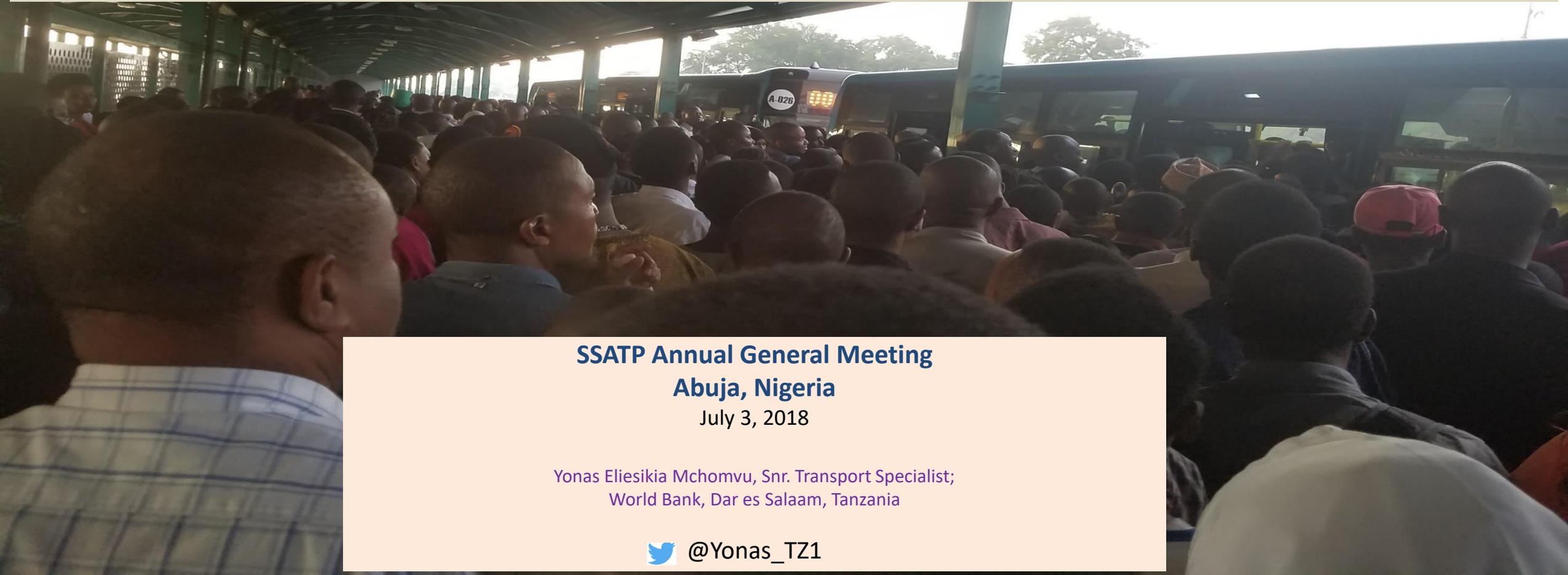


The Dar es Salaam Bus Rapid Transit (BRT) system



SSATP Annual General Meeting

Abuja, Nigeria

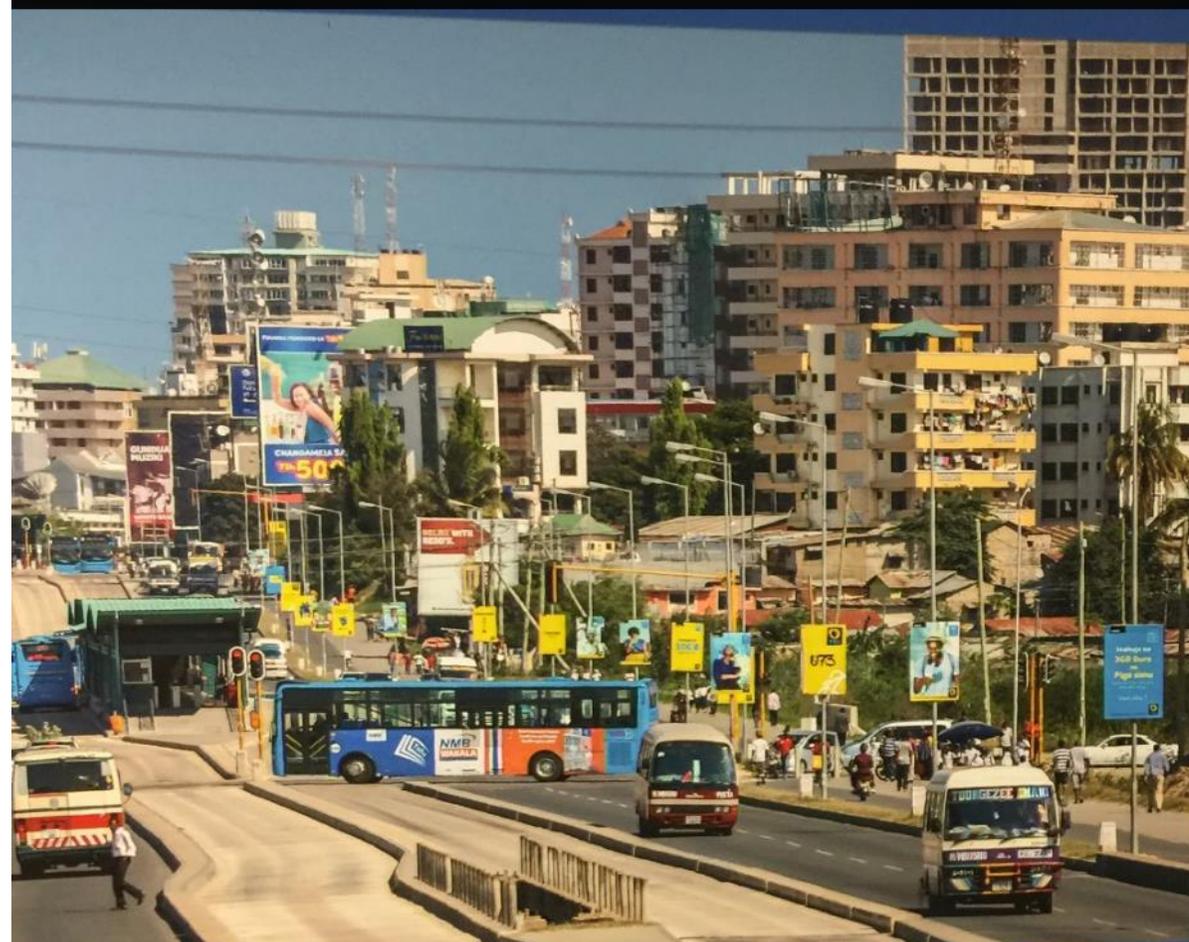
July 3, 2018

Yonas Eliesikia Mchomvu, Snr. Transport Specialist;
World Bank, Dar es Salaam, Tanzania

 @Yonas_TZ1

Outline

- Context
- BRT Network Design
- Dar BRT Implementation
- BRT Operations and Impacts
- Challenges – Teething problems
- TOD Piloting
- Scaling up
- Road safety
- Impact Evaluation Pilots



provide a
affordable
transport

The Challenge

Dar es Salaam's population is projected to reach 'mega city' status, which comes with the high cost of transportation. For many, it takes approximately 34% of their average monthly income to cover their commuting costs, a significant limiting resource, including time.

The Innovation

Dar es Salaam's new bus rapid transit system is designed to reduce transportation costs, and ease the burden on commuters. It will become a catalyst for business growth, as terminals and other previously underutilized areas are increasing tax revenues. Since its launch, ridership has increased to nearly 1 million daily.

World Bank Group Invests

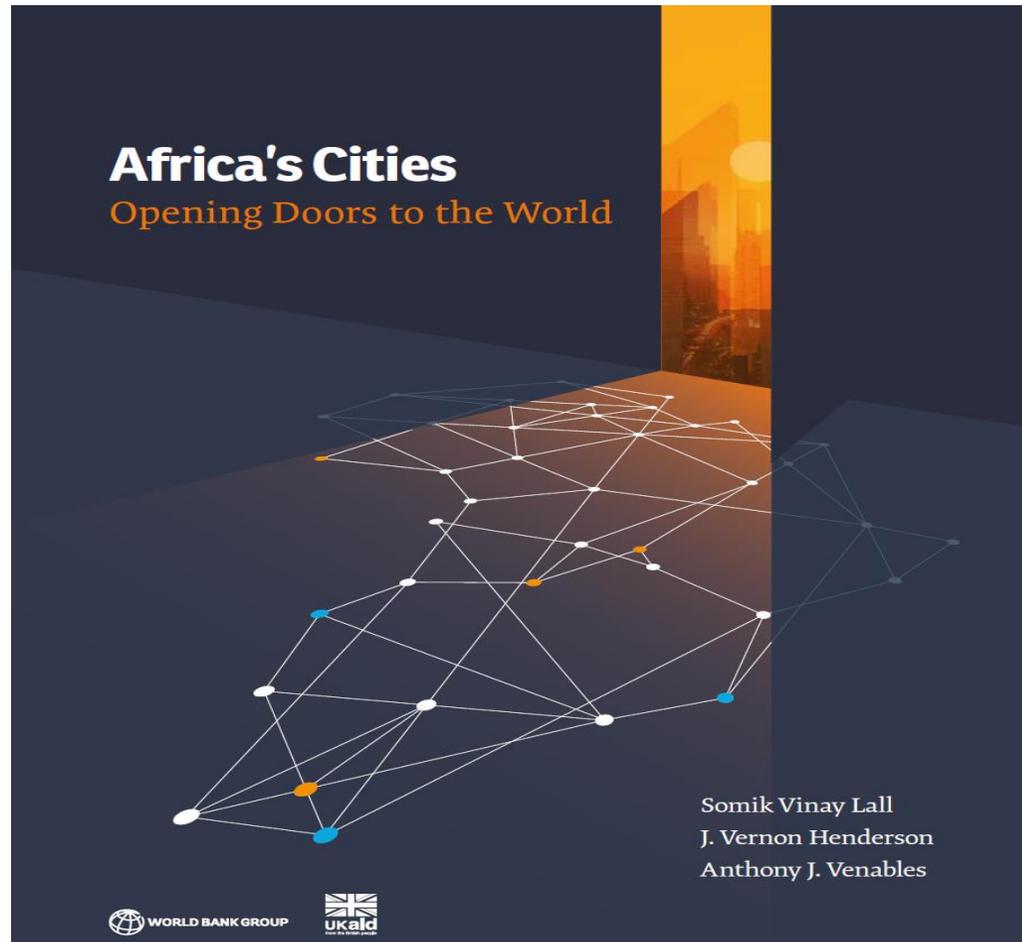
The construction of the BRT, which is funded in part by a \$290 million credit facility from the World Bank Group, is a key component of the city's transport strategy.

Bus Rapid Transit System in Dar es Salaam

SECOND CENTRAL TRANSPORT CORRIDOR



African Cities are Crowded, Disconnected & Costly (2017 Report)



Typical African cities share three features that constrain urban development and create daily challenges for residents:

Crowded, not economically dense — investments in infrastructure, industrial and commercial structures have not kept pace with the concentration of people, nor have investments in affordable formal housing; congestion and its costs overwhelm the benefits of urban concentration.

Disconnected — cities have developed as collections of small and fragmented neighborhoods, lacking reliable transportation and limiting workers' job opportunities while preventing firms from reaping scale and agglomeration benefits.

Costly for households and for firms — high nominal wages and transaction costs deter investors and trading partners, especially in regionally and internationally tradable sectors; workers' high food, housing, and transport costs increase labor costs to firms and thus reduce expected returns on investment.

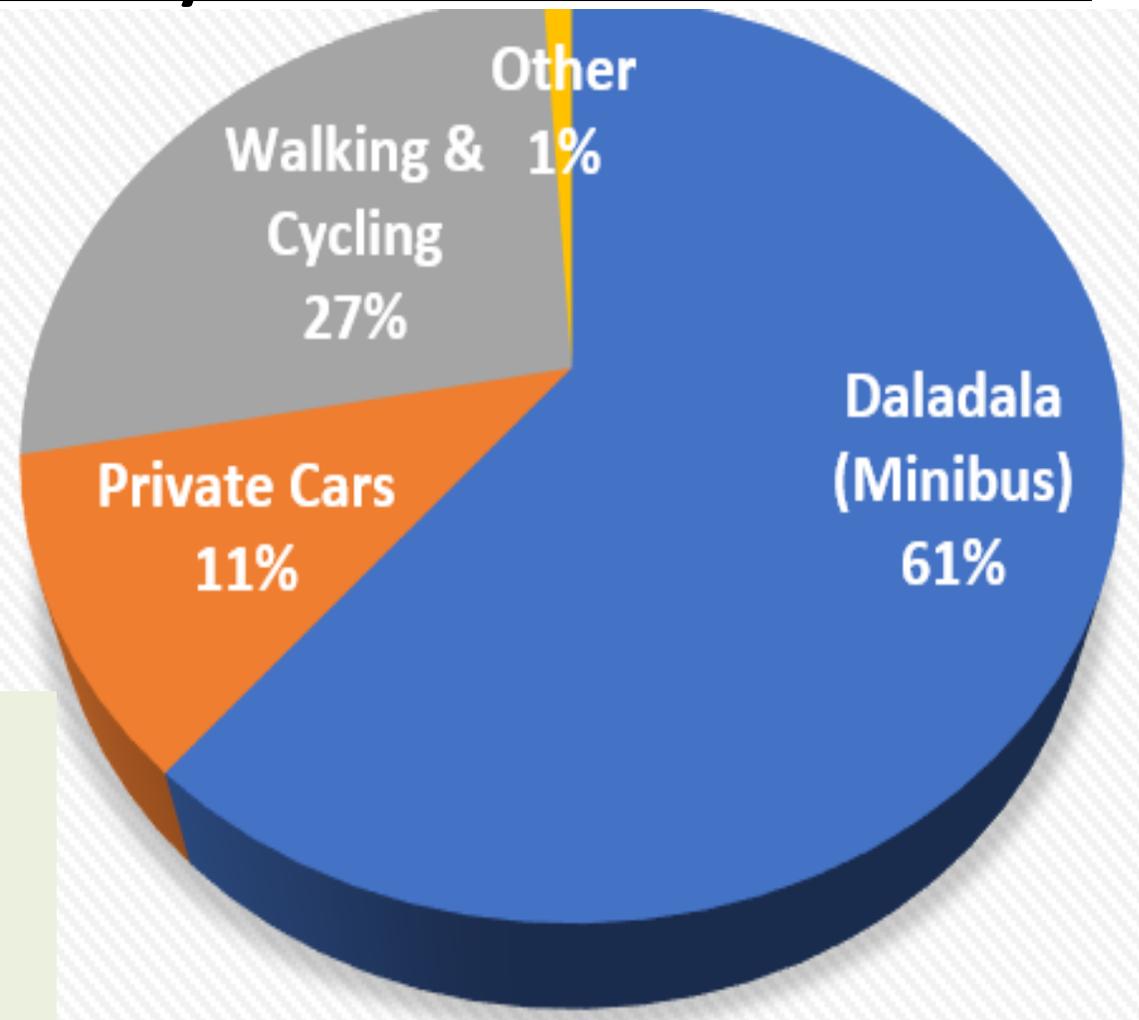


Dar es Salaam



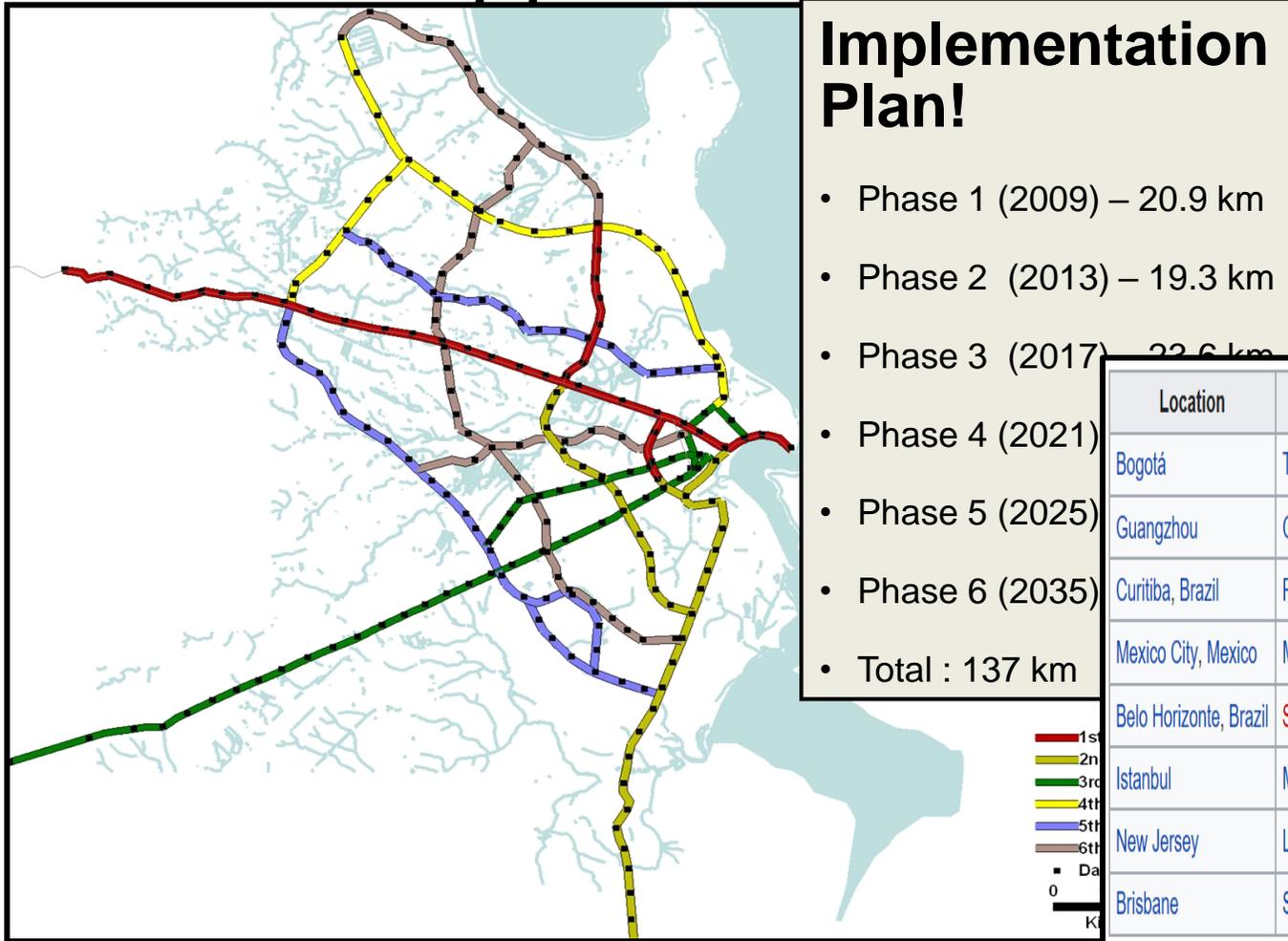
- 3rd Most Rapidly Urbanizing City in Africa
- Outdated Land-use Master -> dated 1979
- Massive Traffic Congestion

Deep-diving to Appreciate Root causes!



Conclusion: Disproportionate allocation of Road Space exacerbate traffic Congestion and Commuter Frustrations!

An Integrated BRT Trunk Network Developed & Approved by Government in 2007



Copy & Paste! **X**
 Adopt and Adapt! **V**

Location	System	Peak passengers per hour per direction	Passengers per day	Length (km)
Bogotá	TransMilenio	35,000 – 40,000 ^[31]	2,154,961 ^[32]	106 ^[33]
Guangzhou	Guangzhou Bus Rapid Transit	26,900 ^[34]	1,000,000	22
Curitiba, Brazil	Rede Integrada de Transporte	13,900 – 24,100	508,000 ^[35] (2,260,000 inc. feeder lines ^[36])	81
Mexico City, Mexico	Mexico City Metrobus	18,500 ^[citation needed]	1,800,000 ^[37]	140 ^{[38][39]}
Belo Horizonte, Brazil	Sistema MOVE	15,800 – 20,300 ^[40]	1.100.000	24
Istanbul	Metrobus (Istanbul)	7,300 – 19,500 ^[40]	800,000	52
New Jersey	Lincoln Tunnel XBL	15,500 ^[41]	62,000 (4 hour morning peak only)	
Brisbane	South East Busway	15,000 ^[42]		23

Governance

- BRT Conceived by Dar es Salaam City Council – Mayor's Vision
- DCC Project Implementation Team led Preparation
- DCC capacity & mandate challenges



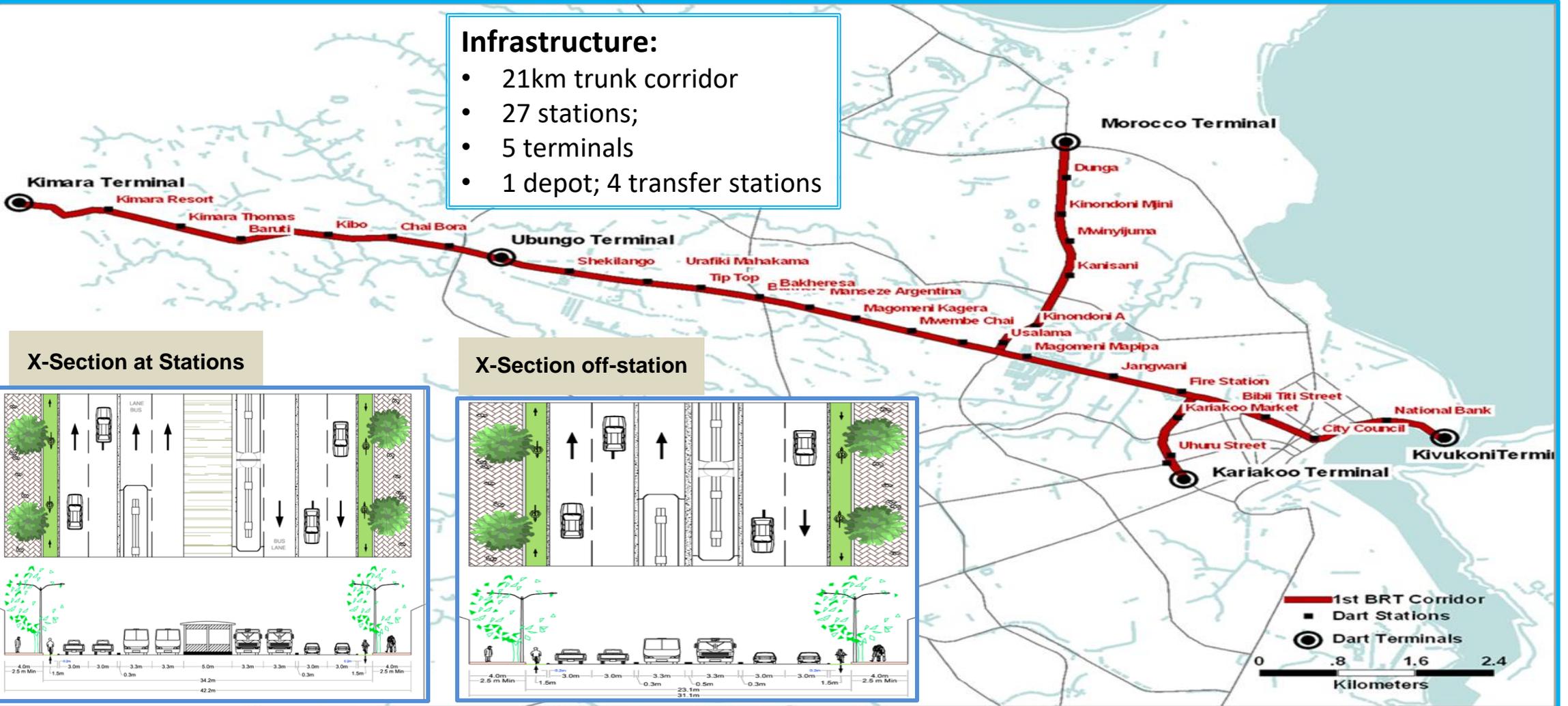
- Dar Rapid Transit Agency (DART) created under Ministry of Local Government
- Oversight by Ministerial Advisory Board reporting to Ministry

Implementation: **City Council & Municipal Roles Overshadowed by Central Government (TANROADS – Infra; DART – RAP & Operations)**

BRT Phase 1: 2008 - 2016

Infrastructure:

- 21km trunk corridor
- 27 stations;
- 5 terminals
- 1 depot; 4 transfer stations



Infra Implementation Challenges

- Delays in the implementation of Resettlement Action Plan
 - Capacity, Coordination, Fund Release, Change of Land-use, BRT Only street
- Failures in initial Procurement process in 2008
- Inadequate Engineering Designs
 - Unmapped ground utilities
 - Weak supervision engineer
- Infrastructure Cost overruns



Contracting of an Interim BRT Operator

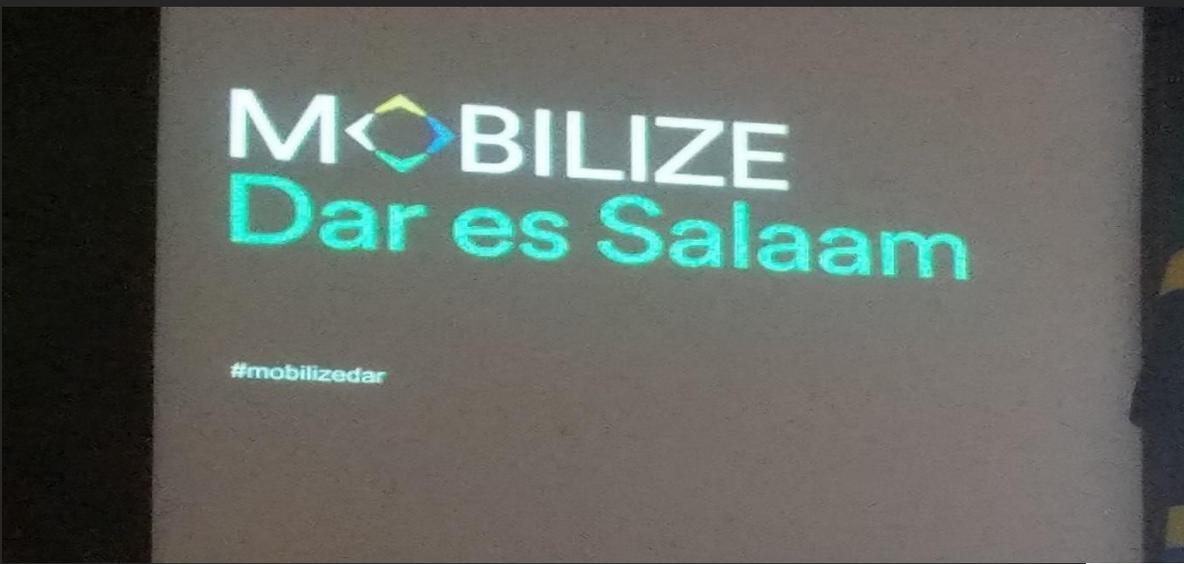
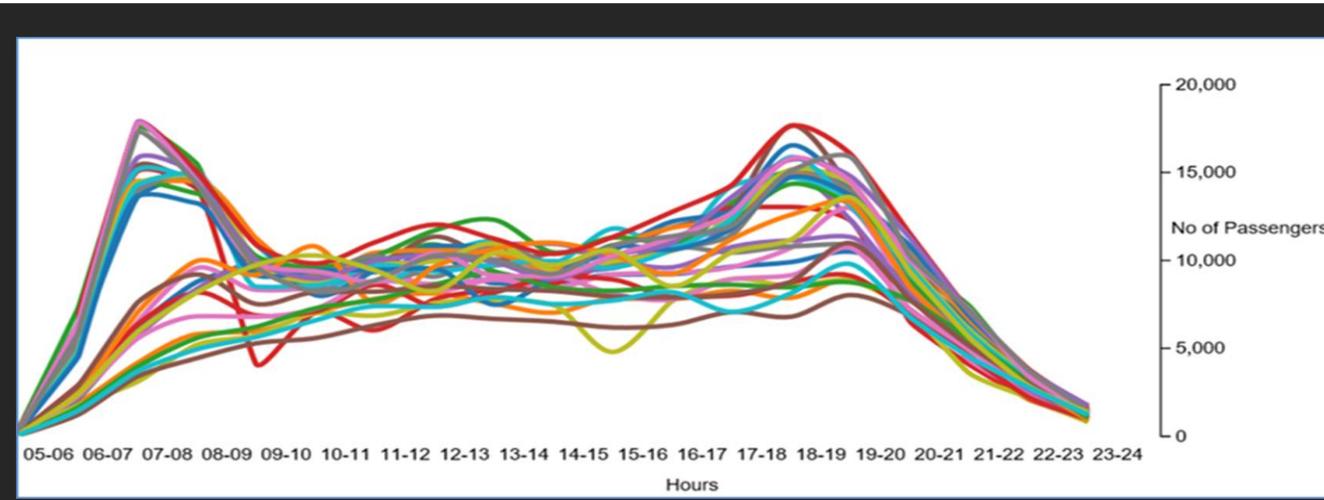
- Interim Service Providers (ISP) for Trial Services
- Existing Minibus Operators – under former public operator (UDA)
- ISP Contract signed on April 24, 2015 for supply of:
 - 5 BRT Trunk Articulated Buses (18-m of 150psgrs)
 - 71 BRT Feeder Buses (12-m of 80psgrs)
 - Simple Electronic Ticketing system (Not AFCS)
- Mismatch with Actual Supplied Services (Aug. 2015):
 - 39 Trunk Articulated Buses; 101 Feeder BRT Buses &AFCS with ITS

Contract Renegotiated to accommodate all services 2016 & Services Commenced in May 2016

Impact of Interim Operations (200,000psgrs/day)



Dar es Salaam secured ITDP Sustainable Transport Award 2018 First African City to be awarded (Mobilize Conf. June 26-29, 2018)



Reputational Challenges – Teething Problems

- Deterioration of Operations
 - Overcrowded Buses
 - Discomfort
 - GBV
 - Long Ticketing Queues
 - Unreliability of Services
 - High Driver Turnover
- Inadequate DART Capacity
- Court Injunctions by the ISP
- Hesitation in PPP processing
- Flooding along the Trunk line
- Inadequate Communication



Mountains of Challenges: => Power of Social Media Climate Resilience? Passenger Frustrations, etc



BRT as Launch Pad for Land-use Planning - TOD

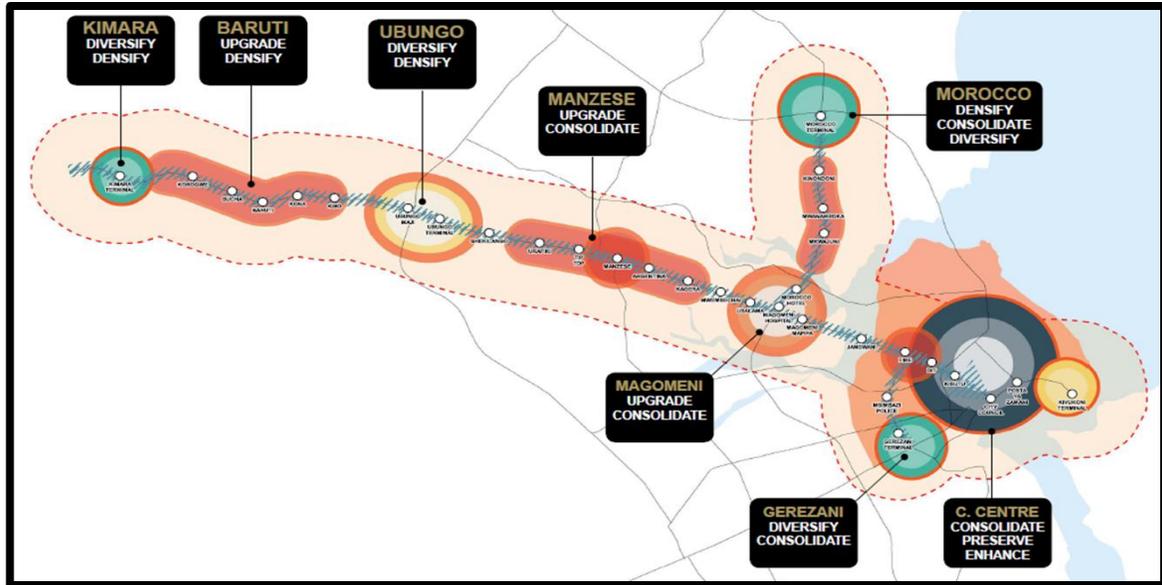
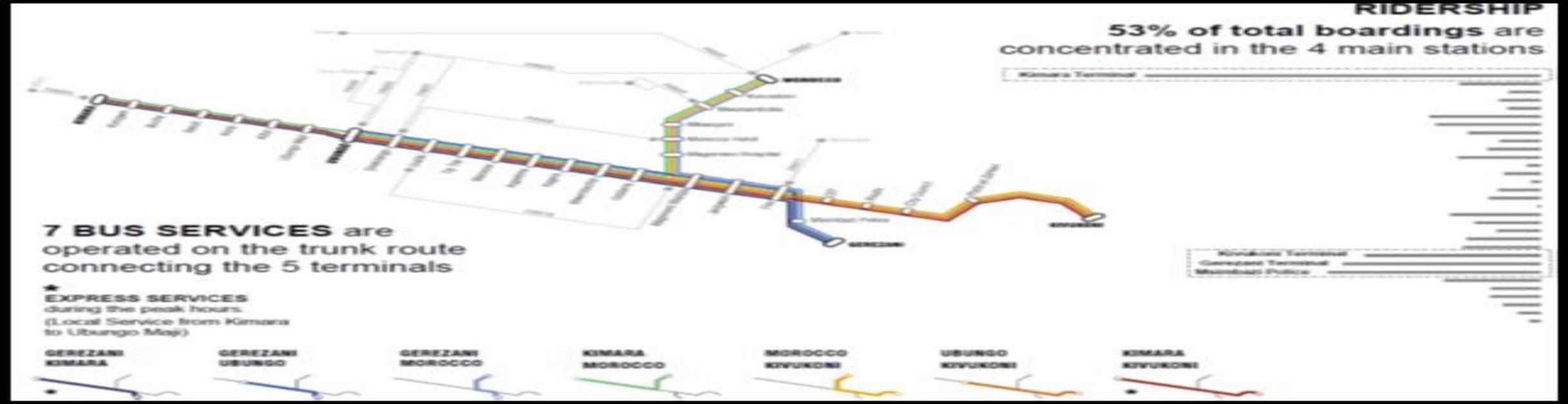
Intensive Engagement (Two Years)

8 Key Principles !

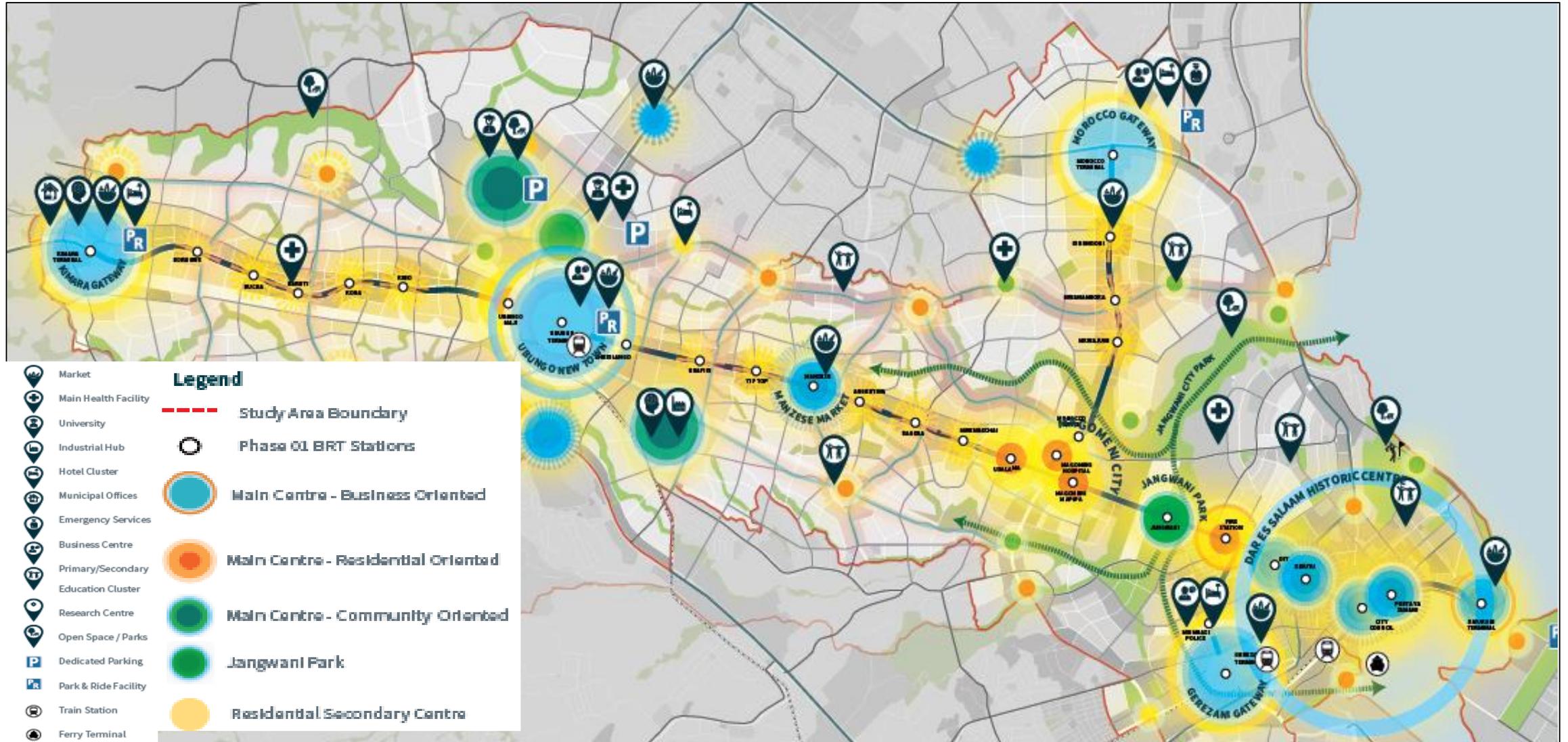
Stakeholders Consultation & Public Exhibition



Corridor Analysis – Ridership, Accessibility



Phase 1 Corridor Development Framework



Framework Land-use, Employment & Residential Density

Land Use Framework

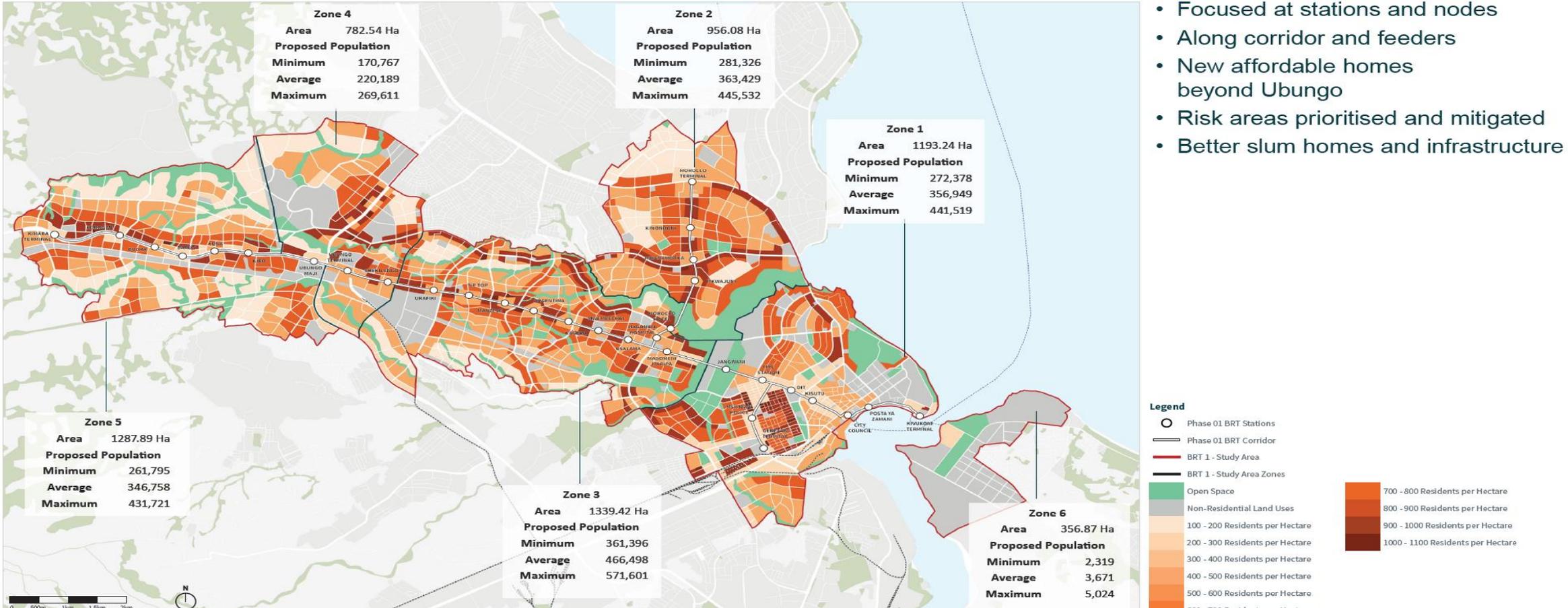
- Structure for investment and growth

Employment Density

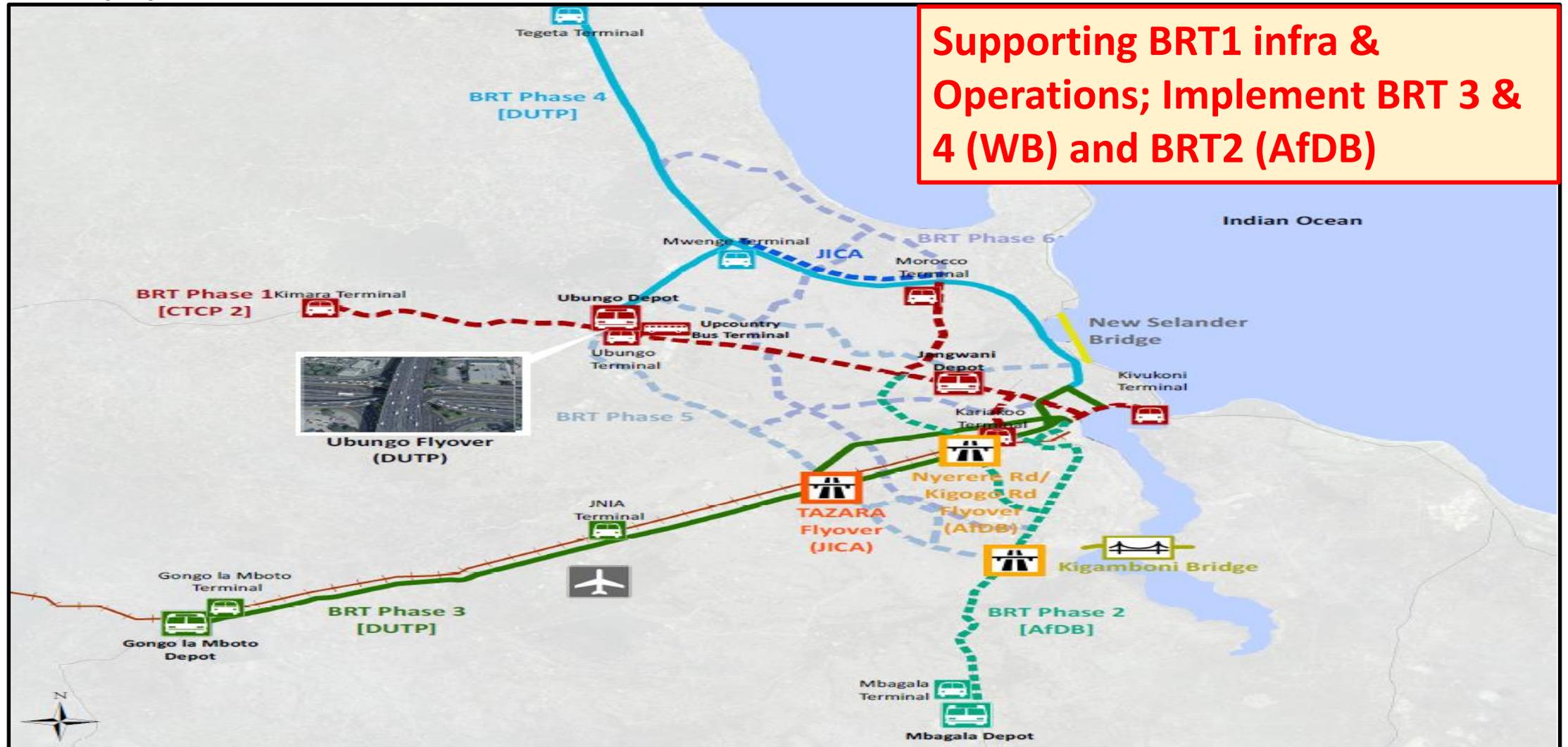
- Accessible jobs for all communities

Residential Density

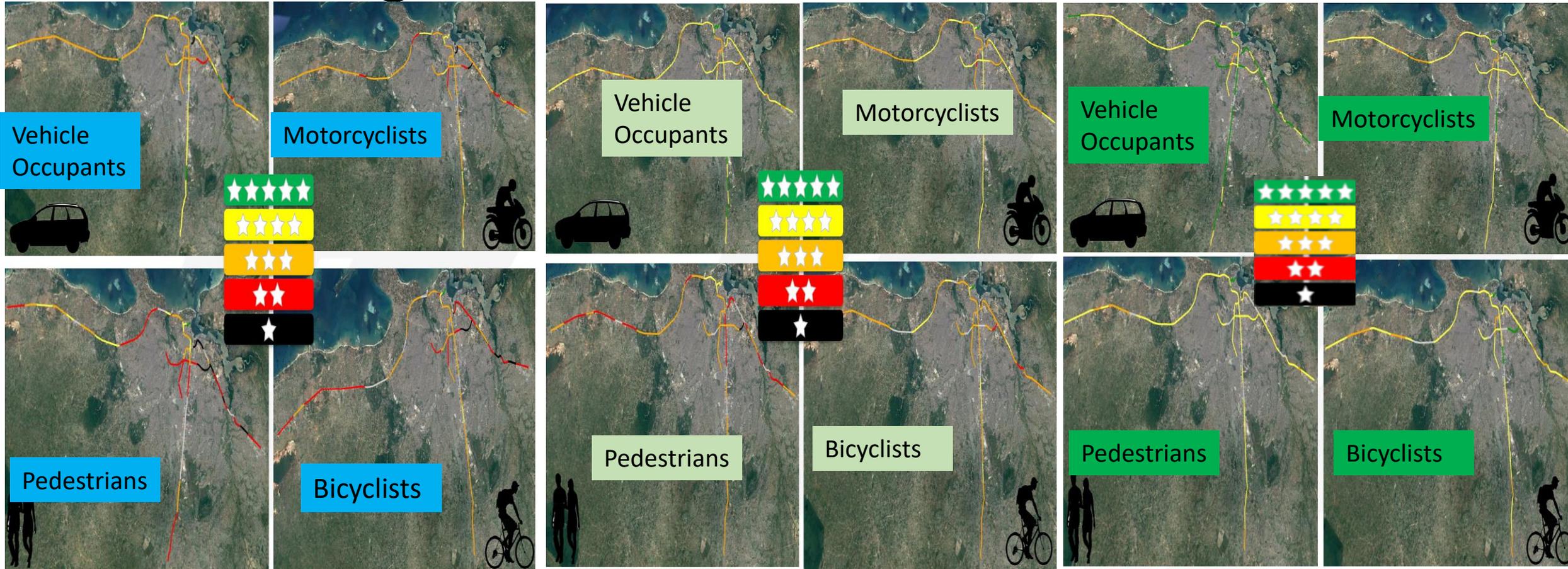
- Focused at stations and nodes
- Along corridor and feeders
- New affordable homes beyond Ubungo
- Risk areas prioritised and mitigated
- Better slum homes and infrastructure



Scaling up BRT Support through WB & AfDB support



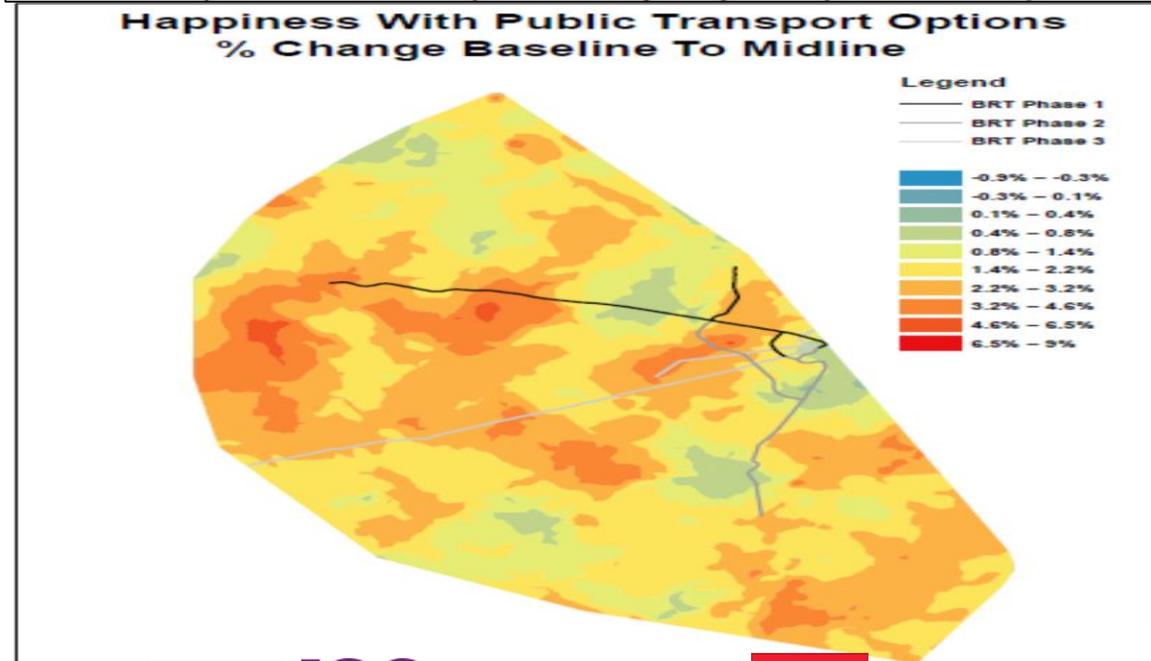
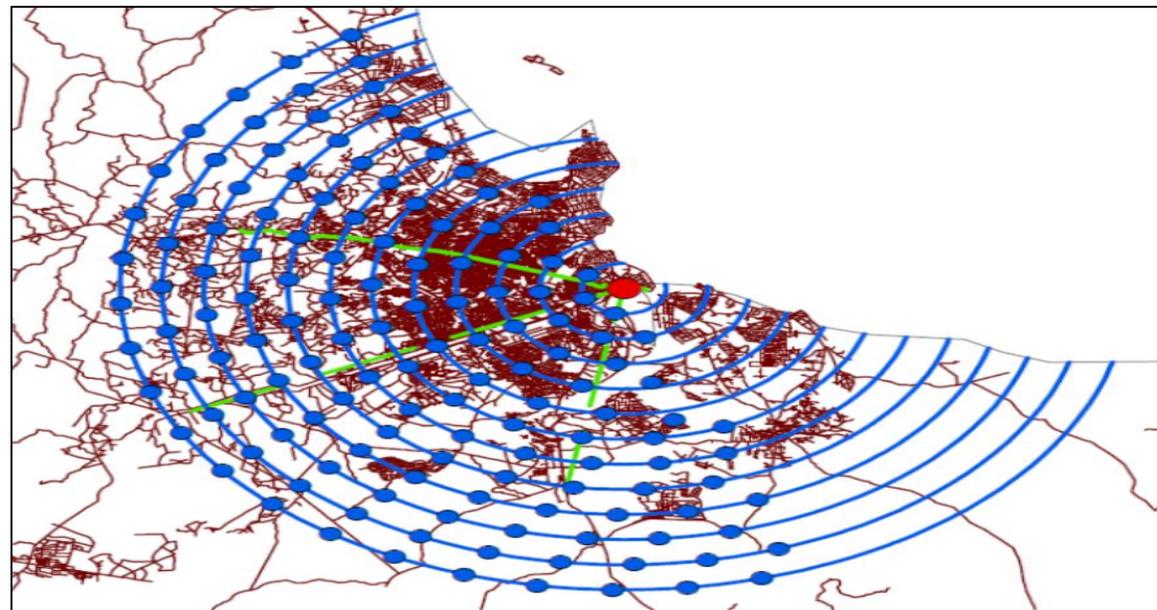
Road Safety Improvements with BRT: iRAP Star Ratings for BRT 2, 3 & 4



BRT Impact Evaluation

Does BRT Operations:

- Reduce travel times?
- Improve safety and security of commuters?
- Create jobs and boost income?
- Encourage firm productivity, trade and growth?
- Improve property values?
- Increase the health, wealth and happiness of Dar residents – especially the poor?





RUSSIA WORLD CUP

Dar BRT is Still Works-in-Progress!

A Continuous Learning Process and Pushing ahead !