

Future-Proof Mobility: Data-driven, Disruptive & Designed for People

Dr Megan Bruwer - Civil Engineering

Photo from presentation by Karel Martens
S144 Road between Zomba and Phalombe
Malawi, 20 August 2022

“A complete failure”
“Because no one is using the road”

Private car dependence

What are we (planners) telling people?

Sociological Model:

The car is an essential tool for everyday activities

Eduardo Vasconcellos (1997)
The Demand For Cars in Developing Countries
Transportation Research Part A



Collector roads around the world

D'Almarasweg,
Nijmegen, Netherlands



Shibuya, Tokyo
Japan



Hammanshand Rd,
Stellebosch, SA



Pedestrian path continuity

“The NMT Network is only as good as its weakest link”

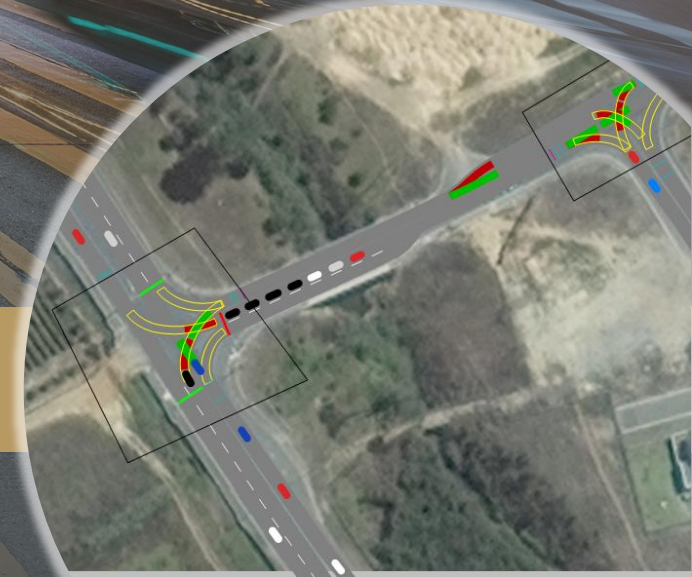
- DOT, NMT Facility Guidelines (2014)



**First we shape our streets,
and then our streets shape us**

**Future-Proof Mobility:
Data-driven, Disruptive & Designed for People**

Nathan Road, Hong Kong

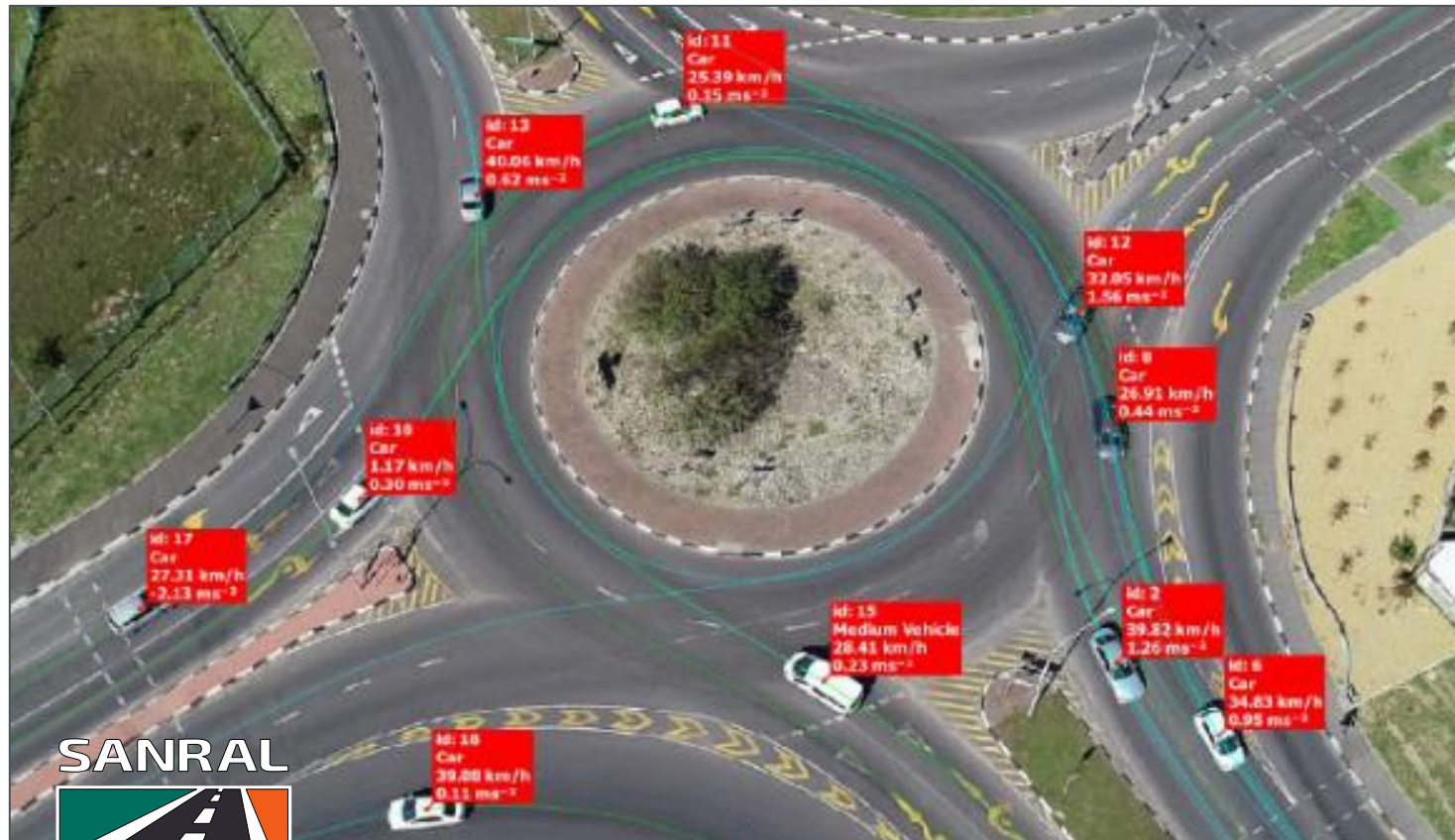


Data-driven

Future-proof mobility

Drones, GPS loggers, DataFromSky

ROUNDBABOUTS - tracking data, geometric design, safety

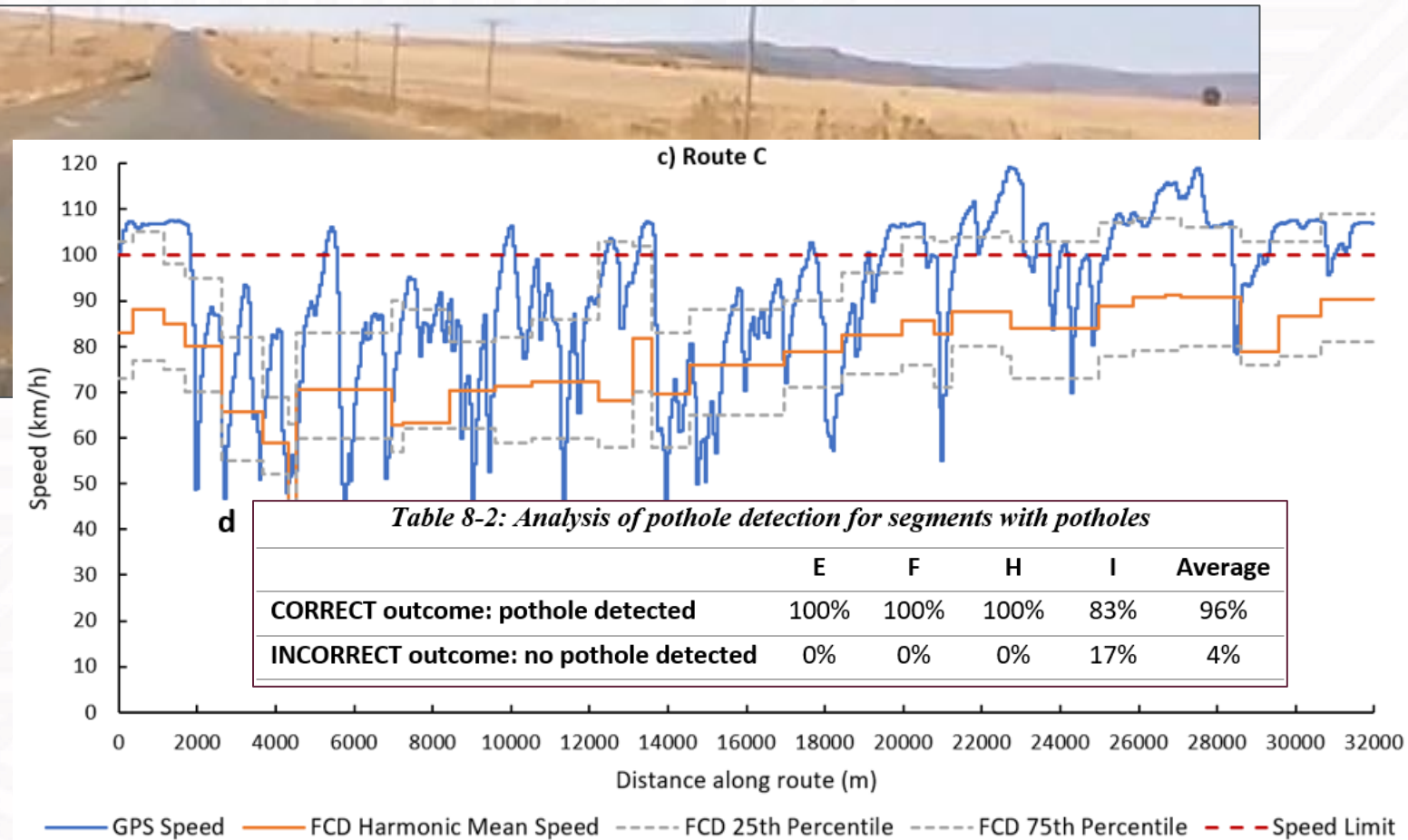
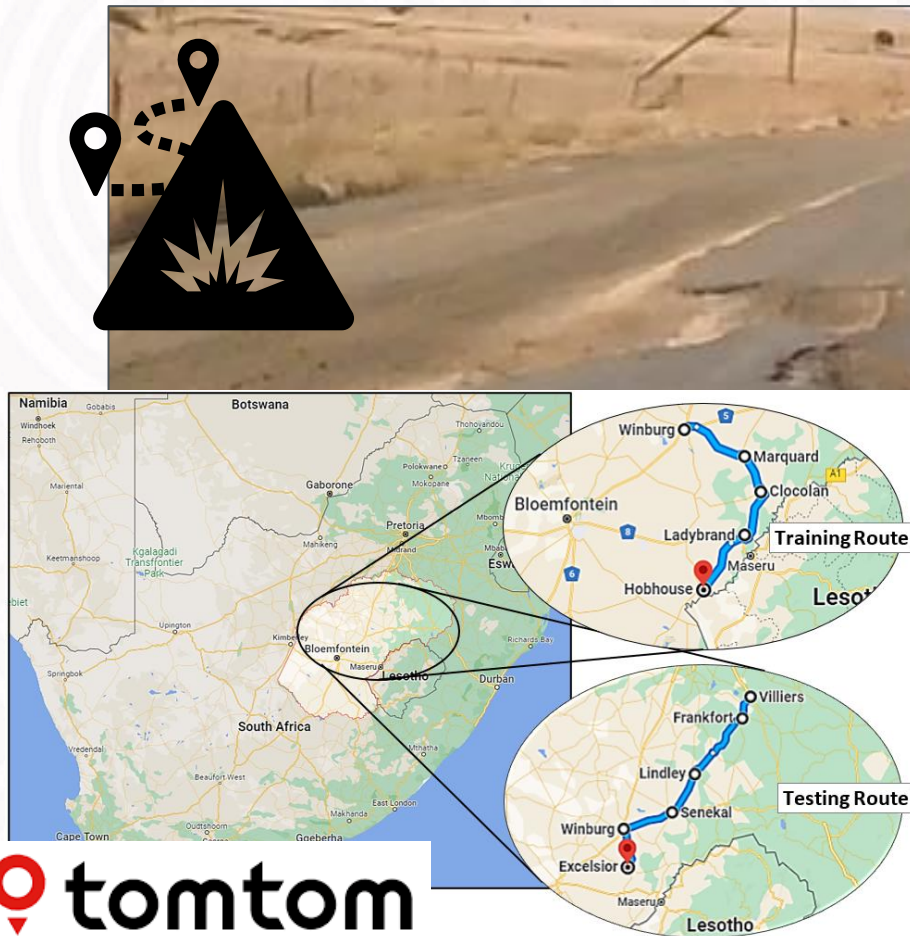


SANRAL



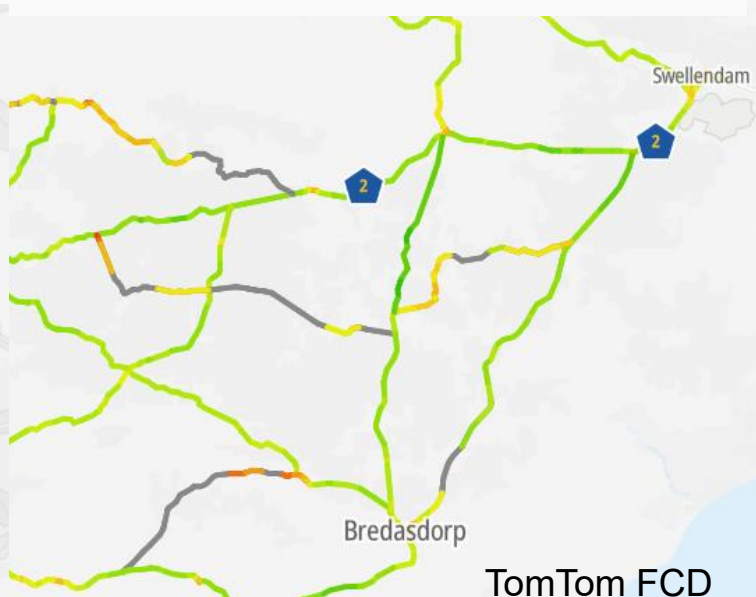
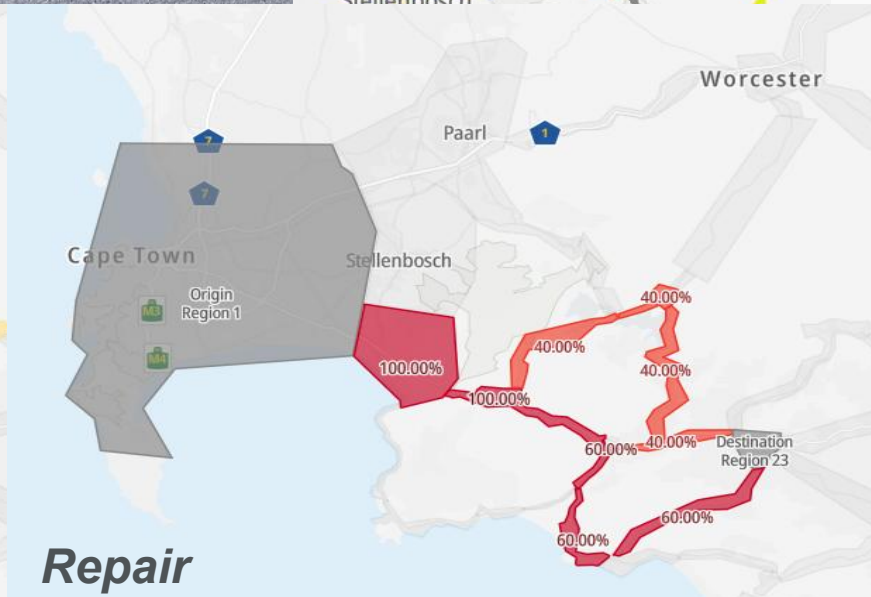
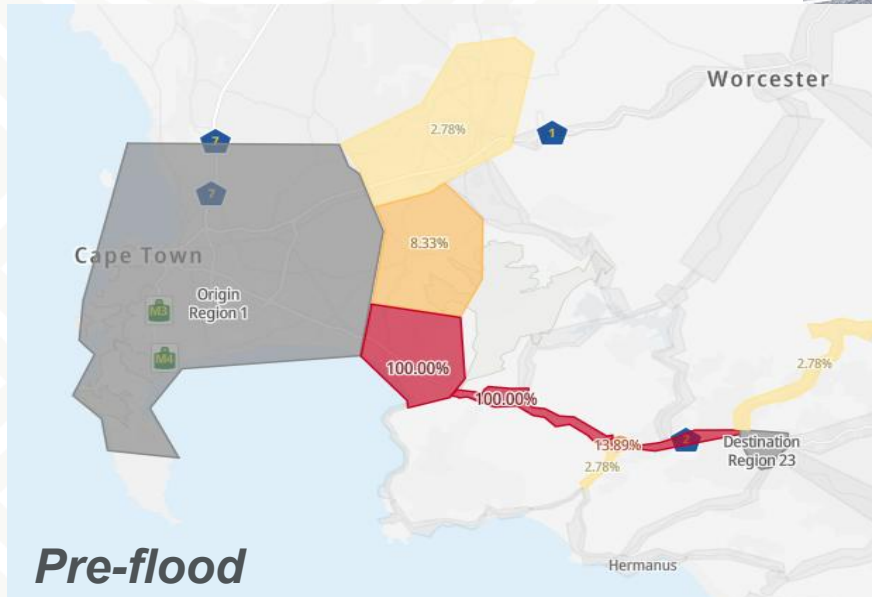
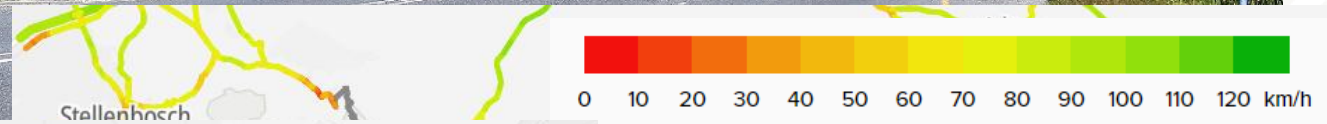
Floating car data (smart phones)

Inferring the location of POTHOLES



Floating car data (smart phones)

Natural disasters



Nathan Road, Hong Kong



Disruptive

Future-proof mobility

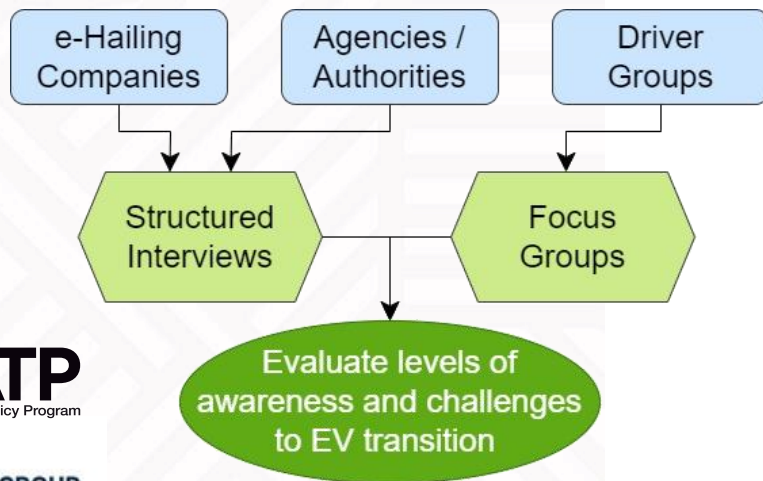
Electric Mobility in the ride-hailing space

EVs for ride-hailing (Tanzania, South Africa and Nigeria)



1. Identify challenges and opportunities for e-mobility and ride-hailing in Africa.

2. Develop recommendations to unblock the bottlenecks.

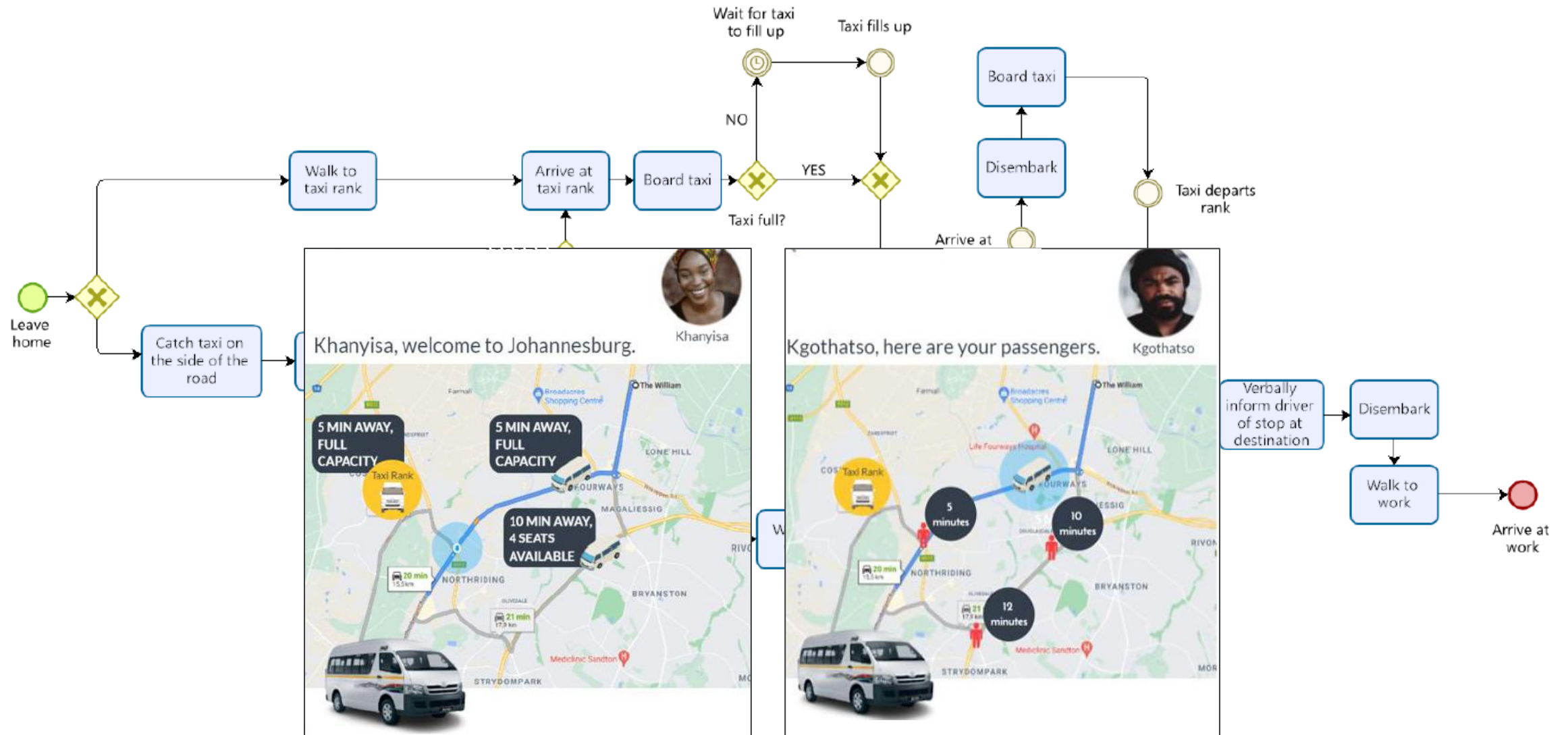


Vehicle Type	Time	Price (Tsh)
Bolt	2 min (4 passengers)	7500 Tsh (10500 Tsh)
Bajaji	4 min (3 passengers)	5000 Tsh (7000 Tsh)
Boda	1 min (1 passenger)	3000 Tsh (4500 Tsh)
Bolt Send(boda)	1 min (0 passengers)	3000 Tsh (4500 Tsh)
XL	7 min (6 passengers)	9000 Tsh (12000 Tsh)
Electric Bajaji	Busy (3 passengers)	5000 Tsh (7000 Tsh)

Payment: Cash

Buttons: Select Electric Bajaji, Refresh

App-based minibus taxi integration



Micromobility - GoNow e-Scooters

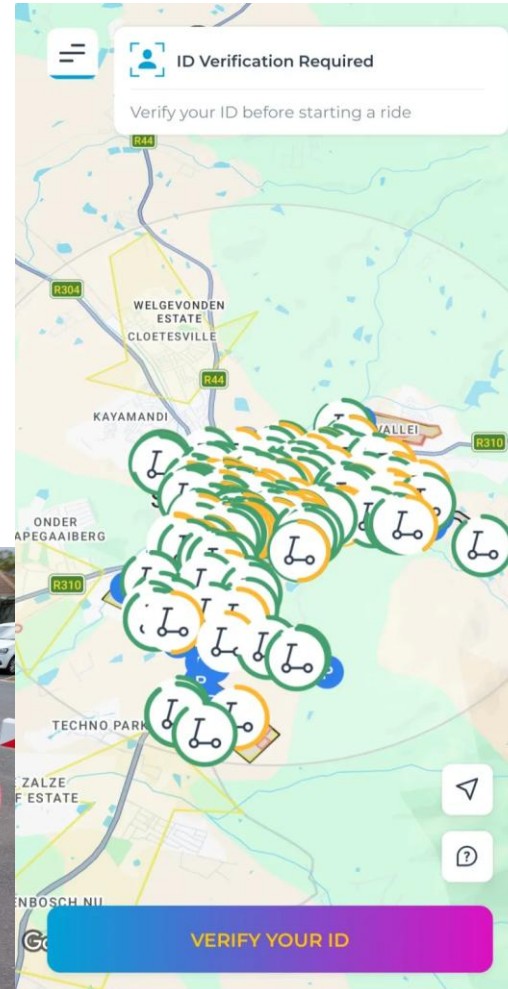
GoNow e-Scooters (Stellenbosch)

500 e-Scooters on app-based service
40 000 trips per month

JENNA LEMMER

Legislation “grey area” quickly unplugs new e-scooter service

SMF news
Stellenbosch Media Forum



Nathan Road, Hong Kong

商場購物中心
iSQUARE Shopping Centre

iSQUARE Shopping Centre

周大福 CHOW TAI FOOK

Designed for people - not cars

Future-proof mobility



NMT FACILITY GUIDELINES,

2014

Policy and Legislation

Planning

Design and Operations



Universal Accessibility

Training and research in UA



75mm High kerb to outer edge or low rail.
Standard width 1 010mm clear
Preferred width 1 200mm clear
Wheelchair to pass 1 800mm clear

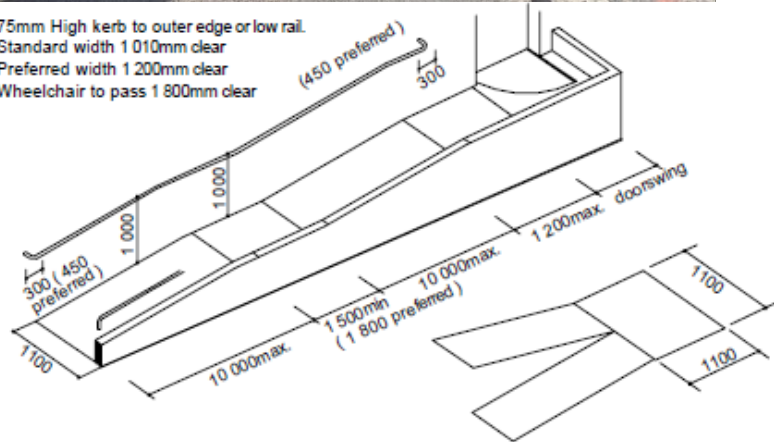
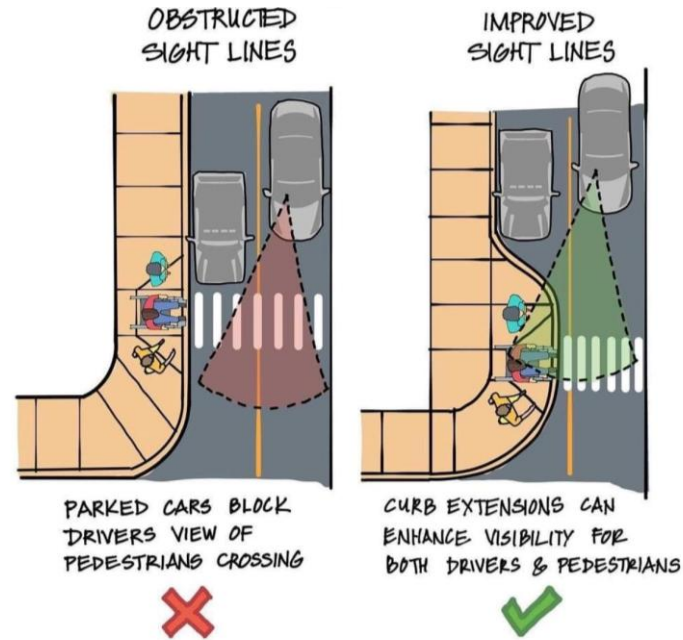


FIGURE 3.4.3 MANOEUVERING CLEARANCES AT LANDINGS



PARKED CARS BLOCK
DRIVERS VIEW OF
PEDESTRIANS CROSSING



CURB EXTENSIONS CAN
ENHANCE VISIBILITY FOR
BOTH DRIVERS & PEDESTRIANS



MBS Architecture (2025)



7 PRINCIPLES OF UNIVERSAL DESIGN:



Equitable



Flexibility



Simple &
intuitive



Perception
information



Tolerance
for error



Low physical
effort



Size &
space

Design for PEOPLE first



Thank you
Enkosi
Dankie

mbruwer@sun.ac.za



Photo by Stefan Els