

Waiting for a Ride: Transit Access and America's Aging Population



I. Introduction

The baby boom generation is the largest in U.S. history with more than 77 million people born between 1946 and 1964.¹ Beginning this year, the first baby boomers will turn 65. As this generation transitions into a new life stage, it will place unprecedented demand on the transportation system. The impacts of this demographic shift will continue for years and require elected officials, transportation planners, and local communities to build a consensus around new investments in public transportation. Failing to invest in transit systems now will leave millions of baby boomers without adequate transportation alternatives as they age in place and are no longer able to drive.

The baby boomer generation is America's first truly suburban generation. The unprecedented economic expansion that followed WWII helped fuel the rise of new suburban communities and the private automobile. At the same time, the federal government initiated the largest infrastructure project in U.S. history: the construction of the interstate highway system. Millions of Americans used their new affluence to build a life around driving. Whereas previous generations tended to live in close proximity to employment centers, new suburban housing developments - facilitated by an extensive highway network - required longer trips. Mixed land use development gave way to segregated zoning that relied on vast road networks to connect people to employment, healthcare, recreation, and friends and family. The urban form changed to fit a lifestyle defined by driving.

Research shows that seniors and aging baby boomers overwhelmingly want to stay in their homes and continue to lead active, independent lives. In fact, older adults are less likely to move after retirement than seniors were thirty years ago.² This means that millions of baby boomers will age in place. For this dream to be realized, seniors will increasingly need access to public transportation. Without alternatives, seniors will face isolation and a dramatically reduced quality of life. According to research by the Surface Transportation Policy Project, more than 3.5 million Americans – more than half of the non-driving population age 65 and over – stay at home on any given day, often because they lack access to transportation.³ People over 65 that have stopped driving make fewer trips to the doctor (15%), to shop or eat out (59%), and for social, family and religious activities (65%) than drivers in the same age group.⁴

Transportation for America, in partnership with the Center for Neighborhood Technologies (CNT), analyzed the intensity of transit service and the number of seniors with access to that service for all metropolitan areas with a population of 65,000 or more. The results show that the percentage of seniors with poor transit access will rise from 49 to 54 percent between 2000 and 2015. This increase translates into an addition 3.9 million seniors with poor transit access.⁵

1 Coughlin, Joseph F. (2009) "Longevity, Lifestyle, and Anticipating the New Demands of Aging on the Transportation System" Public Works Management & Policy Volume 13 Number 4 301-311

2 Rosenbloom, Sandra (2003) "The Mobility Needs of Older Americans: Implications for Transportation Reauthorization" Brookings Institution, Washington, D.C.

3 Bailey, Linda (2004) "Aging Americans: Stranded without Options" Surface Transportation Policy Project, Washington, D.C.

4 Op. cit. 3

5 The percentage increase represents a population weighted average across the five metropolitan size categories

Table 1 shows the percentage increase by metropolitan size category. While the most significant percentage increase occurs in communities with fewer than 250,000, the trends hold for metros of all sizes. Even the New York metropolitan region, which has the most extensive transit access of any area, still has 41 percent of its seniors with poor transit access in 2015.

Table 1: Percentage of Seniors with Poor Transit Access by Metro Size Category

Metropolitan Size Category	Percentage of Seniors Age 65 and Older with Poor Transit Access (2000)	Percentage of Seniors Age 65-79 with Poor Transit Access (2015)
Less 250,000	54	62
250,000-1 million	56	61
1 to 3 million	50	55
3 Million or More	51	55
New York, NY	41	41

The demographic shifts taking place in America are unprecedented and Congress must provide leadership during the next surface transportation reauthorization to ensure that older Americans have access to a robust multi-modal transportation system that provides affordable transportation alternatives. Yet, developing transportation projects and programs is a lengthy and complex process requiring detailed planning, political consensus, and substantial financial resources, particularly from the federal government. Therefore, delay is not an option and Congress must act this year to pass a transportation bill that:

- Increases dedicated funding for public transportation
- Ensures that transit projects are able to compete fairly within any new or expanded innovative financing programs
- Ensures that state departments of transportation retain the authority to utilize or “flex” a portion of their federal highway funds for transit projects and programs
- Provides a level playing field between new highway and transit projects – including an equal federal share of total project costs

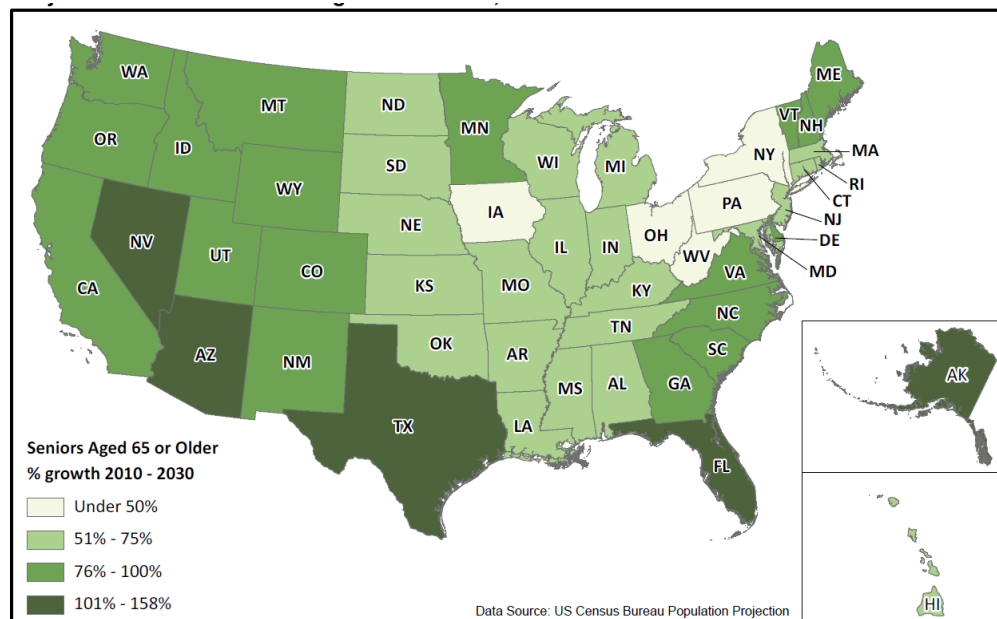
The federal government must take the lead in developing the projects and programs necessary to meet the mobility needs of older Americans. Moreover, elected officials, transportation planners, and local communities must build consensus around investing in transportation alternatives. Failure to act quickly will lock in a future that leaves millions of seniors isolated and without options.

II. The Silver Tsunami: Aging in Place and Transportation

The baby boom generation is the largest in U.S. history and as baby boomers age they will place new and complex demands on the transportation system.⁶ Moreover, baby boomers have enjoyed, on average, greater wealth and better health outcomes than previous generations. When surveyed, baby boomers state a strong desire to remain active and independent well into their later years. According to research by the Rehabilitation Institute of Chicago, nearly 80 percent of respondents believe they will see no “serious limits on their activity until after age 70” and close to 50 percent believe they will remain “active and going strong over age 80.”⁷ Yet, research shows that more than 20 percent of seniors age 65 and older – nearly 7 million people – do not drive at all. Thus, even as millions of baby boomers cease driving, they expect to remain active and the most cost-effective way to meet their demand for mobility will be through additional public transit services.⁸

According to data from the Administration on Aging, the percentage of the U.S. population age 65 and older increased by more than 14 percent from 1999 to 2009. U.S. Census Bureau data indicates that the number of Americans age 65 and older will increase to more than 71 million by 2030 – when the senior population will reach its peak. This will raise seniors from 12 to 20 percent of the total population⁹ As figure 1 illustrates, this trend will continue across the country with some states experiencing dramatic increases in their senior population by 2030.

Figure 1: Projected Growth of Seniors Age 65 or Older, 2010-2030¹⁰



6 Coughlin, Joseph F. (2009) “Longevity, Lifestyle, and Anticipating the New Demands of Aging on the Transportation System” Public Works Management Policy, Volume 13 Number 4

7 Op. cit. 6

8 Bailey, Linda (2004) “Aging Americans: Stranded without Options” Surface Transportation Policy Project, Washington, D.C.

9 U.S. Census Bureau, “State Interim Population Projections by Age and Sex: 2004 – 2030” data available at the <http://www.census.gov/population/www/projections/files/PressTab5.xls>

10 Op. cit. 8

For individuals and families, aging is a major life transition that typically means leaving the workforce and living on a fixed income. Unfortunately, aging can also mean poverty. Table 2 shows that almost 9 percent of older Americans fall below the poverty line, making access to affordable transportation alternatives such as public transit absolutely critical.

Table 2: United States Population 65 and Older in 2009¹¹

Number of Persons 65 and Older	Percent of Total Population	Percent Increase from 1999 to 2009	Percent Below Poverty 2009
38,869,716	12.9%	14.6%	8.9%

Many financial planners recommend that retirees have an income replacement rate between 70 and 90 percent of preretirement earnings. However, fully one third of baby boomers do not have sufficient retirement income to replace even 50 percent of their preretirement earnings.¹² For low-income baby boomers, Social Security will represent 60 percent of their household income during retirement – compared to only 32 percent for high-income baby boomers.¹³ In large measure, these differences in household income during retirement reflect lower savings rates during working years. Low-wage workers are much less likely to have either a defined benefit or defined contribution pension plan.¹⁴

While Social Security represents a large percentage of household income for low-income retirees, the dollar amount is quite low. In fact, the median Social Security benefit for low-income adults age 62 and older is only \$6,400.¹⁵ Living on a fixed income makes owning an automobile challenging and increases the need for affordable transportation alternatives. AAA (formerly the American Automobile Association) reports in “Your Driving Costs 2011” that the average annual cost of owning an automobile and driving between ten and fifteen thousand miles ranges from \$7,600-\$8,700. These estimates are based on an average fuel cost of only \$2.88 per gallon and will increase as fuel costs rise.¹⁶

Aging in Place

Research by AARP shows that older Americans overwhelmingly plan on staying in their homes. In 2000, AARP carried out a large-scale survey of adults age 45 and over. More than 70 percent of respondents strongly agreed with the statement “What I’d really like to do is stay in my current residence for as long as possible.”¹⁷ The same survey found that only 9 percent of

¹¹ U.S. Administration on Aging “A Profile of Older Americans: 2010” Available at http://www.aoa.gov/AoARoot/Aging_Statistics/Profile/2010/8.aspx

¹² Butrica, Barbara, Toder, Eric and Desmond Toohey (2008) “Boomers at the Bottom: How Will Low-Income Boomers Cope in Retirement?” Available at assets.aarp.org/rgcenter/econ/inb158_boomers.pdf

¹³ Op. cit. 11

¹⁴ Op. cit. 11

¹⁵ Op. cit. 11

¹⁶ AAA (2011) “Your Driving Costs 2011” Available at www.aaexchange.com/Assets/Files/201145734460.DrivingCosts2011.pdf

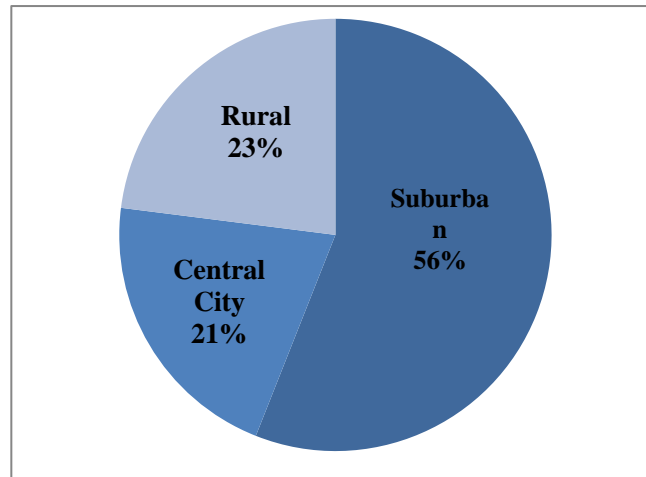
¹⁷ Bayer, Ada-Helen and Leon Harper (2000) “Fixing to Stay: A National Survey of Housing and Home Modification Issues” AARP Washington, D.C.

respondents expressed a desire to move to a facility where care is provided.¹⁸ In fact, older adults today are less likely to move after they retire than seniors were 30 years ago.¹⁹ By the time people are over age 55, only about 5% change residences and fewer than 2% move between states. This clearly shows that seniors and aging baby boomers are following through on their desire to remain in their current homes.

As a result, millions of Americans are aging in place, creating what some researchers describe as ‘naturally occurring retirement communities.’²⁰ The Congressional Research Services notes that naturally occurring retirement communities are a challenge for transportation and social service providers because they were “not designed with the provision of services to older persons in mind,” including access to adequate transit services.²¹

This phenomenon raises an important question: where are seniors aging in place? Figure 2 illustrates that more than three-quarters of older adults are aging in suburban, exurban, or rural areas. Research by noted demographer William Frey indicates that the primary factor driving the growth of seniors in suburban areas is not migration post-retirement but rather “the aging of today’s existing pre-senior populations.” In fact, Frey shows that aging in place “outstrips migration both within the metropolitan area (exchange with the urban county) and outside the metropolitan area (exchange with the rest of the United States).”²² Moreover, Frey argues that today’s seniors were “the first to move to the burgeoning suburbs during the postwar period, and raised baby boomers there as the first truly ‘suburban generation.’”²³

Figure 2: The Geographic Distribution of Americans Age 65 and Older²⁴



¹⁸ Op. cit. 15

¹⁹ Rosenbloom, Sandra (2003) “The Mobility Needs of Older Americans: Implications for Transportation Reauthorization” Brookings Institution, Washington, D.C.

²⁰ Colello, Kirsten J. (2007) “Supportive Services Programs to Naturally Occurring Retirement Communities” Congressional Research Service, available through the following link aging.senate.gov/crs/aging15.pdf

²¹ Op. cit. 17

²² Frey, William H., (2007) “Mapping the Growth of Older America: Seniors and Boomers in the Early 21st Century” The Brookings Institution, Washington, D.C.

²³ Op. cit. 20

²⁴ Rosenbloom, Sandra (2003) “The Mobility Needs of Older Americans: Implications for Transportation Reauthorization” Brookings Institution, Washington, D.C.

The aging in place of millions of baby boomers will exacerbate an already problematic mismatch between the demand for transportation alternatives and transit services. Communities, elected officials, and planners will have to confront land use patterns that developed on the assumption that people would always be able to drive. The implications for transportation policy are clear: Congress must provide the leadership and funding necessary to build transit systems capable of meeting the mobility needs of seniors and aging baby boomers.

Federal Support for Rural Transit and Persons with Disabilities

According to the Research and Training Center on Disability in Rural Communities, roughly 40 percent of all rural residents (approximately 37 million people) live in the nation's 1,200 counties that have no public transportation. The Federal Transit Administration provides funding through three programs to support rural transit and transportation services for persons with disabilities.

- **Section 5310 – Transportation for Elderly Persons and Persons with Disabilities** program provides funding to states for capital costs of providing services to elderly persons and persons with disabilities. Typically, vans or small buses are available to support nonprofit transportation providers. SAFETEA-LU authorized \$674 million over six years.
- **Section 5311 - Rural and Small Urban Areas Formula Program** provides funding to maintain and improve public transportation systems in rural areas and small towns. A portion of these funds are dedicated to the Tribal Transit Program (TTP), which provides direct federal grants to Indian tribes to support public transportation on Indian reservations. SAFETEA-LU authorized \$2.2 billion over six years.
- **Section 5317 - New Freedom Program** provides funding to transit agencies to expand the mobility options available to people with disabilities, beyond the requirements of the ADA. SAFETEA-LU authorized \$339 million over six years.

The demand for rural transit is substantial and growing. The American Public Transportation Association (APTA) reports that between 2002 and 2005 ridership for small urban and rural transit systems grew by 20 percent. The next surface transportation authorization must significantly increase funding for each of these programs in order to meet the needs of rural Americans and persons with disabilities. These programs are a critical link in the transportation system and they provide essential links to work, healthcare, shopping, and community.

Research and Training Center on Disability in Rural Communities “Rural Facts: Inequities in Rural Transportation” <http://rtc.ruralinstitute.umn.edu/Trn/TrnInequitiesFact.htm>

APTA “Public Transportation: Benefits for the 21st Century”

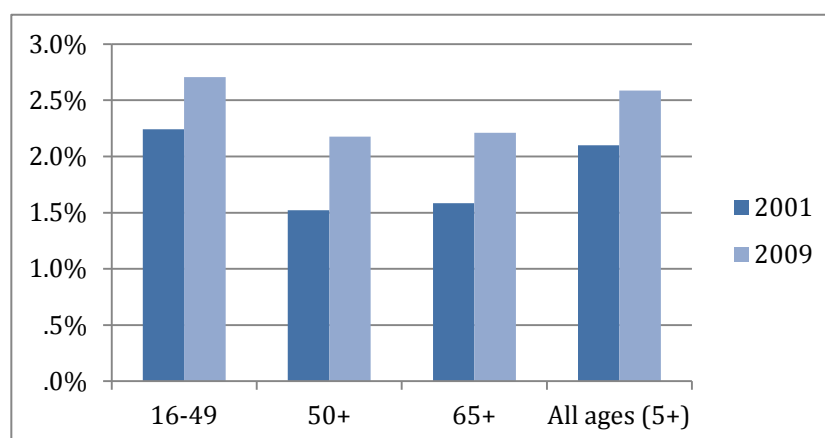
http://www.apta.com/resources/reportsandpublications/Documents/twenty_first_century.pdf

Transportation: A prerequisite for Aging in Place

Seniors must have access to adequate transportation alternatives in order to successfully age in place. Transportation provides essential links to shopping, health care, friends and family and the broader community.

Research by AARP shows that seniors are responsible for an increasing percentage of total trips each year.²⁵ In 2009, seniors accounted for 12 percent of all trips (or 45.5 billion).²⁶ This figure will increase as the senior population grows to more than 71 million by 2030. Data from the National Household Travel Survey presented in Figure 3 indicates that between 2001 and 2009 seniors chose to increase the percentage of all their trips made by transit from 1.6 to 2.2 percent. This relatively modest change in share translates into 328 million additional trips by transit in 2009 compared to 2001. This shows that the choices seniors make have a dramatic impact on the national transportation system. As baby boomers age and choose transit for a larger percentage of their trips, they will create significant demand for expanded public transportation services.

Figure 3: Percentage of All Trips on Public Transit by Age, 2001-2009²⁷



As Americans age, many will cease driving all together, creating additional demand for public transportation services. Between 2001 and 2009 the number of older Americans that no longer drive increased by 1.1 million (21 percent of the population 65 and older does not drive).²⁸ Between the age 65 and 75, overall driving rates fall from 88 to 69 percent – a significant decrease.²⁹ For many older Americans that no longer drive, transit becomes a vital link. Research shows that older non-drivers who have access to transit use it to make about 310 million trips per

²⁵ The Bureau of Transportation Statistics defines a trip as travel by one person in any mode of transportation. For example, BTS would calculate two household members traveling together in one car are counted as two person trips. Additional information is available at the following link http://www.bts.gov/programs/national_household_travel_survey/pre_and_post_9_11_data_documentation/appendix_e/html/index.html

²⁶ Lynott, Jana and Carlos Figueiredo (2011) “How the Travel Patters of Older Adults Are Changing: Highlights from the 2009 National Household Travel Survey” AARP Public Policy Institute, Washington, D.C.

²⁷ Op. cit. 20

²⁸ Op. cit. 20

²⁹ Op. cit. 24

year.³⁰ In fact, public transportation is the primary means of travel for 14 percent of the individuals 75 and over that do not drive.³¹ When surveyed by AARP, 21 percent of respondents age 65 and older stated that being near transit was very important.³²

Access to Transit Can Make All the Different

A two-week snowstorm last winter shut down Portland, Oregon, halting many buses and making driving dangerous. So as Ann Niles, 68, considered how to get to a scheduled treatment for her recently diagnosed leukemia, she was relieved that the streetcar was available. “It turned out I didn’t have leukemia. I had something else, and needed a completely different treatment,” she says. “Because of the streetcar, I was able to proceed with the new treatment right away.”

Ann and her husband, Philip, are grateful for the opportunity to live in an area of Portland with many options for getting around, and one of the reasons they relocated from Minnesota to Oregon. They were fortunate that the streetcar line, which opened in 2001 and runs between Nob Hill and Portland State University, was able to take them uptown to their doctors and downtown to shops and favorite destinations closer to their home in the [Pearl District](#), a former industrial area now bursting with art galleries and restaurants, lofts and new condos. “Since the streetcar opened,” Ann Niles says, “the neighborhood has completely taken off. The streets are full of activity. There’s dense development, and people are out walking their dogs or going to the parks. The streetcar helped create the neighborhood we want to live in.”

- Source: *AARP Bulletin. Streetcar Revival: Why more than 40 U.S. cities are revisiting trolleys to provide clean, convenient public transit.* by: Christie Findlay. April 1, 2010 www.aarp.org/home-garden/livable-communities/info-03-2010/streetcar_revival.html

In addition to public transportation, local communities must focus on accommodating more trips by walking. Without a safe built environment that enables people to walk, seniors will struggle to access the public transit in their communities. Walking provides the link that connects a senior at home with the public transportation system. Crumbling or absent sidewalks, poorly marked intersections, inadequate time to cross a large intersection, and a lack of benches or other street furniture for resting present significant challenges to older Americans.

Seniors show a strong preference for livable communities that support walking and provide public transportation. Recent survey research by AARP showed that 70 percent of respondents age 65 and older agreed that being near where they want to go (i.e., grocery stores, doctor’s

³⁰ Bailey, Linda (2004) “Aging Americans: Stranded without Options” Surface Transportation Policy Project, Washington, D.C.

³¹ Stowell Ritter, Anita, Audrey Straight, Ed Evans (2002) “Understanding Senior Transportation: A Report and Analysis of a Survey of Consumers Age 50+” AARP Public Policy Institute, Washington, D.C.

³² Keenan, Teresa A., (2010) “Home and Community Preferences of the 45+ Population” AARP Public Policy Institute, Washington, D.C.

offices, the library, and social/religious organizations) was very important.³³ In addition, 51 percent agreed that it was very important to be able to walk easily in their community.³⁴ Among older adults, walking accounts for the second largest share of total trips (8.8 percent). However, seniors and baby boomers are living in communities that were not designed for easy and safe walking or biking. The lack of appropriate walking or biking infrastructure and inadequate design features creates real danger for seniors. In fact, older adults perceive poor sidewalks, the absence of resting places, and dangerous intersections as barriers to walking.³⁵ From 2000-2007, people age 65 and older accounted for 22 percent of pedestrian fatalities. In addition, adults age 75 and older accounted for 13 percent of pedestrian fatalities during this same period.³⁶

In many communities, older Americans have developed ways of meeting their transportation needs when driving is no longer an option. A common strategy is ride sharing. Research by AARP shows that nearly 20 percent of respondents age 75 to 79 used ride sharing as their primary means of travel. This number rises to 40 for respondents age 85 or over.³⁷ Nearly half of older adults cited “feeling dependent” and “imposing on others” as either small or large problems with ride sharing.³⁸ Some communities have developed grassroots membership organizations to deliver programs and services to make daily living easier for people – such as transportation, handyman services, and social activities. The most heavily used service offered by these organizations is transportation – most often to and from doctor’s appointments.³⁹ These membership organizations underscore the importance of transportation options and they help to ensure that older adults do not become isolated and unable to access critical services. Elected officials and transportation planners must begin to think creatively about how to combine standard fixed-route service with these alternative programs.

III. Ranking Metropolitan Regions

As millions of baby boomers age in place, the mismatch between transportation demand and transit services will become significantly worse. Overall, the percentage of seniors with poor transit access will rise from 49 to 54 percent between 2000 and 2015, which translates into an addition 3.9 million seniors with poor access.

This report ranks 241 metropolitan areas based on the percentage of seniors age 65-79 that are projected to have poor transit access in 2015. All 241 metropolitan areas have been grouped into five categories based on population size and then ranked within those categories to avoid unfair

³³ Op. cit. 31

³⁴ Moreover, the same AARP survey found that the importance of walking and being near transit increased for lower-income seniors. Fifty-three percent of seniors with incomes below \$25,000 thought ease of walking was extremely or very important compared to 45 percent for seniors with incomes between \$50,000-\$75,000. For proximity to transit, these figures were 29 and 14 percent respectively.

³⁵ Op. cit. 30

³⁶ Transportation for America (2011) “Dangerous by Design 2011: Solving the Epidemic of Preventable Pedestrian Deaths” Available at <http://t4america.org/resources/dangerousbydesign2011/>

³⁷ Op. cit. 30

³⁸ Op. cit. 30

³⁹ AARP. Neighbors Helping Neighbors: A Qualitative Study of Villages Operating in the District of Columbia. <http://assets.aarp.org/rgcenter/il/dcvillages.pdf>

comparisons between large urban areas such as Chicago, IL with much smaller areas like Greensboro, NC. The five size categories are as follows: (1) less than 250,000; (2) 250,000-1 million; (3) 1-3 million; (4) 3 million or more; and (5) the New York metropolitan region. The New York metro was treated as its own category because of its size.

Rankings are based upon the projected share of seniors with poor access to transit in 2015 to highlight the costs of inaction. In addition, ranking metros based upon poor transit access captures both the extent of transit service and the percentage of seniors with access to that service. This methods moves beyond narrowly constructed rankings that focus only on the extent of transit systems.

Table 3 shows the percentage of seniors with poor transit access by metro size category. These results confirm that across the nation, and regardless of metro size, more seniors will find themselves without adequate public transportation. The only exception is New York, which remains constant at 41 percent or more than 560,000 seniors with poor access.

Table 3: Percentage of Seniors with Poor Transit Access by Metro Size Category

Metropolitan Size Category	Percentage of Seniors Age 65 and Older (2000)	Percentage of Seniors Age 65-79 (2015)
Less 250k	54	62
250k to 1 million	56	61
1 to 3 million	50	55
3 Million or more	51	55
New York, NY	41	41

The metropolitan rankings in Table 4 present a sobering picture of stranded seniors unable to find adequate and affordable transportation alternatives to driving. For example, if Atlanta, GA does not make investments to expand its transit system and baby boomers continue to age in place, 90 percent of seniors (more than 500,000) will face poor transit access. The results for medium sized and smaller metros mirror those of larger areas. For instance, 88 percent of seniors in Kansas City (more than 230,000) will face poor access and 100 percent of seniors in Hamilton--Middletown, OH and Hagerstown, MD will also have inadequate transit. Appendix 2 contains the full rankings by metro size category.

Table 4: Metropolitan Rankings by Percentage of Seniors Age 65-79 with Poor Transit Access in 2015*

	Percentage of Seniors Age 65-79 with Poor Transit Access in 2015	Total Number of Seniors Age 65-79 With Poor Transit Access in 2015
New York Metropolitan Area		
1 New York, NY	41	562,464
Metropolitan Areas 3 Million and Over		
1 Atlanta, GA	90	503,543
2 Riverside--San Bernardino,	69	278,305

	CA		
3	Houston, TX	68	372,346
4	Detroit, MI	68	445,743
5	Dallas, TX	66	295,445
Metropolitan Areas 1-3 Million			
1	Kansas City, MO--KS	88	230,023
2	Oklahoma City, OK	86	136,571
3	Fort Worth--Arlington, TX	86	199,226
4	Nashville, TN	85	151,995
5	Raleigh--Durham--Chapel Hill, NC	80	127,931
Metropolitan Areas 250,000-1 Million			
1	Hamilton--Middletown, OH	100	47,977
2	Montgomery, AL	99	47,980
3	Greenville--Spartanburg--Anderson, SC	99	151,395
4	Hickory--Morganton, NC	95	54,961
5	Brockton, MA	91	35,085
Metropolitan Areas Less Than 250,000			
1	Hagerstown, MD	100	20,735
2	Kenosha, WI	95	19,373
3	Waterbury, CT	90	31,144
4	Greenville, NC	87	14,823
5	Houma, LA	87	24,160

* Rankings are based on an analysis conducted by the Center for Neighborhood Technologies (CNT). Poor transit access was determined using the Transit Access Index (TAI).⁴⁰

By 2015, the number of seniors with poor transit access will increase from 11.5 to 15.5 million. To address the mobility needs of seniors, communities, local elected officials, and planners must confront land use patterns that developed on the assumption that people would always be able to drive. In addition, Congress must provide leadership and enact a robust reauthorization of surface transportation programs.

⁴⁰ Poor transit access was determined by Transit Access Index (TAI) scores. For each Census block group the TAI was calculated by multiplying the intensity of transit service (which is the number of different buss/rail/ferry lines and stops serving a given location) by the proportion of land area within a ¼ mile buffer around each bus stop, and a ½ mile buffer around each rail station and ferry terminal. Thus, if the transit intensity were four and only half the given Census block group lay within the ¼ mile boundary - the final TAI score would be two ($4 * .5 = 2$). The TAI score were then used to determine poor/moderate/good transit access for each metro size category. Finally, Census 2000 data was used to determine the number of people age 50 to 64 and 65 and older in each census block group. The 50 to 64 baby boom cohort was used to approximate the senior population age 65-79 in 2015 by assuming aging in place. A full explanation of the methodology of this report is available in Appendix 1.

**Metropolitan Areas with Less Than 250,000 People
Total Seniors Age 65-74 with Poor
Access to Transit in 2015**

Hagerstown, MD	20,735
Kenosha, WI	19,373
Waterbury, CT	31,144
Greenville, NC	14,823
Houma, LA	24,160

**Metropolitan Areas with 250,000-1 Million People
Total Seniors Age 65-74 with Poor
Access to Transit in 2015**

Hamilton-Middletown, OH	47,977
Montgomery, AL	47,980
Greenville-Spartanburg-Anderson, SC	151,395
Hickory-Morganton, NC	54,961
Brockton, MA	35,085

**Metropolitan Areas with 1-3 Million People
Total Seniors Age 65-74 with Poor
Access to Transit in 2015**

Kansas City, MO--KS	230,023
Oklahoma City, OK	136,571
Fort Worth-Arlington, TX	199,226
Nashville, TN	151,995
Raleigh-Durham-Chapel Hill, NC	127,931

**Metropolitan Areas with 3 Million or More People
Total Seniors Age 65-74 with Poor
Access to Transit in 2015**

Atlanta, GA	503,543
Riverside-San Bernardino, CA	278,305
Houston, TX	372,346
Detroit, MI	445,743
Dallas, TX	295,445

**New York Metropolitan Area
Total Seniors Age 65-74 with Poor
Access to Transit in 2015**

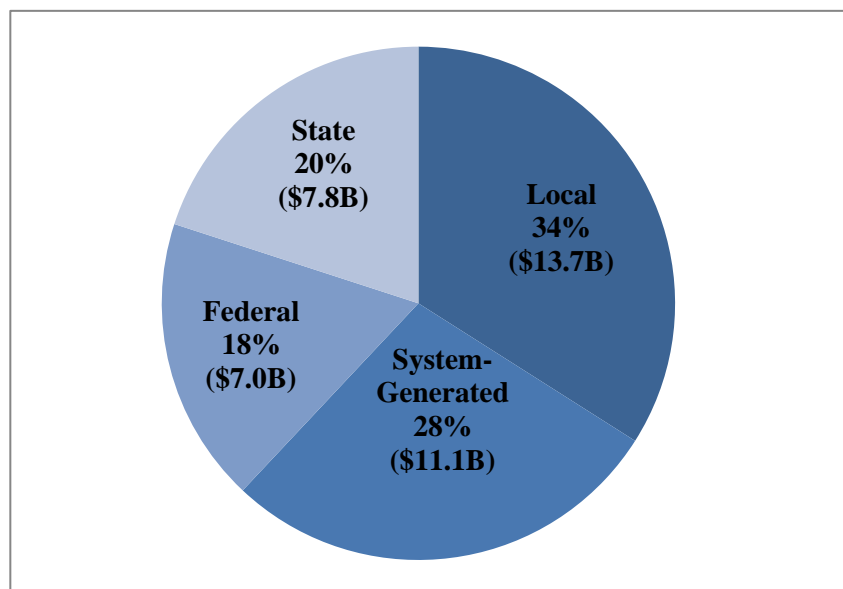
New York, NY	562,464
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IV. Implications for Federal Policy

America's senior population is growing. In 2011, the first wave of baby boomers will begin turning 65. As baby boomers age in place, they will need substantial access to public transportation in order to remain active and connected to their communities, families, and health providers. Without adequate transit, aging seniors will find themselves isolated and at risk for loneliness,⁴¹ poor health outcomes,⁴² and a diminished quality of life. The time to act is now. Without substantial investments in transit services, millions of additional seniors will face a future that lacks transportation alternatives when driving is no longer possible.

Increasing public transportation will require leadership and substantial additional funding from the federal government. In 2004, according to the Congressional Research Service, a total of \$39.5 billion was spent on providing transit service in the United States. This included \$28.4 billion from public funds and \$11.1 billion from system-generated revenues. However, federal funds accounted for only 18% of all transit revenues.⁴³ Simply put, the current level of federal participation is not sufficient for state and metro areas to expand their systems to meet the growing needs of seniors. Congress is currently debating a six-year reauthorization of surface transportation programs that will cover FY2011-2016. Without increased investment, states and metropolitan areas will find themselves locked into inadequate systems that leave millions of seniors without options as projected by the analysis in this report.

Figure 4: Share of Transit Funding by Source



⁴¹ AARP (2010) "Loneliness Among Older Adults: A National Survey of Adults 45+" Available at http://assets.aarp.org/rgcenter/general/loneliness_2010.pdf

⁴² Erin and Linda Waite (2009) "Social Disconnectedness, Perceived Isolation, and Health among Older Adults" *Journal of Health Social Behavior*; 50(1): 31–48 Available at <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2756979/pdf/nihms-133647.pdf>

⁴³ Mallett, William J., (2008) "Public Transit Program Funding Issues in Surface Transportation Reauthorization" Congressional Research Service, Washington, D.C.










Policy Recommendations

The following recommendations should form the basis of a robust six-year reauthorization of surface transportation programs. Congress must:

- Increase dedicated funding for public transportation. Funding for transit should continue to come from the Highway Trust Fund. Moreover, transit should receive a fair share of any new revenues deposited into the Trust Fund.
- Ensure that transit is able to compete fairly for any new or expanded innovative financing programs and that project selection criteria do not inherently favor highway over transit projects.
- Ensure that state departments of transportation retain their current authority under federal law to utilize or “flex” a portion of their highway funds for transit projects and programs. This flexibility is essential for states to respond to their unique transportation needs and avoids locking them into “one-size-fits-all” expenditure requirements.
- Level the playing field between new transit and highway projects with respect to timeline, process, and federal match. Currently, it takes an average of 13 years for a new transit project to move through the federal New Starts process (which provides, on average, 50% of the cost of such projects), and only 10 years for a major new highway (which, in general, receives 80% of its cost from the federal program)

Taken together, these recommendations will provide transportation operators, planners, and communities with the funding and programmatic support to begin meeting the needs of seniors and aging baby boomers.

V. Metropolitan Transit Access Case Studies

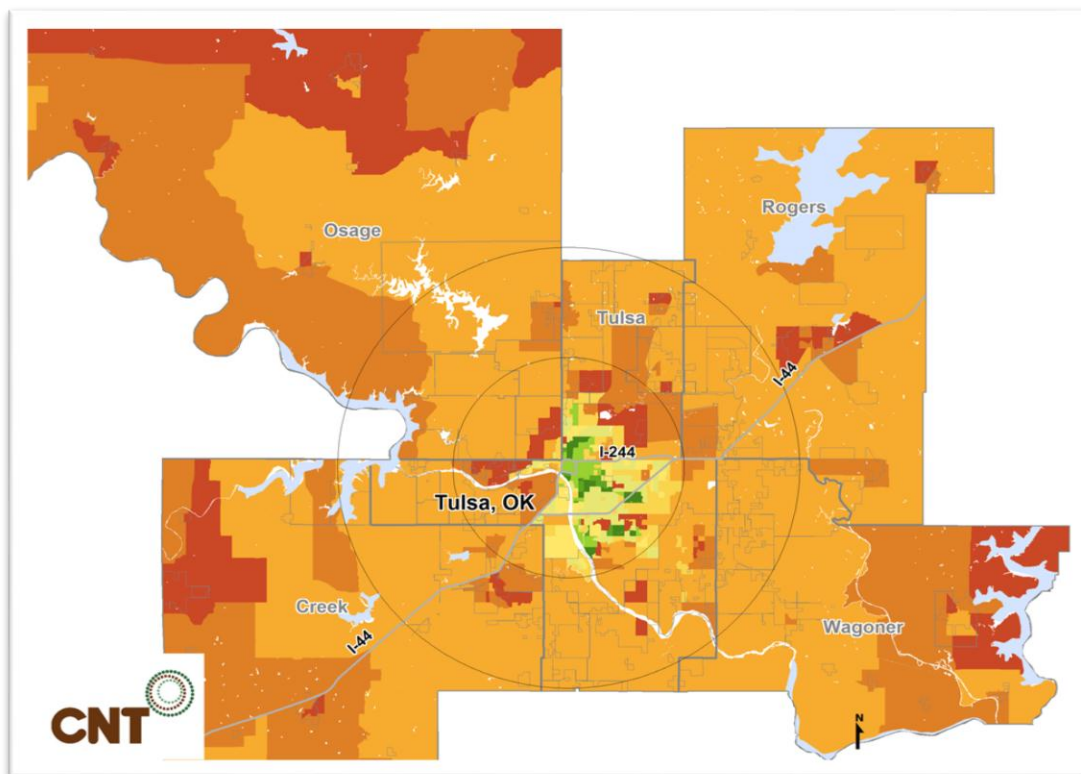
Good Transit Access		High Senior Density
		Moderate Senior Density
		Low Senior Density
Moderate Transit Access		High Senior Density
		Moderate Senior Density
		Low Senior Density
Poor Transit Access		Low Senior Density
		Moderate Senior Density
		High Senior Density

In order to show the impacts of an aging baby boom population, this section presents maps for seven case study metropolitan areas. Each map is color-coded at the census block group level to show both the intensity of transit service and the density of seniors. By combining both variables into one scale, these maps show how aging in place creates a dramatic mismatch between transit services and senior demand. The first map for each case study presents the senior population age 65 and older with poor transit access in the year 2000. The second map show the population age 65-79 projected to have poor transit access in 2015.

Tulsa, Oklahoma in 2000

Tulsa is a mid-sized city with a population less than 1 million people. In 2000, 27 percent of seniors age 65 and older living in urban areas had poor transit access. During the same prior, 98 percent of seniors living in the suburban or exurban areas had poor transit access. These figures indicate that seniors, particularly in suburban areas, disproportionately suffer from poor access.

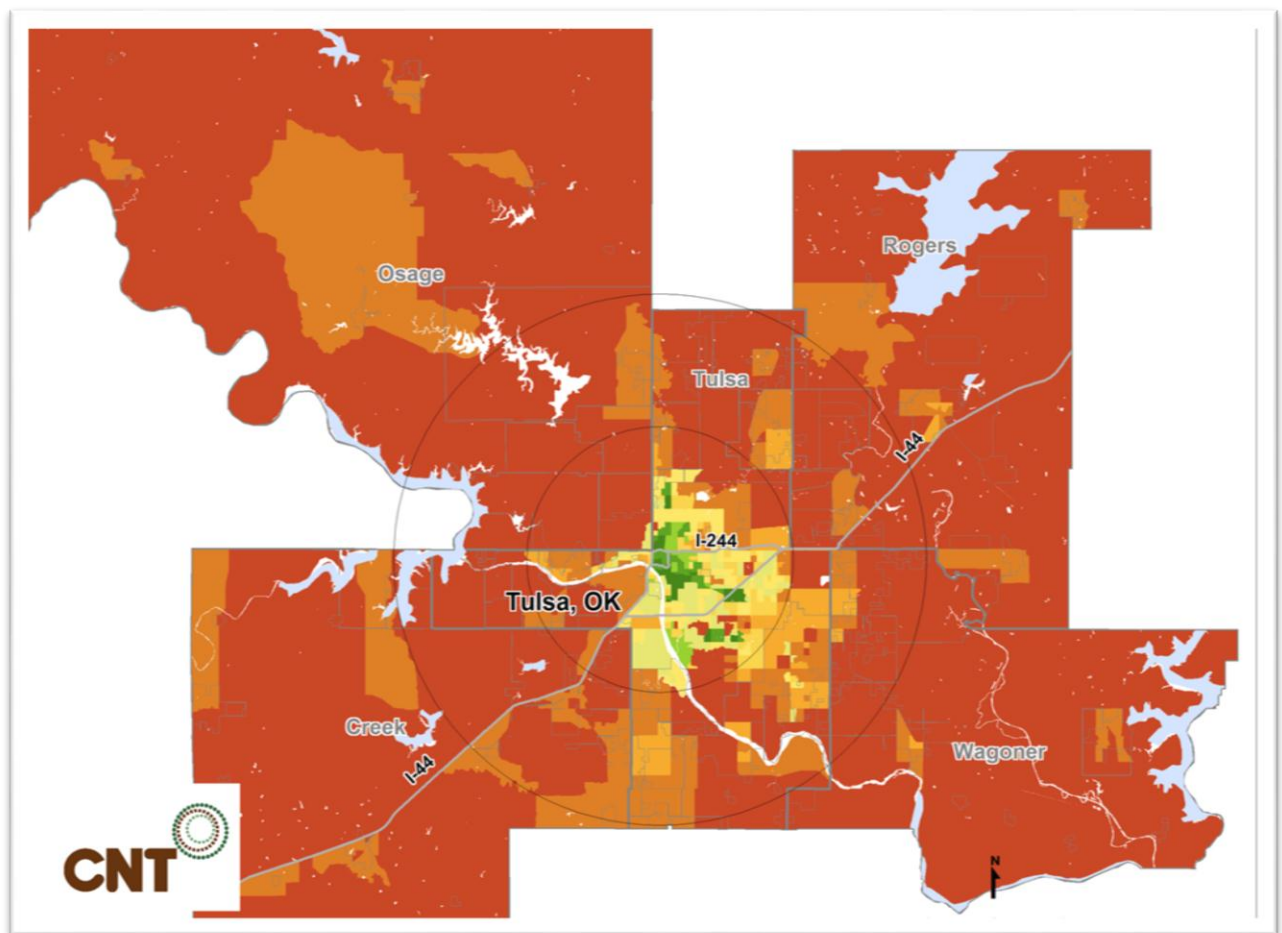
Transit Access for Seniors Age 65 and Older in 2000



Tulsa, Oklahoma in 2015

As this map shows, senior access to transit becomes substantially worse over time. In 2015, 32 percent of urban seniors will have poor transit access while 98 percent of suburban and exurban seniors will continue to have poor access. Moreover, this maps shows that the density of seniors in areas with poor access to transit increases substantially between 2000 and 2015 as indicated by the change from orange to red. In total, the senior population with poor access is projected to increase by 25,078.

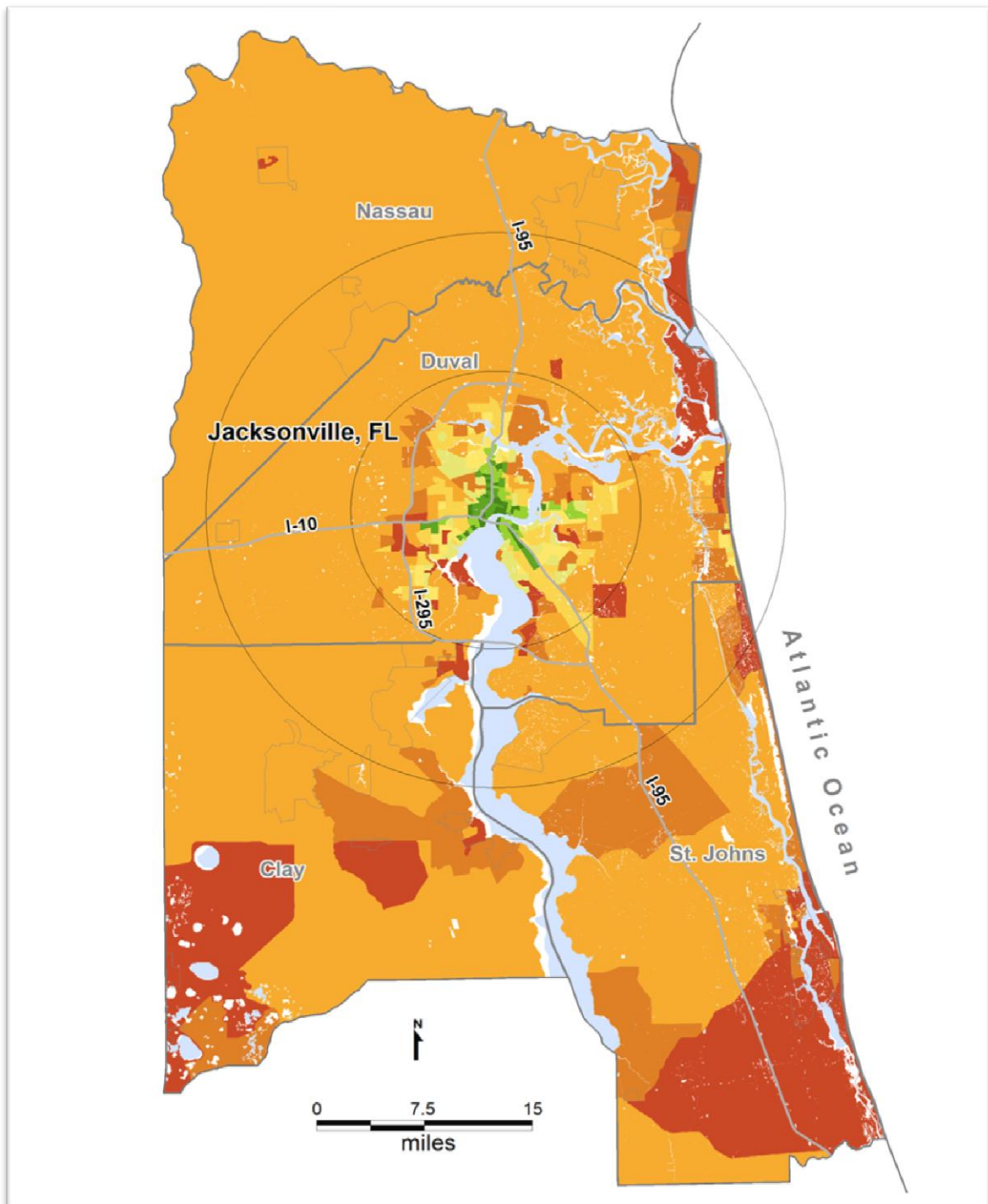
Transit Access for Seniors Age 65-79 in 2015



Jacksonville, Florida in 2000

Jacksonville is a metropolitan area of more than 1 million residents. In 2000, 44 percent of urban seniors age 65 and older had poor access to transit, while 96 percent of suburban and exurban seniors had poor access.

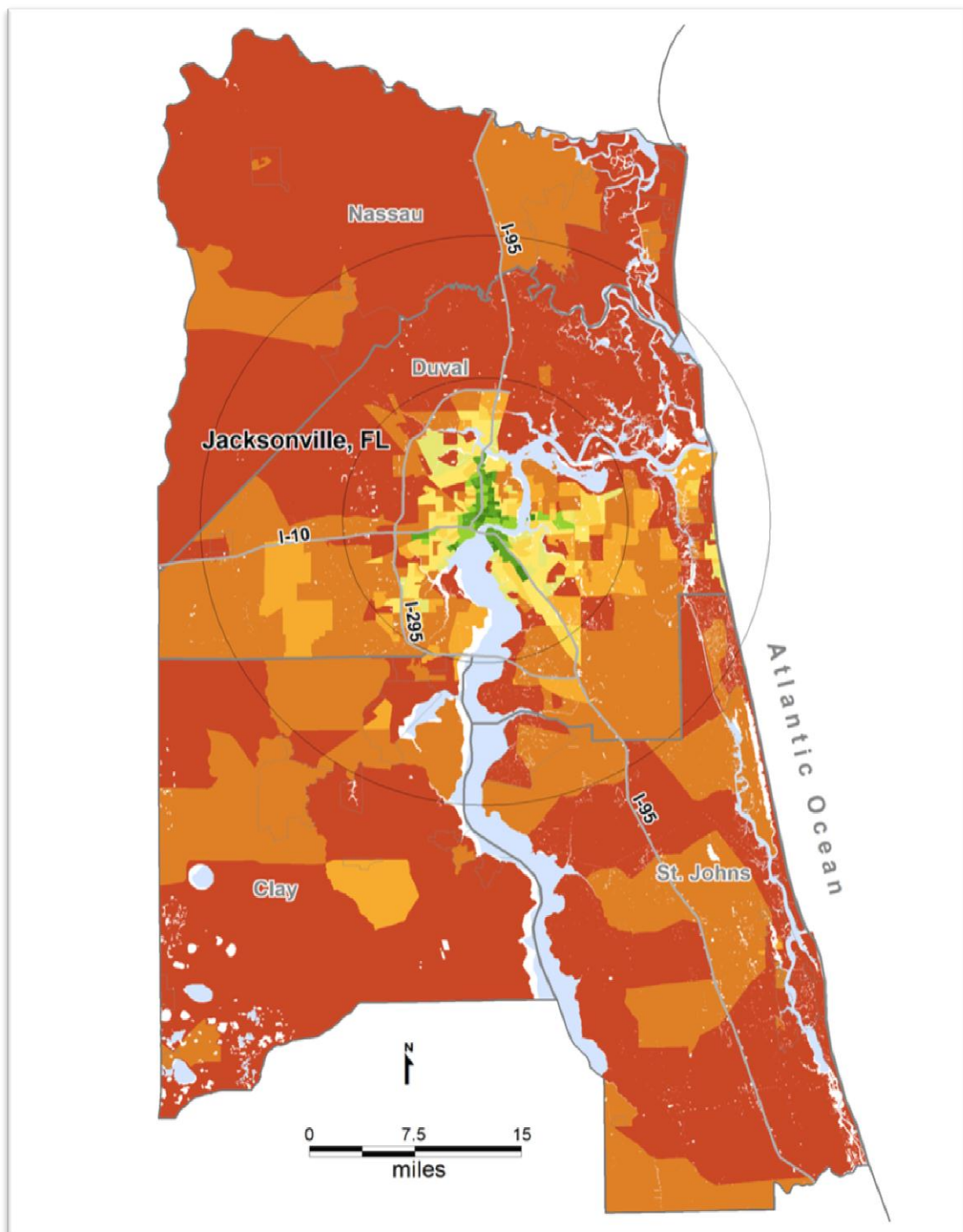
Transit Access for Seniors Age 65 and Older in 2000



Jacksonville, Florida in 2015

As baby boomers age in place, senior access to transit becomes worse over time as indicated by the change from yellow to orange and orange to red. In 2015, transit access for urban seniors is projected to worsen with 53 percent facing poor transit access. At the same time, 96 percent of suburban and exurban seniors will have poor access.

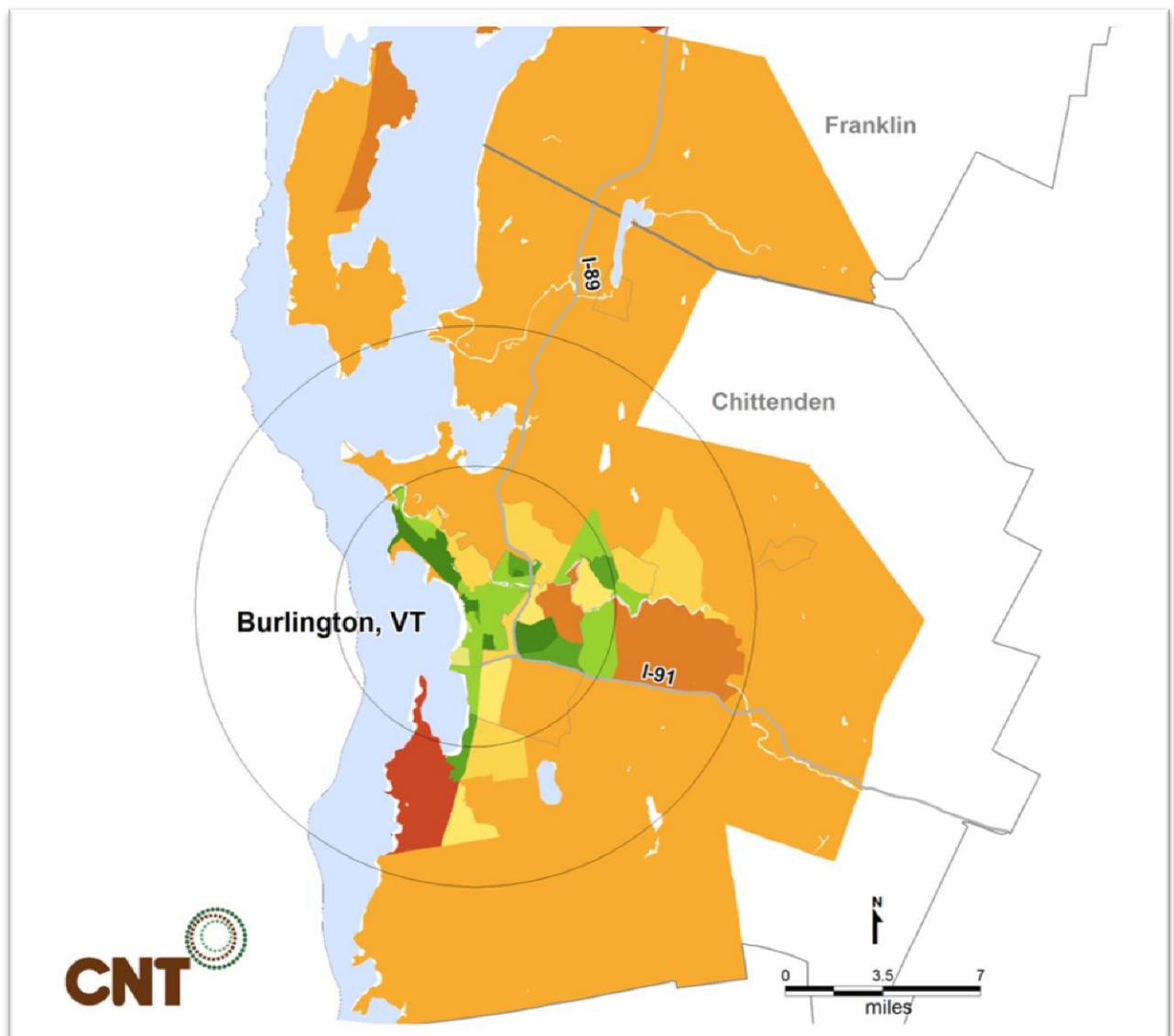
Transit Access for Seniors Age 65-79 in 2015



Burlington, Vermont in 2000

Burlington is a metropolitan area of fewer than 250,000 people. In 2000, 9 percent of urban seniors age 65 and older had poor transit access, while 87 percent of suburban and exurban seniors suffered poor access.

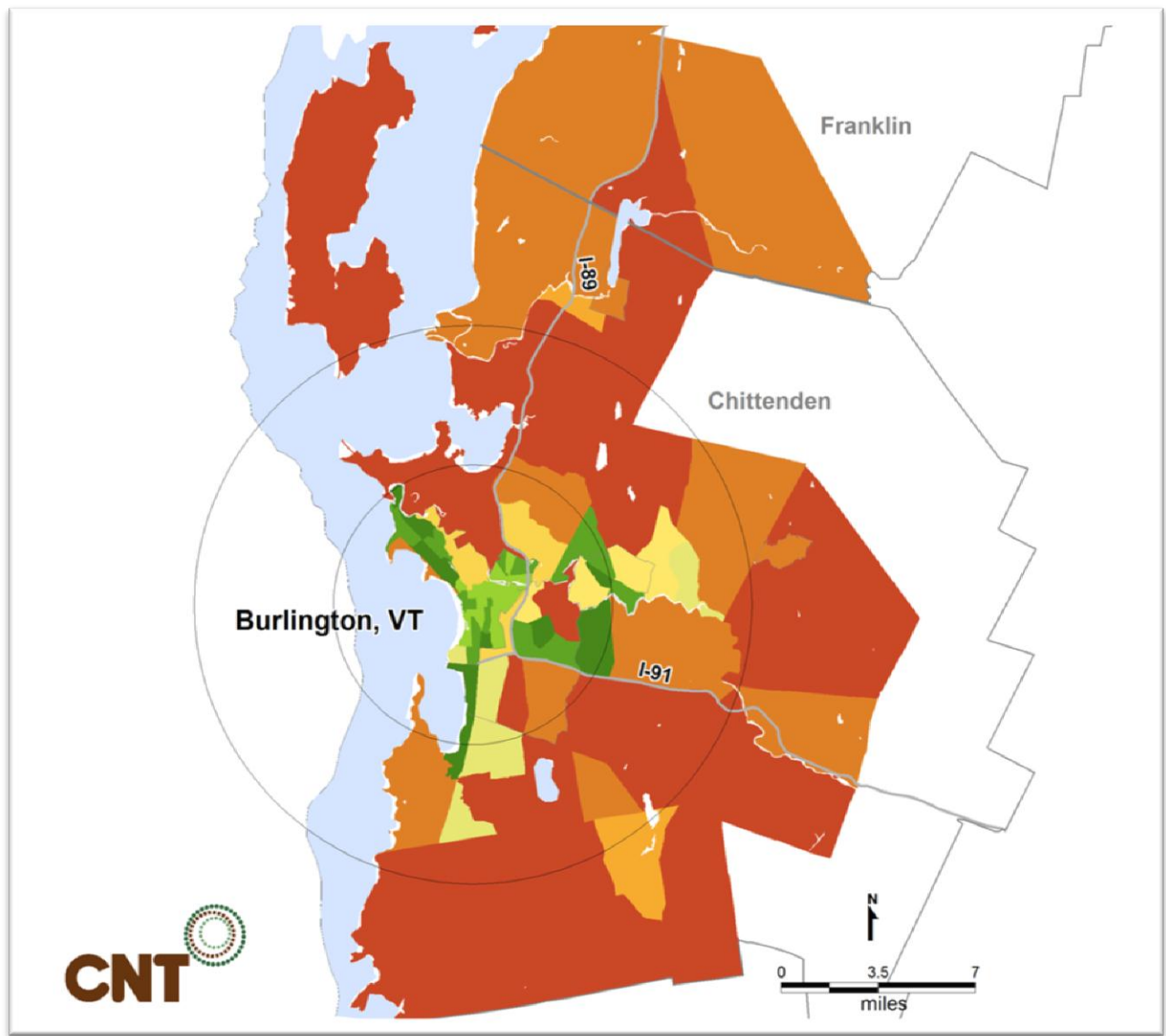
Senior Access for Seniors Age 65 and Older in 2000



Burlington, Vermont in 2015

By 2015, the share of urban seniors age 65-79 with poor transit access will have increased to 18 percent. At the same time, the share of seniors in suburban and exurban areas with poor transit access will have decreased slightly to 84 percent. Even with this slight percentage improvement in suburban areas the overall transit access for the area worsens. In total, the senior population with poor access is projected to increase by 5,753.

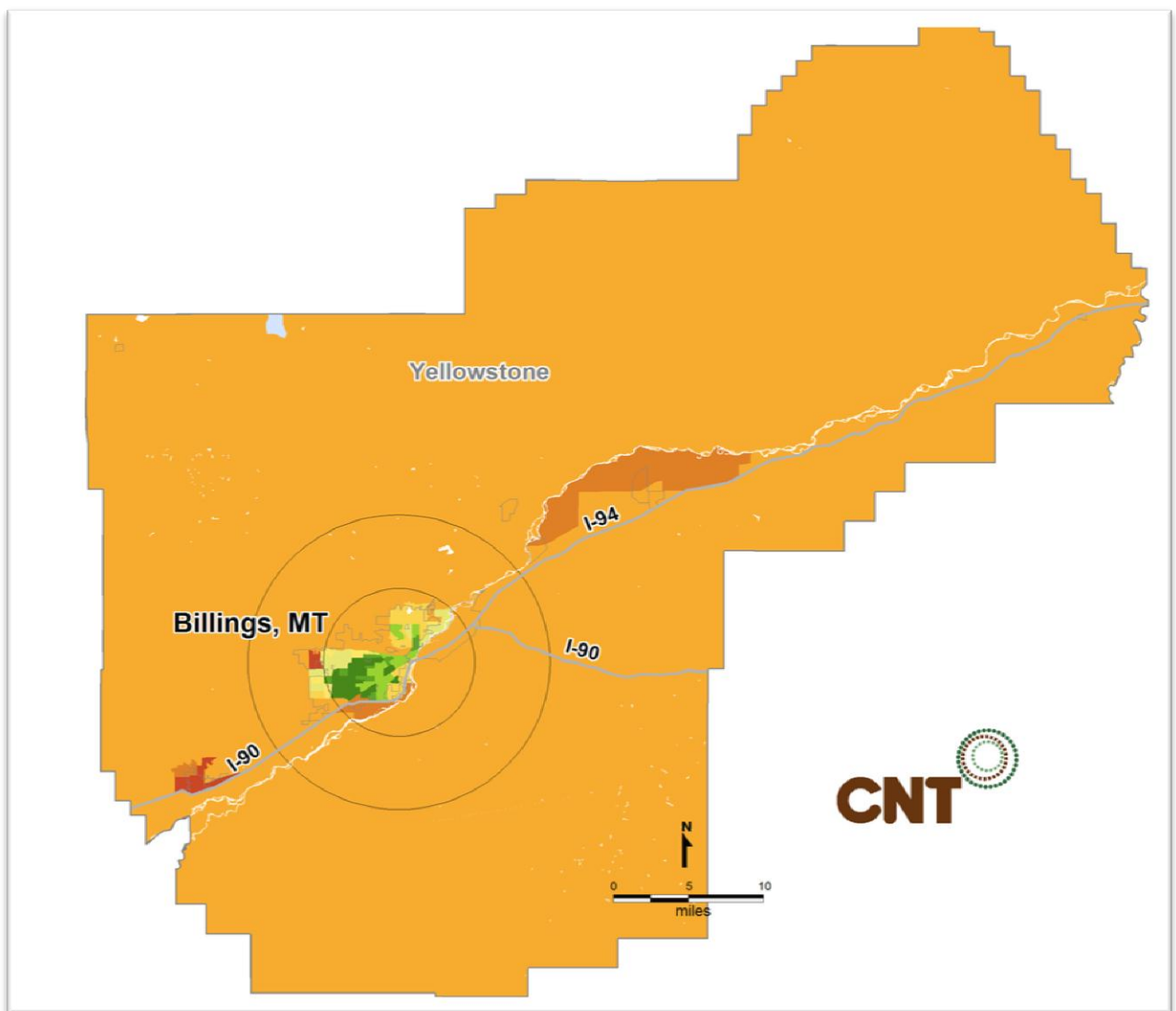
Transit Access for Seniors Age 65-79 in 2015



Billings, Montana in 2000

Billings is a metropolitan area of fewer than 250,000 people. In 2000, 4 percent of urban seniors age 65 and older had poor transit access, while 80 percent of suburban and exurban seniors suffered poor access.

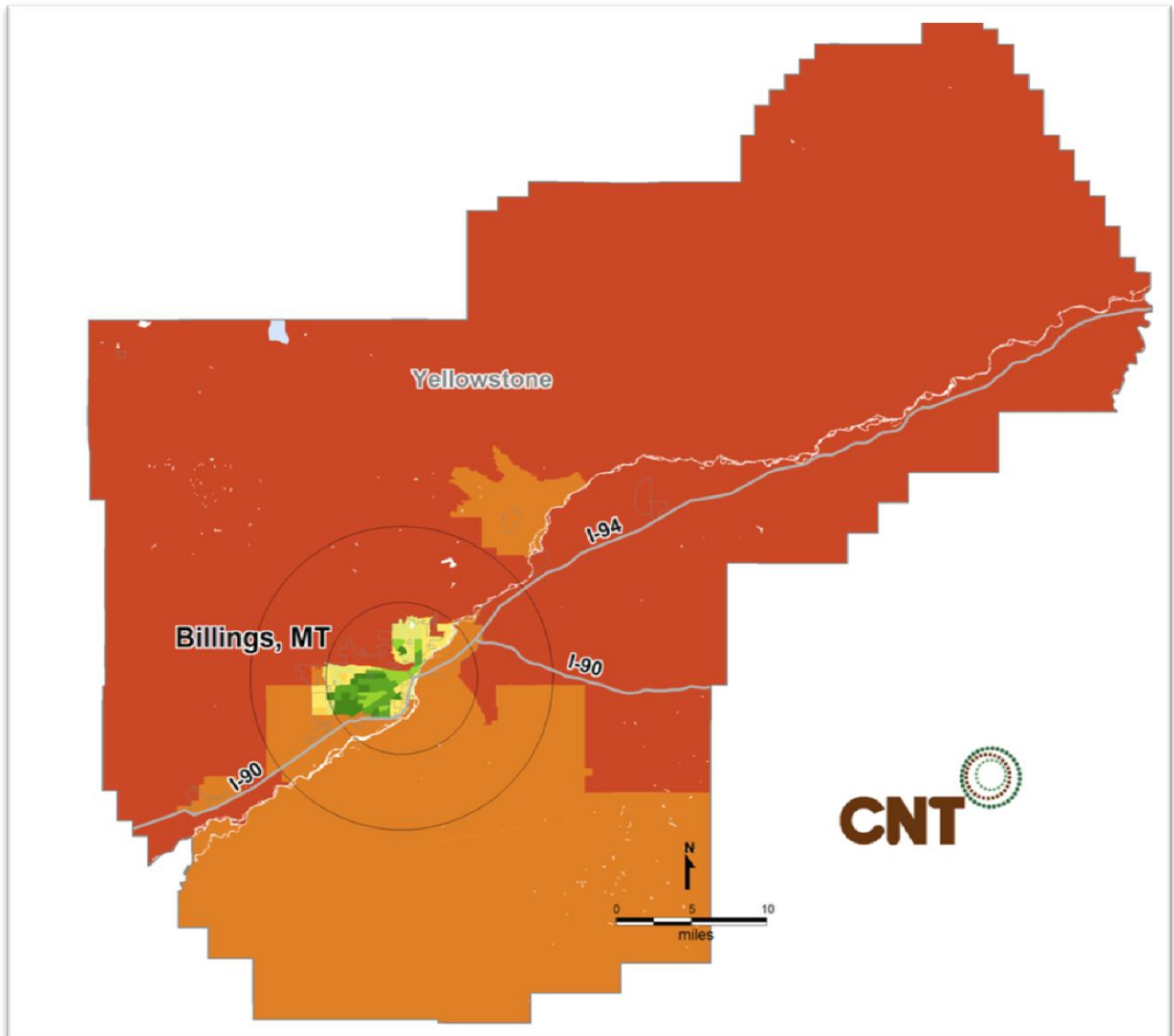
Transit Access for Seniors Age 65 and Older in 2000



Billings, Montana in 2015

By 2015, the share of urban seniors age 65-79 with poor transit access will have increased to 8 percent. At the same time, the share of seniors in suburban and exurban areas with poor transit access will have increased to 87 percent. In total, the senior population with poor access is projected to increase by 2,893.

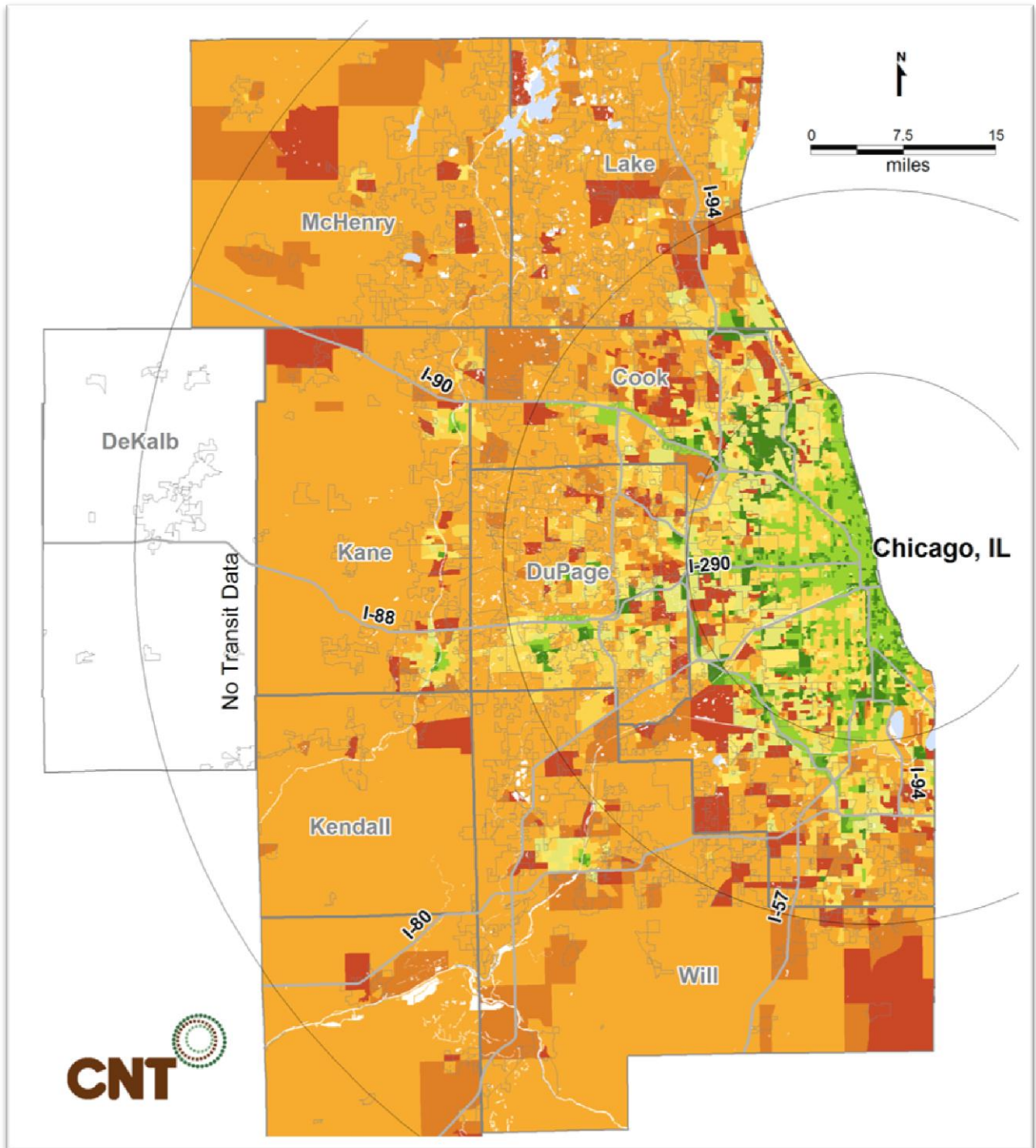
Transit Access for Seniors Age 65-79 in 2015



Chicago, Illinois in 2000

Chicago is a metro region of more than 8 million. In 2000, 7 percent of urban seniors age 65 and older had poor access to transit, while 61 percent of suburban seniors faced poor access.

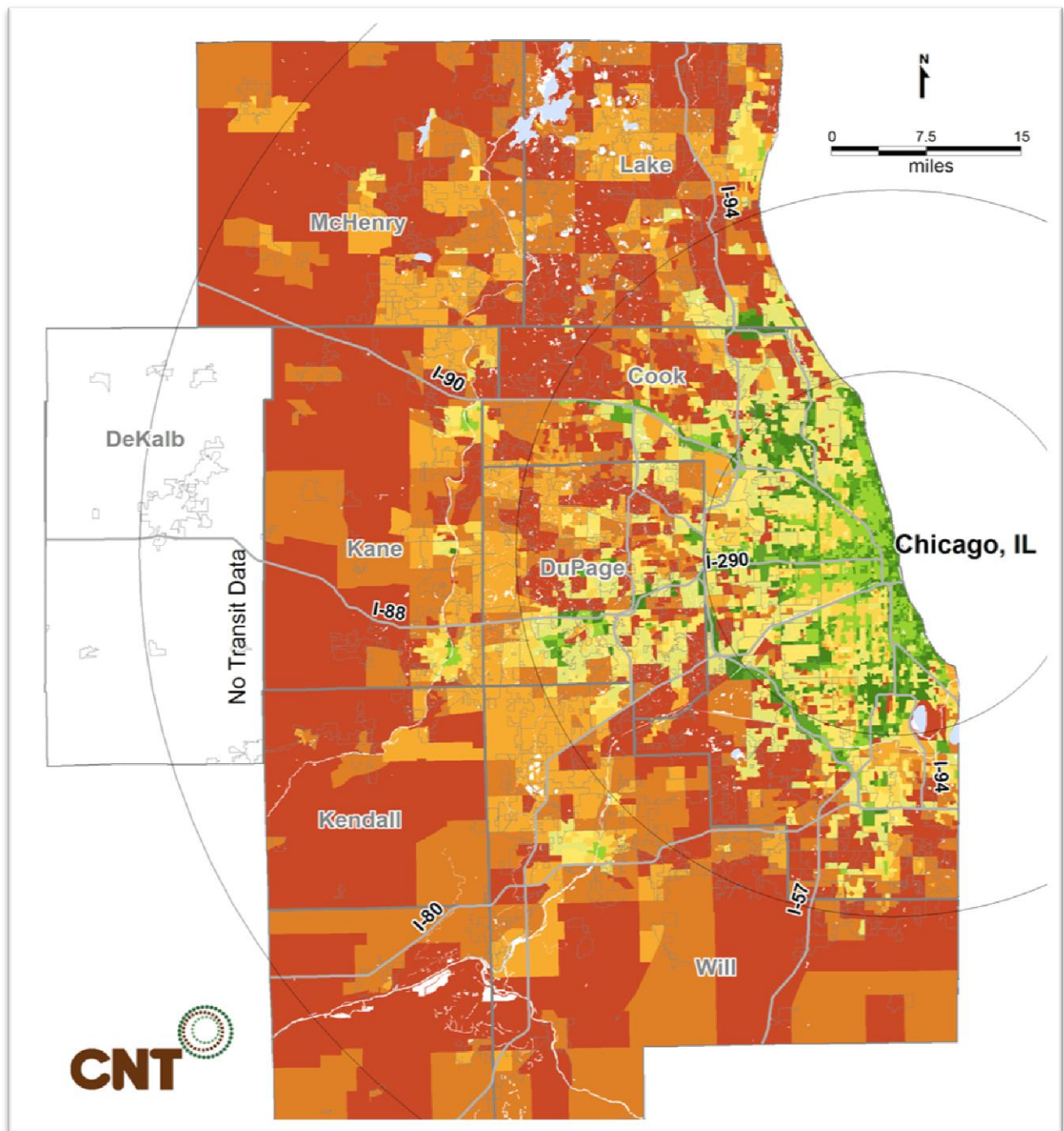
Transit Access for Seniors Age 65 and Older in 2000



Chicago, Illinois in 2015

By 2015, 6 percent of urban seniors age 65-79 are projected to have poor transit access, while the percentage of suburban seniors with poor transit will rise to 66 percent. The total number of seniors with poor access is projected to increase by 153,550 by 2015. Moreover, a significant portion of the metro area change from yellow and orange to red signaling a greater density of seniors in with poor transit access.

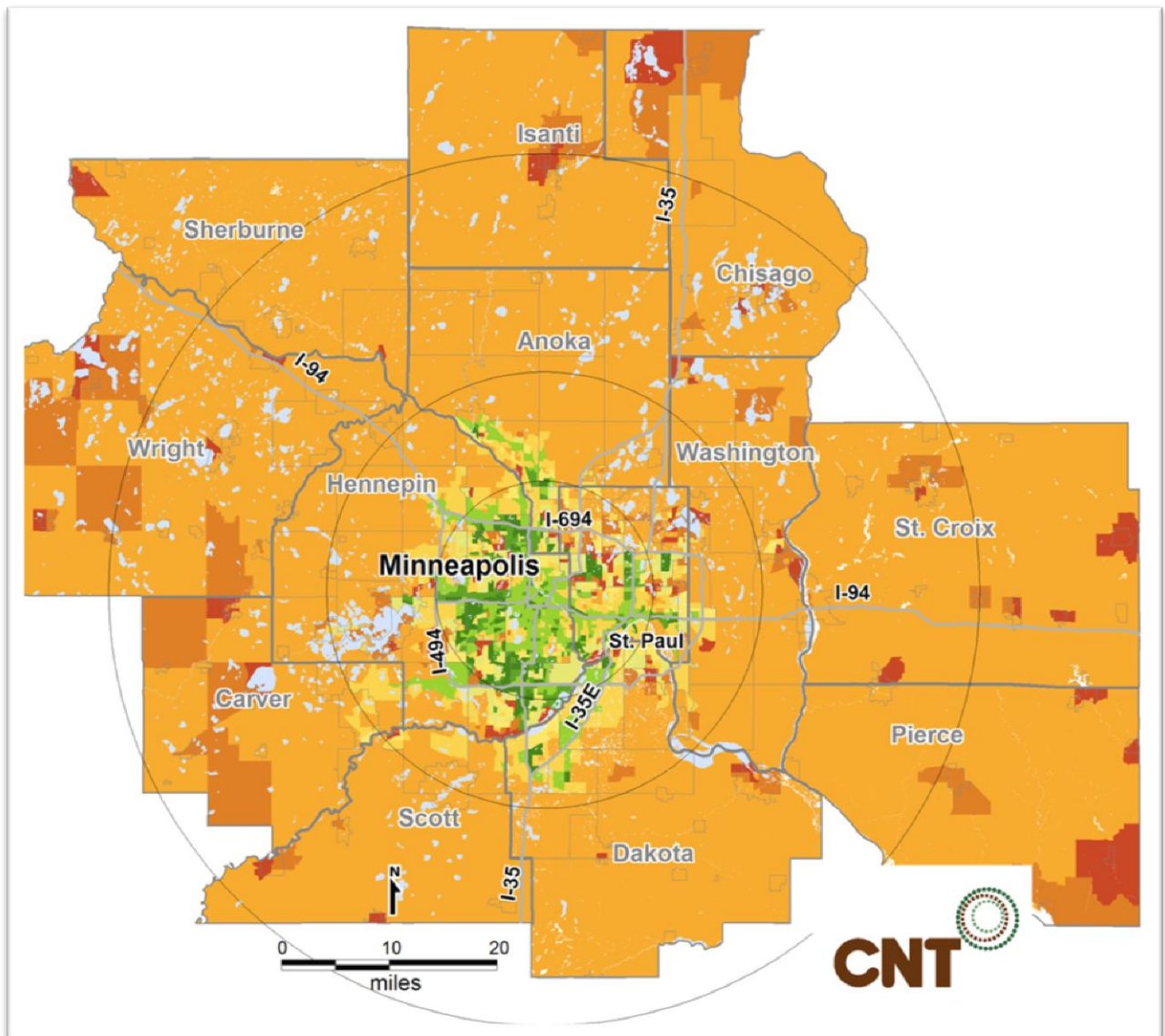
Transit Access for Seniors Age 65-79 in 2015



Minneapolis, Minnesota in 2000

Minneapolis is a metro region with nearly 3 million residents. In 2000, 10 percent of urban seniors age 65 and older faced poor transit access, while 64 percent of suburban seniors had poor transit access.

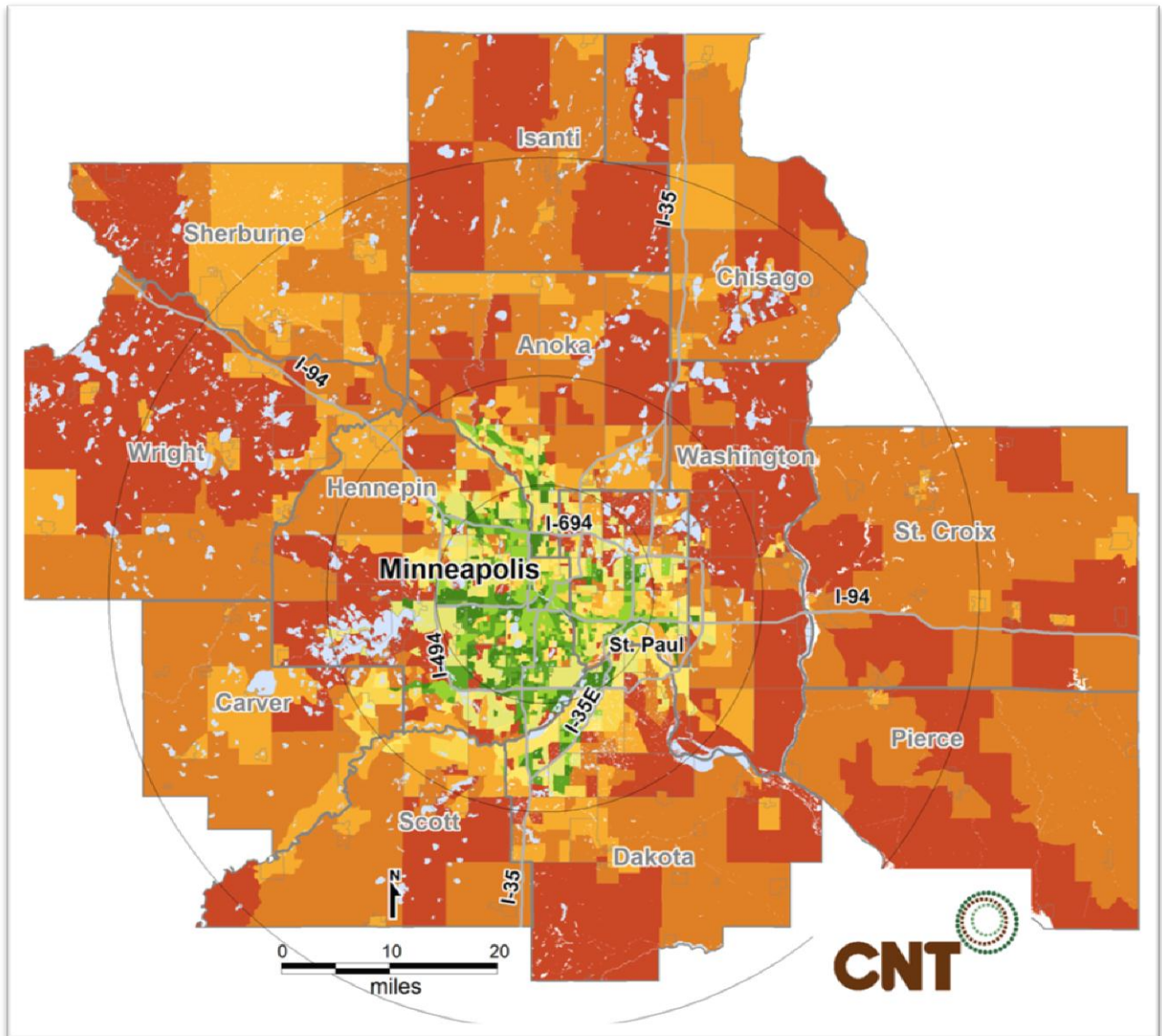
Transit Access for Seniors Age 65 and Older in 2000



Minneapolis, Minnesota 2015

The percentage of urban seniors age 65-79 with poor transit access is projected to increase slightly to 11 percent by 2015, while the rural seniors with poor transit access increases to 69 percent. Overall, the number of seniors with poor access is projected to increase by 84,800.

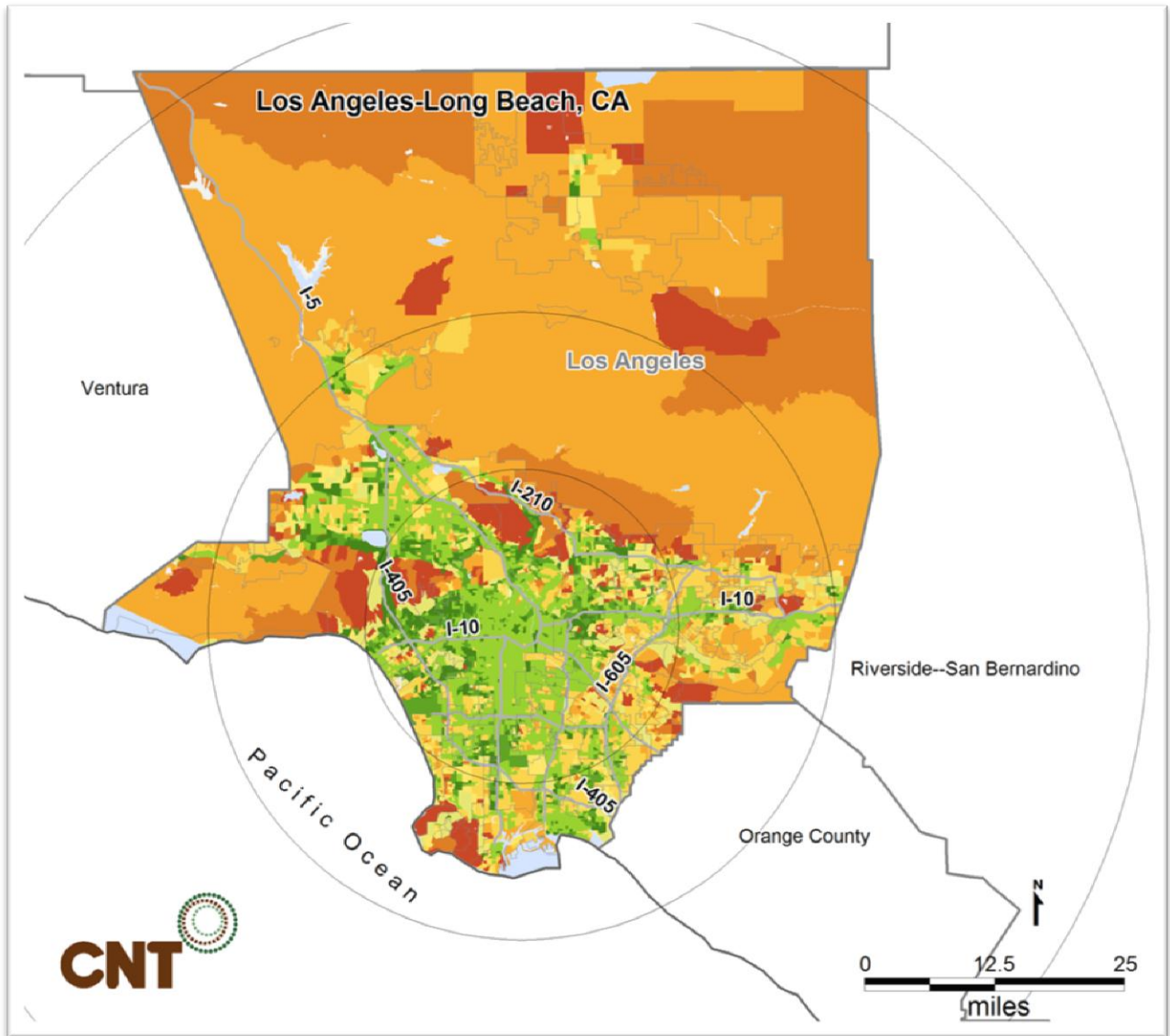
Transit Access for Seniors Age 65-79 in 2015



Los Angeles, California in 2000

The Los Angeles metro region has more than 9.5 million residents. In 2000, 9 percent of urban seniors age 65 and older faced poor transit access. At the same time, 23 percent of suburban seniors had poor access.

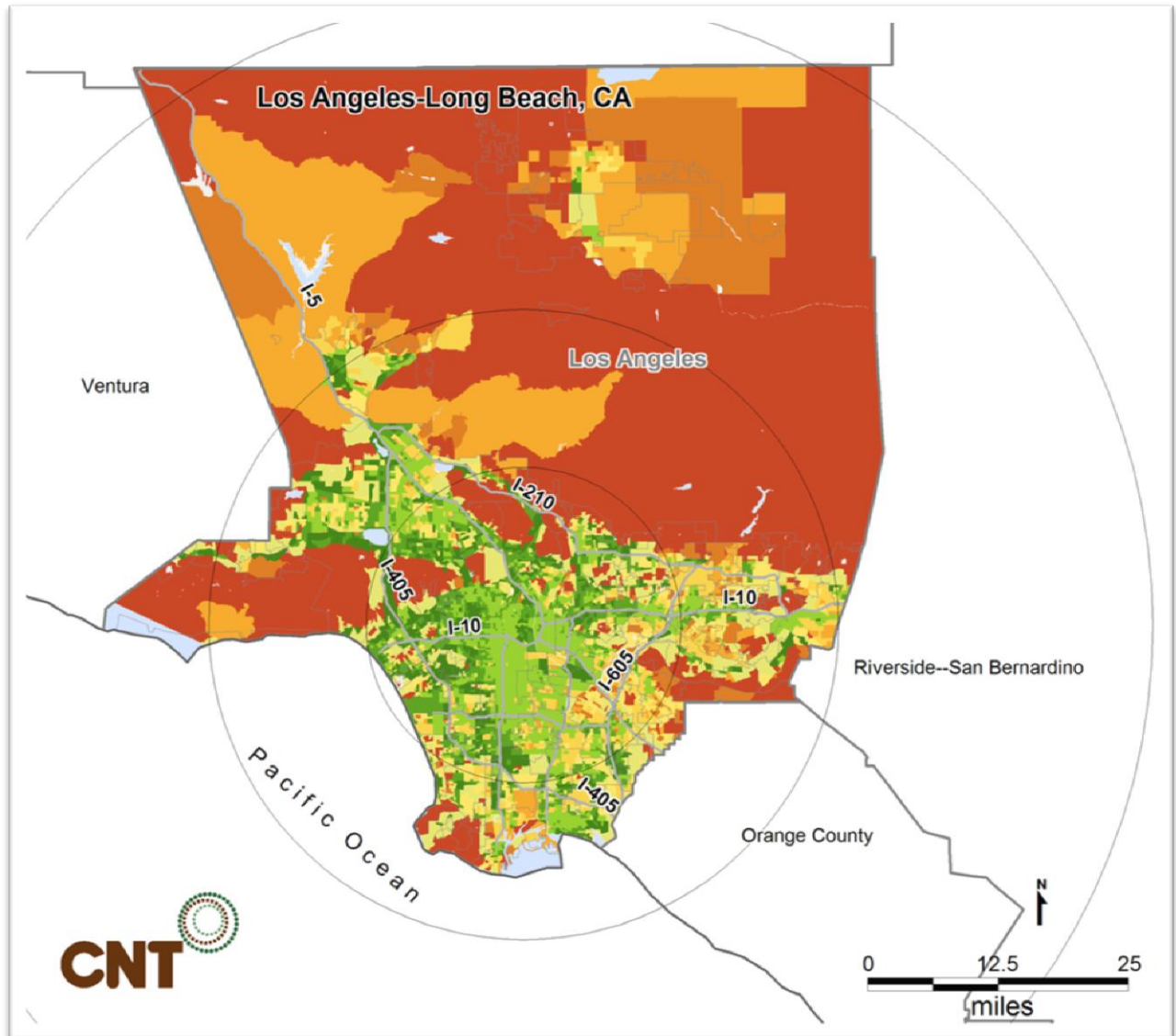
Transit Access for Seniors Age 65 and Older in 2000



Los Angeles, California in 2015

In 2015, the urban senior population with poor transit access is projected to remain at 9 percent. The percentage of suburban seniors age 65-79 with poor transit access will increase to 27 percent. The total increase in seniors with poor transit access is projected to be 67,982.

Transit Access for Seniors Age 65-79 in 2015



V. Best Practices to Improve Accessibility

Despite few options for older adults to take advantage of transit services in many communities, some regions have implemented programs that successfully address the needs of seniors. This section presents five best practices. When combined with additional funding for core fixed-route transit services, these practices can ensure that more seniors are able to remain independent and access essential services, friends and family, and the greater community.

- A. Strengthen coordination of federal, state, and local transportation programs through better planning and service integration
- B. Promote mobility management
- C. Create Communities for All
- D. Improve Safety
- E. Encourage the development of community-based transportation programs

A. Improve Coordination of Programs

According to the U.S. Government Accountability Office, 62 federal programs fund transportation services for older adults, people with disabilities, and individuals with lower incomes.⁴⁴ With multiple local, state, and federal agencies managing each of these programs, redundancy and duplication of services is common. A lack of coordination among the various programs and agencies also can make it difficult for transit riders to understand and access service.⁴⁵ States and regions have begun to address the need for greater coordination by integrating paratransit and human services transportation into local planning efforts. Federal transportation policies already tie the use of three federal sources of transportation funding (Job Access and Reverse Commute, Section 5310, and New Freedom) to the development of local Coordinated Public Transit Human Services Transportation Plans. And there is real opportunity to build upon these initial efforts by ensuring that the plans are regularly updated, and that the plans identify specific opportunities to better coordinate services and programs.

⁴⁴ Statement of Katherine Siggerud, Acting Director, Physical Infrastructure Issues;
<http://www.gao.gov/new.items/d03698t.pdf>

⁴⁵ Ibid.

Best Practices: Coordination of Programs

Effectively coordinated transportation services can improve service productivity and increase cost effectiveness by eliminating overlapping, duplicative, and inefficient operations.

Arrowhead Transit based in Virginia, Minnesota is a fantastic example of an agency that has achieved these many benefits through effective coordination and service delivery.

Arrowhead Transit is the primary public transit and social service transportation provider for seven counties including: Aitkin, Carlton, Cook, Itasca, Koochiching, Lake, and St. Louis. Founded in 1974, Arrowhead receives Federal Transit Administration Section 5311 funds, which help to cover the operating costs of transit providers in communities with populations less than 50,000. Arrowhead has developed a highly successful coordinated set of public transportation service that combine flexible transit services that allow for route deviation, dial-a-ride - demand/response services, and subscription routes. Arrowhead Transit provides these services with 55 accessible buses. In 2004, Arrowhead provided more than 350,000 trips across the three different service types at a per-trip cost of \$7.63.

Arrowhead Transit attempts to co-mingle clients from different services if their trips are ride shareable. Moreover, Arrowhead effectively meets resident needs by coordinating its services with a pool of volunteer drivers. When Arrowhead staff are unable to schedule an eligible trip on one of their transit routes or dial-a-ride services, they will use a volunteer driver (or reimburse family or friends at a lower rate).

The Minnesota Department of Transportation estimates that without the coordinated services offered by Arrowhead Transit, local social service agencies and municipalities would have to pay an additional \$4.1 million for an equivalent number of trips from private operators.

Minnesota Department of Transportation (2006) “Minnesota Public Transit – Human Service Transportation Coordination Case Study”

<http://www.coordinatemntransit.org/reports/mncoordstudy/documents/0-FullCoordinationStudy.pdf>

B. Utilize Mobility Management

Mobility management is an approach to focusing on providing more comfortable and convenient “family of transportation services.”⁴⁶ While not a new concept, many states have been slow to identify the full range of travel options, services, and modes available to each community. This approach includes multiple transportation providers offering diverse services rather than traditional transit agencies typically use a single operator to deliver all services. According to the United Way,

Mobility managers serve as policy coordinators, operations service brokers, and

⁴⁶ United Way (2007) “Mobility Management” http://www.unitedweride.gov/Mobility_Management_Brochure.pdf

customer travel navigators. As policy coordinators, mobility managers help communities develop coordination plans, programs, and policies, and build local partnerships. As brokers, they coordinate transportation services among all customer groups, service providers, and funding agencies. And, as travel navigators, they work with human service agencies and/or workforce centers that coordinate the travel and trip planning needs of individuals who receive human service program assistance.⁴⁷

Customers, as well as potential customers, could greatly benefit from a single, user-friendly source of personalized information about transportation options and their use. A mobility management approach provides a one-stop center that promotes more effective use of limited resources. This includes computer-aided dispatch (CAD) and automatic vehicle locations (AVL), rerouting of vehicles to meet passenger needs.

⁴⁷ United Way (2007) “Mobility Management” http://www.unitedweride.gov/Mobility_Management_Brochure.pdf

Best practices: Mobility Management



Ride Connection, a non-profit community organization operating in close collaboration with the Portland area public transit operator, TriMet, has helped the agency trim its ADA paratransit costs by nearly \$2 million. Ride Connection provides administrative functions and utilizes volunteer as well as paid drivers, but actual trips are delivered by their collaborative partners, community agencies that provide rides for persons with disabilities and seniors without alternative transportation.

Ride Connection's non-profit status allows the organization to obtain funding from foundations, corporations, and individuals that is not available to public agencies. The organization's Ride Connection's Service Center provides a personalized trip planning system that is easy to access, and addresses the individual travel needs of each customer channeled through one central number.

Travel Training through a collaborative program between the region's four public transit operators, including TriMet and Ride Connection promote independent travel of older adults and people with disabilities by providing access to information, training and support. Further, Ride Connection supports transportation programs and services such as shuttles to shopping centers and other services in urban, rural, and suburban areas as well as a coordinated volunteer driver program.

Ride Connection <http://www.rideconnection.org/>

C. Design Communities For All

One of the most important factors affecting the range and accessibility of transportation alternatives is the built environment. AARP defines a livable community as "one that has affordable and appropriate housing, supportive community features and services, and adequate mobility options. Together these facilitate personal independence and engagement of residents in civic and social life." Communities for all are designed to meet the needs of residents of all ages with easy access to a range of services and land uses. States and regions have begun to locate facilities and services targeted to older adults in areas where a range of travel options are available.

Best Practices: Designing Communities for All



In 2003, Transportation Alternatives initiated the Safe Routes for Seniors campaign to encourage senior citizens to walk more by improving the pedestrian environment in New York City. Funded by the New York State Department of Health's Healthy Heart program, this was the first program of its kind to address the unique needs of elderly pedestrians and consider the role of street design in maintaining good cardiovascular health in old age.

With information gathered from dozens of site visits, interviews, surveys and workshops with seniors across the city, Transportation Alternatives developed design recommendations be adopted as standards to make streets safe for seniors. Designing streets specifically for seniors takes the regulations of the Americans with Disabilities Act (ADA) one step further to accommodate sensory changes that occur as people age. Some of these features include:

- The street should be as flat as possible, with minimal convexity for drainage and a smooth transition from the curb to the street.
- Large streets should have median refuge areas with benches, plantings and shelters.
- All bus stops near senior centers should have shelters and benches. Bus stops on excessively wide streets should have bus bulbs.
- Drivers should be prohibited from turning during the first 10 seconds of a traffic signal phase. This time is needed by seniors to ascend the curb and begin a safe crossing unobstructed by turning vehicles.
- Drivers should be required to stop 15 feet before intersections by moving the stop bar away from the crosswalk and placing a tactile surface on the stop bar. To further protect elderly pedestrians, where appropriate, the crosswalks should be built up or "raised" to line up with the curb to reduce speeds.
- On busy commercial streets and bus routes, all curbs should be extended into the crosswalk to create better sightlines for pedestrians and drivers.
- On streets where there is more space than is needed to move traffic, the street should be put on a "road diet" where lanes or parts of lanes are reclaimed for wider sidewalks, planted medians and/or bicycle lanes.

Taken together these design features and traffic management policies have the ability to keep seniors active and independent.

Information in this section taken directly from Transportation Alternatives' website, <http://www.transalt.org/campaigns/pedestrian/safeseniors>.

D. Improve Transportation Safety

Advances in roadway design for older adults can reduce the incidence of vehicular accidents and prolong the time older adults can drive. In the year since increasing the size of their street signs, repainting median strips, installing larger and brighter stoplights, upgrading walk lights, and adding left-turn lanes along one busy street, Detroit saw a 35 percent drop in injury crashes for drivers age 65 and older and a four percent drop for drivers age 25 to 64.⁴⁸

Walking is the second most frequent mode of transportation among older adults.⁴⁹ Better signalization, signage, speed management, and markings are needed, especially in areas or at intersections frequented by older adults. Greater use should be made of “smart” signals, which detect pedestrians in crosswalks. More extensive traffic calming—which can reduce speed and lessen the opportunity for serious conflict with vehicles—is needed. Ensuring connectivity along city streets that link neighborhoods to bus stops encourages use of public transit for persons with disabilities.

The ‘Complete Streets’ model supports the creation of livable communities and has become a common approach to moving the use of our urban streets away from domination by the automobile while balancing the need for bicycle and pedestrian movement. The Complete Streets organization defines a complete street as one that is “designed and operated to enable safe access for all users. Pedestrians, bicyclists, motorists and bus riders of all ages and abilities are able to safely move along and across a complete street.”⁵⁰

⁴⁸ The Policy Book: AARP 2004 Public Policies, 10-08.

⁴⁹ Lynott, Jana and Carlos Figueiredo (2011) “How the Travel Patterns of Older Adults Are Changing: Highlights from the 2009 National Household Travel Survey” AARP Public Policy Institute, Washington, D.C.

⁵⁰ Complete Streets Organization, <https://www.completestreets.org>

Best Practices: Improving Transportation Safety

After decades of rapid growth that focused almost exclusively on automobiles, Charlotte, NC decided that it needed to rethink its street design guidelines. Prior to the adoption of complete streets principals in the Urban Street Design Guidelines, Charlotte had no bicycling routes, an incomplete sidewalk network, little connectivity and too many cul-de-sacs. The result was a transportation system that privileged drivers above all other users.

In the early 2000s, the Charlotte Department of Transportation began to create a street network designed to meet the needs of cars, buses, pedestrians and cyclists. The goal was to create a balanced, multi-modal system that accommodated all segments of the population and all modes of transportation. In order to achieve this goal, Charlotte created a new street classification system that included five new street types that ranged from the most pedestrian friendly to the most auto oriented. Moreover, the new design guidelines called for a well-connected street grid that moved away from a system that funneled traffic to major arterials leaving users little route choice.

Through this process, Charlotte has created a built environment that accounts for the needs of pedestrians, creating a safer transportation system for all users including seniors. From pedestrian signalization, complete sidewalk networks, bulb-outs, and traffic calming measures, Charlotte has improved residential mobility and safety.

By the end of 2009, the City had completed 16 complete streets projects with 18 more in the works. In addition, eleven intersections have been modified with ten other in the planning state. Charlotte now has 50 miles of bike lanes and fifteen projects with new sidewalks. Above all, Charlotte has put in place the policies and that will guide planners and developers for decades to come. Effective planning has created a framework for growth that will return benefits for all residents for years to come.

Barbara McCann and Suzanne Bynne, Editors (2010) "Complete Streets: Best Policy and Implementation Practices" American Planning Association, National Complete Streets Coalition and the National Policy and Legal Analysis Network to Prevent Childhood Obesity

E. Develop Community-Based Transportation Programs

In addition to expanding public transit systems to fully address the mobility needs of older adults, communities can also support the creation of community-based programs, such as volunteer programs, flex-routes, service routes, deviated fixed-routes, etc. that can be tailored to local community needs.

Senior-friendly shuttles, jitneys, or circulators to shopping centers and medical facilities, and local services, including flexible route services can address some of the needs for short notice or spontaneous travel that are difficult using paratransit reservations. They can also help address the travel needs of seniors who no longer drive but are not ADA paratransit-eligible. They may also accommodate riders with wheelchairs or shopping carts more easily than conventional transit

services. In addition, driver-assistance with grocery bags, something not normally provided as part of conventional transit services, could serve as an added benefit of great assistance to this population.

Best Practices: Develop Community-Based Transportation Programs

The Independent Transportation Network (ITN) is a non-profit, membership-based organization located in Portland, Main offering alternative transportation services within 25 miles of Portland. Each year, ITN provides almost 16,000 rides to nearly 1,000 members. The service is available 24 hours a day, 7 days a week to people age 60 and older and those adults with visual impairments for any type of ride within the service area. There are no limitations on the purpose of the ride and discounts are offered to shared rides and advance notice. In addition, ITN allows community organizations such as churches and assisted living facilities to provide transportation services for their members by billing them for the rides their members take. This allows community organizations to supplement the services they already provide.

ITN relies in large measure on volunteer drivers who earn transportation credits for their service. Part of what makes ITN unique is that these credits may be saved and then used by volunteer drivers for their own needs in the future. In addition, volunteers may also choose to “spend” their credits to assist members of their family or for low-income seniors through the Road Scholarship Program.

ITN grew out of the recognition that as millions of Americans age, they will need transportation alternatives in order to remain in their homes capable of independent, dignified living. The program allows seniors maintain a sense of dignity because when they schedule a ride they are not asking a favor. In many ways, ITN combines the efficiency and cost-effectiveness of mass transit with the feel of a private, personal service.

ITNPortland <http://www.itnportland.org/index.php>

VI. Conclusion

Over the next twenty years, the number of Americans age 65 and older will increase to more than 71 million – growing from 12 to 20 percent of the total population.⁵¹ For this reason, policymakers and planners should focus on implementing projects and programs to meet the transportation needs of an aging America. Moreover, Congress must set a vision for America's transportation future that provides for multi-modal transportation alternatives. The pending reauthorization of federal surface transportation programs represents an unparalleled opportunity to support states and communities as they develop solutions for an aging baby boomer generation. Congress should support more comprehensive and strategic long-range transportation planning that coordinates investments with effective land use and urban design principals such as complete streets. Without federal leadership, it is unlikely that local communities will have sufficient funding to develop solutions for older Americans. Now is the time to invest and elected officials must provide sustained leadership and work to coordinate local, state, and federal policies and resources.

⁵¹ U.S. Census Bureau, "State Interim Population Projections by Age and Sex: 2004 – 2030" data available at the <http://www.census.gov/population/www/projections/files/PressTab5.xls>

Appendix 1: Methodology

The Transit Access Index (TAI) was developed by the Center for Neighborhood Technology (CNT) as a measure of transit access in metropolitan areas. Transit levels are based on the access and intensity of transit in a given Census block group.⁵² Access is captured by a quarter mile buffer around each bus stop, a half mile buffer around each rail station, and a half mile buffer around each ferry; intensity is based on the number of lines and stops that serve the Census block group. For a given Census block group, the index accounts for the fraction of land area within walking access to a transit route and the number of lines available.

Transit data for 241 metropolitan areas were used in this analysis. For the sake of comparison across the different metropolitan size areas and their respective transit systems, the metropolitan areas were categorized according to their population. The New York metropolitan area was considered as a category by itself, since it is so different from the rest of the metropolitan region, in both population density and transit access. The following five size categories were analyzed:

Table 1: Metropolitan Size Categories and Number of Metros Included in the Rankings

Metropolitan Size Category	Count
66,000 to 250,000	93
250,000 to 1 Million	89
1 - 3 Million	47
3 Million or More	11
New York City	1

Measuring Transit Access

Within these metropolitan size categories the Transit Access Index (TAI) was grouped into three categories called poor, medium and good transit access levels. For each region, three categories were constructed for Census Block Groups with transit access, called poor, medium and good. Each category represents roughly 1/3 of the population within that metropolitan size category that has transit access. Block groups with no transit access were added to the poor category.

Both rail and bus data were used in this calculation. However, since the bus data collected could be route or stop based, a linear regression analysis was conducted to define the coefficients that could be applied to the bus route and stop data so they could be examined together. The regression analysis revealed that the stop data could be multiplied by a coefficient of 1.54 so it could be used compatibly with the bus route data. Once the block groups were identified as having poor, medium or good transit service, the total senior population in each block group was calculated.

⁵² The Census Bureau presents demographic data for various geographic levels. The smallest geographic unit is the Census block and the largest in the United States. Census blocks are typically small – sometimes including just one urban city block. The Census Bureau groups these blocks together into Census block groups, with an optimal size of 1,500. The color-coded case study maps are based on Census 2000 data down to the block group level.

The total population, the population for persons 50 to 64 years, and persons 65 and older are based on 2000 Census Block Group data where CNT was able to collect transit data.

The TAI calculates the number of bus routes and train stations within walking distance (¼ mile and ½ mile respectively) for households in a given block group. The TAI value represents overall transit opportunities available to households in a given block group, but does not reflect the frequency or service levels of these opportunities. When the transit opportunities are less than 1 the TAI refers to the fraction of land area within the block group that has one route that is within walking distance.

The range of TAI scores in a category is reported (minimum and maximum value), as well as the average of each category. The transit availability values differ across the different size metropolitan categories, which is indicative of the transit service available in larger versus smaller urban areas. For example, in metropolitan areas that have less than 250,000 persons the average transit availability is 8.6 routes or stops within walking distance compared to a metropolitan area with 3 million or more persons where the average transit availability is 14.6.

Table 2: Metropolitan Categories and Transit Access Index Ranges

Metropolitan Size Category	Transit Availability Opportunities	Minimum Transit Availability	Maximum Transit Availability	Average Transit Availability
Less 250k	Poor	≥0	<0.8	0.1
Less 250k	Medium	≥0.8	<2.9	1.8
Less 250k	Good	≥2.9	<85.8	8.6
250k to 1 million	Poor	≥0	<1.1	0.2
250k to 1 million	Medium	≥1.1	<3.8	2.3
250k to 1 million	Good	≥3.8	<154.2	11.2
1 to 3 million	Poor	≥0	<1.7	0.4
1 to 3 million	Medium	≥1.7	<4.4	2.9
1 to 3 million	Good	≥4.4	<302	11.9
3 Million or more	Poor	≥0	<1.9	0.5
3 Million or more	Medium	≥1.9	<5.7	3.5
3 Million or more	Good	≥5.7	<253.7	14.6
New York, NY	Poor	≥0	<11.7	4.9
New York, NY	Medium	≥11.7	<25.5	17.2
New York, NY	Good	≥25.5	<347.7	60.4

Case Studies

Seven metropolitan areas were selected to examine transit access in more detail, and how that relates to seniors and future senior populations. The metropolitan areas represent a range of population sizes:

Table 3: Case Study Metropolitan Areas

Metropolitan Areas	Size Category
Burlington, VT	Less than 250k
Billings, MT	Less than 250k
Tulsa, OK	250k to 1 million
Chicago, IL	3 Million or more
Jacksonville, FL	1 to 3 Million
Minneapolis, MN	1 to 3 Million
Los Angeles	3 Million or more

Two maps were created for each of the case studies, showing the relationship between transit access and the concentration of persons between the ages of 50 and 64, and the concentration of persons 65 and older. The percentage of persons in the total population age 50 to 64 years and 65 years and older are defined as:

Senior Density	Percentage
Low Senior Population Density	<12%
Medium Senior Population Density	≥12% to <16%
High Senior Population Density	≥16%

For the Case Study metropolitan areas, a summary table was also completed that looks at the number and percent of persons age 50 to 64 and age 65 and older that are located in Urban, Suburban and Exurban areas (Appendix 3). These numbers were then evaluated against the transit access opportunities. The method for defining the urban, suburban and exurban areas was different for each of the six metropolitan areas based on their size. This was critical in order to compare transit access levels in small versus larger metropolitan areas.

Table 3: Urban, Suburban & Exurban Definitions

Metropolitan Size Category	Definition
3 Million or more	Suburban: 15 to 30 miles
	Exurban: 30 miles or more
	Urban: Less than 15 miles from CBD
1 to 3 Million	Urban: Less than 10 miles from CBD
	Suburban: 10 to 20 miles
	Exurban: 20 miles or more
250,000 to 1 Million	Urban: Less than 10 miles from CBD
	Suburban: 10 to 20 miles
	Exurban: 20 miles or more
Less than 250,000	Urban: Less than 5 miles from CBD
	Suburban: 5 to 10 miles
	Exurban: 10 miles or more

Appendix 2: Metropolitan Rankings

The rankings provided in this section are based on the anticipated percentage of seniors age 65-79 with poor transit access in 2015. All 241 metropolitan areas have been grouped into one of five size categories to allow for a fair comparison.

New York City

Metropolitan Area	Population 65 to 79 with Poor Transit Access in 2015	Percentage of Population 65 to 79 with Poor Transit Access in 2015
New York, NY	562,464	41

Metropolitan Areas with 3 Million or More People

Rankings	Metropolitan Area	Population 65 to 79 with Poor Transit Access in 2015	Percentage of Population 65 to 79 with Poor Transit Access in 2015
1	Atlanta, GA	503,543	90
2	Riverside--San Bernardino, CA	278,305	69
3	Houston, TX	372,346	68
4	Detroit, MI	445,743	68
5	Dallas, TX	295,445	66
6	Phoenix--Mesa, AZ	247,977	56
7	Philadelphia, PA--NJ	350,621	46
8	Boston, MA--NH	231,944	45
9	Washington, DC--MD--VA--WV	308,029	41
10	Chicago, IL	449,207	39
11	Los Angeles--Long Beach, CA	202,181	17

Metropolitan Areas with 1-3 Million People

Rankings	Metropolitan Area	Population 65 to 79 with Poor Transit Access in 2015	Percentage of Population 65 to 79 with Poor Transit Access in 2015
1	Kansas City, MO--KS	230,023	88
2	Oklahoma City, OK	136,571	86
3	Fort Worth--Arlington, TX	199,226	86
4	Nashville, TN	151,995	85
5	Raleigh--Durham--Chapel Hill, NC	127,931	80
6	Greensboro-Winston-Salem-High Point, NC	155,993	79

7	Indianapolis, IN	181,073	79
8	Charlotte--Gastonia--Rock Hill, NC--SC	170,815	79
9	Grand Rapids--Muskegon--Holland, MI	111,882	78
10	Jacksonville, FL	127,958	77
11	Monmouth--Ocean, NJ	137,762	77
12	Norfolk/VABeach-Newport News, VA-NC	147,285	69
13	Rochester, NY	116,565	69
14	St. Louis, MO--IL	259,889	67
15	Middlesex--Somerset--Hunterdon, NJ	118,315	67
16	Hartford, CT	124,240	67
17	West Palm Beach--Boca Raton, FL	114,539	66
18	Cincinnati, OH--KY--IN	153,142	64
19	Columbus, OH	135,826	63
20	Memphis, TN--AR--MS	97,539	61
21	Tampa--St. Petersburg--Clearwater, FL	228,724	60
22	Orlando, FL	138,751	58
23	Providence--Fall River--Warwick, RI--MA	101,163	57
24	Austin--San Marcos, TX	82,456	56
25	Cleveland--Lorain--Elyria, OH	189,794	54
26	Baltimore, MD	211,401	53
27	New Orleans, LA	104,198	52
28	Las Vegas, NV--AZ	132,498	52
29	Milwaukee--Waukesha, WI	110,254	51
30	Portland--Vancouver, OR--WA	141,215	50
31	Buffalo--Niagara Falls, NY	87,954	49
32	Minneapolis--St. Paul, MN--WI	190,633	47
33	Newark, NJ	145,415	46
34	Pittsburgh, PA	169,016	44
35	Fort Lauderdale, FL	97,221	41
36	Sacramento, CA	97,228	41
37	San Antonio, TX	85,450	39
38	Louisville, KY--IN	62,505	39
39	San Diego, CA	142,315	39
40	Orange County, CA	129,852	33
41	Bergen--Passaic, NJ	70,832	32
42	Denver, CO	91,892	31
43	Salt Lake City--Ogden, UT	40,058	26
44	Oakland, CA	65,304	18
45	Miami, FL	57,150	17
46	San Jose, CA	35,316	15
47	San Francisco, CA	34,349	12

Metropolitan Areas with 250,000-1 Million People

Rankings	Metropolitan Area	Population 65 to 79 with Poor Transit Access in 2015	Percentage of Population 65 to 79 with Poor Transit Access in 2015
1	Hamilton--Middletown, OH	47,977	100

2	Montgomery, AL	47,980	99
3	Greenville--Spartanburg--Anderson, SC	151,395	99
4	Hickory--Morganton, NC	54,961	95
5	Brockton, MA	35,085	91
6	Augusta--Aiken, GA--SC	64,200	90
7	Johnson City--Kingsport--Bristol, TN--VA	79,300	90
8	Fort Pierce--Port St. Lucie, FL	49,206	89
9	Saginaw--Bay City--Midland, MI	57,192	89
10	Biloxi--Gulfport--Pascagoula, MS	49,322	88
11	Lafayette, LA	45,657	86
12	McAllen--Edinburg--Mission, TX	51,859	85
13	Ocala, FL	38,905	85
14	Brownsville--Harlingen--San Benito, TX	33,463	83
15	Allentown--Bethlehem--Easton, PA	82,746	82
16	Chattanooga, TN--GA	63,315	81
17	Huntsville, AL	42,813	80
18	Mobile, AL	67,693	80
19	Lakeland--Winter Haven, FL	60,956	78
20	Macon, GA	36,772	77
21	Fort Wayne, IN	54,718	76
22	Birmingham, AL	106,221	76
23	Charleston--North Charleston, SC	60,796	75
24	Fort Collins--Loveland, CO	25,927	74
25	Little Rock--North Little Rock, AR	65,251	74
26	Richmond--Petersburg, VA	110,428	72
27	Jackson, MS	43,540	72
28	Gary, IN	69,435	71
29	Fayetteville, NC	25,283	71
30	York, PA	44,232	71
31	Pensacola, FL	45,624	71
32	Lancaster, PA	48,903	70
33	Sarasota--Bradenton, FL	75,224	70
34	Kalamazoo--Battle Creek, MI	45,989	69
35	Springfield, MO	32,233	67
36	Tallahassee, FL	25,161	66
37	Canton--Massillon, OH	44,131	66
38	Worcester, MA--CT	47,998	65
39	Charleston, WV	28,538	65
40	Tulsa, OK	79,347	65
41	Akron, OH	68,375	64
42	Wichita, KS	47,046	64
43	Scranton--Wilkes-Barre--Hazleton, PA	65,440	63
44	Lawrence, MA--NH	36,284	63
45	Binghamton, NY	25,191	63
46	Killeen--Temple, TX	20,815	62
47	Shreveport--Bossier City, LA	35,832	61
48	Boise City, ID	34,239	60
49	Springfield, MA	51,650	60
50	Lansing--East Lansing, MI	38,442	60
51	Syracuse, NY	65,091	60
52	Daytona Beach, FL	51,107	58

53	Fresno, CA	66,357	58
54	Dayton--Springfield, OH	87,489	57
55	Rockford, IL	32,352	57
56	Lowell, MA--NH	24,897	57
57	Bakersfield, CA	44,161	54
58	Stamford--Norwalk, CT	31,579	54
59	Albany--Schenectady--Troy, NY	74,478	54
60	Appleton--Oshkosh--Neenah, WI	26,438	53
61	Modesto, CA	30,722	53
62	Salem, OR	26,440	53
63	New Haven--Meriden, CT	43,171	52
64	Savannah, GA	22,156	52
65	Visalia--Tulare--Porterville, CA	22,570	50
66	Atlantic--Cape May, NJ	28,574	50
67	Tucson, AZ	62,126	49
68	Davenport--Moline--Rock Island, IA--IL	28,257	49
69	Provo--Orem, UT	14,846	48
70	Fort Myers--Cape Coral, FL	38,810	47
71	Reno, NV	25,190	46
72	Ventura, CA	49,556	46
73	Wilmington--Newark, DE--MD	39,287	45
74	Toledo, OH	38,658	43
75	Corpus Christi, TX	22,161	42
76	Albuquerque, NM	44,514	42
77	Eugene--Springfield, OR	19,140	39
78	Colorado Springs, CO	26,624	38
79	Lincoln, NE	12,022	37
80	Salinas, CA	18,318	36
81	Trenton, NJ	18,238	34
82	Boulder--Longmont, CO	13,495	33
83	Santa Rosa, CA	22,862	30
84	Anchorage, AK	10,554	30
85	Vallejo--Fairfield--Napa, CA	20,636	27
86	Madison, WI	10,739	26
87	El Paso, TX	13,738	16
88	Honolulu, HI	15,286	12
89	Jersey City, NJ	2,207	3

Metropolitan Areas with Less Than 250,000

Rankings	Metropolitan Area	Population 65 to 79 with Poor Transit Access in 2015	Percentage of Population 65 to 79 with Poor Transit Access in 2015
1	Hagerstown, MD	20,735	100
2	Kenosha, WI	19,373	95
3	Waterbury, CT	31,144	90
4	Greenville, NC	14,823	87
5	Houma, LA	24,160	87

6	Merced, CA	21,468	86
7	Jacksonville, NC	12,331	85
8	Tuscaloosa, AL	18,867	83
9	Barnstable--Yarmouth, MA	25,049	83
10	Janesville--Beloit, WI	18,900	82
11	Johnstown, PA	31,325	82
12	Wilmington, NC	34,734	82
13	Glens Falls, NY	16,808	80
14	Longview--Marshall, TX	25,659	80
15	Mansfield, OH	23,435	80
16	Sumter, SC	11,590	79
17	Cumberland, MD--WV	13,826	79
18	Lake Charles, LA	20,406	76
19	Eau Claire, WI	15,846	75
20	Lima, OH	17,324	75
21	Parkersburg--Marietta, WV--OH	20,094	75
22	Florence, SC	15,008	74
23	Portsmouth--Rochester, NH--ME	27,464	74
24	Fort Walton Beach, FL	19,588	74
25	Athens, GA	13,793	73
26	Lynchburg, VA	26,921	73
27	Dover, DE	13,517	73
28	Asheville, NC	27,987	72
29	Danbury, CT	26,276	72
30	Redding, CA	20,525	72
31	Nashua, NH	21,017	72
32	Panama City, FL	17,111	70
33	Las Cruces, NM	15,789	70
34	Charlottesville, VA	16,123	69
35	Waco, TX	19,488	69
36	Bloomington--Normal, IL	9,858	69
37	Texarkana, TX--Texarkana, AR	13,686	69
38	Danville, VA	13,242	68
39	Vineland-Millville-Bridgeton, NJ	14,855	68
40	Tyler, TX	17,848	67
41	State College, PA	11,197	66
42	Yakima, WA	19,547	66
43	Albany, GA	11,134	66
44	Columbia, MO	10,802	66
45	Portland, ME	24,355	66
46	Greeley, CO	15,385	65
47	Duluth--Superior, MN--WI	25,042	64
48	La Crosse, WI--MN	11,079	63
49	Santa Fe, NM	16,592	60
50	Pocatello, ID MSA	5,881	59
51	Bangor, ME	8,079	59
52	Chico--Paradise, CA	17,503	58
53	Muncie, IN	10,661	58
54	Burlington, VT	13,791	57
55	Flagstaff, AZ--UT MSA	4,071	57
56	Springfield, IL	18,171	57

57	Gainesville, FL	15,673	56
58	Sheboygan, WI	9,261	56
59	Roanoke, VA	22,634	56
60	Grand Forks, ND--MN	6,858	56
61	Racine, WI	15,483	54
62	Manchester, NH	15,362	54
63	Waterloo--Cedar Falls, IA	10,108	54
64	Owensboro, KY	7,648	53
65	Williamsport, PA	10,131	53
66	Wichita Falls, TX	9,453	51
67	Abilene, TX	8,220	50
68	Pittsfield, MA	7,180	50
69	Fitchburg--Leominster, MA	9,810	48
70	Sioux Falls, SD	10,734	48
71	Amarillo, TX	14,305	48
72	Bellingham, WA	11,586	47
73	Champaign--Urbana, IL	9,753	46
74	St. Joseph, MO	6,872	46
75	Bloomington, IN	8,451	46
76	Lafayette, IN	9,939	45
77	Cheyenne, WY	5,534	45
78	Casper, WY	4,463	44
79	Bismarck, ND	5,936	43
80	Decatur, IL	8,006	43
81	Lawrence, KS	4,525	42
82	Fargo--Moorhead, ND--MN	8,902	41
83	Pueblo, CO	8,867	41
84	Iowa City, IA	5,226	41
85	Grand Junction, CO MSA	7,455	40
86	Billings, MT	7,661	39
87	Richland--Kennewick--Pasco, WA	10,319	38
88	Bryan--College Station, TX	5,077	37
89	Odessa--Midland, TX	11,342	36
90	Sioux City, IA--NE	5,944	35
91	Rochester, MN	5,967	34
92	Laredo, TX	3,482	17
93	Yolo, CA	3,606	17

Appendix 3: Poor Transit Access by Urban/Suburban Geography

Seven metropolitan areas were studied in greater detail to understand how transit access varied by urban/suburban geography. It is important to note that both the total number and percentage of seniors with poor transit access increased from 2000 to 2015 for the case study metro areas.

Table 1 shows the urban/suburban distribution of seniors with poor transit access. For each metro area, the urban and rural percentages sum to 100 showing the distribution of the poor transit access population in 2000 and 2015. In Tulsa, OK, Minneapolis, MN, Chicago, IL, and Los Angeles, CA the suburban regions all have a higher percentage of the poor transit access population over time. For these metros, more of the increase in seniors with poor transit access will take place suburban areas.

Table 1: Urban/Suburban Distribution of Seniors with Poor Transit Access

Metropolitan Area	Urban Seniors 65 & Older (2000)	Suburban Seniors 65 & Older (2000)	Urban Seniors 65-79 (2015)	Suburban Seniors 65-79 (2015)
Burlington, VT (Less than 250,000)	10%	90%	12%	88%
Billings, MT (Less than 250,000)	10%	90%	13%	87%
Tulsa, OK (250,000-1 Million)	27%	73%	25%	75%
Minneapolis, MN (1-3 Million)	14%	86%	9%	91%
Jacksonville, FL (1-3 Million)	44%	96%	53%	96%
Chicago, IL (3 Million or More)	10%	90%	6%	94%
Los Angeles (3 Million or More)	38%	62%	32%	68%