

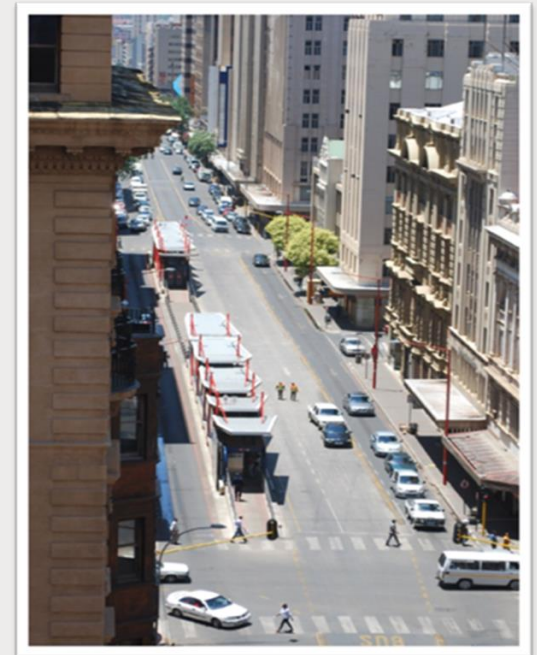


# **REA VAYA BUS RAPID TRANSIT SYSTEM CITY OF JOHANNESBURG: PERFORMANCE, PROGRESS, FUTURE**

National Parliament September 2017

# Agenda

- High level overview
  - *Objectives of Rea Vaya*
  - *Scope and scale*
  - *Chronology*
- Progress and performance
  - *Infrastructure*
  - *Operations*
  - *Finances*
  - *Bus company formation and empowerment*
- Institutional issues
- Achievements, impacts and risks
- What the future holds



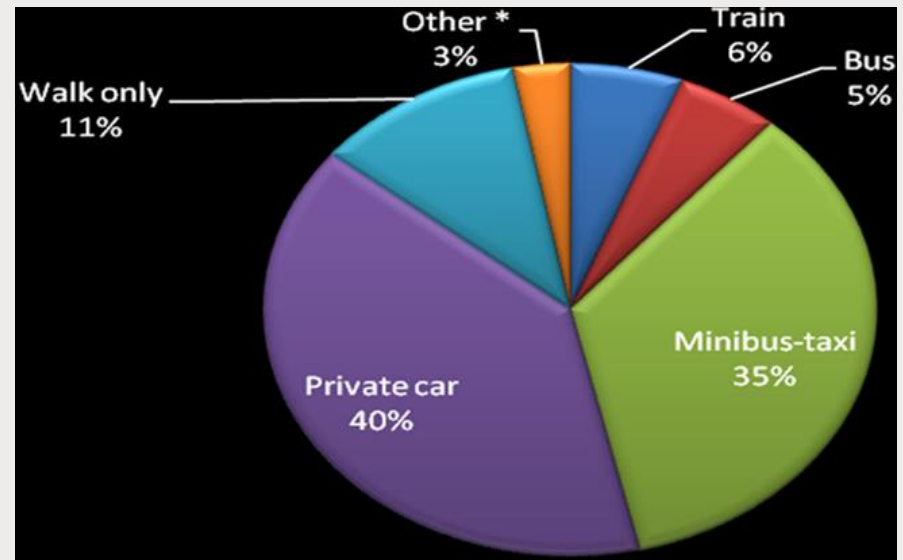
# HIGH LEVEL OVERVIEW



# Transport modes in Johannesburg

- The main modes are:
  - *Private vehicles*
  - *Mini bus taxis*
  - *Rail (Gautrain and Metrorail)*
  - *Bus (City bus fleet – Metrobus, provincial subsidised, Rea Vaya BRT, Gautrain bus)*
- New 'demand responsive' modes also active in Joburg:
  - *Metered taxis, Uber*
  - *Tuk tuks*

Specific challenges arise out of our apartheid spatial legacy (poor people on the periphery) and decades of car centred, security focused planning



Main mode to work

# Key political imperatives and policies shaping City's transport policy: 1

## National government

- National Development Plan: "By 2030, investments in the transport sector will ensure that it serves as a key driver in empowering South African and its people, enabling:
  - *Improved access to economic opportunities, social spaces and services by bridging geographic distances affordably, reliably and safely.*
  - *Economic development, by supporting the movement of goods from points of production to where they are consumed, facilitating regional and international trade.*
  - *Greater mobility of people and goods through transport alternatives that support minimised environmental harm."*
- National Land Transport Act (2009) providing a framework for regulation and transformation especially BRT, mini bus taxi
- Public Transport Strategy and Action Plan – supporting Integrated Rapid Public Transport Networks (BRTs) with 'seed capital' from Public Transport Infrastructure and Systems Grant in run up to Soccer World Cup and continuing

## Provincial government

- Global City Region
  - *Co-operate internally to compete effectively externally*
- 25 year Transport Master Plan
  - *Sees rail as a backbone complemented by BRT and mini bus taxis*

# Key political imperatives and policies: 2

## Growth and Development Strategy (GDS)

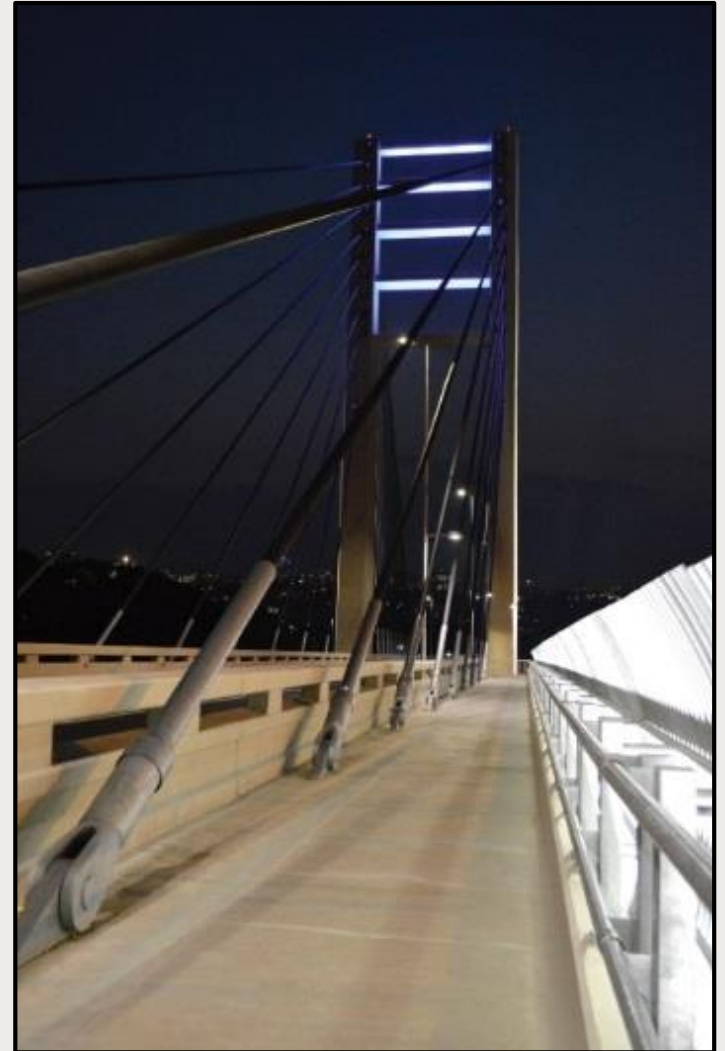
- Transport system is central to City economy and people
- Recognises potential of rail and BRT to create new foundation for public transport
- Getting people to change their mode of transport – shifting from the convenience of private to public transport – is about driving a new transport culture.
- Large-scale transport improvement programmes offer an ideal opportunity to create employment opportunities especially for young people
- Encourages NMT

## Integrated Development Plan (IDP)

- 9 priorities:
  - *Promote economic development and attract investment*
  - *Pro- poor development*
  - *Service delivery culture*
  - *Improved public safety*
  - *Anti corruption*
  - *Citizen responsiveness*
  - *Financial sustainability*
  - *Innovation and smart city*
  - *Preserve resources*
- Rea Vaya well aligned to priorities especially first three and last

# Transport sector priority areas

- Integrated public transport planning
- Implementation, contract management and transformation of scheduled services:
  - *BRT*
  - *Metrobus*
  - *Provincial subsidised services*
- Public transport facilities (interchanges, ranks)
- Complete streets (sidewalks, cycle lanes, lighting, landscaping)
- Road and mobility (JRA)
- Freight management
- Job creation, capacity building and empowerment
- Regulation and law enforcement in partnership with province and JMPD





# REA VAYA BRT OVERVIEW





# Why did the City decide on bus rapid transit?

## At the time....

- Had potential to address number of City imperatives and objectives including provision of affordable quality public transport, urban restructuring, BBEE, catalyse public transport transformation and reduce air pollution and green house gas emissions
- Provided opportunity to deliver within relatively short time frames – and in time for 2010 Soccer World Cup
- City was impressed by experience in South America particularly in respect of transformation of experienced operators
- Price sounded compelling and affordable at the time
- Could be retrofitted on existing road system and no need for reserved servitudes

## Met the following short term objectives:

- Efficient, reliable and frequent public transport services
- Affordable fares
- Safe and secure
- Accessible
- Decrease in traffic congestion, energy consumption and vehicle emissions
- Enhanced urban environment
- Job creation and income generating opportunities

## Medium and long term benefits envisaged:

- Containment of urban sprawl and TOD
- Promotion of social cohesion
- Economic development around BRT

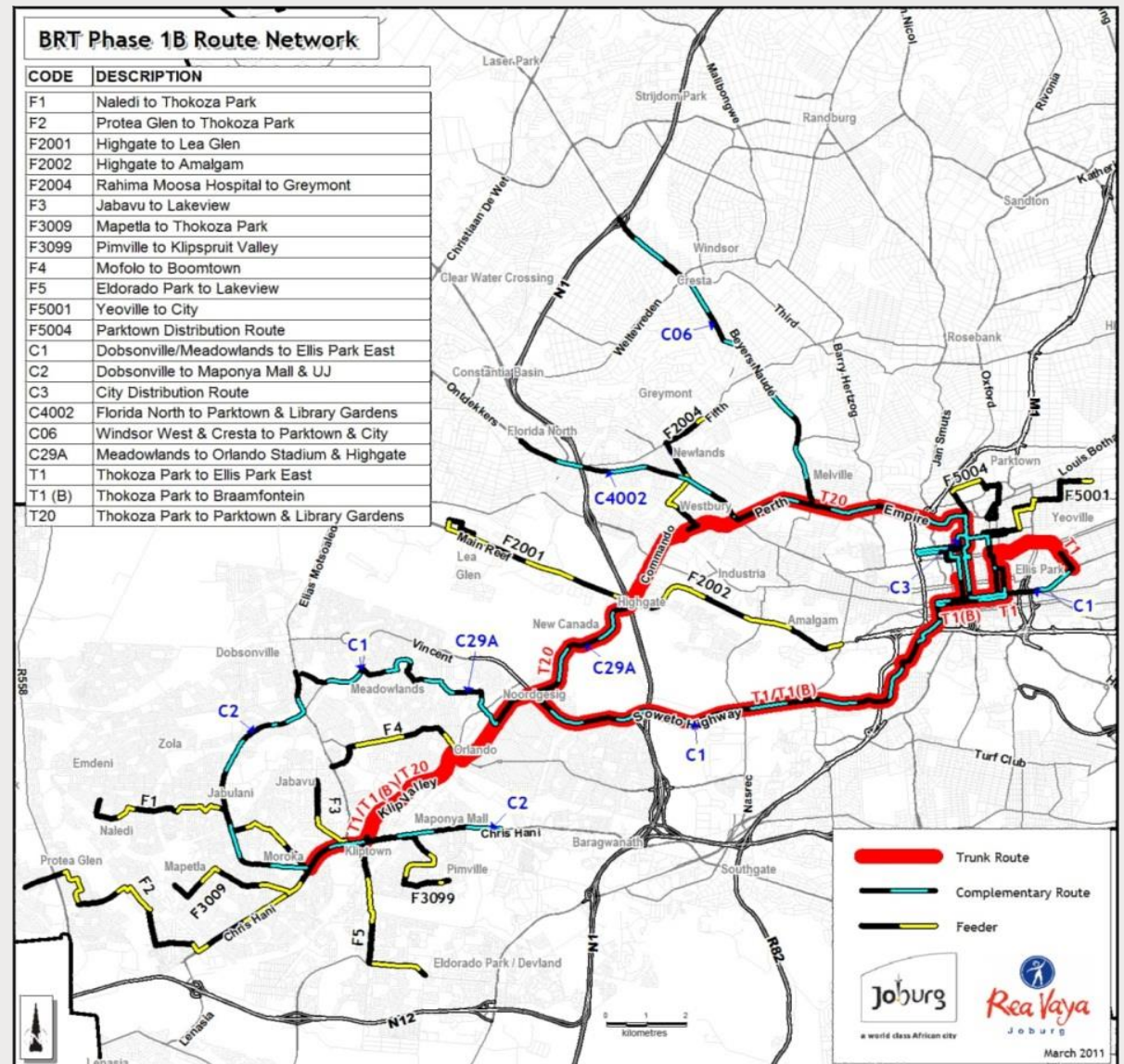
# Rea Vaya Bus Rapid Transit (BRT) objectives

- Fast, safe, reliable and affordable public transport
- Public transport transformation - including of mini bus taxi industry to prosperous transport businesses
- Spatial restructuring
- Broad based black economic transformation
- Mitigate against climate change and reduce air pollution with 'clean buses'
- Promote livable and competitive city

Rea Vaya means  
“We are going”



# Phase 1A and 1B services in operation



# Key facts: Phase 1A and 1B

**53 000 passenger  
trips per day  
(average week day)**

## Phase 1A: Started August 2009

- 25k of trunk route (dedicated) for 18 m articulated buses
- 3 complementary and 5 feeder routes using 13 m buses and covering 75.8 km
- 30 Rea Vaya stations service passengers
- 143 Euro 1V buses
- Over 6000 short term employment opportunities, 830 permanent employment
- 585 taxis taken off competing routes

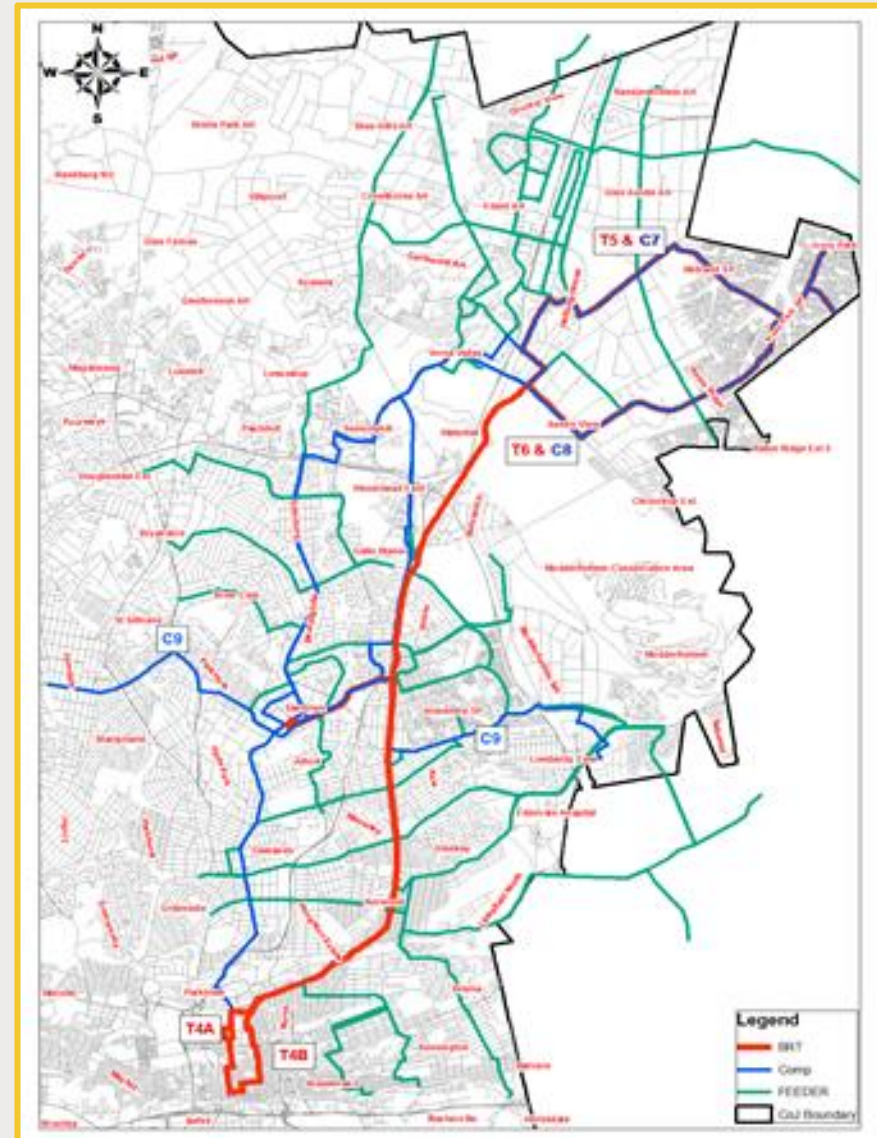
## Phase 1B: Started Oct 2013

- 18km of dedicated trunk route
- 3 complementary and 7 feeder routes covering 90.9km
- 18 more stations
- 134 Euro V buses
- 9286 construction jobs created during Phase 1B
- 312 taxis have been taken off the road



# Key facts: Phase 1C

- Trunk routes between:
  - Sandton, Alex, CBD (IC(a))
  - Sandton, Alex, Ivory Park
- Complementary services:
  - Ivory Park, Midrand and Sandton
  - Greenstone, Alex, Sandton, Randburg
- Main and feeder taxi services
- Services will be introduced from October 2018 (Phase 1 C(a) to Alex, Sandton, Greenstone) until 2023.
- Total buses needed are: 236 artics and 136 rigids, first phase will require 109 artics and 32 rigids
- Passenger trips per day expected will be 46,000 in 2018 to 89 000 in 2021



# Projected future roll out on Integrated Public Transport Network

Delete

Services and integration	RV Trips
Rea Vaya BRT T1, T2, T3, F1- 12, C1 - 6 Rea Vaya BRT T4, C7	100,000
Metrobus restructuring	120,000
Possible restructuring of provincial subsidised contracts	125.000
Rea Vaya BRT T5, T6, C8 and C9	130.000
	150,000

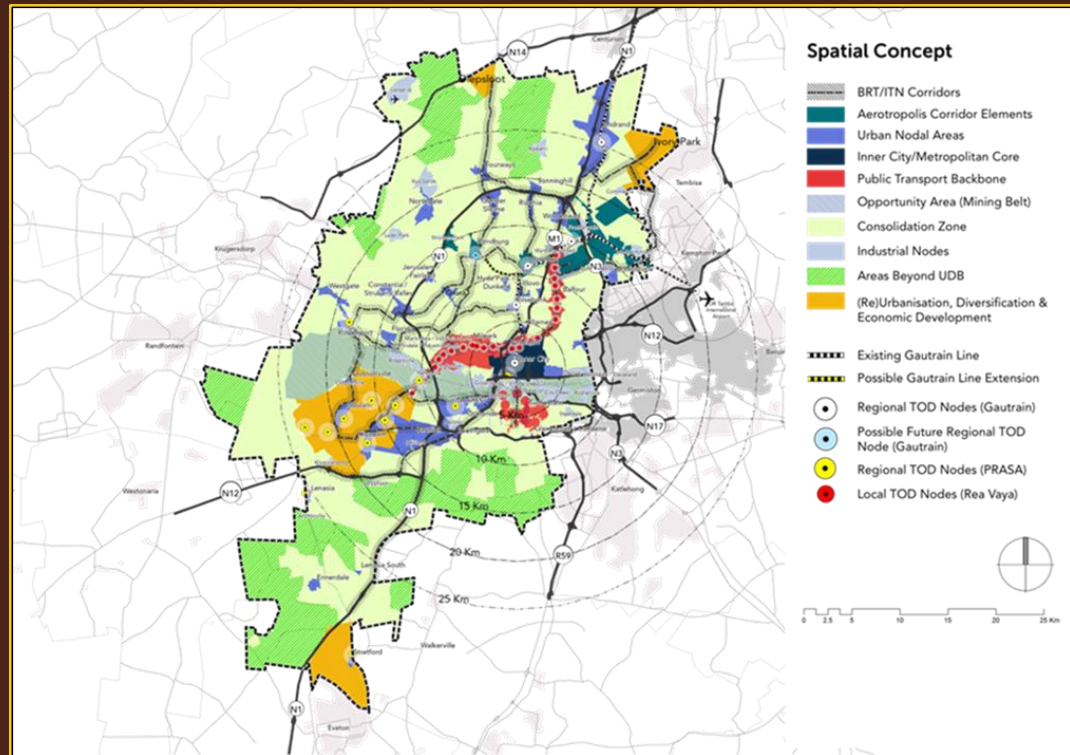
# PROGRESS AND PERFORMANCE

- Planning and integration
- Infrastructure
- Buses
- ITS
- Operations
- Transformation





# PLANNING AND INTEGRATION



# Public transport planning instruments

## Strategic ITP Framework

- Overview and reflection of status quo
- Strategic thrusts
- High level network
- Indicators
- Standards

## Transport Information Management System

- Household survey
- Stated preference survey
- Traffic counts
- EMME model
- Data from various transport master plans

## Strategic plans

- Strategic Integrated Transport Network Plan
- Public transport network hierarchy
- Passenger access typologies
- High level network
- SITPN Implementation plan
- Road network hierarchy
- NMT framework
- Freight management plan

## Tactical plans

- Public transport operational and business plans
- Transport master plans for catchment areas, nodes, precincts
- Operating license strategies

## Business or operational plans

- Transport sector plan
- Business plans for Metrobus, JRA and Transport Department
- Business plans for Rea Vaya BRT phases

Underpinned by Transport Governance Framework

# Transport planning priorities

- Integration with land use: promotion of Transit Orientated Development as well as growth of CBD's
- Integration of modes: Best mode for level of demand, efficient transfers
- Integration with walking and cycling: Every trip begins with walking – need for completing our streets to make them safer and accessible
- Recognition of the role of 'demand responsive'/last mile in a situation of urban sprawl
- Affordability for passengers and sustainability for the City
- Transformation of all aspects of the public transport sector with a focus on mini bus taxi sector
- Contribution to a sustainable future (GHG and air pollution reduction)



**Transport  
planning goes  
beyond  
IPTN/BRT  
planning**

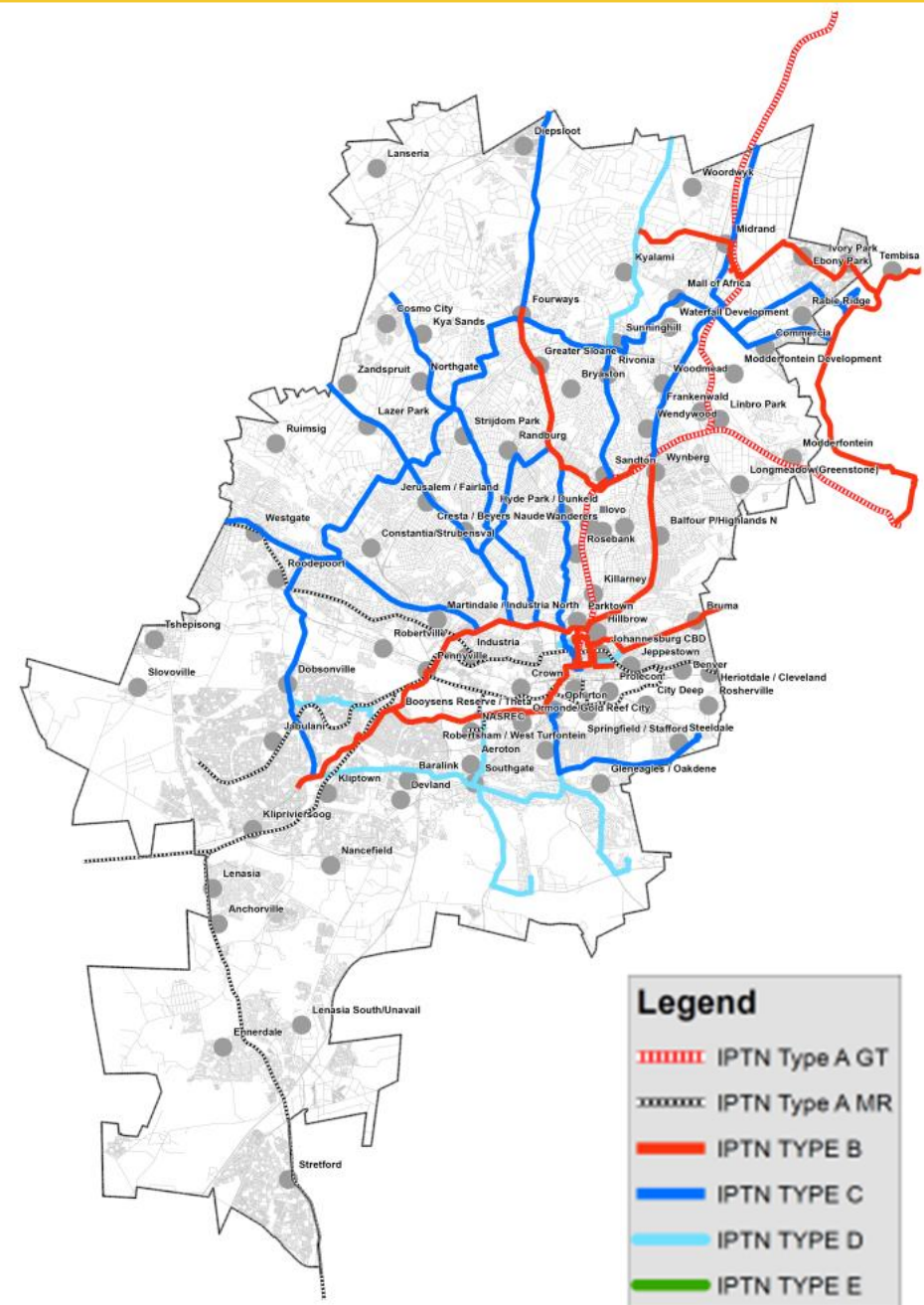
# Public Transport Network Hierarchy

MODE CATEGORIES	TYPOLOGY	DEMAND	MODE	FUNCTION AND FEATURES
Rail Public Transport Network	SIPTN-Type A	9000-15000	Gautrain, Metro Rail	<ul style="list-style-type: none"> <li>To move people quickly from area of high residential to areas of employment/income opportunities</li> <li>Limited stops. (closed stations)</li> </ul>
Rapid Road Public Transport Network (High Capacity)	SIPTN-Type B	6000-9000	Bus Rapid Transport, Light Rail, Rapid rail	<ul style="list-style-type: none"> <li>Corridors of Freedom, mixed use development , three story residential</li> <li>To move people quickly from area of high residential to areas of employment/income opportunities</li> <li>Limited intersections and right turns so buses can be relatively speedy</li> <li>Limited mostly closed high or low floor stations</li> </ul>
Road Public Transport Network (Medium Capacity)	SIPTN-Type C	3000-6000	Bus Rapid Transport	<ul style="list-style-type: none"> <li>Corridors of Freedom and areas where the City wants to densify along the corridor</li> <li>Mixed use development, Three story residential, social housing along corridor.</li> <li>Fairly frequent closed and opens low floor stations and some stops</li> </ul>
Road Mixed Traffic Public Transport Network (Medium to Low Capacity)	IPTN-Type D	1000-3000	Bus (Double Decker, Standard)	<ul style="list-style-type: none"> <li>Frequent stops with shelters</li> <li>Some public transport priority (e.g. queue jumping)</li> <li>On street stopping by public transport vehicles</li> <li>Low to medium density</li> </ul>
Road Mixed Traffic Public Transport Network (Low Capacity)	IPTN-Type E	500-1500	Bus ( Standard, Mini bus)	<ul style="list-style-type: none"> <li>Frequent stops with lay by es and shelters</li> <li>Low to medium density</li> </ul>
Road Mixed Traffic Public Network (Demand Driven)	IPTN-Type F	<500	Bus, Taxi, Demand responsive (e.g. ehailing)	<ul style="list-style-type: none"> <li>Low to medium density</li> <li>Mostly stops or e-hailing</li> </ul>

# Approved Strategic Integrated Transport Plan Network

Expected roll out:

- 2018: CBD, Alex, Sandton
- 2019: Restructuring of Metrobus routes to West and South
- 2020/2023: Soweto to Sandton via Randburg
- 2021/2023: Ivory Park, Midrand to Sandton/CBD





# How we are achieving integration

BRT is no longer a stand alone project but:

- Third phase will see integration between BRT, Metrobus, Provincial buses, mini bus taxis
- Metrobus turn around plan is part of integrated City wide transport plan
- Significant attention is being paid to integration at nodes e.g. Gandhi Square (Metrobus/Rea Vaya), Park Station (rail, bus, mini bus) and Sandton CBD (rail, bus, mini bus)



- Other initiatives include:
  - Common commuter shelters for all modes
  - Pedestrian and cycle walk ways to Rea Vaya stations and stops
  - Park and rides at key Rea Vaya stations
  - Exploring other kinds of managed/public transport lanes in future phases



# INFRASTRUCTURE (INCLUDING BUSES AND INTELLIGENT TRANSPORT SYSTEM (ITS))





# Infrastructure guiding principles

- Simple, cost effective, “modular” design
- Capable of rapid implementation
- Simplicity of operation
- Ease of maintenance
- Universally accessible
- Maximum utilization of natural resources in buildings(light, ventilation)
- Innovation
- Specific “look and feel” for Johannesburg
- Maximum utilization of local resources and products
- Maximum potential job creation
- Attractive – public art



# Rea Vaya infrastructure components: 1



## Dedicated road ways in median

- Delivers on reliability, safety and speed
- Lane infringement a challenge
- Dedicated Bus bridge over M1 for third phase



## Stations

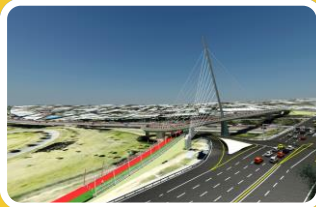
- Well designed, attractive, safe, iconic, universally accessible
- Are improving design to include public toilets, reduce costs of construction and operations



## Interchanges

- Successful taxi/bus interchange In Dobsonville with park and ride
- Building more at Park, Gandhi, Sandton for integration between modes

# Rea Vaya infrastructure components: 2



## Non-motorised transport

Pedestrian and cycle walk ways to Rea Vaya stations/stops

Dedicated safe walk and cycle way between Alexandra and Sandton CBD – to cater for 10 000 people that walk each day

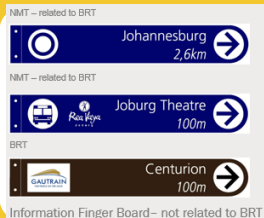


## Depots and holding areas

State of art facility in Meadowlands, Soweto for bus maintenance, holding and holding area in Booyssens

Building depots in Selby, Alex, Midrand for future phase

Loan for use to the BOCs



## Way finding and signage

In stations and towards stations

Aimed at pedestrians and public transport users

Universally accessible



# Universal accessibility

- Progressive implementation of universal accessibility – for people with disability, elderly, those with luggage and prams etc.
- Improvements have included shifts from:
  - *High floor to low floor stations (with significant cost and transit implication)*
  - *Wheel chairs lifts to low entry buses with cassette*
  - *Significant tact tile way finding paving in and around the stations and alongside shelters and stops*
  - *Greater attention to fonts and colours on signage, website and Vaya Moja app*



# Bus numbers and specifications

Have gone as green  
as is feasible and  
affordable

What	Phase 1A	Phase 1B	Phase 1C
13 m (rigid)	102	93	32
18 m (artics)	41	41	108
Height	High entry	High entry	Low entry
Emission stds	Euro IV, diesel	Euro V, diesel and add Blue	To ask bidders for Euro V and VI, diesel & gas
Manufacturer (chassis)	Scania	Marco Polo	
Manufacturer (body)	Mercedes	Marco Polo	
Local content	Fully imported	Over 80% local content	To spec over 80% local content



# Bus ownership and funding

Phase 1A	Phase 1B	Phase 1C
City facilitated financing from Brazil Export Credit Agency (to BOC with City being guarantor)	Buses procured with grant funds. Will be transferred to BOC by year 6 pending performance and compliance with MFMA	Propose that buses are procured with City funds and transferred to BOC by year 6 as per Phase 1 B  Further buses can be financed by BOC if sustainable



Phase 1B rigid



Phase 1C articulated – low entry

# Intelligent Transport Systems: Components



What	Detail
Communication network (ICT)	<ul style="list-style-type: none"><li>• Fibre optic cable network</li><li>• Wifi (to transfer data from buses to data centres)</li><li>• Data centres including servers and cloud capacity</li><li>• Back up power (critical for the above to be stable)</li></ul>
Bus management and contract monitoring (used to be APTMS)	<ul style="list-style-type: none"><li>• CCTV cameras on buses, stations, road</li><li>• Communication between buses, stations and control room to enable bus scheduling, passenger information and incident management</li></ul>
Automatic fare collection	<ul style="list-style-type: none"><li>• Point of sale equipment including automatic vending machines</li><li>• Fare medium e.g.. smart cards</li><li>• Validators on buses and at stations</li><li>• Banking partner</li></ul>
Other	<ul style="list-style-type: none"><li>• Vaya Moja passenger information app</li><li>• Biometric system to control access to cashier booth and servers at stations</li><li>• Business Intelligence tool to enhance decision making, reporting and information gathering on passengers and revenue</li></ul>



# Intelligent Transport Systems



## Performance

- We implemented bus monitoring and automatic fare collection systems – a first for Africa and in respect of bank based fare collection – the first in the world at the time
- We have faced challenges of:
  - *Reliable source of power – cable theft and construction disruptions*
  - *Imported and rapidly changing technology*
  - *Lack of sufficient skills amongst City officials and service providers*
  - *Contract management with multiple complex contracts*
  - *Smart systems do not necessarily reduce cash shortages*

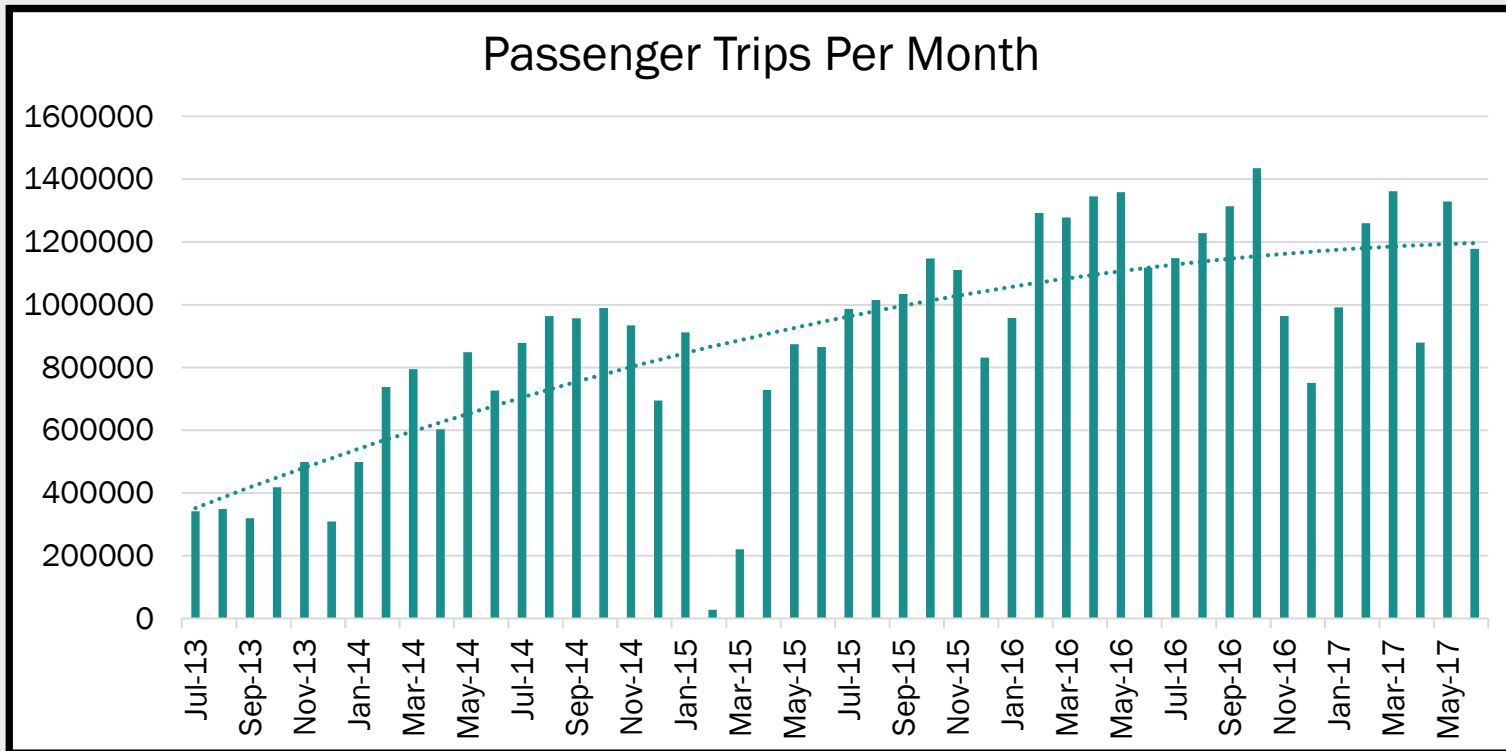
## Lessons and way forward

- Mixed acceptance by passengers
- Customer focus and affordability should take precedence over integration of ticketing systems
- Going forward we are changing requirements to:
  - *Be more robust: static vs variable signs, App to complement next bus messages at stations*
  - *More automation of fare collection systems to reduce cash shortages*
  - *More integration with other City systems e.g. broad band*
  - *Prefer local players and create opportunities for innovation for local firms*

# OPERATIONS



# Historical and current passenger numbers and revenue



- Fluctuations due to holiday patterns and labour strikes.
- Labour stability and performance improved over last two years.

# Operational features

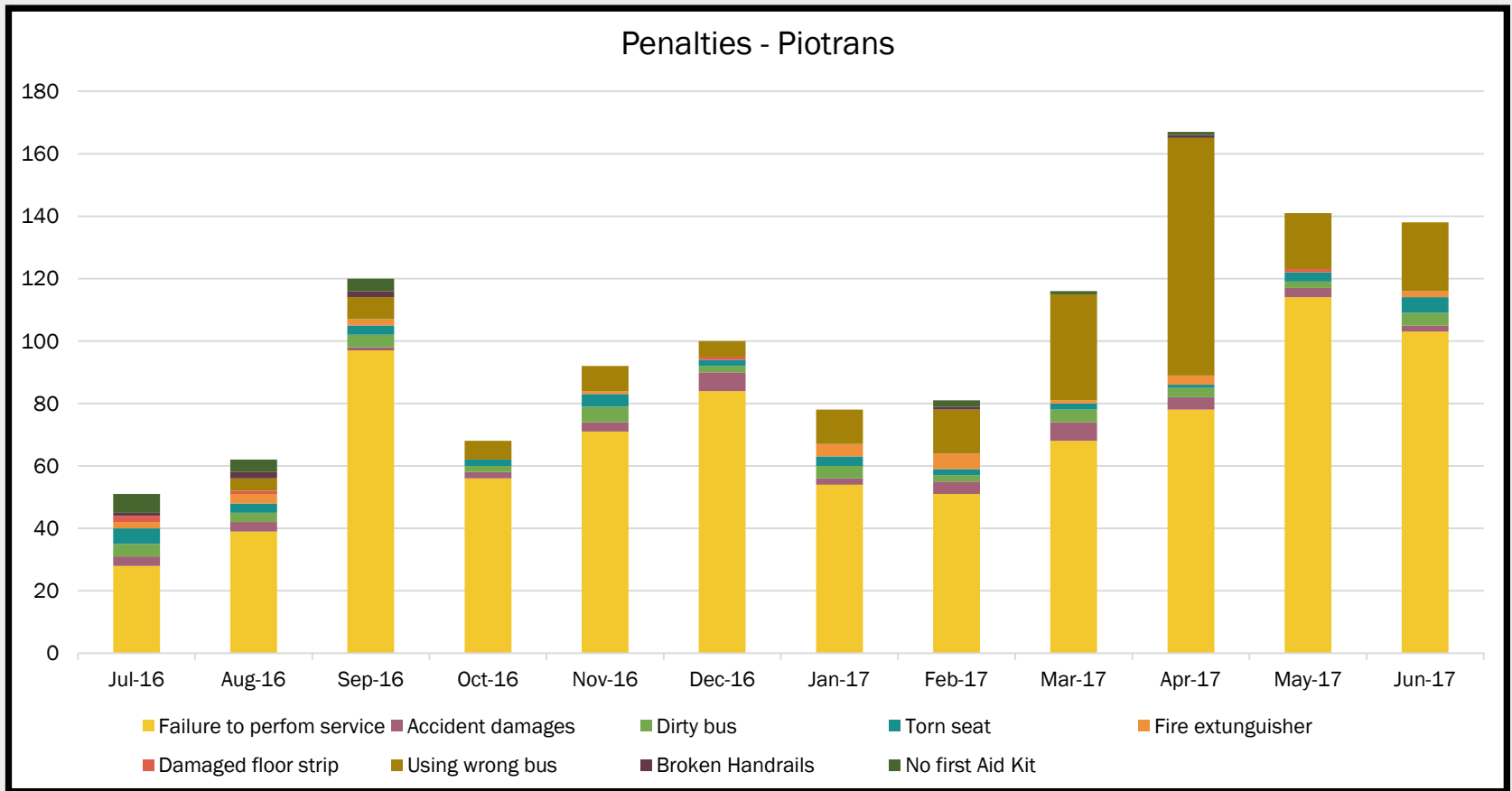
- Strong one-direction passenger demand due to geographic residential and workplace segregation: 90/10% split on destination vs. return to origin demand in peak
- More than 90% of passengers use at least two bus trips to complete their journeys.
- The average journey length per passenger is 20 kilometer (typical long trips)
- Peak frequencies: 2 – 5 mins and off peak 15 – 30 mins

Trunk Journeys	Average speed
Normal Peak - Tokhoza Park to Ellis Park	30 kmph
Normal Peak – Westgate to Ellis Park (CBD)	11 kmph
Normal Off-peak - T Park to E Park	32 kmph
Express Peak – T Park to E Park	34 kmph

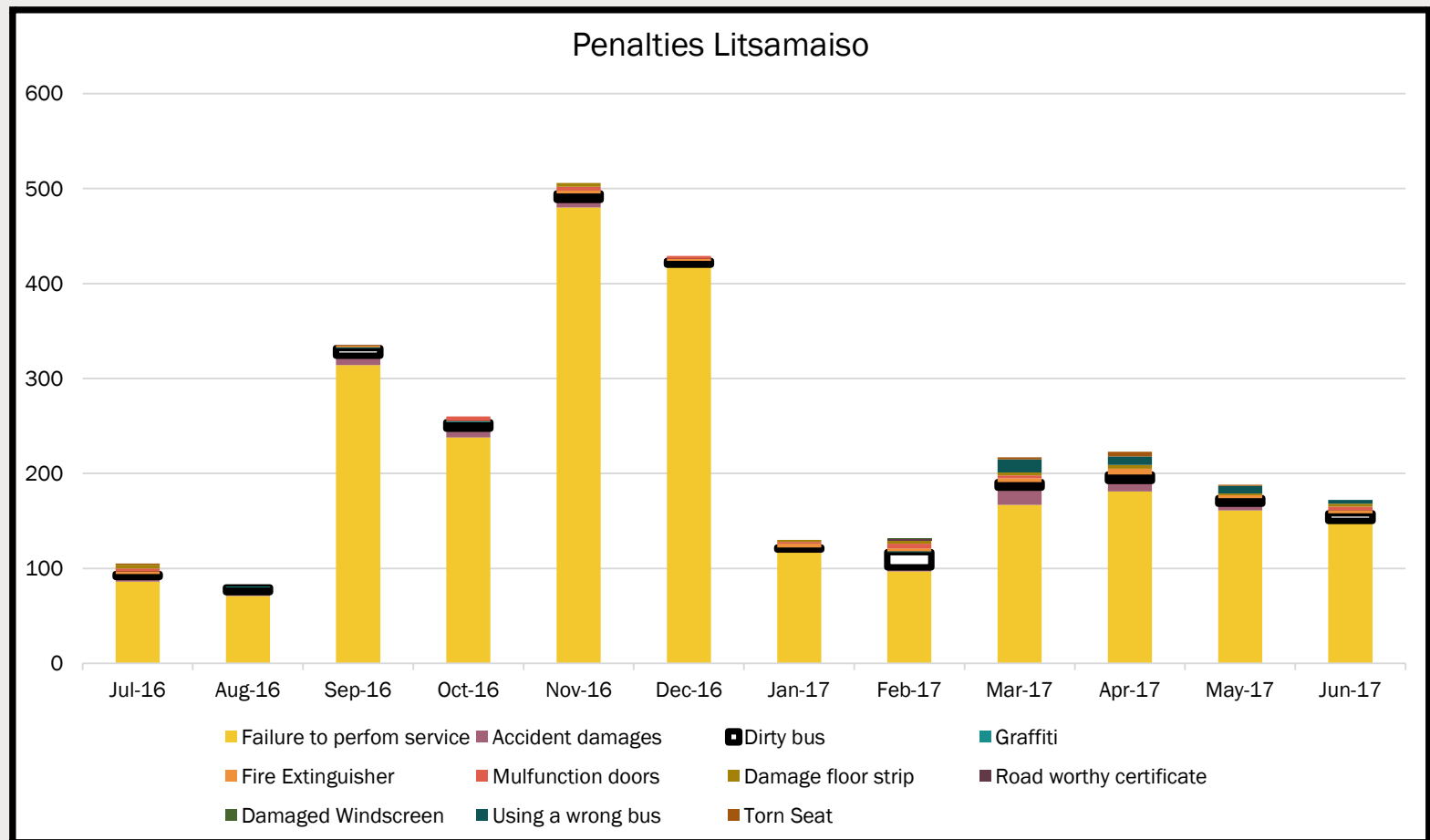
## Passenger flow

- Two-way morning peak flow on Trunk between 06:00 and 08:00 is 3 700 passengers per hour
- Afternoon peak is more spread out with two-way flow of 2 400 passengers per hour between 16:00 and 18:00.
- Off peak two-way flow is around 1 100 per hour

# Bus operating company performance: Piotrans

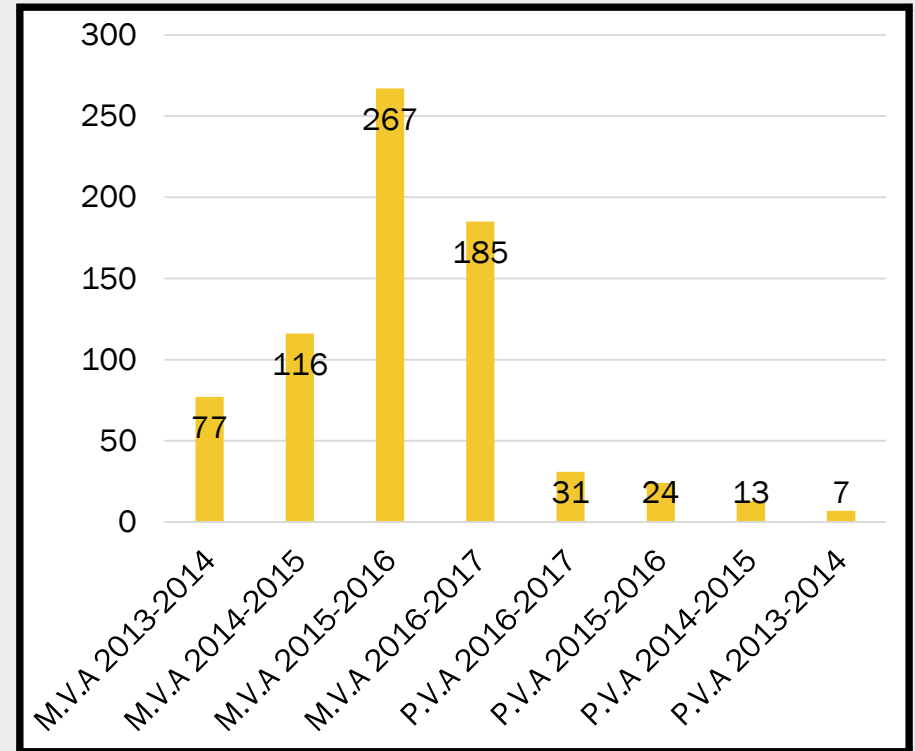


# Bus operating company performance: Litsamaiso



# Safety and security

- High stations are perceived to be safe
- CCTV camera network both outside and inside the stations



Motor vehicle and pedestrian accidents

**Very few incidents of crime  
at our stations or on our  
buses**



# Lane infringement

- Lane infringement is a serious problem – especially due to lack of effective enforcement (AARTO implementation challenges)
- Dedicated JMPD officers with 14 vehicles used to manage lane infringement but with limited success
- Since July 2017, we have increased to 36 vehicles with much higher success rate



Bus and pedestrian only bridge over M1



# FINANCIAL PERFORMANCE



# Funding and financing: Source of contributions

City fare  
policy  
determines  
fares which  
are distance  
based and  
affordable

## National government covers:

- All infrastructure costs
- Infrastructure maintenance
- System ancillary costs (station management, control centre operations, fare collection services, information and marketing, insurance, ITS maintenance, etc.)
- Transformation and transitional costs
- Compensation for economic rights of existing operators

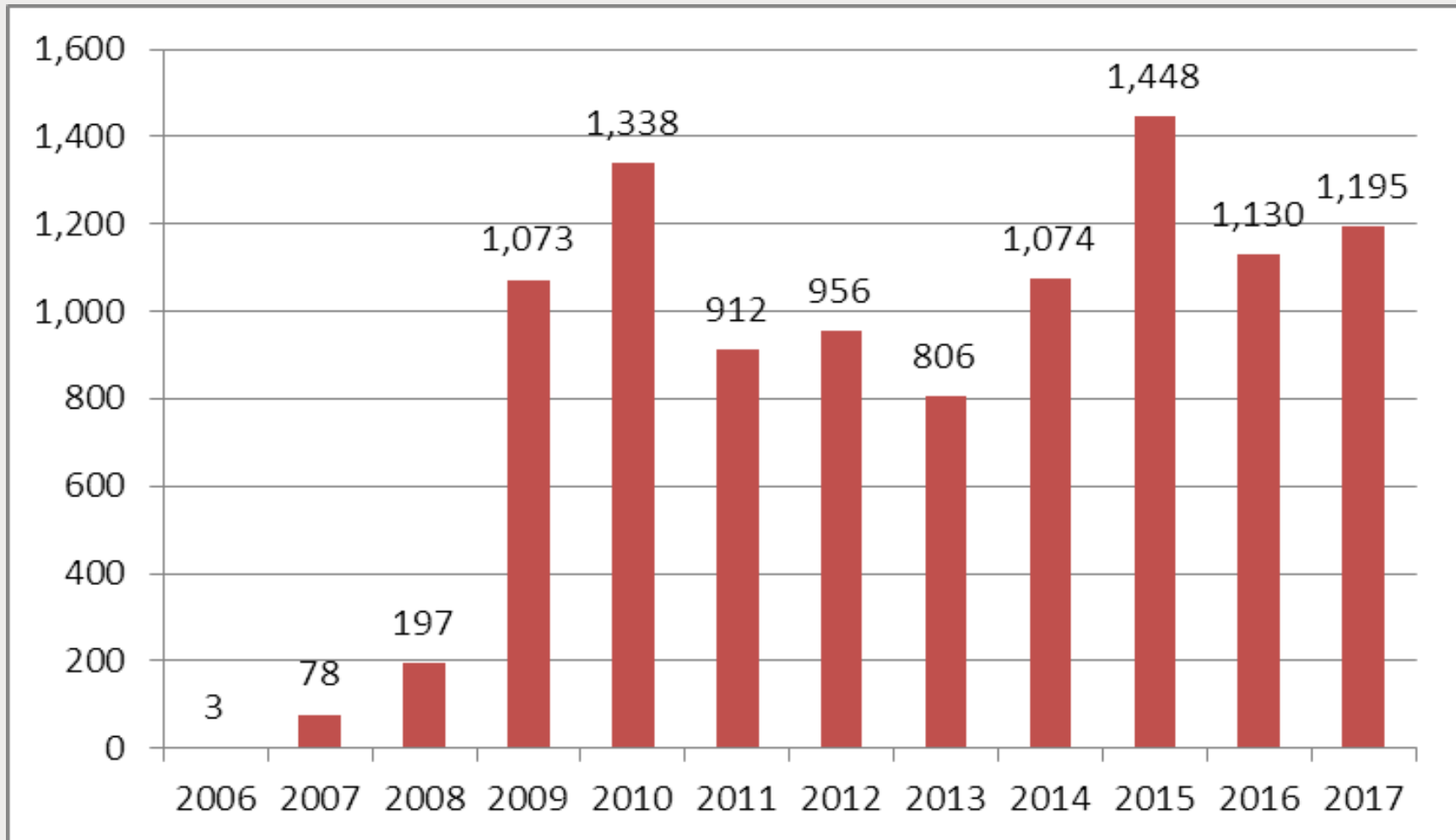
## Fare revenue is expected to cover

- Direct vehicle operating costs consist of fuel, labour, operator administration and vehicle maintenance

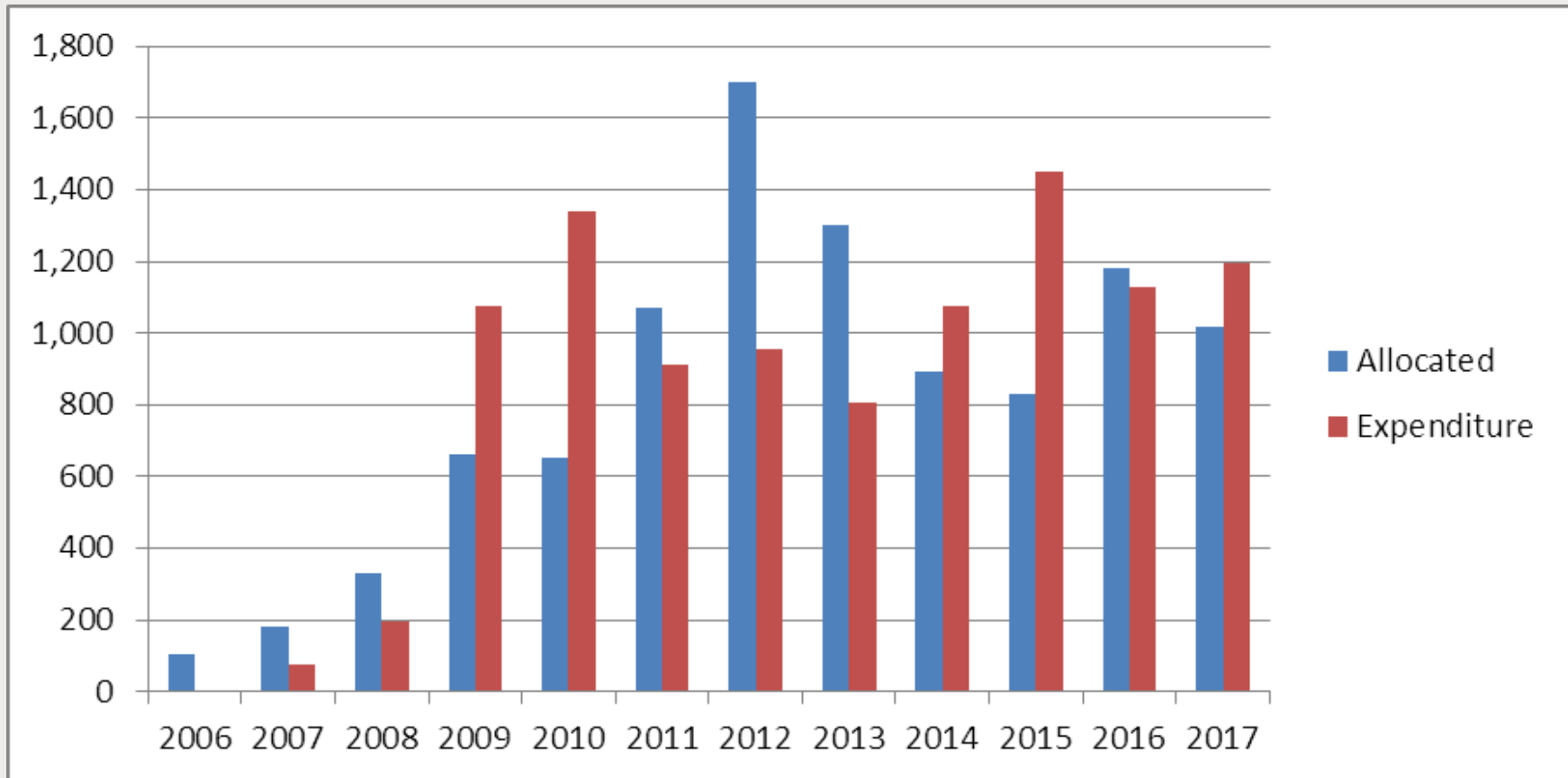
## City of Johannesburg is expected to cover

- Vehicle operating cost of the contracted vehicle operators not covered from fare revenue
- Network authority institution cost (head office and station staff salaries)

# PTN Grant expenditure up to end of June 2017



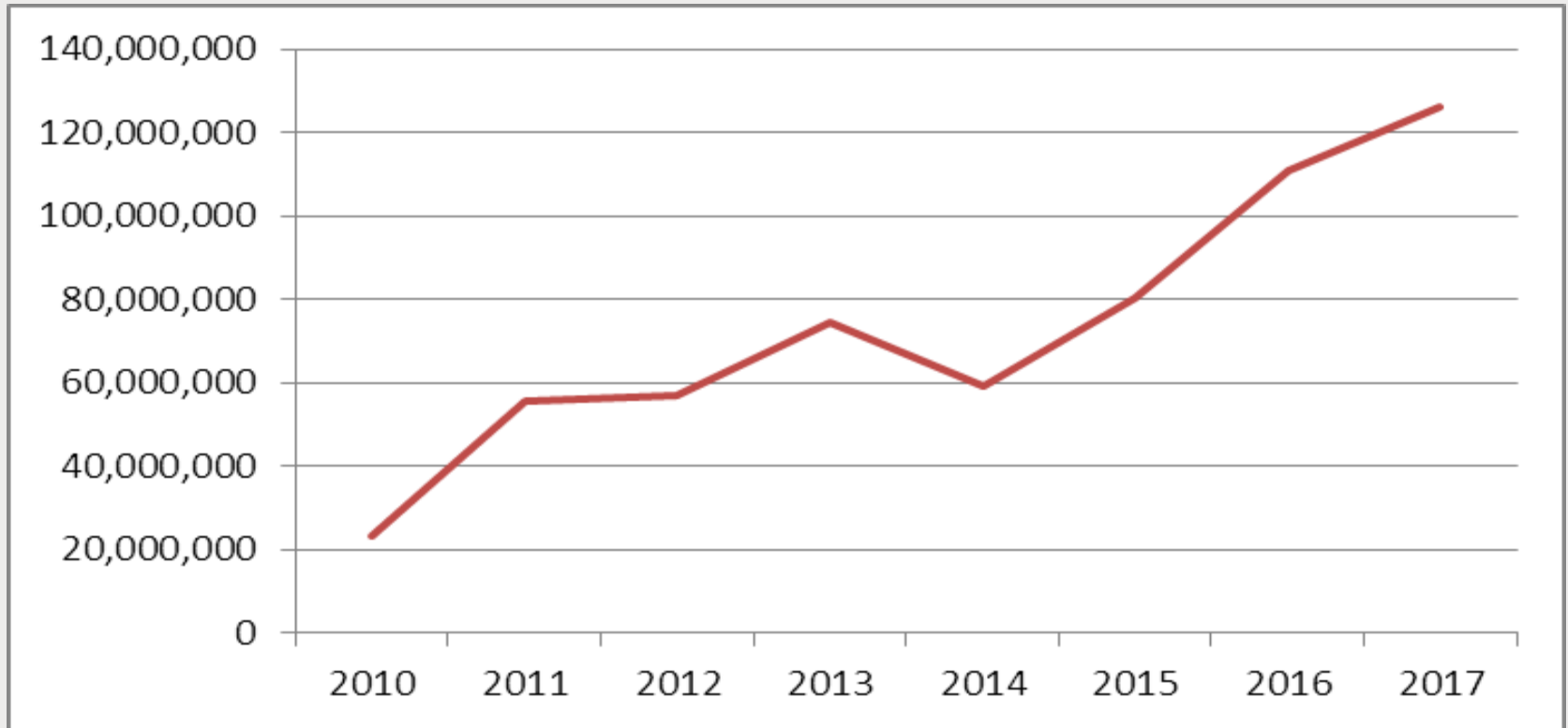
# Grant allocations vs Expenditure



Grant funding amounting to R9.9 billion was allocated as 30 June 2017 and R10.2 billion was spent. These amounts include capital and operational expenditure



# Rea Vaya fare revenue inception



Drop in revenue was because of the drivers strike

# Requested budget for 2018/19

## MTEF (requirements vs funding)

Detail	2017/18 Rm	2018/19 Rm	2019/20 Rm	2020/21 Rm	Total Rm	%
<i>Expenditure requirements</i>						
Capital expenditure	616.2	978.8	490.0	526.0	2,611.0	29%
Vehicles	166.1	516.7	212.0		894.8	10%
Compensation	5.0	819.5			824.5	9%
Transition support	12.7	15.0	5.0	10.0	42.7	0%
Other capital cost	105.0	102.9	96.5	103.6	408.0	5%
Direct bus operating cost	467.8	659.3	756.4	800.3	2,683.8	30%
Indirect bus operating cost	37.2	37.2	37.2	37.2	148.7	2%
System cost	316.3	322.5	311.2	328.6	1,278.6	14%
<b>Total cost</b>	<b>1,726.3</b>	<b>3,451.9</b>	<b>1,908.3</b>	<b>1,805.6</b>	<b>8,892.1</b>	
<i>Funding sources</i>						
COJ capital contributions	209.1	583.7	212.0		1,004.8	11%
Capital grant funding	696.0	1,014.7	586.5	629.6	2,926.8	33%
Operating grant funding	227.9	1,116.6	270.2	286.5	1,901.3	21%
Fare revenue	127.9	232.2	285.5	302.3	947.9	11%
Local funding (rates and taxes)	465.5	504.6	554.1	587.2	2,111.4	24%
<b>Total funding</b>	<b>1,726.3</b>	<b>3,451.9</b>	<b>1,908.3</b>	<b>1,805.6</b>	<b>8,892.1</b>	

# BUS OPERATING COMPANY FORMATION AND EMPOWERMENT

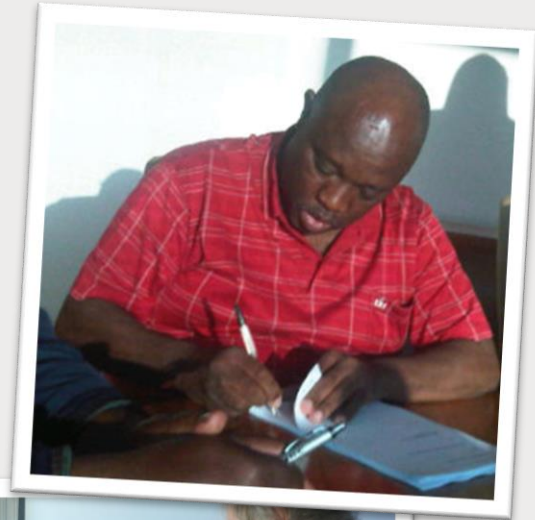


# The transformation deal

- A key City objective in introducing BRT was that it should empower the previously disadvantaged mini bus taxi industry and contribute to broad based black economic empowerment
- Thus the model implemented by the City and supported by national policy and legislation has involved:
  - *Negotiating a 12 year contract with affected operators*
  - *Requiring affected operators to hand in their operating licenses, dispose of their vehicles and sign a restraint of trade in exchange for becoming a shareholder in a Bus Operating Company*
  - *Affected operators/shareholders being paid and “empowerment premium” which is the difference between what they are anticipating to earn as shareholders and what they would have continued to earn as taxi operators*
  - *Offering shareholders further value chain opportunities in station cleaning and security*
  - *Offering ex-taxi drivers and related workers, opportunities to work in stations and the bus operating company as drivers etc.*

# The negotiation process

- **2009 to 2011: Phase 1A** – Piotrans set up
  - **2010 to 2014: Phase 1B** – Litsamaiso set up
- 
- Based on South Africa's experience of negotiating new Constitution and transition to democracy in early 1990s (CODESA)
  - Independent facilitators
  - Independent technical support to the taxi industry to level the playing field
  - Large inclusive taxi industry negotiation team
  - Capacity building and training of negotiators
  - Set up interim companies before permanent companies – to ensure that operations started when infrastructure is complete and learn lessons





# Negotiations phases and agreements

## Negotiation phases

- Engagement: Information sharing and capacity building
- Pre-negotiation: Determining affectedness and setting table for negotiations
- Negotiation: Negotiating key agreements
- Hand over: Managing the transition

## Key negotiated agreements

- **Negotiation Framework Agreement:** sets the rule and processes of negotiation
- **Bus Operating Company Agreement** (including fee/km)
- **Participation Framework Agreement:** how operators will be participate, vehicles and operating licenses disposed of
- **Employment Framework Agreement:** How displaced employees – mostly drivers – will be accommodated as bus drivers, in stations
- **Compensation and Value Chain Framework Agreements:** How operators will be compensated for loss of current earnings and how they can benefit from ‘value chain’ e.g.. security contracts at stations

# Role of Bus Operating Company



## WHAT DOES BOC DO?

- Runs the bus services
- Maintains the buses
- Is given access to depot of City free of charge – but must maintain the depot
- Trains and employs drivers
- Cleans and secures buses

## WHO RUNS THE BOC

- The shareholders own the company
- The shareholders from the mini bus taxi industry nominates Board members
- The Board includes members from the affected mini bus taxi industry
- The Board decides on who will manage the company (CEO, CFO etc)
- The Board oversees the company and make sure it does what it needs to do to be make profits for the shareholders.

# Facts and figures on transformation

What	Detail
No of operating licenses cancelled and vehicles disposed off	Phase 1A: 585 Phase 1B: 312 TOTAL: 897
No of shareholders	Phase 1A: 300 Phase 1B: 171 TOTAL: 471
Number of drivers employed from the taxi industry	Phase 1A: 200 Phase 1B: 188 TOTAL: 388
Number of station staff employed from the taxi industry	328

# Gains and challenges

## Gains

- Broad based black economic empowerment for mini bus taxi industry
- Removal of old and unsafe taxi vehicles out of business
- More sustainable livelihoods for operators and drivers
- Graduation to formal business environment and increased capacity
- Opposition to BRT still exists but has declined after seeing City delivering on promises

## Challenges

- Long seated conflicts between association spills over into BOCs and limits progress on new routes
- Lack of sufficient leadership leads to more focus on the process than the final outcome
- Lack of sufficient skills to take advantage of value chain opportunities



Taxi Scrapping



First vehicle scrapped

# INSTITUTIONAL ISSUES





# Managing the Rea Vaya BRT

## Planning

- **Directorate: Planning and Policy**
- Responsible for new routes and services

## Transformation

- **Directorate: Business Development**
- Responsible for transformation and BOC Company Formation

## Infrastructure

- **Directorate: Infrastructure**
- Responsible for new infrastructure development and maintenance

## Operations

- **Scheduled Services Management Agency**
- Responsible for bus operations, station management, quality assurance, intelligent transport systems

## Finance

- **Directorate: Finance**
- Responsible for revenue services, fare collection, budgeting



**Only SSMA is 100% responsible for BRT. Other Directorates have other functions**

# Inter-governmental Relations

Government	Detail
NDOT	Manages the conditional grant with NT, provides guidelines and is required to approve certain aspects. Improved collaboration and policy and funding certainty would assist the City
National Treasury	Reporting relationship in respect of conditional grants City Support Programme has championed transport and land use alignment, capacity building and sharing across cities
Provincial government	Are supportive, champion integration and are working on an integrated back office for fares and passenger information which can benefit the BRT
Neighbouring municipalities	Co-ordination with Ekurhuleni more important than Tshwane due to proximity of BRT lines (Tembisa/Ivory Park) Shift to low floor for third phase will enable integration

# ACHIEVEMENTS AND IMPACT



# Is the BRT meeting its objectives? 1

**Yes  
100% !**

Objective	Meeting?
Fast, safe, reliable, affordable	The Rea Vaya services are faster, safer and more reliable due to the dedicated lanes, off board fare collection, new vehicles, well trained drivers, etc. The fares are affordable due to national and City subsidy.
Enable public transport transformation	The Rea Vaya together with Gautrain and other new modes has changed the face of public transport in Johannesburg. New standard has been set. Increasingly car captive users are considering public transport

# Is the BRT meeting its objectives? 1

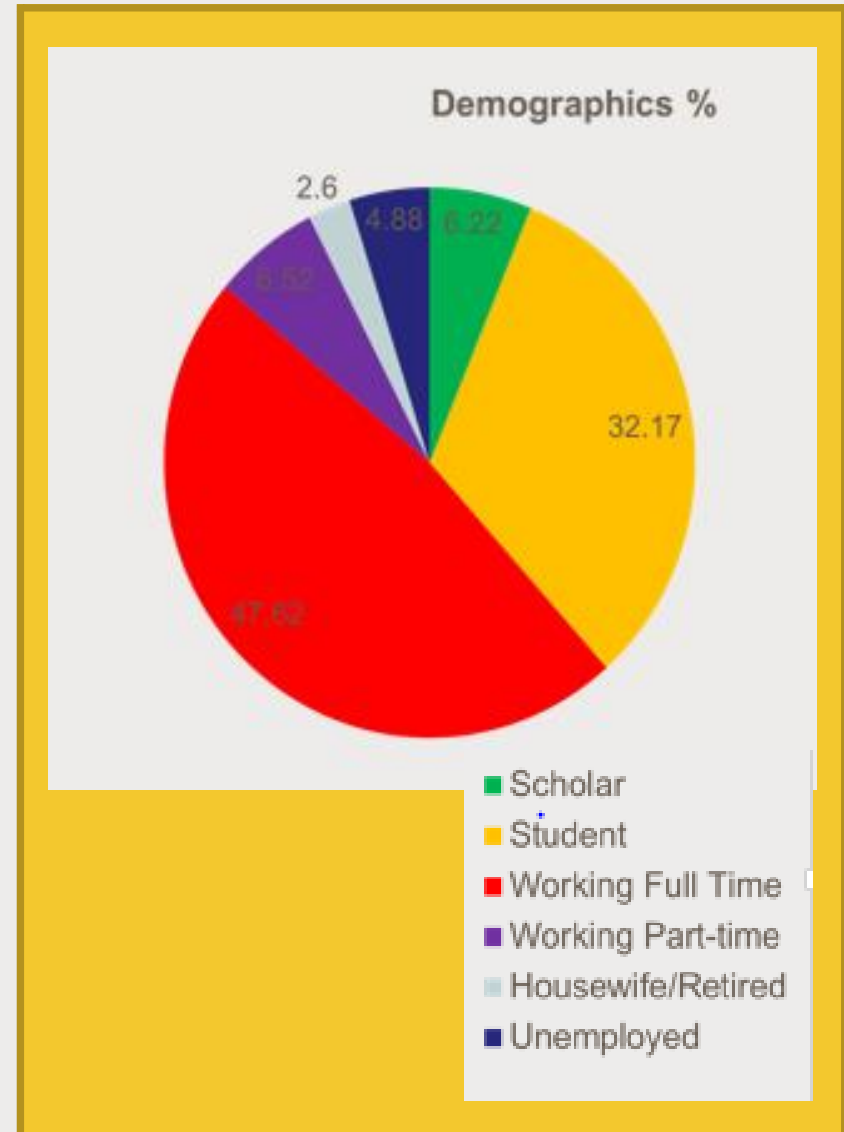
Getting  
there

Objective	Meeting?
Spatial restructuring	The Rea Vaya BRT has been complemented by changes in City policy towards Transit Orientated Development. Spatial restructuring is a medium to long term goal but there is evidence of increased densification and property values along some corridors
Broad based black economic transformation	For affected mini bus taxi operators in the first two phases, there has been transformation. However the percentage of taxi operators who have had access to this opportunity is small. Further initiatives are required to improve the sustainability of this sector
Climate change, reduction in air pollution	The Rea Vaya buses met the lowest emission standards at the time of purchase and the next buses to be purchased are targeting to be soot free. However more needs to be done in the whole transport sector to reduce emissions from vehicles



# What else has the BRT achieved?

- Reduction of congestion – important for economic growth
- Job creation and the provision of economic opportunities
- Poverty reduction through providing affordable transport especially to low income users
- Road safety and less accidents
- Improved health due to reduction of air pollution
- The development of social cohesion through encouraging more collective means of travelling



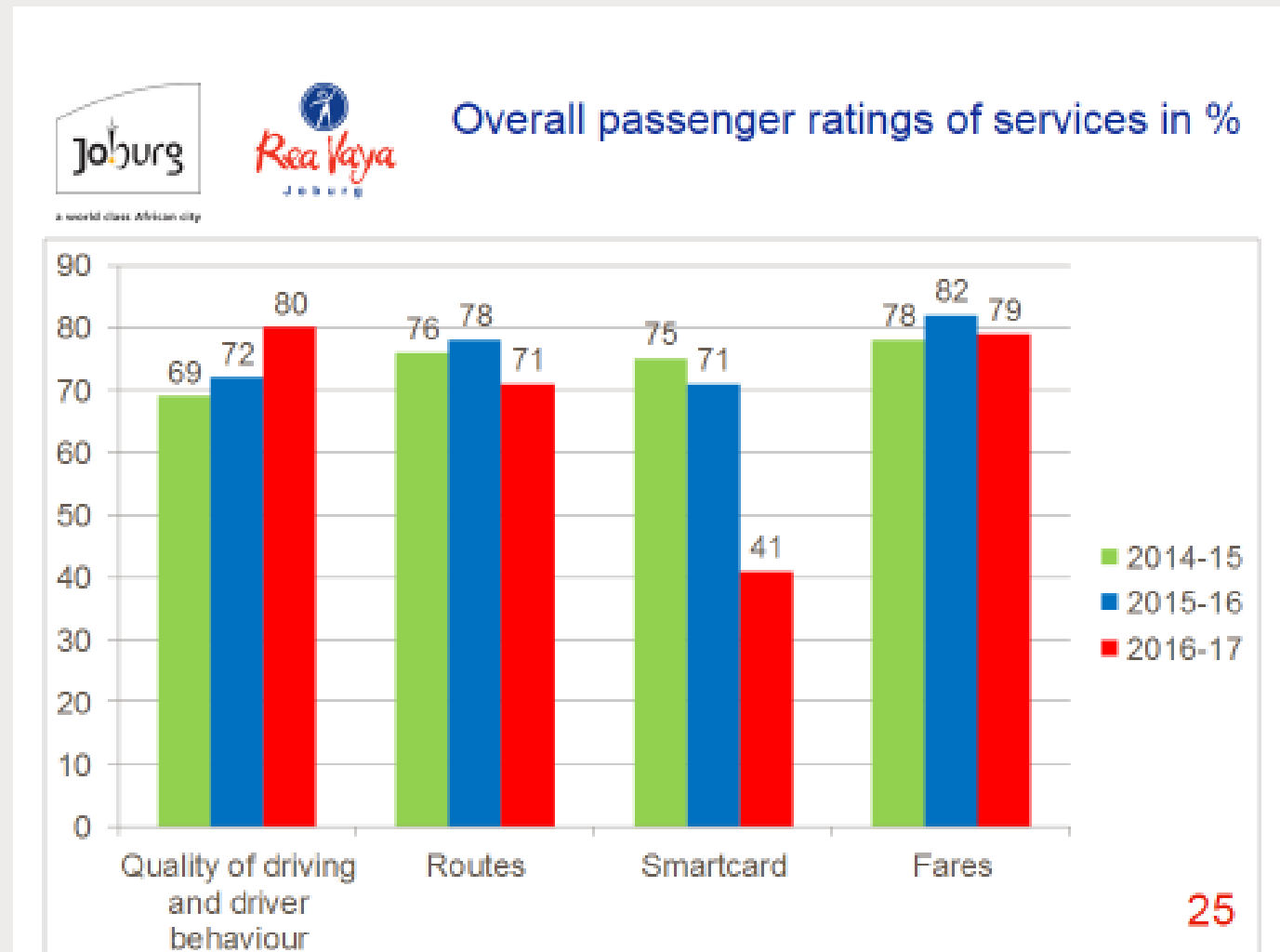
# Economic Assessment of Phase 1A and Phase 1B in 2012

COJ in conjunction with United Nations Development Programmes (UNDP) did an economic analysis to identify and quantify the relevant economic costs and benefits associated with Phase 1A & B and distribution of these benefits.

Outcomes include;

- *Estimated 532,000 people served by Rea Vaya, which is 5% of total Johannesburg population*
- *For every R1 m spent on infrastructure, 3.2 jobs created in Gauteng .*
- *Transport related quantifiable benefits include higher travelling speed, safer journeys and lower vehicle emissions. Wider societal benefits include densifications and land use changes .*
- *Non quantifiable benefits include accessibility and affordability, smart cities, transformation of taxi industry.*
- *Benefit Cost Ratio (BCR) for Phase 1A is 0.75, Phase 1B 0.95 and both is 0.82. Increase in passenger number can improve BCR, e.g.. fare products (implementation of AFC), increase off peak passengers, increase users in opposite direction, attract private car users.*
- *BCR for wider societal benefits is more than 1 for both phases due to transport benefits and wider economic benefits.*

# Summary of Rea Vaya customer satisfaction survey: 2014 to 2017



# Summary of job creation

Jobs created during construction (1 job + 66 person days)

Phase 1A: Approx. 6000  
Phase 1B: 9 300  
Phase 1C to date: 7780  
TOTAL: 23 080

Permanent jobs created in BOC

Phase 1A BOC: 226 drivers  
Phase 1B: BOC: 204 drivers  
TOTAL : 430

Permanent jobs created in City

SMMA Head Office: 140  
SSMA: Station staff: 424  
TOTAL: 564



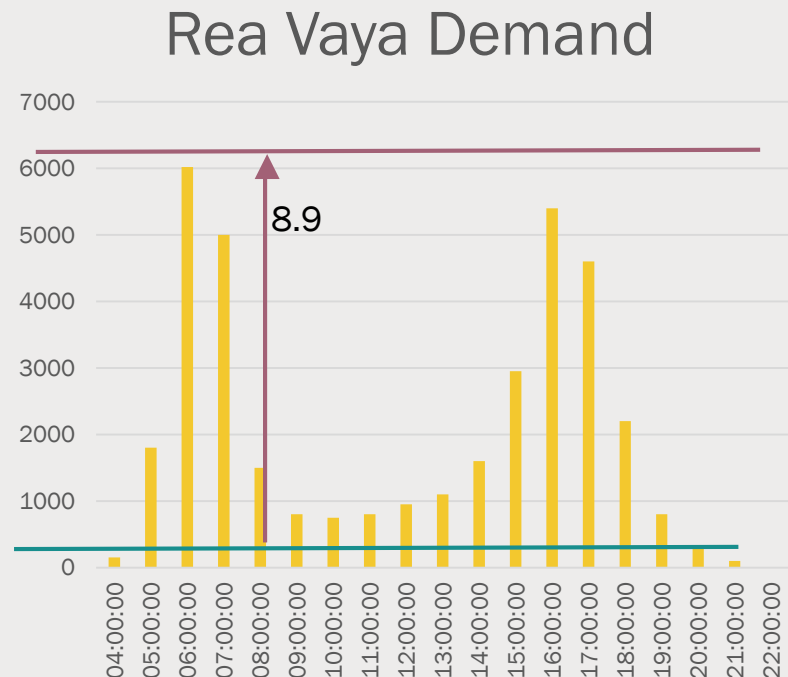
Excludes indirect jobs e.g. bus body building

# Challenges and risks

Challenge and risk	Cause	Mitigation
Funding certainty and sufficient funding	Poor economy and fiscal constraints	Grant conditions to provide for certainty
Low patronage ONLY in off peak and in counter direction	Apartheid settlement patterns Nature of business in City: mostly 8 – 5 pattern	Limited mitigation in short term, TOD and TDM in longer term
Mini bus taxi industry expectations and stability	Tradition of uncompetitive business practices, Expectations of previous phases no longer affordable	Change management Strong political leadership
Insufficient capacity of City officials	Aspects of project, especially contract management, are complex and not necessarily in government skills set.	Ongoing capacity building
Lack of consistent IT connectivity	Vandalism, theft, poor contract management, technology challenges	Improved ITS systems and integration with City fibre network
Fare evasion and cash shortages	Challenges with technology Poor station management model	Restructuring of station management model to improve controls and management. Greater automation of fare collection Disciplinary action against staff who have allegedly stolen funds

# Peak and off peak demand: Rea Vaya

- The peak base ration is 8.9, there are 9 times more busses required during peak than off-peak.
- There is very weak off-peak demand
- Asset (bus) utilization very low, only for few hours during peak

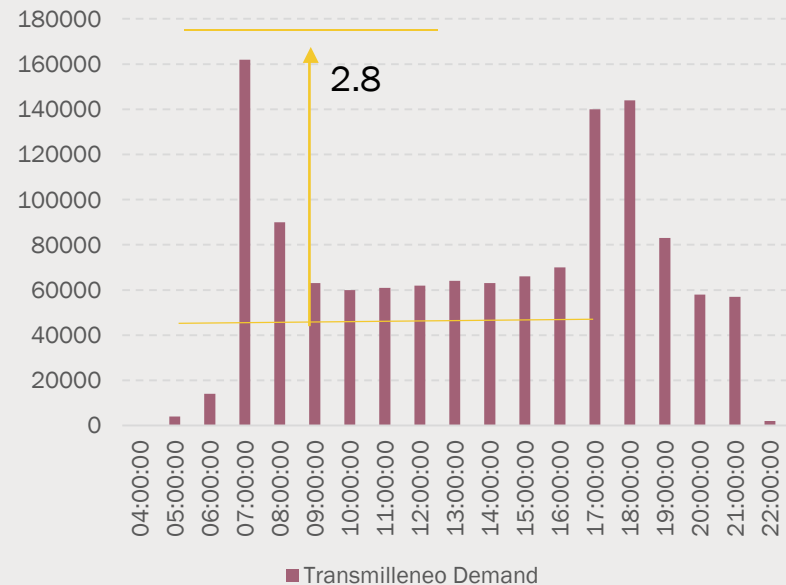




# Peak and off peak demand: Bogota

- The peak base ratio is 2.8, there are 3 more busses required during peak that off-peak
- There is relatively strong demand during the off-peak period
- Asset (bus) utilization is relatively high throughout the whole day.

Transmilleneo Demand



# Lessons for future phases

- **Planning:** Need to be guided by a long term plan which incorporates other modes, alignment with land use planning and recognise lead times and network effect
- **Financial sustainability:** Need to develop a 12 year financial plan – with due regards to increase in operational subsidy, maintenance, operational costs in future years. Difficult to implement flagship projects in a recessionary environment
- **Funding sources:** New funding sources unlikely, need to optimise operations, improve efficiency and plan sustainably.
- **Technology:** Robust vs smart and local vs foreign choices are more sustainable and feasible
- **Integration:** Must be customer centric and not come at a cost premium e.g.. accessible transfers, common passenger information
- **Change management:** Critical for both public transport operators, stakeholders and staff

# Future directions

- Next period to focus on:
  - *Developing a long term integrated fundable plan*
  - *Operationalisation of Phase 1c (a)*
  - *Optimisation for transformation of provincial subsidised services and Metrobus*
- Going forward to focus on:
  - *Managed lanes with existing bus and possibly taxi vehicles*
  - *Reduced technology specifications but more reliance on technology for fare collection*
  - *Improved regulation and law enforcement.*

