

# **SOUTH AFRICA ROAD FEDERATION**

## **KZN REGIONAL WORKSHOP**

### **Safer Communities through Safer Roads**

*Taking back our streets – Catering for all road users*

**Dr Hubrecht Ribbens**

**16 October 2015 (12:00– 12:25)**



**Part 1: International NMT design concepts to promote a more equal road network for all road users**

**Part 2: Current NMT applications in South African cities**

**Part 3: Concluding remarks/Lessons learnt**

# Part 1: International NMT design concepts to promote a more equal road network for all road users

1. Liveable communities

2. Walkability/Cycle-ability

3. Universal Access

4. Modal hierarchy

5. Complete Streets

6. Sustainable Safety

7. Transit Orientated Development

8. First Mile/Last Mile

9. Greenways

10. Crime Prevention Through Environmental Design - CPTED

## A new dawn for NMT modes?

“Cities will continue to accommodate the automobile, but when cities are built around them, the quality of human and natural life declines. Current trends show great promise for future urban mobility systems that enable freedom and connection, but not dependence. We are experiencing the phenomenon of peak car use in many global cities at the same time that urban rail is thriving, central cities are revitalizing, and suburban sprawl is reversing. Walking and cycling are growing in many cities, along with bike sharing schemes, which have contributed to new investment and vitality in central cities including Melbourne, Seattle, Chicago, and New York”.

***The End of Automobile Dependence. HOW CITIES ARE MOVING BEYOND CAR-BASED PLANNING. Peter Newman and Jeffrey Kenworthy. Island Press, August 2015***

# Design concepts for NMT modes

- **Liveable communities**  
(After Donald Appleyard's **Liveable Streets, 1981**)



- **Walkability (City Indexes)**



# Design concepts for NMT modes

- **Cycle-able communities**
- **Cycle highways**



# Bike share, Manhattan, New York City

## 5.5 Million Journeys at NYC Bike Share

Based on origin-destination data released by NYC Bike Share for journeys between July 2013 and February 2014. Idealised route assumed, using OpenStreetMap data.



Created by Oliver O'Brien (@oobr) using Routino and QGIS, at the Centre for Advanced Spatial Analysis at University College London. Further information about the map available at <http://oobrien.com/>



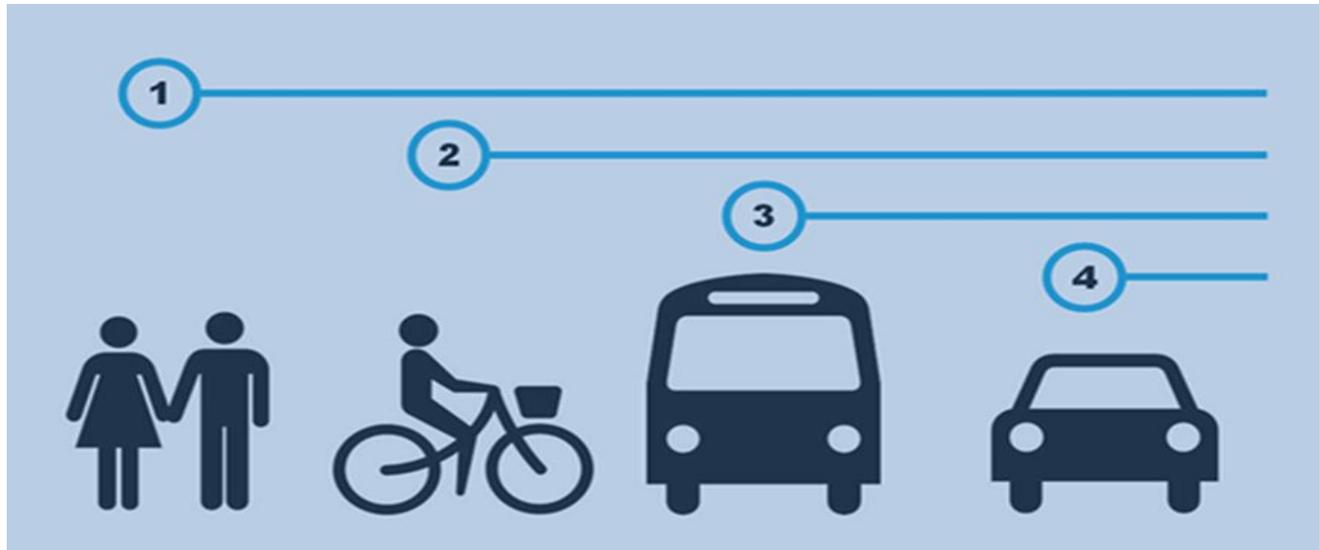
# Design concepts for NMT modes

## Universal Access (roads, vehicles and buildings)



# Design concepts for NMT modes

- **Modal hierarchy/Sustainable transport**



# Design concepts for NMT modes

- Complete Streets (Curitiba as example)



# Design concepts for NMT modes

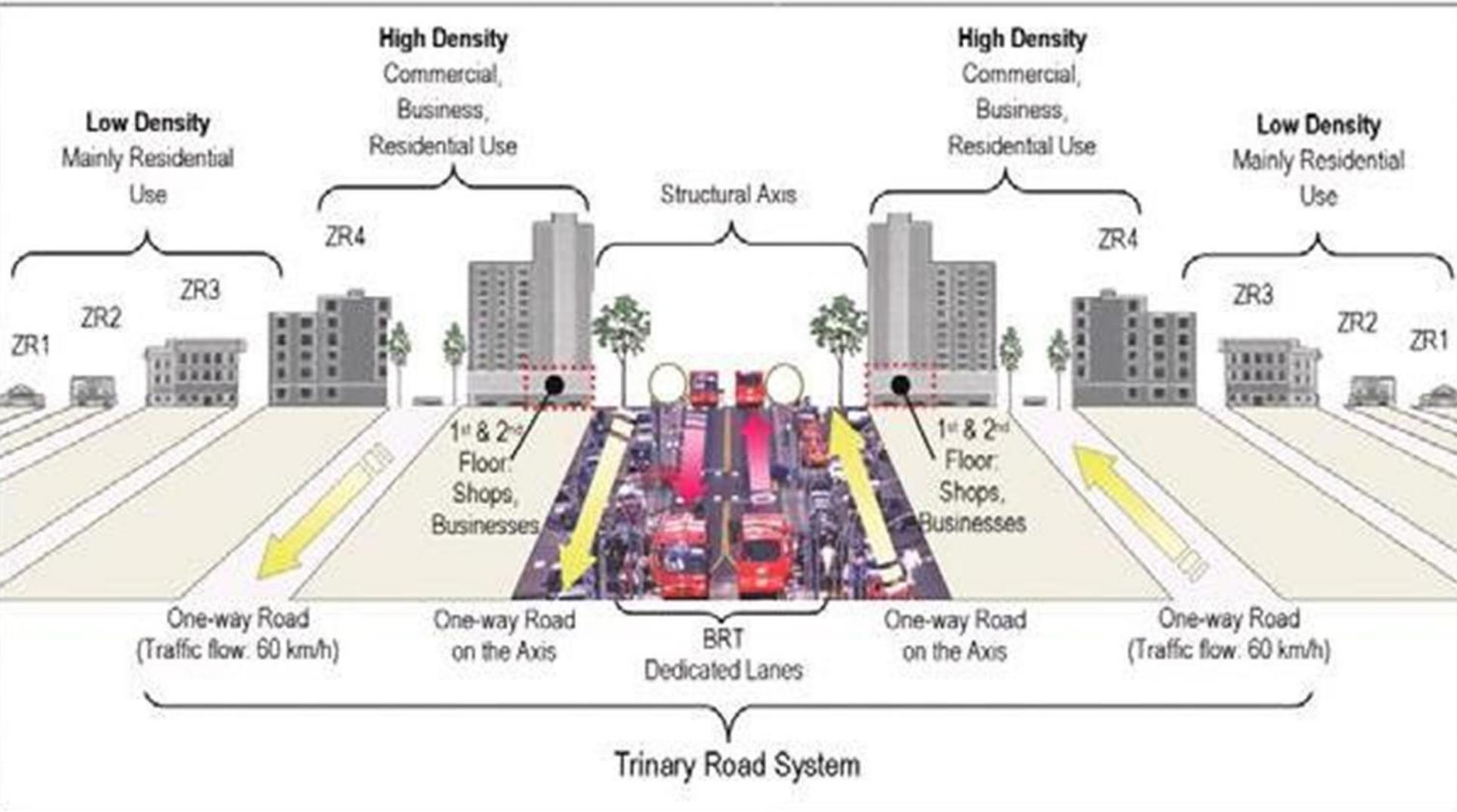
- **Transit Orientated Development - Washington**



Washington - High density, mixed use development within 400 – 800m from Rosslyn, Court House and Clarendon Metro Stations

# Design concepts for NMT modes

- **Transit Orientated Development – Curitiba**



# Design concepts for NMT modes

- **Transit Orientated Development – Curitiba**



# Design concepts for NMT modes

- **First Mile/Last Mile**



# Design concepts for NMT modes

- **The Netherlands - Sustainable Safety**

Based on five principles:

- Functionality (of roads)
- Homogeneity (of mass, speed and direction of road users)
- Predictability (of road course and road user behaviour by a recognisable road design)
- Forgivingness (both the road/street environment/road users)
- State of awareness (by the road user)

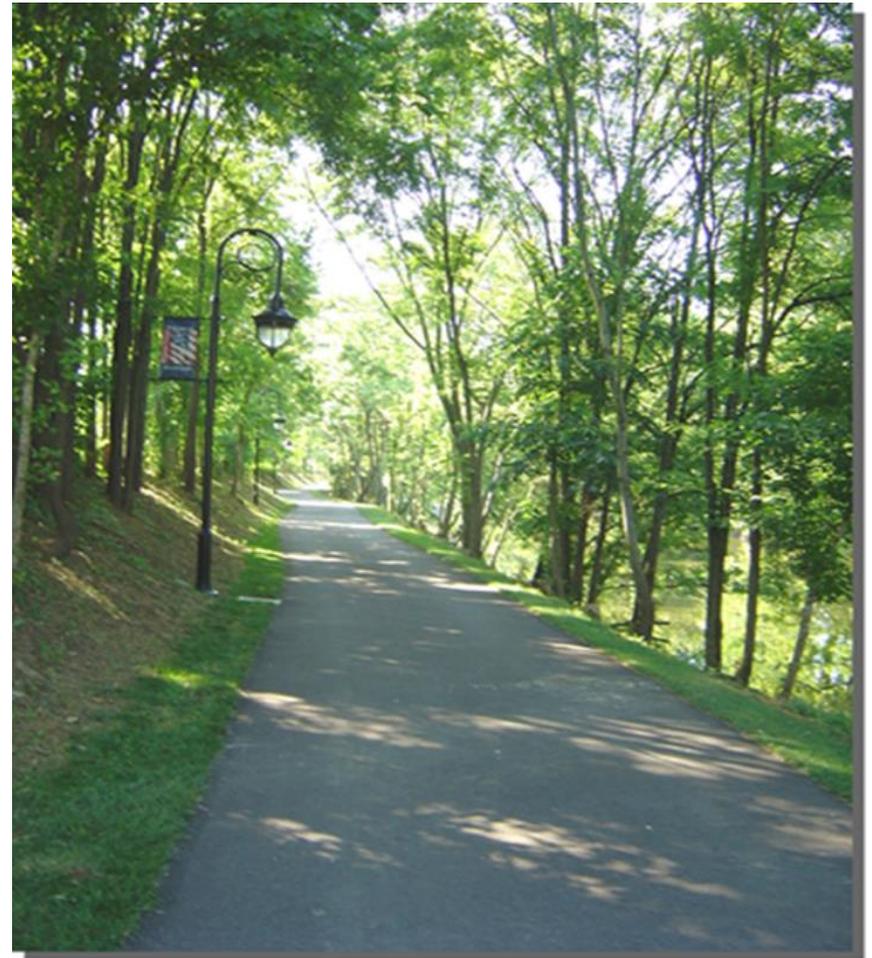


# Design concepts for NMT modes

- **Greenways along roads**



- **Greenways in public open space**



# Design concepts for NMT modes

- **Crime Prevention Through Environmental Design**



Large windows promote casual supervision of sidewalk.

Porches and sidewalk encourage interaction between neighbors.

Paving and architectural treatments define public and private zones.

Good pedestrian-scaled lighting on street.

Low landscaping and fences define property lines without creating hiding places.

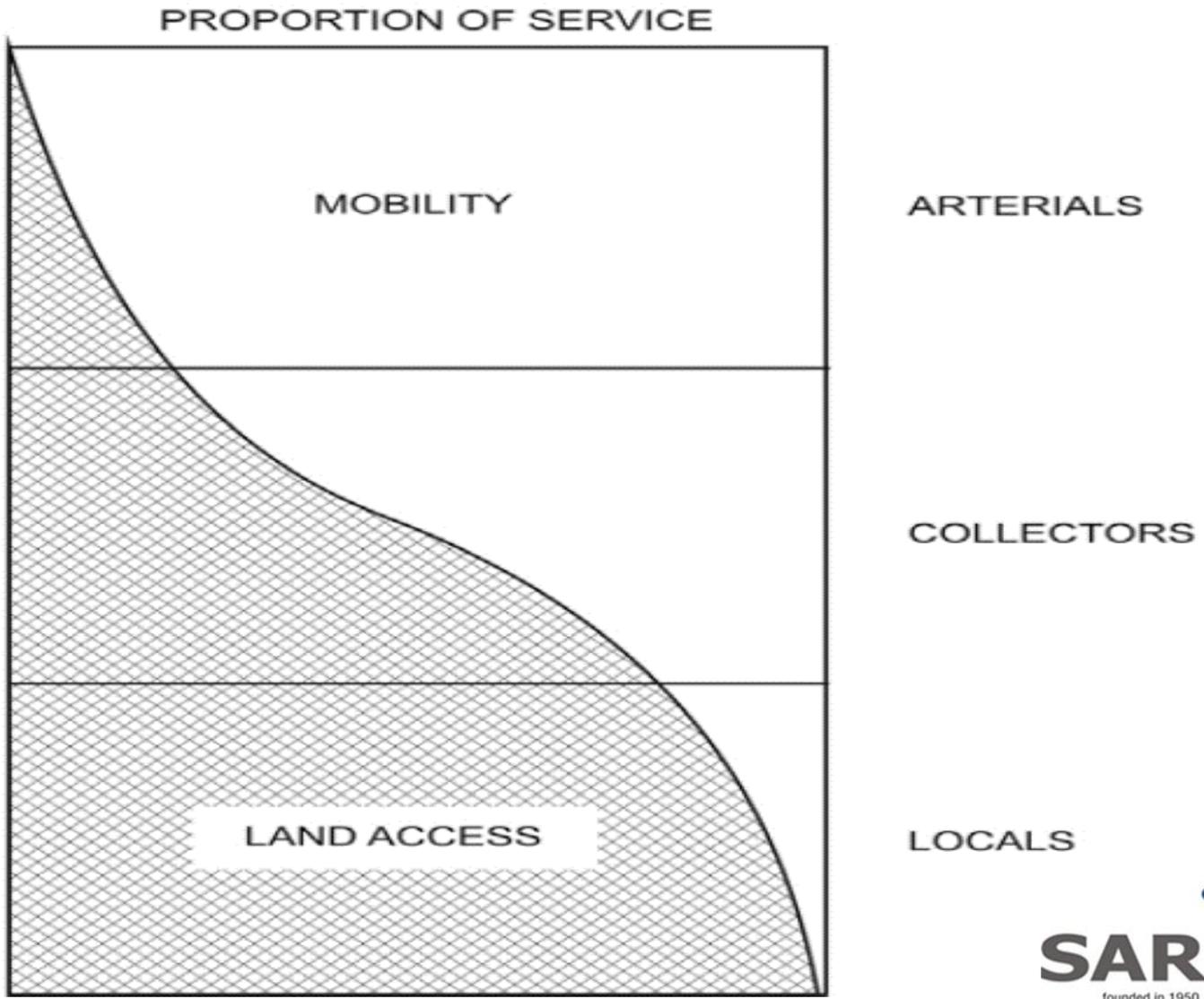
## **Part 2: Current NMT applications in South African cities**

# NMT facilities along urban roads – Retrofitting the urban road network

RISFSA 2007/COTO 2012 Classification of urban roads

- NMT across Freeways with Controlled Access
- NMT along High Speed Highways
- NMT along Kerbed Arterials
- NMT along Urban Distributors and Collectors
- NMT along Access Roads
- NMT Roads

# RELATIONSHIP OF FUNCTIONALLY CLASSIFIED SYSTEMS IN SERVING TRAFFIC MOBILITY AND LAND ACCESS



# NMT facilities along roads

## Kerbed Arterials



# NMT facilities along roads

## NMT along Urban Distributors and Collectors



# NMT facilities along roads

## NMT along Access Roads



# NMT facilities along roads

NMT roads



# NMT facilities along roads

Universal Access (SANS 784:2008 Design for access and mobility-  
Tactile indicators)



# Universal access of buildings and vehicles



# Current NMT applications in South African cities

## Transit Orientated Development - Cape Town

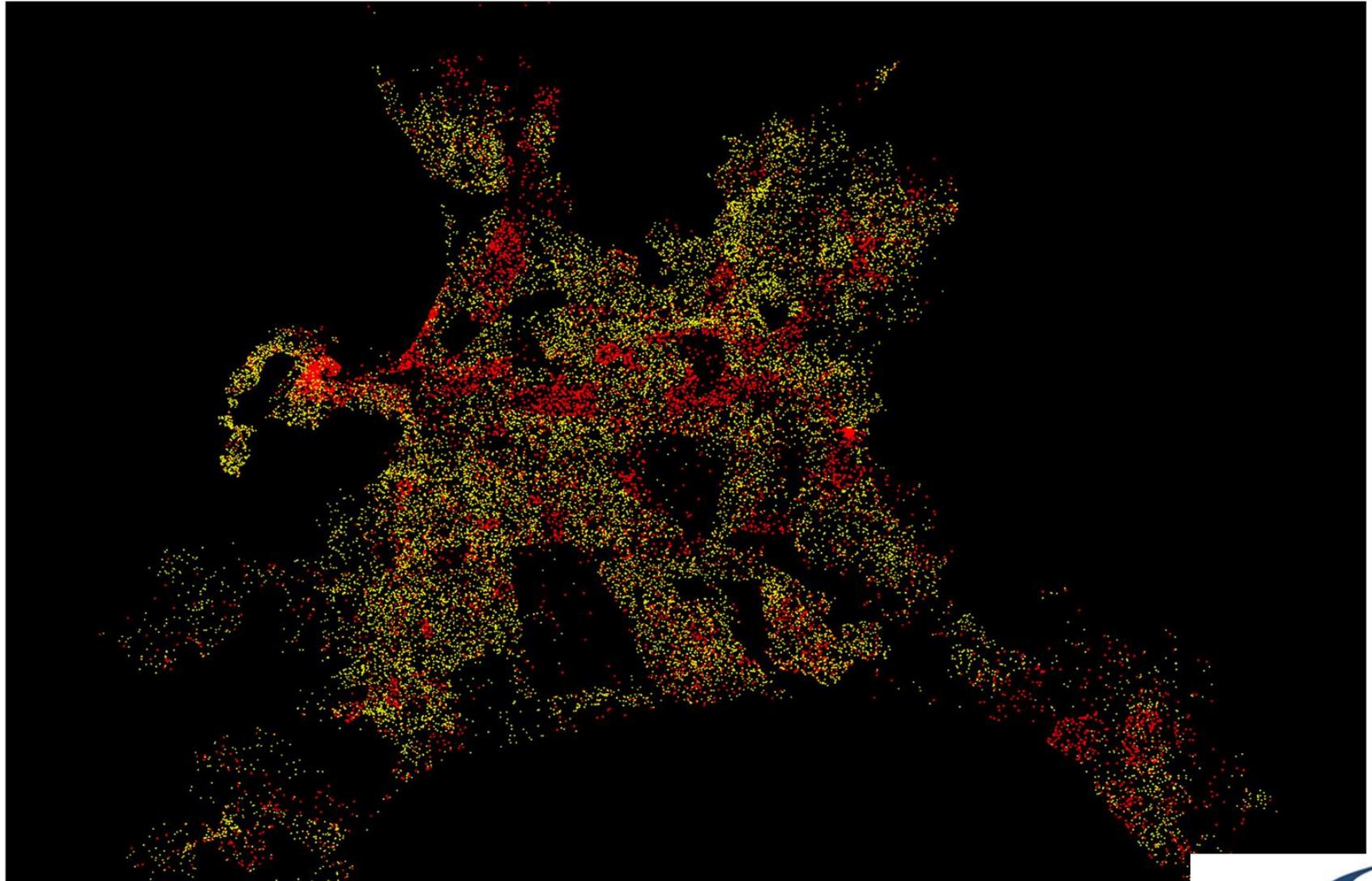
“TOD is an investment and performance driven to deliver the following outputs:

- *Increase “location efficiency”* so that people can walk, cycle and use public transport. Can be achieved through a comprehensive approach to land use density, mix and intensity, as well as a focus on prioritised public transport.
- *Boost ridership and minimize congestion* thereby ensuring that the public transport system becomes more viable.
- Provide a rich *mix of housing, shopping and transportation* choices.
- Deliver *efficiencies in urban infrastructure*.
- Create a *sense of place”*.

**Source: PowerPoint presentation by Gershwin Fortune, SATC 2015**

# Current NMT applications in South African cities

## Comprehensive TOD scenario development - Cape Town



# Current NMT applications in South African cities

- NMT Master Plan eThekweni



# Current NMT applications in South African cities

- eThekweni CBD cycle lane



# Current NMT applications in South African cities

## City of Johannesburg Complete Streets Design Guideline



# Current NMT applications in South African cities

## Johannesburg Complete Streets Design Principles

- **Balance the needs of all users** of the public right-of-way by providing safe and convenient travel and access for cyclists, public transport users and operators, heavy vehicle and car drivers, and people of all ages and abilities.
- **Contribute to liveable communities by providing public open space that integrates amenities** including street trees and landscaping, street and sidewalk lighting, public transport facilities, street furniture, water features, and so on.
- **Promote neighbourhood vitality** through infrastructural improvements that attract private investment and encourage pedestrian activity.
- Promote active living by providing **safe and attractive conditions for walking and biking.**

# Current NMT applications in South African cities

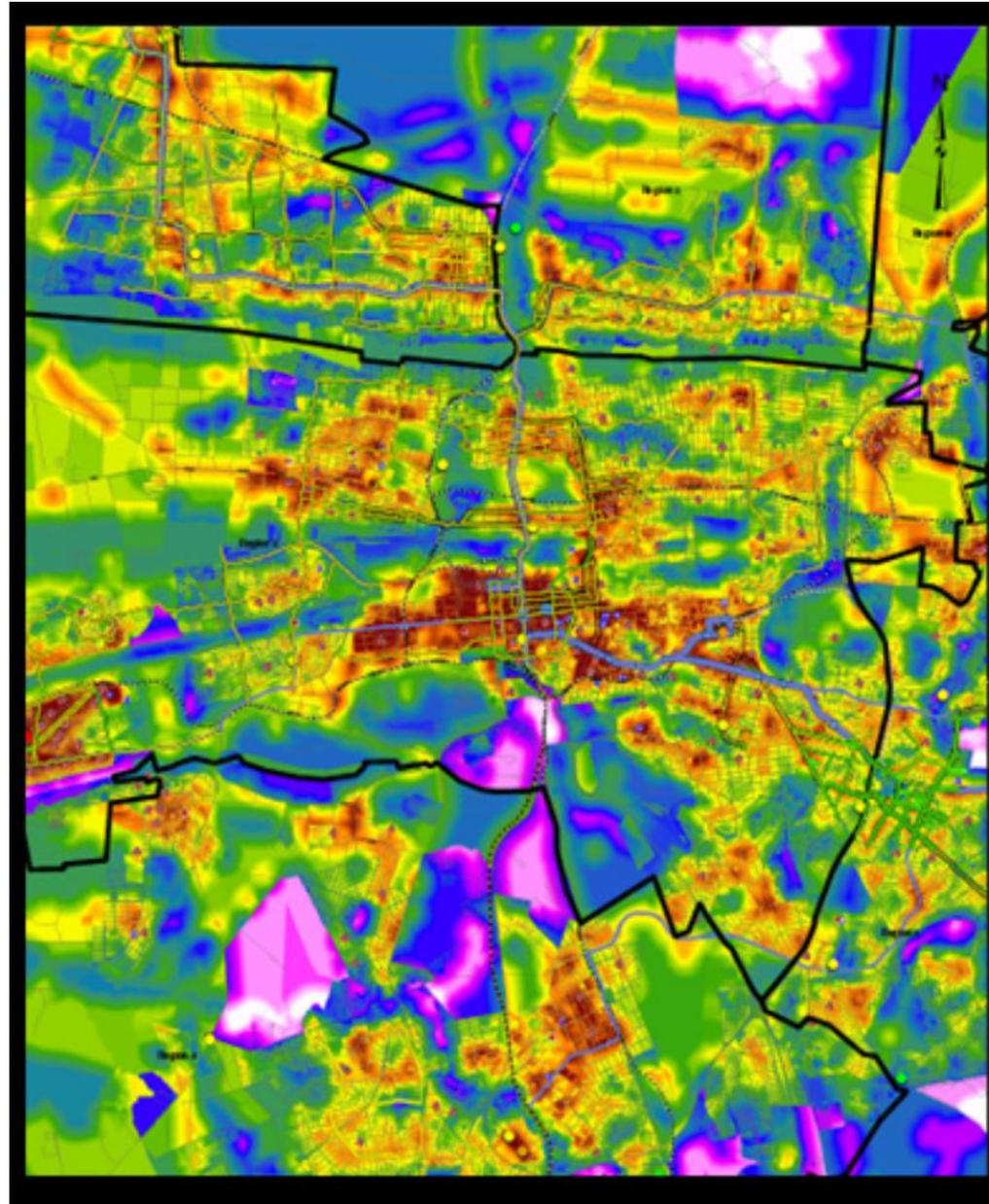
## Johannesburg Complete Streets Design Principles

- **Provide safe and comfortable access for persons with disabilities**
- **Improve local air quality** by reducing car use (emissions) and **incorporating trees and vegetation.**
- **Improve water quality** through the integration of low impact development techniques that both **reduce storm water runoff and remove pollutants.**
- **Promote the use of public transport modes** by improving the efficiency of public transport systems and creating safe, attractive walking environments.
- **Implemented through a coordinated approach** among City departments, and the **leveraging of City assets and programs.**

# Current NMT applications in South African cities

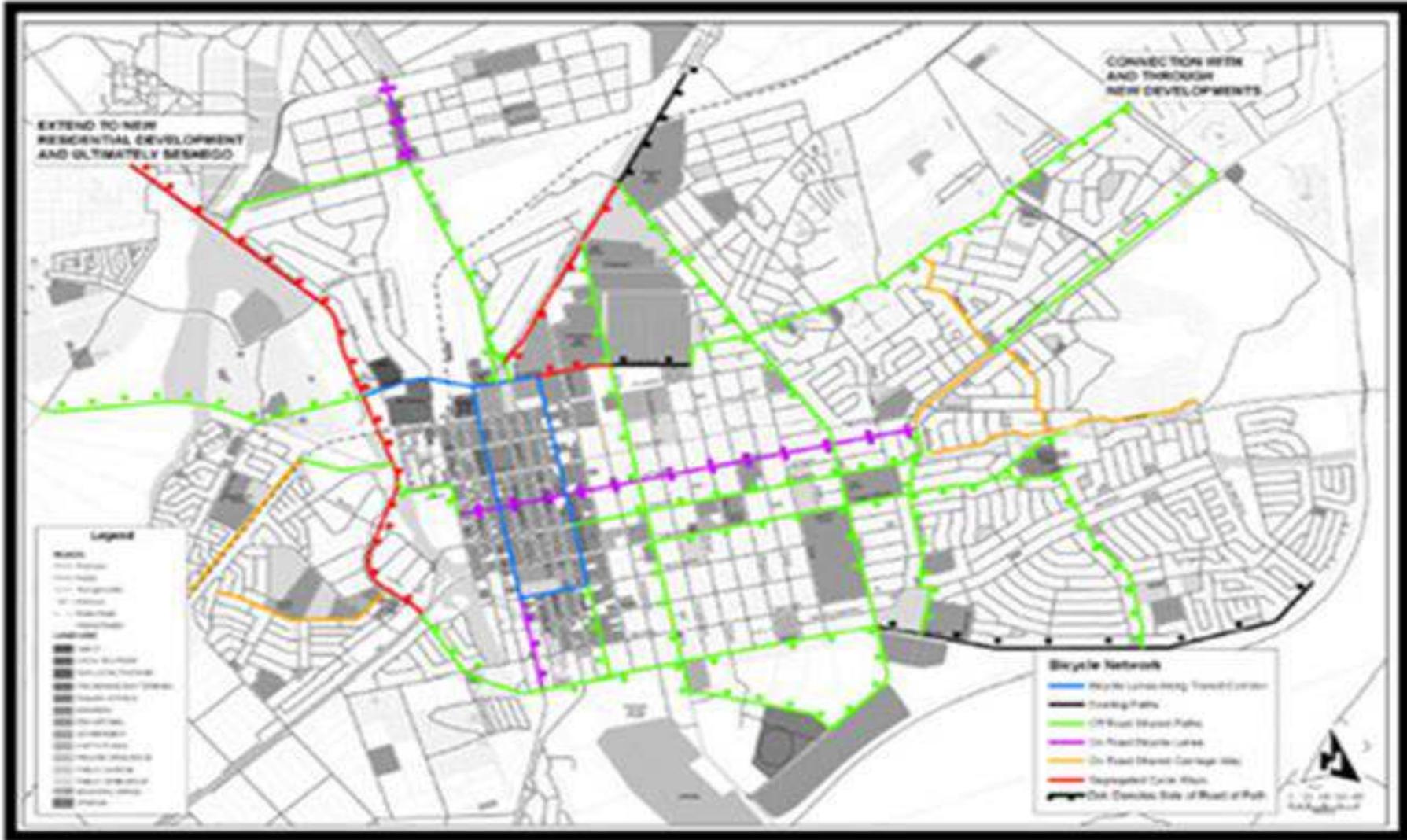
## Walkability map of Tshwane

- The places that are most walkable are shown in red.
- The least walkable areas are in purple and blue.



# Current NMT applications in South African cities

## Polokwane NMT Plan



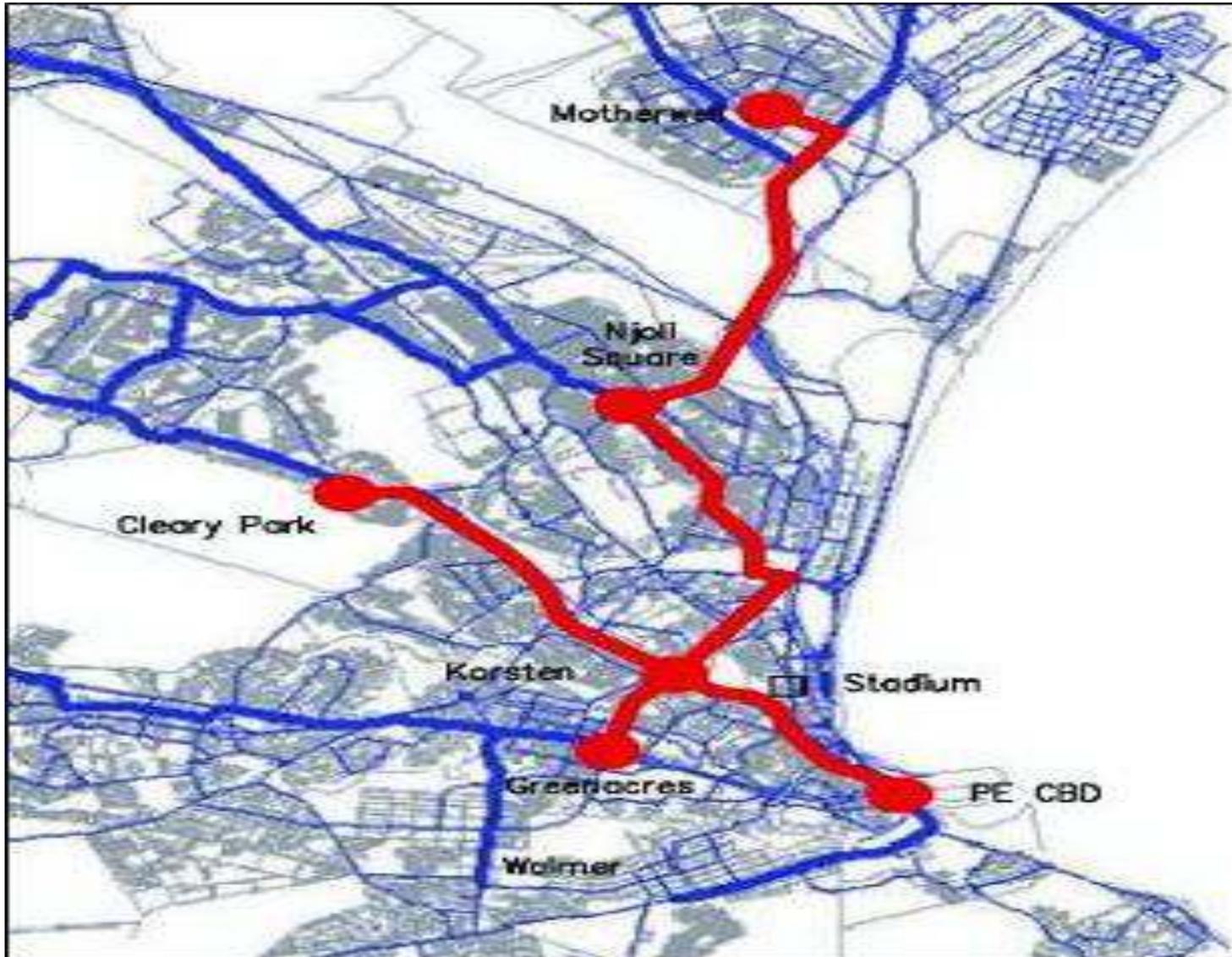
# Current NMT applications in South African cities

- **Polokwane NMT facility**



# Current NMT applications in South African cities

- **Nelson Mandela Metro BRT/NMT**



## **Part 3: Concluding remarks/Lessons learnt**

## Concluding remarks

- SWC 2010 catalyst for increased NMT awareness and development in 10 host (and other) cities.
- BRT systems in 13 South African cities have also accelerated NMT awareness and networks – NMT serves as feeder systems to BRTs (and other forms of public transport – rail, bus, taxi and Gautrain).
- A number of SA cities are implementing customised NMT networks in line with internationally accepted design concepts.
- All cities, towns and district municipalities, however, must cater more specifically for NMT needs.
- Roads should be retrofitted to include NMT facilities in line with RIFSA and COTO road class NMT requirements.
- Sustained efforts and dedicated funding required to improve NMT networks in cities.

# Concluding remarks

- Continuous expansion of NMT networks important.
- City Growth Strategies, IDPs and ITPs to include NMT as a modal choice.
- Maintenance of NMT facilities very important to ensure continued usage.
- NMT volume data must be collected to facilitate NMT planning practices.

