MOBILITY INITIATIVES FOR AN AGING POPULATION

A SCAN OF CURRENT PRACTICES

NYC Department of City Planning | Transportation Division | September 2011

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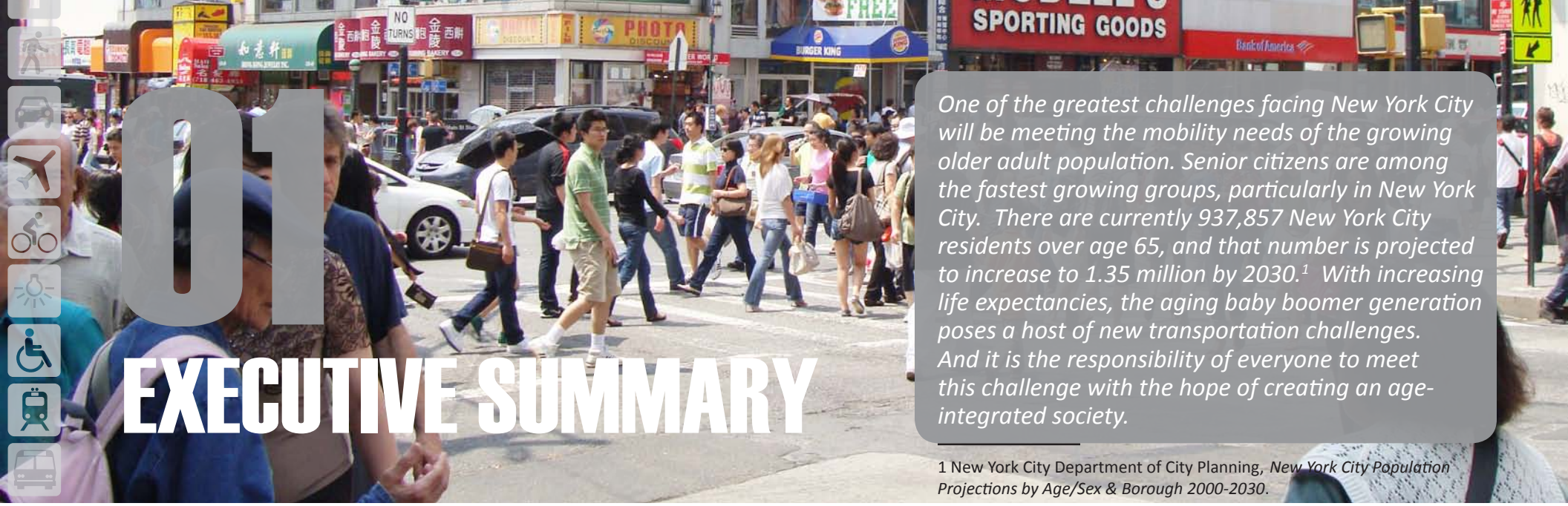


01 EXECUTIVE SUMMARY

One of the greatest challenges facing New York City will be meeting the mobility needs of the growing older adult population. Senior citizens are among the fastest growing groups, particularly in New York City. There are currently 937,857 New York City residents over age 65, and that number is projected to increase to 1.35 million by 2030.[1] With increasing life expectancies, the aging baby boomer generation poses a host of new transportation challenges. And it is the responsibility of everyone to meet this challenge with the hope of creating an age-integrated society.

1 New York City Department of City Planning, *New York City Population Projections by Age/Sex & Borough 2000-2030*.

Mobility Initiatives For An Aging Population: A Scan of Current Practices sets out to identify current mobility issues of older adults and examines innovative solutions in transportation, mobility and accessibility for an aging population that are currently in place within cities in the United States and in other world cities. A total of 17 current practices or case studies are examined, eleven of which are in the United States. The case studies are divided into the following categories: Driving, Public Transportation and Taxis, Pedestrian Improvements, Planning Tools, and Innovative Technologies and Educational Programs. They address safety, accessibility and transportation choice to enhance mobility.

Recently a number of important studies on the subject of aging have been released in response to the changing demographics of older adults. *Age-Friendly NYC* was issued by the Office of the Mayor in August of 2009 and identified 59 issues and initiatives relating to older adults. One of the initiatives in that study was this study – "Conduct a study to better address the mobility needs of older New Yorkers." Fourteen of the 17 case studies in this document echo an issue or initiative that is included in *Age-Friendly NYC*. The synergy of both this report and the Mayor's Office *Age-Friendly NYC* aims to make New York City a more livable city for its growing senior population by identifying practical applications to address the mobility challenges that older New Yorkers face. Insights gleaned from the 17 case studies will open up ideas that will lead to greater safety and accessibility for the growing older population as well as all members of society.

The Driving section of this study is comprised of three case studies:

- The Showcase Roadway Project in Detroit, Michigan, shows how improved signage can make a difference.
- The 20 MPH Zones in the United Kingdom illustrates how lower speeds greatly reduce serious injuries and fatalities.
- The Regulation of Elderly Licensing and the Vehicle Labeling Policy in Tokyo, Japan, are examples of setting new requirements for older drivers.

The Public Transportation, Taxis and For-Hire Vehicles section consists of four case studies:

- Step-Free Access in London, England, focuses on making adjustments to London's underground rail system to provide step-free access.
- Access at the Massachusetts Bay Transportation Authority (MBTA) in Boston, Massachusetts, is an example of how a class action lawsuit had a major impact on MBTA and other transit systems across the country.

- Accessible Taxis in London, England, include three taxi programs that provide alternative modes of transportation with on-demand options.
- The Independent Transportation Network in Portland, Maine, expands transit options by providing on-demand transportation by both paid and volunteer drivers.

The Pedestrian Improvements – Signage and Crosswalk Changes section is composed of three case studies:

- LED Crosswalk Signs in Naval Station Mayport, Florida, address the challenges of sign visibility at crosswalks and intersections.
- Flashing Beacons and Ground Flashers in San Jose California, observe yielding and braking at intersections in order to provide more safety at crosswalks.
- Pedestrian Actuated Crosswalk Flashers in Kirkland, Washington, are geared towards increasing safety by highlighting crosswalks.

Planning Tools - Smart Growth and Street Design section considers four case studies:

- Smart Growth and Transit-Oriented Development (TOD) in Portland, Oregon applies smart growth that promotes TOD.
- The Russellville Park Transit-Oriented Development in Portland, Oregon, is an example of TOD specifically aimed at growth designed for seniors.
- Complete Streets Policy in Massachusetts promotes safely designed streets to benefit all users.
- Universal Design in Norway applies the principles of Universal Design to the planning design of places, transportation facilities, and information technologies so as to be usable by all people.

Innovative Technologies and Educational Programs explore three case studies:

- Active Aging programs in Portland, Oregon, provide programs for older adults that encourage cycling and walking to keep them mobile.
- The Car-Fit Program in the United States is an educational program that offers older adults the opportunity to check how well their vehicles fit them to attain maximum comfort and safety.
- Pedestrian Navigation System in Japan incorporates technology to help older adults to navigate their surroundings safely whether they are driving, utilizing public transportation, or making other drivers aware of their presence.

The Demographic Information and Trends section provides data to support the trends and travel patterns of the fast growing older adult cohort. It relies on the 2000 Census data, information from the Department of Motor Vehicles, MetroCard data and the more recent 2006-2008 American Community Service (ACS) data to identify neighborhoods with the greatest concentrations of older adults, auto ownership, subway ridership, and the various transportation modes used for work trips.

The Mobility Resources for Older Adults in New York City section identifies agencies and departments that address transportation issues and needs of older New Yorkers. These entities play a key role in the development and implementation of mobility initiatives for the aging population. The agencies discussed in the report are New York State Office for Aging, New York City Department for the Aging, New York City Department of Transportation, New York City Department of Planning, Metropolitan Transportation Authority, New York City Transit, and Permanent Citizens Advisory Committee to the MTA, New York City Office of the Mayor, United Hospital Fund and New York Metropolitan Transportation Council.

Thanks to the many new studies on aging that address mobility issues, initiatives and ideas, there are changes currently underway and with more to follow. These changes make getting around in a dignified manner safer and easier for older adults. The resulting heightened awareness and understanding has fueled a momentum that is creating a better landscape for all.

The following table, Summary of Case Studies, introduces the 17 case studies reviewed in this report, the challenges to senior mobility that these practices address, and their alignment with current practices in

New York City. The table also identifies the government agencies that would be involved with handling these challenges and applying these practices.

SUMMARY OF CASE STUDIES

DRIVING - ROADWAY IMPROVEMENTS AND LICENSING POLICY CHANGES			
Practice:	Location studied:	Challenge(s) addressed:	NYC Application:
- Senior Friendly Street/Roadway Signage - Countdown Signals - "Clearview Font" - Retroreflectivity, brighter sheeting on warning signs - Increased font size - LED lenses - Painted Curbs	Showcase Roadway Project, Detroit, MI	Visibility impairments	Current application is in progress. Countdown signals are being installed at select locations. City DOT has started using Clearview font on street signs. NYC roads are regulated by City DOT, State DOT, Federal Highway Administration.
- Reduction of road speeds	20 MPH Zones, London, England	Speed	Current application is in progress, such as: Safe Street for Seniors. NYC roads are regulated by City DOT.
- Voluntary driver's license forfeiture program - Provide incentives for forfeiture	Elderly Licensing and Labeling Safety Policies, Tokyo, Japan	Increased numbers of older adults driving	Although there are driver's tests, application of a forfeiture program has very limited potential in NYC. Regulated by DMV, NYPD, City DOT.
PUBLIC TRANSPORTATION, TAXIS AND FOR-HIRE VEHICLES			
Practice:	Location studied:	Challenge(s) addressed:	NYC Application:
- Removal of all steps or barriers at sites of public transportation - Provide alternative access at train stations - Newly constructed train stations must be fully accessible	Step-Free Access, London, England	Accessibility to public transportation	Current application is in progress. Feasibility study for Streetcars in Brooklyn announced by CDOT. Public transportation is regulated by City DOT, MTA.
- Provide subway platform ramps - Proper training of employees to assist the disabled - Maintenance of elevators and escalators - Ensure ADA compliance - Develop service monitoring with improved communication with riders	Access at the MBTA, Boston, MA	Rider subscription and satisfaction, trip efficiency, accessibility	Current application is in progress. MTA updates advisories on their website. In accordance with 2030 PlaNYC, there will be alternative transit options to improve existing transit. Regulated by the MTA.
- Provide a program that is eligible for elderly or disabled to take a taxi at a subsidized rate - Provide on-demand, door-to-door transportation service	Accessible Taxis, London, England	Affordability and accessibility to alternative forms to public transportation	Current application is in progress. Goal of Age-Friendly NYC is to create a taxi voucher program to supply on-demand and accessible transportation. Accessible Dispatch Demonstration pilot was restricted to wheelchair users. Regulated by NYC Taxi & Limousine Commission; Access-A-Ride; DOT, MTA.
- Use of a private, non-profit organization that provides seniors with door-to-door transportation	ITN Portland-Dignified Transportation Services, Portland, ME	Providing mobility in the form of safe transportation	There is an existing system, Access-A-Ride, that is improving. Regulated by Access-A-Ride, MTA.

PEDESTRIAN IMPROVEMENTS - SIGNAGE AND CROSSWALK CHANGES			
Practice:	Location studied:	Challenge(s) addressed:	NYC Application:
- Incorporate the use of flashing LED pedestrian signs - Increase sign visibility with LED lights	LED Crosswalk Signs, Naval Station Mayport, FL	Sign visibility at crosswalks and intersections	Application has potential. No current application. NYC roads are regulated by City DOT, State DOT, DDC.
- Install flashing warning LED lights - Flashing Beacons - Ground Flashers	Flashing Beacon and Ground Flashers, San Jose, CA	Yielding and braking at intersections	Current application includes a pilot program that is underway. NYC roads are regulated by City DOT, State DOT, DDC.
- Installation of pedestrian actuated crosswalk flashers	Pedestrian Actuated Crosswalk Flashers, Kirkland, WA	Time to cross an intersection	City DOT applied a pilot with 5 pedestrian countdown signals that will be expanded to 1500 locations. The pilot is still underway. NYC Roads are regulated by the DDC, City DOT, State DOT.

PLANNING TOOLS - SMART GROWTH AND STREET DESIGN			
Practice:	Location studied:	Challenge(s) addressed:	NYC Application:
- Encourage the development of Transit-Oriented Development	Smart Growth and Transit-Oriented Development (TOD), Portland, OR	Accessible and affordable housing units for the elderly	Current application is in progress. NYC zoning encourages higher density near transit. Regulated by Planning and Transit Agencies.
- Include market-rate rental housing and senior independent living units and elderly assisted-living units near sites of public transportation	Russellville Park Transit-Oriented Development, Portland, OR	Accessible and affordable housing units for the elderly	Current application is in progress. NYC zoning encourages higher density near transit. Regulated by Planning and Transit Agencies.
- Utilize Design Guidebook in order to adopt a protocol to address the needs of the elderly, pedestrians, and bicyclists in the design process	Complete Streets Policy, Massachusetts	Design in relation to safety, accessibility, and creation of sustainable neighborhoods	Current application has been implemented. Sustainable Streets 2008 and Beyond supports the Complete Streets initiative. Complete Street Projects in Manhattan. Regulated by City and State DOTs, National Complete Streets Program, NY Highway Department.
- Incorporate principles of universal design into policy so that they may be usable by all people, to the greatest extent possible, without the need for adaption or specialized design	Universal Design, Norway	Incorporation of design into policy	Current application is in progress. Current law requires that new buildings be accessible. Regulated by the Mayor's Office for People with Disabilities; City DDC.

INNOVATIVE TECHNOLOGIES AND EDUCATIONAL PROGRAMS			
Practice:	Location studied:	Addresses the challenge(s) of:	NYC Application:
- Incorporate strategies to integrate planning concepts in order to benefit the city's residents and provide programs to keep seniors active	Active Aging Programs, Portland, OR	Senior participation, engaging them in healthy lifestyles, keeping seniors active and mobile	Only one program available in NYC that offers free recreation classes. DFTA provides health and wellness literature and a directory of citywide registered walking clubs on their website to keep seniors active. Programs are regulated by NYCDOT, DPR, DFTA.
- Use of CarFit to increases a driver's knowledge of his or her vehicle	CarFit Program, United States	The lack of knowledge to better improve a vehicle for an individual	Current application has been implemented. NYCDOT provides training through their Safety City program. Regulated by DFTA.
- Improve traffic safety	Pedestrian Navigation System, Japan	Incorporating technology to help elderly, disabled, and tourists to navigate their surroundings	New safety features are available on certain vehicles (i.e. warning systems to alert drivers of the presence of a pedestrian, another vehicle, blind-spots, rear-and side-view cameras. By improving driver awareness of their surroundings - the safety features provide preventative safety to pedestrians. Regulated by NYC Department of City Planning, City DOT, DFTA.

02 INTRODUCTION

The goal of this study, *Mobility Initiatives For An Aging Population: A Scan of Current Practices,* is to help the city better address the mobility needs of its growing senior population and to present the travel patterns of older adults. This report lays the foundation for potential mobility solutions for the older adult population by first providing demographic information and trends of the aging population in New York City. It then describes the challenges older adults face as their capacity for mobility decreases and that are addressed through the examples presented in this report. Additionally, it identifies key agencies and organizations that are involved with the implementation of mobility initiatives for older adults, and may have contributed to this study. Finally, 17 case studies are presented that analyze existing transportation data and solutions that are currently in place within the United States and around the world. These potential mobility solutions have been evaluated by the New York City Department of City Planning, Transportation Division to determine what opportunities may exist for New York City.

The Demographic Information and Trends portion of this report contains data supporting the phenomenal projected growth of the 65 and over population both citywide and by boroughs. According to citywide demographic projections, the older adult population is expected to increase 44.2 percent between the year 2000 and 2030.[1] Three sets of maps are presented using recent data. The first set indicates the number of people over 65 living in each census tract. The next set shows the percentage of older residents living in each census tract, and the last set indicates the usage of subway stations by senior riders. Current and projected driving trends for the older population are examined, as well as mode of transportation to work data. All of this information will facilitate the planning and policy formation concerning the growing older adult population.

This study documents the efforts of New York City to improve mobility for all who reside here. The chapters cover the following themes: driving, public transportation, taxi and for-hire vehicles, pedestrianism, planning tools, innovative technologies and educational programs.

There are several recent projects and initiatives that study the mobility and accessibility issues that affect older New Yorkers. This report is intended to both complement those that already exist, as well as uncover new opportunities to enhance the mobility and accessibility of the older adult population currently in New York City and in the future. *Age-Friendly NYC: Enhancing Our City's Livability for Older New Yorkers* was issued by the Office of the Mayor in August of 2009

1 Based on 2000 U.S. Census and New York City Department of City Planning, new York City Population Projections by Age/Sex & Borough 2000-2030.

and identified 59 issues and initiatives relating to older adults. This study is one of those initiatives – "Conduct a study to better address the mobility needs of older New Yorkers." Fourteen of the 17 case studies analyzed in this document relates to an issue or initiative that is included in *Age-Friendly NYC*.

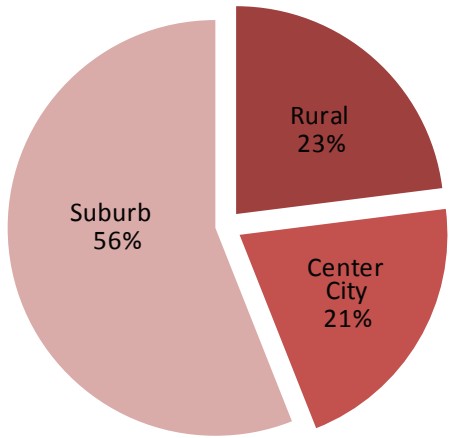
Mobility Initiatives For An Aging Population: A Scan of Current Practices sets out to: identify current mobility issues and transportation needs of older adults in New York City, recognize the current agencies and departments that address those needs, provide demographic data, include case studies from other world cities that have innovative mobility solutions or policies, and then conclude with potential applications and opportunities based on the cases studies and literature review. The purpose of this report is to provide ideas and recommendations that can be applied to New York City to address the mobility and accessibility needs of the current senior and aging population as well as the older adult populations to come.

I. Aging Population Demographics And Trends

Americans over 65 represent the fastest growing population segment in the United States. According to the 2000 Census, there are 35 million seniors (12.5 percent of the U.S. population, or one in eight). By 2030, that population is projected to more than double. Within this elderly population, the segment 85 years old and over is also expected to rise significantly. Currently 4.5 million Americans are 85 or older, 1.6 percent of the total U.S. population. By 2030, it is projected to increase to 9.0 million.

The over age 85 cohort is the fastest growing cohort in the U.S population because life expectancy has dramatically increased. Such that, the average expectancy of additional years at age 65 increased from 14.3 years in 1960 to 17.4 years in 1991.[1] Although many Americans remain active well into their later years, studies show that the longer one lives, the more likely personal assistance was needed.[2]

FIGURE 1: Percent of U.S. Elderly by Residential Location



For many older Americans, the location of their homes can impact their mobility choices. Land use planning is an important strategy to solving transportation problems. Currently, 56 percent of the older adult population resides in suburban locations, 23 percent in rural areas, and 21 percent in city centers (FIGURE 1).[3] These figures reflect an overall pattern of suburbanization in the second half of the twentieth century, due in large part to Federal policies subsidizing mortgages and interstate highway growth. These policies have contributed to

1 Giuliano, *Travel Patterns of the Elderly*.
2 United States Census Bureau, *65+ in the United States. Current Population Reports 1996*.
3 Rosenbloom, *The Mobility Needs of Older Americans: Implications for Transportation Reauthorization.*

the rise in automobile ownership throughout the nation, as suburban developments are typically less dense, have a greater separation of land uses and limited mass transit options in comparison to more urbanized areas. With the majority of the senior population residing in suburban and low-density areas where auto-dependency is more prevalent, it will be necessary to address the mobility challenges of driving while also promoting more accessible alternatives.

This pattern of suburban living has intensified over decades due to "aging in place." According to the Brookings Institution, a public policy organization that conducts independent research, approximately only one-fourth of retirees move after they retire.[4] The choice to age in place can be attributed to many factors, but typically intensifies during recessions as economic factors limit financial choices.

AGING POPULATION IN NYC

According to the U.S. Census, released in 2000, New York City has a population of 8.1 million people.[5] The population is projected to increase to 9.1 million by 2030; an increase of 13.9 percent.[6] The 65 and over population in certain areas of New York City has experienced a significant increase. Based on the 2000 Census, there are 937,857 people in New York City 65 and over. That figure is projected to increase to 1,352,375 by 2030; an increase of approximately 44 percent (FIGURE 2).[7] The following graphics illustrate data from the 2000 U.S. Census and the Department of City Planning, Population Division projections for 2030.

The citywide population percentage change is modest compared to the projected elderly population percentage change. The percentage increases for the total city population and the 65 and over city population are 13.9 percent and 44.2 percent respectively. In 2030, the total 65 and over population is projected to account for 14.8 percent, up from 11.7 percent per the 2000 Census (FIGURE 3).[8] The Bronx's elderly population is 133,948 according to the 2000 Census, which is 10.8 percent of the borough total population of 1,332,650.

FIGURE 2: Total Population by Borough

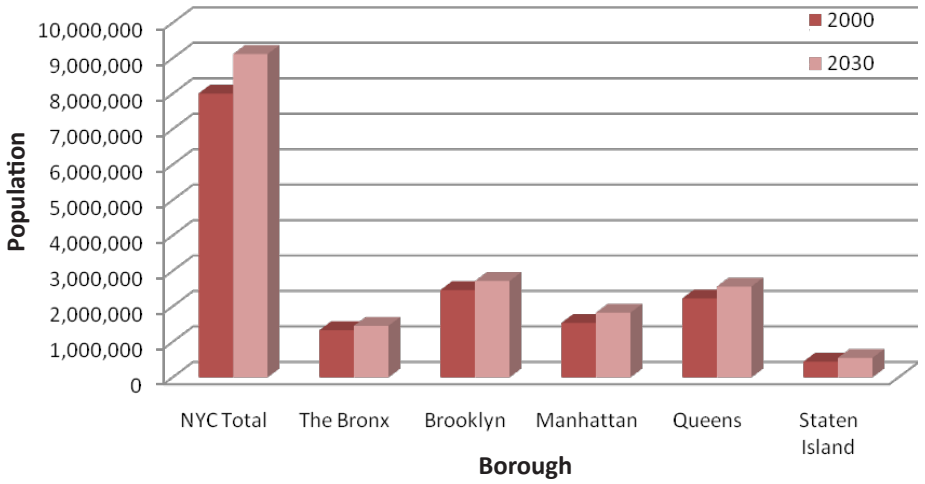
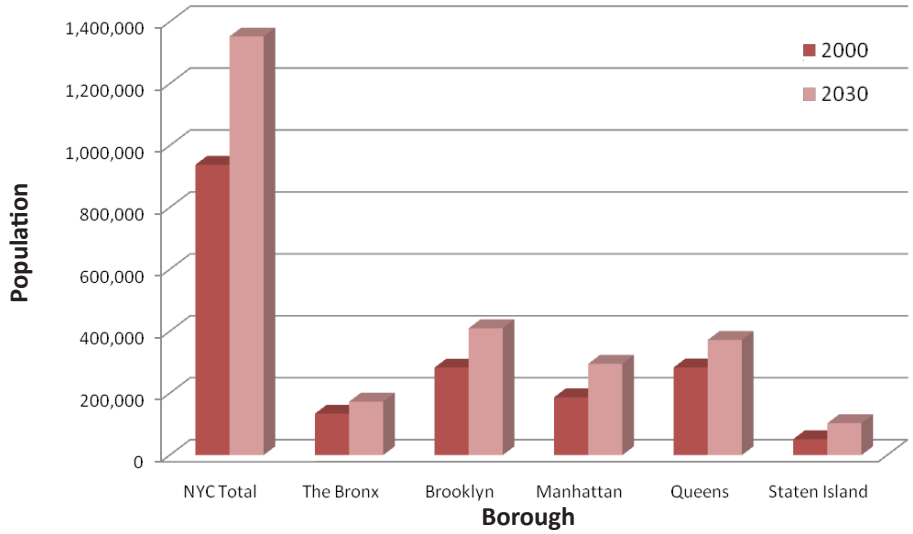


FIGURE 3: Elderly Population in Borough



4 Ibid.
5 U.S Census Bureau, 2000.
6 New York City Department of City Planning, *New York City Population Projections by Age/Sex & Borough 2000-2030*.
7 Ibid.
8 Based on 2000 U.S. Census and New York City Department of City Planning, *New York City Population Projections by Age/Sex & Borough 2000-2030*.

For the year 2030 it is projected to increase to 172,653, which will be 11.9 percent of the borough total of 1,457,039.

Brooklyn has the largest total population of any borough; totaling 2,465,326 as of the 2000 Census. Brooklyn's elderly population component is 282,658 or 11.5 percent of the borough's population. In 2030 the elderly population is projected to reach 409,769, which will represent 15.1 percent of the borough's total population of the projected 2,718,967.

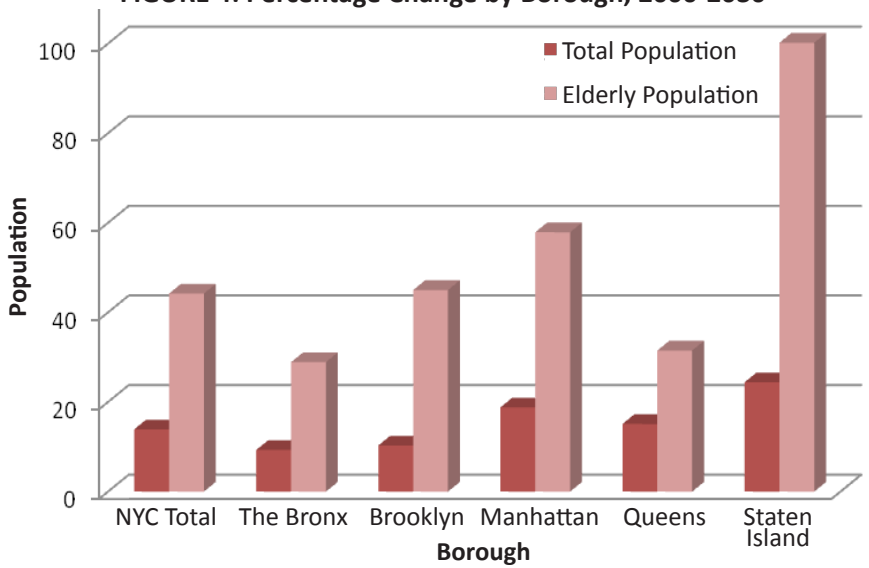
Manhattan has a senior population of 186,776 according to the 2000 U.S. Census. The senior population accounts for 12.2 percent of the borough's total of 1,537,195. It is projected that by 2030, Manhattan's elderly population will total 294,919. According to the projection, the elderly share will increase to 16.2 percent of the borough's total 2030 projected population of 1,826,547.

Queens, in 2000, has the second highest borough total population, reaching 2,229,379. Its share of the senior population is also the largest of all five boroughs, amounting to a current population of 283,042. The senior population of Queens is 12.7 percent of the borough's total population. By the year 2030, the senior population will increase to 372,068 older adults, which will represent 14.5 percent of the borough's total population of 2,565,352.

According to the 2000 Census, Staten Island has the smallest number of senior citizens, 51,433, constituting 11.6 percent of the boroughs total population of 443,728. In the year 2030, the elderly population is projected to nearly double to 102,966. The increase will make the senior component 18.6 percent of the borough's total population of 551,906.

Staten Island is projected to have the largest percentage change in its older population; a 100.2 percent increase. Manhattan comes in second, with a 57.9 percent increase. Brooklyn follows, with a 45.0 percent change. Queens ranks fourth with a 31.5 percent change and finally the Bronx which has the smallest, a 28.9 percent increase (FIGURE 4).

FIGURE 4: Percentage Change by Borough, 2000-2030



The next set of maps labeled, 'People Over Age 65 by Census Tract, 2000,' (FIGURES 5-9) indicate the number of people over age 65 living in each census tract. The number ranges are based on the natural groupings methodology identified in the ArcMap software. ArcMap selects the break points in a way that separates the values in the most natural way. By identifying values in this manner there often are big jumps in the data values.[9]

Figure 5 illustrates where the 65 and over population live in Manhattan. According to the map there are a few neighborhoods and geographic areas that stand out; parts of Chinatown, the East Village, Upper West Side, and Lenox Hill. These neighborhoods are indicated on the map as the areas in red. The areas in red contain between 1,911 and 5,090 people over age 65 per census tract.

Figure 6 displays where the 65 and older population live in the borough of Brooklyn. Brighton Beach and the areas near it have the highest concentrations of older adults in Brooklyn. Elderly residents in the neighborhoods of Sheepshead Bay and Mill Basin range between 1,071 and 1,910 per census tract.

Figure 7 presents where the 65 and older population live in the borough of Queens. Some of these neighborhoods with elderly concentrations ranging between 1,911 and 5,090 per census tract are well served by transit, such as Forest Hills and Flushing. Bay Terrace, which is located in eastern Queens does have bus service, but lacks the convenience of subway rail transit. Many of the neighborhoods that border Nassau County such as Glen Oaks and Floral Park have between 1,071 and 1,910 older residents per census tract.

Figure 8 illustrates where the 65 and older population live in the borough of the Bronx. The Riverdale section and parts of nearby neighborhoods such as Marble Hill and Spuyten Duyvil have the largest concentrations of older residents. Another neighborhood that has a large concentration of elderly residents is Co-op City. These neighborhoods have elderly concentrations ranging between 1,911 and 5,090 older residents per census tract. Pelham Gardens, Parkchester, and Country Club have elderly concentrations ranging between 1,071 and 1,910 older residents per census tract.

Figure 9 displays where Staten Island's older population lives in the borough. The areas that have the highest concentrations of elderly residents are St. George, New Dorp Beach, and Manor Heights. These neighborhoods have concentrations ranging from 1,071 and 1,910 elderly persons per census tract.

9 ArcGIS 9.2. *Desktop help.*

FIGURE 5

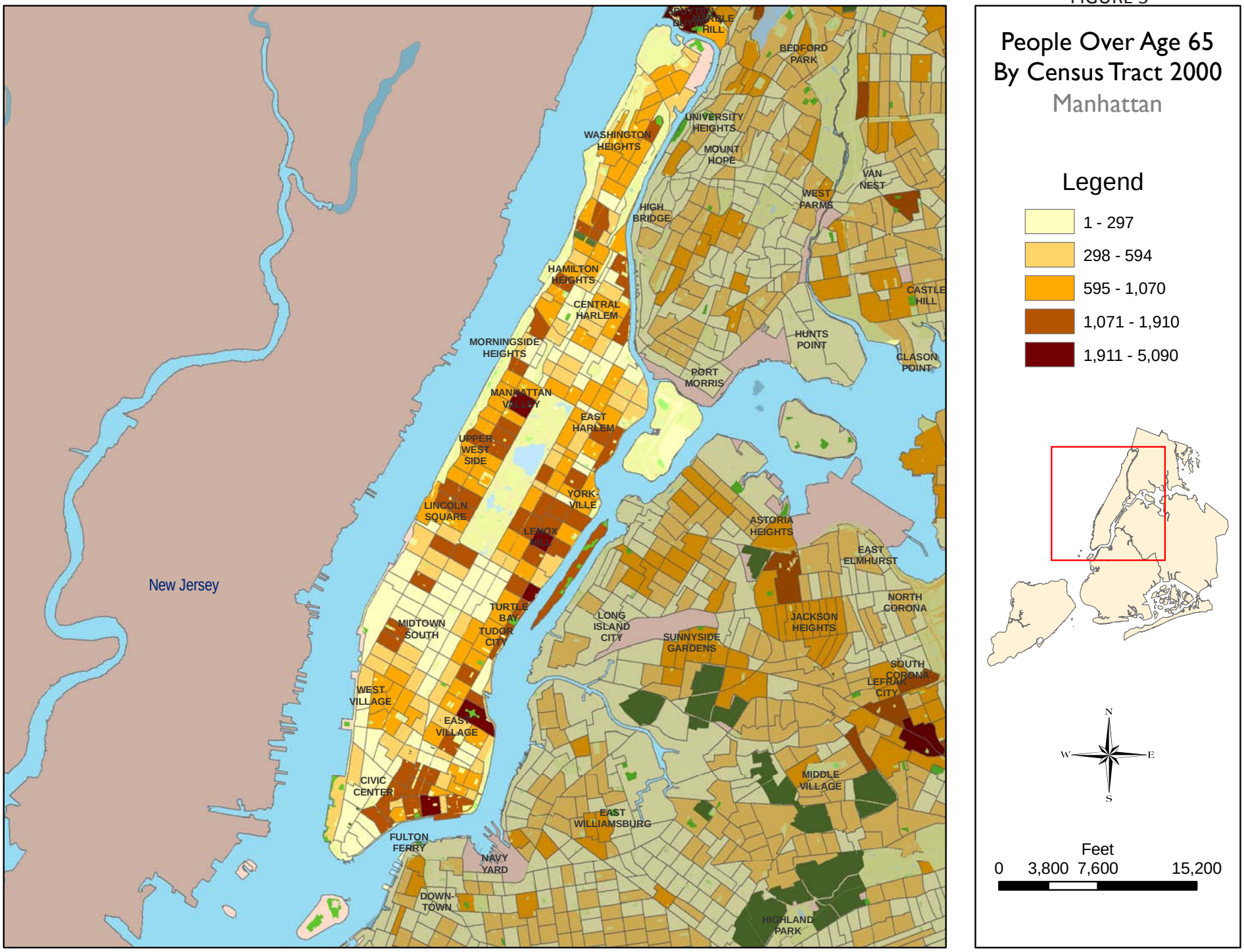

People Over Age 65
By Census Tract 2000
Manhattan
Legend
1 - 297
298 - 594
595 - 1,070
1,071 - 1,910
1,911 - 5,090
New Jersey
WASHINGTON HEIGHTS
UNIVERSITY HEIGHTS
MOUNT HOPE
BEDFORD PARK
VAN NEST
WEST FARMS
HIGH BRIDGE
HAMILTON HEIGHTS
CENTRAL HARLEM
CASTLE HILL
HUNTS POINT
CLASON POINT
PORT MORRIS
MORNINGSIDE HEIGHTS
MANHATTAN VALLEY
EAST HARLEM
UPPER WEST SIDE
YORK-VILLE
LINCOLN SQUARE
LENOX HILL
ASTORIA HEIGHTS
EAST ELMHURST
NORTH CORONA
JACKSON HEIGHTS
LONG ISLAND CITY
SUNNYSIDE GARDENS
TURTLE BAY
TUDOR CITY
MIDTOWN SOUTH
SOUTH CORONA
LEFRAK CITY
WEST VILLAGE
EAST VILLAGE
CIVIC CENTER
MIDDLE VILLAGE
EAST WILLIAMSBURG
FULTON FERRY
NAVY YARD
DOWN-TOWN
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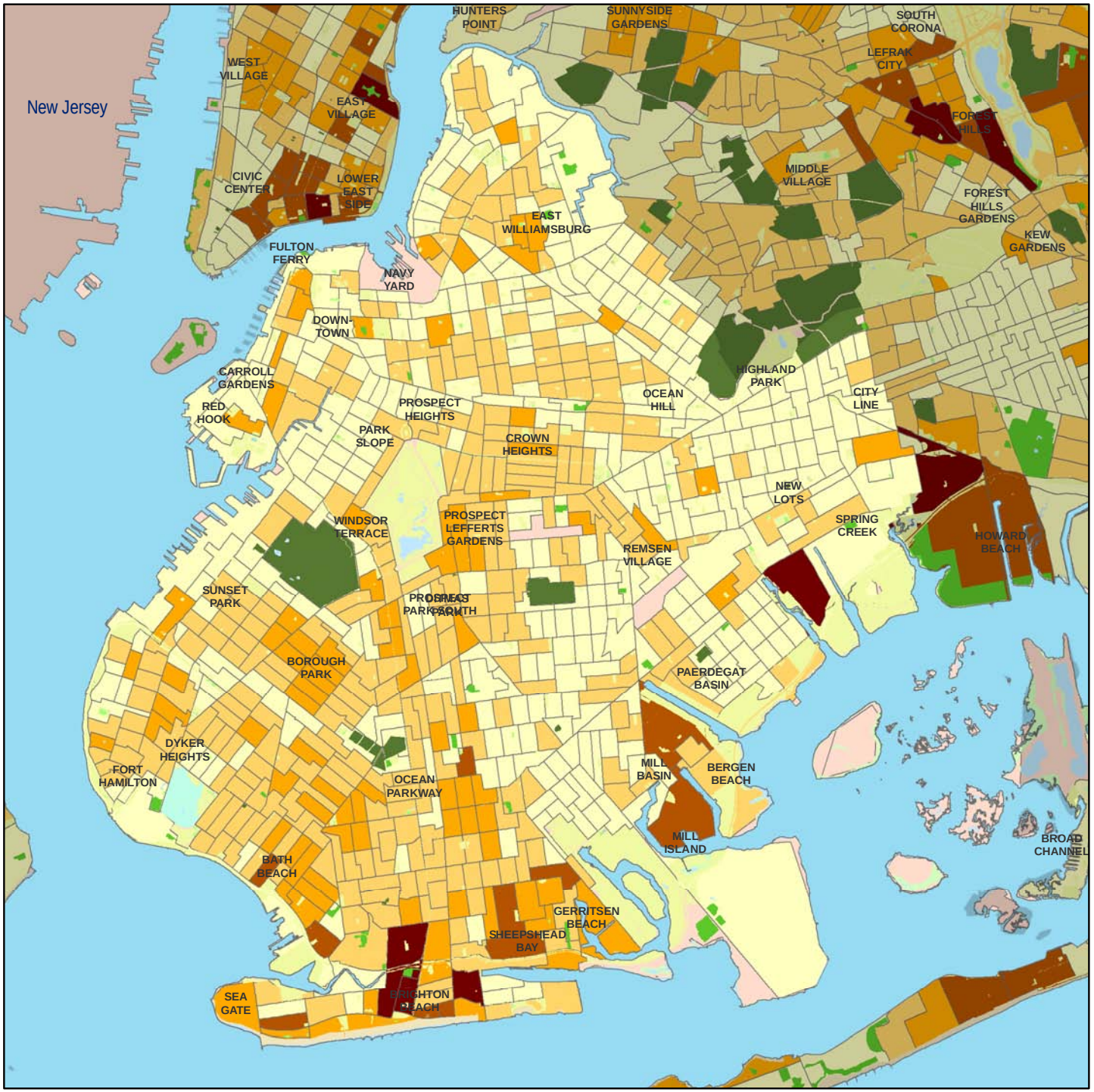
FIGURE 6

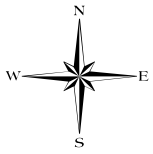


People Over Age 65 By Census Tract 2000

Brooklyn

Legend

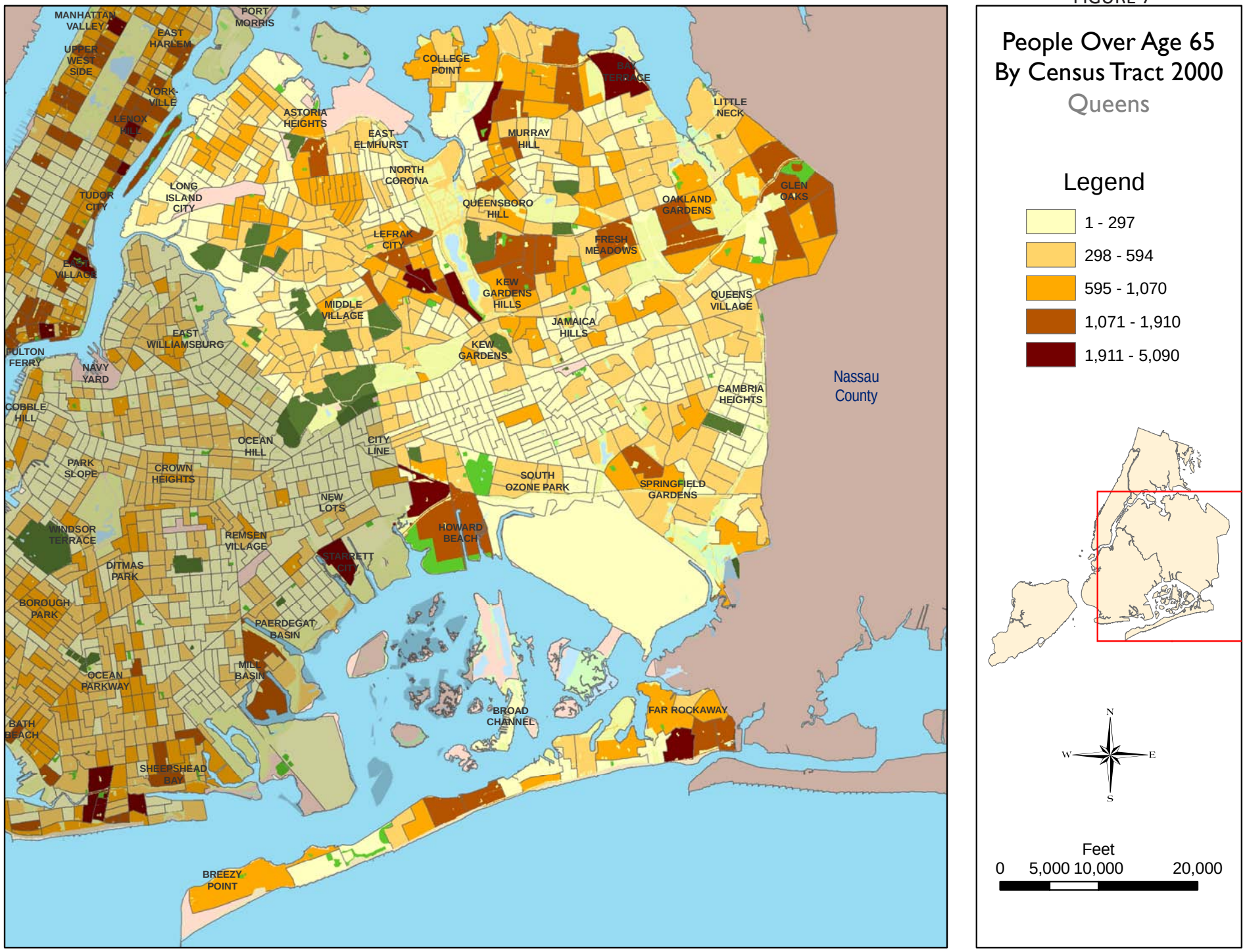
- 1 - 297
- 298 - 594
- 595 - 1,070
- 1,071 - 1,910
- 1,911 - 5,090



Feet

0 3,500 7,000 14,000

FIGURE 7


People Over Age 65
By Census Tract 2000
Queens
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1 - 297
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1,071 - 1,910
1,911 - 5,090
Nassau County
MANHATTAN VALLEY
EAST HARLEM
UPPER WEST SIDE
YORK-VILLE
LENOX HILL
PORT MORRIS
ASTORIA HEIGHTS
COLLEGE POINT
EAST ELMHURST
NORTH CORONA
MURRAY HILL
LITTLE NECK
GLEN OAKS
OAKLAND GARDENS
TUDOR CITY
LONG ISLAND CITY
QUEENSBORO HILL
LEFRAK CITY
FRESH MEADOWS
EAST VILLAGE
KEW GARDENS HILLS
QUEENS VILLAGE
MIDDLE VILLAGE
JAMAICA HILLS
EAST WILLIAMSBURG
KEW GARDENS
FULTON FERRY
NAVY YARD
CAMBRIA HEIGHTS
COBBLE HILL
OCEAN HILL
CITY LINE
PARK SLOPE
CROWN HEIGHTS
SOUTH OZONE PARK
SPRINGFIELD GARDENS
NEW LOTS
WINDSOR TERRACE
HOWARD BEACH
REMSEN VILLAGE
STARRETT CITY
DITMAS PARK
BOROUGH PARK
PAERDEGAT BASIN
MILL BASIN
OCEAN PARKWAY
BROAD CHANNEL
FAR ROCKAWAY
BATH BEACH
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BREEZY POINT
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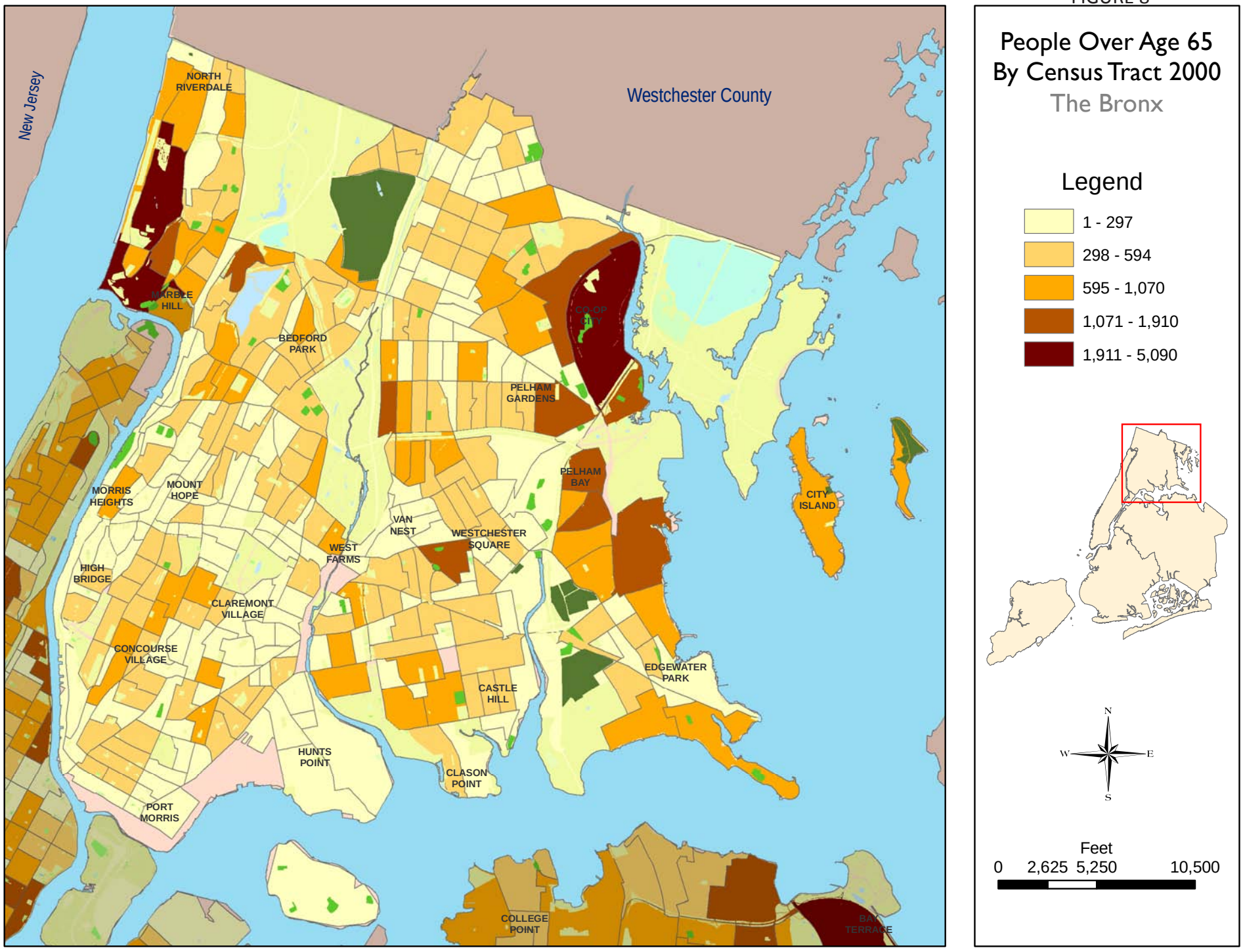
FIGURE 8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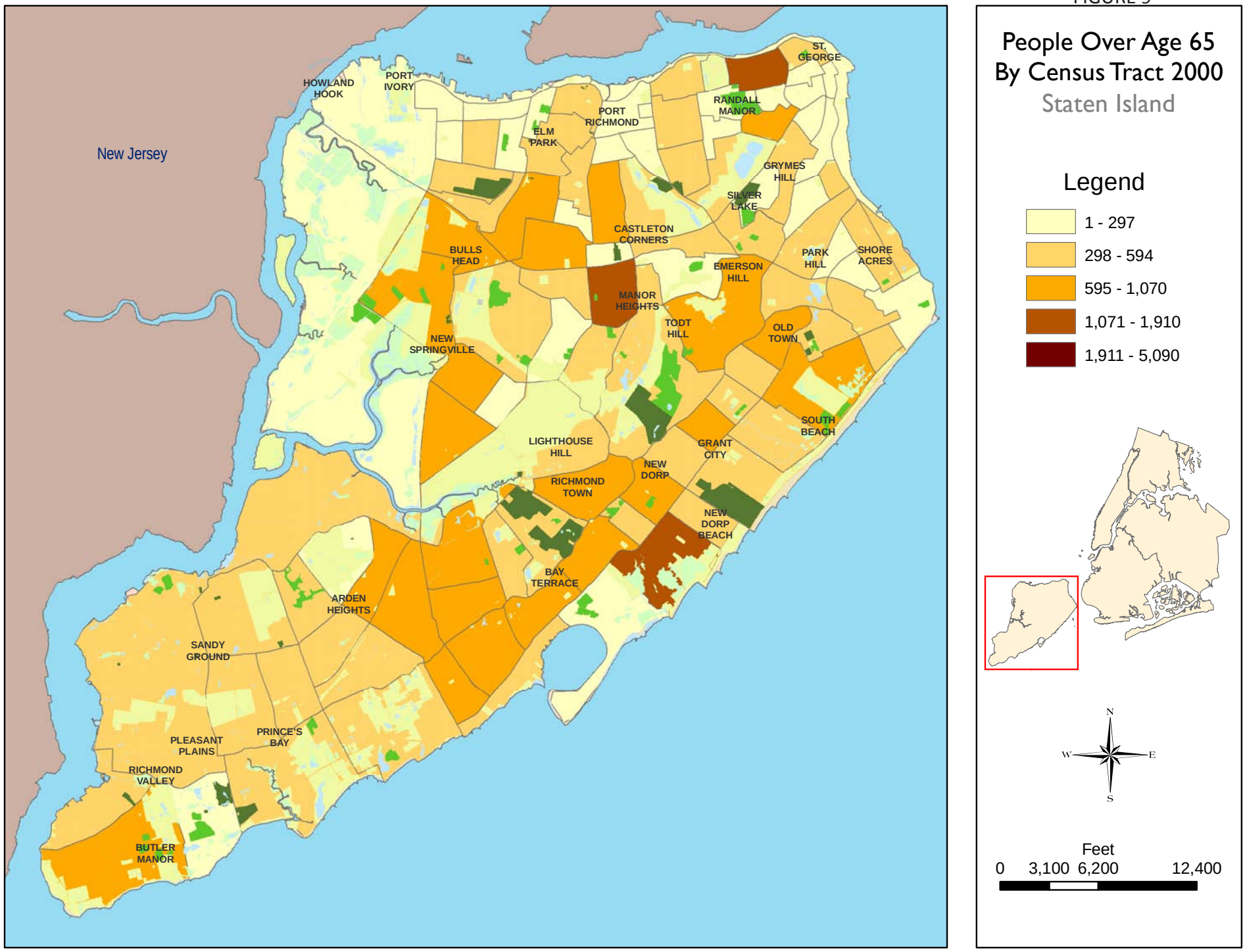
The Bronx
Legend
1 - 297
298 - 594
595 - 1,070
1,071 - 1,910
1,911 - 5,090
New Jersey
Westchester County
NORTH RIVERDALE
MARBLE HILL
BEDFORD PARK
PELHAM GARDENS
CO-OP CITY
PELHAM BAY
CITY ISLAND
MORRIS HEIGHTS
MOUNT HOPE
VAN NEST
WESTCHESTER SQUARE
WEST FARMS
HIGH BRIDGE
CLAREMONT VILLAGE
CONCOURSE VILLAGE
EDGEWATER PARK
CASTLE HILL
HUNTS POINT
CLASON POINT
PORT MORRIS
COLLEGE POINT
BAY TERRACE
N
W
E
S
Feet
0 2,625 5,250 10,500

FIGURE 9


People Over Age 65
By Census Tract 2000
Staten Island
Legend
1 - 297
298 - 594
595 - 1,070
1,071 - 1,910
1,911 - 5,090
New Jersey
HOWLAND HOOK
PORT IVORY
PORT RICHMOND
ELM PARK
ST. GEORGE
RANDALL MANOR
GRYMES HILL
SILVER LAKE
CASTLETON CORNERS
BULLS HEAD
EMERSON HILL
PARK HILL
SHORE ACRES
MANOR HEIGHTS
TODT HILL
OLD TOWN
NEW SPRINGVILLE
SOUTH BEACH
LIGHTHOUSE HILL
GRANT CITY
NEW DORP
RICHMOND TOWN
NEW DORP BEACH
BAY TERRACE
ARDEN HEIGHTS
SANDY GROUND
PLEASANT PLAINS
PRINCE'S BAY
RICHMOND VALLEY
BUTLER MANOR
N
W
E
S
Feet
0 3,100 6,200 12,400

The next set of maps (FIGURES 10-14) labeled, Percent over Age 65 by Census Tract 2000, indicate the percentage of older residents living in each census tract. The percentages range from 0 percent to 90 percent. The data is displayed by variations in color; and the darker the color, means that more seniors age 65 live in that census tract.

Figure 10 illustrates the percentage of elderly residents per Manhattan neighborhood. According to the data, Manhattan does not contain any census tracts with elderly concentrations greater than 47.5 percent. The neighborhoods of Chinatown, the Lower East Side, and the Upper East Side contain census tracts that have elderly populations ranging from 22.3 percent and 47.4 percent.

Figure 11 displays Brooklyn's census tracts and the percentage of senior residents. According to the maps, the Brighton Beach neighborhood has the highest concentration of 65 and over residents. Some census tracts in Brighton Beach contain high concentrations of the elderly ranging from 47.5 percent to 90 percent. Additionally, there are a number of neighborhoods spread throughout Brooklyn that contain census tracts with high concentrations of elderly residents ranging from 22.3 percent to 47.5 percent.

Figure 12 illustrates the neighborhoods in Queens with the highest senior concentrations per census tract. There are two areas in Queens that contain census tracts with 47.5 and 90 percent of residents over 65. The first is the neighborhood of Glen Oaks, which is also the location of the North Shore Towers and Country Club. The second is located in the neighborhood of St. Albans. When examining the area more closely, it was discovered that the tract includes a VA hospital on Linden Boulevard which is a nursing home and domiciliary specializing in geriatric care. There are many neighborhoods throughout Queens that contain concentrations of seniors ranging from 22.3 percent to 47.4 percent. Some of these neighborhoods include: Bay Terrace, Breezy Point, Forest Hills, Middle Village, Oakland Gardens, and Little Neck.

Figure 13 displays the Bronx neighborhoods with high concentrations of older adults. Parts of the Riverdale and Schuylerville sections of the Bronx have census tracts with concentrations of older adults ranging from 47.5 percent to 90 percent. Other neighborhoods that have high numbers of senior residents include: Pelham Gardens, Edgewater Park, and Spuyten Duyvil.

Figure 14 illustrates Staten Island's census tracts with high concentrations of seniors. One tract with the highest concentration of seniors in Staten Island, which contains a range from 47.5 and 90 percent, is also the location of the Sea View Hospital and Rehabilitation Center. There are a few neighborhoods that have elderly concentrations ranging from 22.3 percent to 47.4 percent, such as: St. George, Old Town, and parts of New Dorp.

FIGURE 10

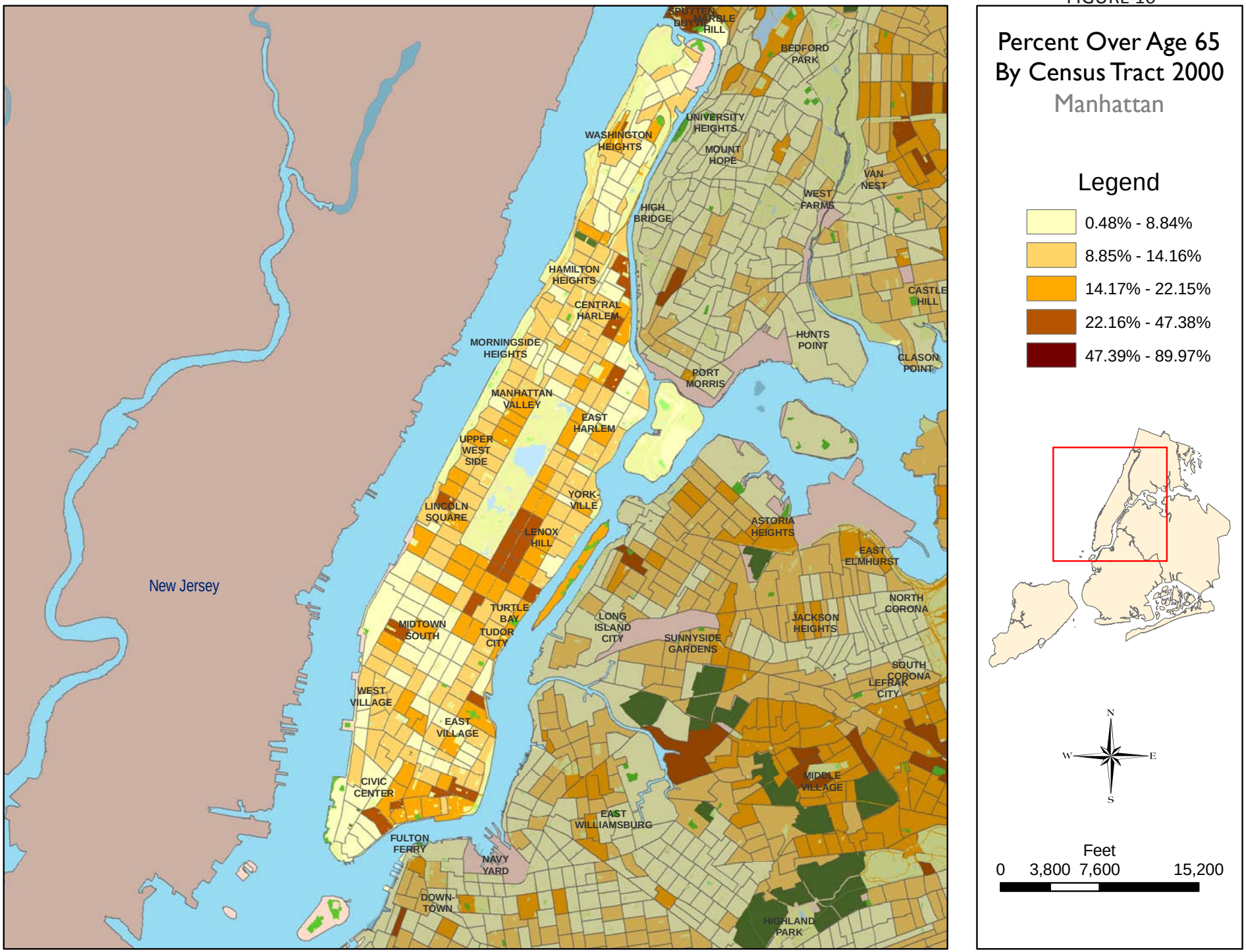
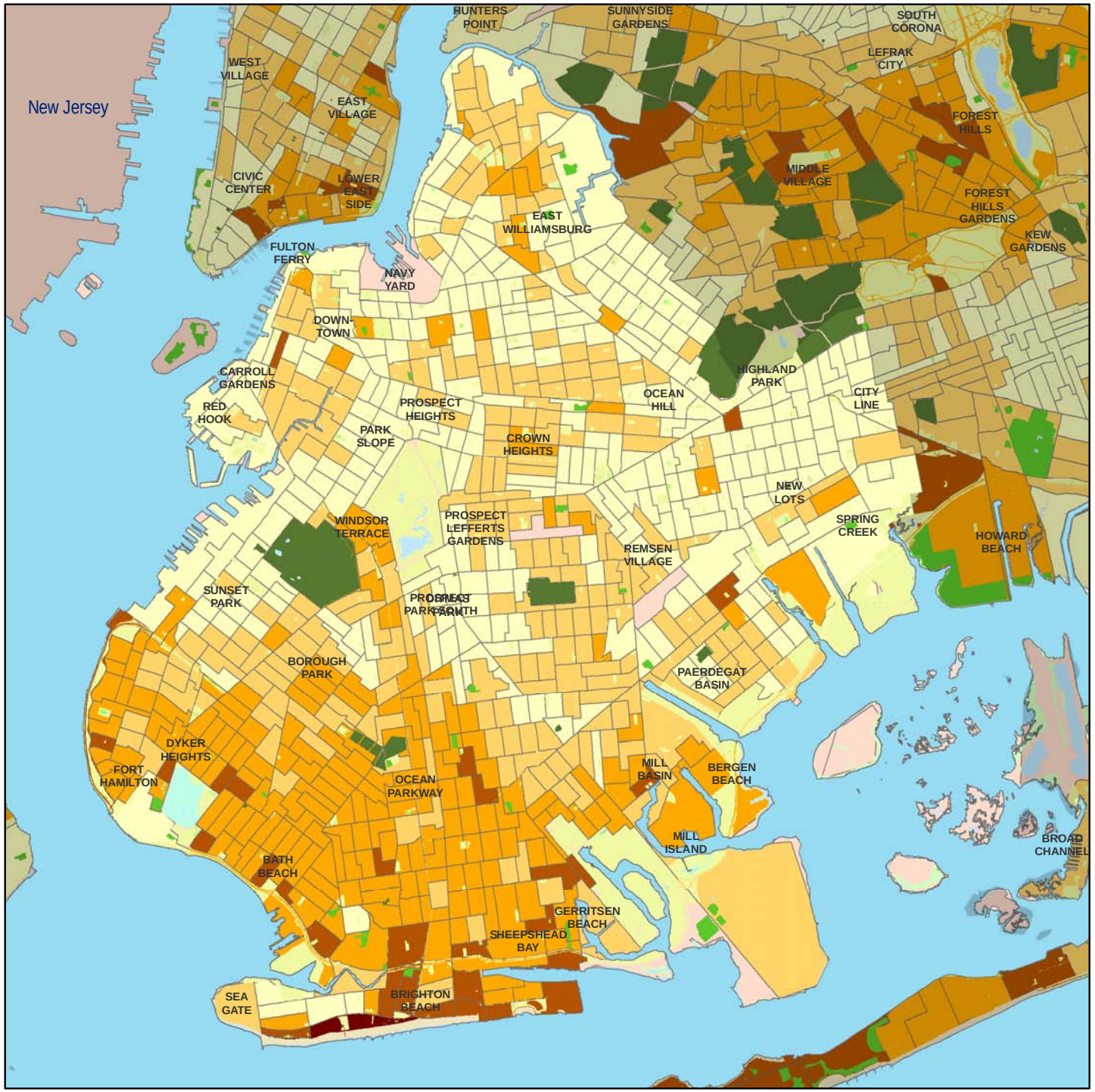

Percent Over Age 65
By Census Tract 2000
Manhattan
Legend
0.48% - 8.84%
8.85% - 14.16%
14.17% - 22.15%
22.16% - 47.38%
47.39% - 89.97%
New Jersey
SPUYTEN DUYVIL
MARBLE HILL
BEDFORD PARK
UNIVERSITY HEIGHTS
WASHINGTON HEIGHTS
MOUNT HOPE
VAN NEST
WEST FARMS
HIGH BRIDGE
HAMILTON HEIGHTS
CENTRAL HARLEM
CASTLE HILL
MORNINGSIDE HEIGHTS
HUNTS POINT
CLASON POINT
PORT MORRIS
MANHATTAN VALLEY
EAST HARLEM
UPPER WEST SIDE
YORK-VILLE
LINCOLN SQUARE
LENOX HILL
ASTORIA HEIGHTS
EAST ELMHURST
NORTH CORONA
TURTLE BAY
TUDOR CITY
MIDTOWN SOUTH
LONG ISLAND CITY
SUNNYSIDE GARDENS
JACKSON HEIGHTS
SOUTH CORONA
LEFRAK CITY
WEST VILLAGE
EAST VILLAGE
CIVIC CENTER
MIDDLE VILLAGE
EAST WILLIAMSBURG
FULTON FERRY
NAVY YARD
DOWN-TOWN
HIGHLAND PARK
N
W
E
S
Feet
0 3,800 7,600 15,200

FIGURE 11



Percent Over Age 65 By Census Tract 2000

Brooklyn

Legend

- 0.48% - 8.84%
- 8.85% - 14.16%
- 14.17% - 22.15%
- 22.16% - 47.38%
- 47.39% - 89.97%

Feet

0 3,500 7,000 14,000

FIGURE 12

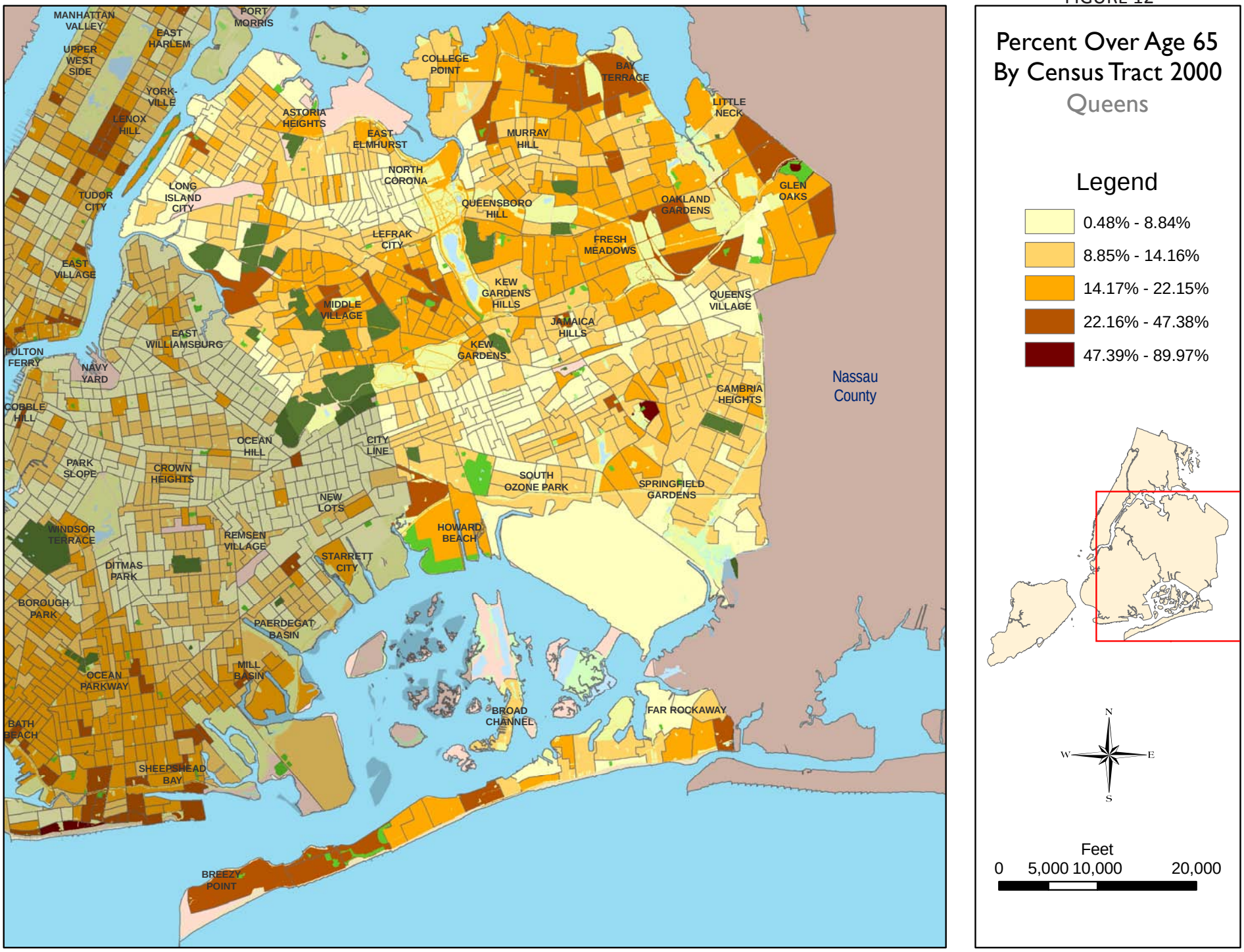

Percent Over Age 65
By Census Tract 2000
Queens
Legend
0.48% - 8.84%
8.85% - 14.16%
14.17% - 22.15%
22.16% - 47.38%
47.39% - 89.97%
Nassau County
MANHATTAN VALLEY
EAST HARLEM
UPPER WEST SIDE
PORT MORRIS
COLLEGE POINT
BAY TERRACE
LITTLE NECK
YORK-VILLE
LENOX HILL
ASTORIA HEIGHTS
EAST ELMHURST
MURRAY HILL
NORTH CORONA
LONG ISLAND CITY
TUDOR CITY
QUEENSBORO HILL
OAKLAND GARDENS
GLEN OAKS
LEFRAK CITY
FRESH MEADOWS
EAST VILLAGE
KEW GARDENS HILLS
QUEENS VILLAGE
MIDDLE VILLAGE
JAMAICA HILLS
EAST WILLIAMSBURG
KEW GARDENS
FULTON FERRY
NAVY YARD
CAMBRIA HEIGHTS
COBBLE HILL
OCEAN HILL
CITY LINE
PARK SLOPE
CROWN HEIGHTS
SOUTH OZONE PARK
SPRINGFIELD GARDENS
NEW LOTS
WINDSOR TERRACE
HOWARD BEACH
REMSEN VILLAGE
STARRETT CITY
DITMAS PARK
BOROUGH PARK
PAERDEGAT BASIN
MILL BASIN
OCEAN PARKWAY
BROAD CHANNEL
FAR ROCKAWAY
BATH BEACH
SHEEPSHEAD BAY
BREEZY POINT
N
W
E
S
Feet
0 5,000 10,000 20,000

FIGURE 13

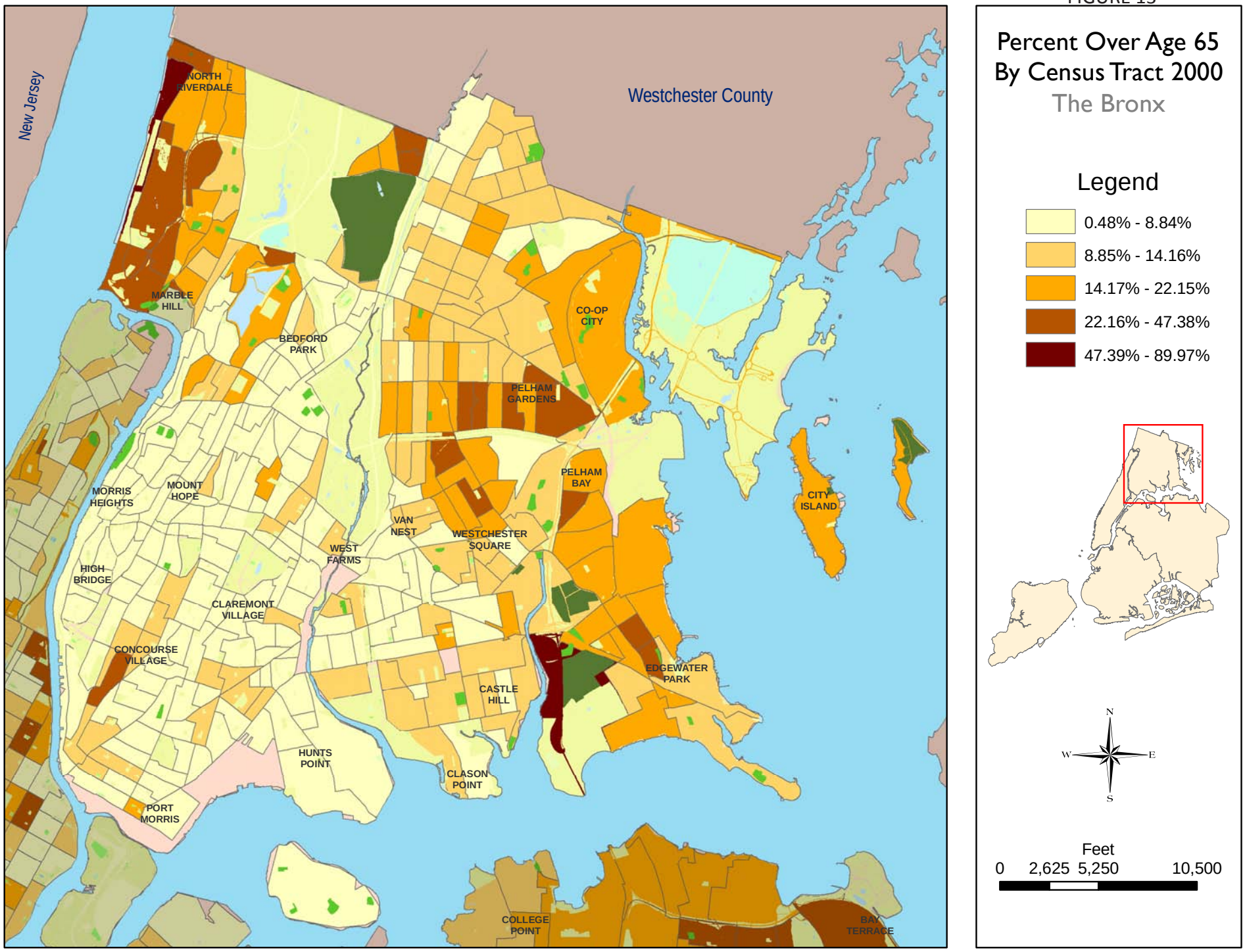
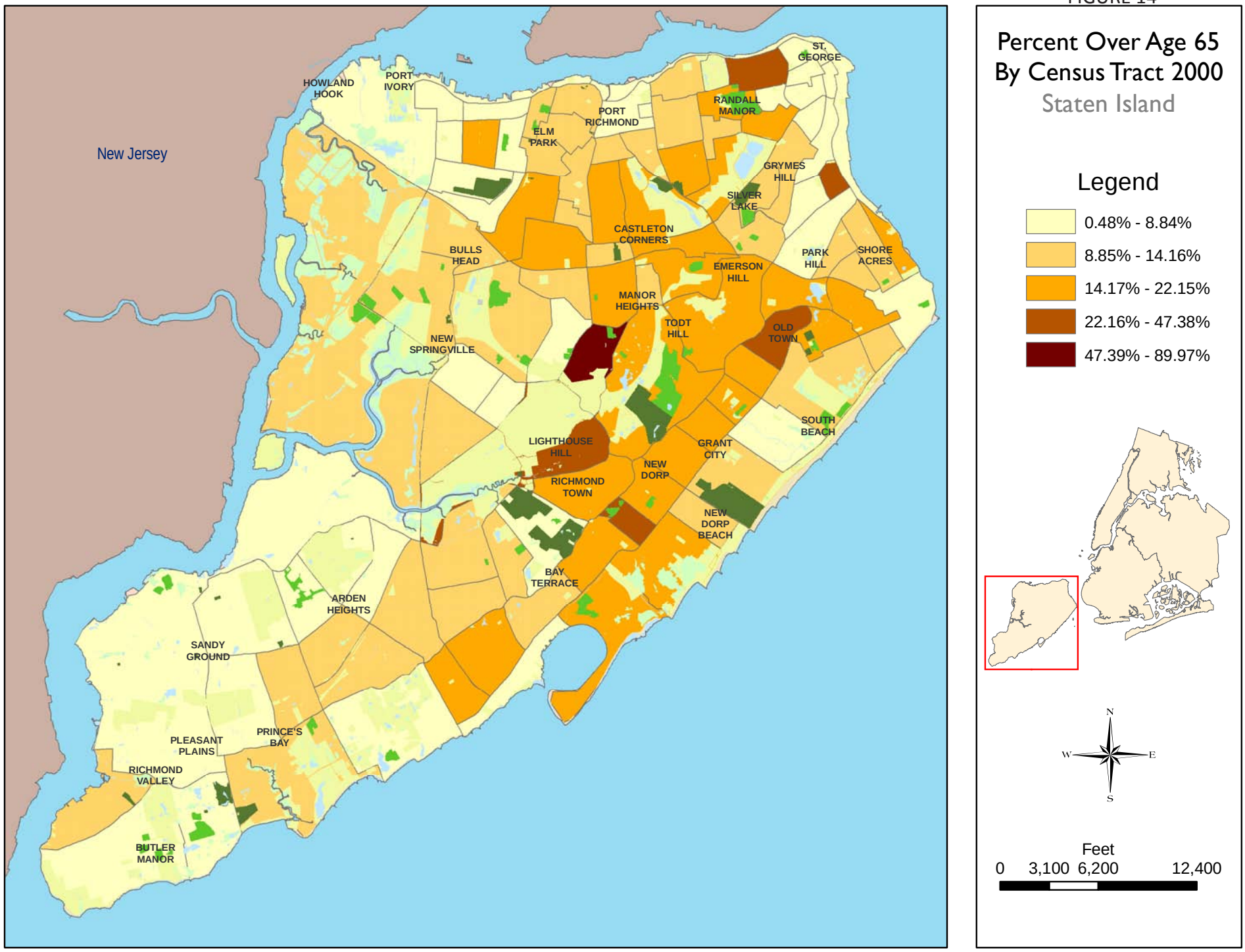

Percent Over Age 65
By Census Tract 2000
The Bronx
Legend
0.48% - 8.84%
8.85% - 14.16%
14.17% - 22.15%
22.16% - 47.38%
47.39% - 89.97%
New Jersey
Westchester County
NORTH RIVERDALE
MARBLE HILL
BEDFORD PARK
CO-OP CITY
PELHAM GARDENS
PELHAM BAY
CITY ISLAND
MORRIS HEIGHTS
MOUNT HOPE
VAN NEST
WESTCHESTER SQUARE
WEST FARMS
HIGH BRIDGE
CLAREMONT VILLAGE
CONCOURSE VILLAGE
EDGEWATER PARK
CASTLE HILL
HUNTS POINT
CLASON POINT
PORT MORRIS
COLLEGE POINT
BAY TERRACE
N
W
E
S
Feet
0 2,625 5,250 10,500

FIGURE 14


Percent Over Age 65
By Census Tract 2000
Staten Island
Legend
0.48% - 8.84%
8.85% - 14.16%
14.17% - 22.15%
22.16% - 47.38%
47.39% - 89.97%
New Jersey
HOWLAND HOOK
PORT IVORY
PORT RICHMOND
ELM PARK
ST. GEORGE
RANDALL MANOR
GRYMES HILL
SILVER LAKE
CASTLETON CORNERS
BULLS HEAD
EMERSON HILL
PARK HILL
SHORE ACRES
MANOR HEIGHTS
TODT HILL
OLD TOWN
NEW SPRINGVILLE
SOUTH BEACH
LIGHTHOUSE HILL
GRANT CITY
NEW DORP
RICHMOND TOWN
NEW DORP BEACH
BAY TERRACE
ARDEN HEIGHTS
SANDY GROUND
PLEASANT PLAINS
PRINCE'S BAY
RICHMOND VALLEY
BUTLER MANOR
N
W
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Feet
0 3,100 6,200 12,400

The last set of maps (FIGURES 15-19) labeled 'Percent of Ridership Using Senior Fare 2008 by Subway Station,' shows usage of subway stations by seniors. They also indicate which stations are ADA accessible and partially accessible, and the stations that will be accessible by 2020. The data illustrates the percentage of senior ridership for each New York City Transit station in the city for 2008. Data for the Staten Island Railway is not available. The subway network shown in the maps reflects the network as of 2008.

Figure 15 illustrates senior ridership in Manhattan. According to the data, there is an agglomeration of senior ridership rates between 4 percent and 7.6 percent in both the Lower East Side and Chinatown neighborhoods and the Upper West Side neighborhoods between 59th Street/Columbus Circle (A, B, C, D) and 96th Street (1, 2, 3).

Figure 16 displays the 65 and over ridership levels in Brooklyn. According to the data, one downtown Brooklyn station, Clark Street (2, 3), has elderly ridership levels between 4 percent and 7.6 percent. Other stations that have similar elderly ridership levels are located primarily along the F, N, and Q trains in neighborhoods such as: Brighton Beach, Sheepshead Bay, and parts of Bay Ridge.

Figure 17 illustrates Queens's subway station ridership percentages. One station, Aqueduct-North Conduit Avenue (A), has ridership levels ranging from 7.7 percent to 24.3 percent. Overall ridership levels are low at this train station that primarily serves the Aqueduct Racetrack. According to the data, there are three Queens's neighborhoods that stand out. The neighborhoods of Rego Park (R, V, G), Forest Hills (E, F, R, V, G), and Flushing (7) all have stations that have senior ridership levels between 4 percent and 7.6 percent.

Figure 18 shows the senior subway ridership levels in the Bronx. The neighborhoods of Kingsbridge (1) and Woodlawn (4) have senior ridership levels ranging from 4 percent to 7.6 percent. The majority of Bronx stations have senior ridership levels ranging from 0.8 percent to 1.9 percent.

Figure 19 shows the Staten Island Railroad, but no senior subway ridership data was available for Staten Island.

FIGURE 15

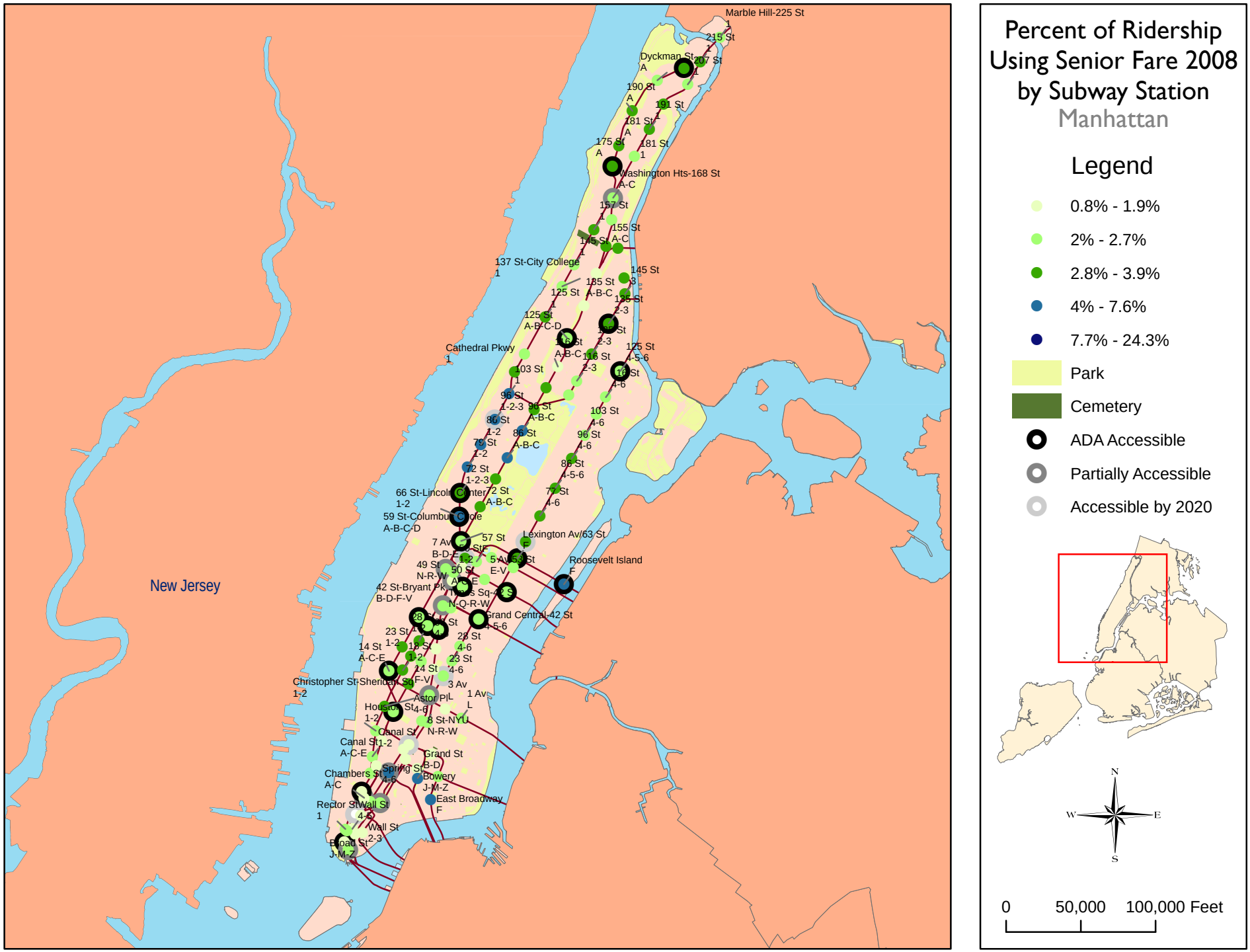
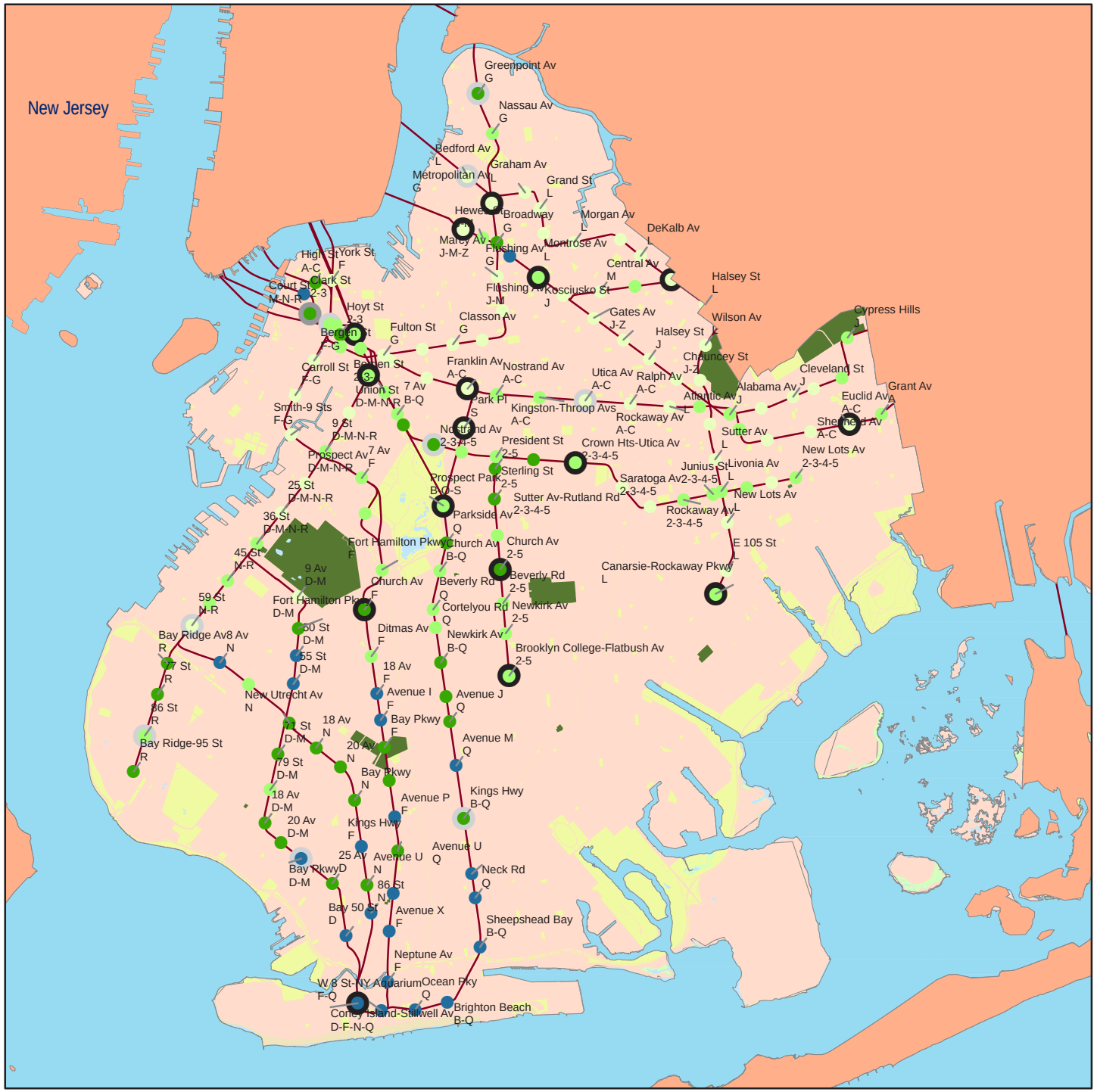

Percent of Ridership Using Senior Fare 2008 by Subway Station
Manhattan
Legend
0.8% - 1.9%
2% - 2.7%
2.8% - 3.9%
4% - 7.6%
7.7% - 24.3%
Park
Cemetery
ADA Accessible
Partially Accessible
Accessible by 2020
New Jersey
Marble Hill-225 St
215 St
207 St
Dyckman St
190 St
191 St
181 St
175 St
Washington Hts-168 St
157 St
155 St
145 St
137 St-City College
125 St
Cathedral Pkwy
116 St
110 St
103 St
96 St
86 St
79 St
72 St
66 St-Lincoln Center
59 St-Columbus Circle
57 St
Lexington Av/63 St
Roosevelt Island
49 St
50 St
42 St-Bryant Pk
Times Sq-42 St
Grand Central-42 St
34 St
28 St
23 St
18 St
14 St
Christopher St-Sheridan Sq
Houston St
Astor Pl
8 St-NYU
Canal St
Grand St
Spring St
Bowery
Chambers St
Rector St
Wall St
Broad St
East Broadway
1 Av
3 Av
5 Av
N
S
E
W
0
50,000
100,000 Feet

FIGURE 16

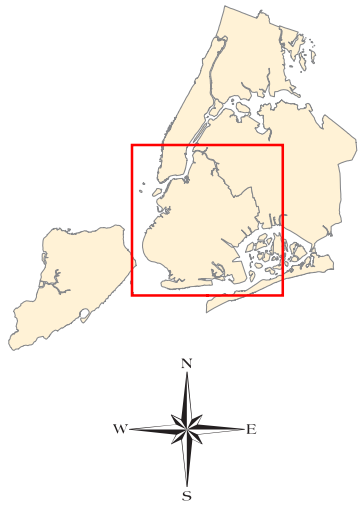


Percent of Ridership Using Senior Fare 2008 by Subway Station

Brooklyn

Legend

- 0.8% - 1.9%
- 2% - 2.7%
- 2.8% - 3.9%
- 4% - 7.6%
- 7.7% - 24.3%
- Park
- Cemetery
- ADA Accessible
- Partially Accessible
- Accessible by 2020



0 50,000 100,000 Feet

FIGURE 17

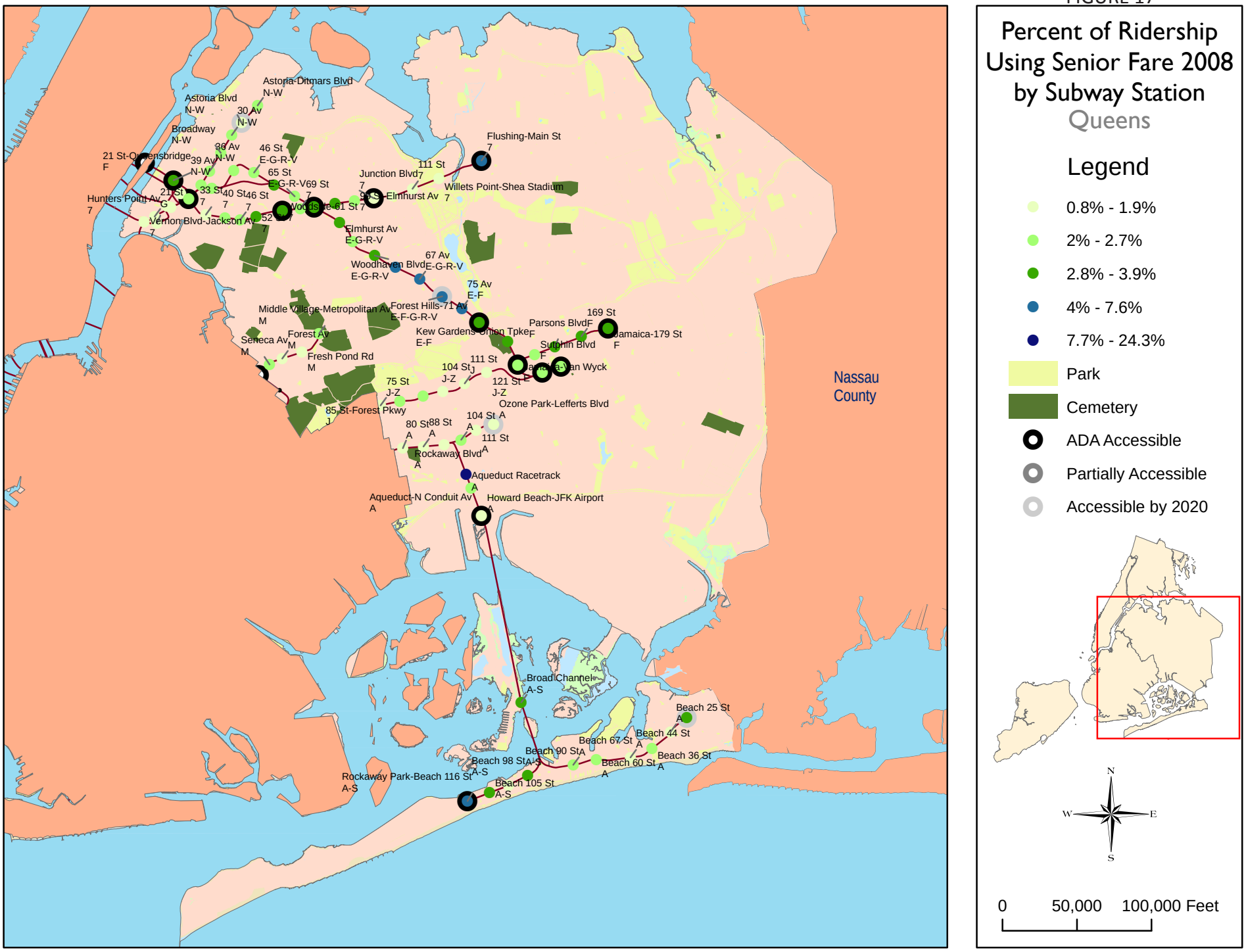

Percent of Ridership Using Senior Fare 2008 by Subway Station
Queens
Legend
0.8% - 1.9%
2% - 2.7%
2.8% - 3.9%
4% - 7.6%
7.7% - 24.3%
Park
Cemetery
ADA Accessible
Partially Accessible
Accessible by 2020
Nassau County
Astoria-Ditmars Blvd N-W
Astoria Blvd N-W
30 Av N-W
Broadway N-W
36 Av N-W
39 Av N-W
21 St-Queensbridge F
Hunters Point Av 7
21 St G
33 St 7
40 St 7
46 St 7
46 St E-G-R-V
65 St E-G-R-V
69 St 7
Woodside-61 St 7
Vernon Blvd-Jackson Av 7
Junction Blvd 7
90 St-Elmhurst Av 7
111 St 7
Flushing-Main St 7
Willets Point-Shea Stadium 7
Elmhurst Av E-G-R-V
Woodhaven Blvd E-G-R-V
67 Av E-G-R-V
75 Av E-F
Forest Hills-71 Av E-F-G-R-V
Middle Village-Metropolitan Av M
Seneca Av M
Forest Av M
Fresh Pond Rd M
Kew Gardens-Union Tpke E-F
Parsons Blvd F
169 St F
Jamaica-179 St F
Sutphin Blvd F
Jamaica-Van Wyck E
111 St J
104 St J-Z
121 St J-Z
75 St J-Z
85 St-Forest Pkwy J
Ozone Park-Lefferts Blvd
104 St A
88 St A
80 St A
111 St A
Rockaway Blvd A
Aqueduct Racetrack A
Aqueduct-N Conduit Av A
Howard Beach-JFK Airport A
Broad Channel A-S
Beach 25 St A
Beach 67 St A
Beach 44 St A
Beach 90 St A-S
Beach 98 St A-S
Beach 60 St A
Beach 36 St A
Rockaway Park-Beach 116 St A-S
Beach 105 St A-S
N
W
E
S
0
50,000
100,000 Feet

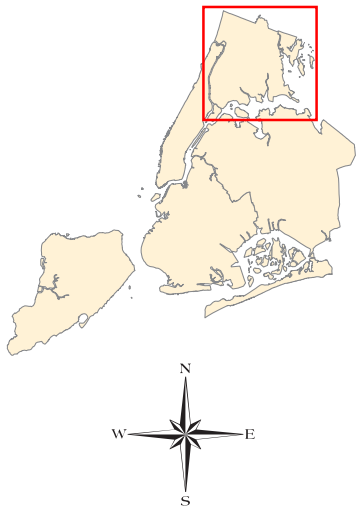
FIGURE 18

Percent of Ridership Using Senior Fare 2008 by Subway Station

The Bronx

Legend

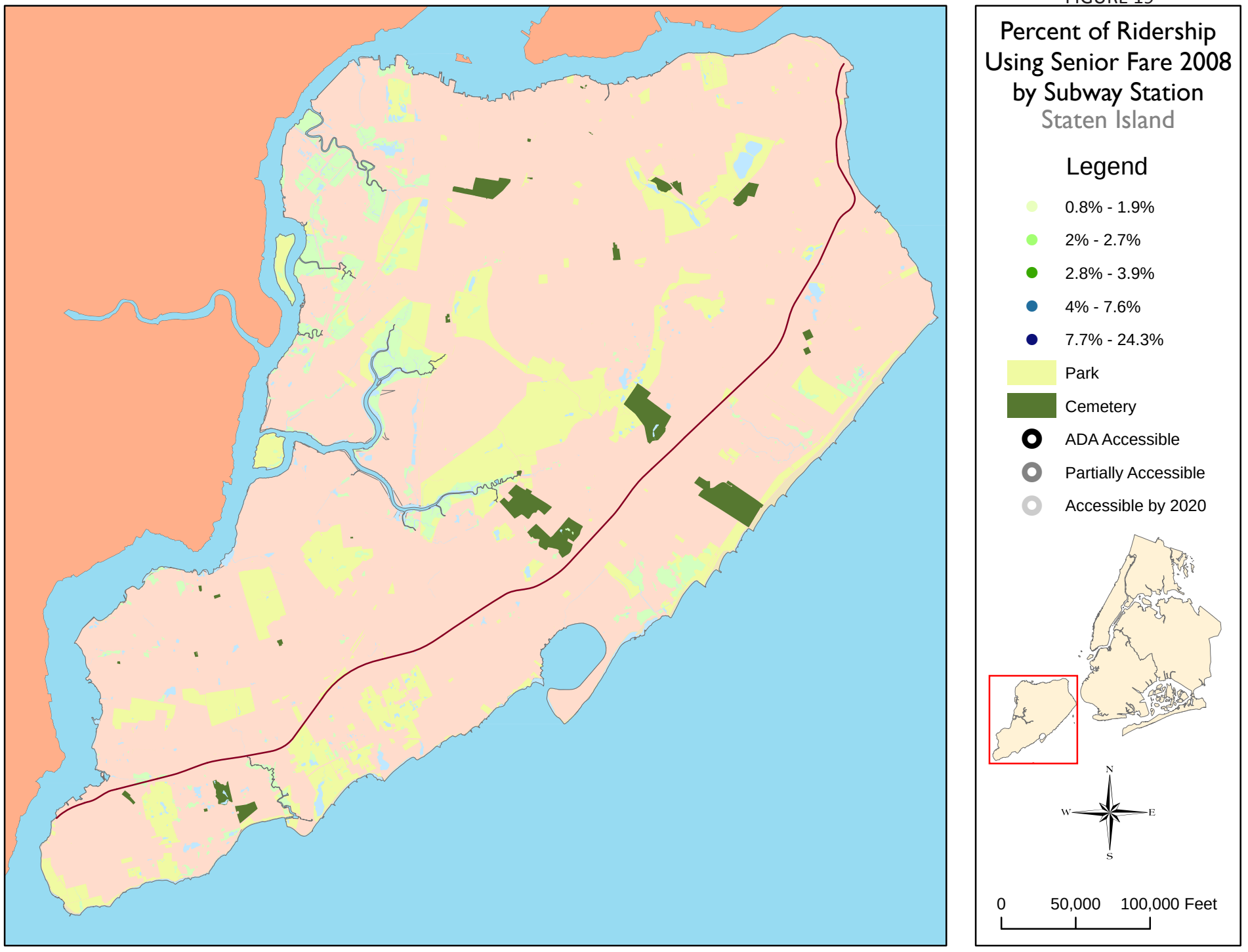
- 0.8% - 1.9%
- 2% - 2.7%
- 2.8% - 3.9%
- 4% - 7.6%
- 7.7% - 24.3%
- Park
- Cemetery
- ADA Accessible
- Partially Accessible
- Accessible by 2020



N
W
E
S

0 50,000 100,000 Feet

FIGURE 19


Percent of Ridership Using Senior Fare 2008 by Subway Station
Staten Island
Legend
0.8% - 1.9%
2% - 2.7%
2.8% - 3.9%
4% - 7.6%
7.7% - 24.3%
Park
Cemetery
ADA Accessible
Partially Accessible
Accessible by 2020
N
W
E
S
0
50,000
100,000 Feet

Existing Mobility Trends

Throughout the nation, driving provides independence to seniors and is their preferred mobility option because it is available on-demand as compared with other forms of transit. Dependency on the automobile for mobility appears to have given older people more choices, a wider range of possible activities, and flexibility. [10] Most baby boomers consider driving to be indispensable to their well being. Increased availability and affordability of automobiles has made the personal automobile the defacto choice for personal mobility.[11] This trend has been increasing for several generations as suburbanization intensified, increasing our total population living in suburban areas without access to mass transit, and as this generation of seniors age in increasingly suburban places.

However, in New York City, the many mass transit options available to many seniors make travel by methods other than automobile a more prevalent option. New York City provides accessible key stations in its subway system, accessible buses, and Access-A-Ride to individuals who cannot use the public transportation system. The current Select Bus Service combines some of the features of a rail system with the cost and flexibility of bus transit to provide improved service to riders by innovating the way buses operate.

POPULATION OF DRIVERS

The following information examining existing senior mobility trends is from two sources; the New York State Department of Motor Vehicles 2006 (NYS DMV) licenses in force data and the 2005-2007 U.S. Census American Community Survey 3-year estimates. Some specific data sets that will be extrapolated include: population age 45 and over, driver's license holders age 45 and over, vehicle availability per occupied housing unit, and disabled population by borough.

In order to compare the number of adult drivers to elderly drivers, we looked at the population estimates of adults ages 45 to 85. By dividing this age range into cohorts we can better identify senior drivers. The table below displays the population estimates for adults ages 45 to 85 and over per the 2005-2007 American Community Survey (TABLE 1).[12] The largest population cohort in each borough according to the data is currently between the ages 45 and 54. The data suggests that Brooklyn has the largest total population, but that Queens has the most residents age 85 and over.

TABLE 1: Population Age 45 and Over by Borough

Age	*Bronx*	*Brooklyn*	*Manhattan*	*Queens*	*Staten Island*	*NYC Total*
45-54	169,980	335,964	219,049	330,488	72,050	1,127,531
55-64	119,261	248,228	166,207	238,841	54,399	826,936
65-74	74,540	156,756	103,681	150,852	30,073	515,902
75-84	47,778	107,710	69,749	104,394	19,742	349,373
85+	20,445	40,770	27,845	42,528	6,904	138,492

Table 2 displays 2006 total New York City licenses in force for residents ages 45 and older, from data received from the NYS DMV.[13] Licenses in force are the number of active registered licenses on record in New York City. The data indicates that there are more people between the ages of 45 and 64 driving than persons over 65. In New York City, persons over the age of 75 were less likely to drive than persons between the ages of 45 and 64. Residents in Queens possess the most licenses in force in each age range examined.

TABLE 2: New York City Licenses in Force: 45+ Calendar Year 2006

Age	*Bronx*	*Brooklyn*	*Manhattan*	*Queens*	*Staten Island*	*Nyc Total*
45-54	83,589	162,002	129,080	207,444	60,241	642,356
55-64	57,551	116,678	99,996	144,129	44,291	462,645
65-74	29,726	57,638	51,673	76,630	22,100	237,767
75-84	14,829	29,493	26,271	45,539	12,153	128,285
85+	3,668	7,097	6,180	13,049	2,869	32,863

Table 3 shows the percentage of driver license holders by borough, by age cohort.[14] The percentage is derived by dividing the NYS DMV licenses in force by the U.S. Census 2007 American Community Survey

10 National Research Council (U.S.) Transportation Research Board. *Transportation in an Aging Society: A Decade of Experience: Technical Papers and Reports from a Conference: Conference Proceedings 27*.

11 Weber, David and Lisa J. Mollner, et al. *Maintaining Safe Mobility in an Aging Society*, 2009.

12 U.S. Census Bureau, *2005-2007 American Community Survey.*

13 NYS DMV Data Services, *Licenses in Force in NYC Age 45+, 2006*.

14 Based on *NYS DMV Data Services and 2005-2007 American Community Survey.*

population estimates. The Staten Island figures display the highest percentage of licenses. The New York City total percentage of driver's license holders for people age 45-54 is 57 percent; in Staten Island that figure spikes to 84 percent for the same age range. 42 percent of the 85 and over Staten Island residents maintain a driver's license compared to 18 percent of 85 and over residents from the Bronx (TABLE 3). In every borough, people drive less as they age.

TABLE 3. Percentage of License Holders Compared to Total Population

Age	*Bronx*	*Brooklyn*	*Manhattan*	*Queens*	*Staten Island*	*NYC Total*
45-54	49%	48%	59%	63%	84%	57%
55-64	48%	47%	60%	60%	81%	56%
65-74	40%	37%	50%	51%	73%	46%
75-84	31%	27%	38%	44%	62%	37%
85+	18%	17%	22%	31%	42%	24%

SENIORS WITH MOBILITY IMPAIRMENTS

Table 4 displays the disabled population by borough age 65 and over.[15] According to the ADA, a person is considered to be elderly at 65 years old and an individual has a disability when a physical or mental impairment substantially limits one or more major life activities.

The data shows that Brooklyn has both the largest group of 65 and over residents as well as the largest amount of disabled seniors. According to the data, 298,737 people, 48 percent of Brooklyn residents 65 and over, have a disability. The data also shows that Staten Island has the lowest percentage of disabled 65 and over residents at 37 percent or 54,097 respectively.

TABLE 4. Disabled Population Age 65 and Over by Borough

	Bronx	*Brooklyn*	*Manhattan*	*Queens*	*Staten Island*	*Nyc Total*
Population 65 and over	133,005	298,737	195,385	285,785	54,097	967,009
With a Disability	63,080	144,172	77,310	114,066	19,750	418,378

The NYS DMV also maintains a database of driver's license restrictions, such as corrective lens users and daytime drivers only. According to the data, there are approximately 700,000 licensed drivers age 45 and above that wear corrective lenses while driving. The number of drivers 45 and over restricted to daytime driving only is very small. There are approximately 250 drivers within the five boroughs that are restricted from night time driving; the majority of these restrictions apply to people over age 75.

15 U.S. Census Bureau, *2005-2007 American Community Survey.*

TABLE 5: Mode of Transportation to Work - Total Workers

County	Total Population	Total Workers	Drove to Work - Total*	Used Mass Transit - Total†	Walked to Work - Total	Cab, Bike, Motorcycle - Total	Worked at Home - Total
Bronx	1,382,793	527,364	166,512	296,520	38,441	10,737	15,154
Kings	2,539,617	1,066,782	271,746	644,069	92,659	20,763	37,545
New York	1,624,225	843,541	79,891	482,209	178,344	46,452	56,645
Queens	2,278,482	1,062,345	420,597	537,379	61,704	14,238	28,427
Richmond	483,046	216,335	135,100	68,368	5,282	2,093	5,492
New York City	8,308,163	3,716,367	1,073,846	2,028,545	376,430	94,283	143,263

TABLE 6: Mode of Transportation to Work - By Percentage of Total Workers

County	Total Population	Total Workers	% Drove to Work - Total*	% Used Mass Transit - Total†	% Walked to Work - Total	% Cab, Bike, Motorcycle - Total	% Worked at Home - Total
Bronx	1,382,793	527,364	31.57	56.23	7.29	2.04	2.87
Kings	2,539,617	1,066,782	25.47	60.37	8.69	1.95	3.52
New York	1,624,225	843,541	9.47	57.16	21.14	5.51	6.72
Queens	2,278,482	1,062,345	39.59	50.58	5.81	1.34	2.68
Richmond	483,046	216,335	62.45	31.6	2.44	0.97	2.54
New York City	8,308,163	3,716,367	29	55	10	3	4

TABLE 7: Mode of Transportation to Work - Total Workers Over 65

County	Population Over 65	Workers Over 65	Drove to Work - Over 65*	Used Mass Transit - Over 65†	Walked to Work - Over 65	Cab, Bike, Motorcycle - Over 65	Worked at Home - Over 65
Bronx	145,701	14,319	5,112	6,734	1,401	411	661
Kings	310,363	29,733	9,406	14,604	3,096	538	2,089
New York	205,790	38,352	5,175	16,747	7,755	2,705	5,970
Queens	302,655	35,647	16,027	13,930	2,493	686	2,511
Richmond	57,928	6,843	4,671	1,694	240	15	223
New York City	1,022,437	124,894	40,391	53,709	14,985	4,355	11,454

TABLE 8: Mode of Transportation to Work - Percentage of Total Workers Over 65

County	% of Population Over 65	Workers Over 65 as Percent of Total Workers	% Drove to Work - Over 65*	% Used Mass Transit - Over 65†	% Walked to Work - Over 65	% Cab, Bike, Motorcycle - Over 65	% Worked at Home - Over 65
Bronx	10.54	2.72	35.7	47.03	9.78	2.87	4.62
Kings	12.22	2.79	31.63	49.12	10.41	1.81	7.03
New York	12.67	4.55	13.49	43.67	20.22	7.05	15.57
Queens	13.28	3.36	44.96	39.08	6.99	1.92	7.04
Richmond	11.99	3.16	68.26	24.76	3.51	0.22	3.26
New York City	12.31	3.36	32.34	43	12	3.49	9.17

MODE OF TRANSPORTATION TO WORK

Tables 5 and 6 displays the mode of transportation to work for total workers by the total number of workers from home in each borough, as well as New York City in its entirety, and by the percentage of total workers in each borough and New York City.

Tables 7 and 8 show the mode of transportation to work for the total workers over 65, by the total number of workers over 65 from home in each borough, as well as New York City in its entirety, and by the percentage of total workers over 65 in each borough and New York City.

Comparing tables 6 and 8 show that for transportation to work, the 65 and over group tended to drive more, use mass transit less and work at home more than the general population. For example: in New York City, 32.34 percent of total workers over 65 drove to work, as compared to 29 percent of total workers, 43 percent of total workers over 65 used mass transit as compared with 55 percent of total workers, and 9.17 percent of total workers over 65 worked at home as compared to 4 percent of total workers.[16] This data shows that older adults use public transit less than their younger counterparts and are likely to depend on driving as a mode of transportation.

SUMMARY

As previously noted, the United States is only one of the many countries that are experiencing a shift in demographics. This shift in demographics will provide challenges for people and will change the way mobility needs are addressed. The aging populations in all five boroughs will increase significantly by 2030. Current mobility trends indicate that there will be an increased demand for accessible mobility options to address the needs of the current aging younger cohorts as they grow older. People who are approaching the over age 65 cohort have been drivers throughout their adult lives. As aging progresses, the physical disabilities that are natural and common with age will begin, and lead to mobility challenges for older adults. Without practical alternatives to driving, mobility will be compromised for them. With data regarding existing trends and demographics we will be able to address those mobility needs.

16 U.S. Census Bureau, 2006-2008 American Community Survey.

II. Challenges To Mobility For An Aging Population

Aging is a complex natural process potentially involving every molecule, cell and organ in the body. It can be defined as a progressive functional decline or gradual deterioration of physiological function with age, resulting in the intrinsic loss of viability and increase in vulnerability.

For seniors, mobility impairments can result from many of the natural results of aging. Loss of vision, hearing, reaction time, muscle strength, sense of balance, reduced flexibility, and cognitive skills such as memory, thought patterns, and speed of information processing are all affected by the aging process and in turn greatly impact mobility. Functional limitations as well as medication for chronic conditions can cause older adults to be at increased risk of falls, which according to New York City Department of Health is the leading cause of injury and death among the elderly.[1]

As we plan for a future New York that preserves the quality of life for all New Yorkers, we must make sure our plans take into account these many risks and challenges unique to our growing senior population. As we consider the design of our infrastructure, our city services, and our neighborhoods, we can incorporate design principles that assist in accommodating the widest range of New Yorkers. Some of these challenges are:

- Pedestrians face the challenge of visibility impairments. These impairments are effected in part by the signals and lights at crosswalks and intersections, the time it takes for drivers to yield and brake at intersections, and the time it takes for a pedestrian to cross an intersection. This leads to a need for an alternative mode of transportation for those who are auto-dependent or an improvement of our current roadways as seen in the Showcase Roadway Project (Detroit, MI), the incorporation of pedestrian signs and sign visibility using flashing beacons or ground flashers as in the LED Crosswalk Signs (Naval Station Mayport, FL or San Jose, CA) or even the installation of pedestrian-actuated crosswalk flashers

1 New York City Department of Health and Mental Hygiene. "City Health information: Preventing Falls in Older Adults in the Community."

(Kirkland, WA).

- Higher speed rates of moving vehicles prohibits people from crossing streets in a timely manner and keeping a safe distance between seniors and vehicles, leading to a need for reducing speeds, which results in a safer environment as in 20MPH Zones (London, UK).

- Driving visibility impairments involving recognizing signage and cognitive disabilities leading to providing incentives for seniors to make alternative transportation decisions when driving is no longer a safe choice as in Elderly Licensing and Labeling Safety Policies (Tokyo, Japan).

- Access to mass transit, especially the issues of rider subscription, rider satisfaction, trip efficiency, and affordability, are addressed through practices of the removal of all steps or barriers at sites of public transportation, the provision of alternative access at train stations, and newly constructed models that must ensure ADA-compliance in Step-Free Access (London, UK) and Access at the MBTA (Boston, MA).

- The affordability and accessibility of alternative forms of transportation is provided for by the practice of accessible taxis (London, UK) and a privately-run on a volunteer basis program - ITN Portland-Dignified Transportation Services (Portland, ME).

- The distance between seniors and the people that can assist them, the inclusion of design in relation to safety, accessibility, and creation of sustainable neighborhoods (Massachusetts), and the incorporation of universal design into policy (Norway) to both reconfigure and change the physical environment creating and encouraging an age-friendly environment for everyone are identified with zoning and Complete Streets strategies, and are addressed by a transit-oriented development that includes market-rate rental housing, senior independent living units and elderly assisted-living units near public transportation facilities as in Russellville Park Transit-Oriented Development (Portland, OR) or encouraging the use of accessory dwelling units (Portland, OR).

- Senior participation, the engagement of older adults in healthier lifestyles, keeping seniors active and mobile, and incorporating technology will be addressed by innovative technologies (Japan) and educational programs such as programs through the Parks and Recreation Department, Active Aging Programs (Portland, OR) or identifying the need to better educationally outfit older adults with a driver's knowledge of his or her vehicle in the CarFit Program (United States).

Since reaction time and vision are among the two primary abilities that tend to decrease with age, enhanced wayfinding and street design will be explored in the Case Studies section as well. Additionally, improved signage for drivers and innovative technologies that can aid elderly drivers will also be discussed further as current practices are examined in the next part of the report.

The case studies section of the report that follows is divided into the categories listed below. Within each section are current practices illustrating innovative solutions in transportation, mobility and accessibility for an aging population that are currently in place within cities in the United States and other world cities.

The Driving - Roadway Improvements and Licensing Policy Changes section of this study is comprised of three case studies:

- The Showcase Roadway Project in Detroit, Michigan, shows how improved signage can make a difference.
- The 20 MPH Zones in the United Kingdom illustrates how lower speeds greatly reduce serious injuries and fatalities.
- The Regulation of Elderly Licensing and the Vehicle Labeling Policy in Tokyo, Japan, are examples of setting new requirements for older drivers.

The Public Transportation, Taxis and For-Hire Vehicles section consists of four case studies:

- Step-Free Access in London, England, focuses on making adjustments to London's underground rail system to provide step-free access.
- Access at the Massachusetts Bay Transportation Authority (MBTA) in Boston, Massachusetts, is an example of how a class action lawsuit had a major impact on MBTA and other

transit systems across the country.

- Accessible Taxis in London, England, include three taxi programs that provide alternative modes of transportation with on-demand options.
- The Independent Transportation Network in Portland, Maine, expands transit options by providing on-demand transportation by both paid and volunteer drivers.

The Pedestrian Improvements – Signage and Crosswalk Changes section is composed of three case studies:

- LED Crosswalk Signs in Naval Station Mayport, Florida, address the challenges of sign visibility at crosswalks and intersections.
- Flashing Beacons and Ground Flashers in San Jose California, observe yielding and braking at intersections in order to provide more safety at crosswalks.
- Pedestrian Actuated Crosswalk Flashers in Kirkland, Washington, are geared towards increasing safety by highlighting crosswalks.

Planning Tools - Smart Growth and Street Design section considers four case studies:

- Smart Growth and Transit-Oriented Development in Portland, Oregon, presents a policy of integrating housing, transportation and environmental policies.
- The Russellville Park Transit-Oriented Development in Portland, Oregon, is an example of transit-oriented development specifically aimed at growth designed for seniors.
- Complete Streets Policy in Massachusetts promotes safely designed streets to benefit all users.
- Universal Design in Norway applies the principles of Universal Design to the planning design of places, transportation facilities, and information technologies so as to be usable by all people.

Innovative Technologies and Educational Programs explore three case studies:

- Active Aging programs in Portland, Oregon, provide programs for older adults that encourage cycling and walking to keep them mobile.
- The Car-Fit Program in the United States is an educational program that offers older adults the opportunity to check how well their vehicles fit them to attain maximum comfort and safety.
- Pedestrian Navigation System in Japan incorporates technology to help older adults to navigate their surroundings safely whether they are driving, utilizing public transportation, or making other drivers aware of their presence.

03 CASE STUDIES

The case studies provided in this chapter are the culmination of an extensive review of resources on senior mobility and accessibility. They present innovative practices and policies. The examples chosen are not a comprehensive list of current initiatives and policies for older adults. The case studies seek to demonstrate some of the initiatives and policies other cities and/or countries have successfully implemented. Some of the practices examined were not primarily established with the aim of helping seniors; however they also experienced ancillary benefits that serve pedestrians and drivers of all ages, such as in the case of traffic speed reductions in London's 20 mph zones. Other programs were designed explicitly for older adults, such as Tokyo's licensing and labeling policies. All of the cases studied have the goal of improving the mobility, accessibility, and safety of older adults as well as the general population.

The case studies are organized according to the different modes of transportation, and planning instruments. The sections cover the following themes: driving, public transportation, taxi and for-hire vehicles, walking, planning tools, innovative technologies and educational programs. Each section examines a variety of characteristics related to the case studies, and if relevant how New York City could potentially apply some of the existing practices.

In an effort to capture the essence of every current practice, a short explanation of focus is stated at the beginning of each case study.


ONE WAY
ONE WAY
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ATM

04 DRIVING -
Roadway Improvements and Licensing Policy Changes

Although New York City has one of the highest transit ridership rates in the country, driving still plays a significant role in the transportation patterns of many young and older new Yorkers. However, as drivers age, safety on the road becomes an increasing concern. In 2005, 11 percent of all fatal crashes involved drivers that were age 65 or older[1], and road safety analysts predict that by 2030, when most baby boomers have reached 65, they will be responsible for 25 percent of all fatal crashes.[2]

Road safety depends on fair and effective licensing procedures and on accounting for the specific needs of aging drivers in roadway design. The following case studies examine these issues associated with older adults and driving, and some municipalities' efforts to address licensing policy and roadway improvements to ensure access and safety.

1 Ibid. Bottom of Form
2 Davis et al., Dangerous Drivers a Growing Problem.

DETROIT, MICHIGAN
Showcase Roadway Project

IMAGE 1. The difference can be seen in the fonts and the words East and West. The sign on the right is in Clearview font and the E in East is 25% larger than the rest of the word. Image used with permission from Michigan DOT.

The **Showcase Roadway Project in Detroit, Michigan**, focuses on how low-cost roadway improvements such as changing and enlarging the font on road signs for clearer visibility can make a difference, by reducing accident rates and thereby enhancing the safety of a roadway.

This case study relates to *Age-Friendly NYC Initiative 31* which deals with safety improvements including upgraded and improved signage, out of a concern for pedestrian safety of older adults and the need for more user-friendly streets.

BACKGROUND

Michigan has been known as the automobile capital of the world since the early 1900s. Although efficient public transportation systems exist in a couple of Michigan cities, driving is the predominate mode of transportation. In 2007, there were 1,075,583 senior license holders in the State of Michigan, which accounts for roughly 15 percent of the state's driving population.[3]

Detroit is the largest city in the State of Michigan. According to the 2000 U.S. Census, the population of the city is 951,270, although current estimates suggest the population is decreasing.[4] There are bus lines that provide transportation within the city and between the

IMAGE 2. Detroit's roadway showcase. Image used with permission from MDOT.

3 Governor's Traffic Safety Advisory Commission (GTSAC), *Michigan Senior Mobility Action Plan 2009-2012.*

4 United States Census Bureau. "Census 2000."

city and surrounding suburbs. Additionally, an automated rail system, the Detroit People Mover, is located in the central business district where it makes stops at thirteen places of interest in a circle around the downtown area. The road network consists of large boulevards such as Woodward Avenue, Grand Avenue, Gratiot Avenue, Michigan Avenue, and Jefferson Avenue. Most of these arterial roadways extend beyond the Detroit city limit to the surrounding suburbs.

In 2004, Detroit, Michigan hosted the North American Conference on Elderly Mobility. To demonstrate engineering improvements that can assist the elderly, the Michigan Department of Transportation (MDOT) with assistance from the American Automobile Association and the Federal Highway Administration, created a 7.4 mile loop showcase roadway in downtown Detroit (IMAGE 1). The Detroit showcase roadway is the only location where the previous and new signs were installed side-by-side (IMAGE 2).[5]

IMPLEMENTATION

The demonstration roadway that was chosen for the project looped around downtown Detroit along the following corridors: Jefferson Avenue, Northbound M-10, Eastbound I-94, Southbound I-75, and Southbound I-375. The entire loop consisted of 7.4 miles of various engineering treatments developed to benefit older drivers during day and night time driving. Other treatments were implemented consisting of new pedestrian signage and new countdown signals installed to create a safer walking environment for elderly walkers. The treatments used in the showcase were recommendations from the Highway Design Handbook for Older Drivers and Pedestrians and the Guidelines and Recommendations to Accommodate Older Drivers and Pedestrians published by the FHWA in 2001.[6]

There were a number of treatments displayed at various points along the 7.2 mile loop. Some of the treatments include: brighter sheeting on warning signs, the use of Clearview font for guide and street names signs, 25 percent enlarged first letter of cardinal direction, light emitting diode (LED) lenses in the signals, pedestrian countdown signals, and painting of the curb radii (IMAGE 3).

Clearview font was developed through years of research and is the font that was used for the Showcase Roadway Project. The font has

5 Kim Lariviere, Michgian Department of Transportation, Email Correspondence, 30 July 2009.
6 Ibid.

IMAGE 3. Side by side comparison of an old street sign and a new larger and brighter sign. Image used with permission from MDOT.

interim approval by the Federal Highway Administration, and localities can use either the Standard Highway Signs (SHS) alphabet lettering known as Highway Gothic, or Clearview 5W lettering.[7]

FUNDING

The project was funded through donations from the contractors and suppliers, and by the Michigan Department of Transportation (approximately $286,000 of state funds). Additionally, there were funding incentives for initiatives that benefit the elderly. Some of the increases include: a ten percent increase for the sign budget to replace current signage with type IX sheeting and Clearview font guide signs, a five percent increase for warning signs to go from high intensity to fluorescent sheeting, and about a twenty-seven percent increase for the pavement marking program for longitudinal markings and special markings.[8]

FINDINGS

The Showcase Roadway Project did not set out to collect data, but it did demonstrate the difference between current roadway signage and the pending federal signage requirements. The project was designed to be a tool for planners, engineers, and local municipalities by demonstrating simple low-cost roadway improvements that studies have shown to improve mobility among the elderly. By using a different font, such as Clearview, and by following the Manual on Uniform Traffic Control Devices (MUTCD) recommendations and requirements, the differences between the changes are evident.

7 Fred Ranck, Manual on Uniform Traffic Control Devices Team, Email Correspondence, 29 September 2009.
8 Kim Lariviere, Michigan Department of Transportation, Email Correspondence, 30 July 2009.

Studies have shown that drivers and pedestrians read signs more accurately if the first letter of a word is 25 percent larger than the rest of the word and the underlining is eliminated.[9] Some studies indicate that changes to the lettering on the guide signs and street name signs can improve nighttime visibility by 26 percent.[10]

The North American Conference on Elderly Mobility in 2004 attracted attendees from all over the world, and the showcase roadway was the first of its kind. Yet, in another part of Michigan, there was a city that implemented a citywide initiative of upgrading their road and guide signs pre-dating the North American Conference on Elderly Mobility.

The City of Rochester Hills began a proactive sign maintenance program in 1993 because city engineers determined the current signage was not adequate at night.[11] This was around the same time that a team of experts in Pennsylvania began developing Clearview font. The goal of the sign program in Rochester Hills was to reduce crashes, especially for the city's older drivers.[12] The signage was analyzed in 2000 by the Traffic Improvement Association of Oakland County by conducting a crash study along the improved corridor. After the three year study, findings indicated a reduction in nighttime crashes. The engineers attributed this reduction to the improved signage which had greater retroreflectivity and larger font size (IMAGE 4).[13]

IMAGE 4. Reflective properties of new sheeting material as seen at night. Image used with permission from Michigan DOT.

9 Ibid.
10 Ibid.
11 Marc Matich, City of Rochester Hills, Telephone Interview, 29 September 2009.
12 Governor's Traffic Safety Advisory Commission (GTSAC), *Michigan Senior Mobility Action Plan 2009-2012.*
13 Marc Matich, City of Rochester Hills, Telephone Interview, 29 September 2009.

Based on previous research, the Federal Highway Administration recommended that sign legibility requirements should have minimum vision standards. A majority of states allow drivers with corrected 20/40 vision to obtain driver's licenses. As a result of the increasing number of elderly drivers, the FHWA recommends that 20/40 should be the basis of standard letter heights used on signs.[14]

The treatments demonstrated on the showcase roadway must be implemented nationwide in approximately ten years. Municipalities have until January 2015 to upgrade the regulatory, warning, and ground mounted signs, and until January 2018 to upgrade the overhead guide signs and street names to comply with the new sheeting standards and letter size requirements.[15]

NEW YORK CITY APPLICATIONS AND OPPORTUNITIES

There are some opportunities to improve the signage on New York City streets by replacing signs with those that are printed in Clearview font which enhances readability for everyone, especially for those with minor vision impairments. Improved guide signs would also help at intersections that have irregular geometry or that have a number of streets that meet at one intersection. Guide signs may also be useful in areas that experience high traffic volumes because the directional information painted in the traveling lanes may be blocked. Confusion and dangerous driving conditions arise when drivers are in the wrong lane due to the lack of directional guide signs. Per the Michigan case study and the new FHWA recommendations, signage improvements such as retroreflectivity and larger, brighter lettering should be explored. City DOT has started replacing all existing guide signs, informational signs and street name signs changing the lettering from Highway font to a Clearview font. The sign change is scheduled to be completed citywide by 2018.

Although New York City does not have a showcase roadway project in effect, the signage improvements used in the Showcase Roadway Project in Detroit, Michigan, are currently seen throughout New York City to address the challenge of visibility impairments and improves safety for older New Yorkers.

14 Brown et al., *Traffic Control Devices: The Same Message No Matter Where You Travel.*
15 U.S. Department of Transportation, *Maintaining Traffic Sign Retroflectivity.*

UNITED KINGDOM
20 MPH Zones

IMAGE 5. 20 mph zone located in Portsmouth, England. Image used with permission from 20's Plenty For Us- The UK Campaign For 20mph As The Default For Speed Limit For Residential Streets.

20 MPH Zones in the United Kingdom focus on calming traffic through speed reduction on roadways to make streets safer.

This case study relates to *Age-Friendly NYC Initiative 30* which aims to create inviting public spaces by reducing congestion and calming speeding traffic.

BACKGROUND

London, England, is known for its innovations in traffic calming measures dating back to the 1920s when roundabouts were first introduced. Traffic calming is a general term used to describe a roadway treatment that has the ability to reduce speeds and improve safety conditions. Some examples of traffic calming mechanisms are chicanes (artificial features that create turns that will cause drivers to reduce speed), speed tables (flat-topped speed humps), pedestrian crosswalks, and speed humps. Most recently, London has led the way by implementing home zones and 20 mph zones.[16] The time over distance safety cameras attempt to physically limit driving speeds.[17] There have been numerous studies that suggest reducing the speed limit can significantly reduce fatalities and bodily injuries. There is also research that suggests that there is a correlation between slower speeds and decreases in elderly traffic casualties.

Home zones and 20 mph zones both have the same intended result, which is to reduce: vehicle speed, collisions, injuries and fatalities; yet, there is a notable difference between the two practices. Home zones, which were first piloted in Great Britain in 1999, are based on the Dutch concept of the *woonerf*, which is literally translated as "residential yards."[18] The streets are redesigned in a way that allows for a variety of activities as well as reductions in vehicle speeds, typically well below 20 mph.[19] The home zone treatments are expensive, which accounts for the limited use of this traffic calming measure in London.

On the other hand, 20 mph zones do not require traffic engineering changes to the street, but they do require the installation of new signage at entry and exit points (IMAGE 5). Some road engineering treatments are used to reinforce the 20 mph zone; such as speed humps, gateways, and road narrowing.[20] The Department for Transport's guidelines recommends that 20 mph zones should only be considered when average speeds are already near 24 mph. Additionally, a 20 mph zone must be designed to take all road users into account.[21]

16 The Department for Transport defines *home zones as residential streets in which the road space is shared between drivers of motor vehicles and other road users, with the wider needs of residents (including people who walk and cycle, the elderly and children) being accommodated.*
17 Grundy et al., 20 *Mph Zones and Road Safety in London: A Report to the London Road Safety Unit*.
18 Appleyard, Bruce and Lindsay Cox. *At Home in the Zone: Creating Livable Streets in the U.S.*
19 Grundy et al., 20 *Mph Zones and Road Safety in London: A Report to the London Road Safety Unit*.
20 Ibid.
21 Ibid.

IMPLEMENTATION

London's first 20 mph zone was installed in 1991. In 1999, a legislative change, gave local authorities the power to implement 20 mph zones without special central government approval. This decision resulted in the emergence of many new 20 mph zones throughout London. As of 2007/2008 there were approximately 399, 20 mph zones in London.[22]

Many British organizations support 20 mph zones. The 20 mph limits and zones are supported within the Safer Way road safety strategy proposal for 2010-2020 and are considered to be a useful intervention in the road safety engineering toolkit.[23] The largest opponent to this traffic calming measure are driving advocacy groups, such as, the Association of British Drivers and Safe Speed, who question the validity that higher speeds cause crashes.[24] Prior to implementing a 20 mph zone, the locality should have followed the Department for Transport's guidelines. Additionally, local authorities are required by law to consult all relevant stakeholders such as emergency services, local residents, and other local organizations every time a 20 mph zone is proposed.[25] Although 20 mph zones have generated much support from home owners, cycle enthusiasts and infrequent drivers, as well as politicians, there are still critics. There is some fear that lower speed limits will make commute times longer or that they will jeopardize safety when it comes to emergency vehicles. Another concern is that some traffic calming measures, such as speed humps and the like, may cause discomfort to vehicle passengers.[26]

FUNDING

The cost of implementing a 20 mph zone can vary greatly. Some zones are created as self-regulating streets, with speed reducers, such as speed humps and pinch points. There are others that are less costly that only install signage and rely on enforcement from local police and in some cases, speed cameras. There are some funding sources that a locality may qualify for when a new 20 mph zone is implemented.[27] Much of the funding is siphoned from Transport for London to a specific municipality through the Local Implementation Plan process. Funding for 20 mph zones comes from Transport for London and is allocated through the London Road Safety Unit (LRSU). Other funding sources may include revenue from parking fines, and other local money.[28]

FINDINGS

Many studies concur that by reducing speed limits, driver, vehicle passengers, and pedestrian fatalities can be decreased. The speed differentials and the likelihood of fatalities support the 20 mph zone initiative. It has been found that excessive speed is a direct factor in roughly one-fifth of all traffic accidents and one-third of all road fatalities.[29] Furthermore the speed at which one is hit, especially pedestrians, is indicative of their rate of survival. It is estimated that if a pedestrian is hit at 40 mph, there is a 90 percent chance of death, if a pedestrian is hit at 30 mph, there is a 20 percent chance of death, and if a pedestrian is hit at 20 mph, there is a 3 percent chance of death.[30]

In 2008, Transport for London (TfL) commissioned the London School of Hygiene and Tropical Medicine (LSHTM) to study the effects of 20 mph zones on casualty reductions. TfL used the data to determine the effectiveness of 20 mph zones.[31] Table 9 illustrates the results of the study.[32] Although this study did not directly address the impact of reduced speeds on the elderly, the data below suggests that there were substantial reductions overall in fatalities and serious injuries.

22 Ibid.
23 Paul Cox, Department for Transport, Email Correspondence, 4 September 2009.
24 Grundy et al., 20 *Mph Zones and Road Safety in London: A Report to the London Road Safety Unit*.
25 Ibid.
26 Ibid.
27 Ibid.
28 Paul Cox, Department for Transport, Email Correspondence, 4 September 2009.
29 Transport for London, *London's Road Safety Plan*.
30 London Assembly. *Braking Point: 20 Mph Speed Limits in London*.
31 Grundy et al., 20 *Mph Zones and Road Safety in London: A Report to the London Road Safety Unit*.
32 Ibid.

TABLE 9: Casualty Reductions in 20 MPH Zones

Road User	*Reduction in Casualties*	*Reduction in Killed and Serious Injured Casualties*
All Road Users	**42%**	**46%**
Children	**49%**	**50%**
Pedestrians	**32%**	**35%**
Bicyclists	**17%**	**38%**
Powered Two-Wheelers	**33%**	**39%**
Car Occupants	**53%**	**62%**

Some newer initiatives rely on 20 mph speed limit signage and increased enforcement by means of safety cameras. The speed cameras, which measure distance over time, are growing in favor with 20 mph supporters. With or without the presence of cameras, many community members are pressing their elected officials to install 20 mph zones in their neighborhood (IMAGE 6). Since the police cannot enforce the limit at all times at the approximately four hundred 20 mph zones, cameras are the best option. Cameras are gaining favor over traditional traffic calming measures as well, because they do not produce noise or vibrations that are unfavorable with the residents.[33] At present the London Road Safety Unit at Transport for London and the London Safety Camera Partnership are working together on a 20 mph pilot scheme of four closely monitored sites in London boroughs. The sites will be monitored for a three year period. The pilot will test the effectiveness of using average speed cameras to enforce the 20 mph zones. Following the three year period, the individual boroughs will decide whether they wish to continue the program themselves.[34] In addition to London there are 20 mph initiatives throughout the United Kingdom. Portsmouth, England, is credited as being Britain's first 20 mph city. By March 2008, the City of Portsmouth had set all residential and arterial routes to 20 mph.[35] There were 159 sites monitored for speed and casualty rates. The Portsmouth City Council, in conjunction with Department for Transport, held a conference in September 2009 to discuss the findings of the 20 mph zone.

IMAGE 6. Residents of the ward of Combe Down, United Kingdom demonstrate their desire for 20 mph zones in areas where there is dense housing and near schools and hospitals. Image used with permission from The Bath Liberal Democrats and Councillors Cherry Beath and Roger Symonds.

The casualty rate reductions are found in the chart below.[36] The two groups that had the largest reductions were children and elderly, arguably the most vulnerable (TABLE 10).

TABLE 10: Casualty Reductions in Portsmouth 20 MPH Zones

Type	*Children*	*Elderly*
Pedestrian	**-4%**	**-25%**
Passenger	**-22%**	**-25%**
Driver/Rider	**-9%**	**-36%**
All Casualties	**-8%**	**-31%**

NEW YORK CITY APPLICATIONS AND OPPORTUNITIES

New York City is currently in the process of reducing speed limits to calm traffic and create safer public spaces for all New Yorkers. *With Safe Streets for Seniors*, NYCDOT-sponsored pilot program locations in place, reduced speeds at school zones, and the potential to possibly expand to camera enforcement, New York is not only making strides to improve streets for seniors but for all New Yorkers.

Safe Streets for Seniors is an intersection improvement program

33 London Assembly, *Braking Point: 20 Mph Speed Limits in London*.
34 London Safety Camera Partnership, Email Correspondence, 16 September 2009.
35 King, *Portsmouth: Changing the Way We Share Our Streets.*
36 Ibid.

initiated in 2008, geared toward improving the safety of road conditions, by adding some road treatments such as: crosswalk restripings, leading pedestrian intervals, and speed bumps. To date, selected locations have received these treatments. Additionally, New York City does use traffic cameras to photograph drivers that go through red lights. There are currently 150 red light cameras throughout the city, as well as a number of dummy cameras.[37] The New York State Legislature must approve additional speed cameras before New York City can begin using them.[38]

According to vehicle and traffic law, the current legal speed in New York City is 30 mph unless posted otherwise. The vehicle and traffic law also recommends that school zones are 10 mph less than the normal speed limit, which makes select areas near schools 20 mph. This speed limit is only in effect at specific times during the day. According to the data from London, reducing speeds in residential neighborhoods can result in significant reductions in vehicular accident casualties among the elderly.

37 Transportation Alternatives, *Candidate Survey 2009: Mike Bloomberg.*
38 Transportation Alternatives, *Terminal Velocity: New York City' Speeding Epidemic*.

TOKYO, JAPAN
Elderly Licensing and Labeling Safety Policies

Elderly Licensing and Labeling Safety Policies in Tokyo, Japan, focus on incentivizing unsafe drivers over the age of 65 to voluntarily surrender their licenses as well as to identify drivers over the age of 75 by labeling their vehicle.

BACKGROUND

As of April 2008, Japan's population reached 127.7 million, of which 27.9 million were 65 and over.[39] Tokyo's 65 and over population is 2,490,769 (TABLE 11).[40] Japan has the greatest number of people entering the elderly cohort and at the same time Japan's birth rate remains low. It is estimated that by 2030, the 65 and over cohort will constitute 31.8 percent of the population.[41] As of December 31, 2008 there were 818,899 licensed 65 and older Tokyo residents (TABLE 12).[42]

TABLE 11: Tokyo Population Age 45 and Over

Age	*Tokyo Total*
45-54	1,502,624
55-64	1,658,627
65-74	1,386,088
75-84	828,291
85+	276,390

39 International Longevity Center Global Alliance (ILC), *Global Aging Report, Threats to Longevity A Call to Action.*
40 Yasushi Nishida, National Research Institute of Police Science, Email Correspondence, 14 September 2009.
41 The International Longevity Center Global Alliance. *Global Aging Report, Threats to Longevity A Call to Action.* 2009.
42 Yasushi Nishida, National Research Institute of Police Science, Email Correspondence, 14 September 2009.

The Tokyo Metropolitan Police Department's Traffic Safety Section is the department responsible for issuing licenses, providing classes to enhance driving skills, and other driving safety regulations. The Metropolitan Police Department (MPD) posts a variety of data on their website, such as driving statistics as well as elderly driving information. The Tokyo government recently modified an existing safety program with the goal of encouraging more drivers over age 65 to voluntarily forfeit their license. In 1988, the voluntary license return program began, but drivers kept their licenses for identification purposes because an alternative identification card or driving experience certificate was not created at that time.[43]

The safety programs are in response to the number of accidents involving the elderly as well as the growing number of elderly drivers on the roadways. According to reports, there are approximately 300,000 elderly drivers with dementia. Although drivers over 75 must get a doctors examination, it is suspected that many people's symptoms are overlooked.[44] The government fears that older adult drivers pose risks on busy Japanese roads.[45] It is for that reason, that this program is viewed by many lawmakers as a preventive safety measure.

TABLE 12: Number of Drivers Licenses in Force in Tokyo as of 12/31/08

Age	*Tokyo Total*
45-54	**1,250,099**
55-64	**1,137,480**
65-74	**656,138**
75+	**162,761**

TABLE 13 shows the number of elderly accidents for the first half of 2009.[46] Accidents involving older adults account for 13 percent of all accidents in the City of Tokyo.[47]

43 Ibid.
44 McNeill, *Tokyo Offers Free Pizza to Lure Pensioners from Their Cars.*
45 Ibid.
46 Yasushi Nishida, National Research Institute of Police Science, Email Correspondence, 14 September 2009.
47 Metropolitan Police Department, *Traffic Safety*. Translated by Yasushi Nishida.

TABLE 13: Elderly Accidents (65+) in Tokyo - First Half of 2008

Accidents	*Total*
Incidents	**6,794**
Fatalities	**39**
Serious Injuries	**73**
Minor Injuries	**3,611**

IMPLEMENTATION

The Tokyo government announced a new incentive program to encourage drivers 65 and over to voluntarily surrender their driving privileges. This is a policy that aims to lure drivers off the road in many cases while the older adult is still physically and mentally fit to drive. The program partners with local businesses to provide discounts to those that give up their licenses.[48]

When drivers over 65 years of age surrender their license they will in turn receive a certificate of their entire driving career (IMAGE 7).[49] The driving certificate can be used at approximately forty attractions throughout Tokyo to receive a discount at shops, museums, hotels, and restaurants.[50] In addition to the incentive program to voluntarily

IMAGE 7. Sample Certificate-Voluntary License Forfeiture Program

48 McNeill, *Tokyo Offers Free Pizza to Lure Pensioners from Their Cars.*
49 Metropolitan Police Department, *Traffic Safety*. Translated by Yasushi Nishida.
50 Ibid.

return one's license, a labeling system was established in Tokyo to identify drivers over age 75. The driver must purchase the labels and place them on both the front and rear surface of the body of the car.[51]

The labeling program extends beyond the elderly; novice drivers, hearing impaired, and handicap drivers all must have their vehicles labeled properly.[52] If anybody in one of the aforementioned categories does not have the labels on their vehicle they can receive a fine of 4,000 yen or approximately 43.00 USD.[53]

FINDINGS

Although the Tokyo government has been encouraging voluntary license forfeiture since 1988, there has not been much research on whether the program has spurred many to cease driving. The original voluntary license surrender program was most likely ineffective, since people kept their driver's license for identification. In 2002, the government began issuing driving certificates which could be used for identification purposes.[54] It was not until the latest voluntary license surrender program, commencing in 2008, that discounts and other perks were included in the program. The current program exists in Tokyo as well as in some other localities throughout Japan. Safety programs, when implemented, are regulated by the prefectural or local government.[55]

The current driver's license forfeiture program is still relatively new, therefore its popularity with drivers 65 and over is not known yet. Many studies show that older drivers tend to forfeit their license because of an accident or prior to losing it due to repeat traffic violations. According to studies, elderly drivers, more specifically drivers over 75, have a higher percentage of accidents and violations than younger drivers.[56] It is not yet known whether this cohort will respond to discounts from local attractions in exchange for the right to drive. The program's guidelines explore a way of incentivizing voluntary license surrendering, without mandating license forfeiture.

51 Metropolitan Police Department, *Traffic Safety*.
52 Ibid.
53 XE, *Universal Currency Converter.*
54 Yasushi Nishida, National Research Institute of Police Science, Email Correspondence, 14 September 2009.
55 Ibid.
56 Ibid.

NEW YORK CITY APPLICATIONS AND OPPORTUNITIES

At the present time, it is not known whether this voluntary program exists in any other countries, besides Japan. Perhaps, cultural differences between Japan and other countries limit the acceptability of this program as a measure to reduce the number of elderly drivers who may be unfit for driving. However, there are other regulatory measures currently in effect that could lead to the same results. For example in the United States, there are some states where there are requirements specifically for older drivers. Some states mandate accelerated renewals or require that renewals be done in-person. Illinois and New Hampshire are the only states that require applicants who are 75 or older to take road tests as a requirement of driver's license renewal. Many U.S. states have clauses or laws that specifically forbid licensing administrators from treating people differently solely on the basis of advanced age.[57] Current New York State law requires driver's license renewals every eight years. People can renew online or at one of the DMV locations. They will have to fill out a number of forms, some relating to medical history. Some conditions may disqualify the applicant from completing the renewal online, such as heart ailments, loss of limbs, and hearing loss. Additionally, one must submit a vision test score completed by an optometrist.[58] The screening methods used in New York State are certainly disqualifying some drivers that may otherwise continue to drive; however, these measures are not as vigorous as those in other states.

57 Insurance Institute for Highway Safety, *Licensing Renewal Provisions for Older Drivers.*Top of Form
58 New York State Department of Motor Vehicles, *Photo Licenses and ID Cards.*

Elevated 1 Line on Broadway in Kingsbridge neighborhood of the Bronx. 231st Station is seen in the background. NYC DCP.

05 PUBLIC TRANSPORTATION,

Taxis and For-Hire Vehicles

New York City has one of the most extensive mass transit systems in the world. The city is served by rail transit, buses, ferries, taxis, and for-hire vehicles. The first subway line, known as the IRT (Interborough Rapid Transit Company), opened in 1904.[1] New York City's first subway line was revolutionary because it brought together all classes of people. Historically, the subway has been one of New York City's most democratic places, costing only a nickel when it first opened. Even though a trip costs much more than a nickel today, it is still more affordable to use public transportation than it is to own a vehicle.[2] Technology and social ethos have transformed dramatically since the first train began service more than one hundred years ago. The New York City subway system, which is considered by many as the greatest urban transportation undertaking, is now the source of numerous complaints and the source of frustration for many with limited mobility and disabilities.

The Americans with Disabilities Act (ADA) of 1990 created minimum standards with which businesses and public offices must comply. Due to the high cost of retrofitting stations constructed many years earlier, public transportation agencies, such as the MTA's New York City Transit eventually came to an agreement to create an accessibility plan for key stations. Title 49 of the Code of Federal Regulations outlines the standards for accessible transportation facilities and specifications for transportation vehicles per ADA requirements. Title 49 Section 37.47 lists the criteria that public entities must consider when choosing key stations (light rail or rapid rail systems) to be retrofitted with elevators and escalators. Additionally, any new subway stations or new subway lines constructed will have to be fully compliant with the ADA legislation. As a result of a 1979 lawsuit, filed by the Eastern Paralyzed Veterans Association (now the United Spinal Association), New York City is required to increase the number of accessible stations to 100 by 2020.[3] There are currently 72 accessible key stations in New York City.

There is no other public transportation system that can be compared to New York City's mass transit network in scale and age. It is costly and time consuming to make changes to the existing infrastructure. Physical limitations, normal aging, as well as environmental barriers create real challenges. People with limited mobility, specifically some of the elderly, do not have the same transportation options as those who are able-bodied. Although New York City's seniors who live in dense neighborhoods have a wider range of transportation options, than those living in suburban or rural communities, there are still

1 Hood, *722 Miles: The Building of the Subways and How they Transformed New York*.
2 Ibid.

3 Federal Transit Administration, *Code of Federal Regulations Title 49 Section 37.53.*

opportunities for improvement.

New York City's current fleet of 6,000 buses is regulated by the MTA and is ADA-compliant. This fleet is outfitted with front door lifts or ramps which are fully accessible to assist those who need help with ambulation. They are also outfitted with rear and center door lifts to accommodate customers using wheelchairs.[4]

As an alternative to public transportation, taxis and paratransit services can be used to transport seniors and the disabled to appointments, senior centers, and other local destinations. Taxis and paratransit services both offer door-to-door transportation most of the time. Anyone that would like to be transported in a taxi must hail one on the street or wait at a designated taxi stand. Not all neighborhoods are served by taxis; therefore, a for-hire vehicle, or livery cab may be the only option when someone needs this type of service. New York City's paratransit service, known as Access-A-Ride, requires applicants to be pre-screened to determine eligibility.

Taxis and for-hire vehicles provide a transportation service for those that want to be taken to a specific location comfortably and for those that are not familiar with public transportation. Taxi rates vary depending on the distance of the ride. In the case of New York City, yellow taxis are more abundant in Manhattan than in the outer boroughs. For many people, taxis are used sparingly because they can be costly. Yet, there are some people who do not qualify for paratransit that have mobility limitations, and would benefit if taxi or for-hire services were readily available to them at affordable rates.

In order to receive paratransit access in New York City, one must be screened at one of the paratransit offices throughout the five boroughs. The administrator determines if the applicant is unable to use public transportation for either a specific duration of time, when the disability is temporary, or for an extended period due to a permanent disability. A challenge that faces the MTA is that it is very expensive to operate paratransit services in a city as vast as New York. Currently, New York City's paratransit system costs approximately $474 million a year, which works out to $66 per ride.[5]

Because of these current limitations with public transportation services, we look closely at improving accessibility within our transportation systems, furthering the potential of transit-oriented developments, and looking towards the gradual turnover to accessible taxis. Improving these developments in public transportation will enable aging New Yorkers to keep more mobile and active without having to change their everyday routines, and to stay engaged in the fabric of the City.

4 The Metropolitan Transportation Authority. *How to Ride the Bus.*
5 Kaminer, *A Godsend, Except When It's Not.*

LONDON, ENGLAND
Step-Free Access

IMAGE 8. Wide isle gates at Canary Wharf Station, London. Image used with permission from Transport for London.

Step-Free Access in London England focuses on making reasonable adjustments to London's underground rail system in order to provide step-free access, that is step free from the street to the platform, wherever possible.

This case study relates to *Age-Friendly NYC Initiative 23* which seeks to improve elevator and escalator service and enhance accessibility of subway stations.

BACKGROUND

London's underground rail system, the Tube, is the oldest in the world and some of its infrastructure dates back to the 1860s.[6] London is one of the largest cities in the world, with a population of approximately 7.4 million. In addition to the Tube, the city and surrounding region is served by buses, trams, ferries, light rail, taxis, and for-hire vehicles.[7] Although the Tube remains largely inaccessible, efforts are being made to add accessible infrastructure and new transportation options.

In 1995, the United Kingdom passed the Disability Discrimination Act (DDA), a law similar to the ADA. The DDA places an obligation on companies to make goods, facilities, and services available to disabled people (Section 19) and make reasonable adjustments if goods, facilities or services are not available to disabled people or if there is some barrier. For small shops with a step-entrance, this might mean simply making sure a wheelchair ramp is available. New train stations must be constructed to be fully accessible.[8] Reasonable adjustments will be determined by the circumstances at each station. Some stations may not be retrofitted because they are too small or because their platforms are too far underground for reasonable adjustments to be made. However, wherever possible, all steps or barriers will be removed or alternative access will be provided to create step-free access.[9]

In 2008, the Rail Vehicle Accessibility Regulations (RVAR) came into effect, which creates European accessibility standards for trains, light rail, and trams. The European regulation signifies that eventually European trains will be reasonably accessible.[10] The definition of a "disabled person," which was used in the 1995 DDA, was changed to "persons with reduced mobility" in the 2008 RVAR. In 1995, a "disabled person" was defined as a person with a mental or physical impairment which has substantial long-term effects on the person's ability to perform daily activities.[11] "Persons with reduced mobility" include all people with disabilities as used within the 1995 Act, but it also included others that may experience reduced mobility, such as pregnant women, and people travelling with small children.[12] Presently, all London trains have notices that designate seats for customers less able to stand such as: disabled passengers, older

6 Transport for London, *Business Plan 2009/10-2017/18.*

7 Walker, *Urban Audit III: London and other Large European Cities.*

8 Darren Crowson, Transport for London, Email Correspondence, 4 February 2010.

9 Ibid.

10 Ricability, *Trains and Trams.*

11 Office of Public Sector Information, *Part 1. Disability.*

12 Department for Transport, *Rail Vehicle Accessibility Regulations: Exemption Orders Annual Report 2008.*

people, pregnant women and anyone travelling with children.[13]

FINDINGS

Many old underground stations are not fully accessible or step-free but there is a program to try and change this wherever possible. Currently the Tube has 58 stations that are step-free from the street to the train platform.[14] Just as in New York City, all of London's buses are fully accessible. Transport for London (TfL), London's public transport agency, has included improving accessibility as one of the agency's top priorities in their 2009/10 to 2017/18 business plan. Some of the accessibility improvements include installing: wide-aisle gates on the Tube for people with wheelchairs, strollers, or luggage, more step-free access points, tactile strips and color contrasted handrails, and new electronic information displays (IMAGE 8).[15] One simple but effective thing being done is adding humps to some sections of platforms so the platform level is raised up to the door level.[16]

There are additional plans to improve accessibility and increase capacity with the construction of the Crossrail. The Crossrail is a new rail project that will provide 27 fully accessible stations in central London and provide connections to existing Tube stations, National Rail, Docklands Light Railway, and buses. Additionally, it is expected to significantly reduce congestion on the parallel Tube and light rail lines.[17] Crossrail is anticipated to open in 2017.[18]

The Docklands Light Railway, an automated train, was opened in the late 1980s to serve the London Docklands section of the city. It expanded over the years from 11 to 40 fully accessible stations. There are plans to expand the system and to elongate the trains in order to accommodate more passengers. The light railway provides connections to National Rail, the Tube, and buses. The system currently carries 67 million passengers a year, and that figure is expected to rise to 100 million by 2012.[19]

In addition to the Crossrail and the Docklands Light Railway, Tramlink opened in 2000. Tramlink is an electric streetcar system located in South London, an area that was underserved by rail. The tram consists of three lines that stop at a total of 39 accessible stations. It provides accessible links to the Tube, National Rail, and bus lines. Trams were once prominent throughout London, but they were phased out and replaced with buses beginning in the 1930s. Tramlink is the first investment of its kind in many years and passenger ridership has grown to 26.5 million a year.[20]

COST

TfL provides a plethora of information on their website including capital improvement costs, business plans, and future investment strategies. Step-free access improvements are expected to cost £226 million (approximately $352.7 million USD). TfL's aim is that by the end of 2010, 25 percent of Tube stations will be step free.[21] Future investment programs will address additional step-free access plans which will expand the accessible network.[22]

NEW YORK CITY APPLICATIONS AND OPPORTUNITIES

New York City's first subway opened in 1904, approximately 30 years after the first Tube.[23] Both London and New York City have infrastructure that was constructed many years before accessibility legislation took effect. There are requirements in place that both cities are complying with in order to improve their existing infrastructures. However, neither system is obligated to be fully accessible.

There are currently 72 ADA key stations in New York City, and the remaining number of key stations must be completed by 2020.[24] A station is designated as a key station if it meets ADA guidelines for accessibility. In addition to the mandatory 100 key stations that the city must have by 2020, there are currently 16 accessible non-key stations.[25] Additionally, any new station constructed must comply with ADA guidelines. Eighty-six out of 468 New York City subway stations or approximately 18 percent are currently ADA accessible. London's Tube currently has 58 step-free stations. The Tube has a total of

13 Ibid.
14 Transport for London, *Tube.*
15 Transport for London, *Business Plan 2009/10-2017/18.*
16 Darren Crowson, Transport for London, Email Correspondence, 4 February 2010.
17 Transport for London, *Transport for London Crossrail Investment Program.*
18 Ibid.
19 Transport for London, *Docklands Light Railway.*
20 Transport for London, *Tramlink User Guide.*
21 Darren Crowson, Transport for London, Email Correspondence, 4 February 2010.
22 Transport for London, *Step-free Access.*
23 Hood, *722 Miles: The Building of the Subways and How they Transformed New York*.
24 Permanent Citizens Advisory Committee to the MTA, *Welcome Aboard: Accessibility at the MTA.*
25 New York City Transit, *100 Key Stations List.*

270 stations; therefore approximately 21 percent of the system is currently accessible. In addition to the 58 accessible Tube stations, the Docklands Light Railway has 40 step-free stations and Tramlink has 39 accessible stations.

In London, TfL has expanded the rail network by adding light rail and trams to underserved parts of the city. Additionally, there are plans to add new infrastructure, such as the Crossrail which will increase accessibility and capacity in Central London. Light rail or streetcars could supplement the existing subway infrastructure in New York City, just as it has in London. The greatest barriers to adding new infrastructure is the cost and finding an appropriate location for a service facility. Several efforts to provide high speed rail have not been successful. There may be new funding sources when SAFETEA-LU, which went into effect in August 2005, is reauthorized in 2011. Occasionally there are funding sources available for mass transit improvements, such as the Federal Transit Authority's New Starts program which had helped fund new systems and extensions to existing fixed guideway transit systems.[26]

Currently, London's Tube and New York City's subway have roughly similar levels of system accessibility. Accessibility will increase in New York City when the Second Avenue subway and the 7 line extension are open. The 7 line extension is expected to open in 2013. The first phase of the Second Avenue subway is not expected to be completed until 2016.[27] Although, there will be 116 accessible subway stations by 2020, that will only be 25 percent of the entire system. The Second Avenue subway and 7 line extension will increase accessibility in the city, but system-wide there will still be many barriers.

Work plans are already in effect to keep adding to the number of accessible key stations in New York City's subway system to address the challenges of accessibility within public transportation. However, there are still improvements to be made in order to align with *Issue 23 in Age-Friendly NYC*, which suggests providing reliable elevator and escalator services and their statuses to the public before they make their trip.

26 Federal Transit Administration, *New Starts Fact Sheet.*

27 Metropolitan Transportation Authority, *Second Avenue Subway: Project Description.*

BOSTON, MASSACHUSETTS
Access at the MBTA

IMAGE 9. MBTA Accessible bus. Image used with permission from MBTA.

Access at the MBTA in Boston Massachusetts focuses on how a class action lawsuit settlement based on a lack of transit accessibility for the disabled was discriminatory, and had a major impact on the MBTA setting standards for other transit systems across the country.

This case study relates to the *Age-Friendly NYC Initiative 23* which seeks to improve elevator and escalator service including status information before making a trip, and enhance accessibility of subway stations, thereby improving trip efficiency.

BACKGROUND

The greater Boston area is one of the oldest cities in the United States with a major seaport located in the Boston Harbor. The Boston

Metropolitan region is a subset of the Greater Boston area. According to the 2000 U.S. Census, the Metropolitan Statistical Area (MSA) has a population of 5,819,100 and the City of Boston's population is 589,141.[28] Boston's elderly population comprises approximately 10 percent of the city's population.[29] The Massachusetts Bay Transportation Authority (MBTA) or the "T" became a part of the Massachusetts Department of Transportation (MASSDOT), effective June, 2009.

The "T" was built prior to the implementation of the American with Disabilities Act (ADA). On July 25, 2002, Boston Center for Independent Living (BCIL) filed a class action suit against the MBTA, stating that the transit system discriminated against the disabled. The claim of discrimination was based on the lack of accessibility available to the disabled to utilize and access public transit, including safety issues and security concerns. The plaintiffs claimed that the MBTA presented serious safety and security hazards and inequities, such as: inadequate ramp and wheelchair accessibility at subway and bus stations. Also the disabled were denied equitable access to public modes of transportation in violation of Title II of the ADA. The outcome of this lawsuit has had a major impact on the MBTA as well as other transit systems across the country.

As a result of the settlement of the lawsuit the MBTA made the following adjustments to their fixed route transit system and paratransit service (The Ride):

- Provided subway platform ramps; subway and train accessibility; proper training to operators of bus and trains to assist the disabled; and proper service to passengers with disabilities (IMAGE 9)
- Addressed the lack of operational and preventive maintenance on bus lifts, station elevators and escalators
- Improved the accessibility of the MBTA and fixed route service
- Ensured ADA compliance
- Developed service monitoring procedures responsive to customer needs
- Improved overall communication with all riders including for the disabled and seniors[30]

The settlement included all the necessary bus maintenance scheduling, operation purchases and rehabilitation, and subway and elevator operations. It also included station management and communication with passengers, and customers service along with training and management as well as provisions concerning monitoring and enforcement of the agreement.

The lawsuit settlement brought to bear the common interest of both parties to maximize their goals in creating one of the leading innovative accessible mass transit systems. BCIL, one of the groups representing the plaintiffs, now has a seat at the table to enforce and monitor paratransit decisions involving the disabled and senior populations. Moreover, this MBTA model sets the stage for older transit systems whose structures were built prior to the 1990s.

IMPLEMENTATION

There were three areas of policy implementation of the class settlement:

- Short-term strategies to improve accessibility and barriers to the MBTA system
- Long range planning goals
- Continuation of monitoring

The short-term partnership strategies of MBTA (The Ride) and BCIL were implemented and developed to improve procedures in training of operators to help the disabled and elderly. An aspect of the short term strategy also included customer relations and providing public service announcements highlighting the importance and availability of services. The other short-term strategy is the on-going coordination of four contractors that can utilize centralized dispatchers to locate emergencies and reduce unnecessary long waits and/or missed appointments. The continuing need to update emergency policies reflects the changing needs of the subscribers.

The Ride is the MBTA paratransit program that provides door-to-door transportation to individuals unable to use regular transit service. Individuals must submit an application to enter the program. This

28 United States Census Bureau, *2000 U.S. Census*
29 Ibid.
30 Massachusetts Bay Transportation Authority, *ADA Settlement Notice Summary.*

application attests to their disability (physical, cognitive, or mental disability). The Ride began its operation in 1977, from a relatively small operation serving a 12 mile area in Brookline, Cambridge, and parts of Boston. It has now grown to one of the largest paratransit operations in the nation covering 729 square miles.[31] The paratransit vehicle fleet consists of 233 sedans and 357 vans that are 100 percent accessible. Its operational area is composed of 60 cities and towns including Boston, which is the largest city with a population of 591,763 (2000 U.S. Census) in the service area. The paratransit system services over 1.8 million passengers a year and operates between the hours of 6:00AM to 1:00AM seven days a week.[32]

The Ride has the latest communication equipment to enhance its response to subscribers (61,000) which consist of a population that is 80 percent ambulatory and 20 percent wheelchair users. The response time has improved to 98.5 percent based on pickup time and appointment.[33]

This service is provided by private contractors who are subject to an open competitive bid process to attain a contract for a period of five years. The coordination of services is provided by three contractors servicing the 4 zones or service areas:

- North (Blue) -Greater Lynn Senior Service
- Northwest (Red)-Veterans Transportation Services
- South (Green)- The Joint Venture TTI/YCN Transportation
- Boston Area (Yellow) - All contractors serve this area

The second part of increasing "T" accessibly includes long-term strategies and implementation. The fixed route accessibility is more capital intensive and requires longer time periods to accomplish its goals. Since early 2000, the following are recent fixed route achievements:

- Bus fleet consists of 993 buses, 100 percent accessible.
- The majority of the commuter rail stations have LED signage.
- MBTA has designated 80 key stations to be made accessible by 2010, which is a greater percentage than any other transit system in the country.[34]
- Increased operation of all elevators at joint commuter rail stations in Boston.[35] The maintenance of these elevators creates various challenges because of the 15 different manufacturers involved. Maintaining stocks of inventory parts are difficult and sometimes parts are difficult to find. The ages of these elevators vary and only 10 percent are under warranty.[36] There was no official policy or procedure to provide alternative service when an elevator is inoperable. The MBTA implemented a plan in 2005 to track out-of-service elevators that were not returned to service the same day. MBTA reports that the availability of elevators is presently over 96 percent.[37] It has established an elevator replacement program designed to avoid the operation of elevators beyond their effective life.[38]

The third area of policy implementation per the settlement is the continuation of monitoring the MBTA. An independent monitor was appointed by the court to assess compliance goals of the settlement.[39] The Department of System-wide Accessibility (SWA) was created to be a clearinghouse of information regarding access-related issues, projects, and initiatives. Some of the department's functions include:

- Tracking settlement compliance.
- Drive change when necessary throughout the MBTA.
- Employ undercover testers and observers to assess compliance with the provisions in the agreement.[40]

FARES

The MBTA launched a premium discount plan for seniors and the

31 DeNucci, *Independent State Auditors Report on Massachusetts Bay Transportation Authority Administration of the Ride Program July 2004 to June 2008.*
32 Massachusetts Bay Transportation Authority, *Chief Operating Officer*.
33 Carol Joyce Harrington, Massachusetts Bay Transportation Authority, Phone Interview, 11 February 2010.
34 TranSystems Corp. et al., *Evaluation of MBTA Para-transit and Accessible Fixed Route Transit Services Final Report.*
35 Ibid.
36 Ibid.
37 Ibid.
38 Ibid.
39 MBTA Accessibility Lawsuit Update, Fall 2007.
40 MBTA ADA, MBTA *Settlement Notice*, April 25, 2006.

disabled. The Transportation Access Pass (TAP) is known as Charlie Card and provides discounts on different modes operated by the "T" except the Ride. (The Ride is a restricted unit for the disabled and the fare is $2.00 to all destinations within the service area.)[41]

The discount for Charlie Card users on most modes of "T" transit took effect January 2007. The "T" implemented cards for seniors 65 and over, persons with disabilities, and the blind/visually-impaired. The "T" has issued over 155,000 Charlie Cards for seniors and persons with disabilities including 6,000 cards for the blind and visually-impaired.[42] A photo ID card permits access to ride all "T" services for free.

The "T" developed requirements for seniors, the disabled and the blind/visually impaired to undergo an application process to obtain their Charlie Cards. With the implementation of the Charlie Cards, seniors and the disabled have a stable way of travelling with options of either single one-way trips or multiple discounts plans. The improvement in accessibility and the promotion of this program has opened the possibility of greater local travelling for this group of individuals.

FINDINGS

The lawsuit has altered the MBTA decisions impacting long term priorities, budget planning and organizational structure. It has had a direct impact on the organization and ridership. It has set the standards that other transit systems have been able to use as a benchmark such as New York City Transit, City of Chicago Transit, and Philadelphia Transit; each of these are considered older transit systems across the country, although the physical conditions in each system are different.

Terms of the class action settlement removed the endless analysis and discussions that succeeded in paralyzing the decision-making process of projects from start to completion. The settlement's terms required time tables, policy changes, restructuring of management, training requirements, coordination, schedule maintenance and preventive maintenance including new procedures in designing and replacement of parts and purchasing of new equipment.

The partnership between the activists groups, the "T" and The Ride established a push and pull relationship stimulating major achievements through transit program development and evaluation because of the settlement. These achievements exceeded the requirements set by the ADA (1990). The Ride has increased its subscription, improved its pickup and drop off time, increased the number of vehicles available and shortened the waiting list expanding hours of service. The "T" has expanded the accessibility for its fixed route services. New technology and communication equipment have improved transit safety and signage. This series of improvements are all tied together with effective procedures, monitoring and response by the MBTA in compliance with the ADA.

As an outcome of the class action suit, the MBTA safety and security functions have been enhanced, and have added to the well being and protection of the system's users, especially for the elderly and the disabled. The MBTA maintains its own police force patrolling areas either by foot or in vehicles. They have specialized patrols with K-9 dogs and utilize other special methods to detect any illegal activities that may take place in their jurisdiction.

The "T" maintains several closed-circuit television facilities located throughout its service areas.[43] Cameras monitor various key locations on train platforms and in subway stations, inhibiting those with illegal intentions from preying on unsuspecting travelers during their journey. The "T" has accessible telephones and informational numbers in key locations for emergencies and quick response time from one of the central operational centers.[44] Since the upgrade in purchasing of technology, training and equipment in 2009, the "T" has reported a 21 percent reduction in serious crimes. Accordingly, the issue of safety and security is a major factor encouraging ridership.[45]

Boston's key station plan is the most aggressive in the country. Currently 65 percent of the MBTA stations are accessible compared to 18 percent of New York City's subway stations. Both cities were required to create a key stations plan as a result of a lawsuit, but the settlement in Boston has so far resulted in a much higher percentage of accessible stations.

The selection of 80 key stations was a compromise between the

41 Massachusetts Bay Transportation Authority, *Reduced Fares.*
42 Ibid.
43 Ibid.
44 Metro Magazine, *MBTA Crime Drops to Lowest Levels in 30 Years.*
45 Ibid.

MBTA and the Advisory Committee. The MBTA initially wanted 50 key stations and the Advisory Committee wanted 150 key stations. The criteria used in selecting the stations took into account the following: (1) stations near major travel destinations, (2) stations that connect to other modes of transport, and (3) stations with high ridership.[46]

NEW YORK CITY APPLICATIONS AND OPPORTUNITIES

By 2020, 25 percent of New York City's subway stations will be accessible. In addition to the inaccessible stations, the key stations can quickly become inaccessible when an elevator is out of service. Since 2007 the MTA has been posting elevator and escalator outage information on their website, updating it three times a day.[47] Yet when problems occur while a person is in transit, typically there are no alternative ways of accessing a station. In Boston, the MBTA has established an elevator replacement program designed to avoid the operation of elevators beyond their effective life.[48] The goal of this program is to reduce breakdowns so that people are better able to move throughout the system. In stations that have reoccurring elevator outages perhaps alternative ingress and egress should be explored, such as wheelchair accessible escalators. Adopting policies that can dramatically increase transit options for New Yorkers with limited mobility is in accordance with transportation initiatives stated in 2030 PlaNYC to improve access to existing transit.

The accessibility issues of key stations in New York City's transportation system are currently being addressed both by previous regulation and requirements and by *Initiative 23 of Age-Friendly NYC*, which seeks to improve elevator and escalator service, and enhance accessibility to subway stations. There is potential to further improve existing transit infrastructure to make it more accessible.

46 Kathy Cox, Massachusetts Bay Transportation Authority, Telephone Interview, 19 February 2010.
47 Neuman, *Taking the Guesswork Out of Which Subway Escalators are Broken.*
48 TranSystems Corp. et al., *Evaluation of MBTA Para-transit and Accessible Fixed Route Transit Services Final Report.*

LONDON, ENGLAND
Accessible Cabs

IMAGE 10. Modern London Cab. Traditionally called black cabs, but now they may be found in other colors. Photo used with permission from Transport for London - Taxi and Private Hire.

Accessible Taxis in London England focuses on taxi programs, private, for-hire vehicles and paratransit that serve as alternatives to public transportation.

This case study relates to *Age-Friendly NYC Initiatives 24, 25, 26 and 27* where the concentration is on improving Access-A-Ride, matching accessible taxis with users who need them, developing a model accessible taxi and a taxi voucher program for older adults.

BACKGROUND

In addition to the Tube and buses, London is served by taxis, private for-hire vehicles, and minicabs (IMAGE 10). The Public Carriage Office (PCO) is responsible for the licensing of all taxi and private hire

services.[49] Taxis can be hailed on the street, at designated taxi stands (there are approximately 500 taxi stands throughout the London area) or a person can call to reserve a taxi. The first accessibility taxi law was put into effect on February 1, 1989. It required that all newly licensed taxis (not the ones already in operation) be capable of carrying a passenger that is in a wheelchair. On January 1, 2000 a second law was passed requiring all taxis licensed for use in London to be capable of carrying a passenger who is a wheelchair user.[50]

In London, there are four programs that provide customers an alternative to public transportation. These four programs (Taxicard, Capital Call, Cabwise, and Dial-A-Ride) described below work by either subsidizing a taxi ride, private for-hire vehicle, or paratransit service. Although each has their own eligibility requirements there is some overlap.

ELIGIBILITY

The Taxicard program is available to older and disabled London residents with serious mobility impairments. A general practitioner must endorse an applicant if it is determined that a person has a mobility impairment.[51] This program allows those eligible to take a traditional London taxi at anytime for a subsidized rate. Capital Call is another program, which has the same eligibility criteria as Taxicard. People may become members of both programs and use them both. The difference between the two programs is that Taxicard is used with the traditional London taxis and Capital Call is for subsidized trips in private for-hire vehicles, such as the livery cabs in New York City. In 2008/2009 there were 84,000 Taxicard members using 1.6 million Taxicard trips, and 8,500 Capital Call members using 23,500 Capital Call trips.[52]

In addition to booking a taxi over the phone, there is a service called Cabwise which allows people to text the word 'home' or 'cab' to a dispatcher. The person that sent the text will receive a response shortly-thereafter with the numbers of the two nearest 24 hour taxi companies. Cabwise is a service available to anyone and it provides information for customers that need on-demand service from various locations in the London area.

Dial-A-Ride is another program that provides transportation for those with a permanent or long-term disability that makes using the public transportation system virtually impossible. Dial-A-Ride is different than the other services because it must be booked in advance. Dial-A-Ride is for trips that include activities such as shopping, visiting family and friends, and other recreational activities. Dial-A-Ride is not to be used to attend doctor's appointments, for traveling to and from work, or for school transport.[53] A person is automatically eligible for Dial-A-Ride if they meet any of the following criteria: is a current member of Taxicard, registered blind, age 85 or over, in receipt of higher rate attendance allowance, or in receipt of war pension mobility supplement.[54] Dial-A-Ride is similar to New York City's Access-A-Ride program.

FUNDING

All four programs offered to disabled and elderly individuals that have limited mobility are subsidized by the government either partially or fully. Dial-A-Ride is free to the user. Taxicard is financed by the London boroughs and the Mayor of London, and is administered by the London Councils Transport and Environment Committee. The program varies slightly from borough to borough. Most Taxicard users pay a flat fare of £1.50 (roughly $2.40) per trip. The rest of the trip is covered by the borough subsidy, with the exception of the member fee, which would bring a ride to roughly £3.70 (or $5.80) per trip.[55] Capital Call is operated by the Transportation Co-ordination Center (TCC), and is funded by a grant from the Mayor of London.[56] Each Capital Call member receives an allocated annual travel budget. The member must pay the first £1.50 (or $2.40) of each trip. When the budget is used up, the person must wait until the next fiscal year begins.

FINDINGS

London residents that need alternative transportation have many options. The Taxicard and Capital Call programs allow those that meet the eligibility requirements to have on-demand, door-to-door transportation service. In New York City, Access-A-Ride, which is similar to Dial-A-Ride, must be booked in advance, which may not

49 Darren Crowson, Transport for London, Email Correspondence, 5 October 2009.
50 Ibid.
51 Transport for London, *Taxicard.*
52 Darren Crowson, Transport for London, Email Correspondence, 5 October 2009.
53 Transport for London, *Dial-A-Ride.*
54 Ibid.
55 Transport for London, *Taxicard.*
56 Transport for London, *Capital Call.*

be convenient for everyone that needs to use this service. These programs are highly subsidized; therefore the boroughs and the City of London pay a significant amount to keep these programs in service. Access-A-Ride is subsidized as well, and as a result, some aspects of the program may be cut due to budget shortfalls. These programs exist in a city comparable to New York City and provide valuable ideas that if able to be funded, could make travel more convenient, by creating an on-demand option for those that currently use Access-A-Ride.

NEW YORK CITY APPLICATIONS AND OPPORTUNITIES

New York City has many programs that allocate funding to organizations that provide services for the disabled and elderly. Access-A-Ride is a paratransit service run by NYCT available to those that are unable to use public transportation in New York City. Prior to becoming an Access-A-Ride user, an individual must be evaluated at an assessment center. Subsequent to the evaluation it takes the MTA approximately three weeks to come to a determination and notify the individual of their eligibility. If found eligible for Access-A-Ride, the member must pay the full public transportation fare and may arrange to bring a personal care attendant (pca), guest, or a dependent child. Eligible members may be reimbursed for taxis and for-hire vehicle trips only if NYCT has made an error in the arrangements for Access-A-Ride. The service is available 24 hours a day, but one can only reserve a car between the hours of 7AM and 5PM and at least one to two days in advance. This service is used for doctor's appointments, visits, and other planned trips within the five boroughs. Access-A-Ride does not provide on-demand transportation services.

Additionally, New York City has many yellow taxis and livery cabs (black cars). There is only one way an individual can reserve a yellow taxi, and that is by hailing one on the street. Livery cabs are intended to be used as a call-ahead car service, but in some neighborhoods where taxis are scarce one may flag down livery cabs on the street. One goal of the Mayor's Office recent report, *Age-Friendly NYC*, is to create a taxi voucher program for older New Yorkers who are unable to use public transportation.[57]

The Accessible Dispatch Demonstration pilot program began in July 2008. It was a two-year pilot program. If implemented, the program will allow passengers in wheelchairs seeking transportation to call New York City's 311 system to request an accessible vehicle. The Taxi and Limousine Commission (TLC) will then dispatch the nearest available vehicle in response to the request.[58]

The private market has responded to the impending older adult population growth. One company in particular, The Vehicle Production Group (VPG) has designed a vehicle they called the MV-1, which they are marketing as a paratransit or taxi vehicle. The company did a number of demonstrations in large U.S. cities, including New York City (IMAGE 11). The vehicle is designed to carry up to two wheelchair passengers or six seated passengers comfortably.[59]

In November 2010, Mayor Bloomberg and NYC Taxi and Limousine Commissioner David S. Yassky introduced a competition called the "Taxi for Tomorrow" which introduces the first-ever custom-built taxicab specifically designed for New York City. The project is designed to maintain the iconic design of the yellow taxicab of New York City

IMAGE 11. MV-1 with ramp shown with ramp extended for wheelchair access. NYC DCP.

57 Mayor's Office, *Age Friendly NYC-Enhancing Our City's Livability for Older New Yorkers.*

58 New York City Taxi and Limousine Commission, *Notice of Promulgation of Rules*.

59 VPG LLC., *Mobility Reinvented Introducing the MV-1.*

while enhancing safety, sustainability, and accessibility for New Yorkers. According to the Mayor's press release, the project began in 2007, the winning design of the cab will be announced in 2011 and the gradual taxi fleet turnover will begin no later than the fall of 2014.[60]

New York City's paratransit services provide transportation to thousands of users over a vast geographical area. If the taxi fleet was 100 percent accessible, then demand for paratransit would likely decrease. Since current taxis do not cover most areas in the outer boroughs, paratransit would still be needed. There may be opportunities to expand the Accessible Taxi Dispatch Demonstration pilot and expand the requirements for those that can use it to include seniors or those utilizing electric scooters or walkers.

60 City of New York. Mayor's Office. "Mayor Bloomberg and Taxi Commissioner Yassky Announce Three Finalists to Be the New, Exclusive New York City Taxicab."

PORTLAND, MAINE
ITN Portland - Dignified Transportation Services for Seniors

IMAGE 12. The standing woman was a volunteer who drove enough miles to go around the world three and a half times. She is now using her transportation credits as a riding member. Image used with permission from ITN Portland.

Independent Transportation Network in Portland Maine focuses on a program which expands transit options for seniors by employing both paid and volunteer drivers to provide flexible on-demand affordable transportation that is reliable and efficient.

Independent Transportation Network provides an efficient and reliable alternative transit option, and relates to *Age-Friendly NYC Issue 24* concerning the efficiency and reliability of Access-A-Ride.

BACKGROUND

The Independent Transportation Network (ITN) is a private, non-profit organization dedicated to serving the senior community in Portland, Maine, with their transportation needs (IMAGE 12). It was started by Katherine Freund in the mid-1990s after her three-year-old son survived being hit by a car driven by an 84-year old driver. That event

sparked an interest in transportation issues for her, which led to the development of the Independent Transportation Network. The program offers rides to older adults in the greater Portland, Maine, area. The user must pay for ITN's transportation services at a rate based on the distance travelled and whether or not the ride is shared. Currently, Ms. Freund serves as president and executive director of ITN America, which has grown into a national organization. She set up a pilot project in the Portland area with the objective of creating a model that other communities could replicate. In Portland, the program provides nearly 17,000 rides a year to about 1,000 members age 65 and older. ITN America now has nine affiliates which provided almost 26,000 rides in 2007, and expects to have 40 affiliates by 2010.[61]

ITN aims to provide a transportation alternative to people who have grown up and grown old with the automobile. The Independent Transportation Network begins by examining some of the implied assumptions underlying current alternative transportation practices. These assumptions include:

- When seniors who have traveled in automobiles all their lives can no longer safely drive, they will be satisfied with transportation in vans or buses.
- Seniors who have paid for their own transportation all their lives need rides in publicly subsidized transit when they stop driving.
- Seniors who still drive have sufficient mobility.
- Seniors, who maintain their safety by limiting their driving to daylight hours, familiar roads, fair weather, and non-rush hour travel, always feel safe on those occasions when they do drive.

The ITN replaces these old assumptions with new assumptions. These include:

- Seniors who have traveled in automobiles all of their lives prefer to travel in automobiles.
- Seniors who have paid for their own transportation all of their lives prefer to pay for their own transportation. There is dignity and independence in doing so.
- Seniors who limit their driving to maintain their safety may have limited mobility even if they still possess and use a driver's license.
- Seniors who limit their driving because certain times, conditions, and driving situations feel unsafe, may feel unsafe when or where they do drive.[62]

The ITN is a transit service that provides seniors with their transportation needs so that they can continue to be mobile in a way that is safe for them.[63]

FUNDING

In addition to membership dues, rider fees and charitable gifts, additional funding is made available through voluntary local community support. Area retailers became involved in the "Ride and Shop" promotion, to help pay for rides for their customers. Doctors' offices and clinics can help the program and meet the transportation needs of their patients with donations to the "Healthy Miles" program. The goal is to make each community program self-sustaining within a five year period.[64]

FINDINGS

ITN Portland uses private automobiles to transport people over 65 and the visually impaired, anywhere within a 15 miles radius of Portland, which includes 13 towns. ITN is available 24 hours a day, 7 days a week, and offers flexible service through paid and volunteer drivers. A background check of the drivers is conducted based on their driving and criminal records. Prior to application, vehicles are inspected and drivers are tested. The screening process of the drivers and their vehicles may vary at other affiliates.[65] Volunteers use their own cars to drive people, but the organization also has a fleet of donated cars, which are driven by paid drivers. There are no restrictions on the trip's purpose; for example, it can be for medical appointments, shopping, social visits, or other purposes.

In addition, volunteers may perform many of the organization's office

61 Greene, *12 People Who are Changing Your Retirement.*

62 Freund et al., *Independent Transportation Network: Alternative for the Elderly.*
63 Ibid.
64 Ibid.
65 Lisa Holbrook, Portland Independent Transportation Network, Telephone Conversation, 15 December 2009.

activities and outreach function. Volunteer drivers receive a small mileage reimbursement. They can also earn credits for their own transportation should they forego driving in the future or donate them to relatives, friends or needy riders.

Specific fares are determined by several factors: the mileage, the time the trip takes, whether the riders are willing to share a ride, and whether the trip is planned or service is needed immediately. ITN uses a cashless, pre-paid account system, earning discounts for advance planning and ridesharing. The average charge per trip is around $7.50 with a minimum charge of $5.00. There is a 15 percent discount for sharing the ride and a 50 percent discount for advance planning. Fares do not cover the full cost of the rides ($13.81 per trip on average). Some donated funds are used specifically to provide rides for low-income people who cannot afford the fares with its "Road Scholarship" program.[66] Riders can also earn credits by donating their own cars to ITN through their "Car Trade" program after they've decided they should no longer drive, unlocking the value of an asset that normally would just be sitting in their driveway.[67]

NEW YORK CITY APPLICATIONS AND OPPORTUNITIES

Around the US with approximately 15 affiliates the service that ITN provides is growing in demand. With the expected population growth of the elderly population in NYC the demand for ITN's type of service may rise. Although current ITN organizations tend to be situated in less dense areas, a new affiliate has recently been established in the City of Chicago. Chicago, like New York City, has a number of transportation options but believes there is a role for a dignified, yet reliable transportation system that meets the needs for door-to-door accommodation. The program in Chicago illustrates the model's capacity for replication among a diverse range of locations, including major cities like New York. Existing systems of public transportation in New York City were not built for people who become frail as they age and programs like Access-a-Ride may still leave some transportation needs unmet. ITN offers a transportation alternative that is proving to be effective in some parts of the country.

66 Niesz, *Independent Transportation Network: Senior Transportation Public/Private Partnership*.
67 Kaplan, *Maine's Independent Transportation Network Could be a Model Program for Minnesota Seniors.*

Pedestrians on Brighton Beach Avenue underneath B,Q trains on the Brighton elevated line. NYC DCP.

06 PEDESTRIAN IMPROVEMENTS -
Signage and Crosswalk Changes

Older adults are more likely to suffer from serious injuries from a particular accident than people from younger age cohorts.[1] Thus, when designing and planning for our aging population, accident prevention is the best practice. Some municipalities have installed lighting mechanisms to highlight the areas, namely crosswalks, where pedestrians come into conflict with vehicles (IMAGE 13). There are several approaches to highlighting crosswalks. The most common method is the installation of flashing lights denoting the presence of a crosswalk; they include: flashing lights on the sign to warn of people crossing, a flashing overhead beacon, or ground flashers.

Signage and crosswalk improvements will not only address the needs of our aging population but will be beneficial to all pedestrians. Additionally, more people will experience the physical changes associated with aging because of the rise in life expectancy. It is important that the walking environment is addressed now in order to allow people of all ages and abilities the opportunity to use the streets and sidewalks safely. It is also vital that these safety measures be incorporated to prevent potentially dangerous vehicular-pedestrian conflicts.

IMAGE 13. The schematic shows how the flashers work. As a pedestrian enters the crosswalk, flashing LEDs embedded into the pavement start flashing to warn drivers. Image used with permission from the Pedestrian and Bicycle Information Center.

1 Bailey, *Aging Americans: Stranded Without Options*.

NAVAL STATION MAYPORT, FLORIDA
LED Crosswalk Signs

IMAGE 14. These pedestrian crossings have flashing lights installed on them. When a pedestrian enters the crosswalk the lights begin to flash. Image used with permission from Payton Chung.

LED Crosswalk Signs installed in Naval Station, Mayport, Florida, focuses on highlighting crosswalks with flashing lights on the pedestrian crossing itself.

This case study relates to the *Age-Friendly NYC Initiative 31* which is concerned with safety improvements by redesigning street intersections including upgraded and improved signage.

BACKGROUND

The third largest Naval Facility in the continental United States, the Mayport Naval Station (NS), is located on the northeast coast of Florida. Vehicular traffic is the heaviest at Mayport Naval Station on weekday mornings. The crosswalk leading to Southeast Regional Maintenance Center (SERMC) had long been a dangerous area for pedestrians.[2]

The Mayport Naval Station has a unique approach to flashing crosswalks (IMAGE 14). It is a rare example of flashing lights on the actual pedestrian crossing sign. On one of the busiest intersections of the base, traffic signals caused such backups in traffic that they were removed. As a result, the crosswalk on the busiest street on the base only had a striped crosswalk.

FINDINGS

In order to remedy the numerous near pedestrian and vehicle collisions, the Naval Station security, safety, and the Public Works Department worked together to improve pedestrian safety.[3] The Public Works Department purchased warning signs that were installed by the Naval Station's maintenance contractor.[4] These signs meet the Department of Transportation's safety requirements and have ultra-yellow bright LEDs that blink up to 60 times per minute and remain on at all times.[5] The safety features protect pedestrians by increasing the sign's visibility range up to twenty times.

Another Florida Naval Station, located in Jacksonville, installed signs similar to the ones at Naval Station Mayport. According to an assessment of crosswalks that had the sign installed, accidents were reduced by 100 percent in the past ten months.[6] The expectation is that the LED pedestrian signs at Naval Station Mayport will mimic the results experienced in Jacksonville.[7]

NEW YORK CITY APPLICATIONS AND OPPORTUNITIES

New York City currently does not employ flashing LED pedestrian signs. The signs are designed to alert the driver to look out for pedestrians. It is uncertain whether the signs would have the same effectiveness in New York City as in Florida, because pedestrian and vehicular traffic are regulated to a great extent by traffic signals. As illustrated

2 Traffic and Parking Control Co. Inc. (TAPCO), *LED Crosswalks Signs Enhance Traffic Safety at Naval Station Mayport.*
3 Jirus, *Avoiding Near-Misses in Crosswalks.*
4 Traffic and Parking Control Co. Inc. (TAPCO), *LED Crosswalks Signs Enhance Traffic Safety at Naval Station Mayport.*
5 Ibid.
6 Jason Kugel, TAPCO, Phone Interview, 19 October 2009.
7 Traffic and Parking Control Co. Inc. (TAPCO), *LED Crosswalks Signs Enhance Traffic Safety at Naval Station Mayport.*

in Image 14, the location shown in the photo is an unsignalized crosswalk. This would suggest the traffic volumes are low and a signal is not warranted. There may be some areas in the outer boroughs that could benefit from LED pedestrian signs, such as in residential neighborhoods, and locations near schools and senior centers.

SAN JOSE, CALIFORNIA
Flashing Beacons and Ground Flashers

IMAGE 15. Embedded Flashers-The LED flash after the pedestrian enters the cross-walk. Image used with permission from Lightguard Systems, Inc.

Flashing Beacons and Ground Flashers implemented in San Jose California are sensor actuated flashing beacons and ground flashers that cause drivers to yield and brake further from the crosswalk.

This case study relates to the *Age-Friendly NYC Initiative 31* which is concerned with safety improvements by redesigning street intersections including upgraded and improved signage.

BACKGROUND

The City of San Jose has experimented with both flashing beacons and in ground flashers (IMAGE 15 and IMAGE 16). The state of California has been using the beacons for a number of years. The embedded flashers were approved in 1994. However, any locality wishing to use them still had to request authorization from the California Department of Transportation (Caltrans). San Jose received authorization in 1999.[8]

8 Malek, *Crosswalk Enhancement Comparison Study.*

The City of San Jose identified two intersections that had similar characteristics. Flashing beacons were installed on Samaritan Drive while embedded light were installed on McAbee Road. Both roads were equal in widths and rights-of-way and both had a two-way left turn lane. Samaritan Drive had four lanes of traffic, while McAbee Road had two travel lanes and two bike lanes. Their speed limits were different (30 and 34 for Samaritan Drive, respectively; and 35 and 42 for McAbee Road, respectively).

Both systems were installed at the same time. However, drivers may have come in contact with a flashing beacon before, as they have been used in California for a while. Two studies were conducted after the systems were installed; one month after and six months after. A study prior to the installation also took place at both intersections. A non-flashing intersection was not studied as a control. They were not evaluated under adverse weather conditions.

Image 16. A flashing beacon installation. The amber light flashes on and off for a specified amount of time after the pedestrian passes through the bollard at the crosswalk's curb cut. Image used with permission from William F. Yurasko.

FINDINGS

Embedded flashers were more likely to cause drivers, to yield and to brake further from the crosswalk. Table 14 shows that the percentage of drivers, yielding at the overhead beacon during the day, increased one month after the installation. At the sixth month, this percentage then decreased from the first month's percentage but still slightly increased over the prior period. The intersection with embedded flashers also experienced large increases in the number of drivers yielding after one month. However, in one direction, the percentage of drivers yielding continued to rise. The daytime braking distances

IMAGE 17. A side view of embedded flashers. Image used with permission from John Wright of Dallas Voice.

doubled one month after the beacon was installed and continued to rise six months later. The daytime braking distance at the intersection with embedded flashers decreased in one direction.[9] The nighttime figures are more encouraging (IMAGE 17). Both locations saw increases in the percentage of drivers yielding. The braking distances more than doubled one month after installation at both intersections.

The City of San Jose also administered driver and pedestrian surveys one and six months after the system installations. The drivers noted that the embedded flashers were far more effective than the beacons. Five percent thought the beacons were effective six months after installation. Whereas, sixty-six percent thought the embedded flashers were effective. Pedestrians responded that they would not rely on the beacon to stop drivers, whereas eighteen percent of pedestrians would rely on the flashers. It should be noted that pedestrians may feel a false sense of security with the added flashing lights and thus may make the intersection less safe.[10]

9 Ibid.
10 Ibid.

TABLE 14. Yielding and Braking Data-Before and After Installation

Location	Direction	Action	Day			Night		
			Before	1 Month After	6 Months After	Before	1 Month After	6 Months After
Overhead Beacon	Eastbound	Drivers Yielding (%)	1	4	2	0	5	8
		Braking Distance (feet)	63	133	243	0	175	190
	Westbound	Drivers Yielding (%)	5	14	8	2	5	8
		Braking Distance (feet)	87	165	266	87	200	228
Embedded Flashers	Northbound	Drivers Yielding (%)	10	44	46	5	64	80
		Braking Distance (feet)	143	245	232	148	329	352
	Southbound	Drivers Yielding (%)	12	54	52	5	68	72
		Braking Distance (feet)	214	186	192	105	324	286

Source: City of San Jose Department of Transportation

NEW YORK CITY APPLICATIONS AND OPPORTUNITIES

In recent years great strides have been made to alleviate walking perils, such as tactile strips, leading pedestrian intervals, refuge islands, and many other engineering improvements. NYCDOT has taken the lead and is working on many projects that aim to make streets safer, specifically for the elderly. It is vital that the surface network be maintained. For those that use walkers or other assistive devices, cracks or uneven pavement can cause major hardships. In 2009 Transportation Alternatives released Safe Routes for Seniors. The document presents a series of design and policy recommendations such as: installing benches in pedestrian refuge areas, having more bus shelters near senior centers, implementing leading pedestrian intervals (LPI) throughout the City, and fixing sidewalk and street hazards.[11] These seemingly small changes are very important for those that have great difficulty negotiating street and sidewalk hazards.

Ground flashers would impact maintenance costs, which is the primary reason they are not employed in New York City.[12] Some roadway devices alter the geometry or texture of the street and require the need for new equipment for street sweeping, snow removal, or landscaping.[13] Flashing beacons accompanied with 20 MPH signs were installed on streets adjacent to schools for a pilot program. The pilot locations were selected by analyzing crash and school data.[14] The results from the pilot showed that speeds decreased over time.[15]

San Jose's yielding and braking nighttime data is encouraging. Pedestrians are less visible at night than during the day, especially in residential neighborhoods that do not have many streetlights. There may be opportunities to introduce these safety measures, especially in areas with a high percentage of elderly residents.

NYC climate factors together with the high maintenance costs for ground flashers make their application in New York City a challenge; whereas flashing beacons may be a more practical alternative.

11 Transportation Alternatives. *Safe Routes for Seniors.*
12 New York City Department of Transportation. *School Safety Engineering Project: General Mitigation Measures-Final Report*.
13 Ibid.
14 New York City Department of Transportation. *Reduced School Speed Limit Pilot Study-Parts I & II.*
15 Ibid.

KIRKLAND, WASHINGTON
Pedestrian Actuated Crosswalk Flashers

IMAGE 18. Embedded flashers. Image used with permission from the City of Kirkland.

Pedestrian Actuated Crosswalk Flashers in Kirkland Washington focuses on crosswalk flashers that require the pedestrian to press a button to activate the flasher.

This case study relates to the *Age-Friendly NYC Initiative 31* which is concerned with safety improvements by redesigning street intersections including upgraded and improved signage, and addresses the challenge of time to cross an intersection.

BACKGROUND

The City of Kirkland is a suburb of Seattle and has approximately 50,000 residents. Although it is a small city, it lies further north than San Jose California and therefore has more adverse weather conditions. The City of Kirkland also installed embedded flashers in 1997 (IMAGE 18). While San Jose used sensors to detect pedestrians in the crosswalk, Kirkland used push button activators. In the San Jose model, bollards with infrared beams detect when a person passes through them and activates the flashers. In Kirkland, the pedestrian has to actually press a button to activate the flashers (IMAGE 19).

The City of Kirkland's Public Works Department also studied the intersections before and after the installation of flashers (IMAGE 20).[16] They used a similar methodology to San Jose to measure effectiveness. The results showed an increased percentage of drivers yielding to pedestrians increased at all ten intersections, and the braking distance also improved dramatically.[17] However, intersections without the flashers were not measured at the same time. Also, no further formal studies have taken place to see the long term effectiveness of the system.[18]

The City of Kirkland requested alterations to the flasher heads so that they could be more resilient to snowplows. The initial system they used has not held up well. However, additional modifications to the system have created a more durable unit.[19]

COST

The cost of the embedded flasher system has also dropped considerably from the initial installation. The first installation cost the City $35,000 per crosswalk. Two years later the cost had already dropped to $15,000.[20] Their costs are currently estimated at $20,000 to $50,000.[21]

Embedded flashers are a relatively new approach to dealing with vehicular pedestrian conflicts. Therefore, not enough data exists to support or refute their effectiveness.

Although, these installations may decrease accident rates at a particular intersection, they may actually increase the number of accidents at other locations because drivers may come to expect the crosswalk to flash at any location if a pedestrian is crossing. Also,

16 David Godfrey, Kirkland Public Works Department, Telephone Interview, 27 October 2009.
17 Godfrey et al., *Kirkland's Experience with In-Pavement Flashing Lights at Crosswalks.*
18 David Godfrey, Kirkland Public Works Department, Telephone Interview, 27 October 2009.
19 Ibid.
20 Godfrey et al., *Kirkland's Experience with In-Pavement Flashing Lights at Crosswalks.*
21 Streets Wiki, *Flashing Crosswalks.*

these crosswalks flash for a predetermined amount of time. If a person takes longer to cross (as is likely the case with the elderly), the flashers may have ceased to light up before the person gets a chance to cross the entire width of the street. Since the crosswalk flashers are most effective at night, these two issues may have to be addressed before any such system is to be implemented.

NEW YORK CITY APPLICATIONS AND OPPORTUNITIES

New York City experiences adverse weather conditions and heavy vehicle flows, therefore the embedded flashers would need to be durable. Although, there have been improvements to crosswalks in recent years, the embedded flashers and other crosswalk advances as seen in the San Jose and Kirkland case studies, could be beneficial if applied to New York City neighborhoods. There are many pedestrians in New York City, and at night it can be difficult to see them. Neighborhoods that do not have many street lights or traffic lights may benefit the most from embedded flashers. But as previously stated they may need to be modified in order to guarantee their effectiveness. The higher traffic flow and number of pedestrians need to be taken into account in order to determine the effectiveness of pedestrian actuated crosswalk flashers (that are embedded in the ground) to justify initial and maintenance costs.

NYCDOT began installing pedestrian countdown signals in strategic locations throughout the city. Pedestrian countdown signals visually count down the time a pedestrian will have to cross the intersection before the traffic lights change. This is a pilot program that began with five pedestrian countdown signals and will be expanded to 1500 locations. The locations were chosen based on pedestrian and vehicular volumes in addition to the proximity to areas with a preponderance of seniors, and a high number of pedestrian accidents or injuries. Other variables were examined including: visibility, lighting, drivers' compliance with traffic and pedestrian signals and the width of the roadway.[22] Results of the pilot program are not available at this time.

Pedestrian Actuated Crosswalk Flashers addresses the challenge of sign visibility at crosswalks and intersections, and relates to *Initiative 31 of Age-Friendly NYC*, which aims to redesign street intersections at key locations. Pedestrian actuated countdown signals have been implemented throughout New York City. Embedded flashers may be considered in the future, but are currently not a feasible solution because of the high costs for maintaining them in the City.

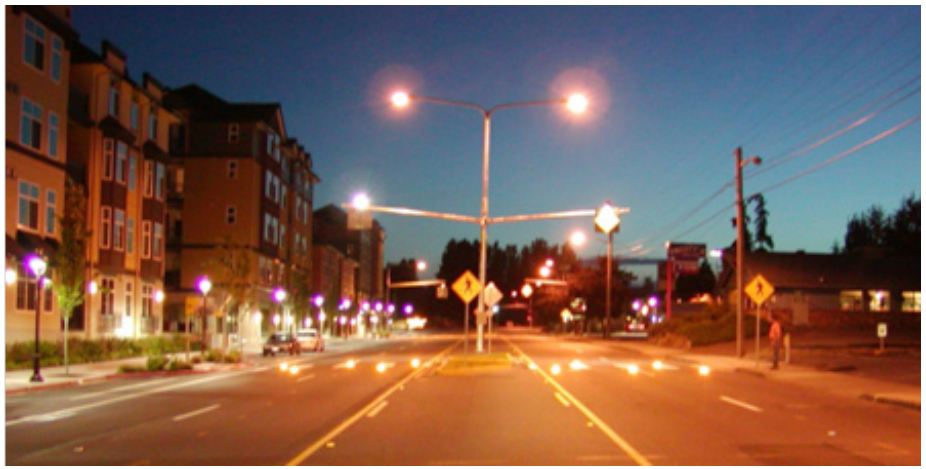


IMAGE 19. Embedded flashers at night. Image used with permission from the City of Kirkland, WA.

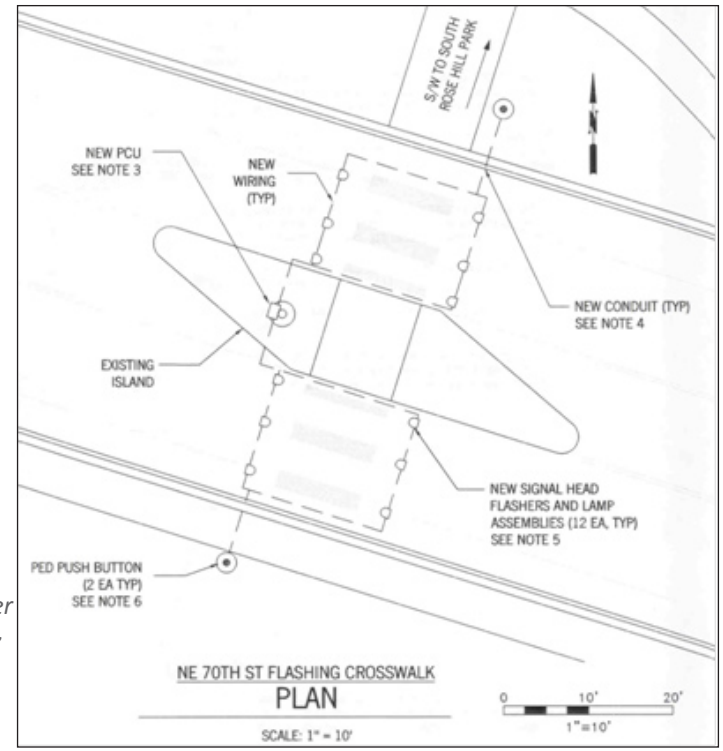


IMAGE 20. The embedded flasher plan for Kirkland, WA. Image used with permission from the City of Kirkland, WA.

22 New York City Department of Transportation, *Pedestrian and Sidewalks: Safe Streets for Seniors.*

Pedestrians crossing 63rd Street at Lexington Avenue

07 PLANNING TOOLS -
Smart Growth and Street Design

Zoning is an important planning tool which can be used to plan for the needs of older adults. In addition to zoning and legislation as planning tools, there are planning strategies such as smart growth, transit-oriented developments (TOD), complete streets, and universal design. Aging in place is a concept that gives older adults the ability to live in one's own home for as long as comfortably possible. It is connected to universal design principles, accommodating the needs of adults as well as any user. There is a growing desire among baby boomers and seniors to age successfully in their homes, where they are familiar with their surroundings and community. Aging in place, along with the incorporation of universal design and assistive technologies can lead to the elderly living a better life in their own environment.

Smart growth is a general term used to describe developments that conform to the surrounding land uses and neighborhood character, as well as minimize sprawl and rely on existing transportation infrastructure. Portland has designated a particular area in the city as an Urban Growth Boundary (UGB). This designation is a planning tool that originated in the 1970s in Oregon as a way to manage development. UGBs have helped to limit sprawl in the region.

The following case studies are examples of some localities that have gone beyond national guidelines and created policies in order to benefit the growing older adult population.

PORTLAND, OREGON
Smart Growth and Transit-Oriented Development (TOD)

IMAGE 21. Above garage Accessory Dwelling Unit (ADU). Image used with permission from the City of Portland, Bureau of Sustainibility.

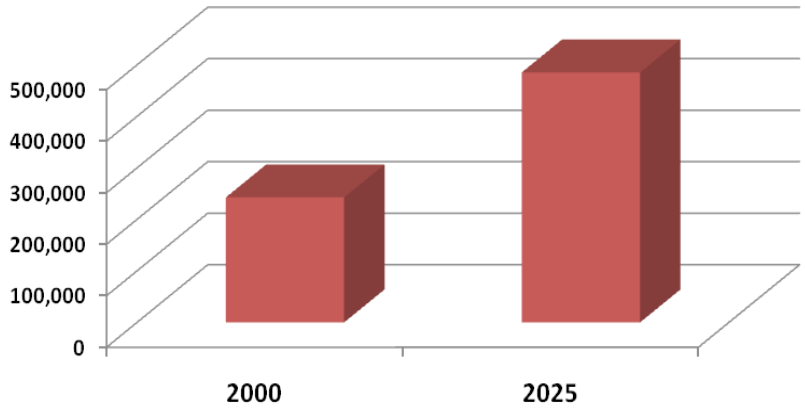
Smart Growth and Transit-Oriented Development in Portland Oregon focus on the use of smart growth which encourages the development of transit-oriented developments as a means to provide housing for older adults in areas that are closer in proximity to services and accessible transportation.

This case study relates to the *Age-Friendly NYC Issue 34* which states that the needs of older people should be incorporated into transportation and related planning efforts and *Age-Friendly NYC Initiative 22* that promotes development of and access to new models of housing that support aging in place.

BACKGROUND

The City of Portland, Oregon is shaped by the Willamette and Columbia Rivers. The population of Portland is significantly smaller than New York City, totaling 529,121 per the 2000 Census. When the entire Portland Metropolitan Statistical Area (MSA) is taken into account, the population is close to 2,300,000.[1] According to the 2000 U.S. Census, the Portland MSA has 242,683 people over age 65. It is estimated that the senior population will more than double, and its share of the population will rise from approximately ten percent today to over 16 percent in 2025 (FIGURE 20).[2]

FIGURE 20: Elderly Population (65+) in Portland MSA



Source: Based on data released by Oregon Office of Economic Analysis/Washington State Office of Financial Analysis

The decision to adopt an Urban Growth Boundary or UGB (a regional boundary that manages development) in 1973 has shaped the city that Portland has become. Other policies have evolved from that decision, including transit-oriented developments, accessory dwelling units, active aging programs, as well as active senior not-for-profit organizations. Although Portland's policies, do not explicitly state the benefits for the elderly, the older population does inherently benefit from a compact, well-planned multi-modal city.

Portland, like many other cities, is planning for future growth. Portland 2030: A Vision for the Future was released in February 2008. It is the end product of a two-year long, city-supported, community led initiative to create a plan for Portland for the next 20

1 United States Census Bureau, *Census 2000.*
2 Vision PDX. *Portland 2030: A Vision for the Future.*

years.[3] The plan covers issues such as sustainability, diversity, growth management, and aging.

This designation is a planning tool that originated in the 1970s in Oregon as a way to manage development. UGBs have helped to limit sprawl in the region.

FINDINGS

The UGB has moved many times since it was originally designated, as was the original intent. Although the UGB has been moved approximately 36 times since it was adopted in 1973, most of the moves were small, with the exception of a few large moves in 1998, 1999, 2002, and 2004. Every five years, Metro, the elected regional government responsible for managing the metropolitan Portland region's urban growth boundary, is required to conduct a review of the land supply and, if necessary, expand the boundary to meet the requirement.

Portland's UGB has worked by limiting sprawl and reducing the cost of urban services, and the UGB also assures agricultural uses outside the boundary, which enables farmers to make long term investments.[4] The UGB also encourages the development of transit-oriented developments, which is discussed in the next case study.

3 PDX. *Portland 2030: A Vision for the Future*

4 Trimet. *Community Building Sourcebook, Land Use and Transportation Initiatives in Portland, Oregon*.

PORTLAND, OREGON
Russellville Park Transit-Oriented Development

IMAGE 22. Russell Park TOD and the MAX train that serves it. Image used with permission from the Metro Development Center, Portland, Oregon.

Russellville Park Transit-Oriented Development (TOD) in Portland Oregon focuses on TOD with a senior component that is deemed a success and benefits the elderly and the entire community.

This case study relates to the *Age-Friendly NYC Issue 34* which states that the needs of older people, such as accessible and affordable housing units for the elderly should be recognized and included into transportation and related planning efforts.

BACKGROUND

According to the 2000 Census, 529,121 people live in Portland, Oregon. Of that population, 11.6 percent (61,378) are 65 and over. The Portland metropolitan area has transportation services common to larger U.S. and European cities, with light rail, streetcars, buses, and walkable neighborhoods. Oregon was able to achieve its

transportation network by emphasizing proactive land-use planning, establishing legislation, such as the urban growth boundary, and by establishing a Transit-Oriented Development program.[5]

The TOD program was codified in 1997 under Section 49 USC. The Federal Transit Administration Joint Development Policy and Threshold Criteria were published on March 14, 1997.[6] Metro is the elected regional government for Portland's metropolitan area. It works with communities, businesses and residents to create a vibrant and sustainable region for all. According to Metro's TOD guidelines, a development project is considered a transit-oriented development if it is physically or functionally connected to transit and enhances the use of the public transportation system. It also should promote a walkable environment.[7] There have been a number of sites developed as TODs. One of the developments, Russellville Park, was developed to include both market-rate rental housing, as well as senior independent living units and elderly assisted-living units.[8]

IMPLEMENTATION

Metro, Portland's regional government issued a Request for Proposal (RFP) in the late 1990s for the site near East Burnside Street and East 102nd Avenue. Russellville Park, which is located in the City of Portland's Gateway Plan District, is a TOD which was completed in three phases. The first phase produced market rate apartments, and the second and third phases produced both independent senior housing and assisted senior housing. The entire project took roughly ten years to complete.

The Gateway Plan District has been designated by Metro regional government as a regional center.[9] The first vision for this district was adopted by an ordinance in January 1996 as part of the Outer Southeast Community Plan. In February 2000, a resolution was adopted as part of the Opportunity Gateway Concept Plan and Redevelopment Strategy.[10] The vision, according to the plan, is that this district becomes the city center for East Portland. The zoning for the area promotes high density residential and mixed-uses.

The Eastside MAX Blue Line light rail train which runs along Burnside Avenue, was opened to the public in September 1986.[11] The East 102nd Avenue station is located steps from the Russellville Park development. According to the 2040 Metro plan, there is a plan in place encouraging certain types of development at different nodes along the MAX route (IMAGE 22).

FUNDING

The primary source of funding for Portland's TOD program is from the federal government distributed every two years via the Metropolitan Transportation Improvement Program (MTIP). The funds fall under the Regional Flexible Funds category along with bike trails, transit, and other projects. MTIP funding is exchanged with TriMet local funds in order to facilitate timely expenditure in a manner conducive to public/private partnership projects. Other funding sources to date have included CMAQ funds, direct FTA funds and earmarks, local government funds and interest earned. These local funds have included Metro general funds, local general funds, urban renewal funds, system development charge revenues, land sale proceeds, and business energy tax credits.[12]

FINDINGS

Russellville Park is located east of downtown Portland. The complex is located within steps of the Eastside MAX Blue Line at the East 102nd Avenue train station. If a person uses an assistive device, such as a walker or wheelchair, they are able to negotiate the trip from the housing complex to the MAX station because of the design of the complex and the train station. The station was constructed at grade, and sidewalks are provided for the entire stretch with the curb cuts aligned, making the station accessible.

Although Russellville Park was constructed as a TOD and is within one-quarter of a mile from the East 102nd Avenue station, many elderly tenants use public transportation infrequently. Based on results from a 2007 survey which were mailed to residents that lived within one-quarter of a mile from a MAX Line station, it was discovered that residents of Russellville Park had very different travel patterns

5 Metro, *Urban Growth Boundary.*
6 Metro, *Transit-Oriented Development Program Process and examples presentation.*
7 Ibid.
8 Marcello, *Case File Number LU 09-137349 DZM Two New Signs on Russellville Park West Building.*
9 Ibid.
10 Portland Bureau of Planning, *Gateway Regional Center: Report to Metro*.
11 TriMet, *East Side MAX Blue Line: the Banfield Light Rail Project.*
12 Meganne Steele, Metro, Email Correspondance, 29 September 2009.

from the rest of the TOD residents.[13] Despite the fact that the transit system is completely accessible, elderly residents made fewer trips than expected. According to the survey's results, Russellville Park residents made 2.9 total trips per household every two days. The mean number of total trips for all Eastside TODs, excluding Russellville Park was 5.3 trips.[14] The residents are taken on MAX outings occasionally with a staff member from the housing complex. Some typical excursions include shopping, attending an event or simply traveling to another part of the city. Yet, for most appointments and shopping trips, if a resident of Russellville Park needs transportation, the complex can provide it. The complex owns two Lincoln Town Cars and two minibuses.[15]

Russellville Park is a TOD that provides residential living near accessible transportation. Although the mode share for the Russellville Park TOD is less than others along the MAX Blue Line, it is important to note that all the stations were built to be accessible to those that may need to use mobility devices. Seniors 65 and over, people on Medicare, or those with disabilities, pay the honored citizen fare, which costs less than half of a regular adult all-zone fare.[16]

The TOD review process involves comparing different types of developments that could be constructed at a particular site, which is known as the base case. The TOD case is determining how the site could be developed when considering public transportation. The next steps are to determine what the transit ridership will be, and how much revenue those riders will produce.[17] Although the current inhabitants of Russellville Park do not use the MAX Blue Line to the same degree as residents of other TODs, the development has been deemed a success.[18]

13 Dill. *Travel Choices at TODs: Survey Results from Portland's Eastside.*
14 Ibid.
15 Metro, *Transit-Oriented Development Program Process and examples presentation.*
16 TriMet, *Honored Citizen Fare.*
17 Metro, *Transit-Oriented Development Program Process and examples presentation.*
18 Meganne Steele, Metro, Telephone Interview, 29 September 2009.

NEW YORK CITY APPLICATIONS AND OPPORTUNITIES

New HUD and USDOT Sustainable Communities Regional Planning Grant

This unprecedented joint grant's purpose is to create a more holistic and integrated approach to housing, jobs and transportation. The total amount of the grant is approximately $68 million and will support 62 local and regional partnerships across the United States. New York City will receive approximately $1.5 million.[19] Scoring well, which means meeting the goals of the program, would qualify the region for additional federal funding in the future.

New York City is part of the New York-Connecticut Sustainable Communities Consortium which includes the nine largest cities within its planning area. The Consortium will work together to develop livable communities and growth centers around existing and planned transit to enhance affordable housing efforts, reduce congestion, improve the environment and continue to expand economic opportunities. One of the goals of the Consortium is to link strategies, on a metropolitan scale, to develop mixed-income housing, employment and infrastructure in locations connected by the region's two commuter rail networks - the MTA Metro-North Railroad and the MTA Long Island Rail Road.[20] There are two projects that relate specifically to New York City. One involves developing a network of transit-oriented development projects along the Metro-North system and I-287 corridor, including projects at key nodes in New Haven, Bridgeport, Norwalk, Stamford, New Rochelle and the Bronx. The other project helps integrate housing, transportation and environmental policies along the Long Island Rail Road network which includes an interdisciplinary neighborhood planning initiative for East New York, Brooklyn.[21]

19 U.S. Department of Housing and Urban Development (HUD). *HUDNo.10-242/HUD and DOT Award $68 Million to Create Sustainable Livable Communities,* October 2010.
20 Regional Plan Association (RPA). *Building Sustainable Communities in the NY-CT Metropolitan Region,* 2010.
21 Ibid.

MASSACHUSETTS
Complete Streets Policy

IMAGE 23. Example of a complete street, Beacon Street in Brookline, MA. Image used with permission from Bill Smith.

Complete Streets Policy in Massachusetts focuses on designing streets in a safe sustainable manner to provide for all roadway users, including bicyclists, pedestrians, transit riders and motorists.

The Complete Streets Policy addresses the challenge of street design in relation to safety, accessibility, and the creation of sustainable neighborhoods and is in alignment with *Initiative 31 of AgeFriendly NYC.*

BACKGROUND

The State of Massachusetts and the State of New York share many similar characteristics. Similar to New York City, the City of Boston has multi-modal public transportation options as well as connections to commuter rail lines which extend into the surrounding greater metropolitan area (IMAGE 23). Additionally, both states have a growing aging population. According to the 2000 Census the City of Boston's total population is 589,141 people. The City of Boston's 65 and older segment totals 61,336, or approximately ten percent.[22]

Massachusetts is one of four states (Oregon, Rhode Island, and New York are the others) that have laws requiring the State Department of Transportation to accommodate bicycles and pedestrians into the design and construction of every project. In New York State the Complete Streets bill was signed into law in August 2011. In Massachusetts, the bill was enacted as Massachusetts General Law Chapter 90E of the Acts of 1996.[23] The bill mostly addresses bicycle and pedestrian issues. Although specific concerns about the elderly are not mentioned, they would benefit. In subsequent years, there has been a greater emphasis on alternative modes of transportation and to create environments suited for safe bicycling and walking regardless of age and ability.

The National Complete Streets program has been attempting to change planning policy at all levels of government for a number of years.[24] Since its inception, municipalities have recognized the Complete Streets policy recommendations and have since adopted a new protocol for examining new developments which are inclusive to cyclists and pedestrians.

The Complete Streets policy has been gaining national attention, which increased when the House and Senate co-sponsored The Complete Streets Act of 2009. Both S.584 and H.R.1443 have been introduced in their respective chambers and both bills have been referred to subcommittees for further examination. The Senate Environment and Public Works Committee, and the House Transportation and Infrastructure Subcommittee on Highways and Transit are responsible for the bills moving forward at this point.[25] Despite the uncertainty of a federal policy, Massachusetts adopted a new procedure for evaluating plans in 2006; only a short time after the National Complete Streets Coalition was established.[26]

22 United States Census Bureau, *Census 2000.*
23 Mass Bike, *Bike Law Update.*
24 Laplante et al., *Complete Streets: We Can Get There from Here.*
25 Gov Track.
26 Lynott, *Planning Complete Streets for an Aging America*.

IMPLEMENTATION

With the recent release of the Massachusetts Highway Department (MHD) Project Development and Design Guidebook and a new approach to examining projects, the needs of bicyclists and pedestrians have been better incorporated into new plans for development. The MHD Project Development and Design Guidebook, which was adopted in January 2006, established an eight-step decision-making procedure that sets multi-modal accommodation as a guiding principle.[27] The main difference between this guide and the previous planning methodology is that chapters are not separated by mode. Each design guideline incorporates all modes together; planners have a reference for balancing the needs of each street-user based on the type of development and design.[28]

FINDINGS

The MHD Design Guidebook is not a state law, but it is applied to all projects conducted or funded by MassHighway.[29] Although there is not a mandate requiring the use of the guidebook, MassHighway recommends that all municipalities and private entities apply its criteria on road and bridge projects. In light of the MHD Design Guidebook, planners are expected to have a greater role during the project development process and a conscious effort has been made to include them at the early stages of each project. The role of the planner is essential to the design process and for the advancement of projects that address the needs of all users. The new approach has been used on over 200 projects since its inception.

In the case of MassHighway, an evaluation form is used to score projects based on a number of criteria. A project is scored on a number of different factors. The categories that have the most impact on those with limited mobility include: mobility, safety and security, and community effects and environmental justice.[30] Complete Streets aims to create livable streets that provide all people, especially the most vulnerable, with safe mobility options. The Complete Streets policy is not intended to only benefit the elderly, but all users. Those with limited mobility, such as the elderly, children, and the disabled may be safer if streets are engineered in a way that encourages lower vehicular speeds. Many of the same organizations that support elderly causes, such as AARP, also support the Complete Streets initiative. The policy also promotes healthy lifestyles, connects transportation networks, and creates sustainable neighborhoods. According to the American Planning Association, Complete Streets represents a paradigm shift in traditional roadway construction philosophy.[31]

NEW YORK CITY APPLICATIONS AND OPPORTUNITIES

NYCDOT released a document that supports the Complete Streets initiative, Sustainable Streets 2008 and Beyond. There are a number of key visions addressed. One of these visions is to adopt Complete Streets designs that will accommodate all street users. Below each vision statement there are actions, NYCDOT progress, and a timeline. Some actions related to the Complete Streets vision include developing a Main Street public life program as well as improving pedestrian ramps so that the curb cuts are 100 percent ADA compliant with street corners.[32] Some safety actions include launching Safe Streets for Seniors in various neighborhoods. This program intends to make crossing at intersections safer. Pilot locations have been chosen and treatments have been installed, but a thorough analysis of the engineering changes has not been conducted yet.

In May 2009 NYCDOT released another document entitled Street Design Manual which is intended to supplement the Manual on Uniform Traffic Control Devices (MUTCD) and AASHTO Policy on Geometric Design of Highways and Streets.[33] Similar to MassHighway's Design Guidebook, the New York City Street Design Manual is intended to serve as an all inclusive resource for advancing better street designs as well as streamlining the design and review processes.[34] Both design books are recommended, not mandated. [35] Additionally, until the national Complete Streets' House and Senate bills are enacted, the notion of considering all modes equally can simply be a recommendation.

In New York City there are a number of relatively recent initiatives

27 Ibid.
28 Ibid.
29 Thomas DiPaolo, Mass Highway, Email Correspondence, 23 September 2009.
30 Ibid.
31 American Planning Association, *Complete Streets.*
32 New York City Department of Transportation, *Sustainable Streets: Strategic Plan for the New York City Department of Transportation 2008 and Beyond.*
33 New York City Department of Transportation, *Street Design Manual.*
34 Ibid.
35 Thomas DiPaolo, Mass Highway, Email Correspondence, 23 September 2009.

aimed at creating Complete Streets. In February 2009 a pilot program began in Manhattan along the Broadway corridor between Times and Herald Squares. The goal of this project is to reduce congestion in an area that has both high volumes of vehicle and pedestrian traffic. Another example of a Complete Street project in Manhattan is the Ninth Avenue fully-protected on-street bike lane. One benefit of this project resulted in reduced left-turn vehicle conflicts with bicyclists and pedestrians.[36] These projects began prior to the release of the Street Design Manual. New York City's Street Design Manual, like MHD Design Guidebook, has proposed more coordination through NYCDOT in order to expedite the review process. In order for the new Street Design Manual to be effective, there needs to be coordination between agencies so that future developments and plans are designed with all users in mind, including the elderly and those with limited mobility.

36 New York City Department Transportation, *Ninth Avenue Bicycle Avenue Facility and Complete Street Extension.*

NORWAY
Universal Design

IMAGE 24. Downtown Sortland, Norway. Image used with permission from Raina Kristensen/Sortland municipality.

The concept of **Universal Design in Norway** focuses on designing products and environments, including transportation facilities, so as to be usable by all people.

This case study relates to the *Age-Friendly NYC Initiative 35* which promotes the use of Universal Design Guidelines through education and awareness efforts.

BACKGROUND

Universal Design is defined as the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaption or specialized design.[37]

37 Center for Universal Design, *About Universal Design.*

The concept of universal design was created by Ron Mace, a North Carolina State University professor, in the 1970s. His work set a template for federal legislation to forbid discrimination against the disabled and contributed to both the Fair Housing Amendments Act of 1988 and the Americans with Disabilities Act of 1990.[38] Although the United States has historically been in the forefront in equity legislation, in recent years Norway has been leading the way in national Universal Design planning.

Norway consists of 323,000 square miles and has a population of 4.5 million people.[39] According to Statistics Norway, the Norwegian census agency, Oslo has a population of 1.4 million. Of the 1.4 million, 876,391 people live in the contiguous conurbation.[40] A conurbation is a predominantly urban region including adjacent towns and suburbs. Beginning in the 1990s, the Norwegian government began to recognize that accessibility should be a guiding principle in all municipal planning.[41] According to the report, Introduction to Priority Area-Planning for All, nearly 20 percent of the Norwegian population is permanently disabled. According to the documents definition, disabilities can include allergies, reduced mobility, vision and hearing impairments and diminished mental capacity.[42] The report also concluded that the elderly population, which constituted a large part of the disabled population, was expected to increase after 2000. The Programme of Action for Universal Design was implemented in 2002-2004. A pilot program was initiated subsequent to an evaluation. The government released its conclusions in a document entitled, The Government Action Plan for Increased Accessibility for Persons with Disabilities-Plan for Universal Design in Key Areas of Society. The most recent document, Universal Design as a Municipal Strategy: Experience and Results from the Pilot Municipality Project 2005-2008, was released in August 2009 by the same agency.

IMPLEMENTATION

Norway has begun applying the principles of Universal Design to the planning and design of places, transportation facilities, and information technologies.[43] Its comprehensive plan, called the Planning and Building Act, contains information about zoning, accessibility for disabled persons, and development processes. Norway's *Universal Design as a Municipal Strategy Report* demonstrates the utilization of Universal Design in downtown development. For example, Norway's Sortland municipality achieved physical solutions that are satisfactorily accessible, safe, and environmentally sound and aesthetically pleasing by providing a sense of space and atmosphere (IMAGE 24).[44] According to the Ministry of the Environment, the pilot projects that were conducted following the release of the Programme of Action for Universal Design had positive results. The focus of the pilot program was to incorporate the principles of universal design into the design of physical surroundings and into policy documents, which would lead to positive and cost effective benefits.[45] Even though the plan did not require major capital investments, the program suffered from lack of funding.

In March 2005 a second pilot program related to Universal Design was planned. The Ministry of the Environment in conjunction with the Ministry of Labour and Social Affairs sent out letters inviting all interested Norwegian municipalities to apply if they wanted to participate in a pilot project. Seventeen municipalities were selected to participate in the national development project.[46] According to The Ministry of the Environment, local municipalities play an active role in determining how universal design will be developed as a national strategy. Each municipality worked to translate the principles of universal design into clearly defined actions.[47] The municipalities were very different geographically and politically, and were comprised of diverse populations with access to different resources.

The municipality of Kristiansand (pop. 80,000) aimed to achieve physical solutions that are satisfactorily accessible, safe, environmentally sound and aesthetically appealing. A resolution was passed by the city council in 2008 to make all outdoor recreational areas and playgrounds accessible. Additionally, downtown areas are accessible in width and gradient for all users. Another main goal is to

38 Ibid.
39 Statistics Norway, *Town and Country.*
40 Ibid.
41 Ministry of the Environment. *Introduction to the Priority Area: Planning for All*.
42 Ibid.
43 Audirac, *Accessing Transit as Universal Design*.
44 Ministry of the Environment, *Universal Design as a Municipal Strategy: Experience and Results from the Pilot Municipality Project 2005-2008*, August 2009.
45 Ministry of the Environment, *The Government Action Plan for Increased Accessibility for Persons with Disabilities*.
46 Ministry of the Environment, *Universal Design as a Municipal Strategy: Experience and Results from the Pilot Municipality Project 2005-2008*.
47 Ibid.

encourage public-private partnerships to increase accessibility for the disabled. The municipalities of Batsfjord and Berlevag encouraged private local community measures through cooperation with trade and industry and other stakeholders from the private and public domain. Programs were created to offer professional and financial assistance to encourage business owners to incorporate their own universal design measures into the design of their facilities.[48] Other goals that were carried out throughout Norway included: physical solutions to make buildings safe, accessible, and environmentally sound, and aesthetically appealing and to further develop collaboration between municipal councils for the disabled and other relevant user groups.[49]

FINDINGS

Universal Design is receiving a big push from the Norwegian government. The Norwegian government first recognized Universal Design's social benefit ten years ago. Since that time there have been numerous studies and pilot programs confirming and testing the theory's applications. Norway continues to strive to make universal design the standard manner of development and planning. There have been new provisions passed under the Planning and Building Act, which is Norway's comprehensive plan that guides zoning and development. Some of these new provisions include reducing the incidence of construction errors, increasing the number of environmentally friendly and energy efficient buildings, and encouraging Universal Design of buildings and outdoor areas.[50] A new law took effect on January 1, 2009 called the Anti-Discrimination and Accessibility Act.[51] The law was based on the notion of equality for all as well as on the principles of universal design. According to the new law there are four priority areas of Universal Design which include the accessibility of outdoor areas, buildings, transportation facilities and information and communications technologies.[52] The government envisions having all of Norway Universally Designed by 2025.[53]

48 Ibid.
49 Ibid.
50 Ministry of Children, Equality, and Social Inclusion, *Persons with Disabilities.*
51 Ibid.
52 Tollefsen, *Universally Designed Norway by 2025.*
53 Ibid.

NEW YORK CITY APPLICATIONS AND OPPORTUNITIES

In 2001, *Universal Design New York* was released by the Mayor's Office for People with Disabilities, and in 2003, *Universal Design New York 2* was released by the New York City Department of Design and Construction. The first document defined the concept of Universal Design and illustrated how it could be used in a variety of indoor and outdoor environments.[54] The second document provided best practice design strategies and illustrated the differences between ADA compliant and Universal Design principles. Universal Design is not a new concept; however, in New York City these design strategies and best practices have not been mandated or incentivized.

IMAGE 25. A building that provides an entrance with a ramp and low railings. NYC DCP.

54 Mayor's Office, *Universal Design New York*.

Current law only requires that new buildings be accessible, but many buildings were constructed prior to the ADA. An increased awareness and possible incentives could encourage business owners to create accessible entrances for their shops and buildings even though it is not required. As the New York City population continues to age, the push to retrofit existing buildings, transportation facilities, and public places will grow (IMAGE 25). A recent document released by the City, *Age-Friendly NYC: Enhancing Our City's Livability for Older New Yorkers*, states that Universal Design guidelines should be promoted through education and awareness efforts.[55] There are many opportunities in New York City to implement design principles that go beyond ADA requirements.

This case study addresses the challenges of incorporating design into policy; in doing so, it supports *Age-Friendly NYC's Initiative 35* which promotes Universal Design Guidelines through education and awareness. Universal Design Guidelines address the issue of mobility barriers in order to make participation in city life easier. While there are some current practices and agencies that utilize Universal Design Guidelines in New York City, there are still many opportunities to incorporate the role of design with mobility.

55 Mayor's Office, *Age Friendly NYC-Enhancing Our City's Livability for Older New Yorkers.*


Gargiulo
Gargiulo
HELLER
COUNTRY CLASS
VIDALIA
SWEET ONIONS
GEECHIE BOY

08 INNOVATIVE TECHNOLOGIES AND EDUCATIONAL PROGRAMS -
Training and Technology Assistance

According to a 2009 estimate, life expectancy in the United States is 78.11 years (75.65-males, 80.65-females).[1] Life expectancy increases can be contributed to innovative technological improvements, such as: medical breakthroughs, better disease prevention, and improved knowledge of nutrition. Increases in the average American lifespan have allowed modern retirees better health and enjoyment in retirement. There are now opportunities for many older adults to participate in fitness programs geared for the aging and classes to learn new skills such as computer literacy. These advances allow for life spans to extend and the average life expectancy to increase; therefore, the existing infrastructure and environment must be improved to adapt to the needs of the shifting population.

Great progress has been made in the development of technology designed to assist older people. There are various devices that are used by people that need additional support in their daily activities and their navigation of the outside environment. Some devices are used to assist people while they are operating a vehicle, which use Global Positioning System (GPS) technologies. GPS is readily available to many people because of its application on most cellular phones. Just like the GPS available in vehicles, the handheld tool can be used to help the pedestrian as well. Advances in technology such as rear-view cameras, warning signals, or sounds in a vehicle warn drivers of nearby vehicles or pedestrians. In doing so, they help drivers of all ages to drive with a greater sense of ease and safety, and with an increased awareness. New technologies provide protection for not only those handling the vehicle but pedestrians or cyclists of all ages as well. Smart phones and other mobile devices can provide real-time information and assistance for the elderly as well as all people. Navigation tools help to not only map and guide drivers and pedestrians alike, but keep them mobile and safe. These technologies can benefit the lives of older adults by assisting them with their daily tasks and enabling them to live independently. The case studies that follow are examples of the use of training and technology for the elderly.

1 Central Intelligence Agency (CIA), The World Factbook 2009.

PORTLAND, OREGON
Active Aging Programs

IMAGE 26. Seniors participating in Portland's Bicycle Program. Image used with permission from Portland Parks & Recreation – Senior Recreation.

Active Aging Programs in Portland Oregon focuses on providing programs for the elderly that encourage cycling and walking, creating opportunities for senior participation and thereby keeping older adults active and mobile.

Active Aging Programs in creating opportunities for seniors to participate in physical exercise relates to *Age-Friendly NYC Initiative 38*, which addresses the issue of the lack of engagement of regular physical activity by older adults, and the creation of senior participation in activities that promote healthy aging.

BACKGROUND

Portland has incorporated a number of strategies that integrate planning concepts in order to benefit the city's residents, in particular the elderly. The Active Aging Program is relatively new in Portland but has received national attention because of its success. Participating older adults experience physical benefits, such as improved health, as well as psychological gains by spending time with others.

IMPLEMENTATION

Active Aging Programs have been encouraged by two of Portland's government agencies, Parks and Recreation and the Bureau of Transportation, which work together to provide activities to keep seniors engaged and mobile. The Senior Cyclist Program offers free training on comfortable tricycles. This program also provides helmets for all participants (IMAGE 26).[2] There is also a Senior Strolls Program, which offers seniors two to three mile walks through different parts of Portland. Both programs run seasonally from May through October.[3]

FINDINGS

The Senior Strolls and the Senior Cyclist programs have proved to be beneficial for the seniors who participate in them. Funding for these programs are provided by a combination of city funds and other sources such as CMAQ , parking revenues, parking citations, and the state's business energy tax credits (BETC) because this qualifies as a conservation project.[4] In 2008, Portland was recognized by AARP as one of the top five Active Aging communities in the United States. When participants were polled regarding the senior strolls program, 53 percent indicated that they walk more and 71 percent reported that they have replaced at least one driving trip with a walking trip.[5]

NEW YORK CITY APPLICATIONS AND OPPORTUNITIES

There is currently one program available throughout New York City that offers free recreation classes. The City Parks Foundation offers seniors over age 60 free tennis instruction, yoga, and walking in

2 Portland Parks and Recreation, *Portland Parks & Recreation and the Portland Bureau of Transportation Receive National Award for Active Aging.*
3 Portland Office of Transportation, *Senior Strolls.*
4 Donna Green, City of Portland Bureau of Transportation, Email Correspondence, April 14, 2011.
5 Environmental Protection Agency, *Building Healthy Communities for Active Aging Awards 2008.*

nine parks throughout New York City.[6] The classes are seasonal, offered from May to October. In addition to the City Parks Foundation program, DFTA provides New York City seniors with health and wellness literature. They also maintain a directory of city-wide registered walking clubs on their website.

The Portland bike and walking programs have been very successful and there is evidence to suggest that a similar bike program could thrive in New York City. New York City has more than 1,700 parks, playgrounds, and recreation facilities, but senior fitness classes are only held at nine parks.[7] If the recreation classes were to rotate to more parks throughout the six month season, then more New York City seniors would have the opportunity to participate and subsequently reap the benefits.

Active aging programs address the challenge of senior participation and their engagement with healthier lifestyles. By keeping older adults participating in city life and engaging them in activities, they remain active and mobile. There are many opportunities for expansion, further implementation and improvement of current New York City programs.

6 City Parks Foundation, *City Parks Senior Fitness Programs.*
7 New York City Department of Parks and Recreation, *Frequently Asked Questions.*

UNITED STATES
Car Fit Program

IMAGE 27. CarFit promotion poster. Image used with permission from AAA.

CarFit Programs in the United States focuses on an educational program that offers older adults the opportunity to check how well their vehicles fit them to attain maximum comfort and safety.

BACKGROUND

CarFit is an educational program created by the American Society on Aging and developed in collaboration with AAA, AARP and the American Occupational Therapy Association (IMAGE 27).[8] CarFit focuses not on the abilities of the mature driver, but instead on their proper placement within their vehicle. The objectives of CarFit are to help older drivers (age 65+) learn how to utilize their vehicle's safety features, thereby improving overall road safety. The program also strives to show older drivers how to properly adjust their seats and windows so that their body fits into the car comfortably and safely. A properly adjusted vehicle will improve safety for the driver.

Prior to holding nationwide events, there were pilot CarFit events held in ten cities in the spring of 2005.[9] According to the pilot program results, more than one-third (37 percent) of elderly individuals have at least one critical safety issue that needs to be addressed, and one in ten (10 percent) were seated too close to the steering wheel. Roughly 20 percent of pilot program participants did not have a line of sight at least three inches over the steering wheel. Additionally, knowing how to properly adjust one's side view mirrors can greatly minimize blind

8 Carfit, *Frequently Asked Questions.*
9 Ibid.

spots for drivers who may wish to change lanes.[10]

IMPLEMENTATION

The pilot program results were startling to the administrators, and so it was determined that the program would expand. Volunteers are essential to the success of CarFit. The volunteers are required to undergo training prior to becoming a technician at a CarFit event. The events showcase adaptive devices that may make the drive more comfortable for the motorist, such as seat belt and visor extenders and steering wheel covers.[11]

FINDINGS

The findings have shown that CarFit increases a driver's knowledge of his or her vehicle. Additionally, in an initial survey, many seniors indicated that they made changes to improve on the fit of their vehicle after attending a CarFit event. Many past participants also added that after their training they were more open to discussing their ability to drive with family.[12]

NEW YORK CITY APPLICATIONS AND OPPORTUNITIES

For many, driving is second nature. Most Americans begin driving in their teenage years and continue driving for many decades. The CarFit safety training programs revealed that there are many basic adjustments for a better fit in their cars that older adults were not practicing. CarFit events tend to take place throughout the country; however, the current calendar does not have any scheduled events in New York City area. If the city offered a comparable safety program, it could be beneficial for older New York City drivers.

NYCDOT provides training through their Safety City program. One program teaches parents how to properly install a child car seat. Another program teaches children, the disabled, and the older adult populations the importance of pedestrian safety. There may be an opportunity to expand the current safety program to include regular training programs similar to CarFit that are specifically geared towards New York City seniors.

10 Ibid.
11 AAA, *Sharing a Drive to Protect Motorists.*
12 CarFit, *Frequently Asked Questions.*

JAPAN
Pedestrian Navigation System

Pedestrian Navigation System in Japan focuses on incorporating technology to help the elderly to navigate their surroundings safely.

BACKGROUND

As part of Japan's 2000 Traffic Barrier-Free Law requiring every subway station in Tokyo (and nine other prefectures) to provide at least one barrier-free route, meaning that is free of steps from the subway entrance to the platform by 2010,[13] there has been increased demand to create a pedestrian support system that can provide basic services for pedestrian intelligent transportation systems (ITS) such as warnings, delays, information on surroundings, and route information. This Free Mobility System provides an environment in which everyone, including the elderly, the disabled, and foreign tourists visiting Japan, the ability to move around freely and easily by permitting anyone at any time or place to obtain information needed for movement. [14] A pedestrian navigation system has been developed in Japan to remove the current barriers that create inaccessibility.[15] The pedestrian ITS system, which provides navigation information and thereby enhances mobility and improves access for the elderly, was demonstrated at the ITS World Conferences in London in 2005 and in Beijing in 2007.

The demand for ITS is growing in many countries. In Japan it is seen as an essential component in the struggle to reduce greenhouse gas emissions, carbon dioxide, and other transportation pollutants. The main objectives of ITS in Japan are to enhance traffic safety, improve traffic flow, and to repair the environment. Japan's ITS comprehensive plan includes nine areas of focus. The nine areas are the following:

13 Harrington, *Tokyo Olympic Bid Highlights Universal Design.*
14 Sakurai et al., Pedestrian Navigation with InfoSign.
15 Oka, et al., *Nationwide Introduction of the Free Mobility System.*

1. Advances in navigation systems
2. Electronic toll collection systems
3. Assistance for safe driving
4. Optimization of traffic management
5. Increasing efficiency in road management
6. Support for public transport
7. Increasing efficiency in commercial vehicle operations
8. Support for pedestrians
9. Support for emergency vehicle operations[16]

IMPLEMENTATION

The mobility system was implemented at a number of test sites throughout Japan. The sites that were chosen were tested for two years beginning in 2004. The technology works by using sensors that are placed in the environment to detect a person's location (latitude/longitude data). The sensors are embedded in guide blocks and the information is accessed by the user through a portable electronic device or a white cane, in cases when a person has vision impairment.[17] The information flow is as follows (IMAGE 28).[18]:

1. The place information transmitter, which is used to identify where a person is located, is sent to the user's electronic device or portable terminal.
2. The portable terminal is then sent to the server.
3. The server converts the place information to a uniform resource locator (URL) to search for the information using GIS technology.
4. A map with the map data information is sent back to the portable device.[19]

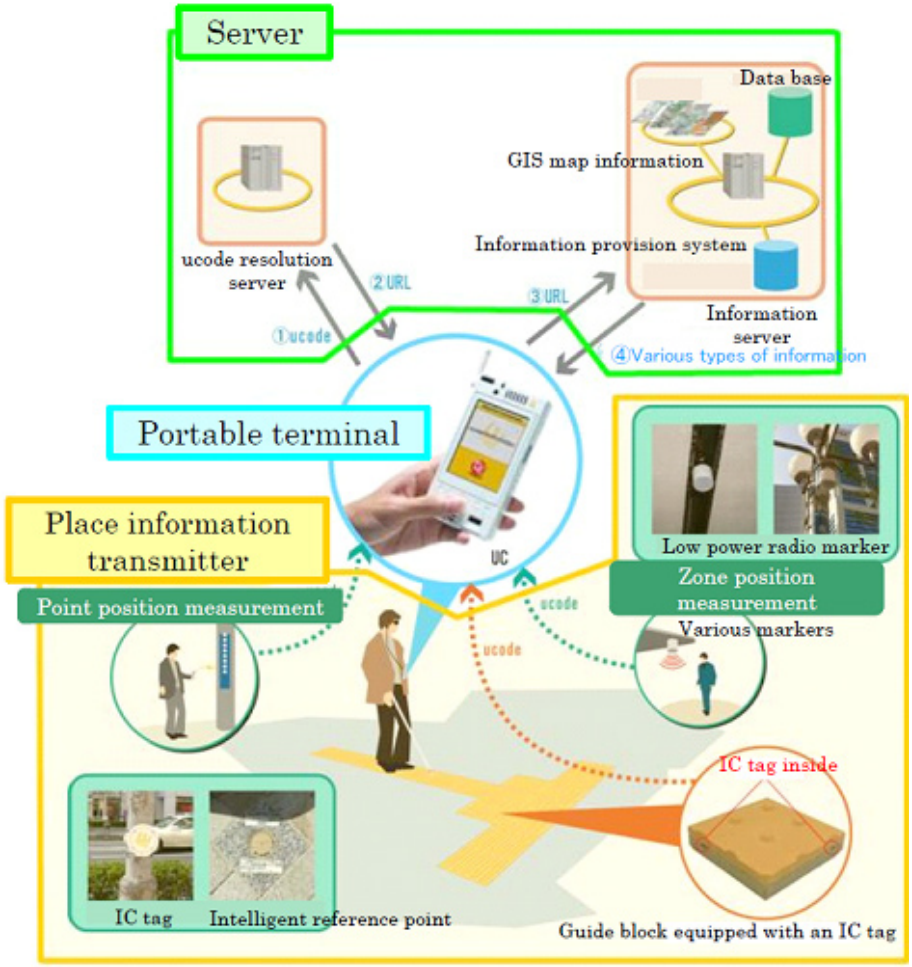


IMAGE 28. Kunihiko Oka & Shinsuke Setoshita, 2005

There were a number of municipalities that tested the technology; some of the more notable ones will be described below.

The most testing was conducted in Kobe City, Japan. Some of the experiments include testing barrier-free route information, tourist site information, transmission of real-time transportation data, as well as other technical tests.[20] There was a navigation project conducted in Wakayama, Japan. This area of Japan is listed as a World Heritage Site and many people visit the historic city. Route guidance, historical site information, tourist facility information and shopping information

16 ITS Japan, *Nine Areas of ITS.*
17 Oka, et al., *Nationwide Introduction of the Free Mobility System.*
18 Sakurai et al., Pedestrian Navigation With InfoSign.
19 Ibid.

20 Oka, et al., *Nationwide Introduction of the Free Mobility System.*

were provided.[21] Another navigation pilot was conducted, called the Yuki Navi Aomori Project. This area tested the technology when there were large amounts of snow on the ground to determine if the system could still work properly for those who are visually impaired. The test confirmed that the system did not have any problems because of snow.[22] Another location in the Kumamoto prefecture focused on barrier-free and universal design. It tested both people that were unfamiliar with the area and people that were visually impaired. These tests were primarily conducted near crosswalks and at streetcar crossings.

FINDINGS

Using ITS on roadways has become more commonplace in recent years. There are a number of cities that use transmitters, such as EZ-Pass to electronically collect tolls at various places on the highway. The creation and adaptation of this technology for pedestrians and those with mobility limitations is still in the preliminary stages. The findings of the Japanese pilot experiments proved that people who used the services thought they were convenient.[23] Testing is expected to continue in other regions and ways to reduce the costs are also going to be studied.

The Traffic Barrier-Free Law has created a legal requirement to eliminate the current environmental barriers. Programs such as the pedestrian navigation system benefit not only those who are disabled and elderly, but also tourists who often have difficulty navigating foreign surroundings. Although the pedestrian navigation technology has been demonstrated at many events and in many locations throughout Japan, more testing will be conducted before it is available to the general public. Pedestrian ITS requires indoor and outdoor positioning in order to work properly so that service is not interrupted when the user enters underground subway stations or buildings. The information obtained in these experiments will be used to help people navigate their environment with greater independence and safety.[24]

NEW YORK CITY APPLICATIONS AND OPPORTUNITIES

Technology is a dynamic industry that may seem intimidating to many older users. More training is needed to familiarize older individuals

IMAGE 29. When vehicles stop in the crosswalk, pedestrians are sometimes pushed into harms way. New vehicle safety technology may prevent unsafe vehicular-pedestrian conflicts in the near future. NYC DCP.

with computers and new technologies that can offer assistance. As in the case of pedestrian navigation experiments in Japan, new ideas are always sprouting using existing technologies, such as Bluetooth and computer mapping programs such as GIS. There are already a number of products on the market specifically targeted toward older adults, but because of the explosive number of aging adults, it is likely that many more businesses will begin producing devices.

There are new safety features available on certain vehicles. For example, some car makers have installed warning systems that alert drivers of the closeness of another vehicle, blind-spots, and some even have rear-and side-view cameras.[25] There are opportunities for government officials to encourage wide-spread installation of such devices and to train people how to use them effectively. There are potential partnership opportunities for the City to work directly with some of these warning system manufacturers to create a technology that would help drivers, and other road users to create safer streets for older adults and all pedestrians to navigate (IMAGE 29).

21 Sakurai et al., Pedestrian Navigation With InfoSign.
22 Oka, et al., *Nationwide Introduction of the Free Mobility System.*
23 Ibid.
24 Sakurai et al., Pedestrian Navigation With InfoSign.

25 CNN Money.com, *The Future of Car Safety*.

09 STATUS OF CASE STUDIES AND THEIR POTENTIAL IN NEW YORK CITY

After reviewing mobility initiatives worldwide and the implementation of these practices, it is clear that there is opportunity to further expand on accessibility for all New Yorkers. There are various overlapping components in areas of city planning with regard, but not limited to: transportation, housing, zoning, public spaces, and design. In order to account for these various components, this report attempts to synergize New York City's current *Age-Friendly NYC* report with these case studies. This scan of current practices is not a one-dimensional approach but a multi-faceted look at the challenges that our aging population is facing. It is also highlights the need for collaboration between agencies and organizations.

The table, Status of Case Studies and Their Potential In New York City, found on the following page summarizes the case studies that were closely examined in this report and their relationship, or lack thereof, with the Office of the Mayor, NYC Council and New York Academy of Medicine's *Age-Friendly NYC*. As noted in the table, the applications of the various case studies are summarized based on their current status in New York City. For example, while the 'Showcase Roadway Project' may not be completely implemented in New York City, improved signage with greater retro-reflectivity and enlarged font included in the case, is currently being updated in New York and addresses *Age-Friendly NYC Initiative 31*. For the correlation between *Age-Friendly NYC* and the other current practices analyzed in this document, refer to the case studies.

As the table indicates there are many practices that are synergistic with *Age-Friendly NYC*, many that are currently in place, some that are in the planning stages and others that should be considered in the future.

STATUS OF CASE STUDIES AND THEIR POTENTIAL IN NEW YORK CITY

To be Considered in the Future	Planned or Proposed	Current	Age-Friendly NYC	Relates to Issue/ Initiative	
					DRIVING - ROADWAY IMPROVEMENTS AND LICENSING POLICY CHANGES
		•	•	31	Showcase Roadway Project - Detroit, Michigan
		•	•	30	20 MPH Zones - London, England
•					Elderly Licensing and Labeling Safety Policies - Tokyo, Japan
					PUBLIC TRANSPORTATION,TAXIS, AND FOR-HIRE VEHICLES
		•	•	23	Step-Free Access - London, England
		•	•	23	Access at the MBTA - Boston, Massachusetts
	•		•	24, 25, 26, 27	Accessible Taxis - London, England
•			•	24	ITN Portland - Dignified Transportation Services - Portland, Maine
					PEDESTRIAN IMPROVEMENTS - SIGNAGE AND CROSSWALK CHANGES
•			•	31	LED Crosswalk Signs - Naval Station Mayport, Florida
•		•	•	31	Flashing Beacon and Ground Flashers - San Jose, California
•		•	•	31	Pedestrian Actuated Crosswalk Flashers - Kirkland, Washington
					PLANNING TOOLS - SMART GROWTH AND STREET DESIGN
	•		•	22, 34	Smart Growth and Transit-Oriented Development - Portland, Oregon
	•		•	34	Russellville Park Transit-Oriented Development - Portland, Oregon
		•	•	31	Complete Streets Policy - Massachusetts
		•	•	35	Universal Design - Norway
					INNOVATIVE TECHNOLOGIES AND EDUCATIONAL PROGRAMS
		•	•	38	Active Aging Programs - Portland, Oregon
•		•			Car-Fit Program - United States
•					Pedestrian Navigation System - Japan

10 RECENT INITIATIVES AND RESOURCES IN NEW YORK CITY

I. Creating an Awareness of Mobility Challenges

New York is addressing the needs of our aging population by using initiatives to create an awareness of the mobility challenges and issues facing older adults. In October 2010, the New York State Office for Aging released the advisory workgroup report, *Livable New York: Sustainable Communities for All Ages*. The directive for the *Livable New York* initiative comes from Section 202 of New York State Elder Law. It presents recommendations that address community development needs for New York's diverse population and intends to foster livable communities across the state.[1]

Meanwhile, New York City has already developed a framework for its age-friendly initiatives, *Age-Friendly NYC: Enhancing Our City's Livability for Older New Yorkers,* issued by the Office of the Mayor in August of 2009. This study builds on the work of the World Health Organization (WHO) *Global Age-Friendly Cities Initiative* (2007) which engaged older adults and others in 35 cities from 22 countries around the world in identifying the core components and features of an age-friendly city through the lens of WHO's "Active Ageing Framework."[2]

This framework shifts city planning away from a "needs-based" approach toward a "rights-based" approach recognizing that individuals should have equal opportunity and treatment in all aspects of life as they grow older.[3]

Toward an Age-Friendly NYC: A Findings Report released by the New York Academy of Medicine (NYAM) followed the WHO study in September 2008. Using the Global Age-Friendly Cities Initiative as a framework, the City and NYAM embarked on a comprehensive assessment of the age-friendliness of New York City. The study, done in partnership with the Office of the Mayor, the New York City Council and the New York Academy of Medicine, was designed to make New York City a better place in which to grow old. It is the result of a yearlong citywide public engagement campaign consisting of town hall meetings, focus groups, interviews and feedback from non-profit organizations and the academic community. The objective was to assess the city from the perspective of older residents in order to identify potential areas for improvement.[4]

Age-Friendly NYC issued in 2009 represents the next stage in this series of efforts to create a responsive environment to the needs of

1 New York State Office for Aging, *Livable New York*.
2 World Health Organization. *Active Ageing: A Policy Framework.*
3 Mayor's Office. *Age Friendly NYC-Enhancing Our City's Livability for Older New Yorkers* .
4 New York Academy of Medicine. *Toward an Age-Friendly NYC.*

seniors and an awareness of their issues. It sets out to identify 59 city-sponsored initiatives relating to older adults. The Office of the Mayor is planning to issue an update report to inform the public about the city's progress with the 59 initiatives in the near future. This study, *Mobility Initiatives For An Aging Population: A Scan of Current Practices* is one of those initiatives. Fourteen of the 17 case studies analyzed in this document relates to an issue or initiative that is included in *Age-Friendly NYC*.

At the time of the release of *Age-Friendly NYC* the Mayor and the City Council Speaker also announced the creation of the *Age-Friendly NYC* Commission charged with engaging the public, private, academic and philanthropic sectors to build on the initiatives and recommendations of the *Age-Friendly NYC* assessment to advance New York City's position as one of the most livable cities in the world. The Commission is jointly chaired by the President of United Way of New York City and the Vice President of Global Community Affairs for IBM, and staffed by the New York Academy of Medicine.[5]

II. Mobility Resources for Older Adults in New York City

New York City has an extensive transportation network made up of both public and private sources.[6] The following section will describe some of the existing programs available for older adults that reside in New York City. These programs fall under the auspices of many agencies and levels of government. These entities are involved in the implementation of mobility initiatives for older adults and many have contributed to this study. Although New York City's transportation network is vast, a group of factors may prevent the elderly from using the public transportation system. In areas where there are large concentrations of seniors, improvements to the existing conditions may provide older adults with better mobility options.

AGENCIES AND ORGANIZATIONS

There are federal, state, and local agencies that provide services to older adults in New York City. Some agencies provide duplicate services, but have specific eligibility requirements barring some people from their services. There are a number of public, private, and not-for-profit agencies and organizations that either provides services, information, or referrals. Outreach was made to various agencies throughout the process of completing this study. The agencies described below may play a key role in the development and implementation of future mobility initiatives for the aging population.

New York State Office for the Aging (NYSOFA)

The mission of the New York State Office for the Aging is to help older New Yorkers to be as independent as possible for as long as possible through advocacy and cost-effective policies while providing programs and services to the aging older adult population.[7]

NYSOFA was created in 1961 by the Executive Order of the Governor in order to plan, create programs and coordinate services for the aging. It is interested in the implementation of initiatives for older adults. Under Executive Order, NYSOFA is empowered to review and comment on all program policies and legislative proposals sponsored by state agencies which would affect the aging population.

In addition, the New York State Office for the Aging:

- Advises and assists the Governor to develop policies to help meet the needs of older New Yorkers and to encourage their full participation in society;
- Coordinates State programs and services for the elderly;
- Stimulates community interest in problems of the aging;
- Promotes public awareness of resources available for the aging;
- Ensures the development of local programs; and
- Fosters and supports studies, research and education on the elderly.[8]

In October 2010, NYSOFA implemented *Livable New York* with assistance from professionals, community leaders, and consumers from across the State and the initiatives affiliate partners.[9] Significant changes in our demography and public policy are changing resident

5 City of New York. Mayor's Office. "Mayor Bloomberg, Speaker Quinn and the New York Academy of Medicine Unveil Blueprint to Enhance City's Livability for Older New Yorkers."
6 Metropolitan Transit Authority, *The MTA Network*.
7 New York State Office for the Aging, *Aging in New York – Executive Summary.*
8 New York State Office for the Aging, "Aging in New York – About NYSOFA."
9 New York State Office for the Aging, *Livable New York*.

and community profiles. *Livable New York* is aimed at adapting to the needs of the residents and neighborhoods by creating livable communities for the State's older people, younger people with disabilities, families and caregivers through the likes of: zoning, universal design and accessibility, mobility, transportation, housing options and development.[10]

New York City Department for the Aging (DFTA)

Established in 1968, the New York City Department for the Aging (DFTA) plans, coordinates and implements programs for older adults, advocates on their behalf, conducts research and policy analysis, and administers federal, state, and city funds for services. DFTA contracts with community partners to provide congregate meals, senior center programs, transportation, case management, home care, legal assistance, and other social services.[11] DFTA is the primary agency responsible for addressing the needs of aging New Yorkers, providing services to more than 300,000 seniors.[12] Funding for the congregate meal program has been in place in New York City for approximately 40 years, with the implementation of the Older Americans Act.[13] Although, the DFTA is not required to provide transportation for the congregate meal program, the Older Americans Act says that funds can be used for this purpose.[14]

Transportation services are also available to transport older adults to a variety of locations and appointments, including senior centers, service agencies, recreational activities, and medical appointments, but the arrangements must be scheduled in advance. However, there are times when last minute plans can be accommodated. DFTA's age requirements are set by the Federal government, a primary source of the agency's funding. Seniors must be over the age of 60 to participate in the meal program, to have access to senior centers, and to use transportation services.

The Older Americans Act requires that area agencies on aging (like DFTA) provide services with particular attention to low-income older individuals, including low-income minority older individuals. Prior to issuing a Request for Proposal (RFP), research is conducted including an analysis of the older adult population and the utilization of the Population In Need (PIN) formula.[15] The PIN is determined by assessing the decennial U.S. Census data presented by borough and by the 59 community districts.[16] In addition to identifying where the neediest elderly live, PIN methodology is also used to determine where new senior centers should be located.[17]

Beginning in 1997, the Department of Education (then Board of Education) provided school bus transportation for seniors during the time when students were not being transported. The participating seniors received transportation to locations including museums, shopping, botanical gardens, and department stores. However, in 2008 there was an emphasis on encouraging seniors to use the buses to go to supermarkets when they signed up for school bus transportation.[18]

Additionally, DFTA coordinates with the New York City Department of Transportation's Office of Safety Education on initiatives to improve pedestrian safety. It also works with transportation agencies including New York State Department of Transportation, New York City Department of Transportation, the Metropolitan Transportation Authority, and the New York Metropolitan Transportation Council, to improve transportation services for older adults and New Yorkers of all ages.[19]

New York City Department of Transportation (NYCDOT)

New York City Department of Transportation (NYCDOT) provides safe, efficient, and environmentally responsible movement of people and goods, maintains and enhances transportation infrastructure, improves traffic mobility, reduces congestion, and encourages mass transit.[20] NYCDOT has been working on Safe Streets for Seniors which is a pedestrian safety initiative that outlines a number of traffic calming measures. These measures aim to benefit some of the most vulnerable users of New York City's streets and sidewalks. The report identifies a number of areas with high concentrations of elderly that also have high pedestrian fatality rates. There are twenty-five

10 Ibid.
11 Department for the Aging. *Promoting Positive Aging.*
12 Department for the Aging. *Promoting Positive Aging*.
13 Stephens, *Critical Factors in the Successful Utilization of Senior Center Meals.*
14 Linda Black, Department for the Aging, Email Correspondence, 24 May 2010.
15 Linda Black, Department for the Aging, Email Correspondence, 8 July 2009.
16 Hevesi. *Letter to Mr. Edwin Mendez-Santiago.*
17 Ibid.
18 Linda Black, Department for the Aging, Email Correspondence, 24 May 2010.
19 Linda Black, Department for the Aging, Email Correspondence, 24 May 2010
20 New York City Department of Transportation, NYC DOT – About DOT.

neighborhoods that are identified as senior focus areas.[21] The five areas identified in the pilot program are: Brighton Beach (Brooklyn), Flushing (Queens), Lower East Side (Manhattan), Fordham/University Heights (the Bronx), and New Dorp/Hylan Boulevard (Staten Island).[22]

Although each study area has unique issues that detract from the pedestrian experience, there are some general concerns that each intersection has in common. The most common issues are: lack of sufficient time to cross the street, broken or missing pedestrian ramps, faded and hard-to-see markings, turning vehicles failing to yield, and poor drainage or ponding in crosswalks.[23] NYCDOT identified some typical improvements to alleviate these pedestrian issues, such as: changing the signal time to three feet per second, restriping markings, repairing broken pedestrian ramps and curbs, installing high visibility crosswalks and advanced stop bars, installing pedestrian refuge islands or neckdowns, narrowing roadways, and installing leading pedestrian interval (LPI) at pedestrian signals.[24]

NYCDOT began implementing some of the treatments at the five pilot locations in 2008. Currently, the treatments implemented at the pilot locations are under review. Other locations will receive improvements pending the results of the pilot.[25]

New York City Department of City Planning (DCP)

The Department of City Planning (DCP) promotes strategic growth, transit-oriented development, and sustainable communities in the City. It establishes policies and zoning regulations applicable citywide and assists both government agencies and the public by providing policy analysis and technical assistance relating to housing, transportation, community facilities, demography, waterfront and public space.[26]

Because growth has been re-centralizing within the city, the city's land use policies have directed growth away from the city's auto-dependent fringes towards the more transit-accessible areas closer to the city's core.[27] DCP partakes in the policies and zoning regulations that will handle and reorient this growth of population densities near transit-accessible areas. A consequence of redirecting growth to transit-accessible areas will be greater accessibility and mobility for the aging adult population, so that they may have access to the services or receive the care at home they need with greater ease. By encouraging higher population densities near public transportation, it is all the more important to ensure public transportation is accessible to everyone.

In light of the Mayor's Office *Age-Friendly NYC*, this report, the Department of City Planning's *Mobility Initiatives for an Aging Population: A Scan of Current Practices*, addresses issues and initiatives and their current application and consideration that serve the City of New York.

Metropolitan Transportation Authority (MTA)

The Metropolitan Transportation Authority (MTA) operates North America's largest transportation network. This network serves people from New York City, Long Island, southeastern New York State, and Connecticut adding up to approximately 14.6 million people.[28] For the customer, the public buses in New York City run as one unified system, even though some of the buses are operated by the MTA and others by New York City Transit (NYCT).

According to the MTA Guide to Accessible Transit, there are more than 110 subway and commuter rail stations which are ADA accessible to people with disabilities.[29] The stations that comply with the Americans with Disabilities Act and are fully accessible have the following features: elevators or ramps, large-print and Braille signs, audio and visual information systems, accessible metrocard machines, accessible station booth windows, autogates, tactile warning strips on the subway platforms, and payphones at the required height.[30]

New York City Transit (NYCT)

New York City Transit (NYCT) is the largest agency within the MTA

21 New York City Department of Transportation, *Safe Streets for Seniors Addressing Senior Pedestrian Focus Areas in New York City.*
22 Ibid.
23 Ibid.
24 Ibid.
25 Ibid.
26 New York City Department of City Planning, About Us – New York City Department of City Planning.
27 Department of City Planning. *Residential Parking Study.*
28 The Metropolitan Transportation Authority, *The MTA Network*.
29 The Metropolitan Transportation Authority. *MTA Guide to Accessible Transit*.
30 Ibid.

and transports approximately seven million people daily, more than 2 billion annually.[31] Most of the subway system was constructed prior to the Americans with Disabilities legislation meaning that there are a number of stations without elevators and escalators. An inaccessible subway system creates impediments for the elderly, passengers with small children, infants in strollers, and anyone carrying luggage. As a result of a 1984 settlement agreement, NYCT was required to provide a key station plan to show which stations would be selected to be made accessible and why.

The NYCT plan from July 1992 outlined 54 key stations that were to be made accessible.[32] The original number of 54 key stations has been increased to 100 fully accessible stations. According to the voluntary compliance agreement 67 key stations must be accessible by the end of 2010.[33] The original 54 key stations, which were outlined in the 1992 plan, were selected based on two criteria. The first was that they must be significant in terms of ridership, be an intermodal transfer point, and be in close proximity to commercial, educational, and activity centers. Secondly, stations were chosen based upon a geographic distribution and their proximity to other subway lines.[34] In addition to the criteria devised by the New York City Transit Authority (now called the NYCT), the United States Department of Transportation issued five criteria to implement the ADA at some of the stations.[35]

The five criteria are as follows:

- Passenger boarding is 15 percent higher than average
- Transfer stations on a rail line or between rail lines
- Major interchange points with other transportation modes
- End stations
- Stations serving major activity centers such as employment or government centers, hospitals or places of higher education[36]

According to the most recent 100 Key Station List, there are currently 72 accessible stations. The rest are either in the construction, design, or planning phases.[37]

In addition to operating the subway system and bus network, NYCT administers New York City's paratransit service known as Access-A-Ride. The paratransit service is available to individuals deemed unable to use the public transportation system. Access-A-Ride is primarily a service used to transport people with physical disabilities. At present individuals age 65 and over and those with a qualifying disability are eligible for a reduced-fare metrocard which costs $1.10 per ride (full fare is $2.25 per ride). The reduced-fare benefits are available on all MTA New York City Transit subways, local and MTA buses. NYCT and MTA express buses offer reduced fares during non-rush hours only, and MTA Long Island Bus, MTA Long Island Rail Road, and MTA Metro-North Railroad offer reduced fares anytime except weekday rush hours to New York City terminals.[38]

New York City Transit is also responsible for local and express bus routes through all five boroughs and in Nassau and western Suffolk counties. New York City Transit, MTA Buses, and Long Island (LI) Buses are able to connect these routes to major subway and commuter points.[39] There are nearly 6,000 buses in NYC Transit's fleet that are accessible to wheelchair users.[40] These buses are outfitted with a kneeling feature that lowers the front entrance of the vehicle within inches from the ground for easy access by any customer with mobility impairments or difficulty using the front steps. The MTA Bus has wheelchair-accessible service on all of its 1,359 buses serving 35 express routes and 47 local routes. LI Bus provides wheelchair-accessible service on all of its 53 routes and has equipped its fleet of 333 buses with wheelchair lifts and kneeling ability. All LI Bus vehicles are equipped with systems that provide interior and exterior recorded announcements of routes and stops.[41]

In the summer of 2010, the MTA Long Island Bus's Able-Ride service added four-door sedans to its paratransit fleet as part of a pilot program to diversify their vehicles. A recent model that is being looked

31 The Metropolitan Transportation Authority, *About NYC Transit.*
32 New York City Transit Authority, *Final Key Station Plan.*
33 New York City Transit, *Key Stations Report 1st Quarter 2009.*
34 New York City Transit Authority, *Final Key Station Plan, July 1992.*
35 Ibid.
36 Ibid.
37 New York City Transit, *100 Key Stations List.*
38 The Metropolitan Transportation Authority. *MTA Guide to Accessible Transit*.
39 Ibid.
40 The Metropolitan Transportation Authority. *A New Option for Access-A-Ride Users.*
41 The Metropolitan Transportation Authority. *MTA Guide to Accessible Transit.*

at for demonstration is the First Mobility Vehicle, MV-1. The MV-1 has a deployable ramp that carries a 1,200-pound capacity and can sit five passengers — including two forward-facing wheelchairs or scooters. The ADA compliant vehicle is available in either gasoline or compressed natural gas (CNG) models.[42]

Permanent Citizens Advisory Committee to the MTA (PCAC)

PCAC was established in order to give a voice to the users of the largest public transportation system in the U.S.[43] PCAC lists a number of complaints and recommendations that they want the MTA to address. The majority of the grievances related to the subway system in the aforementioned report are mostly associated with elevators; such as disrepair, maintenance, accessibility, and their location.

In October 2008, the Permanent Citizens Advisory Committee (PCAC) to the MTA released a study called Accessibility at the MTA. The PCAC to the MTA was authorized in 1981 by the New York State Legislature. There are three separate rider councils that make up PCAC: Long Island Rail Road Commuter's Council (LIRRCC); the Metro-North Railroad Commuter Council (MNRCC); and the New York City Transit Rider's Council (NYCTRC).

New York City Office of the Mayor

The Mayor released PlaNYC 2030 on Earth Day of 2007. The plan is to provide a long range planning framework for New York City. The plan outlines a series of goals for the city to achieve by 2030 in the areas of transportation, housing, and environmental sustainability. There are specific transportation initiatives outlined in the plan including; improving and expanding bus service, improving access to existing transit, and strengthening enforcement of traffic violations.[44] Although it does not explicitly state that the transportation initiatives will benefit the elderly, improving access and expanding service to the existing transportation system will benefit all transit users, including those with mobility limitations. There have been supplemental reports to PlaNYC 2030 that have been released since the initial plan that indicate which initiatives have been achieved and track the progress of those not yet realized.

The Mayor's Office released *Age-Friendly NYC, Enhancing Our City's Livability for Older New Yorkers* in August 2009. The initiatives of this report promote the development of housing the aged; public spaces and improving transportation facilities to accommodate the aged; and health and social services. This report highlights services that are currently available, as well as introduces new ideas that may benefit the growing elderly population, such as taxi vouchers and expansion of affordable, safe housing. As related to the issues and initiatives to the Mayor's Office *Age-Friendly NYC* report, the following scan of current practices attempts to address the transportation needs of the older adult population in New York City.

United Hospital Fund/ Naturally Occurring Retirement Communities (NORCs)

The United Hospital Fund, in a partnership with United Way of New York City, established an Aging in Place initiative in 1999, and is the primary organization that oversees New York City NORC (Naturally Occurring Retirement Community) programs.[45] Although, the origins of NORCs can be traced back to a neighborhood in Madison, Wisconsin two decades ago, New York City is attributed with establishing the first comprehensive NORC: Penn South in Manhattan.[46] The Penn South Co-op was established by the International Ladies Garment Workers Union in 1963. Many of the residents, former union workers, moved into the building when it was constructed and remained there throughout their adult life and into old age.[47] A full service senior center with professional staff and volunteers was established. *Age-Friendly NYC* finds that older adults appreciate and benefit from living in close-knit micro-communities. This issue is addressed in Initiative 20 of *Age-Friendly NYC*, where the provisions of additional supportive services to NORCS are recommended.[48]

42 The Metropolitan Transportation Authority. *Ramping Up Accessibility While Lowering Costs.*
43 Permanent Citizens Advisory Committee to the MTA. *Welcome Aboard: Accessibility at the MTA.*
44 Mayor's Office. *PlaNYC 2030.*
45 United Hospital Fund, *NORC Blueprint.*
46 Buntin, *Seniors and the City.*
47 Ibid.
48 Mayor's Office. *Age-Friendly NYC-Enhancing Our City's Livability for Older New Yorkers*, August 2009.

New York Metropolitan Transportation Council (NYMTC)

The New York Metropolitan Transportation Council is the regional council of governments that is the metropolitan planning organization for New York City, Long Island and the lower Hudson Valley. It provides a collaborative planning forum to address transportation-related issues, develop regional plans and make decisions regarding the use of federal transportation funds.[49]

NYMTC as a Funding Source

There are a number of programs that receive monies from various funding sources in order to provide transportation services. One of these programs used to fund local transportation services for the elderly is the Section 5310 program. The purpose of this program is to provide transportation services that meet the needs of older adults and individuals with disabilities for whom other mass transit is unavailable, insufficient, or inappropriate. The capital grant program is administered by the Department of Transportation of New York State (NYSDOT).[50] There are two types of organizations that are eligible to apply for this program: private, not-for-profit organizations within New York State and public bodies. The program is certification, to the governor, that there aren't any not-for-profit organization readily available in the area to provide transportation services as mentioned above.[51]

Applications submitted for funding through this program are reviewed and evaluated by members of the local and regional review agencies: New York Metropolitan Transportation Council (NYMTC), New York State Department of Transportation (NYSDOT) Regional Office, and Interagency Review Committee.[52] The local Interagency Review Committee includes one member from each of the following agencies: NYMTC, MTA, NYCDOT, DFTA, and NYC Department of City Planning (DCP) to decide which applications have the most need. The NYMTC region contains approximately 65 percent of New York State's population or 12 million people.[53]

The main factors that influence which organizations are awarded funding include:

a) The extent that arrangements have been made to provide coordinated transportation services.

b) General mobility limitations and urgency of the transportation needs of the applicant's consumers and the inability of them to use existing transportation services.

c) Number of elderly individuals and individuals with disabilities traveling daily.

d) Amount of utilization of the equipment in terms of hours per week and riders per trip.

e) Outreach to private for-profit bus or taxi companies in providing the proposed transportation services.[54] The selected organizations may be awarded up to three buses (starting with the FY 2009 application up to four buses can be awarded) but the organizations are responsible for the maintenance costs associated with the vehicles. The decisions the key agencies make are considered recommendations, and these recommendations are sent to State DOT in Albany where the final award recipient decisions are made.[55]

Coordinated Public Transit-Human Service Transportation Plan

NYMTC's recent Coordinated Public Transit-Human Service Transportation Plan for the NYMTC Region, attempts to address coordination issues between multiple agencies. NYMTC conducted numerous meetings with stakeholders, focus groups, and the public throughout the process of completing this report.

The goal of the plan is to identify and prioritize strategies to improve mobility for the vulnerable populations through coordination and effective use of services throughout the NYMTC region.[56] One focus group assembled for this project consisted of people from all five boroughs discussing opportunities to improve existing transportation options in New York City.[57] Some of the comments regarding the

49 New York Metropolitan Transportation Council, The Metropolitan Planning Organization – About NYMTC.

50 New York State Department of Transportation, *Special Transportation Services for Elderly Individuals and Individuals with Disabilities: Section 5310 Grant Program FFY 2009 Application Manual.*

51 Ibid.

52 Ibid.

53 New York Metropolitan Transportation Council, *About NYMTC.*

54 New York State Department of Transportation, *Special Transportation Services for Elderly Individuals and Individuals with Disabilities: Section 5310 Grant Program FFY 2009 Application Manual.*

55 Ibid.

56 The New York Metropolitan Transportation Council, *Letter from the Executive Director.*

57 The New York Metropolitan Transportation Council, *A Coordinated Public Transit-Human Services Transportation Plan for the NYMTC Area.*

subway system were in regard to: the location and accessibility of subway station entrances, the reliability of elevators and escalators, and information in and around subway stations.[58]

Additionally, this project fulfills a Federal requirement that a plan be in place before transportation providers in the region may access certain funding programs for persons with disabilities, older adults, and those with low income.[59]

Summary

The table, Key Agencies and Organizations in the Implementation of Mobility Initiatives, on the following page summarizes these agencies and organizations and the many roles they play in the implementation of mobility initiatives in New York City. The organizations operate on various levels and depend on various resources and each other. Because of their collaborative efforts, there are many initiatives and practices in place that provide a framework for long-range plans in New York City and its surrounding regions. These implementations are not completely exhaustive.

58 The New York Metropolitan Transportation Council, *A Coordinated Public Transit-Human Services Transportation Plan for the NYMTC Area.*
59 Ibid.

Key Agencies and Organizations in the Implementation of Mobility Initiatives	
Agency	Role and Responsibilities
New York State Office for Aging (NYSOFA)	- Advises and assists the Governor to develop policies to help meet the needs of older New Yorkers and to encourage their full participation in society. - Coordinates State programs and services for the elderly. - Stimulates community interest in problems of the aging. - Promotes public awareness of resources available for the aging. - Ensures the development of local programs. - Fosters and support studies, research and education on the elderly.
New York City Department for the Aging (DFTA)	- Plans, coordinates, and implements programs for older adults. - Provides social services, such as: contracts with community partners, senior center programs, transportation, case management, home care, legal assistance, and etc. - Advocates, conducts research and policy analysis, administers federal, state, and city funds.
New York City Department of Transportation (NYCDOT)	- Provides safe, efficient, and environmentally responsible movement of people and goods. - Maintains and enhance transportation infrastructure. - Improves traffic mobility. - Reduces congestion. - Encourages mass transit. - Conducts traffic safety education programs.
New York City Department of City Planning (DCP)	- Promotes strategic growth, transit-oriented development, and sustainable communities in the City, in part by initiating comprehensive, consensus-based planning and zoning changes for individual neighborhoods and business districts. - Establishes policies and zoning regulations applicable citywide. - Support the City Planning Commission and each year reviews more than 500 land use applications for actions such as zoning changes and disposition of City property. - Assists both government agencies and the public by providing policy analysis and technical assistance relating to housing, transportation, community facilities, demography, waterfront and public space.
Metropolitan Transportation Authority (MTA)	- Operates public transportation in New York City. - Serves New York City, Long Island, southeastern New York State, and Connecticut.
New York City Transit (NYCT)	- Largest agency within the MTA. - Administers New York City's paratransit service, Access-A-Ride. - Provides plans for accessible stations in the subway system.
Permanent Citizens Advisory Committee to the MTA (PCAC)	- Provides a forum to review MTA plans and policies. - Evaluates, discusses, and takes positions on proposed operating, budget, and capital program proposals and priorities.

Office of the Mayor	- Provides long range planning framework for New York City. - Releases initiatives to promote development, i.e. Age-Friendly NYC.
United Hospital Fund/United Way of New York City	- Established the United Way of New York City. - Established the Aging in Place initiative in 1999 in New York City. - Primary organization that oversees New York City NORC (Naturally Occurring Retirement Community) programs.
New York Metropolitan Transportation Council (NYMTC)	- Regional council of governments that is the metropolitan planning organization for New York City, Long Island and the lower Hudson Valley. - Provides a collaborative planning forum to address transportation-related issues, develops regional plans and makes decisions on the use of federal transportation funds.

11 CONCLUSION

This report, *Mobility Initiatives for an Aging Population: A Scan of Current Practices*, highlights initiatives other cities have either implemented or are planning to employ in response to the global phenomenon of proportional shifts and changing demographics relative to the aging population. It also echoes many of the issues presented in *Age-Friendly NYC* and other recent studies that recognize the issue of mobility and aging. Mobility is essential to everyday life and when one loses the ability to drive, board a train, or walk, life changes for that individual. The degree of mobility of a person greatly contributes to how an individual feels and their sense of subjective well being. In fact, the ability to move trumps all other functional capacities that we possess; it is integral to survival.

Sometimes relatively simple engineering changes in the environment, such as retiming traffic signals, filling in potholes and cracks in the sidewalk, and legible signs could be the difference between an accessible and inaccessible trip to the neighborhood market. New York City is unique and some of the issues that must be dealt with need to be done on a very large scale. Retrofitting New York's aging transit system is costly. While many stations will be accessible in the near future, the improved stations will still remain a barrier for many individuals. The case studies in this report provide ideas and useful information aimed at improving mobility for the growing older adult population.

The practices in this report are current practices throughout both the United States and the world. By examining current practices, it will be easier to see what may or may not be feasible for New York City. The products of both this report and *Age-Friendly NYC* present mobility issues of our aging population. Their emergent synergy should help to sharpen the focus on the steps that are necessary to address the needs of the older adult population and generate viable solutions for our City.

In an effort to expand on the initiatives documented in this report, a next step could be analyzing possible applications gleaned from the case studies for potential implementation in neighborhoods identified as having a high concentration of older residents. By conducting further analysis in these areas, appropriate changes to enhance mobility could be explored.

Another step could be a continuance of this study by investigating a second set of current practices that could lead to innovative ideas on mobility in NYC for the older adult population. The research for this report clearly indicates that the aging population dynamic is universal, and new ideas and initiatives exist and are unfolding all over the world.

Also, since so much information on aging and mobility has recently

emerged in the form of studies and initiatives, a compendium of pertinent information drawn from these sources to bring together ideas may be useful, and provide a basic document on aging and mobility for reference. This could be another new effort following DCP's report.

The New York City Department of City Planning will continue to coordinate with the Office of the Mayor and other relevant agencies in the interest of collectively nurturing an age-integrated society by supporting and implementing improvements, and enhancing mobility for a rapidly increasing population of older New Yorkers.

Finally, given the evolving and projected trends and shifts in demographics, it is the hope that the ideas contained in this study will contribute to a well-balanced environment encompassing the following: an age-friendly city, an age-integrated city and a livable city for all New Yorkers.

12 GLOSSARY

Definitions

Acronym	Meaning of Term	Description
ABA	Architectural Barriers Act	An act that requires that any facilities that are designed, built, altered, or leased with Federal funds must be accessible.
ADA	Americans with Disabilities Act	Civil rights law of 1990 in the United States to prevent discrimination based on disability. Requires that services be provided for the elderly and disabled. Federal, state, and local governments have created specialized programs to meet the transportation needs of the elderly.
ADU	Accessory Dwelling Unit	Self-containing apartments in an owner occupied single-family home or lot that are either attached to the principal dwelling or in a separate structure on the same property.
	Clearview Font	A type of font developed for legibility and clarity.
CMAQ	Congestion Mitigation and Air Quality Improvement Program	Administered by the FHWA and FTA, it requires the reduction and stricter control of allowable vehicle tailpipe emissions and further integrates transportation with air quality planning.
DDA	Disability Discrimination Act	UK civil rights law to protect disabled persons from discrimination.
GIS	Geographic Information System	Utilizes hardware, software, and data to visualize and interpret data, patterns, and recognize trends.
GPS	Global Positioning System	A satellite-based navigation system that helps provide precise location and time information.
ITN	Independent Transit Network	A transit service that provides seniors with their transportation needs so that they can continue to be mobile in a way that is safer for them.
ITS	Intelligent Transportation Systems	Support system that provides basic services, such as: warnings, delays, information on surroundings, route information.
LPI	Leading Pedestrian Interval	Lights up the pedestrian signal a few seconds before vehicular traffic has a green signal
LED lenses	Light Emitting Diode lenses	Indicator lights that help increase sign visibility.

MSA	Metropolitan Statistical Area	A geographic area that has a high population density.
	MTA Guide to Accessible Transit	Provides accessibility information regarding the MTA accessibility for paratransit, such as: the Reduced-Fare Program, fare information, traveling on MTA subways and buses, travel training, accessible stations list, elevator and escalator outages, information in large print or Braille brochure, or on audiotape.
MTIP	Metropolitan Transportation Improvement Program	Funding distributed by the fereal government distributed every two years.
MUTCD	Manual on Uniform Traffic Control Devices	The standard for signs, signals, and pavement markings in the United States.
NORC	Naturally Occurring Retirement Community	A retirement community of aging residents with professional staff and volunteers.
OAA	Older Americans Act	Requires that area agencies on aging provide services with particular attention to low-income minority older individuals.
PCAC	Permanent Citizens Advisory Committee	Provides a forum to review MTA plans and policies and evaluates, discusses, and takes positions on proposed operating, budget, and capital program proposals and priorities.
PIN	Population in Need	Determined by assessing the decennial US Census data presented by borough and by the 59 community districts. Determines where new senior centers should be located.
RFP	Request for Proposal	Invitation process to submit a proposal for a project or service.
RVAR	Rail Vehicle Accessibility Regulations	Creates European accessibility standards for trains, light rail, and trams so that all European trains will be reasonably accessible.
	Safe Streets for Seniors	Pedestrian safety initiative that outlines a number of traffic calming measures. Benefits some of the most vulnerable users of NYC's streets and sidewalks. Sponsored by NYC DOT.
SHS	Standard Highway Signs	
TAP	Transportation Access passes	A premium discount plan for seniors and the disable launched by the MBTA. Also known as the Charlie Card.
TOD	Transit-Oriented Development	A development project that is connected to transit either physically or functionally and enhances the public transportation system.
UGB	Urban Growth Boundary	A planning tool that originated in the 1970s in Oregon as a way to manage development.
URL	Uniform Resource Locator	Global address for documents or websites located on the World Wide Web.
VPG	Vehicle Production Group	Private company that has designed a vehicle, MV-1, that is marketed as a paratransit or taxi vehicle. The vechile can carry up to two wheelchair passengers or six seated passengers.

Agency Abbreviations	
Acronym	Agency
AARP	American Association of Retired Persons
BCIL	Boston Center for Independent Living
Caltrans	California Department of Transportation
DFTA	Department for the Aging
DMV	Department of Motor Vehicles
DOT	Department of Transportation
FHA	Federal Housing Administration
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
HUD	Department of Housing and Urban Development
IRT	Interborough Rapid Transit Company
LIRRCC	Long Island Rail Road Commuter's Council
LRSU	London Road Safety Unit
LSHTM	London School of Hygiene and Tropical Medicine
MASSDOT	Massachusetts Department of Transportation
MBTA	Massachusetts Bay Transportation Authority
MDOT	Michigan Department of Transportation
MHD	Massachusetts Highway Department
MNRCC	Metro-North Railroad Commuter Council
MPD	Metropolitan Police Department
MTA	Metropolitan Transportation Authority
NHTSA	National Highway Traffic Safety Administration
NYCDOT	New York City Department of Transportation
NYCT	New York City Transit
NYCTRC	New York City Transit Rider's Council
NYMTC	New York Metropolitan Transportation Council
NYS DMV	New York State Department of Motor Vehicles
NYSDOT	New York State Department of Transportation
NYSOFA	New York State Office for the Aging
PCAC	Permanent Citizens Advisory Committee
PCO	Public Carriage Office
RPA	Regional Plan Association
SERMC	Southeast Regional Maintenance Center
SWA	Department of System-wide Accessibility
TCC	Transportation Co-ordination Center
TLC	Taxi and Limousine Commission
TfL	Transport for London

13 LITERATURE REVIEW

Reports and Documents (Public, Private, and Not-for-Profit Agencies)

1.) ***Advisory Workgroup Report: Livable New York*; New York State Office for the Aging, October 2010.**
Livable New York provides recommendations developed by an Advisory Workgroup established by New York State's *Livable New York* Initiative. It is being implemented by the State Office for the Aging in collaboration with 86 individuals that comprise the Advisory Workgroup. These individuals from across the State of New York hold expertise in various areas that focus on various issues involving aging, such as: housing options, housing development, universal design, planning, zoning and land-use, green building, energy alternatives, mobility, and transportation. In addition to a collaboration with an Advisory Workgroup, *Livable New York* is made possible with assistance from professionals, community leaders, and consumers from across the State and the Initiative's affiliate partners: New York State Energy Research and Development Authority, New York State Department of State, USDA Rural Development – State Office, Dormitory Authority of the State of New York, New York State Office for Persons with Developmental Disabilities, New York State Division of Housing and Community Renewal, and New York State Commission on Quality of Care and Advocacy for Persons with Disabilities.

Livable New York provides a comprehensive understanding of what constitutes a 'livable community,' addresses the aforementioned issues and provides recommendations for them. The results of the various collaborations are presented in the *Report* are meant to advance the goals of *Livable New York.* The goal of *Livable New York* is to create livable communities to accommodate for the changing needs for people of all ages – seniors, younger people, and people with disabilities, families, and caregivers.

2.) ***Active Design Guidelines: Promoting Physical Activity and Health in Design*; New York City Department of Design and Construction, 2010.**

The *Active Design Guidelines* was developed by a partnership of the New York City Departments of Design and Construction, Health and Mental Hygiene, Transportation, City Planning, and Office of Management and Budget, working with leading architectural and planning academics, and with help from the American Institute of Architects New York Chapter. The *Guidelines* seeks to provide:

1. **Urban design strategies** for creating neighborhoods, streets, and outdoor spaces that encourage walking, bicycling, and

active transportation and recreation.

2. **Building design strategies** for promoting active living where we work and live - for example, through the placement and design of stairs, elevators, and indoor and outdoor spaces.

3. **Discussion of synergies** between active design and sustainable design initiatives such as LEED and PlaNYC and incorporating Universal Design.

While the *Active Design Guidelines* seeks to utilize planning strategies as a method to understand health problems and combat them – it provides cost-effective solutions to make a more livable New York for all New Yorkers - including seniors. It is promoting physical activity and health through design while maintaining sustainability.

3.) *Annual Plan Summary*; New York City Department for the Aging, April 1, 2009 – March 31, 2010.

Purpose and Scope of Annual Plan Summary:

Under Older Americans Act (OAA), Section 306(a)(6)(D), " requires that All Area Agencies (AAA) are to develop an area plan. New York State also requires AAAs to submit an Annual Implementation Plan (AIP) to the New York State Office for the Aging on programs funded through state and federal resources, the New York State Community Services for the Elderly Program (CSE) and the Expanded in-Home Services for the Elderly Program (EISEP). The Annual Plan Summary is a synopsis of the AIP and presents DFTA's strategic goals, budget and service levels, and programming. This Plan represents the second year of a four year plan covering the period April 1, 2008 to March 31, 2012."

The *Annual Plan Summary* identifies transportation as a supportive service need that must be addressed because of the "given function decline in mobility among older adults as they age, the availability and subsidization of appropriate transportation is a critical factor in enabling an individual to live independently." The *Summary* examines the Surface Transportation Policy Partnership's report, "Aging Americans: Stranded without Options," and the U.S. Government Accountability Office's (GAO) to emphasize that there are research studies and surveys that indicate transportation needs for older adults are not being met.

This report addresses the various services provided by DFTA, such as nutrition benefits, counseling, employment opportunities, legal assistance, in-home services, including the appropriate transportation services.

4.) ***Age-Friendly NYC*; Mayor's Office for Health and Human Services, New York City, August 2009.**

Age-Friendly New York City is a partnership between the New York City Council, the New York Academy of Medicine (NYAM) and the Mayor's Office to create a blueprint for how New York City can become more age friendly. This report represents an initiative and coordination of ideas from various stakeholders and experts including older adults, advocates, academics, the business community, and others from a variety of fields to get their input.

The report builds on the work of the World Health Organization's *Global Age-Friendly Cities* initiative (2007), which engaged older adults and others in 35 cities around the world in identifying the core components and features of an age-friendly city. In September 2008, NYAM released *Toward an Age-Friendly New York City: A Findings Report* as a result of a yearlong citywide public engagement campaign consisting of town hall meetings, focus groups and feedback from nonprofit organizations and the academic community. This report is the next stage in the collaborative effort between NYAM, the Mayor's Office and the City Council. The initiatives are grouped into four main areas – community and civic participation; housing; public spaces and transportation; and health and social services.

The goal of the public spaces and transportation section of the report is to provide age-friendly public spaces and a safe means for reaching them. The selected initiatives highlighted in the report are the following:

- Develop taxi voucher program for older New Yorkers who are unable to use public transportation.
- Redesign street intersections at key locations citywide to improve safety for older New Yorkers.
- Provide environmental stewardship workshops and engage older New Yorkers in planting trees as part of PlaNYC and MillionTreesNYC.

- Promote use of Universal Design Guidelines through education and awareness efforts.

A comprehensive listing of the Public Spaces & Transportation Agenda under the headings of Accessible & Affordable Transportation, Safe & Age-Friendly Public Spaces and Planning for the Future follow:

Accessible & Affordable Transportation

- Improve elevator and escalator service and enhance accessibility of subway stations
- Improve efficiency of Access-A-Ride by equipping vehicles with GPS devices and implementing phone notification system
- Match accessible taxis with users who need them
- Develop model accessible taxi
- Develop taxi voucher program for Older New Yorkers who are unable to use public transportation

Safe & Age-Friendly Public Spaces

- Increase seating in bus shelters
- Install public restrooms at key locations citywide
- Create new, pedestrian friendly public spaces while calming traffic
- Redesign street intersections at key locations citywide to improve safety for older New Yorkers
- Identify age-friendly parks and encourage older adults to utilize them

Planning for the Future

- Provide environmental stewardship workshops and engage older New Yorker in planting trees as part of PlaNYC and Million Trees NYC
- Conduct study to better address the mobility needs of older New Yorkers
- Promote use of Universal Design Guidelines through education and awareness efforts.

5.) ***Walk the Walk: Connecting Senior Pedestrian Safety to Seniors in New York City;*** **Transportation Alternatives, 2009.**

Transportation Alternatives (T.A.) a not-for-profit organization has produced this report with the assistance of various organizations, such as NYC Coalition Against Hunger, New York State Department of Motor Vehicles; Tri-State Transportation Campaign; and the NYC Department of Transportation, as well as active cooperation from many senior centers, including, Sirovich Senior Center, Stein Senior Center, and Grand Street Settlement.

This study produced by Transportation Alternatives identifies, "dangerous intersections, street and walking zones of particular use to seniors, and aims to transform them into places that are safe and enjoyable for seniors."

Transportation Alternatives seeks to "augment New York City's Department of Transportation (DOT) Safe Street for Seniors program." The study primarily focuses on Council District 2 of Manhattan.

One of the major recommendations made in this study is that "NYC DOT should create a senior pedestrian zone composed of an one-eighth mile radii around significant residential senior populations of 500 seniors or more and around nearby hospitals." Within this zone, Transportation Alternatives recommends, "inexpensive safety improvements, including leading pedestrian intervals (LPIs) and a reduction in all signalized crossing speeds to 2.5 feet per second from the current 3.5-4 feet per second."

Transportation Alternatives also recommends that the NYC DOT should collaborate with the Department for the Aging (DFTA) and/or the Department of Health and Mental Hygiene (DOHMH), "to conduct research and collect data on senior pedestrian's injuries and fatalities." The data should be examined to show how they are related to locations and intersections frequented by seniors.

6.) ***A Directory of Transportation Programs for the Elderly*****; Funded by the New York City Department for the Aging, 2009.**

This year, New York City Department for the Aging intends to provide over 600,000 one-way trips for the elderly (age 60 or older) in New York City through the non-profit organizations with which it contracts.

The community-based transportation programs are located in each of the five boroughs. This service is provided for the purpose of attending congregate meal sites, senior centers, and essential medical and social service appointments and activities.

The services transport frail and older New Yorkers who either have no access or cannot use public transportation. Many programs have vehicles that are wheelchair accessible. Although there is no formal fee schedule, service recipients are given the opportunity to contribute to the cost of the services.

7.) ***Toward An Age-Friendly New York City: A Findings Report*; The New York Academy of Medicine, Fall 2008.**

This report was prepared by The New York Academy of Medicine (NYAM). It is part of an international effort led by the World Health Organization (WHO) under the Global Age-Friendly Cities projects that involves more than 35 cities, from Istanbul to Tokyo. The principal objective is to ensure that the great cities of the world not only support their residents as they age, but also tap the tremendous resources older people can offer. The project has support from the New York City Council and the Office of the Mayor.

The NYAM's main effort had centered "on a series of processes to speak with and hear directly from older adults and their caregivers." The Findings Report presents, first the major themes heard during the last year plus secondly, a Technical Report with more detailed information about the City and its older population, and the detailed data collected in the assessment process. The reviews of the literature will be released separately. The third report with concrete recommendations for action will be issued later.

The report highlights the eight domains of an age-friendly city, and discusses these principal issues in detail.

They are; 1. Respect and Social Inclusion, 2.Information and Communication , 3.Civic Participation and Employment, 4.Social Participation, 5.Housing, 6.Transportation, 7. Public Spaces , 8.Health and Social Services.

8.) ***Upper West Side: Senior Pedestrian Safety Plan;* Transportation Alternatives, Assembly member Linda Rosenthal, November 2007.**

This report was prepared for Assembly member Linda Rosenthal by Transportation Alternatives under the Safe Route for Seniors Campaign. This safe route campaign is a "New York State Department of Health funded program developed by Transportation Alternatives to improve the cardiovascular health of New York City senior citizens through improved walking conditions."

The study addresses the concern of the senior citizen community about pedestrian safety at intersections and corridors in the west 60s and 70s of Manhattan's Upper West Side neighborhood. The plan covers residential and commercial streets and areas with existing subway entrances and exists. The goal is to reduce conflicts between older pedestrians and motorist with the 67th Assembly District.

This report is a two part series. The first part of the series covers the street conditions and subsequent needs of senior citizens on the Upper West Side. The second report will encompass a larger community outreach project. These findings will be presented to NYC DOT for infrastructure improvements in the future. "The recommendations in this report are typical of those described throughout the Safe Routes for Seniors program and suggest a progressive universal design strategy for every urban street to prevent serious injury or fatality from motor vehicle crashes while significantly enhancing the urban environment for bicycling, walking, and environmentally sensible transportation."

The study area was divided into four "sites."

1. West End Avenue from West 61st street to West 75th Street
2. West 66th Street from West End Avenue to Columbus Avenue
3. West 72nd Street from West End Avenue to Broadway
4. West 71st Street at Broadway and Amsterdam Avenue

Each site was evaluated and maps were drawn to indicate the problems with crossings; final recommendations were then developed for this document. The second larger study of the Upper West Side will include streets north of West 75th Street.

Concurrent to this work, "the New York City Department of City Planning is proposing a rezoning of a 51 block section of the neighborhood bounded by West 110th Street to the north, Central Park West to the east, West 97th Street to the south, and Riverside Drive to the west."

9.) ***Promoting Positive Aging Report;*** **New York City Department for the Aging, 2005-2007**

This report summarizes efforts under taken by New York City Department for the Aging (DFTA) during 2005 and 2007. DFTA is the largest area agency on aging that provides federal and state programs to older New Yorkers directly and through a network of community partners.

The report gives a synopsis of DFTA's various undertakings, such as promoting healthy life styles, maximizing independence, helping seniors meet basic needs, connecting to isolated seniors and supporting productive and meaningful aging.

10.) ***New York City Population Projections by Age/Sex and Borough 2000-2030 Report***; **New York City Department of City Planning; Population Division, December 2006.**

This report summarizes New York City population projections from 2000 to 2030. Population data dating back to 1950 is displayed with future population projections. There are sections that focus on two demographic groups made up of school-age population and the elderly population. The report explains the components of population change, such as natural increase and net migration which must be included to make accurate population projections. The report concludes by stating overall growth from 2000- 2030 is projected to have similar increases as in the past. The demographic with the largest change is the rising elderly population. According to the report, in the next few decades New York City will see a substantial increase in elderly population. It is projected to increase from 938,000 in 2000 to 1.35 million in 2030.

11.) ***There's More to Taking a Walk than Moving Your Feet;*** **New York City Department of Transportation, Safety Division, 2005.**

This facilitator's guide and program produced by the NYC DOT are, "excellent resources for helping older adults reduce the risk of injury while enjoying the benefits of walking." It is designed to promote lively and informed discussion about the strategies of walking in New York City. Materials and information for older drivers are also included in the last section of the guide.

This facilitator guide discussed the following risk areas:

1. Intersections/Turning Vehicles
2. Conspicuity (visibility)
3. Backing vehicles
4. Environmental
5. Personal

Under the area of personal risk, the major elements are gradual loss in hearing, vision, reflexes, and flexibility that put older adults at risk.

The final section "Walking Wisely" has a series of instructions for older adults that was translated into the four major languages spoken in New York City: English, Spanish, Russian and Chinese.

American Association of Retired Persons (AARP) Documents and Publication Articles

12.) ***2007 AARP Driver Safety Program Online Course Evaluation;*** **AARP, Washington, D.C., 2008**.

The AARP Driver Safety Program is the first and largest classroom program for drivers 50 and older. Started in 1979, the program is aimed at encouraging safe driving among people age 50 and older. The course teaches participants the effects of aging on driving behavior and how to adjust driving behaviors to accommodate for these changes. AARP has evaluated the classroom-based course in a report called *2007 AARP Driver Safety Program Course Evaluation*.

AARP later created an online driver safety course for participants who preferred an online classroom setting. This document evaluates the result of a web-based survey of online program participants. The study evaluates the responses of over 1,000 participants who took the

course in the latter half of 2007.

The report's conclusions included the following: the majority of the online participants changed at least one driving behavior and many changed multiple behaviors. The majority of the online participants felt that the course had prevented them from being in an accident.

There were age differences among the online participants, with the older participants in the online study more likely to change many of their driving behaviors. However, younger participants would not be expected to change certain behaviors that older participants would as it may not be necessary for younger participants to change their driving behaviors.

There were differences among the online and classroom participants. Classroom participants tended to change more behaviors than online participants.

13.) ***New Report Finds Older Downstate Pedestrians at Risk*; Tri-State Transportation Campaign, AARP, December 10, 2008**.

The Tri-State Transportation Campaign has recently completed a study that indicates that people age 65 years and older are far more likely to be killed while walking in the streets than younger persons. The study analyzed data for 10 New York downstate counties, including the five New York City counties and Rockland, Orange, Westchester, Nassau, and Suffolk counties, as well as counties in New Jersey and Connecticut. The study examined data obtained from the National Highway Traffic Safety Administration's Fatality Analysis Reporting System (FARS) and the U.S. Bureau of the Census regarding fatality rates by age and gender for each of the analyzed counties.

In the United States, pedestrian collisions are the fifth leading cause of accidental death for people ages 65 and older. Pedestrian fatality rates for older Americans are more than 70 percent higher than for those under 65 years old.

The study indicates that older pedestrians in downstate New York are more at risk to suffer a fatality. In the downstate counties, the pedestrian fatality rates for people 65 years and older are more than four times the rates for those younger than 65 years old. People 75 years and older suffer a fatality rate that is more than five times that of younger persons located in the downstate area.

The study analysis found that Manhattan, followed by Nassau County and Staten Island, were the most dangerous places in downstate New York for older people to walk.

The study recommends new and expanded efforts to improve pedestrian safely for seniors in New York City and the surrounding counties. The report suggests that transportation departments in the New York metropolitan region should improve senior pedestrian safety with programs that target resources to specific locations where seniors face the greatest risk. The report indicates that such efforts are especially needed on Long Island and in Connecticut where walking seniors face very dangerous conditions.

14.) ***Good to Go: Assessing the Transit Needs of New York Metro AARP Members*; Published by AARP, Washington, D.C., 2006.**

Study Purpose The purpose of this study was to identify and examine transportation issues and needs among the older population in the New York metropolitan area and to help assess the overall transportation requirements of this population segment. The study assumed that access to goods and services, such as health services and social contact, is essential in order for older people to preserve an independent lifestyle and a favorable quality of life. The study results were to provide information to assist decision makers in their effort to develop transportation and mobility policies that would ensure mobility for the older population. The beneficial policies were to increase older persons' access to goods and services in the community as well as to socialization.

Background In the New York metropolitan area, older individuals have access to generally available public transportation. However, because they also have unique travel needs, their transportation needs may remain unmet by the public transportation system. Also, in both urban and suburban areas, older adults are still very reliant on driving their automobiles for transport. As individuals age, they may experience impediments to driving and public transportation, and alternative travel means must be made available to ensure that the aging population continues to have access to the goods and services they require. Thus, it is vital to identify existing barriers to transportation

accessibility experienced by the aging population.

Study Methodology The AARP New York office administered the study. The New York office staff mailed survey questionnaires to a randomly selected sample of New York City metropolitan area AARP members between the dates June 1, 2006 and July 18, 2006. The sample population included 2,000 members mostly age 75 and older in the following metropolitan area counties: New York, Queens, Kings, Bronx, Richmond, Nassau, Suffolk, Westchester, Rockland, Putman, and Orange. In response to the survey, 1,128 people returned completed questionnaires by the survey due date, resulting in a 56 percent response rate. Approximately 90 percent of the respondent members were age 75 and older and about 10 percent were younger members. The survey had a sampling error of plus or minus 2.9 percent.

Questionnaire The questionnaire contained 24 multiple choice questions. Fourteen of these questions asked the respondents to provide information regarding their transit options by considering and evaluating elements of their existing and possible alternative future transportation modes. Ten questions elicited demographic information about the respondents, who were asked to describe their personal characteristics including age, sex, education level, current employment, current marital status, type of community in which they resided (i.e., city, suburb, or small town), if they had a driver's license, ethnicity, race, and income.

The kinds of modes of transportation that the study questions referenced for examination as alternatives for the respondents were: to drive, to walk, get a ride with family or friends, take public transportation, take taxis, take community vans for seniors or people with disabilities, and use private drivers.

The kinds of key destinations that the questionnaire asked respondents to consider were: medical appointment, activities with family, activities with friend, place of worship, grocery shopping, drug store/pharmacy, shopping for clothes/household items, entertainment, volunteer activities, and work.

The questionnaire asked the respondents to evaluate many operational elements of their public transportation service including: boarding accessibility, cost, convenience, and fare information.

The questionnaire asked the respondents to consider certain transportation methods that might improve their mobility including: more driving alternatives, more delivery services, improved access to public transportation, improved road and sidewalk conditions, and other methods.

The questionnaire included asking the respondents the following assorted questions: how often they left home and went out somewhere; the primary kinds and frequency of use of transportation modes, for various activities; the kinds of places they need to get to, by transportation mode; their level of satisfaction with their transportation modes, how often transportation problems interfered with getting to certain destinations; the availability, frequency, and favorable and difficult aspects of public transportation in the neighborhood; and what kinds of transportation modes they would require if they become less physically capable, could no longer drive (if they currently drive), or relocated elsewhere.

Findings The survey results indicate that the transportation issues and needs of the respondents vary depending upon the demographic characteristics of the respondents. The results show that how and when the respondents travel about in the community vary both according to whether the respondents drive and also by other factors, such as gender, income, race, and residence location. The full study report presents these differences for the various demographic groups as well as the findings pertaining to the overall surveyed population.

***Some specific findings include the following*:** Having a driver's license is a crucial factor in mobility. Nearly 10 percent of the respondents without a license report that they do not get out at all during a typical week; when they do travel about, it is significantly less frequently than those who have a license. The unlicensed individuals are also more dependent on public transportation and ride sharing. Fortunately, those without a license more often reside near to local public transportation stops.

Declining health conditions may present future problems for those who drive. Licensed members are more likely to state that they may experience difficulties remaining in the existing neighborhood if they could no longer drive. They state that more driving alternatives and better access to public transportation would facilitate their remaining in their current neighborhood if their mobility status declined.

Black members are significantly less likely to be licensed drivers than white members, and they rely more heavily on alternative modes of transportation, especially public transportation.

Black members are less likely than white members to get out of their homes frequently on a weekly basis. They are more likely to experience problems getting to key destinations. Nonetheless, black members are just as satisfied as their white counterparts in their ability to travel around their community.

Members with incomes of $75,000 per year or more are highly mobile, with the majority going someplace more than five times per week, with few problems and a high level of satisfaction. Members with low incomes tend to get out of their home less often per week.

Low income members are significantly less likely than their higher income counterparts to drive, depending more on family and friends for transport. Low income members are also more apt to experience difficulties getting to their destinations; when using public transportation, they have numerous problems.

Members who live in cities are less likely to have licenses than members in the suburbs and small towns. As such, they are more apt to live close to a public transportation stop and to use public transportation more often than their counterpart members from the suburbs and small towns.

Suburban and small town residents report that having more driving alternatives (senior van, for example), more delivery services, and improved access to public transportation would enable them to remain in their current community if they become unable to drive.

Conclusions The study results indicate that older adults in the New York metropolitan area who are AARP members are very mobile, experience few difficulties traveling to where they need and want to go, and are satisfied with how they get around within their communities. However, how the respondents answered questions about transportation issues were significantly influenced by such factors as having a driver's license, the type of community where they live, income, gender and race.

The study findings show that older New York Metro AARP members have different transportation patterns and problems based on a number of factors. The results suggest that when planning service options and delivery systems, policy makers should consider all of these factors. The study findings indicate that only one transportation solution will not address the diversity of needs among the aging population.

15.) ***In Brief: The Impact of Federal Programs on Transportation for Older Adults***; **AARP Public Policy Institute, December 2004**.

This *In Brief* summarizes the findings and implications of the report, *The Impact of Federal Programs on Transportation for Older Adults*. This report, undertaken by a transportation consulting firm, provides information about the numerous federal and social service transportation programs serving the elderly. The report identifies the programs' limitations and makes recommendations for improving the federal government's role in ensuring adequate mobility for the aging population. The report findings contain options for strengthening existing programs that are currently providing important transportation resources. These suggestions include: increasing investment in grants to states to support specialized transportation for the elderly and people with disabilities, and for public transportation service in rural areas; increasing investment in grants supporting public transportation in urban areas; supporting older driver research; enhancing transportation as a supportive service under the Older Americans Act; promoting Medicaid nonmedical transportation as a component of home-and-community-based care; expanding Medicare coverage of medically necessary transportation; and promoting research on nonemergency medical transportation.

16.**)** ***In Brief: Understanding Senior Transportation: Report and Analysis of a Survey of Consumers 50+***; **Audrey Straight, AARP, Washington, D.C., March 2002, http://research.aarp.org.**

AARP was commissioned to conduct a telephone survey of older persons to examine the transportation needs and preferences of mid-life and older adults. The survey especially focused on understanding transportation concerns because of the fact that transport mobility decreases with people's age. The purpose of this survey report was to understand how older persons physically connect with their

communities and to explore the problems of persons over the age of 50, and particularly those 75 years and over, in relation to transportation.

Some key findings include the following: health and disability status (HDS), besides age, has an impact on mobility and is a strong predictor of mobility in the population age 75 plus; persons 75 with excellent HDS, as compared with those with poor HDS, are more likely to have gone out each day, to drive, and to walk regularly, and they are less likely to be a passenger in a car (to "ride share"); individuals age 85 and older with excellent HDS are more mobile than younger persons with poor HDS; driving is the usual mode of transportation for persons age 50 and older, although the percentage of those who are licensed and who drive regularly declines slowly up to the age of 85, after which there is a substantial decrease in driving.

The findings suggest two areas for policy development that would help to keep people mobile: 1) break the link between both poor health and disability status and resulting reduced mobility by further research to determine if seniors with poor health and disability status would use various transportation options if made more accommodating; and 2) address the problems identified by older transportation users in regard to driving, ride sharing, public transportation, walking, and taxis.

17.) ***Transportation and Older Persons: Perceptions and Preferences, a Report on Focus Groups*; AARP Public Policy Institute, Washington, D.C., 2001**.

The study was created to discern the perceptions and preferences of persons age 75 and older in regard to their transportation options and how they travel about in their community, as well as to assist policy makers to develop policy that would enhance the mobility of older persons. The study results data were derived from the conduct of three focus groups consisting of 28 people in each group, and from personal interviews with 17 individuals. The study participants were age 75 years and older. The study participants were selected to represent diverse demographic groups and also to represent suburban drivers, suburban non-drivers, and urban non-drivers. Excluded from the study participants were older persons living in rural areas and older persons with chronic health problems. The study results suggested the following: a strong preference for automobile-based transport and explicit reservations about each alternative to driving, but a willingness to use such alternatives, if available; the perception of reliability, convenience, spontaneity, personal security, and flexibility as the qualities that make automobile travel preferable; the preferences for rides from friends and/or family among people who cannot drive themselves, but a dislike for the feeling of dependency or obligation created by requesting the ride; the influence of opportunities for socializing on trip-making decisions; and the lack of information about community transportation resources among suburbanites. The study results indicate that future transportation policies might support the following: facilitation of safe driving as persons age (for example, improving road design or designing driver education to meet the needs of older drivers); facilitation of the transition from driving to non-driving; development of alternatives to driving, including public transportation, that include more of the positive attributes of the automobile; encouragement of ride-giving by friends and family; expanded distribution of information on community transportation resources; and the development of taxi services that are more compatible with the needs of elderly riders.

18.) ***Coordinated Transportation Systems*; AARP Public Policy Institute, September 2000**.

The AARP organization has recognized that many persons 65 years and older rely on a broad array of publicly funded transportation services that have evolved over many years. The services may be provided by public transportation agencies for the general public or by social service agencies for their clients. The different service providers may receive funds for transportation services from a number of federal, state, local, and nonprofit programs and organizations – each having its own aims and requirements. The lack of coordination of these transportation services can have many negative consequences for the providers and the consumers. However, there are potential benefits to coordination among the transportation providers, such as cost-effective use of resources, expanded service, more trips taken, lower costs to customers, and savings to the participating agencies.

The purpose of this study was to obtain case study information about ways in which coordination of transportation services improved the provision of the transportation services. The report examines eight case studies of coordinated transportation systems. The case studies

were selected because the coordinated transportation systems resulted in enhanced quality and efficiency of the local transportation services. The case studies represented different approaches in different settings, so the readers would get ideas and examples that were likely to be applicable to their own communities.

AARP Articles

19.) ***Streets Safe for Walking, How Cities are Making Their Byways User-Friendly*; AARP Bulletin Today, G.T. Beck, March 2009.**

Senior citizens have indicated that while they may wish to walk around in their communities, certain problems prevent them from doing so, including such conditions as uneven sidewalks, steep curbs, and the short duration of green traffic lights. The article discusses how several jurisdictions around the country have been dealing with this issue. The City of Portland, Oregon recently developed a program called Safe Routes to Senior Centers. The program made changes to the walking environment in locations where older people wished to walk, such as in the vicinity of the senior centers. In New York City, the Department of Transportation adopted a program in 2008 aimed at providing older residents with a safer walking environment by various measures such as increasing the time to cross wide streets and making certain that curbs have smooth ramps leading to street level. The program aims to make improvements in 25 pilot locations, and improvements are already in progress in five locations. New York State recently initiated its first statewide program for the purpose of making it easier and safer for older people to walk to everyday destinations. The program, called SafeSeniors, incorporates low-cost enhancements to the transportation system that for example give people more time to cross at traffic signals, pare back landscaping to improve sight distances at intersections, and use high-visibility paint for crosswalks. In Washington, D.C., a new pedestrian program aims to make improvements to streets and sidewalks that older people are likely to utilize and now find dangerous. One improvement is the installation of LED flashers at street crossings with crosswalks but without stoplights along stretches of Connecticut Avenue in Washington, D.C. This improvement has substantially reduced pedestrian accidents. Other techniques underway for making street crossing easier and safer for the elderly include lowering curbs, widening curb ramps, and installing "neckdowns," which are built by extending sidewalks at the corner into the parking lane, reducing the width of the pedestrian crossing.

20.) ***AARP Poll: Fighting Gas Prices, Nearly a Third of Americans Age 50 + Hang Up Their Keys to Walk but Find Streets Inhospitable, Public Transportation Inaccessible*; AARP New York, August 13, 2008, http:/ wwww.aarp.org/, PR Newswire. USNewswire via COMTEX/.**

An AARP poll in July 2008 indicates that nearly one-third of Americans age 50 years and over are now walking as a way to avoid the high cost of gasoline. However, almost half of these people reported that there are inadequate sidewalks in their neighborhoods, that they do not have nearby public transportation that is accessible, and that they cannot cross the main roadways safely. These findings are especially of concern for people over the age of 65 who have a higher pedestrian fatality rate than the national average. The seniors that were polled said that they would walk, bicycle, and take transit more, instead of using their cars, if the street network amenities were improved. The article describes a complete street public policy which would enable pedestrians, bicyclists, and public transit riders to share the road safely with automobiles. The article indicates that legislation was recently introduced in the U.S. Senate and the U.S. House of Representatives which would ensure that roads, built and improved with federal funds, fully serve everyone using the roadway – including pedestrians, bicyclists, persons catching the bus, and disabled persons.

Newspaper and Magazine Articles

21.) ***Cities Revisit Needs of the Elderly*; Haya El Nasser, USATODAY. com, printed June 1, 2009.**

This newspaper article documents the transportation needs of two elderly women in rural Colorado. Both women need kidney dialysis and rely on the "County Express," vans and buses that shuttle elderly passengers, some of them living nearly 100 miles from the nearest dialysis center. Without the service many elderly would have to move from their tiny towns. Without the subsidy that local officials were able to work out with the health center to use government grants to subsidize most of the transportation cost, each trip would cost a passenger nearly $125.00. As a result of the agreement, each passenger pays $10.00 per trip.

According to a 2005 survey taken by the National League of Cities, the increase in seniors was the topic that concerned city officials the most. The article concludes by asking a question that many seniors ponder: "Is my community going to meet my needs as I get older?" If communities cannot provide such services, those that need transportation services to meet their needs, especially for health reasons will have to move.

22.) ***Taxi! Take Us to Park and 42nd (We're Strangers);*** **New York Times NEW YORK Section, May 28, 2009**.

The Taxi and Limousine Commission plans to introduce in New York City two pilot programs that are intended to make it easier to find a cab at peak times, to make cab rides cheaper by creating discounts and flat fares, and to potentially increase the earnings of taxi drivers. An indirect benefit to the environment is that gas usage would be reduced. One proposal is for making available up to 1,000 yellow cabs equipped with meters that could calculate two fares at once, permitting cab drivers to stop en route and pick up additional riders. The cabs would be marked as "sharecabs" and would have electronic signage displaying the neighborhood they were traveling toward, making if feasible for passengers going in the same direction to hail the cabs. The riders who share a taxi would have that part of the fare pertaining to the mileage and the waiting time- but not the initial charge—discounted by 50 percent. The second proposal calls for several taxi stands to be designated as group-ride pickup locations during the morning rush period, from 6 a.m. to 10 a.m. The taxis at these stands would travel in a designated corridor and charge the riders a flat fare to be dropped off anywhere along that route. The second proposal would begin in the fall of 2009. The first proposal might be implemented in about 2010. Many program details remain to be determined.

23.) ***Bloomberg to Broadway Theaters: Drop Dead*****; by MARKM on 05/19/2009**.

The article addresses the recent conversion of Broadway to pedestrian use in the theater district. Currently, there is gridlock getting to the theater at show time by car or taxi. The largest demographic group attending the Broadway theaters is comprised of persons over 50 years old, and many of these persons are frail and disabled. Since frail and disabled people cannot use buses, the subway, or bicycle, the modes of travel that can successfully access Broadway at show time, they must endure the traffic snarls and a late arrival at the theater. The article purports that the closure of Broadway is ageist and creates an anti-theater district. It predicts that older and infirm persons, due to travel hardship, will discontinue attending the theater and that theater attendance will progressively decline.

24.) ***Senior Transportation Enhanced in Flint, MI;*** **Passenger Transport - 2009 Bus and Paratransit Conference, April 27, 2009**.

The article describes two new public transit programs that are now available to senior riders age 60 year and older in Flint, Michigan. The programs are offered by the Mass Transportation Authority (MTA), which developed the programs with the help of local senior transportation advisory centers, local senior centers, and non-profit agencies. One program, called "Door to Door," provides qualified drivers with specialized training to assist senior passengers to and from vehicles and also to and from destination entrances. This personalized assistant helps seniors who have physical and/or mental impairments and may require additional aid. The second program, called "Door Through Door," is available for riders age 60 and older who need help getting in and out of vehicles and buildings and would not be able to make the trip without extra support. A qualified MTA driver with specialized training helps the passengers to enter their homes and other buildings. The driver may assist the riders with balance, climbing steps, putting on outerwear, or carrying packages and groceries. The driver may escort the passenger to an attendant or caregiver at the destination. The program, which began in March 2008, has been successful during its first year of operation, experiencing continuing growth in ridership.

25.) ***City Nears 8.4 Million as Fewer Leave the State; Staying Put, Even Before the big Downturn;*** **New York Times, March 19, 2009**.

Recent census data indicates that New York City lost less population to other states in the 12 months ending July 1, 2008 than during any year in decades. If that trend continues, the City's population will top at 8.4 million persons in 2010. The gains and slowed losses in New York and a number of other large metropolitan areas in the Northeast, Midwest, and coastal California reflected, in part, reduced growth in traditional domestic population attractors in the South and West. In New York City, immigration from overseas has lessened somewhat since the

1990s; in the year beginning July 1, 2007, the net influx of 73,000 foreigners was nearly enough to offset the outflow to other American places. Also, longer life spans and higher birth rates among immigrants contributed to there being 63,000 added births than deaths. Due to the recent housing and economic downturns, big metropolitan areas, like the New York Metro area, are losing fewer people (who had tended to be in their 30s and 40s) and continuing to gain young people to the area.

26.) ***Getting Elderly Motorists Off the Road Poses Myriad of Challenges*; Harriet Baskas, msnbc.com, updated October 9, 2008**.

The article indicates that elderly persons have a higher automobile crash rate than any other driving group except teenagers. The statistic will worsen as the baby boomers eventually comprise 25 percent of all motorists in about 2030. Cognitive functions, vision, hearing, and other physical abilities decline with age and can impact driving ability. However, senior citizens are loath to stop driving and to lose the independence that driving affords them. Family members may become concerned when an elderly relative continues to drive despite diminished driving ability, and at the same time the elderly relative does not want to stop driving. David Ackerman, a psychotherapist and filmmaker, made an award-winning short film which finally convinced his reluctant grandmother to stop driving.

27.) ***For Aging Pedestrians, a Survey of Street Dangers;* New York Times, April 13, 2008**.

A New York City advocacy group, Transportation Alternatives, and U. S. Assemblywoman Linda Rosenthal, whose district covers the survey area, have conducted a study to identify and assess the pedestrian safety needs and issues of the aging population living within the study area. The study area covers about 200 blocks, situated from 45th Street to 97th Street in Manhattan's West Side, and includes about 25 neighborhoods. About 200 elderly residents of this area participated in the study, where 13 percent of the population is over 65. A 25-page report was released in November 2007, and a New York City Department of Transportation spokesman said that the City would consider implementing measures recommended in the study, including increasing the crossing times at crosswalks, adding traffic medians, and extending curbs.

28.) ***Maintaining Mobility for an Aging Population*; Northwest Public Health, Fall/Winter 2007.**

People over 65 are the fastest growing demographic group in the United States population. By 2030, AARP estimates that over 20 percent of the drivers will be older than 65 years. Because physical or mental changes may make it difficult to drive safely, many seniors must cease driving, which may result in diminished health and social isolation. Non-driving seniors may have insufficient transportation options, because public transit tends to be less available the further people live from city centers, and typically, few other consistent and reliable transportation options exist for the elderly. The article suggests that this issue poses a major public health concern that must be addressed in the short and long term.

In the short term, planners and officials in the health and social service fields should be considering programs that realistically can be implemented. These programs include: planning for driving cessation, providing or encouraging alternate transportation options (such as public transit, family assistance, Internet shopping, and perhaps the relocation by seniors to a more pedestrian-oriented, higher density community), and reducing the transportation burden for the elderly by establishing more home-based services.

Long-term solutions aim at the redesign of the physical community to better suit the needs of the non-driving elderly. The article recommends new land use approaches to facilitate neighborhood-based living and to minimize the dependence on automobiles. Policies should allow mixed land use and higher density so that housing, stores, and services are more closely located and accessible. The changed land use planning and zoning policies can result in communities which contain services needed by older adults, such as clinics, shopping, social center, and assisted living facilities, which are accessible by foot and public transportation. The article concludes that the long-term solutions for meeting the transportation needs of the elderly must be a priority of state and local leaders.

29.) ***Cities Revisit Needs of the Elderly,* USATODAY.com, May 13, 2007**.

A study, entitled *A Blueprint for Action*, was released and funded by the MetLife Foundation, focuses on America's seniors. The report, which contains research by the National Association of Area Agencies

on Aging, Partners for a Livable Community, and other advocacy groups, presents steps that cities and counties can undertake to anticipate and plan for the needs of their older residents. The report aims to induce communities to begin planning for the needs of the 79 million baby boomers who are aging and who are likely to remain where they currently live rather than move elsewhere. The report cites that adequate transportation is needed by the aging population (and that other crucial needs are housing, heath maintenance programs, public safely, human services, and civic engagement). The report recommends utilizing the skills and experience of seniors through civic involvement, consulting, and tutoring in schools. Overall, it urges incorporating the needs of seniors into all public planning.

30.) ***Residential Moves by Elderly Persons to U.S. Central Cities, Suburbs, and Rural Areas*; Journal of Gerontology, Stephen M. Golant, University of Florida, 1987**.

This is a scholarly article. It reports that the 1975-1980 migration stream and net migration patterns of persons younger than 65 years and 65 years plus were examined using data from the 1980 U.S. Census. Central cities and suburbs of metropolitan areas (SMSAs) and non metropolitan areas (Non-SMSAs) were distinguished as origins and destinations. Most elderly movers relocated within a fairly limited geographic area and indicated strong preferences for metropolitan living. Suburban locations were more favored than central city locations. Net migration patterns of the 65 year plus population were similar to those of the 45-to-64-year-old population but differed from those of the more youthful U.S. populations. The findings underscore migration streams of the elderly movers who likely have experienced changes in their life styles or personal resources.

31.) ***Transportation Equity Network, a Grassroots Platform for TEA-21 Reauthorization*; Washington, D.C.; www.communitychange.org**.

The Transportation Equity Network (TEN) aims to advance equity in transportation planning and policy. The national organization seeks the fair distribution of public resources within all communities, especially paying attention to the environmental and community development needs of low-income and minority communities. Grassroots organizations from throughout the US convened to develop an agenda that will address the requirements of transit-needy and transit-dependent people. The reauthorization of the Transportation Equity Act for the 21st Century (TEA-21) will be a critical opportunity to advance these proposals. The TEN's platform goals are: increase funding for public transportation to equitably address the needs of all people, particularly transit-dependent communities including low-income communities, students, people with disabilities, and the elderly – in both urban and rural areas; strengthen public involvement and accountability in the metropolitan and statewide transportation planning process; enforce and strengthen the constitutional and civil rights protections for communities that have been negatively impacted by discrimination, on the basis of race, income, ability, age, ethnicity, and national origin, in the conduct of past transportation planning and projects; and promote community development by directing resources to address the negative impacts of transportation projects on low-income and minority communities and improving coordination among social service, planning, and transportation agencies.

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