2011 Transit and Community Livability Report

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December 2012

Acknowledgements

This research was sponsored by the Federal Transit Administration, United States Department of Transportation, and conducted by the Small Urban & Rural Transit Center within the Upper Great Plains Transportation Institute at North Dakota State University. Thanks to graduate student research assistants Mridula Sarker who assisted with locating articles for the literature review and Elvis Ndembe for contributions and edits

The guidance of Jarrett Stoltzfus, FTA Project Manager for the project, is acknowledged.

Disclaimer

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EXECUTIVE SUMMARY

The economic vitality and the quality of life of people of a community, region, or nation are greatly reliant on the security, availability, dependability and accessibility of its transportation system. This system is made up of several modes on networks that are owned, funded and operated by both the public and private sectors. It has been generally emphasized that the transportation system affects and is affected by the environment, land use, communities and the economy. Due to these complexities, the system presents interwoven challenges for policy enactment and implementation. Public transportation is an integral part of the transportation system. It includes common carriers of passengers and is generally viewed as an essential public service, particularly in areas where people are highly dependent on it for mobility. In the past, and even more so recently, worldwide, regionally, and within local communities, changes in population growth, urbanization, land and water use, mobility, trade and climate are imposing various stresses and risks on societies and their environments. For example, growth in populations has meant increased congestion on highways, leading to a need for improved alternative transportation to get people to and from work and other activities. These changes have an impact on residents' and visitors' subjective perception and expectations about the environmental and social quality of their community or region, described as livability. Livable communities are impacted by coordinated efforts related to transportation and community planning. Consequently, livability is positively affected by the presence of transportation alternatives, affordable housing, jobs access, quality of schools, and other amenities. Transit provides low cost, environmentally sustainable access and mobility to all members of a community or region. Measures of transit availability, accessibility, desirability, and use provide insights into the existing level of mobility within a community or region, hence their livability. This report is an attempt to empirically measure livability to emphasize its role in community livability. Establishing these measures would enhance the practice and implementation of livability principles by various practitioners in the transit industry. This is in view of the difficulties faced in the past and presently by various transit authorities in incorporating the concept into their planning processes to better serve their communities.

1. COMMUNITY LIVABILITY

> The essential purpose of the Federal transit law is not simply to fund the capital and operating costs of transit systems; more generally, the purpose is to improve the quality of life in urban and rural communities through the use of transit systems, recognizing them as the lifeblood of livable communities.[1]
>
> — Federal Transit Administration

Livability is the environmental and social quality of a community. It is subjective and based on the perception and expectations of residents and visitors.[2] Livability is positively impacted by many factors including the presence of transportation alternatives, affordable housing, access to jobs, and quality schools.

Livable communities are impacted by coordinated efforts including transportation and community planning.[3] The federal government has long recognized the importance of livability and provided national leadership on its inception, growth and application as a standard for determining the quality of life in communities. However, there has been a recent increase in emphasis on livability as evidenced by the creation of the Interagency Partnership on Sustainable Communities in 2009.

Public transportation is an integral component of livability. Transit provides low-cost, environmentally sustainable access and mobility to all community members. While tens of millions of individuals in rural, suburban, and urban areas regularly use transit, its availability ensures mobility when the occasional or unexpected need arises. Transit provides individuals with a means of travel to work, school, shopping, services, and recreation.[4] Measures of transit availability, accessibility, desirability, and use provide insights into the level of mobility available to all members of a community and consequently its livability.

To assist individuals and organizations involved in improving community livability throughout the United States, the Small Urban & Rural Transit Center initiated the Community Livability Project to investigate and measure the relationship between transit and community livability.

1.1 Statement of the Problem

Despite widespread and growing recognition of the importance of community livability and the role of transit in improving livability, there is need for a better understanding of the relationship between transit and community livability and for the ability to measure the impact of federal policy on livability.

1.2 Objectives

The primary objective of the first phase of the Community Livability Project, which is documented by this report, is to assemble information that provides a more complete picture of transit and livability in the United States. This information is intended to assist policy makers and researchers better understand and evaluate the high-level impacts of federal livability policies.

The objectives are achieved first by assembling transit-related livability statistics that complement existing transit service and use data already collected by the Federal Transit Administration. Next, the Community Livability Index is developed to serve as a measure of the relative level of livability across regions, community types, and time.

1.3 Report Outline

The next section describes the dimensions of livability, federal livability activities, and guidelines for measuring livability. Section 3 presents national transit livability statistics as well as statistics by region and community type. Section 4 presents the construction of the Community Livability Index and the 2011 Community Livability Index values. Section 5 presents study findings and conclusions.

2. MEASURING LIVABILITY

Livability is difficult to measure because it is subjective impacted by a number of factors many of which are interrelated and it has both spatial and temporal attributes. Furthermore, measurement is limited by the availability of data and resources to compile and analyze its indicators.

Measurement of livability is undertaken for many reasons which will be explained within this report. National livability indicators and indices are generated in this report to assist with the development or evaluation of national policy and to compare the quality of life across regions.

This section provides background information that will be used to guide the development of the Community Livability Index. We begin by reviewing the concept of livability, its dimensions, and activities that enhance community livability. Next, we review current federal programs designed to improve community livability. Finally, we review guidelines for developing livability measures.

2.1 The Dimensions of Livability

Livability is impacted by a complex set of interrelated social, economic, and environmental factors.[5] These factors, and consequently livability, can be influenced by policy and planning.[2] An understanding of these factors and influences is important prior to identifying livability measures.

National efforts to define livability as well as guidelines and activities that improve livability have been undertaken by many organizations. We review those used by the Interagency Partnership on Sustainable Communities, Federal Transit Administration, and the AARP.

The Interagency Partnership for Sustainable Communities, a partnership of the U.S. Department of Housing and Urban Development (HUD), U.S. Department of Transportation (DOT), and U.S. Environmental Protection Agency (EPA), was established in 2009. The purpose of the partnership is to help increase peoples' access to affordable housing and transportation alternatives at lower costs.[6]

The Partnership established six livability principles that serve as the foundation for interagency activities:

- Provide more transportation choices
- Promote equitable, affordable housing
- Enhance economic competitiveness
- Support existing communities
- Coordinate and leverage federal policies and investment
- Value communities and neighborhoods

The Interagency Partnership has seven areas of emphasis for partnership activities. These activities include enhancing integrated planning and investment; providing a vision for sustainable growth; redefining housing affordability; redevelop underutilized sites; aligning HUD, EPA, and DOT program; developing livability measures and tools; and conducting joint research, data collection, and outreach.[6] The Federal Transit Administration has identified characteristics of livable communities as part of its Livable Communities Initiative.[1] These characteristics, which include both activities and outcomes, are:

- full community participation in the decision-making process by residents, neighborhood organizations and the business community including small and minority businesses
- well-planned and -designed neighborhoods where housing, schools and parks are within easy walking distance of user-friendly transit and link residents to job opportunities and social services
- transit, pedestrian and bicycle access that is compatible with land use, zoning and urban design to reduce dependence on the automobile
- mixed-use neighborhoods that complement residential areas with commercial, recreational, educational, health and other social services
- transit services and facilities which provide safety, security and accessibility for all passengers, including disabled persons and elderly members of the community
- sound environmental practices including careful parking and traffic management techniques to reduce auto trips, conserve space, encourage green areas, avoid gridlock and improve air quality

It is understandable that the FTA would recognize the role of transit in community livability and helpful that it includes walking and bicycling as important modes of transportation. Their view is supported by Secretary of Transportation Ray LaHood who describes a livable community as "one where if people don't want an automobile, they don't have to have one."[7] However, roads, highways, and automobiles do play a role in livability for many communities and Americans[8] as well.

AARP identified six components of livability: housing, transportation and mobility, land use, cooperation and communication, understanding the community and planning, and leadership.[9] These align closely to the characteristics of livable communities identified by the FTA. It is important to note that AARP and FTA livability factors include the built environment, services, and activities.

The relationship between transit and livable communities is fully explored by TCRP Report 22.[10] It frames the opportunities that transit can provide in place-making which is the process of creating locations that attract people. The framework of place-making using transit and case studies illustrates opportunities for creating places for community life, serves as a catalyst for neighborhood renewal and economic development, makes communities safer, connects neighborhoods, and guides community growth.

2.2 Federal Livability Activities

Many federal activities directly and indirectly target and impact livability. We review federal livability activities given that they are the primary national methods aimed at enhancing the concept of livability. Consequently, the Community Livability Index can serve as a tool to assist in the design, redesign, and evaluation of these activities.

The Interagency Partnership on Sustainable Communities has established itself as the leading agent for coordination of livability programs and leadership at the federal level. Its constituent agencies, the Environmental Protection Agency, Department of Housing and Urban Development, and Department of Transportation continue to administer programs designed to positively influence livability. The EPA, HUD, and DOT are the main-participants in this partnership. However, federal livability activities are not limited to those sponsored by these departments. Given that our focus is on the role of transit in livability,

we will limit our review to activities sponsored by the DOT and specifically the Federal Transit Administration (FTA). Those interested in EPA and HUD programs that enhance livability should refer to resources provided by the partnership, especially those denoted in the "Leveraging the Partnership" bulletin.[11]

The DOT's mission is to serve the United States by ensuring a fast, safe, efficient, accessible and convenient transportation system that meets our vital national interests and enhances the quality of life of the American people, today and into the future. In addition to supporting long-standing programs of the Federal Highway Administration, Transportation Investment Generating Economic Recovery (TIGER) and Transportation and Climate Change Clearinghouse activities, Federal Transit Administration programs are designed to enhance community livability.[12] These include programs to support planning, capital and operating expenses, and technical assistance. There are programs to provide service in urbanized areas (49 U.S.C. 5307), in rural areas (49 U.S.C. 5311), on reservations (49 U.S.C. 5311(c)), and for intercity service (49 U.S.C. 5311(f)). Specific programs aimed at targeting specific populations including the elderly and disabled (49 U.S.C. 5310) and those traveling to and from work (49 U.S.C. 5316), are also implemented.

2.3 Measuring performance

There is extensive literature on the measurement of livability and related sustainability issues. Sustainability has been defined as the balance of social, economic, and environmental dimensions that account for indirect and long-term impacts. Livability is concerned with those aspects of sustainability that impact community members.[13] These various areas of research may be considered as a subset of the much broader literature on performance measurement. The livability and sustainability literature provide guidelines for the development of local and national measures as well as actual metrics. Litman[13] provides a strong overview of the issue while Harts'[5] ground-breaking work has practical insights. *Community and Quality of Life: Data Needs for Informed Decision Making*[14] also provides considerable guidance.

Many communities track locally identified livability indicators locally so that unique characteristics, needs, and priorities, are properly accommodated. Research by Hart[5] and the AARP[15] provide an assortment of potential indicators.

There are several likely reasons for measuring livability. A measurement provides a suitable mechanism for identifying trends or problems, establishing targets, evaluating impacts, and assessing progress. Differences in expected uses of livability indicators may influence their selection. Measures should be relevant, reliable, and easy to understand, and be based on accessible data.[5]

In the next section, transit livability statistics that provide an understanding of transit service from a community as opposed to transit agency perspective are presented. These statistics provide a more complete picture of the relationship between transit and livability than transit service levels and ridership in isolation.

3. TRANSIT LIVABILITY STATISTICS

Transit livability statistics are calculated to provide a complete understanding of the availability, accessibility, desirability, and use of public transportation in the United States. They complement data collected by the Federal Transit Administration with the National Transit Database (NTD) and Rural National Transit Database (Rural NTD). The NTD and Rural NTD contain data on transit use, as well as financial and operating statistics. However, data on transit availability, accessibility, and desirability are not provided in these databases.

This section describes the limitations of the dataset used to construct transit livability statistics. Definitions of different factors and terms used in the construction of transit livability statistics are presented as well. National and regional transit livability statistics are presented as are those for different community types.

3.1 The American Housing Survey

Transit livability statistics are calculated using data collected from the 2009 American Housing Survey (AHS) .The American Housing Survey is a longitudinal survey funded by the United States Department of Housing and Urban Development (HUD) and conducted by the U.S. Census Bureau in odd-number years. The AHS is unique in that it focuses on housing units as opposed to individuals, although it does collect information on people living in housing units. The AHS is the largest continual national housing sample survey in the United States.

The American Housing Survey collects data on geography, housing unit characteristics and costs, characteristics of household members including income and commuting behavior, as well as neighborhood attributes. The survey includes questions on transit availability, proximity, use, and desirability. Other travel behavior statistics including distance and travel time between the housing unit and place of employment, method of transportation to work, and vehicle availability are also collected by the AHS.

The American Housing Survey groups housing units into one of five urban-rural classes which are referred to as community types. MSA-Central City areas are defined as the largest city in a Metropolitan Statistical Area (MSA) or other city meeting population and commuting requirements. MSA-Suburbs are other urban areas located in metropolitan areas that do not meet population and commuting requirements. MSA-Rural areas are those non-urban areas located within the boundary of a metropolitan area. Small Urban Areas are urban areas located outside of metropolitan areas while Rural Areas are non-urban areas located outside of metropolitan areas.

The American Housing Survey does not report state-level data due to inadequate sample size. However, it does group responses into four geographic regions: Northeast, Midwest, South, and West as shown in Figure 3.1. The Northeast Region includes: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont. The Midwest Region includes Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin. The South Region includes Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas,

Virginia, and West Virginia as well as the District of Columbia. The West Region includes Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

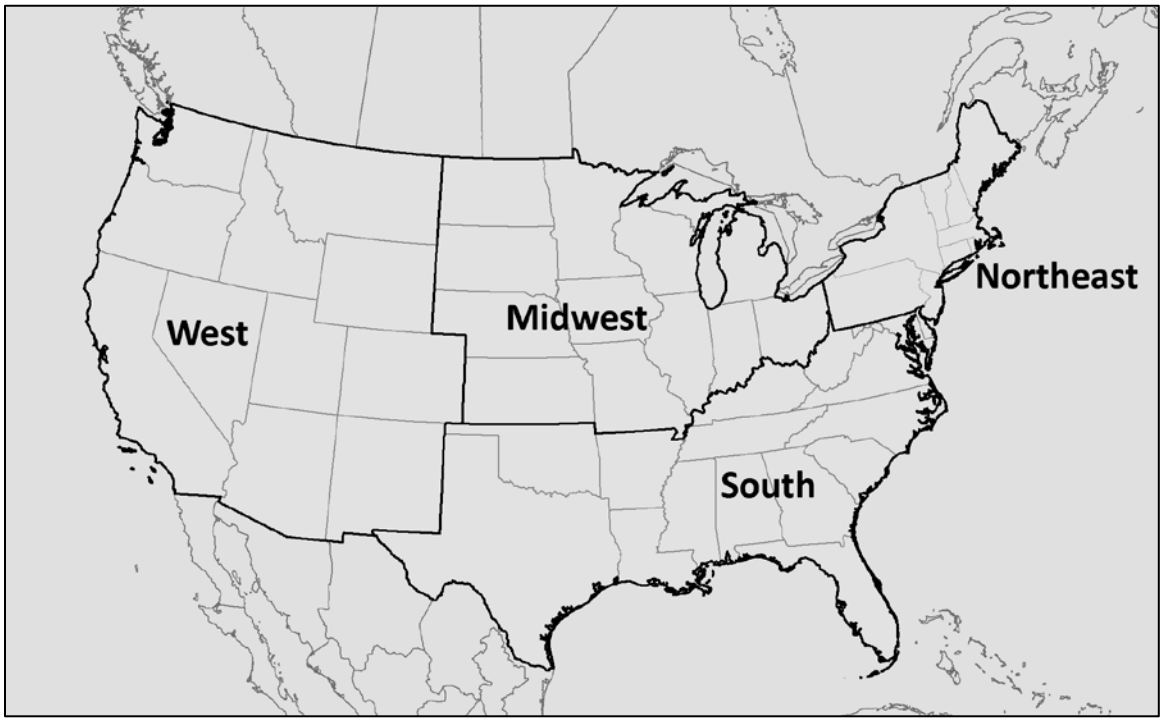

Figure 3.1 American Housing Survey Regions

3.1.1 Limitations of the American Housing Survey Dataset

Like any dataset, the American Housing Survey has limitations. It relies fully upon respondents to accurately describe environmental and social conditions. Consequently, responses to questions that rely on survey participants' perceptions may reasonably differ.

As noted, the survey focuses on housing units as opposed to individuals. This presents a challenge as some individual behaviors in a household are recorded for all members – resulting in a loss of precision. For example, the AHS asks if any member of the household used transit in the past week. If a single household member makes a single trip in the past week, it would be considered that every member made a majority of their trips by transit.

The American Housing Survey asks a number of questions about neighborhood characteristics. However, it does not provide guidelines on neighborhood boundaries. Consequently, individuals may respond differently to the question on service availability in the same area because they define their neighborhood's boundaries differently. This issue gains added importance in rural areas because the community or neighborhood envisioned by rural residents may be dozens of square miles in size. Additionally, because responses are not checked against actual services, respondents may be unaware that certain services exist or they may believe that services exist when they do not. A similar phenomenon

exists when individuals are asked about conditions and qualities based on perceptions and expectations. For example, the American Housing Survey asks participants if they are satisfied with various community services. Individuals in the same neighborhood thinking about the same service may feel differently about its quality. Similarly, general expectations of quality may differ by region or the rural nature of the community. Here, services in different areas with equivalent objective measures of quality may be evaluated differently by their respective residents because of differences in expectations.

3.2 Transit Livability Statistics Construction

The American Housing Survey collects data on transportation alternatives and travel behavior. This includes data on transit availability, desirability, and use. The responses to five transit-focused questions referred to as transit livability statistics, as well as responses to a question focused on vehicle availability are defined below.

Transit Availability: is the percentage of individuals who live in neighborhoods where transit is available.

Transit Accessibility: is the average travel time from an individual's residence to the nearest transit stop in the case where transit is available.

Transit Use: is the percentage of individuals who live in households where transit is used by at least one household member in the past week.

Transit Desirability: is the percentage of individuals who chose their current housing unit because it was close to transit.

Transit to Work: is the percentage of individuals who use transit as their primary method of transportation.

Vehicle Availability: is the percentage of individuals who live in a household with at least one vehicle available.

In this study, seniors are defined as those individuals age 60 and over. Low-income households are those with incomes below 100% of the poverty line. Individuals who have received disability payments in the past 12 months are identified as disabled. Individuals self-identified their race and ethnicity and were allowed to identify multiple races and movers describe people who moved from one area to the other in a given year.

Transit livability statistics are presented as the percent of individuals living in households with certain characteristics as opposed to the percent of households.

3.3 National Transit Livability Statistics

National Transit Livability Statistics provide an understanding of the current availability, accessibility, desirability, and use of transit in the United States. They also serve as a point of comparison between similar statistics for different geographic regions presented in later sections of this report. National Transit Livability Statistics are presented in Table 3.1.

Table3.1 National Transit Livability Statistics

	Transit Availability	Transit Accessibility	Transit Use	Transit Desirability	Transit to Work	Vehicle Availability
National	57%	6:06	20%	5%	3%	94%
Northeast	69%	6:00	30%	4%	3%	87%
Midwest	53%	5:42	16%	5%	4%	95%
South	41%	6:37	13%	3%	3%	96%
West	75%	5:58	19%	5%	3%	96%
MSA-City Center	86%	5:15	28%	8%	4%	87%
MSA-Suburban	66%	6:36	15%	5%	4%	96%
MSA-Rural	22%	8:24	9%	2%	3%	98%
Small Urban	37%	5:55	10%	1%	4%	94%
Rural	13%	8:11	9%	0%	3%	97%
Low Income	65%	5:45	30%	5%	3%	79%
Senior	53%	6:33	11%	4%	3%	91%
Male	57%	6:05	20%	5%	3%	95%
Disability Payments	57%	6:12	18%	8%	3%	89%
White	54%	6:12	17%	5%	2%	95%
Black	72%	5:35	32%	6%	8%	84%
Asian	71%	6:13	27%	8%	6%	94%
American Indian/Alaska Native	57%	5:34	24%	7%	5%	92%
Hispanic	73%	5:42	28%	6%	5%	91%

Nationwide, 57% of individuals live in areas where transit is available. Those living in the West are most likely to have transit available, while those living in the South are least likely. Most residents of city centers, 86%, have transit available in their neighborhood compared to only 13% of rural residents. Nearly two-thirds of low-income individuals live in areas where transit is available. People of Hispanic ethnicity are most likely to live in neighborhoods with transit service, while whites are least likely. The national average travel time between an individual's residence and the nearest bus stop, train station, or subway stop is 6 minutes 6 seconds. Individuals living in the Midwest, on average, live closest to a stop while those living in the South typically live farthest away. The distance from an individual's housing unit and a bus stop ranged from 5 minutes 15 seconds for those living in the city center of a metropolitan statistical area to nearly 8 and a half minutes for those living in metro-rural areas. Low-income individuals live, on average, 5 minutes and 45 seconds from the nearest stop. Seniors live about 6 and a half minutes away. American Indians and Alaskan Natives live closest to a stop, 5 minutes and 34 seconds, while Asians on average live 6 minutes and 13 seconds away.

Twenty percent of individuals nationwide live in households where at least one person uses transit at least once weekly. Transit use grows to 30% for individuals living in the Northeast but averages only 13% in the South. Individuals living in the city center are most likely to use transit while those living in rural areas are least likely. Thirty percent of low-income households have at least one member who uses transit. Blacks are nearly twice as likely to use transit nationwide as whites.

Five percent of movers nationwide consider available transit services when selecting their new homes. Individuals in the West and Midwest are most likely to consider transit when selecting a new home while those in the South are the least likely. Individuals living within the city center are more than 20 times more likely to consider transit when selecting a home than people living in non-metro rural communities. Eight percent of individuals receiving disability payments consider transit when selecting their homes, while 4% of seniors do. People of Asian ancestry are most likely to consider transit, while whites are the least likely.

Nationwide, 3% of workers use transit as their primary mode of transportation to work. Individuals living in the Midwest are most likely to use transit for their commute. Eight percent of blacks use transit as their primary mode of transportation to work while only 2% of whites do.

Nearly all households nationwide, 94%, have access to a vehicle. Ninety-six percent of households in the Midwest and West are most likely to have at least one vehicle available, compared to the Northeast where only 87% of households have a vehicle. Individuals living in rural parts of metropolitan areas were most likely to have a vehicle available, while those living in the city center, 87%, were least likely to have a vehicle. Less than 80% of individuals with low incomes live in households with at least one vehicle while more than 90% of seniors do. Whites are 95% most likely to have a vehicle while blacks are least likely, at 84%.

3.4 Regional Transit Livability Statistics

Community transit characteristics vary by region. This may be due to a number of reasons including differences in travel attitudes and behavior, service availability, historical differences and differences in the built environment. To assess these differences, statistics for the four regions used by the American Housing survey: Northeast, Midwest, South, and West are presented separately.

3.4.1 Northeast Region Transit Livability Statistics

The Northeast Region includes the following states: Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont. The Northeast region includes a number of major metropolitan areas, including New York City, with large transit systems that provide significant levels of mobility and have high mode shares. At the same time, these areas and other metropolitan areas in the Northeast are densely populated which is suitable for transit service. The Northeast Region Transit Livability Statistics are presented in Table 3.2.

Table 3.2 Northeast Region Transit Livability Statistics

	Transit Availability	Transit Accessibility	Transit Use	Transit Desirability	Transit to Work	Vehicle Availability
Northeast	69%	6:00	30%	4%	3%	87%
MSA-City Center	96%	5:12	49%	13%	3%	68%
MSA-Suburban	72%	6:28	18%	8%	4%	95%
MSA-Rural	24%	7:58	7%	1%	2%	98%
Small Urban	66%	5:31	13%	7%	4%	88%
Rural	16%	8:02	12%	0%	2%	97%
Low Income	82%	5:16	44%	9%	4%	60%
Senior	65%	6:41	15%	7%	3%	84%
Male	68%	5:59	30%	8%	3%	89%
Disability Payments	69%	5:21	23%	12%	2%	84%
White	65%	6:07	25%	7%	2%	90%
Black	92%	5:21	50%	11%	8%	70%
Asian	76%	6:24	43%	13%	4%	85%
American Indian /Alaska Native	73%	5:55	36%	8%	6%	72%
Hispanic	85%	5:27	47%	11%	5%	72%

More than two-thirds of Northeasterners live in areas where transit is available. Nearly all residents of city centers, 96%, have transit available in their neighborhood compared to only 16% for non-metro rural residents. More than 80% of low-income individuals live in areas where transit is available. Blacks are most likely to live in neighborhoods with transit service, while whites are least likely.

The regional average travel time between an individual's residence and the nearest bus stop, train station, or subway stop is 6 minutes. The distance from an individual's housing unit and a bus stop range from 5 minutes 12 seconds for those living in the city center of a metropolitan statistical area to slightly more than 8 minutes for those living in rural areas. Low-income individuals live, on average, 5 minutes and 16 seconds from the nearest stop. Seniors live 6 minutes and 41 seconds away. Blacks live closest to a stop, 5 minutes and 21 seconds, while Asians, on average, live 6 minutes and 24 seconds away.

Thirty percent of individuals in the Northeast live in households where at least one person uses transit at least once weekly. Transit use grows to just under 50% for individuals living in city centers compared to 7% using transit in metro-rural areas. Forty-four percent of low-income households have at least one member who uses transit, but only 15% of seniors do. Blacks are twice as likely to use transit as whites. Four percent of movers in the Northeast consider available transit services when selecting their new home. One out of eight individuals who moved who now live in a city center considered transit. Twelve percent of individuals receiving disability payments consider transit when selecting their home, while 7% of seniors do. People of Asian ancestry are most likely to consider transit, while whites are the least likely.

Region-wide, 3% of workers use transit as their primary mode of transportation to work. Surprisingly individuals living in suburban and small urban communities are most likely to use transit for their commute. Four percent of individuals with low-incomes and 3% of seniors commute using transit, while 2% of those receiving disability payments do.
Individuals living in households with vehicles made up 87% of the sample. Individuals living in rural parts of metropolitan areas were most likely to have a vehicle available, while 68% of those in city center

were least likely to have a vehicle. Three-fifths of individuals with low incomes live in households with at least one vehicle. Whites are most likely to have a vehicle, 90%, while blacks are least likely at 70%.

3.4.2 Midwest Region Transit Livability Statistics

The Midwest region includes the following states: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin. Midwest Region Transit Livability Statistics are presented in Table 3.3.

Table 3.3 Midwest Region Transit Livability Statistics

	Transit Availability	Transit Accessibility	Transit Use	Transit Desirability	Transit to Work	Vehicle Availability
Midwest	53%	5:42	16%	5%	4%	95%
MSA-City Center	87%	4:42	23%	7%	5%	90%
MSA-Suburban	61%	6:26	10%	4%	4%	97%
MSA-Rural	13%	7:18	11%	2%	3%	99%
Small Urban	39%	6:40	11%	2%	4%	95%
Rural	15%	5:39	8%	1%	2%	97%
Low Income	68%	5:24	27%	4%	4%	81%
Senior	50%	6:28	8%	4%	3%	92%
Male	53%	5:42	15%	5%	3%	96%
Disability Payments	58%	6:39	14%	10%	2%	89%
White	48%	5:53	12%	4%	3%	97%
Black	83%	5:10	27%	6%	10%	86%
Asian	72%	4:50	20%	1%	7%	94%
American Indian /Alaska Native	68%	5:16	17%	4%	8%	93%
Hispanic	70%	5:07	25%	5%	7%	94%

More than half of Midwesterners live in areas where transit is available. Most residents of city centers, 87%, have transit available in their neighborhood compared to only 13% of metro rural residents. More than two-thirds of low-income individuals live in areas where transit is available. Blacks are most likely to live in neighborhoods with transit service, while whites are least likely.

The regional average travel time between an individual's residence and the nearest bus stop, train station, or subway stop is 5 minutes 42 seconds. The distance from an individual's housing unit and a bus stop ranged from 4 minutes 42 seconds for those living in the city center of a metropolitan statistical area to slightly more than 7 minutes 18 seconds for those living in metro-rural areas. Low-income individuals live, on average, 5 minutes and 24 seconds from the nearest stop. Seniors live 6 minutes and 28 seconds away. Asians live closest to a stop, 4 minutes and 50 seconds, while whites, on average, live 5 minutes and 53 seconds away.

Sixteen percent of individuals in the Midwest live in households where at least one person uses transit at least once weekly. Transit use is 23% for those living in the city center compared to 8% in non-metro rural areas. Twenty-seven percent of low-income households have at least one member who uses transit, but only 8% of seniors do. Blacks are more than twice as likely to use transit as whites.

One in twenty movers in the Midwest considers transit availability when selecting their new home. Seven percent of those who moved and who now live in a city center considered transit. Ten percent of individuals receiving disability payments consider transit when selecting their home, while 4% of low-income householders and seniors do. People of Asian ancestry are least likely to consider transit, while blacks are the most likely.

Region-wide, 4% of workers use transit as their primary mode of transportation to work. Individuals living in city centers are most likely to use transit for their commute. Four percent of individuals with low-incomes make their commute primarily with transit, while slightly more than 2% of those receiving disability payments do.

Nearly all individuals, 95%, live in households were vehicles are available. Individuals living in suburban and non-metro rural areas are most likely to have a vehicle available, while 90% of those in city centers are least likely to have a vehicle. About four-fifths of individuals with low incomes live in households with at least one vehicle. Ninety-seven percent of whites are most likely to have a vehicle, while blacks are least likely at 86%.

3.4.3 South Region Transit Livability Statistics

The South Region includes the states of Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia as well as the District of Columbia. South Region Transit Livability Statistics are presented in Table 3.4.

Table 3.4 South Region Transit Livability Statistics

	Transit Availability	Transit Accessibility	Transit Use	Transit Desirability	Transit to Work	Vehicle Availability
South	41%	6:44	13%	3%	3%	96%
MSA-City Center	76%	5:37	15%	4%	3%	93%
MSA-Suburban	49%	7:11	13%	5%	3%	96%
MSA-Rural	16%	9:42	6%	2%	2%	98%
Small Urban	25%	6:27	11%	1%	3%	93%
Rural	8%	12:32	3%	0%	3%	97%
Low Income	46%	6:42	19%	4%	3%	85%
Senior	37%	6:55	8%	2%	2%	93%
Male	40%	6:43	13%	3%	2%	97%
Disability Payments	40%	6:52	16%	6%	2%	91%
White	37%	6:54	10%	3%	2%	97%
Black	52%	6:12	20%	4%	7%	90%
Asian	61%	7:50	21%	8%	6%	93%
American Indian /Alaska Native	37%	6:39	15%	7%	5%	94%
Hispanic	57%	6:08	16%	4%	6%	96%

More than 40% of Southerners live in areas where transit is available. Most residents of city centers, 76%, have transit available in their neighborhood compared to only 8% of non-metro rural residents.

Less than half of low-income individuals live in areas where transit is available. Individuals of Asian ancestry are most likely to live in neighborhoods with transit service, while whites and American Indians/Alaska Natives are least likely.

The regional average travel time between an individual's residence and the nearest bus stop, train station, or subway stop is 6 minutes 44 seconds. The distance from an individual's housing unit and a bus stop ranged from 5 minutes 37 seconds for those living in city centers of a metropolitan statistical area to 12 minutes 32 seconds for those living in non-metro rural areas. Low-income individuals live, on average, 6 minutes and 42 seconds from the nearest stop. Seniors live 6 minutes and 55 seconds away. Blacks live closest to a stop, 6 minutes and 12 seconds, while those of Asian origin on average live 7 minutes and 50 seconds away.

Thirteen percent of individuals in the South live in households where at least one person uses transit at least once weekly. Transit use is 15% for those living in city centers compared to 3% in non- metro rural areas. Nineteen percent of low-income households have at least one member who uses transit, but only 8% of seniors do. Individuals with Asian ancestry are most likely to use transit. Blacks are twice as likely to use transit as whites.

Only 3%of Southern movers consider available transit services when selecting their new home. Five percent of those who moved and who now live in a suburban area considered transit. Six percent of individuals receiving disability payments consider transit when selecting their home, while 2%of seniors and 4% of low-income individuals do. People of Asian ancestry are most likely to consider transit, while whites are the least likely.

Region-wide, 3% of workers use transit as their primary mode of transportation to work. Individuals living in the city center are most likely to use transit for their commute. Three percent of individuals with low-incomes make their commute primarily with transit, while less than 2% of those receiving disability payments do.

Nearly 96% of all individuals live in households were vehicles are available. Individuals living in metro rural areas were most likely to have a vehicle available, while those living in small urban areas were least likely to have a vehicle. Eighty-five percent of individuals with low incomes live in households with at least one vehicle. Whites are 97% most likely to have a vehicle while blacks are least likely at 90%.

3.4.4 West Region Transit Livability Statistics

The West Region includes the following states: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming. West Region Transit Livability Statistics are presented in Table 3.5.

Table 3.5 West Region Transit Livability Statistics

	Transit Availability	Transit Accessibility	Transit Use	Transit Desirability	Transit to Work	Vehicle Availability
West	75%	5:58	19%	5%	3%	96%
MSA-City Center	89%	5:26	25%	9%	3%	94%
MSA-Suburban	81%	6:18	16%	5%	4%	97%
MSA-Rural	49%	7:36	13%	2%	2%	99%
Small Urban	50%	5:00	8%	1%	5%	97%
Rural	25%	6:48	13%	1%	2%	98%
Low Income	78%	5:36	30%	7%	4%	85%
Senior	68%	6:28	12%	4%	3%	93%
Male	75%	5:58	20%	6%	3%	97%
Disability Payments	72%	6:08	19%	5%	4%	91%
White	73%	6:02	18%	5%	3%	97%
Black	88%	5:11	28%	6%	8%	92%
Asian	28%	5:29	27%	13%	6%	95%
American Indian /Alaska Native	65%	5:09	28%	9%	4%	94%
Hispanic	81%	5:43	26%	6%	7%	96%

Almost three-fourths of individuals living in the West reside in areas where transit is available. Most residents of city centers, 89%, have transit available in their neighborhood compared to 25% of non-metro rural residents. Nearly 80% of low-income individuals live in areas where transit is available. Blacks are most likely to live in neighborhoods with transit service, while individuals of Asian ancestry are least likely.

The regional average travel time between an individual's residence and the nearest bus stop, train station, or subway stop is 5 minutes 58 seconds. The distance from an individual's housing unit and a bus stop ranged from 5 minutes for those living in a small urban area to 7 minutes 36 seconds for those living in metro-rural areas. Low-income individuals live, on average, 5 minutes and 36 seconds from the nearest stop. Seniors live 6 minutes and 28 seconds away. American Indians/Alaska Natives live closest to a stop, 5 minutes and 9 seconds, while whites on average live 6 minutes and 2 seconds away.
Just less than one-fifth of individuals in the West live in households where at least one person uses transit at least once weekly. Transit use is 25% for those living in the city center compared to 8% in non-metro rural areas. Thirty percent of low-income households have at least one member who uses transit weekly, while 12% of seniors do. American Indians/Alaskan Natives are most likely to use transit while whites are least likely.

One in 20 residents in the West, who moved consider available transit services when selecting their new homes. Nine percent of those who moved and who live in a city center considered transit. Seven percent of individuals with low incomes consider transit when selecting their home, while 4% of seniors do. People of Asian ancestry are most likely to consider transit, while whites are least likely.
Region-wide, 3% of workers use transit as their primary mode of transportation to work. Individuals living in suburban areas are most likely to use transit for their commute. Four percent of individuals with low-incomes and those receiving disability payments correspondingly make their commute primarily with transit.

Nearly 96% of all individuals, live in households were vehicles are available. Individuals living in metro rural areas are most likely to have a vehicle available, while 94% of those in city centers are least likely to have a vehicle. Eighty-six percent of individuals with low incomes live in households with at least one vehicle. Ninety-seven percent of whites are most likely to have a vehicle, while blacks are least likely at 92%.

3.5 Urban-Rural Transit Livability Statistics

The American Housing Survey assigns housing units to one of five urban-rural classes which range from city centers of metropolitan statistical areas to rural areas outside of MSAs. Given that this classification is based on total population and population density, which are correlated to an area's ability to support transit, transit livability statistics are expected to vary by the relative urban-rural make-up of a housing unit's neighborhood.

3.5.1 MSA – City Center Transit Livability Statistics

A city center is defined as the largest city in a metropolitan area. It may also be another city in the area that meets population and commuting requirements established by the census. While this classification contains the urban core of major metropolitan areas such as New York City, Los Angeles, and Dallas, it also contains those of smaller metropolitan areas like Cheyenne, WY, Elmira, NY, and Auburn, AL. MSA-City Center Transit Livability Statistics are presented in Table 3.6.

Table 3.6 MSA-City Center Transit Livability Statistics

	Transit Availability	Transit Accessibility	Transit Use	Transit Desirability	Transit to Work	Vehicle Availability
MSA-City Center	86%	5:15	28%	8%	4%	87%
Northeast	96%	5:12	49%	13%	3%	68%
Midwest	87%	4:42	23%	7%	5%	90%
South	76%	5:37	15%	4%	3%	93%
West	89%	5:27	25%	9%	3%	94%
Low-Income	90%	5:08	37%	7%	4%	70%
Senior	86%	5:34	17%	6%	3%	81%
Male	86%	5:14	28%	8%	3%	89%
Disability Payments	88%	5:44	22%	13%	7%	81%
White	85%	5:17	24%	8%	3%	90%
Black	91%	5:02	38%	7%	9%	78%
Asian	87%	5:26	35%	11%	7%	88%
American Indian/Alaska Native	87%	5:15	30%	12%	6%	83%
Hispanic	88%	5:16	35%	7%	6%	86%

Nearly all individuals living in city centers, 86%, reside in areas served by transit. City centers in the Northeast have the greatest level of transit availability with 96% of individuals living in areas with transit. City centers in the South have the lowest level of transit availability. Ninety percent of low income individuals live in areas where transit is available while 86% of seniors do. Blacks are most likely to live in areas with transit service while whites are least likely.

The average travel time between an individual's residence and the nearest bus stop, train station, or subway stop in city centers is 5 minutes 15 seconds. The travel time is least in the Midwest at 4 minutes 42 seconds and greatest in the South at 5 minutes 37 seconds. Low income individuals live on average 5 minutes 8 seconds from a transit stop, seniors 5 minutes 34 seconds, and those receiving disability payments 5 minutes 44 seconds. Blacks live closest to transit stops at 5 minutes 2 seconds while Asians live the farthest at 5 minutes 26 seconds.

Just less than 30% of individuals in city centers live in households where at least one person uses transit. Transit use ranges from 49% in the Northeast to 15% in the South. Thirty-seven percent of low-income city center residents use transit while 17% of seniors do. Thirty-eight percent of blacks who live in city centers use transit compared to 24% of whites.

One in twelve individuals in a city center who moved consider available transit services when selecting their new home. Individuals in the Northeast are most likely to consider transit while those in the South are the least likely. Seven percent of low income movers considered transit while 6% of seniors and 13% of individuals receiving disability payments do. People of American Indian/Alaska Native ancestry are most likely to consider transit, while blacks and Hispanics are least likely.

Nationally, 4% of workers living in city centers use transit as their primary mode of transportation to work. Individuals living in the Midwest are most likely to use transit for their commute. Four percent of individuals with low-incomes make their commute primarily with transit, while 7% of those receiving disability payments do.

Most individuals, 87%, live in households were vehicles are available. Individuals living in the Northeast were least likely to have a vehicle. Seventy percent of individuals with low incomes live in households with at least one vehicle. Whites are most likely to have a vehicle, 90%, while blacks are least likely at 78%.

3.5.2 MSA – Suburban Transit Livability Statistics

The MSA-Suburban class consists of housing units located in urban areas other than the central city of metropolitan statistical areas. By definition these communities are smaller and are often the origin of workers who commute to the central city. MSA-Suburban Transit Livability Statistics are presented in Table 3.7.

Table 3.7 MSA-Suburban Transit Livability Statistics

	Transit Availability	Transit Accessibility	Transit Use	Transit Desirability	Transit to Work	Vehicle Availability
MSA-Suburban	66%	6:36	15%	5%	4%	96%
Northeast	72%	6:27	18%	8%	4%	95%
Midwest	61%	6:36	10%	4%	4%	97%
South	49%	7:12	13%	5%	3%	96%
West	81%	6:18	16%	5%	4%	97%
Low-Income	68%	6:18	22%	6%	4%	84%
Senior	64%	7:02	8%	5%	3%	92%
Male	65%	6:32	15%	5%	3%	97%
Disability Payments	66%	6:31	16%	8%	2%	90%
White	65%	6:35	13%	5%	3%	97%
Black	71%	6:26	24%	7%	9%	91%
Asian	67%	6:58	21%	5%	7%	97%
American Indian/Alaska Native	70%	6:28	20%	4%	6%	94%
Hispanic	73%	6:07	22%	6%	6%	95%

Two-thirds of individuals living in suburban parts of metropolitan areas are served by transit. Suburban areas in the West have the greatest level of transit availability with 81% of individuals living in areas with transit. Suburban areas in the South have the lowest level of availability. Sixty-eight percent of low income individuals live in areas where transit is available while 64% of seniors do. Hispanics are most likely to live in areas with transit service while whites are least likely.

The average travel time between an individual's residence and the nearest bus stop, train station, or subway stop in city centers is 6 minutes 36 seconds. The travel time is lowest in the West at 6 minutes 18 seconds and greatest in the South at 7 minutes 12 seconds. Low income individuals live on average 6 minutes 18 seconds from a transit stop, seniors 7 minutes 2 seconds, and those receiving disability payments 6 minutes 31 seconds. Hispanics live closest to transit stops at 6 minutes 7seconds while Asians live the farthest at 6 minutes 58 seconds.

Fifteen percent of individuals in suburban areas live in households where at least one person uses transit. Transit use ranges from 18% in the Northeast to 10% in the Midwest. Twenty-two percent of low-income suburban residents use transit while only 8% of seniors do. Twenty-four percent of blacks who live in city centers use transit compared to 13% of whites.

One in twenty residents in suburban areas, who moved consider available transit services when selecting their new home. Individuals in the West are most likely to consider transit while those in the Midwest are least likely. Six percent of those in the low income category who are moving considered transit while 5% of seniors and 8% of individuals receiving disability payments do. Blacks are most likely to consider transit, while American Indian/Alaskan Natives are the least likely.

Of individuals living in suburbs, 4% use transit as their primary mode of transportation to work. Individuals living in the South are least likely to commute by transit. Four percent of individuals with low-incomes make their commute primarily with transit, while 2% of those receiving disability payments do. Nine percent of blacks living in suburbs commute primarily by transit while only 3% of whites do.

Most individuals, 96%, live in households where vehicles are available. Individuals living in the Northeast were least likely to have a vehicle. Eighty-four percent of individuals with low incomes live in households with at least one vehicle. Individuals of Asian ancestry are most likely to have a vehicle, 97%, while blacks are least likely at 91%.

3.5.3 MSA – Rural Transit Livability Statistics

MSA-Rural areas include non-urbanized areas located within metropolitan areas. These areas vary in population density, proximity to urban areas, and terrain. MSA-City Center Transit Livability Statistics are presented in Table 3.8.

Table 3.8 MSA-Rural Transit Livability Statistics

	Transit Availability	Transit Accessibility	Transit Use	Transit Desirability	Transit to Work	Vehicle Availability
MSA-Rural	22%	8:24	9%	2%	3%	98%
Northeast	24%	7:58	7%	1%	2%	98%
Midwest	13%	7:09	11%	2%	3%	99%
South	16%	9:42	6%	2%	2%	98%
West	49%	7:37	13%	2%	2%	99%
Low-Income	25%	8:18	13%	3%	3%	91%
Senior	19%	9:29	5%	0%	3%	98%
Male	22%	8:13	9%	2%	2%	99%
Disability Payments	24%	7:14	13%	4%	0%	96%
White	21%	8:24	9%	1%	2%	99%
Black	31%	7:43	14%	4%	6%	94%
Asian	32%	7:46	10%	0%	4%	98%
American Indian/Alaska Native	21%	9:46	23%	2%	6%	99%
Hispanic	36%	6:50	16%	4%	5%	97%

One in five individuals living in rural areas of metropolitan areas is served by transit. Metro-rural areas in the West have the greatest level of transit availability with 49% of individuals living in areas with transit. Metro-rural areas in the Midwest have the lowest level of availability. One-fourth of low income individuals live in areas where transit is available while 19% of seniors do. Hispanics are most likely to live in areas with transit service while whites and American Indians/Alaska Natives are least likely. The average travel time between an individual's residence and the nearest bus stop, train station, or subway stop in rural portions of metropolitan areas is 8 minutes 24 seconds. The travel time is least in the Midwest at 7 minutes 9 seconds and greatest in the South at 9 minutes 42 seconds. Low income

individuals live on average 8 minutes 18 seconds from a transit stop, seniors 9 minutes 29 seconds, and those receiving disability payments 7 minutes 14 seconds. Hispanics live closest to transit stops at 6 minutes 50 seconds while American Indians/Alaska Natives live the farthest at 9 minutes 46 seconds. Less than 10% of individuals live in households where at least one person uses transit. Transit use ranges from 13% in the West to 6% in the South. Thirteen percent of low-income city center residents use transit while only 5% of seniors do. Twenty-three percent of American Indians/Alaska Natives use transit compared to 9% of whites.

Two percent of residents in metro-rural areas, who moved consider the availability of transit services when selecting their new home. Three percent of those in the low income category who were moving considered transit while 2% of seniors do. Hispanics are most likely to consider transit, while Asians are the least likely.

Nationally, 3% of workers living in metro-rural areas use transit as their primary mode of transportation to work. Individuals living in the Midwest are most likely to use transit for their commute. Three percent of individuals with low-incomes make their commute primarily with transit.

Most individuals, 98%, live in households were vehicles are available. Individuals living in the Northeast were least likely to have a vehicle. Ninety-one percent of individuals with low incomes live in households with at least one vehicle. American Indians/Alaska Natives are most likely to have a vehicle, 99%, while blacks are least likely at 94%

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3.5.4 Small Urban Transit Livability Statistics

Small urban areas are urban communities located outside of metropolitan areas. Small Urban Transit Livability Statistics are presented in Table 3.9.

Table 3.9 Small Urban Transit Livability Statistics

	Transit Availability	Transit Accessibility	Transit Use	Transit Desirability	Transit to Work	Vehicle Availability
Small Urban	37%	5:55	10%	1%	4%	94%
Northeast	66%	5:31	13%	7%	4%	88%
Midwest	39%	6:40	11%	2%	4%	95%
South	25%	0:12	11%	1%	3%	93%
West	50%	5:00	8%	1%	5%	97%
Low-Income	39%	5:51	16%	3%	3%	83%
Senior	36%	6:27	6%	1%	4%	91%
Male	38%	5:54	10%	1%	2%	95%
Disability Payments	46%	6:07	12%	2%	6%	86%
White	38%	6:04	9%	1%	2%	96%
Black	29%	5:35	14%	1%	9%	83%
Asian	48%	3:26	32%	11%	9%	95%
American Indian/Alaska Native	60%	5:19	14%	8%	7%	94%
Hispanic	44%	6:00	15%	2%	7%	96%

Thirty-seven percent of individuals living in small urban communities are served by transit. Small urban areas in the Northeast have the greatest level of transit availability with 66% of individuals living in areas

with transit. Small urban areas in the South have the lowest level of transit availability. Thirty-nine percent of low income individuals live in areas where transit is available while 36% of seniors do. Forty-six percent of individuals receiving disability payments live in areas with transit service. American Indians/Alaskan Natives are most likely to live in areas with transit service while blacks are least likely. The average travel time between an individual's residence and the nearest bus stop, train station, or subway stop in small urban areas is 5 minutes 55 seconds. The travel time is least in the West at 5 minutes and greatest in the South at 12 minutes 33 seconds. Low income individuals live on average 5 minutes 51 seconds from a transit stop, seniors 6 minutes 27 seconds, and those receiving disability payments 6 minutes 7 seconds. Asians live closest to transit stops at 3 minutes 26 seconds while whites live the farthest at 6 minutes 4 seconds.

One-tenth of individuals in small urban areas live in households where at least one person uses transit. Transit use ranges from 13% in the Northeast to 8% in the South. Sixteen percent of low-income small urban residents use transit while 6% of seniors do. Thirty-two percent of individuals of Asian origin living in small urban areas use transit compared to 9% of whites.

Only 1% of small urban residents consider available transit services when selecting their new homes. Individuals in the Northeast are most likely to consider transit. Three percent of low income individuals selecting new homes considered transit while 1% of seniors and 2% of individuals receiving disability payments do. People of Asian ancestry are most likely to consider transit.

Four percent of workers living in small urban areas use transit as their primary mode of transportation to work. Individuals living in the West are most likely to use transit for their commute. Three percent of individuals with low-incomes make their commute primarily with transit, while 6% of those receiving disability payments do. Nine percent of Asians use transit for their commute while only 2% of whites do. Most individuals, 94%, live in households were vehicles are available. Individuals living in the Northeast were least likely to have a vehicle. Eighty-three percent of individuals with low incomes live in households with at least one vehicle. Hispanics and whites are most likely to have a vehicle, 96%, while blacks are least likely at 83%.

3.5.5 Rural Transit Livability Statistics

Rural areas are defined as non-urban regions located outside of metropolitan statistical areas. Many reservations and tribal lands in the United States are located in rural areas. Rural Transit Livability Statistics are presented in Table 3.10.

Table 3.10 Rural Transit Livability Statistics

	Transit Availability	Transit Accessibility	Transit Use	Transit Desireability	Transit to Work	Vehicle Availability
Rural	13%	8:11	9%	0%	3%	97%
Northeast	16%	8:02	13%	0%	2%	97%
Midwest	15%	5:39	8%	1%	2%	97%
South	8%	6:33	3%	0%	3%	97%
West	25%	6:50	13%	1%	2%	98%
Low-Income	17%	10:31	13%	1%	1%	89%
Senior	13%	8:24	7%	0%	2%	96%
Male	13%	8:33	9%	0%	3%	98%
Disability Payments	13%	7:08	16%	0%	2%	97%
White	13%	13:05	8%	0%	2%	98%
Black	6%	8:42	11%	0%	6%	93%
Asian	6%	6:30	0%	0%	5%	100%
American Indian/Alaska Native	29%	3:35	15%	0%	4%	95%
Hispanic	15%	6:42	21%	0%	6%	97%

Relatively few residents of non-metro rural areas, 13%, live in areas served by transit. Non-metro rural areas in the West have the highest level of transit availability with 25% of individuals living in areas with transit. Seventeen percent of low income individuals live in areas where transit is available while 13% of seniors do. American Indian/Alaska Natives are most likely to live in areas with transit service while blacks and Asians are least likely.

The average travel time between an individual's residence and the nearest bus stop, train station, or subway stop in non-metro rural areas is 8 minutes 11 seconds. The travel time is least in the Midwest at 5 minutes 39 seconds and greatest in the Northeast at 8 minutes 2 seconds. Low income individuals live on average 10 minutes 31 seconds from a transit stop, seniors 8 minutes 24 seconds, and those receiving disability payments 7 minutes 8 seconds. American Indians/Alaska Natives live closest to transit stops at 3 minutes 35 seconds while whites live the farthest at 13 minutes 5 seconds.

Nine percent of individuals in non-metro rural areas live in households where at least one person uses transit. Transit use ranges from 13% in the Northeast and West to 3% in the South. Thirteen percent of low-income individuals use transit while 7% of seniors do. Twenty-one percent of blacks use transit compared to 8% of whites.

Three percent of workers use transit as their primary mode of transportation to work. Individuals living in the South are most likely to use transit for their commute. One percent of individuals with low-incomes make their commute primarily with transit, while 2% of those receiving disability payments do. Most individuals, 97%, live in households were vehicles are available. Individuals living in the South were least likely to have a vehicle. Eighty-nine percent of individuals with low incomes live in households with at least one vehicle. Asian were the most likely to have a vehicle, 100%, while blacks are least likely at 93%.

3.6 Using Transit Livability Statistics

Transit livability statistics can be used to compare transit availability, accessibility, desirability, and use across regions, demographic groups, and community types. Comparing these statistics over time allows

for a high-level evaluation of the impact of funding changes as well as changes in behavior that may or may not be impacted by federal transportation policy. For example, increases in rural transit funding provided for under SAFETEA-LU should make a noticeable difference in the availability and accessibility statistics.

Calculation of values using data collected in 2011 provides a means to measure the impacts of changes in federal policy and funding of transit as well as travelers attitudes, perceptions, and behavior. This is especially important given the recent economic hardship experienced in many parts of the country as well as the reduction in local support for transit in some areas.

While information can be gleaned from the descriptive statistics presented in this section, note that many hypothesized relationships may be deceiving. More formal statistical modeling is necessary before drawing such conclusions.

It is important to remember the limitations of the dataset and the calculated values before using them for education or evaluation. The sample size of the American Housing Survey limits the calculation of transit livability statistics to relatively large areas or subpopulations. Consequently, they are not particularly helpful in evaluating the impact of specific local or even statewide programs. Similarly, some of the cross-tabulations have relatively few observations, resulting in relatively large confidence intervals.

Public transportation is one of many factors that impact community livability. All significant factors must be accounted for in order to have a complete understanding of livability. In the next section, an index that accounts for transportation and other community livability factors is developed. Users of transit livability statistics should also be cautious in extending aggregate behaviors determined here by various calculations to any groups or communities.

4. COMMUNITY LIVABILITY INDEX

The Community Livability Index (CLI) is developed to serve as a national measure of livability in the United States. It is designed to capture the essential social and environmental qualities associated with livability. These include transportation alternatives, environmental quality, and affordable housing as well as the quality of neighborhood schools, safety, and access to jobs.

The Community Livability Index allows for tracking changes in environmental and social component factors and community livability over time. It can also be used to examine changes across regions and community types.

The Community Livability Index is constructed using data from the America Housing Survey described in section 3. The AHS possesses many advantages as the foundation dataset for the Community Livability Index. It is a national, regularly conducted survey that collects pertinent livability-related variables by tracking the same housing units and neighborhoods. Given that the AHS is publicly available, other researchers and policy makers will be able to readily replicate index calculations or conduct calculations for other subgroupings. The data used to construct the index is not detailed enough to use for evaluating the impacts of local or state-level activities.

This section describes the construction of the Community Livability Index and its component indices. Next, the Community Livability Index values for 2011 are presented. Finally, potential uses of the Community Livability Index are described.

4.1 Construction of the Community Livability Index

The variables in the Community Livability Index are limited to those that have a clear relationship with livability. We exclude measures of service use and desirability because they may have an impractical relationship with community livability.

The basic test used to decide variables for inclusion in the Community Livability Index was the response to the question “If the value of this variable increases does it increase or decrease the livability of a community?” Consider transit ridership. An increase in actual use may be a “positive” but the fact that more people ride the bus does not necessarily make a community more livable.

4.1.1 Social and Environmental Indicators

Seven social and environmental indicators are used to construct the Community Livability Index. These include: community services, crime, education, environment, housing affordability, retail opportunities, and transit, the index is the equally weighted average of component indicators.

Community Service Indicator

The *Community Service Indicator (CSI)* aims to capture the availability and quality of community services. It is constructed using data on city and county service quality and the availability of community recreation facilities.

Service Quality (SRVQUAL) is the percent of individuals who did not identify either city or county services as bothersome.

Commercial Recreation (COMMRECR) is the percent of individuals who stated that there are community recreation facilities in their neighborhood.

The Community Service Indicator is the equally weighted average of the Service Quality and Commercial Recreation variables as presented in equation (1).

$$CSI = \frac{1}{2}(SRVQUAL + COMMRECR) \quad (1)$$

Crime Indicator

The *Crime Indicator (CI)* is intended to capture the presence of crime and the satisfaction of neighborhood residents with police service.

Crime Level (CRIME) is the percent of individuals who stated that serious neighborhood crime had not occurred in the past 12 months.

Police Satisfaction (SATPOL) is the percent of individual who agreed that neighborhood police protection is satisfactory.

The Crime Indicator is the equally weighted average of the Crime Level and Police Satisfaction as presented in equation (2).

$$CI = \frac{1}{2}(CRIME + SATPOL) \quad (2)$$

Educational Indicator

The *Educational Indicator (EDI)* is expected to capture information on the availability and quality of neighborhood schools. The American Housing Survey collects data on elementary schools.

Educational Availability (EA) is the percent of individuals who reported that an elementary school is located within 1 mile of their housing unit.

Educational Quality (EQ) is the percent of individuals who reported being satisfied with their neighborhood public elementary school.

The Educational Indicator is the equally weighted average of the Educational Availability and Educational Quality measures as shown in equation (3).

$$EDI = \frac{1}{2}(EA + EQ) \quad (3)$$

Environmental Quality Indicator

The *Environmental Quality Indicator (EQI)* is designed to measure the amount of bothersome odor, noise, and litter in an area.

Odor Pollution (ODOR) is the percent of individuals who did not report that their neighborhood has bad smells.

Noise Pollution (NOISE) is the percent of individuals who did not report that their neighborhood has bothersome noise pollution.

Litter (LITTER) is the percent of individuals who reported bothersome levels of litter in their neighborhood.

Property Conditions (BADPRP) is the percent of individuals who reported that their neighborhood was undesirable or that they were bothered by certain properties.

The Environmental Quality Indicator is the equally weighted average of Odor Pollution, Noise Pollution, Litter, and Property Conditions are presented in equation (4).

$$EQI = \frac{1}{4}(ODOR + NOISE + LITTER + BADPRP) \quad (4)$$

Housing Affordability Indicator

The *Housing Affordability Indicator (HAI)* is expected to capture the relative affordability of housing in an area for its current residents. The Housing Affordability Indicator is the percent of households whose monthly housing costs are 30% or less than the gross household income as shown in equation (5).

$$HAI = \begin{cases} 1 \; if \; \frac{Monthly\ Housing\ Costs}{Monthly\ Household\ Income} < .3 \\ 0 \qquad otherwise \end{cases} \qquad (5)$$

Retail Indicator

The *Retail Indicator (RI)* is intended to gauge the amount of retail opportunities that are available to residents within the boundaries of their neighborhood.

Shopping Availability (SHPAV) is the percent of individual who stated that neighborhood stores are located within 1 mile of their housing unit.

Shopping Satisfaction (SHPS) is the percent of individuals who stated that they are satisfied with their neighborhood shopping alternatives.

The Retail Indicator is the equally weighted average of the Shopping Availability and Shopping Satisfaction variables as shown in equation (6).

$$RI = \frac{1}{2}(SHPS + SHPAV) \qquad (6)$$

Transit Livability Indicator

The *Transit Livability Indicator (TLI)* is intended to capture the availability and relative accessibility of public transportation in a community.

Transit Availability (TRAV) is the percent of survey participants that responded yes to the question "Is there public transportation for this area?"

Transit Accessibility (TRAC) is function of the mean time in minutes and seconds that survey participants "how many minutes does it take you to travel to the nearest bus stop, train station, or subway stop?" The function maps transit stops one minute from a housing unit at 100 and 15 or more minutes as 0. The TRAC equation is presented in (7).

$$TRAC = Max(100 - \frac{Travel\ Time\ to\ Nearest\ Stop\ (Seconds) - 60}{8.4}, 0) \qquad (7)$$

The Transit Livability Indicator is the equally weighted average of the Transit Availability and Transit Accessibility variables as shown in equation (8).

$$TLI = \frac{1}{2}(TRAV + TRAC) \qquad (8)$$

Community Livability Index

The Community Livability Index is the equally weighted average of the Community Service Indicator, the Crime Indicator, the Retail Opportunity Indicator, the Educational Indicator, the Environmental Quality Indicator, the Housing Affordability Indicator, and the Transit Livability Indicator as shown in equation (9).

$$CLI = \frac{1}{7}(CSI + CI + EDI + EQI + HAI + RI + TLI) \qquad (9)$$

4.2 2011 Community Livability Index Values

The Community Livability Index is calculated using data from the 2009 AHS. Calculated national, regional, and urban-rural measures are presented in Table 4.1.

Nationally, 95.6% of individuals did not denote city or county services as bothersome while 41.9% indicated that community facilities were available. More than 80% stated that serious crime had not occurred in their neighborhood in the past 12 months. Nearly all individuals, 93%, stated they were satisfied with protection provided by the police.

Availability of and satisfaction with neighborhood shopping was reported by over 97% or participants. Two-thirds of respondents stated that there are elementary schools located in their neighborhood, but over 90% stated that neighborhood schools are satisfactory. Very few individuals stated that their neighborhood has bad smells, noise, litter, or undesirable property.

More than 60% of households had monthly housing payments that were less than 30% of their household income. Only 57% of individuals live in areas where transit is available. Those that do, live on average 6 minutes and 6 seconds from the nearest transit stop.

The National 2011 Community Livability Index is 77.9. This is lower than that for the Northeast, Midwest, and West Regions. It is at the same level as small urban areas, lower than urban areas, and higher than rural areas.

Notable deviations from livability statistic averages include the high availability of community facilities in the Midwest as well as their relative absence from central cities and rural areas. Intuitively, crime is higher in central cities while satisfaction with police protection is lowest in rural areas. Satisfaction with neighborhood schools is lowest in central cities. The presence of neighborhood elementary schools is lowest in the South, and rural areas. Noise is more bothersome in the Northeast while bad smells are least bothersome. Litter is more bothersome in central cities.

Housing is least affordable in the Northeast, West, and central cities. Transit availability is lowest in the South and in small urban and rural areas while access to transit is lowest in rural areas.

Table 4.1 Community Livability Index 2011

						MSA				
	National	Northeast	Midwest	South	West	Central City	Suburban	Rural	Small Urban	Rural
Community Service Quality	95.6	95.6	94.8	95.3	96.7	94.2	96.5	95.8	95.9	95.9
Community Recreation Facility Availability	41.9	39.0	52.8	35.1	42.5	38.4	47.0	36.2	47.8	37.4
Community Service Indicator	**68.8**	**67.3**	**73.8**	**65.2**	**69.6**	**66.3**	**71.7**	**66.0**	**71.9**	**66.7**
Crime	81.6	84.4	81.3	80.9	79.7	71.6	83.2	87.9	85.6	89.9
Satisfaction with Police	93.0	93.2	93.8	92.5	92.6	90.4	96.0	92.6	94.7	88.7
Crime Indicator	**87.3**	**88.8**	**87.5**	**86.7**	**86.1**	**81.0**	**89.6**	**90.3**	**90.1**	**89.3**
Satisfaction with neighborhood shopping	97.6	97.6	97.6	97.9	97.0	96.9	98.6	97.7	97.7	95.3
Shopping available in neighborhood	97.1	97.5	97.6	96.1	97.6	98.4	98.6	95.3	98.8	90.5
Retail Indicator	**97.3**	**97.6**	**97.6**	**97.0**	**97.3**	**97.7**	**98.6**	**96.5**	**98.3**	**92.9**
Satisfaction with neighborhood schools	92.3	92.7	92.6	92.0	92.1	88.5	93.8	94.0	91.3	94.6
Elementary school located in neighborhood	66.2	69.1	64.9	56.4	78.7	82.6	73.4	42.6	67.5	27.1
Education Indicator	**79.3**	**80.9**	**78.8**	**74.2**	**85.4**	**85.6**	**83.6**	**68.3**	**79.4**	**60.9**
Neighborhood has bad smells	89.0	94.4	92.8	83.9	87.8	90.1	88.4	86.2	91.1	88.2
Noise in the neighborhood is bothersome	83.3	78.8	85.2	85.5	82.4	80.6	84.3	87.6	83.2	84.1
Litter in the neighborhood is bothersome	90.2	89.5	90.3	89.9	91.3	86.5	92.5	94.2	90.1	90.3
Undesireable neighborhood/property	97.5	96.4	97.6	97.7	98.1	97.1	97.6	98.9	97.2	97.0
Environmental Quality Indicator	**90.0**	**89.8**	**91.5**	**89.2**	**89.9**	**88.6**	**90.7**	**91.7**	**90.4**	**89.9**
Housing Affordability Indicator	**62.4**	**59.9**	**66.7**	**64.7**	**56.2**	**54.4**	**61.3**	**70.2**	**64.8**	**74.2**
Transit Availability	57.0	68.6	53.1	40.5	74.5	89.3	65.6	21.7	37.2	13.0
Transit Accessibility	6:06	6:00	5:42	6:44	5:58	5:15	5:37	8:24	5:55	8:11
Transit Livability Indicator	**60.3**	**66.4**	**59.8**	**49.8**	**69.5**	**79.4**	**66.3**	**43.0**	**50.7**	**30.8**
Community Livability Index	**77.9**	**78.7**	**79.4**	**75.3**	**79.1**	**79.0**	**80.3**	**75.1**	**77.9**	**72.1**

4.3 Using the Community Livability Index

The Community Livability Index can be used to evaluate, at a high level, the impact of federal programs and policies. Using the example from the previous section, the increased level of funding for transit under SAFETEA-LU should make a significant positive impact on the availability and accessibility of transit and the transit component measures of the Community Livability Index.

The Community Livability Index allows for comparisons of livability across regions and community types. This can be used to better understand the actual and perceived differences in social and environmental qualities.

It is important for users of the Community Livability Index to keep in mind how the index is calculated and its limitations. Most components are calculated using equally weighted averages as is the aggregate CLI measure. This may not be considered accurate by some researchers, policy makers or practitioners who may consider some factors or variables more important. However, the technique removes some of the inherent subjectivity.

At the same time, users should be cognizant of the subjective nature of some variables used to calculate the CLI. The knowledge, attitudes, and perceptions individuals' have of their communities are reflected in many of the components of the CLI and that differences in measures across regions and community types may be a function of this differences and not objective differences in availability, level, and quality of service.

The Community Livability Index provides a measure of community livability in the United States as impacted by a number of environmental and social factors. These components rely on some variables whose values are influenced by the knowledge, perception, and attitudes of survey participants. While these individual subjective considerations are real they do not necessarily prohibit comparison of livability across regions, community types, or time. In fact, the inclusion of such data in the index is expected given that livability is a subjective concept.

Even though the CLI incorporates many social and environmental factors, it is possible that due to the multidimensional nature of livability, these factors do not completely encompass the concept. While the data in the American Housing Survey was fully leveraged, other datasets may need to be incorporated to complement the CLI.

5. SUMMARY

Transit livability statistics and the CLI presented in previous sections provide a snap shot of transit and livability in the United States. They provide a deeper understanding of current transit service, livability and its social and environmental components.

Transit livability statistics provide a more complete picture of transit availability, accessibility, and use than has been previously available. While the National Transit Database and Rural National Transit Database provide information on transit service provided and use, that information has been agency based. These data sources have not collected data equivalent to the transit availability, accessibility, or desirability that were assembled by this study. They also do not collect detailed socioeconomic data on system users. Similar information is sometimes available at the local level as transit agencies and communities conduct transportation planning. However, the transit livability statistics benefit from the use of a single national survey for data collection.

Being able to compare transit livability statistics across regions and socioeconomic groups should be helpful to policy makers in identifying shortcomings and inconsistencies in the delivery and effectiveness of existing federal transit policies. They can also be used to evaluate, at a high-level, the degree of equity in transit service. The statistics can also guide the construction of new policies and programs. Similarly, transit livability statistics could be used to establish targets for redesigned programs.

The CLI and its component indicators provide an assessment of the current livability of American communities as perceived by residents. Comparisons across regions and community types demonstrate the variability that exists in livability which may be the result of objective differences or residents' perceptions and expectations. The specific influence of each of these factors on livability cannot be determined by available data.

Calculation of updated transit livability statistics and the CLI as new AHS is released will allow for identification of trends and evaluation of livability programs. This data will be collected in 2011 and released in 2012.

5.1 Future Research

Transit livability statistics, the CLI and its component indicators may lead to hypotheses about the relationships between regions, socioeconomic characteristics, transit attributes, and livability in general. However, more formal econometric modeling is necessary before reaching such conclusions.
It is posited in this report that higher CLI values are an indication that a community is more livable. However, it does not answer the seminal livability question, "Is your community, with its diverse social and environmental characteristics, livable?" At the same time, the ordinal nature of the CLI implies that dedication of ever greater levels of resources to community livability activities would result to higher levels of livability.

Fortunately, answering the just-posed livability question while controlling for personal and community attributes allows for accommodation of the subjective nature of livability.

The next phase of the community livability project will rigorously model the relationships among community social and environmental characteristics allowing a proper response to the livability question previously posed. Given the factors identified in this report that play a role in community livability, it would be interesting to do further research to determine through statistical inference the factors that have significant contributions. Knowing these factors would help the authorities enhance the livability concept.

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