SOUTH AFRICAN ROAD FEDERATION

Non-Motorised Transport Practitioner's Course

Session 1: Introduction to Non-Motorised Transport

Learning objectives of NMT Practitioner's Course (1)

Role of NMT in ***sustainable and accessible transport***, ***greening of transport***, ***transport planning processes*** (roads, land use, public transport), ***ITS applications; poverty alleviation*** and ***job creation***.

Need for NMT road user facilities in the road environment in relation to facilities for motorised road users – ***equity of space and modes***.

Overview of ***current legislation, policies and initiatives*** to promote the use of NMT modes.

Planning and design for NMT modes including pedestrians, cyclists and animal drawn transport.

NMT conceptual thinking *– Complete Streets, First-mile/Last-mile Concept, Modal Hierarchy, Universal Design, Transit Orientated Development, Greenways, Smart Cities and others.*

Learning objectives of NMT Practitioner's Course (2)

Development of ***pedestrian and bicycle master plans***

Integration of ***NMT and land-use planning*** & Integration *of* ***NMT and public transport planning***

Promotion of ***Bike share and Community cycling programmes***

Identify NMT ***Data collection needs, technologies and procedures*** – different methodologies available to collect data

Introduction to NMT ***Pavement design and maintenance***

Vision of NMT and ***Technological innovation***

Definitions of Non-motorised Transport (NMT)

1.NMT includes walking, cycling, rickshaws, animal-drawn carts (in rural areas), rollerblading, skate-boarding; all of which do not rely on an engine or a motor for impetus.

Source: Jo'Burg Dev. Agency (JDA)

2.NMT comprises trips on foot, by bicycle or tricycle including the use of handcarts & wheelchairs.

Source: gTKP

3.NMT includes human and/or animal powered transport.

Examples:

- ***Personal mobility*** include walking, cycling, perambulating, roller-blading, skateboarding, bicycle taxiing, rickshaw riding and horse riding.
- NMT modes for ***transport of goods***, including wheel barrows and carts drawn by donkeys, horses or humans.
- NMT modes include wheelchairs, and hence must be a consideration when planning and designing transport related facilities for ***special needs persons*** (children, aged, impaired).

Source: Western Cape Provincial Strategy on Non-Motorised Transport

The two focus areas of NMT

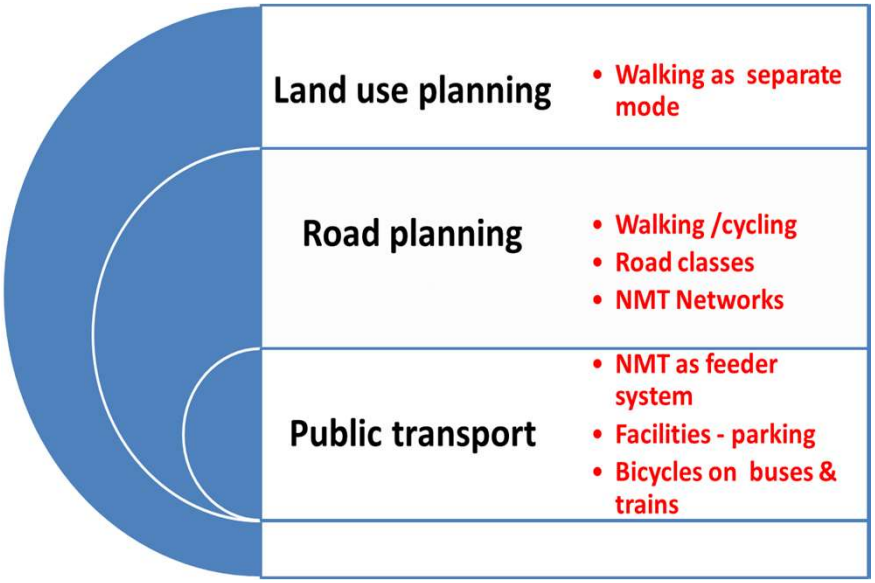
NMT as independent transport mode

- **Pedestrians**: Children, Adults, Elderly & Disabled
- **Cyclists**: Learners, Commuters, Pedicabs, Racing & Leisure
- **Animal drawn transport** (ADT): Freight & People
- **Human powered transport**: Wheelbarrows, trolleys for recycling, prams

NMT as feeder system to public transport

- **Rail**
  Gautrain, MetroRail
- **Bus**
  BRT & other bus services
- **Minibus taxi**
  Commuters, scholar transport

NMT as cross cutting issue (1)



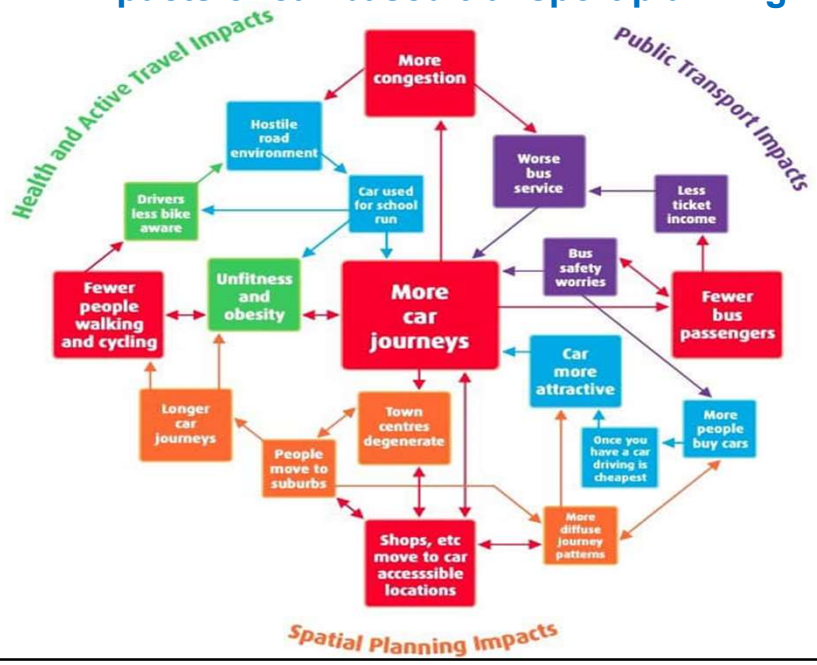
NMT as cross cutting issue (2)

Sustainable transport/Greening of transport	• Cycling infrastructure • Personal mobility vehicles
Accessible transport	• Reduce car dependency • Promote alternative transport modes • NMT interface with public transport
Road safety & ITS	• Audits/assessments • Road safety & improved mobility

ITMP25

2037 consortium

Impacts of car-based transport planning



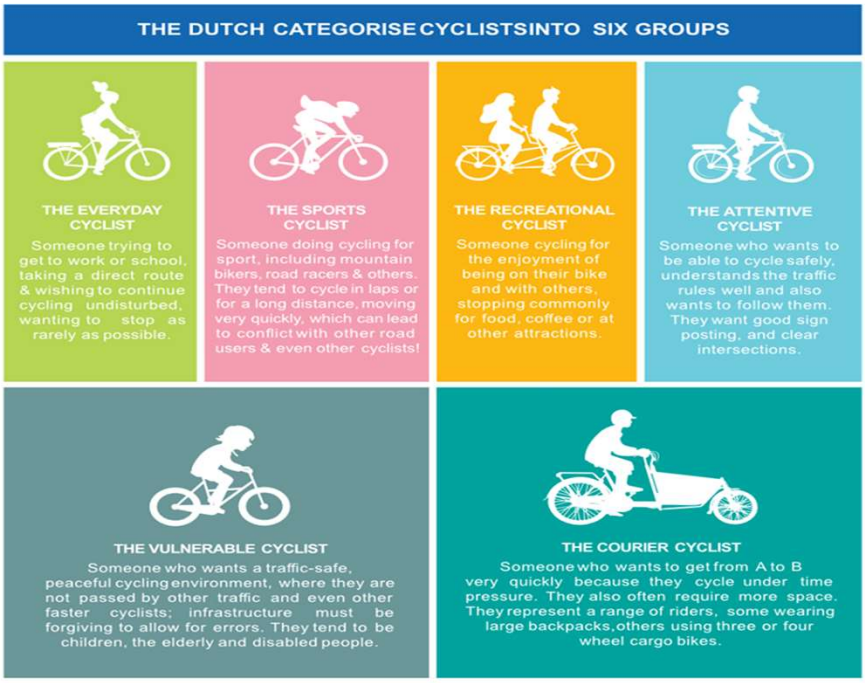
NMT users – Who are we planning for?

Why do we need to plan for NMT users?

NMT users – Who are we planning for?

Non-Motorised Transport Users

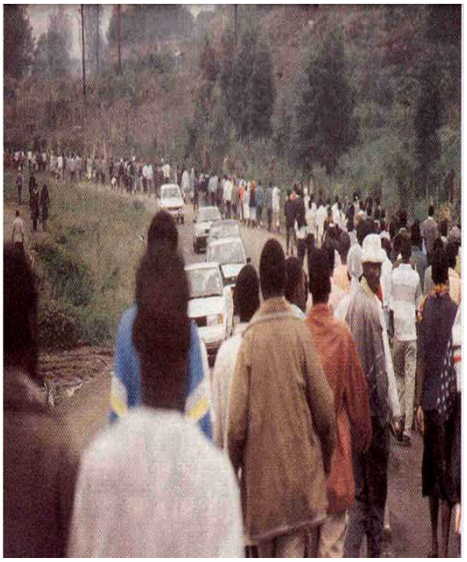
- **Pedestrians:** Adults, children, elderly, urban, rural
- **Disabled persons:** Walking impaired, wheelchair (manual & electrical), visual and hearing impaired
- **Cyclists:** Commuter, scholar, recreational, Pedi cabs, e-bikes, rental bikes, custom built for recycling, rural areas, bicycle ambulances, etc.
- **Push carts:** Trolleys, prams, recycling, wheelbarrows
- **Animal drawn vehicles:** Passengers, goods
- **NMT as feeder system to Public Transport Corridors (Modal integration):** Gautrain, BRT, rail, bus, taxi.



Pedestrians in Inner Cities

Pedestrians in Inner Cities

Pedestrians on Town Fringes



Pedestrians on Freeways

Child Safety in Urban Areas

Rural Learners

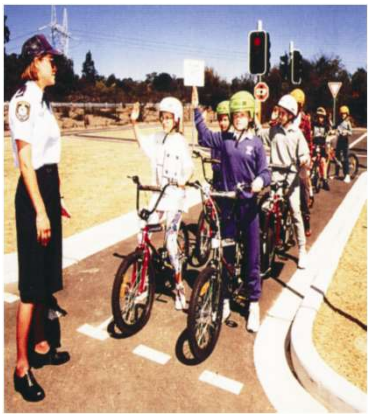
Wheelchair riders

Electric wheelchairs: NMT or not?

Impaired users: Visual & hearing impaired

Elderly pedestrians

Rural cyclists / Child cyclists



Child cyclists in residential areas

X

√

ks4053 www.fotosearch.com

Cyclists: Racing & Recreational

Commuting by bicycle

Bicycle renting systems

e-Bikes

- The e-bike can be effectively used for errands and trips where not much storage space is required, and is ideal for daily trips to work.
- The range of the bike is about 20km before the battery runs low and needs to be recharged – charging stations.
- Pedalling is not required on the flat, downhill or gentle uphill (unless you wish to go faster), but is required to go up steeper hills comfortably.

Innovative bikes

Bicycles used to carry loads

Pedicabs and custom built bicycles

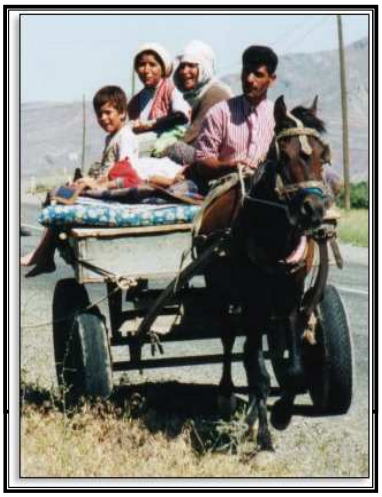
Custom built bicycles: Recycling and Cargo

The bicycle in Rural communities

Cape Town Pedicabs – Early prototypes

Wheelbarrows, push carts, trolleys, prams

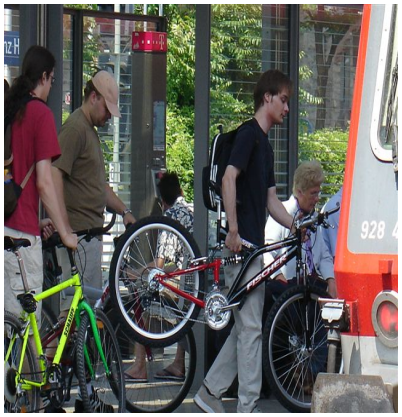
Animal drawn vehicles - passengers



Animal drawn vehicles - goods

Animal drawn vehicles - goods

Integration of NMT with public transport



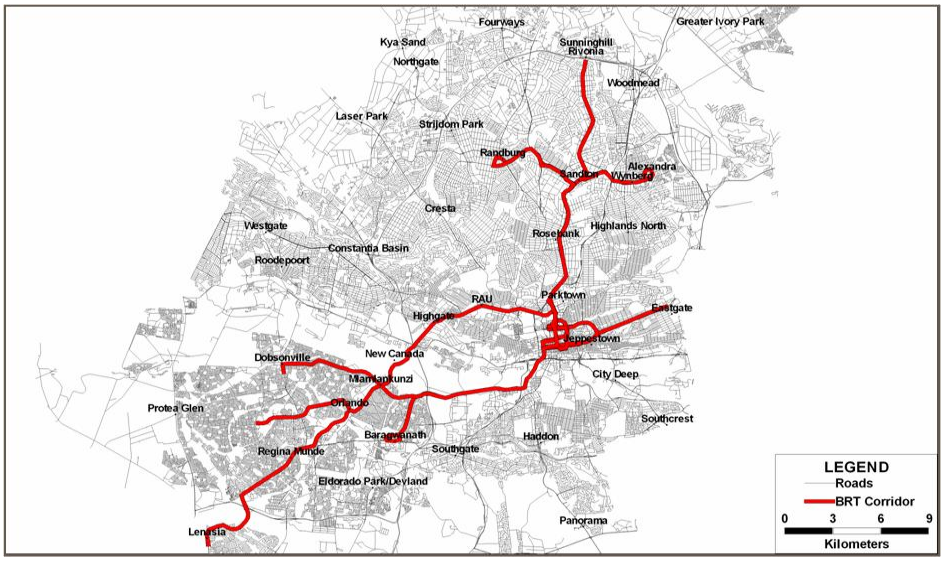
Integration of NMT with public transport

BRT/IRPTN systems in process in RSA

- Buffalo City
- Cape Town
- Ekurhuleni
- eThekwini
- Johannesburg
- Mangaung
- Nelson Mandela Bay
- Tshwane
- George
- Mbombela
- Msunduzi
- Polokwane
- Rustenburg

Integration of NMT with public transport

ReaVaya BRT Jo'Burg

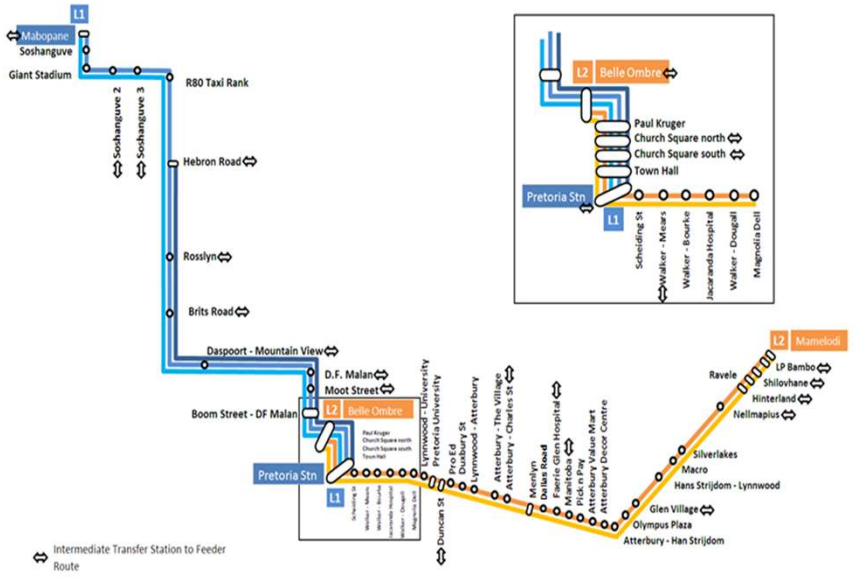


International examples of BRT & NMT systems integration

Bogota, South America

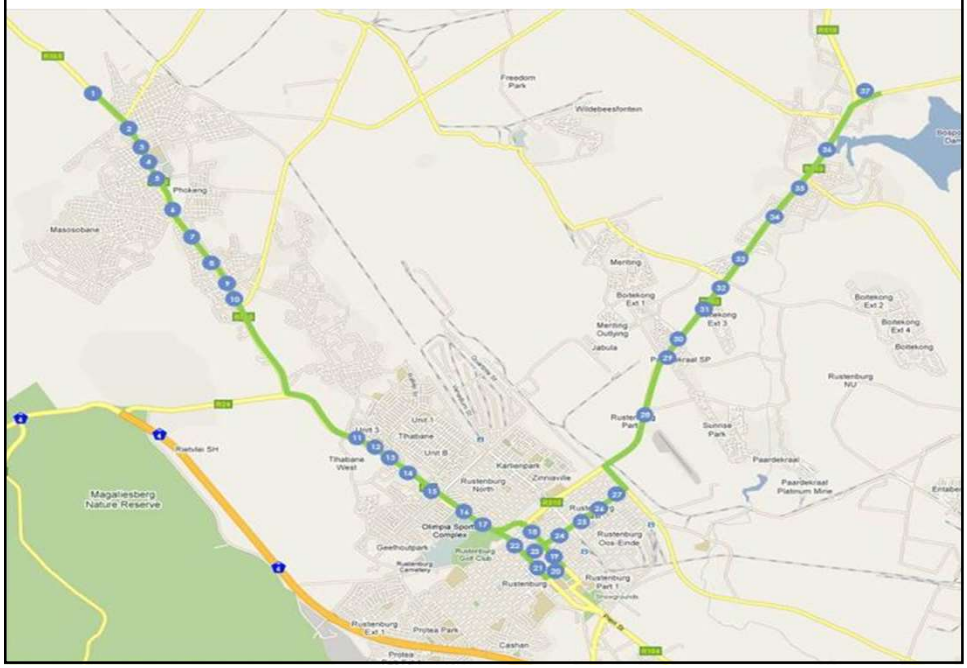
Ahmedabad, India

AreYeng Phase 1- Tshwane Integrated Rapid

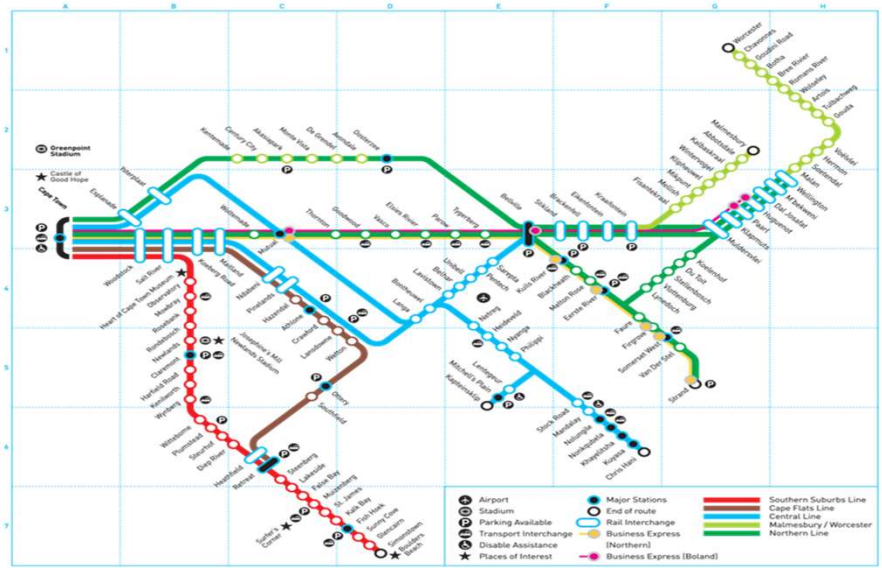


Cape Town MyCity Network

Rustenburg Rapid Transport



Cape Town MetroRail Network



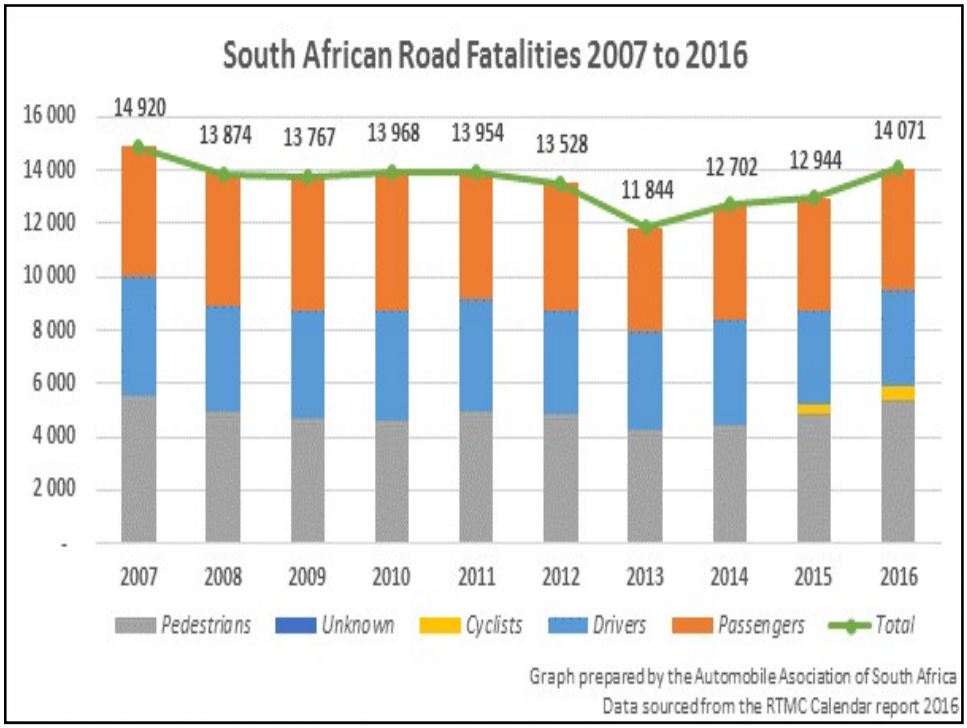
Bicycle parking facilities at stations

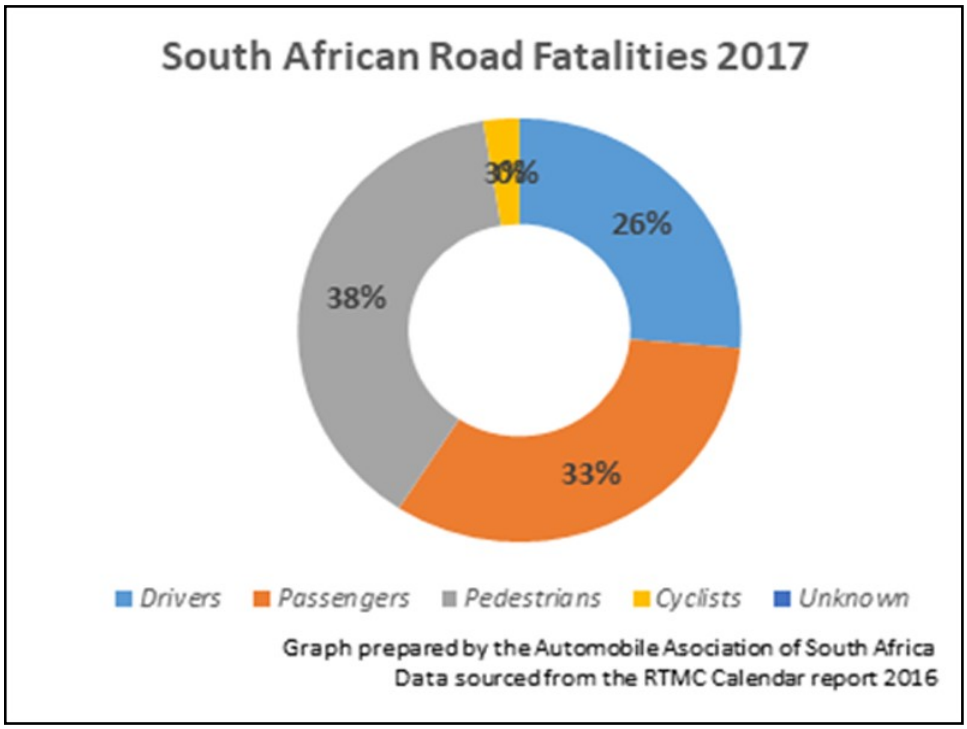
Bicycle facilities on trains

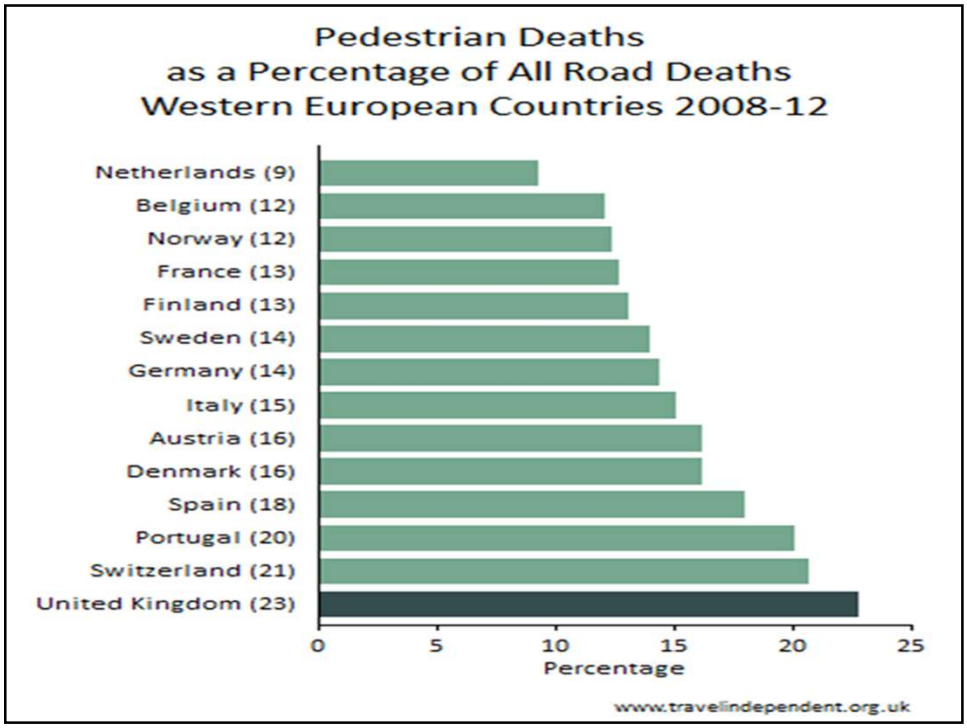
Bicycle facilities on trains

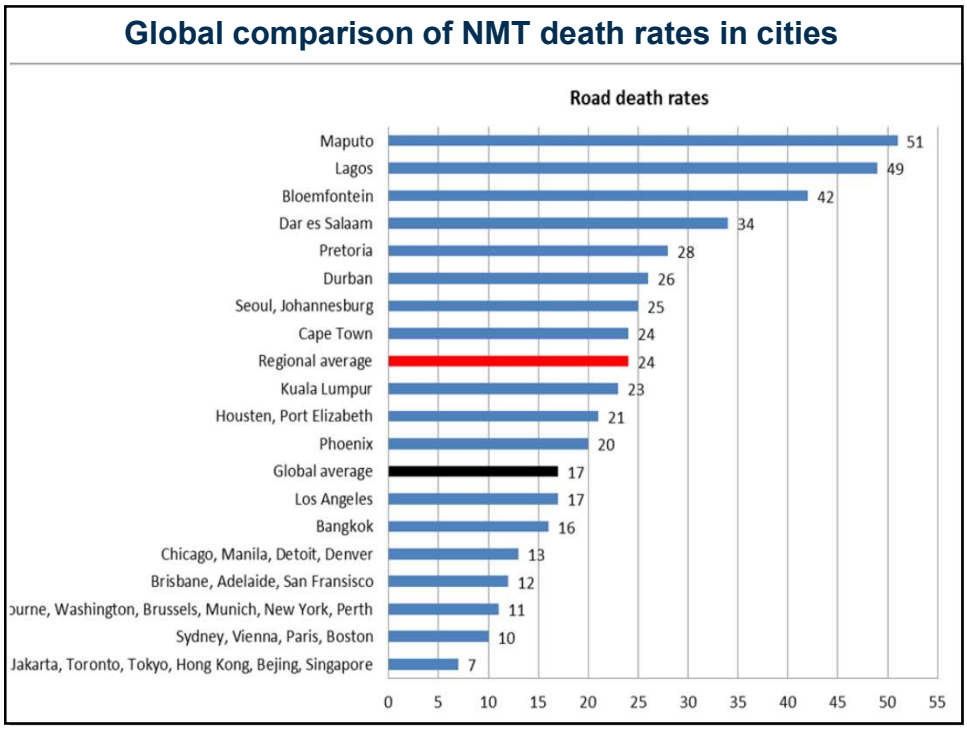
Bicycle racks on buses

Why do we need to plan for NMT users?

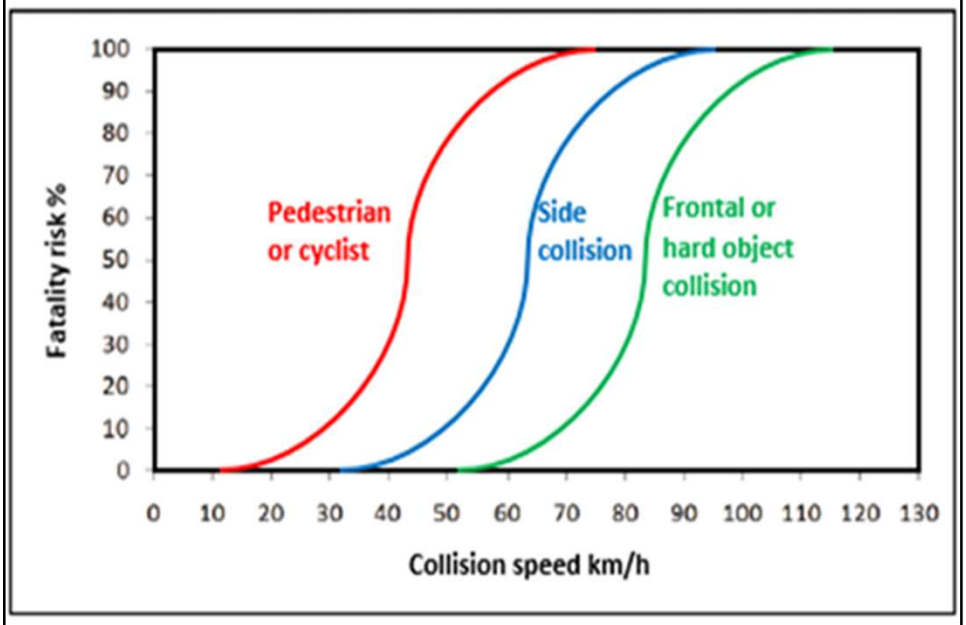

South African Road Fatalities 2007 to 2016
16 000
14 000
12 000
10 000
8 000
6 000
4 000
2 000
-
14 920
13 874
13 767
13 968
13 954
13 528
11 844
12 702
12 944
14 071
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
Pedestrians
Unknown
Cyclists
Drivers
Passengers
Total
Graph prepared by the Automobile Asociation of South Africa
Data sourced from the RTMC Calendar report 2016


South African Road Fatalities 2017
3%
26%
38%
33%
Drivers
Passengers
Pedestrians
Cyclists
Unknown
Graph prepared by the Automobile Asociation of South Africa
Data sourced from the RTMC Calendar report 2016

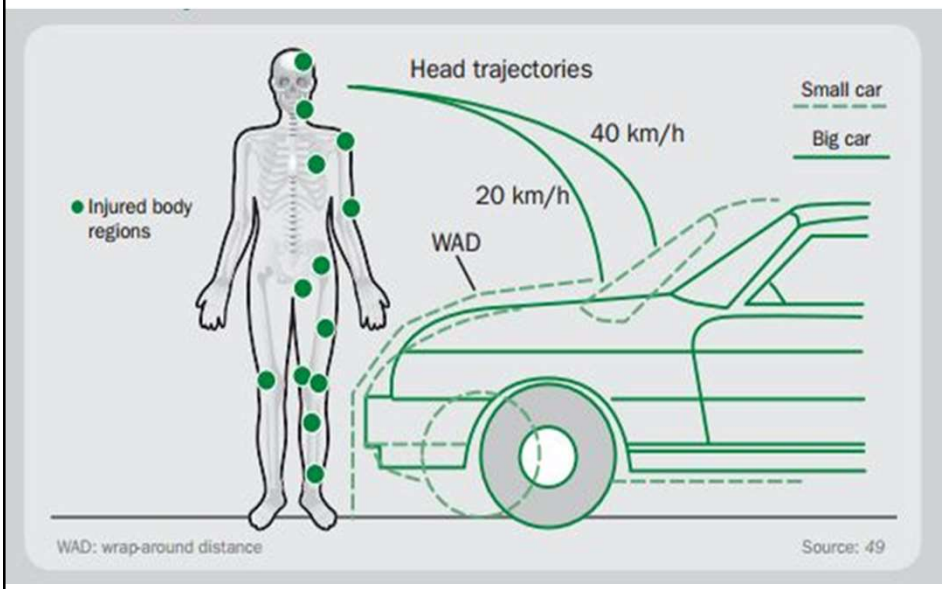

Pedestrian Deaths
as a Percentage of All Road Deaths
Western European Countries 2008-12
Netherlands (9)
Belgium (12)
Norway (12)
France (13)
Finland (13)
Sweden (14)
Germany (14)
Italy (15)
Austria (16)
Denmark (16)
Spain (18)
Portugal (20)
Switzerland (21)
United Kingdom (23)
0
5
10
15
20
25
Percentage
www.travelindependent.org.uk


Global comparison of NMT death rates in cities
Road death rates
Maputo 51
Lagos 49
Bloemfontein 42
Dar es Salaam 34
Pretoria 28
Durban 26
Seoul, Johannesburg 25
Cape Town 24
Regional average 24
Kuala Lumpur 23
Housten, Port Elizabeth 21
Phoenix 20
Global average 17
Los Angeles 17
Bangkok 16
Chicago, Manila, Detoit, Denver 13
Brisbane, Adelaide, San Fransisco 12
urne, Washington, Brussels, Munich, New York, Perth 11
Sydney, Vienna, Paris, Boston 10
Jakarta, Toronto, Tokyo, Hong Kong, Bejing, Singapore 7
0
5
10
15
20
25
30
35
40
45
50
55

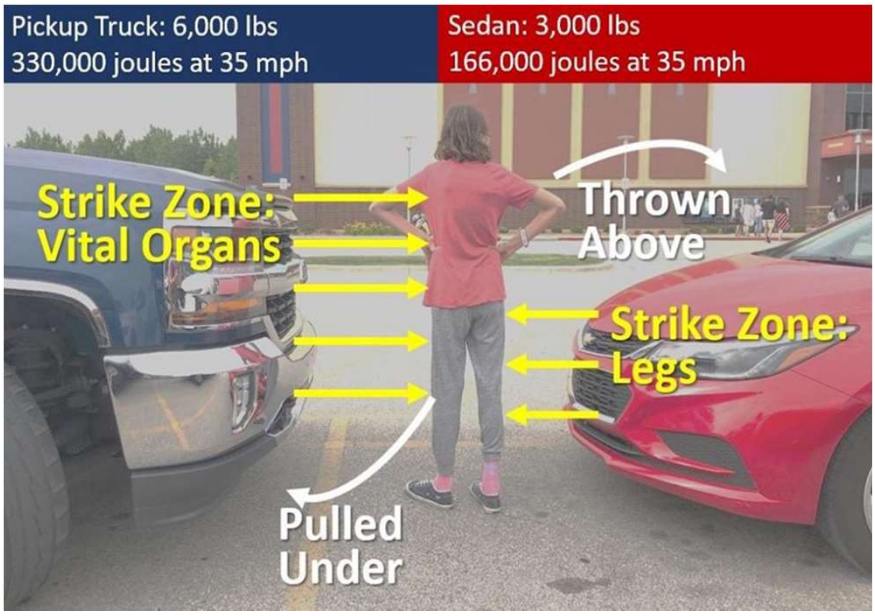
Fatality risk of NMT users



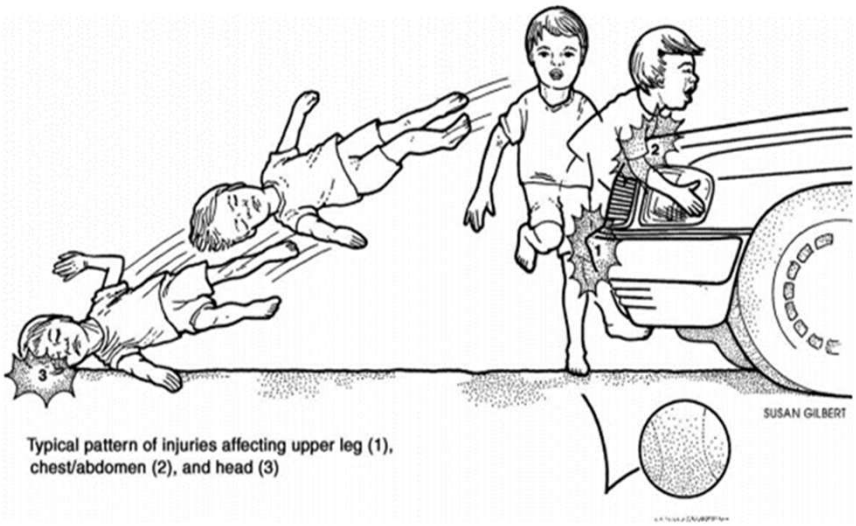
Typical injuries sustained by adult pedestrians (1)



Typical injuries sustained by adult pedestrians (2)



Typical injuries sustained by children in traffic



Typical pattern of injuries affecting upper leg (1), chest/abdomen (2), and head (3)