba, the I-40 Plan sets common access management standards, design guidelines, and zoning regulations for property along the corridor. Property owners are required to limit the number of driveways and site them to avoid conflicts at road intersections. Owners are also encouraged to create common access points and share parking. Parking is to be located behind or at the side of buildings, and buildings are required to have their entrances oriented toward pedestrians.

The US 321 Corridor Plan in Caldwell County, like the I-40 plan, deals with an older highway with established land use patterns. But US 321 in Caldwell adds the additional challenge of land use and access management problems on a thoroughfare not built to freeway standards. For about 20 miles, from the county seat of Lenoir south to the county line at the Catawba River, US 321 is a four-lane divided highway. Like I-40, the corridor has attracted a great deal of commercial development, including industrial parks and furniture outlets. Many of the commercial establishments have driveways with direct access to the highway. Also, residential development in the corridor requires buffering from larger non-residential uses. The solution proposed here, as in the other two plans, includes buffering new development with landscaping, restricting the number of driveways and the distance between them on newly developed sites, and requiring interconnections between adjacent sites. On already-developed sites, a change in ownership or an expansion of business would trigger the new standards. Many existing sites already have three or four separate driveway access points, so planners wanted to prevent owners from building additional driveways. Finally, as in the other plans, the draft plan promotes mixed-use and clustered development.

The Process

Modern corridor planning in the Western Piedmont region had its genesis in a 1990 report issued by a US 321 Task Force formed by Catawba County. The task force recommended a number of changes to planning practices, in anticipation of the rapidly approaching construction of the limited-access segment of US 321. The recommendations included the establishment of a corridor plan for the new highway segment, and uniform land use regulations to be adopted by all local jurisdictions in their sections of the corridor.

The Western Piedmont Council of Governments, as the lead planning agency for the Unifour Rural Planning Organization (RPO) and the Greater Hickory Metropolitan Planning Organization (MPO), took the lead on the US 321 Plan in Catawba, as well as the other plans which

followed. The process and the outcomes pioneered during the first US 321 Plan created a successful model that was adapted for use in the other two plans. Each planning process shared similar characteristics. In all cases, though WPCOG was the lead agency, the local governments along each corridor played significant roles. Because all participants agreed that a major goal was the adoption of *uniform* land development and access management regulations, these plans would not have succeeded without the participation and buy-in of all affected jurisdictions. Stakeholder buy-in was also important. In both the US 321 Plan in Catawba, and the I-40 Plan in Burke, the chambers of commerce, the local Realtors, and the environmental community were all able to agree on the uniform standards. During the I-40 planning process, planners also held open public meetings where citizens could “drop in” to see the status of the plan.

Once the corridor plans were completed, it was up to the county and to each city and town along the corridor to adopt zoning and other regulations to implement the plans. For example, the US 321 Plan for Catawba developed two new economic development zoning districts (one for mixed-use, one for industrial) for key places along the corridor, while the US 321 Plan in Caldwell recommends an overlay district along the entire length of the corridor. The counties, the RPO/MPO, and the North Carolina Department of Transportation (NCDOT) must also take steps to implement the infrastructure elements of each plan. In the case of I-40, NCDOT is undertaking a feasibility study of changes to two of the most dangerous interchanges. Along US 321 in Caldwell, NCDOT has started the planning and environmental study to widen the highway.

Results and Lessons Learned

The corridor plans in the Western Piedmont region demonstrate how corridor planning can be a flexible and effective tool. All three plans had common objectives, but in each case the planners adapted to local conditions and needs. The plans also show the importance of a collaborative relationship among the local governments and the regional planning agency. Another important lesson is the value of good research. Particularly for the first plan on the 321 corridor, the planners drew extensively on the existing literature on corridor planning, landscape designs for commercial parking, and zero-lot-line development.

Because of their relative newness, the plans have not had much impact yet on new development in the corridors, but there are already a few encouraging examples. On US 321 in Caldwell, Wal-Mart originally proposed a site plan for a store that requested its own signalized access point on the highway, even though the driveway would be less than 600 feet from an existing traffic light. After discussion with planners, the company agreed to adhere to the draft access management guidelines and provide access at the road with the traffic signal. Along US 321 in Catawba, two industrial properties have been built that meet the signage, buffer, and other requirements in that corridor’s plan. And the I-40 Corridor Plan produced a previously unreachable consensus among the local governments in the form of a priority list for improvements to the interchanges on the corridor, resulting in the first positive steps toward addressing these safety concerns.

It is as important to note what these plans do not try to achieve as it is to say what they do. Planners and stakeholders were under no illusions that they were trying to create “Main Streets” on these busy, yet still rural, sections of highway. Rather, the goal is to create nodes of development that are amenable to a “park once” approach. The strip development patterns along much of the I-40 corridor and the US 321 corridor in Caldwell are often not pedestrian-friendly, and have poor internal connections. As one planner noted, “when my 80-year-old mother goes shopping at the furniture outlets on US 321, she wonders why she has to leave one store, get in her car and drive back out onto 321, and then drive back in another driveway only a couple hundred feet away.” The nodal development patterns and the internal connections for pedestrian and

automobile travel will, at least, make it easier for customers to conveniently move on foot among different business establishments within a cluster. While this may seem like a modest accomplishment to planners familiar with more urban environments, it represents a significant achievement in the US 321 corridor.

Finally, these plans demonstrate the importance of reaching a community consensus in a corridor where multiple jurisdictions have authority. In the I-40 Plan and the US 321 Plan in Catawba, all the relevant local governments bought in, as did all major stakeholders. The result in both cases is a uniform set of standards that can prevent developers from playing jurisdictions against each other for advantage. In the US 321 corridor in Caldwell, the plan is still a draft as of summer 2006. Part of the reason is that some major property owners raised concerns about restrictions on billboards and other aesthetic requirements. While some of the local governments have already adopted piecemeal parts of the plan they like (such as the access management standards), the corridor plan awaits a complete consensus before full adoption. Some planners acknowledge that concerns over a weakening economy in the region can trump the desire for good planning. Nevertheless, many stakeholders in the Western Piedmont region appear to have reached the conclusion that high standards actually increase the potential for desirable economic development, and they are prepared to base the economic future of their most important travel corridors on that conclusion.

Transferability

The Western Piedmont case study demonstrates the use of the corridor study as a way to encourage regional collaboration between multiple jurisdiction to jointly manage the effectiveness of transportation facilities that are vital for the local economy. Corridor studies are now in common use, while the use of overlay districts such as the “economic development district” are becoming more and more prevalent. Applying corridor studies and overlay districts concurrently is a valuable way to integrate transportation and land use in rural areas to make the most use of major transportation facilities while also using those facilities as economic development tools to encourage appropriate land development along a corridor.

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APPENDIX C

Survey Summary

The research effort for NCHRP 08-52 included the printing and distribution of more than 3,000 surveys by mail and email to rural counties and municipalities, state DOTs, and tribal planners. In addition, the research team conducted an online survey which was circulated to various listservs and networks associated with rural land use and transportation interests. The primary purpose of the survey was to identify rural needs and strategies that involved integrated land use and transportation. The survey also collected information on barriers to success, ways to disseminate information to rural planners, demographic data, and experiences with rural transit service.

Top needs cited by respondents included accessibility to local activities and jobs and driver safety. Concerns over environmental issues such as vanishing open space and degraded water and air quality were also high, especially among rural communities near major urban centers. Some communities said too many roads were being built, leading to suburban sprawl, while others sought more and wider roads as an attempt to mitigate increased local traffic congestion caused by regional commuters and trucks.

Another frequently cited issue was the loss of local identity and downtown character, especially in rural communities where the "Main Street" had become a major artery for regional traffic. Some communities were addressing this problem by forging agreements with the state DOT to redesignate the state route to a roadway outside of town and transfer ownership of the Main Street to the locality. However, this required a high level of local and state coordination, which was often difficult to achieve.

Most respondents said their communities' populations were growing, aging, and becoming more educated and diverse. More than 80 percent had some form of transit service, usually demand-response rather than fixed-route. A surprising number of respondents were very interested in pursuing bicycle and pedestrian improvements to improve accessibility and quality of life. To deal with pedestrian and bicycle safety problems, as well as promoting public health,

respondents favored educational programs rather than major infrastructure investments. Intelligent Transportation System (ITS) strategies such as improved signal timing were also identified by many as a desirable strategy to deal with the issue of accessibility and cut-through traffic.

Respondents said the key barriers to success for coordinated land use and transportation planning were parochialism and a lack of funding. Many respondents expressed frustration at political fractures among localities and/or state agencies that hindered improvements to the transportation system and failed to consider a long-term regional perspective. When asked about the best ways to disseminate information to rural planners, respondents preferred interactive venues such as workshops or internet dialogue versus books or CDs.

Survey Purpose and Structure

Rural communities, which often operate with very limited resources, face challenging decisions when considering transportation investments and land use strategies. In response to this challenge, ICMA, in partnership with the Renaissance Planning Group conducted a study for the Transportation Research Board of the National Academies (www.trb.org). The goal of the study was to collect information on innovative ways to integrate rural land use and transportation plans in order to construct a best practices guidebook for rural planners.

As part of the research effort, a series of surveys were designed to help the research team verify and enhance its understanding of trends, issues, and potential transportation and land use solutions. The survey instruments were organized around the following topics:

- Rural Community Demographics: Trends in rural communities that relate most closely to integrated transportation and land use.
- Transit Services: Availability and perceived quality of rural transit services.

- Barriers to Success: Factors that affect the ability of rural communities and state agencies to work together and/or achieve successful results with integrated transportation and land use strategies.
- Issues: Relative importance of various land use and transportation issues.
- Strategies: The frequency with which various land use and transportation strategies have been implemented, the degree to which they were successful, the level of difficulty they presented, and their attractiveness to communities that had not yet attempted them.
- Information Sources: The relative effectiveness of various methods for disseminating information to rural planners and communities.
- Additional Information: General comments, suggestions, or contact information that would further inform the research team of issues, strategies, and potential case studies.

Sampling Technique

The project budget allowed for the printing and distribution of roughly 3,100 mail and email surveys, in addition to an online survey. Targeted groups are described below.

Rural Counties

The survey was distributed to 1,384 counties, including 1,008 non-metro counties and 376 metro counties in which 50 percent or more of the population is classified as rural according to the 2000 Census. Counties made up nearly half of the mail-back target group because they cover broad geographical areas and often serve as a planning resource for rural areas. In most parts of the country, counties are at least aware of, if not actively involved in, efforts by rural communities to implement transportation and land use strategies.

Small Towns and Incorporated Places

In addition to the county sample, the mail-back survey was sent to 1,666 municipalities, including villages, towns, and rural incorporated places. Of these, 380 jurisdictions were smaller than 2,500. The sample was drawn from the ICMA database of municipalities that have a population of less than 20,000. None of the sample municipalities were in a metropolitan statistical area, but 194 were considered "suburban" by the Census Bureau.

Although this sample of 1,666 jurisdictions represents only a handful of the thousands of small communities in the United States, results from these participants helped the research team glean insights about issues that may not be understood by county and state planners, especially in areas

such as New England where virtually all land areas are part of incorporated municipalities.

The surveys were mailed in the winter of 2006 to a selected sample of municipalities with populations between 2,500 and 250,000 and counties with populations between 2,500 and 25,000. Of the 3,050 municipalities and counties that received surveys, 649 responded (21.3 percent).

Departments of Transportation

A variation of the county/municipal survey was sent in PDF format by email to all 50 state DOTs, with the option to fax or mail it back. Nineteen surveys (38 percent) were completed and returned.

Native American Communities

A customized version of the county/municipal survey was distributed by email to the Tribal Transportation Assistance Program (TTAP) listserv maintained by Colorado State University. Nineteen surveys were received from this source. The percentage of the total is not quite clear in this case—it was difficult to ascertain the number of active listserv members.

Online Survey

The survey instrument, with some modifications, was also posted on line in order to solicit input from a broader audience (e.g., local officials, professional and civic organizations, and interested individuals). The on line survey was posted from December 15, 2005, to January 16, 2006, and garnered 623 total responses. Based on the contact information provided by 165 of the respondents, respondents represented a diversity of interests involved in or affected by rural transportation planning. Additionally, the sample indicated that the survey reached all geographic regions of the United States.

The results from the survey process are summarized in total. Results of the online and mailed surveys are presented first, followed by highlights of responses from DOTs and tribal planners. Although the mailed and online surveys were not completely identical, they were organized around core questions described at the beginning of this appendix. This material categorizes the collective results into community characteristics (i.e., the overall picture of the communities surveyed) and strategies for dealing with land use and transportation issues in rural communities.

Demographics

As identified in Table C-1, the online survey was answered a wide variety of respondent types, including rural community government staff and officials, nonprofit and consultant

Table C-1. Organization or interest represented by respondent (online survey).

Regional council or regional planning organization staff	17%
Rural county staff	12%
Rural municipality staff	11%
Rural resident	10%
Other (please specify)	9%
Nonprofit organization focusing on rural issues	8%
Private consultant with expertise in rural issues	6%
Rural appointed official	5%
State DOT staff	5%
Rural elected official	5%
Other state agency	5%
Rural business interest	3%
Academic with expertise in rural issues	2%
Tribal government or staff	0%

organizations specializing in rural issues, and residents of rural communities.

Respondents' perception of the demographic profile of their community did not vary significantly from the rural demographic trends identified in this study's literature review. Respondents generally viewed their communities as growing, aging, and becoming more educated and diverse (see Tables C-2 and C-3). Incomes were generally rated as rising and unemployment as stable. The online and mailed survey results were nearly identical, except that the mailed survey respondents saw the amount of affordable housing as more stable and more mailed survey respondents saw the diversity of jobs increasing.

Transit Availability and Quality

When asked how they rated their communities' various transit services, most respondents viewed the services offered as being either adequate or poor (see Tables C-4 and C-5). About half of rural counties did not have fixed-route service. More than 80 percent had demand-responsive transit.

Barriers to Success

As Table C-6 shows, rural communities think they are restricted most by limited funding from both the public and private sector. Political barriers are also a major concern, while coordination with regional and state entities is a lesser, although not negligible barrier. Volunteered responses (e.g., comments) frequently mentioned concerns about the ethics of local officials and community stakeholders. Many said parochialism from various players, including developers and local or state officials, hindered improvements to the transportation system. One respondent expressed the views of many in this way: "[The problem is that] personal greed and a failure to accept the fact that the good of the whole area is more important than a new development here or there. In other words, shortsightedness and selfishness seem to hold sway."

Outreach and Education

Among online survey respondents, the method seen as most effective was workshops. The next most popular methods all

Table C-2. Community demographic information (online survey).

	Increasing	Stable	Decreasing	Wide Variation	Overall Trend
Population	62%	19%	13%	6%	Increasing
People over 65	74%	19%	5%	2%	Increasing
People under 30	32%	25%	38%	5%	Even variation
Racial diversity	32%	54%	8%	6%	Stable/increasing
Residents with higher education	45%	42%	7%	5%	Stable/increasing
Household income	38%	44%	11%	7%	Stable/increasing
Affordable housing	7%	30%	56%	7%	Decreasing
Substandard housing	23%	41%	28%	8%	Even variation
Diversity of jobs	16%	43%	35%	6%	Stable/decreasing
Number of jobs	27%	40%	28%	5%	Even variation
Unemployment rate	16%	67%	13%	4%	Stable

Table C-3. Community demographic information (mailed survey).

	Increasing	Stable	Decreasing	Wide Variation	Overall Trend
Population	55%	29%	15%	1%	Increasing
People over 65	75%	22%	3%	<1%	Increasing
People under 30	27%	33%	39%	1%	Even variation
Racial diversity	29%	62%	4%	5%	Stable/increasing
Residents with higher education	40%	45%	11%	3%	Stable/increasing
Household income	38%	44%	14%	4%	Stable/increasing
Affordable housing	11%	44%	43%	1%	Stable/decreasing
Substandard housing	21%	46%	30%	3%	Even variation
Diversity of jobs	20%	48%	29%	3%	Even variation
Number of jobs	31%	41%	27%	1%	Even variation
Unemployment rate	19%	62%	19%	1%	Stable

Table C-4. Quality of rural transit service (online survey).

	% with service	Service rating	
		Adequate/poor	88%
Fixed route buses within the county	51%	Poor	68%
Fixed route buses to neighboring counties	48%	Adequate/poor	94%
Long-distance bus service (e.g. Greyhound)	71%	Adequate/poor	90%
Demand responsive transit (e.g. on-call van service)	82%	Poor	58%
Passenger rail	30%	Adequate/poor	64%
Ride sharing programs (e.g. carpooling)	65%	Poor	96%
Private taxi services	71%	Adequate/poor	11%

Table C-5. Quality of rural transit service (mailed survey).

	% with service	Service rating		
		Good	Adequate	Poor
Fixed route buses within the county	44%	9%	17%	18%
Fixed route buses to neighboring counties	40%	5%	15%	20%
Long-distance bus service (e.g. Greyhound)	45%	4%	19%	22%
Demand responsive transit (e.g. on-call van service)	87%	19%	42%	25%
Passenger rail	22%	4%	6%	11%
Ride sharing programs (e.g. carpooling)	56%	2%	20%	34%
Private taxi services	57%	4%	26%	27%
Other (please describe)	23%	13%	5%	5%

Table C-6. Barriers to success.

		Mailed			Online
		Major barrier	Minor barrier	Not a barrier	Weighted barrier
Lack of public input		20%	50%	31%	60%
Lack of political support		23%	45%	32%	68%
Lack of political authority		22%	41%	40%	54%
Limited public funding		84%	13%	3%	91%
Lack of private investment		66%	28%	6%	74%
Lack of staff, e.g., planning, engineering, etc.		43%	44%	13%	66%
Lack of information and/or technical expertise		29%	51%	20%	56%
Community leaders are resistant to change		22%	41%	37%	66%
Difficulty coordinating with state DOT		17%	45%	37%	52%
Difficulty coordinating with adjacent jurisdictions		12%	50%	39%	51%
Difficulty coordinating with incorporated areas of the county		9%	42%	50%	NA
Difficulty coordinating with regional planning agency		7%	35%	58%	32%

Table C-7. Disseminating new approaches to transportation planning.

	Mailed	Online
Local, regional, or state workshops	61%	94%
Internet downloads	53%	41%
Email discussion groups and listserves	73%	40%
Online courses or webcasts	34%	29%
Books	22%	25%
National conferences	83%	24%
Teleconferences	18%	21%
Compact discs	23%	19%
Other (please specify)		10%

utilized email and the Internet. In the mailed survey, the most popular method was national conferences, followed by email and listserves and local workshops (Table C-7). The most commonly volunteered responses mentioned public meetings and meetings with peers. In other words, face-to-face or internet interaction was preferred over methods such as books or teleconferences. The American Planning Association (APA) was the most frequently mentioned professional organization through which these outreach methods could be implemented.

Issues

After gathering basic information on the respondents and their communities, a series of questions was posed about strategies communities could use to address primary issues concerning their transportation systems and land development. For each topic area, respondents were asked to indicate the importance of the issue in their community as well as strategies for dealing with it. When asked to rate the importance of each issue to their community, the issues of primary concern for rural

communities included accessibility and safety issues for drivers as well as environmental/open space concerns.

Strategies (Online Survey)

Respondents were asked to consider a list of land use and transportation strategies that could help address each of the issues identified in Table C-8. If they had tried a strategy, they rated its general success and level of difficulty. If not, they indicated their level of interest in pursuing it.

Local Accessibility

The number one issue cited by respondents was access to local destinations. As outlined in Table C-9, the most common method for addressing this problem is widening existing roads or adding turn lanes. Strategies with the highest level of success were spot improvements and additional traffic signals along existing roads, supplying demand-responsive transit, adding sidewalks or bicycle routes, and traffic-calming

Table C-8. Issues of importance to rural communities.

	Mail			Online
	Very Important	Somewhat important	Not Important	Weighted
Local accessibility	70%	27%	4%	77%
Access to jobs	75%	22%	2%	NA
Regional accessibility	50%	45%	5%	66%
Access for tourists	44%	42%	15%	57%
Cut-through traffic	37%	48%	16%	51%
Driver safety	54%	40%	6%	70%
Pedestrian and cyclist safety	50%	42%	8%	52%
Rail crossing safety	42%	32%	26%	38%
Water/air quality	62%	30%	7%	68%
Open space and environmentally sensitive lands	52%	39%	10%	66%
Preserving community history and character	51%	43%	6%	60%
Public health concerns	36%	55%	9%	35%

Table C-9. Local accessibility strategies.

	Applied	Success	Difficulty	Interest
Widening existing roads	14%	37%	76%	29%
Spot improvements (e.g., turn lanes sight distance etc.)	11%	50%	47%	30%
Building new roads	8%	35%	81%	40%
Mixed-use development	8%	32%	68%	68%
Improving street connectivity (e.g., grid road network)	6%	38%	68%	40%
Paving unpaved roads	6%	29%	63%	30%
Demand-responsive transit (e.g., on-call vans)	6%	48%	64%	45%
Installing traffic signals	6%	42%	55%	32%
Fixed route bus service	6%	31%	75%	40%
Trails and greenways	6%	43%	65%	33%
Sidewalks	4%	47%	59%	39%
Bicycle routes	4%	37%	62%	45%
Rideshare programs (e.g., carpools)	3%	17%	60%	40%
Intelligent transportation systems	2%	26%	72%	59%
Other (describe in question below)	2%	30%	94%	79%
Traffic calming or "road diets"	2%	41%	68%	27%
Pedestrian amenities (e.g., lighting benches)	2%	33%	53%	44%
Limiting turns on commercial streets	2%	33%	56%	36%
Bicycle amenities (e.g., bike parking)	0%	33%	50%	100%

measures. Strategies deemed most difficult were widening existing or building new roads, relying on fixed-route bus service, and implementing ITS. Strategies that garnered the most interest were bicycle amenities, mixed-use development, and ITS.

The issue of accessibility generated more additional comments (volunteered responses) than any other issue. The most common concerns expressed were as follows:

- **Loss of rural lands, especially farmlands:** Respondents were greatly concerned about sprawl in their communities, a lack of activity centers, and failure to encourage growth management policies.
- **The number of roads:** Some communities complained that the limited number of roads and a lack of grid networks limited accessibility. Other communities were concerned that more roads would encourage exponential sprawl.
- **Rural transit:** A large number of responses focused on the issue of transit. Rural communities are concerned about their aging population's ability to get around. Workers, especially those with lower incomes, also need transit to reach jobs.
- **Bicycle/pedestrian amenities:** Quite a few respondents said that sidewalks, bicycle lanes, and wheelchair-accessible facilities are a major concern for their communities.
- **Transportation funding shortfalls:** Permeating many of the volunteered responses were concerns about limited funding sources. Several respondents were worried that currently needed projects were either not funded or substantially underfunded.

- **Coordination and communication with FHWA:** One concern mentioned frequently was a lack of coordination and understanding between rural communities and the federal government. Many respondents expressed frustration with federal transportation requirements that seemed to be "one size fits all" and not relevant or good for their community.
- **School Accessibility and Quality:** Overcrowding in schools is a concern for some fast-growing communities. Other rural communities are concerned that schools are located far from residential areas because there is no town center or because the district covers so much territory. This situation makes it impossible for students to get to school any other way than by bus or car.

Driver Safety

Commonly applied strategies for improving driver safety include spot improvements, installing traffic signals, and traffic calming (Table C-10). The success rate for each of these was moderate as was the difficulty of implementation. The two strategies generating the most interest were ITS and traffic calming. Volunteered responses overwhelmingly focused on implementation and enforcement of speed limits. Driver education initiatives and roadway designs that emphasize pedestrian safety were also frequently noted as needed strategies for dealing with the issue.

Water and Air Quality

Rural land preservation was the most frequently applied strategy for improving water and air quality. While all

Table C-10. Driver safety strategies.

	Applied	Success	Difficulty	Interest
Spot improvements (e.g., turn lanes sight distance etc.)	38%	59%	48%	24%
Installing traffic signals	25%	55%	52%	19%
Traffic calming or "road diets"	13%	39%	66%	39%
Limiting turns on commercial streets	10%	41%	53%	12%
Other (describe in question below)	9%	43%	43%	36%
Intelligent transportation systems	6%	34%	65%	50%

strategies were deemed difficult to implement, there was substantial interest in pursuing many of them, as indicated in Table C-11. A large number of issues were identified in the volunteered responses. They tended to vary depending on climate, geography, and growth rate. For example, rural Southern Californian communities struggle with smog passed to them by Los Angeles and other urban areas. Arid regions are dealing with a lack of potable water, while communities with varied topography and higher annual rainfalls are concerned with roadway runoff pollution. A number of respondents cited the problem of developers acting irresponsibly. They felt this problem should be addressed through regional planning. This is especially important for rural communities dealing with pollution produced by nearby urban development such as smog, contaminated water supplies, and depleted aquifers.

Open Space and Environmentally Sensitive Lands

As Table C-12 shows, commonly applied strategies for protecting open space and environmentally sensitive lands include land preservation, trails and greenways, and more efficient development patterns such as clustering, mixed use, or redevelopment. Most of these strategies have been moderately successful as well as moderately difficult to implement. Interest was relatively strong for most of the strategies; the least popular were large lot zoning and directing growth toward existing towns. Volunteered responses indicated interest in establishing land trusts and provided more detail about the state of rural land preservation in the respondent's community. Several respondents said nothing was currently being done. Others said a lot of land had already been

preserved, which made more preservation difficult because the community was worried about not having enough land for housing and jobs.

Regional Accessibility

Widening existing roads, building new roads and implementing transit service and ridesharing programs were the most common strategies applied to improve regional accessibility (Table C-13). The strategies that met with the most success were demand-response transit and road widening. The most difficult strategies were building new roads and establishing commuter rail service. Strategies that generated the most interest were bicycle amenities, demand-response transit service, commercial air service, and trails and greenways. Several strategies not listed surfaced in the volunteered responses. One concern cited by many was that they could not afford and maintain their existing roads, let alone invest in regional networks. One highway-proposed capacity strategy was to change lane configurations and come up with creative solutions to increase capacity instead of simply widening roads. A number of communities were focusing on creating local activity centers, rather than, or in addition to improving regional accessibility. The most commonly mentioned regional accessibility needs were those for hospitals or medical facilities, jobs, shopping, and higher education. Communications is a concern for rural communities. One respondent recommended telecommuting as an option. Another suggested that fiber-optic lines be installed as part of road construction projects. These lines could be leased to the private sector to open communities to broadband and could also be used for intelligent transportation systems.

Table C-11. Strategies for improving water and air quality.

	Applied	Success	Difficulty	Interest
Rural land preservation	31%	48%	66%	36%
Policies directing growth toward existing towns	19%	34%	81%	44%
Environmentally sensitive road design	18%	51%	65%	43%
Transfer/purchase of development rights	13%	33%	79%	37%
Policies directing transportation investments to growth areas	10%	38%	64%	39%
Other (describe in question below)	9%	53%	56%	56%

Table C-12. Rural lands preservation strategies.

	Applied	Success	Difficulty	Interest
Rural land preservation	20%	50%	67%	33%
Trails and greenways	18%	56%	64%	43%
Clustered housing in rural subdivisions	12%	41%	60%	43%
Policies directing growth toward existing towns	10%	37%	79%	29%
Mixed-use development	10%	40%	67%	33%
Environmentally sensitive or scenic road design	9%	57%	59%	45%
Large lot zoning	8%	49%	43%	21%
Transfer/purchase of development rights	6%	40%	77%	30%
Policies directing transportation investments to growth areas	4%	55%	55%	33%
Other (describe in question below)	3%	42%	64%	60%

Preserving Rural and Historic Character

As Table C-14 shows, the problem of maintaining rural character was most likely to be addressed through historic preservation programs. Pedestrian-friendly streets and design standards/guidelines were the next most popular strategies. Few other strategies were suggested, and most were considered at least moderately difficult to implement. The strategy of creating pedestrian-friendly streets generated the most interest. One volunteered strategy mentioned by a number of respondents was establishing a community vision for historic preservation/community character. This could be accomplished through working with a local historic society, community leaders, and those in charge of planning and zoning. Many expressed the concern that there was too much apathy or a lack of local funding (due to the small population of the community) for historic preservation. Affordable housing was also a concern for a number of rural communities; respondents said residents were being forced out or were living in substandard housing in order to remain in the community.

Access for Tourists

Improvements to roadway connections, followed by intelligent transportation systems and commercial air service, were the most commonly applied strategies to improve access for tourists (Table C-15). These strategies were also seen as the most successful. All strategies given were considered very difficult to implement. The most interest was in rail transit, followed by intelligent transportation systems and improving roadway connections.

This issue generated quite a number of volunteered strategies. These included marketing activities such as publicizing the region through the internet, billboards, and signs. Communities were also working with DOTs and private entities, such as the Audubon Society or Route 66 historical organizations, to market special amenities and attractions. Improved wayfinding signage was also frequently mentioned as a way to improve tourist accessibility to the rural community. A number of communities said there was no current tourist market for their community, but that they should consider pursuing the promotion/creation of this industry in their region. Finally,

Table C-13. Strategies for improving regional accessibility.

	Applied	Success	Difficulty	Interest
Widening existing roads	22%	40%	77%	23%
Building new roads	13%	34%	90%	28%
Fixed route bus service	12%	31%	64%	44%
Demand-responsive transit (e.g., on-call vans)	11%	44%	56%	58%
Rideshare programs (e.g., carpools)	9%	24%	54%	41%
Bicycle routes	7%	28%	62%	41%
Paving unpaved roads	6%	35%	58%	21%
Trails and greenways	5%	30%	70%	55%
Rail transit (e.g., commuter rail)	4%	27%	89%	50%
Other (describe in question below)	4%	36%	77%	40%
Intelligent transportation systems	4%	25%	61%	42%
Commercial air service	2%	18%	93%	55%
Bicycle amenities (e.g., bike parking)	1%	0%	33%	67%

Table C-14. Strategies for preserving historic and/or rural character.

	Applied	Success	Difficulty	Interest
Historic preservation program	30%	57%	57%	36%
Pedestrian-friendly streets in towns and villages	23%	50%	65%	47%
Community design standards or guidelines	21%	55%	63%	37%
Architectural review board	10%	63%	58%	33%
Maintaining unpaved roads	6%	57%	41%	41%
Directing through traffic away from town centers	6%	38%	66%	25%
Other (describe in question below)	3%	36%	75%	50%

maintenance of rural roads, a subject mentioned frequently throughout the survey, was identified as a problem related to tourist access.

Bicycle and Pedestrian Safety

According to Table C-16, the creation of bicycle and pedestrian facilities was the most commonly applied strategy for improving safety, followed by strategies that changed the streets themselves. Most strategies had a reasonable level of success and were deemed moderately difficult to implement. Those that generated the most interest were bicycle amenities, followed by pedestrian-oriented street designs and limiting turns on commercial streets. The most commonly volunteered strategy was safety education for bicyclists, pedestrians, drivers, and the community as a whole. The strategy of adding bicycle amenities (such as bicycle racks) generated a high level of interest throughout the survey.

Trucks or Cut-Through Traffic

This issue is most commonly dealt with by diverting traffic from town centers and by widening existing roads or building new roads and improving street connectivity (Table C-17). The most successful strategies were those that either diverted traffic or attempted to slow it through traffic calming. Nearly all strategies were seen as very difficult to implement. Those generating the most interest were traffic calming and ITS. The volunteered responses largely repeated these strategies, with a number of respondents expressing frustration that their community was doing

nothing to fix the problem. One innovative approach was roadway transfers. In this approach, local governments work with the state DOT to provide an alternative route for through traffic and preserve the character of the community's Main Street.

Railroad Crossing Safety

Railroad service was limited or nonexistent in most of the communities surveyed. Among those that did have active railway lines, the most common strategy applied to the problem of roadway crossing safety was to improve warning signs, signals, or barriers (Table C-18). This strategy was seen as successful. Rerouting rail traffic was rarely tried and deemed nearly impossible. Very little interest was expressed by respondents in any strategy. One volunteered strategy was constructing overpasses.

Public Health

As Table C-19 shows, this issue has been primarily addressed by building bicycle and pedestrian facilities. Respondents thought these facility improvements had the greatest impact on the problem. Most strategies were thought of as difficult to implement. Interest in any of the strategies was mixed, with street connectivity and mixed-use development the most frequently mentioned. Many respondents said their community was not addressing or only beginning to deal with the new issue of obesity. Educational programs were mentioned as key to ensuring residents would use new pedestrian and bicycle facilities.

Table C-15. Strategies for improving access for tourists.

	Applied	Success	Difficulty	Interest
Improving road connections	35%	41%	71%	41%
Improving local access to amenities	22%	47%	57%	49%
Intelligent transportation systems	13%	26%	72%	43%
Commercial air service	12%	35%	86%	32%
Rail transit (e.g. commuter rail)	9%	20%	85%	60%
Long-distance bus service (e.g. Greyhound)	9%	21%	58%	33%

Table C-16. Strategies for improving bicycle and pedestrian safety.

	Applied	Success	Difficulty	Interest
Bicycle routes	20%	44%	44%	29%
Sidewalks	19%	54%	54%	40%
Trails and greenways	17%	50%	50%	33%
Pedestrian-oriented streetscape design	14%	44%	44%	51%
Pedestrian amenities (e.g., lighting benches)	7%	44%	44%	35%
Traffic calming or "road diets"	6%	36%	36%	35%
Improving street connectivity (e.g., grid road network)	5%	46%	46%	40%
Directing through traffic away from town centers	4%	45%	45%	39%
Other (describe in question below)	3%	50%	50%	75%
Bicycle amenities (e.g., bike parking)	2%	42%	42%	67%
Limiting turns on commercial streets	2%	50%	50%	50%

Table C-17. Strategies for dealing with cut-through traffic.

	Applied	Success	Difficulty	Interest
Directing through traffic away from town centers	23%	43%	65%	36%
Widening existing roads	16%	35%	79%	27%
Building new roads	15%	33%	84%	23%
Improving street connectivity (e.g., grid road network)	13%	32%	76%	47%
Traffic calming or "road diets"	10%	39%	61%	59%
Limiting turns on commercial streets	8%	37%	40%	24%
Other (describe in question below)	8%	50%	55%	64%
Paving unpaved roads	4%	34%	77%	30%
Intelligent transportation systems	3%	17%	83%	50%

Strategies (Mailed Survey)

Because the page length was limited for the paper survey, the level of detail was a bit less complex than the online version. Respondents were asked which transportation and land use strategies had been tried in their communities and whether or not these had proved successful. They were also asked if they were interested in learning more about each of

the strategies. The strategies were broken down into five issue areas, as shown in Table C-20.

Roadway Improvements

Out of all of the strategies, roadway improvements were the most likely to have been employed. Paving unpaved roads, widening existing roads, spot improvements, and

Table C-18. Railroad crossing safety strategies.

	Applied	Success	Difficulty	Interest
Improving warning signs signals or barriers	73%	62%	55%	23%
Other (describe in question below)	20%	50%	56%	29%
Rerouting rail traffic out of town centers	7%	15%	96%	20%

Table C-19. Public health strategies.

	Applied	Success	Difficulty	Interest
Trails and greenways	26%	54%	68%	29%
Sidewalks	21%	53%	50%	22%
Bicycle routes	21%	46%	61%	31%
Mixed-use development	8%	31%	71%	33%
Pedestrian amenities (e.g., lighting benches)	8%	44%	48%	19%
Other (describe in question below)	7%	36%	75%	56%
Improving street connectivity (e.g., grid road network)	5%	35%	67%	36%
Bicycle amenities (e.g., bike parking)	5%	31%	34%	0%

Table C-20. Transportation and land use strategies (mailed survey).

	Implemented		Success			Difficulty			Interest	
	Yes	No	None	Some	Very	None	Some	Very	Yes	No
Roadway Improvements										
Building new roads	51	49	7	46	47	22	56	23	49	51
Widening existing roads	49	51	8	47	45	26	51	22	46	54
Paving unpaved roads	54	46	7	40	53	34	49	17	44	56
“Spot” improvements (turn lane, sight distance)	55	46	7	49	44	28	56	16	47	53
Traffic calming or “road diets”	22	78	28	42	30	38	36	26	51	49
Improving street connectivity	32	68	15	54	31	26	48	27	46	54
Traffic Management										
Installing traffic signals	38	62	16	35	49	36	45	19	40	60
Intelligent transportation systems	12	88	49	31	20	59	29	13	38	62
Limiting turns on commercial streets	18	82	25	41	34	39	39	23	33	68
Directing through traffic away from downtowns	20	80	26	44	30	37	42	21	35	65
Rerouting rail traffic out of downtowns	10	91	53	31	16	58	18	25	22	78
Improving warning signs, signals, or barriers	39	61	12	44	44	48	41	12	40	60
Multi-modal Transportation										
Fixed route bus service	21	79	26	41	33	38	44	18	32	68
Demand-response transit (on-call vans, etc.)	33	67	9	45	45	36	55	9	37	63
Rail transit (such as commuter rail or light rail)	8	93	73	22	5	67	15	18	25	75
Rideshare programs (carpools, etc.)	13	87	37	41	22	47	38	15	33	67
Bicycle routes	36	64	14	42	44	31	53	17	49	51
Bicycle amenities (bike lockers, etc.)	12	88	46	38	16	59	32	9	39	61
Sidewalks	54	46	8	41	51	32	46	22	47	53
Pedestrian amenities (lighting, signage, etc.)	36	64	7	48	46	29	59	12	43	57
Trails and greenways	46	54	9	41	51	23	58	19	53	47
Design										
Pedestrian-friendly streets	30	70	15	44	41	28	48	23	47	53
Environmentally sensitive/scenic highway design	20	80	19	48	33	25	48	27	42	58
Community design standards or guidelines	37	63	12	57	31	18	54	27	52	48
Architectural review board	16	84	30	48	23	39	43	19	40	60
Historic preservation program	39	61	10	57	33	21	57	23	50	50
Growth Management										
Policies directing growth to developed areas	45	55	12	62	26	17	55	28	56	44
Policies directing transportation to growth areas	23	77	19	57	24	28	47	25	47	53
Mixed-use development	38	62	17	62	22	22	51	27	54	46
Clustered housing in rural subdivisions	29	71	18	60	22	26	49	25	49	51
Large lot zoning	31	69	17	50	33	35	46	19	41	59
Transfer/purchase of development rights	15	85	28	41	31	33	41	27	48	53
Rural land preservation	29	71	19	45	36	26	48	26	48	52

building new roads were most often cited. These improvements ranked as very or somewhat successful and were somewhat difficult to implement.

Traffic Management

In general, these strategies were the least likely to be implemented. Installing traffic signals and warnings seemed successful, while rerouting rail traffic from downtowns was not. Intelligent transportation systems had not been implemented in many communities; the few that had tried said it was difficult.

Multi-Modal Transportation

Traditional multi-modal strategies for pedestrians (such as sidewalks, greenways and trails) were frequently implemented, while passenger rail, ridesharing, and bicycle amenities were not. Respondents gave the traditional strategies a high level of success and said they were relatively easy strategies to implement. Very few communities had tried rail transit.

Design

Design strategies were generally likely to be implemented and to be successful. Respondents were moderately interested in them and they were also seen as being moderately difficult to implement.

Growth Management

The most commonly used growth management strategy was to adopt policies limiting growth to existing developed areas. The least common were programs to allow transfers of development rights. There was some interest in learning more about mixed-use development and strategies for limiting growth to existing developed areas.

Departments of Transportation

In general, DOT responses closely matched those of the online and mailed surveys. Notable findings were as follows:

- Rural communities were seen as growing, becoming more diverse, and aging.
- Fixed route bus service of any kind was rated as poor, while demand-response was rated as adequate.
- The two greatest needs identified for rural communities were access to jobs and driver safety.
- The largest barriers to success were political support and authority as well as limited funding.

- Nearly all DOTs said they had implemented pedestrian-friendly, environmentally-sensitive, and historic preservation components in their roadway designs.
- Most respondents have focused their efforts on highway strategies, including new road construction, road widening, spot improvements, and warning signs, signals, or barriers.

Native American Communities

In many ways, responses from tribal planners were similar to those of the other surveys, but there were a few significant differences. Primary findings are outlined below.

- Demographic data closely matched that of the online and mailed surveys, except that racial diversity was not as likely to be increasing and economic measures such as unemployment were more likely to be stable rather than improving. Contrary to many of the other surveys, the population of every age group in tribal areas was increasing.
- Respondents considered every issue very important, with the exception of access for tourists. While obesity was considered a somewhat important issue in most of the other surveys, it was considered a very important issue in the tribal survey.
- While a lack of both public and private funding and a lack of staff were seen as major barriers to success, coordination with other entities and political support were not seen as such significant barriers as they were in the online, mail, and DOT surveys.
- While nearly all transportation and land use strategies were less likely to have been implemented, traffic management strategies were the least likely to have been implemented. For example, ITS had only been implemented by one of the respondents, while less than half of those responding had implemented a strategy of installing traffic signals.

Observations

A few observations emerged from the survey that may prove useful to developing a best practices guide for rural communities. These are as follows:

- The conflicting opinions about the need for more roads versus the potential for sprawl from too many roads indicates a need for rural communities to better understand the impact of roadway location, design, and connectivity on development patterns. Urban communities have

successfully addressed accessibility problems by making strategic improvements to multi-modal connectivity and path density in order to expand transportation choices without greatly expanding roadway footprints or promoting unwanted development. Rural applications of this approach should be explored.

- Rural communities could greatly benefit from professional assistance in developing local and regional land use and transportation plans. Particularly useful services could include support with scenario planning, visioning,

multi-modal transportation planning, and collaboration among neighboring jurisdictions, private entities, and state/federal agencies.

- The American Planning Association (APA) was the most frequently mentioned professional organization through which outreach and education could be implemented. Working with local APA chapters to organize workshops on transportation and land use planning in rural communities could be an effective way to spread information and encourage innovation.
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APPENDIX D

Focus Group Summary

NCHRP Project 08-52, “Best Practices to Enhance the Transportation-Land Use Connection in Rural America,” highlighted transportation investments and programs that support successful community development and land use strategies that maximize transportation capacity and community livability. The project also examined how the goals of rural communities and transportation agencies may conflict or support one another.

A series of five focus groups was conducted between August 2005 and April 2006 to enhance the research team’s understanding of critical issues and successful strategies among rural communities across the country. Three groups targeted rural community representatives, one group included state DOT representatives, and one group was made up of Native American tribal communities. A teleconference option with a toll-free phone line encouraged a rich diversity of participants.

Critical challenges cited by focus group participants included failing rural roadways and transit systems, access for increasing numbers of senior citizens and long-distance commuters, and the decline of rural economic generators such as farming, timbering, and mining. Strategies included regional planning, corridor access management, growth management policies, Intelligent Transportation Systems, and demand-response transit services.

Keys to success focused on effective coordination and sharing of resources between state, district, and local entities in infrastructure and land use planning. Regional visioning, long-term thinking, and support of community values were important. The most successful factor was the presence of local champions who fostered shared ownership and long-lasting relationships.

The following topics were explored during each discussion:

1. What are the one or two critical challenges facing rural communities today?

2. Please share some observations and examples of transportation investments and strategies that can help communities address these challenges and achieve healthy growth.
3. What kinds of land use policies and strategies do you know about that can address the challenges and optimize transportation systems?
4. In general, what would you say are the keys to success among rural communities that have developed integrated planning approaches?
5. Provide any other observations, insights, or advice you would like to share with us.

Issues most often cited included the following:

- Deteriorating infrastructure; traffic congestion and truck traffic stressing rural roads;
- Lack of support/resources for pedestrian infrastructure;
- Out-migration of young people;
- Accommodating the needs of aging populations;
- Lack of dedicated funding source for transit, accessing federal rural transit money (difficult to raise 20–50 percent local or tribal match);
- Difficulty providing transit service across vast territories with low residential densities;
- Impacts of rising fuel and construction costs;
- State highways doubling as Main Streets;
- Declining communities bypassed by the interstate highway system;
- Decreases in freight rail access to national and short-line systems;
- Water resources (western US);
- Housing affordability;
- Lack of local planning capacity;
- Lack of local champions;
- Shift from industry- and natural resource-based to tourism-based economies;

- Loss of active farmland/pressure on farmers to sell to developers;
- Growth of “mega” farms, especially in the Midwest, which have higher transportation impacts (freight);
- Increased dependence on low-paying service jobs located far from the reservation;
- Complex mix of roadway owners within a region—tribal, local, state, federal, and private;
- Lack of in-depth, comprehensive, regional planning and growth management; and
- Inconsistent priorities among localities, tribes, MPOs, and RPOs.

Commonly cited strategies included the following:

- Shared funding and public-private projects;
- Corridor plans, Environmental Impact Statements, and Integrated Resource Management Plans as vehicles for cooperative, integrated planning;
- Access management planning and agreements;
- Scenario planning and visioning;
- Rural consultation process: one-on-one dialogue between state DOTs and local governments;
- “Fix-it-first” policies at state level, focusing investments in existing roadway capacity;
- Allocating state transportation project funds according to regionally developed priorities;
- Increasing density, building Traditional Neighborhood Developments;
- Setting urban growth boundaries, utility service boundaries, and annexation policies;
- State policies and financial “carrots & sticks” to support growth management;
- Assessing property owners for infrastructure maintenance;
- Dial-a-ride services;

- ITS, especially roadway safety (curve warnings, ice/snow), callboxes, and traveler info;
- Co-locating services in community centers;
- Land banking, TDRs to preserve open space and farms;
- Revenue-sharing arrangements;
- Tax incentives;
- State resources for local planning and tools;
- Improving access to historic/cultural/natural sites;
- Promoting infill development (a challenge in unattractive, formerly industrial towns);
- Enhancing connectivity between subdivisions and the greater street network;
- Using context-sensitive design—when “Main Street” is a state highway, for example;
- “Complete” multimodal streets; and
- Traffic calming in neighborhoods and towns.

Frequently mentioned success factors included the following:

- Regional cooperation;
- Focus on quality of life, sustainability, and local values;
- Non-traditional partners;
- Sharing resources among localities, such as staff expertise;
- Shifting from reactive to proactive planning;
- State leadership;
- Creative approaches to raising revenue;
- Acceptance of density as a positive;
- Flexibility from FHWA;
- Understanding and accepting the reality of multimodal travel;
- Education and regular dialogue;
- Early involvement of all stakeholders;
- Tying state/federal transportation project funding to regional planning; and
- Local champions to communicate ideas and build trust with local residents.

Abbreviations and acronyms used without definitions in TRB publications:

AAAE	American Association of Airport Executives
AASHO	American Association of State Highway Officials
AASHTO	American Association of State Highway and Transportation Officials
ACI-NA	Airports Council International-North America
ACRP	Airport Cooperative Research Program
ADA	Americans with Disabilities Act
APTA	American Public Transportation Association
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
ATA	Air Transport Association
ATA	American Trucking Associations
CTAA	Community Transportation Association of America
CTBSSP	Commercial Truck and Bus Safety Synthesis Program
DHS	Department of Homeland Security
DOE	Department of Energy
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
FMCSA	Federal Motor Carrier Safety Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
IEEE	Institute of Electrical and Electronics Engineers
ISTEA	Intermodal Surface Transportation Efficiency Act of 1991
ITE	Institute of Transportation Engineers
NASA	National Aeronautics and Space Administration
NASAO	National Association of State Aviation Officials
NCFRP	National Cooperative Freight Research Program
NCHRP	National Cooperative Highway Research Program
NHTSA	National Highway Traffic Safety Administration
NTSB	National Transportation Safety Board
SAE	Society of Automotive Engineers
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (2005)
TCRP	Transit Cooperative Research Program
TEA-21	Transportation Equity Act for the 21st Century (1998)
TRB	Transportation Research Board
TSA	Transportation Security Administration
U.S.DOT	United States Department of Transportation