



**Understanding the Transportation Mobility Needs for an Aging New Jersey
Population
FINAL REPORT**

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Submitted by

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16. Abstract This research was conducted with two broad objectives: (a) to identify the transportation mobility needs and barriers of older adults in New Jersey, and (b) to recommend innovative strategies to meet their transportation needs. To fulfill its objectives the research took resource to (a) literature review; (b) online research to review innovative mobility strategies for older adults around the country; (c) interviews with organizations providing innovative transportation services and/or technologies in different parts of the country; (d) outreach with New Jersey experts on older adults' mobility needs and barriers; (e) data analysis to identify places within New Jersey where older adults have the potential to grow in the near future; (f) data analysis to compare the heterogeneity of older adults in different parts of the state; (g) survey of New Jersey municipal officials to comprehend plans to accommodate older-adult housing, assess the quality of local transportation for older adults, and gain insights about transportation strategy preferences; and (h) a survey of New Jersey older adults to examine their travel patterns, trip deprivation, preparation for driving cessation, transportation and communications technology use, perception of autonomous vehicles, and preference for transportation strategies to enhance mobility of older adults. Based on these tasks, the study presented a number of strategy recommendations for enhancing transportation mobility of older adults living in different types of areas in New Jersey, suggested potential pilot programs, and generated a number of datasets that can be used by metropolitan planning organizations and agencies providing transportation or related services to older adults in the state.			
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- (i) AARP – NJ
- (ii) Age Friendly Teaneck
- (iii) Age-Friendly Communities New Jersey "New Relevance" Conference
- (iv) Age-Friendly Ridgewood
- (v) Freedom Village, Paterson (Pennrose)
- (vi) Generations for Garfield
- (vii) Greater Mercer TMA
- (viii) Henry and Marilyn Taub Foundation - Age-Friendly Community Initiatives
- (ix) Herman E. Kapp Senior Residence, Flemington (Pennrose)
- (x) JESPY House
- (xi) Maher Manor in Old Bridge (Pennrose)
- (xii) Meadowlands Transportation Brokerage Corporation d/b/a EZ Ride
- (xiii) NJ County Planners Association
- (xiv) NJ Department of Human Services - Division of Aging Services
- (xv) NJ Housing and Mortgage Finance Agency
- (xvi) Residence at Roosevelt Park, Edison (Pennrose)
- (xvii) Tri-Town 55+ Coalition
- (xviii) Westwood for All Ages

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TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
Background.....	1
Objectives.....	2
Research Approach and Summary of Work Performed	2
Analysis and Results.....	3
Conclusions and Recommendations	5
BACKGROUND	8
RESEARCH OBJECTIVES AND APPROACH	11
LITERATURE REVIEW	12
The Importance of Addressing Transportation Mobility Needs of Older Adults ..	12
Past and Future Growth of Older Adults in the United States	13
Implications of the Growth of Retirement Communities	15
Conclusion	16
POLICIES, PLANS, AND RESOURCES FOR OLDER ADULTS	17
Public Transportation in New Jersey	17
Health-Related Senior-Serving Transportation Programs in New Jersey.....	19
Federal Legislations and Programs	20
State Programs	25
Regional Plans	26
Resources to Support Older Adult Mobility	27
INNOVATIVE MOBILITY STRATEGIES	29
North Brunswick Senior Cabs	29
Ryde4Life.....	30
FindMyRidePA	31
Senior Transportation Connection.....	31
NewMo	32
GreatCall Rides	33
The TRIP Volunteer Driver Program.....	34
OmniTrans RIDE and Volunteer Driver Programs.....	34
USC Center for Body Computing – FREE Lyft Rides for Seniors.....	35
Transit Together Grocery Program	36
Brookdale Senior Living Pilot Program with Lyft.....	37
Voyage Autonomous Vehicles	37
DOROT Technology Coaching, New York, New York.....	37
Conclusion	38
KEY INFORMANT INTERVIEWS	38
Interview Methodology	38
Organizational Structures	44
Service Descriptions	45
Service Histories and Development	46
Marketing and Outreach.....	47
Service Evaluation	48

Challenges and Successes	48
Lessons Learned	50
OLDER ADULTS OF NEW JERSEY.....	53
Location of Older Adults in New Jersey	53
Growth of Older Adults, 1990-2017	60
Location of Older Adult Communities	63
Potential Growth of Older Adults	66
Crashes Involving Older Drivers and Pedestrians in New Jersey	68
Travel Patterns of Older Adults	72
Characteristics of New Jersey Older Adults	76
Conclusion	79
LESSONS FROM A SURVEY OF MUNICIPAL OFFICIALS.....	80
Expected Growth of Older Adults and Older Adult Housing	80
Transportation Mobility and Safety Priorities	83
Conclusion	84
A SURVEY OF NEW JERSEY OLDER ADULTS	85
Living Arrangement and Moving	86
Walking and Sidewalks Quality	88
Driving Propensity and Driver's License	89
Availability of Household Vehicle	89
Driving Cessation Plan.....	90
Availability of Friends and Family Members to Give Rides	90
Public Transit Near Home	93
Travel by Walking, Public Transit, Car, and Ridehailing	93
Trip Deprivation for Lacking Transportation.....	95
Transit Solutions to Trip Deprivation.....	98
Recommendations for Transportation Improvements	99
Access to Technologies and Technology Use.....	100
Potential Use of Driverless Vehicles.....	106
Safety Perception	108
Impact of COVID-19 on Transportation.....	109
Conclusion	109
RECOMMENDATIONS.....	112
Planning Recommendations.....	112
Innovative Technologies Recommendations	113
Fixed-Route Transit Recommendations	114
Fare and Resource Recommendations.....	115
Training Recommendations.....	116
Volunteer Program Recommendations.....	117
Non-Transport Technology Recommendations.....	117
Outreach and Marketing Recommendations.....	118
Mobility Management and “Seamless” Service Recommendations	119
Service Design Recommendations	120
Policy Recommendations	120
Geographic Recommendations.....	120

Recommendations for Additional Research	122
REFERENCES.....	123
APPENDIX A	125

LIST OF FIGURES

Figure 1. The geography of the three metropolitan areas and 21 counties of New Jersey	9
Figure 2. Historical and projected growth of older adults, United States	14
Figure 3. Geographic distribution of population aged 65+ in New Jersey	55
Figure 4. Increase of population aged 65+ in municipalities.....	61
Figure 5. Units in exclusive age-restricted developments at the municipal level	65
Figure 6. Crashes involving drivers aged 65+ per 100,000 persons aged 65+ in municipality	70
Figure 7. Crashes involving pedestrians aged 65+ per 100,000 persons aged 65+ in municipality	71
Figure 8. Average number of cars in households with one or more people aged 65+ in municipality	73
Figure 9. Number of trips on travel day by people aged 65+ shown as deviation from mean for each MPO	74
Figure 10. Percent of trips by non-automobile modes by people aged 65+ on travel day	75
Figure 11. Expected growth of older adults in the next 20 years	81
Figure 12. Geographic coverage of municipal transportation services for older adults ..	82
Figure 13. Top priority for enhancing mobility and traffic safety of older adults	84
Figure 14. Length of time residing in current residence.....	87
Figure 15. Share of older adults forgoing desired trips for lacking transportation, by age, gender, cars in household, household members, and disability	96
Figure 16. Share of older adults forgoing desired trips for lacking transportation, by race, ethnicity, and household income	97

LIST OF TABLES

Table 1 – Key Informant Interview Summary	40
Table 2 – Agencies by targeted user/trip purpose	44
Table 3 – Total population and older adult population in New Jersey counties	54
Table 4 – The 50 municipalities of New Jersey having the largest number and highest proportion of people aged 65+	58
Table 5 – The 50 municipalities with the largest population aged 65+ living beyond half mile of bus routes and train stations.....	59
Table 6 – Increase in population aged 65+ between 1990 and 2017 in different counties.....	60
Table 7 – The 50 municipalities experiencing the largest increase in population aged 65+ between 1990 and 2017	62
Table 8 – The 20 municipalities with most dwelling units in older-adult developments .	64
Table 9 – County-wise projection of older adults from 2014 to 2034.....	66
Table 10 – Municipalities with most older adults in 2034 if county projections are distributed to municipalities according to 2017 share	67
Table 11 – The top-50 municipalities of New Jersey according to number of crashes involving older adult drivers and pedestrians (per 100,000 older adults)	69
Table 12 – Characteristics of people aged 65+ for New Jersey as a whole	76
Table 13 – PUMAs with the highest proportion of population aged 65+ with disability ..	77
Table 14 – PUMAs with the highest proportion of population aged 65+ in poverty	77
Table 15 – PUMAs with the highest proportion of people aged 65+ in single-person households.....	78
Table 16 – PUMAs with the highest proportion of population aged 65+ in no-car households.....	79
Table 17– Number and proportion of older adults living alone	87
Table 18 – Ability to walk outside home by age	88
Table 19 – Possession of driver’s license and the ability to drive.....	89
Table 20 – Personal mobility plan after driving cessation.....	90
Table 21 – Having friends or family to give rides by age	91
Table 22 – Having friends and family to give rides by household income	92
Table 23 – Having friends and family to give rides by race and ethnicity	92
Table 24 – Frequency of traveling by different travel modes.....	94
Table 25 – Number and percentage of older adults who had forgone trips for lacking transportation	95
Table 26 – Trip purpose of forgone trip and the potential for transit station/stop near home and at-home pick up to make forgone trips possible	99
Table 27 – Recommendations for transportation improvements	100
Table 28 – Number and percentage of people aged 55+ with access to various technologies	101
Table 29 – Percentage of people aged 55+ with access to technologies, by age	102
Table 30 – Percentage of people aged 55+ with access to technologies, by race/ethnicity	103

Table 31 – Percentage of people aged 55+ with access to technologies, by household income.....	104
Table 32 – Technology-based activities by older adults, persons and percentages....	104
Table 33 – Technology-based activities by older adults, percentages by age.....	105
Table 34 – Technology-based activities by older adults, percentages by race and ethnicity	106
Table 35 – Technology-based activities by older adults, percentage by household income.....	106
Table 36 – Expectation about driverless cars becoming common in 10 years	107
Table 37 – Potential for using shared driverless bus or van service provided by private companies and public agencies	108
Table 38 – Perception of unsafe transportation.....	108

EXECUTIVE SUMMARY

Background

Out of New Jersey's total population of approximately 9 million, about 28% are aged 55 or older (55+), 15% are aged 65 or older (65+), and 7% are aged 75 or over (75+). More importantly, the proportion of older adults belonging to all three groups increased significantly over the past two decades and is expected to grow similarly in the next two decades. Because many older adults encounter transportation mobility difficulties that younger adults do not, the aging of New Jersey's population has been a serious concern for many stakeholders, including transportation planning agencies, public and community transit providers, nonprofit organizations, and foundations catering to the needs of older adults. Yet, very little research has been conducted at the state level to understand the transportation mobility needs of older adults in New Jersey.

Although the characteristics of older adults vary widely, all older adults are considered one of several transportation-disadvantaged populations. Government policies and programs as well as regional plans prepared by metropolitan planning organizations (MPO) place special emphasis on developing transportation mobility strategies for older adults. Public transit agencies also provide certain privileges to older adults, such as reduced-fare tickets for all older adults and paratransit service for eligible older adults with disabilities. Many counties and municipalities also provide special transportation for older adults. Transportation services provided by health agencies can also be used by qualified older adults. Yet, older adults' transportation remains a serious issue because of limitations of transportation available to them, including lack of coordination between transportation providers, geographic limits imposed by service providers, limited public transportation service in certain areas, and difficulty of many older adults in using fixed-route transit such as buses and trains.

Recent evolutions in transportation and communication technologies have led many to believe that non-conventional strategies may help to address older adults' needs and barriers better. Some of the new technologies, such as ridehailing and microtransit, can improve older adults' travel options and make travel more convenient. There is also an expectation among transportation researchers and professionals that when fully autonomous vehicles are available, older adults will have even more travel options. Other technologies, such as online shopping for grocery and other goods, videoconferencing, etc., can make some of older adults' trips unnecessary. In various parts of the country, some of the new transportation technologies are currently being tested. Efforts are also underway in different parts of the country to train older adults to use various forms of technology. Given all the recent innovations, it is important to reassess the needs and barriers of New Jersey older adults and identify strategies to enhance their mobility.

Objectives

The primary objective of this research is to identify transportation mobility needs and barriers of older adults throughout New Jersey so that appropriate recommendations can be presented for improving their transportation mobility and overall well-being. The specific objectives of the research are as follows:

- Identify the regions within New Jersey that are likely to contain large populations of older adults in the near future.
- Examine the heterogeneity among New Jersey older adults regarding personal characteristics, travel characteristics, and characteristics of the areas where they live.
- Assess innovative strategies, including transportation and communication technologies, that can potentially enhance the mobility of older adults or reduce their travel needs.
- Present planning, policy, and strategy recommendations and suggest pilot programs that can be used by government agencies, transportation service providers, foundations, and non-profit organizations to promote safe transportation mobility of older adults in New Jersey.
- Generate datasets that can be used by transportation agencies, researchers, and professionals for future work related to older adults' mobility in New Jersey.

Research Approach and Summary of Work Performed

This research adopted a mixed-method approach involving both quantitative and qualitative components. To fulfill the objectives, it took recourse to several tasks, including (i) a literature review; (ii) a review of policies and programs pertinent to older adults; (iii) a review of innovative mobility strategies for older adults adopted in different parts of the country; (iv) scripted interviews with 12 key informants selected from different parts of the country because of their involvement with innovative practices; (v) the analysis of secondary data to comprehend where New Jersey older adults live and how they travel; (vi) an online survey of 157 New Jersey municipal officials to comprehend plans for future accommodation of older adults and transportation provided at the municipal level; (vii) an online survey of 3,003 New Jersey older adults about living arrangements, transportation needs and barriers, technology use for various purposes, potential to use autonomous vehicles, and preferred transportation strategies to address older adults' needs; and (viii) meetings with an advisory group composed of New Jersey experts on older adult issues and transportation issues.

Analysis and Results

A literature review indicated that having transportation mobility enhances the quality of life of older adults. It also showed that the ability to age in the places where they lived most of their adult lives is a desired outcome for older adults generally, but because people in the United States (US) are predominantly aging in automobile-oriented suburban areas with little or no public transit, lack of transportation has become a serious issue for older adults who cannot drive.

Several innovative practice case studies showed that ridehailing is increasingly being used to cater to the travel needs of older adults, whether that be through direct service from ridehailing companies, concierge service, or collaboration between transit agencies and ridehailing companies. The use of driverless or autonomous vehicles has also begun in selected older-adult communities in California and Florida, but there is no consensus yet about the acceptance of the technology by older adults generally. Interviews with the 12 key informants with experience in implementing innovative transportation practices for older adults indicated that a few variables determine the success of the programs and services, including coordination, organizational context and experience, business and resource development, thoughtful application of technology, and paying attention to customers' needs.

Secondary data were analyzed from the census, American Community Survey (ACS), ACS Public Use Microdata Samples (PUMS), New Jersey Department of Labor (NJDOLE), and the three MPOs of the state. The analysis revealed that the growth of older adults will most likely continue in automobile-oriented suburban areas of the state (e.g., Middlesex County, Ocean County, Monmouth County, Burlington County), but a substantial number of older adults will continue to live in urban centers such as Newark, Jersey City, Paterson, and Trenton in the next two decades. Additional analysis showed that older adults living in suburban areas make fewer trips than older adults living in urban areas. However, older adults living in suburban areas make almost all their trips by the automobile, whereas older adults living in urban areas make more trips by non-automobile modes.

It was clear from the secondary data analysis that older adults in New Jersey are highly heterogeneous. The analysis also showed that about 34% of New Jersey older adults age 65 or over have at least one type of disability, about 11% live in poverty, about 29% live in single-person households, and about 11% live in households without vehicles. In urban regions such as Newark, Camden, Trenton, Jersey City, and Paterson, the proportion of older adults having disabilities, living in poverty, and living in households without vehicles is higher than other regions. The proportion of older adults living alone is also high in the above-mentioned urban regions, but the proportion is high in some suburban regions also, including parts of Ocean County, Monmouth County, Cumberland County, and Camden County. On the whole, the analysis of secondary data indicated that transportation needs will continue to be high in large urban centers because of their large

number of disadvantaged older adult populations, but needs will increase in suburban areas because of the growth of older adults over time.

A total of 157 individuals participated in the survey of municipal officials that was sent to all 565 municipalities. The survey revealed that the growth of older adults is expected to continue approximately at the same pace as the past, but it also indicated that the growth of older adult developments (i.e., 55+ communities or active living communities) may expand to municipalities that did not historically have such developments. The survey revealed that transportation service from counties is more commonly available to older adults than transportation service from municipalities. In addition, the survey showed that a large proportion of municipal transportation services are restricted to specific destinations or specific trip purposes within the municipalities. Finally, the municipal officials indicated that the top two priorities for enhancing transportation mobility of older adults should be door-to-door transportation service and improvement/enhancement of conventional public transportation.

A total of 3,003 people participated in the statewide survey of older adults, aged 55 or over. The most important finding from the survey is that almost 15% of New Jersey older adults, amounting to more than 360,000 people, forgo at least some trips because of a lack of transportation. The proportion is the highest among older adults living in households without vehicles (55%), followed by older adults with disabilities that prevent taking public transit (49%), older adults with less than \$25,000 household income (33%), older adults aged 85 or over (29%), people with mixed race or other races (26%), and older adults living alone (25%). The proportion of older adults forgoing trips for lacking transportation is the highest in the Mercer-Somerset-Middlesex County cluster (18%), followed by the Bergen-Passaic-Hudson-Essex-Union County cluster (16%). Depending on trip purpose, 50 to 64% of the older adults who had forgone trips believe that they could have made the forgone trips if a public transit station or stop were within a 10-minute walk of home. Between 60 and 87% believe that they could have made the trips if transit vehicles could pick them up from home.

When asked about transportation strategies that would enhance mobility of older adults, the proportion was the highest for free or more affordable transit fare for buses and trains (43%), subsidized Uber and Lyft for older adults (43%), more public transport for older adults and/or people with disabilities (42%), and subsidized taxi for older adults (35%). These responses indicate the need for affordable non-conventional transportation services.

When asked if any family member or friend living with or nearby could give rides when needed, about 20% of the older adults mentioned having no one. However, the proportion is substantially higher among older adults from households with less than \$25,000 household income (34%), Non-Hispanic Black older adults (32%), people aged 85 or over (30%), and older adults with Mixed or Other Race (30%).

Responses to questions about the availability of technologies also showed variations among population groups. For example, although almost 90% of all older adults mentioned having access to the internet, only 67% of the older adults aged 85+ and 76% of the older adults from households with less than \$25,000 income mentioned having access to the internet. Similar differences were observed for other technologies such as text messaging, smartphone, videoconferencing, etc. The survey also showed that the use of technologies that could reduce the need for travel, such as online shopping, online banking, etc., varies widely among population groups. Once again, older adults from low-income households and older adults aged 85+ were more disadvantaged than others. More importantly, the population groups that are disadvantaged in terms of technology availability and use are also disadvantaged in terms of trip deprivation for lacking transportation.

Older adults in New Jersey have different expectations about the future of driverless or autonomous vehicles (AV). Although many are skeptical, almost 21% believe that 25% or more cars on New Jersey roads in the next 10 years could be autonomous. The survey indicated that older adults could be more interested in using shared autonomous buses and vans if service is provided by public agencies or private companies compared to owning autonomous vehicles.

Conclusions and Recommendations

A major conclusion from this research is that the transportation needs and barriers of older adults in New Jersey are diverse because of their own characteristics (e.g., income, disability, age, race) as well as the characteristics of the places where they live (e.g., urban, suburban, rural). As a result, one-size-fits-all strategies to improve transportation mobility of older adults are not likely to succeed in New Jersey. Another major conclusion is that there is a need for trying newer technologies such as collaboration with and/or subsidization of ridehailing or taxi services throughout the state because trip deprivation for lacking transportation is high even in areas well-served by fixed-route transit buses and trains.

The recommendations from this research were categorized into 13 groups: (a) Planning Recommendations, (b) Innovative Technology Recommendations, (c) Fixed-Route Transit Recommendations, (d) Fare and Resource Recommendations, (e) Training Recommendations, (f) Volunteer Program Recommendations, (g) Non-Transport Technology Recommendations, (h) Outreach and Marketing Recommendations, (i) Mobility Management and “Seamless” Service Recommendations, (j) Service Design Recommendations, (k) Policy Recommendations, (l) Geographic Recommendations, and (m) Recommendations for Additional Research. While the full list of recommendations is presented in a separate section of this report, a sample of the key recommendations are presented below.

- Consider the diversity among older adults, especially in terms of age, income, disability, and access to technologies for all transportation planning purposes because

these factors immensely affect mobility and trip deprivation. Older adults without access to cars or smartphones, with low income or disabilities, as well as the oldest older adults, should receive higher priority than other older adults.

- Integrate transportation decisions with land use planning decisions at all levels. Place emphasis on neighborhoods and locations with a high concentration of older adults, including age-restricted developments and buildings for all types of public transportation.
- Emphasize removing geographic barriers (e.g., county or municipal border limits) to promote more seamless service for all publicly provided transportation services through greater coordination between statewide transit services and local transit services and by exploring microtransit and other innovative service models.
- Promote and support services like [Ryde4Life](#) concierge service and the [North Brunswick Senior Cab](#) subsidized taxi service throughout the state with attention to places with large numbers of older adults and lower availability of fixed-route transit.
- Assess the viability of providing subsidized transit service based on the [Taxi RIDE & Lyft RIDE](#) model adopted by Omnitrans, the transit agency in San Bernardino Valley, California.
- Plan for and design services with the assumption that fully autonomous vehicles will provide a real travel option within a few years. Pursue steps now to develop financial subsidies or other incentives for AV providers to include lower density communities, such as southern and northwestern New Jersey
- Focus on the areas with high concentration of older adults, such as older-adult communities and buildings, when assessing bus routes and bus stop locations as a part of bus network redesign efforts.
- Plan with the recognition that affordability is a serious issue for many older adults, with fare strategies to increase affordability.
- Expand financial resources for senior mobility efforts by identifying new or non-traditional funding sources for operational costs, fare subsidies, and marketing; examples include marijuana surcharges, car rental surcharges (used in Pennsylvania), rideshare revenue program surcharges (used in Massachusetts), and NJTPA technical assistance grants.
- Make mobility training available to interested older adults who can learn to use non-automobile travel modes, including fixed-route transit, county/municipal transportation, concierge services, ridehailing, and volunteer driver programs.

- Recognizing that driving is the primary transportation mode for NJ's older adult population, identify funding support for expanded programming that supports safer senior driving for as long as safely possible, such as [Automobile Association of America's \(AAA\) CarFit](#) initiative as well as services offered by occupational driving therapists. Pursue efforts to ensure these services are available statewide and are marketed widely to older adults.
- Given the survey responses related to older adults' comfort with online shopping, socializing, and other activities, additional technology use could be adopted with support. Work with collaborating State agencies that serve older adults to increase technology adoption.
- Work with programs like [DOROT's Technology Coaching Program](#) and [OATS \(Older Adult Technology Services\)](#), in collaboration with other governmental and philanthropic partners in New Jersey, to bring technology training to older adults across New Jersey.
- Develop targeted marketing and senior mobility outreach efforts working with state and regional partners, including the NJ Division of Aging Services and the Metropolitan Planning Authorities. Collaborate with organizations involved in the study effort, such as the American Automobile Association (AAA), NJ Housing and Mortgage Finance Agency (NJHMFA), and New Jersey Advocates for Aging Well and AARP to help disseminate information.
- Incorporate report recommendations into the work of the Age-Friendly State Advisory Council, created on March 2, 2021, with Executive Order No. 227. The Council will include representatives from the New Jersey Departments of Transportation, Community Affairs, and Health, and other stakeholders, and will issue a blueprint of best practices for advancing age-friendly transportation, housing, inclusivity, and community support and health services.
- Examine the feasibility of "premium" on-demand senior-friendly transportation services for older adults who are not eligible for ADA service or who live outside the service area. In suburban and rural areas, many homes are more than $\frac{3}{4}$ mile from NJ TRANSIT local bus routes and outside the ADA paratransit service area.
- Evaluate the alignment of the current fixed-route network in serving known locations of senior activity (housing sites, medical offices, shopping, senior centers, etc.). Identify improvements to make the service more inviting and elder-friendly overall.

BACKGROUND

Older adults constitute a large proportion of New Jersey's total population. According to data from the American Community Survey (ACS), out of New Jersey's total population of 8.96 million people, approximately 2.53 million were aged 55 or over (55+) and 1.53 million were aged 65 or over (65+) in 2017. Combined data from the census and ACS show that the share of 55+ population in the state increased from approximately 22% to 28% and the share of 65+ population increased from 13% to 15% between 2000 and 2017. This growth was propelled largely by the aging of New Jersey's own baby boomers, many of whom entered retirement age during this period. Because of the "aging-in-place" phenomenon, many are aging in the suburbs and exurbs of the state, where they have lived most of their adult lives. However, such places are also highly automobile-oriented, where mass transit is not readily available and people are not accustomed to taking public transit. Despite the increase of older adults in some suburban municipalities, the number of older adults in New Jersey's large urban centers is also substantial because of their large total population.

Many older adults have disabilities that prevent them from driving, walking, and taking fixed-route transit such as trains and buses. Because of low income, a significant number of older adults cannot afford to own a car. A large proportion of older adults have no one in their households to give rides when needed because they live alone. Furthermore, exclusive publicly funded or subsidized transportation services for older adults are rare, and even when they exist, their utility is limited because desired destinations are often not accessible and desired services are unavailable when needed.

Like the rest of the country, New Jersey's older adults are also considered transportation-disadvantaged for transportation planning and policy purposes because they encounter certain mobility constraints that younger people do not encounter. As a disadvantaged population, older adults' travel needs and barriers are typically assessed, and strategies to address those needs and barriers are identified, by the coordinated human services transportation plans prepared by metropolitan planning organizations (MPO). In New Jersey, those plans are prepared and periodically updated by the state's three MPOs that cover the entire state: The Delaware Valley Regional Planning Commission (DVRPC), the North Jersey Transportation Planning Authority (NJTPA), and the South Jersey Transportation Planning Organization (SJTPO). The MPO plans are prepared under the guidelines of the United States Department of Transportation (USDOT) and developed within the framework of federal laws and regulations. Figure 1 shows how the 21 counties of New Jersey are divided into the three MPO regions.

MPO plans adequately identify transportation needs and barriers of older adults and sufficiently develop strategies through data analysis and public involvement processes for each MPO region. However, a similar statewide effort is lacking to compare older adults' transportation mobility needs and barriers, or to assess the appropriateness of transportation strategies throughout New Jersey. Each of the three MPO regions has diverse populations and land uses, but the regions are also different from each other in

terms of population characteristics and place characteristics, such as proximity to large cities in bordering states and transit availability.

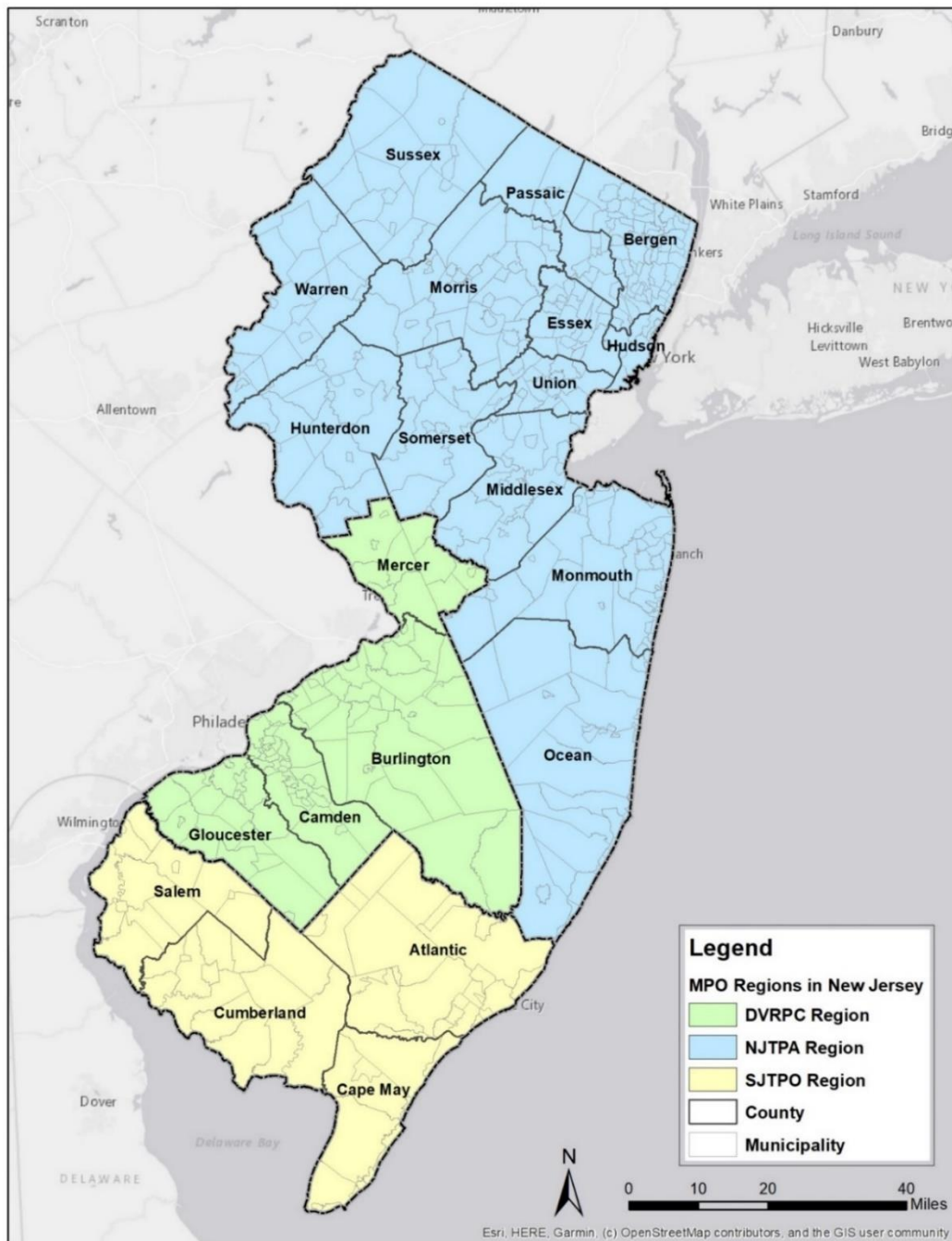


Figure 1. The geography of the three metropolitan areas and 21 counties of New Jersey

Although older adults generally are considered transportation disadvantaged, they are a highly heterogeneous population with varying needs and capabilities because of variations in age, employment, income, education, physical/sensory and mental abilities, household type, automobile ownership, race, language skills, and culture. Variations in the characteristic of their residential neighborhoods also interact with their personal and household characteristics. For example, older adults who can afford to own and safely drive a car may be able to live in automobile-oriented suburban neighborhoods and yet fulfill all their travel needs with ease, whereas older adults who cannot drive because of a disability or cannot afford a car are in a different situation. Similarly, older adults with disabilities living in areas where accessible paratransit service is readily available are better off than similar older adults living in areas where such services are not available. Because of the importance of geographic location and neighborhood characteristics, older adults' travel needs and barriers cannot be fully comprehended based solely on the basis of their personal and household characteristics.

Recent years have seen many innovations in transportation and communications technologies. Some new technologies can enhance older adults' mobility, while other technologies can reduce their need for travel. For example, within the past ten years, the emergence of new app-based technologies such as ridehailing (e.g., Uber and Lyft) has provided all people, including older adults, a novel flexible option to travel. Some transportation experts are optimistic that such services can help to bridge the "first-mile" and "last-mile" gaps for fixed-route transit. Efforts are underway in different parts of the nation to assess the coordination between conventional transit and ridehailing. Then again, many transportation experts believe that autonomous or self-driving cars, vans, and buses will become increasingly common in the coming years, allowing older adults and people with disabilities yet another travel option that is convenient and safe. Within the transit industry also, technological innovations are taking place regarding real-time information, ticketing apps, etc.

While all of the above-referenced technologies can make travel by older adults easier, other technologies can make travel unnecessary or redundant. For example, some older adults are already purchasing grocery and other goods, taking care of banking needs, keeping in touch with friends and family members, and entertaining at home by using computers, smartphones, videoconferencing tools, streaming services, etc. However, despite the emergence of these new technologies, research efforts are lacking in New Jersey to comprehend how older adults view and use new technologies and how new technologies have affected the mobility and overall well-being of older adults. Needless to say, research on potential technologies, such as fully-automated vehicles, is also lacking.

Taking advantage of newer technologies, diverse types of efforts have been made in recent years in different parts of the country to enhance transportation mobility options for older adults with support from government agencies, private sector firms, and/or non-profit organizations. Some of these efforts include novel transportation services, whereas others include technologies or services to make travel convenient or affordable. However,

efforts to synthesize those efforts for New Jersey transportation agencies and professionals have been rare.

Within the public transit industry itself, there is a growing tendency among agencies nationwide to rethink how services are provided. For example, many agencies have already redesigned their transit routes in recent years, whereas many others have begun to redesign, and yet others are planning such redesigns in the near future. The growing tendency among transit agencies to redesign networks and services gives an excellent opportunity for incorporating strategies to enhance transportation mobility and safety of older adults.

With that background, this research seeks to identify safe transportation mobility strategies for older adults of New Jersey by taking into account the heterogeneity of people and places. To fulfill this objective, the research takes recourse to (a) literature review; (b) online research to review innovative mobility strategies for older adults throughout the country; (c) interviews with organizations providing innovative transportation services and/or technologies in different parts of the country, (d) outreach with New Jersey experts on older adults' mobility needs and barriers; (e) data analysis to identify places within New Jersey where a large number of older adults will live in the near future; (f) data analysis to compare the heterogeneity of older adults in different parts of the state; (g) survey of New Jersey municipal officials to comprehend plans to accommodate older-adult housing, assess the quality of local transportation for older adults, and gain insights about transportation strategy preferences; and (h) survey of New Jersey older adults to examine their travel patterns, trip deprivation, preparation for driving cessation, transportation and communications technology use, perception of autonomous vehicles, and preference for transportation strategies to enhance mobility of older adults.

RESEARCH OBJECTIVES AND APPROACH

The research objectives for this study are to:

- Identify the regions within New Jersey that are likely to contain large populations of older adults in the near future.
- Examine the heterogeneity among New Jersey older adults regarding personal characteristics, travel characteristics, and characteristics of the areas where they live.
- Assess innovative strategies, including transportation and communication technologies, that can potentially enhance the mobility of older adults or reduce their travel needs.
- Present planning, policy, and strategy recommendations and suggest pilot programs that can be used by government agencies, transportation service providers,

foundations, and non-profit organizations to promote safe transportation mobility of older adults in New Jersey.

- Generate datasets that can be used by transportation agencies, researchers, and professionals for future work related to older adults' mobility in New Jersey.

This research adopts a mixed-method approach to fulfill the research objectives. In addition to reviews of literature, plans, policies, and practices throughout the country, it involved interviews with key informants who have the experience in implementing innovative mobility practices, meetings with an advisory board, secondary data analysis, a survey of New Jersey municipal officials, and a statewide survey of older adults about their use of transportation and other technologies.

LITERATURE REVIEW

The purpose of this review is to show the historical focus of transportation policies generally and the challenges faced while providing transportation to older adults. It shows that older adults will continue to constitute a large share of the country's population and therefore continued attention will be needed to address their mobility needs. It further shows that aging of older adults in suburban locations with little or no public transit contrasts with the historical emphasis of transportation policies on public transit as a means to enhance older adults' mobility. It concludes with an argument to consider heterogeneity among older adults and innovations in transportation technologies when developing strategies to enhance transportation mobility of older adults.

The Importance of Addressing Transportation Mobility Needs of Older Adults

Past research shows that transportation mobility helps older adults in many different ways.⁽¹⁾ First, mobility helps older adults to maintain autonomy. This autonomy helps them both physically and psychologically. Second, transportation mobility allows older adults to remain socially connected. Third, it allows them to participate in recreational pursuits of their liking. Fourth, mobility helps them to remain physically active and to prolong life span, which in turn, increases their long-term quality of life. That lack of mobility increases people's loneliness and depression is also shown by studies on the general population.⁽²⁾

Older adults have been considered as transportation disadvantaged by transportation policies in the United States (US) for several decades. Examples of early studies that included older adults as transportation disadvantaged include Paaswell and Recker⁽³⁾, Schnell⁽⁴⁾, and Falcocchio and Cantilli⁽⁵⁾. Meyer and Gómez-Ibáñez⁽⁶⁾ and Altshuler et al.⁽⁷⁾ are examples of other early studies to consider older adults as transportation disadvantaged. As indicated in a report for the Transportation Research Board, older adults are considered as transportation disadvantaged because of the overlap between old age, disability, and poverty.⁽⁸⁾ For disabilities and lack of resources, many older adults cannot travel like younger people. Wachs attributed the special attention to older adults

in US transportation policy to four types of factors: economic, political, psycho-sociological, and ethical-philosophical.⁽⁹⁾ In more recent times, older adults have been specifically targeted by transportation policies because of the sheer size of the baby boomer generation.⁽¹⁰⁾

The focus of US transportation policies has mainly been on public transportation and human services transportation despite the fact that older adults predominantly travel by cars. The Urban Mass Transportation Act of 1964 (amended in 1970) emphasized the importance of older adults to transit agencies.⁽⁴⁾ The Urban Mass Transportation Administration issued a regulation requiring all new transit vehicles and facilities to be accessible to older adults and people with disabilities.⁽¹¹⁾ The National Mass Transportation Assistance Act of 1974 required transit agencies to charge a reduced fare from older adults at certain times of the day. Older adults are also considered transportation disadvantaged in the realm of human services transportation, which targets older adults, people with disabilities, and the poor. At present, millions of dollars are spent to address the mobility needs of older adults and other transportation disadvantaged populations under various federal programs, but to what extent older adults benefit from the programs is difficult to assess because of the complex nature of the programs and overlaps between programs and services.⁽¹⁰⁾

Despite the historical emphasis of older-adult transportation policies being on public transportation, for most older adults, mobility means access to a car.⁽¹²⁾ However, all older adults reach a stage in life when they can no longer safely drive a car.^(13,14) Driving cessation among older adults often leads to depression. Driving cessation also leads to increasing dependence on family members or non-family caregivers. That driving cessation is a critical problem for older adults is well-recognized by transportation researchers, but case studies on the transition from cars to public transit use because of driving cessation are rare.

Much of the literature on older adults' transportation issues has focused on mobility. Yet, transportation-related safety of older adults is also an equally important issue. By undertaking regular physical activities like walking, older adults can maintain good health for prolonged lifespans. However, older adults are also more concerned about traffic safety. Older adults are also highly concerned about falling and injuries. Furthermore, older adults have a higher fatality rate from traffic accidents than younger adults.^(15,16) Thus, both mobility and safety ought to be considerations when planning transportation for older adults.

Past and Future Growth of Older Adults in the United States

A reason for the attention received by older adults nationally in transportation planning and policies is their rapid growth in the past decades and the expectation that they will continue to constitute a large proportion of the population. According to the Census Bureau, the number of older adults in the United States, defined as people aged 65 and over, increased almost sevenfold, from 3.1 million in 1900 to 35 million in 2000.⁽¹⁷⁾ The

share of people aged 65 and over also increased threefold, from 4.1% in 1900 to 12.4% in 2000. The US Census Bureau's (2017) population projection shows that the overwhelming growth of older adults in the US will continue at least until 2060.⁽¹⁸⁾ The share of older adults is expected to increase from 15% in 2016 to 23% by 2060.

The historical increase and projected growth of older adults in the US are summarized in Figure 2 by using historical data from Hobbs and Stoops⁽¹⁷⁾ and population projections from the US Census Bureau⁽¹⁸⁾. As shown in the figure, there will be almost 95 million older adults in the country by the year 2060. As has been the case in the past, women will continue to constitute a significantly larger segment of older adults than men in the foreseeable future.

Although the migration of older adults from New Jersey to other states is slightly higher than the migration of older adults into the state, because of greater longevity and aging in place, New Jersey's older adults are also expected to constitute a large proportion in years to come. The potential growth of the state's older adult population has been discussed in detail in another section of this report.

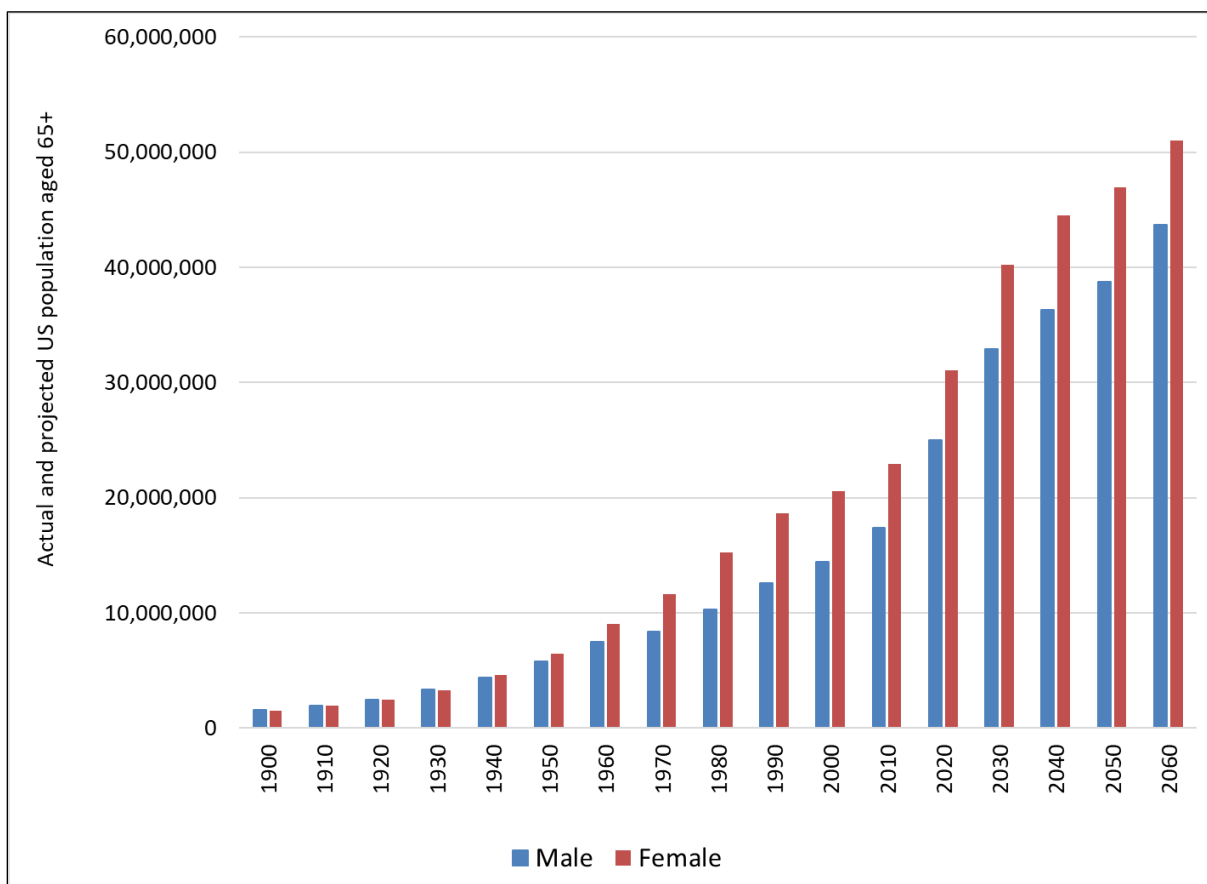


Figure 2. Historical and projected growth of older adults, United States

Source: Hobbs and Stoops⁽¹⁷⁾ and US Census Bureau⁽¹⁸⁾

Implications of Aging in Place

Aging in place to many means the ability of older adults to live in the home and neighborhood where they can maintain the community relationships they have had in their adult life.⁽¹⁹⁾ For older adults themselves, the term aging in place has a positive connotation because it means living in a non-institutionalized setting and a known environment, as well as a continuation of social and neighborhood connections.⁽²⁰⁾ Although aging in place is desirable from the perspective of older adults, the phenomenon may have adverse impacts on society at large.

Aging in place in the United States often means aging in suburban areas because most population growth in the past decades took place in the suburbs.⁽²¹⁾ Attributing aging in place to a high rate of home ownership in America, Callahan, Jr. noted that aging in place in suburban areas results in many unsatisfactory outcomes for older adults because of isolation, lack of transportation, and high cost of home repairs and in-home delivery services.⁽²²⁾ For aging in place to avoid adverse impacts, there is a need for investments on infrastructure and social amenities that are often scarce or unavailable.⁽²³⁾ Thus, aging in place can have positive life outcomes for older adults who can take care of themselves or have others to take care of them, but for others, especially those who need social support, it can have many adverse effects.

Advocacy groups such as the AARP support older adults' desire to age in place because of its positive impact on older adults themselves.⁽²⁰⁾ However, such advocacy groups also recognize the potential adverse effects of aging in suburbia and emphasize the importance of transportation-land use integration, transit-oriented development, complete streets, pedestrian safety, public transit access, human services transportation, and volunteer-driver programs to enable satisfactory aging in place.

Implications of the Growth of Retirement Communities

Recent decades have seen a rapid growth of retirement or age-restricted communities or developments throughout the country, including in New Jersey. Such communities are also known as active-living communities or 55+ communities. While most older adults age in the places where they lived their adult lives, some have preferred to move to retirement communities.

Retirement communities have grown because there is demand. Evidence suggests that age-restricted communities provide certain benefits to older adults that cannot be found in typical suburban communities. For example, Ahrentzen found that older adults living in retirement communities have a sense of belonging and safety perception that is not to be found in ordinary neighborhoods.⁽²⁴⁾ The study also found that having desirable activities near their homes benefit older adults in such communities. Similarly, Miller and Buys⁽²⁵⁾ and Wert et al.⁽²⁶⁾ noted distinct health benefits for older adults living in retirement communities because of the opportunities for physical activities. Brown et al. noted that

organized programs in retirement communities, especially those promoting physical activity, are beneficial to older adults.⁽²⁷⁾ A recent report by the Alan M. Voorhees Transportation Center of Rutgers University found that older adults living in retirement communities in Middlesex and Ocean Counties of New Jersey participate in physical activities more often and remain healthier in old age compared to older adults living in ordinary suburban neighborhoods nearby.⁽²⁸⁾

Although retirement communities often include townhouses and condominiums, they typically include a larger share of single-family homes. Because of their large size, such communities are less common in urban areas where land is already built up. As a result, many such developments are often built in suburban areas, where large parcels of land have been more readily available to developers. However, their location in predominantly suburban areas makes them less accessible by public transportation. Nathan et al. emphasized that connecting retirement communities to activities that are attractive to older adults is important.⁽²⁹⁾ However, because older Americans predominantly live in suburban locations, achieving that objective through traditional fixed-route transit is difficult. Yet, because of the large concentration of older adults in single neighborhoods, with service innovations, transit agencies may be able to better serve such communities than ordinary suburban neighborhoods.

Conclusion

The discussions in this section of the report showed that the primary focus of transportation planning and policies in the US has been to provide mobility to older adults by public transportation, but older adults who are able to drive and afford a car have mostly relied on the car as their primary mode of travel. This dependence on cars has helped the growth of older adults primarily in suburban areas, where public transit is less readily available. Although retirement communities set a new trend in the past few decades, such communities have also been predominantly in suburban areas with little or no public transit service. Thus, the continued residential location of older adults in suburban areas has not created an environment where traditional fixed-route transit can be efficiently provided.

This review showed that the older adult population will most likely continue to increase over the next few decades, and if older adults' preferences or land use policies and regulations do not change substantially, most of the new growth will continue to be in areas where it is inefficient to provide conventional public transit. The review also showed that the reasoning for transportation policies to focus on public transit as a mechanism to enhance mobility of older adults was that many of them have disabilities and/or are low income. However, current transportation practices seem to be dependent on a belief that all older adults will use public transit if it were available and affordable. For all older adults, or even a large share of older adults to use public transit, transit will have to be able to compete with the automobile. For that to happen, public transit will have to implement innovative strategies. Forthcoming technological innovations, such as automated buses and vans, as well as other technological innovations can make such strategies possible.

From the discussions in this section, one can surmise that unless older adults' residential location preferences and patterns change drastically, public transit will have to stretch even further into suburban areas where growth of older adults will continue. Recent and future innovations in transportation technologies, such as ridehailing and autonomous vehicles, may be able to help fulfill that need. Adoption of newer technologies by public transit agencies and collaboration between transit agencies and private technology companies may also help. However, one cannot ignore the fact that the original purpose of considering older adults as disadvantaged was that many were poor and had disabilities. Even if newer technologies help to enhance transportation mobility of older adults as a whole, special attention will still be needed to fulfill the needs of older adults with low income and disabilities, many of whom will continue to live in urban areas. The geographic distribution of older adults with heterogeneous characteristics calls for heterogeneous transportation services with the recognition that some older adults are more disadvantaged than others. While some may be able to use and pay for expensive innovative transportation, others will not.

POLICIES, PLANS, AND RESOURCES FOR OLDER ADULTS

This section provides a description of federal and state policies, regional plans, and resources (i.e., funding) that affect transportation mobility of older adults in New Jersey. However, for greater comprehension of the policies, plans, and resources, the section begins with a brief description of public transportation services and health related transportation available in New Jersey. Detailed description of policies, plans, programs, and resources at various levels are provided in subsequent sections.

Public Transportation in New Jersey

NJ TRANSIT is the primary provider of public transportation throughout the state. It provides fixed-route bus service, commuter rail service, and light rail service for all people and the Access Link service to people with disabilities. Reduced fares are available to riders age 62 or older and to people with disabilities with valid identification. Personal care assistants can ride Access Link for free when proper identification is presented by the person with the disability.

NJ TRANSIT bus service carries passengers on local and commuter routes in 386 of the state's 565 municipalities and also serves parts of New York City and Philadelphia. The agency's bus operation includes both local and commuter services. Its commuter rail system includes 12 lines: Northeast Corridor Line, Princeton Branch, North Jersey Coast Line, Raritan Valley Line, and Atlantic City Line; Hoboken Division: Mail Line, Bergen County Line, Pascack Valley Line, Meadowlands Rail Line, Montclair-Boonton Line, Morristown Line, and Gladstone Branch. It operates three light rail lines: The Hudson-Bergen Light Rail Line, the River LINE, and the Newark Light Rail Line. Because of the high proportion of older adults who have disabilities, the Access Link service provided by NJ TRANSIT to people with disabilities is particularly important in the context of older

adults' transportation mobility. Access Link operates as curb-to-curb service within a $\frac{3}{4}$ -radius of an eligible bus route or light rail station. Trips must be reserved from 1-7 days in advance. Regularly scheduled trips may be eligible for subscription service and pick-up times can vary up to 30 minutes of the scheduled time.

In addition to the services provided by NJ TRANSIT, three other transit agencies also provide service in specific parts of New Jersey. One such service is the Port Authority Trans-Hudson (PATH) rail service that directly connects in Hudson and Essex Counties of New Jersey to parts of Manhattan in New York City. The Port Authority Transit Corporation (PATCO) Speedline operates between Camden County of New Jersey and Philadelphia. In addition, the New York Waterway, a private company, operates ferry services between several ferry terminals in the northeastern part of New Jersey to terminals in Manhattan. Private bus companies also provide service in New Jersey, but those services are primarily focused on commuters.

Counties provide transportation for older residents and people with disabilities based upon their needs and priorities, as articulated in their respective plans. These transportation services serve a range of trip purposes: medical, employment, recreation, nutrition, education, and others. Medical (21.1%), employment (27.5%), and miscellaneous other trips (28.2%) constitute the largest proportion of all county service trips combined. While some counties provide scheduled deviated fixed-route services (e.g. Middlesex, Somerset, and Sussex), others focus on dial-a-ride and other service models. Fare policies vary among the counties. Counties receive support for the transportation services they provide from Senior Citizens and Disabled Residents Transportation Assistance Program (SCDRTAP), county budget appropriations, Title 49 U.S. Code Section 5310 (Section 5310) formula federal (capital and operating) grants, and through other revenue sources (farebox, advertising, etc.).

County services and other providers make use of vehicles funded by federal Section 5310 grants. NJ TRANSIT administers these funds and documented the active use of nearly 400 vehicles by 105 organizations overall as of 2019. The organizations receiving vehicle funding include governmental entities and transportation providers (counties, cities, townships, NJTRANSIT, Academy Bus, etc.), as well as healthcare providers, and organizations serving older adults and people with disabilities (e.g. the Arc, Jewish Vocational Service, Community Access Unlimited, Cheshire Home, Catholic Family & Community Services, etc.).

One of the limitations of county transportation services is that they are often restricted to county boundaries, meaning that older adults living in the border of one county may not be able to avail the service to travel even a short distance across the county boundary. In addition to the counties, many municipalities also provide transportation. A brief description of those services is presented in a subsequent section of this report based on a survey conducted as part of this research. As discussed, municipal services also have the same limitation regarding restricted geography.

Health-Related Senior-Serving Transportation Programs in New Jersey

Healthcare access is crucial for older adults to stay healthy, manage chronic conditions, and address emerging issues promptly. Within New Jersey there are services that are medically-focused, demand-response in nature, and less constrained by dedicated service areas. In addition, health networks in NJ have initiated transportation programs to ensure patient access as well, which also benefits older adults. These are described briefly below.

Logisticare

Logisticare became the state's medical transportation broker in July 2009 and is now responsible for arranging through its provider network: upper-mode non-emergent Mobility Assistance Vehicles (MAVs), Ambulance service and lower-mode, livery service for Medicaid recipients in all counties. Staff at the Division of Medical Assistance and Health Services (DMAHS) monitor Logisticare service and transport schedules to ensure that clients requiring regular physician visits for chronic illnesses are transported. Eligible clients request trips for medical appointments two days in advance, and Logisticare schedules a pick-up time based on travel time to the appointment. Routine scheduled medical trips (such as dialysis) can be set up as well.

Health-Related TNC Collaborations in NJ

Both Lyft and Uber have initiated transportation service agreements with major hospital networks in New Jersey. In 2018, Uber Health partnered with Robert Wood Johnson Barnabas Health and Hackensack Meridian Health network partnered with Lyft to make it easier for at risk patients to see their doctors and get proper care.

In 2019 Hitch Health partnered with both University Hospital in Newark and the Cancer Institute of New Jersey to provide free rides to the hospital (for select services) via Lyft or medical transport vehicles for patients. Hitch Health created a system that integrates information from patients' electronic health records, while maintaining confidentiality requirements, to identify potential riders and to make it use easy for doctors and patients. This system enables Hitch Health to identify eligible patients, connect with them in advance of an appointment via text message, and coordinate transportation on the day of the visit — without the use of a smart phone or special app.

RoundTrip, a Philadelphia-based start-up, is working with dozens of Garden State healthcare providers, including St. Peter's Healthcare System, Holy Name Medical Center in Bergen County, and Cooper University Health Care facilities in Camden, to arrange car, van or nonemergency ambulance service for patients with limited transportation options. Most recently, the company partnered with the Camden Coalition of Healthcare Providers, a collaborative effort to improve care for some of the most at-risk residents in the region.

Federal Legislations and Programs

Americans with Disabilities Act (ADA) and ADA Amendments Act (ADAAA)

The 1990 American with Disabilities Act supports accessibility for people with disabilities in the United States. To the extent that older populations have many of the same needs as people with disabilities and that there exist large overlaps between both groups, the ADA also supports the accessibility for many older adults. The ADA requires that most transportation providers purchase and operate lift-equipped vehicles for their fixed-route services and ensure system-wide accessibility of their demand-responsive services to people with disabilities. Public transit providers must also supplement their local fixed-route services with paratransit services for individuals unable to use fixed-route service for their trips due to their disability. The ADA also specifies design guidelines for accessibility to places of public accommodation and commercial facilities to the extent required by regulations issued by Federal agencies, including the Department of Justice, under the Americans with Disabilities Act of 1990. In 2008 Congress passed the ADA Amendments Act of 2008 (ADAAA), which broadened the definition of disability and made it easier for an individual to establish disability status.

Enhanced Mobility of Seniors & Individuals with Disabilities Program (Section 5310)

The Section 5310 Program seeks to improve mobility for seniors and individuals with disabilities by removing barriers to transportation service and by expanding transportation mobility options for this population. The program supports transportation services planned, designed, and carried out to meet the special transportation needs of seniors and individuals with disabilities in all geographic areas – large urbanized (over 200,000), small urbanized (50,000-200,000), and rural (under 50,000). Projects eligible for funding include capital investment and investment that supports complementary paratransit services beyond the ADA. Funds may be used for projects that exceed ADA requirements including public transportation projects that improve access to fixed route service and decrease reliance on complementary paratransit.

The formula funds are apportioned to each State based on the number of older adults and individuals with disabilities. Match funds can come from other Federal (non-DOT) sources, such as Older American Act (OAA) Title IIIB Supportive Services. Section 5310 program recipients may partner with meal delivery programs.

The FTA Enhanced Mobility of Seniors and People with Disabilities (Section 5310) Program seeks to improve mobility for seniors and individuals with disabilities by removing barriers to transportation service and by expanding transportation mobility options for this population. The program supports transportation services planned, designed, and carried out to meet the special transportation needs of seniors and individuals with disabilities in all geographic areas. Excluding the FAST Act funding

described in the following paragraph, nationally there was a total of \$288,155,908 available for apportionment in FY 2020.¹

Section 3006(b) of the FAST Act (Fixing America's Surface Transportation Act) reauthorized federal transportation spending in 2015 and created a discretionary pilot program for innovative coordinated access and mobility, open to Section 5310 recipients and sub-recipients, to assist in financing innovative projects for the transportation disadvantaged that improve the coordination of transportation services and non-emergency medical transportation (NEMT) services, including the deployment of coordination technology, projects that create or increase access to community One-Call/One-Click Centers, etc. Multiple rounds of competitive innovation-oriented grant funding have been awarded since 2016.

Section 3006(b) of the FAST Act created a discretionary pilot program for innovative coordinated access and mobility in 2015 and includes funding for new competitive grant programs for buses and bus facilities, innovative transportation coordination, workforce training, and public transportation research activities. Funding, intended for organizations that focus on coordinated transportation solutions, was authorized for \$2 million in FY 2016 and increased incrementally each year to \$3.5 million in FY 2019 and FY 2020. Human services transportation projects have been supported by multiple grant opportunities through this funding, including the FY 2016 Rides to Wellness program, FY 2018/19 Access and Mobility Partnership Grants, and CH 2020 Mobility for All Pilot Program Grants.²

Federal Transit Administration—Coordinating Council on Access and Mobility (FTA/CCAM)

The Federal Transit Administration—Coordinating Council on Access and Mobility (FTA/CCAM) is an interagency partnership established in 2004 by Executive Order 13330 to coordinate the efforts of the federal agencies that fund transportation services for targeted populations. The mission of FTA/CCAM is to issue policy recommendations and to implement activities that improve the availability, accessibility, and efficiency of transportation for older adults, people with disabilities, and individuals of low income. (<https://www.transit.dot.gov/coordinating-council-access-and-mobility>)

¹ <https://cms7.fta.dot.gov/funding/apportionments/table-1-fy-2020-fta-appropriations-and-apportionments-grant-programs-full>

² <https://www.transit.dot.gov/research-innovation/fy2020-pilot-program-innovative-coordinated-access-and-mobility-annual-report>

FTA/CCAM coordinates the efforts of the federal agencies that fund transportation services for targeted populations. The mission of FTA/CCAM is to issue policy recommendations and to implement activities that improve the availability, accessibility, and efficiency of transportation for older adults, people with disabilities, and individuals of low income.³ Programs potentially most relevant to senior mobility efforts in New Jersey include: Special Programs for the Aging, Title III, Part B, Grants for Supportive Services and Senior Centers; Section 202 Supportive Housing for the Elderly Program; Medicare Advantage (Medicare Part C) which can cover non-emergency transportation; Services to Older Refugees Program which funds programs to ensure that refugees age 60 and above have access to applicable services for the aging; and PACE (Programs of All-Inclusive Care for the Elderly).

FTA/CCAM Inventory of Federal Funding for Coordinated Transit and Human Services Transportation

The Inventory of Federal Funding for Coordinated Transit and Human Services Transportation identifies 130 different federal programs that provide funding for human services transportation for people with disabilities, older adults, and/or individuals of low income, according to the GAO, the FTA Charter Rule, and/or CCAM agency representatives. The criteria for inclusion in this inventory is that transportation service for one or more CCAM target populations is an eligible program expense, but inclusion does not necessarily imply grantees are using funds for such purpose. The CCAM Inventory was updated in October 2019 and is available online, at the FTA/CCAM website.⁴

The inventory also specifies information on the following eligible and/or required transportation activities: 1) planning exercise, 2) mobility management, 3) one call/one click centers, 4) transit fares/vouchers, and 5) vehicle purchase. The research team reviewed programs listed in the Inventory and identified pertinent programs in the table below, which are organized by age of eligibility, to identify those most directly relevant to senior mobility in New Jersey.

³ <https://www.transit.dot.gov/coordinating-council-access-and-mobility>

⁴ <https://cms7.fta.dot.gov/regulations-and-guidance/ccam/about/ccam-program-inventory#:~:text=The%20CCAM%20Program%20Inventory%20identifies,or%20individuals%20of%20low%20income>

PACE (Programs of All-Inclusive Care for the Elderly)

PACE provides comprehensive medical and social services to certain frail, elderly people (participants) still living in the community. Most of the participants who are in PACE are dually eligible for both Medicare and Medicaid. Benefits include, but are not limited to, all Medicaid and Medicare covered services. PACE also includes all other services determined necessary by the health professionals' team to improve and maintain an individual's health, which can include transportation. PACE programs provide services primarily in an adult day health center and are supplemented by in-home and referral services in accordance with the enrollee's needs. Six PACE centers currently operate in New Jersey. They are located in Bordentown, Pennsauken, Jersey City, Vineland, Oceanport, and Atlantic City.⁵

Special Programs for the Aging, Title III, Part B, Grants for Supportive Services and Senior Centers

Special Programs for the Aging are designed to encourage State Agencies on Aging and Area Agencies on Aging (AAAs) to concentrate resources to develop and implement comprehensive and coordinated community-based systems of service for older individuals via statewide planning, area planning, and provision of supportive services, including multipurpose senior centers. By providing transportation services, in-home services, and other support services, this program ensures that elders receive the services they need to remain independent.

Funds are awarded to states to develop and strengthen comprehensive and coordinated service delivery systems through designated State Agencies on Aging and Area Agencies on Aging. New Jersey's current State Strategic Plan on Aging spans 2017 to 2021. (Each County has an Area Plan on Aging). In addition to supportive nutrition services, these funds may be used to support other services in relation to multipurpose senior centers. These formula grant provide 85 percent of funding from federal sources and require 15 percent of other (nonfederal) funds.^{6 7 8}

⁵ <https://www.state.nj.us/humanservices/doas/services/pace/>

⁶ <https://www.state.nj.us/humanservices/doas/documents/NJ%20State%20Plan%202017-21%20Part%201%209.7.17.pdf>

⁷ <https://beta.sam.gov/fal/2f9e46c2c44144a6a692b5a05fd8de27/view>

⁸ <https://www.federalgrantswire.com/special-programs-for-the-agingtitle-iii-part-bgrants-for-supportive-services-and-senior-centers.html>

Section 202 Supportive Housing for the Elderly Program

HUD provides capital advances to finance the construction, rehabilitation or acquisition of structures that will serve as supportive housing for very low-income elderly persons, including the frail elderly, and provides rent subsidies for the projects to help make them affordable. The Section 202 program helps expand the supply of affordable housing with supportive services for the elderly. It provides very low-income elderly with options that allow them to live independently but in an environment that provides support activities such as cleaning, cooking, transportation, etc. The program is similar to Supportive Housing for Persons with Disabilities (Section 811).⁹

Services to Older Refugees

According to the American Immigration Council, more than one in five New Jersey residents is an immigrant. In 2015, 2 million immigrants (defined as foreign-born individuals) comprised 22.1 percent of the state's population. Given this diverse population, services geared toward immigrants may be particularly salient. The Services to Older Refugees Program funds states and state-alternative programs to ensure that refugees age 60 and above have access to applicable services for the aging and to provide qualifying refugees with appropriate services not currently available in the community.

Refugees age 60+ who have resided in the United States for up to 5 years are eligible for all program services. Services may include access to senior centers, supportive services, and intergenerational activities; nutrition services and home-delivered meals; transportation; interpretation and translation; respite care; elder abuse prevention; ombudsman services, and more, to support overall health, community integration and independent living.

Medicare Advantage (Medicare Part C)

Medicare Part A (hospital insurance) and Part B (medical insurance) do not cover transportation for medical trips. However, Medicare Advantage (Medicare Part C) can cover non-emergency transportation. The Centers for Medicare & Medicaid Services (CMS) announced in April 2018 plans to expand benefits that private insurance companies would be allowed to cover as part of a Medicare Advantage plan, with expanded coverage that includes transportation to doctor's offices. The purpose of the changes is to improve preventive health measures and to augment benefits that allow for aging in the community. As a result, many plans have begun to partner with ride-sharing services to provide transportation to their members.

⁹ https://www.hud.gov/program_offices/housing/mfh/progdesc/eld202

Additionally, the Creating High-Quality Results and Outcomes Necessary to Improve Chronic (CHRONIC) Care Act of 2017, contains a provision unique to chronically-ill Medicare Advantage enrollees, allowing greater flexibility in benefits, including providing transportation for non-health-related purposes (e.g., exercise programs, grocery stores, etc.), beginning in 2020. As of February 2021, there are multiple Medicare Advantage programs offering transportation and telehealth services in New Jersey. Not all programs are available in all counties. Plan providers in New Jersey include: Wellcare, United Healthcare, Amerigroup, Humana, and Cigna.¹⁰

State Programs

Senior Citizen and Disabled Resident Transportation Assistance Program

A significant source of funding for New Jersey county community transportation providers is the Senior Citizen and Disabled Resident Transportation Assistance Program (SCDRTAP). Enacted in 1984, the SCDRTAP program is funded with an eight percent tax on New Jersey casino revenue. Seven and a half percent of casino revenue funds were earmarked for transportation for persons with disability and the elderly. Eighty-five percent of that funding is allocated by NJ TRANSIT to the state's 21 counties using a standardized formula, with 10 percent devoted to NJ TRANSIT program administration and 5 percent dedicated to NJ TRANSIT accessibility projects. The SCDRTAP program quickly became the largest single source of funding for county community transportation agencies, yielding \$3 million in 1984 its first year. By fiscal year 2008, the program had yielded close to \$37 million. However, funding from the SCDRTAP program has declined approximately 50% since 2007, first as a result of the national recession and second through increasing competition from gaming in nearby states.

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¹⁰ <https://www.medicare.gov/plan-compare/#/coverage>

approximately 50% by 2017. However, with the advent of online gaming and sports betting, funds have started to recover with \$22,630,000 for FY 2021.

Regional Plans

2008 NJTPA-CHSTP

With the 2005 reauthorization of the federal surface transportation act (SAFETEA-LU), Congress required that a regional Coordinated Human Services Transportation Plan (CSHTP) be an element of each region's Regional Transportation Plan. The CHSTP must serve as a strategy or roadmap that plots a course toward improving coordination between transportation systems and providers, and that bolsters transportation services for those with special needs. In 2008 the North Jersey Transportation Planning Association (NJTPA) undertook this task, which resulted in the 2008 NJTPA *North Jersey Regional Coordinated Human Services Transportation Plan*.

2017 NJTPA-CHSTP Update

Go Farther, the 2017 NJTPA-CHSTP update, offers comprehensive recommendations for meeting the transportation needs of four target populations: persons age 65+, low-income persons, persons with disabilities, and veterans. It presents 33 strategies across 9 areas of concern designed to address the existing and emerging needs of the approximately one million transportation disadvantaged residents within the 13-county NJTPA region.

2013 DVRPC Future Senior Transportation Services

The DVRPC region includes Mercer, Burlington, Camden, and Gloucester Counties of New Jersey. This report focused on the anticipated growth in population of those age 65+ and ensuring that older adults have the mobility they need to live independently despite a decline in specialized senior and human services transportation resources. The report found that engaging providers was difficult, delivering shared services for riders with different needs was inhibited by rules and funding streams, engaging clients and the public was needed, and providers to ceding autonomy was a major challenge to coordination. The report included recommendations regarding the need for State-level leadership in organizing coordination efforts, creating regional linkages, and in piloting shared services.

2016 DVRPC Equity Through Access Gaps & Bridges

The Equity Through Access (ETA) project is the DVRPC's update of the region's CHSTP and seeks to improve economic and social opportunity in the region by improving access

to essential services for vulnerable populations.¹¹ This project investigated new ways to promote accessible, affordable, and safe mobility. DVRPC's planning process revealed the issues and needs faced by vulnerable populations when accessing essential services, denoted as "Gaps and Bridges." Gaps were existing factors in the region that constrained access to transportation or mobility, while Bridges were possible solutions aimed at developing more comprehensive, regional, and multi-modal infrastructure.

2015 SJTPO-RCSHTP Update

The South Jersey Transportation Planning Organization (SJTPO) contracted with LSC Transportation Consultants, Inc. (LSC) to update the SJTPO Regional Coordinated Human Service Transportation Plan (RCHSTP) for Atlantic, Cape May, Cumberland, and Salem Counties. The plan explored nine strategies for addressing the transportation needs that include: coordination strategies, implementing an Atlantic County/Regional One-Call Center, contracts for service, formalizing a local coordination council, use the resources of Cross County Connection TMA, establish a transportation coalition, create a regional mobility manager, offer coordinated regional service by merging CCPTS and CATS into a single department. In addition to the executive summary, reports are available for each county.

Resources to Support Older Adult Mobility

Resources for older adult transportation include federal funds, state funds, philanthropic funds, and regional/local funds. As federal and state funds were discussed in the previous section when describing the programs, only the philanthropic and regional/local funds are described below.

North Jersey Transportation Planning Authority (NJTPA) sub-regional planning studies could be a source for grant-related funding, focused on increasing the ability of residents to age in place. The program provides two-year grants on a competitive annual basis to the 13 counties and two cities represented on the NJTPA Board and aims to generate project concepts ready for further development or implementation consistent with regional planning goals.

New Jersey Department of Human Services - Division of Disability Services - Inclusive Healthy Communities grants. The Inclusive Healthy Communities (IHC) Grant Program is a new initiative designed to provide funding opportunities in New Jersey to promote inclusive practices that support the health and well-being of individuals with disabilities in

¹¹ <https://www.dvrpc.org/ETA/>

the communities where they live. In December 2020, the program awarded \$1.3 million to 18 organizations in New Jersey to develop and/or implement inclusive initiatives.¹²

The municipal survey found that over half of the municipalities that responded provide a “senior” transportation service. These programs may acquire equipment using federal Section 5310 grants, but municipal budgets often support operational costs; these communities could be targeted for potential pilot efforts.

Many foundations have included mobility, transportation, or social determinants of health (which includes access to healthcare and healthy living) within their funding priorities. Two notable national foundations, the Kessler Foundation and the Robert Wood Johnson Foundation, are based in New Jersey. In addition, philanthropic and policy-based efforts by organizations like United Way and AARP have also supported efforts that help older adults age in place in their communities in New Jersey. Since 2017, AARP’s Community Challenge Grants have funded ten projects in New Jersey, four of which had a mobility element within the project.¹³ New Jersey projects have included:

- **Bloomfield: Department of Health and Human Services (2018)**
Grant funding will expand the WALK Bloomfield walking program through the purchase of JobClocks, a technology for establishing walking paths.
- **Dunellen: Borough of Dunellen (2019)**
This beautification project will organize the community to help build and install shade trees, benches, and pollinator plants, as well as paint an existing footbridge to increase the vibrancy of a public park.
- **Teaneck: Township of Teaneck (2019)**
This project will help increase connectivity among township-sponsored activities by improving the safety conditions of Teaneck’s pedestrian walkway network and fostering healthy lifestyles for all.
- **Trenton: Trenton Health Team (2020)**
This project will set the stage for a citywide conversation about expanded bike programs and infrastructure accessible to all by piloting a bike share program geared toward older adults.

¹² [http://eac.rutgers.edu/ihc-grant-program/#:~:text=The%20Inclusive%20Healthy%20Communities%20\(IHC,the%20communities%20where%20they%20live](http://eac.rutgers.edu/ihc-grant-program/#:~:text=The%20Inclusive%20Healthy%20Communities%20(IHC,the%20communities%20where%20they%20live)

¹³ <https://www.aarp.org/livable-communities/about/info-2019/grantees-nebraska-rhode-island-2020-update.html>

Local foundations based within New Jersey provide funds within the state or a specific region. These organizations have also supported senior mobility projects, notable among these are the Henry and Marilyn Taub Foundation, the Grotta Fund for Senior Care, the Healthcare Foundation of NJ, and the Wallerstein Foundation for Geriatric Life Improvement.

Additional research or discussions with statewide organizations such as the Council of New Jersey Grantmakers,¹⁴ AARP-NJ, Community Foundations, and organizations like Catholic Charities, Jewish Federations, and United Ways in New Jersey¹⁵ could yield additional opportunities for grant support, broad collaboration, or potential pilot partners. Senior Mobility efforts and projects from other parts of the country have cited these types of community-based philanthropies as sources of funding as well.

INNOVATIVE MOBILITY STRATEGIES

As a part of the study, the research team prepared an inventory of innovative strategies nationwide that help to enhance transportation mobility of older adults. Many of these strategies employ technology, collaboration with TNC's, and autonomous vehicles, while others leverage existing community networks, and public/private partnership approaches. The inventory, prepared primarily through online research, includes strategy examples for adaptation or replication as potential pilot programs. Two of the examples included in the inventory are from New Jersey, whereas the others are from other US states. A brief description of each strategy example is provided below.

North Brunswick Senior Cabs

North Brunswick Senior Cabs provides subsidized taxi rides for older adults in North Brunswick Township, New Jersey. The program provides door-to-door service for older adults. The program provides service with expanded hours, including evenings and weekends.

The program was first implemented in May of 2016 when the Township of North Brunswick shifted funds previously used for a senior bus service to provide subsidized cabs to qualified clients. In-town trips are focused on accessing services such as shopping, church, beauty shops, routine errands, dining, and cemetery; work trips are not included. Medical trips up to 10 miles outside of North Brunswick are approved. Service is generally available from 8 AM to 4:30 PM on weekdays. However, weekend and after-

¹⁴ <https://www.cnjg.org/about/welcome>

¹⁵ <https://www.unitedway.org/local/united-states/new-jersey>

hours trips can be scheduled in advance. Clients are offered one round trip per client per day with no additional stops during the trip (with exceptions for medical trips). Riders must be age 62+, pre-registered, and use their transportation ID card. Customers must contact the Senior Center two days in advance to schedule a trip; and set up pre-paid accounts for their portion of the total fare. Older adults age 62+ and residents with disabilities without other means of transportation qualify for the program. In 2017, the North Brunswick program averaged a ridership of 1,000 rides per month and had a total of 524 registered older adults. Currently, the program operates through a collaboration between the North Brunswick Senior Center and Roundtrip, which uses LYFT vehicles to deliver service. North Brunswick can refer clients who need wheelchair transportation to Middlesex County Area Transit (MCAT), but there has not been need for that as yet.

Operationally, the program provides non-medical trips within North Brunswick at a client cost of \$2 each way within North Brunswick with the exception of the Senior Center, which is \$1. Medical trips up to 10 miles outside of North Brunswick cost \$3 each way. In 2017, the annual operating cost for the program was \$100,000 which pays for approximately 12,000 rides per year (including both in and out of town trips). Customers pay a nominal portion, which is then supplemented by North Brunswick Township, which pays LYFT the balance for the trip. Additional information about the service can be obtained from the North Brunswick Township's Senior Transportation Information website.¹⁶

Ryde4Life

It is an on-demand membership transportation service provided by EZ Ride to adults 18 years or older throughout New Jersey in partnership with Lyft and Uber. Currently, EZ Ride is working on a pilot program to include local cab companies as a third provider. Riders register by opening an account with EZ Ride by using a credit or debit card. Registered users can schedule trips in real time. All fees and charges are collected in advance from a user's credit/debit card by charging \$50 to fund the account. Accounts are replenished when the balance drops to \$25. Members pay the fees charged by Lyft or Uber along with a \$2.50 administrative fee.

An advantage of the program is that users do not require a smartphone to reserve a ride. They can simply call a number for that purpose. Another advantage of the program is that it offers the best pricing available from the comparison of pricing from multiple providers that is made possible by customized software. Ongoing efforts on collaboration with local cab companies is expected to make the service even more favorable to users. The low cost of the service is made possible by support from private foundations, government,

¹⁶ <https://www.northbrunswicknj.gov/senior-transportation/senior-transportation-info>

and businesses. Additional information about the service can be obtained from the Ryde4Life website hosted by EZ Ride.¹⁷

FindMyRidePA

Pennsylvania Department of Transportation (PennDOT) worked closely with the York Adams Transportation Authority (YATA) to plan and implement this project. It is a “one-call/one-click” real-time trip planner, implemented in York County in 2004. Although the initial focus of the project was veterans, service members and military families, FindMyRidePA is a service that can be used by anyone to find options to meet their transportation needs. At this time, the program is available in seven counties (Adams, Cambria, Cumberland, Dauphin, Franklin, Lebanon, and York) and will be available in additional counties in the near future. The offered services are currently limited to local public transportation options (i.e., fixed-route buses that operate on fixed schedules) and shared-ride services that include the Shared-Ride Program for Senior Citizens, the Rural Transportation for Persons with Disabilities Program (PWD), and the Medical Assistance Transportation Program (MATP). While anyone may use these services, only the fares for eligible riders are subsidized. Plans call for FindMyRidePA to expand over time to include commercial services (e.g. taxi, train, private bus carriers etc.) and other non-profit transportation services.

FindMyRidePA has been designed to be highly intuitive and easy to use. Users enter their travel needs including destination and desired date and time of departure and the system presents the user with a list of potential travel options. To help select the best option, FindMyRidePA includes an estimate of cost and travel time for each option. Users can then print or email themselves an itinerary for the trip; or, in some cases, book the trip directly. The interface is available online, via smart phone, and at kiosks using Ecolane scheduling software. The service will continue to roll out to additional counties and gradually become statewide over the next few years. The program has received grants from the Federal Transit Administration as a part of the Veterans Transportation and Community Living Initiative. Additional information about the program can be obtained from the program’s website.¹⁸

Senior Transportation Connection

Senior Transportation Connection (STC), Cleveland, Ohio, provides coordinated, efficient, and affordable transportation to seniors and adults with disabilities throughout Cuyahoga County, Ohio. STC serves individuals who have mobility challenges due to age, lack of access, disability, frailty, or inability to drive. More than 12,000 registered

¹⁷ <https://ezride.org/transportation/senior-transportation/>

¹⁸ <http://www.findmyridepa.com/#/about>

riders live in 36 zip codes covering 75 percent of Cuyahoga County. Two-thirds of passengers use a wheelchair, walker, or other mobility aid. In 2018, STC provided 144,983 rides covering almost 1.3 million miles. STC takes seniors to medical appointments, including dialysis, rehabilitation, and treatment; senior centers meals and programs; grocery shopping; personal service appointments; and social opportunities. It is marketed as a strategy to help older adults remain independent, healthy, and connected to the community.

The drivers escort the riders door-to-door to ensure safety and provide a personal touch and help with shopping bags. They are trained to keep riders safe, that includes offering assistance with walkers, canes, wheelchairs, etc. Drivers are certified in CPR and complete National Safety Council defensive driving training.

STC Plus provides evening and weekend transportation to STC riders, with no trip purpose limitations; rides can be to social, worship or recreational destinations. STC PLUS leverages STC's reputation, resources and infrastructure that have offered reliable, trusted transportation on weekdays since 2005. STC's accessible vehicles accommodate passengers' mobility needs, and drivers are trained in service and assistance skills that deliver a safe, quality experience. The 'Plus' means independence and autonomy, especially for adults of all ages who benefit from affordable, accessible transportation.

STC was founded in 2005, after Cuyahoga County transportation providers began exploring coordination and shared services. The Mt. Sinai Health Care Foundation commissioned research that advanced the project. The not-for-profit was initially funded through Mt. Sinai Health Care Foundation, Cleveland Foundation, United Way Senior Success Vision Council, Jewish Community Federation's Community Services for Older Adults, Saint Luke's Foundation, Deaconess Community Foundation and The Sisters of Charity Foundation of Cleveland, among others. Additional information about the program can be obtained from the program's website.¹⁹

NewMo

The City of Newton, Massachusetts, partnered with Via to launch Newton in Motion (NewMo), an on-demand microtransit service for seniors. The service was initiated in June 2019, and by mid-October, 1,000 seniors had signed up and 4,700 trips had been made. NewMo replaced a program that was provided through Veterans Taxi and required a three-day advance request.

Through this program, city residents aged 60+ can order rides using the Via app or by calling a dedicated call center number. Approximately 80% of the riders use phones to request trips. Ride requests are made the same day as the customer wishes to travel.

¹⁹ <https://ridestc.org/about-us/>

This curb-to-curb, shared-ride service also permits door-to-door service and driver assistance with packages upon request. Trips are available within the City of Newton for many trip purposes, and regional medical trips are provided to designated destinations in the Boston area.

Riders are guaranteed that they will not have to wait more than 30 minutes for their ride to arrive, and they will spend no more than 30 minutes in the vehicle, even if they are taking a shared ride with other passengers. NewMo service is available from 8 AM to 5 PM on weekdays and from 9 AM to noon on the weekend. Additional information about the program can be obtained from the City of Newton's NewMo website.²⁰

GreatCall Rides

San Diego-based GreatCall, a wholly owned subsidiary of Best Buy, began GreatCall Ride, a nationwide partnership with San Francisco-based ride-hailing provider Lyft, as a senior ride-hailing program. The service is available wherever Lyft is available. GreatCall customers use their Jitterbug or Lively Flip phones and press zero to speak with an operator, who books the Lyft ride for them. The operator has access to Lyft's Concierge platform. This platform allows the operator to contact assigned drivers and to let them know they are picking up an elderly passenger who may require assistance. Billing for the ride appears on users' GreatCall statement. Jitterbug phones come with a large interface and are designed to be easy to use for older adults. GreatCall Rides trips are being made for a variety of trip purposes.

The cost of the ride, along with a nominal fee, is added to the customer's monthly bill. GreatCall users receive \$5 off on their first ride but are otherwise subject to normal Lyft charges. When the customer requests a ride, the Personal Operator gives a fare estimate, which the customer can accept or decline. If they decline, there is no charge. If the customer accepts, the charge will appear on the customer's monthly GreatCall bill. There's no need for the customer to carry cash.

The program was initiated through a five-market pilot effort across California, Arizona, Florida and metro markets of Chicago and Dallas that started in 2016. GreatCall found that 80 percent of pilot riders were repeat riders. In November 2018 the program expanded nationwide. Additional information about the program can be found in the GreatCall Ride website.²¹

²⁰ <https://www.newtonma.gov/government/seniors/transportation>

²¹ <https://www.greatcall.com/services-apps/senior-rides-service-by-lyft>

The TRIP Volunteer Driver Program

The Transportation Reimbursement and Information Project (TRIP) Model for Riverside County California is a special self-directed, mileage reimbursement transportation service that complements public transportation by encouraging volunteer friends and neighbors to transport older adults and people with disabilities to access medical services and for other purposes where no transit service exists or when the individual is too frail, ill, or unable to use public transportation for other reasons. The TRIP model was designed as a low-cost, low-maintenance, rider-focused approach to provide transportation for unserved and underserved, transit dependent older adults, persons with disabilities and other difficult to serve populations.

TRIP began providing transportation assistance for older adults and people with disabilities through-out Riverside County in 1993. The efficiency and effectiveness of the TRIP Model has been demonstrated in cities, suburban, and rural areas. So far the program has provided over 26.2 million miles of assisted travel and more than a 1.99 million free, escorted trips for 13,000+ Riverside County passengers with more than 1,000 volunteer drivers each year. Innovative passenger friendly service characteristics include:

- Users can choose and recruit their own volunteer drivers from friends and neighbors they know and trust.
- Volunteer drivers receive mileage reimbursement payments through the passenger.
- Rides are scheduled by passengers and volunteer drivers, as mutually convenient.
- Transportation is provided in personal volunteer driver's vehicles
- 24/7 transportation is available, as agreeable between riders and volunteers.
- Travel can be provided to other cities or even outside the county, if needed.

TRIP continues to be funded by the Riverside County Transportation Commission, the Riverside County Office on Aging, federal transportation grants, foundations, and with support from cities that want service focused on their residents' needs. Initially, TRIP was the outcome of a collaborative partnership between the Independent Living Partnership, sponsor of TRIP, the local Area Agency on Aging, and the Riverside County Transportation Commission in California. The Independent Living Partnership has assisted dozens of agencies and organizations nationwide to start the TRIP model. Additional information about the program can be obtained from the TRIP website.²²

OmniTrans RIDE and Volunteer Driver Programs

OmniTrans is the public transit agency serving the San Bernardino Valley, California, covering a 480-square mile service area. The agency provides two innovative mobility services to older adults: (a) Taxi RIDE & Lyft RIDE Program and (b) Volunteer Driver

²² <https://ilpconnect.org/>

Program. OmniTrans RIDE program, consisting of traditional taxi and Lyft service, offers a monthly match to eligible older adults (age 62 or over) and people with disabilities to destinations such as medical appointments, employment locations, grocery stores, and other destinations that are difficult to make by conventional public transportation. Interested individuals complete a written application form to determine eligibility, which includes signing a “hold harmless” form. Trips through Lyft require the individual to have a smartphone and Lyft account. To use Lyft, an eligible individual can purchase a code for \$40 that gives \$80 worth of Lyft transportation each month. The individual inputs the code into their personal Lyft account. A code is valid only for the calendar quarter it is purchased. Customers are informed of the expiration date before they decide to purchase a code. For those who need accessible service or do not have a smartphone (or bank account), traditional taxi service is available via a debit card. To use the taxi service, an eligible new individual can buy \$80 worth of taxi transportation loaded onto a debit card for \$40 per month. The debit card is issued by the transit agency. The RIDE program was funded until 2019-20 through Measure “I” county half-cent sales tax, JARC grants, and other federal funds, but JARC grants are not currently available.

OmniTrans also provides a volunteer driver program for older adults and people with disabilities who cannot use conventional public transit and require assistance from others for transportation. The program is also known as the Transportation Reimbursement Escort Program (TREP). It provides mileage reimbursement for older adults and people with disabilities who are unable to use conventional public transportation but are able to take rides in cars driven by others. Program participants choose their own drivers, who are typically family members, friends, neighbors, or caretakers. The reimbursement offsets the cost associated with the transportation and can be used for trips to medical appointments, errands, visiting family and friends, or getting to work.

Qualified users must identify their drivers. Users keep track of the furthest destination they travel to from home each day. At the end of each month, the records for the furthest destination on the day of travel are submitted via paper form or online. Reimbursement funds are deposited into the users’ bank accounts, and they are responsible for reimbursing their drivers.

Additional information about the OmniTrans RIDE program and the Volunteer Driver program can be found in the OmniTrans website.²³

USC Center for Body Computing – FREE Lyft Rides for Seniors

This grant-funded research effort investigated the connection between senior mobility and improved health. Researchers from USC’s Keck School identified seniors age 60-91 from diverse backgrounds and income levels, all with a transportation barrier, and provided

²³ <https://OmniTrans.org/services/sts/>

them with free Lyft rides for 3 months. While trip purposes were not prescribed, there was an emphasis on doctor's appointments. It involved a collaboration between Lyft and USC Center for Body Computing, which aimed to study and connect older adults with transportation. The goal was to see whether accessible transportation greatly affected later-in-life healthcare, socialization, and activity levels.

The Lyft program outfitted 150 participants with wearable devices to track behavior patterns as well as offered app-use training. There was also a concierge-style phone number the participants could call for pick-ups in case they were uncomfortable with smartphones.

These subjects didn't just go see their doctor; they began visiting friends, family, going out to the movies. In fact, 90% of patients said the free rides had a "positive impact" on their quality of life, with 68% conceding it made it easier to travel to medical visits. They started going out more: 74% said it increased their social visits. The Lyft users took double the number of rides as those who relied on concierge services (who were also included in the study).

Transit Together Grocery Program

Transit Together Grocery was initiated by the Salt Lake County Aging and Adult Services Division as a pilot program involving weekly trips to grocery stores to help older adults living in senior residences maintain their independence. The project sought to satisfy several goals: (a) make using fixed route public transit less intimidating for seniors, (b) create inter-generational connections within the community, and, (c) raise awareness about the challenges seniors encounter when using public transportation.²⁴

The program brings together residents from two low-income senior housing buildings, volunteers of all ages (18+), and staff to travel once a week for three weeks to local, transit-accessible grocery stores. Repeating the trip multiple times helped the older adults gain comfort with the route, become familiar with the newly-initiated light rail service (TRAX), and build a sense of community among participants. With grant support from the AARP, Salt Lake County Aging & Adult Services staff purchased grocery caddies for all project participants, which made the project enticing for participants. It also practically addressed the issue of carrying heavy grocery bags.

²⁴ Information for this program was obtained from the Community Engagement Section Manager, Salt Lake County Aging and Adult Services and <https://apnews.com/a963e5d28d1e4bd29ced9903efa6b6b2>

Brookdale Senior Living Pilot Program with Lyft

Brookdale Senior Living is a private company that provides independent living, assisted living, memory care, skilled nursing, continuing care, retirement communities, home health care, and hospice services. In 2016, the company began a pilot concierge program with Lyft in 10 of its independent living communities, which grew to 25 communities the next year. In this collaboration, a Brookdale resident calls the concierge at the community, who arranges the Lyft ride utilizing the app's "requester" technology. The novelty of the service is that the Brookdale residents are not required to have a Lyft account since ride charges are added to the resident's Brookdale monthly bill.²⁵

When the resident needs a ride back to the community, he or she calls the front desk from wherever they are, and the concierge arranges a pickup. To make this call, the resident either uses his or her own cellphone or a phone at the location, such as the doctor's office. It's also possible to schedule a ride up to a week in advance. For shorter excursions, the driver sometimes just waits and does a round-trip service.

Voyage Autonomous Vehicles

Voyage Auto, a Palo Alto-based company, began its first autonomous vehicle service program for older adult communities in the Villages of San Jose, California, a private gated community, with more than 4,000 residents. Currently, it provides service in the community with nine autonomous vehicles.²⁶ The company has more recently acquired a contract to provide door-to-door service in the Villages, Florida, the largest older adult community in the US, where 125,000 people live. In this endeavor, Voyage will use the most up to date vehicles with Level-4 Automation with no drivers.²⁷ Information on the number of vehicles to be put in service is not yet available. Voyage generates funding for the autonomous vehicle programs through fundraising in the private market.

DOROT Technology Coaching, New York, New York

DOROT Technology Coaching is included as a mobility strategy because older adults coached by DOROT can use the technologies to navigate complex transportation systems, especially public transportation. DOROT is a Manhattan nonprofit that connects older people with volunteers who provide services ranging from shopping escorts to social visits, and initiated one-on-one technology coaching. As of November 2019, DOROT had

²⁵ <https://seniorhousingnews.com/2017/06/15/growing-rideshare-program-gives-brookdale-a-lyft/>

²⁶ <https://voyage.auto/community/the-villages-san-jose/>

²⁷ <https://news.voyage.auto/self-driving-cars-in-a-city-like-no-other-c9b38807a9a6>

6,800 volunteers providing 60,000 hours of service to more than 3,500 Manhattan and Westchester seniors.

DOROT Volunteer Tech Coaches teach older adults how to text, video chat, use maps, download apps, and other valuable skills. Coaches are trained and matched with DOROT clients in this new program designed to meet the specific learning needs of older adults. Coaching sessions are held in clients' homes. Coaches commit to making eight visits in a twelve-week period providing three to four sessions per client. Visits are scheduled at mutually convenient times. Coaches provide feedback to DOROT staff at regular intervals to help grow and improve the program. Program participants have expressed excitement about learning about features like mapping, transit information, and directions for walking in their neighborhoods.

Conclusion

This section showed examples of mobility strategies targeted to benefit older adults from different parts of the country, including two case studies from New Jersey. With the exception of the DOROT technology coaching, the other case studies involved the provision of transportation service or coordination between service providers and potential users. Although the case studies are diverse, they reveal that new technologies, including smartphones, ridehailing apps, service coordination apps, GPS, etc., are becoming increasingly important in the context of older adult mobility. The review also showed that public transit agencies, nonprofit agencies, volunteers, universities, and private companies can all contribute to older adult mobility strategies. The case studies described in this section also showed that many mobility strategies are about making transportation convenient for older adults, whereas some others also make transportation more affordable. Finally, the case studies showed that some strategies are meant for older adults only, whereas others are meant for people of all ages.

KEY INFORMANT INTERVIEWS

This section summarizes the key observations from interviews conducted with 12 senior mobility program leaders and transit agency officials from across the U.S. They reflect the multi-disciplinary nature of older adult mobility services, with experience coming from policy, operations, marketing and communications, program planning, innovation, human services, and direct service delivery.

Interview Methodology

An interview script was prepared before the interviews. The interview script was approved by the Institutional Review Board of Rutgers University. The 12 interviewees included officials and leaders of senior mobility projects from transit agencies, state DOT agencies, and private for-profit and non-profit organizations nationwide. The objective of the interviews was to collect information about the characteristics of innovative senior mobility

services, their organizational structures, service descriptions, program development histories, marketing and outreach efforts, and recommendations they could offer based on their programs' challenges, successes, and lessons learned. These best practice examples are meant to assist with the development of potential pilot projects for New Jersey.

The mobility projects were selected based on the demonstrated innovation, such as participation in FTA grant-funded efforts, including Rides to Wellness, Veteran's Transportation and Community Living Initiative, MOD sandbox, or National Aging and Disability Transportation Center projects. Sites included case examples used in National Transit Institute courses, as well as contacts developed via Transportation Research Board conferences and committees. The agencies represent a diversity of service modes and geography to reflect the range of locales in New Jersey.

A member of the research team personally contacted officials or representatives to request an interview. Once an interview was scheduled, many of the officials received the interview topic guide in advance, to help them prepare for the conversations. Table 1 presents a summary of the participating organizations, the selected program(s), geographic area, service description(s), and funding source(s).

Table 1 – Key Informant Interview Summary

Organization Interviewed	Program and Geographic Area	Description	Funding Sources
AAA MidAtlantic	CARFIT Nationally available	Community-based educational initiative focused on injury prevention and safe driving by helping to ensure mature drivers fit safely and comfortably in their vehicle.	Funding shared by three partners: AAA supports administration, AARP supports training materials and the American Occupational Therapy Association oversees the program website.
Brookline Council on Aging (CoA)	TRIPPS (Transportation Resources, Information, Planning & Partnership for Seniors) Brookline & Newton, MA (Boston area)	Volunteer-based program teaches seniors how to use mobility options including Uber and Lyft.	Originated with Section 5310 grant; now grants from ride-hailing companies. Massachusetts Council on Aging Brookline Council on Aging provide funding. Also receives funds from Massachusetts ride-share revenue program surcharges.
Deerfield Village	The Village's Taxi Subsidy Program Deerfield, IL (Chicago suburb)	Community taxi subsidy program for residents age 65+ and adults with disability(s). There is no income requirement for program participation.	Municipal general funds and annual grant of \$5,000 - \$7,000 from local hospital; as the program helps patients get to hospital appointments.
FLINT MTA	Rides to Wellness and Senior Shopper Routes City of Flint and Genesee County, MI	Rides to Wellness, \$15 one-way concierge sedan trip, paid by partner organizations. “Senior Shopper” fixed routes link senior housing sites to grocery stores.	RTW launched with National Center for Mobility Management grant, then a Rides to Wellness federal grant. Now supported by partner MOU's, millage, and Section 5307 capital funds. Senior Shopper launched with New Freedom funds, now MTA operating budget.

Organization Interviewed	Program and Geographic Area	Description	Funding Sources
LA Metro	<u>On The Move Riders Program</u> Los Angeles County	On the Move Riders Program is an education, outreach, and travel training program for older adults (age 55+); includes peer-led travel clubs at 33 senior centers.	Section 5310 grants and LA Metro operating budget. The program is integrated into the LA Metro Community Relations Department.
PennDOT - FindMyRidePA	<u>FindMyRidePA</u> 10 counties in eastern and central PA, planned expansion statewide	Expanding from one-call center, to a centralized trip planning and booking website. Goal is to reduce missed health appointments due to transportation issues.	Started as a Veterans Transportation and Community Living Initiative project, received 2016 Rides to Wellness grant to expand, and state funding through 2022.
PennDOT, Bureau of Public Transportation	<u>Free Transit Program for Senior Citizens Age 65+</u> Statewide in Pennsylvania	Since 1983, senior citizens ride free on local fixed-route service. (Commuter rail may charge a \$1 fare for seniors.)	State Lottery funds, licensing fees, fees from vehicle rentals and sales tax, support State operating assistance for fixed route providers.
San Joaquin RTD	<u>Van Go!</u> San Joaquin County, CA	On-demand, curb-to-curb, rideshare service that provides accessible services for the general public, older adults, and persons with disability, 7 days per week, 6 AM – 10PM.	The County Board of Supervisors, with support from local jurisdictions and the San Joaquin Council of Governments, provided pilot funds. Now supported by local tax funds (CA allows these to be used for local needs), and federal Section 5310, 5307 and 5311 funds.

Organization Interviewed	Program and Geographic Area	Description	Funding Sources
Senior Transportation Connection (STC)	STC and STC Plus City of Cleveland and 30 suburban communities within the County of Cuyahoga	Regional coordinated, contracted service, accessible, demand-response service for non-emergency medical transportation, quality of life trips and group trips (by special arrangement) on weekdays. STC Plus provides weekend service.	Municipal contracts, Western Reserve Area Agency on Aging, County Senior Services and AAA funding. Senior center contracts for congregate meal trips. STC is ADA Paratransit subcontractor for Greater Cleveland RTA, also has revenue from private philanthropy and grants.
SilverRide	SilverRide - TNC for Seniors San Francisco and Greater Bay Area	For-profit, HIPAA compliant, Transportation Network Company (TNC)/ride-hailing provider with full insurance to offer customers complete physical assistance, via a door-through-door service.	Business to Business model, contracts with larger, institutional public and private clients, such as non-profits serving older adults and persons with disability, senior housing, assisted living sites, counties, cities, and transit providers.
Utah DOT	Salt Lake City Bus Stop Improvements Salt Lake City, UT	UTA vehicles, stations, stops and streetcars are ADA compliant. However, bus stop improvements can provide better access for persons with mobility disabilities. The growth rate of bus ridership was 92% higher at bus stops with improvements than at stops without them. The growth in paratransit demand was 94% lower in the areas around the stops with improvements than around those without.	Funding for study of bus stop improvement impacts supported by Utah DOT. See UDOT Report No. UT-18.04 "Impacts of Bus Stop Improvements."

Organization Interviewed	Program and Geographic Area	Description	Funding Sources
Victor Valley Transit Agency (VVTa)	TRIP (Transportation Reimbursement for Individuals Program) Hesperia, CA Southern California High Desert and outer areas of San Bernardino County, CA	Self-directed mileage reimbursement transportation service that complements public transportation, encourages friends and neighbors to transport older adults, people with disabilities and others to medical services, shopping, visits and for other purposes where no transit service exists or when individuals are unable to use public transportation.	Section 5310 grants, administered by CalTrans; program has been incorporated into VVTa operating budget.

Many of the profiled programs focus their efforts on specific populations and/or trip purposes. This enables the programs to target their marketing, resource development, and evaluate customer satisfaction more effectively. Passenger advisory bodies, boards of directors, and agency management are able to clearly articulate how these programs serve older adults; not only as riders, but also as volunteers, and sometimes employees. Focusing on self-directed destinations as well as specific trip purposes, like grocery shopping, access to medical appointments, or social/recreational trips, helps make the connection between senior mobility, independence, and improved nutrition, good health, and overall well-being. Table 2 summarizes those targeted audiences and purposes.

Table 2 – Agencies by targeted user/trip purpose

General Public or Overall Accessibility	Health & Wellness	Senior-Focused
<p>FindMyRidePA – PennDOT</p> <p>San Joaquin RTD – Van Go!</p> <p>Utah DOT – SLC Bus Stop Improvements</p> <p>VVTA -TRIP</p>	<p>FLINT MTA – Rides to Wellness</p>	<p>AAA - CARFIT</p> <p>Brookline CoA – TRIPPS</p> <p>Deerfield Village Taxi Subsidy Program (and people with disabilities)</p> <p>FLINT MTA – Senior Shopper Fixed Route</p> <p>LA Metro – On The Move Riders Program</p> <p>Fare Free 65+ PennDOT</p> <p>Senior Transportation Connection</p> <p>SilverRide (and people with disabilities)</p>

Organizational Structures

The 12 featured programs include a diverse array of transit agencies, governmental bodies, and private entities. For example, the Automobile Association of America (AAA), the Brookline Council on Aging, and the Senior Transportation Connection in Cleveland are all private non-profit organizations, while SilverRide is a private for-profit entity. Private organizations often have a Board of Directors or an Advisory Board within the community to assist them with networking, fundraising, organizational development, and volunteer recruitment. Governmental agencies including the Village of Deerfield, Pennsylvania DOT, and Utah DOT represent both local programs and statewide efforts, with each program enjoying strong public support developed over decades.

Four transit agencies, representing rural, suburban, and large urban settings, are included with Flint MTA, LA Metro, San Joaquin RTD, and Victor Valley Transit Authority, in San Bernardino County. These agencies use a mix of federal grant funds, competitive awards, federal funding from alternative sources such as Medicaid, the Older Americans Act and Veterans funding, along with general operating funds to advance senior mobility efforts.

They all collaborate closely with agencies serving older adults including senior housing sites and centers, healthcare providers, and internal ADA accessibility efforts.

Service Descriptions

Most of the profiled programs include a specific focus on customer needs and preferences. While all programs operate weekdays, many programs provide some version of service well beyond “business hours” with nights and weekends offered; some are 24/7, with service by taxi, TNC or a (self-selected) volunteer driver. Seniors using many of the profiled services have access to on-demand trips in addition to (often prioritized) medical trips. Examples include San Joaquin RTD’s Van Go!, VVTA’s TRIPS, the Senior Transportation Connection, and the Deerfield Taxi Subsidy program.

Many programs interviewed use sedans or automobiles to deliver service, as it is less stigmatizing, and feels more like a “concierge” service; however, accessible vehicles are available when requested or needed to accommodate a rider. Often services can be delivered without the organization that funds the transportation directly operating vehicles or maintaining a fleet. Examples of this approach include:

- Municipalities contracting with STC for senior rides
- SilverRide providers driving their own vehicles
- Rides to Wellness trips in sedans operated by Flint MTA but paid for by Department of Health and Human Services, medical offices, or Veteran program funding
- VVTA reimbursing TRIP participants for volunteer drivers’ mileage in their own car or the TRIP participants’ vehicle
- Lyft/Uber trips taken by Brookline CoA TRIPPS-trained seniors

Programs featuring fixed-route transit options use incentives, such as social group trips to transit-accessible destinations, free transit for people age 65+, or transit passes for senior “Bus Buddies” to encourage use of available and accessible fixed-route transit by older riders. (Also discussed in the Flint MTA interview is their “Senior Shopper” fixed routes; these connect senior housing locations to shopping centers with scheduled, off-peak group trips that help to manage demand for individual paratransit trips.)

Volunteers (of many ages) appear in a variety of ways in the services interviewed, as peer travel trainers and travel buddies, volunteer drivers, conducting telephone follow up surveys of riders, and as CARFIT event coordinators and technicians. Direct service volunteer roles are found in programs delivered by both private and public organizations. Passenger councils and advisory boards provide additional opportunities for meaningful volunteer engagement.

Learning and/or teaching are important aspects of many programs – with efforts focused on improving driver safety, teaching peers how to travel on transit, or how to use rideshare programs with a smartphone. Teaching older users how to use technology that will

connect them to mobility includes learning how to purchase fares, plan trips online, and use an app to request service. The digital divide has generational aspects and some programs encountered those challenges when rolling out new technology; one program, Van Go! created a step by step user guide to help riders learn how to use its trip request app, and then promoted the technology as a way riders could reduce telephone reservation wait times.

Service Histories and Development

In addition to start up grants, a broad range of funding streams support these efforts, from traditional federal FTA Section 5310 grants to collaborative funding through Area Agencies on Aging, millage taxes in Michigan, surcharges on ridesharing in Massachusetts, lottery funding in Pennsylvania, contracts with health care agencies, municipalities, transit operating budgets, and ADA paratransit programs, to name a few. Some programs originated through a strategic planning process or developed incrementally over time based on perceived community needs. A few were initially launched as a time-bound grant-funded or pilot program, and then became institutionalized once proven successful.

The Senior Transportation Connection (STC) developed through a two-part planning effort; the first, launched by United Way, examined the most urgent needs of the Cleveland area's older residents in the early 2000's. In addition to housing and healthcare, transportation made the top of the list. Community partners, public, private, and philanthropic came together, across the disciplines of health, community planning, senior services, and transportation, to work on a collaborative mobility solution for seniors in Cuyahoga County.

By comparison, the FindMyRidePA program initially started with a Veterans Transportation and Community Living Initiative Grant launched in three counties, then parlayed that success into a successful Rides to Wellness grant in 2016, and expansion to 10 counties. Partnerships supporting the effort include rabbittransit (an innovative transit service provider), Smart Health, Keystone Health, and Ecolane (the contractor). The project has adopted more general goals, while still inclusive of health, as it moves towards a rollout across 65 counties.

Some of the profiled programs have been in existence for much longer; free transit fares for people age 65+ goes back to the 1970's in Pennsylvania. The Deerfield Village Taxi Subsidy is over 20 years old, and VVTA's Transportation Reimbursement for Individuals Program, operating since 2012, was initially founded in adjacent Riverside County in the 1990's.

An example of an incremental pilot to permanent program can be found in LA Metro's On The Move Riders Program, which began as a "travel buddy" RFP issued by LA Metro, for a part-time coordinator to work with groups of seniors. Initially envisioned based on the

success of one senior center's volunteer program, it was in a "pilot" mode from 2012 – 2016, before integration into LA Metro. In 2018 the program found a home within the Community Relations function of Metro. Now in 33 senior centers across Los Angeles County, On the Move shares staff with the Community Education team, reaching out to both seniors and school children to teach Angelenos of all ages how to safely use its expanding transit system.

Enhanced customer service to meet the needs of seniors and ensure access is a cross-cutting theme; CARFIT, SilverRide, the Utah DOT Salt Lake City Bus Stop Improvements, and Rides to Wellness make mobility easier, safer, and more accessible – not only for older adults, but also people of all ages. Safer older drivers make the roadway safer. SilverRide serves anyone that can use extra help with their complete trip – door through door. Bus stop improvements in Salt Lake City make transit more friendly for all users. In Flint, the Rides to Wellness drivers are recruited through human service agencies, to make sure they visibly provide excellent service with a "customer first" focus.

Marketing and Outreach

Most of the programs articulated a clear vision for marketing and outreach and focused on "meeting their customers where they are." Participation in live presentations at senior centers, senior housing sites, libraries, health fairs, and community events were prevalent. Most programs had dedicated print materials, website information, and marketing giveaways. A number of programs emphasized the importance of word of mouth – especially with older customers.

Some agencies, like LA Metro, see outreach to older riders as part of a Customer Relations, Customer Education focus. With this larger organizational lens there are more organizational resources to support large scale events, such as live daytime concerts at parks near the transit lines ("Raised on Records"), regional pop-up education events with tours, and an annual County-wide Transportation Summit that attracts over 800 people.

Other agencies use partnership relationships to market their program, with articles in municipal newsletters, and partner publications. In Deerfield Park, new residents receive an in-person visit from a "Village Greeter" who brings information on the Taxi Subsidy program along. Statewide programs, like Pennsylvania's, collaborate with innovative transit properties for outreach, and maintain a simple and easy to use "clickable" map with website links to the transportation services available in each county. That map is also found on the Pennsylvania Department of Transportation and the Department of Aging website. Social media outlets such as Facebook and email are also used.

A number of programs use Business to Business marketing models, establishing MOU's or contractual relationships with non-profit and government agencies, healthcare providers, municipalities, senior housing developers, senior centers, and others to generate customers for their program. Rather than seeking users one by one, they build

relationships that can funnel many customers (and coordination efficiencies with ridesharing and carpooling) to their service.

Networking with human service providers, healthcare agencies, funders, philanthropies, business leaders, aging network leaders, and others yields robust networks for generating resources, volunteers, visibility, and new customer flow. Efforts are focused on the areas where service is provided – it is of no use to publicize a service if it is not locally available. At Flint MTA, staff is actively encouraged to respond to requests with curiosity – and explore how they could try to address an expressed need or request for service.

Lastly, visibility through media placements, public events, and playful branding, such as those used by Van Go! raise awareness, as does service improvements that people can see. Salt Lake City's suite of bus stop improvements (signs, pads, shelters, seating, and sidewalks) resulted in increased fixed route ridership growth at improved stops and slower paratransit demand increases in the same areas. This finding prompted University of Utah researchers to note that the bus stops' design and construction "sends important signals to the public about the transit agency's attitude toward existing and potential riders—are they to be valued, facilitated, and coaxed into riding, or merely accommodated."

Service Evaluation

Many programs collect performance metrics for program reporting, invoicing, and program development. Some programs seek feedback on the rider experience through routine or scheduled customer surveys, such as VVTA's TRIP program and the Senior Transportation Connection. Growth in service demand, ridership, volunteer participation levels, and new contracts are also used as indicators of program effectiveness. The Bus Stop Improvement program in Salt Lake City had compelling research it could share with the study team regarding changes in bus ridership and paratransit demand. Many programs provided anecdotal feedback, such as passengers sharing their own increased levels of activity and greater independence, and some data from the two Rides to Wellness funded efforts related to riders' increased health access. Another positive indicator is continued funding of programs by local philanthropies, partnering municipalities, and an expanding base of health-related funders.

Challenges and Successes

The challenges and successes experienced by the profiled senior mobility programs included service customization, technology hurdles, delivering high quality customer service, and achieving sustainability. Program managers described the stigma of public transit and the "shame" of needing to ask for a ride, along with the effectiveness and responsibility inherent to system coordination.

Senior mobility looks different in different places; outside cities with robust and accessible public transit, auto-based options are more attractive. However, as older drivers self-

regulate in all settings, it is important to introduce mobility options to preserve quality of life, prevent social isolation, and maintain access to meaningful activities and important destinations, in addition to often-prioritized medical trips.

Technology is expensive, and even more so if you are building something new. Flint MTA learned that lesson after developing an app for their Rides to Wellness program, that riders hardly used. (However, staff in healthcare settings who request trips for their patients love the convenience.) MTA now involves users in tech design through a user advisory group. Van Go! had a similar experience. RTD's Van Go! Program in San Joaquin Valley also created an app, and then a step by step guide to encourage its usage. To complement the technology, RTD also trained staff in the customer service skills needed to better communicate with older riders on the telephone.

Excellent customer service takes effort – it starts with good hires and develops further with the right training and support. SilverRide's training package has been recognized as a model by the Rudin Transportation Center at NYU, and drivers have access to ongoing support through an app and live calls if they need help with a specific customer challenge while they are on the road.

The road from a pilot project to sustainable program can be bumpy and indirect. The LA Metro program took four years to transition from a one-year pilot that was repeatedly extended a few times, to a program within the agency, and then two more years to find a permanent home and support within the Community Relations and Community Education department. The PennDOT "Find My Ride" program has developed over a decade.

Overcoming the stigma of transit, or the shame of "needing a ride" is a challenge. Whether it is resistance to using a bus or boarding a van, these issues affect older adults' ability to benefit from programs. Creative programs reduce the stigma by using strategies such as offering fun group trips with peer travel trainers (LA Metro), providing sedans with personalized service (Flint MTA), or helping travelers identify and then reimburse their "own" volunteer drivers through their personal network (VFTA's TRIP program).

Coordination is beneficial, but creating a consolidated service delivery system can be better, and helps to free up resources. When STC went from managing a coordinated network of individual municipal providers to a centralized system it allowed participating agencies to "get out" of the transportation business and transfer their (appropriately qualified) drivers to the new system. This action enabled increased efficiency in scheduling, routing, contracting, and consistent program quality with a trained workforce and call center. However, recruiting and retaining qualified drivers is challenging. STC had to discontinue its night and weekend service due to a shortage of drivers; however, they have also started to actively recruit recent retirees (older drivers, themselves) to work for STC. Many of these new hires are attracted by the agency's mission.

Lessons Learned

Interviewees reflected on key themes when describing what works in their innovative programs. They often focused on partnership and coordination, and the idea of providing senior transportation that aligned with their agency mission and organizational capacity. Interviewees described effective business and resource development, employing technology thoughtfully, and customer-focused service delivery. Notably, they also saw the connection between providing better service for older riders and better service for all riders, and the opportunity to build broad support for increased senior mobility in connection with healthy aging, economic development, community mobility for all users, support for environmental issues and enhancing overall livability. These themes are discussed briefly below.

Coordination

Coordination with partners outside of the transportation network is crucial to success for senior mobility programs. While different programs require different collaborators, securing support from the agencies that work with or for seniors is important. Understanding the issues community organizations serving older adults seek to address (reducing social isolation, maintaining consistent access to healthcare and wellness resources, need for healthy, affordable and fresh food, etc.) can point a senior mobility effort towards collaborative and innovative approaches to solving those challenges.

One example of a statewide effort is Pennsylvania's, collaborating with innovative transit properties for outreach, and maintaining a simple and easy to use "clickable" map with website links to the transportation services available in each county. That map is also found on the Pennsylvania Department of Transportation and the Department of Aging website. Social media, Facebook and email are also used as well to publicize available services and programs.

Organizational Context and Experience

The right organizational context can offer stability and foster sustainability. For example, the Rides for Wellness effort in Flint needed an innovative CEO, an organization that actively sought funding partners, and the tradition of customer-driven service to deliver on a "concierge" level of service to health funders. AAA's CARFIT program is another example of alignment; AAA provides resources for better driving; creating and delivering CARFIT with AARP and the American Association for Occupational Therapy is consistent with all three organization's missions. Mastering the skills needed to use smart phones, plan trips, and travel using taxi network companies requires tech skills; Senior volunteers at Brookline CoA saw that need and recognized that it could be addressed using volunteers within their existing service structure and culture.

Building on prior experience – what works and what does not – can inform new or expanded programs. Flint MTA built on prior work with health care trips in creating Rides to Wellness, after realizing that ADA paratransit service was not flexible enough for dialysis users. They added dynamic scheduling and close interface with healthcare partners to create a more flexible, “concierge” system that works for medical trips. LA Metro developed the On the Move Riders Program based upon a single senior volunteer who was leading group transit trips from her senior center in Culver City.

In Cleveland and Cuyahoga County, STC Plus weekend and evening service was created as a private pay option in addition to the “core” service of weekday trips supported by municipal contracts. STC Plus was a market response to the need for evening and weekend trips, building on existing capacity and expertise, and significantly expanding service beyond the weekday trips supported by municipal contracts.

Business and Resource Development

Cultivating partners that can send a stream of passengers to a program is an efficient way to grow towards sustainability, and more effective than recruiting riders individually. Examples from the profiled program include Brookline CoA coordinating with Uber and Lyft to provide free trip codes for TRIPPS field trips; thus, providing a subsidized “real-world” rideshare experience to attract training participants and new TNC users. Both SilverRide and STC use Business to Business marketing by establishing MOU’s or contractual relationships with non-profit and government agencies, healthcare providers, municipalities, senior housing developers, and others to generate customers for their program.

The Rides to Wellness program in Flint followed a similar model, researching what federal programs can pay for transportation services uses the CCAM Inventory and then contracting with Veteran Services, the Department of Health and Human Services, and multiple medical offices and healthcare organizations to provide trips that are health and wellness related – to destinations like farmers’ markets, pharmacies, and grocery stores, in addition to medical visits.

And finally, LA Metro’s On the Move Riders Program has entered a partnership with a senior housing development agency with sites close to Metro light rail alignments – these sites are perfect locations for cultivating new participants and growing their On the Move Rider Clubs.

Use Technology Thoughtfully

Programs that use technology to enhance delivery in ways seniors want found more success than those that employed it without customer involvement or buy-in. Two programs, Flint Rides to Wellness and Van Go!, described developing apps that were not initially popular with targeted older users. A key takeaway from the interviews was the importance of user testing and user participation in product development to yield solutions

that are more readily accepted. Also, for older adults, being able to talk to someone live on the telephone may be the preferred option. Recognizing this, the team at Van Go! instituted extra customer training for their telephone operators.

Increasingly, technology underpins the operations that allow dynamic scheduling, route optimization, and riders to request trips in real time. Preparing for future senior mobility requires building good relationships with tech developers, so that agencies are able to work with users, think through what is needed, and then co-create a solution with a vendor. Many interviewees stressed the importance of an effective, evolving, and collaborative relationship with their technology vendors as crucial in developing and sustaining their programs.

Put the Customer First

Putting the customer first pays off. Understanding the customers' needs and supplying a service tailored to satisfy those needs requires communication; customer needs include those of individual passengers and the organizations that serve older adults. Key examples of a "customer first" orientation include maintaining customer communication through passenger advisory boards (STC and Flint MTA), customer feedback surveys (STC and VVTA) and well-trained staff (SilverRide, CARFIT, and Van Go!) to inform program delivery.

Cultivating effective and collaborative relationships with institutional partners (customers) that can underwrite service delivery or make client referrals also can enhance program quality and sustainability, e.g. multiple health funders supporting Rides to Wellness efforts in Flint, MI, and with the FindMyRidePA project in Pennsylvania. At Flint MTA, staff is actively encouraged to respond to all requests with curiosity – and explore how they could try to address an expressed need or request for service.

Ultimately, it comes down to the passenger, user, or rider, and word of mouth is the gold standard in marketing – especially for populations that may be less dependent on the internet. So, in Deerfield Park, new residents receive an in-person visit from a "Village Greeter" who brings information on the Taxi Subsidy program with them. On The Move Riders Clubs start with peer volunteers leading transit trips with fellow senior center members. STC uses older adult volunteers to administer customer feedback surveys.

What Is Good for Older Adults Benefits All Users

Service improvements that benefit riders with disabilities and older passengers make transit more welcoming for everyone – as illustrated by the Salt Lake City Bus Stop Improvement effort. Embracing better fixed route senior mobility is not an ADA compliance issue, but rather a ridership development strategy that aligns with older drivers' self-regulating behaviors in response to challenging environments. Offering scheduled routes focusing on older riders (like Flint's Senior Shopper service) can help provide a cost effective and more "social" option for passengers, resulting in fewer

requests for paratransit trips, higher quality of life and more independence. Similar benefits are found with other modes, as well.

Connecting senior mobility with larger issues like roadway safety (CARFIT), air quality (Salt Lake City Bus Stop Improvements), and health (Rides to Wellness and FindMyRidePA), provides a broader context for engaging with advocates, funders, policy makers and potential allies working to increase mobility options for all users.

OLDER ADULTS OF NEW JERSEY

This section describes older adults in New Jersey. It shows where older adults currently live, where their numbers have increased, where their numbers may increase, where and how many older adults live in areas without close proximity to public transit, where motor vehicle crashes involving older drivers and pedestrians are high, and where particularly disadvantaged older adults currently live. The analyses in this section are conducted with two objectives: (a) to provide a context to the subsequent sections of the report where survey data are presented, and (b) to identify broad areas where older adults may have greater transportation needs compared to other areas because of population concentration, growth, or transportation disadvantages.

Data analyses regarding older adults were conducted at different geographic levels, including county, municipality, and Public Use Microdata Area (PUMA). It is worth noting at the outset that New Jersey is divided into 21 counties, 73 PUMAs, and 565 municipalities. The municipalities are referred to in census terminology as county subdivisions. Data are presented in tabular and map formats. While the maps show data for the entire state, only partial tables are presented in some cases for the sake of brevity. However, full datasets are available from the study customer, as indicated in Appendix A.

Location of Older Adults in New Jersey

New Jersey's total population of people aged 55+, 65+, and 75+ were 2.53 million, 1.35 million, and 0.60 million in 2017 out of the state's total population of approximately 9 million. The dot-density map in Figure 3 shows the distribution of older adults at the census block group level for people aged 65+. The geographic distribution of people aged 55+ and 75+ are not shown because their distribution patterns are similar to people aged 65+. The figure also shows the public transit network, including community shuttle routes. One can observe from the figure that older adults are distributed all around the state, despite having higher concentrations in certain parts. The map also shows that many older adults of the state live at substantial distances from the transit network. While the state's transit network is highly concentrated in the northeastern part of the state near New York City and southwestern part near Philadelphia, with smaller concentrations in the Trenton area of Mercer County and the Atlantic City area of Atlantic County, older adults are scattered throughout the state.

The county-wise breakdown of population aged 55+, 65+, and 75+ is shown in Table 3 along with the total population for the counties. It shows that Bergen County has the largest number of older adults, followed respectively by Ocean County and Middlesex County. However, in terms of percentage of older adults, Cape May County ranks the highest, followed by Ocean County. Hudson County, perhaps the most urban and transit-rich of all counties, has the lowest proportion of older adults. However, despite the small proportion, the county has a larger number of older adults than many other counties.

Table 3 – Total population and older adult population in New Jersey counties

County	Total population	Population 55+	Percent 55+	Population 65+	Percent 65+	Population 75+	Percent 75+
Atlantic	272,926	83,300	30.5	44,540	16.3	18,898	6.9
Bergen	937,920	281,388	30.0	153,527	16.4	71,077	7.6
Burlington	449,192	133,636	29.8	71,468	15.9	31,693	7.1
Camden	510,996	141,477	27.7	74,496	14.6	32,304	6.3
Cape May	94,549	38,705	40.9	23,124	24.5	10,054	10.6
Cumberland	154,952	40,421	26.1	22,010	14.2	9,437	6.1
Essex	800,401	198,018	24.7	102,794	12.8	44,823	5.6
Gloucester	291,372	81,973	28.1	42,145	14.5	17,205	5.9
Hudson	679,756	146,618	21.6	75,984	11.2	32,846	4.8
Hunterdon	125,717	41,865	33.3	20,782	16.5	8,333	6.6
Mercer	373,362	100,529	26.9	52,772	14.1	23,399	6.3
Middlesex	837,288	221,006	26.4	115,701	13.8	50,877	6.1
Monmouth	627,551	194,373	31.0	101,128	16.1	43,740	7.0
Morris	498,847	148,626	29.8	79,042	15.8	35,200	7.1
Ocean	589,699	207,017	35.1	130,257	22.1	62,079	10.5
Passaic	510,563	131,536	25.8	69,429	13.6	30,346	5.9
Salem	63,776	20,354	31.9	11,000	17.2	4,846	7.6
Somerset	333,316	94,264	28.3	47,955	14.4	21,407	6.4
Sussex	143,570	45,265	31.5	22,167	15.4	8,188	5.7
Union	557,320	145,429	26.1	75,962	13.6	34,088	6.1
Warren	107,088	33,660	31.4	17,716	16.5	7,683	7.2
New Jersey	8,960,161	2,529,460	28.2	1,353,999	15.1	598,523	6.7

Source: 2017 American Community Survey 5-year summary file.

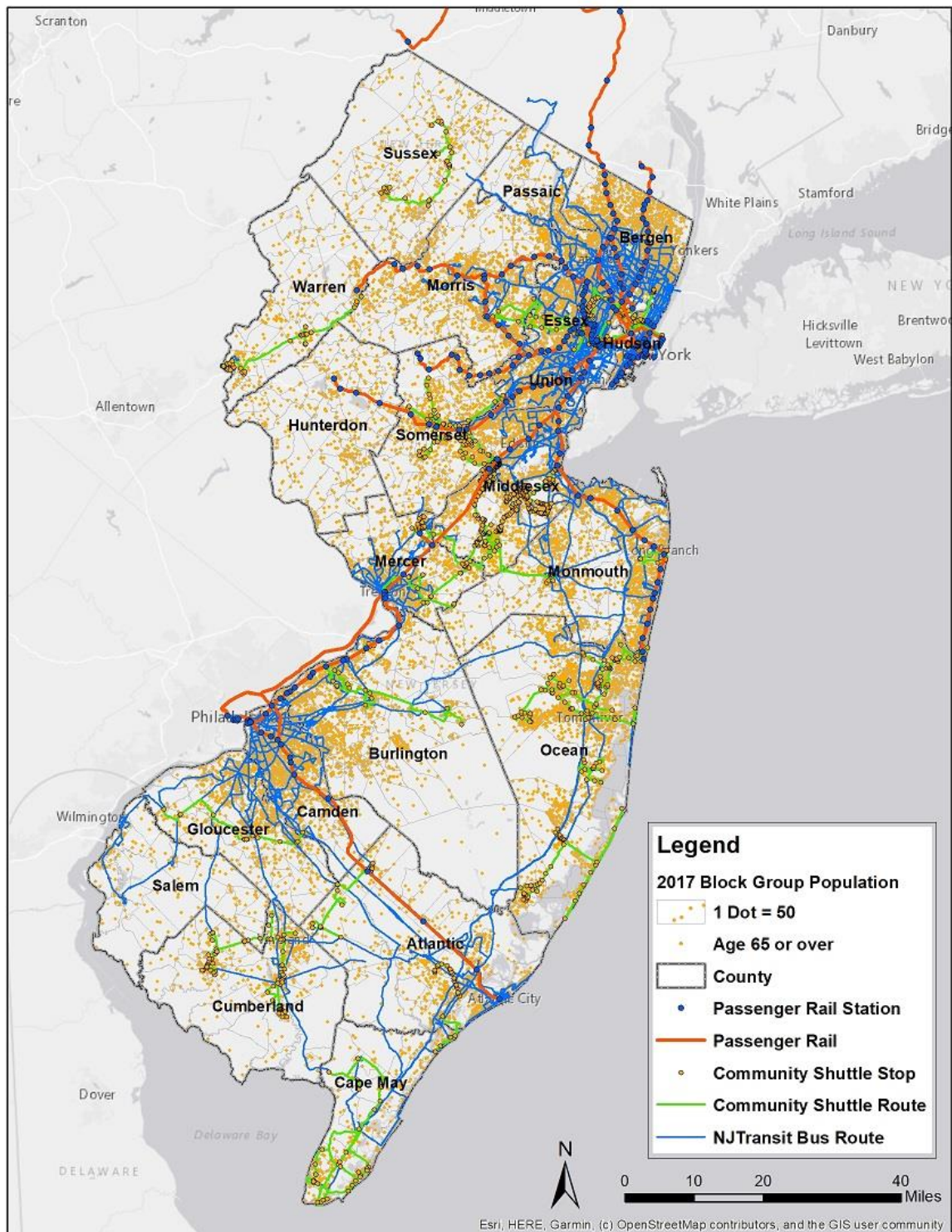


Figure 3. Geographic distribution of population aged 65+ in New Jersey

Source: 2017 American Community Survey 5-year summary file.

Table 4 shows the top 50 municipalities with the largest number and highest proportion of population aged 65+.²⁸ A few important observations can be made from the table. First, the municipalities with the largest number of older adults and the highest proportion of older adults are mostly different, with a few notable exceptions, including Manchester Township and Berkeley Township of Ocean County, where both number and percentage of older adults are high. Second, the municipalities with a large proportion of older adults generally have a small population size and a majority of them are located in Monmouth, Ocean, Atlantic, and Cape May Counties—all having ocean shorelines. Their close proximity to the ocean suggests that the proportion of older adults is high in these municipalities because of amenity-seeking retirees. Third, the largest urban centers of the state, including Newark, Jersey City, Paterson, and Elizabeth, have large populations of older adults. A reason for these urban centers having a large number of older adults is that the total population of these centers is also large. However, that does not diminish the fact that many more older adults live in the urban centers than municipalities with a larger proportion of older adults.

Although a residential location near a transit station or stop may not always be indicative of greater use of transit, proximity to transit is still an important indicator of transit availability. One can surmise from Figure 3 that the large urban centers of the state, as well as many smaller urban areas, have greater proximity to public transit than suburban areas. To estimate how many older adults live in areas not proximate to fixed-route transit, ½ mile buffers were drawn along the bus routes, shuttle routes, and train stations shown in Figure 3 and subsequently the older adults living in census block groups within the buffer and beyond the buffer were separated for each municipality. Table 5 shows the top 50 municipalities with the largest number of older adults living beyond the ½ mile buffer.²⁹ Because ½ mile is often taken to be the distance people walk to bus stops and train stations, the numbers in the table essentially mean that the number of older adults in these municipalities may not be able to walk to a train station or a bus stop.

As expected, most of the municipalities with the largest number of older adults living beyond the ½ mile buffer of the transit network are located in suburban areas of the state. However, the municipalities in Table 5 are mostly different from the municipalities with the largest number of older adults shown in the left-hand side of Table 4. That is because the

²⁸ The list of all 565 municipalities has been provided to New Jersey Department of Transportation as a deliverable.

²⁹ A similar analysis was conducted to estimate the number of older adults in municipalities that live beyond the ¾ mile service area of Access Link, the paratransit service provided by NJ TRANSIT to people with disabilities. However, a data table from that analysis is not presented here for the sake of brevity.

transit network is more ubiquitous in the urban areas with a large number of older adults, including urban centers like Newark, Jersey City, Elizabeth, and Paterson.

The set of municipalities in Table 5 are also mostly different from the municipalities with a high proportion of older adults shown in the right-hand side of Table 4, despite two sets containing predominantly suburban municipalities. While many of the municipalities with a high proportion of older adults in Table 4 are from the counties having a shoreline, the municipalities with the largest number of older adults living beyond ½ mile of transit are from all over the state.

A case can be made for placing higher priority for each of the three sets of municipalities—the set with the largest number of older adults, the set with the highest proportion of older adults, and the set with the largest number of older adults living far from the transit network. Because of the diversity of socioeconomic characteristics of populations across municipalities, placing a greater emphasis on municipalities with large older adult populations would imply benefitting many minority and low-income older adults. Because of the higher concentration of older adults, placing greater emphasis on municipalities with high a proportion of older adults may imply more efficient delivery of services oriented to older adults. Placing greater emphasis on municipalities with a large number of people living in areas not served by transit would imply benefitting people who may have the least access to public transit.

Table 4 – The 50 municipalities of New Jersey having the largest number and highest proportion of people aged 65+

Total population aged 65+			Percent of population aged 65+		
Municipality	County	Persons	Municipality	County	Percent
Newark City	Essex	27,341	Walpack Twp.	Sussex	100.0
Jersey City City	Hudson	26,830	Tavistock Boro.	Camden	100.0
Manchester Twp.	Ocean	20,844	Mantoloking Boro.	Ocean	66.7
Toms River Twp.	Ocean	17,707	Cape May Point Boro.	Cape May	63.2
Berkeley Twp.	Ocean	17,271	Long Beach Twp.	Ocean	56.7
Monroe Twp.	Middlesex	15,889	Harvey Cedars Boro.	Ocean	53.7
Paterson City	Passaic	15,691	Rockleigh Boro.	Bergen	53.6
Hamilton Twp.	Mercer	14,808	Barneget Light Boro.	Ocean	52.2
Brick Twp.	Ocean	14,778	Pine Valley Boro.	Camden	50.0
Edison Twp.	Middlesex	14,281	Avalon Boro.	Cape May	49.3
Woodbridge Twp.	Middlesex	13,993	Lavallette Boro.	Ocean	48.8
Elizabeth City	Union	13,024	Manchester Twp.	Ocean	48.0
Cherry Hill Twp.	Camden	12,999	Deal Boro.	Monmouth	46.1
Clifton City	Passaic	12,718	Surf City Boro.	Ocean	45.0
Franklin Twp.	Somerset	11,031	Sea Isle City City	Cape May	43.4
Middletown Twp.	Monmouth	10,916	Longport Boro.	Atlantic	43.1
Lakewood Twp.	Ocean	10,207	Berkeley Twp.	Ocean	41.4
Wayne Twp.	Passaic	10,072	Stone Harbor Boro.	Cape May	40.7
Jackson Twp.	Ocean	10,070	Margate City City	Atlantic	39.4
Vineland City	Cumberland	9,693	Ship Bottom Boro.	Ocean	38.9
Bayonne City	Hudson	9,389	West Wildwood Boro.	Cape May	38.6
Union Twp.	Union	9,371	Beach Haven Boro.	Ocean	37.8
Old Bridge Twp.	Middlesex	9,067	Wildwood Crest Boro.	Cape May	36.9
Gloucester Twp.	Camden	8,905	Seaside Park Boro.	Ocean	36.4
Fort Lee Boro.	Bergen	8,846	Monroe Twp.	Middlesex	36.3
North Bergen Twp.	Hudson	8,660	Bay Head Boro.	Ocean	36.2
Parsippany-Troy Hills	Morris	8,300	Sea Girt Boro.	Monmouth	36.1
West Orange Twp.	Essex	8,277	Spring Lake Boro.	Monmouth	35.7
East Orange City	Essex	8,254	Southampton Twp.	Burlington	35.2
Trenton City	Mercer	7,900	North Wildwood City	Cape May	35.1
Washington Twp.	Gloucester	7,871	Ocean Twp.	Ocean	34.4
East Brunswick Twp.	Middlesex	7,835	White Twp.	Warren	34.0
Mount Laurel Twp.	Burlington	7,393	Weymouth Twp.	Atlantic	32.6
Union City City	Hudson	7,340	Alpine Boro.	Bergen	30.7
Evesham Twp.	Burlington	7,301	Interlaken Boro.	Monmouth	29.9
Bridgewater Twp.	Somerset	7,062	Ocean City City	Cape May	29.3
Howell Twp.	Monmouth	6,995	Mansfield Twp.	Burlington	28.9
Camden City	Camden	6,899	Brigantine City	Atlantic	28.9
Teaneck Twp.	Bergen	6,748	Avon-by-the-Sea	Monmouth	28.6
West New York Town	Hudson	6,736	Cape May City	Cape May	28.1
Bloomfield Twp.	Essex	6,586	Saddle River Boro.	Bergen	27.8
Hackensack City	Bergen	6,389	Chesilhurst Boro.	Camden	27.5
Piscataway Twp.	Middlesex	6,286	West Cape May Boro.	Cape May	26.5
Manalapan Twp.	Monmouth	6,248	Audubon Park Boro.	Camden	26.3
Paramus Boro.	Bergen	6,175	Barneget Twp.	Ocean	26.2
Sayreville Boro.	Middlesex	6,154	Cedar Grove Twp.	Essex	26.0
Irvington Twp.	Essex	5,928	Spring Lake Heights	Monmouth	25.9
Passaic City	Passaic	5,914	Tinton Falls Boro.	Monmouth	25.8
Galloway Twp.	Atlantic	5,900	Harding Twp.	Morris	25.2
Barneget Twp.	Ocean	5,795	Monmouth Beach	Monmouth	25.1

Source: 2017 American Community Survey 5-Year Summary

Table 5 – The 50 municipalities with the largest population aged 65+ living beyond half mile of bus routes and train stations

Municipality	County	Population 65+ beyond ½ mile of	Percent 65+ beyond ½ mile of
Berkeley Twp.	Ocean	7,262	42.0
Medford Twp.	Burlington	4,433	100.0
South Brunswick Twp.	Middlesex	3,841	70.0
Raritan Twp.	Hunterdon	3,427	100.0
Brick Twp.	Ocean	3,224	21.8
Vernon Twp.	Sussex	2,938	100.0
Southampton Twp.	Burlington	2,777	76.8
Mount Olive Twp.	Morris	2,670	80.2
Evesham Twp.	Burlington	2,458	33.7
Jefferson Twp.	Morris	2,390	78.7
Stafford Twp.	Ocean	2,291	43.1
Warren Twp.	Somerset	2,167	78.9
Mahwah Twp.	Bergen	2,135	48.2
Mount Laurel Twp.	Burlington	2,049	27.7
Bridgewater Twp.	Somerset	1,956	27.7
Hopatcong Boro.	Sussex	1,923	100.0
Franklin Twp.	Somerset	1,886	17.1
Piscataway Twp.	Middlesex	1,850	29.4
Toms River Twp.	Ocean	1,845	10.5
Readington Twp.	Hunterdon	1,809	59.3
Hillsborough Twp.	Somerset	1,692	35.7
Rockaway Twp.	Morris	1,638	42.6
Jackson Twp.	Ocean	1,636	16.3
West Windsor Twp.	Mercer	1,626	46.4
White Twp.	Warren	1,620	100.0
Randolph Twp.	Morris	1,606	49.1
Wall Twp.	Monmouth	1,574	30.0
Roxbury Twp.	Morris	1,527	37.5
Bernards Twp.	Somerset	1,510	39.7
Manchester Twp.	Ocean	1,496	7.2
East Windsor Twp.	Mercer	1,449	36.1
West Milford Twp.	Passaic	1,441	34.7
Montgomery Twp.	Somerset	1,386	64.0
Branchburg Twp.	Somerset	1,375	67.6
Tewksbury Twp.	Hunterdon	1,317	100.0
Washington Twp.	Morris	1,314	48.8
North Haledon Boro.	Passaic	1,298	62.6
Millstone Twp.	Monmouth	1,294	100.0
Tabernacle Twp.	Burlington	1,235	100.0
Old Tappan Boro.	Bergen	1,186	100.0
Norwood Boro.	Bergen	1,157	100.0
Holmdel Twp.	Monmouth	1,141	34.0
Marlboro Twp.	Monmouth	1,137	20.8
Mendham Boro.	Morris	1,100	100.0
Morris Twp.	Morris	1,099	24.1
Chester Twp.	Morris	1,092	100.0
Byram Twp.	Sussex	1,071	100.0
River Vale Twp.	Bergen	1,070	59.4
Upper Saddle River Boro.	Bergen	1,069	100.0
Allamuchy Twp.	Warren	1,064	100.0

Source: 2017 American Community Survey 5-Year Summary

Growth of Older Adults, 1990-2017

The increase in population aged 65+ between 1990 and 2017 for the 21 New Jersey counties is shown in Table 6. The counties with the largest increase in older adult population include Middlesex (36,884), Morris (34,620), Monmouth (30,741), Ocean (29,949), Burlington (29,280), Bergen (27,168), and Somerset (21,942). Although each of these counties include some municipalities with urban characteristics, they are largely suburban in nature with larger portions of land dedicated to single-family residential areas. In contrast, the counties that are predominantly urban, including Essex (4,473), Hudson (5,573), and Union (1,837), experienced small increases in number of older adults.

In terms of percent increase, Hunterdon County ranks first with 103.7% increase in older adults between 1990 and 2017, followed by Sussex County (89.7%), Somerset County (84.4%), Morris County (77.9%), Gloucester County (70.2%), and Burlington County (69.4%). Several of these counties show a high rate of increase because their base population in 1990 was relatively small (e.g., Hunterdon and Sussex County). However, the other counties experiencing a high growth rate, especially Morris and Burlington Counties, had a reasonably large base population in 1990.

Table 6 – Increase in population aged 65+ between 1990 and 2017 in different counties

County	Population 65+ in 1990	Population 65+ in 2017	Increase 1990-2017	Percent increase
Atlantic	32,594	44,540	11,946	36.7
Bergen	126,359	153,527	27,168	21.5
Burlington	42,188	71,468	29,280	69.4
Camden	61,191	74,496	13,305	21.7
Cape May	19,131	23,124	3,993	20.9
Cumberland	18,657	22,010	3,353	18.0
Essex	98,321	102,794	4,473	4.5
Gloucester	24,761	42,145	17,384	70.2
Hudson	70,401	75,984	5,583	7.9
Hunterdon	10,201	20,782	10,581	103.7
Mercer	42,229	52,772	10,543	25.0
Middlesex	78,817	115,701	36,884	46.8
Monmouth	70,387	101,128	30,741	43.7
Morris	44,422	79,042	34,620	77.9
Ocean	100,408	130,257	29,849	29.7
Passaic	58,435	69,429	10,994	18.8
Salem	9,558	11,000	1,442	15.1
Somerset	26,013	47,955	21,942	84.4
Sussex	11,684	22,167	10,483	89.7
Union	74,125	75,962	1,837	2.5
Warren	12,143	17,716	5,573	45.9
New Jersey Total	1,032,025	1,353,999	321,974	31.2

Source: Census 1990 and 2017 ACS 5-Year summary file

The increase of older adult population in all municipalities of New Jersey is shown in Figure 4 and the 50 municipalities with the largest increase are shown in Table 7. It is evident that almost all of the municipalities experiencing a large increase in older adult population are suburban in nature. Second, many of the municipalities experiencing the largest increases of older adults (>3,000) are located in Middlesex, Ocean, Morris, and Burlington Counties. Third, the change in the number of older adults in municipalities along the Jersey Shore is mostly positive but appears to be moderate (<200). However, that modest increase is noteworthy because total population in many of those municipalities decreased between 1990 and 2017.

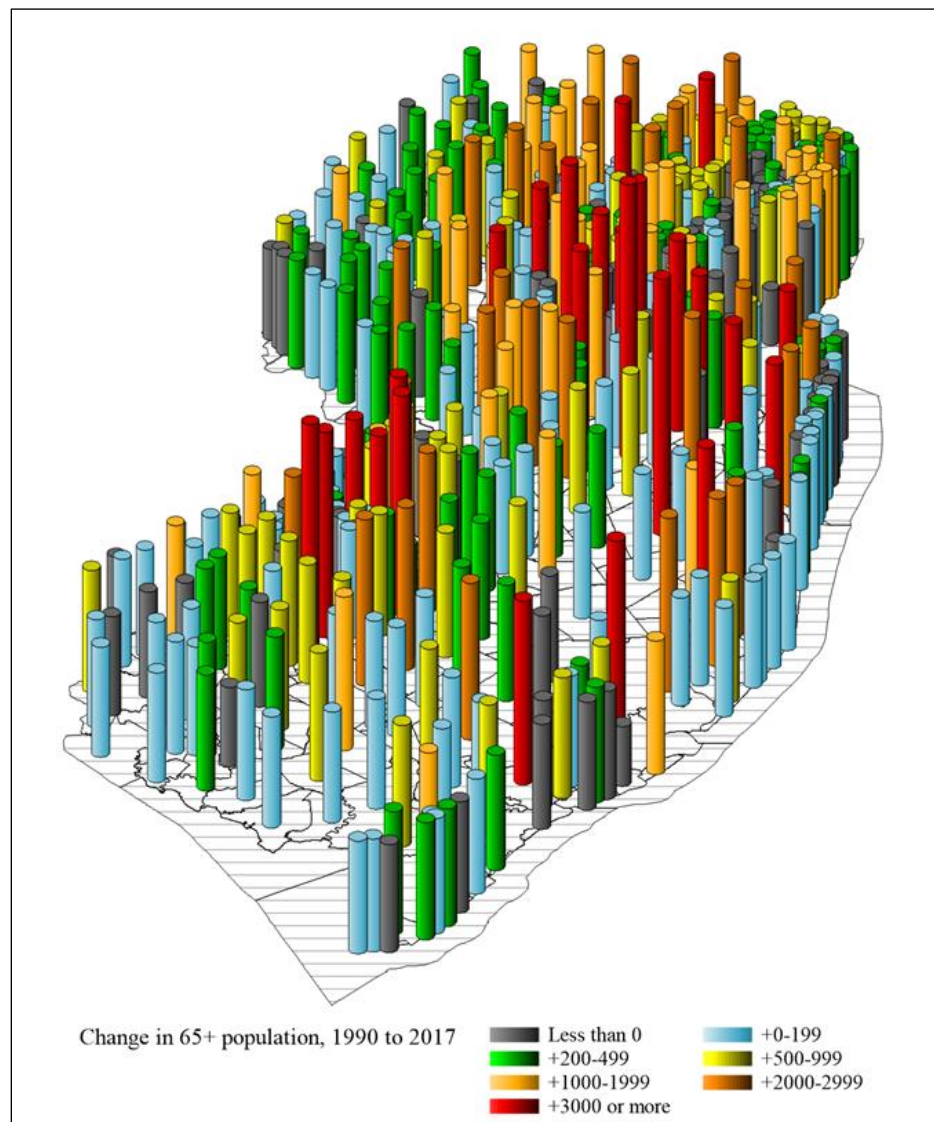


Figure 4. Increase of population aged 65+ in municipalities

Table 7 – The 50 municipalities experiencing the largest increase in population aged 65+ between 1990 and 2017

Municipality	County	Increase in population aged 65+
Monroe Twp.	Middlesex	7,849
Jackson Twp.	Ocean	6,882
Franklin Twp.	Somerset	6,679
Toms River Twp.	Ocean	5,599
Washington Twp.	Gloucester	5,240
Evesham Twp.	Burlington	5,105
Edison Twp.	Middlesex	4,810
Gloucester Twp.	Camden	4,395
Mount Laurel Twp.	Burlington	4,343
Galloway Twp.	Atlantic	4,215
Barneget Twp.	Ocean	4,099
Old Bridge Twp.	Middlesex	4,085
East Brunswick Twp.	Middlesex	4,045
Parsippany-Troy Hills Twp.	Morris	3,936
Wayne Twp.	Passaic	3,880
South Brunswick Twp.	Middlesex	3,821
Bridgewater Twp.	Somerset	3,682
Tinton Falls Boro.	Monmouth	3,609
Howell Twp.	Monmouth	3,473
Voorhees Twp.	Camden	3,441
Marlboro Twp.	Monmouth	3,401
Brick Twp.	Ocean	3,266
Egg Harbor Twp.	Atlantic	3,230
Cherry Hill Twp.	Camden	3,202
Piscataway Twp.	Middlesex	3,128
Hillsborough Twp.	Somerset	3,072
Willingboro Twp.	Burlington	2,985
Freehold Twp.	Monmouth	2,982
Middletown Twp.	Monmouth	2,979
Mahwah Twp.	Bergen	2,979
Little Egg Harbor Twp.	Ocean	2,925
Manalapan Twp.	Monmouth	2,815
Stafford Twp.	Ocean	2,695
West Windsor Twp.	Mercer	2,610
Monroe Twp.	Gloucester	2,608
Rockaway Twp.	Morris	2,508
Winslow Twp.	Camden	2,464
West Milford Twp.	Passaic	2,456
Fort Lee Boro.	Bergen	2,427
Medford Twp.	Burlington	2,408
Roxbury Twp.	Morris	2,386
East Windsor Twp.	Mercer	2,384
Wall Twp.	Monmouth	2,337
Pequannock Twp.	Morris	2,309
Ocean Twp.	Monmouth	2,270
Holmdel Twp.	Monmouth	2,270
Lawrence Twp.	Mercer	2,231
Paterson City	Passaic	2,140
Raritan Twp.	Hunterdon	2,135
Montgomery Twp.	Somerset	2,116

Source: Census 1990 and 2017 ACS 5-Year summary file

Location of Older Adult Communities

Age-restricted older adult communities, sometimes known as 55+ communities or active living communities, are developments that often contain small-lot single family homes with a mix of townhouses or condominiums. Examining the location of such communities is important for this study because (a) some of the municipalities experiencing the highest growth since 1990 experienced a high growth of older adult communities (e.g., Monroe Township of Middlesex County, Franklin Township of Somerset County, etc.), and (b) public transit may have a greater potential to serve such communities because of a large concentration of older adults compared to typical suburban residential areas.

Data compiled from various websites on older-adult communities showed that there are approximately 143,000 dwelling units in age-restricted older adult communities of New Jersey.³⁰ Ocean County has the largest number of dwelling units in such communities (64,914), followed by Middlesex County (18,021), Monmouth County (11,928), Burlington County (8,518), Gloucester County (5,714), Somerset County (5,537), and Morris County (5,242). All other counties have less than 5,000 units and the heavily urban Hudson, Essex, and Union County each has less than 1,000 units. The 20 municipalities with the largest number of dwelling units in age-restricted older adult communities is shown in Table 8 and the number of units in such communities is shown for all municipalities in Figure 5. Figure 5 shows that virtually all exclusive older adult communities are located in suburban areas of the state and the largest ones are located in Ocean and Middlesex Counties.

³⁰ <https://activeadultliving.com/NJ/new-jersey/55-plus-communities>;
<https://www.55places.com/new-jersey>; www.newhomesource.com

Table 8 – The 20 municipalities with most dwelling units in older-adult developments

Municipality	County	No. of dwelling units
Manchester Twp.	Ocean	18,434
Berkeley Twp.	Ocean	14,117
Monroe Twp.	Middlesex	12,638
Lakewood Twp.	Ocean	7,781
Brick Twp.	Ocean	5,174
Toms River Twp.	Ocean	5,024
Franklin Twp.	Somerset	4,303
Barneget Twp.	Ocean	4,163
Jackson Twp.	Ocean	4,118
Manalapan Twp.	Monmouth	2,491
Southampton Twp.	Burlington	2,255
Howell Twp.	Monmouth	2,024
Little Egg Harbor Twp.	Ocean	1,792
Hamilton Twp.	Mercer	1,672
Stafford Twp.	Ocean	1,640
Marlboro Twp.	Monmouth	1,574
Mansfield Twp.	Burlington	1,520
Pequannock Twp.	Morris	1,520
Mount Laurel Twp.	Burlington	1,463
Middletown Township	Monmouth	1,438

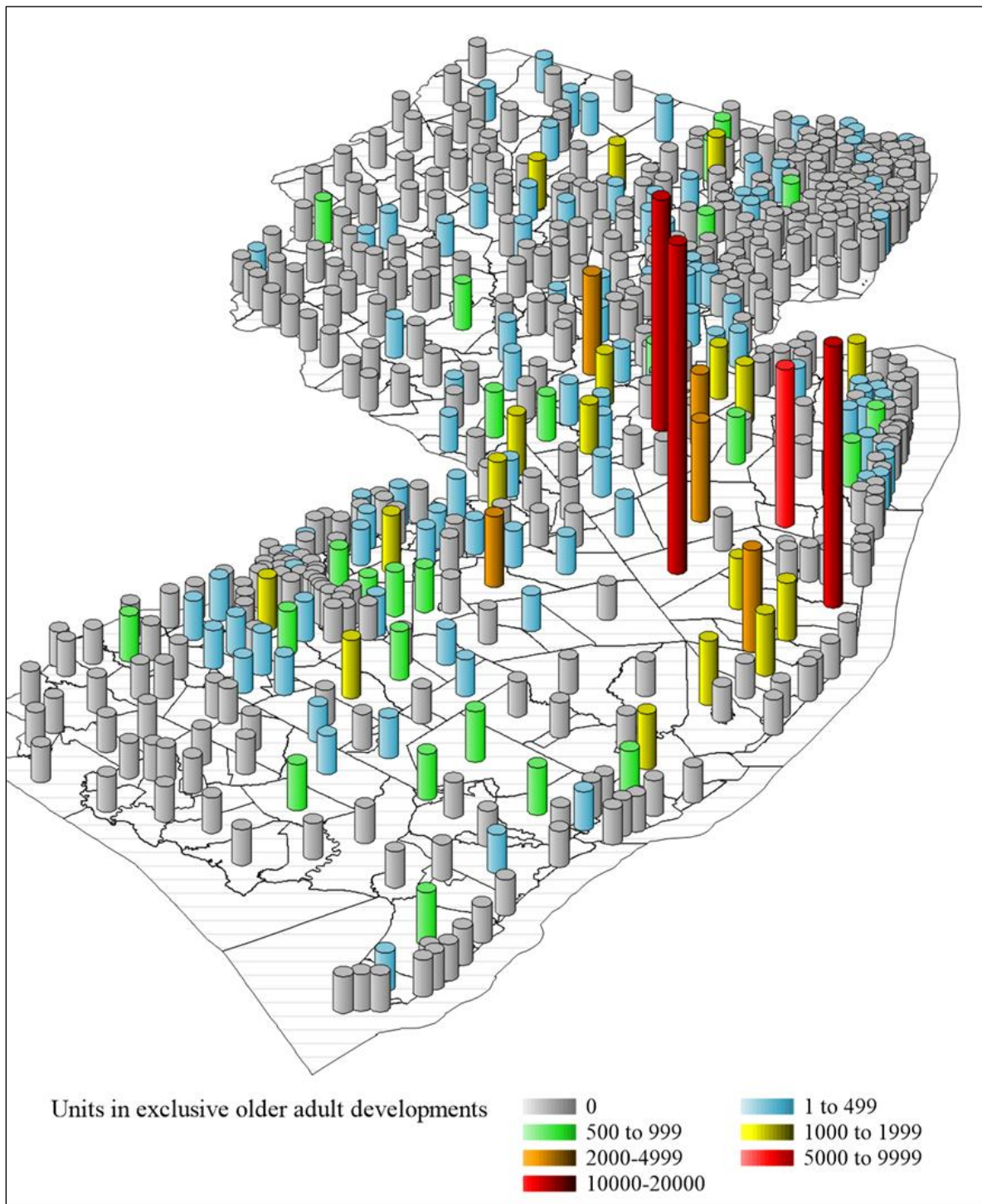


Figure 5. Units in exclusive age-restricted developments at the municipal level

Potential Growth of Older Adults

The New Jersey Department of Labor (NJDOLE) makes population projections for New Jersey and its counties. The county-specific growth projections for population aged 55+, 65+ and 75+ are provided in Table 9 for the period 2014 to 2034, the most recent projection available at this time. For New Jersey as a whole, the table shows, people aged 55+ will increase by 22.6%, whereas people aged 65+ and 75+ will increase by 48% and 62.2%, respectively. By 2034, the share of people aged 55+ will increase to 31.1 from the 2017 share of 22%, whereas the share of people aged 65+ will increase to 20% from 15% in 2017.

Table 9 – County-wise projection of older adults from 2014 to 2034

County	Age 55+		Age 65+		Age 75+		Percent 55+ in 2034	Percent 65+ in 2034	Percent 75+ in 2034
	Change, 2014-2034	Percent change, 2014-2034	Change, 2014-2034	Percent change, 2014-2034	Change, 2014-2034	Percent change, 2014-2034			
Atlantic	9,700	11.9	17,800	40.8	12,200	65.6	32.3	21.7	11.2
Bergen	76,600	27.9	78,300	52.4	43,500	62.4	33.0	21.4	12.1
Burlington	17,400	13.3	28,700	41.0	18,100	57.5	31.3	20.9	11.0
Camden	20,000	14.4	29,700	40.9	19,300	60.5	30.3	19.5	10.0
Cape May	-2,100	-5.5	3,400	14.9	4,000	40.0	38.9	28.1	14.7
Cumberland	6,000	15.0	6,700	31.3	4,200	45.2	27.9	17.1	8.6
Essex	44,800	23.3	41,900	42.6	21,700	50.1	28.2	16.7	8.2
Gloucester	17,300	21.6	22,200	54.0	13,400	77.9	31.2	20.3	10.5
Hudson	48,000	33.9	30,700	42.7	13,600	43.7	24.7	13.4	6.7
Hunterdon	5,200	12.9	11,700	59.1	8,700	107.4	38.1	26.3	13.3
Mercer	27,900	28.4	29,100	56.8	16,200	70.4	31.0	19.8	10.6
Middlesex	84,400	39.1	79,800	71.3	46,200	92.4	31.1	19.9	11.5
Monmouth	29,600	15.6	47,100	47.9	28,200	65.4	32.9	21.9	11.3
Morris	24,200	16.7	34,000	44.2	20,200	58.4	30.9	20.2	11.0
Ocean	32,500	15.9	38,200	29.7	22,400	36.4	35.5	25.1	14.3
Passaic	31,000	24.3	32,600	48.8	18,300	63.1	29.3	18.3	9.3
Salem	500	2.5	3,000	27.0	2,700	55.1	34.8	23.6	11.7
Somerset	35,100	38.1	37,400	79.9	20,200	96.2	33.6	22.2	12.4
Sussex	6,600	14.9	13,700	64.3	8,800	108.6	37.2	25.6	11.7
Union	40,100	28.6	36,700	50.8	18,100	55.2	29.1	17.6	9.2
Warren	4,100	12.6	8,200	48.0	5,000	66.7	35.9	24.8	11.7
New Jersey	558,700	22.6	630,800	48.0	364,900	62.2	31.1	20.0	10.6

Source: New Jersey Department of Labor

A comparison among the counties in Table 9 shows that the counties that are expected to experience the largest increase of older adults are mostly the same as the counties that currently have the largest population of older adults (e.g., Bergen, Middlesex, and Monmouth). Ocean County seems to be an aberration because its projected growth is not as large as Middlesex, Bergen, and Monmouth Counties despite currently having a large population of older adults. It is also worth noting that many of the predominantly urban counties, such as Essex, Hudson, and Union, are also projected to experience a

substantial increase in older adult population, which most likely is a reflection of their large population of adults who will become older adults between now and 2034.

Because NJDOL does not make population projections for county subdivisions or municipalities, an effort was made in this study to estimate the number of older adults in municipalities by 2034 by distributing the NJDOL county projections of older adults among municipalities based on the current share of older adult population. These estimates, presented in Table 10 for 30 municipalities with the largest older adult population in 2034, are not to be used as forecasts because forecasting municipal population is beyond the scope of this research. They are simply estimates based on an assumption that may not hold in real life. The table shows that many large urban centers, such as Newark, Jersey City, and Paterson, will continue to have a large number of older adults if the distribution of older adult population within each county does not change. However, the table also shows that many suburban municipalities currently with large older adult populations (e.g., Manchester Township, Monroe Township, and Berkeley Township), may also continue to grow.

Table 10 – Municipalities with most older adults in 2034 if county projections are distributed to municipalities according to 2017 share

Municipality	County	Age 55+	Age 65+	Age 75+
Newark City	Essex	66,895	37,317	15,499
Jersey City City	Hudson	67,675	36,228	14,062
Manchester Twp.	Ocean	31,388	26,692	14,951
Monroe Twp.	Middlesex	30,112	26,340	15,138
Edison Twp.	Middlesex	37,806	23,674	11,920
Woodbridge Twp.	Middlesex	38,470	23,196	11,884
Toms River Twp.	Ocean	35,848	22,675	10,511
Hamilton Twp.	Mercer	34,968	22,532	11,256
Paterson City	Passaic	37,208	22,464	10,103
Berkeley Twp.	Ocean	27,251	22,116	12,531
Franklin Twp.	Somerset	27,027	19,368	9,171
Brick Twp.	Ocean	29,126	18,924	9,545
Elizabeth City	Union	32,881	18,671	8,059
Clifton City	Passaic	29,668	18,208	8,733
Cherry Hill Twp.	Camden	25,860	17,868	10,104
Middletown Twp.	Monmouth	23,116	15,706	7,826
Old Bridge Twp.	Middlesex	26,342	15,031	6,147
Wayne Twp.	Passaic	21,400	14,420	7,801
Union Twp.	Union	22,649	13,434	6,149
Fort Lee Boro.	Bergen	17,338	13,114	6,680
Lakewood Twp.	Ocean	16,933	13,071	8,278
East Brunswick Twp.	Middlesex	21,422	12,988	6,452
Jackson Twp.	Ocean	20,061	12,895	5,613
Bayonne City	Hudson	23,342	12,678	5,494
Bridgewater Twp.	Somerset	18,042	12,400	6,623
Vineland City	Cumberland	19,528	12,375	5,888
Gloucester Twp.	Camden	20,369	12,241	5,886
Trenton City	Mercer	21,087	12,021	5,036
Washington Twp.	Gloucester	17,438	11,822	5,917
North Bergen Twp.	Hudson	21,378	11,693	5,920

Crashes Involving Older Drivers and Pedestrians in New Jersey

To examine how safe older adults are from traffic safety in different places within New Jersey, geocoded data from the New Jersey Division of Highway Traffic Safety for the period 2014-2018 were aggregated for municipalities. The crash data involving people aged 65+ as driver and pedestrian for the years 2014 through 2018 were first converted to annual average number of crashes. Subsequently, the number of crashes involving older drivers and older pedestrians were divided by the respective municipality's population of people aged 65+ to obtain estimates for driver and pedestrian crashes per 100,000 people. The left hand side of Table 11 shows the 50 municipalities with the highest number of crashes involving older drivers and the right hand side of the table shows the 50 municipalities with the highest number of crashes involving older pedestrians (per 100,000 older adults in each case). Crashes involving older drivers for all municipalities are shown in Figure 6, whereas crashes involving older pedestrians are shown in Figure 7.

It may be noted that the average number of crashes (per 100,000 older adults) involving older drivers for New Jersey municipalities is 3,299, whereas the average number of crashes (per 100,000 older adults) involving older pedestrians is 46. That indicates that crashes involving older drivers are far more common than crashes involving older pedestrians, but that is not surprising because far more travel by both older and younger adults takes place by cars than by walking.

Figure 6 seems to indicate that crashes involving older drivers are fairly ubiquitous throughout the state, except perhaps the middle part of southern Jersey, where crashes are less frequent. A few clusters of high-crash municipalities can be observed in Bergen County, western Hunterdon County, and Monmouth County. Municipalities in Bergen County appear most frequently among the top-50 in Table 11, followed by municipalities in Monmouth County.

Figure 7 shows the obvious: crashes involving older pedestrians are more common in the northeast part of the state, where areas are more urban and people walk more often. However, the figure shows that many places in other parts of the state also experience high volumes of crashes involving older pedestrians. The three municipalities with most common pedestrian crashes involving older adults are in fact in municipalities along the coast.

Table 11 – The top-50 municipalities of New Jersey according to number of crashes involving older adult drivers and pedestrians (per 100,000 older adults)

Crashes involving drivers aged 65+			Crashes involving pedestrians aged 65+		
Municipality	County	Crashes	Municipality	County	Crashes
Lakehurst Boro.	Ocean	20,149	Avalon Boro.	Cape May	285
Flemington Boro.	Hunterdon	13,124	Seaside Heights Boro.	Ocean	276
S. Hackensack Twp.	Bergen	12,793	Belmar Boro.	Monmouth	267
Ship Bottom Boro.	Ocean	12,517	Prospect Park Boro.	Passaic	244
Pohatcong Twp.	Warren	11,678	Fairview Boro.	Bergen	226
Ridgefield Boro.	Bergen	11,011	Hackensack	Bergen	219
Cranbury Twp.	Middlesex	10,584	Egg Harbor City	Atlantic	219
S. Toms River Boro.	Ocean	10,464	Rutherford Boro.	Bergen	214
Bloomsbury Boro.	Hunterdon	10,250	Union City	Hudson	213
Andover Boro.	Sussex	9,545	Red Bank Boro.	Monmouth	204
Paramus Boro.	Bergen	9,257	Magnolia Boro.	Camden	193
Magnolia Boro.	Camden	9,073	Morristown	Morris	192
Brooklawn Boro.	Camden	8,763	Perth Amboy	Middlesex	188
Lafayette Twp.	Sussex	8,750	Harrison	Hudson	186
Springfield Twp.	Burlington	8,615	River Edge Boro.	Bergen	182
Logan Twp.	Gloucester	8,389	Glen Ridge Boro.	Essex	181
Sea Bright Boro.	Monmouth	8,293	Dover	Morris	178
Teterboro Boro.	Bergen	8,224	Pohatcong Twp.	Warren	174
Point Pleasant Beach	Ocean	8,155	Lambertville	Hunterdon	174
Red Bank Boro.	Monmouth	7,990	W. Cape May Boro.	Cape May	173
W. Long Branch Boro.	Monmouth	7,822	Bound Brook Boro.	Somerset	171
Westampton Twp.	Burlington	7,577	Hoboken	Hudson	170
Morristown	Morris	7,393	Asbury Park	Monmouth	168
Hackensack	Bergen	7,253	Atlantic City	Atlantic	167
Mannington Twp.	Salem	7,226	Plainfield	Union	165
Millburn Twp.	Essex	7,223	Ridgefield Park Village	Bergen	164
Watchung Boro.	Somerset	7,205	Bradley Beach Boro.	Monmouth	162
E. Rutherford Boro.	Bergen	7,179	Essex Fells Boro.	Essex	159
Fairfield Twp.	Essex	7,169	Surf City Boro.	Ocean	157
Eatontown Boro.	Monmouth	7,159	Palisades Park Boro.	Bergen	156
Palisades Park Boro.	Bergen	7,017	Clementon Boro.	Camden	156
Raritan Boro.	Somerset	6,839	Mount Holly Twp.	Burlington	155
Clark Twp.	Union	6,821	Irvington Twp.	Essex	155
Jamesburg Boro.	Middlesex	6,790	Oldmans Twp.	Salem	152
Egg Harbor City	Atlantic	6,711	Passaic	Passaic	152
Hanover Twp.	Morris	6,698	Swedesboro Boro.	Gloucester	152
Maurice River Twp.	Cumberland	6,550	Washington Boro.	Warren	151
Gloucester City	Camden	6,546	Branchville Boro.	Sussex	149
Wall Twp.	Monmouth	6,481	Westwood Boro.	Bergen	147
Westwood Boro.	Bergen	6,459	Kearny	Hudson	145
Hillside Twp.	Union	6,348	Bayonne	Hudson	143
New Brunswick	Middlesex	6,347	Stockton Boro.	Hunterdon	142
Shrewsbury Boro.	Monmouth	6,209	Pt. Pleasant Beach	Ocean	141
Knowlton Twp.	Warren	6,157	Flemington Boro.	Hunterdon	140
Burlington	Burlington	6,094	Paterson	Passaic	140
Bass River Twp.	Burlington	6,069	E. Rutherford Boro.	Bergen	139
Bedminster Twp.	Somerset	6,035	Maywood Boro.	Bergen	139
Woodland Twp.	Burlington	5,992	Jersey City	Hudson	139
Carlstadt Boro.	Bergen	5,983	Collingswood Boro.	Camden	139
Millstone Boro.	Somerset	5,897	Wharton Boro.	Morris	137

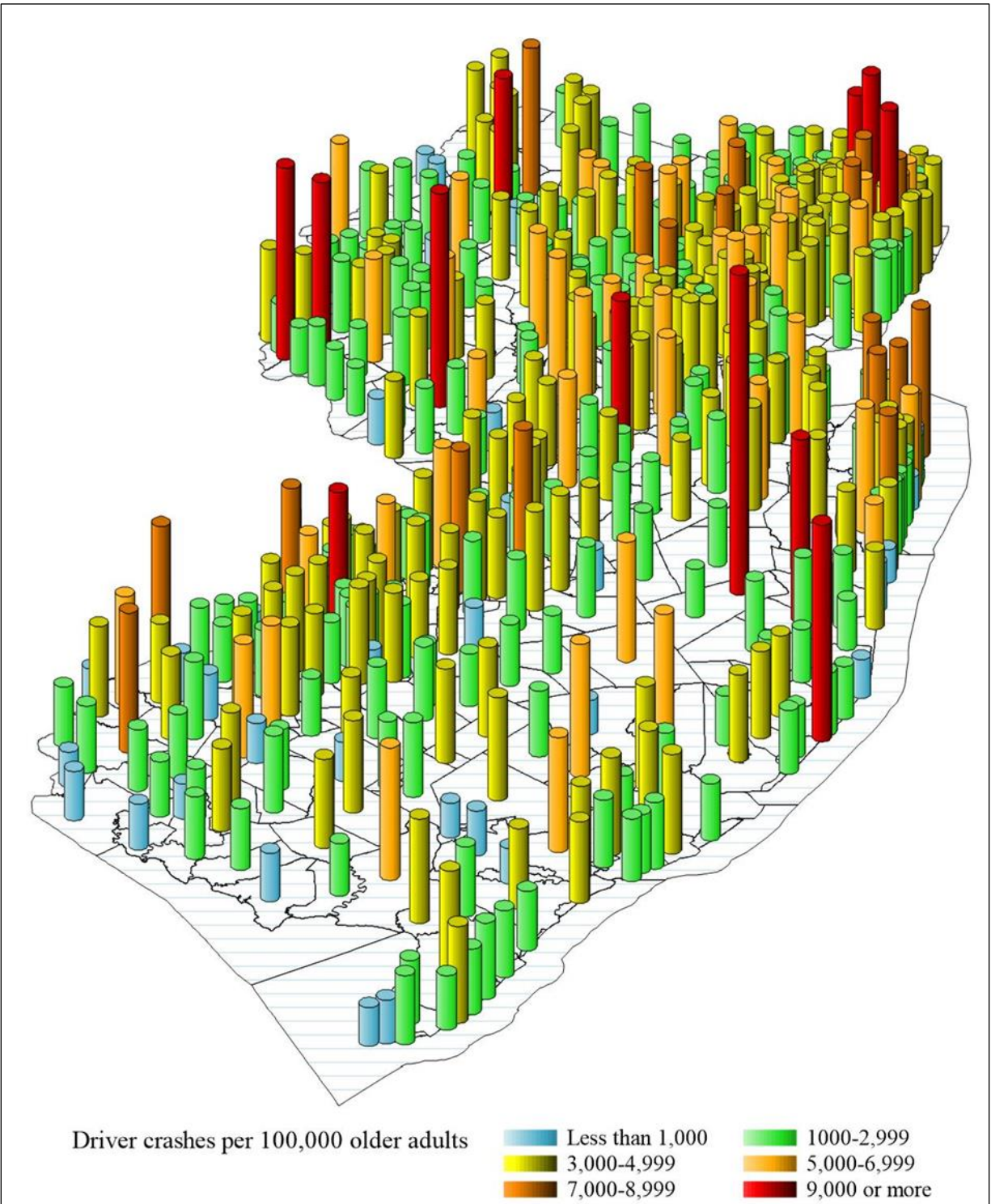


Figure 6. Crashes involving drivers aged 65+ per 100,000 persons aged 65+ in municipality

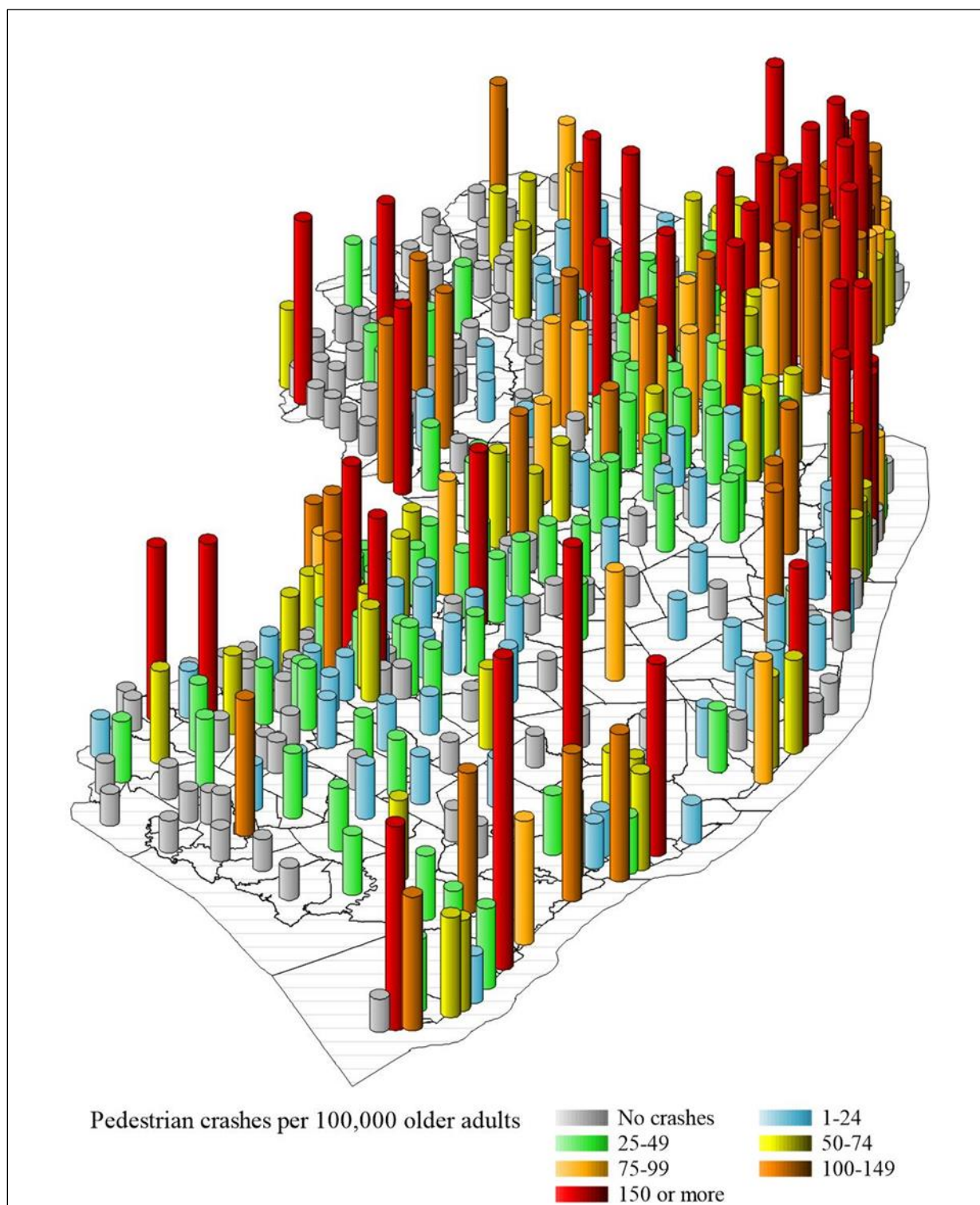


Figure 7. Crashes involving pedestrians aged 65+ per 100,000 persons aged 65+ in municipality

Travel Patterns of Older Adults

Because there is no statewide dataset for New Jersey that could be analyzed to examine travel patterns of older adults in different parts of the state, the household survey datasets from the three MPOs of the state (DVRPC, NJTPA, and SJTPO) were combined. However, since the three datasets are somewhat dated and the survey questionnaires were not identical, the data analysis was carried out to examine broad patterns across geographies instead of comparing one geographic area with another.³¹ The three variables analyzed from the MPO data were (a) automobile ownership of households with older adults (aged 65+), (b) mean number of trips by older adults, and (c) share of trips by non-motorized travel modes.

Figure 8 shows the mean number of automobiles in households of people aged 65+ at the municipal level. Although the data may not be exact for municipalities with a small number of households in the survey samples, the figure provides a general understanding about where automobile ownership is higher and where automobile ownership is lower. As expected, the figure shows that older adults in the heavily urban northeastern part of the state near New York City and the southwestern part of the state near Philadelphia, as well as some other urban areas, such as the Atlantic City area, have a low automobile ownership rate. Older adults in some small suburban places, including several located in the Jersey Shore, also have a low automobile ownership rate, but those places are not as clustered as the places near New York City and Philadelphia. The places where automobile ownership is the highest are all located in suburban areas and they are mostly scattered instead of being clustered.

Figure 9 shows how the mean number of trips by older adults (by all modes) varies between municipalities within each MPO region. Because the survey data on trips were collected and weighted differently by the three MPOs, comparisons were made within each MPO region instead of across MPO regions. The figure shows that, within the NJTPA region, older adults living in the eastern part make more trips than older adults living in the western part. Within the DVRPC region, older adults living in the southwestern part make fewer trips than the rest of the region. No clear pattern emerges within the SJTPO region.

Figure 10 shows the proportion of trips by non-automobile modes at the municipal level. Because the proportion of trips by automobile is so large and the proportion of trips by public transit is so low, the comparison was made between automobile and non-automobile trips. As expected, the figure shows the proportion of non-automobile trips is the highest in the northeastern part of the state near New York City and the southwestern part near Philadelphia.

³¹ The NJTPA household survey was conducted in 2011, the DVRPC survey was conducted in 2013, and the SJTPO survey was conducted in 2014.

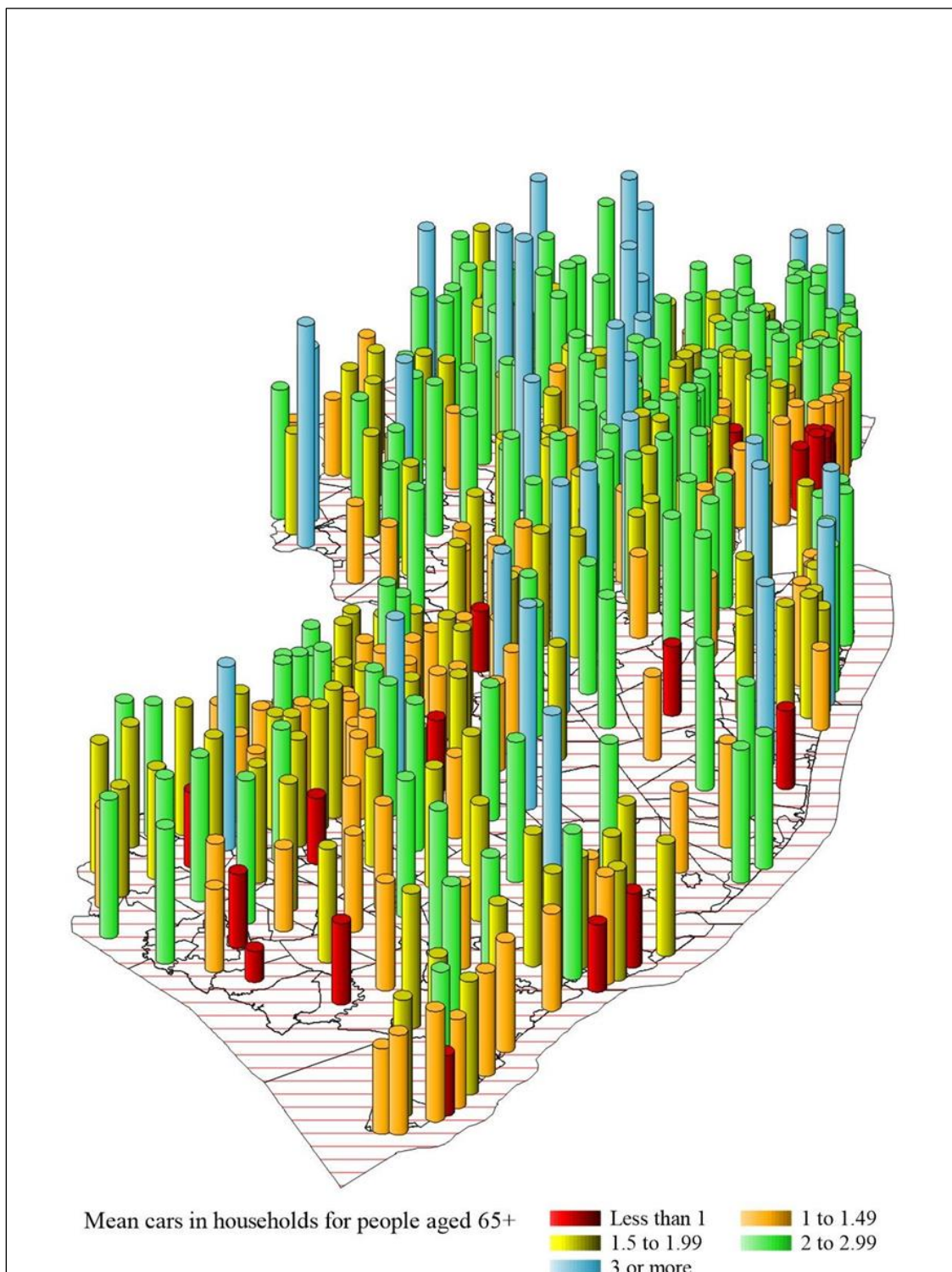


Figure 8. Average number of cars in households with one or more people aged 65+ in municipality

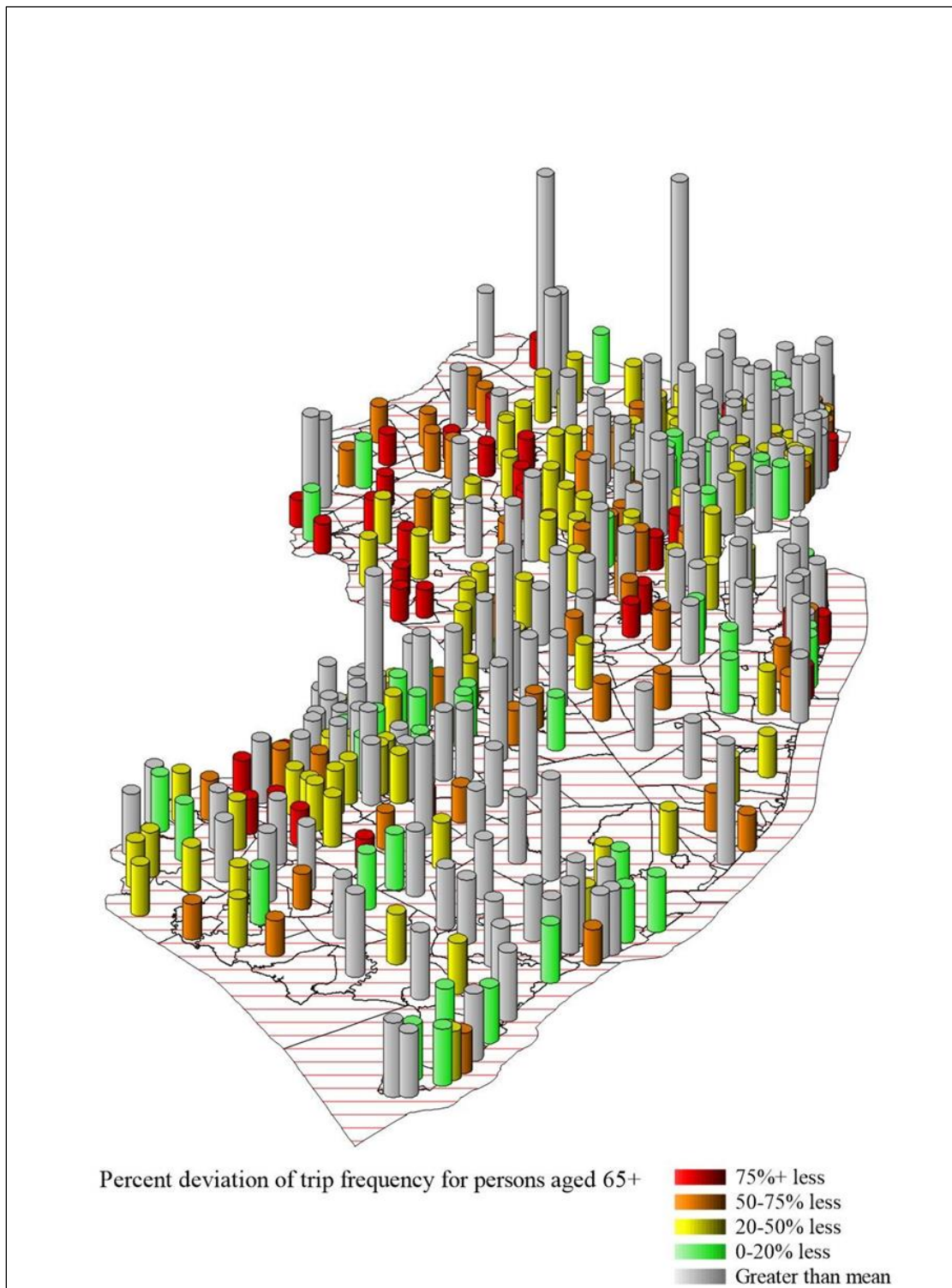


Figure 9. Number of trips on travel day by people aged 65+ shown as deviation from mean for each MPO

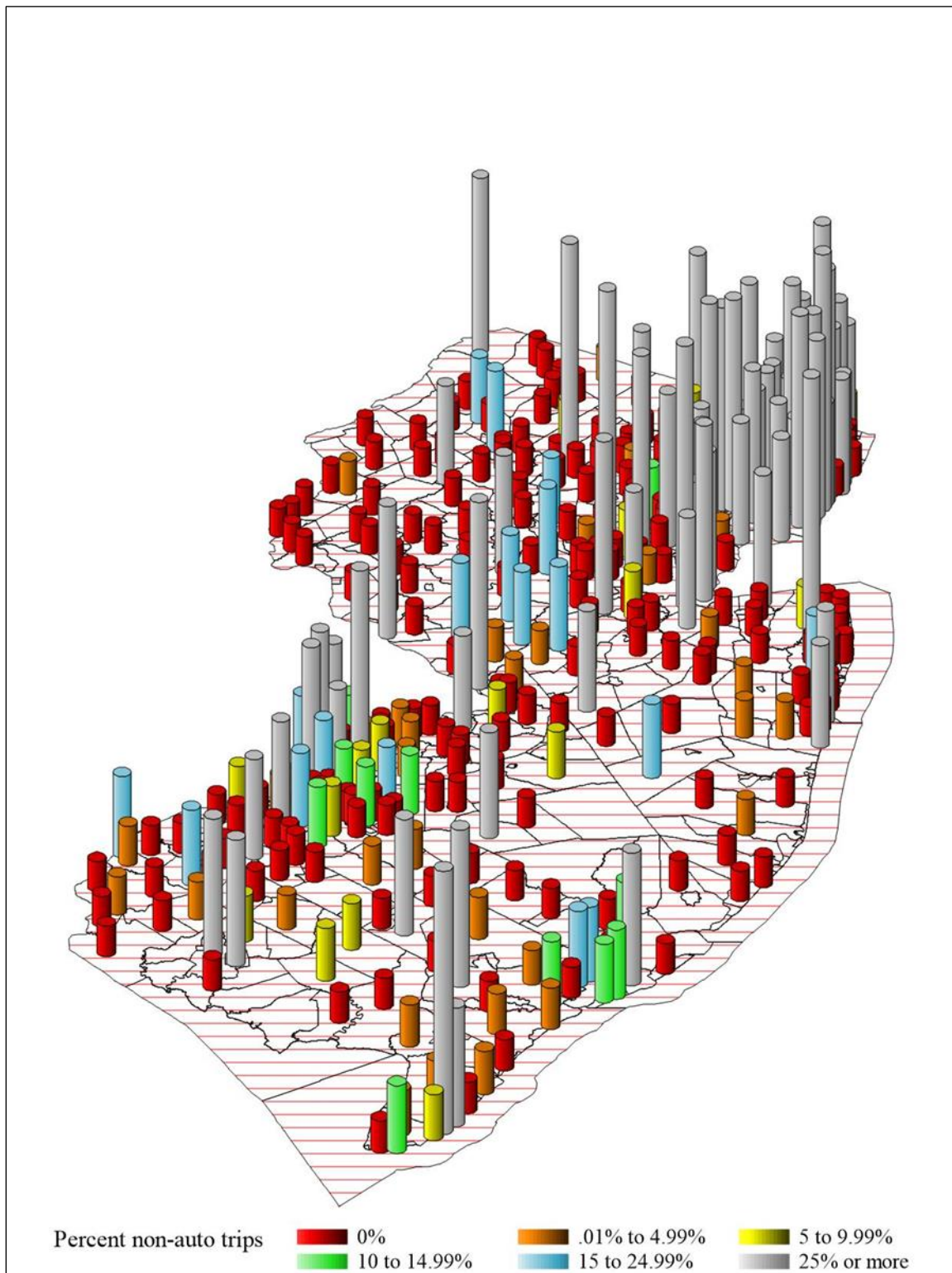


Figure 10. Percent of trips by non-automobile modes by people aged 65+ on travel day

Characteristics of New Jersey Older Adults

Although older adults as a whole are considered a transportation-disadvantaged population for transportation planning purposes, among them, some are more disadvantaged than others. As previously indicated in this report, older adults were historically considered transportation disadvantaged because of an overlap between old age, disability, and poverty. Recent studies have indicated that having no vehicles in a household and living in households with no other adults can also add to the transportation disadvantage of older adults. In this section, therefore, an attempt has been made to provide estimates of New Jersey older adults (a) in poverty, (b) with disability, (c) in no-car households, and (d) in single-person households. Table 12 shows the total number and proportion of New Jersey older adults by these characteristics. ACS PUMS data were used for this analysis because, unlike regular ACS data, the data are for people rather than geographic areas like block groups or municipalities. For the sake of brevity, data are presented for people aged 65+ only in Table 12 and the subsequent tables, where data are presented for selected PUMAs.

Table 12 – Characteristics of people aged 65+ for New Jersey as a whole

Population aged 65+ with any disability*	457,786
Percent aged 65+ with any disability	33.8
Population aged 65+ in poverty	148,109
Percent aged 65+ in poverty	10.9
Population aged 65+ in one-person household	391,031
Percent aged 65+ in one-person household	28.9
Population aged 65+ in no-car household	153,567
Percent aged 65+ in no-car household	11.3

* Includes people who had at least one of these types of disabilities: cognitive, ambulatory, self-care, vision, or hearing.

Table 12 shows that a much larger proportion of older adults in New Jersey have disabilities (33.8%) compared to older adults living in poverty (10.9%) or living in households without cars (11.3%). The proportion of older adults living in single-person households (28.9%) is also substantially higher than the proportion of older adults living in poverty and older adults living in no-car households.

As indicated previously, New Jersey has 73 PUMAs compared to 565 municipalities. As a result, most PUMAs are composed of multiple municipalities. Yet, PUMA-level analysis can help to comprehend the variations among the 73 regions for specific characteristic of older adults. Table 13, Table 14, Table 15, and Table 16, show, respectively, the top 15 PUMAs of New Jersey with the highest proportion of (a) older adults with disabilities, (b) older adults in poverty, (c) older adults living in single-person households, and (d) older adults living in households without cars. The proportions shown in these tables can be compared with the proportions of older adults for the whole state of New Jersey in Table 12 to determine how different they are from the state average. For example, Table 12

showed that the proportion of older adults with any type of disability for New Jersey as a whole is 33.8%. Compared to that, the PUMAs shown in Table 13 have a significantly larger proportion of older adults with disabilities. In the greater Newark City area, the proportion of older adults with disabilities is almost 15 percentage points higher than the state average, in the Camden area, the proportion is more than 12 percentage points higher, and in the Trenton area and Vineland area, the proportion is more than seven percentage points higher. The PUMA in Ocean County with 40.7% older adults with disabilities includes Lakewood Township.

Table 13 – PUMAs with the highest proportion of population aged 65+ with disability

PUMA Name	Percent with Disability
Essex County (Southeast)--Newark City (Southwest) PUMA	48.4
Essex County (Southeast)--Newark City (North & East) PUMA	47.8
Camden County (North)--Camden & Gloucester Cities PUMA	46.3
Mercer County (West Central)--Trenton City PUMA	41.5
Cumberland County (South)--Vineland & Millville Cities PUMA	41.2
Ocean County (North Central) PUMA	40.7
Hudson County (Central)--Jersey City (South) PUMA	40.2
Hudson County (Central)--Jersey City (North) PUMA	39.6
Essex County (South Central)--East Orange City PUMA	38.4
Gloucester County (Northeast)--Woodbury City PUMA	38.2
Salem & Cumberland (North) Counties--Bridgeton City PUMA	38.1
Burlington County (South & East) PUMA	37.9
Union County (Southeast)--Linden, Rahway Cities & Roselle Borough (South) PUMA	37.9
Middlesex County (Central)--New Brunswick City, South River & Highland Park Boroughs	37.8
Camden County (South & West)--Bellmawr & Pine Hill Boroughs PUMA	37.7

Table 14 – PUMAs with the highest proportion of population aged 65+ in poverty

PUMA Name	Percent in poverty
Essex County (Southeast)--Newark City (North & East) PUMA	29.8
Passaic County (Southeast)--Paterson City PUMA	25.8
Hudson County (Central)--Jersey City (North) PUMA	23.5
Hudson County (Northeast)--Union City & Hoboken Cities PUMA	23.4
Essex County (Southeast)--Newark City (Southwest) PUMA	22.4
Hudson County (North)--West New York, Secaucus & Guttenberg Towns PUMA	21.0
Essex County (South Central)--East Orange City PUMA	19.9
Middlesex County (East Central)--Perth Amboy City & Sayreville Borough PUMA	19.4
Camden County (North)--Camden & Gloucester Cities PUMA	19.1
Union County (Northeast)--Elizabeth City PUMA	19.0
Mercer County (West Central)--Trenton City PUMA	18.9
Passaic County (South)--Passaic & Clifton (Southeast) Cities PUMA	18.5
Hudson County (Central)--Jersey City (South) PUMA	17.9
Cumberland County (South)--Vineland & Millville Cities PUMA	15.9
Bergen County (North Central)--Bergenfield, Paramus, Dumont & New Milford Boroughs	14.3

Table 12 showed that 10.9% of the older adults in New Jersey live in poverty. Table 14 shows that the proportion of older adults living in poverty is almost three times the state average in one PUMA in the Newark area. In another PUMA in the Newark area, three PUMAs in Hudson county, and one PUMA consisting of Paterson City in Passaic County, the proportion of older adults in poverty is approximately twice that of the state average. On the whole, Table 14 shows that poverty is more prevalent among older adults in the urban centers throughout the state than in suburban areas.

Table 12 also showed that 28.9% of the older adults in New Jersey live alone, or in single-person households. Table 15 shows that the proportion is substantially higher in some PUMAs. Although the list of PUMAs with the highest proportion of older adults living in single-person households include several urban centers, such as Newark, Jersey City, and Camden, the list is geographically more diverse than the list of PUMAs in Tables 13 and 14. A reason for three PUMAs from Ocean County entering the list could be the large proportion of older adults who live in exclusive older adult communities in that county.

Table 15 – PUMAs with the highest proportion of people aged 65+ in single-person households

PUMA Name	Percent in one-person household
Ocean County (North Central) PUMA	39.97
Mercer County (West Central)--Trenton City PUMA	38.54
Essex County (South Central)--East Orange City PUMA	38.49
Hudson County (Central)--Jersey City (North) PUMA	37.63
Essex County (Southeast)--Newark City (North & East) PUMA	37.56
Ocean County (Northwest) PUMA	35.97
Monmouth County (Southeast)--Tinton Falls Borough (South) PUMA	35.01
Atlantic County (East)--Atlantic City & Ventnor City PUMA	34.51
Hudson County (Northeast)--Union City & Hoboken Cities PUMA	34.23
Essex County (Southeast)--Newark City (Southwest) PUMA	34.19
Camden County (North)--Camden & Gloucester Cities PUMA	33.59
Camden County (Central)--Lindenwold & Collingswood Boroughs PUMA	32.28
Hudson County (North)--West New York, Secaucus & Guttenberg Towns PUMA	32.07
Ocean County (Central)--Beachwood Borough PUMA	31.87
Cumberland County (South)--Vineland & Millville Cities PUMA	31.76

While Table 12 showed that only 11.3% of the older adults in New Jersey live in households without a car, Table 16 shows that in some parts of the state, the proportion of older adults living in households without cars is three to four times larger. Almost all of the PUMAs in Table 16 are from the northeastern part of the state. The four exceptions are the PUMAs covering Camden, Trenton, Atlantic City, and Perth Amboy.

Figure 3 showed that the density of the public transit network is high in most of the areas in Table 16. While a reason for a large proportion of older adults in the areas shown in Table 16 could be greater availability of public transit, low income in those areas, as

shown in Table 14, could also be a reason. Another reason could be that a larger proportion of older adults in these areas have disabilities that prevent them from driving. After all, Table 13 showed that many of the areas where the proportion of older adults in households without cars is high, the proportion of older adults with disabilities is also high.

Table 16 – PUMAs with the highest proportion of population aged 65+ in no-car households

PUMA Name	Percent in no-car household
Hudson County (Northeast)--Union City & Hoboken Cities PUMA	44.9
Hudson County (Central)--Jersey City (North) PUMA	38.7
Essex County (Southeast)--Newark City (North & East) PUMA	37.4
Essex County (Southeast)--Newark City (Southwest) PUMA	36.0
Hudson County (North)--West New York, Secaucus & Guttenberg Towns PUMA	29.5
Passaic County (Southeast)--Paterson City PUMA	29.2
Hudson County (Central)--Jersey City (South) PUMA	28.0
Camden County (North)--Camden & Gloucester Cities PUMA	24.8
Essex County (South Central)--East Orange City PUMA	24.6
Union County (Northeast)--Elizabeth City PUMA	24.4
Passaic County (South)--Passaic & Clifton (Southeast) Cities PUMA	20.4
Hudson County (South & West)--Bayonne City, Kearney & Harrison Towns PUMA	19.5
Mercer County (West Central)--Trenton City PUMA	18.7
Middlesex County (East Central)--Perth Amboy City & Sayreville Borough PUMA	18.2
Atlantic County (East)--Atlantic City & Ventnor City PUMA	15.9

Conclusion

The analysis of secondary data in this section showed that many suburban municipalities have experienced large increases in older adult population in recent years, but large urban centers such as Newark, Jersey City, Paterson, as well as some smaller urban areas, still have larger older adult populations because of their large total population. Despite the recent increase of older adults in suburban areas, the urban areas will continue to account for a large older adult population.

Because the density of the transit network is higher in urban areas, older adults living in such areas have greater proximity to transit compared to older adults living in suburban areas. As a result, the number of older adults living beyond a ½ mile of transit is larger in many suburban municipalities compared to large urban centers. Because Access Link, NJ TRANSIT's eligibility-based, ADA-complementary paratransit service provided to people with disabilities, is provided in areas within ¾ mile of local bus routes, a larger number of older adults from suburban municipalities also live in unserved areas compared to urban areas. However, transit proximity can tell only a part of the story about people's ability and willingness to use public transit. For example, disabilities and lack of

affordability can prevent some older adults from using public transit even when they live close to a transit system. Analysis of ACS PUMS data showed that the proportion of older adults having disabilities and living in poverty and no-car households is greater in the urban centers.

LESSONS FROM A SURVEY OF MUNICIPAL OFFICIALS

Results are presented in this section from an online survey of municipal officials of New Jersey. The objective of the survey was to gain insights about potential growth of older adults in the municipalities, the nature of transportation available to older adults, and priorities to enhance transportation mobility and safety of older adults in the municipalities. Older adults were defined in the survey as people aged 55+.

The survey was conducted between April 27 and June 5, 2020. The survey questionnaire was approved by the Institutional Review Board of Rutgers University. All 565 municipalities were contacted by the research team by email by using the email addresses published in the 2020 New Jersey Municipal Directory prepared by the NJ League of Municipalities. A total 157 officials responded to the survey at a response rate of 27.8%. Of the total respondents, 89% were employed by the municipalities, whereas 11% were employed by consultants working for the municipalities. The job functions of the respondents were diverse and those working in matters related to administration, planning/zoning, aging or senior services, development/redevelopment, and traffic and transportation constituted the largest proportions.

Expected Growth of Older Adults and Older Adult Housing

The survey respondents were asked about the expected or anticipated growth of older adults in their municipalities in the next 20 years. The responses, presented in Figure 11, show that most municipal officials (58%) expect the growth of older adults to continue at the current rate, whereas 28% expect a faster growth rate and 14% expected a slower rate. The respondents were also asked about the expected growth of total population. Responses to that question indicated that 28% of the respondents also expected a faster growth rate. However, a larger proportion of respondents (23%) expected total population growth to be slower compared to older adult population (14%). A comparison of the responses to the two questions indicated that the respondents from 18 municipalities (11%) expected their older adult population to increase at a faster rate but did not expect their total population to increase at a faster rate. As expected, all of those municipalities are located in suburban areas. The responses, on the whole, are consistent with the recent growth pattern of older adults in the suburban areas.

The survey also included questions on the proportion of older adults currently living in age-restricted developments and age-restricted buildings, plans for such developments and buildings, and the expectation about the growth of older adults in such developments and buildings. Twenty-three percent of the respondents reported having neither age-

restricted developments nor age-restricted building, 30% reported having age-restricted developments, whereas the remaining 47% reported having age-restricted buildings, of which some are subsidized. Seventy-three percent of the respondents reported that less than 10% of the older adults in their municipalities lived in age-restricted developments or buildings, 14% reported that between 10% and 20% lived in such developments and buildings, and the remaining 13% reported that more than 20% lived in such developments and buildings. When asked whether their municipalities had any plans for older adult developments or buildings, 44% reported having plans for either older-adult developments or buildings. Only one of the 18 municipalities having plans for exclusive older-adult developments, Monroe Township in Middlesex County, currently has a large older adult population in such developments, indicating that many new developments may take place predominantly in municipalities that currently do not have such developments.

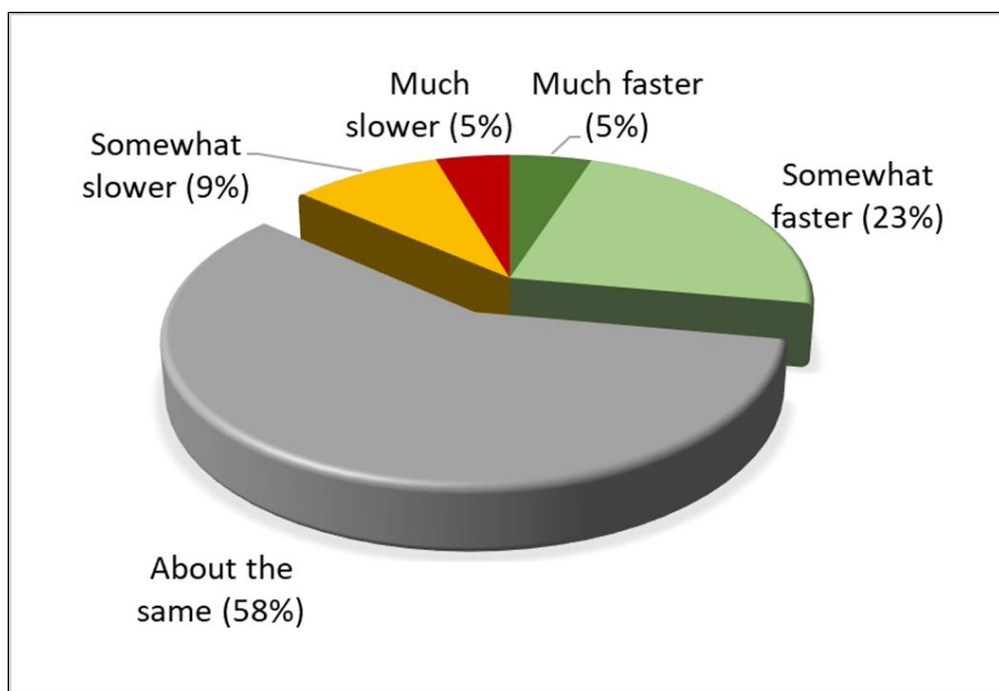


Figure 11. Expected growth of older adults in the next 20 years

Transportation Mobility and Safety for Older Adults

The survey respondents were asked about various types of transportation for older adults in their municipalities. Fifty-three percent of the respondents reported that their municipalities provided transportation service (typically provided by small buses or vans) to resident older adults, whereas the other 47% reported not having such service. However, 76% of the existing services allow older adults to travel to specific types of destinations only, such as senior centers, grocery stores, and doctor's offices and clinics, indicating that in only about a quarter of the municipalities, older adults can travel to any destination of their choice. The services provided by the municipalities are also

constrained geographically. As shown in Figure 12, 26% of the municipal transportation services allow trips to destinations within the municipality only, 41% allow trips to the immediate surroundings of the municipality, 17% allow trips up to the county boundary, and 16% allow trips to destinations beyond the county boundary.

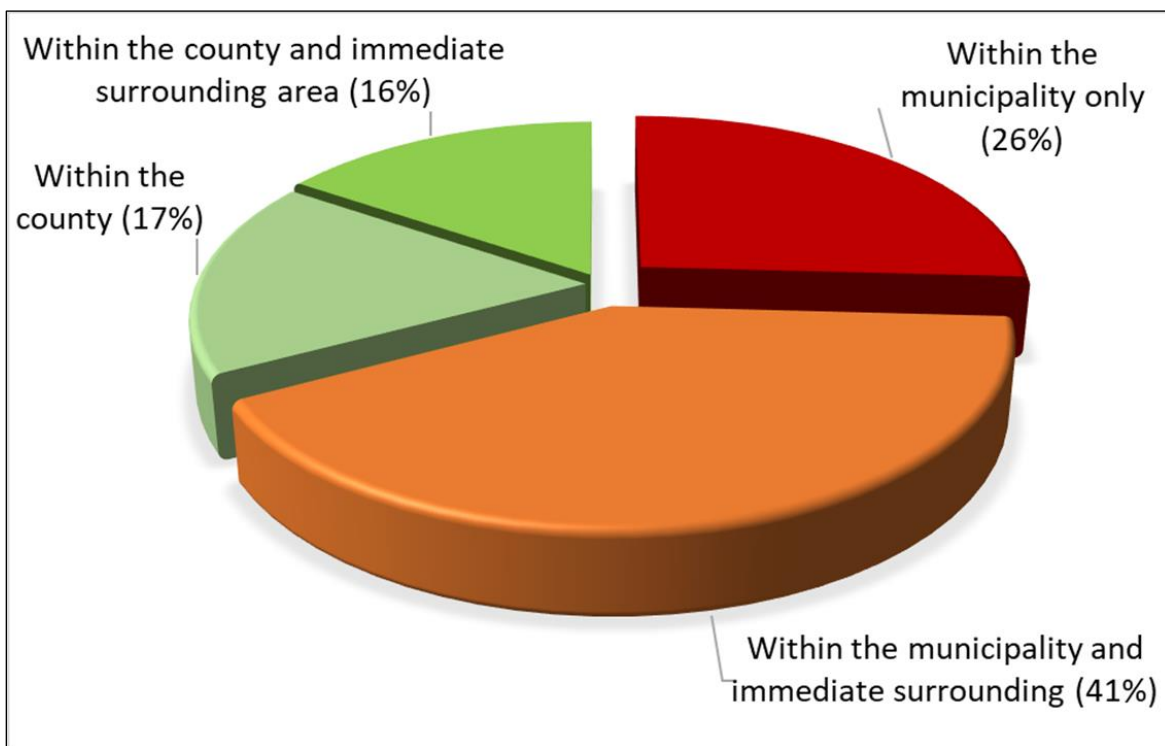


Figure 12. Geographic coverage of municipal transportation services for older adults

When asked about transportation services for older adults provided by the counties where the municipalities are located, only 7% reported not having such service, 22% reported having service that allows trips for any purpose and 71% reported having service that allowed trips for specific trip purposes. Considering that 93% of the respondents reported having county transportation service and only 53% reported having municipal transportation service, the survey indicates that county transportation for older adults is more common than municipal transportation.

The survey respondents were also asked how well municipal transportation, county transportation, and state-wide transit service provided by NJ TRANSIT served older adults in their municipalities. Regarding municipal transportation, 35% reported that it served older adults very well and another 35% reported that it served them well. The responses regarding county transportation were 13% very well and 35% well, whereas the responses regarding NJ TRANSIT service was 5% very well and 26% well. Although these responses favor municipal service over county service and state-wide service, they

seem to ignore the fact that, when available, county and state-wide services can provide service to much larger geographic areas compared to municipal services.

The survey respondents were also asked about traffic safety of older adults, as pedestrians and drivers, in their municipalities. The responses indicated that a far larger proportion believed older adults to be safe rather than being unsafe, both as driver and pedestrian. However, older adults are believed to be safer as drivers than as pedestrians. For example, 20% believe older pedestrians are very safe and 34% believe they are safe (i.e., 54% total), whereas 28% believe older drivers are very safe and 44% believe they are safe (i.e., 72% total).

In response to a question on the municipality's collaboration with ridehailing companies like Uber and Lyft, only four respondents reported having such a collaboration. One of those respondents reported having an agreement for service to all people, whereas the others reported having service limited to older adults and people with disabilities. On the whole, it appears from the survey that collaborative efforts between ridehailing companies and municipalities for providing transportation to older adults are still in their infancy in New Jersey.

Transportation Mobility and Safety Priorities

Finally, the survey respondents were asked what should be the top priority for enhancing mobility and traffic safety of older adults living in their municipalities. Each respondent could select one of five responses or write in a strategy by selecting "other." The responses are summarized in Figure 13. It shows that the support for door-to-door transportation service is the highest, followed closely by improvement/expansion of existing public transit. The third highest priority is making the walking environment safer for older adults. Improving the driving environment and enhancing medical transportation options received little support.

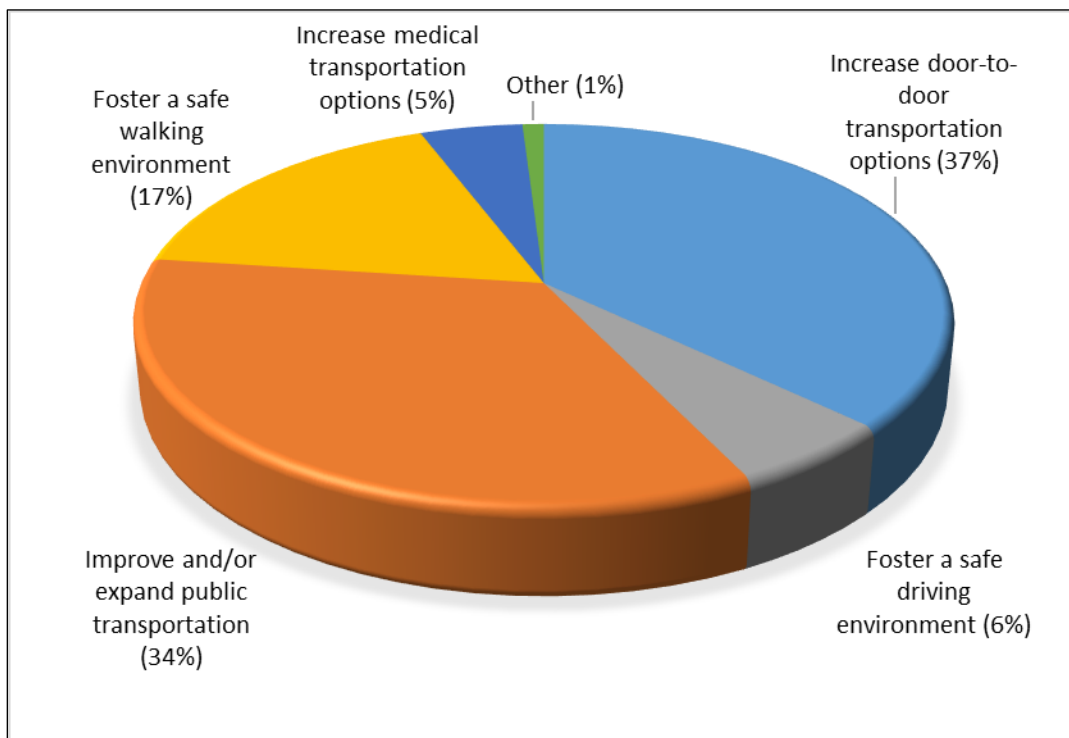


Figure 13. Top priority for enhancing mobility and traffic safety of older adults

Conclusion

Regarding potential growth of older adults, most municipal officials participating in the survey believe that the future growth will mirror the past growth trend. However, the share of those who believe that future growth will be greater than the past was larger than the share of those who believe that future growth will be slower. Based on the responses, one would come to the conclusion that older adults in New Jersey will probably continue to grow at the same pace as the past or grow slightly faster. Only in a few municipalities, the future growth of older adults is expected to be much faster than the past.

Most respondents reported having exclusive age-restricted older adult developments or buildings within their municipalities, but about half of the respondents mentioned not having any plans for additional older adult housing in their municipalities. Among those having plans for older-adult developments, almost all are in suburban areas and most do not currently have large older adult populations living in such developments, indicating that new older-adult developments may take place in areas not currently having such developments.

Only four respondents reported having contractual agreement with Uber or Lyft regarding older adult transportation, whereas a little over half of the respondents reported their municipalities providing transportation service to older adults. However, the transportation services provided by municipalities are often restricted to specific destinations and the

services often do not extend beyond the municipal boundary. The survey indicated that county transportation service is more commonly available than municipal transportation service. However, municipal officials have a more favorable opinion of municipal services than county services.

Regarding traffic safety, more respondents believe older adults are less safe as a pedestrian than as a driver. Yet, more than half of the respondents believe that older pedestrians are safe or very safe in their municipalities. Finally, and perhaps most importantly, according to the municipal officials participating in the survey, providing door-to-door transport service should be the top priority for strategies to enhance mobility and safety of older adults. However, expanding/improving existing public transit is also supported by a large proportion of those officials.

A SURVEY OF NEW JERSEY OLDER ADULTS

Although available secondary data are sufficient to learn about the geographic distribution of older adults in New Jersey, they are not sufficient to fully comprehend the travel patterns, needs, and barriers of older adults in the state. Because of the data gaps, a statewide survey of older adults was conducted between September 2 and October 2, 2020. The survey was disseminated by the AARP and 17 other organizations. A total of 3,003 older adults, aged 55+, completed the survey. Among those who completed the survey, 82.3% received the survey from AARP, whereas the remaining 17.9% received the survey from the other organizations. The margin of error for the survey sample was $\pm 2\%$ at 95% confidence level. The number of respondents (n) for the 21 counties was highly consistent with the size of the older adult population of the counties (N), as the correlation between the share of respondents and the share of older adult population for the counties was $+0.92$ ($p < 0.001$). Because of small sample size, the margin of error for most counties was larger than $\pm 5\%$, but when adjacent counties were combined into five clusters, the margin of error for each cluster was smaller than $\pm 5\%$.

While most respondents completed the survey online, 71 respondents without access to the online survey filled out a paper copy of the survey. Prior to the survey, the questionnaire was pre-tested with assistance from 11 selected older adults. The questionnaire was approved by the Institutional Review Board of Rutgers University. The questionnaire included questions regarding living arrangements and transportation.

Because the data collected through the survey were not socio-demographically representative of New Jersey residents aged 55+, weight variables were developed by comparing the sample characteristics and population characteristics. Population data were used from the 2018 ACS PUMS for weighting purposes. The variables used for weighting were age, sex, race, and household income. Two weight variables were created, one that corrects the sample data to make it representative of the state population, and the one that makes the sample representative and also inflates the sample size (n) to population size (N). The second weight was used for all analysis in this

report, meaning that the number of older adults shown in the tables and figures are approximation of actual population. As the total population aged 55+ for New Jersey in 2018 was 2,564,417, any total in the tables that is smaller than that total indicates that people who did not respond to specific questions were not accounted for in the total.

Living Arrangement and Moving

In view of the importance of the aging-in-place phenomenon in older-adult research, a few questions were included in the survey about living arrangement and moving history. The first of these questions inquired about residence location type. The responses revealed that 83.7% live in owned or rented homes in general neighborhoods for people of all ages, 10% live in non-subsidized age-restricted developments or buildings, 5.5% live in subsidized buildings, 0.4% live in group homes, and 0.4% have some other accommodation. Responses to another question revealed that 60.2% live with a spouse or partner (with or without children), 29.3% live alone, 5.3% live with children, 4.1% live with other relatives or friends, and 1.1% have some other living arrangement.

Living alone can serve as a transportation disadvantage for older adults because those with adult household members often get rides from others. Thus, almost 30% of older adults living alone is a significant transportation barrier for older adults generally. It is a more significant concern for the oldest because a much larger proportion of them live alone compared to younger age cohorts. As shown in Table 17, only 18.5% of the people aged 55-59 live alone, whereas the proportion of people living alone is more than 40% for the two age groups between 75 and 84, and it is as high as 62.6% for people aged 85+. It shows that living alone can be indicative of a significant transportation barrier for the oldest.

For transportation planning purposes, the number of older adults living alone requires more attention than the proportion because transportation service delivery has to be based on actual counts. According to Table 17, approximately 691,000 older adults in New Jersey live alone and about 105,000 of them are aged 85+. However, considering that about 8.1% of the survey respondents did not provide information on living arrangement, the actual numbers would be larger than those shown in Table 17.

Table 17– Number and proportion of older adults living alone

Age	Number of people	People living alone	Percent living alone
55-59	667,770	123,537	18.5
60-64	513,270	108,813	21.2
65-69	400,025	132,008	33.0
70-74	275,102	85,557	31.1
75-79	194,866	79,700	40.9
80-84	139,516	56,643	40.6
85 or over	167,110	104,611	62.6
All 55+ persons	2,357,659*	690,794	29.3

The actual number of people age 55+ in New Jersey is 2,564,417, indicating that this total is about 8.1% smaller.

Two questions were included in the survey inquiring how long the respondents have lived in their current residence and from where they moved to their current location with the hypothesis that living longer in the current residence and moving from nearby areas would be consistent with aging in place. The responses on the question on living in current residence are summarized in Figure 14. It shows that 25% of all respondents have lived in the current residence for more than 30 years and cumulatively 46% have lived for over 20 years and 58% have lived for over 15 years. As expected, the proportion of people living in the same residence is significantly higher for the oldest. For example, for the people aged 70+ combined, more than 35% have lived in their current residence for 30+ years compared to only 12% for people aged 55-59, 20% for people aged 60-64, and 27% for people aged 65-69.

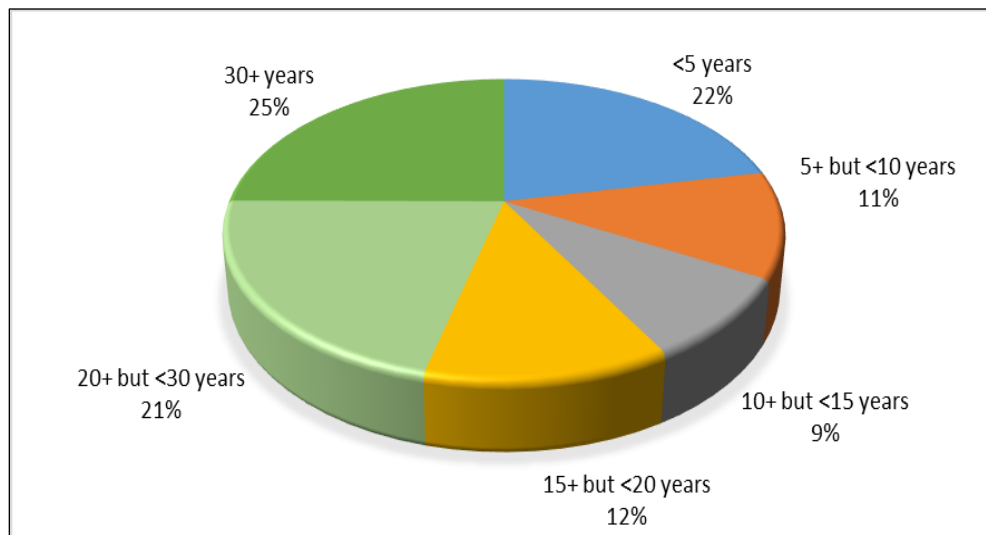


Figure 14. Length of time residing in current residence

The question inquiring about the places from where the respondents moved to their current residences also provided valuable insights. The responses showed that 55.1%

moved from another town in New Jersey, 23.5% moved from another location within the same town or municipality, 20.3% moved from another state, and 1.1% moved from another country. The fact that close to 80% moved to their current residence from places within the state is an indication of New Jersey older adults' attachment to spatial or geographic familiarity, which is consistent with the aging-in-place concept.

Walking and Sidewalks Quality

Considering that walking is important for older adults both as a measure of transportation mobility and physical activity, two questions were included in the survey related to walking, one about the ability to walk outside and the other about satisfaction with sidewalks and crosswalks near home. Responses to the first question, as summarized in Table 18, show that the ability to walk decreases with age. Although about 75% of all people aged 55+ can walk 30 minutes at a time, the recommendation by the Centers for Disease Control and Prevention, for the oldest, the proportion that can walk 30 minutes is much smaller. The data in Table 18 reveal that the ability to walk 30 minutes decreases noticeably from age 65-69 to 70-74 and decreases more sharply for older ages. Among people aged 85+, only 38% can walk 30 minutes at a time.

Table 18 – Ability to walk outside home by age

Age	Can walk 30+ minutes	Can walk 15-29 minutes	Can walk 10-14 minutes	Can walk 5-9 minutes	Cannot walk without help at all	Total	Number of people (N)
55-59	82.8	7.6	3.3	3.7	2.6	100.0	664,449
60-64	83.6	8.8	2.4	3.2	2.1	100.0	516,410
65-69	80.0	8.5	4.8	4.1	2.5	100.0	400,501
70-74	74.3	13.4	5.4	3.8	3.1	100.0	275,986
75-79	63.3	16.7	6.4	9.8	3.9	100.0	194,635
80-84	52.0	24.5	8.0	11.8	3.7	100.0	139,515
85 or over	38.2	20.1	10.8	15.5	15.5	100.0	167,110
Total	74.9	11.4	4.7	5.5	3.6	100.0	
Number of people (N)	1,766,336	267,839	110,382	129,222	84,827		2,358,606

Responses to the question on quality of sidewalks showed mixed results. While 49.2% were very satisfied or satisfied with the quality of sidewalks and crosswalks, only 14.6% were very dissatisfied or dissatisfied, but 20.9% did not have sidewalks or crosswalks near home (another 15.3% were neither satisfied nor dissatisfied). The fact that 35.5% of the state's older adults do not have sidewalks or crosswalks near home, or are dissatisfied with them when available, cannot be ignored even though close to half of the older adults are satisfied with the availability and quality of sidewalks and crosswalks near their homes.

Driving Propensity and Driver's License

Secondary data analysis showed that in many municipalities older adults do not use any travel mode other than the automobile. Data collected through the survey show consistent results. The survey showed that a large proportion of older adults have driver's licenses and most of them still drive. As shown in the left-hand side of Table 19, 92.8% of the older adults have a driver's license, and for all age groups except age 85+, the proportion is greater than 90%. However, the proportion decreases to 83% for people aged 85+. As expected, the right-hand side of Table 19 shows that the proportion of older adults who currently drive is slightly smaller than the proportion of older adults with driver's license for every age group. However, the difference is larger for older age groups, especially for people aged 80-84 and 85+, indicating that driving at older ages decreases more than the possession of driver's license. Yet, the major takeaway from Table 19 is that an overwhelming majority of older adults in New Jersey rely on driving.

Table 19 – Possession of driver's license and the ability to drive

Age	Percentage with driver's license	Percentage that drives
55-59	91.8	87.5
60-64	94.4	90.9
65-69	94.3	89.8
70-74	95.8	90.5
75-79	93.6	87.6
80-84	92.5	85.1
85 or over	83.0	67.2
Total	92.8	87.4

Availability of Household Vehicle

One of the most important indicators of transportation disadvantage in an automobile-dominated society is the number of vehicles in the household. Among the older adults surveyed, 8.8% had no vehicles in their households, 32.2% had one, and 59% had two or more. However, having household vehicles is not uniform across socio-demographic groups. For example, among people aged 80-84 and people aged 85+, 12.2% and 20.9%, respectively, did not have a vehicle in household. Among non-Hispanic Blacks and older adults with mixed races, 18.4% and 18%, respectively did not have a household vehicle. Among people with income below \$25,000 and people with income between \$25,000 and \$49,999, 33.8% and 13.8%, respectively, did not have a household vehicle. Among the older adults whose disability prevented them from driving, 43.1% did not have a household vehicle, among those whose disability prevented them from driving and using public transit, 51.1% did not have a household vehicle, and among those who could not take public transit because of disability, 23.8% did not have a household vehicle.

Driving Cessation Plan

The reviewed transportation literature revealed that the effect of driving cessation could be significant on the well-being of today's older adults because of their life-long dependence on cars and driving. Because of the importance of driving cessation, the people who still drive were asked how they plan to travel when they stop driving at some point in the future. A randomized list of options was provided to reduce selection bias and the respondents were asked to select up to three options. The results are summarized in Table 20.

Although some of the results were expected based on travel patterns of older adults generally, some results were unexpected. For example, consistent with how non-driving older adults travel, a large proportion of older adults mentioned that that would take rides from family members and friends. However, given that ridehailing services in New Jersey began only in 2013, the proportion of older adults who mentioned that they would use such services after driving cessation is surprising. The responses also show that many older adults believe that they will use public transportation buses and trains as well as transportation services provided by local governments despite the proportion of all older adults currently using those travel modes being relatively small. About 1.4% of respondents selected "Other," many of whom specified that they have not contemplated how they would travel after they stop driving.

Table 20 – Personal mobility plan after driving cessation

Mobility plan after Driving Cessation	Percent
Take rides from family members	63.2
Take Uber and/or Lyft	45.2
Take rides from friends	41.9
Take public transit buses and/or rail	37.6
Walk	28.4
Take buses and vans provided by county or municipality	27.1
Take transportation for people with disabilities	9.3
Take transportation provided by the housing development	5.9
Take driverless vans or buses from transit agencies	2.8
Take driverless vans or buses from private companies	2.0
Bicycle	1.2
Take taxi	0.7
Other	1.4

Because the survey question was asked only to current drivers and the respondents were asked to choose up to three responses, the table shows the share of current drivers who chose a specific option.

Availability of Friends and Family Members to Give Rides

Because older adults more often take rides as passengers of cars driven by others than taking public transit rides, the survey included a question inquiring whether the

respondents had a friend or family member living with or nearby who could give car rides when needed. The results are presented for all older adults as well as for specific age groups in Table 21. It shows that the proportion of people having no one is somewhat similar for age groups between 55 and 84, but it is almost 10 percentage points higher for people aged 85+. It is also worth noting that the proportion of people having someone from the same household is lower for the older age groups than the younger ones. Combining the columns for person living with and person living with and friend/family member nearby, almost 65% of the people aged 55 to 64 have someone in household to give rides, but for people aged 80 to 84, only 42% have a household member to give rides. For people aged 85+, less than 28% have a household member who can give rides. Once again, the data show that the oldest are at a greater disadvantage than people in younger age cohorts.

Table 21 – Having friends or family to give rides by age

Age	No one	Person living with	Friend/family member nearby	Person living with and friend/family member nearby	Total	Number of people (N)
55-59	18.4	48.1	17.9	15.7	100.0	670,223
60-64	16.7	48.7	17.7	16.8	100.0	514,211
65-69	18.5	43.6	23.8	14.1	100.0	400,029
70-74	20.7	40.0	25.6	13.7	100.0	275,544
75-79	21.2	33.4	32.8	12.6	100.0	196,965
80-84	20.7	31.8	37.4	10.1	100.0	138,608
85 or over	30.3	15.3	42.0	12.4	100.0	167,108
Total	19.5	42.0	23.8	14.6	100.0	2,362,688

Like the oldest of the older adults, older adults with low income are also at a disadvantage for not having friends and family members to take rides from. As shown in Table 22, among older adults with income below \$25,000, 34.3% have no one to take rides from, for older adults with income between \$25,000 and \$49,999, 28.4% have no one to take rides from, whereas for older adults with income \$200,000 or more, only 8% have no one to get rides from.

Table 22 – Having friends and family to give rides by household income

Household income	No one	Person living with	Friend/family member nearby	Person living with and friend/family member nearby	Total	Sample size
Less than \$25,000	34.3	16.6	39.3	9.8	100.0	363,260
\$25,000-\$49,999	28.4	23.7	37.3	10.6	100.0	341,846
\$50,000-\$74,999	22.9	32.4	29.5	15.2	100.0	283,791
\$75,000-\$99,999	18.6	48.7	18.8	14.0	100.0	231,263
\$100,000-\$149,999	9.3	57.4	15.1	18.3	100.0	333,507
\$150,000-\$199,999	10.8	65.9	7.2	16.1	100.0	183,588
\$200,000 or more	8.0	64.6	10.0	17.4	100.0	359,212
Total	19.5	42.5	23.7	14.3	100.0	2,096,467

Table 23 shows that among Non-Hispanic Black, Hispanic Black, and older adults with mixed races, the proportion of people having no one to get rides from is substantially larger than for Asians, Non-Hispanic Whites, and Hispanic Whites. Once again, the proportion is high among Black older adults and Mixed-Race older adults because a lower proportion of them have people in their households to give rides. Thus, in addition to household vehicles, household size and composition may be important determinants of transportation mobility.

Table 23 – Having friends and family to give rides by race and ethnicity

Race	No one	Person living with	Friend/family member nearby	Person living with and friend/family member nearby	Total	Number of people (N)
Hispanic White	18.5	51.2	20.8	9.6	100.0	192,219
Non-Hispanic White	17.5	45.5	22.4	14.6	100.0	1,600,033
Hispanic Black	37.5	19.8	21.4	21.4	100.0	6,098
Non-Hispanic Black	31.5	29.6	25.7	13.3	100.0	228,057
Asian	14.6	31.8	30.9	22.7	100.0	180,726
Mixed or Other Race	30.2	26.6	29.3	13.9	100.0	110,372
Total	19.4	42.4	23.6	14.6	100.0	2,317,505

In sum, about one in five older adults in New Jersey do not have any family member or friend who could give them a car ride when needed. However, among the oldest, Black and Mixed Race older adults, and older adults with low income, the proportion having no friend or family member to give rides is much larger. Data analysis in a previous section showed that the proportion of older adults not having a vehicle in household is also larger among these population groups as well as older adults with disabilities.

Public Transit Near Home

To further investigate transportation mobility options, three questions were included in the survey inquiring (a) whether a public transit station or stop was located within a 10-minute walk from home, (b) whether a transportation service provided to older adults by counties or municipalities were available in the residential location, and (c) whether the Access Link paratransit service provided to people with disabilities by NJ TRANSIT was available in their residential location. Of all respondents, 41.2% reported not having a train station or bus stop near home, 9.9% reported not having county/municipal transportation service, and 16.9% reported not having Access Link service. Analysis by age, race, and income showed that the oldest have lower access to these services, but people from households with lower income as well as older adults from minority households have greater access. That is not surprising because public transportation generally is more readily available in urban areas where all types of transit is more ubiquitous.

Perhaps the most significant takeaway from the questions on transit availability is that a large proportion of older adults do not know whether Access Link and county/municipal transportation for older adults is available in their residential locations. For example, when only 7.6% of the survey respondents skipped the question on public transit stations and stops, 44.1% skipped the question on county/municipal transportation, and 64.3% skipped the question on Access Link. The non-response rate for the question on transit station/stop is similar to the non-response rates for most other questions in the survey, but the non-response rates for county/municipal transportation and Access Link are substantially higher, potentially indicating a large knowledge gap about these types of services among older adults generally. A reason for small proportions of the survey respondents reporting not having Access Link and county/municipal services may be that the people who had the services in their residential location knew about the services, but the people who did not have the service did not know about the services and hence did not respond to the questions.

Travel by Walking, Public Transit, Car, and Ridehailing

The survey included questions on travel frequency by five different modes. The responses for four of those modes are shown in Table 24. Because the frequency of traveling by ridehailing (e.g., Uber and Lyft) was expected to be different, the responses to the question could not be shown in Table 24. However, the results are discussed in narrative form. It is to be noted that the respondents were specifically asked about travel frequency during the six months before the COVID-19 pandemic struck New Jersey in the middle of March 2020.

Table 24 shows what was expected: older adults travel most frequently by driving and least frequently by public transit. While almost three quarters of the older adults drive 4 to 7 seven days a week, less than 10% travel by public transit that frequently. Walking is far more common than transit trips, but since walking trips are typically much shorter, the two types of trips are often not comparable. Older adults also travel more frequently by

taking car rides from others than by taking public transit. While half of the older adults did not travel by public transit a single time during a six-month period, only 14.4% did not take a single car ride from others (e.g., family/friends). While 14.9% of the older adults took at least one trip by public transit in a week, 37.6% took at least one car ride from others in a week. It is this propensity of taking rides from others that makes it important for older adults to have someone to give rides.

Table 24 – Frequency of traveling by different travel modes

Frequency	Public Transit	Walking	Driving	Taking car ride from others
Not a single time	50.1	9.6	12.1	14.4
4 to 7 days a week	8.8	45.1	65.6	13.6
1 to 3 days a week	6.1	27.2	15.6	24.0
2 to 3 days a month	8.3	10.1	3.7	21.1
About once a month	10.4	4.5	1.8	13.7
Less than once a month	16.3	3.4	1.2	13.2
Total	100.0	100.0	100.0	100.0
No. of People (N)	2,463,070	2,465,950	2,461,159	2,461,257

In response to the question on frequency of using Uber and/or Lyft, 64.8% reported not using such services at all in a six-month timeframe, 1.5% reported using almost daily, 6.1% reported using several times a month, 8.5% reported using about once a month, and 19.1% reported using less than once a month. In view of the low frequency of Uber and Lyft trips by older adults, the survey result showing that 45% of them would use these services after they give up driving is surprising, but if ridehailing companies continue to make greater inroads into the travel market on their own, or expand collaborations with transit agencies, counties, or municipalities, greater use of their service by non-driving older adults is a possibility.

The respondents were also asked about the frequency of taking public transit trips in the six months after the pandemic struck New Jersey to examine how older adults' transit use changed during the pandemic. As expected, transit use decreased sharply after the pandemic. While 50.1% reported not using transit at all in the six months prior to the pandemic, 87.7% reported not using transit at all during the six months after the pandemic struck. Correspondingly, decreases were observed for all levels of frequency among those who used transit before the pandemic. Further examination revealed that the decrease in transit use was more substantial among older adults who used transit less frequently before the pandemic. For example, among those who took transit 4 to 7 days a week, 51.3% did not take a single transit trip after the pandemic, whereas among those who took transit 1 to 3 days a week before, 65.7% did not take any transit trip after, and among those who took transit 2 to 3 days a month, 74.5% did not take any transit trip after. Among those who took transit even less frequently, the proportion of people not taking transit at all after the pandemic was still higher. The more frequent use of public

transit after the pandemic by older adults who used transit more often before the pandemic may indicate that for many older adults who use public transit frequently, there was no other travel option during the pandemic.

Trip Deprivation for Lacking Transportation

Inability to make trips due to a lack of transportation is perhaps the clearest indication of transportation barriers for older adults. While the National Household Travel Survey by the Federal Highway Administration also inquires about trip deprivation due to lack of transportation, the question is asked only to those who do not make any trip on the travel day.³² In the New Jersey older adult survey, all respondents were asked if they missed any trip for lacking transportation during the six months prior to the pandemic. The specific question was: “During the six months before the COVID-19 pandemic, were there occasions when lack of transportation prevented you from making a trip?” Although an overwhelming majority of older adults (85.1%) reported not having to forgo any trip, the share of those having to forgo trips (14.9%) was certainly not negligible. Table 25 shows the number and percentage of older adults who had forgone trips by county clusters. It shows that the largest number of people who had forgone trips live in the Bergen-Passaic-Hudson-Essex-Union cluster, but the share of older adults forgoing trips is the highest in the Mercer-Somerset-Middlesex cluster.

Table 25 – Number and percentage of older adults who had forgone trips for lacking transportation

County Cluster	Persons	Percent
Sussex-Morris-Warren-Hunterdon	41,659	10.8
Bergen-Passaic-Hudson-Essex-Union	126,731	16.2
Mercer-Somerset-Middlesex	95,058	18.2
Burlington-Ocean-Monmouth	50,727	12.4
Camden-Gloucester-Salem-Cumberland-Cape May-Atlantic	49,250	13.9
Total	363,425	14.8*

* Percent does not exactly match total for all respondents (14.9%) because residence location is not available for a small number of survey respondents.

The Mercer-Somerset-Middlesex County cluster, where the highest proportion of older adults were trip deprived, contains some urban places such as Trenton, New Brunswick, and Perth Amboy, but the cluster as a whole can be considered predominantly suburban. The cluster with the second-highest proportion, the Bergen-Passaic-Hudson-Essex-Union cluster, contains most of the large urban centers, including Jersey City, Paterson, Newark, Elizabeth, and Passaic. This cluster, which is the most urban of the five regions

³² <https://nhts.ornl.gov/>

shown in Table 25, has the highest density of transit network. The region with the highest proportion of trip deprivation, despite being predominantly suburban in nature, also has a greater density of transit network compared to the three regions where the proportion of trip deprivation is lower. These results indicate that serving a region by fixed-route transit does not guarantee that trip deprivation among older adults in the region would be lower. There could be many reasons for that, including the quality of transit as well as personal and household characteristics of the older adults living in the regions.

To illustrate the importance of personal and household characteristics, the proportion of people forgoing trips for lacking transportation for the state as a whole is shown by socio-demographic characteristics in Figure 15 and Figure 16. For ease of comprehension, the categories of each characteristic is shown with the same color in both figures.

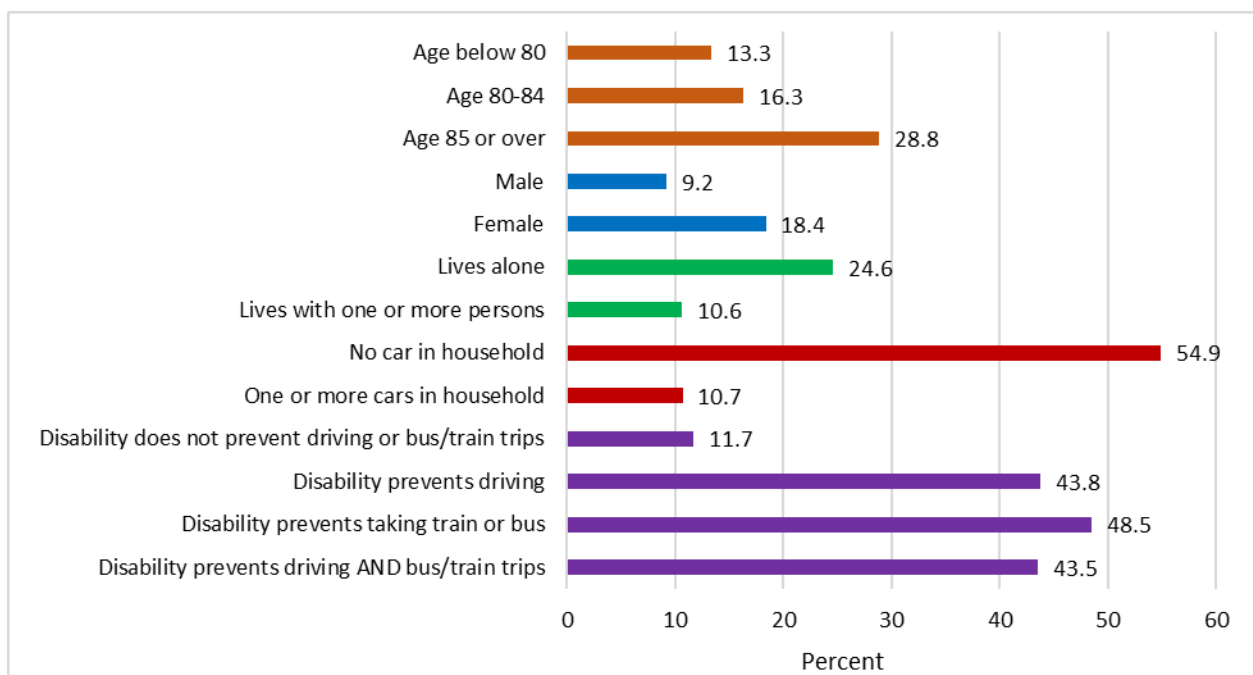


Figure 15. Share of older adults forgoing desired trips for lacking transportation, by age, gender, cars in household, household members, and disability

A comparison between age groups in Figure 15 shows that forgoing trips for lacking transportation is more common among the oldest. A comparison, not shown in the figure revealed that trip deprivation varies little across the 5-year age groups between age 55 and age 79. However, as shown in the figure, trip deprivation is higher beginning at age 80 and substantially higher beyond age 85. The figure also shows that the proportion of female trip-deprived older adults is double that of male older adults. For older adults living alone, the trip deprivation rate is almost 2.5 times greater than older adults who live with someone else. The largest difference between any two groups is between older adults without cars in the household and with cars in the household. More than half of the older

adults without cars in household had forgone trips whereas less than 11% of those with cars had forgone trips. Figure 15 also shows that a much larger proportion of older adults with disabilities had forgone trips compared with older adults without disabilities.

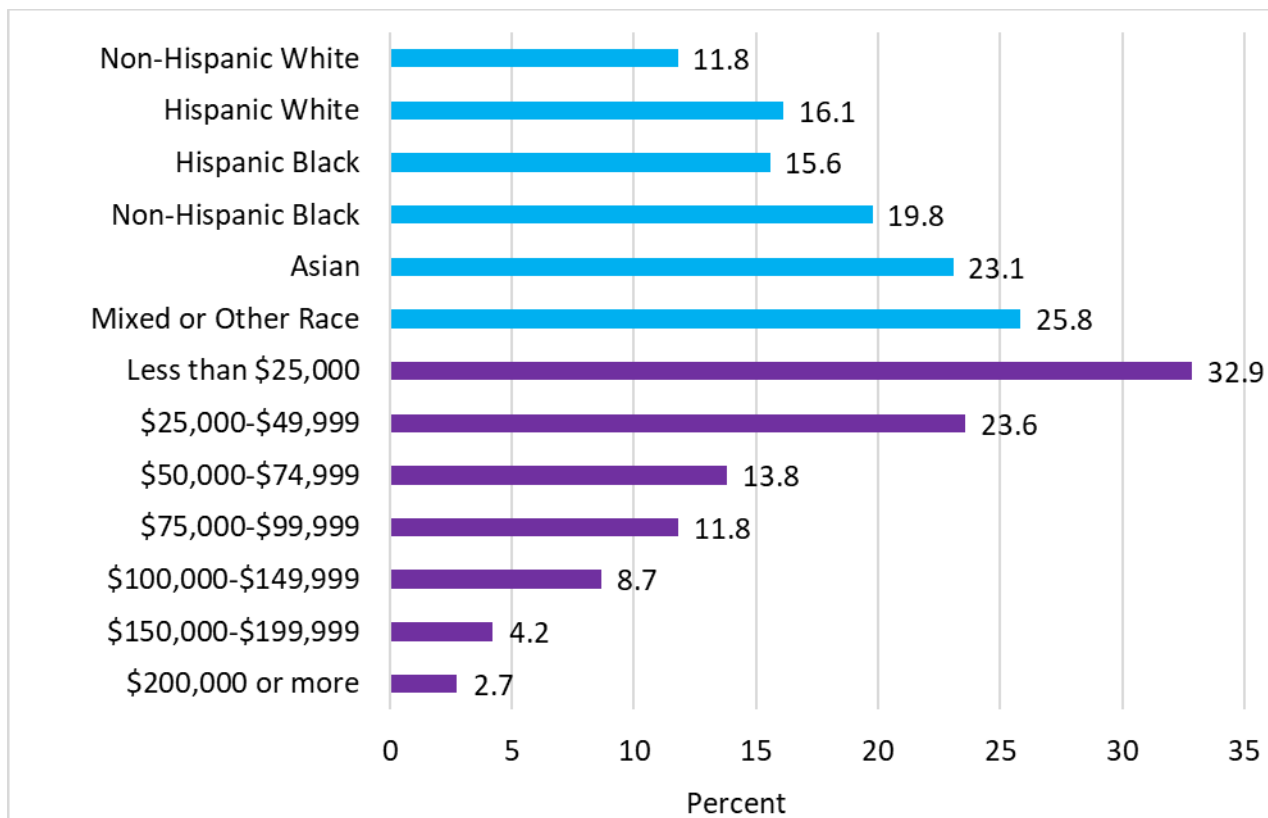


Figure 16. Share of older adults forgoing desired trips for lacking transportation, by race, ethnicity, and household income

Figure 16 shows differences in trip deprivation between racial/ethnic groups and income groups. As expected, a larger proportion of minority older adults were trip-deprived compared to Non-Hispanic White older adults. A comparison among income groups show that older adults with the lowest household income had the highest trip-deprivation rate. For every higher level of income, the proportion of people being trip deprived is lower. Among those with the highest household income, only 2.7% were trip deprived.

To sum up, around 15% of older adults, amounting to more than 360,000 people, had forgone trips due to the lack of transportation, but wide variations in trip-deprivation rate exist among different socio-demographic groups. Older adults without a vehicle in household were deprived of trips the most, followed respectively by people with disabilities, people with less than \$25,000 household income, people aged 85+, and people living alone. The analysis also showed that regions with greater density of public transit does not have a lower rate of trip deprivation among older adults.

Transit Solutions to Trip Deprivation

To examine what type of public transit improvements could reduce trip deprivation among older adults, the survey respondents were asked what the desired trip purposes were when they could not make the trip, followed by two questions inquiring whether they could have made the trips if (a) a transit station/stop were within a 10-minute walk, or (b) they were picked up from home by a transit vehicle. Table 26 shows, from left to right, the proportion of trip-deprived older adults that selected specific trip purposes for the forgone trip, the proportion of those selecting a trip purpose who could have made the trip if there were a transit station or stop within a 10-minute walk from home, and the proportion of the same respondents who could have made the forgone trip if they were picked up from home by a transit bus or van.

The column on the left-hand side of Table 26 shows that the trip purposes of the forgone trips were mixed, but shopping for various purposes, going for medical/dental visits, visiting friends and family, and running errands were the most common purposes. For older adults, many of whom do not work, these are essential trip purposes to maintain a normal life.

The middle column of Table 26 shows that more than half of the forgone trips for all purposes could have been possible if the older adults had a bus stop or train station within walking distance of home. For some trip purposes, more than 60% believed that their trips could have been possible if there were a bus stop or train station near home.

A comparison of Column 2 and Column 3 reveals that the proportion of trips that could have been made by at-home pick up by transit vehicles is substantially larger than the proportion of trips that could have been made if there were a bus stop or train station near home. For some trip purposes, the difference between the proportions is larger than 20 percentage points. That at-home pick up would be viewed as more effective than stations/stops near home is not surprising because a segment of the older adults may not have the ability to walk to bus stops and train stations because of disabilities.

To sum up, a significant proportion of older adults in New Jersey forgo trips for lacking transportation and many of those forgone trips would have been made for essential purposes, such as medical/dental visits, grocery shopping, and running errands. Having greater access to public transit could make a large proportion of those trips possible, but transportation services that would pick up older adults from home would be far more effective than having stations/stops near home. The results seem to suggest that deviated fixed-route service or curb-to-curb microtransit would be a better solution for addressing trip deprivation of older adults than fixed-route public transit.

Table 26 – Trip purpose of forgone trip and the potential for transit station/stop near home and at-home pick up to make forgone trips possible

Trip purpose for forgone trips	Percent of trip-deprived who selected specific trip purpose	Percent selecting a trip purpose whose trip could have been made if a transit station/stop were within a 10-minute walk	Percent selecting a trip purpose whose trip could have been made if they were picked up from home by a transit vehicle
I would have liked to go for non-grocery shopping	44.6	64.3	81.4
I would have liked to go for a medical/dental visit	43.4	63.0	86.6
I would have liked to go to the grocery store	43.0	59.1	86.7
I would have liked to go to see friends or relatives	38.4	51.7	61.6
I would have liked to go to my bank, post office, etc.	37.3	53.0	78.4
I would have liked to go out to eat	26.5	57.5	74.8
I would have liked to go to church, temple, etc.	23.8	60.2	81.7
I would have liked to go to a senior center	12.4	50.7	84.5
I would have liked to go to some other place	34.6	54.2	43.3

Note: Column 1 is not comparable with Column 2 and Column 3 because the percentages in Column 1 show the proportion of all trip-deprived older adults who selected a trip purpose, whereas Column 2 and Column 3 show percentages of older adults selecting a trip purpose whose trips could have been possible with two alternative strategies.

Recommendations for Transportation Improvements

The survey respondents were asked to make recommendations for transportation improvements that would allow them to travel more frequently and safely with the option to select as many improvements as they wanted from a list of 12 types of improvements. In addition, they were allowed to add improvements that were not in the list. The responses to the question are summarized in Table 27. As shown in the table, free and more affordable transit fare was selected by the most (43.1%), but the difference between that improvement and subsidized Uber and Lyft for older adults (43%) was very small. More public transport for older adults and/or people with disabilities ranked third, which was also selected by more than 40% of the respondents. Subsidized taxi for older adults and more and safer sidewalks for pedestrians/walkers and wheelchairs were also selected by more than one-third of the respondents. Volunteer driver programs, transit bus stops near home, public driverless buses and vans, and more reserved parking at

train stations were selected by more than a quarter of the respondents, whereas more convenient booking for accessible buses and vans and private driverless buses and vans were selected by fewer respondents. On the whole, the results indicate that there is a strong desire for free or reduced fare transit, subsidized Uber and Lyft, and more public transportation for older adults. As of now, there is less desire for driverless vans and buses, and among those who recommend such services, there is a higher preference for public than private services (26.9% versus 21.6%).

Although fewer people specified other types of transportation improvements they would like to see instead of selecting any of the given options, some of the specified recommendations are insightful. Among all respondent-specified recommendations, the most common recommendation was for greater frequency and reliability of transit buses and trains. A number of respondents mentioned greater connectivity between buses and trains and integration of bicycling with transit. Several others suggested more accessible train stations and bus stops as well as seating accommodation at roadside bus stops. There were a few direct and indirect recommendations for greater transit connection between northern and southern New Jersey. Several respondents suggested expanded hours and weekend service for transit generally and transit provided by counties, some specifically mentioning service after dark. Several respondents suggested better lighting at transit stations/stops and parking lots. Finally, there was a recommendation for vulnerable older drivers having specific types of displays similar to student drivers so that surrounding drivers are aware of vulnerable older drivers.

Table 27 – Recommendations for transportation improvements

Recommendation	Persons	Percent
Free or more affordable transit fare for buses and trains	1,105,956	43.1
Subsidized Uber and Lyft for older adults	1,103,625	43.0
More public transport for older adults and/or people with disabilities	1,066,139	41.6
Subsidized taxi for older adults	901,551	35.2
More and safer sidewalks for pedestrians/walkers and wheelchairs	890,703	34.7
Safer traffic conditions for drivers	834,508	32.5
Volunteer driver program to give rides to older adults	825,015	32.2
Transit bus stops closer to home	736,411	28.7
Public driverless/automated buses or vans giving door-to-door service	688,828	26.9
More reserved parking spaces at rail stations for older adults	662,512	25.8
More convenient booking for accessible vans/buses	555,060	21.6
Private driverless/automated buses or vans giving door-to-door service	553,520	21.6
Other (Specify)	188,574	7.4

Access to Technologies and Technology Use

The use of certain technologies can make travel easier for older adults and others. The use of other technologies can make travel redundant. Because of the growing popularity

of new technologies that can reduce the burden of transportation (through e-commerce, videoconferencing, etc.) and make transportation more convenient (through convenient booking, online ticket purchase, etc.), a few questions were included in the survey to examine New Jersey older adults' access to and use of some newer technologies that became popular within the past decades. Table 28 shows New Jersey older adults' access to various types of technologies based on the survey. The percentages are calculated by dividing the number of people who have access to each technology by the total population aged 55+. It shows that the internet is the most commonly available technology as 89.6% of the people have access to this technology, followed by text messaging apps and smartphones, respectively. The access to internet and smartphones conceivably allows a large proportion of older adults to purchase grocery and other goods online. Similarly, the access to text messaging apps allows them to stay in touch with friends and family. Among the technologies inquired about, cell phones without internet access is the least common. That is perhaps because older adults have taken to use smartphones instead. More than two-thirds of the older adults also have access to videoconferencing technology, which enables them to keep in touch with friends and relatives.

Table 28 – Number and percentage of people aged 55+ with access to various technologies

Technologies	Persons	Percent
Internet	2,297,594	89.6
Text messaging	2,145,723	83.7
Smartphone	2,029,133	79.1
Laptop	1,876,168	73.2
Videoconferencing	1,729,878	67.5
Landline	1,532,316	59.8
Desktop	1,284,074	50.1
E-reader	729,930	28.5
Cellphone (without internet)	385,345	15.0

Although access to various types of new technologies is high for older adults generally, differences exist among different age groups, racial/ethnic groups, and income groups. To compare these differences, survey data are summarized in Table 29, 30, and 31 for different age groups, racial/ethnic groups, and income groups, respectively. Because access to the various technologies was found to be slightly higher among the people who provided demographic and socioeconomic information compared to all respondents, as shown in Table 28, the group-specific data in Tables 29, 30, and 31 were normalized (i.e., proportionally deflated) so that the totals are consistent with Table 28.

Table 29 shows that the share of people with access to various types of technologies is smaller for higher age groups than the lower age groups. While for some technologies, such as internet and text messaging, the difference becomes distinct at age 80-84 and

decreases further at 85+, for other technologies, such as smartphone and videoconferencing, the decrease in share seems more gradual. For only two types of technologies, landline phone and cell phone without internet, people in older age groups have greater access than lower age groups, but that is perhaps because the younger age groups shifted toward smartphones in greater numbers.

Table 29 – Percentage of people aged 55+ with access to technologies, by age

Technology	Age							Total
	55-59	60-64	65-69	70-74	75-79	80-84	85+	
Internet	91.2	92.6	92.4	91.0	90.2	87.1	66.5	89.6
Text messaging	89.0	89.8	88.8	84.6	78.4	68.3	48.6	83.7
Smartphone	85.8	85.5	82.8	79.0	70.6	63.4	47.2	79.1
Laptop	80.7	77.6	78.2	73.5	63.1	55.6	42.9	73.2
Videoconferencing	73.6	70.7	69.7	63.8	60.8	62.5	45.5	67.5
Landline	48.9	56.3	58.5	67.0	72.1	74.3	78.2	59.8
Desktop	52.1	49.2	49.3	51.7	48.9	60.6	36.3	50.1
E-reader	26.3	30.3	29.3	33.4	28.9	32.2	17.8	28.5
Cellphone (without internet)	13.6	10.1	10.5	14.7	22.1	26.0	29.7	15.0

Table 30 also shows variations in access to technologies among racial and ethnic groups, but the differences between the groups are not as stark as the differences between age groups in Table 29. For two population groups—Hispanic Whites and Hispanic Blacks—the access to most technologies appears to be lower than the other racial/ethnic groups. The proportion of Non-Hispanic Whites having access to various types of technologies, especially internet, text messaging, and smartphone, is smaller than the share of Non-Hispanic Blacks, but the difference between the two populations is insubstantial.

Table 30 – Percentage of people aged 55+ with access to technologies, by race/ethnicity

Technology	Race/Ethnicity						
	Hispanic White	Non-Hispanic White	Hispanic Black	Non-Hispanic Black	Asian	Mixed or Other Race	Total
Internet	85.4	90.4	85.9	91.5	86.7	86.4	89.6
Text messaging	78.0	83.7	87.3	88.9	80.8	87.3	83.7
Smartphone	74.0	80.0	67.0	81.3	78.8	72.7	79.1
Laptop	64.9	75.0	60.0	69.9	75.2	65.5	73.2
Videoconferencing	63.4	69.3	58.2	63.0	66.6	59.2	67.5
Landline	48.2	63.9	43.3	55.7	47.4	49.2	59.8
Desktop	48.8	53.1	11.6	41.1	41.3	43.8	50.1
E-reader	28.7	30.5	34.9	23.8	19.0	23.1	28.5
Cellphone (without internet)	18.4	14.7	0.0	12.5	20.9	9.7	15.0

Table 31 shows the expected: a greater proportion of people with higher household income have greater access to various technologies compared to people from lower income. The only exception is cellphone without internet access, which is available to a greater proportion of people from households with low income. The substantially smaller share of older adults having access to internet and smartphone among low-income older adults is concerning because they are less likely to have the opportunity to purchase goods and services online or take advantage of other opportunities that are only available online. Similarly, the significantly lower access to text messaging and videoconferencing apps may not allow older adults from low-income households the opportunity to interact with friends and relatives or access telehealth similar to older adults from higher incomes. On the whole, the differences between age groups and income groups appear to be more concerning than the differences between racial/ethnic groups from the analysis of data on access to technologies.

Table 31 – Percentage of people aged 55+ with access to technologies, by household income

Technology	Household Income							Total
	<\$25K	\$25K-\$49.9K	\$50K-\$74.9K	\$75K-\$99.9K	\$100K-\$149.9K	\$150K-\$199.9K	\$200K+	
Internet	76.1	88.1	90.8	92.8	94.6	94.6	94.5	89.6
Text messaging	73.0	77.0	84.2	84.0	89.1	90.6	91.6	83.7
Smartphone	61.1	69.6	75.4	83.9	87.8	90.7	92.5	79.1
Laptop	50.7	66.2	70.9	77.5	82.6	87.5	85.4	73.2
Videoconferencing	45.8	53.0	61.5	71.1	78.3	85.2	86.4	67.5
Landline	44.8	60.0	58.9	56.0	68.5	70.4	64.2	59.8
Desktop	28.6	41.8	48.3	54.6	60.0	64.2	61.7	50.1
E-reader	15.8	23.8	27.9	30.9	35.3	32.8	36.0	28.5
Cellphone (without internet)	24.9	19.0	14.4	12.3	10.0	5.2	13.1	15.0

In addition to the question on access to technologies, the survey included a question inquiring about the use of technologies for selected activities. The number and proportion of older adults using various technologies as a whole are shown in Table 32. It shows that purchase of goods from online retailers such as Amazon, eBay, Overstock, etc., is the most common activity, followed closely by online banking. Approximately three quarters of the older adults participate in these two types of activities. Online streaming and online order of food take-out and delivery from restaurants are also common, as more than half of the older adults participate in these activities. More than one-third of the older adults also order groceries online. Telecommuting is less common, but that is because most of survey respondents in the older age brackets are likely to be retired already. Online education classes and online purchase of transit tickets and passes are the least common activities.

Table 32 – Technology-based activities by older adults, persons and percentages

Activity	Persons	Percent
Online shopping of goods from online retailers	2,039,504	79.5
Online banking	1,856,441	72.4
Online subscription to Netflix or other streaming	1,395,759	54.4
Online order for food take-out or delivery from restaurants	1,306,924	51.0
Online purchase from local grocery	935,998	36.5
Telecommute to work	679,747	26.5
Online classes for education	609,929	23.8
Online purchase of transit passes or tickets	541,270	21.1

Similar to access to technologies, the use of technologies by older adults was also analyzed by age, race/ethnicity, and household income to examine variations among different population groups. The percentages of people using the technologies are shown by age, race/ethnicity, and household income in Tables 33, 34, and 35, respectively. Because the use of technology was slightly higher among those who provided information on demographic and socioeconomic characteristics than those who did not provide such information, the percentages were normalized so that they equal the percentages for all older adults in Table 32. Table 33 shows that the share of older adults using the technologies is substantially lower for people in the higher age groups than in the lower age groups. For some of the activities, such as online shopping from retailers, the decline in the share of people is gradual, whereas for others, such as telecommuting, the decline is sharp. However, for all activities, the decline is more prominent in older ages, especially between age 75-79 and age 80-84.

Table 33 – Technology-based activities by older adults, percentages by age

Activity	Age							
	55-59	60-64	65-69	70-74	75-79	80-84	85+	Total
Online shopping from retailers	83.4	84.8	83.5	78.8	74.8	68.7	53.8	79.5
Online banking	78.3	79.0	75.1	72.3	65.3	61.8	39.1	72.4
Online streaming	65.6	58.5	60.0	52.2	39.3	30.5	24.8	54.4
Online food order	61.3	57.0	51.7	44.8	41.6	33.3	25.1	51.0
Online grocery purchase	39.7	40.4	37.0	37.0	34.3	31.3	16.8	36.5
Telecommute to work	44.1	36.9	21.2	9.3	6.9	7.5	4.0	26.5
Online classes	32.7	25.3	23.5	19.8	18.6	14.5	4.8	23.8
Online transit passes/tickets	33.3	23.9	21.2	14.3	8.8	7.2	0.9	21.1

Table 34 shows the percentage of older adults using various technologies by race and ethnicity. A comparison with Table 33 shows that the differences between the racial/ethnic groups is not as distinct as the differences between people in the lower end of the age spectrum and people in the higher end of the age spectrum. However, a comparison between Table 33 and Table 35 shows that the differences between the income groups is as substantial as the differences between the age groups in Table 33. Table 35 reveals that the share of people using almost every activity is higher for almost every level of income. In sum, similar to access to technologies, the analysis of technology use shows that people in older ages and people with lower incomes are disadvantaged compared to younger and more affluent people.

Table 34 – Technology-based activities by older adults, percentages by race and ethnicity

Activity	Race/Ethnicity						
	Hispanic White	Non-Hispanic White	Hispanic Black	Non-Hispanic Black	Asian	Mixed or Other Race	Total
Online shopping from retailers	76.0	80.8	58.1	79.4	77.9	71.1	79.5
Online banking	70.1	73.7	68.1	65.0	78.5	62.8	72.4
Online streaming	50.2	56.9	52.0	49.0	48.0	47.2	54.4
Online food order	47.5	53.4	20.6	49.1	37.7	48.4	51.0
Online grocery purchase	32.7	38.9	14.4	29.1	36.6	24.5	36.5
Telecommute to work	24.2	27.5	5.8	20.6	26.7	28.8	26.5
Online classes	17.7	23.4	17.6	21.4	31.3	33.2	23.8
Online transit passes/tickets	13.9	21.5	5.5	12.8	36.2	21.2	21.1

Table 35 – Technology-based activities by older adults, percentage by household income

Activity	Household Income							
	<\$25K	\$25K- \$49.9K	\$50K- \$74.9K	\$75K- \$99.9K	\$100K- \$149.9K	\$150K- \$199.9K	\$200K+	Total
Online shopping from retailers	62.1	71.1	79.5	83.6	87.9	88.6	90.2	79.5
Online banking	53.1	60.4	69.2	78.2	83.4	85.6	85.2	72.4
Online streaming	33.3	36.2	52.5	58.1	63.1	71.2	75.8	54.4
Online food order	29.1	37.7	43.5	54.1	58.4	66.0	75.0	51.0
Online grocery purchase	28.1	27.3	28.7	35.8	42.8	41.9	51.8	36.5
Telecommute to work	7.4	8.9	16.0	22.6	37.6	38.9	56.8	26.5
Online classes	13.6	18.8	18.3	22.9	29.2	28.8	36.2	23.8
Online transit passes/tickets	9.7	9.6	12.9	18.3	26.8	25.0	44.7	21.1

Potential Use of Driverless Vehicles

Several questions were included in the survey with the aim of learning about New Jersey older adults' potential for using driverless cars and riding shared driverless buses and vans provided by public agencies or private companies. The first of these questions was meant to examine what the survey respondents thought about the prospects of driverless cars becoming common in the next 10 years. The specific question was: "In your opinion,

how common will driverless or automated cars be in the next 10 years in New Jersey?” The responses to the question for all respondents are shown in Table 36. Although most respondents (24.7%) believe that only between 1% and 5% cars will be driverless in 10 years, a wide variation exists among older adults regarding their expectation. For example, 23.1% believe that 10% to 25% cars will be driverless in the next ten years, 15.2% believe that it could be as high as 25% to 50%, and 5.7% believe that more than 50% cars will be driverless. These results indicate that older adults as a whole are not skeptical about the idea that a sizeable proportion of cars in the near future will be driverless.

Table 36 – Expectation about driverless cars becoming common in 10 years

Expected timeframe	Persons	Percent
More than 50% cars will be driverless	134,591	5.7
25% to 50% cars will be driverless	362,225	15.2
10% to 25% cars will be driverless	550,090	23.1
5% to 10% cars will be driverless	518,096	21.8
1% to 5% cars will be driverless	588,575	24.7
0% cars will be driverless	227,802	9.6
Total	2,381,379	100.0

The respondents were subsequently asked if they would use a driverless car if such cars were available and affordable. The responses revealed that most older adults are unsure (40.7%) at this time, but the share of older adults who foresee themselves using a driverless car is not negligible (24.5%). However, the share of older adults who do not foresee themselves using a driverless car is larger (34.8%) than the share of those who foresee using such a car.

The last two questions related to driverless vehicles probed whether the respondents would use shared driverless bus or van service provided by private companies and public agencies. The responses to the question on privately provided service are shown on the left side of Table 37, whereas the right side of the table shows the responses to the question on publicly provided service. Similar to the question of using driverless cars, the responses to the question on buses and vans show that most are unsure at this time whether they would use such services. However, one-third of the respondents (33.3%) mentioned that they would be very likely or somewhat likely to use such services provided by private companies and a slightly larger share of respondents (37.8%) mentioned that they would be very likely or somewhat likely to use services provided by public agencies. A comparison of the responses in Table 37 with the responses in Table 36 seems to suggest that a greater share of older adults may be willing to use shared driverless buses and vans than using a driverless car on their own.

Table 37 – Potential for using shared driverless bus or van service provided by private companies and public agencies

Likelihood of Using	Provided by private companies		Provided by public agencies	
	Persons	Percent	Persons	Percent
Very likely	307,263	12.7	367,199	15.1
Somewhat likely	501,030	20.6	550,568	22.7
Not sure	780,105	32.1	739,469	30.4
Somewhat unlikely	249,515	10.3	206,190	8.5
Very unlikely	588,662	24.3	567,182	23.3
Total	2,426,575	100.0	2,430,609	100.0

Safety Perception

A question was included in the survey to inquire about the safety perception of older adults related to transportation. The specific question was: “Based on your experience making trips by all forms of transportation, which of the following do you consider most unsafe for you?” From a given list of 12 options, respondents were allowed to select up to three options. The responses to the question are summarized in Table 38.

Table 38 – Perception of unsafe transportation

Activity	Persons	Percent
Bicycling	1,193,675	46.5
Waiting at transit station or stop	606,194	23.6
Taking a ride from a volunteer driver	588,833	23.0
Walking to public transit station or stop	557,127	21.7
Walking to go to stores or run errands	521,638	20.3
Being in a parking lot	521,040	20.3
Riding Uber or Lyft	481,057	18.8
Driving a car	362,015	14.1
Being on a transit bus or train	332,532	13.0
Riding a taxi	313,961	12.2
Walking for leisure or exercise	174,516	6.8
Being on a county/town bus	151,949	5.9

It is not surprising that bicycling is considered to be the most unsafe because of the potential for falling and getting injured. However, the results show that about one in five older adults are also apprehensive about waiting at transit stations and stops and walking to transit stations/stops. Despite the ease of transportation that could be achieved through a volunteer driver program, one in five people also consider it to be unsafe. Considerably fewer people consider being on a public transit vehicle as unsafe compared to waiting at

a stop/station or walking to a stop/station, but being on a public transit vehicle is considered to be more unsafe than being on a county/town transit vehicle. That could be because people perceive services provided by their own county/town to be safer than services provided statewide.

Impact of COVID-19 on Transportation

At the end of the survey, the respondents were requested to provide a narrative statement to describe the impact of COVID-19 on their travel pattern. The respondents wrote about increasing difficulties in making essential trips, stoppage of transportation services, new rules in their residences, and separation from family members. Many respondents reported having to forgo medical/dental trips because of the fear of COVID-19.

Conclusion

This section of the report presented results from a survey of New Jersey older adults aged 55+ about their current and potential use of traditional and emerging transportation technologies. In addition, the data were presented on living arrangements, the use of new technologies that can help to substitute or complement trip making, safety perceptions, and recommendations for transportation improvements.

The survey confirmed that New Jersey older adults as a whole predominantly (84%) live in regular neighborhoods for all people, but the proportion living in age-restricted developments and buildings is not negligible. Nearly 30% of the older adults live alone, but a much larger proportion of the oldest, as well as people from low-income and minority households, live alone.

The survey also confirmed that New Jersey older adults most frequently travel by household vehicles. An overwhelming majority of them have household vehicles and driver's licenses. They walk frequently, but the ability to walk diminishes substantially with age, especially around age 80. About half of the older adults had not used public transit at all within a six-month period before COVID-19. The survey revealed that taking frequent rides from others is far more common among New Jersey older adults than taking public transit.

Approximately 63% of the older adults who currently drive expect to get rides from family members when they have to give up driving. More than 40% expect to use Uber/Lyft and get rides from friends. More than one-third expect to use transit buses and trains. However, plans to get rides from family members for many may be dubious because the survey showed that a large proportion of older adults, especially the oldest, live alone and have no one to get rides from. The proportion of people living alone is also high among minority and low-income older adults. Similarly, considering the very small proportion of older adults who currently use services like Uber and Lyft, it is difficult to imagine a large proportion of them using such services after driving cessation without some kind of intervention, such as training on technology use, or a proliferation of subsidized

ridehailing services targeted to older adults implemented by municipalities, counties, or other public entities.

Approximately 59% of older adults have a train station or bus stop with a 10-minute walk of their homes. A much larger proportion of older adults reported having Access Link and county/municipal transportation in the areas where they live, but the very small proportion of people who responded to the questions showed that a large proportion of older adults do not know about the services. Because only older adults who have been determined to be eligible because of their disabilities can use Access Link, it is perhaps not surprising that many older adults without disabilities do not know about the service. The same cannot be said about county/municipal services because such services can be used by all older adults.

One of the most important findings from the survey is that about 15% of the New Jersey older adults, amounting to a more than 360,000 people, forgo trips for lacking transportation. Among the older adults without a vehicle in household, people with disabilities, people who have low income, people in the oldest age categories, Black older adults, and female older adults, the proportion is much larger. In regions with higher density of fixed-route transit, the proportion of older adults being deprived of trips for lacking transportation is higher instead of being lower. This may be an indication of limitations of conventional fixed-route transit in serving older adults.

Although a large proportion of the older adults could have made the forgone trips if a transit stop/station existed near home, a significantly larger share could have made those trips if they were picked up from home by transit buses or vans. Depending on trip purpose, while 50 to 65% could have made the trips if a stop/station were within a 10-minute walk of home, 75 to 87% could have made the trip if they were picked up from home. This seems to indicate that services like deviated-route transit and curb-to-curb microtransit may serve trip-deprived older adults better than strictly fixed-route service.

Free and affordable public transit for older adults, subsidized Uber and Lyft for older adults, more public transit for older adults and people with disabilities, more and safer sidewalks, subsidized taxi for older adults, safer driving conditions for older adults, and volunteer driver programs were the top recommendations for transportation improvement. These results show that transportation improvements for older adults can be of various types, but affordability seems to be a significant issue. The recommendations for subsidized Uber and Lyft, subsidized taxi, and free or reduced-price transit bear testimony to the importance of service affordability.

Internet, text messaging app, and smartphones are available to almost 80% of older adults. However, the availability of such technologies is lower among the oldest. Older adults from low-income households also have lower access to such technologies. Internet-based activities, such as online shopping from retailers, online banking, online streaming, online food order, and online grocery purchase are common among older adults of New Jersey. However, such activities are significantly lower among the oldest.

For example, more than 61% of the people aged 55-59 order take-out food online, whereas only 33% of those aged 80-84 and 25% of those aged 85+ do so. Similar is the case with other online activities such as online banking and online grocery purchase. Internet-based activities are also significantly lower among older adults from low-income households.

About one in five older adults believe that 25% or more cars on the road will be driverless/automated in the next 10 years. About one in four are certain that they will use driverless cars if they are available and affordable whereas about one in three are certain that they will not use such cars. Older adults who are likely to use driverless shared transit service, unlikely to use such service, and unsure if they will use such service are evenly split. A slightly larger share of them are likely to use if such services are provided by a public agency compared to a private company.

Bicycling is considered to be the most unsafe transportation-related activity as about 47% identified it as unsafe. The next most unsafe activity is waiting at transit station/stop, but only about 24% considered it unsafe. Taking a ride from volunteer drivers was considered the third most unsafe activity as 23% identified it as unsafe. About one in five also considered walking to public transit station or stop, walking to go to stores or run errands, and being in a parking lot as unsafe.

The greatest takeaway from the survey is that older adults in New Jersey are highly heterogeneous. Their travel patterns, needs, and barriers, as well as their use of technology-based activities that can reduce the need to travel, vary widely among different socio-demographic groups. Although all older adults are considered transportation disadvantaged from the transportation planning policy perspective, the oldest older adults, older adults with disabilities, older adults without household vehicles, older adults from low-income households, Black and Mixed-Race older adults, and female older adults need more attention than others. The survey showed that the population groups that are the most transportation disadvantaged are also the most disadvantaged in terms of the availability and use of technologies that can reduce the burden of transportation.

The survey results, especially the results on trip deprivation, indicate that older adults in predominantly urban regions, where many of the low-income and minority older adults live, need special attention despite a faster growth of older adults in suburban regions of the state. The diversity among older adults and their needs and barriers also call for diversity of mobility strategies. On the whole, the survey results show that one-size-fits-all strategies are not going to be very beneficial in a state where the characteristics of older adults and the characteristics of the places where they live vary so much.

RECOMMENDATIONS

The recommendations from this research are intended to enhance transportation mobility and the overall well-being of older adults in New Jersey. They were generated based on all of the tasks involved in this research, including interactions with the project's customer and the advisory group, the review of transportation systems within the state of New Jersey, a review of policies and programs, reviews of innovative strategies attempted in various parts of the country, interviews with key informants from various part of the country, the survey of municipal officials within New Jersey that inquired about senior mobility-enhancing strategies, and the survey of New Jersey older adults that inquired about preferred transportation strategies and respondent outlook about transportation use today and in the future. The mobility enhancing strategies recommended by the older adults and municipal officials who participated in the two surveys, the innovative mobility strategy case studies, as well as the recommendations provided by the advisory group members were given due consideration before arriving at the study recommendations described below.

Planning Recommendations

- Undertake all transportation planning within the state with the consideration that the already large older adult population will increase further during the next two decades. Although much of their increase may be experienced in suburban areas, many older adults will continue to live in urban areas, especially in cities with a large total population.
- Consider the diversity among older adults, especially in terms of age, income, disability, and access to technologies for all transportation planning purposes because these factors immensely affect mobility and trip deprivation. Older adults without access to cars or smartphones, with low income or disabilities, as well as the oldest older adults, should receive higher priority than other older adults. Because transportation cannot be alienated from geographic space, places with a higher concentration of these populations should receive higher priority in selecting transportation projects.
- Integrate transportation decisions with land use planning decisions at all levels. Place emphasis on neighborhoods and locations with a high concentration of older adults, including age-restricted developments and buildings for all types of public transportation.
- Emphasize removing geographic barriers (e.g., county or municipal border limits) to promote more seamless service for all publicly provided transportation services through greater coordination between statewide transit services and local transit services and by exploring microtransit and other innovative service models.

Microtransit will be a good option for first mile/last mile service in areas where fixed-route transit use is infrequent.

- Take full advantage of newer technologies, such as ridehailing, as well as forthcoming technologies, such as autonomous vehicles, with due consideration of service affordability and accessibility.
- Consider public-private partnerships, such as transit-ridehailing alliances and municipal-ridehailing partnerships for all older adults throughout the state but place greater emphasis on areas where the provision of fixed-route transit is less efficient.
- Using metrics that compare travel alternatives to automobile trips (e.g., highway versus transit travel time) would be beneficial for mobility strategy evaluation. Because older adults in New Jersey most commonly drive cars instead of using other travel modes, when considering mobility strategies involving non-automobile modes for older adults without particular disadvantages, use the characteristics of an automobile trip (e.g., travel time and convenience) as the benchmark and compare the characteristics of the alternatives to that benchmark to ensure that the alternatives are attractive to older adults.
- Integrate older adult mobility strategies into the ongoing NJDOT Long Range Plan Update and the NJ TRANSIT bus network redesign effort.

Innovative Technologies Recommendations

- Increase funding for ridehailing pilots involving partners such as Uber, Lyft, and Via. Coordinate these pilots through the network of transportation management agencies and nonprofit organizations throughout the state. Explore opportunities for a pilot by using the USC-Lyft collaboration case study as an example.
- Promote and support services like Ride4Life concierge service and the North Brunswick Senior Cab subsidized taxi service throughout the state with attention to places with large numbers of older adults and lower availability of fixed-route transit.
- Assess the potential for subsidizing ridehailing services in rural areas of the state where service is currently inadequate because of the smaller labor pool of Uber and Lyft drivers. Rural areas in the southern part of the state and the northwestern part of the state should receive higher priority because of the large expanses of rural areas in those regions.
- Assess the viability of providing subsidized transit service based on the Taxi RIDE & Lyft RIDE model adopted by Omnitrans, the transit agency in San Bernardino Valley, California. Such an assessment should be conducted by NJ TRANSIT because the San Bernardino service is provided by a transit agency. Collaboration with companies

such as SilverRide, as exhibited in a case study, could be a pilot for shared-ride, door-through-door assisted ridehailing to support particularly vulnerable/fragile older adults.

- Plan for and design services with the assumption that fully autonomous buses and vans will provide a real travel option within a few years. The case study involving autonomous vehicles by Voyager Auto in The Villages San Jose and The Villages Florida, as well as predictions by the National Highway Traffic Safety Administration, provide credence to that assumption. The survey of New Jersey older adults also showed that many believe that autonomous vehicles will soon be available. The survey also showed that older adults are more likely to use publicly provided shared autonomous transit services than privately provided services. Currently, autonomous vehicle experimentation is underway in New Brunswick through a collaboration between the New Jersey Department of Transportation, Rutgers University, Middlesex County, Verizon, and other stakeholders.
- Pursue steps now to develop financial subsidies or other incentives for AV providers to include lower density communities, such as southern and northwestern New Jersey, in their planned service zones. It is vital that action to develop and promote financial subsidies for these providers be taken now so that lower-density communities will not be excluded from the advancement of AV, as they have been to a great extent with the advent of ridehailing.

Fixed-Route Transit Recommendations

- Enhance and prioritize customer amenities to make New Jersey's fixed route system more welcoming to older adults with features including shelters, lighting, signage, seating, and real-time communications. The MPOs, counties, and municipalities should collaborate with NJ TRANSIT to support the realization of this vital recommendation. Because municipalities have the authority to designate bus stops and also maintain the stop amenities, they have an important role to play in locating stops appropriately and improving stop amenities.
- NJ TRANSIT is in the process of realigning its fixed-route bus network. In this context, aligning routes and locating stops to give greater transit access to older adults should be a priority. Considering that a large proportion of trip-deprived older adults in the survey reported that they could make the forgone trips if a station or stop were within a 10-minute walk of their home, locating bus stops near age-restricted buildings and developments would be particularly beneficial. Also, consider the typical trip generators for older adults by matching those locations to home locations. Conduct additional origin-destination analysis, as needed.
- Undertake initiatives to identify and improve walking and wheelchair access through paths, sidewalks, and crosswalks to stations/stops to attract older riders to fixed-route

transit. The role of municipalities in this regard is significant because they are responsible for such initiatives.

- In view of high trip deprivation among older adults in areas with a high density of fixed-route transit network, examine transit service quality in those areas and take necessary steps to provide access to the trip-deprived older adults. NJ TRANSIT is in the process reviewing service for all customers as part of the ongoing bus system redesign effort.
- Considering the proportion of trip-deprived older adults who could have made forgone trips with at-home pick-ups compared to having a fixed-route station or stop near home, alternatives such as demand-response service and microtransit should be considered in areas where fixed-route transit is likely to be inefficient. Collaboration between NJ TRANSIT, ridehailing companies, and counties or municipalities may be needed for such endeavors.
- Create a specialized customer service and marketing function within NJ TRANSIT focused on attracting older riders to accessible fixed-route services as an enhancement to current ADA compliance efforts.

Fare and Resource Recommendations

- Expand financial resources for senior mobility efforts by identifying new or non-traditional funding sources for operational costs, fare subsidies, and marketing; examples include marijuana surcharges, car rental surcharges (used in Pennsylvania), rideshare revenue program surcharges (used in Massachusetts), and NJTPA technical assistance grants.
- Plan with the recognition that affordability is a serious issue for many older adults, with fare strategies to increase affordability. NJ TRANSIT already offers reduced fares for both seniors and persons with disability in peak and off-peak periods. Other strategies should be explored, including modifications to fare structures for older adults and expanding discounted fares statewide by introducing monthly reduced fare passes.
- Some transit systems have a maximum amount a rider pays for transit service in a specified time, referred to as “fare-capping.” Fare capping is used in cities such as Portland (OR), Miami, Indianapolis, St. Louis, and Houston, as an alternative to a lump sum monthly pass, which may be cost-prohibitive for lower-income riders. This strategy may also be worth investigating.
- Publicize that Access Link-eligible riders now can pay the reduced fare on NJT fixed-route buses, trains, and light rail. This is important since a significant number of registered Access Link customers are older adults.

- Continue to increase the visibility of improved accessible bus stops and stations near senior activity locations with ribbon-cuttings, targeted marketing, maps and schedules, and senior-focused transit outings, as illustrated in two Salt Lake City examples.
- Analyze the Federal Coordinating Council for Access and Mobility (CCAM) Program Inventory to find federal programs that could help support senior mobility program costs in New Jersey. Innovative programs such as Rides to Wellness program in Flint (MI), Senior Transportation Connection in Cleveland (OH), and the Brookline Council on Aging in Brookline (MA) are using non-FTA funding from the Older Americans Act, Medicare, and Medicaid, to support senior transportation and mobility efforts.
- Recent Medicare changes allow transportation as a covered service under Medicare Advantage programs. Five insurance companies offer this benefit within their New Jersey plans in 2021. Providing covered non-emergency medical transportation, such as trips to medical offices, pharmacies, clinics, and fitness centers, could be a revenue stream for senior mobility efforts in New Jersey. The availability of this Medicare option should also be marketed to New Jersey older adults.
- Work with the Division on Aging Services to provide resources to support outreach, education, delivery of senior mobility services, and travel training using Title IIIB Aging funds.
- Use report findings and recommendations to document needs, define strategies, and substantiate requests for support from both public agencies and private philanthropic organizations.

Training Recommendations

- Make mobility training available to interested older adults who can learn to use non-automobile travel modes, including fixed-route transit, county/municipal transportation, concierge services, ridehailing, and volunteer driver programs.
- Organize group training outings on transit to useful destinations, like grocery stores, downtown areas, and shopping centers. Through the introduction of transit to new riders, such programs can increase ridership and benefit older adults at the same time. The “Transit Together” grocery trip model in Salt Lake City, funded by AARP, is an example.
- Provide training to transit workers on best practices in welcoming and providing customer service to older riders. This effort could be interwoven with NJ TRANSIT’s new Diversity and Inclusion effort through a group targeting older adults.
- Recognizing that driving is the primary transportation mode for NJ’s older adult population, identify funding support for expanded programming that supports safer

senior driving for as long as safely possible, such as Automobile Association of America's (AAA) CarFit initiative as well as services offered by occupational driving therapists. Pursue efforts to ensure these services are available statewide and are marketed widely to older adults.

- Prepare older adults, especially those in the 55-70 age group, for driving cessation through education. Work with AAA and the Motor Vehicle Commission on this effort to provide outreach, orientation, and/or introductory training trips on public transit, community mobility options, and ride-hailing services before an external event or environmental change triggers driving cessation or more limited mobility.

Volunteer Program Recommendations

- Focus on piloting a self-directed volunteer model with public dollars, like the TRIP model used by Riverside County, Victor Valley Transit Authority, and Omnitrans in San Bernardino, California.
- The survey found that a large proportion of New Jersey older adults are fearful of volunteer drivers, indicating a need to educate older adults (and potential volunteers) about the success of volunteer driver programs elsewhere. Organizations, including the Retired Senior Volunteer Program, Senior Care, and the National Aging and Disability Transportation Center, could provide educational resources. Promote volunteer driver programs in age-restricted older-adult developments by recruiting drivers living within the same community. Having drivers attached to the same association should help reduce rider apprehension about volunteer drivers.
- Continue to recruit and appoint active older riders to serve on existing and expanding oversight bodies including Citizens Advisory Committees, County Coordinated Planning Committees, and NJ TRANSIT customer advisory groups, to help shape elder-friendly policies and program delivery.
- Recruit older riders to serve as volunteer peer-to-peer trainers to introduce new riders to mobility services in their local area. The "On the Move Rides Program" in Los Angeles uses volunteers from senior centers to lead group transit trips and travel clubs.

Non-Transport Technology Recommendations

- Given the survey responses related to seniors' comfort with online shopping, socializing, and other activities, additional technology use could be adopted with support. Work with collaborating State agencies that serve older adults to increase technology adoption.
- It is important for quality of life, health, and mental well-being that older adults are not "housebound." Strive to reduce the number of trips requested to alleviate some trip

loss (i.e., for grocery delivery and telehealth), by complementing physical mobility with technology to maintain access to activities and services.

- Provide subsidized internet or WIFI access and tablet computers to known concentrations of low-income seniors, such as those who live in NJ Housing Mortgage and Finance Administration low and moderate-income senior apartment buildings. In addition to providing the opportunity to obtain information on available transportation, such strategies will allow older adults the opportunity to avoid unnecessary trips through online shopping, telemedicine, etc.
- Work with programs like DOROT's Technology Coaching Program and OATS (Older Adult Technology Services), in collaboration with other governmental and philanthropic partners in New Jersey, to bring technology training to older adults across New Jersey.

Outreach and Marketing Recommendations

- Through the national interviews the research team learned that a key element of a program's (e.g., subsidized taxi service) marketing success is developing an ongoing working relationship with area senior centers, senior dwellings, and hospitals. Focus such marketing and communications strategies on a range of older adults, including "young-old" New Jerseyans caring for older parents, those anticipating or experiencing driving retirement, older adults in the age 75+ cohort, and oldest-older adults who are more likely to be frail, lower-income, and living alone.
- Promoting existing services that are underutilized by older adults is an immediate priority for outreach and marketing, as survey findings indicated that seniors are often not aware of locally available mobility options. To address this issue, collaborate with multiple State agencies and partners serving older adults, families, and caregivers to develop senior mobility information that is accurate, consistently updated, complete, multi-modal, and available in multiple formats and languages to foster use and adoption of available transportation services.
- Develop targeted marketing and senior mobility outreach efforts working with state and regional partners, including the NJ Division of Aging Services and the Metropolitan Planning Authorities. Collaborate with organizations involved in the study effort, such as the AAA, NJ Housing and Mortgage Finance Agency (NJHMFA), NJTPA, New Jersey Advocates for Aging Well and AARP to help disseminate information.
- Expand and formalize regional senior mobility outreach events to introduce first-time users to local mobility options and services, like LA Metro's "Raised on Records" senior concerts at Union Station and NJTIP @ Rutgers' "Get Going on Transit" accessible rail station tours.

- Maintaining a “Senior Mobility” advisory body with riders and stakeholder members could increase visibility, inform policy, help advocate for mobility enhancements, and assist with disseminating information to seniors and the agencies that serve them across NJ.
- In NJHMFA senior housing buildings, expand the “Let’s Go” program to include occupational healthcare student interns working with on-site service coordinators to pre-screen and introduce older adults to mobility options prior to driving retirement.

Mobility Management and “Seamless” Service Recommendations

- Examine and possibly replicate models that could provide mobility across multiple jurisdictions (counties, municipalities, etc.) including statewide mobility management, municipal/county, and intermodal coordination, and microtransit efforts.
- Create a statewide single online mobility management resource with telephone integration for comprehensive trip planning (and eventual trip-booking) on accessible transportation providers within New Jersey including NJ TRANSIT fixed routes, private carriers, and Access Link, County paratransit, subsidized ridehailing networks, and municipal senior-bus services. “FindMyRide” in Pennsylvania is an example of this approach, and NJ TRANSIT is currently scoping a similar effort that will include trip brokerage.
- The Mercer/Middlesex/Somerset County area was identified as a possible location to site a pilot examining “seamless services” within a region. There is an existing concentration of low and moderate-income senior housing apartments on the Middlesex/Somerset border, and the area has regional medical facilities that create demand for cross-jurisdictional trips for older adults, including those living in private homes and apartments.
- To encourage inter-modal trips, feeder transit sites (i.e., bus stops) where older adults may wait need to be safe and comfortable by including an enclosure, seating via benches, lighting, good signage, and safe pathways. NJ TRANSIT should encourage municipalities to promote elder-friendly bus stop design and maintenance strategies.
- Foster coordination among contiguous or overlapping municipalities and jurisdictions that offer senior transportation. For example, a county paratransit provider operating a community shuttle could coordinate with a municipal provider to enhance or expand service for area older adults.
- Pilot a form of senior-focused county paratransit service using deviated fixed-route shuttles or microtransit. Removing the short walk to a transit stop incorporates the

survey finding regarding respondent's willingness to use public transit, but also a preference for door-to-door services.

Service Design Recommendations

- Service recommendations should focus on the specific needs and opportunities of cohorts, for example, demand response services for those 75+ who are less likely to drive, while marketing and communication can target older adults 55 to 74. In addition to the data showing a marked change in household characteristics between 74 and 80 (such as technology use, living alone, and driving), this also reflects existing patterns of who uses transportation services.
- Service design and delivery should consider the heterogeneity of older adults in terms of geographic location, fare or fee, and ability to use technologies. The oldest, older adults with disabilities, low-income older adults, minority older adults, older adults without cars in the household, female older adults need more attention than others.

Policy Recommendations

- Incorporate report recommendations into the work of the Age-Friendly State Advisory Council, created on March 2, 2021, with Executive Order No. 227. The Council will include representatives from the New Jersey Departments of Transportation, Community Affairs, and Health, and other stakeholders, and will issue a blueprint of best practices for advancing age-friendly transportation, housing, inclusivity, and community support and health services.
- Incorporate senior mobility into the current state-level policy discussions regarding transportation services for people with disabilities, as there is a significant correlation between increased disability and older age.
- In suburban and rural areas, many homes are more than $\frac{3}{4}$ mile from NJ TRANSIT local bus routes and outside the ADA paratransit service area. Examine the feasibility of “premium” on-demand senior-friendly transportation services for older adults who are not eligible for ADA service or who live outside the service area.
- Within current efforts to repurpose existing land uses, incorporate subsidized housing for seniors (and other target groups) with essential on-site services, thus reducing the need for transportation.

Geographic Recommendations

- Considering that Bergen, Ocean, Middlesex, Essex, and Monmouth Counties account for the largest number of older residents, transportation service provisions in those

counties in the near future has the potential to benefit a greater number of older adults than service provision in the counties with smaller number of older adults. In terms of expected increase of older adults between now and 2034 also, Middlesex and Bergen Counties should receive the highest priority, followed by Monmouth, Essex, and Ocean counties, respectively.

- Although Bergen, Ocean, Middlesex, Essex, and Monmouth Counties account for the largest number of older adults, many other counties contain high-density cities and towns (e.g., Jersey City in Hudson County, Paterson in Passaic County, Trenton in Mercer County, Morristown in Morris County, etc.), where the provision of fixed-route transit will be more efficient than places with lower density. Thus, although the counties with the largest number of older adults should be prioritized over other counties in terms of overall transportation improvement, high-density cities and towns should not be ignored for fixed-route transit improvements even though they are not located in counties with a large population of older adults.
- Because the provision of fixed-route transit is efficient primarily in places with higher population density, alternatives such as demand-response service, concierge service, etc., should be prioritized for places with lower density that are located in the counties with a large population of older adults (e.g., Bergen, Ocean, Middlesex, Essex, and Monmouth Counties).
- Because trip destinations and population are more dispersed in exurban and rural areas than urban and suburban areas, average trip length is also longer in those areas. Transportation strategies in such areas should focus on connecting older adults to regional centers where essential services are located. The southern, southwestern, and northwestern parts of the state need attention for inter-regional travel as well as demand-response services. Funding mechanisms should be sought to support such transportation for areas with low income.
- NJHMFA low and moderate-income senior housing buildings, which are available in communities throughout the state, were offered by an advisory group member (from MJHMFA) as potential pilot sites across New Jersey.
- Plan with the recognition that many large urban centers will continue to have a large older adult population despite the growth of older adults in suburban areas. Within the Northeast region (Bergen-Passaic-Hudson-Essex-Union Counties) there are extensive accessible, fixed-route, and scheduled public transit options, but there is a high rate of seniors who report being trip deprived. Pilot efforts should concentrate on increasing awareness and use of available services, including NJ TRANSIT, Access Link, county paratransit, and demand response options, including TNC services.
- Programs in suburban and rural areas could include volunteer drivers as a component of demand response programs. Members of the advisory group suggested

communities located south of the City of Millville and the Bay Shore area of Cumberland County for a potential pilot site, which is within an area characterized with lower density, less transit, and a percentage level of senior trip deprivation greater than the state average.

- There are large concentrations of older adults in Central NJ living in single-family homes within 55+ senior communities in Ocean, Middlesex, and Somerset Counties. Some of these locations may be well-matched to pilot programs involving scheduled or routed services, older driver safety efforts, or volunteer-based programs using well elders as drivers.

Recommendations for Additional Research

- Evaluate the alignment of the current fixed-route network in serving known locations of senior activity (housing sites, medical offices, shopping, senior centers, etc.). Identify improvements to make the service more inviting and elder-friendly overall.
- Survey current “older” NJT riders for insights regarding their travel patterns, preferences, and mode choice. Identify “what works” and “what could work better” for these current riders to inform service design and targeted marketing. Survey older drivers to understand the features they feel are most important when they are traveling by any mode other than a private vehicle to help shape new services that align with those preferences.
- Recommendations focused on promoting fixed-route transit for NJ’s older adults need to recognize the overarching need to first improve the physical context – shelters, seating, and perceived safety at stops are needed to attract seniors to fixed-route services. Provide information/assistance to municipalities because they are responsible for improving bus stops and stop amenities. Adapt the Salt Lake City model and identify strategic corridors and/or senior activity locations for a suite of bus stop improvements, combined with targeted marketing, outreach, and mobility training efforts post enhancement. Analyze changes in customer attitudes and ridership post-improvements.
- Use FTA’s “Complete Trip” orientation to map the older rider customer experience – leaving home, getting to the transit stop, waiting for a vehicle, boarding, riding, alighting, and travel to the trip destination - identify which elements are most challenging for older riders, identify user barriers, and develop strategies for addressing them.

REFERENCES

- (1) L. Böcker, P. van Amen, and M. Helbich. "Elderly travel frequencies and transport mode choices in Greater Rotterdam, the Netherlands" *Transportation*, Vol. 44, No. 4, (2017), pp. 831-852.
- (2) D. Deka. "The Effect of Mobility Loss and Car Ownership on the Feeling of Depression, Happiness, and Loneliness" *Journal of Transport and Health*, Vol.4, (2017), pp. 99-107.
- (3) R. E. Paaswell, and W. W. Recker. "Location of the Carless" *Transportation Research Record*, No. 516, (1974), pp. 11-20.
- (4) J. B. Schnell. "Public Transportation and Transportation Needs of the Elderly and Handicapped" *Transportation Research Record*, No. 516, (1974), pp. 1-10.
- (5) J. C. Falcocchio and E. J. Cantilli. *Transportation and the Disadvantaged: The Poor, the Young, the Elderly, the Handicapped*. Lexington Books, Lexington, M.A., 1974.
- (6) J. R. Meyer and J. A. Gómez-Ibáñez, *Autos, Transit, and Cities*. Harvard University Press, Cambridge, M.A., 1981.
- (7) A. Altshuler, J. P. Womack, and J. R. Pucher, J. R. *The Urban Transportation System: Politics and Policy Innovation*. MIT Press, Cambridge, M.A., 1981.
- (8) Transportation Research Board. *Transportation Requirements for the Handicapped, Elderly, and Economically Disadvantaged*. National Cooperative Highway Research Program: Synthesis of Highway Practice 39. Transportation Research Board, National Research Council, Washington, D.C., 1976.
- (9) M. Wachs. *Transportation for the Elderly*. University of California Press, Berkeley, C.A., 1979.
- (10) United States Government Accountability Office. *Transportation-Disadvantaged Populations*. Statement for the Record to the Special Committee on Aging, U.S. Senate. Report No. GAO-14-154T. Washington, D.C., 2013.
- (11) W. Weiner. 2008. *Urban Transportation Planning in the United States*. 3rd ed. Springer Science and Business, New York, N.Y., 2008.
- (12) S. Lord, C. Després, and T. Ramadier. "When mobility makes sense: A qualitative and longitudinal study of the daily mobility of the elderly." *Journal of Environmental Psychology*, Vol. 31, No. 1, (2011), pp. 52-61.
- (13) D. R. Ragland, W. A. Satariano, and K. E. MacLeod. "Driving cessation and increased depressive symptoms." *The Journals of Gerontology Series A: Biological Sciences and Medical Sciences*, Vol. 60, No. 3, (2005), pp. 399-403.
- (14) B. D. Taylor and S. Tripodes. "The Effects of Driving Cessation on the Elderly with Dementia and their Caregivers." *Accident Analysis & Prevention*, 33(4), (2001), pp. 519-528.
- (15) National Highway Traffic Safety Administration. *Traffic Safety Facts 2016*. U.S. Department of Transportation, Washington, D.C., 2016.
- (16) Insurance Institute for Highway Safety. *Fatality Facts 2016: Older People*. Insurance Institute for Highway Safety, Arlington V.A., 2018.

- (17) F. Hobbs and N. Stoops. *Demographic Trends in the 20th Century*. Census 2000 Special Reports, US Census Bureau, U.S. Department of Commerce, Washington, DC., 2002.
- (18) U.S. Census Bureau. *2017 National Population Projections Tables: Main Series*, U.S. Department of Commerce, Washington, D.C, 2017.
- (19) J. L. Wiles, A. Leibing, N. Guberman, J. Reeve and R. E. Allen. "The Meaning of 'Aging in Place' to Older People. *The Gerontologist*, Vol. 52, No. 3, (2012), pp. 357-366.
- (20) N. Farber, D. Shinkle, J. Lynott, W. Fox-Grage and R. Harrell. "Aging in Place: A State Survey of Livability Policies and Practices." National Conference of State Legislatures (Denver) and AARP Policy Institute, Washington, D.C., 2011.
- (21) S. Rosenbloom. "The Mobility Needs of the Elderly." In Transportation Research Board, Transportation in an Aging Society: Improving Mobility and Safety for Older Persons. TRB Special Report 218. Volume 2: Technical Papers, pp. 21–71. Committee for the Study on Improving Mobility and Safety for Older Persons, Transportation Research Board, Washington, DC., 1988.
- (22) J. Callahan Jr. (Ed.). *Aging in Place*. Routledge, New York, 2019.
- (23) A. J. Lehning. "City Governments and Aging in Place: Community Design, Transportation and Housing Innovation Adoption." *The Gerontologist*, Vol. 52, No. 3, (2011) pp. 345-356.
- (24) S. Ahrentzen. "On their Own Turf: Community Design and Active Aging in a Naturally Occurring Retirement Community." *Journal of Housing for the Elderly*, Vol. 24, No. 3-4, (2010), pp. 267-290.
- (25) E. Miller and L. Buys. "Predicting Older Australians' Leisure Time Physical Activity: Impact of Residence, Retirement Village versus Community, on Walking, Swimming, Dancing and Lawn Bowling." *Activities, Adaptation & Aging*, Vol. 31, No. 3, (2007), pp. 13-30.
- (26) D. M. Wert, J. B. Talkowski, J. Brach and J. VanSwearingen. "Characteristics of Walking, Activity, Fear of Falling and Falls in Community Dwelling Older Adults by Residence." *Journal of Geriatric Physical Therapy*, Vol. 33, No. 1, (2010), pp. 41-45.
- (27) A. K. Brown, T. Liu-Ambrose, R. Tate and S. R. Lord. (2009). "The Effect of Group-Based Exercise On Cognitive Performance and Mood in Seniors Residing in Intermediate Care and Self-Care Retirement Facilities: A Randomised Controlled Trial." *British Journal of Sports Medicine*, Vol. 43, No. 8, (2009), pp. 608-614.
- (28) Alan M. Voorhees Transportation Center. *Seniors & Walking: Barriers & Opportunities Survey Findings*. Edward J. Bloustein School of Planning and Public Policy, Rutgers, the State University of New Jersey, New Brunswick, New Jersey, 2018.
- (29) A. Nathan, L. Wood, and B. Giles-Corti, B. (2014). "Perceptions of the Built Environment and Associations with Walking Among Retirement Village Residents." *Environment and Behavior*, 46(1), (2014), pp. 46-69.

APPENDIX A

The following datasets compiled through this research are available for researchers and practitioners with permission from the project customer/champion. For more information about the datasets, please contact NJ TRANSIT at marketresearch@njtransit.com.

MCD_Elderly_1990_2000_2010_2017.xlsx. Contains 1990, 2000, and 2010 census data as well as 2017 American Community Survey (ACS) data at the level of county subdivision or municipality for entire New Jersey. Data for municipalities that were merged between 1990 and 2017 were adjusted to reflect 2017 boundaries for all years.

Exclusive_older_adult_units.xlsx. Contains names, addresses, and number of dwelling units in age-restricted developments (i.e., 55+ communities) throughout New Jersey. The data were compiled from various online sources. The sources and their weblinks are provided.

Transit_AccessLink_65.xlsx. Contains the number of older adults (age 65+) living within and beyond a ½ mile buffer of bus routes and train stations at the municipal level for entire New Jersey for 2017. The data were derived at the census block group level by merging a comprehensive transit network of NJ TRANSIT routes and shuttle routes with ACS 2017 data.

MCD_Elderly_2034.xlsx. Contains estimated data for older adults (Age 65+) at municipal level for 2034. The estimates were obtained by dividing the New Jersey Department of Labor's age-specific projections for counties among the municipalities within the counties with the assumption that the proportion of older adults will remain the same as in 2017. The data are not to be used as formal projections.

PUMS_NJ_2017.xlsx. Contains socioeconomic data for older adults at the level of Public Use Microdata Area (PUMA) from the ACS Public Use Microdata Samples (PUMS). The data sample contains 5% of the New Jersey households in the 2017 ACS 5-year summary file.

MCD_Crashes_2014_2018.xlsx. Contains the annual average number of crashes involving older drivers and older pedestrians (age 65+ in both cases) in New Jersey municipalities normalized by 100,000 older adults in municipality. To obtain the estimates, crash data from the New Jersey Division of Highway Safety for the years 2014 to 2018 were downloaded and converted to annual average and subsequently divided by the 2018 older adult population of the municipalities.

Note: Primary data collected through surveys cannot be shared without IRB permission.