“One of the things I do is I give every new person [in my building] a ticket, tell them to get on the bus and ride the entire route, to see what they could do, where they could get off...it is a very convenient bus.”

- Older adult

http://trimet.org/
What is Good Transportation?

- Good transportation:
  - Connects people to places
  - Is efficient
  - Is reliable
  - Is comfortable
  - Is flexible
  - Is affordable
  - Is safe
  - Is equitable

Image credit: blog.transloc.com
mobility
/məˈbɪlədɪ/ noun

the ability to move or be moved freely and easily.
Theoretic Framework of Mobility for Older Adults (7 life-space locations)

Mobility in Older Adults: A Comprehensive Framework
doi:10.1093/geront/gnq013
Mobility Options for Older Adults

- Auto-based system
- Pedestrian/multi-use facilities
- Public transit
- ADA paratransit services
- Community transit services

Photo credit: wikimedia

Rosenbloom (2009): Generations 33(2)
Auto-based System

• **Auto-based system:** Includes single- and high-occupancy vehicles, taxis, shared-economy services, etc.
  
  o 65+ population represents 16% of all licensed drivers (NHTSA 2012).
  
  o Older adults are more vulnerable in motor vehicle crashes due to fragility (Kent et al. 2009).
  
  o Older drivers in their mid-to-late-80s have lower crash rates/mile driven than those in early 20s (AAFTS 2012).
  
  o Cessation of driving can contribute to social isolation, depression and other health-related issues (Marottoli et al. 1997, 2000).

Pedestrian/Multi-use Facilities

- The use of pedestrian and multi-use facilities includes sidewalks, trails, bikeways, multi-use paths, etc.
  - Walking is the 2nd most important travel mode for older people (approx. 9% of all trips).
  - Among older adults who do not drive, walking accounts for 1 of 4 trips; its importance increases with age.
  - Challenges include: lack of sidewalks/system of connected sidewalks, unsafe intersection crossings, cyclists on the sidewalk, obstructed sidewalks, uneven pavements, failure to remove leaves, ice, snow, weeds, roots...

Rosenbloom (2009): Generations 33(2)
Public Transit

- **Public transit** includes buses, light rail, heavy rail, aerial trams, and ferries.
  - Riding public transit is older adults’ 3rd most frequent mode of transportation choice (1st: autos, 2nd: walking).
  - Research has shown that in order to increase older adults’ transit ridership, providers must:
    - Increase safety and security in all parts of the system
    - Provide better information both before and during travel
    - Expand the hours of service and provide additional routes
    - Make service more reliable
    - Enhance driver training

Rosenbloom (2009): *Generations* 33(2)
ADA Paratransit Services

- Americans with Disabilities Act (ADA) paratransit services are disability-based, demand-responsive services complementary to fixed-route services.
  - The ADA requires public transit operators receiving federal financial assistance to provide special demand-responsive services to people with serious disabilities.
  - Eligibility for ADA complementary paratransit services is based on disability and not age.
  - National data show that fewer than 8% of older adults with disabilities report ever using these services.
  - *Note: based on a Dec. 2016 Columbian article, the cost of fixed route vs. C-Van ride was $5.99 vs $44.06.

Rosenbloom (2009): Generations 33(2)
C-VAN Service Area

Legend
- Park & Ride/Transit Center
- C-VAN Service Area (2012)
- C-TRAN Connector Service

C-VAN Service Area Boundary
C-TRAN Educational Programs

• **Travel Training program** is designed to help older adults and people with disabilities learn to use the fixed-route bus system. Riders can meet with a travel trainer to learn how to:
  • Plan your trip
  • Pay your fare
  • Read and understand schedules
  • Recognize bus numbers, stops and landmarks
  • Transfer to another bus or transit system

• **Travel Ambassadors program** allows riders to give back to the community and help grow public transportation in the region by assisting C-TRAN with public outreach, community events, and helping others learn to use the fixed-route bus system.
Community Transit Services

- **Community transit services** are non-governmental special demand-responsive “paratransit” services.
  - Services provided by non-transportation governmental agencies, nonprofit organizations, faith-based groups, and advocates for older adults.
  - Most providers limit their services to a small number of agency clients or affiliated riders rather than providing for the general public or older people.
  - Less than 3% of older adults with disabilities report ever using the services of community transportation providers.

Rosenbloom (2009): *Generations* 33(2)
Transportation Issues to Consider

http://www.agefriendlyneighborhoods.nyc/
Rural & Remote Communities

• The demand for rural transit is substantial and growing.

• Approx. 40% of all rural residents live in a county that offer no public transportation services.

• The scale of the transportation challenges presented by the aging population requires a national response, given the fiscal constraints facing local communities.

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

Aging in Place, Stuck without Options (2011)
Suburban Communities

- A 2003 study found that 79% of older adults aged 65+ live in car-dependent suburban and rural communities.

- The population of older Americans is growing now in suburban and rural areas due to the tendency to age where one already resides.

- Aging in place in suburban communities “will exacerbate an already problematic mismatch between future demand for transportation options and existing transit services.”

_Aging in Place, Stuck without Options_ (2011)
Designing Communities

- Walkable communities reduce the risk of chronic disease and improve public health and quality of life.
- Universal design can create inclusive environments, products, and services that are: safer, accessible, attractive, and desirable for everyone; easily repurposed; capable of reducing falls and related health-expenses; and minimal in cost in new construction.

Source: The Case for Age-Friendly Communities (Neal & DeLaTorre, 2016)
NEIGHBORHOOD FEATURES PLAY A ROLE IN
Healthy Aging in Place

http://www.prb.org/Multimedia/Infographics/2017/neighborhood-features-aging
1. **Walkable**
   - Sidewalks, crosswalks, intersections, few dead-end streets or cul-de-sacs.
   - **Potential Benefits:**
     - Lower obesity rates.\(^1\)
     - Better self-rated health.\(^2\)
     - Lower rates of self-reported disabilities.\(^3\)

2. **Accessible**
   - Extensive, street-level public transportation and well-maintained streets and sidewalks.
   - **Potential Benefits:**
     - More walking outdoors.\(^4\)
     - Fewer mobility problems among those with difficulty walking.\(^5\)

3. **Compact**
   - Diverse mix of residences and businesses in close proximity.
   - **Potential Benefits:**
     - Less mobility disability.\(^6\)
     - More walking outside by those with disabilities.\(^7\)
     - Longer walks by older men.\(^8\)
     - Lower heart disease risk.\(^9\)
4 Safe
Residents consider their neighborhoods safe.

Potential Benefits:
- Greater likelihood of recovering from mobility limitations.\(^{10}\)
- More outdoor physical activity.\(^{11}\)
- More frequent and longer walks.\(^{12}\)

5 Plentiful Resources
Parks, libraries, community centers, well-kept public spaces.

Potential Benefits:
- Slower cognitive decline.\(^{13}\)

6 Healthy Air
Low levels of fine particulate matter pollution.

Potential Benefits:
- Higher cognitive function.\(^{14}\)
Proximity to Services

• The American Planning Association has called for communities to create housing options that are affordable, accessible, close to services (including transit), and located within existing communities.

• The metric most commonly utilized to quantify close proximity is a quarter-mile distance (0.25 mi.), as it is assumed to be adequate distance for planning for access to services by frailer individuals or people with disabilities (Maroko et al., 2009; Ulmer et al., 2003).
Housing + Transportation (H + T)

- The H+T Index sets a combined housing + transportation costs benchmark at no more than 45% of household income.

- People in the U.S. who live in transit-friendly communities pay less for transportation (9% of household budget) compared with those in car-dependent settings (25%) (Center for Neighborhood Technology, 2010).
Walk Score
(Downtown vs. Orchards)

Esther Short, Vancouver, 98660
Commute to Downtown Hazel Dell
- 15 min
- 27 min
- 28 min
- 60+ min
View Routes.

Favorite  Map  Nearby Apartments

Looking for a home for sale in Vancouver?

Walk Score 88
Very Walkable
Most errands can be accomplished on foot.

Good Transit
Many nearby public transportation options.

About your score

Fisher’s Village - Orchards Area, Vancouver, 98682
Commute to Downtown Orchards
- 5 min
- 42 min
- 10 min
- 39 min
View Routes.

Favorite  Map  Nearby Apartments

More about 15302 Northeast 62nd Street

Walk Score 32
Car-Dependent
Most errands require a car.

Minimal Transit
It is possible to get on a bus.

About your score
AARP Livability Index (Downtown vs. Orchards)

Total Index Score

- Downtown: 60
- Orchards: 52

Category Scores:

- HOUSING: 61 (Affordability and access)
- NEIGHBORHOOD: 67 (Access to life, work, and play)
- TRANSPORTATION: 72 (Safe and convenient options)
- ENVIRONMENT: 71 (Clean air and water)
- HEALTH: 53 (Prevention, access, and quality)
- ENGAGEMENT: 45 (Civic and social involvement)
- OPPORTUNITY: 52 (Inclusion and possibilities)
Complete Streets

• Complete streets are streets for everyone, no matter who they are or how they travel.
  • Policies ensure that the entire right-of-way is planned, designed, constructed, operated and maintained to provide safe access for all users.

• Complete Streets = better design for older folks driving and walking; staying active, independent, and involved in communities.

• There were 32,367 traffic fatalities in the U.S. in 2011; of these, 22,448 were people in cars, 4,432 were people on foot, 677 were people on bicycles (NHTSA, 2014).
Safety and Driving

- Potential challenges for older drivers:
  - Stiff joints and muscles
  - Vision changes
  - Hearing changes
  - Cognitive impairment
  - Slower reaction time and reflexes
  - Medications

https://www.nia.nih.gov/health/older-drivers
Families and Older Drivers

- Families must assess many issues regarding older drivers: personality, driving record, availability of transportation resources, geographic proximity, long-term family relationships.

- How to prepare:
  - Get the facts
  - Observe the driver
  - Discuss concerns with a doctor
  - Investigate alternatives
  - Be supportive

A Few of the Driving Behavior Warning Signs

1. Decrease in confidence while driving.
2. Difficulty turning to see when backing up.
3. Riding the brake.
4. Easily distracted while driving.
5. Other drivers often honk horns.
6. Incorrect signaling.
7. Parking inappropriately.
8. Hitting curbs.
9. Scratches or dents on the car, mailbox or garage.
10. Increased agitation or irritation when driving...
Emerging Technologies

• The interest in the technology is increasing among older adults, including phone apps, using the internet of things, and comfort with emerging technologies.

• According to Veciana-Suarez (2016), 25% of Americans aged 55+ are providers in the sharing economy; Uber reported 1 in 4 drivers are aged 50+.

• In a 2015 study (Olshevski), 70% Boomers said they would be willing to test drive an autonomous vehicle, 31% noted a willingness to purchase a self-driving car, and 38% said that if their health prevented them from driving they would consider purchasing one.
Thank you