



Measuring Walking

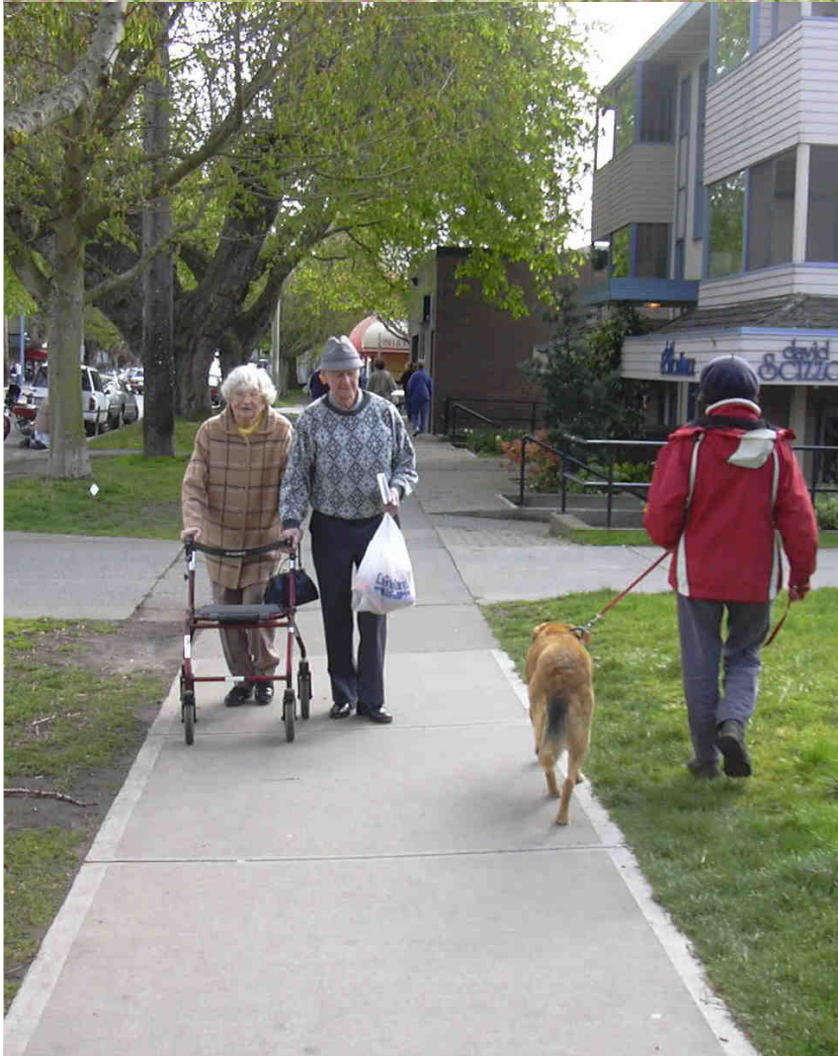
Todd Litman
Victoria Transport Policy Institute
Walk21 Workshop
1 October 2007

Evaluating Walking

- **Walkability** - the quality of walking conditions.
- **Walking activity** - the amount of walking that occurs.
- **Walking Models** - predicts how much walking would occur in specific conditions.
- **Walking Evaluation** – calculates the benefits of improved walkability and increased walking activity.



Paradigm Shifts



Mobility - physical movement. Measured as vehicle travel.

Accessibility - obtaining desired goods, services and activities. Includes:

- Mobility
- Land use accessibility
- Mobility substitutes

Measuring Walkability

- Pedestrian network **quality** (quality of paths, sidewalks and crosswalks).
- Pedestrian network **connectivity** (how well sidewalks and paths are connected allowing direct pedestrian access to destinations).
- Land use **accessibility** (distance between common destinations, such as homes, shops, schools, parks).
- **Security** (how safe people feel while walking, including personal security and traffic safety).



Pedestrian Level-of-Service (Dixon)

| | Factor | Points |
|---------------------------------------|--|--------|
| Facility (Max. value = 10) | Not continuous or non-existent | 0 |
| | Continuous on one side | 4 |
| | Continuous on both sides | 6 |
| | Min. 1.53 m (5') wide & barrier free | 2 |
| | Sidewalk width >1.53 (5') | 1 |
| | Off-street/parallel alternative facility | 1 |
| Conflicts (Max. value = 10) | Driveways & sidestreets | 1 |
| | Ped. Signal delay 40 sec. or less | 0.5 |
| | Reduced turn conflict implementation | 0.5 |
| | Crossing width 18.3 m (60') or less | 0.5 |
| | Posted speed | 0.5 |
| | Medians present | 1 |
| Amenities (Max. value = 2) | Buffer not less than 1m (3'5") | 1 |
| | Benches or pedestrian scale lighting | 0.5 |
| | Shade trees | 0.5 |
| Motor Vehicle LOS (Max. value = 2) | LOS = E, F, or 6+ travel lanes | 0 |
| | LOS = D, & < 6 travel lanes | 1 |
| | LOS = A, B, C, & < 6 travel lanes | 2 |
| Maintenance (Max. value = 2) | Major or frequent problems | -1 |
| | Minor or infrequent problems | 0 |
| | No problems | 2 |
| TDM/Multi Modal (Max. value = 1) | No support | 0 |
| | Support exists | 1 |
| | | 5 |

Measuring Walking Activity

- Purpose (commute, errand, recreation, etc.)
- When and where
- User demographics
- Whether it substitutes for motorized travel.
- Geographic conditions

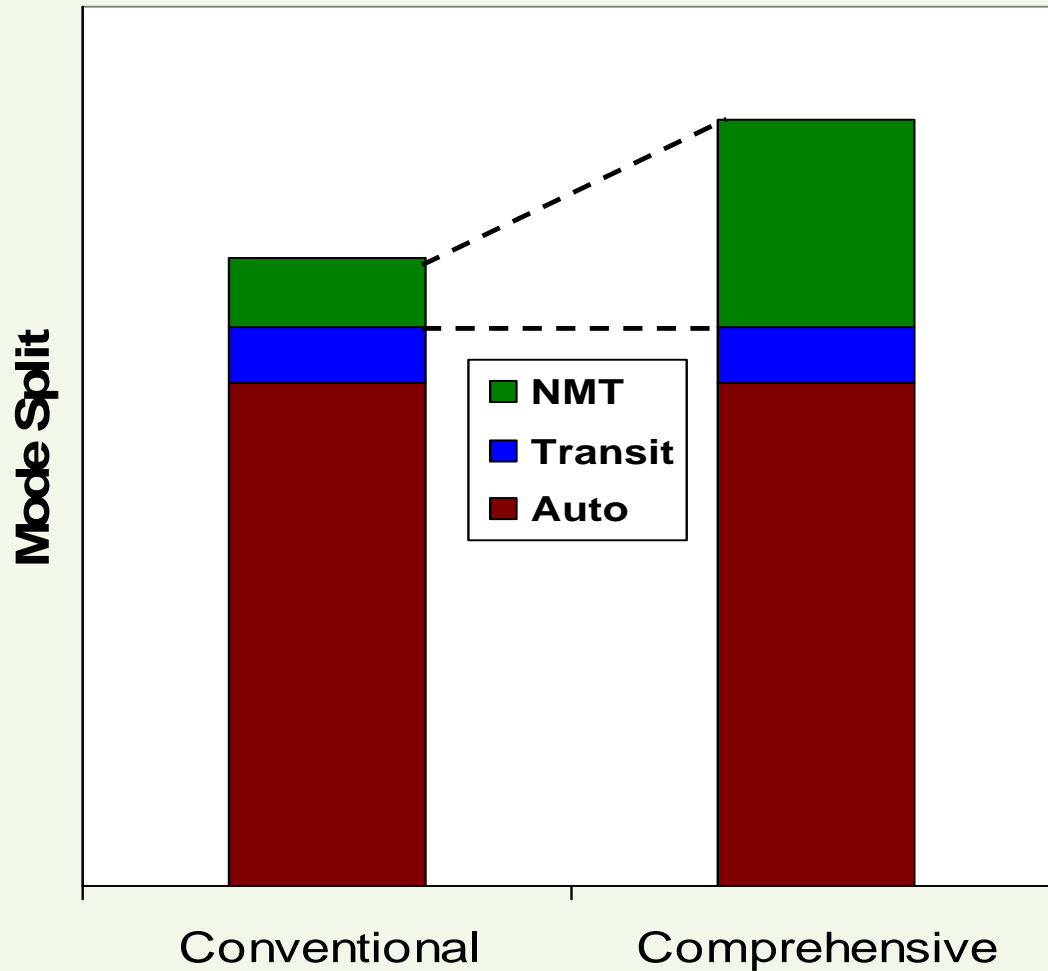


Walking Tends to be Undercounted

- Difficult to measure
- Short distances
- Used by disenfranchised populations
- Low cost
- Lack of respect
- “Will take advantage of itself”

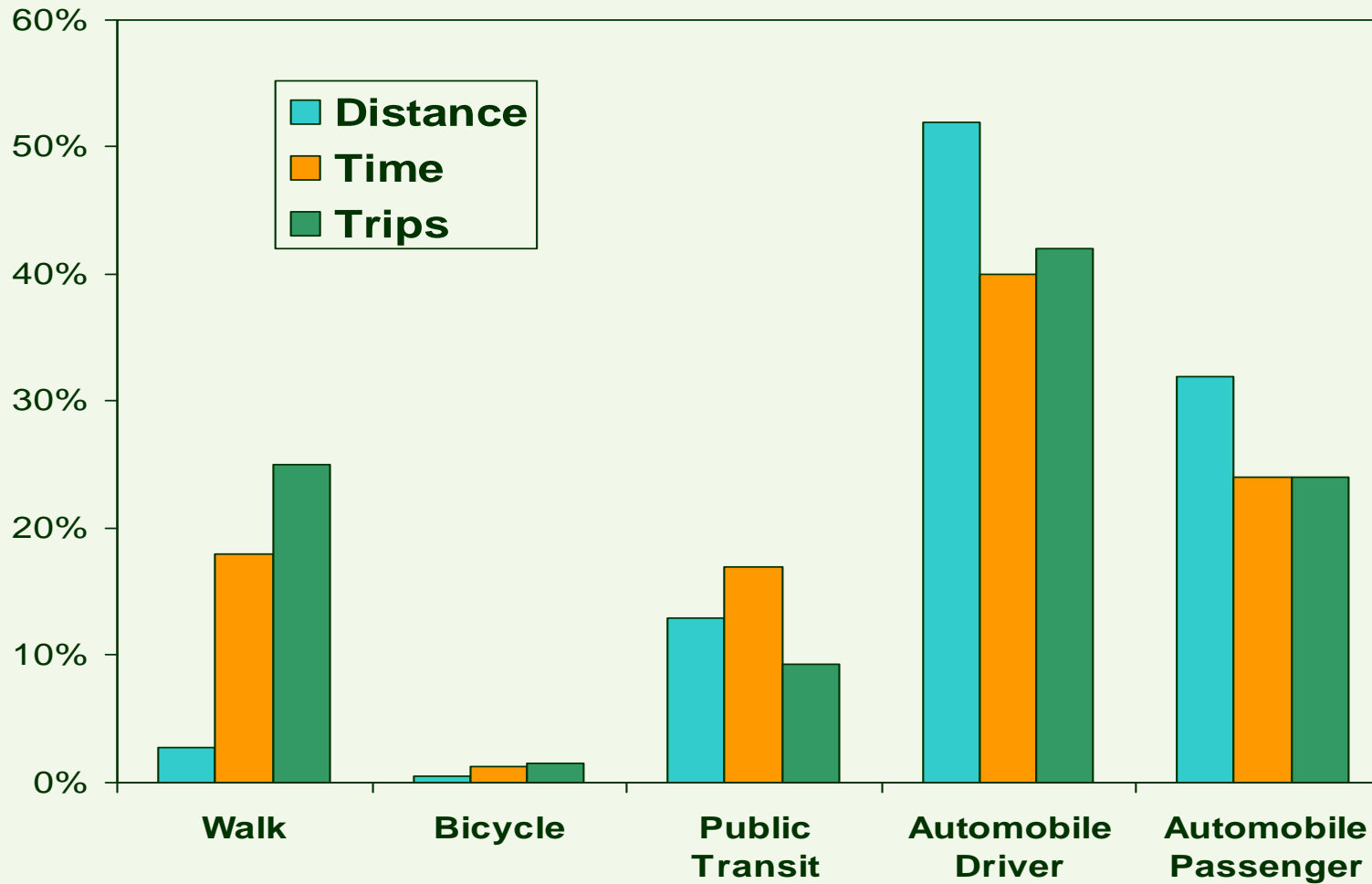


Counting All Walking



If, instead of asking, “What portion of trips are **only** by active transport? We ask, “What portion of trips involve **some** active transport?” the portion of active transport typically increases 2-6 times.

Distance, Time and Trips (UK Data)



Conventional Evaluation Measures Traffic



- Traffic speeds and congestion delay
- Roadway Level-of-service
- Vehicle operating costs
- Vehicle crash rates
- Parking supply and occupancy

This favors mobility over accessibility and automobile travel over alternative modes.

Walking Benefits

- Fun
- Fitness and health
- Affordable, consumer cost savings
- Improves mobility options for non-drivers (equity benefits)
- Supports use of public transit.
- Reduces congestion.
- Road and parking cost savings.
- Energy conservation.
- Reduces pollution.
- Supports smart growth land use.
- Supports economic development.
- Attractive legs.



Comparing Benefits

| Planning Objectives | Improving Walkability | Increase Roadway Capacity | Efficient and Alternative Fuel Vehicles |
|------------------------------------|-----------------------|---------------------------|---|
| Reduce traffic congestion | ✓ | ✓ | |
| Roadway cost savings | ✓ | | |
| Parking cost savings | ✓ | | |
| Consumer cost savings | ✓ | | |
| Improve mobility options | ✓ | | |
| Improve traffic safety | ✓ | | |
| Energy conservation | ✓ | | ✓ |
| Pollution reduction | ✓ | | ✓ |
| Land use objectives (smart growth) | ✓ | | |
| Public fitness & health | ✓ | | |



“Quantifying the Benefits of Non-Motorized Transport for Achieving
TDM Objectives”

“Whose Roads? Evaluating Bicyclists and Pedestrian’s Rights To
Use Public Roadways”

“Well Measured: Sustainable Transportation Indicators”

“Economic Value of Walkability”

“Online TDM Encyclopedia”

and more...

www.vtppi.org