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The Mobility Needs of Older Americans:
Implications for Transportation Reauthorization

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The number of older Americans is expected to double over the next 25 years. All but the most fortunate seniors will confront an array of medical and other constraints on their mobility even as they continue to seek an active community life. This brief challenges the easy assumptions that underlie most policy debates on providing transportation to the elderly. It discusses how an aging society adds to a range of transportation problems and argues that Congress should consider special approaches to meet the mobility and access needs of the elderly as it debates reauthorization of the Transportation Equity Act of the 21st Century (TEA-21).

I. Introduction

In 2000, 35 million Americans, or 12.4 percent of the total U.S. population, were over age 65, and almost 4.5 million (or 1.6 percent of the total population) were over age 85.[2] By 2030, the number of older Americans will more than double; 9 million alone will be over age 85. Almost all of those seniors will have been licensed drivers for most of their lives, including many seniors too disabled to walk far or use conventional public transportation. Seniors in the future will be even more dependent on the car than today's elderly.

These unprecedented demographic changes have rarely received the attention they deserve because there are so many myths about how most older Americans live. Public policy discussions assume that either elderly people need substantial government assistance and many publicly provided services or they have no unmet needs and require little governmental attention. In fact, most older Americans lead complicated lives that rarely place them on either end of the spectrum. Many older people drive but still face mobility barriers, or they suffer from physical or medical problems but still seek an active community life. Equally important, the elderly are a significant and growing component of many of the transportation problems we face as a nation—from metropolitan decentralization to air pollution, environmental degradation, and congestion —and they eventually suffer disproportionately from those very problems. To address both the mobility needs of the elderly and the important societal problems to which they contribute, we must refocus and redirect a wide range of public policies to respond to the complicated opportunities and constraints older people face today.

The reauthorization of the federal transportation law, the Transportation Equity Act for the 21st Century (TEA-21), presents an excellent opportunity for Congress to respond directly to the diverse mobility needs of the elderly. This brief challenges the easy assumptions that underlie most policy debates on transportation and the elderly, it describes how an aging society adds to a range of transportation problems, and it discusses special approaches and solutions necessary to meet the mobility needs of over 70 million seniors in the coming decades.

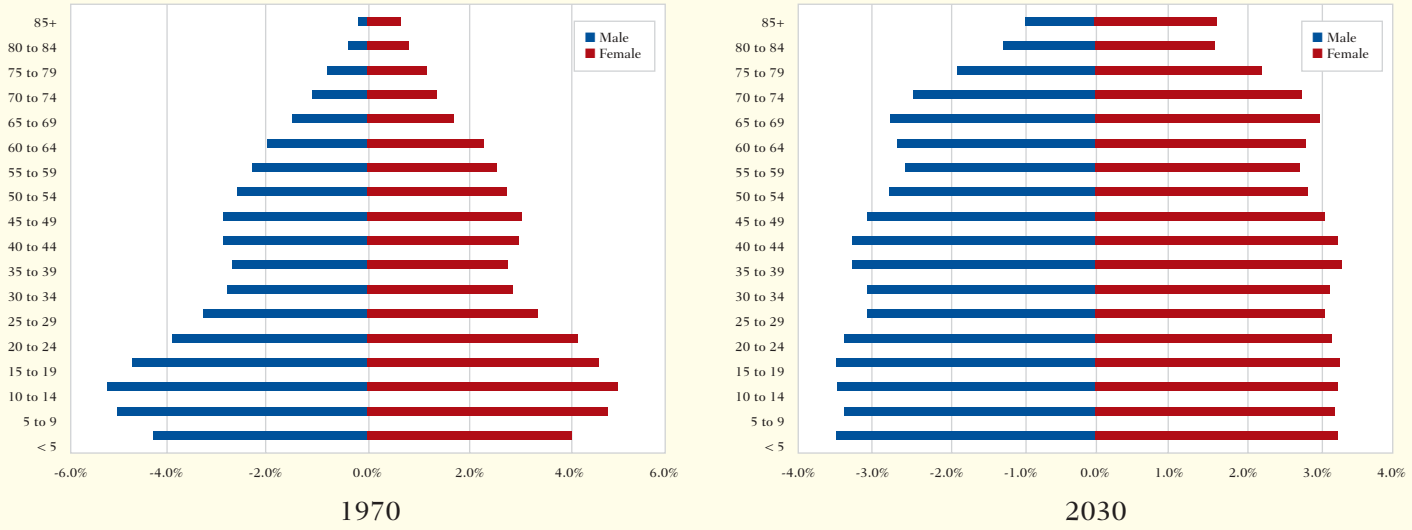
II. Demographic Trends with Important Transportation Implications

Both the number of older people and their share of the population are growing rapidly. Across the spectrum, older Americans will both create and face daunting transportation challenges because the majority will live, increasingly alone, in suburban or rural communities that foster a deepening dependence on the private car to sustain their mobility.

A. Population Growth and Characteristics

The number of elderly is growing both absolutely and relatively, as shown in Figure 1. By 2030, more than one in five Americans will be over age 65, and one in 11 of those individuals will be over age 85.[3] Compare this to 1970, when less than 1 percent of the population was over age 85. At the same time, fewer younger people are available to pay for or provide the growing service needs of the expanding elderly population.

Figure 1. Projected Growth in Elderly Population



Source: U.S. Census

Older women will continue to substantially outnumber men. Older Americans will also become more diverse; people of color are one of the fastest-growing groups among those over age 65.[4] In 1994, roughly one in seven American seniors was from a racial or ethnic minority, and this number will more than double in the next few decades.[5]

Most of the elderly will be in good health and not seriously disabled. In fact, disability rates have been falling among all cohorts of the elderly for decades, owing to a combination of good nutrition, improved health care, better education, and higher incomes. In 1996, almost three-quarters of older people reported that they were in good to excellent health, and only one-quarter reported being unable to conduct one of nine major activities of daily living.[6] Although disability rates increase with age, two-thirds of those over age 85 reported being in good to excellent health. Overall, new generations of older Americans will be healthier for a greater percentage of their lives than those just a few decades ago.

However, a substantial portion of the elderly will eventually face increasing disabilities as they age. Almost 35 percent of those over age 80 in 1997 reported that their disabilities were severe enough to require assistance. Moreover, women and older people of color were significantly more like to report serious health problems or disabilities. In 2000, over 40

percent of older blacks and more than 34 percent of older Hispanics rated their health as fair to poor (compared with 26 percent of white elders).[7]

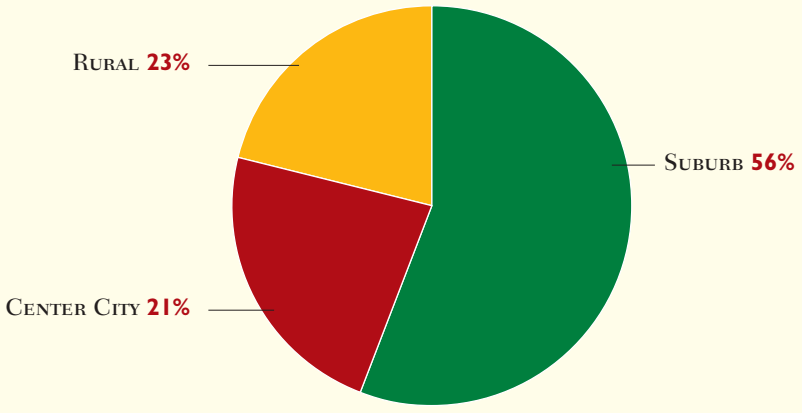
As their degree of disability increases, those over 85, and women in particular, will face several serious constraints with little family assistance. The majority of older women will live alone, some because they have never married, some because they have been widowed or divorced. In 1998, only 55 percent of women aged 65–74 were married; as a consequence, 41 percent of all older women were living alone compared with only 17 percent of comparable men. A 1995 study noted that "while most elderly men have a spouse for assistance, especially when health fails, most elderly women do not."[8] In fact, most older women will have no relatives or family members to provide support or assistance, given that the 85-and-older cohorts in the upcoming two decades will have had fewer children than any previous cohort of the elderly.[9]

In addition, people of color, and particularly older women of color, are less likely to have the resources to buy assistance or the services and goods they need as they face mobility problems. In 1997, almost 14 percent of U.S. women but only 7 percent of men over age 65 lived below the poverty level.[10] Older women had a poverty rate almost 50 percent higher than older men, and those who lived alone had the highest poverty rate of all. In fact, over half of older Hispanic women who lived alone or with non-relatives had incomes below the poverty line.[11] In 2000, almost 22 percent of older blacks and Hispanics were poor compared with fewer than 9 percent of elderly whites.

B. Residential Patterns

As Figure 2 shows, almost three-quarters of the older population live within metropolitan areas, and over three-fourths of those live in the suburbs.[12]

Figure 2. Percent of U.S. Elderly by Residential Location



Source: Lavada E. DeSalles, "Testimony to U.S. Senate Committee on Banking, Housing and Urban Affairs," July 17, 2002

This pattern has been intensifying for decades owing to the aging-in-place phenomenon: people remain in the homes in which they lived while rearing their children and holding jobs. According to demographer William Frey, the suburbs aged more rapidly in the 1990s than the nation as a whole. In large measure, this "graying" of the suburbs resulted not from migration in the 1990s, but from residential decisions made long ago.[13]

"Regardless of where they live, most older people are extremely dependent on the private car."

Frey found that in 2000, those aged 35–54 accounted for 31 percent of the total suburban population and most will likely remain in the suburbs as they grow older. In fact, Census data show that one- and five-year moving rates are lowest among those over age 65 and have been declining for years. Between 1990 and 1995, only 15.7 percent of those over age 65 moved compared with almost 70 percent of those aged 20–29 and 56 percent of those aged 30–39.[14] Moreover, Americans over age 65 today are only one-fourth as likely to move after they retire as were comparable elderly three decades ago.[15]

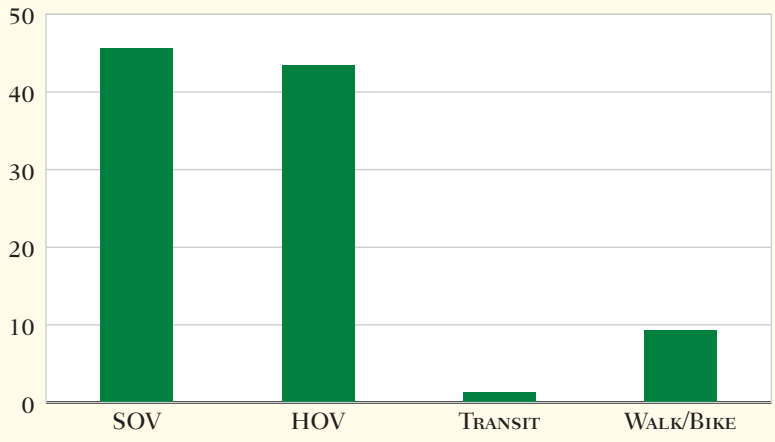
C. Transportation Patterns

Regardless of where they live, most older people are extremely dependent on the private car, either as a passenger or a driver, and increasingly the latter. One indicator of the growing importance of the private car is the rate of licensing. In 1997, over 95 percent of all men and 80 percent of all women over age 65 were licensed drivers. By 2030, the gap between the sexes will have narrowed substantially given that 94 percent of women aged 45–49 are currently licensed to drive. As result, as Figure 3 shows, those over 65 make roughly 90 percent of all their trips in a car; over 45 percent as the driver of a single-occupant vehicle, and another 43 percent either as a driver or passenger in a vehicle with two or more occupants.[16] Even those over age 85 make 80 percent of their trips by car, driving half the time. In fact, data from the 2001) National Household Travel Survey (NHTS) show that older people make a greater percentage of their trips as drivers than do younger people.[17]

Conversely, use of alternative transportation modes has been dropping rapidly among the elderly for decades. In 1995, transit use for nonwork trips among the elderly was, for the first time, below that of younger people. In 1995, the elderly made only 2.2 percent of all trips by transit. As low as that was, transit use by older people fell by almost 50 percent between 1995 and 2001, when only 1.3 percent of all trips were made by transit.[18]

Although much policy debate about the elderly centers on their possible use of alternative public transit—such as special paratransit services or subsidized taxis—there is little indication that use of these options is large or growing among older people. In fact, taxi use (either private-pay or subsidized service) fell among the elderly from 1995 to 2001, while the use of other subsidized paratransit options was too small to break out in national data.[19] At the same time, there is substantial anecdotal information about the growing use of alter-

Figure 3. Percentage of Trips by Mode of Transportation, Travelers Age 65 and Over



Source: John Pucher and John Renne, "Socioeconomics of Urban Travel; Evidence from the 2001 NHTS," Transportation Quarterly, 57 (3) (2003). Note: SOV refers to single occupancy vehicles with no passengers. HOV refers to high occupancy vehicles with two or more occupants.

native private vehicle modes by the elderly, such as small electric vehicles, motorized scooters, and golf carts.[20]

Clearly linked to the growing dependence on the car is the growth in the number of trips and the mileage traveled, which have been increasing steadily among the elderly for more than three decades. Of course, whether more and longer trips are desirable is open to question. Most transportation planners and engineers define mobility in terms of the number of trips made, and an increase in trips is considered a positive social indicator.[21] However, others contrast mobility to access, or a measure of the ease with which people can access needed goods and services.[22] Making more trips or traveling more miles by car may be an indicator not of improved mobility, but of poorer access. At the same time, not all destinations are equal; people both young and old frequently bypass nearby stores, doctors, and religious institutions for preferred services often miles away. In reality, increased travel is a probably a measure of both increased opportunities and increased constraints for older people.

As much as they travel, older people make roughly 22 percent fewer trips than those under age 65. A surprising amount of research refers to this difference, as well as the drop in trips at retirement, as a reduction in mobility.[23] This again illustrates the problem of defining mobility as the number of trips made. In fact, the obvious difference between those younger and older than 65 is that the elderly rarely, if ever, make five roundtrips to work each week. The focus on the gap in trip-making between the young and old obscures the fact that the elderly are very active until they reach age 80 or even older; older men take as many as 23 percent more non-work trips and travel 6 percent more miles than men under age 65.

Older women are also very active, but they take fewer non-work trips than younger women. However, this pattern may change as more active cohorts of women age. Given increasing income, education, and job achievement among women over age 40 today, it is likely that future cohorts of elderly women will more resemble men in their desire for an active post-retirement lifestyle, in which travel plays an important role.

There are important variations by race and ethnicity in the travel patterns of otherwise comparable elders. Even when controlling for income and residential location, black, Asian, and Hispanic elders make fewer and shorter trips than white elderly, and generally less often in a car. Moreover, there are greater travel differences between men and women within each of these ethnic and racial groups than there are between the groups or among whites. These patterns may be a complex combination of residential location, current or historical discrimination, and ethnic and cultural differences in attitudes and preferences. Certainly not all differences are problems that require remediation, but they do suggest a need to understand how older people from different backgrounds view travel and access, and the role family members are expected to and do play in the personal mobility of older family members.

Although most older people today drive to meet their needs, an important subset does not. Those living in the central city, older women (particularly over age 75), the poor, those living alone, and ethnic and racial minorities are all less likely to be licensed to drive. Nevertheless, the car is a significant mode of transportation among those who do not drive. In 1995, the percentage of trips in cars (albeit fewer in number) made by those over age 65 without a license was almost as high as licensed drivers. Clearly, older people who do not drive depend heavily on others for rides, and often on other older drivers.[24] Thus, one older person losing a license (or ability to drive) may substantially reduce the mobility of several elderly individuals.[25]

Not having a license makes a substantial difference in the number and length of the trips older people make. For example, in 1995, licensed drivers aged 65–69 made 87 percent more trips than comparable older people without a license. Even at age 85, those with licenses make more than twice as many trips as those without a license. Of course, not all those differences represent transportation problems, given that trip-making is an imperfect measure of mobility and most data conflate those who have never driven with those who gave up driving. Older people without licenses may have located in areas where they did not need to travel as often, they may live near family who bring them goods and services, or they may be too ill or otherwise disadvantaged to leave their homes. However, if increased

trip-making is ever viewed as an indicator of increased mobility, then a portion of the gap between licensed and unliscenced drives must signify immobility.

III. The Societal Challenges of Aging

Most older people lead active lives dependent on the convenience and flexibility offered by the private car. Yet, much policy debate seems to assume that older people contribute only marginally to the major transportation problems. In fact, because of their lifestyles and growing reliance on the car. the elderly exacerbate several societal problems, even as they may disproportionately suffer from those problems.

A. Environmental Pollution and Energy Consumption

The important role played by the private car in the lives of older people will have significant environmental implications. There is substantial evidence that traditional planning efforts underestimate the environmental impact of older drivers because those efforts assume that the relatively low licensing and travel rates seen among older people in the past will continue into the future.[26] Those rates, however, have been increasing substantially for decades. In 2030, if all older drivers only drove as much as did comparable individuals in 1995, the total number of vehicle miles among the elderly would more than double, simply because the population of older drivers would have increased substantially. If, however, as current trends suggest, older people increase the miles they drive to resemble the travel patterns of the cohort just 10 years younger in 1995, the total number of miles driven annually would more than triple in the next three decades.

A large part of the increase in car travel will stem from the increasing number of women drivers. In 2010, if older women trip rates equaled men's in 1995 and men's stayed constant (at the 1995 level), the elderly would make over 94 million trips per day. If, however, vehicle trip rates for older men and women were to continue to increase at the same annual rate as they did between 1983 and 1995, the number of daily trips would skyrocket to over 118 million in 2010 and 183 million in 2020 (or six times more than in 1995).[27]

In addition, the kind of trips older drivers make will exacerbate pollution problems. The shorter trips that the elderly typically make never allow the car engines to warm enough for pollution control devices to be effective, the so-called "cold start" problem. The catalytic converters on modern cars work best when both the catalyst and the engine exceed 600 degrees Fahrenheit; therefore the majority of emissions occurs during the first 10 percent of a trip.[28] Even though trips are shorter, the emissions produced by cars driven by the elderly may increase even as their total trip-making decreases. Overall, data strongly suggest that older drivers will be significant contributors to the damage done to the environment by the use of the private car.

B. Metropolitan Decentralization

Low density development caused by metropolitan decentralization has long been recognized as a major and growing societal problem. What is often overlooked in these discussions is that the suburbanization of the elderly parallels the suburbanization of the U.S. population. That so many people aged 30–64 live in suburban areas means that the aging-in-place phenomenon will create suburbs with an even greater percentage of elderly people in the future. Metropolitan areas with large soon-to-be elderly populations are those that successfully attracted large numbers of migrants with "good demographics" during their working years. These areas tend to be located in growing parts of the country, such as the Sunbelt, and in growing parts of metropolitan areas, typically selected suburbs.[29]

Although most seniors do not move when they retire, the migration that does occur will reinforce suburbanization and sprawl in many rapidly growing states. Today, the states with the highest total growth rates are those with the fastest growth among those over age 65, which is largely attributable to in-migration upon retirement.[30] On a metropolitan scale, the

suburbs with the greatest share of seniors aged 65 and older are primarily located in the Northeast, where the share of the under-35 population is declining most rapidly. These "senior suburban havens," shown in Table 1, illustrate the aging-in-place phenomenon. By contrast, the "senior suburban growth centers" with the largest increases in elderly are all located in the Sunbelt, particularly in the southwest (see shown in Table 2).

As William Frey points out, fast-growing centers generally house seniors in communities with generally stable or growing tax bases and an energetic, active senior population. Slow-growing suburbs will likely see an increased need for community services and information targeted to the elderly population, such as transportation services, access to medical care, and affordable housing. However, as the workforce-aged population shrinks in these places, so does the tax base needed to provide these additional services.[31]

People over age 50 compose over 20 percent of all new home buyers and exhibit the same demands for housing that fuel suburban development and sprawl. Most older people migrating to the Sunbelt choose fairly large homes in low-density areas, often in greenfield communities. Older buyers, "want eight-to-nine foot ceilings, bigger garages, a bathroom for each bedroom. Even people who don't cook want fancy kitchens."[32]

As a result of these trends, the elderly are becoming disproportionately represented on the suburban fringe. This is particularly true in fast-growing places such as metropolitan Phoenix, where the elderly represent almost one-third of new urban fringe residents. This is because, as Map 1 shows, the elderly tend to congregate in the numerous age-segregated

"The elderly are becoming disproportionately represented on the suburban fringe."

Table 1. Metropolitan Areas' Suburban Share of Elderly Over Age 65 and Change in Population Under 35, 1990–2000.

Metropolitan Rank in Percent of Suburban Population 65+	Metropolitan Area	Percent of Suburban Population 65+	Percent change in Suburban Population Under 35
1	Sarasota, FL MSA	29.5	13.0
2	West Palm Beach, FL MSA	24.0	22.3
3	Tampa, FL MSA	20.5	11.9
4	Scranton, PA MSA	18.8	-11.0
5	Pittsburgh, PA MSA	17.9	-11.2
6	Tucson, AZ MSA	17.3	20.7
7	Monmouth, NJ PMSA	16.9	3.4
8	Buffalo, NY MSA	16.6	-9.6
9	Youngstown, OH MSA	16.3	-8.7
10	Fort Lauderdale, FL MSA	16.2	32.0
11	Allentown, PA MSA	16.0	-3.4
12	Providence, RI-MA NECMA	15.3	-6.3
13	Cleveland, OH MSA	15.0	-6.1
14	Phoenix, AZ MSA	14.9	47.5
15	Harrisburg, PA MSA	14.9	-2.8
16	Hartford, CT NECMA	14.5	-7.4
17	Springfield, MA NECMA	14.4	-9.0
18	Albany, NY MSA	14.3	-8.3
19	Bergen, NJ MSA	14.1	1.4
20	Bridgeport, CT NECMA	14.1	-3.5

Source. William Frey, "Boomers and Seniors in the Suburbs" (Washington, Brookings, 2003).
Note: MSA is metropolitan statistical area; PMSA is a primary metropolitan statistical area, and NECMA is New England County Metropolitan Area.

retirement communities located along the northwest and eastern suburban fringes of the metropolitan area. These senior migrants are likely to arrive at the edge directly from outside the region.[33] According to the Milken Institute, it is the affluent "yuppie" elderly that will tend to locate on the metropolitan fringe, while less wealthy seniors likely will remain in their home cities and reside closer to the core.[34]

Table 2. Metropolitan Areas' Suburban Change in Elderly Over Age 65 and Change in Population Under 35, 1990–2000.

Metropolitan Rank in Growth in Percent of Suburban Population 65+	Metropolitan Area	Percent Change in Suburban Population 65+	Percent change in Suburban Population Under 35
1	El Paso, TX MSA	83.1	39.5
2	Las Vegas, NV-AZ MSA	78.1	75.4
3	Colorado Springs, CO MSA	69.8	17.7
4	Honolulu, HI MSA	53.4	-7.1
5	Tucson, AZ MSA	53.1	20.7
6	Phoenix-Mesa, AZ MSA	52.1	47.5
7	Austin, TX MSA	48.6	42.4
8	McAllen, TX MSA	47.3	50.7
9	Denver, CO PMSA	47.2	23.5
10	Jacksonville, FL MSA	46.6	16.2
11	Houston, TX PMSA	46.2	19.6
12	Albuquerque, NM MSA	43.0	12.1
13	Dallas, TX PMSA	41.5	28.2
14	Salt Lake City, UT MSA	41.3	17.7
15	Baton Rouge, LA MSA	40.1	8.2
16	Atlanta, GA MSA	39.9	35.3
17	Memphis, TN-AR-MS MSA	39.8	6.8
18	Sacramento, CA PMSA	39.6	13.5
19	Fort Worth, TX PMSA	39.2	14.1
20	Columbia, SC MSA	36.3	5.0

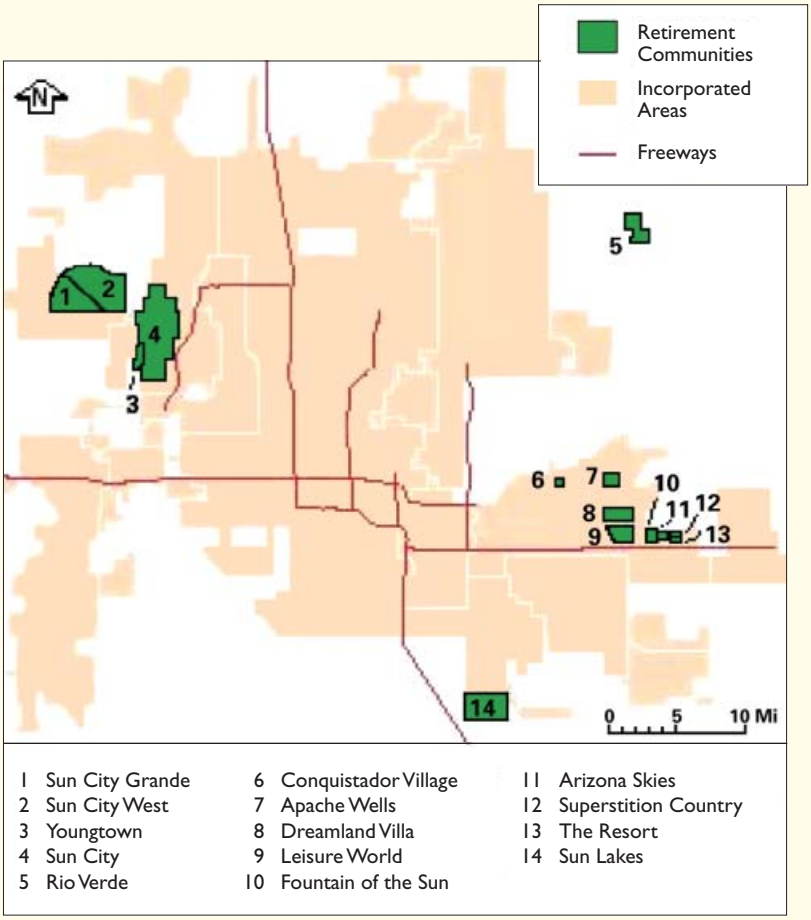
Source: William Frey, "Boomers and Seniors in the Suburbs" (Washington, Brookings, 2003).
Note: MSA is metropolitan statistical area; PMSA is a primary metropolitan statistical area, and NECMA is New England County Metropolitan Area.

According to the Urban Land Institute, the majority of so-called active adult retirement (AAR) communities that attract after-retirement migrants are being built in the Sunbelt states and often on the suburban fringe where land assemblage is easy and relatively less expensive. The average AAR community had just over 400 units, on 163 acres; the median size of the most popular detached home plan was 1,900 square feet. Recently, developers have begun to build in "four season" markets or in closer-in suburbs, but the desirability of such facilities is still being tested.[35]

C. Congestion

In the past two decades, traffic congestion has become a way of life in nearly every major metropolitan area. Metropolitan congestion is expected to increase as the number of vehicles, number of drivers, number of miles traveled, and number of intercity trucks grows and as regional economies continue to decentralize along low-density settlement patterns.[36] It is less recognized that older drivers are a growing contingent of almost all of these causes of congestion.

Map 1. Location of Metropolitan Phoenix Retirement Communities



1 Sun City Grande	6 Conquistador Village	11 Arizona Skies
2 Sun City West	7 Apache Wells	12 Superstition Country
3 Youngtown	8 Dreamland Villa	13 The Resort
4 Sun City	9 Leisure World	14 Sun Lakes
5 Rio Verde	10 Fountain of the Sun	

Retirement communities were designated as those in a senior overlay zone or those with over 1,000 residents. Source: Morrison Institute for Public Policy, Arizona State University.

Of course, older drivers do not generally make work trips, and they tend to avoid both congested time periods and congested areas. Many cities, however, increasingly suffer traffic congestion for long periods of the day; the morning and evening peaks have lengthened substantially in the last three decades. Many cities also experience substantial midday peaks. According to the Texas Transportation Institute, midday delays on the roadways are actually higher than the traditional rush hour periods in several metropolitan areas including Los Angeles, Minneapolis, Phoenix, and Norfolk. In the latter case, midday congestion is almost twice as bad as the morning peak period. They further state that cities that are congested during the peak hours, also have a significant amount of midday delay.[37] As a result, older drivers can only avoid the worst of congestion; they do not generally travel in congestion-free periods.

In fact, older drivers make the bulk of their trips between 9 a.m. and 1 p.m., placing them on the road at the end of the morning peak and during the midday peak.[38] Moreover, although they tend to avoid freeways, and thus contribute little to freeway congestion, older drivers may disproportionately affect arterial congestion (given that smaller streets have less capacity). Although far from the major cause of traffic congestion, older people do contribute to this societal problem because they make the majority of their trips during periods of moderate to heavy traffic.

"The large increase in the sheer number of older drivers, especially women, will cause an absolute increase in crash rates, even if per capita rates continue to drop."

D. Safety

An aging population both creates and faces safety problems with many modes of transportation. Although the problems of the older driver are more frequently discussed, older pedestrians also face substantial dangers, which often makes it safer for them to be in a car than out on the street.

The safety consequences inherent in more elderly drivers is a recognized problem. Older drivers are not only more likely to have crashes on an exposure basis (per trip or mile driven), they are also generally more likely to be at fault in a multicar crash, and more likely to be killed or injured than are younger people in a crash of comparable magnitude.[40] At the same time, older drivers have fewer crashes per capita than any other age group and, according to the Centers for Disease Control (CDC), they are less likely to be involved in crashes that kill someone else.[41] In addition, older drivers are substantially more law-abiding than younger drivers and far less willing to make risky maneuvers; they are also far less likely to drive under the influence of alcohol or illegal drugs. Experts have postulated that people today are better drivers and bring their safer habits with them into their retirement years. As a result, per capita crash rates have been declining among those over age 65 for decades.[42]

However, the large increase in the sheer number of older drivers, especially women, will cause an absolute increase in crash rates, even if per capita rates continue to drop. Moreover, a greater percentage of older drivers will be very old—over age 85—and crash rates rise rapidly after 85. Because all older drivers appear to be increasing their trip-making, their exposure will increase substantially, even if they are safer or more experienced than comparable drivers in the past.

Moreover, current per capita crash rates for older people are fairly low because older drivers self-regulate, that is, they change a number of things about their travel and driving behavior to accommodate loss of driving skills or problematic driving situations.[43] They often avoid congested areas, left turns, and peak-period travel or avoid driving at night or on unfamiliar roads or in bad weather. It is doubtful, however, that future generations of older drivers will self-regulate as much; accustomed as they are to the flexibility and convenience of the car, they simply may be unwilling to change their driving habits when doing so impedes their lifestyle. If older drivers in the future fail to avoid problematic situations, and perhaps engage in riskier behavior, per capita crash rates may well increase despite greater driving skills and experience.

In addition, older people are more susceptible to injury and death in the crashes that do occur.[45] Thus, older people, who represent 13 percent of the U.S. population, constitute 18 percent of U.S. motor vehicle deaths. Moreover, people over age 75 have more motor vehicle deaths per 100,000 miles driven than any age cohort except those under 25. The Insurance Institute for Highway Safety estimates that the doubling of the elderly population will mean that older people will be involved in 25 percent of all fatal car crashes.[46]

The aging of the population also brings several overlapping pedestrian safety problems. The most discussed are crashes between pedestrians and autos. Historically, pedestrian crash data have been poor, and data on street falls almost nonexistent. Improved data collection methods here and abroad suggest that both crashes and falls are much higher than previously thought, and that street falls may be even more significant than auto-pedestrian crashes among the elderly.

In 2000, the pedestrian death rate for both men and women over age 70 was the highest of any age group. People aged 65 and over account for 22 percent of all pedestrian deaths and 32 percent of all nonfatal pedestrian injuries. People 70 and over, who constitute less than 10 percent of the population, account for 18 percent of pedestrian deaths. At the same time, pedestrian-auto crash rates have been dropping substantially in the industrialized world over the last three decades. Most traffic safety researchers conclude that the decline is tied most closely to the fact that older people in developed countries are walking less and driving more.[47] The CDC also attributes the drop to better pedestrian facilities and restricted on-street parking.

IV. Debunking the Myths of Elderly Travel Needs

Transportation has been a recognized problem for the elderly for more than 30 years. In 1971, the first White House Conference on the Aging reported that transportation was one of the three greatest needs of older people.[48] Subsequent White House conferences have also ranked transportation problems as a major barrier. In 1988, the National Academy of Sciences convened a conference to undertake a "comprehensive study and investigation of problems which inhibit the safety and mobility of older people." They found that there were insufficient transportation resources for those unable or unwilling to drive.[49] In 1999, another national conference found that mobility gains among the elderly had been significant,,but only for those who could drive, and only for as long as they could do so.

Unfortunately, there are many misunderstandings about the mobility needs of older Americans. Most policy discussions tend to take an either-or stance: either they drive or they do not, either they are healthy and able-bodied or crippled and severely disabled, either they can use public transit or they cannot. Public policy has also tended to focus on only those with the most obvious and severe disadvantages. There are three important misconceptions about older people that must be overcome before we can develop appropriate policy and program strategies.

A. Myth One: As people age, they first lose the ability to drive; they then use public transit if it is available; when unable to use public transit they walk, and finally, unable to walk they use special transit services.

Although widely believed, this "progression" is largely wrong. In fact, driving is often the easiest physical task for older people.[50] Long before they lose the ability to drive, older people may be unable to board or ride public transit, or to walk to a bus stop or train station. Even though many may still be able to use special transit services, the overwhelming majority of older people, regardless of their stage of disability, are able to ride in a car and choose to do so first.

The dangerous corollary to this first myth that the elderly opt for public transit or special transit services is that, in fact, there are few special services available, whether provided by a transit operator or a social or human service agency. First, special transit services are only available where there are regular transit services—which are almost nonexistent in rural areas and very limited in suburban areas, home to more than two-thirds of the elderly. Only 14 percent of the elderly who live in rural areas report having any kind of transit services within a half-mile. As the Community Transit Association of America (CTAA) noted:

> The past two decades have seen many forms of transportation virtually abandon rural areas. Small town residents often travel hundreds of miles just to access the nearest airport; intercity bus service is a shell of its former self; taxi service is scant and expensive; and passenger rail services often only streaks through the countryside in the middle of the night.[51]
>
> In 1996, CTAA found that two of five rural counties had no public transit, and another 25 percent had service equal only to one trip per month.[52]

Second, even in urban areas, many elderly people do not live close to existing bus lines and thus are ineligible by reason of geography for any special services that exist. In most communities, special services are only available within three-fourths of a mile of existing bus routes and only during regular bus route hours (i.e., the minimum requirements of the Americans with Disabilities Act (ADA)). Although most experts suggest that one-quarter mile is better measure of transit access for older people, in 1995, only 43 percent of the elderly in suburban areas reported living within one-half mile of public transit.[53]

Third, most elderly people are ineligible for special transit services even if they live near existing bus routes. The complementary paratransit requirements of the ADA have put a

tremendous burden on most urban paratransit systems; transit systems must provide a very high level of expensive service to those certified as ADA-eligible. In response, the overwhelming majority of metropolitan transit operators have severely restricted eligibility for those services. Many elderly do not qualify because their disability is not severe enough; being unable to drive or having minor handicaps rarely qualifies one for services.[54]

Most communities also host many small, special paratransit services provided by nongovernmental organizations, organizations supporting the aged, and public and private social services agencies. However, these providers generally transport only those involved in specific agency services and do not serve a large percentage of the elderly.[55] Overall, as currently financed and delivered, special paratransit services serve a very small proportion of a very large population and will serve an even smaller proportion of the growing elderly population in the future. They can serve as one part of a "family" of transportation services, but they are not the only or even a major strategy for meeting the mobility needs of older people.[56]

B. Myth Two: Older people who drive meet their mobility needs without assistance; those who cannot drive have substantial unmet needs.

Older people who drive still face mobility barriers. Long before they cease driving, people begin to adjust their travel patterns to address personal limitations by, for example, not driving at night or to congested areas. As suggested above, this self-regulation helps keep them safer.[57] However, most policy discussions fail to recognize how this behavior can negatively affect one's lifestyle. We currently underestimate the impact of reduced driving and overestimate the impact of driving cessation because cessation is viewed as a single point in time after which mobility falls drastically. In fact, long before they give up driving, older people gradually lose mobility and independence as they gradually reduce their driving.

In a Tucson study that followed 1,300 older drivers for five years, those who ceased to drive one year after being interviewed made substantially fewer trips after cessation than they had in the previous year or than did those who continued to drive. The most striking fact, however, was that those who stopped driving were already making substantially fewer trips one year before compared with those who continued to drive, even controlling for age, self-reported health status, and other variables.[58]

C. Myth Three: All loss of mobility skills is permanent; older people either have the skills needed to drive, use public transit, or walk—or they do not.

In reality, the mobility needs of the elderly are complicated. Public policy discussions in general often fail to recognize the varying abilities of older people. People may stop driving temporarily because of a heart attack or other serious illness but begin driving again as their health improves. Older people may need walkers and other mobility aids on some days but not on others. They may be able to travel by conventional public transit on a sunny day but need a ride on a rainy day. Thus, they may require differently options on different days or in different seasons of the year.

A corollary to this myth is that people who can drive will rarely use other modes no matter how those options are provided. This assumption reduces the incentive to focus attention on older drivers or older people who have mobility options. Indeed, most U.S. transit ridership among the elderly stems from those who do not drive. However, in Australia, Europe, and Canada, elderly car drivers make up a meaningful percentage of transit users.[59] When given a reasonable set of transportation options, older people in those countries appear to choose the best or most convenient mode for each trip.[60]

Thus, it may be possible to structure public transit and other services to reduce car use among the elderly even if these options do not remove all need (or preference) for a car. The existence of such options before an individual ceases to drive may make older people more willing and able to use other transport options when they do stop driving.

V. Legislative and Policy Solutions

As Congress and other policymakers at the state and metropolitan levels consider the reauthorization of the federal transportation law, they should both develop policies and programs that reduce the contribution older people make to important societal problems, such as congestion and metropolitan decentralization, and offer realistic mobility and access options. To do so, policymakers should recognize the different subsets of the elderly, including those who still drive, those who have given up driving, and those who never drove. Programs should consider where older people live and their ethnic, racial, and cultural backgrounds. To meet the elderly's mobility needs, policymakers should consider the following:

A. Plan explicitly for the mobility needs of the elderly.

There is a substantial and growing body of advocacy and planning research on the role of regional planning, community design, and metropolitan growth and development on people's mobility. However, little of that research focuses specifically on the elderly. Indeed, many advocates assume that anything that improves the design of neighborhoods overall will help the elderly. Unfortunately, these types of improvements may not help older people unless special attention is paid to their needs.[61]

Many efforts to integrate transportation and land-use planning are designed to mix land uses, promote infill and central city redevelopment, and increase densities, all of which could increase the mobility and access of the elderly. Such development can locate a range of social and shopping opportunities nearer to home, reducing the elderly's need to travel far or by car. Multi-use developments that include housing might allow older people to conduct their daily activities largely within their own apartment building or complex. If such developments occur near their suburban homes, the elderly may be able to move from houses now too large into more appropriate apartments, remaining in their own neighborhood as they age.

However, such developments can also substantially change neighborhoods in ways that pose new or different problems for older people, such as increased noise and congestion, an influx of unfamiliar activities, and the potential for gentrification. Clearly, the impacts of these strategies are site-specific and depend substantially on the attention paid to the housing and other details of relevance to the elderly. Planning for such development and redevelopment should ensure that older people, particularly those disadvantaged by extreme age, disability, or poverty, are not harmed by projects that are neither affordable nor accessible.

Walkable neighborhoods are also an essential element in several widely discussed public policies, from "smart growth" to community health. Neighborhoods designed and redesigned to make walking pleasant, safe, and secure might increase both the mobility and the health of older people. There is considerable design and engineering research that shows communities how to improve pedestrian access by implementing pedestrian-friendly facilities and treatments, improving intersections, and adopting traffic-calming measures. These approaches, however, must be implemented with careful attention to the specific needs of older people.

The existing federal transportation law currently requires states to assess the pedestrian accessibility of their major road projects. It would be useful if this requirement were strengthened in the new legislation, and transit operators were charged with the same responsibilities for assessing the degree of pedestrian access to their services and facilities.

B. Target public transit services and facilities directly for the elderly.

Over the last decade, older people have made less use of public transit. However older people would consider using this mode if services were provided in ways that better met their needs. To make transit services more appropriate for older people, federal, state, and metropolitan policies and programs should encourage or require, as well as finance, four major

categories of public transit developments: improving conventional service, increasing safety and security in all parts of the system, enhancing communication and information, and providing additional services more carefully targeted to the elderly.

The only element of TEA-21 explicitly designed for the elderly is the Section 5310 formula grants and loan for special needs of the elderly and persons with disabilities. Section 5310 provides transportation services in areas where transit service is unavailable, insufficient, or inappropriate.[62] The program provides benefits, although the amount is far too small ($456 million, about 1.1 percent of the total transit authorization) to be broadly effective.

To improve transit services for older people will require additional funding geared toward not only the more severely disadvantaged of the elderly (as 5310 is), but the larger market of elderly who can be convinced to use improved conventional services and new or different services that respond to their special needs. To improve conventional services, communities must first make transit safer and more secure for older people and provide better pre-trip and enroute information. They must also purchase more low-floor (accessible) buses; schedule more regular services, particularly in the off-peak; consider route restructuring to better serve the origins and destinations of older travelers; and even provide sporadic but scheduled services for shopping or other needs. These services should target recreational vehicle and trailer parks and other neighborhoods with a growing elderly population.

Transit operators can also increase ridership among older people by changing the basic nature of the services offered. Some communities have been very successful with service routes and community buses-—small accessible and scheduled buses in which the driver provides substantial assistance and all elderly travelers are guaranteed a seat. Community buses are also attractive because they are specifically routed to serve the origins and destinations of most interest to older people. Many systems have found that those who ride community buses are relatively healthy older people who are new to public transit or who used it only infrequently prior to the new services.[63]

C. Support alternative transport options.

There is a wealth of transportation resources and alternatives in many communities that are not well or fully used, many of which could become an important part of the transportation repertoire of the elderly if supported by state law and federal funds.

First, supporting formal and informal volunteer networks and facilitating ride-sharing programs would increase transportation options for older people. Communities could help formal volunteer programs to overcome the liability and maintenance problems faced when they begin to carry any appreciable number of riders. Federal law could assist a public agency or the transit operator to develop group insurance coverage or to establish insurance pools. In addition, a transit operator or other public agency could develop ways for volunteers involved in formal systems to receive auto maintenance at reduced rates.

Community agencies or transit operators could encourage more informal volunteer service through voucher programs, as implemented in Mesa, AZ, and Riverside, CA. Currently, several federal transportation programs (Section 5311 (Nonurbanized Area Formula Grant Programs) and Section 5310 (Elderly and Persons with Disabilities Programs) can be used to pay for vouchers, although they rarely are. A 1999 study found that voucher programs were an effective way to use volunteers because they were less expensive than directly providing such services, and riders were usually offered longer service hours.[64]

In addition, communities could strengthen the role, and the safety in some cases, of for-profit operators who provide mobility for older travelers by regularizing extra-legal operations, expanding the role of the taxi, and cultivating additional entrepreneurs. Many neighborhoods and communities, particularly those of color, currently host a variety of jitney-type transportation providers, which may or may not be operating illegally. There is substantial anecdotal evidence that many riders of these informal services are older people.

To the extent possible, communities should standardize if not fully legalize such operations; if necessary, they can be prohibited from working outside the neighborhoods in

which they have historically operated. Vehicle standards should be established and vehicles routinely inspected, and operators should be required to carry sufficient insurance. If they need assistance once their services are more formalized, communities can help lower insurance rates and maintenance costs. Moreover, communities should be encouraged to make better use of existing taxi operators, through user-side subsidies and contract programs. If lacking either taxis or informal providers, communities can help train and equip local entrepreneurs to provide needed services, particularly in specific neighborhoods.

D. Improve the highway and street infrastructure.

The entire auto-based infrastructure must be modified and enhanced so that older people can drive safely longer in ways that reduce or even eliminate the environmental and congestion-related features of their travel. Federal and state funds can be used to support programs and policies that make the road network safer, increase safe private vehicle use by qualified drivers, and help develop vehicles that are safer, cleaner, and easier to drive.

During the last decade, the Federal Highway Administration (FHWA), in recognition of the aging of society and the problems that older drivers face, has prepared several handbooks and reference sources linking older road-user characteristics to highway design and operational and traffic engineering recommendations, suggesting specific roadway, signage, and traffic standards. Federal funds should be used to encourage communities to update all aspects of the road system to conform to these important, but voluntary, older-driver design standards.[65]

States should also be allowed to use their own and federal funds to assist safe, older drivers with financial difficulties to continue driving. A community can develop programs that provide assistance for a car's maintenance and fuel, or even its purchase. Given the car's contribution to a number of environmental problems, this may seem a quixotic approach, but it has been adopted in the United States as part of several welfare-to-work programs. Communities can also develop car-sharing programs for older people in independent living centers, trailer parks, or naturally occurring retirement neighborhoods. These communities can cooperatively buy and operate a small fleet of vehicles, allowing individual residents to reserve and drive them, perhaps giving up their own cars.

Finally, the federal government, in partnership with private industry, should take a more active role in developing cars that are safer, cleaner, and easier to drive. The vehicle emissions improvements that have been achieved by reducing car size or weight are particularly relevant for older drivers; smaller, lighter, or less protected vehicles may meet environmental mandates but they also may increase the severity of the injuries received by older drivers in crashes.[66] In addition, because the U.S. government is one of the largest purchasers (directly or indirectly) of a range of mechanized disability aids, it should take an active role in evaluating the safety and other consequences of the growing reliance by older people on powered wheelchairs, golf carts, and electric scooters on roadways and pedestrian paths.

VI. Conclusion

Older people are substantially more mobile today than ever before. Trip rates and distances have increased remarkably for all cohorts of the elderly. Whether cause or effect, these trends are directly related to metropolitan decentralization and the increasing dependency on the car. Although the mobility problems of older people who have never had a car or a license have consumed much of our attention, this group is a decreasing share of the total elderly population. The largest group of people facing substantial mobility losses is those who drove well into their senior years.

When older drivers lose the ability to drive, or cannot easily secure rides from others, they will suffer substantial losses in mobility. If they have made perhaps irreversible housing and other decisions based on the mobility afforded by the car, they may suffer disproportionately more than those who never drove, given that the latter group may have made household decisions in ways that better support a car-free lifestyle.

"Solving the mobility needs of older people is integral in answering several of the transportation challenges facing society."

Comprehensive and long-term solutions to the mobility needs of older people must take into account the great variability not only among people, but for the same person in different situations. Policies and programs must recognize the preference for a repertoire of travel options that give the elderly freedom and flexibility in the face of declining skills.

Policymakers must focus considerable attention and resources to meet the growing mobility needs of older travelers, and not simply as an equity or social issue. Solving the mobility needs of such a large and growing segment of the population is integral in answering several of the transportation challenges facing society. To do so, we must meet the varied needs of different subsets of the elderly, based on a realistic understanding of those needs, using cooperative strategies that forge partnerships between and among public- and private-sector agencies and actors.

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