Public Transportation's Impact on Rural and Small Towns

A VITAL MOBILITY LINK

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The American Public Transportation Association (APTA) is a nonprofit international association of 1,500 public and private sector organizations, engaged in the areas of bus, paratransit, light rail, commuter rail, subways, waterborne services, and intercity and high-speed passenger rail. This includes: transit systems; planning, design, construction, and finance firms; product and service providers; academic institutions; transit associations and state departments of transportation. APTA is the only association in North America that represents all modes of public transportation. APTA members serve the public interest by providing safe, efficient and economical transit services and products.

Summary Points

- *The number of rural and small town public transit agencies has increased over the past two decades to approximately 1,400 agencies (2014).*
- *America's rural population is declining, but ridership has increased from 2007 to 2015. This equates to an 8.6 percent increase in per-capita rural ridership over the past 8 years, and a 7.8 percent increase in total rural ridership. For comparison, urban public transit ridership increased by 2.3 percent in the same time period.*
- *Rural demographics make public transit increasingly desired. Older Americans make up a larger portion of rural populations (17 percent) than in urban populations (13 percent).*
- *Rural residents with disabilities rely on public transit- they take about 50 percent more public transit trips than unimpaired people do.*
- *There are 2.9 million rural veterans, making up 33 percent of the veteran population enrolled in the VA health care system. Rural public transit can help them access needed services.*
- *Public transit can reduce the risk of road accidents. Rural residents travel about 33 percent more than urban residents, and although rural areas only make up 19 percent of the population, they account for around 49 percent of traffic fatalities.*
- *Rural poverty rates exceed urban poverty rates in all regions. Rural public transit can help reduce personal travel expenditures due to gas and other vehicle maintenance expenditures (rural households spend about 7 percentage points more of their budgets on transportation than urban households do).*
- *Public transit can help promote active lifestyles in rural communities struggling with health problems such as obesity, and can link people with healthcare services.*
- *Rural public transportation can be an important force in supporting local economies by connecting residents (especially non-drivers) with local businesses and job opportunities.*
- *Rural public transit spending per capita is lower than in urban areas. Increased local and federal investment can help address this.*

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Introduction

Rural communities and small towns have much to offer, including a sense of community, affordable housing and access to open space. However, many of these areas are currently experiencing population declines due to various demographic and economic trends. An aging population, industrial shifts, changing consumer preferences and diminishing local services have all contributed to rural stagnation.

Like people anywhere, rural and small town residents rely on transportation to access jobs, schools, medical facilities, retail shopping, recreation, social events and other services. This can be challenging in these areas because of lengthy travel distances and limited travel options, particularly for people with limited ability to drive.

While it is sometimes assumed that public transportation is only essential for large urban areas with significant traffic congestion, this report shows that public transportation can also play an important role in rural areas and small towns. Although public transit serves a minor portion of total rural travel, the trips that are provided are particularly valuable.

By examining current trends, this report reveals the increasingly critical connection between public transit and rural communities and small towns. This paper also looks at rural public transit cost efficiency, and describes successful examples of smaller community public transit programs.

Figure 1 **Types of Rural Transit Services**

Public transit modes vary – from fixed route local buses, to demand response and vanpool (which may be operated by local non-profits), to interregional bus services that connect smaller communities with urban centers. Local governments may also decide to subsidize traditional taxi services or mobile ride-hailing services.

Rural and Small Town Demographic Analysis

This section describes the various benefits that public transportation has on rural areas and small towns, and how demographics will affect future rural public transit demands.

Table 1 **Types of Non-Drivers**

Public Transit User Types	Prevalence	Consequences if Public Transit is Unavailable
Older Americans who do not or should not drive	10-20% of residents and increasing	Lack mobility, require more costly chauffeuring (special vehicle travel to transport a non-driver), or move to another community with better transport options
People with disabilities	3-5% of residents	
Adolescents (12-20 years)	5-15% of residents	
Stay-at-home parents in single-vehicle household	Varies	
Low-income households	20-40% of households	Lack mobility or spend an excessive portion of budgets on transport
Drivers who temporarily lack a vehicle	Varies	Lack mobility, require chauffeuring or expensive taxis
Tourists and visitors	Varies	Lack mobility or visit other areas with better transport options
Law-abiding drinkers	Varies	Drive impaired, risking citations and crashes

Although it does not serve all mobility needs, public transit adds real value in rural communities by providing independent mobility for people who cannot or should not drive.

Older Americans

Although many older Americans drive safely, as people age, particularly past 75 years, their driving ability tends to decline, as illustrated in Figure 2. By choice or necessity, many older Americans adjust their routines and rely on alternative transportation options.

Figure 2 **Driving Ability by Age, Location and Gender** (Mattson 2012)

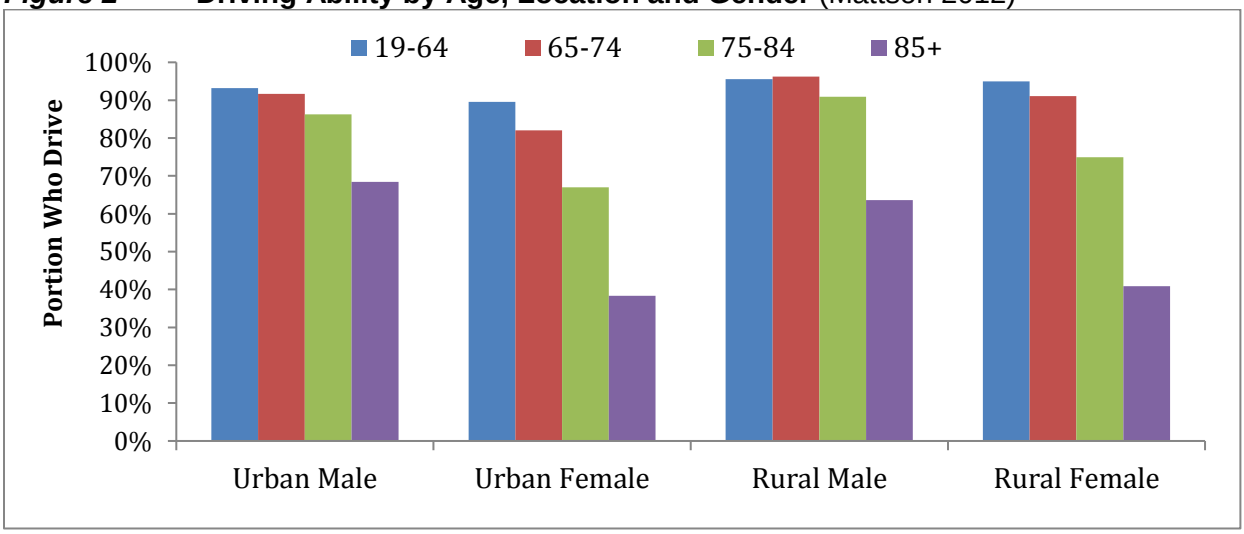
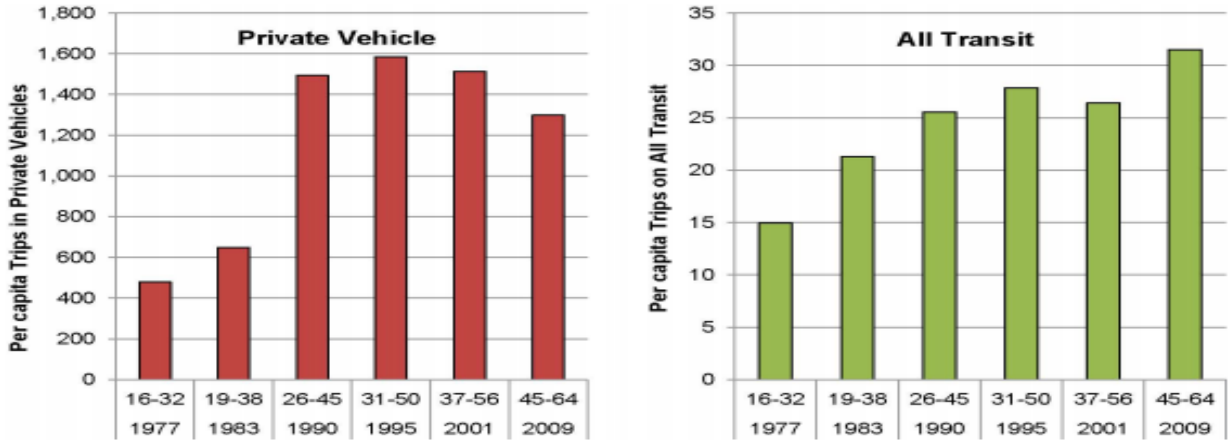


Figure 3 **Baby Boom Age Cohort Travel Trends** (McGuckin and Lynott 2012)



Source: National Household Travel Survey data series.
Transit includes all inter- and intracity modes, such as local bus, subway, streetcar, ferry, shuttle bus, commuter bus, and Amtrak.
Note the difference in scale.

Figure 3 illustrates the reduction in automobile trips and increases in public transit trips by the Baby Boomer generation as they age.
Note: Next National Household Travel Survey results to be released in 2018.

A relatively large and growing portion of rural and small town residents are older Americans (figures 4 and 5). About 17 percent of rural residents are over 65 years of age- 5 percentage points more than the U.S. population overall (Werner 2011). Rural and small town census tracts contain 21 percent of the total U.S. population but approximately 25 percent of all older Americans, and 21 of the 25 "oldest" counties are rural (HAC 2014).

Figure 4 **Rural and Urban Age Trends** (Mattson 2016)

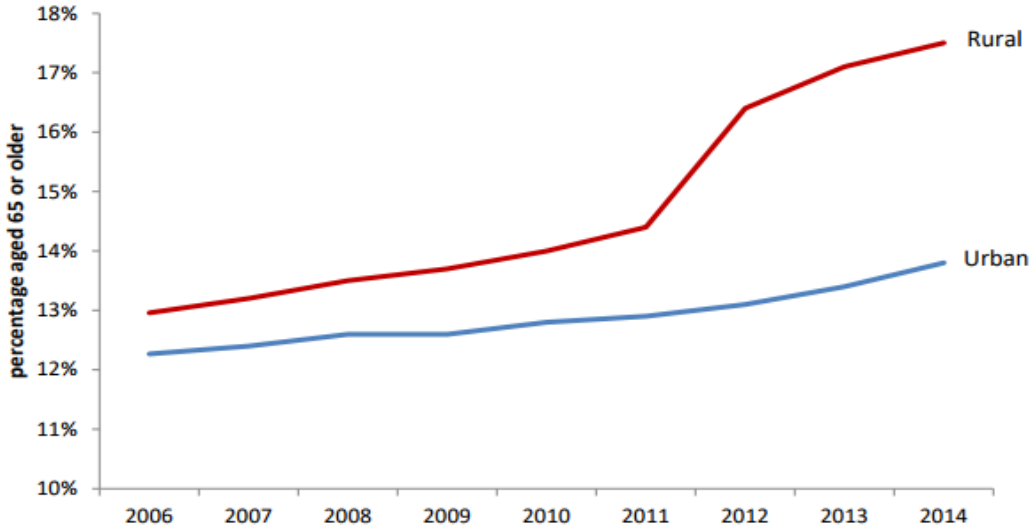
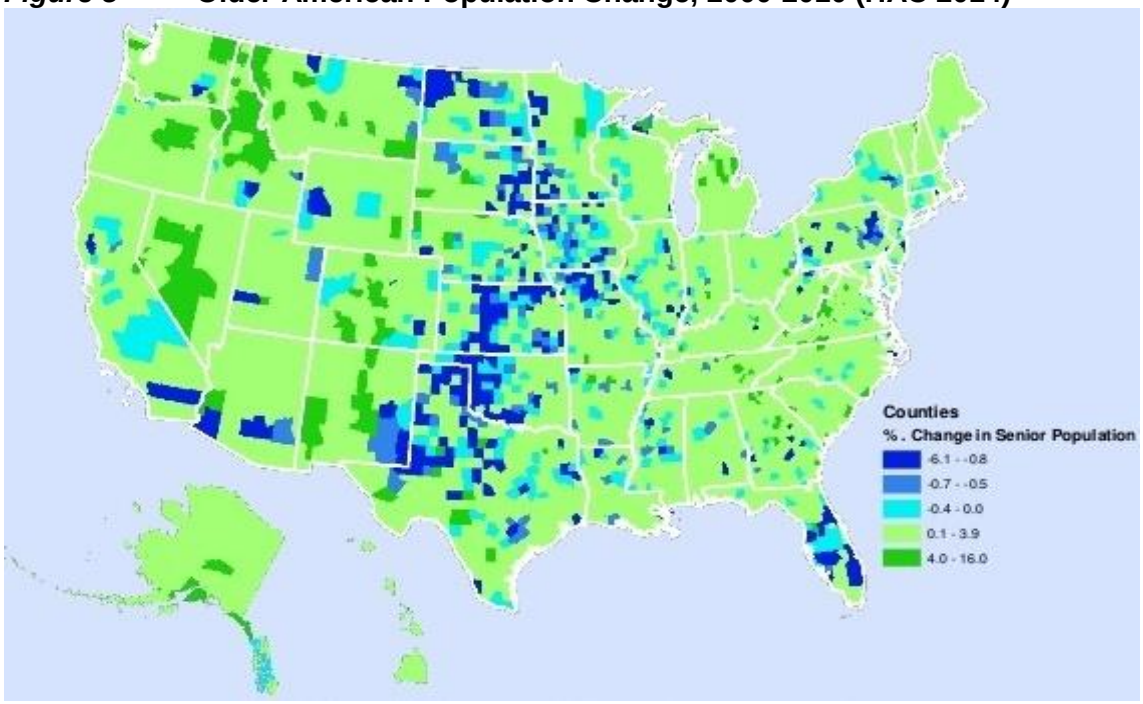


Figure 1. Percentage of Population Aged 65 or Older, 2006-2014
Source: American Community Survey 1-Year Estimates, 2006-2014

Rural population median age and portion of residents 65 years or over are increasing rapidly.

Figure 5 **Older American Population Change, 2000-2010 (HAC 2014)**



Many rural areas are experiencing rapid senior population growth.

Surveys indicate that most older Americans want to "age in place", that is, continue living in their current communities. To make this possible, rural communities and small towns need appropriate mobility options. The American Association of Retired Persons (AARP) report, *Aging In Place: A State Survey of Livability Policies and Practices* (Farber and Shinkle 2011) highlights the importance of providing suitable mobility options to allow aging residents to retain their independence. As Lydia Morken and Mildred Warner explain in their report, *Planning for the Aging Population: Rural Responses to the Challenge* (Morken and Warner 2011),

> "Whether older adults can age in place hinges largely on transportation. Can they reach the services available to them, get to a routine doctor's appointment, or attend a social event? Older adults' diverse mobility needs present some of the most pressing challenges for rural communities. Most people will outlive their ability to drive, and many will face isolation when they can no longer get behind the wheel. Older adults in rural and suburban areas will feel this acutely as communities designed for the car offer few other transportation options."

Compared with other geographic areas, rural communities have greater gaps in senior transportation services (NCST 2010). Serving seniors' travel demands helps support local economic development. Rural communities that develop such services can attract and retain more seniors and the economic activity they generate.

Nancy H. – Kittery, ME
"As a senior citizen, at some point I will prefer to take public transportation to get around. I live in southern Maine, across from Portsmouth, New Hampshire. Many people commute to Portsmouth, where parking is always a problem."

Sarah H. – Bath, ME
"We are seniors and live two miles to the town center, if we walk it is nice to be able to take the bus home."

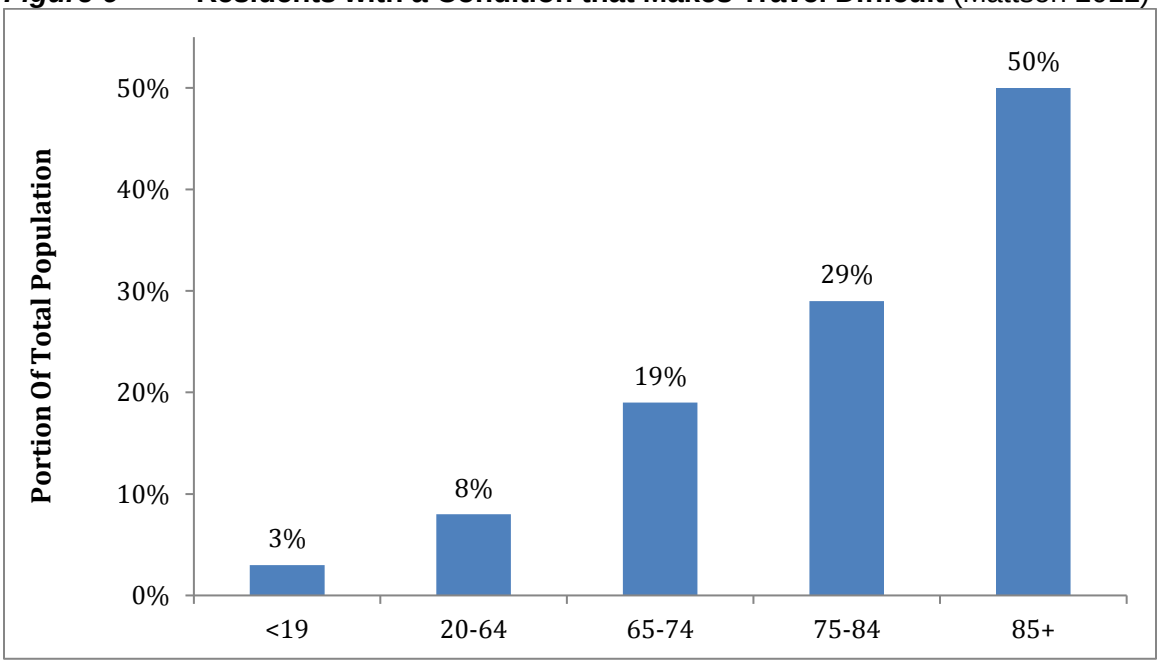
Carolyn N. – Kingman, AZ
"I am an older lady and do not drive anymore. I live in Arizona where public transportation is very limited. I wish it was more available for doctor appointments and just getting out to places like the senior center, etc."

Mirta M. – Chapel Hill, NC
"There is a point in everyone's life in which driving becomes difficult or all together impossible due to normal aging. For this reason alone, it is a smart investment to improve public transit infrastructure /services as a way of promoting healthy living for the whole community, including that of the increasing senior population. Personally, thanks to public transportation I can keep an active professional and social life."

People with Disabilities

Many people with temporary or long-term disabilities are limited in their ability to drive. As Americans age, it becomes more difficult for them to travel (as illustrated in Figure 6), in part because of medical conditions and disabilities, making community-based services essential.

Figure 6 **Residents with a Condition that Makes Travel Difficult** (Mattson 2012)



Many people with disabilities who would previously have been institutionalized now live in regular homes in residential neighborhoods, reflecting the principle of *community integration*. This can provide a better quality of life and overall cost savings for the disabled community, and if successful, provides support services such as appropriate public transportation. Even if they live in automobile-owning households, people with disabilities often want public transit services so that they can live more independently and minimize the chauffeuring burdens they may impose on family members.

Many rural residents with disabilities rely on public transit. And, those with mobility impairments take about half as many daily trips as people without such conditions. However, residents with medical conditions take about 50 percent more trips on public transit than unimpaired people do (Table 2).

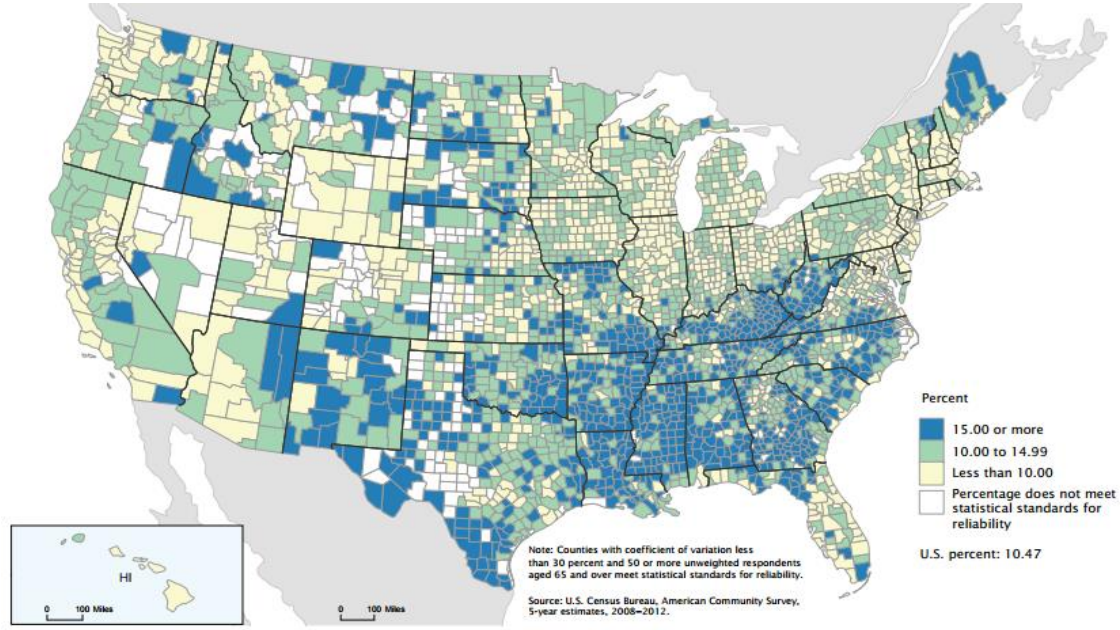
Table 2 **Rural Residents' Travel** (Mattson 2012, Tables 3.3 and 3.11)

	Daily Trips	Portion Taking a Transit Trip
With medical condition	2.65	1.9%
No medical condition	4.17	0.8%

A 2016 survey taken in Ohio by the Ohio Colleges of Medicine Government Resource Center found that less than 37 percent of respondents had personal access to a vehicle. That resulted in 54 percent responding that they relied on rides from family or friends, and 30 percent saying that they relied on public and paratransit. More than 50 percent noted that they routinely had to wait more than 30 minutes or more for service and that they had to travel for a long time period. Since most rural communities offer relatively limited public transit services, there is considerable latent demand. Many rural residents with disabilities would use public transit more if additional service were available.

Public transit is particularly important for people with both disabilities *and* low incomes. Figure 7 displays the percentage of older Americans (over 65 years) who have disabilities and live in low-Income households (below 150 percent of poverty threshold).

Figure 7 **Percent of Seniors with Disabilities and Are Underprivileged** (He and Larsen 2014)



Judith L. – Idaho Falls, ID

"I'm a disabled senior citizen. I depend on public transportation to get around -- from everything to errands, shopping, medical appointments and other basic, everyday essentials that others take for granted. I simply can't afford to get around without public transportation."

Candy B. – Elkhart, IN

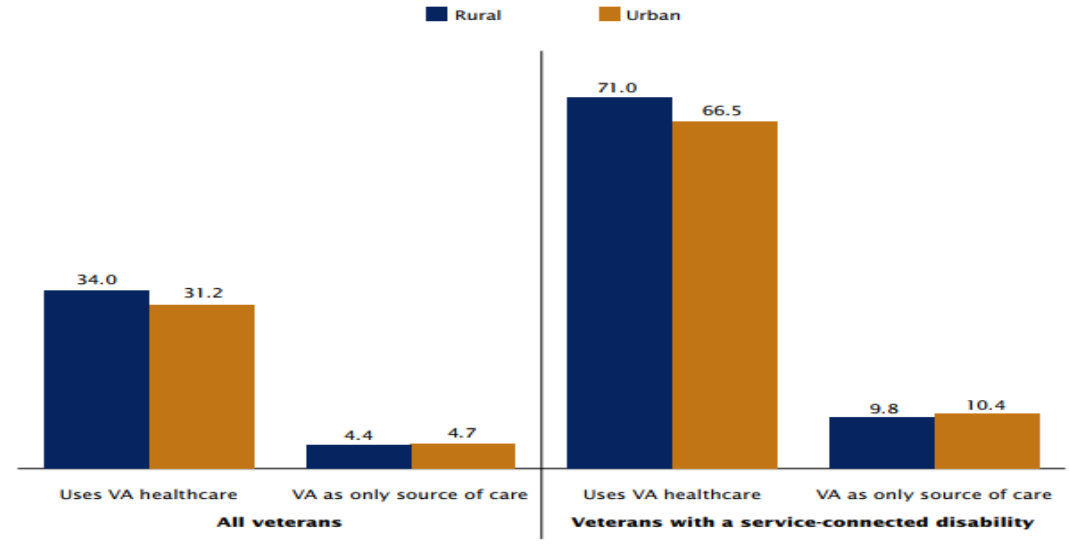
"I had a stroke; it affected my eyesight and I didn't feel comfortable driving anymore. I still needed to get my medicine and go to my doctor and grocery store. Thank goodness there was a way I could be independent with the bus."

*The Veterans Administration is working with rural communities to provide special services for veterans with disabilities. (**www.va.gov/health/NewsFeatures/20111006a.asp)***

Veterans

There is a particularly urgent need for public transit to serve military veterans with disabilities who live in rural communities (Ellis, et al. 2013). Roughly 33 percent of those enrolled in the Department of Veterans Affairs Health Administration system (2.9 million) live in rural areas (Peterson 2014). The VA's Office of Rural Health states that rural veterans are on average 2 years older than urban veterans, and that 44% of rural enrolled veterans have at least one service connected condition. Other studies show that many have service-connected disability ratings above 50 percent, requiring more specialized healthcare services than veterans in urban areas (Burkhardt et al. 2011). Figure 8 shows that the VA healthcare utilization rate is higher in rural areas than in urban areas, further underlining the importance of robust public transit services to those facilities.

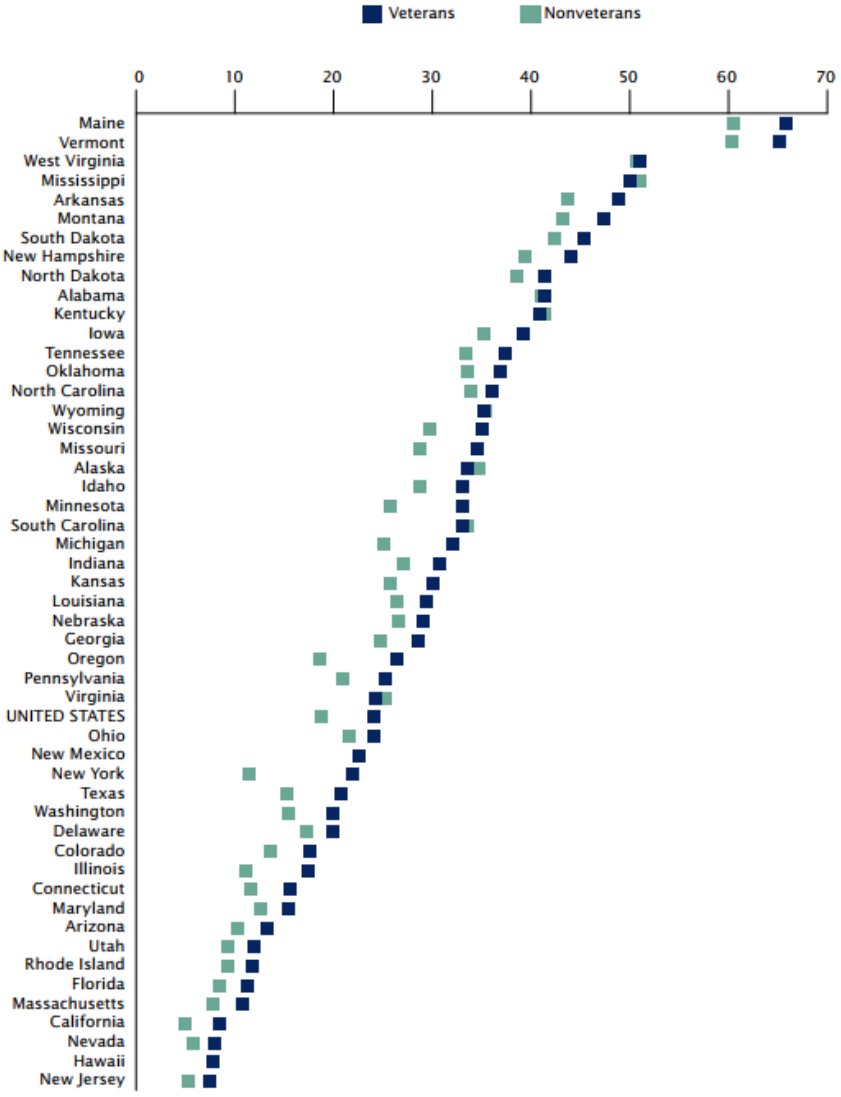
Figure 8 **Rural and Urban Use of Healthcare 2011-2015**



Note: For more information, see <www.census.gov/programs-surveys/acs/>.
Source: U.S. Census Bureau, 2011–2015 American Community Survey, 5-year estimates.

Indeed, rural locations create challenges for veterans and their families, including greater isolation and longer travel distances to obtain services. To address these needs, rural communities need special mobility and public transportation services, such as local and intercity public transportation suitable for veterans, their families, and healthcare workers (VA 2014).

Figure 9 **Percentage of Veterans and Nonveterans Living in Rural Areas by State**



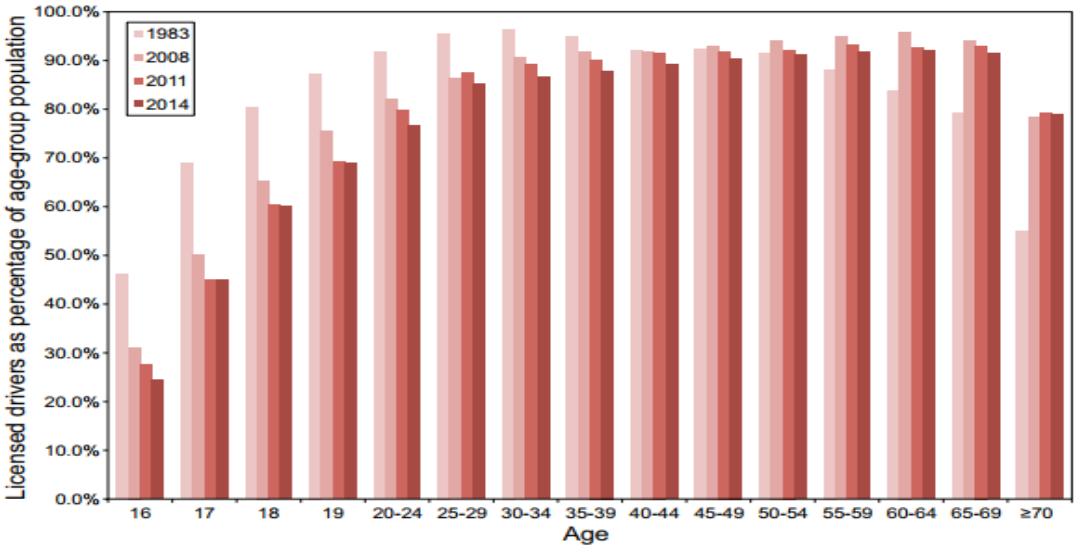
Note: For more information, see <www.census.gov/programs-surveys/acs/>.
Source: U.S. Census Bureau, 2011–2015 American Community Survey, 5-year estimates.

Adolescents

Many young people are limited in their ability to drive. The portion of young people that have driver's licenses and own cars has declined steadily during the last three decades (Figure 10), in part due to changing needs and preferences: many young people attend school or have low-wage jobs, value technology (smartphones and computers) more than motor vehicles, and are willing to use alternative travel modes (APTA 2013; Interrante 2014; McDonald 2015).

Young people who cannot drive often find it difficult to access jobs and services in rural areas. Communities that provide suitable transportation options, including convenient local and regional public transit services, increase young people's independence and reduce family members' chauffeuring burdens. A Norwegian study found that rural parents greatly value public transit services, even if they did not use it themselves, because it reduces the need to drive their children (ITF 2015). Serving these travel demands helps attract and retain families with adolescents and young adults, and can help slow the long-term population and economic declines occurring in many rural communities.

Figure 10 **Drivers Licensure Rates by Age** (Sivak and Schoettle 2016)



Driver licensure rates for adolescents declined significantly during the last three decades.

Public Transit's Economic Impact on Rural and Small Towns

This section describes various economic benefits that public transportation has on rural areas and small towns.

Rural Poverty

Rural areas have lower average incomes and higher poverty rates than urban areas. In 2015, median household incomes were $44,212 in rural areas, 24 percent less than the $58,260 in urban areas (USDA 2016). Figures 11 and 12 illustrate the increased poverty rates of rural areas, particularly in the South and among the elderly.

Figure 11 **Urban Versus Rural Poverty Rates, 2011-15** (USDA 2016)

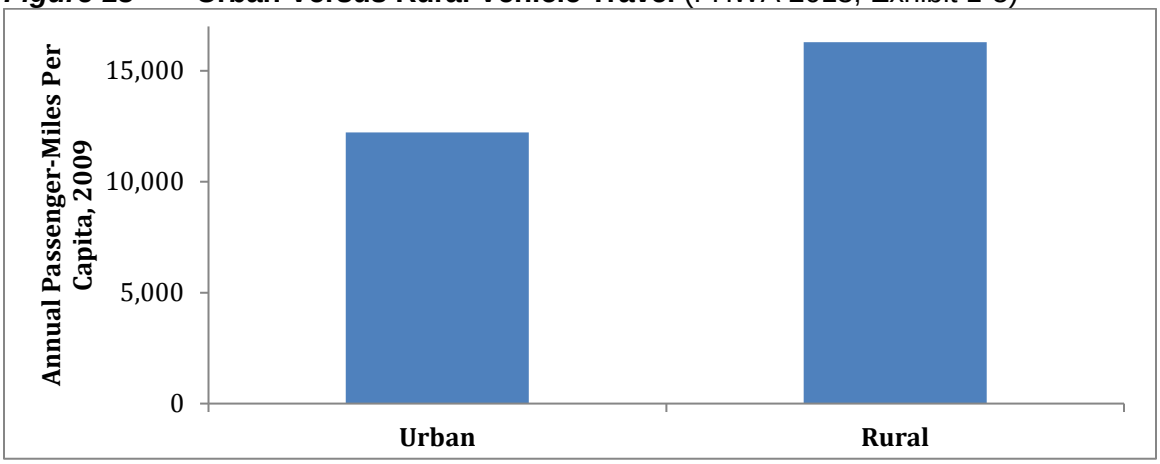
Rural communities have far higher poverty rates than urban communities.

Figure 12 **Poverty Rates by Location and Gender** (HAC 2014)

Poverty rates are particularly severe for elderly rural women, many of whom cannot drive.

Rural residents also drive more miles than urban residents. Overall, rural *residents* travel about 33 percent more (Figure 13), rural *workers* travel 38 percent more, and *lower-income rural workers* 59 percent more annual miles than their urban peers (Brown and Schafft 2011).

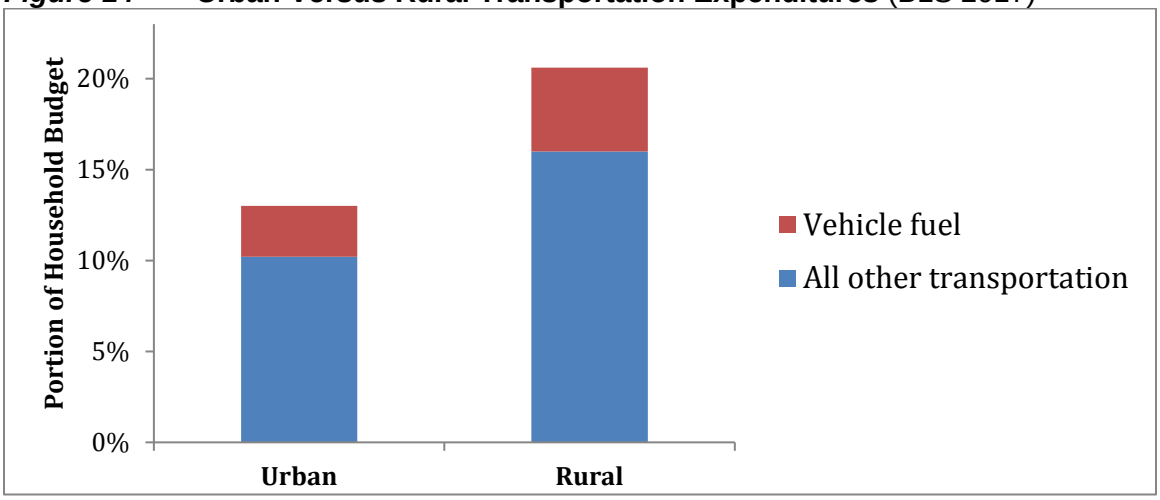
Figure 13 **Urban Versus Rural Vehicle Travel** (FHWA 2013, Exhibit 1-5)



Rural residents drive a third more than urban residents. Although both urban and rural residents reduced their annual vehicle travel between 2001 and 2009, the reduction was greater in urban areas, further affecting the differences in their annual mileage and associated costs.

Because of lower average incomes and higher vehicle mileage, rural households spend a much greater portion of their budgets on transportation than urban households. In 2013, rural households devoted 20 percent of their total budget to transport which is 7 percentage points more than urban households. Rural households also spend 1.8 percentage points more of their budget on fuel than urban households (Figure 14).

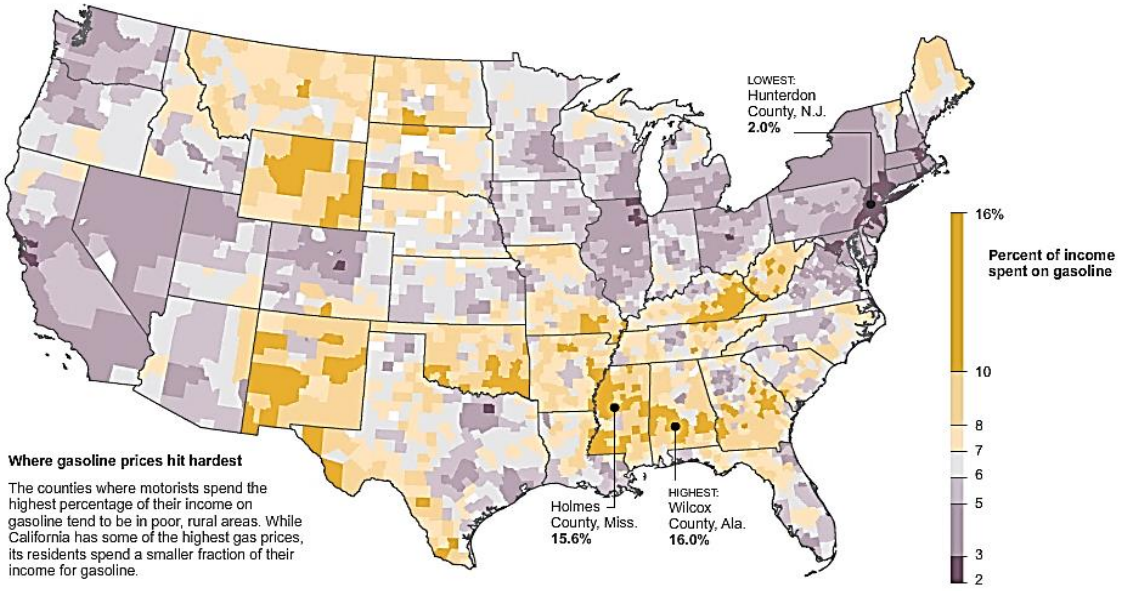
Figure 14 **Urban Versus Rural Transportation Expenditures** (BLS 2017)



Rural households spend 7 percent more of their household budget on transportation and 1.8 percent more on vehicle fuel than urban households.

When gas prices surpassed $4 a gallon, many rural households were spending more than 10 percent of their budgets on fuel, as illustrated in Figure 15. Recent fuel price declines provided substantial savings to rural motorists, but also reduced wages and employment in rural communities that specialize in oil and gas production. Rural households will continue to be particularly vulnerable to fuel price fluctuations in the future.

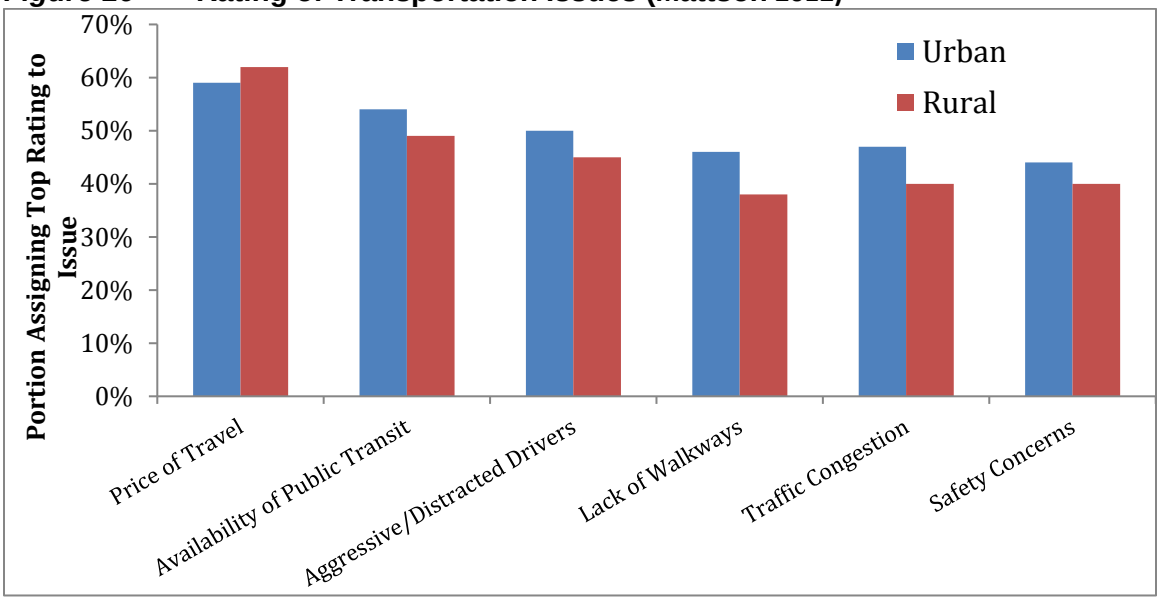
Figure 15 **Portion of Household Income Spent on Gasoline** (Krauss 2008)



Motor vehicle expenses due to long travel distances are a major financial burden to many lower-income rural households, sometimes leaving residents with insufficient money to purchase other essential goods such as utilities, medicine and healthy foods. Although lower-income motorists use various strategies to minimize expenses, such as owning older vehicles, performing some of their own repairs, and purchasing minimal insurance coverage, owning and legally operating an automobile is estimated to cost several thousand dollars annually, not including large unplanned expenses from mechanical failures or accidents.

The 2009 National Household Travel Survey measures the financial stress that many rural households bear from excessive transportation costs. It asked respondents to rate the importance of various transportation issues. Of these, “Price of Travel” rated highest by a significant margin, particularly for rural respondents, 62 percent of whom assigned it the highest rating, compared to 59 percent of urban respondents, and “Access or Availability of Public Transit” rated second highest, as illustrated in Figure 16.

Figure 16 **Rating of Transportation Issues (Mattson 2012)**



Transportation unaffordability and inadequate public transit services were the two most important transport issues identified by 2009 National Household Travel Survey respondents.

Automobile ownership comes with a wide range of costs, such as vehicle operating costs (fuel, maintenance, parking fees and road tolls), vehicle financing (and depreciation), insurance and registration fees. Thus, true affordability requires that households have multimodal options to limit their vehicle ownership/use. Having alternative modes, including adequate public transit services required to meet daily needs, can be a financial lifesaver. For example, lower-income rural residents may use public transit to save fuel and vehicle wear when travelling to another community, to avoid owning a second car, and as an emergency option when their vehicle is temporarily unavailable. The ability to live with fewer vehicles is particularly important for households that are experiencing crises, such as a job loss, vehicle failures, traffic accidents or fuel price spikes.

Tashia J. – Johnston, SC

"I live in rural Johnston, S.C., and without transportation, even eating becomes a crisis. Medical appointments and basic needs are left to chance."

Debbie C. – Nixa, MO

"I live in the growing suburb of Nixa, Missouri where public transit has yet to be offered. However, there is a great need. I think if you talk to the local food pantries and non-profits you will find that much of the food and energy assistance needed in Nixa is due to the fact that quality employment is unreachable if you can't afford a vehicle, or its maintenance costs."

Safety and Security

Rural communities have relatively high traffic casualty (death and injury) rates. Although they are home to only 19 percent of the U.S. population, they account for 49 percent of traffic fatalities. Rural vehicle travel averages 1.84 deaths per 100 million vehicle miles traveled (VMT), 2.6 times the 0.71 rate in urban areas (NHTSA 2017). Traffic safety is therefore particularly important in rural areas and public transit can be part of the solution.

Drivers over the age of 70 and from the age 13-19 (teenagers) have relatively high accident rates. According to the Insurance Institute for Highway Safety Highway Loss Data Institute, 16 to 19-year-olds have a crash rate nearly 3 times the rate for drivers 20 and over (IIHS 2015). And while older Americans do not drive as many miles, they have the second highest crash rate per mile (AAA 2016). Since most injury crashes involve multiple vehicles, higher-risk drivers can endanger other road users, in addition to themselves. Many traffic safety strategies, such as special senior driver testing requirements, graduated licenses for young drivers, and campaigns to discourage impaired and distracted driving, depend on reducing higher-risk driving. To be effective, alternative mobility options are required so that higher risk groups can reduce their driving without giving up their independence. For example, older Americans need transportation to healthcare services, stores and social activities; young people need transport to school, jobs and recreation; and those who have over indulged in alcoholic beverages may need transportation home from restaurants and bars. Public transit can serve many of these trips.

Public transit can also increase personal security by limiting the risk of assault. When non-drivers lack mobility options they may ask for rides with strangers and put themselves in potentially risky situations. Transportation agencies collect traffic collision data and make investments to improve highway safety, but do not track traveler assaults or consider personal security when evaluating investments. More comprehensive risk analyses could justify more investment in public transit to increase personal security on rural roadways. Described differently, for non-drivers, a highway that lacks appropriate public transit services is an unsafe transportation facility. (For more on public transit safety, see: http://www.vtpi.org/safer.pdf)

Active Lifestyles

Health experts are increasingly concerned about health problems caused by sedentary lifestyles and associated increases in obesity, which lead to increases in healthcare and disability costs, and reduce longevity. These problems can be particularly severe in rural communities. For example, 22 percent of rural children are obese, compared to 17 percent of urban children, and 40 percent of rural adults are obese, compared to 33 percent of urban adults (Hansen and Hartley 2015).

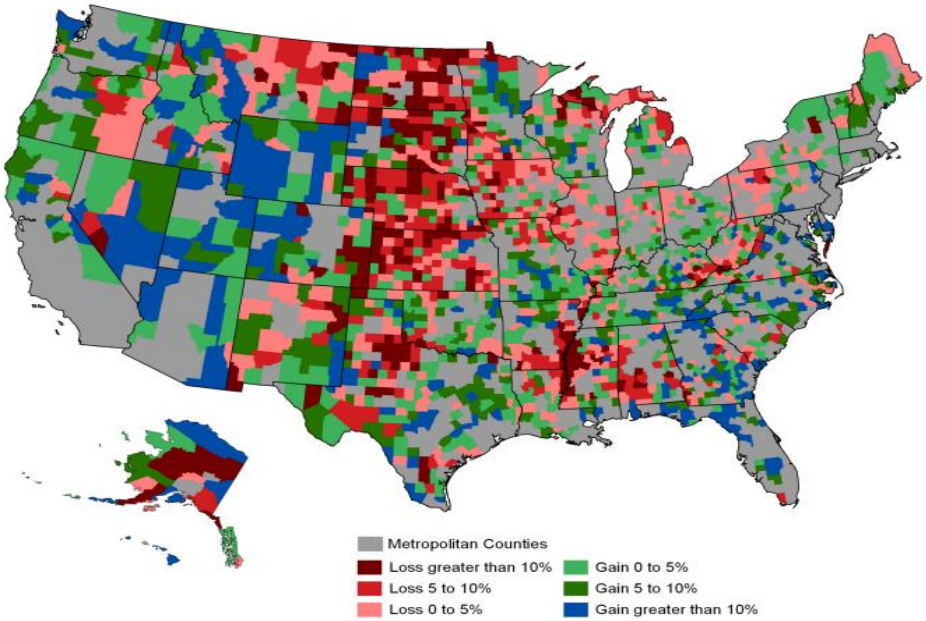
To address these risks, public health officials are encouraging people lead more active lifestyles. While there are many ways to be active (some costlier than others), one of the most effective ways to increase physical fitness and health is to utilize active transportation modes (walking and cycling) for both utilitarian and recreational travel, as a substitute for automobile travel. In response, many communities are improving pedestrian and cycling conditions by building sidewalks and bike lanes/paths, and implementing complete streets policies. These policies help benefit public transit, and makes it easier for residents to walk to and from bus stops. Since

most public transit trips include walking and cycling links, residents who switch from driving to public transit can get more exercise as well.

Economic Development

Many rural communities are experiencing economic shifts. Resource industries such as logging, fishing, mining and farming are increasingly automated, which results in reduced employment opportunities. The boom and bust cycles associated with various industries can contribute to the population and economic declines occurring in many rural communities (Figure 17).

Figure 17 **Nonmetropolitan Population Change, 2000 to 2010** (Johnson 2012)



Many rural communities and small towns have declining population.

In response, many of these communities are working to diversify their economies by attracting new industries. Public transit can support these efforts by expanding the pool of potential employees available to businesses, particularly non-drivers (youths and older Americans) or lower-income residents. This can be critical for local businesses and industries such as tourism, healthcare/senior services, farming and food processing. By continuing to support such industries, rural communities can make strides in gaining population. Between 2000 and 2010, 277 rural counties considered retiree destinations gained 13 percent in population on average, and 299 rural counties considered recreational destinations gained 11 percent in population on average (Johnson 2012).

Public transit can help support rural economies in several ways:

- It helps attract and retain residents who cannot drive (including older Americans, young people, people with disabilities and lower-incomes) and tourists, therefore helping to support local businesses, healthcare centers, and schools.
- It can help businesses reduce their parking costs, which is particularly important for revitalizing older downtowns, and for developing large institutions such as colleges and hospitals.

- A 1998 TCRP Report assessing the economic impacts of rural public transportation found that there was an 11 percent difference in average net earnings growth between rural counties that had public transit systems and those without (Burkhardt, Hedrick and Mcgavock 1998). The researchers also discovered an economic multiplier of 3.35 for every dollar of federal investment in rural public transit.

Summary of Trends

In virtually every community, including rural communities and small towns, a significant portion of residents and visitors cannot or should not drive, creating demand for alternatives. Public transit can play an important role in serving these needs. Failing to satisfy these needs can have significant negative consequences to individuals, families and communities.

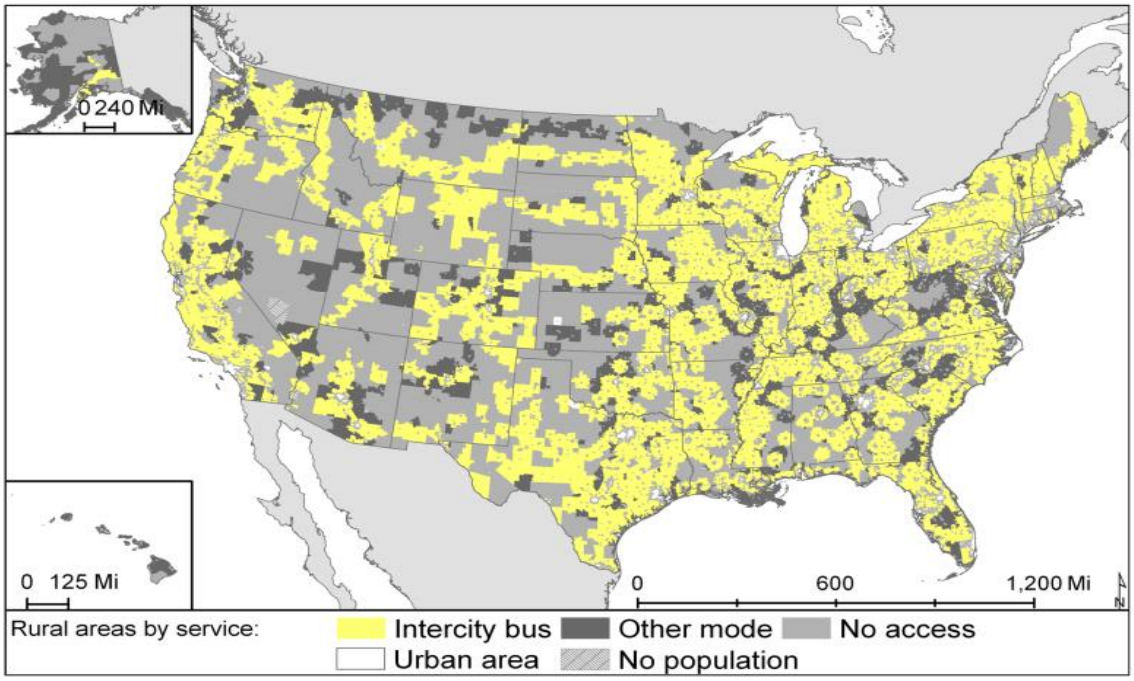
Rural public transit demands, and the benefits of serving those demands, are expected to rise significantly in the future. It is expected that the number of older Americans will increase by around 40% within the next decade (2014 Census Projections). For rural areas, this also will result in increases in residents with high mobility needs, including people over 75 years of age and veterans. In addition, more rural communities will experience the economic consequences of shifting population and stagnant growth. More residents with disabilities, fuel price fluctuations, increased preferences for healthier lifestyles and car-free tourism could be the backbone of higher public transit demand in the future.

Performance Metrics and Cost-Benefit Evaluation

This section examines the benefits and costs of rural and small town public transportation.

The U.S. has nearly 6,800 public transit agencies, including 820 that operate in large urbanized areas, approximately 1,400 agencies that operate in rural areas and small towns, and approximately 6,350 that provide demand-response services to people with special needs (APTA 2016). Rural public transit agencies, funding, vehicle revenue-miles and passenger trips have all increased during the last two decades (FHWA 2013; Mattson 2015). However, some types of public transportation, particularly intercity bus services, have declined in recent years (BTS 2011), causing an increasing portion of rural communities to lose scheduled intercity transport, as illustrated in Figure 18.

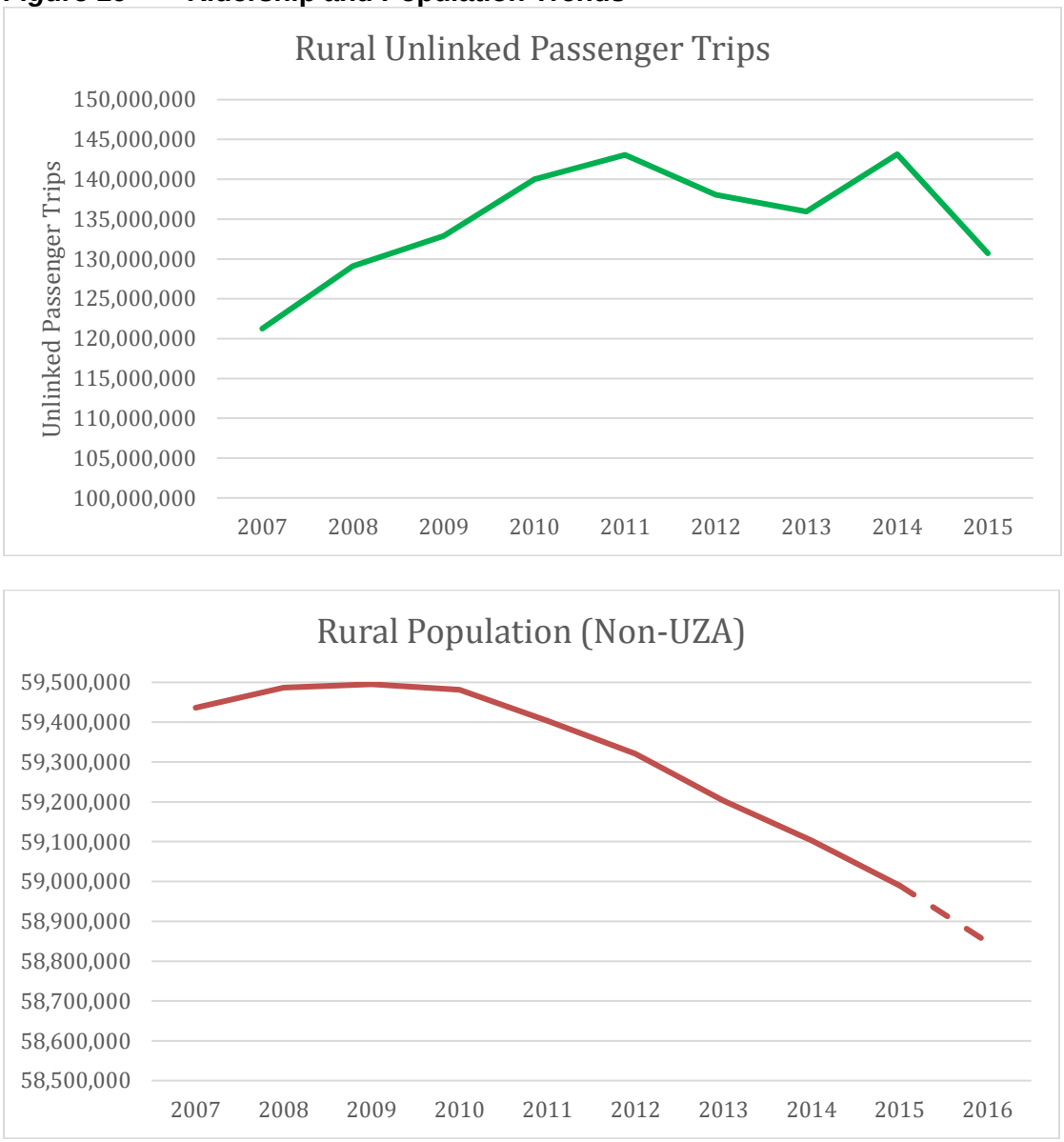
Figure 18 **Areas with Intercity Bus Services in 2010** (Firestine 2011)



A significant portion of rural communities lack public transportation services.

Despite a decline in 2015 rural public transit ridership, there are indications that it is more resilient than urban public transit ridership. 2015 rural public transit ridership is 7.8 percent above 2007 ridership, which equates to roughly 10 million additional trips. Because of rural population declines, rural ridership per capita is over eight percent more than in 2007.

Figure 19 **Ridership and Population Trends**



Rural Unlinked Passenger Trips is above 2007 levels even with a near 1 million decline in population

Mirroring the loss in rural population is the decline in rural vehicle miles traveled (Figure 20). From 2007 to 2015, rural vehicle miles traveled fell by roughly 10 percent; a stark contrast to urban VMT trends.

Figure 20 **Urban and Rural VMT Trends**

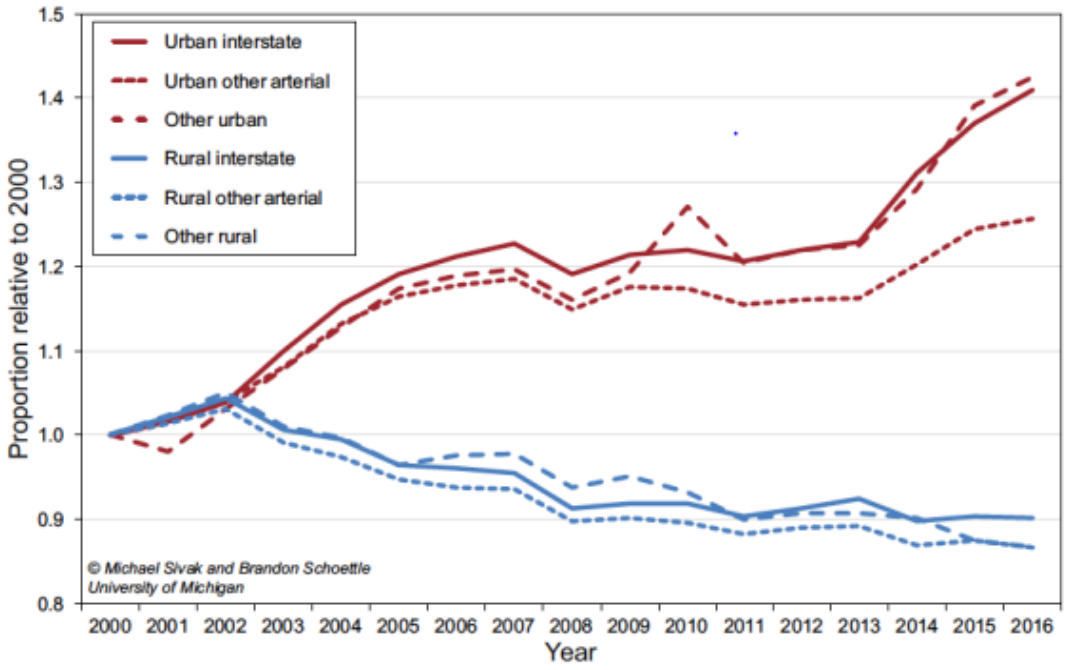


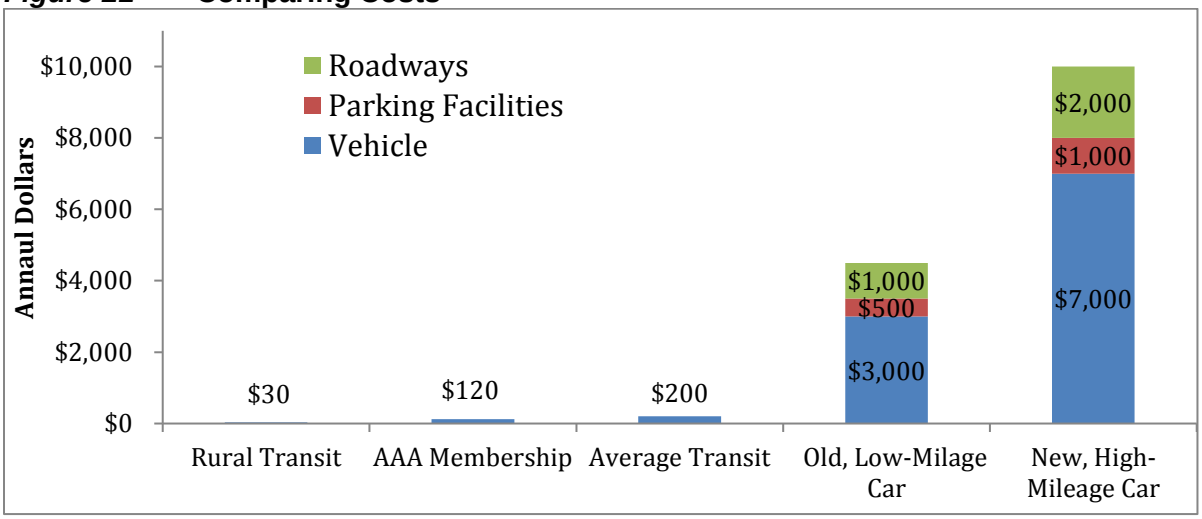
Table 3 **Public Transit Expenditures Per Capita, Service and Ridership** (FTA 2015)

	Expenditures (Dollars)	**Service** (Veh. Revenue-Miles)	
	Per Capita	*Per Capita*	*Dollars Per Mile*
Total	$195	26	*$10.32*
Smaller communities	$62	15	*$4.16*

Public transit expenditures (both capital and operating) totaled $64.1 billion in the U.S. in 2015, averaging close to $200 per capita

In an analysis of vehicle revenue miles (one of public transit's best indicators of service), rural communities and small towns were found to have experienced a 12 percent increase in VRM from 2007 to 2015. Still, as Table 3 shows, smaller communities lag behind national figures for vehicle revenue miles per capita and public transit expenditures per capita.

Figure 21 **Comparing Costs**



Overall, rural area and small town public transit services typically cost $20-40 annually per capita (Lynott 2014; Mattson and Hough 2015; TROUT 2015). This is small compared with annual automobile association membership fees (public transit services are similar to automobile association memberships in that they provide a mobility option motorists can use if their vehicle fails to operate or they cannot drive for other reasons), national per capita public transit spending, or total costs of owning and operating automobile, including vehicle, fuel, road and parking facility costs, as illustrated in Figure 21.

Public transit travel is often less expensive overall than other alternatives. For example, a typical 5-mile rural public transit trip costs about $7 (driver, fuel and vehicle expenses). That is less expensive than:

- A taxi fare for the same trip (typically $10-15 for a 5-mile trip).
- Total costs to own and operate an automobile for infrequent use ($3,000 annual costs divided by 150 annual trips equals $20 per trip).
- Total vehicle operation and time costs for driver to chauffeur a passenger 5 miles to a destination and return alone (10 miles at 50¢ per mile equals $5 in vehicle operating costs, plus 20 minutes charged at $15 per hour equals $5 in time costs).
- The accident costs of a higher-risk driver (youth, older American or impaired) forced to drive due to inadequate alternatives. U.S. traffic collision costs were estimated to total $836 billion in 2010, which is about $2,700 annually per capita. Since rural areas have about twice the per capita crash casualty rates as the national average (NHTSA 2014), traffic accident costs average over $5,000 annually per capita in rural areas (Blincoe, et al. 2014).

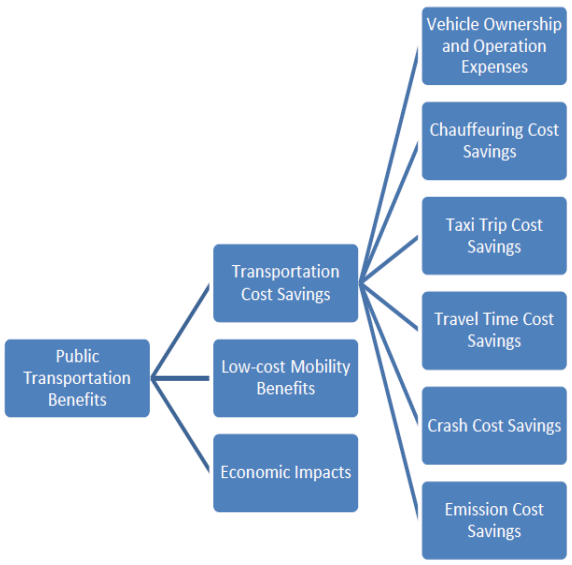
Public transportation spending can provide a positive return on investment if it reduces the amount of automobile travel, reduces accident rates, or provides an increase in local economic activity. Public transit services can also help government agencies and businesses save money. For example, it can reduce the costs for healthcare and social service programs that pay client travel expenses, as well as the number of parking spaces that governments and businesses must provide in a commercial area for customers and employees.

Public transit investments may also be economically justified if they help attract and retain more residents and businesses in a community, increasing local economic activity the tax base. For every 100 households that leave a community, around one million dollars is lost each year in local economic activity (assuming a household spends $10,000 annually on local goods, services and taxes), further contributing to a decline in local public services and businesses. Public transit can increase total employment by expanding the pool of potential employees available to businesses and the pool of potential jobs available to willing workers.

Several recent studies have estimated benefit-cost ratios for various types of public transit services (Ferrell 2015). They indicate that public transit investments generally provide positive economic returns, that is, each dollar spent on services provides more than one dollar in economic benefits. Although the highest benefit-cost ratios are typically found in larger urban areas, most rural public transit economic studies indicate that they provide net monetary benefit. In their report, *Cost-Benefit Analysis of Rural and Small Urban Transit*, Godavarthy, Mattson and Ndembe (2014) estimated the benefit/cost ratio for rural public transit services in each U.S. state, considering various categories of benefits, as illustrated in Figure 22. Because that study only considered a portion of public transit benefits (for example, it ignores parking cost savings, and the value that non-drivers place on having independent mobility), total benefits for rural areas are likely greater.

Figure 22 **Rural Public Transit Benefit Analysis** (Godavarthy, Mattson and Ndembe 2014)

Benefit Categories



Benefit Estimates

Table 8.4 Benefit-Cost Ratios for US States/Regions in Rural Areas

Benefit-Cost Ratio of Public Transit in Rural Areas			
State	B/C Ratio	State	B/C Ratio
Alabama (AL)	1.46	Montana (MT)	1.93
Alaska (AK)	1.48	Nebraska (NE)	1.67
Arizona (AZ)	1.34	Nevada (NV)	1.26
Arkansas (AR)	0.82	New Hampshire (NH)	2.28
California (CA)	1.14	New Jersey (NJ)	0.72
Colorado (CO)	2.01	New Mexico (NM)	1.53
Connecticut (CT)	1.27	New York (NY)	1.17
Florida (FL)	0.37	North Carolina (NC)	0.46
Georgia (GA)	0.55	North Dakota (ND)	1.30
Hawaii (HI)	1.79	Ohio (OH)	0.84
Idaho (ID)	1.01	Oklahoma (OK)	1.05
Illinois (IL)	0.86	Oregon (OR)	1.50
Indiana (IN)	1.26	Pennsylvania (PA)	1.11
Iowa (IA)	1.87	South Carolina (SC)	1.48
Kansas (KS)	2.01	South Dakota (SD)	1.45
Kentucky (KY)	0.41	Tennessee (TN)	0.66
Louisiana (LA)	0.32	Texas (TX)	0.66
Maine (ME)	0.32	Utah (UT)	4.19
Maryland (MD)	2.57	Vermont (VT)	0.70
Massachusetts (MA)	1.79	Virginia (VA)	1.39
Michigan (MI)	0.61	Washington (WA)	1.48
Minnesota (MN)	1.77	West Virginia (WV)	1.16
Mississippi (MS)	1.60	Wisconsin (WI)	0.63
Missouri (MO)	1.29	Wyoming (WY)	3.00
		Total	1.12

This figure illustrates the categories of benefits, and benefit estimate results for each U.S. state.

Public Transit Planning and Service Options

This section describes appropriate types of public transit for rural communities and small towns, as well as different performance indicators and planning tools.

Certain types of public transit services are more suitable for smaller communities, as summarized in Table 4. Many communities use a combination of these services, with subsidized taxis and community buses serving people with special needs, demand response in moderate-density areas, fixed-route buses connecting local destinations, and intercity bus and train routes connecting towns and cities.

Table 4 **Public Transit Services Suitable for Smaller Communities**

Name	Description	Service Quality	User Costs	Government Costs
Taxi Subsidies	Private taxies receive subsidies for certain types of trips. Users pay any additional fares.	Moderate to high, depending on local taxi service availability.	Varies depending on size of subsidy and length of trip.	Varies.
Volunteer Drivers – Own Vehicles	Non-profit organizations coordinate volunteer drivers who provide rides in their own vehicles.	Low. Limited to what volunteers can provide.	Users may be asked to help pay for gas.	Varies. May help reimburse drivers.
Community buses	Non-profit organizations use volunteer or paid drivers to offer rides in subsidized vehicles (usually vans).	Low to moderate, depending on resources.	Varies. Users may be asked to help pay expenses.	Low. Helps fund vehicles.
Paratransit (Demand Response)	Non-profit organizations or government agencies coordinate paid drivers using vans or small buses.	Moderate, depending on resources.	Varies. Generally requires a fare of several dollars.	High.
Vanpool services	A transportation agency or employer group helps organize commuter vanpools	Good for longer commute trips	Low compared with driving a private vehicle	Very low. Vanpools are generally self-supporting
Fixed Route Transit Bus Services	Government agencies or contractors operate buses on scheduled routes.	High in service area, depending on resources.	Generally requires moderate fares.	Moderate to high.
Integrated Regional Transit Services	Local and regional agencies coordinate public transit services to connect communities.	High, depending on funding: more funding allows more service.	Generally requires moderate fares.	Moderate to high.
Rural Transportation Network Companies (TNCs)	Comparable to rural "Ubers", these ride-hailing services are app based and can connect drivers with passengers. See "Liberty Mobility Now" http://libertymobilitynow.com/	High, depending on where the services are available	Can be as low as $1 per mile.	Low. Some grant funding/ government contracts

Various types of public transit services can be appropriate in rural areas and small towns.
Note- Ride Hailing in Rural America:
http://www.npr.org/sections/alltechconsidered/2017/04/17/524339669/ride-hailing-in-rural-america-like-uber-with-a-neighborly-feel

Public transit services are often provided through partnerships that involve various organizations and government agencies. For example, many rural communities use a combination of funding sources to support local non-profit organizations or government agencies that provide public transit services (NCMM 2015). In many cases, federal and state funds are available to help communities establish and operate mobility services to meet special needs, such as mobility for veterans with disabilities. (Peterson 2014).

Service Coverage

Service coverage refers to where and when public transit service is offered. Service coverage analysis can be used to understand service gaps and to align service with planning objectives (such as providing basic mobility for non-drivers), to increase employment opportunities, or to support tourism. The following factors can be considered when evaluating coverage:

- **Area.** Fixed-route public transit serves a more limited area, usually around urban centers and along major highways. Demand response and subsidized taxi services have the flexibility to serve a larger area.
- **Population and jobs.** With GIS tools, it is possible to measure the portion of households and jobs that are served, and even the portion of public transit-dependent residents.
- **Schedules.** Rural public transit often operates with limited schedules, such as only during weekdays, and for some routes, only once or twice weekly.
- **Restrictions.** Many public transit providers must limit the amount of service they can deliver: for example, the number of demand-response trips that people with disabilities take each week or month.
- **Demand types.** Public transit serves various types of demands, including basic mobility for people with disabilities and low incomes, commuting/intercity trips and recreational trips. Analysis can investigate the degree to which these demands are being served, and the community satisfaction with the service.

Supply (Trips or Vehicle-Revenue-Miles Per Capita)

Standard public transit service performance indicators include vehicle *revenue-miles* (mileage when vehicles are in service), *revenue hours*, and *unlinked passenger trips* per capita. Currently, smaller community public transit systems (communities with fewer than 60,000 residents), average 5-10 vehicle revenue-miles per capita, and 2-6 annual trips per capita.

The following factors should be considered when establishing service targets:

- The number of older Americans, people with disabilities, immigrants, and lower income households.
- Industries that attract non-drivers, such as a colleges or universities, retirement communities or tourism businesses.
- Whether the community has goals to create more compact, multimodal communities.

Transit-Oriented Communities

This refers to whether a region (such as a county) has at least one village or town with a commercial center that offers basic services (medical and dental clinics, pharmacy, grocery store, school, park and recreation center), in addition to good walking and cycling conditions, local and intercity public transportation taxi services, a variety of housing options, including some suitable for people with disabilities and lower incomes. This gives people who cannot or should not drive access to the services they need to live comfortably in that region.

Transit Service Innovations

Many rural areas and small towns are implementing public transit service partnerships and management innovations (Hosen and Powell 2014):

- Some communities offer TaxiBus service: passengers must reserve a ride, and are carried between numerous fixed stop locations by taxis which can pick up other passengers during the same trip (example: http://citso.org/en/taxibus-service).
- Some small towns support periodic vanpooling or commuter bus service to help residents commute to nearby cities and access services. This may include seasonal or special bus services to recreational activities, such as festivals, beaches, or ski hills

Planning and Funding

This indicator refers to the quality of planning for public transit services, and the ability to increase services if more funding becomes available. While various federal and state programs support rural public transit (NRTAP 2015), many transportation agencies lack the resources needed to meet growing rural public transit demands. It is important to identify tools and support from state departments of transportation and other organizations to develop local rural public transit planning capacity.

Rural Public Transit Planning Resources

AARP Livable Communities (www.aarp.org/ppi/issues/livable-communities) provides guidance on policies and planning practices to create safe, accessible, affordable and vibrant communities.

William Dieber, et al. (2014), *Planning Transportation To Meet The Needs Of An Aging Illinois: An Assessment,* Voorhees Center for Neighborhood and Community Improvement; at http://bit.ly/1QgAako.

Elizabeth Ellis and Brian McCollom (2014), *Guidebook for Rural Demand-Response Transportation: Measuring, Assessing, and Improving Performance*, TCRP Report 136, TRB; at http://bit.ly/1Lj51OB.

Ranjit Godavarthy, Jeremy Mattson and Elvis Ndembe (2014), *Cost-Benefit Analysis of Rural and Small Urban Transit*, Upper Great Plains Transportation Institute (www.ugpti.org); at http://www.ugpti.org/resources/reports/downloads/2014-07-cost-benefit-analysis.pdf.

Kenneth I. Hosen and S. Bennett Powell (2014), *Innovative Rural Transit Services: A Synthesis of Transit Practice*, TCRP Synthesis 94, Transportation Research Board (www.trb.org); at http://bit.ly/1JAXMdm.

KFH Group (2014), *Effective Approaches to Meeting Rural Intercity Bus Transportation Needs*, TCRP Report 79; at http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rpt_79.pdf.

Brian J. Morton, Joseph Huegy, and John Poros (2014), *Close to Home: A Handbook for Transportation-Efficient Growth in Small Communities and Rural Areas*, Web-Only Document 211, National Cooperative Highway Research Program (NCHRP); at http://onlinepubs.trb.org/onlinepubs/nchrp/NCHRP_W211.pdf.

National Rural Transit Assistance Program Website (http://nationalrtap.org), Federal Transit Administration.

Rural Transportation (http://nationalcenterformobilitymanagement.org/by-topic-rural-transportation), National Center for Mobility Management.

Rural Assistance Center Transportation Topic Page (www.raconline.org/topics/transportation) provides practical information on ways to improve transport options in rural communities.

Rural Transportation Planning Clearinghouse (www.ruraltransportation.org) serves as the national professional association for rural transport planning professionals, policymakers and other stakeholders.

Small Urban & Rural Transit Center (www.surtc.org) at North Dakota State University.

USEPA (2015), *Smart Growth Self-Assessment for Rural Communities*, U.S. Environmental Protection Agency (www.epa.gov); at http://1.usa.gov/1QIOIZy.

Many communities are implementing public transit service improvements and support strategies that make travel more convenient and attractive, and encourage its use, including bus lanes and bus rapid transit systems, enhanced buses and bus stops, smartphone apps with schedules and real-time bus arrival information, commute trip reduction programs, improved walking and cycling connections with public transit, and transit-oriented community policies. Although these amenities are most common in larger urban areas, they are starting to be implemented in smaller communities, particularly college towns and resorts.

Table 5 **Pro-Transit Arguments for Various Stakeholders**

Interest Group	Reasons to Support Public Transit
Older persons and people with disabilities	• Improves their independence and ability to participate in activities • Saves money compared with car ownership and taxi travel • Supports "aging in place." Reduces the need for non-drivers to move away
Youth	• Improves their independence and ability to participate in activities • Saves money compared with car ownership
Motorists	• Reduces chauffeuring burdens • Provides a mobility option if their vehicle fails or they are unable to drive • Reduces crash risk to all road users
Business leaders	• Helps attract and retain residents and their business activity • Expands the pool of lower-wage employees • Allows non-driving tourists to visit • Reduces parking costs
Transportation professionals	• Serving non-drivers' travel demands is an important and growing responsibility for transportation professionals • Reduces crash risks • Reduces traffic and parking congestion
Public health professionals	• Reduces crash risks • Encourages physical activity (since most public transit trips include walking links) • Reduces hitchhiker assault risk

Reasons to support public transit can be tailored to the concerns of various constituents.

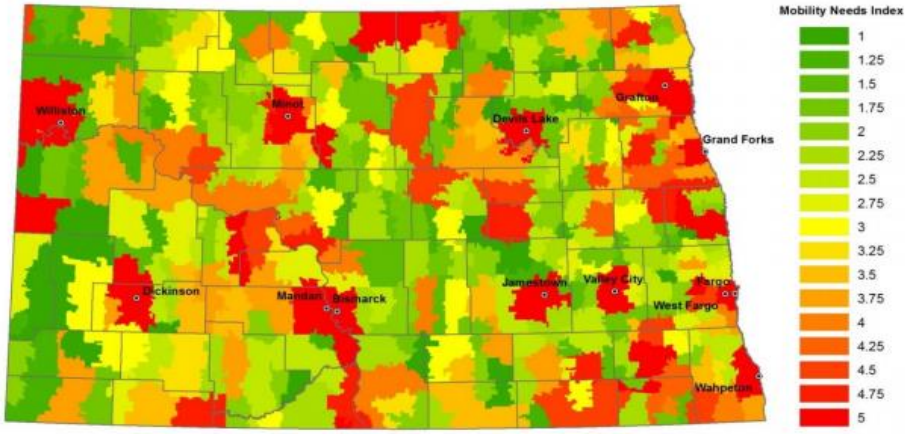
Case Studies

This section describes examples of rural public transit planning and program development.

North Dakota

A study, *Identifying and Satisfying the Mobility Needs of North Dakota's Transit System*, by the Upper Great Plains Transportation Institute (Mattson and Hough 2015) analyzed demographic and economic trends that affect public transit demand, and surveyed various service providers to identify existing and future service gaps and estimate the additional funding required for future needs. It calculated a *Mobility Need Index* rating for each county based on projected growth in total population, residents aged 65 or older, people with disabilities and low incomes, workers without access to a vehicle, and population densities (Figure 23). Each number represents a quintile (20 percent of total areas), so for example, the areas rated 1 represent the 20 percent with the lowest public transit need, and those rated 5 represent the 20 percent with the highest need.

Figure 23 **Mobility Needs Index Map** (Mattson and Hough 2015)



The Mobility Needs Index indicates where public transit demand is projected to increase due to growth in population groups that rely on it.

The analysis indicates that demand for both conventional public transit and specialized mobility services will increase significantly, particularly in areas experiencing population growth. Many areas need longer service hours, weekend service, and more services in rural areas, predominantly for medical and work trips.

The study evaluated four possible scenarios:

1. Each region meets at least *one* of the three benchmark values (per capita vehicle-miles, vehicle-hours or passenger-trips compared with peer public transit agencies).
2. Public transit services increase at a rate equal to or greater than growth in total population, although days and hours of service are limited.
3. Requires that each region meet at least *two* of the three benchmarks.
4. Requires that each region increase service by at least 10 percent.

The results were used to project service, staffing, facility, vehicle and funding needs for each scenario, as summarized in Table 6. This analysis indicates that the state's rural transit funding

must increase 30-63 percent to meet future needs, although, since rural public transit services are a small portion of total public transit programs, this only represents a 9-18 percent increase in total statewide funding needs. Under the highest growth scenario, annual funding must increase by $3.9 million ($1.5 million local and $1.9 million state), or about $11.50 total additional annual dollars per rural resident (according to the U.S. Census, rural Idaho has about 300,000 residents).

Table 6 **Funding Increases Required** (Mattson and Hough 2015)

	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Rural Transit				
Annual operating expense	$2,836,425	$4,026,537	$5,657,762	$5,957,448
% increase over 2012	30%	42%	60%	63%
Vehicle expense (one-time cost)	$1,800,000	$2,550,000	$3,600,000	$3,800,000
Urban Fixed-Route Transit				
Annual operating expense	$2,173,276	$2,622,757	$3,244,377	$3,276,157
% increase over 2012	7%	9%	11%	11%
Vehicle expense (one-time cost)	$6,750,000	$8,100,000	$9,450,000	$9,450,000
Urban Demand-Response Transit				
Annual operating expense	$0	$345,648	$345,648	$382,239
% increase over 2012	0%	2%	2%	3%
Vehicle expense (one-time cost)	$0	$260,000	$260,000	$260,000
Total				
Annual operating expense	$5,009,701	$6,994,942	$9,247,787	$9,615,844
% increase over 2012	9%	13%	17%	18%
Vehicle expense (one-time cost)	$8,550,000	$10,910,000	$13,310,000	$13,510,000

This table estimates the additional funding required to achieve various future service targets.

Montana (Mattson and Hough 2015)

Montana has made a concerted effort to provide public transit in its rural communities. The number of rural public transit systems increased from nine in 2008 to almost 40 in 2015. To achieve this, the state government partnered with local councils on aging that offered community bus services. Montana Department of Transportation Bureau Chief Audrey Allums explained, “We went to these Councils on Aging and said, ‘You’re already running a senior bus service; if you open your doors to everyone, print a schedule and follow the FTA guidelines, we will help you pull it all together and receive FTA funding.’”

Local governments provided matching funds using Older Americans Act funding, property taxes, donations and other local government money. Sanders County in northwest Montana established public transportation services after a resident died because she was unable to access cancer treatments. The community responded by saying, “Never again in our town.”

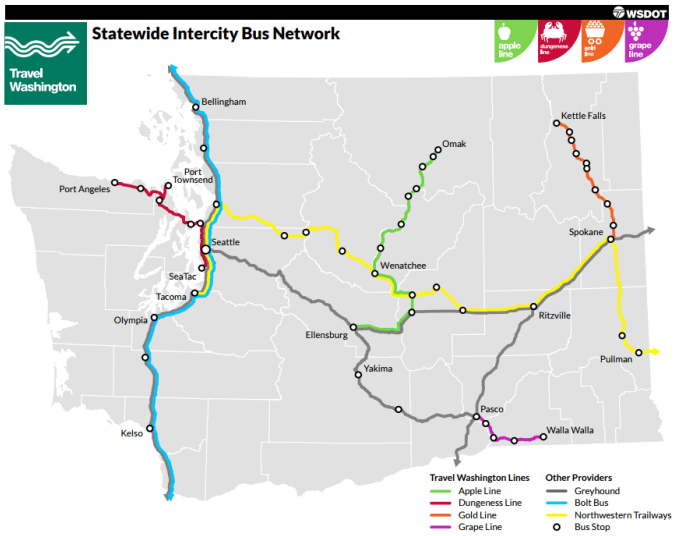
Washington State

Travel Washington Intercity Bus Program

For many years, Washington State’s intercity bus service was declining, leaving rural communities without scheduled public transportation to other towns and cities. In response, Washington State created the Travel Washington Intercity Bus Program which contracts with private companies to provide services to many rural communities (Figure 24). Commencing in

2007, it relies largely on federal grants and requires minimal state funds. The State Department of Transportation works with communities to design the program and select service providers (Lynott 2014). Program manager Steve Abernathy, says that this approach has garnered strong community support. “When the Gold Line (northeastern Washington) was announced, communities were falling over each other to see who could bring the most to the ribbon cutting.”

Figure 24 **Washington Intercity Bus Network** (www.wsdot.wa.gov/transit/intercity)



Washington State supports an intercity bus network that serves rural areas and smaller towns.

The intercity buses connect to local public transit services and are catalysts for private investment. Homes, hotels and banks are being developed around transit centers, and their parking lots are sometimes used for farmers’ markets and concerts. Abernathy describes the program as, “allowing people to stay where they want to live, yet still have the mobility, connections and access to the state, national and international transportation network. It allows older adults to stay in the communities where they have friends, where they raised their children and where they are part of a community.”

Rural Public Transit

Washington State has several programs to help rural communities plan, coordinate and fund local public transit services (USDOT 2011). Public transit is provided through government agencies and community transportation providers which include private non-profit, private for-profit and tribal organizations. These organizations can access various federal, state and local funds, including voter-approved special taxes. The Washington State Department of Transportation provides administrative and technical assistance to regional transportation planning organizations and public transit service providers. As a result, most rural counties in Washington State have coordinated public transit services providing travel to and within many communities. For example, it is possible to travel around the Olympic Peninsula to many small communities, Indian reservations and tourist destinations using the Olympic Transit Loop, which consists of six different but coordinated local public transit agencies (OPTC 2012), as illustrated in Figure 25.

Figure 25 **Olympic Peninsula Public Transportation**

It is possible to circle the Olympic Peninsula and visit most communities using integrated local public transit services. (www.olympicpeninsula.org/sites/default/files/onp_transit_guide_2012.pdf)

Small Community Transit Service and Ridership Targets (CUTA 2009)

In 2009, the Canadian Urban Transportation Association (CUTA) identified existing public transit service and ridership rates in various communities, and used this information to set targets for 2040 to accommodate growing demands associated with demographic and economic trends such as aging population and rising future fuel prices. See Table 7.

Table 7 **Small Community Transit Service and Ridership Targets** (CUTA 2015)

	2013	2040 Targets
Service: annual per capita vehicle-hours	0.7	1.3
Ridership: annual per capita passenger trips	15	40

Idaho (Mattson and Hough 2015)

The Community Transportation Association of Idaho (CTAI) is a non-profit organization which supports the development of multi-modal transportation services in Idaho communities, including fixed route, demand response and ridesharing services. CTAI helps distribute federal and state funds. Agencies must have a coordinated plan in order to receive these funds. To meet the requirement, the state is divided into 17 local networks that meet to talk about community needs and implementation strategies. The CTAI employs a full-time mobility manager in each of the state's six transportation districts. These managers facilitate the coordinated planning process and bring together key stakeholders, elected officials and leaders from the senior center or agency on aging. Executive director Heather Wheeler explains, "One of the key things the CTAI is doing is trying to bring mobility options to the rural communities so individuals can maintain their rural lifestyle and have access to health care, work, school or other necessary appointments."

Campus Transportation Management (Van Heeke, Sullivan and Baxandall 2014)

Many small-town colleges and universities are implementing campus transportation management programs that encourage students and staff to reduce automobile travel to help address local traffic and parking problems, increase affordability and safety and improve the community's quality of life. These programs usually include a combination of campus shuttle buses, public transit service improvements, walking and cycling improvements, plus incentives to reduce driving, such as parking pricing reforms and discounted or free public transit services.

For example, the University of North Carolina at Chapel Hill (town population 59,376) provides financial support to enable fare-free service throughout the community. Between 1997 and 2011, the proportion of students using public transit to commute to campus more than doubled, from 21 percent to 53 percent. Morgantown, West Virginia (population 31,073) operates 20 bus routes, which are free for university and high school students, including one between the University of West Virginia campus and downtown which operates until midnight, to discourage driving under the influence. Similarly, the University of Arkansas in Fayetteville (population 80,621) has 10 free bus routes for students. It also has a *Safe Ride* program that provides those who feel threatened or impaired with a free ride home from any location within the city limits.

People's Transit (Barry 2010)

Huron, with a population of 12,000, is the county seat of Beadle County, at the midpoint of eastern South Dakota. Temperatures can drop as low as 25 degrees below zero, and with a large older population, many residents were worried about how their older neighbors in this rural community could access life's essentials without transportation options. This led to the establishment of People's Transit 30 years ago, which started as a pilot program that received most of its funding from the Older Americans Act. The service quickly expanded, bringing older Americans meals, and access to recreational activities and health services. In 1975, Huron officials added the first wheelchair-accessible van to the fleet.

In the late 1990s, a building committee was established. Then-City Commissioner and former Mayor, David McGirr, worked with community members to locate a site for the Huron's Great transit center. Given South Dakota's frigid winters, the center had to be energy efficient to minimize costs. While shoveling parking lots and thawing buses before they go out on the road is labor intensive, the community has come to heavily rely on the system. McGirr explained, "Transit service is a critical element in our infrastructure. Without People's Transit, there would be a lot of people here living a lower standard of life. If ever they went away, I don't know how we'd replace them."

Norway (ITF 2015)

The Norwegian government provides financial support for developing new public transport systems in rural districts in Norway. This has resulted in several types of demand-response service being developed in sparsely populated areas. The services vary in the types of passengers served, frequency and flexibility. All systems require travelers to request service by phone at least two hours in advance.

One example is in the south-eastern part of Norway (Østfold). In addition to regular express bus services from the municipality center to nearby cities, the inhabitants of more sparsely populated areas have access to a local demand-response service. Initially the service was restricted to older residents and co-travelers, but after a certain time the transportation

authorities opened the services for all users. There are two different routes: One serves the northern part of the area three days a week, the other serves the southern part on the two other weekdays. Although buses follow routes, passengers can be picked up at homes up to two kilometers away from the specified route. There are two departures on each service day. The first departure is at about 10 o'clock, i.e. after the school transport is finished in the morning. The second service runs about three hours later. This makes it possible to carry out errands in the municipality center. If nobody demands the service at least two hours in advance of scheduled departures, there is no service. Depending on the number of passengers and their special needs (for example, a wheelchair) the lines will be serviced by minibuses or regular taxis, owned and administrated by the local taxi central. The service was meant to replace subsidized taxies for people with special needs.

Another model for demand-response services was developed for a sparsely populated and geographically large municipality in the eastern part of Norway (Hedmark). Authorities introduced it as a new public transportation concept with departures from the municipality center every hour, if requested at least two hours in advance, using regular taxis. The service has fixed stops but there is some flexibility in routes. Passengers must be at the bus stop at specified times. As the stops are fixed, the service is not intended to replace services for people with special needs. The structure of the time schedule is based on the time of departure from, and arrivals to, the municipality center. Every route starts from, and arrives at, the municipality center half past every hour. The operating time is between 7 a.m. and 10 p.m. on weekdays and between 9 a.m. and 7 p.m. on weekends. From the center, it is possible to change to railway and express bus services for trips that cross the border.

User surveys indicate that demand response services are popular. Key user groups include young and older people without a driver's license. Some parents also expressed appreciation that there were other modal options besides driving.

Myths and Realities of Rural Public Transit

This section addresses common criticisms of rural public transit.

Myth #1: Public Transit Is Only Justified in Large Cities

Public transit serves various roles in an efficient and equitable transportation system. In large cities, it provides space-efficient mobility on major travel corridors, which reduces traffic and parking congestion. In both large and small communities, it provides basic mobility for non-drivers, affordable transportation for lower-income households, transportation for tourists, and support for local economic development. Although it serves a limited portion of total travel in most rural communities, those trips tend to be particularly important, including travel for healthcare, basic shopping, school, work and tourism. Public transit can help reduce many of the problems facing rural communities and small towns, including population and economic declines, poverty and high traffic fatality rates.

Myth #2: Public Transit Is Costly

Public transit services are sometimes criticized for being costly, particularly in rural areas where low ridership and dispersed development results in high costs per passenger-mile and low cost recovery (portion of total costs financed by fares). However, public transit can actually be very cost effective compared with alternatives. For example, a typical 5-mile rural public transit trip costs about $7, which is less expensive than many alternatives:

- A taxi fare for the same trip (typically $10-15 for a 5-mile trip).
- Total costs to own and operate an automobile for infrequent use ($3,000 annual costs divided by 150 annual trips equals $20 per trip).
- Total vehicle operation and time costs for driver to chauffeur a passenger 5 miles to a destination and return alone (10 miles at 50¢ per mile equals $5 in vehicle operating costs, plus 20 minutes charged at $15 per hour equals $5 in time costs).
- The accident costs of a higher-risk (youth, older, or impaired) driver forced to drive due to inadequate alternatives.

As stated previously, per capita public transit expenses are small in rural areas compared with larger cities, with motor vehicle costs, and even compared with automobile association memberships which offer roadside assistance for drivers who have car problems. Public transit serves a similar function; it provides a mobility option for those who need it most. Even residents who do not frequently use public transit value having it available.

Myth #3: Public transit is subsidized, unlike roads which motorists finance through user fees

Many people assume that roads are fully financed by user fees such as fuel taxes and road tolls. Although user fees finance most highway costs, city and county roads are financed primarily through general taxes (Henchman 2013). Of the $235 billion spent on U.S. roadways (about $732 per capita), only $113 billion (about $360 per capita) was financed by user fees (FHWA 2015, HF-10); the rest was financed by general taxes which residents pay regardless of how much they drive.

Therefore, people who drive less than average subsidize the costs of people who drive more than average. Public transit subsidies offset these cross subsidies and they ensure that residents who do not drive receive a share of government transportation spending.

Myth #4: Buses Run Empty

Some complain that public transit vehicles (buses and vans) occasionally appear empty. These vehicles often operate with extra capacity due to fluctuating demand, just as private vehicles generally operate with empty seats. Most public transit systems have times when vehicles are nearly or completely full.

Myth #5: Small towns and rural communities rely on informal transport services

Informal travel arrangements can be unreliable or uncomfortable. Formal public transit services offer a reliable, professional service, with fixed schedules and amenities such as wheelchair lifts and bike racks. Non-drivers often prefer paying for public transit rather than being entirely dependent on family or friends for transportation. The need for more formal public transit is increasing, with rural community organizations finding that they cannot serve the growing demand with only volunteers.

Myth #6: Self-driving cars will soon eliminate the need for public transit

Some people argue that autonomous (self-driving) cars will soon eliminate the need for communities to subsidize public transit services. Such claims are unrealistic. Although vehicle manufacturers are making progress developing self-driving technologies, it will be several years before such vehicles can operate reliably under all travel conditions – for example, no current technologies can navigate safely in heavy rain and snow – and even longer before they are affordable enough for most households to purchase. Even when these vehicles operate reliably, many children and people with disabilities will still need assistance or supervision. It is unlikely that self-driving cars will replace public transit services before the 2030s, and subsidies will still be needed to provide basic mobility for people with disabilities and those with low incomes.

Conclusions

Public transportation helps rural communities become more efficient and equitable. It helps ensure that all residents, including non-drivers, enjoy independent mobility and receive a fair share of public spending on transportation facilities and services. Serving these demands can provide multiple benefits. However, many of these benefits can be overlooked or undervalued in formal transportation planning, such as during project economic evaluations, as summarized in Table 8. As a result, the importance of rural public transit improvements is often under estimated.

Table 8 **Major Categories of Rural Public Transit Benefits**

Benefit Category	Degree Considered In Conventional Planning
Users	
More independent mobility	Seldom included in formal economic evaluation
Financial savings compared with automobile or taxi travel	Generally overlooked
Reduced accident and assault risk	Generally overlooked
Less risk of impaired driving citation or accident	Generally overlooked
Motorists	
Reduced chauffeuring burdens	Sometimes recognized by individuals but seldom included in formal economic evaluation
Reduced traffic risks (less higher-risk driving)	Generally overlooked
Reduced traffic and parking congestion	Generally overlooked
Local Economy	
Retains and attracts more residents	Seldom included in formal economic evaluation
Increased tourism by non-drivers	Seldom included in formal economic evaluation
Helps attract major employers such as colleges and hospitals	Seldom included in formal economic evaluation

Rural public transit can provide various benefits to users and communities. Many of these benefits can be overlooked, so public transit improvements are often worth far more than recognized.

Although public transit serves only a minor portion of total rural inhabitants, many of those trips are crucial. For example, allowing older residents and people with disabilities to access healthcare and basic shopping, young people to reach school and jobs, and tourists to visit without a motor vehicle. Failing to serve these needs can be costly. If public transit is unavailable, residents may miss medical appointments and lose jobs, or must be chauffeured. Communities that lack public transit will be at a stark disadvantage when it comes to attracting people with disabilities, younger residents, and tourists compared to other communities with better mobility services. This contributes to the spiral of declining population and economic activity that threatens many rural areas. Public transportation can make important contributions in addressing these problems.

Current demographic and economic trends are increasing rural public transit demand and the benefits of serving that demand. Aging population, more residents with disabilities, industrial shifts and rising poverty, further restrictions on higher-risk driving, and changing consumer preferences are increasing the number of residents who cannot, should not, or prefer not to drive. Communities that serve the growing demand for alternative modes and "car free" lifestyles have the potential to attract and retain more residents and visitors, along with the economic activity they generate. Motorists also benefit from reduced chauffeuring burdens and chances of being injured by a high-risk driver.

Analysis in this report indicates that public transit demand can be expected to further increase in rural communities within the next decade. In doing comprehensive transportation planning, agencies should plan for increasing the amount of revenue miles operated, depending on the demographic shifts of each individual community. Rural communities will require increased funding to plan for this operational expansion.

Current rural public transit spending is low, particularly compared with:

1. Per capita spending on public transit in urban areas.
2. What many motorists pay for automobile association memberships.
3. What motorists spend on automobiles.
4. What governments and businesses spend on roads and parking facilities.
5. The potential benefits of such investments.

Many federal and state programs support rural public transit, although local communities must usually provide matching funds. Examples described in this report indicate that many rural communities are using innovative partnerships and diverse funding sources to finance improvements in public transit. Overall, such programs are often very cost effective, considering all benefits and costs; each dollar invested often provides far more than a dollar in total savings and benefits.

Of course, rural communities are diverse, and so are their mobility needs. There are many ways rural communities can provide mobility services -- ranging from volunteer programs operated by local charities, subsidized taxi services, community transport, demand response and fixed-route bus services. Many rural communities have demonstrated that with creativity and good management it is possible to significantly improve public transit services with modest investments.

Improving public transit service requires broad community support. To build this support, proponents must create a vision of a more diverse transportation system and demonstrate the resulting benefits to stakeholders. It is important to have credible technical analyses about these benefits; it is also important to support such analyses with anecdotal material that vividly illustrates how public transit can benefit local individuals, businesses and communities. To meet growing public transit demand, leaders will need to overcome various obstacles including misunderstandings about the role that public transit plays in small towns and rural communities, biases against planning and funding practices, and local underinvestment in public transit.

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