Built Environment, Accessibility, and Mobility Study

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Northwest Universal Design Committee Meeting
April 12, 2012

Funded by the CDC Prevention Research Centers Program through a grant to the UW HPRC (#U48-DP001911)

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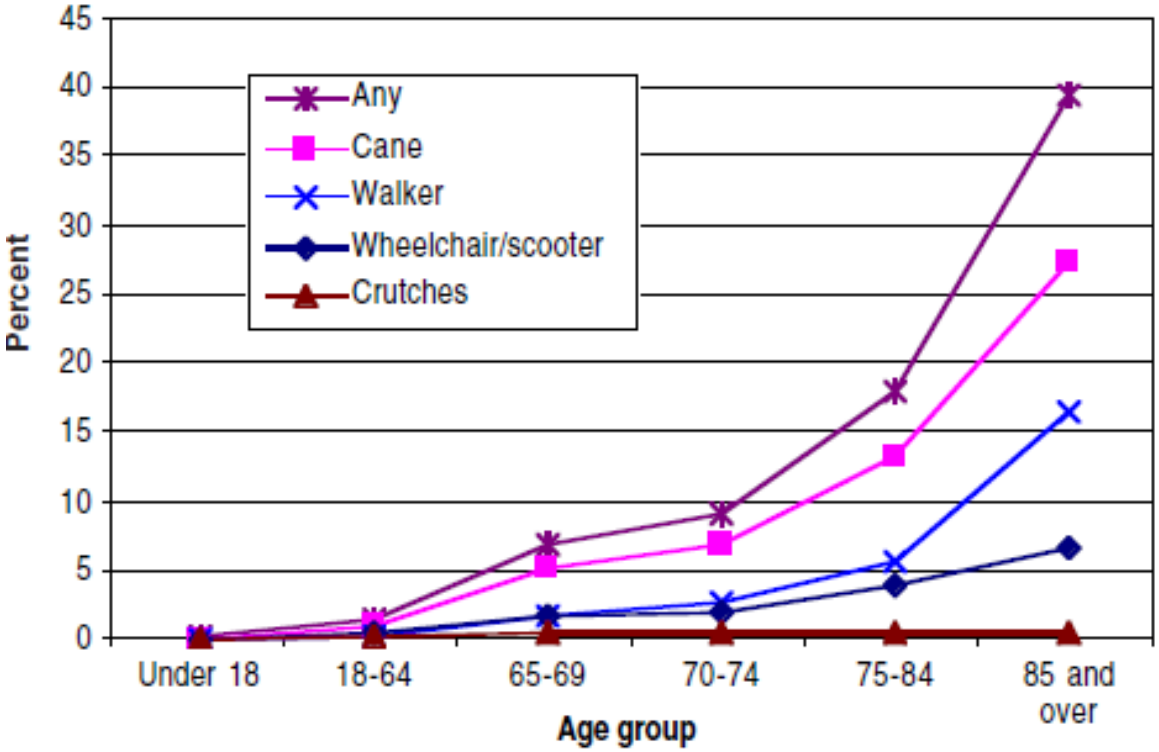
Background

- Mobility disabilities are increasing
- Physical activity (PA) has health benefits
  - Rates lower among older adults, those with disabilities
  - Built environment can be a barrier

Figure 1. Proportion of population using mobility devices, by age and device.



Source: Kaye, Kang, LaPlante, Mobility Device Use in the U.S., 2000

Purpose

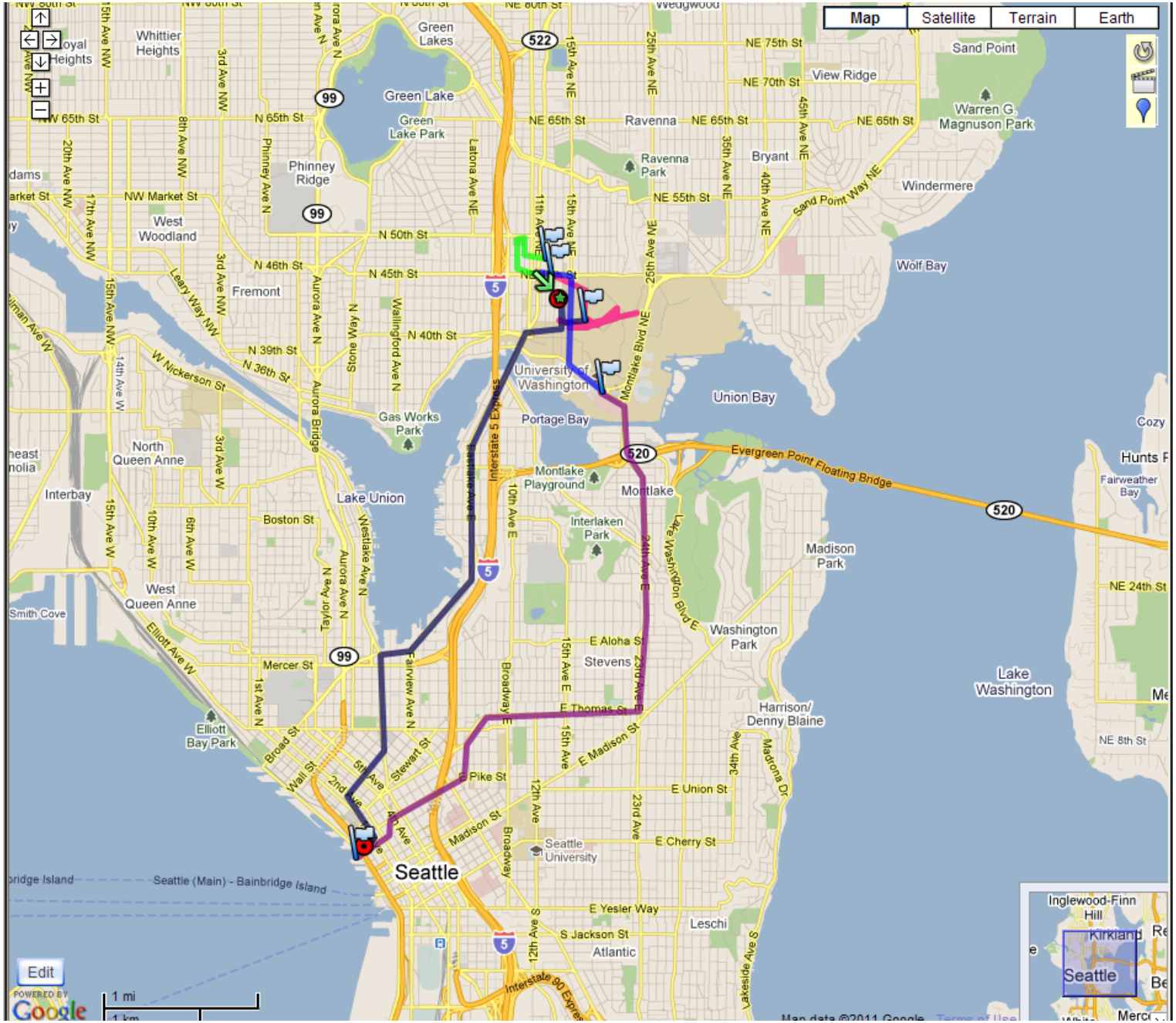
- To better understand built environment barriers for people aging with mobility disabilities

Inclusion Criteria

- 50+ years old
- Use an assistive device
- Leave home at least 3 days/week
- Live in King County
- Speak/read English

Methods

- Following recruitment, GPS device mailed to participants
  - Qstarz BT1000XT
  - Wear device for 3 days (2 weekdays, 1 weekend day)
  - Return device by mail
  - Staff upload data and print maps
- Conducted home based in-depth interviews
  - Reviewed GPS locations, barriers/facilitators to indoor and outdoor places for activity


Map
Satellite
Terrain
Earth
Green Lakes
Green Lake
Green Lake Park
Whittier Heights
Phinney Ridge
West Woodland
Fremont
North Queen Anne
Interbay
Lake Union
West Queen Anne
Smith Cove
Elliott Bay Park
Gas Works Park
Portage Bay
University of Washington
Montlake Playground
Montlake
Interlaken Park
Ravenna
Ravenna Park
Bryant
View Ridge
Sand Point
Warren G. Magnuson Park
Windermere
Wolf Bay
Union Bay
Madison Park
Washington Park
Lake Washington
Harrison/ Denny Blaine
Stevens
Seattle University
Seattle
Leschi
Atlantic
Inglewood-Finn Hill
Kirkland
Evergreen Point Floating Bridge
Interstate 5 Express
Interstate 90 Express
Seattle (Main) - Bainbridge Island
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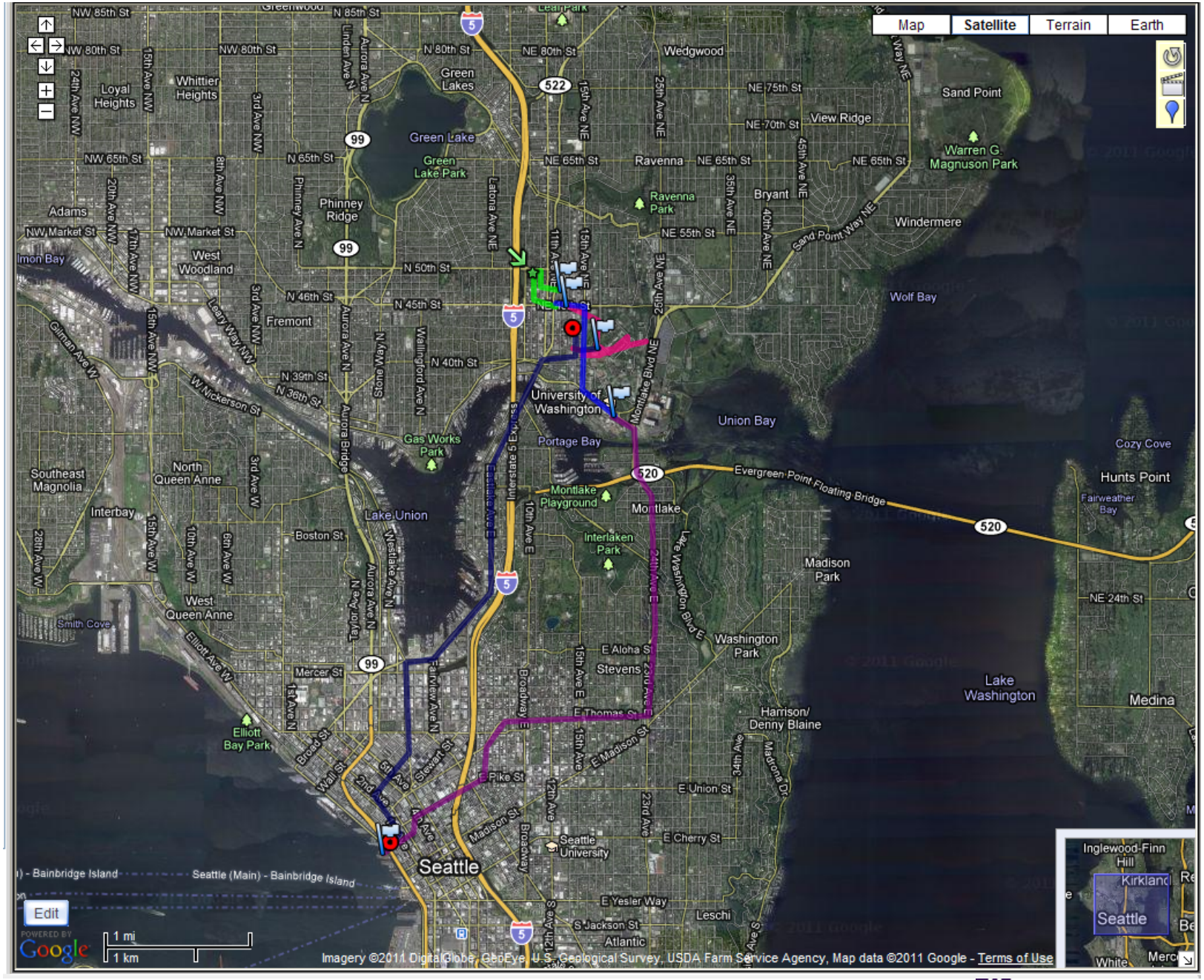
Map data ©2011 Google



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Participants

- N = 35 (interviews and surveys returned)
- Mean age = 67 yo (range 50-86)
- 30 white, 26 female
- Walkscore average = 70 (range 18-98)
- Average median household income = $46,199
- Chronic conditions: OA, CP, SCI, RA, TBI etc
- 54% use multiple types of assistive devices
  - 20 used canes
  - 20 used walkers
  - 9 used powerchair

Results: Overall Themes

- Outdoor Built Environment
  - Curb conditions
  - Curb cuts
  - Amenities/places to rest
  - Traffic safety
  - Sidewalks
  - Crosswalks
  - Aesthetics
  - Stairs, ramps, road features, paths, parking, lighting
- Physical activity
- Transportation
- Access to food
- Destinations
- Park features
- Indoor built environment features
  - Buildings
  - Entrances
  - Accessibility

Ground Conditions: Barriers

- Hills
  - *Avoid routes with steep hills*.
- Debris or objects on ground
- Difficult surfaces
  - Slippery, cobblestones, grass, gravel, mud
- Uneven ground
  - Bumpy lawn, rough terrain

Curb Cuts: Barriers

- Lack curb cuts in many places
  - Forces walking/wheeling in street
  - *Curbcuts are only on one side of the street*…
- Dangerous curbcuts
  - In poor condition
  - *Ramps are steep especially when wet and you slide.*
  - *Curb cuts put you in the middle of the street, outside of the crosswalk.*
  - *“n the rain the yellow bumpy textures on the curbcuts [make for] a hydroglide situation.*

Curb Cuts: Facilitators

- Presence helps get around to destinations
  - *The park has curb cuts which helps me use it.*
- Certain areas have a lot of them (e.g. downtown Seattle, senior friendly areas)
  - *Curb cuts are available at the mall*.
- Helpful design features
  - Yellow rumble strips help to identify curb cuts.

Amenities/Rest

- Barriers:
  - Lack of shelter while waiting
  - No place to sit down
    - *Even if there are places to sit, not helpful if wet*

- Facilitators:
  - Having benches/seating
  - Shelter/covered areas
  - Accessible bathrooms
  - Drinking fountains

Traffic Safety

- Barriers
  - Not visible to drivers
  - Drivers go too fast
  - Drivers don’t stop or wait for pedestrians
    - *Drivers choose not to stop as I am crossing the crosswalk*.
  - Streets with too much car traffic
  - Bicyclists on sidewalks can be problematic
- Facilitators
  - Wear clothing to promote visibility
  - Slow speed limit
  - Roads with no thru traffic
  - Low traffic roads
  - Vigilance when crossing roads
  - Take safer roads
  - Courteous drivers

Crosswalks

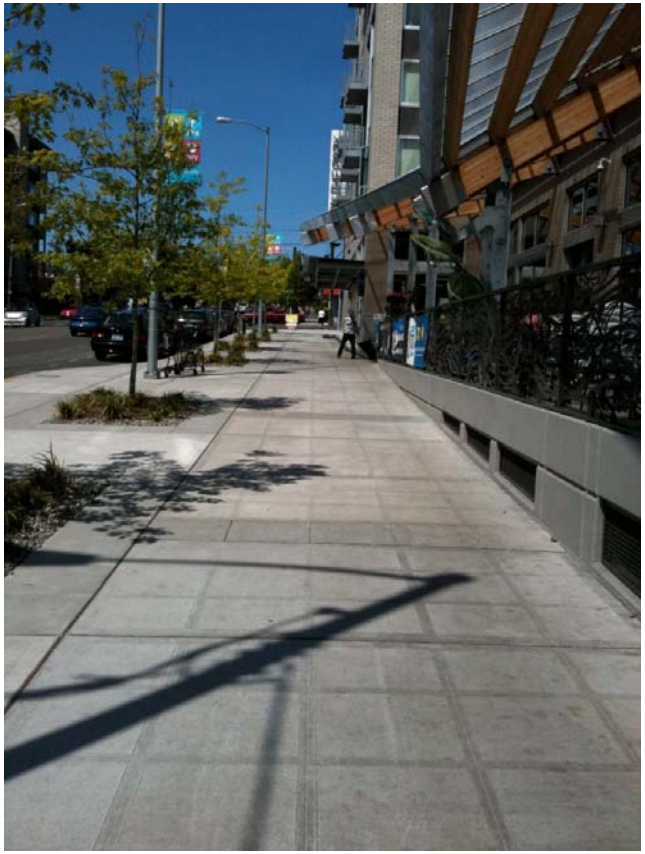
- Barriers:
  - Lack of Crosswalks
  - Short Light Timer
  - History/Fear of Accident
    - *One hates to be killed crossing the street and one hates to ask a stranger for help.*
- Facilitators:
  - Clearly marked crosswalks
  - Lots of crossing spots
    - *As many places to cross as possible – it makes the trip efficient and less exhausting for those impaired.*
  - Vigilant drivers

Sidewalks: Barriers

- Inconsistent presence of sidewalks
- Inconsistent sidewalk surfaces
- Poor quality (bumps, broken, grating)
- Debris/Items on sidewalk
  - foliage
  - dog poop
  - litter
  - sandwich boards

Sidewalks: Facilitators

- Smooth, resurfaced sidewalks
  - *Nice sturdy concrete, all uniform.*
- Flat/level sidewalks
  - *It is level enough for me to get around and for me to go by myself.*
- Wide sidewalks
- Presence of grass strip or other separation from traffic



Neighborhood Aesthetics

- Barriers:
  - Smokers
  - Garbage/Litter
  - Graffiti
- Facilitators:
  - Secluded space (away from traffic)
  - Accessible paths inside space (smooth wide, eye appealing)
  - Green space, nature, gardens, water
    - *Loves the nature and the quietness.*
  - Presence of Water
  - Cleanliness
  - Variety
    - *Lots to explore.*

Transportation: Barriers

- Complaints about Access/paratransit
  - Long wait, not on time, unreliable, not come to the door
- Lack of safety on public transportation
  - Sitting sideways, no seatbelts, jerky, getting on/off, need to transfer, crowding, distance between curb and bus step, bus stop is dirty/in disrepair, bad experiences
- Other difficulties with public transportation options
  - *Difficult to pay…I can't hold the fare in my hands.*
  - *Nearest bus stop is a 45 minute walk. One bus line comes which does not take [me] to any destinations I want to visit.*
- Limited options
  - *Transportation is the major problem. You either have to know someone who goes there, or go with Access*.

Transportation: Facilitators

- Helpful and friendly people
  - *Shuttle drivers are really helpful and they know their clients because we ride with them a lot.*
- Feel safe when traveling on a mode of transport and having safety precautions
  - *Seatbelts, secure, facing forward, trainings*
- Proximity and convenience of public bus service
  - [*Metro bus] is so close and it is only one bus to my destination. The bus stop has a bench and coverage.*
- Multiple transportation options
- Having a companion (husband, family, guide dog)

Physical Activity: Types

Aerobics
Balance exercises
Bike
Boat
Chair exercises
Dancing
Dog walking
Gardening
Go to a Gym
Hiking
Home Workout
Housework
Physical therapy
Range of Motion
Stretching
Swim
Tai chi
Videogames
Walk-recreation, transport
Water aerobics
Weight lifting
Yoga

Physical Activity: Key Barriers

- Walkers
  - Type of terrain
  - Busy streets
  - Absence of sidewalks
- Health Club
  - Limited parking
  - Presence of odors and dirt in a gym
  - Cost of a facility

Physical Activity: Key Facilitators
"It is not the destination."

- Walkers like area with benches, having a companion, and being outdoors in nature
- Gardening in pots and with others in which the norm is to garden
- Health clubs with usage low fees, covered by insurance, accessible buildings and equipment, and helpful staff, offered training programs,
- Proximity to home
- Positive attitude
- Specialized ambulatory devices that work in the yard
- Accessible pool with variety of aqua classes
- Staff are familiar with aging adult needs

Summary

- Built environment themes: hills, curb cut presence and conditions, sidewalk features/conditions and availability, crosswalk characteristics, places to rest and shelter, traffic safety
- Regardless of assistive device used, built environment barriers exist yet participants were highly adaptable
- Barriers to mobility more prominent than to physical activity

Contacts and Acknowledgements

- Basia Belza basiab@uw.edu
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- BEAMS Team Members:
  - Abinnet Ainalem
  - Debbie Huang
  - Shannon Petz
  - Steven Simpkins
  - Amy Tseng

- Funding for this project came from the CDC Prevention Research Centers Program, through a grant to the University of Washington Health Promotion Research Center (cooperative agreement #U48-DP001911)