



a world class African city



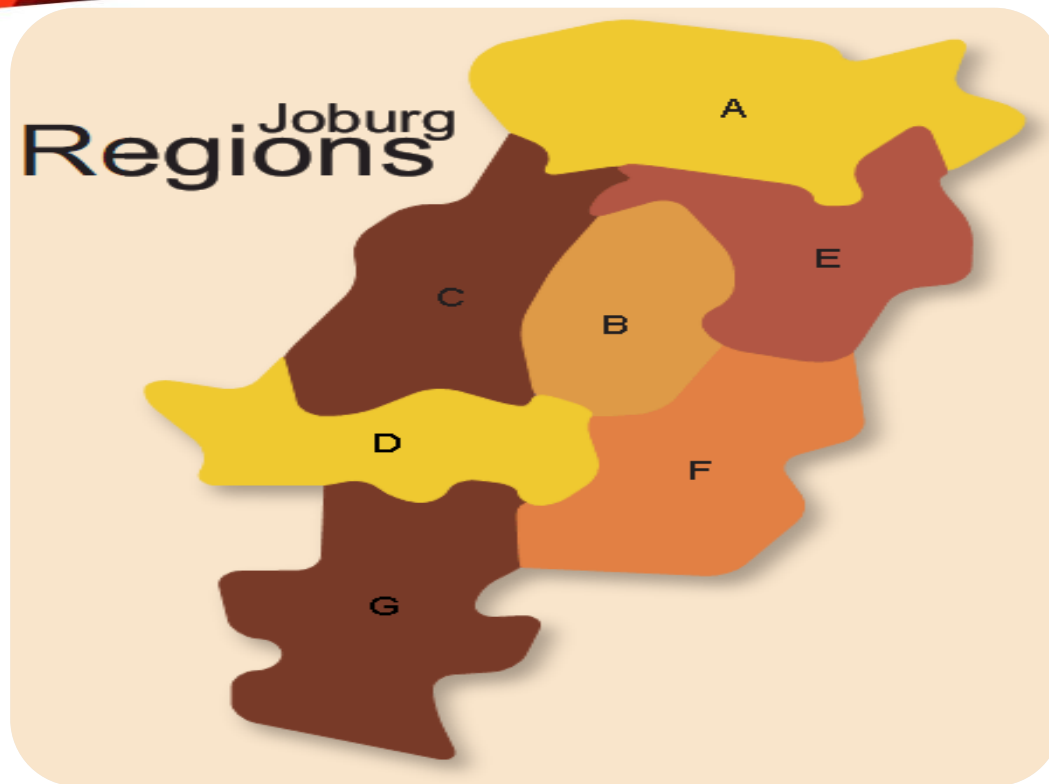
## DBSA Knowledge Week: Jozi Transport goes green

13 Oct 2011

Norman Qobolo



- ⦿ The City 's Integrated Transport Plan
- ⦿ COJ Transport's approach to Climate Change (GDS on Transport)
- ⦿ Matrix of green transport initiatives
- ⦿ Green Fuels for consideration
- ⦿ Summary on Rea Vaya BRT Project and its contribution to carbon emissions



Seven Regions with a population of more than 4 million people



# State of Energy Report – City of Joburg

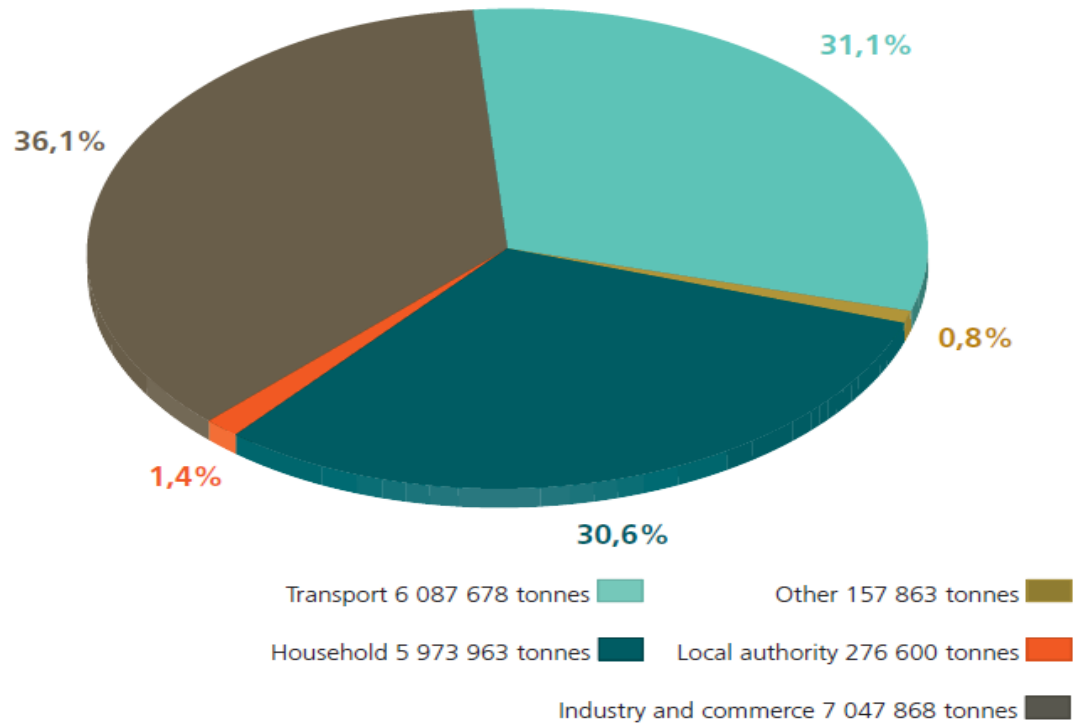


Figure 78: CO2 emissions by energy end-users for 2007 (State of Energy Report, 2008)



# COJ Integrated Transport Plan

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## COJ Transport Vision

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*“A safe and efficient transportation system, with a public transport focus, that will support a world class City; connecting businesses, people and places in a sustainable and cost effective manner and through this, improve the standard of living and quality of life of all the City’s inhabitants and the overall competitiveness and growth of the City’s economy.”*



## COJ Transport Vision

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## Modes of land transport

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- Public Transport
  - Public Passenger Transport
  - Minibus Taxis
  - Maxi Taxis
  - Buses
  - Rail –Gautrain, Metrorail
  - NMT Cycling and Walking
- Commercial Transport / Freight
  - Rail – Prasa
  - Heavy Commercial – Bulk Goods Transfer
  - Light Commercial – Small Parcels and Mail





## COJ ITP Considerations on public transport

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- Affordability – keeping public transport costs to households
- Convenience – accessible within 15 minutes walking distance and frequency
- Safety – a transport system with reduced crime, collision, injury, fatality and property loss rates
- Comfort
- Choice – a transport system that provides for choice in transport services



# COJ Growth and Development Strategy (GDS)



**Output 1:**  
Sustainable and integrated delivery of water, sanitation, energy and waste

**Output 3:**  
Sustainable human settlements

**Outcome 2:**  
Provide a resilient, liveable, sustainable urban environment - underpinned by infrastructure supportive of a low carbon economy

**Output 2:**  
Eco-Mobility

**Output 4:**  
Climate change resilience and environmental protection





## Programme 1 : Public transport, walking and cycling

- Roll out of Rea Vaya BRT
- Walking and cycling (non- motorised transport)
- Travel demand management
- Integrated and transformed mass-transit systems (GCR) implications

## Output 2: Eco-Mobility

## Programme 2: Transport infrastructure and movement

- Freight / logistics management
- Implementation of “Complete Streets”
- Congestion management
- Transport infrastructure construction, upgrading and maintenance
- Intelligent transport systems
- Road safety

## Outcome 2:

**Provide a resilient, liveable, sustainable urban environment -  
underpinned by infrastructure supportive of a low carbon economy**



## Lessons from the Transport GDS

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- ⊙ Considering a 'green fleet programme' across the City (Metrobus, Rea Vaya, city fleet and possibly taxi industry) that can in an organised way relate industry players
- ⊙ Integrated approach to green transport initiatives
  - Minerals and Energy - Regulatory framework
  - DTI Industrialisation Programme
  - Funding co ordination (Grants and debt funding)
  - Environmental Affairs - National Climate Change Committee
  - Economic Development – Enterprise and Skills Development
  - Business and Professional Associations
  - Labour
  - Cycle promotion programme
  - Disability



## Greening Jozi Transport: Fuels



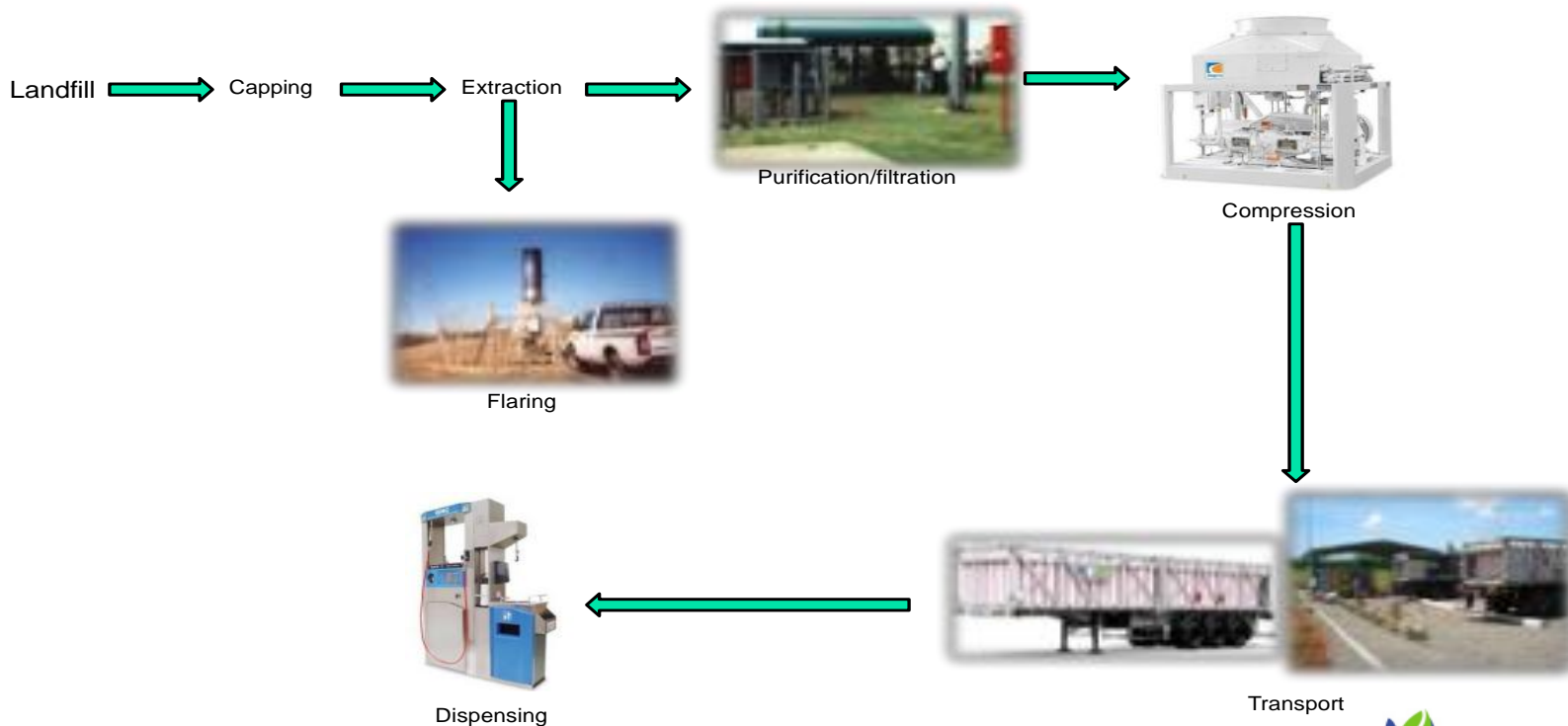
- ⦿ We believe that we should focus on a multi pronged approach to green fuels which should seek to optimally balance different sources of green fuels and transport.Eg

<b>FUEL/ENERGY TYPE</b>	<b>VEHICLE/INFRASTRUCTURE TYPE</b>
Bio Ethanol, Bio Diesel	Eg Freight,buses (heavy vehicles)
Biogas	Minibuses, COJ Fleet
Electricity	Maxi Taxis
Solar	Traffic and Street Lighting



# Biogas harvesting cycle

## "Gas chain" from landfill site to gas pumps



Private and Confidential © NOVO Energy (Pty) Ltd



- Vehicle conversion to alternative fuels such as:

- LPG
- CNG
- LNG
- Bio ethanol
- Bio diesel
- Electricity



- Gautrain





## COJ Transportation initiatives



- ⦿ Facilitate the establishment of local bus manufacture
- ⦿ Approximately a fleet of 134 BRT buses and 25 metrobuses with CO2 emissions used in the evaluation criteria
- ⦿ KFW COJ project to establish cycle lanes in Orlando
- ⦿ Side walks in Ivory park and Diepsloot to encourage walking amongst the community
- ⦿ Solar Traffic Lights
- ⦿ Possibility of solar operated bus shelters – 1400 bus shelters
- ⦿ Solar operated street lights
- ⦿ Using City Waste to generate biogas and use it for City Fleet
- ⦿ Minibus Taxi conversions to Biogas
- ⦿ Bio Ethanol/Diesel for buses and other heavy duty vehicles







## Considerations for using green fuels

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- Security of fuel supply – multiple supply points and possibility of additional backup of pipeline gas supply
- Reliability, efficiency and performance
- Excellent economics for vehicle owners
- Lower cost fuel for public transport – +ve impact on subsidies, ticket prices, improved service levels
- Excellent economics for the fuel producer with limited government subsidies
- Significant reduction in congested traffic pollution – dramatic reduction in more toxic pollutants (e.g. particulates, NO<sub>x</sub> and SO<sub>2</sub>) and associated illnesses
- Greenhouse gas emissions – CNG from renewable sources reduces GHG emissions by some 85%



# COJ Rea Vaya BRT System



*A **safe and efficient transportation system**, with a public transport focus, that will support a world class City; connecting businesses, people and places in a **sustainable and cost effective effective manner** and through this, **improve the standard of living and quality of life** of all the City's inhabitants and the overall competitiveness and growth of the City's economy."*



## Key components of BRT

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- ⊙ BRT works as a system with following key inter related components and assumptions:
  - Dedicated lanes on significant sections of the network
  - Clean high quality buses with high floor
  - Automatic fare collection
  - Private ownership of buses by public transport operators affected by introduction of BRT
  - City to pay determined fee per km for determined number of kms



## Contribution to CO<sub>2</sub> reduction

### Rea Vaya and the Carbon Market

- Largest public transport project undertaken by the City
- Plan is to “roll out **122 km** mainline *BRT* corridors served by **150 stations** and **250 km** formal feeder-routes...enabling access to **80%** of City’s residents”.

- Voluntary market – VCS
- Over 380,000 CO<sub>2</sub>e p/a





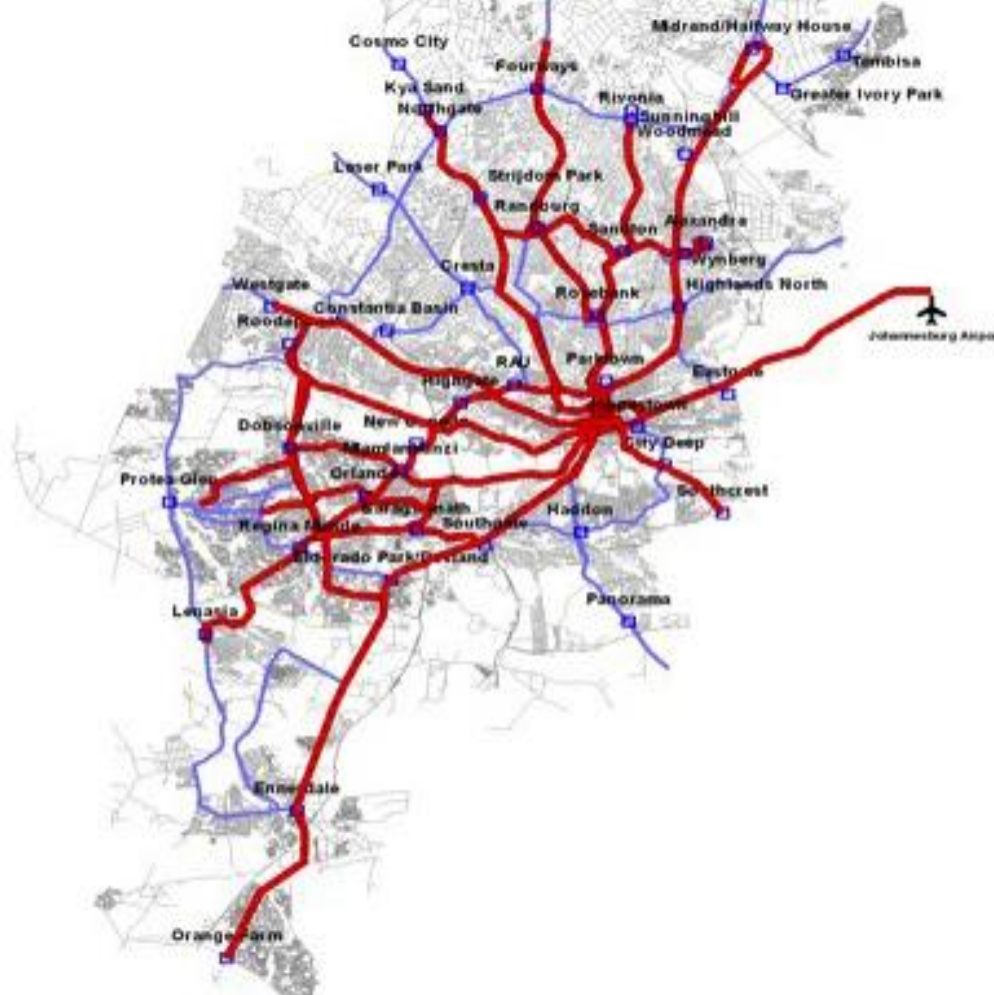
# Full BRT network for Johannesburg approved by Council in November 2006

## Full Phase 1:

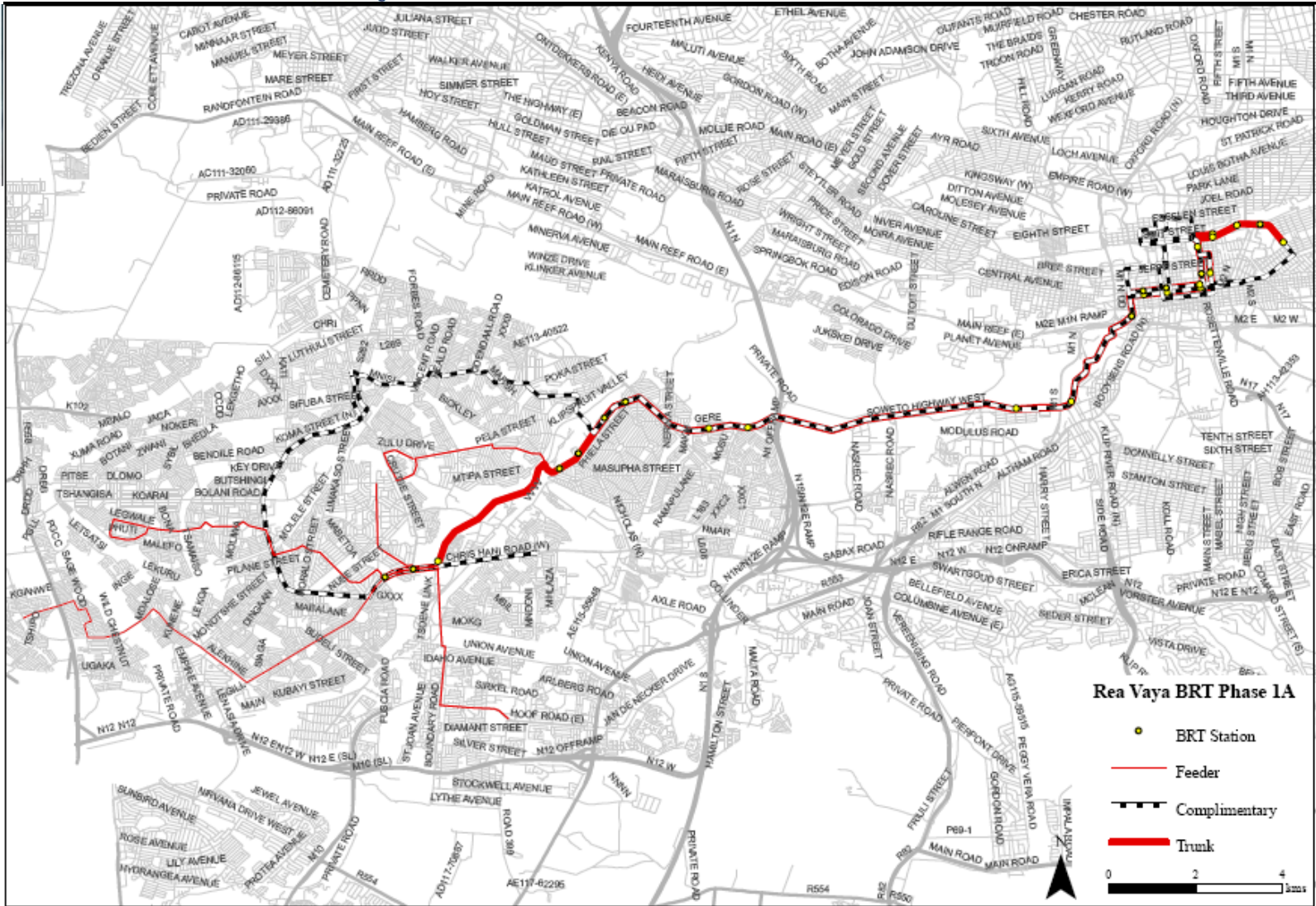
122 km route  
150 Stations  
805 Buses  
434 000 passengers per day

## Phase 1A:

25.5 km trunk  
27 Stations  
143 Buses  
70 000 Passengers per day



# Phase 1A Route



**Rea Vaya BRT Phase 1A**

- BRT Station
- Feeder
- - - Complimentary
- Trunk

0 2 4 km



# Phase 1A Soweto Feeder and Complementary Services

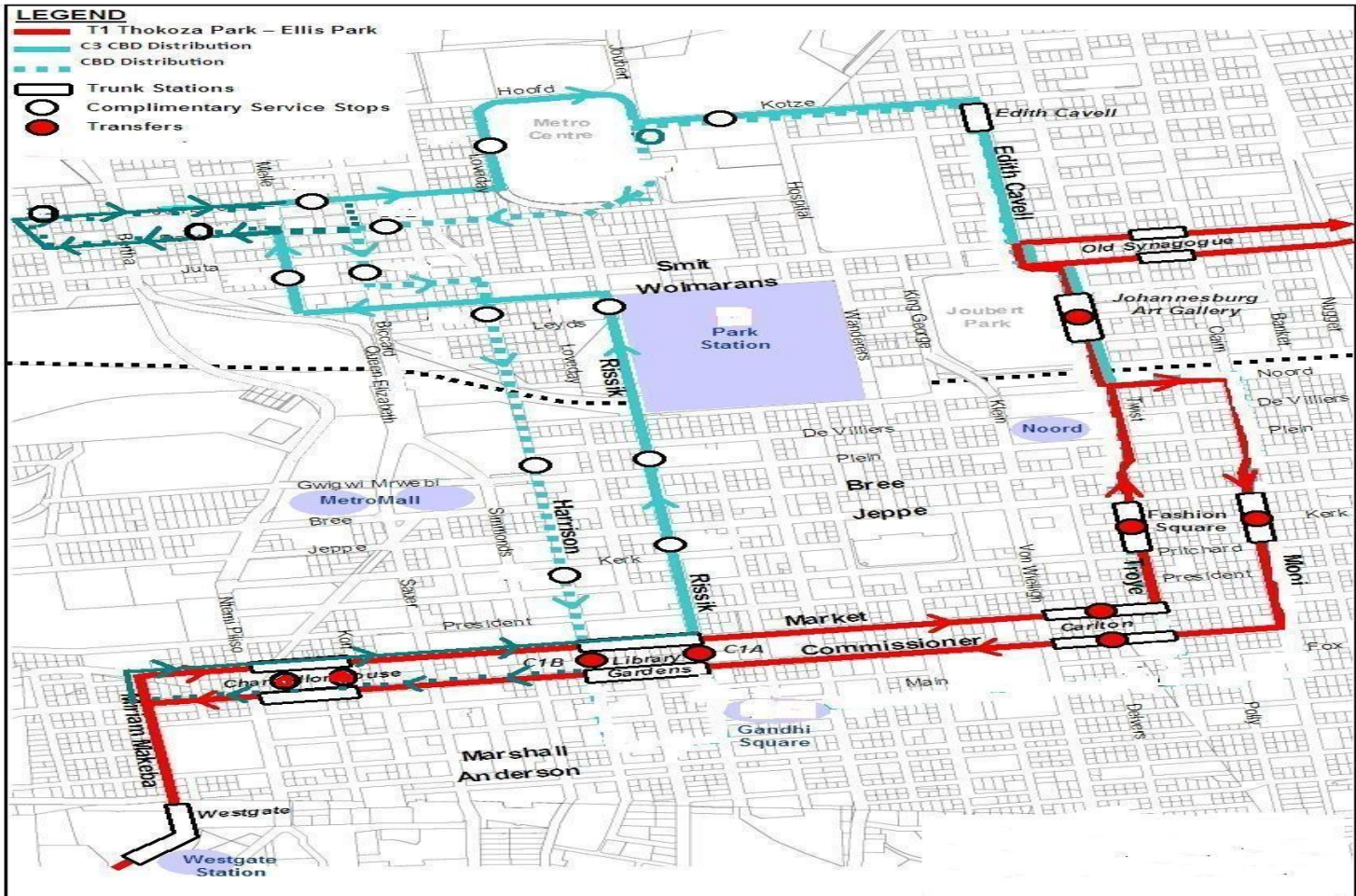




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# CBD distribution service



CBD DISTRIBUTION SERVICE VIA WITS, BRAAMFONTEIN AND HILLBROW





# Current service

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- ⦿ From March, increased the service offering to include:
  - **Feeder Services:** Protea Glen and Naledi via Thokoza Park Station; Eldorado Park and Jabavu via Lake View Station and Mofolo via Boomtown Station
  - **Complementary Services:** Dobsonville to CBD and CBD distribution Service
- ⦿ Services from 04:50 to 21:30 weekdays and 05:00 to 16:30 Saturdays. No Sunday and late night services.
- ⦿ 38 articulated and 80 complementary buses in use
- ⦿ Increased fees:
  - Trunk route moved from R5 to R6
  - To use feeder and trunk: R9.50,
  - CBD Distribution service: R3.50
- ⦿ From 11 800 passengers per day to current 50 000 per day
- ⦿ More than 900 trips per day



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# Some important facts

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- ⦿ 100% Taxi owned service through Piotrans the Bus Operating Company (BOC)
- ⦿ 322 Shareholders who were previously taxi operators
- ⦿ BOC has 585 issued shares at R54,000 per share
- ⦿ Over 200 drivers all previously taxi drivers
- ⦿ Carries about 50,000 passengers per day
- ⦿ Ticket price varies from R9.50 for longest distance to R3,50 for the Inner City route
- ⦿ More than 900 trips per day



# BRT Road construction



Services 'in the mud' at UJ

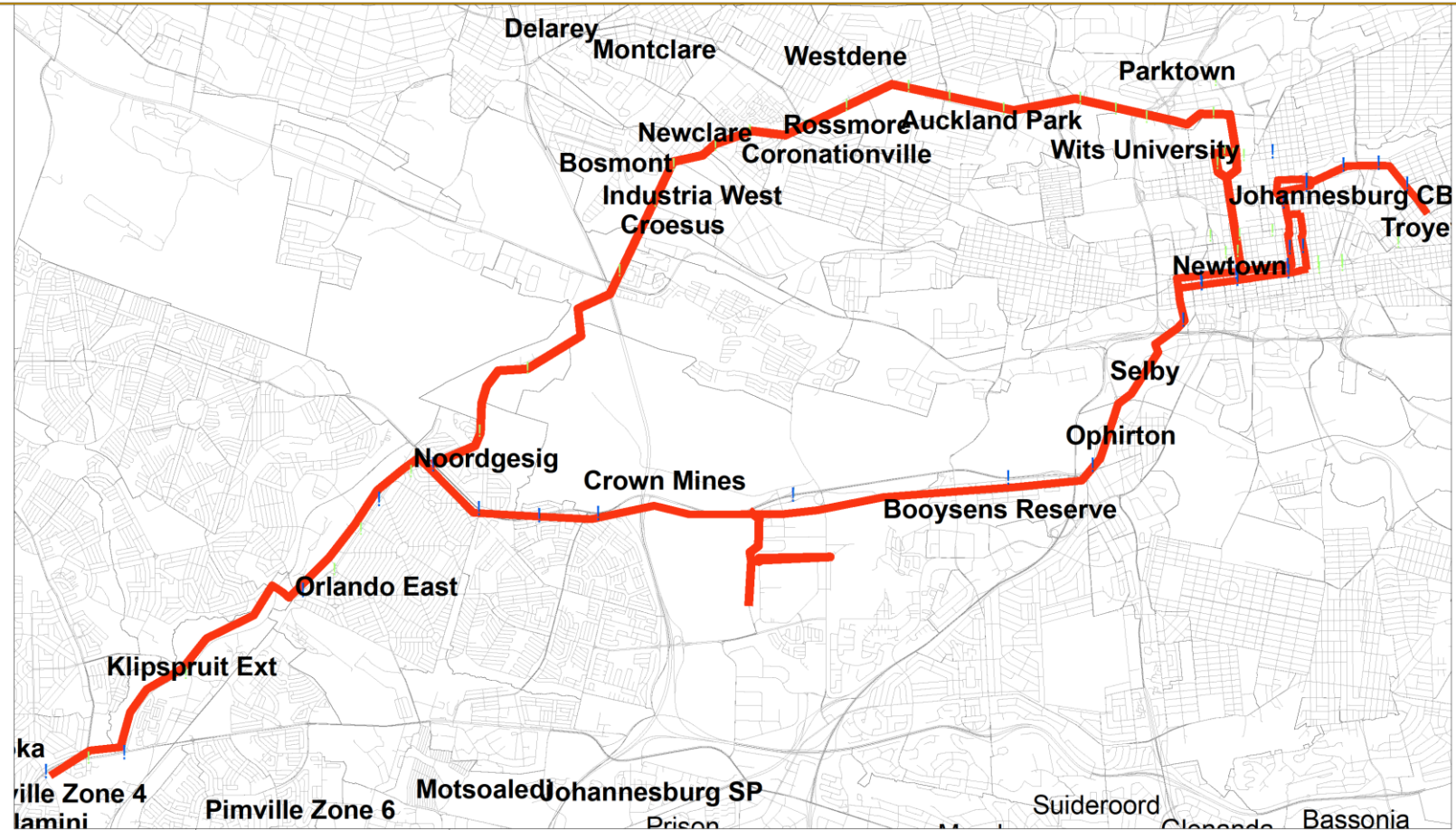
28/01/2010



# COJ BRT System



# Phase 1B: Planned extension to the current trunk route to be completed by third quarter 2011

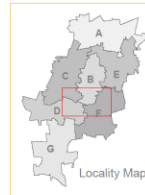


## REA VAYA BRT PHASE 1A & B TRUNK ROUTE

BRT Map

### LEGEND

- BRT\_Stations\_1a
- BRT\_Stations\_1b
- routes\_phase1b\_brt\_trunk
- routes\_phase1a\_brt\_trunk
- Road\_Centreline



1:16,921

City of Johannesburg  
TRANSPORTATION DEPARTMENT  
Telephone: 011 870 4500  
Date: 9 February 2010  
Compiler: Lucky Park  
Source: City of Johannesburg



Rea Vaya, We are going, Ons gaan saam

Thank you