South Africa Road Federation

Non-Motorised Transport Practitioner's Course

Session 11: NMT and Public Transport Integration

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Part 1: Terminology –First mile/last mile

Part 2: Pedestrian access to public transport

Part 3: Bicycle access to public transport

Part 4: Case study: Cape Town Integration of NMT & MyCiti

Terminology - “First mile/last mile”

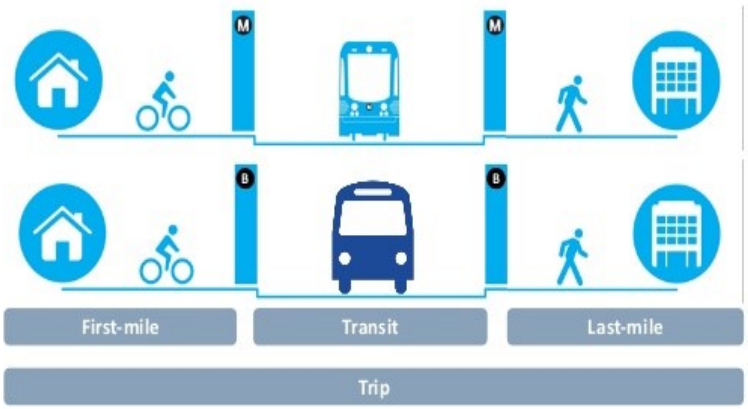
- Transport trips can be *to and from work, school, medical appointments, shopping or entertainment.*
- Individuals often *use multiple types of travel to complete the journey. T*hey may walk, drive, ride a bicycle, take a bus or train, or in many cases combine a number of modes such as a shuttle or other vehicle access to locations about 500 m away or farther.
- While bus and rail services might cover the core of these trips*, people often need to complete the first and last portion by other means.*
- *They must first walk, cycle or drive or use another method to get to and from the nearest station or stop*. This is referred to the “first mile/last mile” of the user’s trip

Integrated Public Transport

- It refers *to all characteristics of the passenger transport service, including infrastructures, tariff and information systems and especially the authorities and organisations which are involved in planning, managing and running the public transport systems.*
- This definition even goes further than the borders of public transport systems and *includes wider integration with other transport modes (e.g. walking, cycling and private cars)* and *other non-transport services, such as town planning and environmental and social policies.*

Poorjafari, V. & Poorjafari, M., 2011. Integration in Urban Public Transport Systems, University of South Australia.

Last mile connectivity



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Part 2: Pedestrian access to public transport

- Walking is a free transportation option for accessing public transport and other key destinations, *a viable option for most people within a 500m radius of public transport stations/stops*.
- Consequently, a *safe, comfortable, and convenient walking environment* is key to supporting and facilitating public transport use and reducing short driving trips.
- A *well-designed network of streets and pathways that improve the pedestrian experience will enhance pedestrian accessibility and connectivity to transit* and other key destinations.
- An *appealing walking environment* includes infrastructure that can used by people with *specialized mobility needs, safe intersections, low traffic speeds, and a pedestrian-oriented built environment.*

Part 2: Pedestrian access to public transport

Public transport and NMT Improvements (Todd Littman, VPTI)

- NMT modes (walking and cycling) *are important travel modes in their own right and provide access to public transport*. NMT improvements can leverage shifts to public transport.
- There are various ways to further improve and encourage NMT:
  - Improved sidewalks, crosswalks, paths and cycle lanes.
  - Correcting specific roadway hazards to non-motorised transport.
  - Traffic calming to control vehicular traffic in particular areas.
  - Bicycle parking and storage.
  - Address security concerns of pedestrians and cyclists.
- **Travel Impacts**: *In many situations inadequate non-motorised travel conditions are a major constraint to public transport travel, so non-motorised improvements may increase transit ridership 10-50% over what would otherwise occur.*

Pedestrian Access to Public transport

Strategies to improve pedestrian access from a first and last-mile perspective include:

- Streetscape Improvements
- Sidewalks
- Intersection Improvement Tools
- Intersection Crossing Enhancement Tools
- Mid-Block Crossing Enhancement Tools
- Lighting
- Traffic Speed

Check list for Pedestrian Routes to Public transport – First mile/last mile improvements

Streetscape Improvements

- Streetscape includes the *overall look, feel, and design of the roadway and public right-of-way*, including sidewalks, street trees and landscaping, green infrastructure, lighting, paving, signage, and street furnishings.

Sidewalks

- The sidewalk zone is the portion of the street right of way between the kerb and building front. Sidewalks should be wide enough to accommodate people with wheelchairs and strollers.

Intersection Improvement Tools

- Kerb extensions, reduced kerb radii, pedestrian refuge islands and kerb ramp improvements.

Check list for Pedestrian Routes to Public transport First mile/last mile improvements

Intersection Crossing Tools

- Advanced yield markings for multi-lane roadways, longer traffic signal walk phases, pedestrian signal countdown timers, accessible pedestrian signals, leading pedestrian signal intervals, marked and high visibility crosswalks, raised crosswalks, in-street pedestrian crossing signs, high-visibility signs and markings.

Mid-Block Crossing Enhancement Tools

- High Intensity Activated Crosswalks, in-pavement flashing lights crosswalk warning system, staggered pedestrian refuge island

Lighting

- Pedestrian-oriented street lighting.

Speed

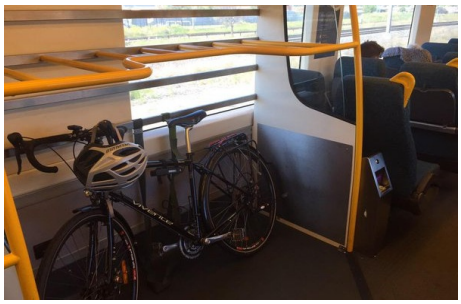
- Speed limit reductions, roadway narrowing, reductions in the number of travel and turning lanes.

Part 3: Bicycle Access to Public transport

- *Integrating bicycles with public transport modes (bus and rail) combines the long-distance coverage of transit with the door-to-door service of riding a bicycle.*
- *Public transport is most effective for trips of moderate to long distance on busy corridors, and bicycles are effective for trips of shorter distances*.
- For these reasons, the *combination of bicycling and public transport can provide a high level of mobility* comparable to automobile travel in terms of the overall travel time and distance.
- Public transport can support the use of bicycles by *allowing bikes on-board trains and providing racks on the front of all buses.*

Part 3: Bicycle Access to Public transport

Bicycle Access to Public transport



Bicycle Access to Public transport

Making public transport more bicycle friendly

Measures to increase bicycle usage

- Bikeways and Bicycle Parking
- Folding Bikes
- Bicycle Sharing

Making public transport more bicycle friendly

Bikeways and Bicycle Parking

- Allowing *bicycles on public transport* is only one-step in promoting public transport/bicycle integration. *Safe and convenient cycle ways to public transport stations and secure and convenient bike parking at public transport stations /stops is equally important*

Folding Bikes

- Encouraging folding bikes on public transport has the *advantage of addressing first-mile/last-mile barriers on both ends of the trip*.
- Folding bikes on public transport also *increases user convenience* (compared to leaving a non-folding bike at a public transport stop/station all day) without exacerbating peak-hour transit capacity constraints (compared to bringing a non-folding bicycle on board a transit vehicle).
- A folding bike is highly convenient for *anyone who lacks the space to store their bicycle at any point in their journey* or work day.

Making public transport more bicycle friendly

Bicycle Sharing

- Similar to car sharing, bike sharing is a form of *short-term bicycle rental where people can access a shared fleet of bicycles as needed*.
- Bicycle sharing programs provide *safe and convenient access to bicycles for short trips,* such as running errands or public transport to work trips.

Check list for Cycle Routes to Public transport
First mile/last mile improvements

Strategies to improve bicycle access from a first and last-mile perspective include:

Bicycle trails and paths

- *Bicycle lanes* (conventional, buffered, protected), shared vehicular lanes, bicycle detection at signalized intersections, signage/wayfinding.

Bicycle Parking and Storage

- *Shelters, lockers, racks, repair stations* along highly used bicycle routes to stations.
- *Folding Bicycles*. Provide flexibility for users - can be used for both first and last-mile travel and do not necessarily require special storage facilities on trains, stations or at final destination.
- *Bicycle Sharing*. Publicly shared bicycles or private or employer-based programs.
- *Station Bicycles*. Some want to travel between stations and their workplace by bicycle, it may be convenient to keep a bicycle at the station for this express purpose.

Part 4: Practical session
Cape Town integration of NMT & MyCi

Background

- The MyCiTi BRT network was developed using two main steps:
  - The first was *to analyse the existing public transport system in Cape Town, to identify the main commuter corridors, origins and destinations.*
  - Once the routes had been determined, *the station locations were assigned based on the surrounding land use, spacing of about 900 metres to 1000 metres*, sufficient boarding and alighting opportunities and coverage (based on an assumed 500 metre walking distance).

Background

- The *MyCiTi Feeder Bus Service* is to collect and/or distribute MyCiTi commuters from attractors and destinations and transport them to a *Trunk station* from which they will continue the main stretch of their journey before transferring to another feeder service, be it via NMT or MyCiTi.
- **NMT Access**: Pedestrian and bicycle *desire lines should be served so that commuters have the option to walk or cycle to reach the MyCiTi Feeder Service* along the most convenient and safe NMT routes.

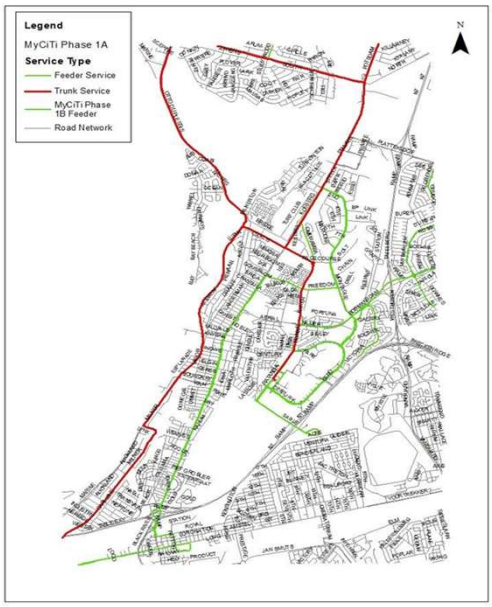
NMT Guiding principles as part of the Public Transport Implementation Framework

- *Access for all* to the PT system.
- *Accessibility for Special Needs People* in the PT system.
- *Priority treatment of cyclists and pedestrians* in the PT system.
- Provision for *NMT as a feeder to public transport*.
- Pedestrian access at stations by improving access, identifying hazardous locations for cyclists and pedestrians, promote at-grade pedestrians crossings and consider pedestrians with special needs.

NMT Guiding principles as part of the Public Transport Impleme

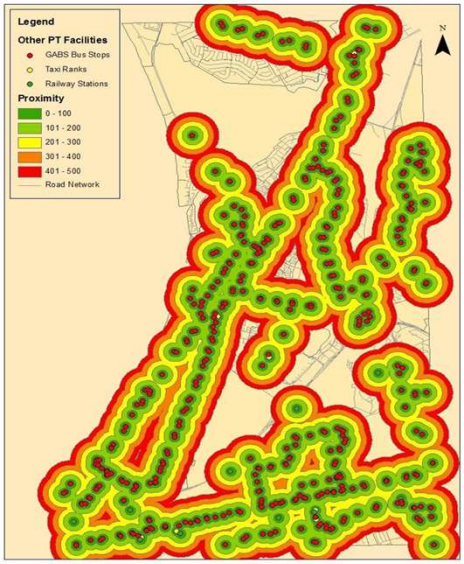
- Cycleway integration by developing *cycle ways along busways and along feeder routes* to IRT stations
- *Bicycle parking* should be provided at all stations
- Bicycle distribution groups
- Promote the use of pedicabs as a feeder mode.

Existing MyCiTi BRT Network



Criteria used to provide NMT infrastructure

Where NMT would be acting as a feeder to public transport services:

- NMT integration with IRT services
- Major attractions
- Improve walkability of the CBD
- Availability of space
- Proximity to a pedestrian desire line
- Safety of pedestrian access
- Proximity to IRT service and other public transport facilities.

Proximity to Other Public Transport Facilities Map