IGC International Growth Centre | PLANET PROJECTS

From **STUDY** to **OPERATION** and **PASSENGER SERVICES**

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Managing Director Planet Projects Limited,
Lagos, Nigeria

Lagos

PLANET PROJECTS

...the future is public transport

This is Lagos…

22
Miiliion

Population

$100
Billion

Gross Domestic Product (GDP)

$2.5
Billion

Budget

01
Lagos is the commercial nerve centre of Nigeria

02
The 5th Largest Economy in Africa.

03
It hosts all major headquarters of commercial banks and financial institutions, manufacturing, oil & gas and telecommunication companies etc.

04
Largest Sea and Air Ports in West Africa

Key Transport Data: Issues

55,000 Danfos

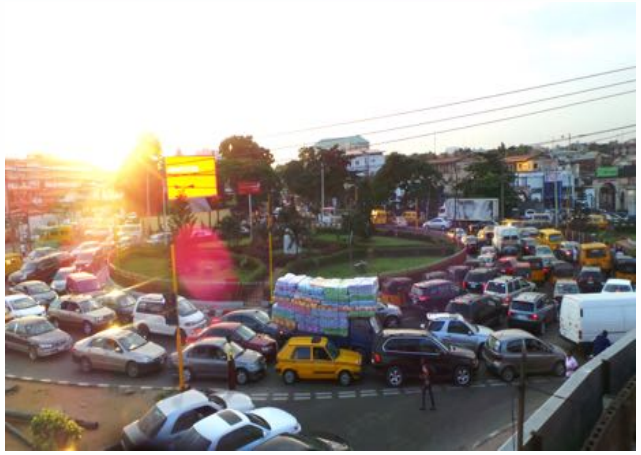
1,500 HOVs

12 million
Passengers/day

270 million passengers/month
3.24 billion passengers/ **year**

Transport Issues in Lagos

Traffic congestion along major corridors



Traffic congestion at Roundabouts

Para-transit modes of motorcycles & mini buses

Bus stop interference with traffic flow

Poorly regulated & chaotic bus parks

Poorly regulated & chaotic bus parks

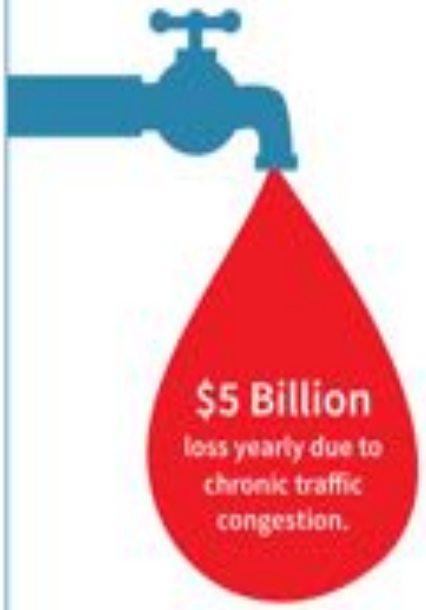
Trading in Traffic

Negative Effects of the 'old' Transport System

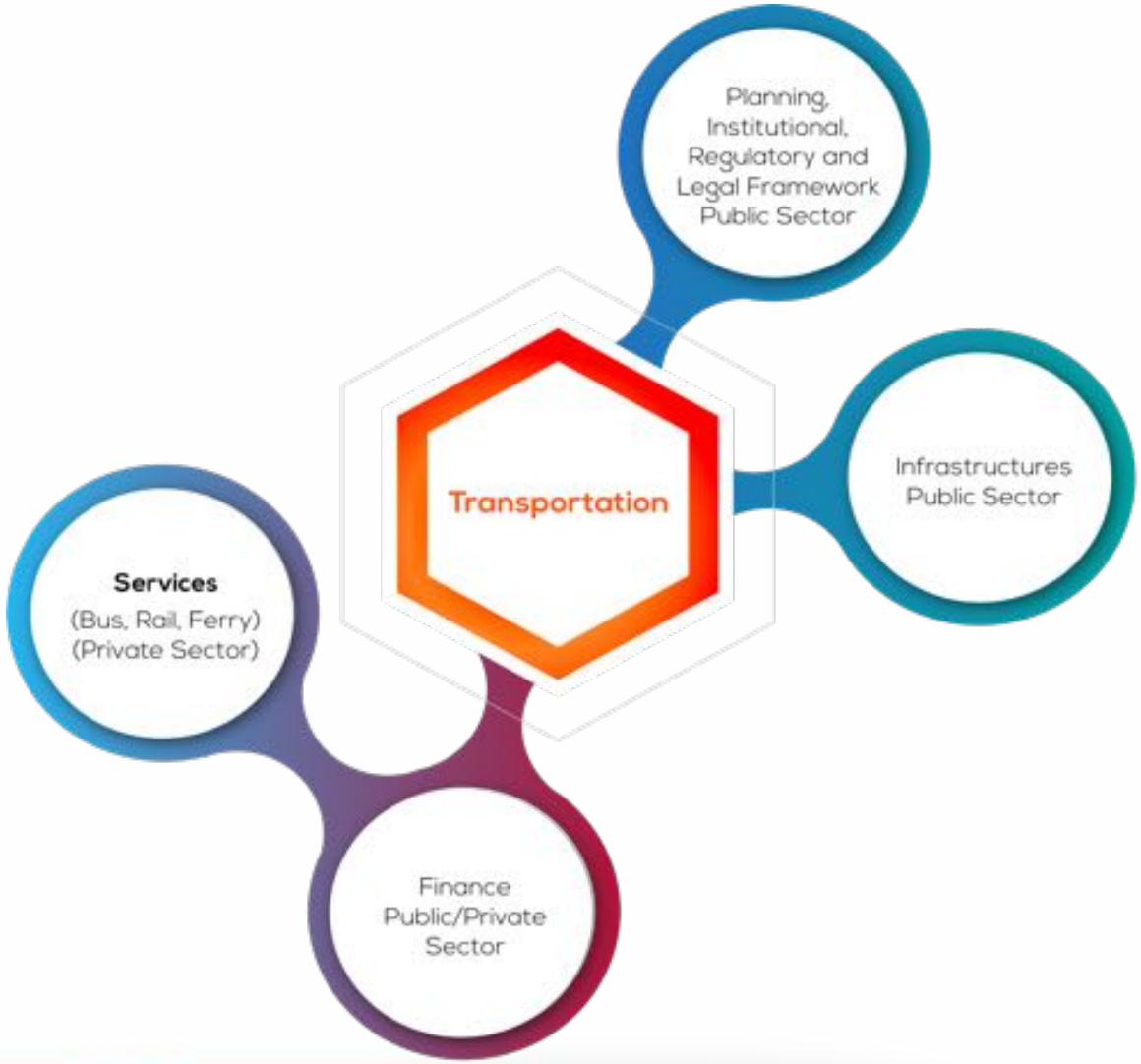
- High rate of Road Traffic Accidents (RTA)
- Insecurity – robberies, assault, kidnappings, etc.
- High stress levels amongst Lagos residents;
- Lowered productivity due to traffic congestion and stress endured in moving around the Lagos Metropolis;
- Less competitive economy
- Environmental pollution

Lagos Transport Situation

• Sector	• Situation	• Effects
Traffic Management	• Very high car ridership situation. • Poor traffic control management regime • Street trading • Poor junction geometry	• Chronic traffic congestion • Low productivity • Pollution • Increased travel time • Poor health issues • Increased cost of operations
Bus Transport Danfo & Molue	• Account for 75% of PT Demand • Unregulated fare regime • Informal sector dominance • Poor Service delivery • Rickety and dilapidated Molue and Danfo	• Congestion • Health issues • Pollution • Crime • Security • Safety
Rail Transport	• Insufficient Coverage of rail network. • Encroachment on Right of way • Poor services. • Inadequate Infrastructure. • Low connectivity.	• Very unsafe • Safety issues • Accident • Low productivity
Ferry Service	• Poor Infrastructures • Low connectivity with other modes • Operation Problems • Lack of Capital	• Recurrent loss of life • Low revenue
Aviation	• Only one (1) Airport which is inadequate for the size and economy of Lagos State.	• Low investment into Lagos economy



Critical Success Factors



Lagos BRT Development Timelines

1992 — Lagos Mass Transit & Transport Systems (LMTS) Management Program

1999 — Lagos Urban Transport Project (LUTP)

2000 — Formation of LASTMA

2002 — Formation of LAMATA

...think transport

2006 — Feasibility Study & Construction of BRT Lite commences

2008 — Operations of BRT Lite commences
220 buses
200,000 pax/day

2012 — Construction of BRT Classic commences

2015 — Operations of BRT Classic commences
434 buses
350,000 pax/day

2017 — Revision of Strategic Transport Master Plan (STMP)

Construction of Oshodi – Abule-Egba BRT flags off

Public Transport Evolution in Lagos

1999 - 2007

INSTITUTION
- Establishment of Lagos Metropolitan Area Transport Authority (LAMATA)
- Establishment of Lagos State Traffic Management Agency (LASTMA)
- LAGBUS Asset Management Company

PLANNING
- Strategic Transport Master Plan (STMP)

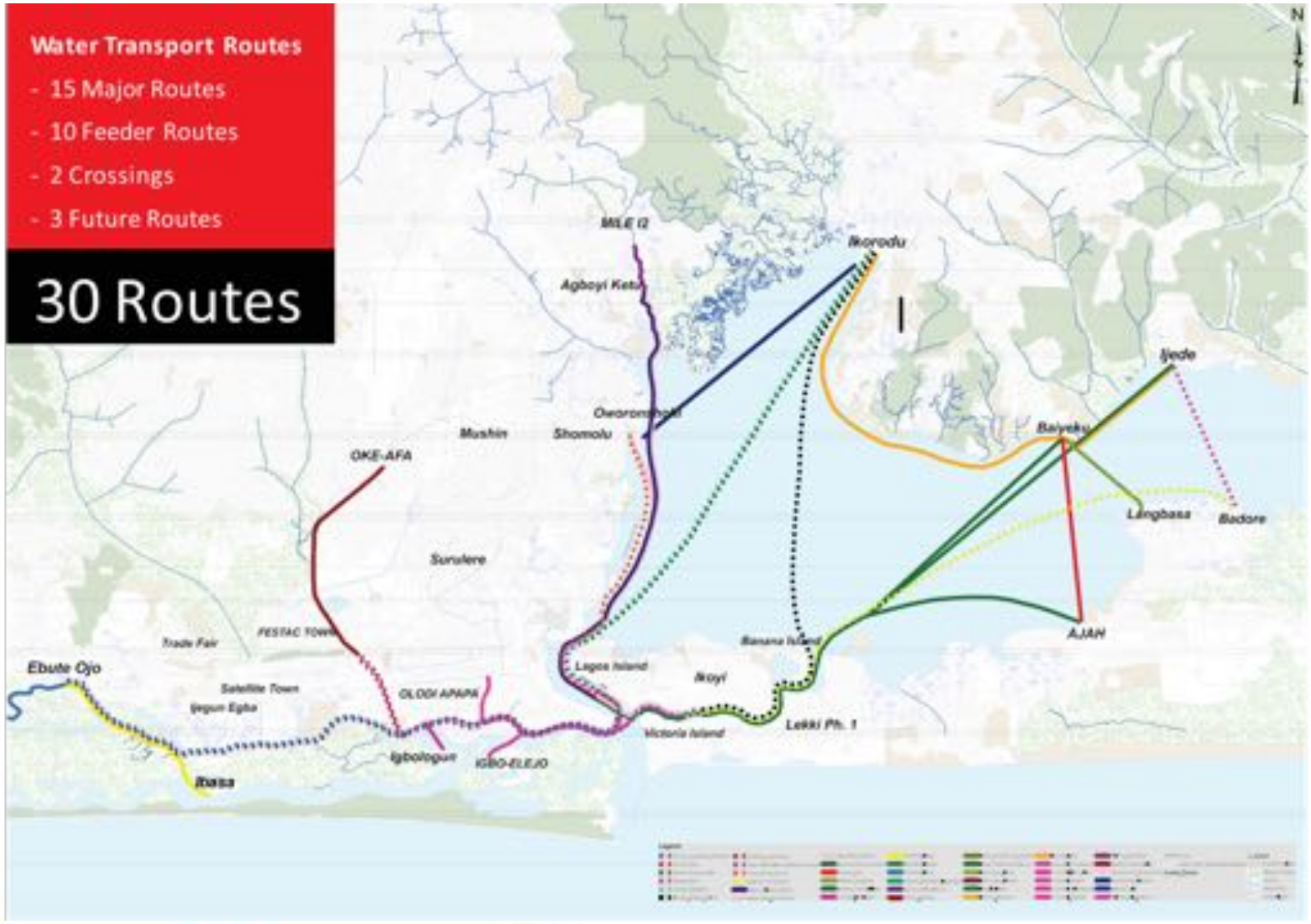
INFRASTRUCTURE
- Conceptualization of Phase 1 of Lagos BRT
- Infrastructure development of BRT bus stops and corridor

2007 - 2015

INFRASTRUCTURE
- Construction of BRT Lite
- Construction of BRT Extension to Ikorodu
- Construction of Lagos Blue Line Civil Works
- Road Construction
- Flyovers

Institution: Traffic Management Agency (1999-2007)

Lagos Water Transport Network (1999-2007)

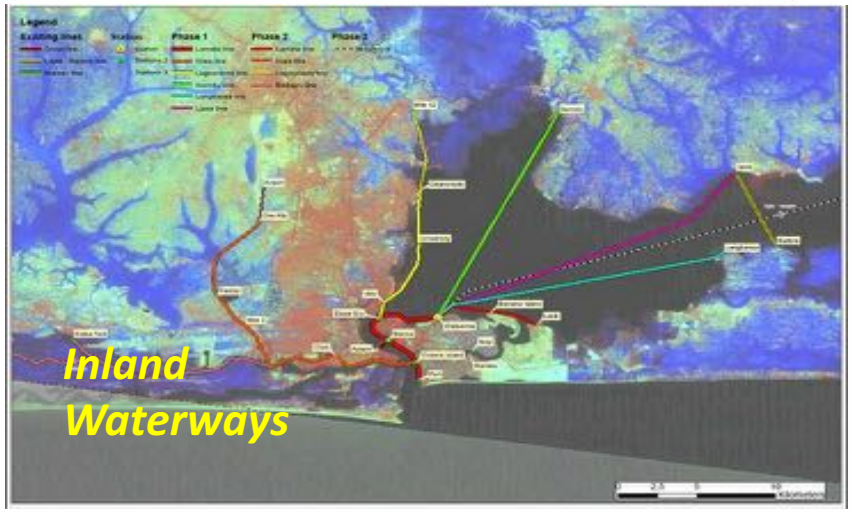


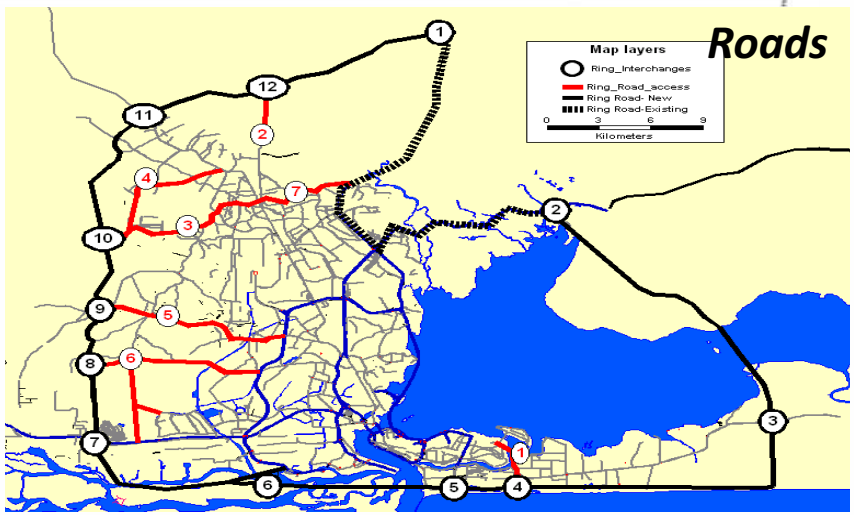
Lagos Strategic Transport Master Plan (STMP)

7 Routes

14 Routes

30 Routes





Transition of Bus Systems in Lagos (2005 – 2018)

Danfo bus

- Majorly rickety buses
- Unregulated fare regime
- Dilapidated, rickety buses

Ashok Leyland BRT Lite bus

Yutong BRT Classic buses

- Air Conditioned buses
- ITS

Lagos Bus Rapid Transit (BRT) Lite

BRT Lite – Bilateral Running

Pictures of Transport & Traffic situation in Lagos (2015)

NITEL Junction

Ikeja

Abule Egba

Abule Egba

Abule Egba

Ajah

NITEL Junction

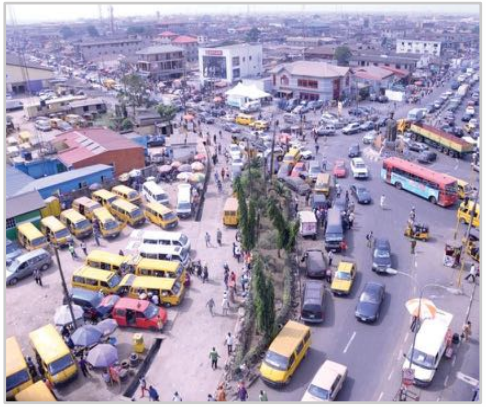
Ajah

Pictures of Transport & Traffic situation in Lagos (2015)

Ogudu

Berger

Oworo



Pen Cinema

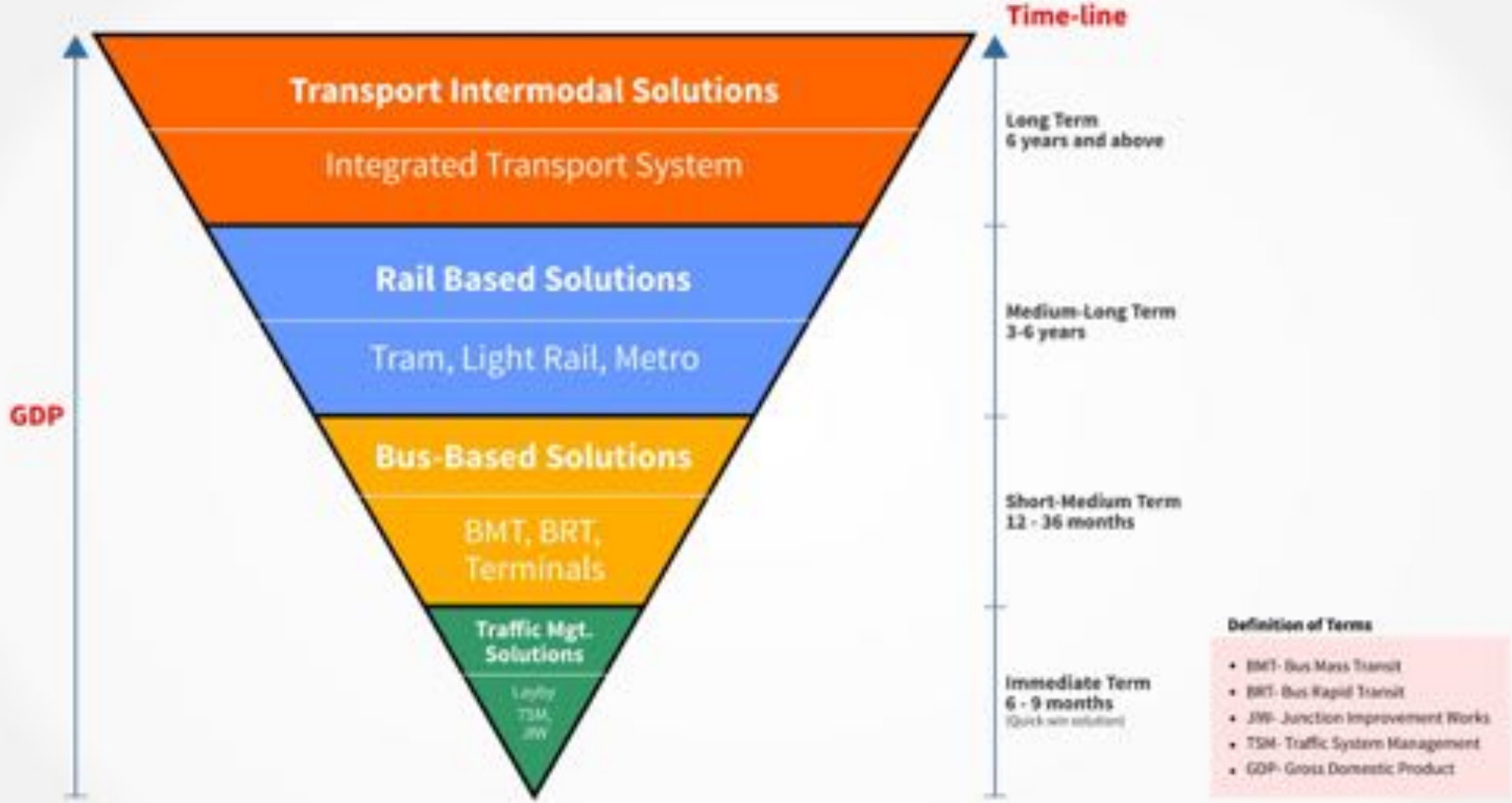
Idumota

Adeniji

Opebi Roundabout

Allen Roundabout

Mobility Options vs GDP vs Timelines



Public Transport and Traffic Solutions for 2015 - 2019

Traffic Management Solutions

- Junctions Improvement Works (JIW).
- Lay-bys at Oworo, Ogudu, Berger, Alapere, etc.
- Construction of 300 Bus Shelters & Lay-bys
- Bus Terminals
- Intelligent Transport Systems (ITS)
- Pedestrian Bridges
- Flyovers

Bus-Based Solutions

- Lagos Bus Reforms Project
  - Phase I
  - Phase II
- Oshodi – Abule Egba BRT
- Phasing off Danfo

Rail Solutions

- Lagos Blue Line Project Completion
- Lagos Red Line Project (2017-2023)

Multi-modal Transport Solutions

- Marina Integrated Transport Project
- Mile 2 Integrated Transport Project

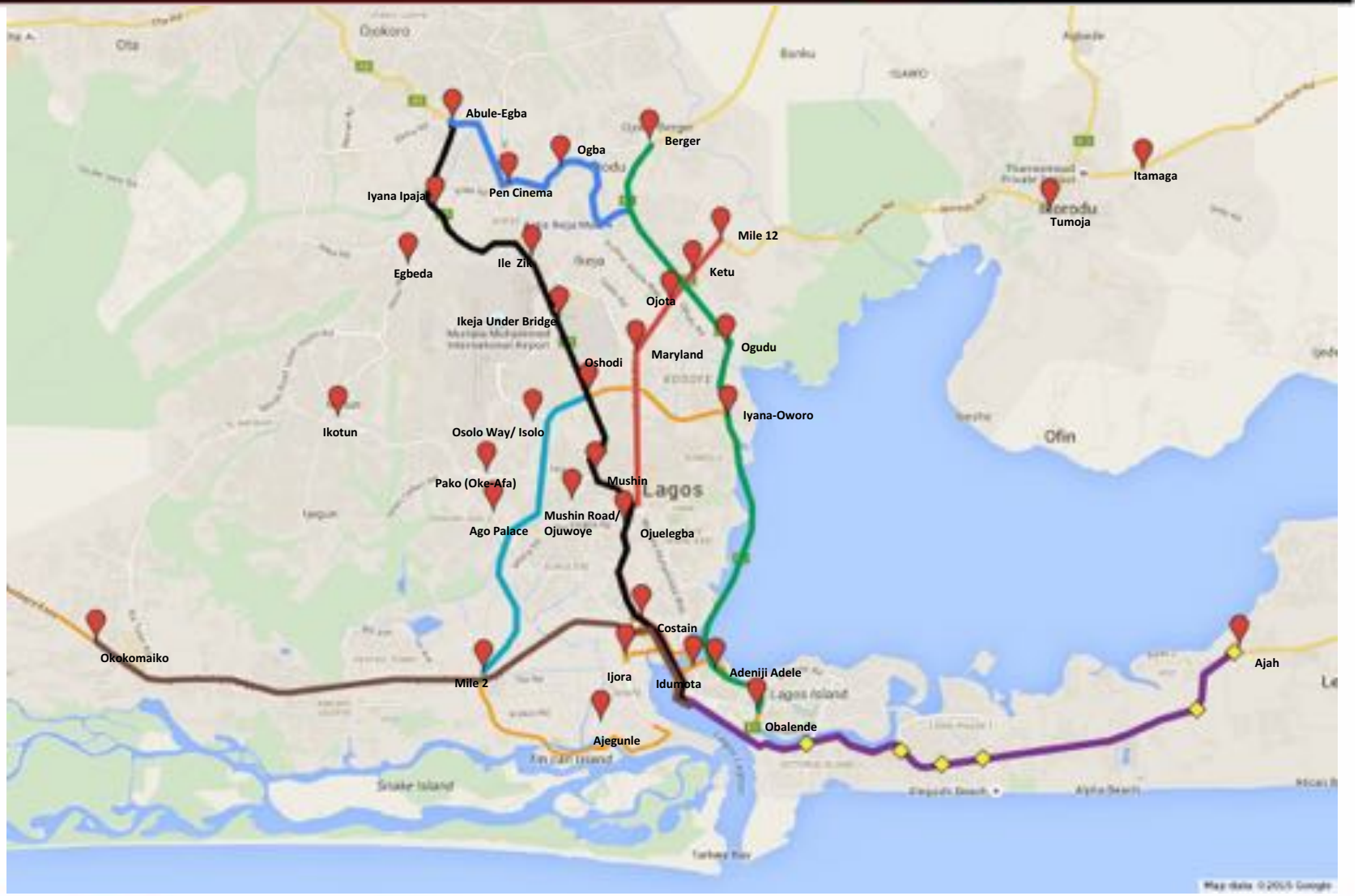
Lagos Strategic Zones (Junctions)

Legend:

- Marina – Abule-Egba
- Alausa– Abule-Egba
- Marina – Mile 12
- Obalende – Berger
- Marina - Ajah
- Oshodi – Mile 2
- Marina - Okokomaiko
- Strategic Zones

Abule-Egba	Ikotun
Adeniji Adele	Ogba
Ajah	Egbeda
Ajegunle	Ago Palace
Berger	Osolo Way/Isolo
Costain	Itamaga
Idumota	Tumoja
NITEL/Sobo Arobiodu/Isaac John	Mushin Road/Ojuwoye
Ikeja Under Bridge	Ijora
Ile Zik	Allen Roundabout
Iyana-Ipaja	Elegushi R.A.
Iyana-Oworo	Jakande
Ketu	Opebi
Maryland	Pako (Oke-Afa)
Mile 12	
Mile 2	
Mushin	
Obalende	
Ogudu	
Ojota	
Ojuelegba	
Okokomaiko	
Oshodi	
Pen Cinema	

40



40 strategic Traffic Zones: Issues

Forty (40) notorious traffic zones in Lagos State are responsible for 70% of traffic congestion experienced by commuters

Impact of Junctions of Travel Times

Legend:

- Abule Egba – Mushin - CMS
- Abule Egba – Ikeja - CMS
- Abule Egba – Oshodi – CMS
- Ajah – Marina
- Critical Junctions

Journey	No of Major Junction	Journey Time (Peak period)	Avg. Time @Junction (mins)	Total Time crossing the junctions
Abule Egba – Mushin – CMS	11	2 hrs 30 mins	10	1hr 50 mins
Abule Egba – Ikeja – Iyana Oworo - CMS	10	3 hrs 15 mins	15	2hrs 30 mins
Abule Egba – Oshodi – Iyana Oworo - CMS	10	2 hrs 50 mins	12	2 hrs
Ajah – V.I - CMS	6	2hrs 30mins	15	1 hr 30 mins

Traffic Management Solutions

- **Junction Improvement Works (JIW)**
- **Laybys**
- **Bus Shelters**

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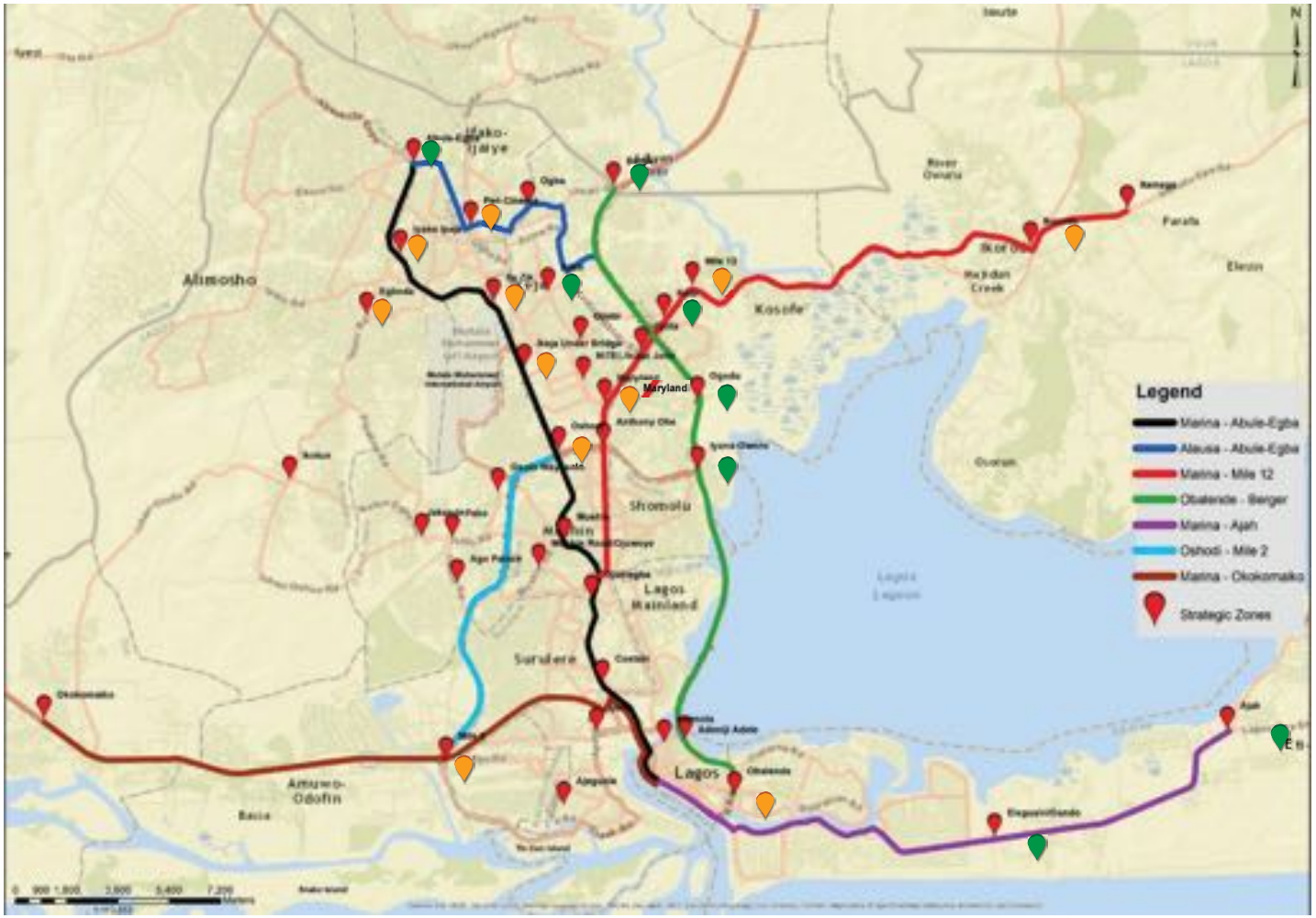
Lagos Strategic Traffic Zones

Completed	8	
Under Construction	11	
Outstanding	21	

- Abule-Egba
- Adeniji Adele
- Ago Palace
- Ajah
- Ajegunle
- Allen
- Anthony Oke
- Berger
- Costain
- Egbeda
- Elegushi/Oando
- Idumota
- Ijora
- Ikeja Under Bridge
- Ikotun
- Mushin /Ojuwoye
- NITEL/Isaac John
- Obalende
- Ogba
- Ogudu
- Ojota
- Ojuelegba
- Okokomaiko
- Opebi
- Oshodi

40

- Ile Zik
- Itamaga
- Iyana-Ipaja
- Iyana-Oworo
- Jakande
- Ketu
- Maryland
- Mile 12
- Mile 2
- Mushin



Traffic Management Solutions:
Pedestrian Crossings & Lay-by at Berger Junction

Berger Intersection /
Before

Berger Intersection /
Before

Berger Intersection /
After

Berger Intersection /
After

Traffic Management Solutions: Alapere Slip Road

Alapere Link Road / Before

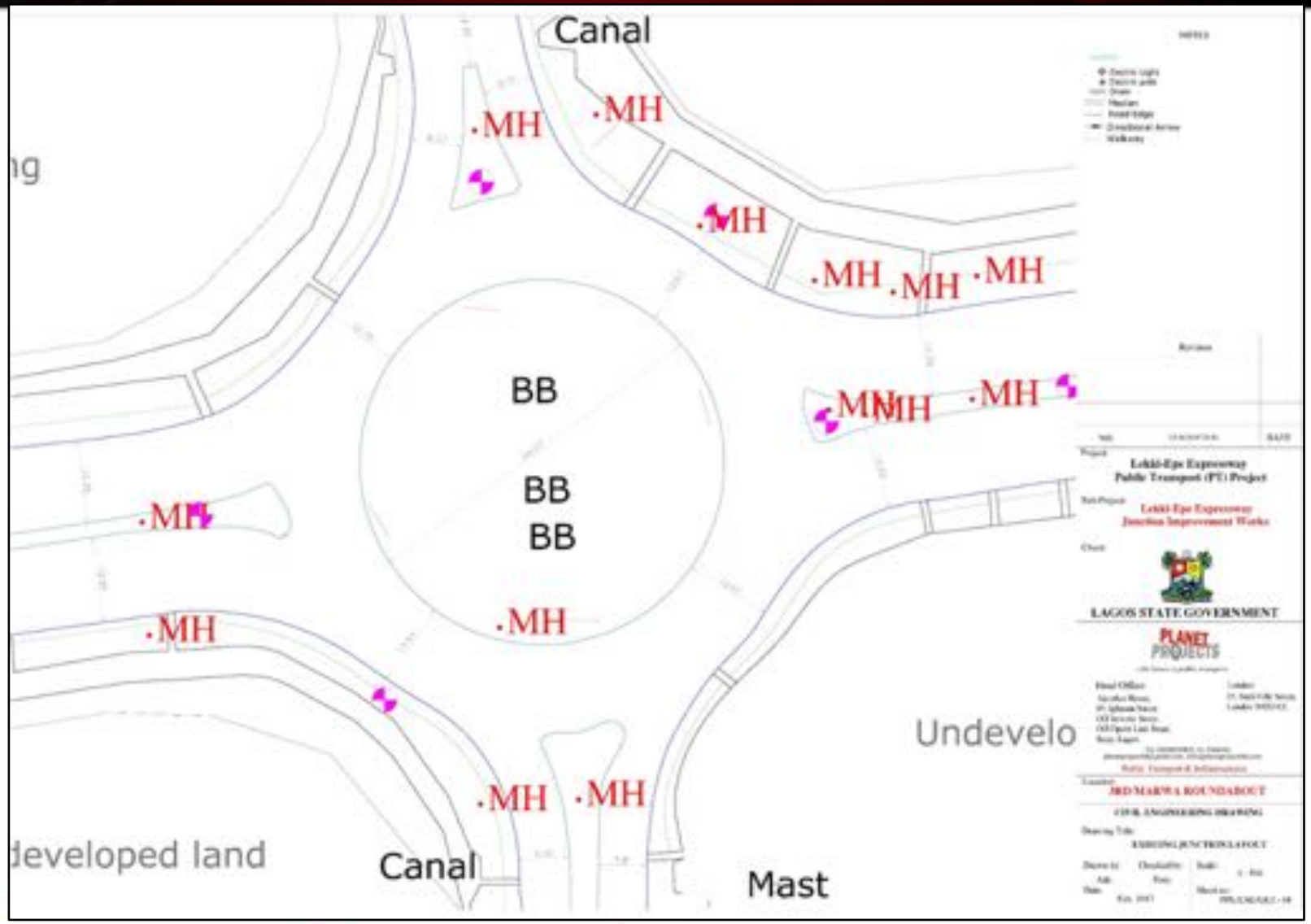
Alapere Link Road / After

Alapere Link Road / After

Alapere Link Road / Night View

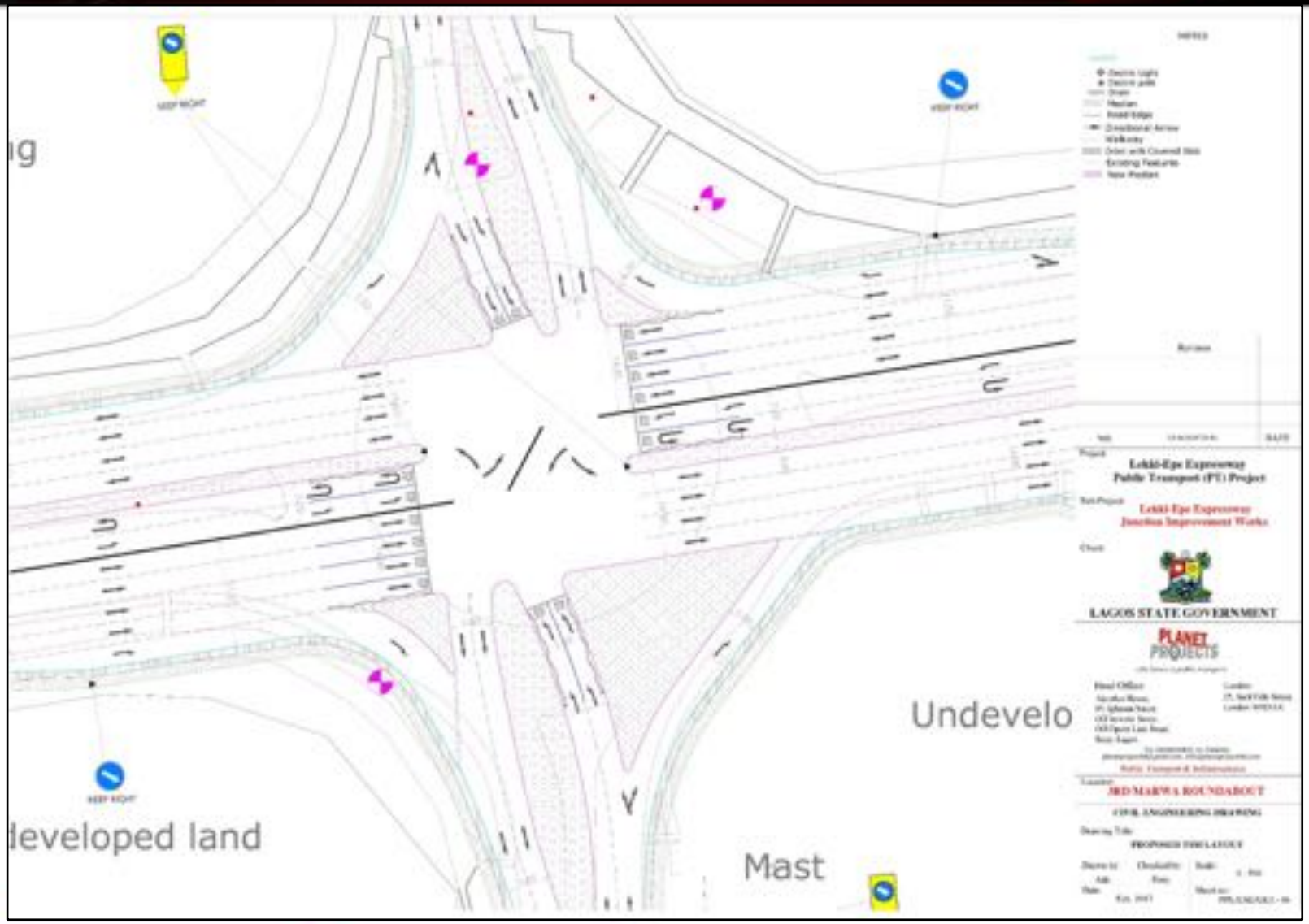
Lekki – Epe Expressway: 15 km

Lekki-Epe JIW: 3rd Roundabout



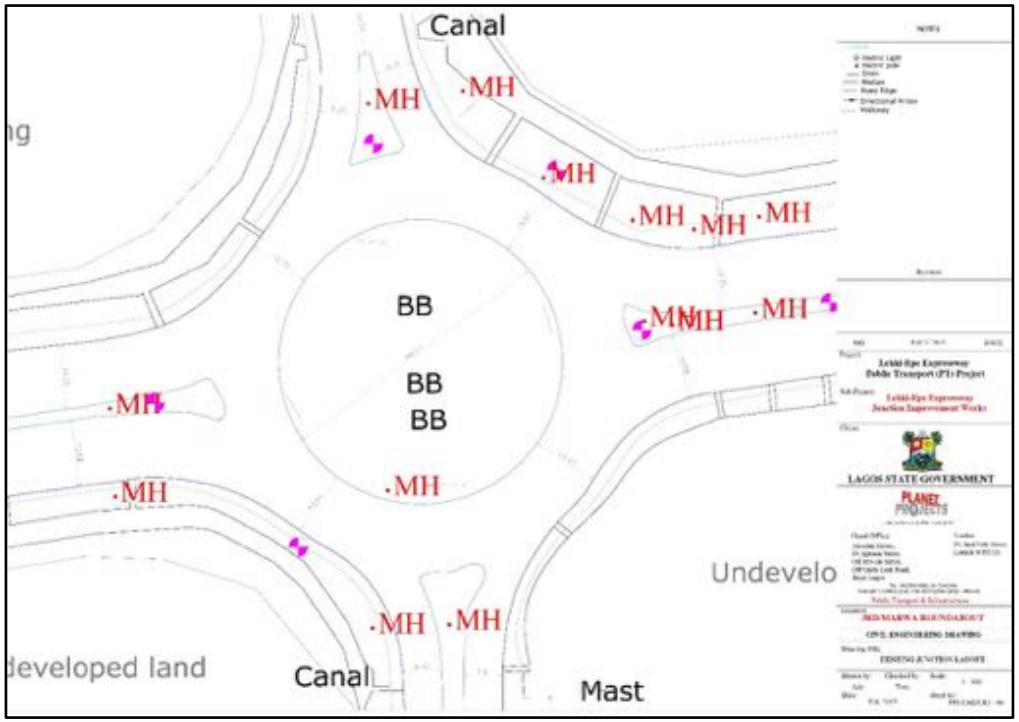
Before

Lekki-Epe JIW: 3rd Roundabout

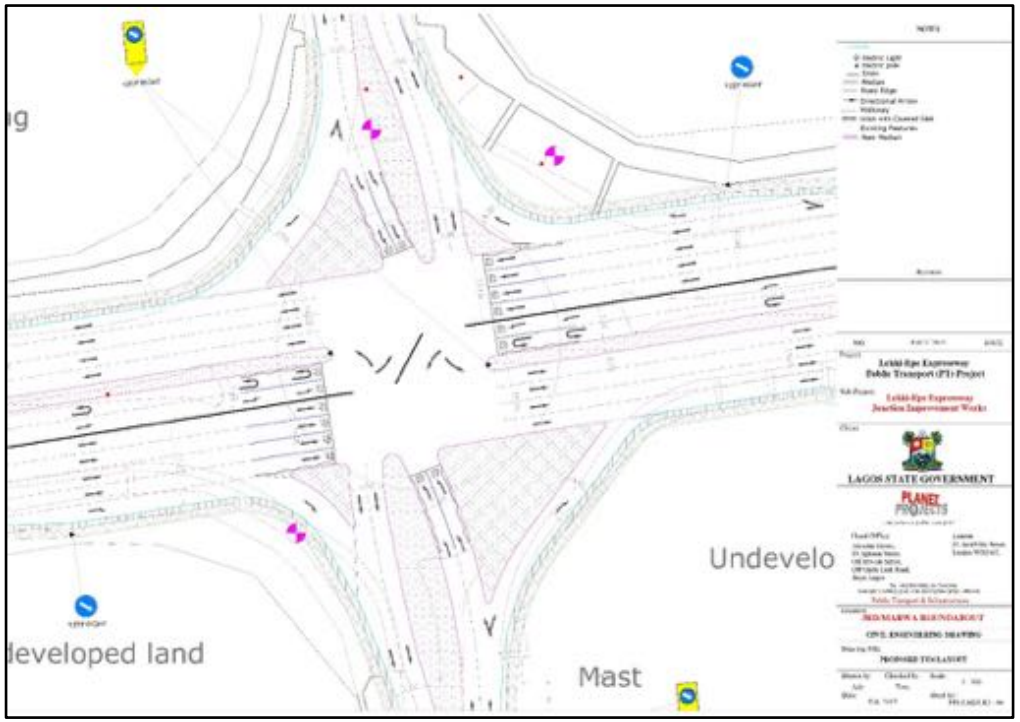


After

Lekki-Epe JIW: 3rd Roundabout



Before



After

Lekki Chisco Fourth Junction: Before & After

Before

After

Lekki Chisco Fourth Junction: After

After

Traffic Interventions: 4th Lekki Roundabout

4th Lekki Roundabout / Before

4th Lekki Roundabout / After

Travel time reduced from 2hr. to 30min.

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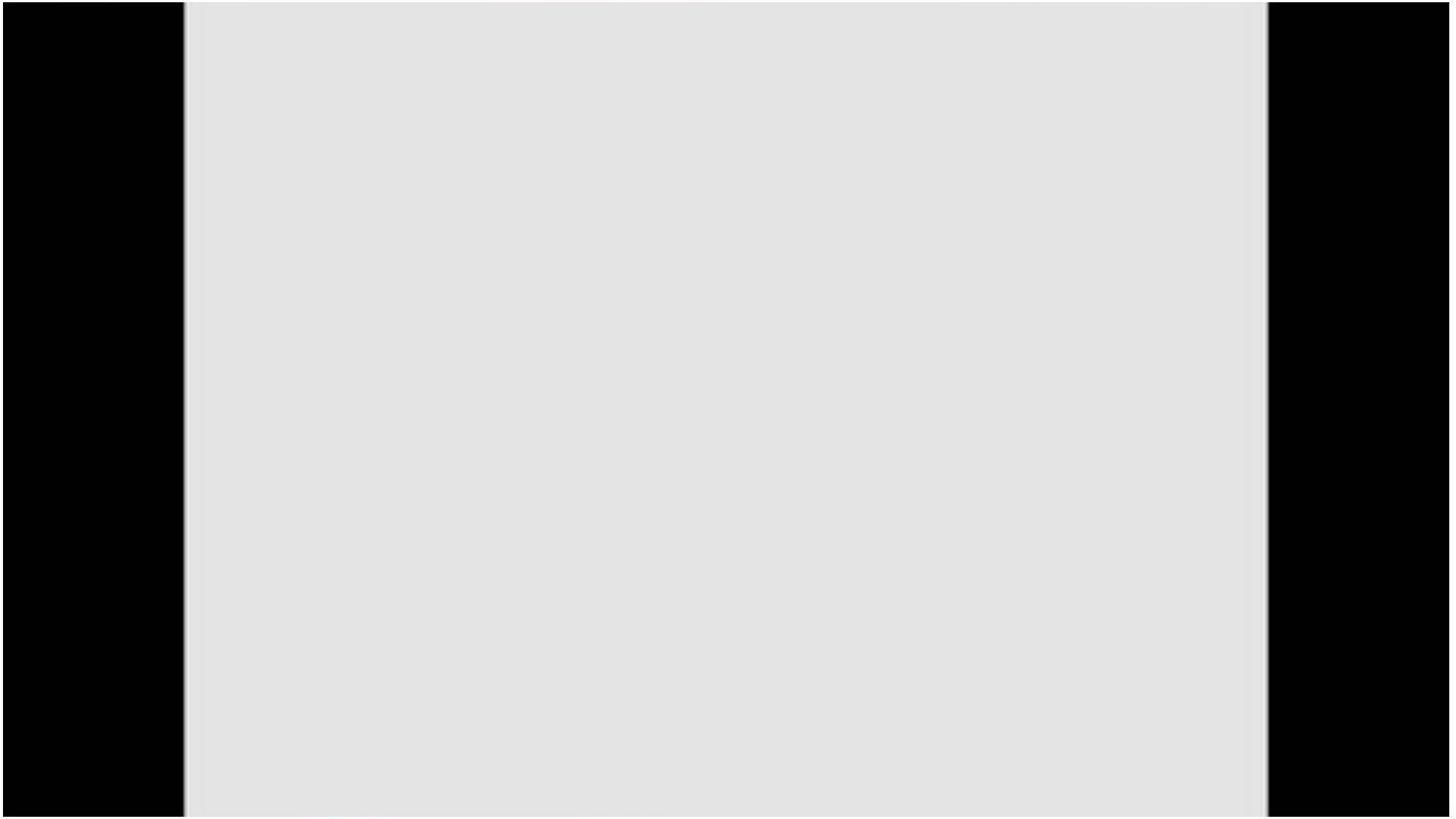
Winner of the UITP African Award for Integrated Mobility in Public Transportation (UITP 60th Congress, Geneva, Switzerland, 2013)

Traffic Interventions: 5th Lekki Roundabout

- 5th R.A (Jakande) / Before

- 5th R.A (Jakande) / After

Lekki JIW Video



Lekki – Epe Expressway JIW: Benefits

Benefits of Lekki Junction Improvement Works (JIW)

Lekki Epe Express Way: Toll Gate - Abraham Adesanya (15 km)

Average Daily Traffic Volume

56,832-Pre JIW
60,487-Post JIW

6% ↑

Corridor Average Journey Time

98 Mins-Pre JIW
38 Mins-Post JIW

61% ↓

Average Fuel Consumption per Vehicle Along the Corridor

4 Litres - Pre JIW
2 Litres- Post JIW

50% ↓

Monthly Cost Savings (Journey Time Savings & Fuel Savings)

₦83,850 / Person - Pre JIW
₦47,400 / Person - Post JIW

44% ↓

Alapere Bus Shelter: Before & After

Before

After

Alapere Layby: Before & After

Before

After

Alapere Layby: After

After

Alapere Layby: Before & After

Before

After

42

Alapere Layby: After

After

43

Alapere Layby: After

After

PPL – Junction Improvement Works (JIW)

The Alapere junction experiences acute traffic congestion which ensures that the IBB Boulevard is on standstill with queues extending over 2 km up to Ogudu, and it takes about 40 minutes to cross this junction.

In solving this traffic congestion, PPL constructed a 550 m (2-lane) slip road to by-pass the junction and provide extra capacity for vehicles turning into Alapere.

Other interventions include junction channelization, street lights, signages, horticulture and the construction of a proper bus stop and lay-by with a capacity of 15 vehicles at a time for the use of public transport operators.

Alapere Junction Improvement Works & Slip Road, Lagos

Alapere Dualized Road: Before & After

Before

After

Alapere Dualized Road: After

After

Alapere Dualized Road: Before & After

Before

After

Alapere Dualized Road: After

After

Alapere Dualized Road: Before & After

Before

After

Alapere Dualized Road: After

After

51

Iyana Oworoshoki Layby: Before & After

52

Iyana Oworoshoki Layby: After

After

Berger Intersection: Before & After

54

Berger Intersection: After

After

Ogudu Layby: Before & After

Before

After

Ogudu Layby: After

After

57

Abule Egba Flyover: Before & After

Before

After

Abule Egba Flyover: After

After

Traffic Management Solutions:
Flyover Bridge at Ajah Junction

Ajah Roundabout /
Before

Ajah Jubilee Fly Over /
After

Ajah Jubilee Fly Over

Ajah Jubilee Fly Over /
After

Traffic Management Solutions: Abule Egba Jubilee Fly Over Bridge

Abule Egba Fly Over / Before

Abule Egba Fly Over / After

Abule Egba / After

Abule Egba Fly Over / After

Abule Egba Fly Over / After

Abule Egba Fly Over / After

Shelters and Laybys, with Passenger Information System (PIS)

Shelters and Laybys, with Passenger Information System (PIS)

Alapere Bus Shelter: Before & After

Before

After

64

Alapere Bus Shelter: After

After

Alapere Lay-Bys & Bus Shelter

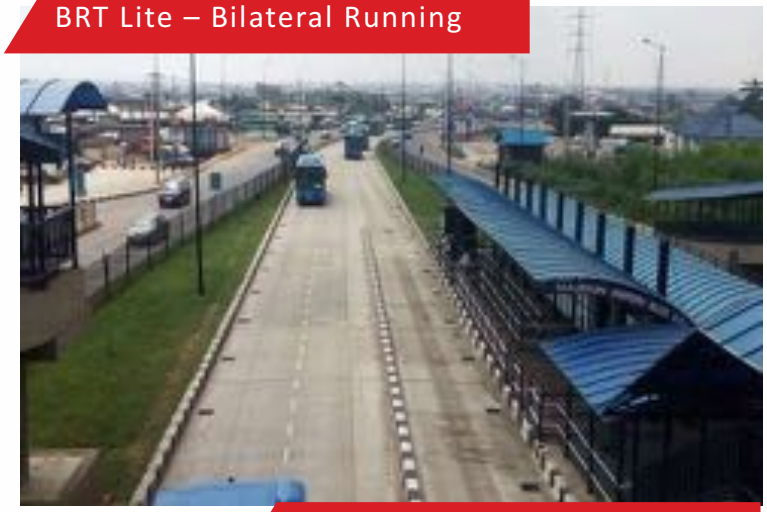
Bus Based Solutions:

- **Bus Rapid Transit (BRT)**
- **Bus Reforms (Terminals)**

Lagos Bus Rapid Transit (BRT) Corridor: Phase 1 & 2

Lagos BRT Lite & Classic

BRT Lite – Bilateral Running



BRT Classic – Median Running

- 300,000 Pax/Day
- 35 Km Corridor Length
- Median Running (BRT Classic – 13 Km)
- Bilateral Running (BRT Lite – 22 Km)
- 436 Buses
- 18 Hours Operation
- Segregated Lanes (70%)
- Air Conditioned Buses
- Off board Fare collection
- 2 Bus Depots
- 5 Bus Terminals
- 45 Bus Stations
- Control Center
- Intelligent Transport System (ITS)

Evolution of Lagos BRT

2008

Lagos BRT Lite

- Bilateral Running
- 220 Ashok Leyland Buses
- 26 Bus Shelters
- Pedestrian crossings

2016

Lagos BRT Lite Extension

- Median Running
- 434 Air-conditioned Yutong Buses
- 44 Bus Shelters
- Pedestrian Bridges
- ITS
- Electronic Ticketing option

2018

Oshodi – Abule Egba BRT (Under Construction)

- Median Running
- 300 Air-conditioned
- Yutong Buses
- Bus Shelters
- Pedestrian Bridges
- ITS

Transition of Bus Systems in Lagos (2005 – 2018)

'Danfo' bus

- Rickety buses
- Unregulated fare regime
- Informal Sector

- No Shelters

BRT Lite bus (Ashok Leyland)

- High Occupancy Buses (42 Seats)
- Bilateral Running (65%)
- Mixed Traffic (35%)

- Smaller Shelters

BRT Classic buses(Yutong)

- High Occupancy Buses (42 Seats)
- Air Conditioned buses
- Intelligent Transport System (ITS)

- Bigger Shelters

Lagos BRT: Oshodi - Abule Egba Corridor
(Under construction)

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(UITP 60th Congress, Geneva, Switzerland, 2013)

Characteristics of Lagos BRTs

Parameters	Lagos BRT Lite: Phase 1	Lagos BRT Extension: Phase 2	Oshodi – Abule Egba
Start of Operations	2008	2016	Under construction Operations to begin by Oct 2018
Corridor Length	22 km	13.5 km	14 km
Right of Way	Bilateral	Median	Median
Financed by	Lagos State Government	French Development Agency & World Bank	Lagos State Government
No of Bus Stops	26	18	14
No of Terminals	3	2	4
No of Bus Depots	1 (approx. 22,000 m^2)	1 (approx. 40,000 m^2)	TBD
No of Buses	220	434	300 (Estimate)
Hours of operations	16 hours (6:00 am – 10:00 pm)	16 hours (6:00 am – 10:00 pm)	TBD
Project Cost	$ 28.13 million	$ 222 million	$ 98 million
Cost per km	$ 1.3 million	$ 16.5 million	$ 7 million
Average daily ridership	200,000 pax	150,000 Pax	262,000 Pax. (Estimate)

Benefits of Lagos BRT

- Better Mobility across the city
- Reduction in traffic congestion
- Employment generation:
  - The current BRT scheme generated over 2,000 jobs;
  - Drivers, bus conductors, inspectors, ticket sellers, bus washers, mechanics and many others;
  - Over 10,000 indirect jobs relating to operators of formal and informal park and ride facilities, mini fast food services and so on have been created;
- The BRT scheme has brought about significant lifestyle changes:
  - Orderly movement of about 52 Million passengers in 1 year;
  - Time Management for commuters;
  - Environmental benefits through reduced noise & air pollution;
  - Health Benefits through reduced respiratory diseases
  - Reduction in fuel consumption for private car owners who switch to the BRT
  - More disposable income

Lagos Bus Reforms Project

Justification for the Lagos Bus Reform Project

- High rate of Road Traffic Accidents (RTA)
- Insecurity – armed robbery, kidnappings, etc.
- High pollution across the metropolis;
- High stress levels amongst Lagos residents;
- Lowered productivity due to traffic congestion and stress endured in moving around the Lagos Metropolis;
- Less competitive economy

How Long Can we continue like this??

Lagos Bus Reform Agenda

Lagos Bus Reform Agenda!

- *Systematic restructuring of the existing PT bus operations in Lagos through the introduction of a modern, safe, convenient, fuel efficient, environmental friendly and air conditioned buses to replace the existing old, dilapidated and rickety danfos from major roads in Lagos.*

Lagos Bus Reform: Strategic Public Transport Projects

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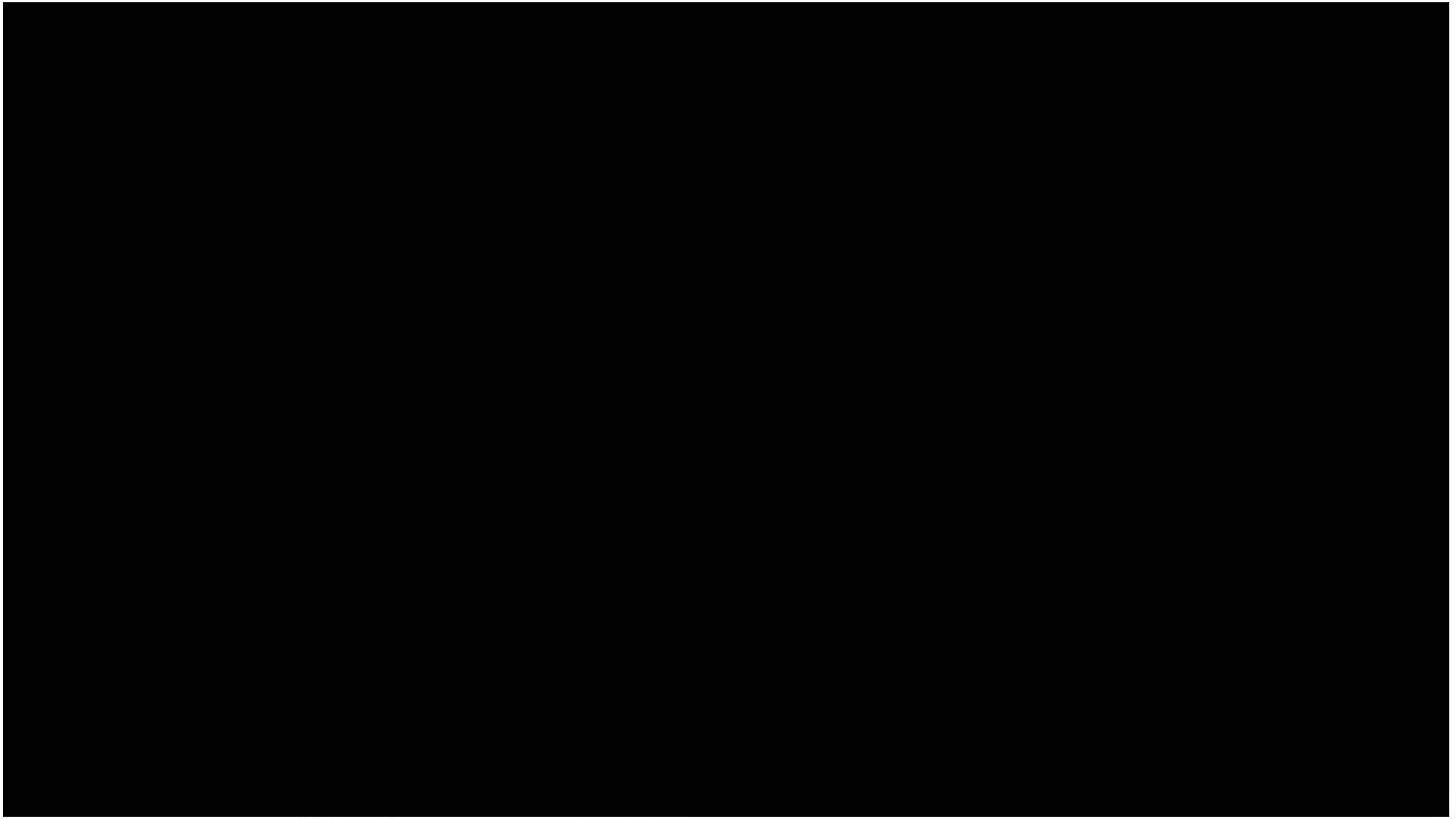
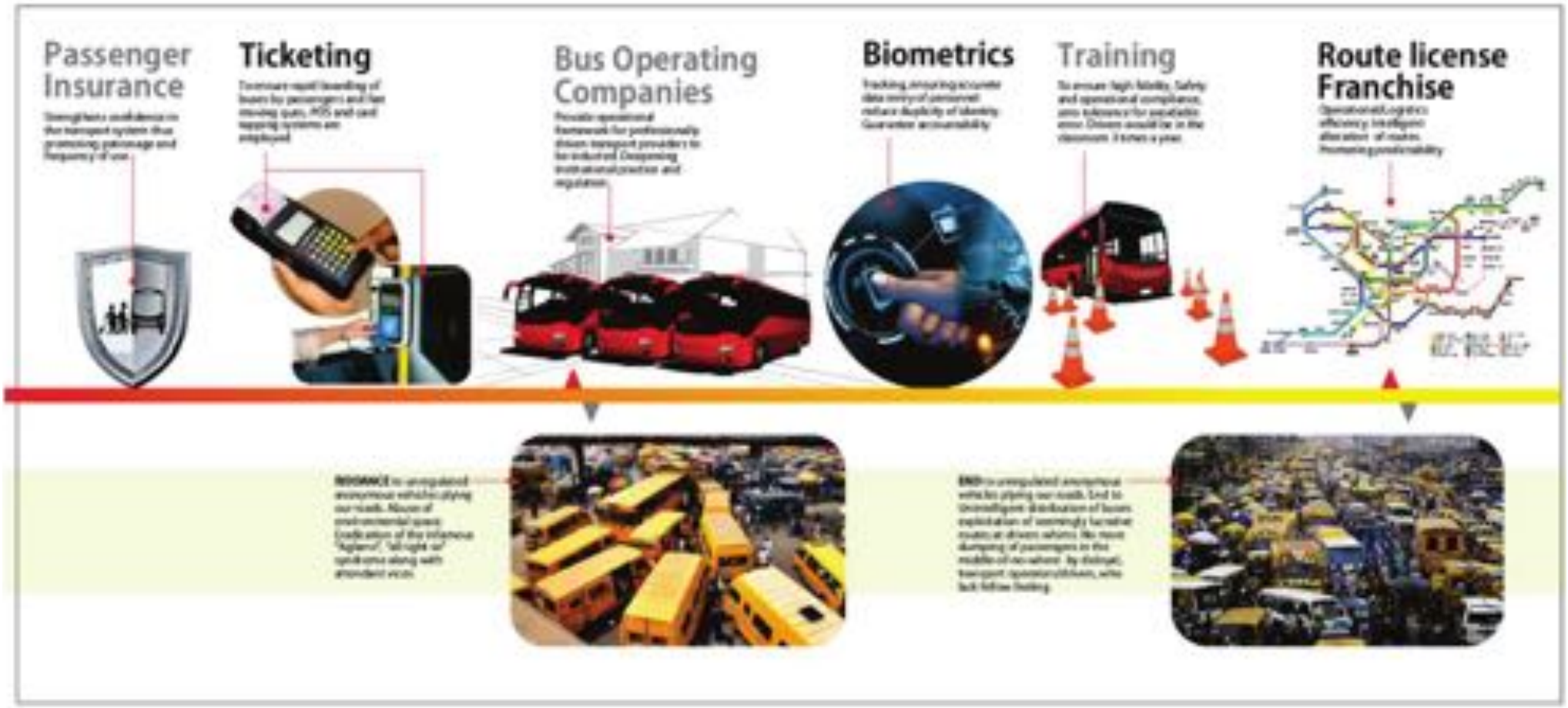
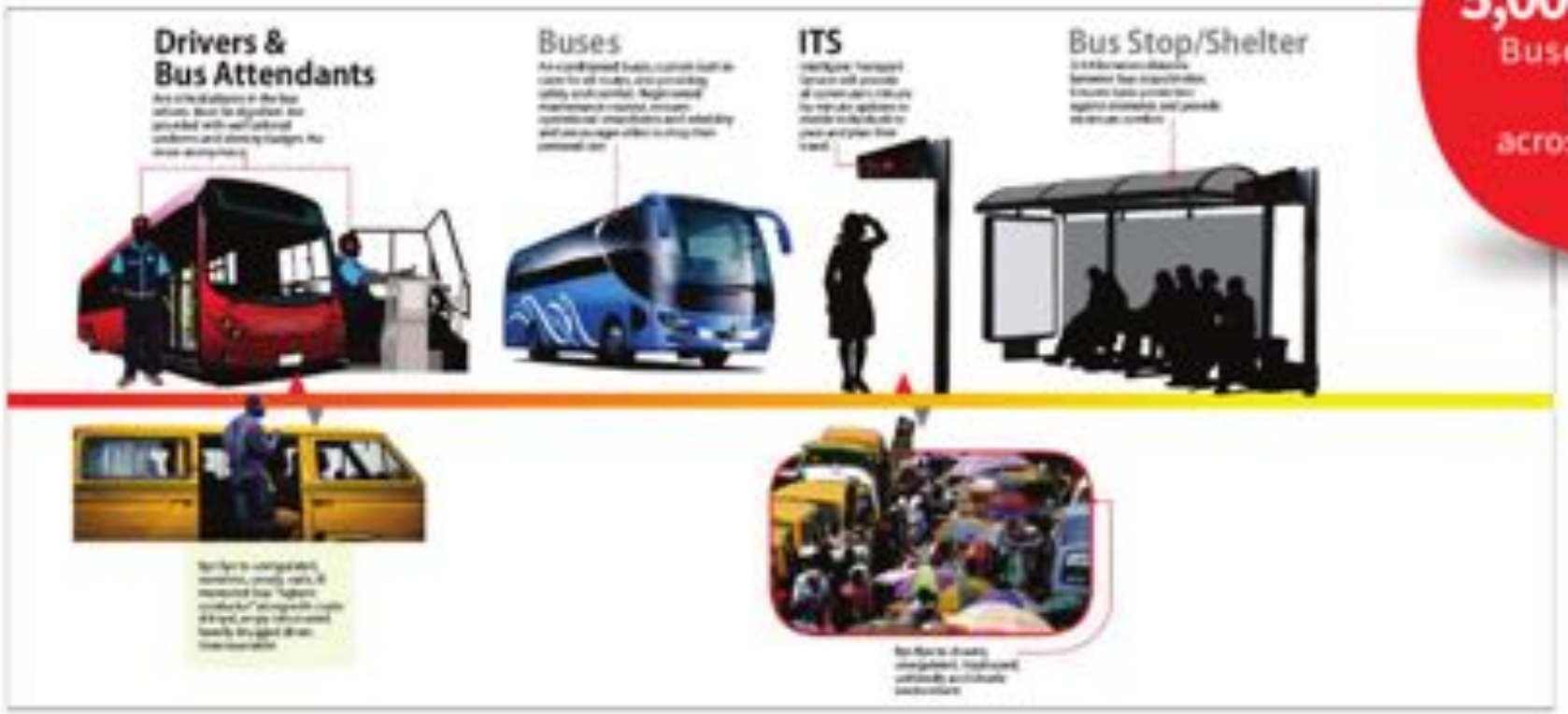
Lagos Bus Reform Video



Lagos Bus Reform: ITS



Lagos Bus Reform: ITS



Over
5,000 A/C HoV
Buses to replace
Danfo
across Lagos State

Ikeja Bus Terminal

- Ikeja Bus Terminal / Before

- Ikeja Bus Terminal / After

- Ikeja Bus Terminal / After

Ikeja Bus Terminal

Ikeja Bus Terminal: Interior

Ikeja Bus Terminal: Ticketing Booths

Ikeja Bus Terminal: Bus Loading Bays

...the future is public transport

Winner of the UITP African Award for Integrated Mobility in Public Transportation
(UITP 60th Congress, Geneva, Switzerland, 2013)

Ikeja Bus Terminal: Night View of Loading Bays

...the future is public transport

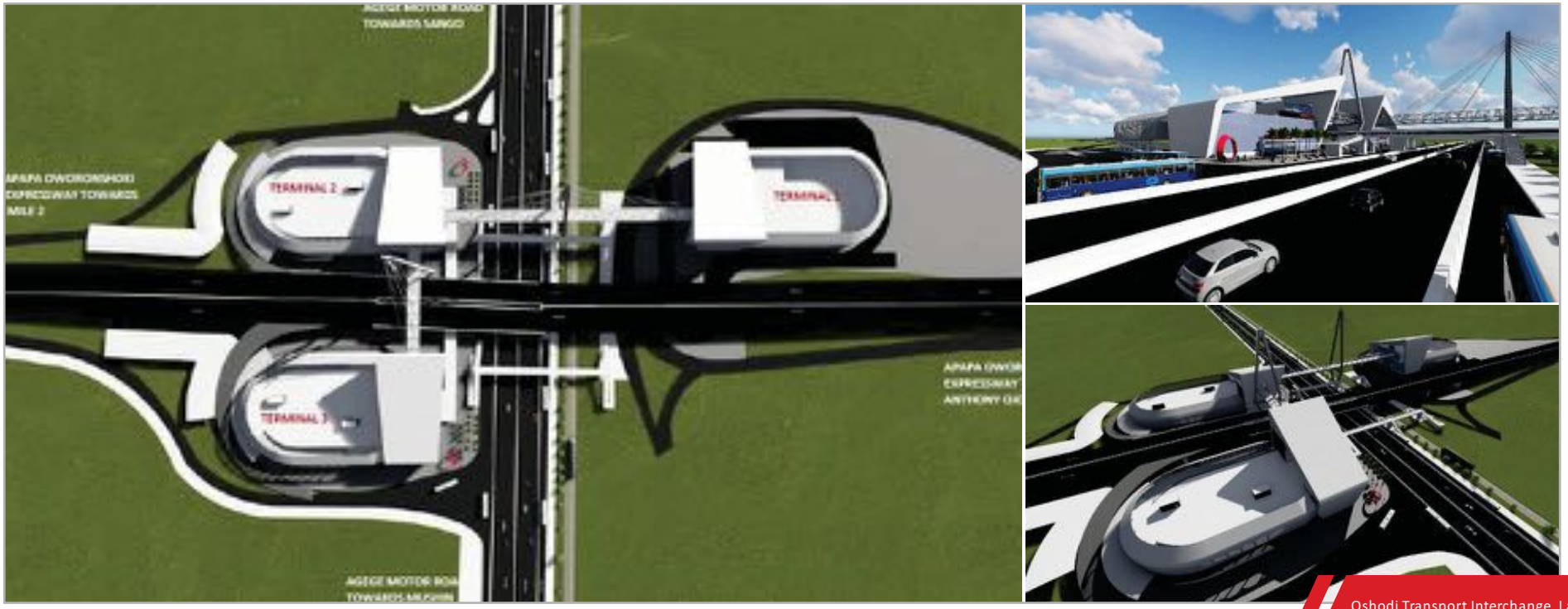
Winner of the UITP African Award for Integrated Mobility in Public Transportation
(UITP 60th Congress, Geneva, Switzerland, 2013)

Ikeja Bus Terminal (Night View)

Presidential Commissioning of the Ikeja Bus Terminal

29th March 2018

Oshodi Transport Interchange



Oshodi Transport Interchange, Lagos

The Oshodi Transport Interchange concept, developed by PPL, seeks to transform Oshodi into a world-class Central Business District (CBD) with business, travel and leisure activities conducted in a serene, secure, clean, orderly and hygienic environment, comparable with other transport terminals around the world including Stratford and Victoria Bus Station in the United Kingdom.

PPL was appointed as the Engineering and Construction (E&C) contractor, and the services being provided includes Engineering and Construction, (E&C); Project Development; Traffic Surveys – Bus Park Surveys, Manual Classified Counts; Boarding &Alighting Counts; Roadside Interviews, etc.; Architectural and Detailed Engineering Designs; Bills of Engineering Measurements and Evaluation (BEME). Construction works are still ongoing.

Oshodi Transport Interchange, Lagos

Oshodi Transport Interchange, Lagos

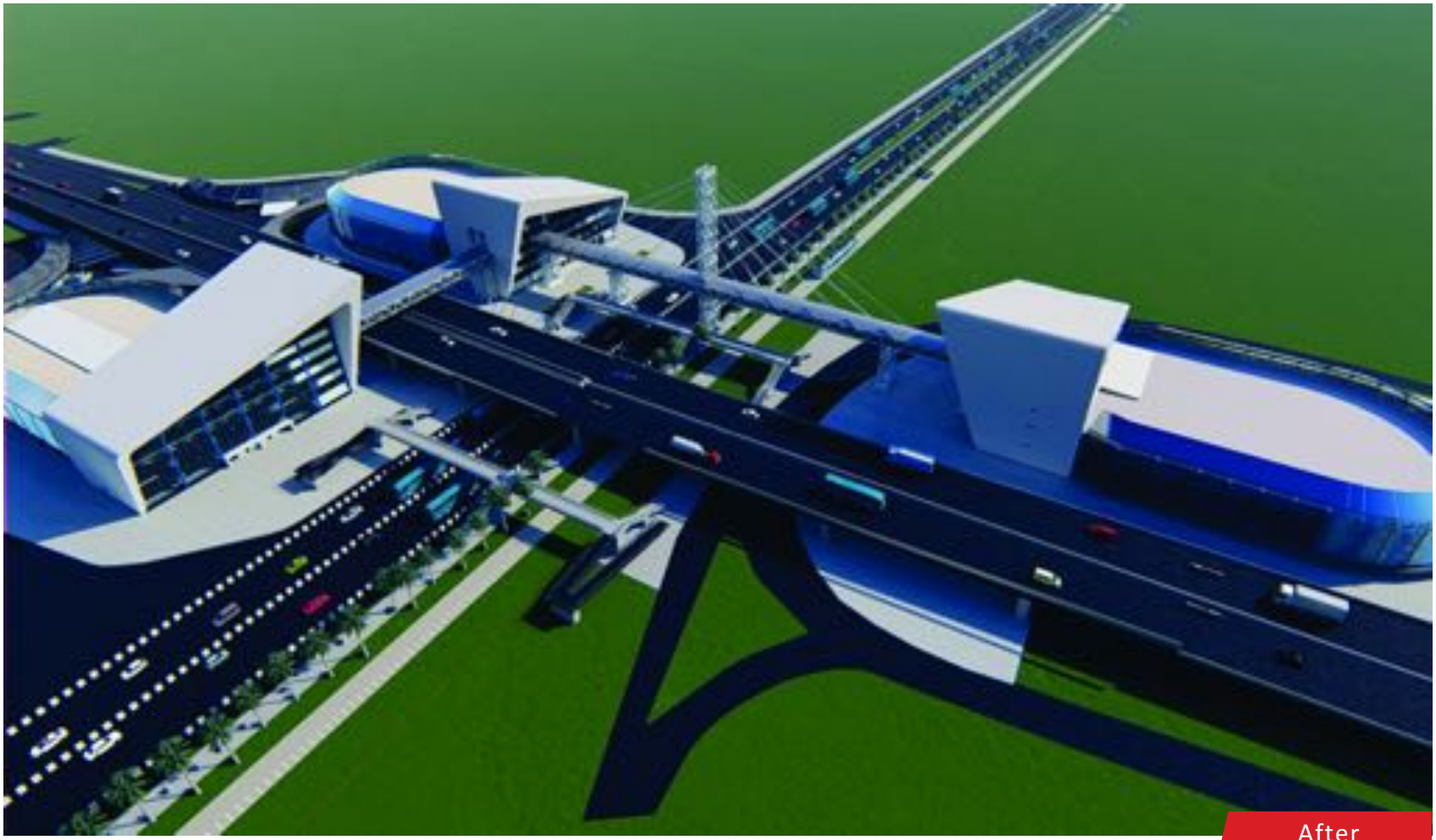
Oshodi Transport Interchange: Before, Present & After

Before

Present

After

Oshodi Transport Interchange: After



After

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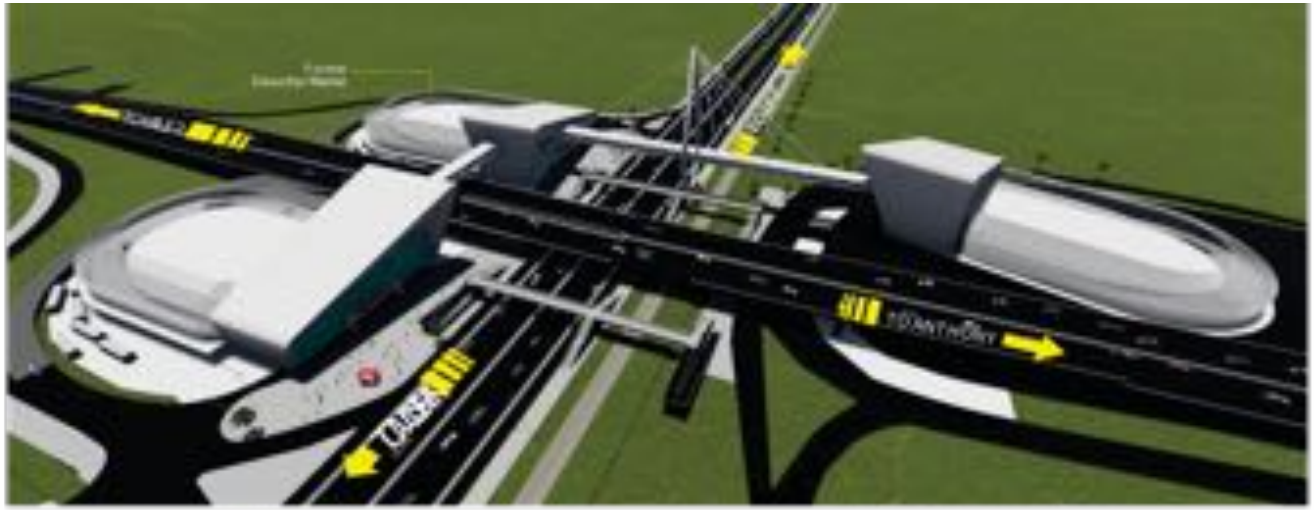
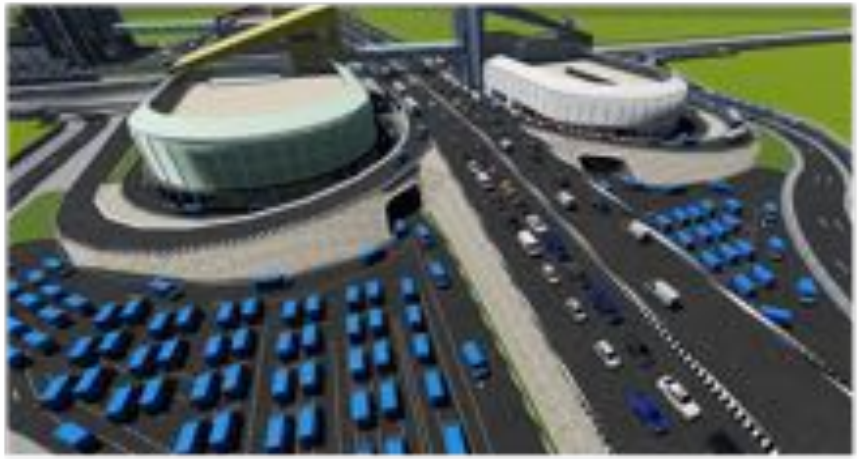
Oshodi Transport Interchange

Oshodi /
Before

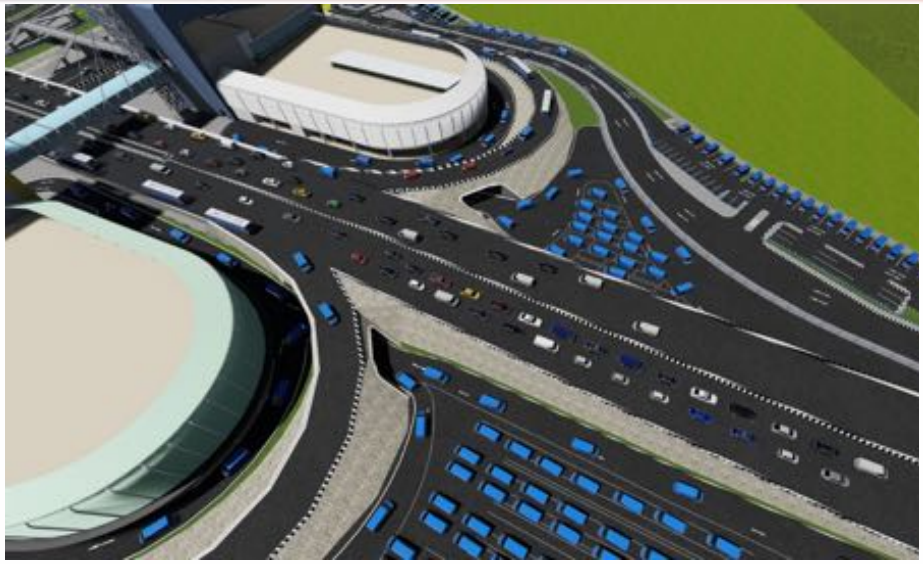
Oshodi Transport Interchange /
On-going

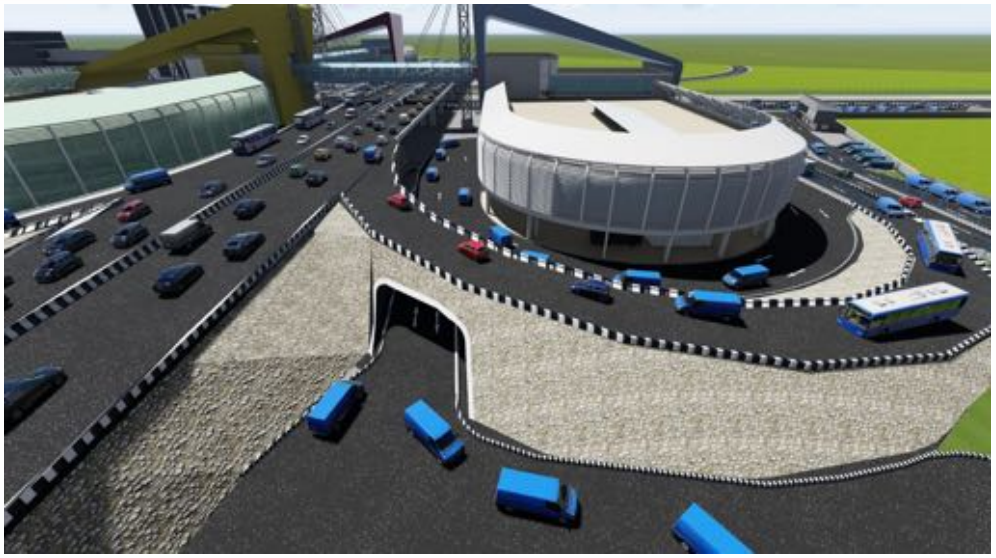


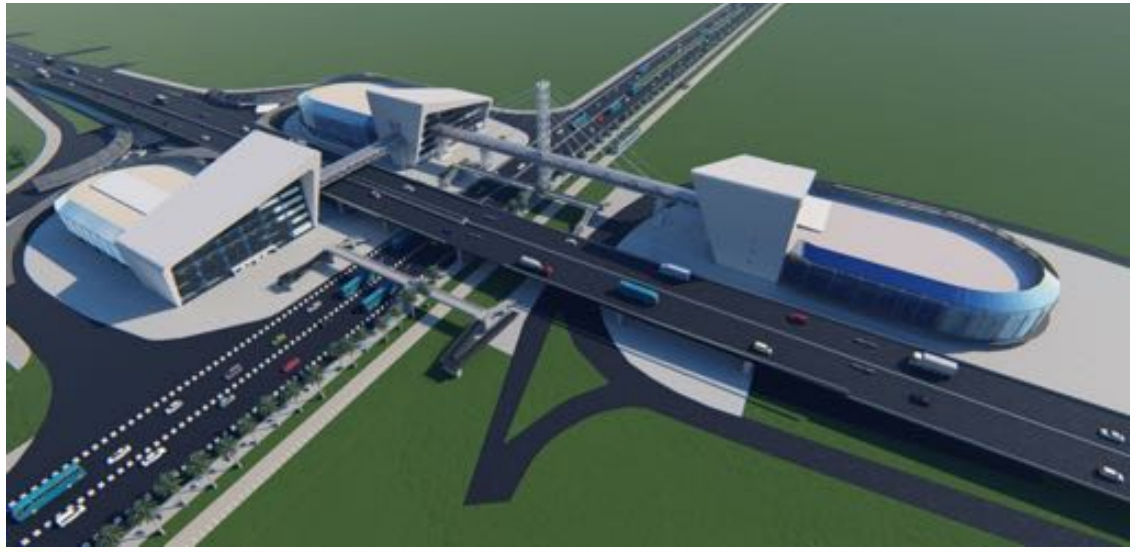


The Vision

Oshodi Transport Interchange: 3Ds







Oshodi Transport Interchange:
Ongoing Construction

Oshodi Transport Interchange, Lagos

Oshodi Transport Interchange, Lagos

TBS Terminal

Other Terminals in different stages of Construction

Ojota

Agege

Ojota

CMS

Proposed Agege Terminal

…before

…after

Proposed Ojota Terminal

…after

…after

Socio-Economic Benefits of Bus Terminals and Bus Shelters

- Improved Accessibility to Public Transport
- Improved Connectivity for Businesses
- Increased Safety of Public Transport Users
- Improves Public Transport Image and Ridership
- Allows Government to Tax Sector Appropriately

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Lagos Strategic Transport Master Plan (STMP) 2005 – 2025

3 Rail Lines in Service:
- Blue Line
- Red Line
- Green Line

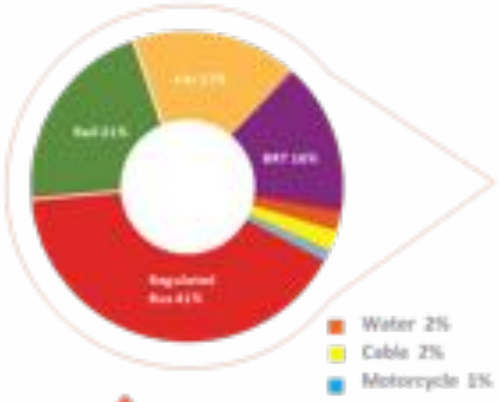
13 BRT Lines in Operations

40 Strategic Transport Zones completed

30Water Transport Routes operational

Lekki Airport Operational

Lagos Integrated Transport System



Strategic shift of Lagos transport System from cars and Danfos to Integrated Public Transport System across - Rail, BRT, Bus, Water and Air Transport

Benefits

- Eliminates chronic congestion on roads across Lagos State
- Over 200% improvement in Transport mobility
- Attracts massive investment
- Citizens are safe and secured
- Improved Security
- Jobs / Employment generations for citizens
- Per capital income will increase by over 100%
- Productivity Doubled

- GDP: $200 billion per annum
- IGR: $300m Per month.

Lagos: 3rd largest economy in Africa !

...the future is public transport

Winner of the UITP African Award for Integrated Mobility in Public Transportation
(UITP 60th Congress, Geneva, Switzerland, 2013)

Shelters and Laybys, with Passenger Information System (PIS)

Kampala

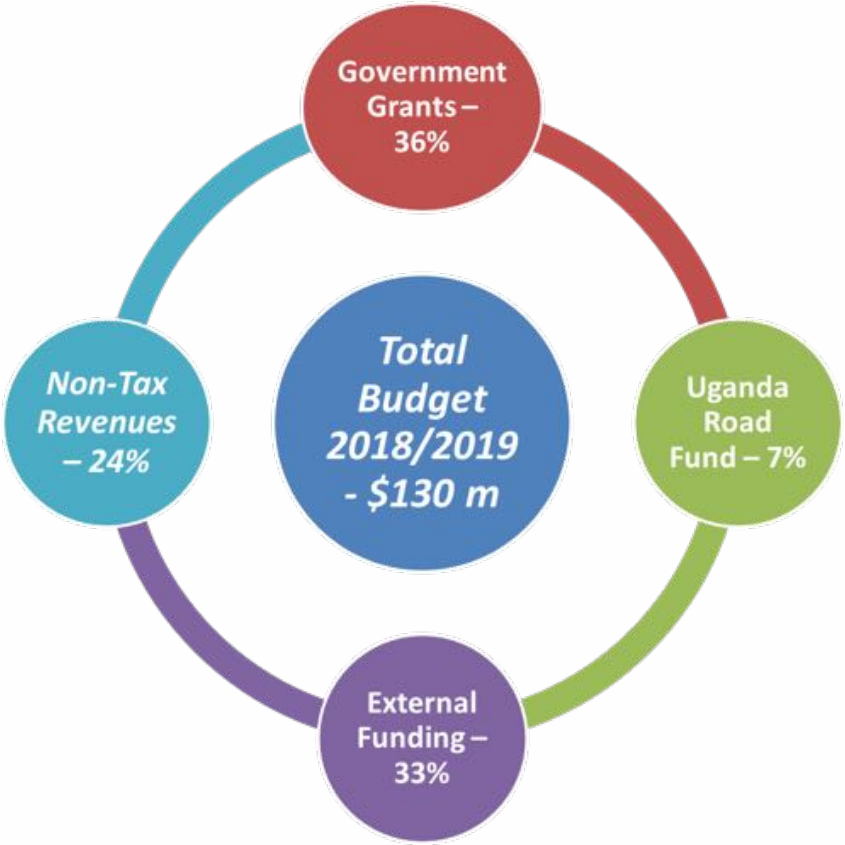
PLANET PROJECTS

...the future is public transport

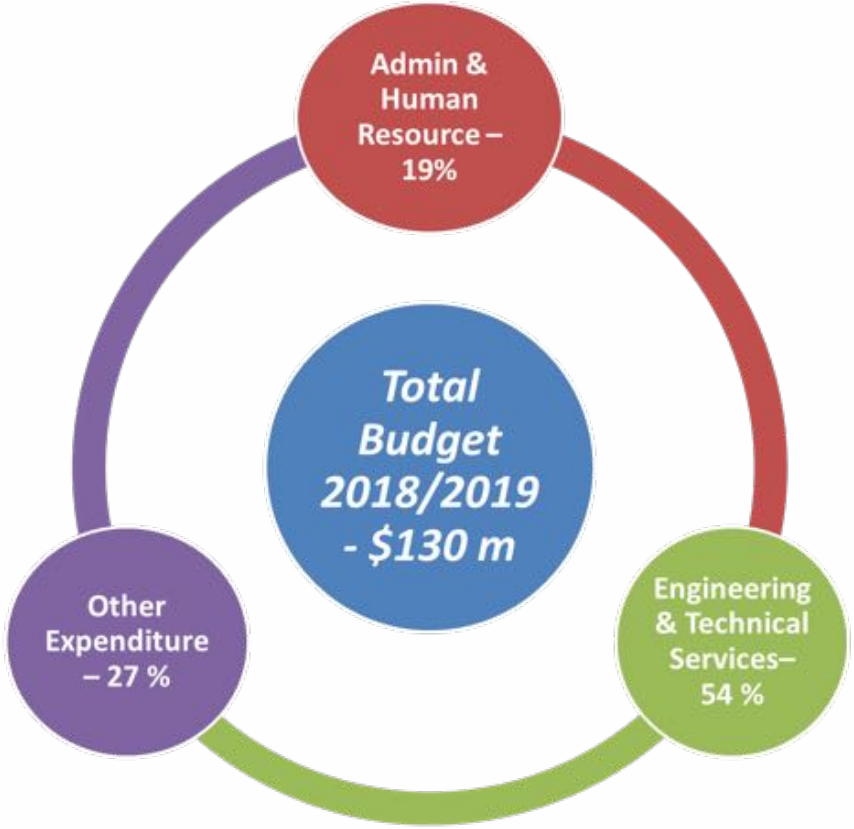
This is Kampala…

Kampala Capital City Authority (KCAA)

Revenue Mix



Expenditure Profile



Source: http://www.monitor.co.ug/News/National/Kampala-s-proposed-2018-19-budget-at-a-glance/688334-4390780-7xl4hi/index.html

Current Transport Challenges in Kampala

There are over 100 unregulated parks scattered along the main roads in Kampala

Unregulated Bus parks and matatus along the main roads

Over 100,000 Motorcycles (Boda-Bodas) operate in the Greater Kampala Metropolitan Area

Unregulated Boda-Boda operations

Current Transport Challenges in Kampala

The roundabouts are a major source of Traffic Congestion

Traffic Congestion at Roundabouts

Majority of the intersections in Kampala are without traffic signals, thus prone to accidents

Few Traffic Signals at Intersections

Current Transport Challenges in Kampala

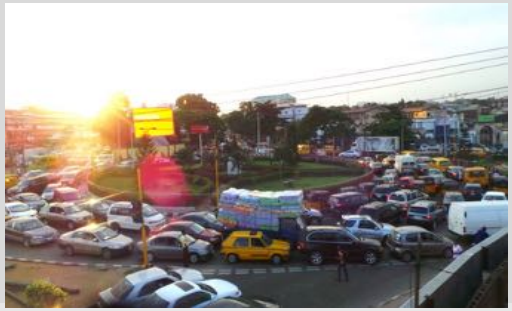
There are over 16,000 unregulated buses (Matatus) in the Greater Kampala Metropolitan Area (GKMA)

Unregulated Bus Operations

Roundabouts/Junctions are known to be major causes of Traffic Congestion

Traffic at a roundabout

Lagos & Kampala: Similarities in Traffic Challenges

Issues	Lagos	Kampala
Poorly regulated motor parks		
Traffic congestion at roundabouts		
Prevalence of paratransit		

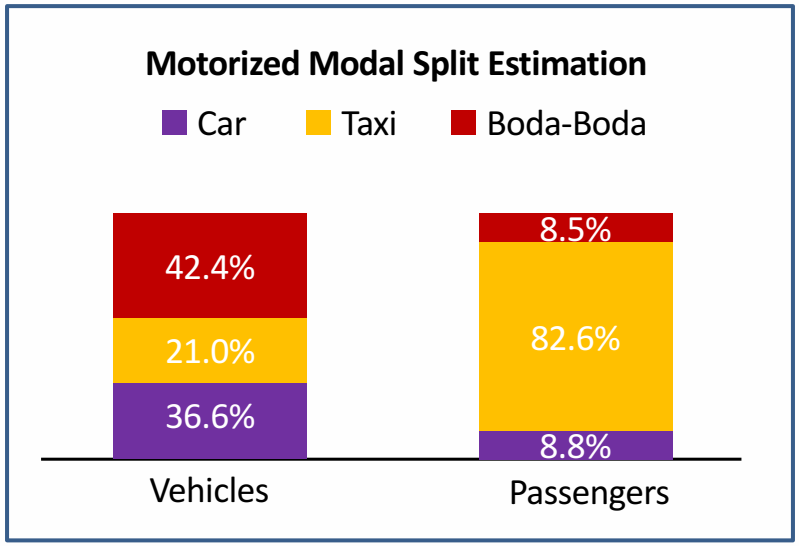
Kampala Transport Network in Context

Kampala has a road network of about 1,200 km, of which only 20% are in fair condition

Over ***400,000*** vehicles daily ply its roads that were built for less than ***100,000*** vehicles in the 1960s.

Kampala city is a major economic hub contributing to over 60% of the Uganda's GDP

Research shows that many commuters travel into Kampala by foot, some others by bicycle and others by motorized transport (i.e boda-boda, taxi & private cars)



- **A recent Study by KCCA and UNHABITAT revealed that *24,000 man hours* are lost each day by commuters due to traffic jam**
- **It's also estimated that traffic jams cost the economy *UGX 500m daily ($135,000)* in burnt fuel – *NEMA Uganda***

The BIG Question: MOBILITY

Mobility:

How best can we move people efficiently from point A to B for ease of accessing essential goods and services in our cities?

Kampala: What has been done!

S/No.	Name of Document	Prepared By	Year of Publication
1	Laying the foundation for Kampala City Transformation: Strategic Plan 2014/15 – 2018/19	KCCA	April 2013
2	International Development Association Project Appraisal Document on a proposed credit in the amount of SDR 113.70 million	World Bank	February 2014
3	Implementation completion and results report (IDA – 43670) on a credit in the amount of SDR 22.0 million	World Bank	June 2014
4	Bus Rapid Transit for Greater Kampala: Report 5A – Draft Final Report (Business Plan, Detailed Design and Impacts)	ROM, ARUP, AH	June 2014
5	Bus Rapid Transit for Greater Kampala: Final Report (Executive Summary)	ROM, ARUP, AH	October 2014
6	Kampala Capital City Authority (KCAA) Strategic Plan : 2014/15 – 2018/19	KCCA	2014
7	Kampala mobility map survey report	ITDP, KCCA, MOTW, UN Habitat	July 2015
8	African urbanization: An Analytic policy guide	International Growth Centre	May 2016
9	Cities & Infrastructure for Growth (CIG) Outline Country Scoping Report: Uganda	Infrastructure & Cities for Economic Development	January 2017
10	Multi-Modal Urban Transport Master Plan for Greater Kampala Metropolitan Area (GKMA) Key Specific Report: Comprehensive Survey and Data Collection	ROM, Cambridge, TNM, World Bank, KCCA	May 2017
11	Multi-Modal Urban Transport Master Plan for Greater Kampala Metropolitan Area (GKMA) Draft Final Report	ROM, Cambridge, TNM, World Bank, KCCA	October 2017
12	Multi-Modal Urban Transport Master Plan for Greater Kampala Metropolitan Area (GKMA) Detailed Project Implementation	ROM, Cambridge, TNM, World Bank, KCCA	January 2018
13	National Transport Master Plan Including A Transport Master Plan For The Greater Kampala Metropolitan Area	Ministry of Works and Transport	August 2019
14	Kampala is being transformed - (2011 – 2016)	KCCA	
15	African Cities – Opening Doors to the world	World Bank Group	

Multi-Modal Urban Transport master Plan for Greater Kampala Metropolitan Area (GKMA)

Our Comments

- PPL has reviewed different documents including the following:
  - Feasibility Studies for BRT in Kampala (2014);
  - The Kampala Capital City Authority Strategic Plan, 2014;
  - Greater Kampala Metropolitan Area Urban Multi-Modal Transport Plan 2017;
- There seems to be some contradiction in each of these documents. Which one is the city working with?
- The costs of Implementing the Plan seems quite high, when considered against the revenues and expenditure profile of the KCAA.

Objective of GKMA Multi-Modal Transport Plan

The transport system for the Greater Kampala Metropolitan Area (GKMA) should be efficient, integrated, sustainable, safe, and designed to promote socially inclusive economic and territorial development, ensuring a high quality of life for residents and visitors of the metropolis.

Project study Area *Culled from the GKMA Draft Master Plan*

Summary of Proposed Action Plans (GKMA Multi-Modal Transport Plan)

Institutional	Roads	Public Transport	Mobility Management and ITS	Non-Motorized Transportations	Safety
• Establishing a Metropolitan Transit Authority (MTA) • Public Service Contracts for Public Transport • Transportation Impact Assessment • Transportation Economic Feasibility Assessment • Transport Oriented Development	• Committed road projects included in the 2040 reference scenario: New road projects • Committed road projects included in the 2040 reference scenario: Urban and municipal road projects • Design guidelines for future urban and intercity road development/up grade projects • Transforming traffic circles into signalised intersections	• Optimal scenario routes – infrastructure and operations • Public transport station design principles • Bus and Taxi Park Reorganization • Reorganization of feeder PT network • Fare structure, ticketing, and fare collection • Passenger Information Systems • Park and Ride • Inland Water Transportation	• Street Signage and Marking • Parking Policy for the GKMA • Boda Boda Restriction Zone • ITS • Control Centre	• NMT Corridors • Sidewalks-Development and Maintenance Program • Pedestrian Zones and Boulevards	• Pedestrian Crossings

Proposed Implementation Plan

	Stations	Length (km)	Cost (M USD)	PILOT (2018-2021)		SHORT (2022-2025)		MID (2026-2030)		LONG (2031-2035)		HORIZON (2036-2040)		G. TOTAL
Sub-Urban passenger														
East		40	20	Design+Build	20	Operation		Operation		Operation		Operation		
West		67	101	Design+Build	101	Operation		Operation		Operation		Operation		
Metro Infrastructure														
Metro Kololo														
CDB / Nansana	12	12.8	1,076	Design		Build	1,076	Operation		Operation		Operation		
Metro / Namanwe/CBD	7	13.9	1,008			Design		Build	1,008	Operation		Operation		
Metro-CBD/Queensway	3	2.3	206					Design		Build	206	Operation		
Metro-Queensway/Kajansi	7	9.5	770							Design		Build	770	
LRT Infrastructure														
LRT-Busega/Port Bell	36	17.94	396	Design		Build	396	Operation		Operation		Operation		
LRT-Kira/Gaba	47	23.5	517			Design		Build	517	Operation		Operation		
LRT-East Ring	40	19.6	432			Design		Build	432	Operation		Operation		
LRT-Completion of Ring	71	35.3	777							Design+Build	777	Operation		
LRT-Extension to new neighbourhood	18	9	198							Design+Build	198	Operation		
BRT Infrastructure														
BRT-Pilot		22	330	Design+Build	330	Operation		Operation		Operation		Operation		
Dualization of BRT corridor		22	330			Design+Build	330	Operation		Operation		Operation		
BRT-Entebbe extension		31.6	474			Design+Build	474	Operation		Operation		Operation		
BRT-Masaka extension		18.2	273			Design+Build	273	Operation		Operation		Operation		
BRT-Bombo extension		5.6	84			Design+Build	84	Operation		Operation		Operation		
BRT-Gayaza extension		5.2	78			Design+Build	78	Operation		Operation		Operation		
BRT-Jinja extension		13.4	201					Design+Build	201	Operation		Operation		
Cable Car Infrastructure														
Cable Car-North		4.2	63	Design+Build	63	Operation		Operation		Operation		Operation		
Cable Car-South		6.1	92			Design+Build	92	Operation		Operation		Operation		
Soft Measures														
Taxi & Bus fleet renewal			465	Design+Build	465	Operation		Operation		Operation		Operation		
NMT		100	50	Design+Build	50	Operation		Operation		Operation		Operation		
Traffic Managemnt			15	Design+Build	15	Operation		Operation		Operation		Operation		
Control Center			10	Design+Build	10	Operation		Operation		Operation		Operation		
Parking			20	Design+Build	20	Operation		Operation		Operation		Operation		
Terminals			20	Design+Build	20	Operation		Operation		Operation		Operation		
Waterways and Ports				Design+Build		Operation		Operation		Operation		Operation		
Roads														
Street Rehabilitation				Ongoing		Ongoing		Ongoing		Ongoing		Ongoing		
Toll Roads				Build / Operation								Operation		
Road Projects				Build / Operation								Operation		
T O T A L				**1,094**		**2,803**		**2,158**		**1,181**		**770**		**8,006**
Average Per Annum				**273.50**		**700.75**		**431.60**		**236.20**		**154.00**		
Average Grand Total								**393.91**						

Transport Master Plan: BRT Plan

Transport Master Plan: Newly Proposed BRT 1 (Mukono – CBD)

Description	
Length	22.2 km
From	Mukono
To	CBD
Daily ridership	462,418
Required AM hourly frequency	82/72
Required AM Fleet Size	101/89
Construction Cost	330 mil USD
Fleet Procurement Cost	47.5 mil USD

BRT routes provide service to similar to the metro network however are different for two reasons. BRT routes have a higher frequency of stations providing higher accessibility. BRT 1 provides direct access from Mukono to the CBD.

Feasibility Study: Initial BRT Network

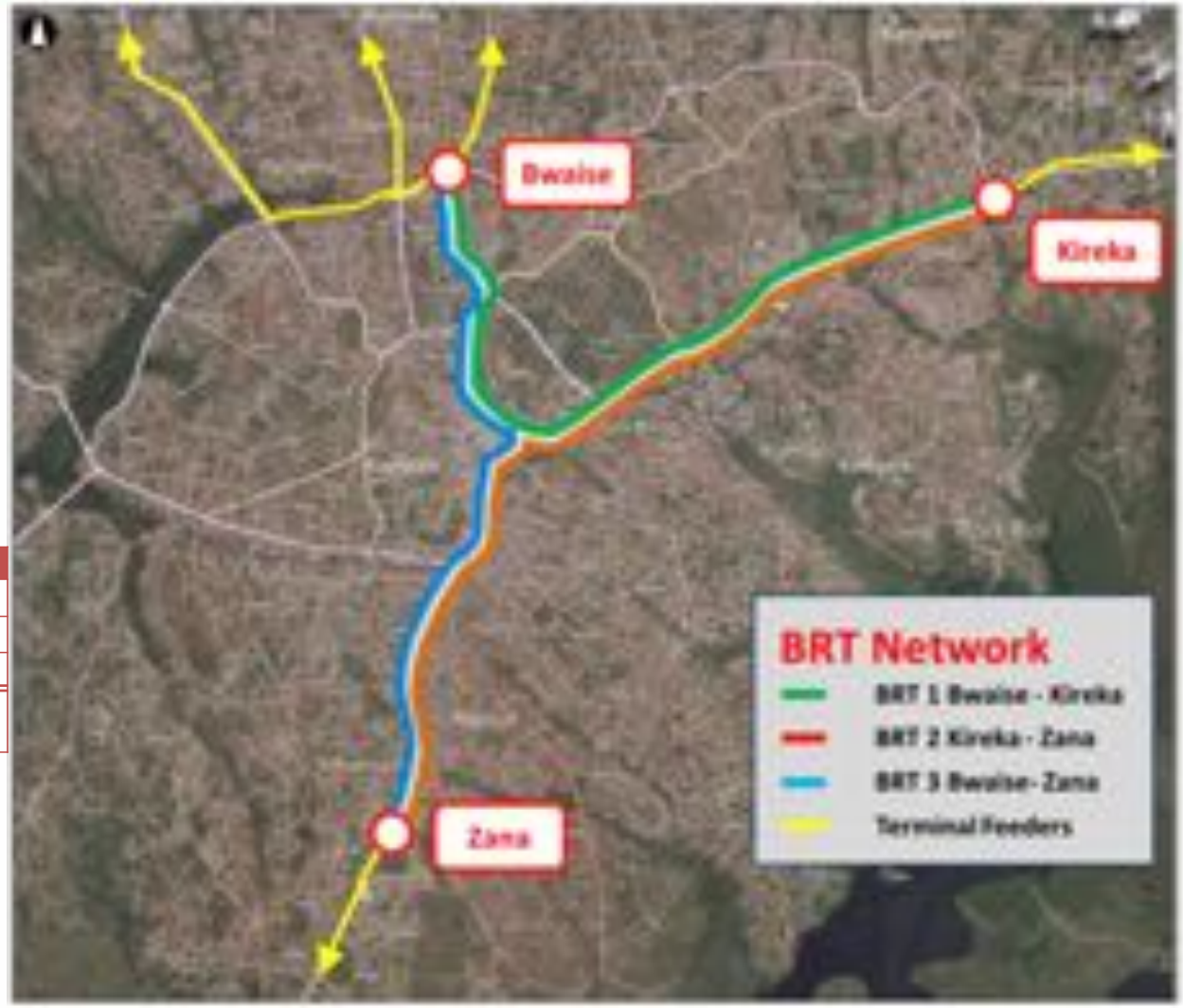
The Pilot BRT Network comprises of three BRT trunk lines;

- BRT 1: from Bwaise to Kireka
- BRT 2: from Kireka to Zana
- BRT 3: from Bwaise to Zana

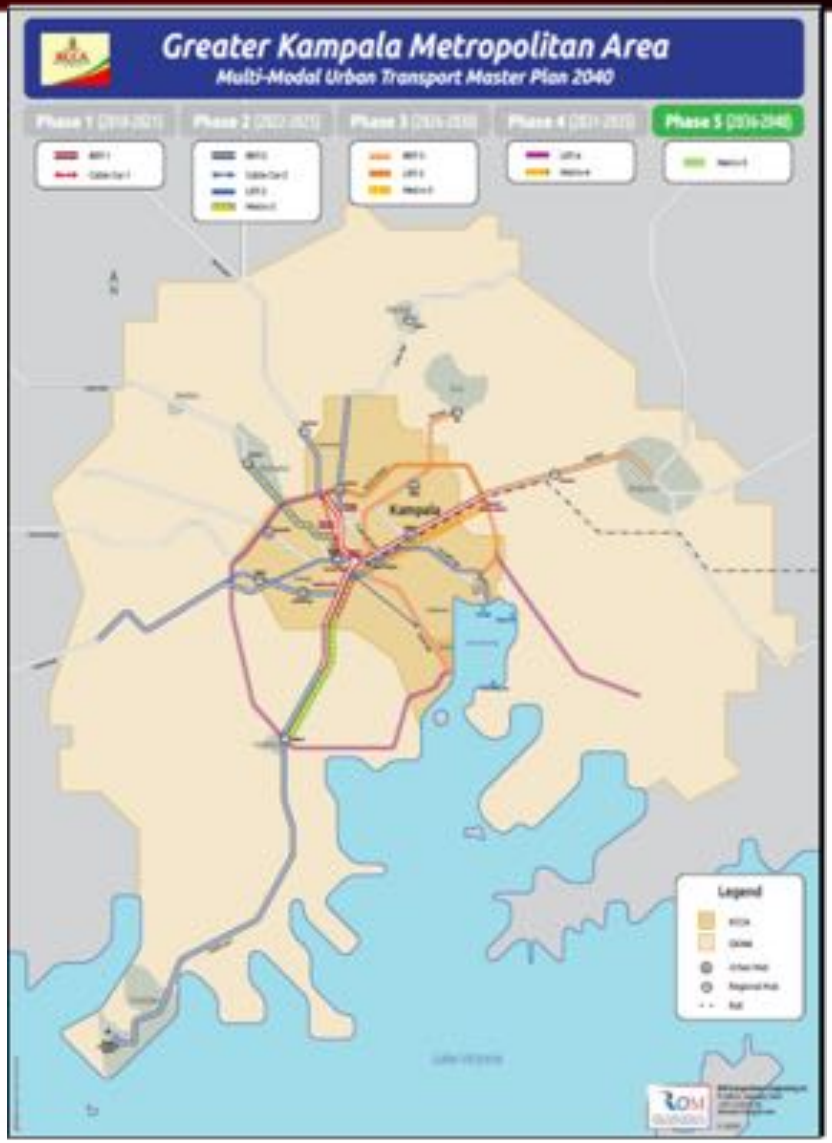
Characteristics:

- Total Length = 25km
- Fully Segregated Median Running BRT
- 18m Articulated low floored Buses Lanes
- Forecasted 2018 Passenger demand(Taxi) = 158,482
- Bus Capacity = 150 Passengers

Year	Scenario	Taxi	BRT	Feeders	Total PT
2012	base case	147,578			**147,578**
2018	no BRT	158,482			**158,482**
	with BRT	129,053	36,281		**165,334**
	with BRT + feeders	**116,886**	**36,900**	**14,944**	**168,730**



Proposed MRT Implementation Phases

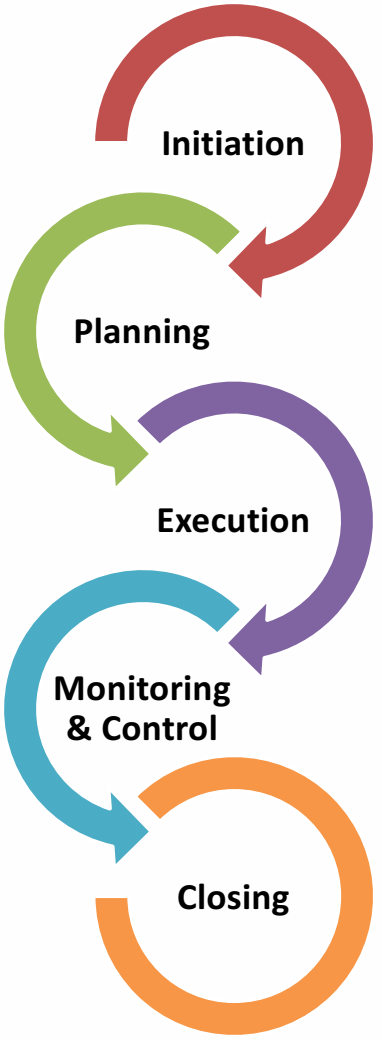


Issues and Solutions from the Lagos Experience

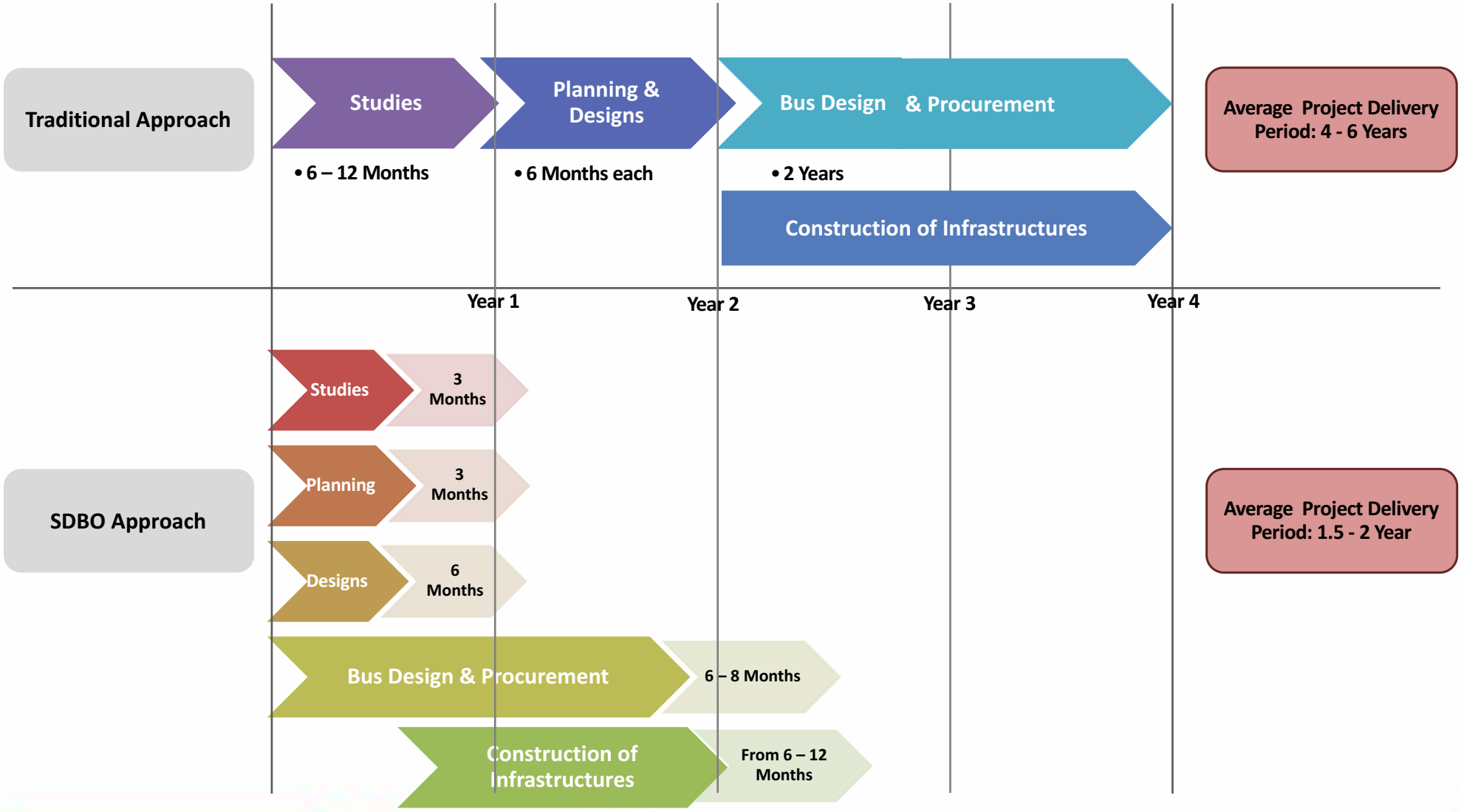
S/No	Issues	Proposed Solutions
1	Subsidies	Subsidies are being considered to ensure that operators can commit to agreed Service Levels.
2	Project Execution	It was necessary to reduce the scope of the BRT Lite, to the basic minimum, to make the project easy to implement and get the buy-in of all stakeholders. With the success of the BRT Lite, it was easier to add more features in the extension and in subsequent BRTs.
3	Institutional Development vs Project Execution	Institutional Development took about 5 years before the execution of projects. Is this the right model for Africa?
4	Public Transport (PT) Capacity	
5	Financing	Internal financing vs Development agencies. Financing from IDAs is time consuming and it is thus better to start with internal financing and thereafter get project support funds from IDAs.
6	Political Cycles	Lagos operates a 4-year cycle, which implies that projects need to commence and be completed within 4 years.
7	Procurement Process	A more compact procurement process leads to faster project delivery.

Project Cycle

- Urban Transport projects usually goes through a typical process of concept formation, engineering designs, funding, construction, and operations & maintenance (O&M);
- This requires long term planning and execution; & is highly dependent on stable government polices and well structured political institutions;
- A typical public transport project (e.g. Bus Rapid Transit – BRT) requires no less than six (6) years from concept to Bus operations.



Traditional Approach vs. SDBO Approach



Our SDBO Model

Studies & Planning

- Feasibility Studies –
  - Volumetric Counts
  - Occupancy Counts
  - Origin-Destination (O-D) Surveys
  - Customer Satisfaction Surveys
- Transport Planning – Travel Demand Modelling
- Route Selection
- Operational & Service Planning
- Determine Number of buses & configuration
- Cost Planning
- Impact Assessment

- **Month 0 – Month 3**

Design & Procurement

- Conceptual designs
- Architectural designs
- Artistic Impression
- Civil works
- Mechanical and Electrical Designs
- Extra Low Voltage Systems Design

- **Month 3 – Month 12**

Construction of Infrastructures

- Site Clearing
- Construction of Transport Infrastructure: Bus Stations, Lay-by, Bus Depot, Bus Terminals, Rail Stations etc.
- Quantity Surveying
- Quality Assurance and Control
- Traffic Systems Management (TSM) Measures

- **Month 3 – Month 12**

Operations & Maintenance (O & M)

- Transport Operations
- Operations and Control Centre
- Intelligent Transport Systems (ITS)
- Facility Management
- IEC/ Customer Service
- Safety & Security
- Branding & Advertisement

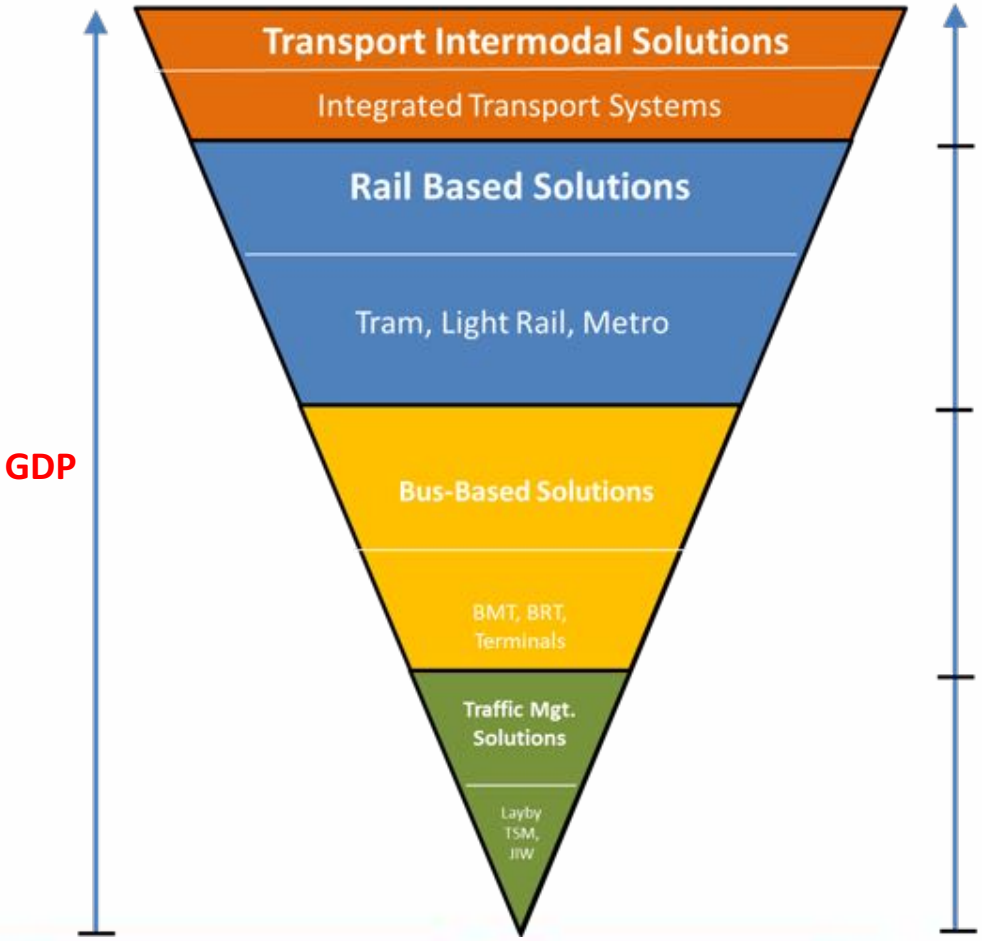
- **Month 9 – Month 12**

Finance

The Role of the Informal Sector

- The Informal or semi-formal transport sector (minibuses, taxis, motorcycles, etc.) in most developing cities form the backbone of urban mobility.
- More than 80% of the demand for public transportation in developing cities is met by the informal sector in the form of unregulated minibuses, taxis and motorcycles.
- In establishing a formal, regulated public transport system, how these privately provided systems are regulated and complemented would play a vital role in the success of the system. (IGC, 2018)

Which way Kampala?



KAMPALA (2018 – 2040)		
Interventions	**Total Cost (USD)**	**Timeline**
• CDB / Nansana • Metro / Namanwe/CBD • Metro-CBD/Queensway • Metro-Queensway/Kajansi • LRT-Busega/Port Bell • LRT-Kira/Gaba • LRT-East Ring • LRT-Completion of Ring • LRT-Extension to new Neighborhood	**5.380 bn**	Long Long Long Term
• BRT-Pilot: - *Phase 1 (CBD – Kireka)* - *Phase 2 (Kireka – Mukono)* • Dualization of BRT Corridor • BRT-Entebbe extension • BRT-Masaka extension • BRT-Bombo extension • BRT-Gayaza extension • BRT-Jinja extension • Taxi & Bus fleet renewal	**2.235 bn** *(186.3m)*	1 – 12 Years
• NMT • Traffic Management • Control Center • Parking • Terminals • Junction Improvement Works (JIW) • Laybys, Bus Shelters	**115 m** *(38.3m)*	Immediate Term (1 – 3 Years)

An example of BRT Project Delivery Comparison

Elements	BRT Phase 1	BRT Phase 2	Oshodi-Abule Egba BRT	Proposed Kampala BRT 1
Length	22 km	13.5 km	14 km	22 km
Running Lanes	Bilateral	Median	Median	Median
Entire Project Duration *(From Conceptualization to Operations)*	18 Months	60 Months	27 Months	?
Project Cost	$ 28.13 million	$ 222 million	$ 70 million	$ 330 million
Cost per Km	$ 1.3 million	$ 16.5 million	$ 5 million	$ 14.8 million
Source of Project Financing	Lagos State Government	French Development Agency & World Bank	Lagos State Government	?

Recommendation

- Kampala needs to focus on quick wins that can get to passenger service within a short time.
- This includes the Traffic Management and Bus Based solutions including the following:
  - CBD to Mukono; with CBD to Kireka being the first phase.
  - Junction Signalization;
  - Bus Terminals; Etc.
- The Studies – Design – Build – Operate (SDBO) Model can be considered.
- Financing: It is best to start with internal financing before approaching international development agencies (World Bank, JICA, AFD, etc.), as their processes is quite cumbersome.

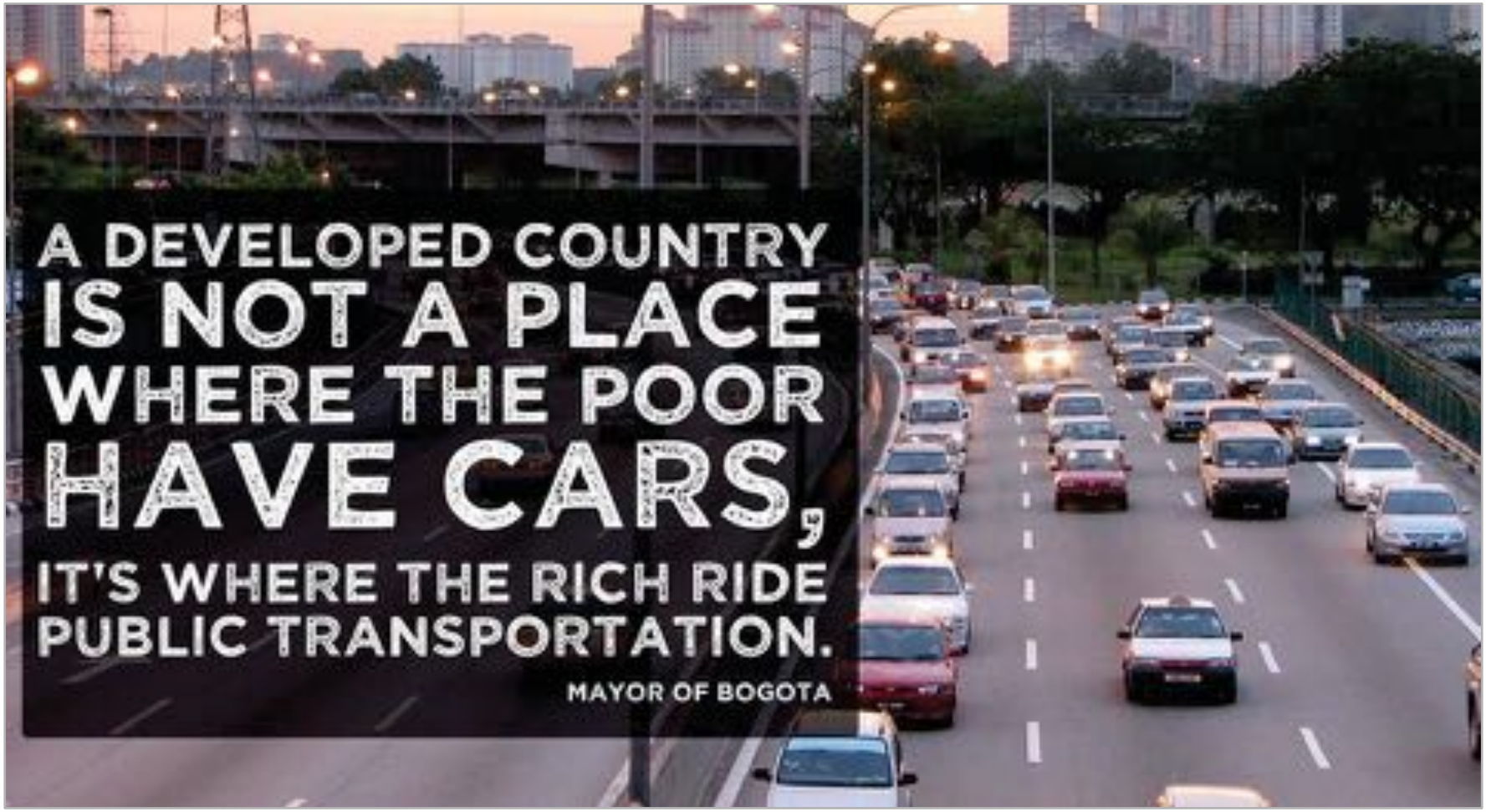
Lagos BRT Development Timelines

Next year TOP 10 Immediate actions (2018)

- Publish BRT tender
- Design NMT Highways
- Implement Parking plan
- Build up Project implementation Unit
- PT Re-Organization
- Bus and Taxi Park Re-organization
- Control Center Operation
- Roundabout removal and Signalization
- Detailed Workplan for Street Signage and Marking
- East SGR Detailed Design

Transport Master Plan: BRT Plan

The Key is Public Transport



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(UITP 60th Congress, Geneva, Switzerland, 2013)


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