Welcome

Presentation on

Transportation Masterplan of Chittagong City and An Approach towards Sustainable Development

Presented by-

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Workshop Organized by : Roads and Highways Department
Ministry of Communication

In Association with : UNESCAP

Vennue : CIRDAP International Conference Centre

Date: 12-13 August 2014

Background

Chittagong is the second largest city of Bangladesh and the biggest port city of the country enriched with the natural beauty in combination with hills, rivers and the sea.

The rapid growth of the city in the recent decades created an enormous need of providing transportation facilities to ascertain city's mobility.

To facilitate the city with appropriate development tools a Master Plan was prepared in 1992 under the headline ***"Preparation of Structure Plan, Master Plan and Detailed Area Plan for Chittagong City"*** in 1995 financed by United Nations Development Program (UNDP) with technical assistance from United Nations Center for Housing and Settlement (UNCHS).

The major components of the Master Plan-

- Structure Plan
- Urban Development Plan
- Storm Water Drainage and Flood Control Master Plan and
- **Transportation Master Plan**
  - *Long Term Development Strategies (LTDS)*
  - *Immediate Action Plan (IAP)*

Main features of the LTDS

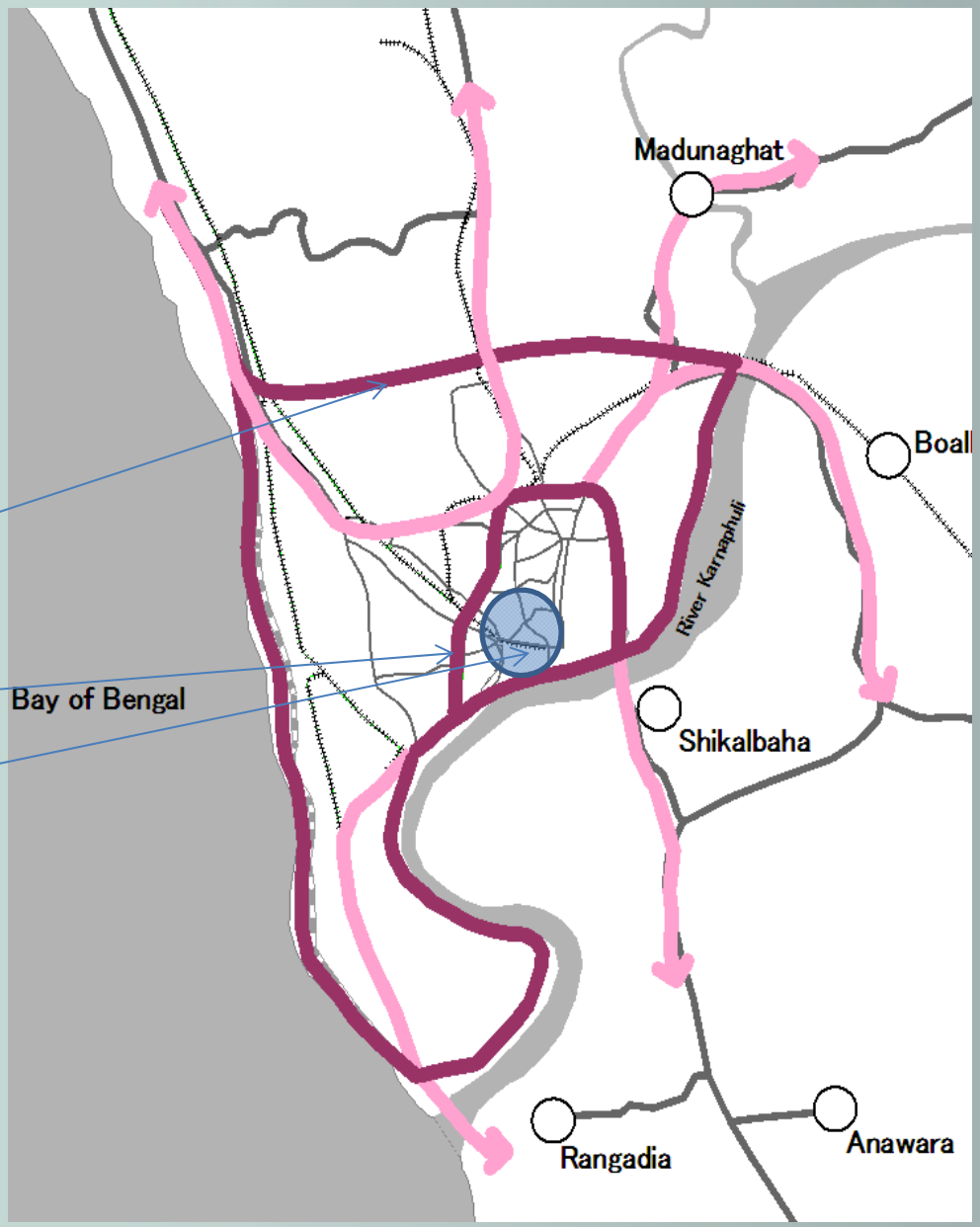
- **Development of the Highway Network**
- **Development of Road Transport Services**
- Aviation and Maritime Services
- The Role of Railways in Chittagong
- Project Appraisal and program financing
- Program implementation summery and
- **Institutional Aspects**

Concept of City Road Network

Outer Ring Road

Inner Ring Road

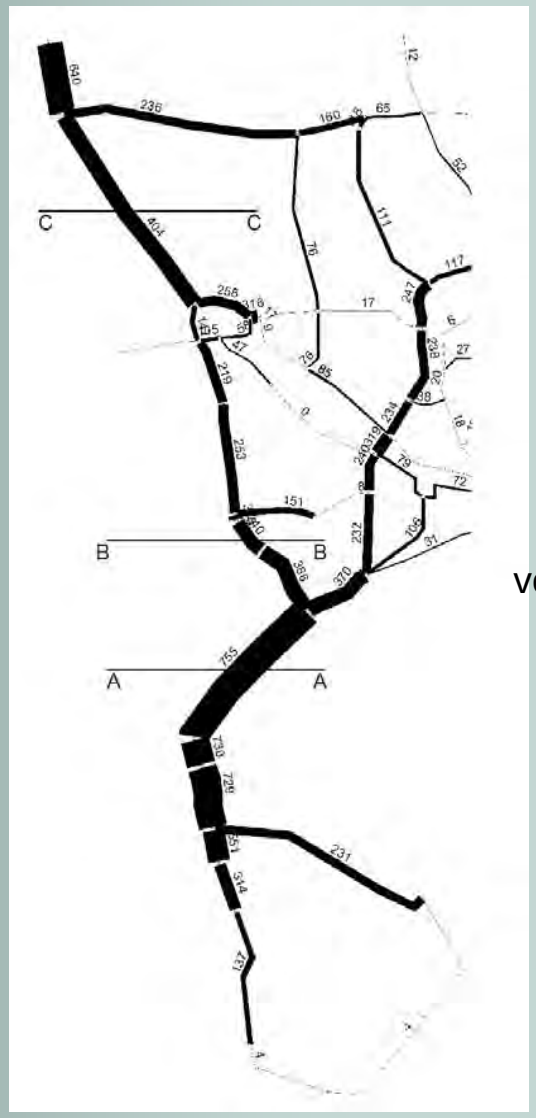
CBD



JICA constructs Outer Ring Road:

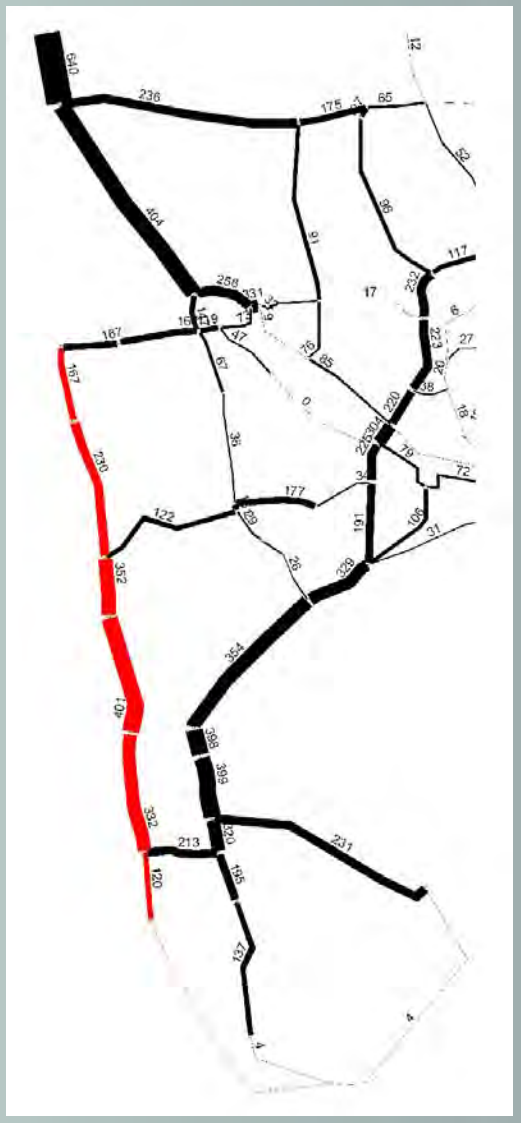
Everyday 75,500

vehicles pass through these roads



Everyday 40,100

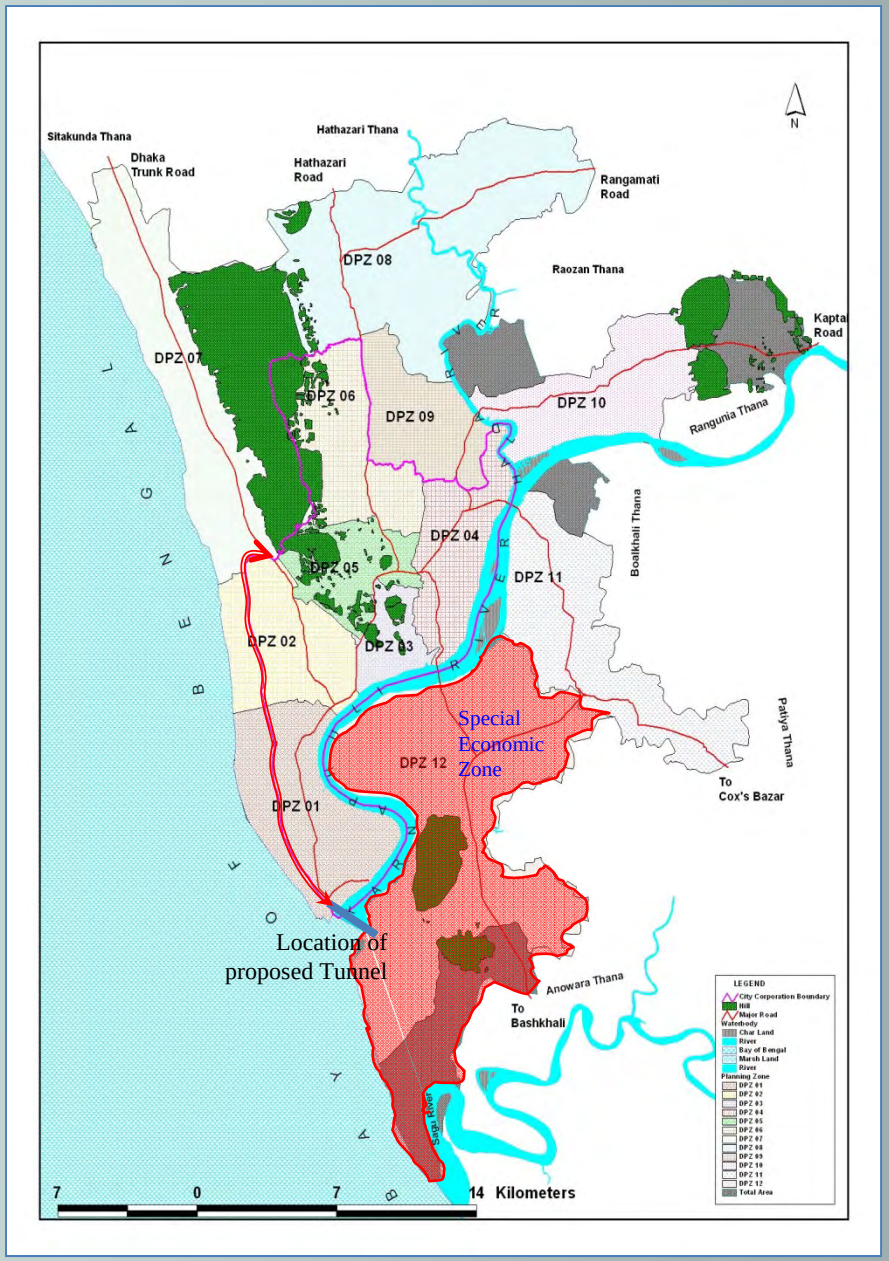
vehicles will be diverted by this Ring Road



Source: SAPROF Study 2008 (JICA)

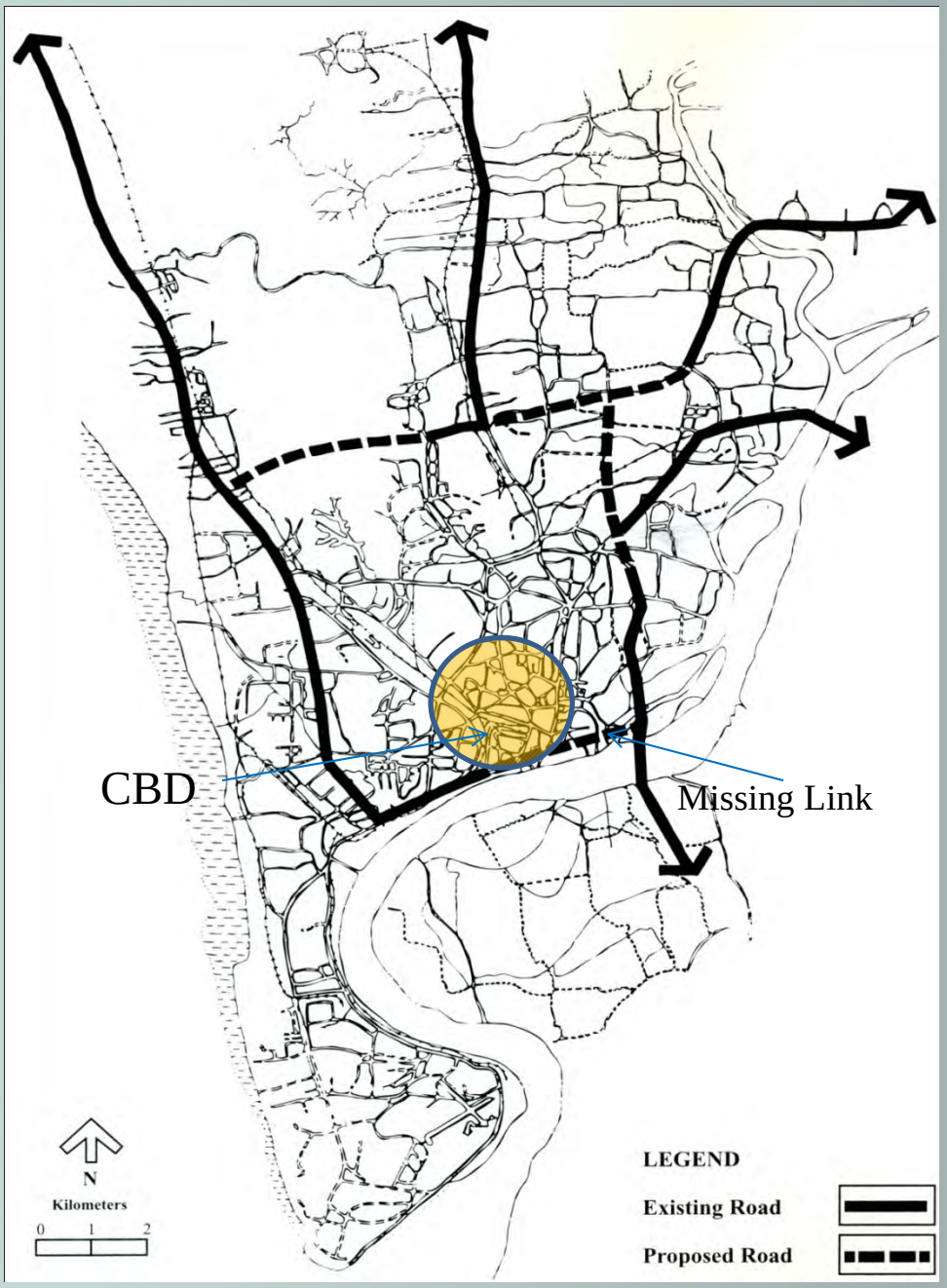
Outer ring road will serve

- the special economic zone through Tunnel
- redirect major south bound vehicles and
- protect the city from cyclonic upserge.



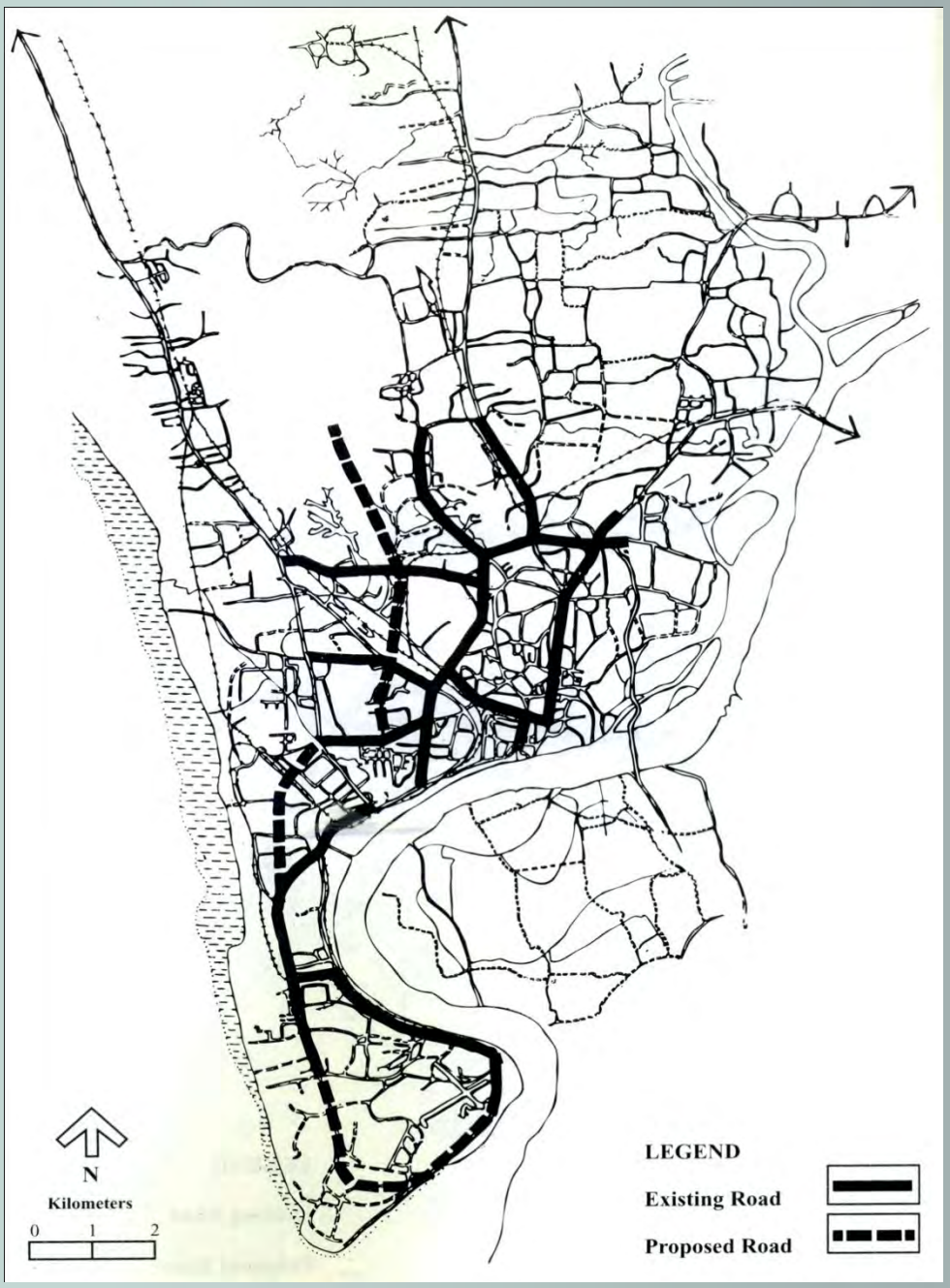
Primary Distributor Network

- DT Froad to Baizid Bostami Road
- Dhaka Trunk Road
- Oxygen Junction to Kuaish Road
- Ek kilomiter to Oxygen Kuaish Road
- Hathazari Road
- Barik Building to Shah Amanat Bridge



District Distributor Network

- **Sirajdoula Road**
- **Pathantuli Road**
- **Sagorika Road**
- **Sadarghat Road**
- **Baizid Bostami Road**
- **Anderkilla Road**
- **Pathan Tuli Road**
- **Arakan Road**
- **Chittagong College Road**
- **Oxygen-Kuaish Road**
- **Kapasgola Road**



Main features of the IAP

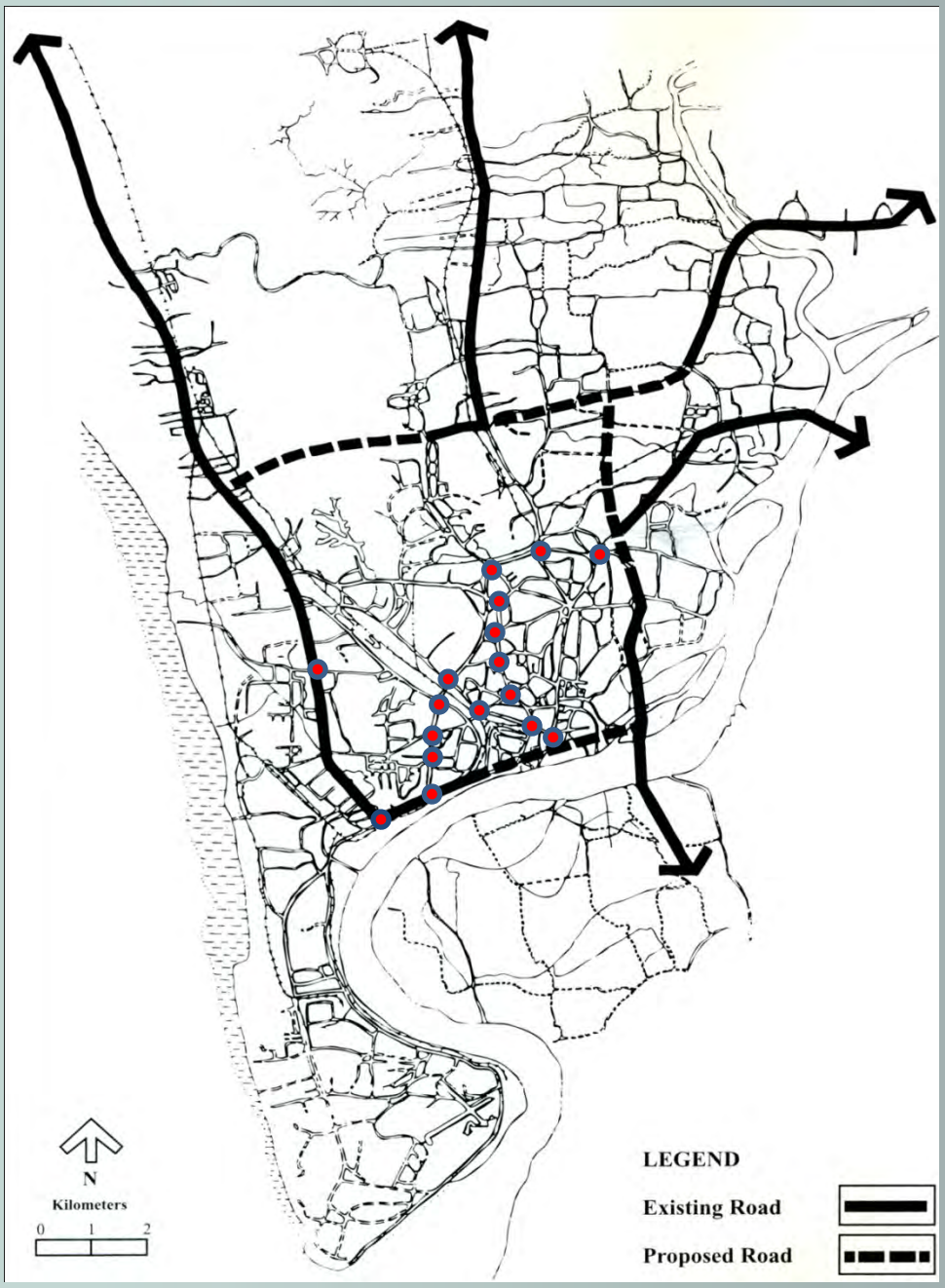
- Analysis of Household Interview Survey (HIS)
  (Trip Analysis, Socio-Economic Profile, etc.)

- **Traffic Engineering Details**
  (Intersection Design, Road Hierarchy and Design Guidelines, Parking and Waiting Guidance etc.)

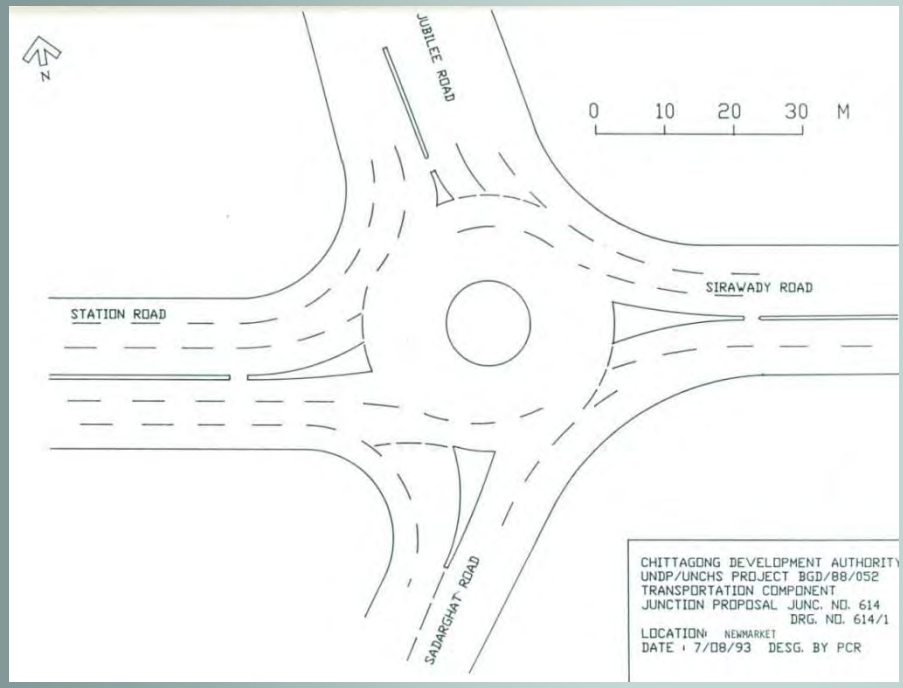
- Short Term Planning Aspects of Bus Terminals
  (Dhaka Bus Terminal and Arakan Road Bus Terminal)

Traffic Engineering Details

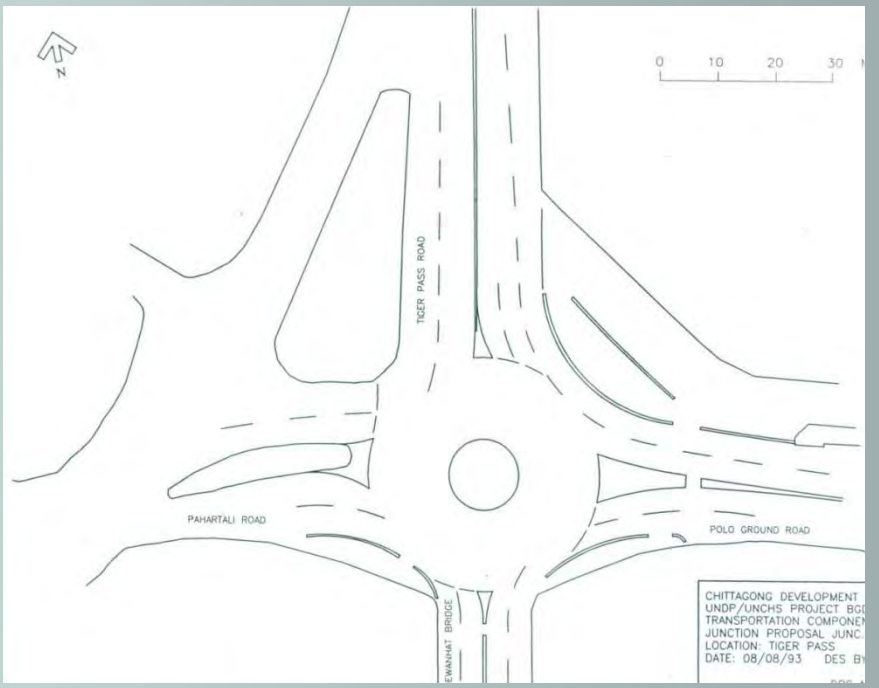
Locations of important Round About/Junctions



Traffic Circulation around Round About in different Junctions



New Market Junction



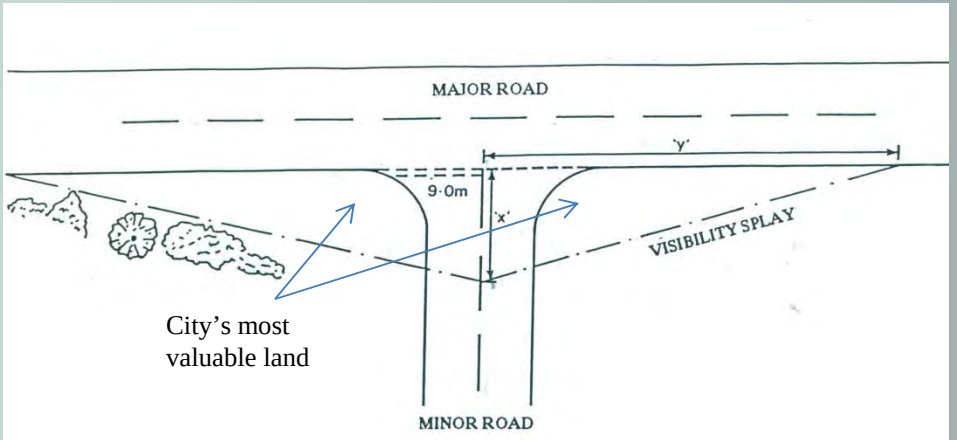
Tiger Pass Junction

Source: Immediate Action Plan for Traffic and transportation in Chittagong
Volume 2- Annexes

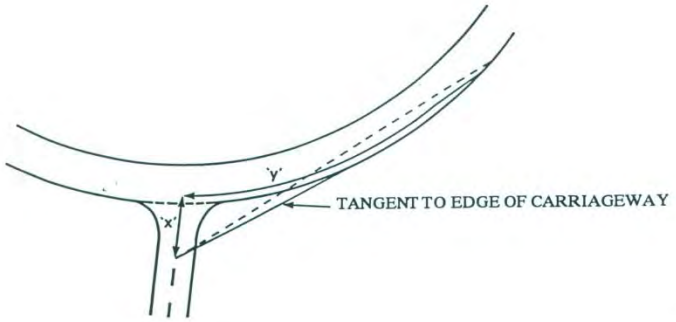
Causes of failure of Round Abouts (RA)

- Introduction of RA in only two junctions (piece meal approach) did not work
- It was a new concept to be introduced first time in Bangladesh
- It is not suitable for multi-mode of transprt (in terms of speed)
- Junctions proved to be inadequate to incorporate Round Abouts
- Drivers needed to be trained
- Traffic depertment vemently opposed the system

Visibility Requirement for a Priority Junction



DESIGN SPEED OF MAJOR ROAD (Km/h)	100	85	70	60	50
'Y' DISTANCE (m)	215	160	120	90	70



Source: Immediate Action Plan for Traffic and transportation in Chittagong Volume 2- Annexes

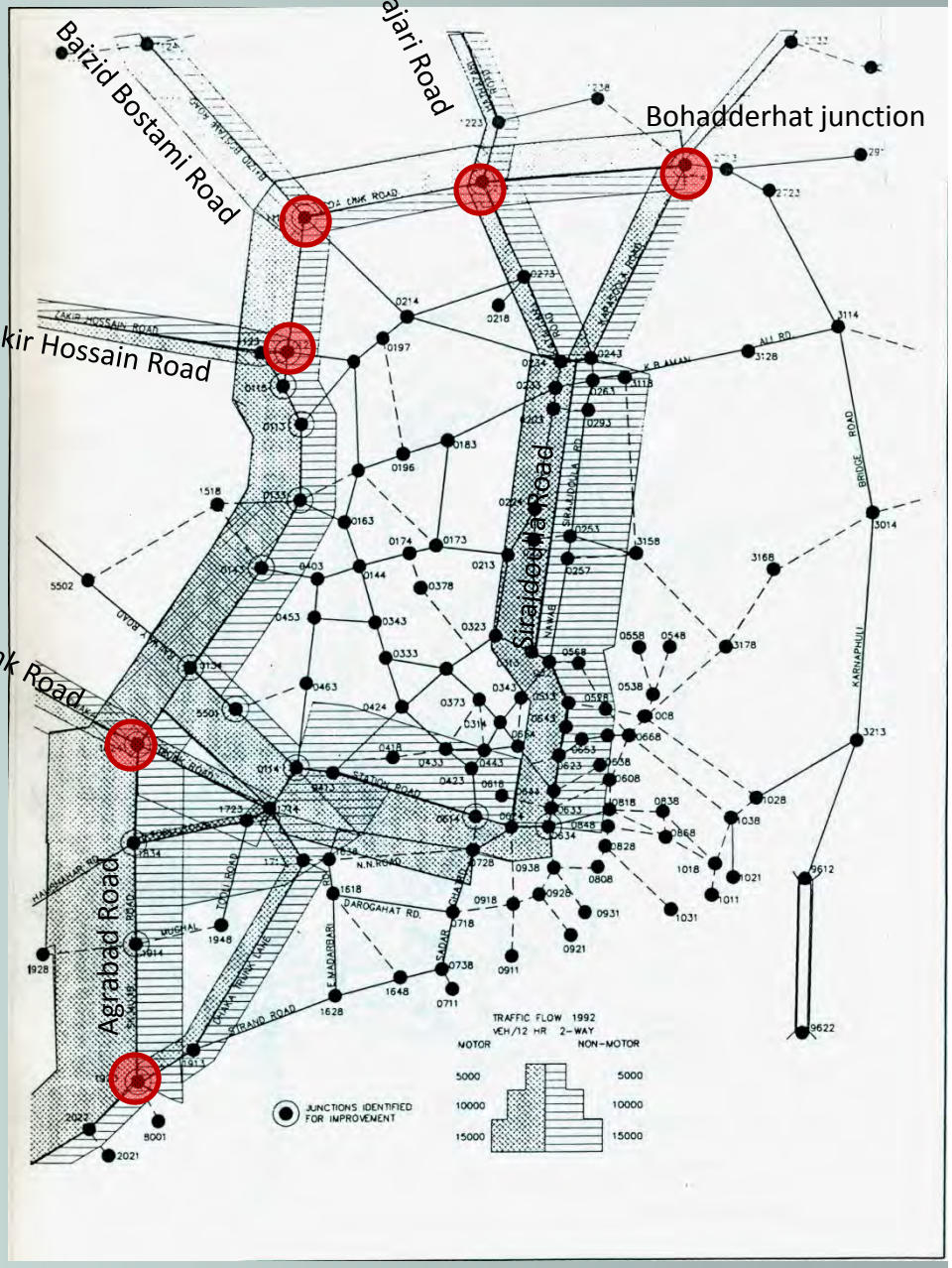
Approach to the Sustainable Development Strategy

Chittagong city is now facing a tremendous pressure of fast growing urbanization as the city alone serving nearly 90% of the export-import activities of the country.

A large number of people are moving from one place to another to perform their day today activities which make it inevitable to provide **Mass Transit** facility in the communication system in each mode of transport like:

Road
Rail and
Water

Traffic flow rate in different Important Roads



Source: Immediate Action Plan for Traffic and transportation in Chittagong Volume 2- Annexes

Approach to Sustainable Planning

Road

- The main spine of the city (from Bahaddarhut to Airport) has the adequate Right of Way to provide dedicated bus lane and bus bay
- Bus Rapid Transit system can be implemented in this road to facilitate mass transit

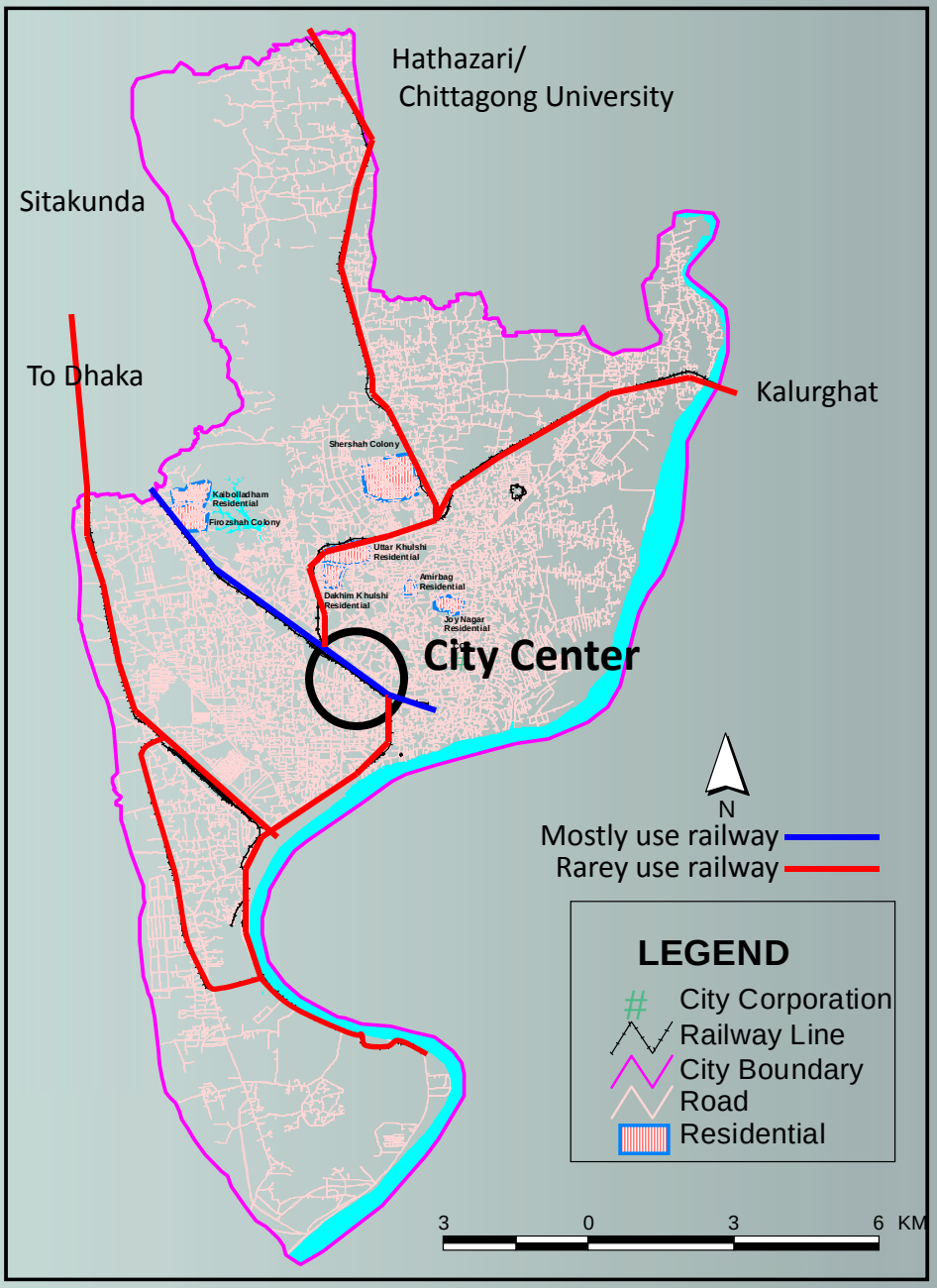
Source: Detailed Area Plan

Approach to Sustainable Planning

Railway

Unused/Less used rail track

The existing railtracks that are rarely used like **Dohajari/Najirhat** can be renovated to install **Commuter Train** service



Source: Detailed Area Plan

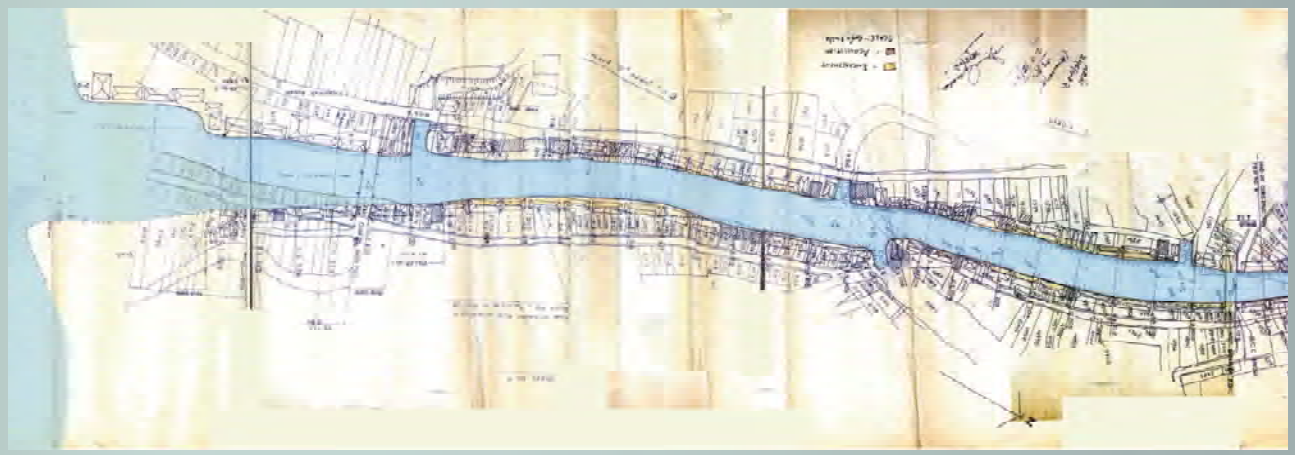
Waterway

Chaktai Khal once served the business hub of Chittagong. This canal no longer serves communication due to unabated encroachment. Reviving the canal in its original condition can help mass water transit.

Chaktai Khal

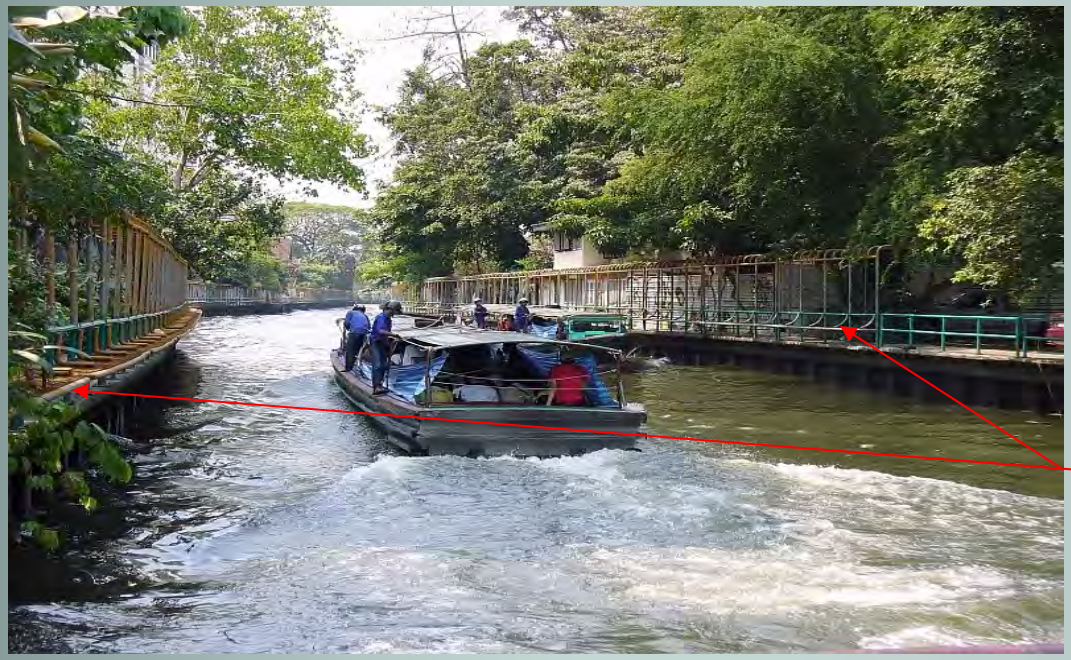
Present Situation

Original width of the canal according to R.S Map



Previously Chaktai khal and Rajakhali khal were used to carry goods. To retrieve this, both canals need to be renovated by install landing berth and other structures at important places.

Present condition of Chaktai Khal



By installing landing berth water ways can be used for mass transit.

Thanks

To All

1

Overview WB TOD Projects

4

Key Challenges

3

Stakeholders' Mapping

2

The Fortaleza Approach

FORTALEZA METRO (METROFOR)

Urban Transport Infrastructure and Redevelopment Financing through the Use of Land Value Capture Instruments

Tokyo, May 29th-June 2nd, 2017

Overview of WB TOD Projects

Belo Horizonte

- Bank financed the designs
- Regulations exist
- Projects still in the planning phase

São Paulo

- Fully functional regulation
- Urban Operations successful but focused on comercial development
- Still lack of awareness of how to implement around metro stations

Rio de Janeiro

- Bank financed capacity building for TOD surrounding metro/train stations
- Different institutions with different plans

The Fortaleza Approach

<u>OVERALL VISION / AGENDA</u>:

To consolidate the existing West and South metro lines (+ the LR) through stimulating urban development, thus increasing usage.

To demonstrate the feasibility, access the needed funding, and navigate the implementation of the East metro line.

<u>UNDER THE PROPOSED ANALYTICAL WORK</u>:

- To work on integrated pilot TOD/LVC projects around to-be-selected metro stations, with a two-fold objective: 1. to support the implementation of the city's agenda on local PPP urban redevelopment and densification operations; and 2. to explore opportunities for the financing of Metrofor through PPPs and LVC.

Stakeholder mapping

+ National Land Transport Agency (ANTT)

SECRETARIA NACIONAL DE **MOBILIDADE URBANA**

MINISTÉRIO DAS **CIDADES**

GOVERNO DO ESTADO DO CEARÁ
Secretaria da Infraestrutura

METROFOR

Prefeitura de Fortaleza
Secretariat of Urban Planning and Environment

THE WORLD BANK
IBRD • IDA

+ Infrastructure

+ Finances

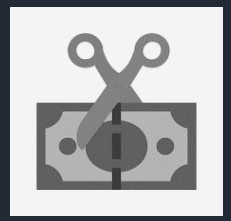
+ Planning (IPLANFOR)

+ Fortaleza Urban Transportation Company (ETUFOR)

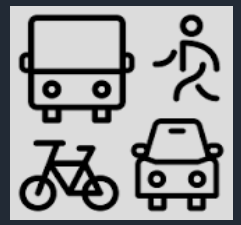
+ Planning

+ Regulatory Agency for Delegated Public Services of the State of Ceará (ARCE)

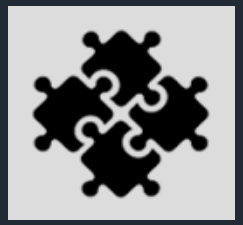
Key Challenges



SUBSTANTIAL INVESTMENTS NEEDED
X
CURRENT CONSTRAINED FISCAL ENVIRONMENT



OPERATIONAL INTEGRATION OF SYSTEMS:
Metro (State) + LR (State) + BRT (Municipal) + Municipal and Intermunicipal Buses



INSTITUTIONAL INTEGRATION:
Transport & Land Use: The challenge of aligning Government strategies and operations (specially land value capture) at different levels

BEYOND PIONEERING A TOD APPROACH:
To promote redevelopment through the use of TOD / PPP / LVC approaches is per se a huge challenge. But we need to go beyond and explore ways to finance, operate and maintain Fortaleza's metro system

THANK YOU

BRAZILIAN DELEGATION:

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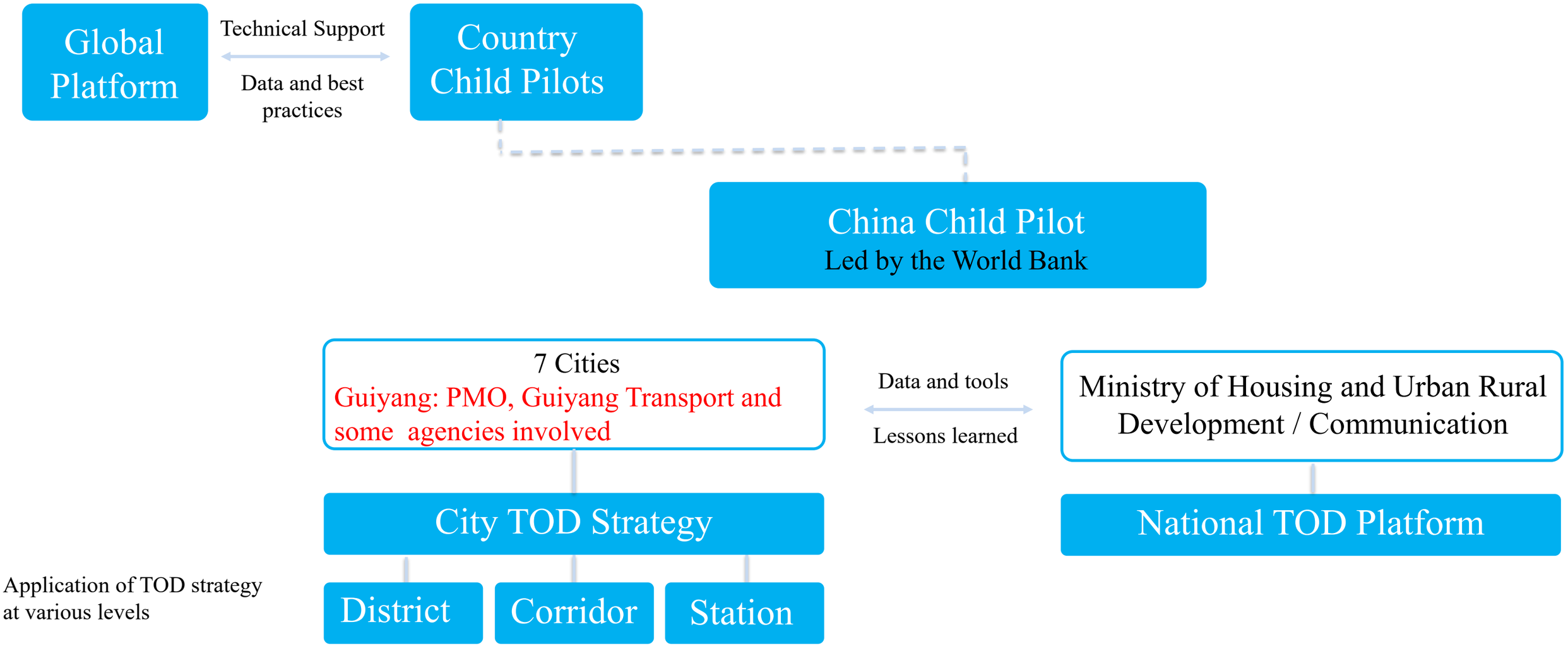
GLOBAL ENVIRONMENT FACILITY
SUSTAINABLE CITIES INTEGRATED APPROACH PILOT – China

Project Development Objective:
For the cities incorporate TOD principles into their future urban and transit plans

Ministry of Housing and Urban-Rural Development + 7 cities

Project Framework and Stakeholders

GLOBAL ENVIRONMENT FACILITY SUSTAINABLE CITIES INTEGRATED APPROACH PILOTS

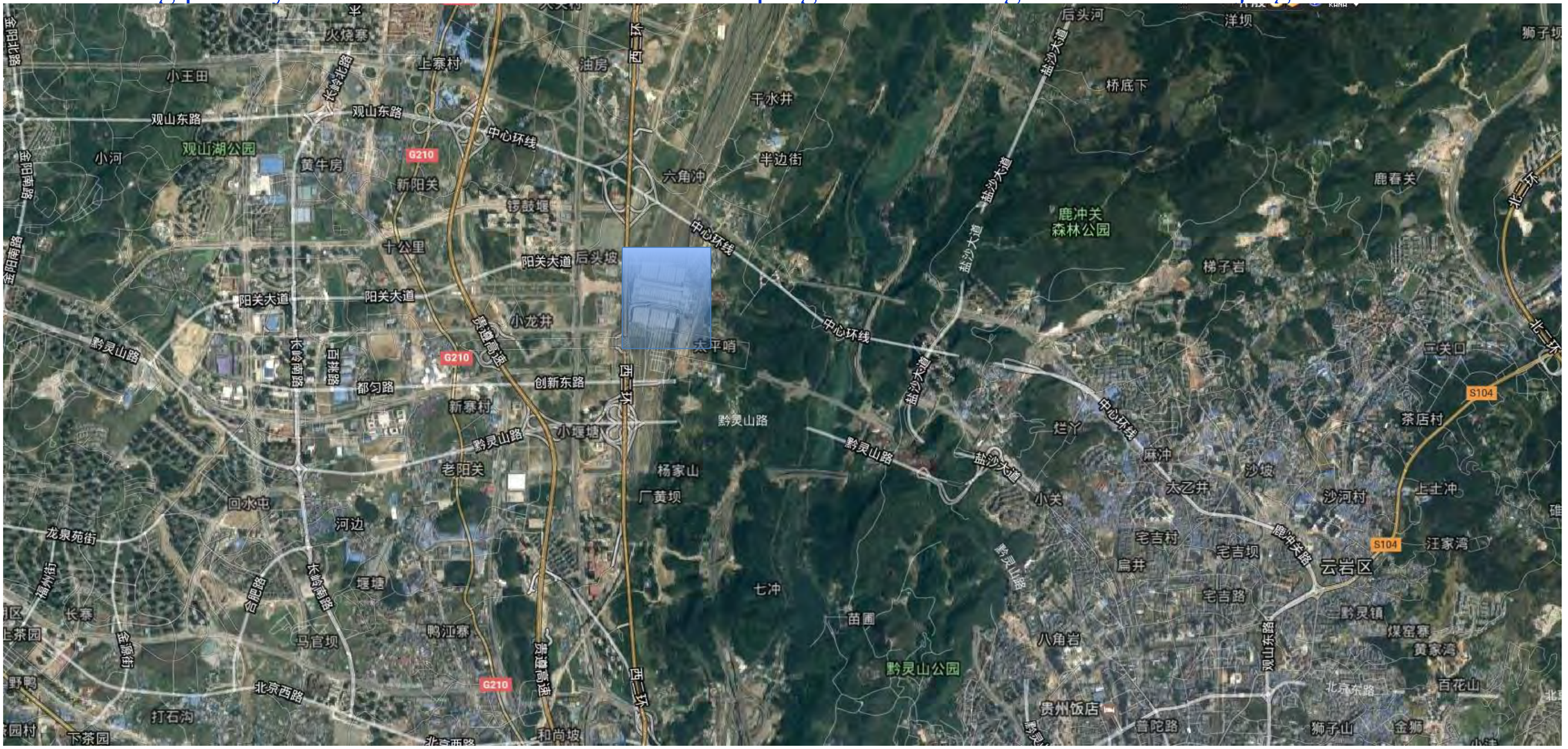


Transit-Oriented Development in China

The concept of TOD was introduced into China at the end of last century. There are some TOD cases in China, for instance, the rapid rail transit line and land development in Dalian 1999 might be one of the most successful case in China.

Transit-Oriented Development in China

Giving priority to transit construction and developing the land along the lines in Beijing and Shenzhen

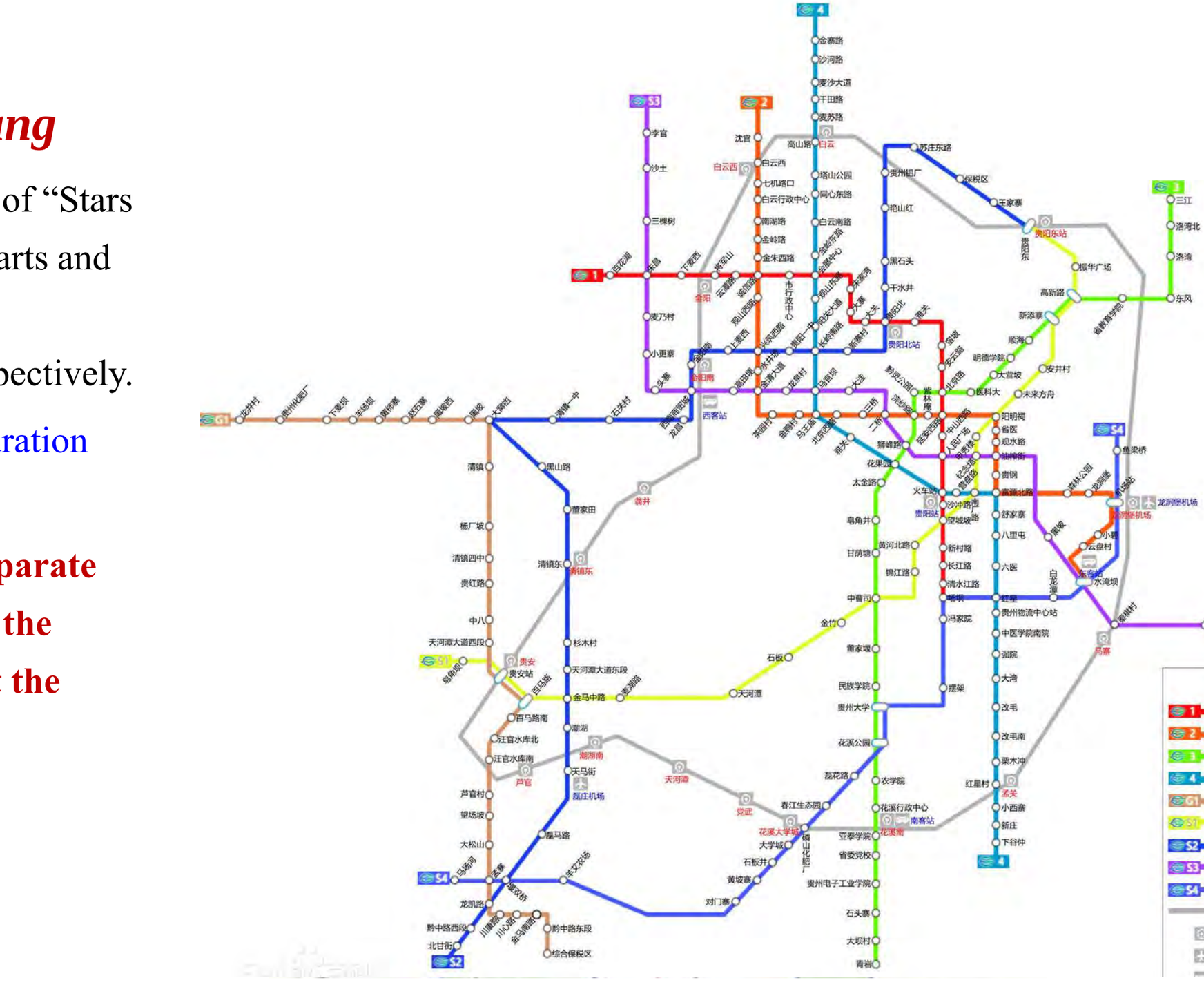


Prospects of TOD in GuiYang

GuiYang city wants to build a city of “Stars surrounding the Moon”, where the starts and the moon correspond to the outskirt communities and the central area respectively.

It means that cluster urban configuration will be formed in GuiYang.

The greenbelts will be used to separate them, while arteries and especially the urban railways are used to connect the clusters.

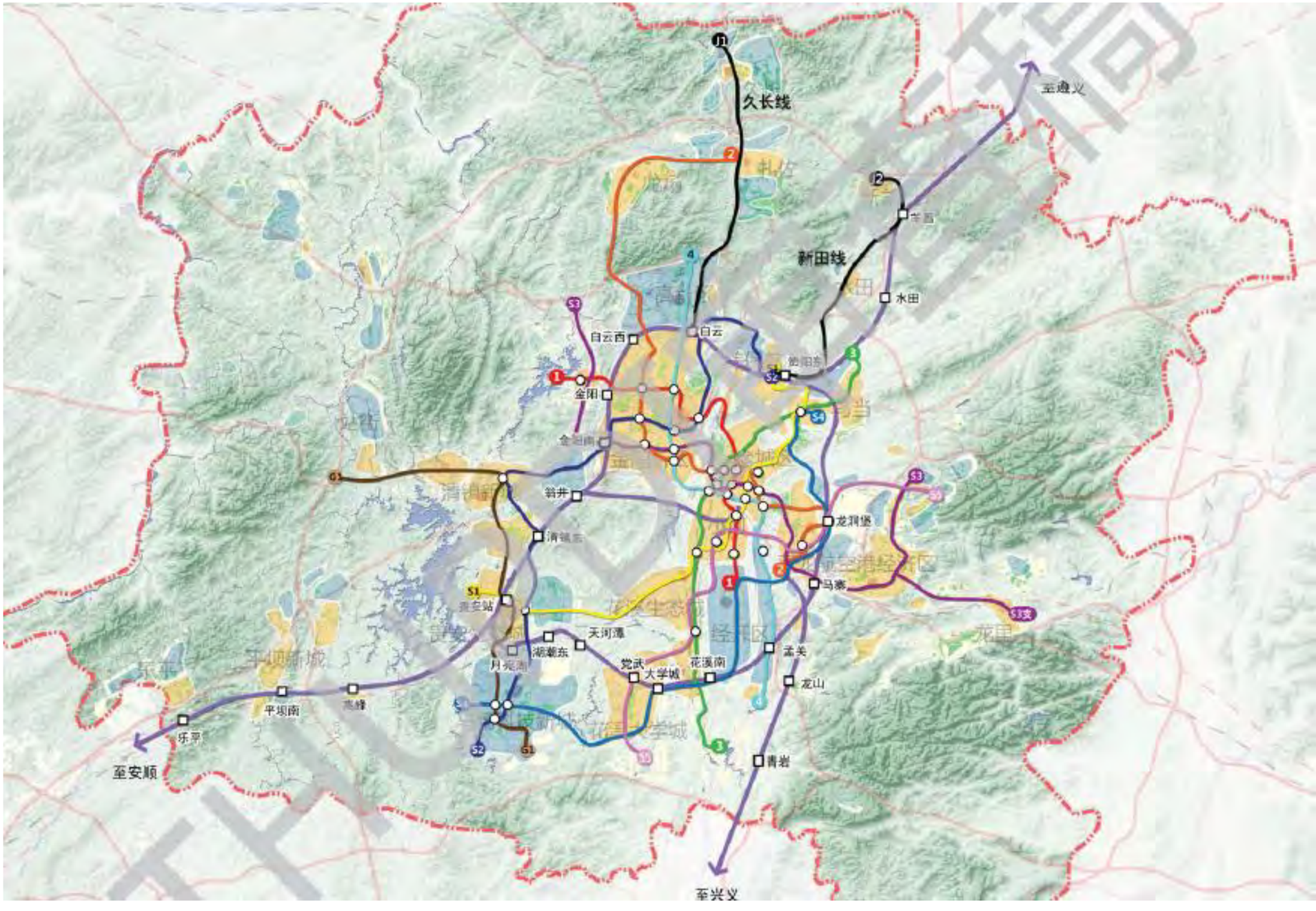


The Projected urban Railway system in Guiyang

It is easier for GuiYang to adopt the TOD. The transit system may be able to obtain enough passengers.

TOD is much more important for GuiYang due to its simultaneous urbanization and motorization.

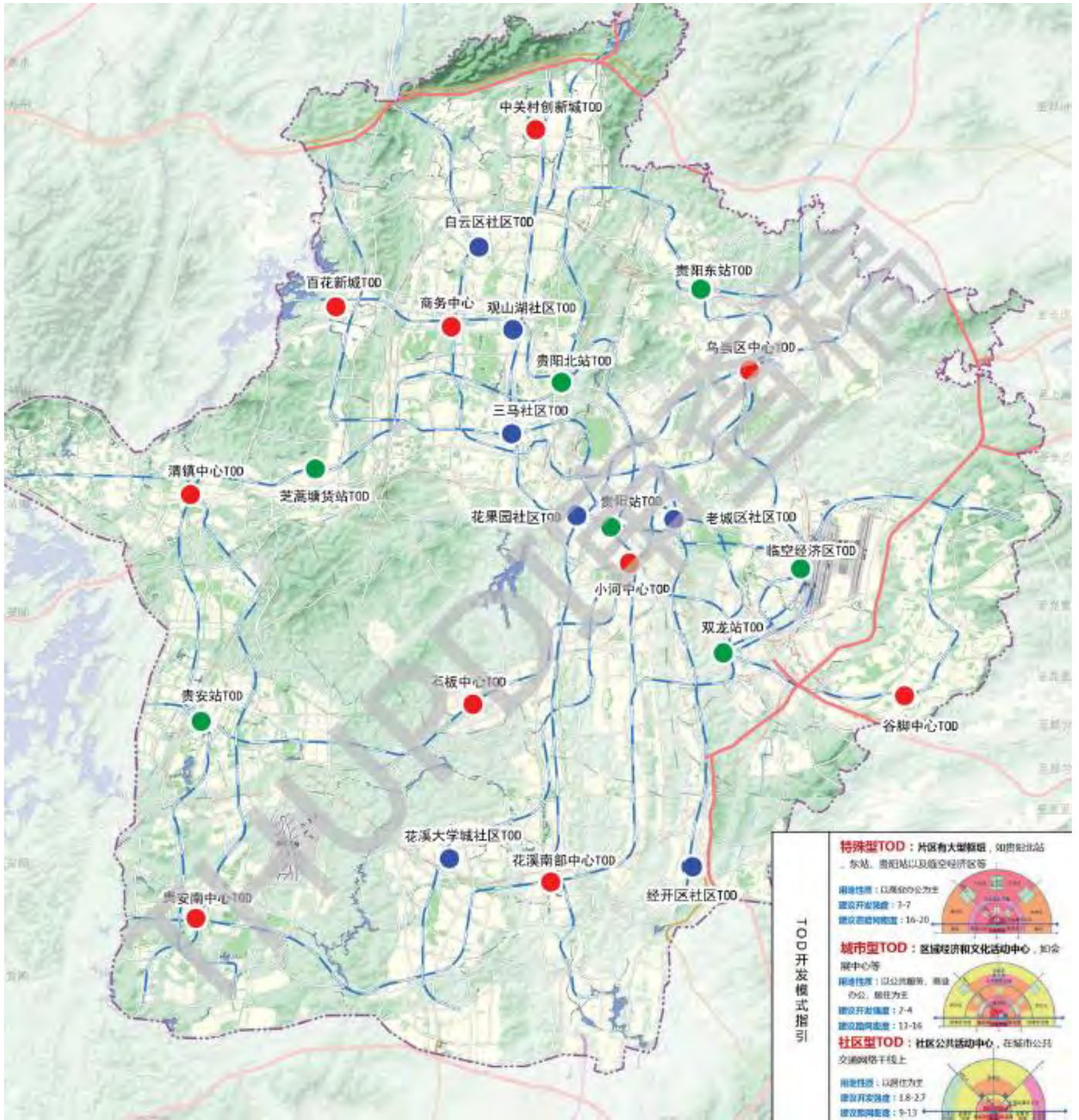
The city has not enough time and funds to deal with the transport problem.



Schemes of TOD in Guiyang

类型	典型区域	建议优化指标
特殊型 TOD	片区有大型枢纽，如贵阳北站、东站、贵阳站以及临空经济区等	用地性质：以商业办公为主 建议开发强度：3-7 建议道路网密度：16-20
城市型 TOD	区域经济和文化活动中心，如会展中心等	用地性质：以公共服务、商业办公、居住为主 建议开发强度：2-4 建议路网密度：13-16
社区型 TOD	在城市公共交通网络干线上的社区公共活动中心等	用地性质：以居住为主 建议开发强度：1.8-2.7 建议路网密度：9-13

- Special Type : Railway Terminals
- Urban Type: Large Facilities
- Community Type: Bus Terminal Stops



Previous experience with TOD in Guiyang

City:

- The **first** metro **line expected to be in operation in 2017; ** Metro system will have **5 lines at a total length of 235km by 2020**.
- **Land-use plans** have been developed **along Metro Line 1 and 2** by the Guiyang Metro Company
- Priority is to develop model for high quality transit plus property development that is sustainable, with these **new approaches incorporated in the upcoming new round of Guiyang master plan** preparation

Corridor:

- Focus support on preparing integrated land development plan for areas along **Line 1 and 2 of Rail Transit Plan and BRT corridor**, and future plans to improve along Line 3

Station:

- Goal is to optimize spatial development around stations with **well-designed public space and non-motorized routes.**

Key Challenges in implementing TOD

Existing institutional structures and incentives have made it difficult for various municipal departments and agencies to collaborate closely. For example, it is clear that transport and urban planning departments, among others, would benefit from working closely together to realize shared TOD goals. This can be difficult without a mandate or clear working mechanism.

Inadequate city-level policies and regulations for strategically creating “articulated densities” around transit, and for redeveloping built-up areas, prevent proper implementation and thorough redesigns of existing stations and areas.

A lack of attention to urban design at the neighborhood and street level is prevalent, which can make all the difference for a successful TOD station and corridor experience.

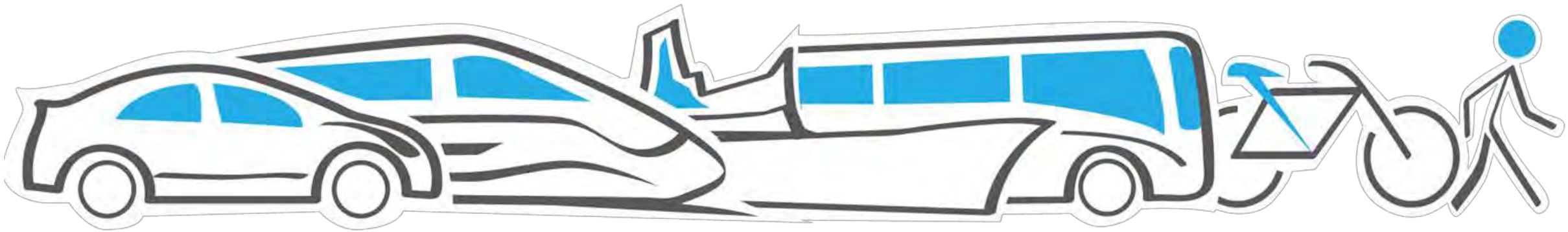
Financial constraints and limited approaches to leverage private sector involvement is a constraining issue.

WORLD BANK GROUP

2nd Technical Deep Dive on TOD

GEF Large City Congestion and Carbon Reduction

Delegation: Mr. Zhai Wei
TTL: Zhou Weimin



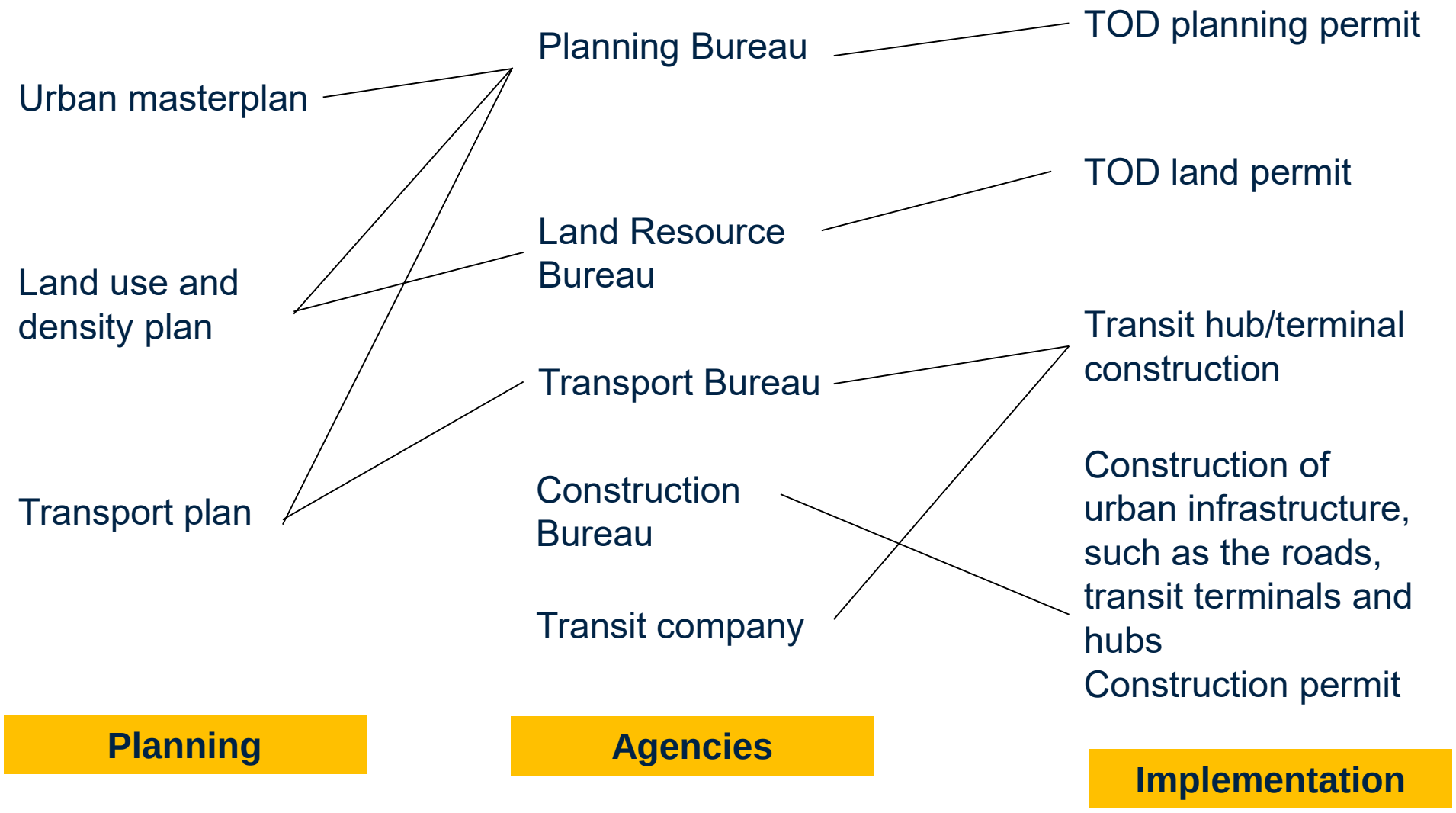
ACTIVITY OVERVIEW

- PDO: policy framework to alleviate congestion and carbon through PT development and TDM;
- Focus:
  - TOD policy
  - Travel Demand Management
  - Assessment of urban PT development level
  - Urban transport carbon accounting
  - Knowledge Dissemination

CITY PROFILE

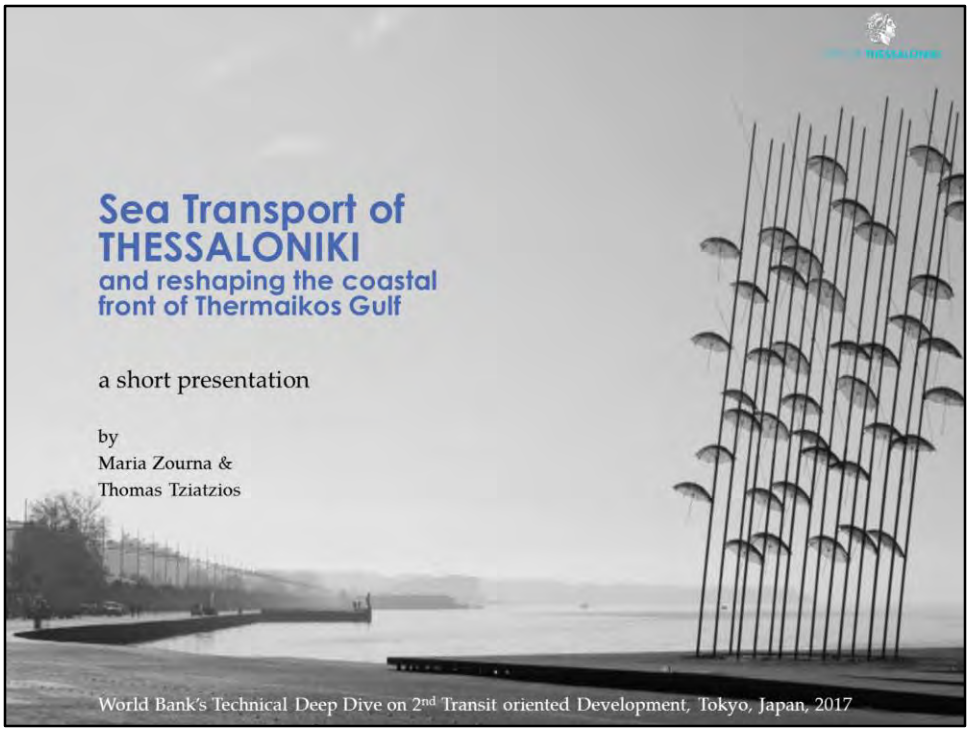
	Administration Area (sqr km)	Pop (million)	Developed urban Area (sqr km)	Pop (million)
Chengdu	12121	12.1	597	5.55
Suzhou	8488	10.6	411	4.10
Harbin	53840	9.94	390	4.11

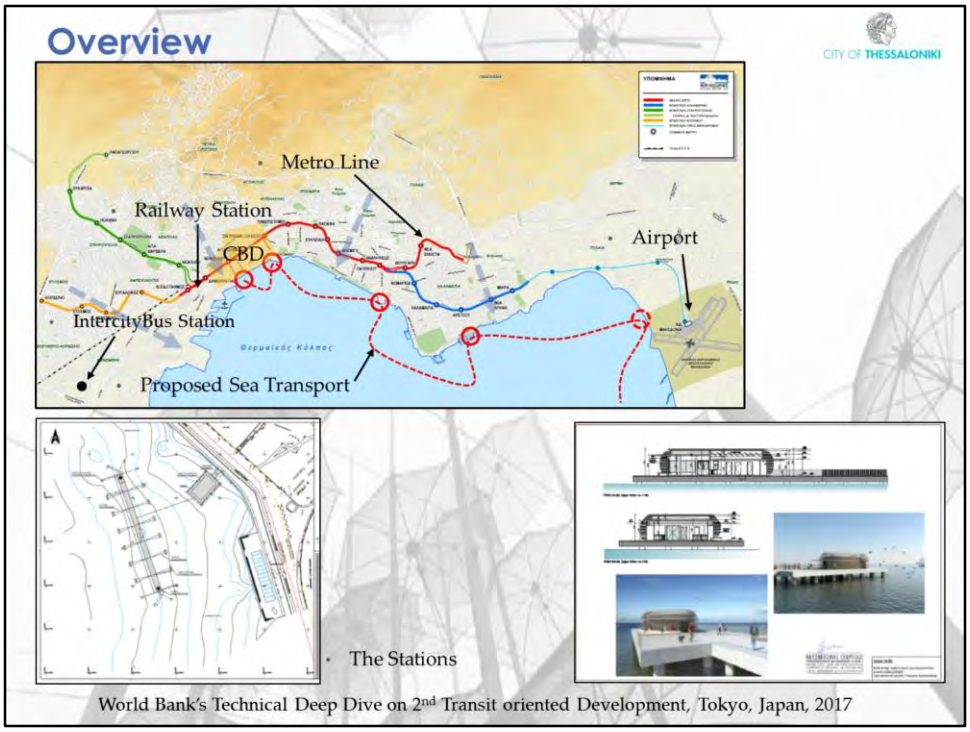
STAKEHOLDER MAPPING AGENCIES – IN URBAN AREA



KEY CHALLENGES

1. Establishing TOD delivery mechanisms/institutional arrangements
2. Developing TOD in built-up areas
3. Formulating the TOD/LVC policy/approach for a city

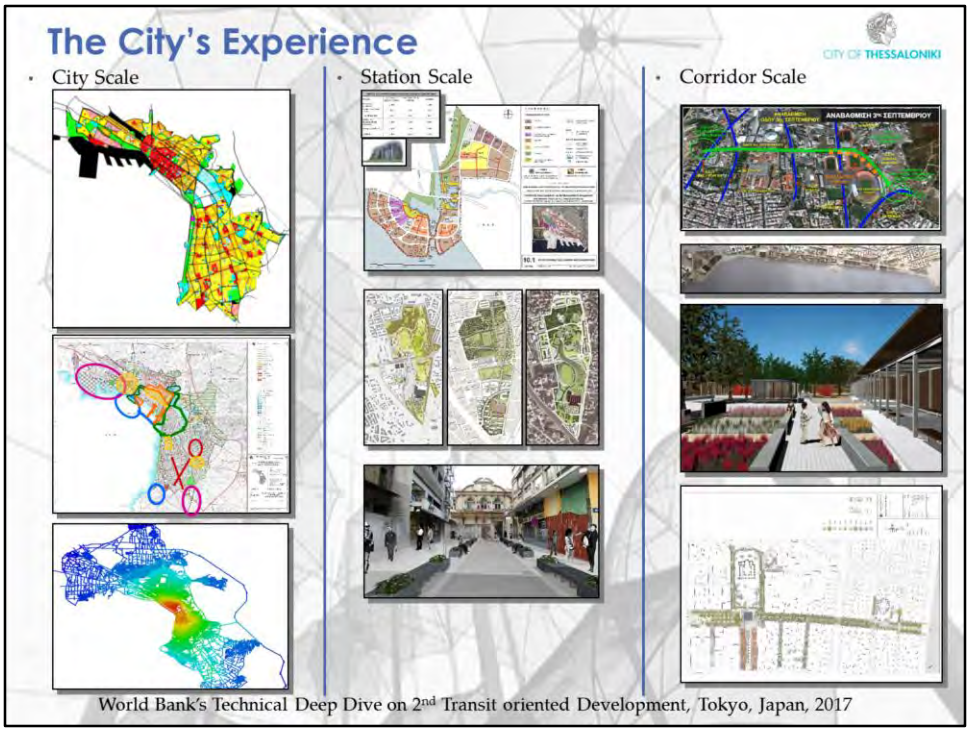

Sea Transport of
THESSALONIKI
and reshaping the coastal
front of Thermaikos Gulf
a short presentation
by
Maria Zourna &
Thomas Tziatzios
World Bank's Technical Deep Dive on 2nd Transit oriented Development, Tokyo, Japan, 2017



Slide 1

Thessaloniki, Greece, a city of almost a million inhabitants, the second biggest after the capital Athens, with more than 2300 years of history, is situated deep in the Gulf of Thermaikos, in an elongated crescent shape, between the mountains and the sea. It's a densely populated city and one of its major shortcomings is traffic congestion. The actual city is administratively divided between 11 Municipalities, 7 of which have an opening at the seafront. Thessaloniki has the longest developed waterfront in Europe. The city's connection with the sea, a fully accessible 5 km. waterfront, hosting numerous parks and recreational areas, was redeveloped in 2014.

At present, the only available public transport is the bus. A metro line is currently under construction, hopefully to be delivered by 2020. There are talks about a possible tram line and most importantly for the sake of this seminar a proposal for a public sea transport to take advantage of the extensive sea front. The studies and preliminary permits are being finalised as we speak.



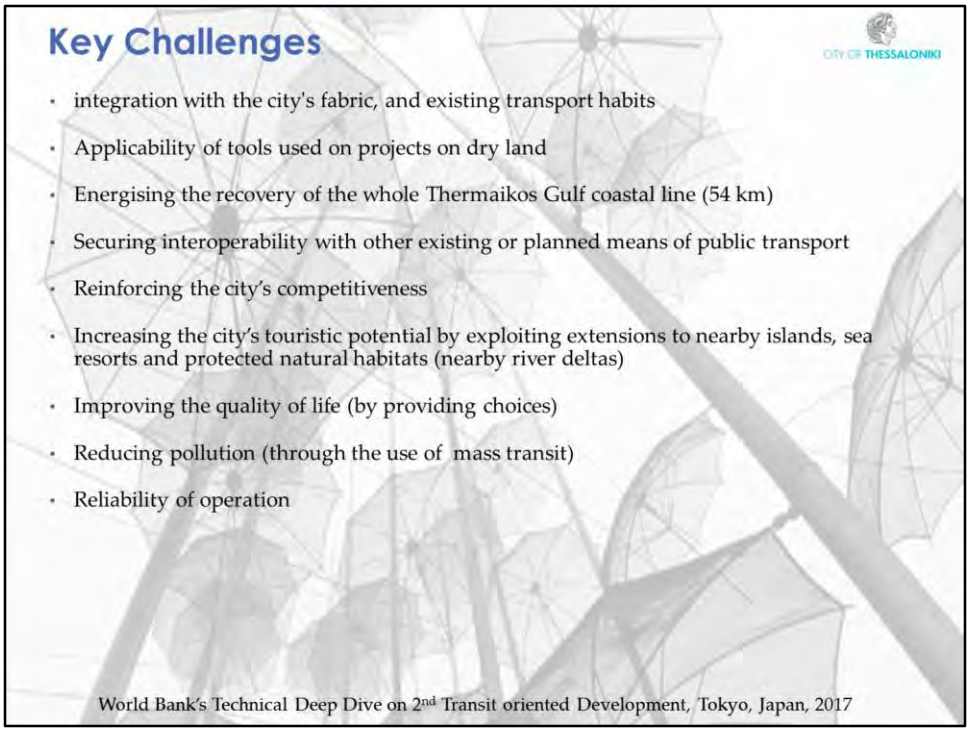
Slide 2

The city has extensive experience to deal with similar projects on a city scale by being involved in laying out city masterplans, land use, regulating Building Cover Percentage and Floor Area Ratio, regulating traffic, appropriating necessary land for public infrastructure and utility services, negotiating with stakeholders (including other public or private sector organisations). On a station scale there is also extensive experience, by dealing with architectural competitions for redevelopment, elaborating on the necessary studies and the implementation of them on site, managing community engagement and trying to enforce social inclusion, issuing the necessary permits. On corridor level emphasis has been placed in past projects on finding common ground with other stakeholders, negotiating improvements / extensions, raising public awareness and acceptance, proposing legal and regulatory changes, implementing physical renovation of dilapidated areas.

On this particular project though the City is not administrating the procedure, so its playing its part as a key stakeholders

Slide 3

In this project one can identify a number of key stakeholders, both from the public and the private sector (mainly from the former, as permits must be obtained), on a national or local level. It must be pointed out that each and every stakeholder may participate in different stages of the project and that its point of view may fluctuate according to the political balance on every single phase, thus making the navigation kind of tricky. Up till now, though the management of Thermaikos has suffered from the complex multi-stakeholder involvement, it is for the same reason that it provides a unique opportunity for the development of cross-sector and multilevel engagement.



Slide 4

There is a multitude of challenges concerning the specific project, nevertheless, a few stand out.

How can the project ensure integration with the city's fabric and existing transport habits and infrastructure. How one can persuade the citizens to use this transport that seems to stand out as one-sided and in the mind of the public as mainly for recreation and not for business

How can the tools used on other projects of development on dry land be applied to a project such as this, where most of it is placed in water

Energising the recovery of the whole Thermaikos Gulf coastal line (54 km), including both urban and rural areas

Securing interoperability with other existing or planned means of public transport, inspite of the fact that most stations do not coincide or are next to each other

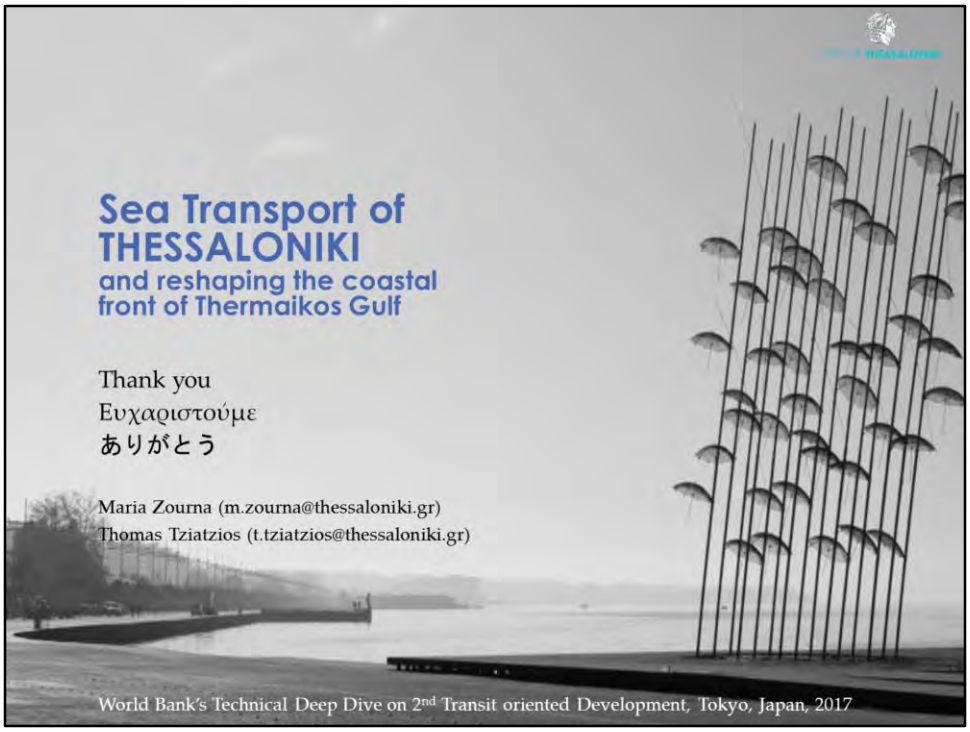
Reinforcing the city's competitiveness, in European and Global level

Increasing the city's touristic potential by exploiting extensions to nearby islands, sea resorts, historic landmarks and protected natural habitats (nearby river deltas)

Improving the quality of life (by providing more choices in commuting for business or leisure)

Reducing pollution (through the use of mass transit and more eco-friendly means)

Ensure from the planning stages the reliability of operation of the specific means of transport to render it sustainable and future-proof


Sea Transport of
THESSALONIKI
and reshaping the coastal
front of Thermaikos Gulf
Thank you
Ευχαριστούμε
ありがとう
Maria Zourna (m.zourna@thessaloniki.gr)
Thomas Tziatzios (t.tziatzios@thessaloniki.gr)
World Bank's Technical Deep Dive on 2nd Transit oriented Development, Tokyo, Japan, 2017

Tokyo Development Learning Center

2nd TOD TDD Action Planning

KENYA

1. John M. Ndirangu, Secretary, Metropolitan Dev. State Dept. of Housing & UD, MTIHUD
2. Kithinji Kanyaura, Project Manager (Infrastructure), Kenya Railways
3. Charles Mutunga, Supt. Engineer, Urban Development Department, MoTIHUD
4. Ajalu J. Stephen, Urban Specialist, World Bank

May 29-June 2, 2017

Government of Japan

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1. TOD Projects in Nairobi City

Tokyo Development Learning Center

The Ministry of Transport, Infrastructure, Housing & Urban Development (MOTIHUD) is implementing the following Transit-Oriented Projects within the Nairobi Metropolis:

- Railway City-*Planning ongoing*
- Embakasi Railway Station Area-*Planning imminen*t
- Land Use Plans within 1 km radius of Commuter Rail stations-*Completed*

The Projects are implemented through the Nairobi Metropolitan Services Improvement Program (NAMSIP) , financed by World Bank

Government of Japan

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1. Railway City

Tokyo Development Learning Center

Government of Japan

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2. City's Experience on Corridor Scale Development

Tokyo Development Learning Center

- The City is within the Northern Corridor, a Transit development zone from Port of Mombasa through Nairobi to Cameroon.
- Nairobi City has experienced severe traffic congestion and sprawl.
- Inefficient and low capacity public transport system
- Radial Settlements sprawling along existing railway corridors and arterial roads
- However, implementation of ToD is challenged. Requires review and implementation of enabling Legal & Regulatory framework on land use and transport

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3. Institutional arrangements

Tokyo Development Learning Center

- The MOTIHUD oversees all modes of transport in Kenya. This includes both policy formulation, regulations, implementation of infrastructure projects through its Agencies and regulation.
- Key institutions in the Transport sector
  - Kenya Railways, Kenya National Highways Authority (KeNHHA), Kenya Urban Roads Authority (KURA). They play complementing roles in land Transport
- Other Key stakeholders in Transport include Nairobi City County Government and Private Sector

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4. Challenges to address

Tokyo Development Learning Center

- New Legal & Regulatory Framework to facilitate ToD
- Providing viable ToD corridors/Nodes
- Preparing node/corridor TOD plans and designs
- Establishing TOD delivery/financing mechanisms and projects governance

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2nd Technical Deep Dive on Transit Oriented Development (TOD)
Peer Presentations

Pakistan

29th May, 2017

Planning Commission
Ministry of Planning, Development & Reform
Government of Pakistan
www.pc.gov.pk

Pakistan2025
together for a better tomorrow

Karachi Neighborhood Improvement Project

- Sponsoring Agency: Government of Sindh

- Financing Source: Government of Sindh / World Bank

- Brief Description:

  The project envisages carrying out following components:

  Component 1: Public Space and Mobility Improvements in Selected Neighborhoods

  Component 2: Support to Improved Citizen Services and City Capacity Development

  Component 3: Support to Implementation and Technical Assistance

Karachi Neighborhood Improvement Project

These components will facilitate;

- first, to enhance the accessibility, usability and attractiveness of public spaces (e.g., roads/streets; parks/open spaces; and public buildings) in selected neighborhoods of Karachi

- second, to improve selected citizen services and municipal financial management capacity

- third, to initiate mechanisms for inclusive planning and decision making among different levels of government (provincial and local), citizens, private sector and civil society

Stakeholder Agencies

Federal Level:

- Ministry of Planning, Development & Reform / Planning Commission
- Ministry of Housing & Works
- Capital Development Authority Islamabad

Provincial Level:

- Provincial Planning & Development Departments
- Provincial Mass Transit Authorities
- City Development Authorities

Mass Transit Projects

Completed

- Lahore Green Line Metro Bus Project
- Rawalpindi-Islamabad Metro Bus Project
- Multan Metro Bus Project

Under Construction

- Lahore Orange Line Metro Train Project
- Metro Bus to New Islamabad International Airport
- Karachi Green Line Metro Bus

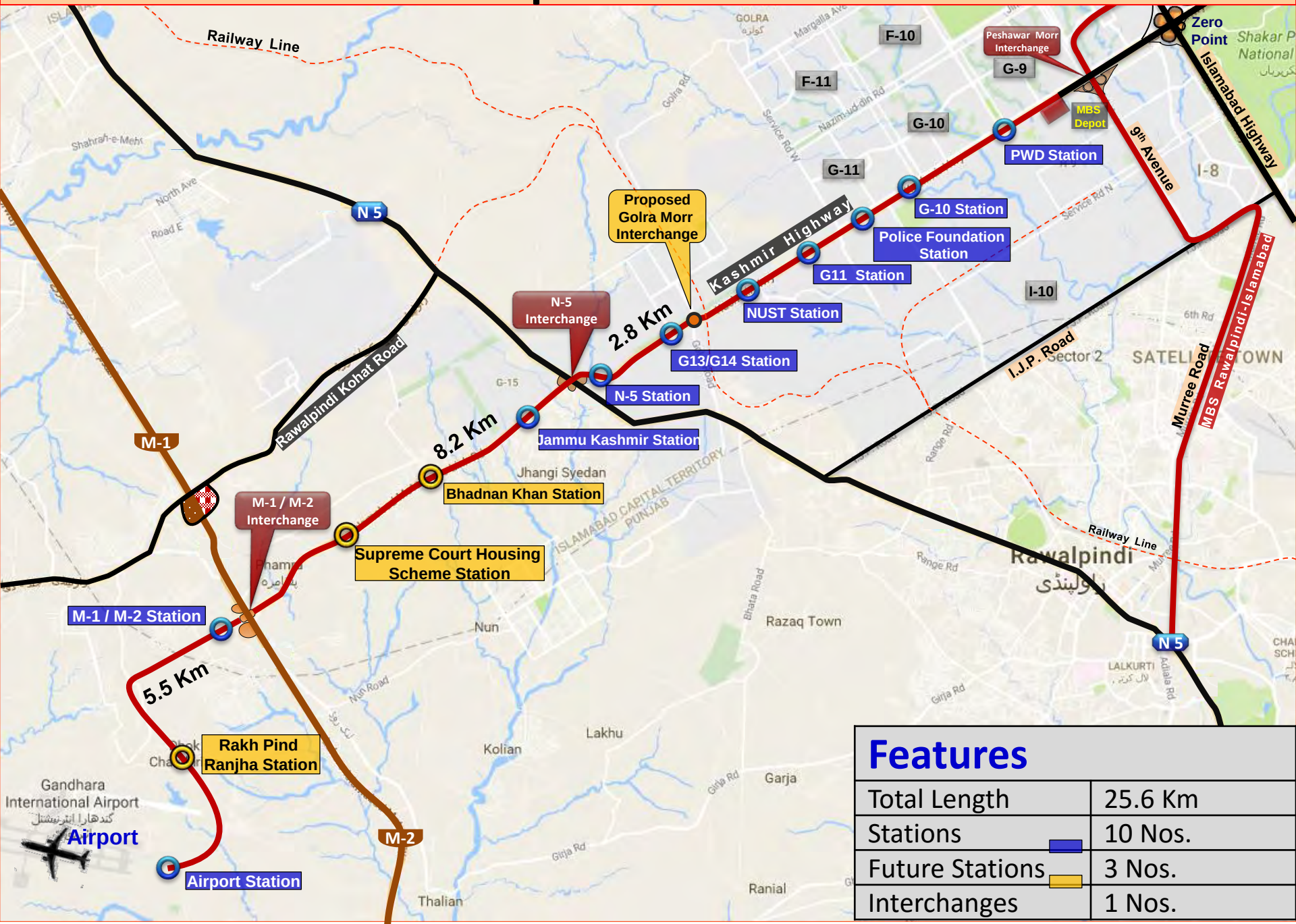
Under Planning

- Karachi Circular Railway Project
- Peshawar Metro Bus Project

METROBUS TO

NEW ISLAMABAD INTERNATIONAL AIRPORT

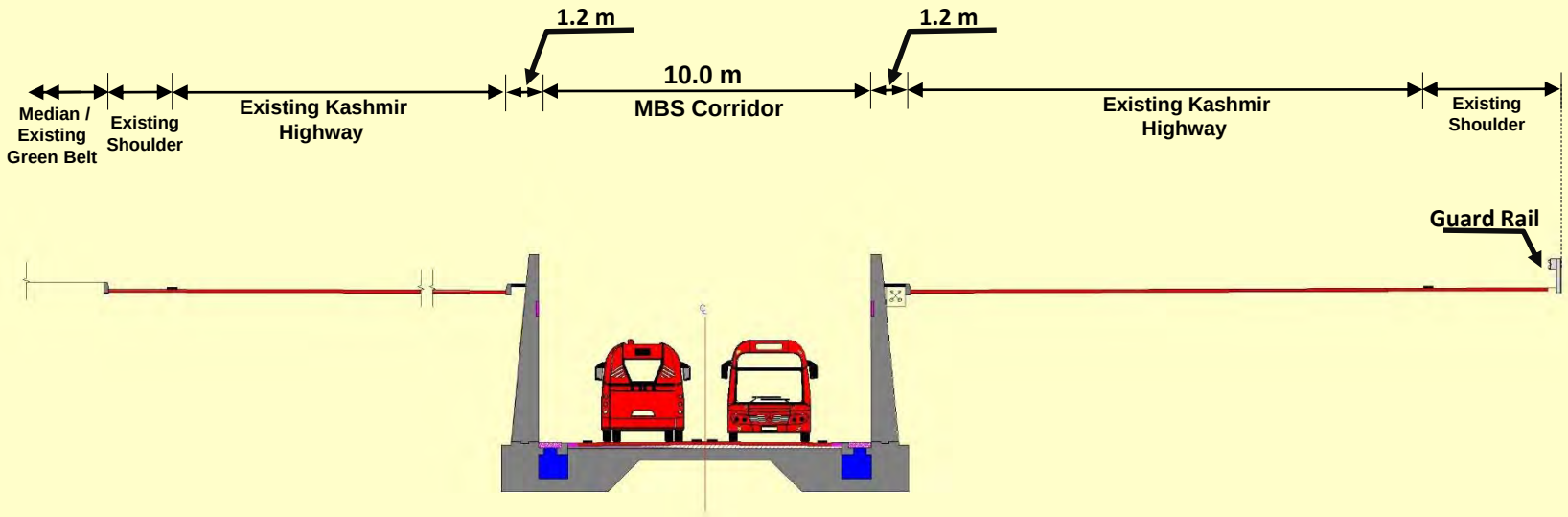
Proposed Stations



Features

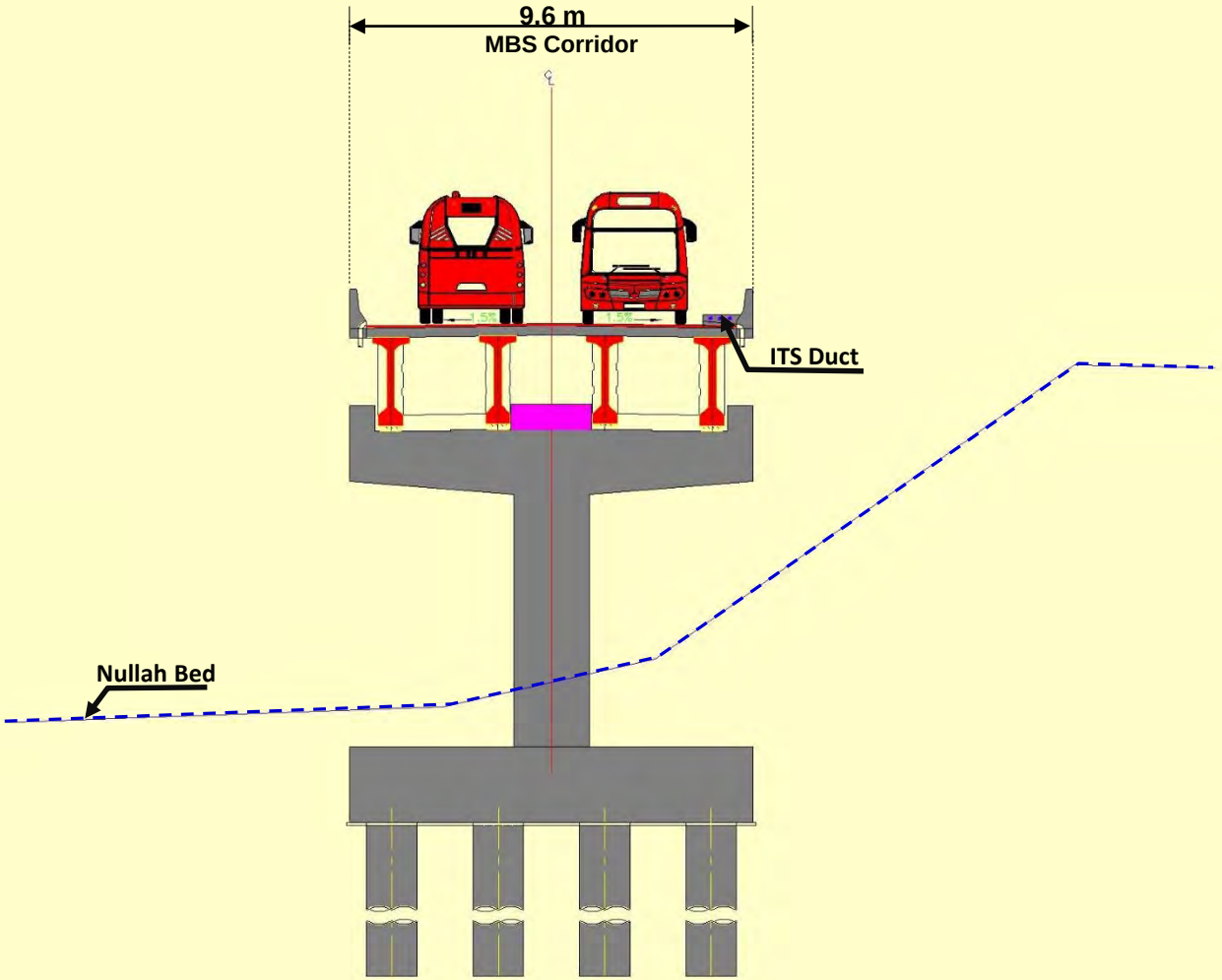
Total Length	25.6 Km
Stations	10 Nos.
Future Stations	3 Nos.
Interchanges	1 Nos.

Typical Cross Section in Trench Section

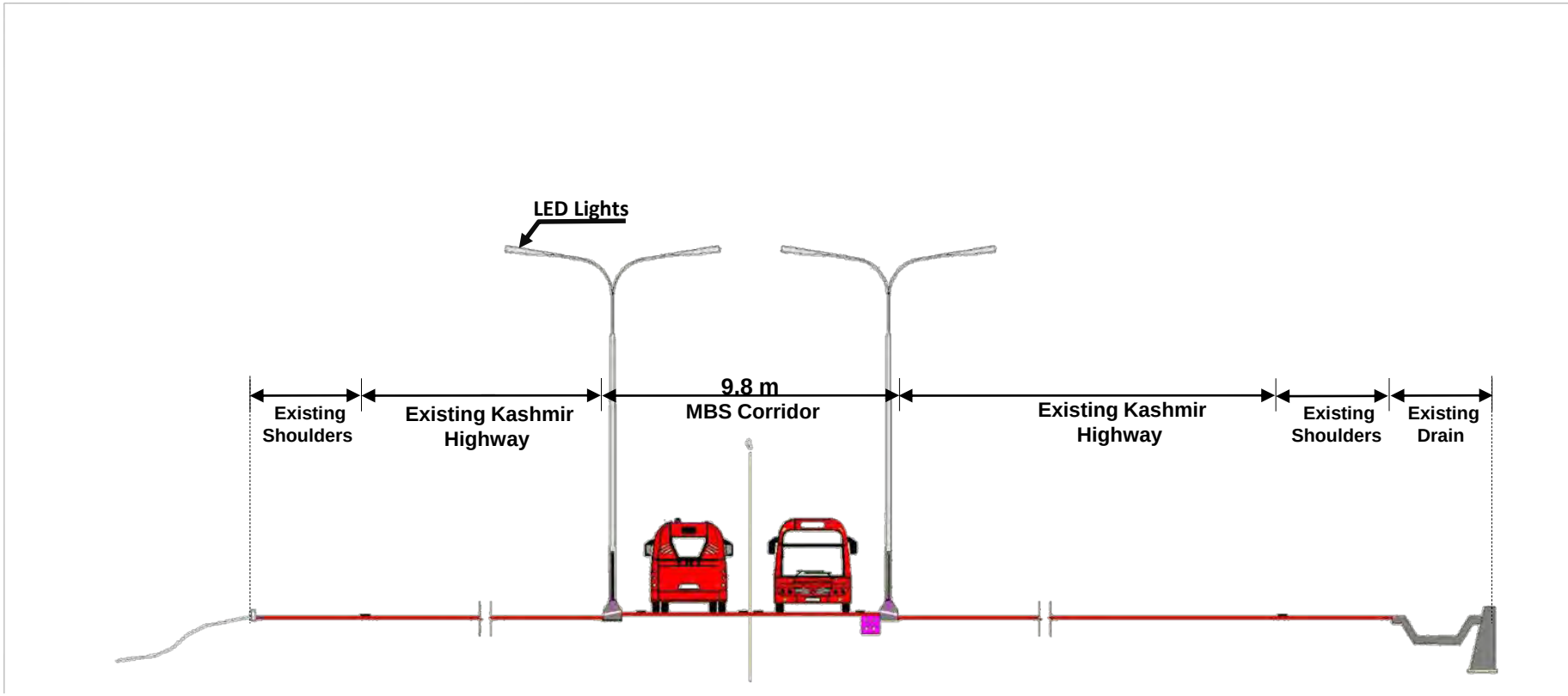


Typical Cross Section at Bridge Location

Kashmir Highway



Typical Cross Section in Median of Kashmir Highway



Perspective View of MBS Station

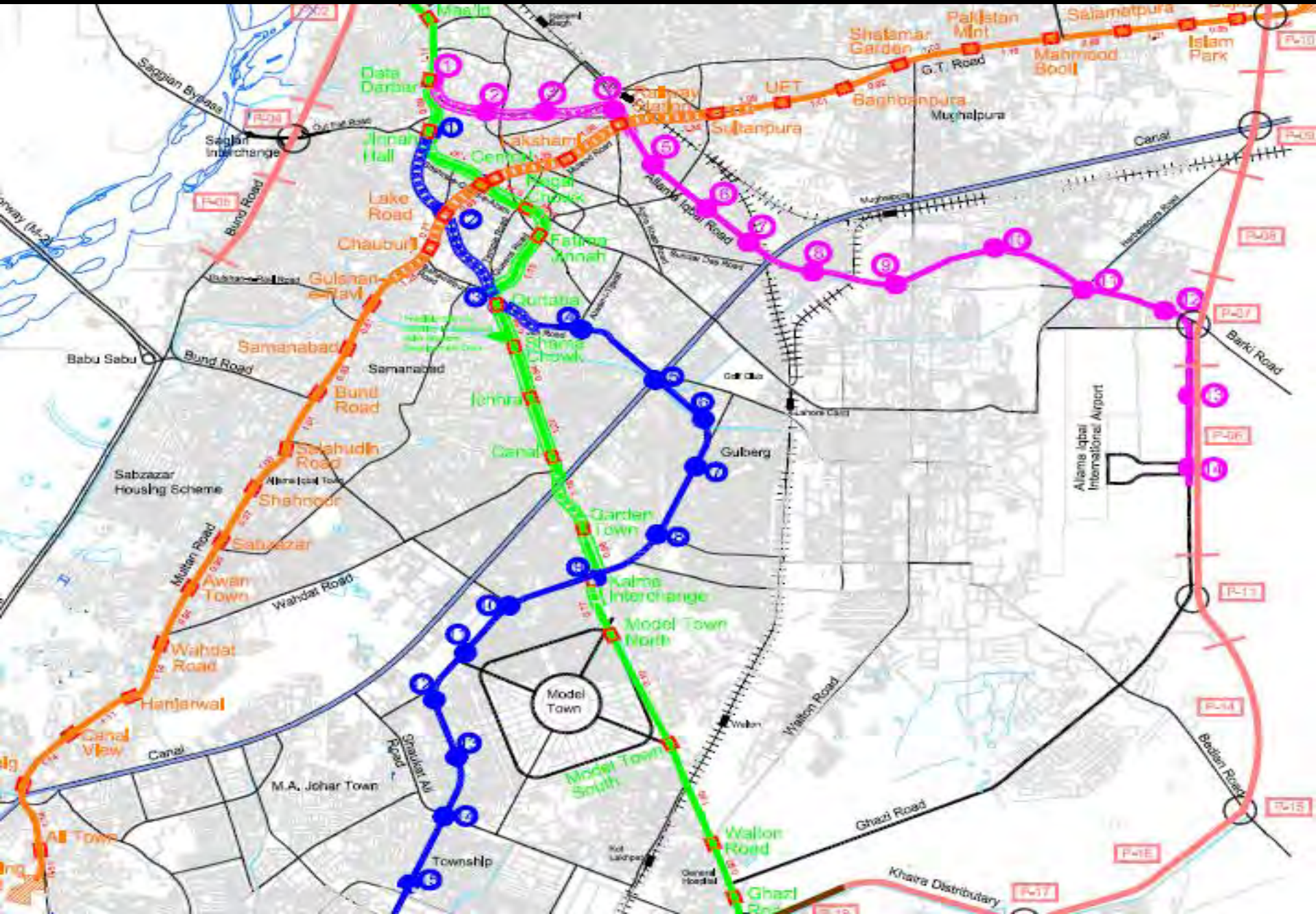
CONSTRUCTION OF INFRASTRUCTURE & ALLIED WORKS FOR METRO BUS SERVICE
(PESHAWAR MORR ~ NEW ISLAMABAD INTERNATIONAL AIRPORT)

3D VIEWS (AT GRADE)

CONSTRUCTION OF INFRASTRUCTURE & ALLIED WORKS FOR METRO BUS SERVICE
(PESHAWAR MORR ~ NEW ISLAMABAD INTERNATIONAL AIRPORT)

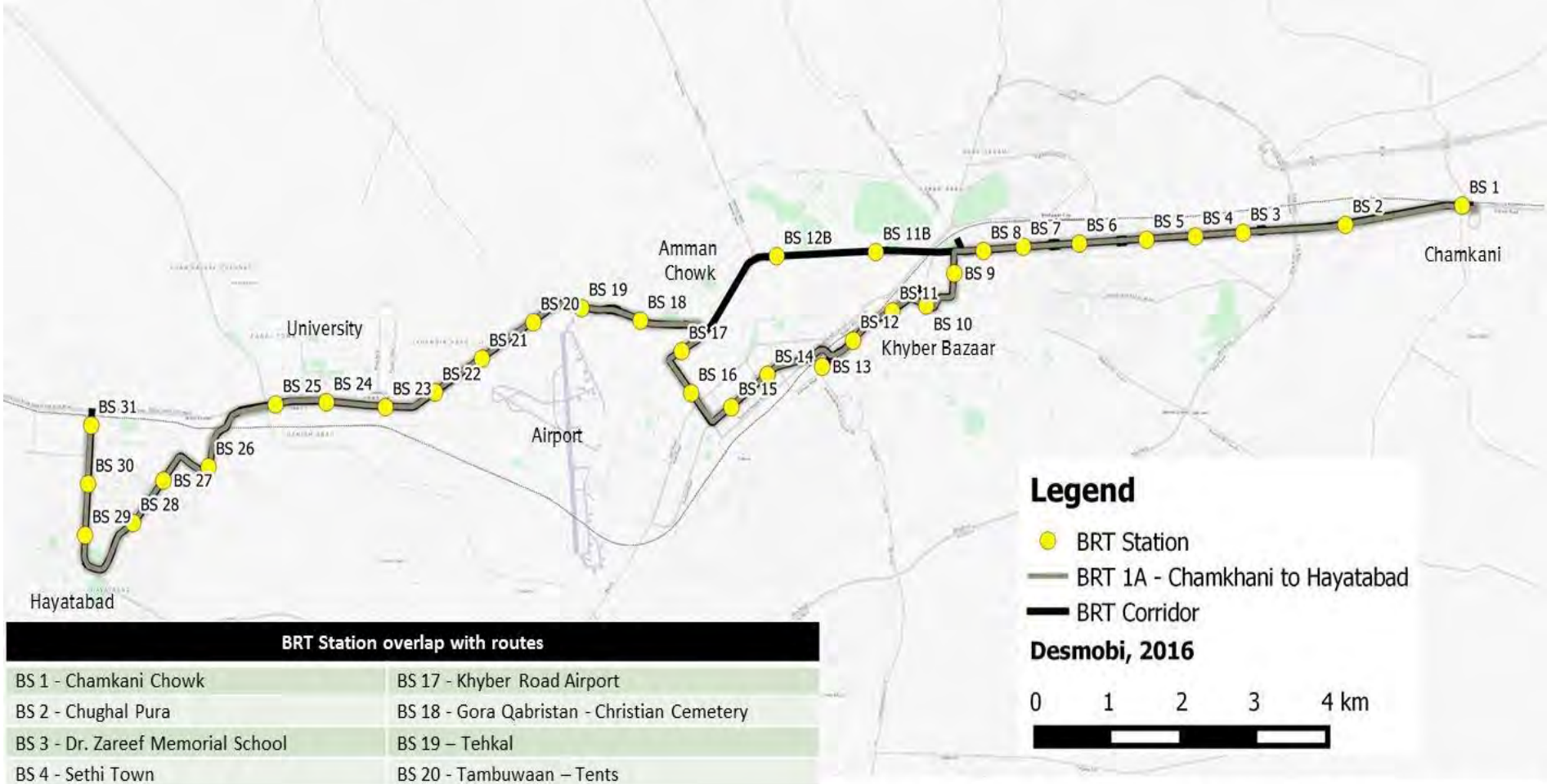
3D VIEW (MBS TRENCH)

Lahore – Orange Line – Metro Train Project



Stations

PESHAWAR METROBUS PROJECT



BRT Station overlap with routes	
BS 1 - Chamkani Chowk	BS 17 - Khyber Road Airport
BS 2 - Chughal Pura	BS 18 - Gora Qabristan - Christian Cemetery
BS 3 - Dr. Zareef Memorial School	BS 19 – Tehkal
BS 4 - Sethi Town	BS 20 - Tambuwaan – Tents
BS 5 - Sikandar Town	BS 21 - Abdara Road
BS 6 - Gulbahar Square	BS 22 - University Town
BS 7 – Hashnagri	BS 23 - KTH University of Peshawar
BS 8 - Qila Balahisar	BS 24 - Islamia College
BS 9 - Hospital Road	BS 25 - Board Bazar Regi
BS 10 - Khyber Bazaar	BS 26 - Taj Abad
BS 11 - Soekarno Square Secretariat	BS 27 - Hayatabad Model School
BS 12 - Dabgari Gardens	BS 28 - Hayatabad Phase 3
BS 13 - Railway Station	BS 29 - Tatara Park
BS 14 - State Bank of Pakistan	BS 30 - PDA Hayatabad
BS 15 - Saddar Bazar	BS 31 - Cancer Hospital
BS 16 - Mall Road	

Route Name	1A (Silver Line)
Route Alignment	Chamkani to Hayatabad
Route Length	25.8 km
Route inside BRT Corridor	25.8 km
Number of BRT Station Overlap with Routes	31 station


UNIVERSAL ACCES
MIX TRAFIC LANE
PASSING LANE
STATION DESIGN
BYCYCLE LANE

Key Challenges

- How to introduce TOD for BRT Corridors already constructed and operational
- TOD in Built Up Areas - New BRT & Metro Train Mass Transit Projects selected corridors pass through old city areas
- TOD not considered while designing Mass Transit Projects
- Creating Enabling legal and Regulatory Framework
- Lack of expertise in TOD
- Subsidy issues for Mass Transit Projects

Thank You

Tokyo Development Learning Center

2nd TOD TDD Peer Presentation Philippines

May-June 2017

Arnulfo Fabillar, Department of Transportation (DOTr)
Nigel Paul Villarete, Cebu City Government
Vickram Cuttaree, WB Task Team Leader

Government of Japan

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Social, Urban, Rural & Resilience

1. TOD Project in Cebu City, Philippines

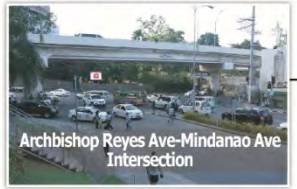
Tokyo Development Learning Center

The Cebu Bus Rapid Transit (BRT) Project

Classification	Link	Segregated (km)	Unsegregated (km)	Total (km)
Length	Bulacao~Ayala[1)]	10.55	0.51	11.06
	Mambaling - SRP	4.26	0.74	5.0
	Ayala~Cebu IT Park~Talamban[2)]	0.1	6.8	6.9
	Total	14.91	8.05	22.96
Number of stations(Terminal)[3)]		21(3)	9(1)	30(4)

1) Non-separated distance of 0.51km based on BRT using existing Mambaling Passover.
2) Separated distance of 0.1km associated with BRT only route into Cebu IT Park
3) Terminal including IT park station

The project(Bulacao ~ Talamban)
L = 22.96km



Legend
- BRT Stations
- BRT Terminals
- BRT Corridor(Segregated)
- BRT Corridor (Unsegregated)
- BRT Depot

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2. Cebu City's experience with TOD

Tokyo Development Learning Center

City Scale: As the "oldest city" in the Philippines, Cebu City poses such formidable challenges as being formed centuries ago when most of the knowledge in current urban planning did not exist. The city started out with the form of old Spanish settlements and subsequent expansions were not really planned but happened in a haphazard manner. It's transport system, likewise evolved in a reactive manner and maybe presently described as inefficient and congested.

Station Scale: Cebu City has little experience in station scale of development as there was no mass transport system to speak of until the present BRT implementation.

Corridor Scale: Cebu City is linear in nature and started with just a single transport corridor in between and parallel to, the coastline and the mountains. This was later proposed to be improved to three (3) parallel corridors. As of today, the third one (upland bypass) is yet to be constructed.

The objective is to better understand the concept and be able to develop a TOD plan.

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3. Agencies involved/directly affected by TOD

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National Level:

- Department of Transportation (DOTr)
- Department of Public Works and Highways (DPWH)
- Housing and Land Use Regulatory Board (HLURB)
- Land Transportation and Franchising Regulatory Board (LTFRB)

City Level:

- Office of the Mayor
- The City Council
- The City Planning and Development Office (CPDO)
- The Cebu City Transportation Office (CTTO)
- The Office of the City Zoning Officer

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4. Key Challenges the City would like to address

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- **To initiate Policy Formulation and momentum for Transit-Oriented Development (TOD) and Land Value Capture (LVC) in Cebu City.**
  - This is crucial especially with the implementation of the Cebu BRT Project in the City
- **Creating the enabling legal and regulatory framework for TOD (planning/implementation) at the city level.**
  - This might be tricky due to the absence of a national policy on TOD, thus it is doubly necessary at the local level.
- **Community engagement/social inclusion in TOD or land value capture (LVC) projects.**
  - This will provide a participatory and consultative framework for development which is crucial to get the buy-in of the stakeholders.

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The State and Urban Transportation Development Perspectives

Mobility context

Dakar's demographic growth increases urban transportation needs

- 3,4M inhabitants in Dakar in 2016 / 5,7M expected for 2030
- A peninsular geographic form which induces accessibility constraints

A strong dependence on public transportation (PT) and congestion issues that penalize accessibility

- 80%of motorized trips involve PT, that is to say 1,4M trips/day by PT
- 14km/h of commercial speed for PT modes

PT supply is still insufficient and inadequate and the overall quality service remains quite low despite the government's efforts of the past few years: dilapidated equipements, no regularity nor reliability.

Parking, either downtown or along big PT terminals, is problematic.

In order to face the challenge of increasing flows induced by demographic growth, Dakar's urban transportation system needs to be structured around a solid mass transportation network, so as to improve mobility and trips conditions.

LPDU*'s pillars and strategic positioning

1. **Integrated urban planning of both land use and transportation systems for sustainable mobility**

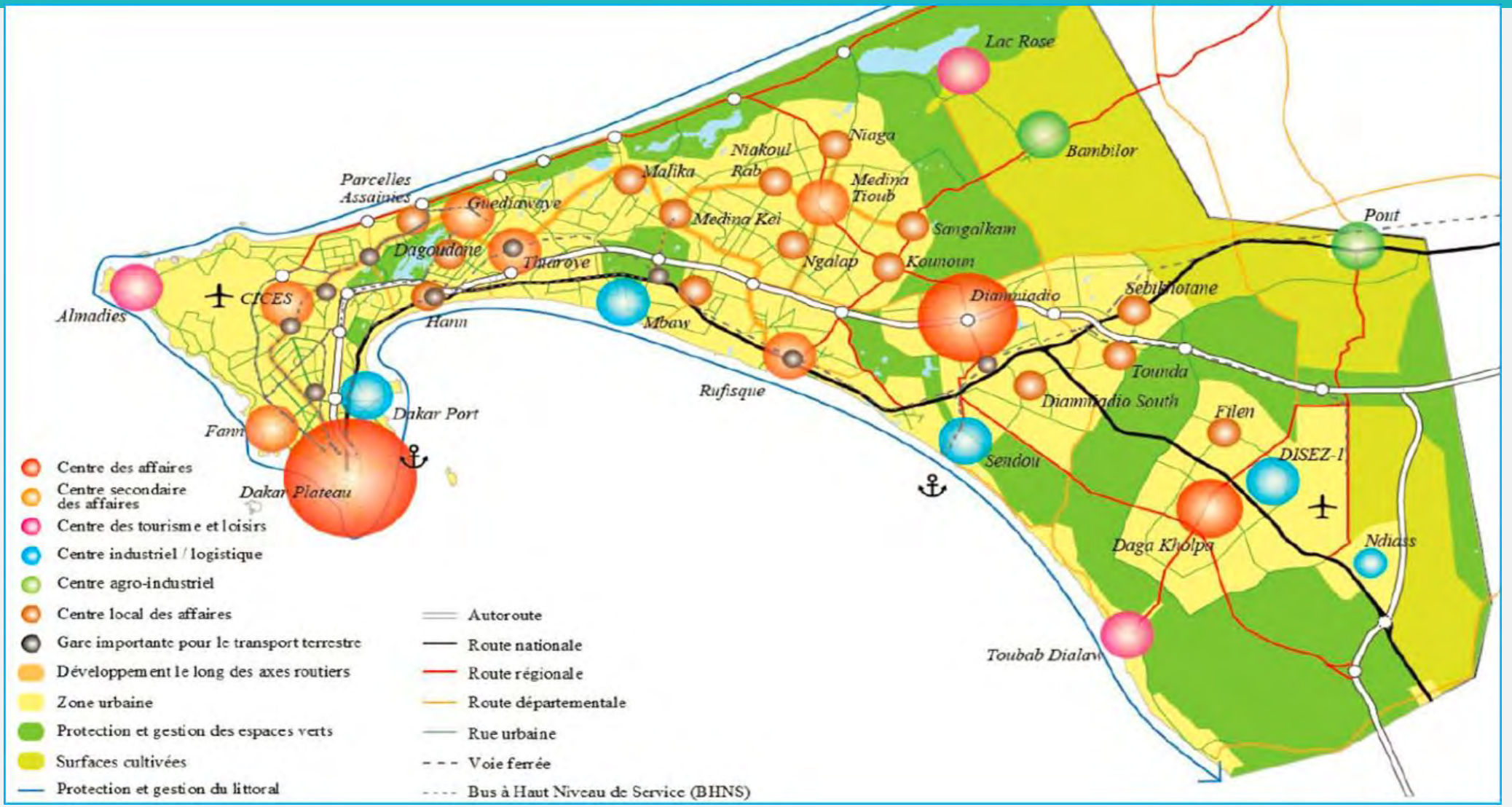
2. **Setting up of an integrated and efficient public transportation network, that has priority over private vehicle. This network will be ordered the following way: The future BRT and TER constitute the first level. The second level is represented by the DDD complementary network. And the third level consists of the extended feeding lines.**

1. **Extension of the road network and improvement of traffic and parking management**

2. **Setting up of a simplified and efficient institutional framework**

3. **To secure, to increase, to diversify and to perpetuate the financing means of the mobility sector**

Series of the demographic and employment evolutions, PDUD* 2035



We can notice that both areas of interest and of residence are shifting, from downtown Dakar to the eastern parts of the region (Diamniadio, Daga Kholpa, Médina Tioub, Bambilor, Lac-Rose, etc.).

This current trend can be explained by the city's saturation and the needs for expansion towards the East.

The pilot line

2nd TOD Technical Deep Dive / Planning and Implementing TOD at City, Corridor and Station Scale

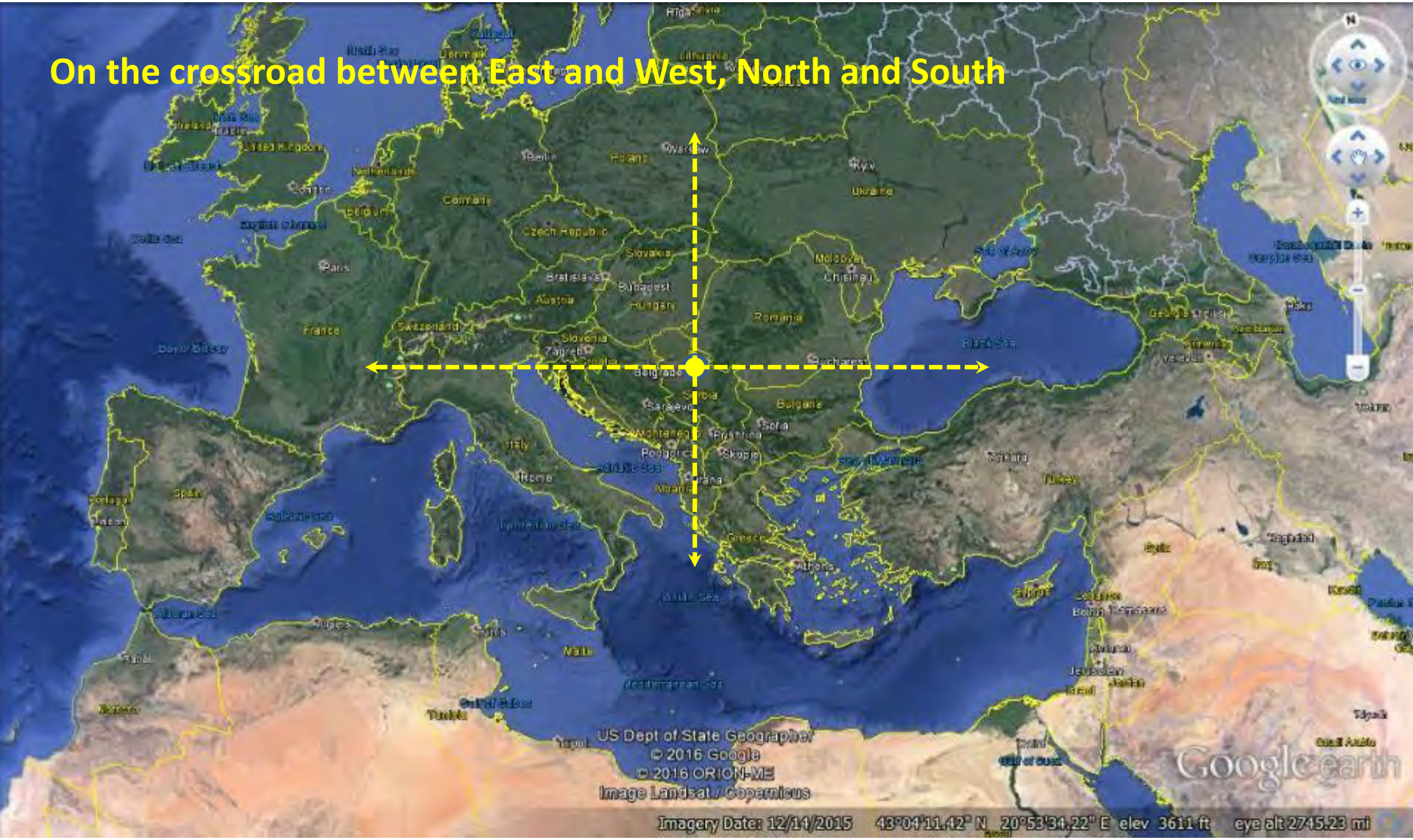
World Bank Tokyo Development Learning Centre, TDLC, May 29 to June 2, 2017

City of Belgrade – A Danube SEE Capital

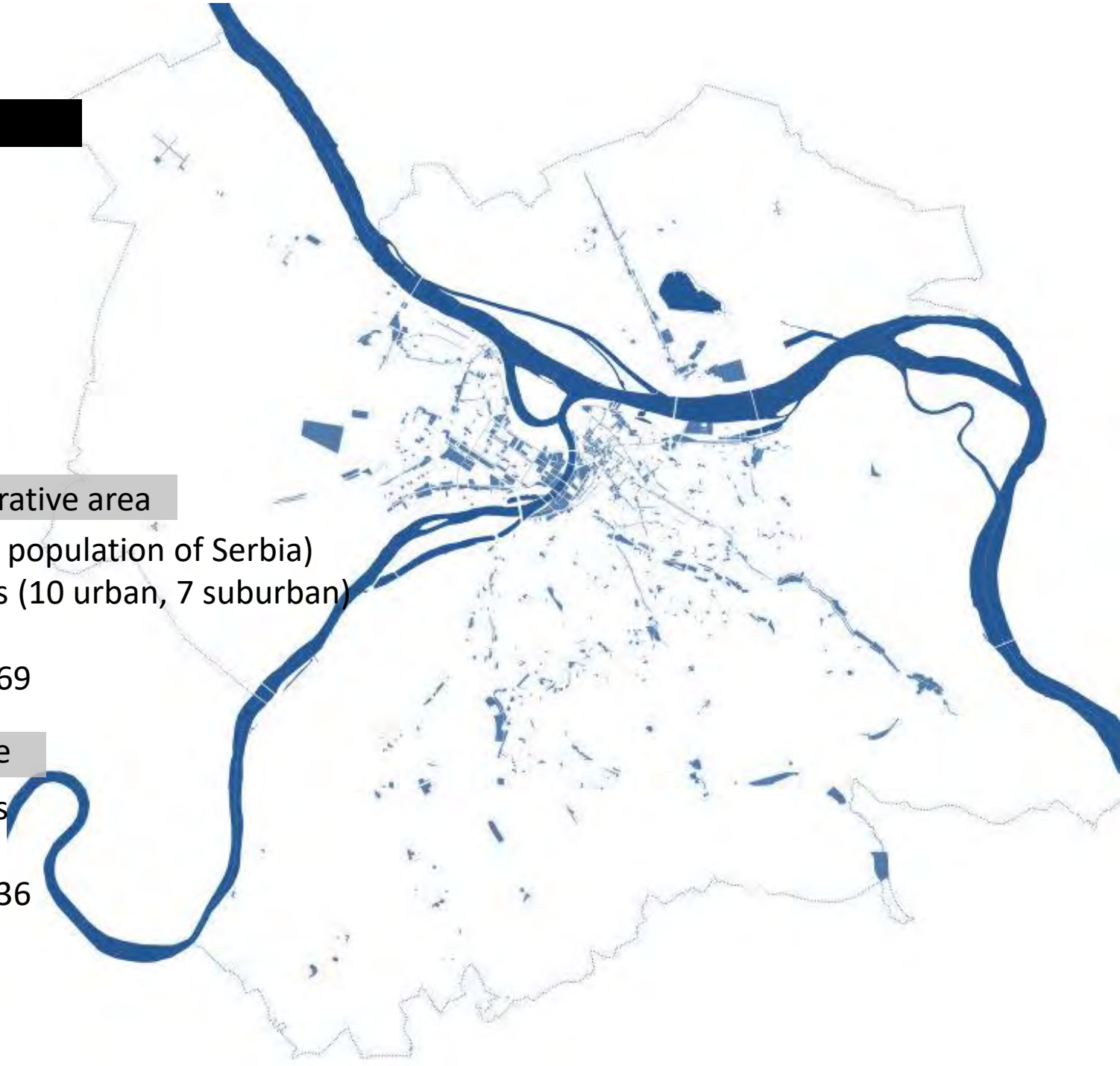
Milutin Folic, Mayor's Office, City of Belgrade Chief Planning Officer

Dr Zaklina Gligorijevic, Lead Planner in Strategic Department, Urban Planning Institute of Belgrade

#on Belgrade, Serbia,



Facts and FIGURES



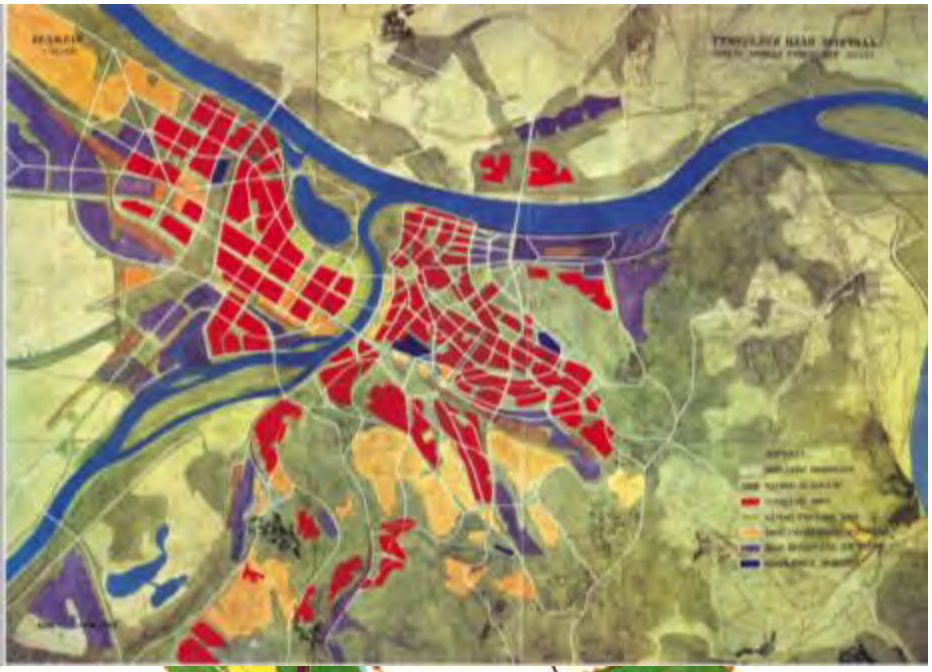
The City - administrative area

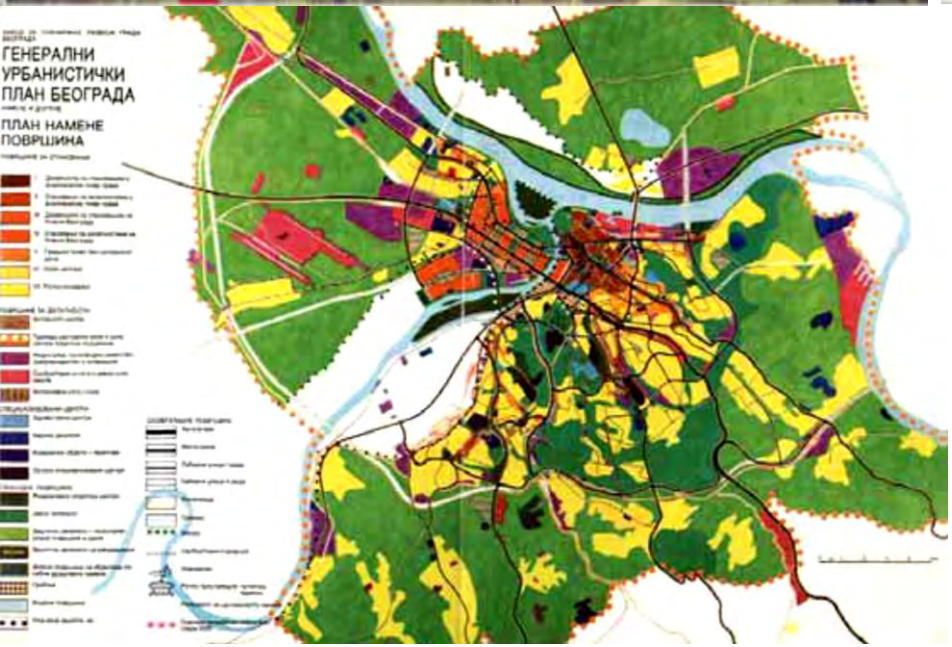
- capital city (21% population of Serbia)
- 17 municipalities (10 urban, 7 suburban)
- area 322,500 ha
- population M 1.69

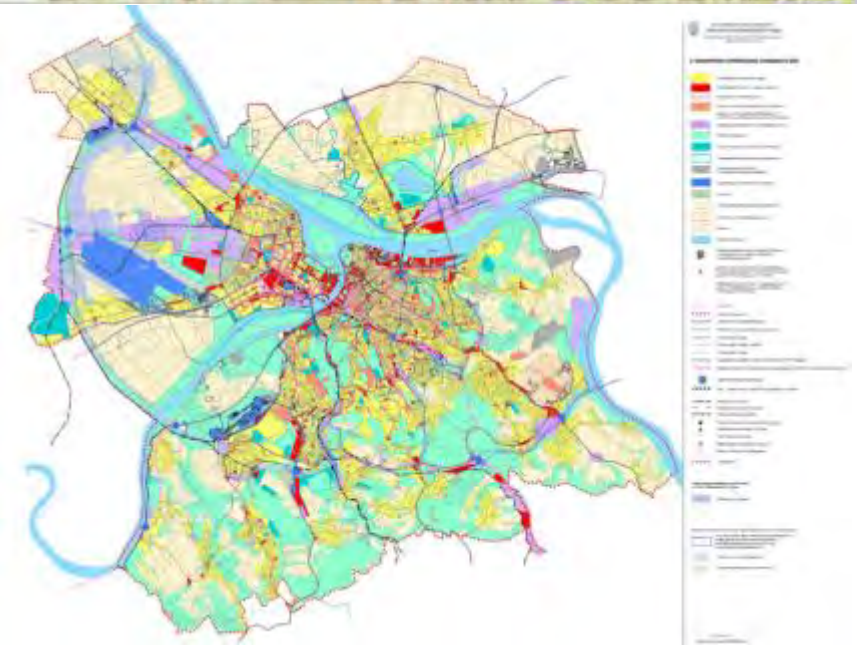
Inner city Belgrade

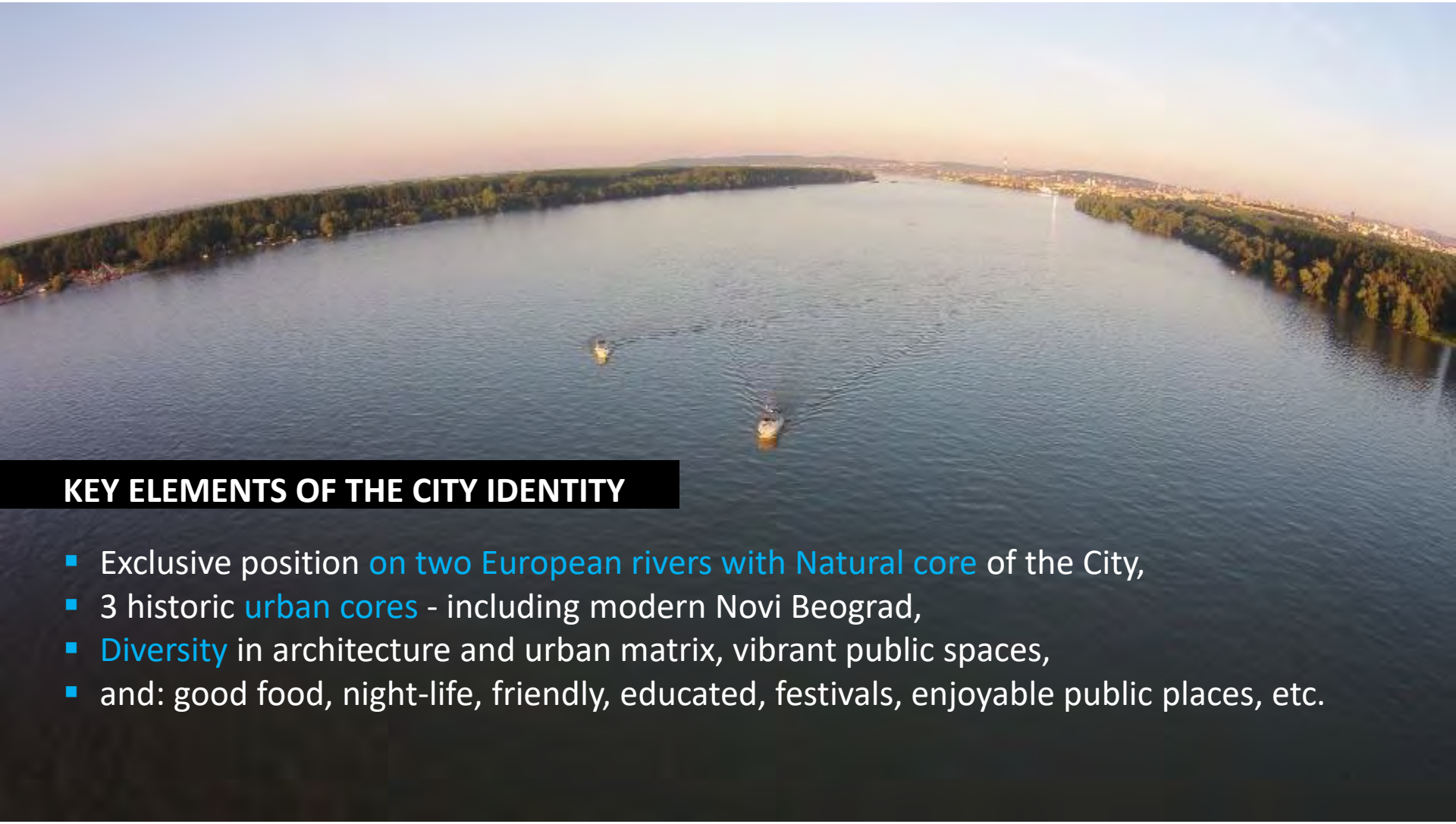
- 12 municipalities
- area 77,746 ha
- population M 1.36

Belgrade comprehensive General plans (1950, 1972, 1985, 2003, 2009, 2015).





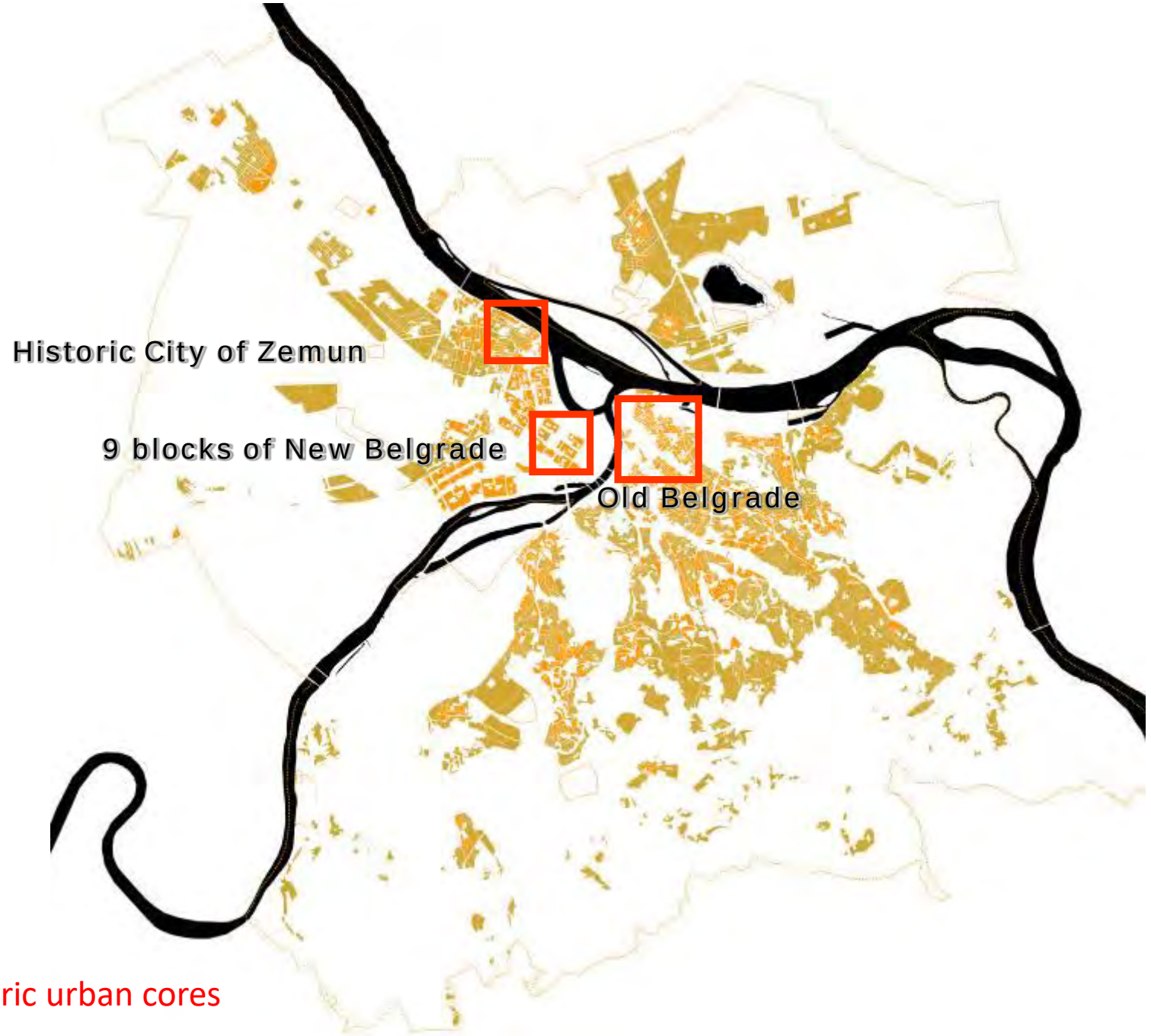




KEY ELEMENTS OF THE CITY IDENTITY

- Exclusive position on two European rivers with Natural core of the City,
- 3 historic urban cores - including modern Novi Beograd,
- Diversity in architecture and urban matrix, vibrant public spaces,
- and: good food, night-life, friendly, educated, festivals, enjoyable public places, etc.

- Natural core of the City



3 historic urban cores

Belgrade Fortress - the heart of the Old Belgrade

Sava Passenger Port and the Old city of Belgrade


Center of New Belgrade

Floods 2006.

Street surf,
Belgrade Fortress, April 2006.

The first Belgrade workshop in the 100 Resilient Cities project, September 2015

CBDS 2016

SMART PLANING – CITY OF BELGRADE DEVELOPMENT STRATEGY

SUSTAINABLE URBAN DEVELOPMENT

1.

PLAN v.s. STRATEGY :

The image of the future city –

Integral development process.

The City We Wont?

The goal, long-term vision

horizont: 20, 30 years

How to Reach the Goal?

Process definition, methods, resources:

the first step: a 5 years action plan

City of Belgrade Development Strategy 2016–2021

URBAN DEVELOPMENT VISON

URBAN DEVELOPMENT ASPECTS 2 x 2

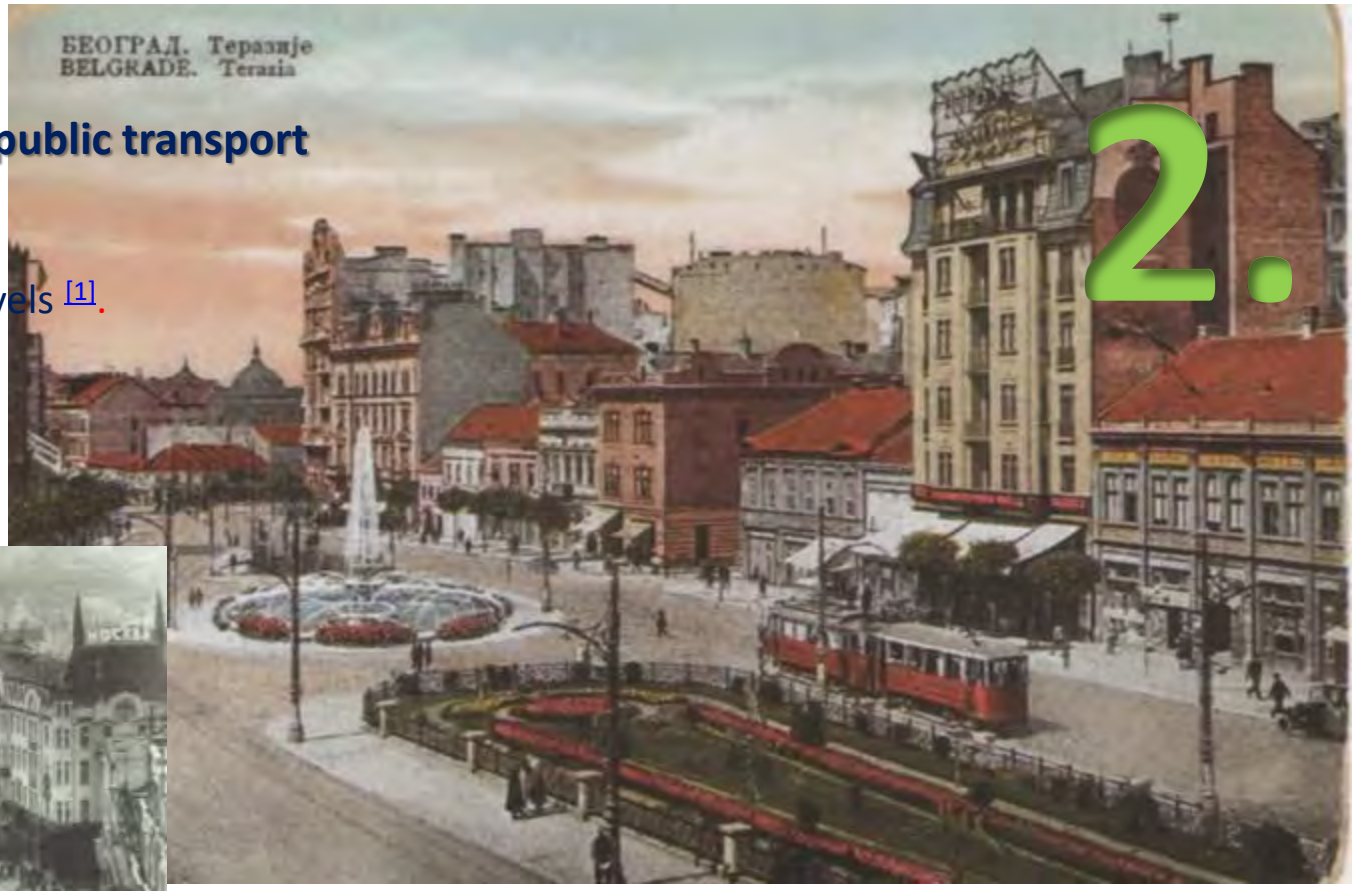
1. Regional/ European /Global context
   Local context – the city for its citizens
2. Long-term vision, and
   Action plan for 2021

Context and challenges for the CBDS 2016 - Efficiency

- The ambiance of the **liberal economy**, **the accession process to EU;**
- **CBDS Priority – economic development:** Empowerment of the economic city concurrency based on attracting investments, fast development of the knowledge based economies that bring higher added value.
- **New city Projects**, based on the **improved transportation and technical infrastructure.**
- **Communication and collaboration between sectors**, other cities, businesses, academia, non profits, civil society.
- **integrated model**, although still in the partial synthesis and through the **sectoral priorities** .

Historically oriented to public transport

47.9%
in overall share of daily travels [1].



2.

[1] WSP I Parsons Brinckerhoff, Југинус: *CMAPT plan – Review of the Sustainable Transportation Master Plan , Investor: EBRD*

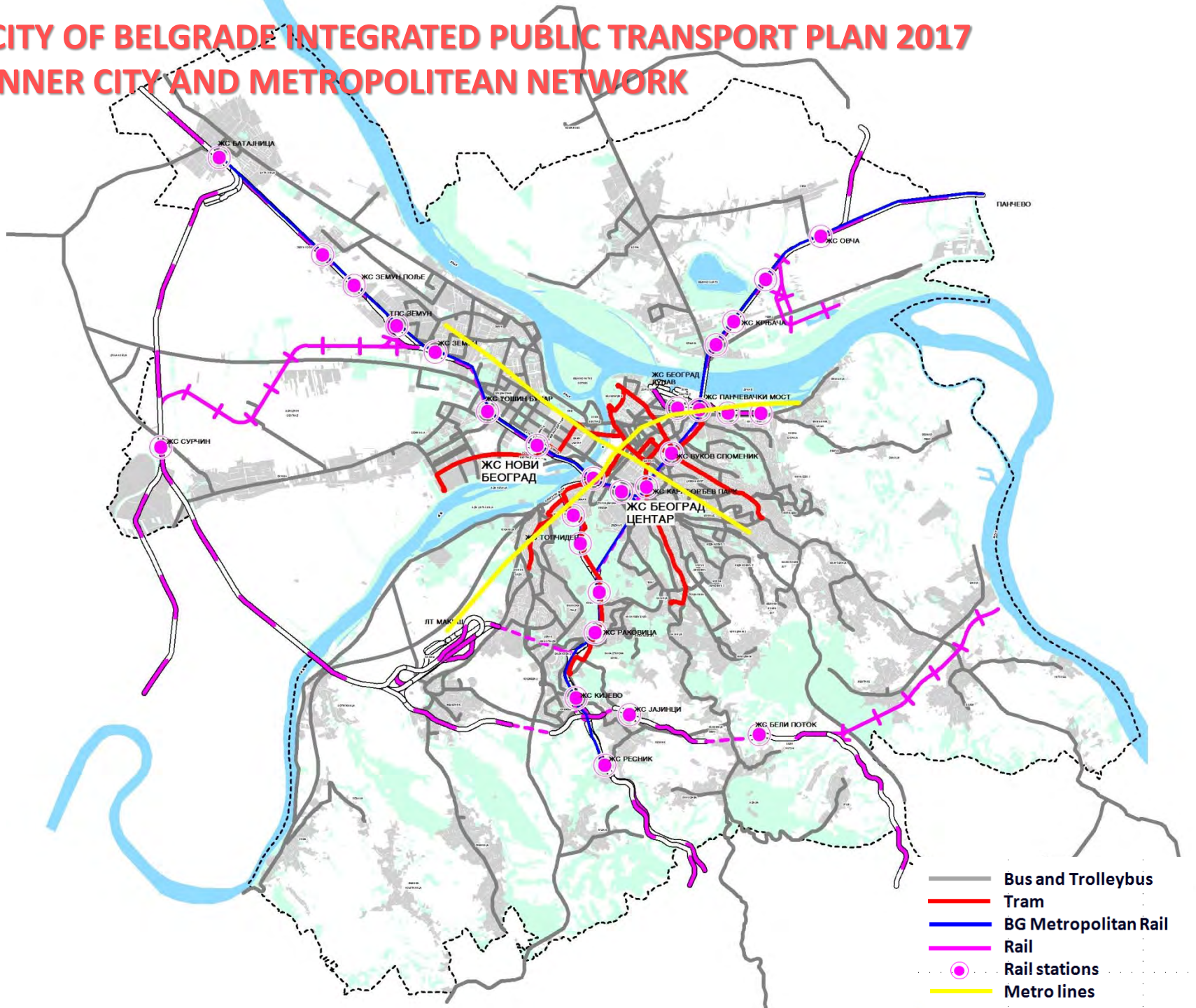
BGD Public Transport data 2016

- Bus is the most popular type of public transport with the major number of passengers.
- Aging vehicles, especially trams and public buses (trams 24.45, buses 9.17, private buses 4.95, trolleybuses 6,61years)
- Average speed -13.26 km/h
- Introducing SMART concept: E- cards and the central management of the PT system and ECO BUS
- 4 Tariff zones within the Metropolitan Belgrade,
- Lack of the high capacity rail systems.

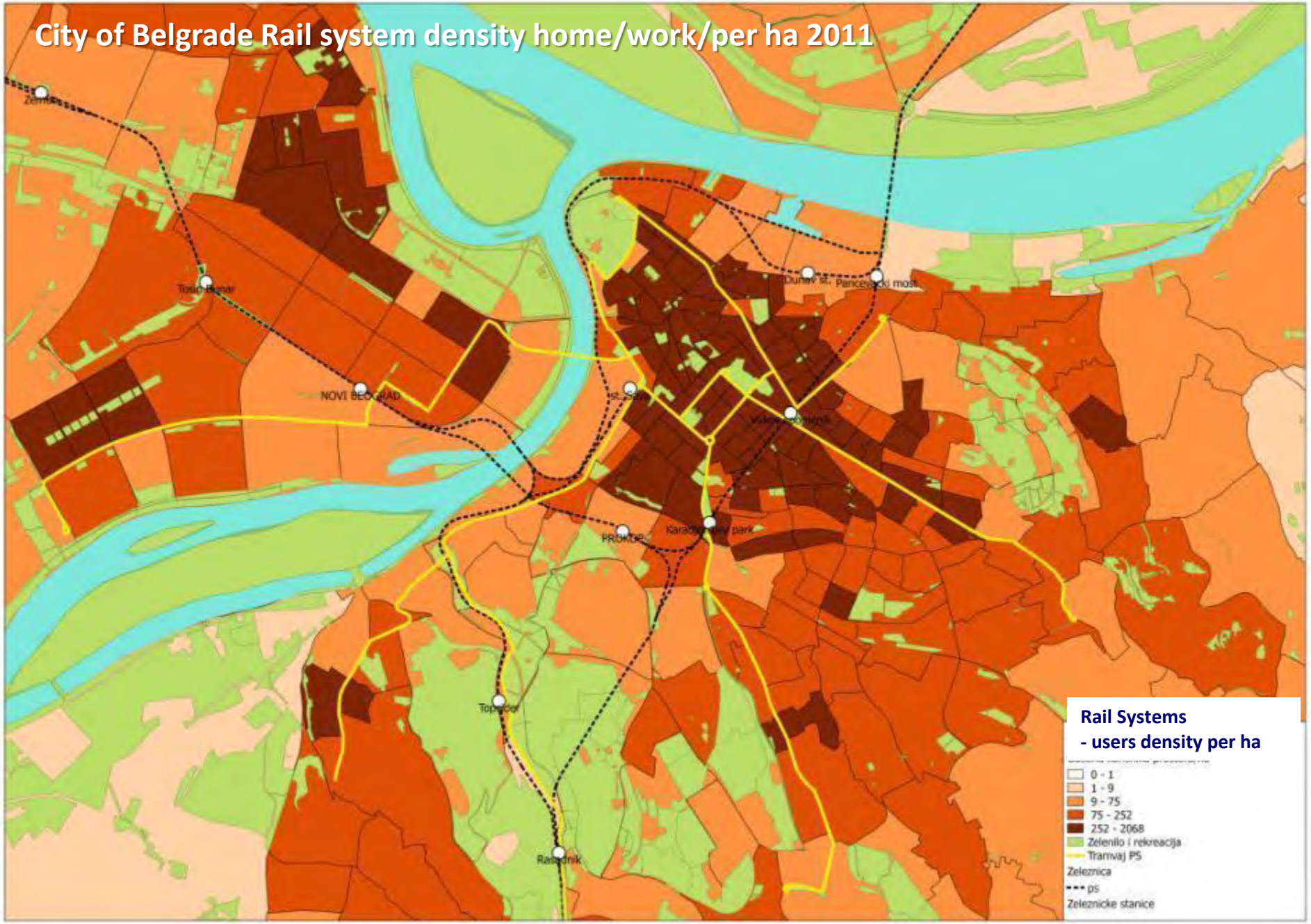
Subsystem CPT Capacities (City statistics, *Belgrade in Numbers* 2015, Secretariat for Public Transport, 2017)

SUBSYSTEM	TRAM	TROLEYBUS	BUS	EKO 1 BUS	BG Rail	SUM
Number of lines	10	7	528	1	1	546
Length / Km	114	56	14618	8	25	14813
Number of vehicles	242	126	1854	4	9	2231
Number of seats	41955	14244	219187		5400	280786
Average number in traffic	109	78	1194			1381
Km (000)	9100	5425	120071		742	135338
Passengers (000)	97125	46327	515599		9207	668258

CITY OF BELGRADE INTEGRATED PUBLIC TRANSPORT PLAN 2017
INNER CITY AND METROPOLITEAN NETWORK



City of Belgrade Rail system density home/work/per ha 2011



Other transportation activities towards the sustainable and livable City

Figure 1-31 Person Trip Mode Split, Metropolitan Area

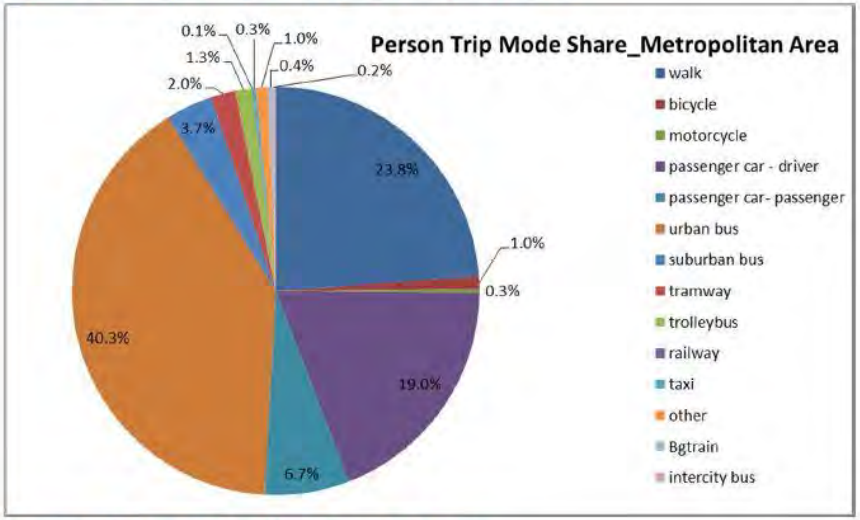
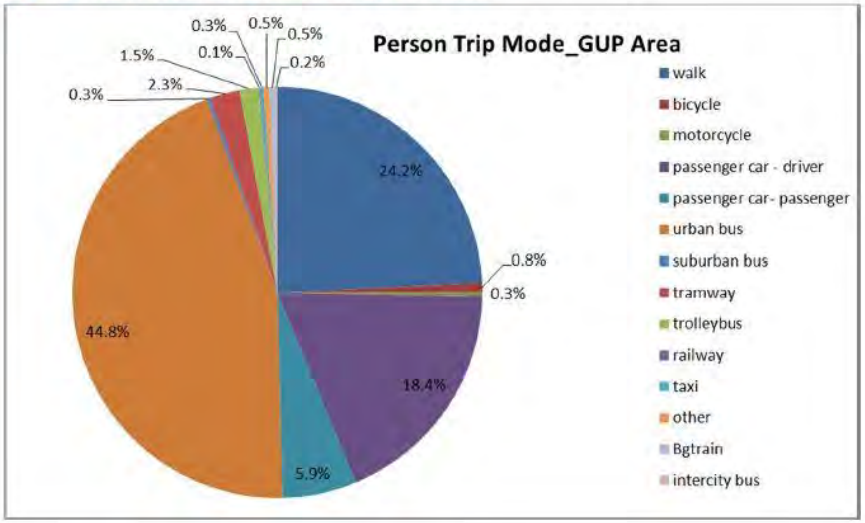


Figure 1-32 Person Trip Mode Split, GUP Area



Current terminuses - bus, tram and trolleybus end-stops in the city centre to be allocated to the city outskirts

Planned railway network 2015

Metro Belgrade scheme from 1968, based on Belgrade Master Plan 2000 (1950)

Metro Belgrade scheme from 1976, based on Belgrade Master Plan 2000 (1972) - 50 km in two lines.

Metro Belgrade scheme 2011, based on Belgrade Master Plan 2021 (2003)

2015.


IDENTITY
ИДЕНТИТЕТ
ИМЕ
ПРОЈЕКАТ БЕОГРАД
PROJECT BELGRADE
МОБИЛНОСТ
MOBILITY
ECOLOGY
ЕКОЛОГИЈА

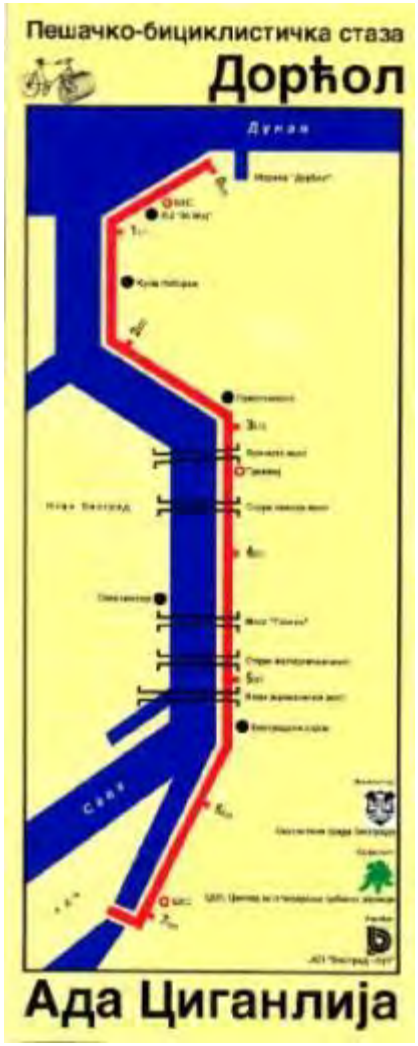
20 PRIORITY PROJECTS FROM 2015

- ***New transportation priority, pedestrian and bicycle friendly streets, improved PT***
- ***Broadening the central pedestrian zone Knez Mihailova Street***
- ***Open Architectural Design Contests for the main City squares (Slavija, Three City Squares, Cvetni trg, urban pockets, waterfronts)***

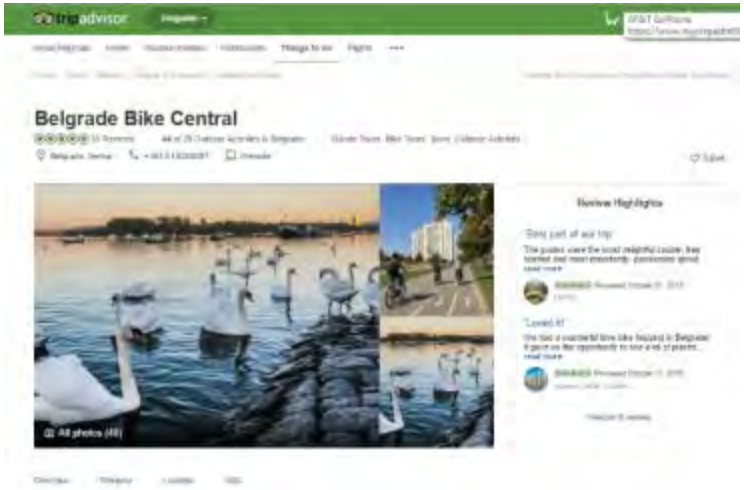
End of the XX cent

BICIKLISTIČKA STAZA DORĆOL-ADA CIGANLIJA SILAZAK BEOGRADA NA REČNE OBALE

Дорћол – Ада Циганлија



Cycling as the new transportation priority and part of the Belgrade SMART solutions



BELGRADE TODAY
AND VISIONARY PROJECTS

IME PROJECT / Identity, Mobility, Environment, 2015

EXTENSSION OF THE CENTRAL BELGRADE PEDESTRIAN ZONE
2015-2017

URBAN DESIGN MANUAL, 2016/17
Urban Planning Institute of Belgrade,

ПРИРУЧНИК

ЗА ОТВОРЕНЕ ЈАВНЕ ПРОСТОРЕ

ТИПОЛОГИЈА УЛИЦА	до 10 m	шире од 10 m	шире од 15 m	шире од 20 m
УЛИЦЕ СА ИНТЕНЗИВНИМ САОБРАЋАЈЕМ магистралне саобраћајнице улице првог реда				
ГРАДСКЕ УЛИЦЕ улице другог реда приступне улице				
УЛИЦЕ НОВОГ ПРИОРИТЕТА улице са умиреним саобраћајем интегрисане улице				
ПЕШАЧКЕ УЛИЦЕ				

шире од 25 m	шире од 30 m	шире од 35 m

НАПОМЕНА:

У оквиру табеле «Упоредни преглед типова улица са варијантама» приказане су **минималне вредности** димензија елемената попреченог профила

Опонашање природних система за одводњавање уз помоћ различитих техника, Малме, Шведска

Мере за успоравање отицаја кишнице приликом интензивних и дуготрајних падавина, Филаделфија, САД

→ ПРЕПОРУКЕ И ПРАВИЛА: ЗАШТИТА ОД ВЕЛИКИХ КОЛИЧИНА ВОДЕ

- Децентрализовани систем одводњавања захтева интегрално уређење јавних простора и пејзажа у складу са карактером околног простора.
- Систем одводњавања треба да буде адекватно одабран у складу са условима нивоа подземних вода и геолошког састава тла за различите зоне града.
- Потребно је проверити степен инфилтрације и апсорпције воде да не би дошло до превеликог смањења/повећања воде у атмосферској канализацији.
- Децентрализовани систем применити на све просторе, у непосредној околини улица, на паркинзима и парковима које треба укључити у систем одводњавања.

- Препоручује се озелењавање паркинг простора коришћењем полупорозних застора, садња дрвореда и формирање травних баштица.
- У парковима планирати депресије тако да буду и резервоари за атмосферске воде, и редовно их одржавати са осталим јавним површинама.
- Код подужног паркирања на свака два места засадити једно дрворедно стабло, у задњој трећини простора за паркирање.
- Код управног и косог паркирања на свака два до три места (зависно од врсте) засадити једно дрворедно стабло.

В.1.3. Улице новог приоритета

Улице у којима се приоритет у кретању у односу на моторни саобраћај даје пешацима, бициклистима и јавном превозу чине улице са умиреним саобраћајем и интегрисане улице.

Улице са умиреним саобраћајем

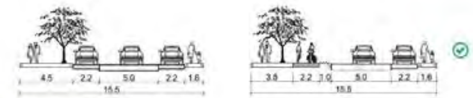
Улице са успореним, умиреним саобраћајем формирају се у централној зони, зонама у близини дечијих установа и основних школа. Тежи се смањењу брзине кретања возила ради повећања безбедности свих, а посебно осетљивих група учесника у саобраћају, пролазника који користе околне садржаје и коначно, смањења свих врста негативних утицаја саобраћаја, какви су бука и загађење ваздуха.

И поред успореног саобраћаја елементима уличног мобилијара и другим мерама, ове улице задовољавају основну функцију приступачности одређеној градској зони, блоку или функционалној целини.

Препоручени попречни профил садржи коловоз са траком по смеру, обостране тротоаре, паркирање, зеленило и бициклистичку стазу. Ова регулациона ширина износи око 17 m.

Минимална регулациона ширина код реконструкција постојећих улица овог ранга, са наведеним садржајем профила и у случају просторних ограничења може износити 13,5 m.

саобраћајем су у Београду
ора и др.



Улица са умиреним саобраћајем (пресек постојећег стања и предлог реконструкције)

Профил улице са умиреним саобраћајем

Г.5.2 Паркинзи за бицикле – бициклистичка стајалишта

Бициклистичка стајалишта омогућавају да се на безбедан начин бицикли паркирају и закључају у јавним просторима и добро су средство за смањење паркирања бицикала на местима где то није пожељно. Највећи проблем представља лоше и непрактично постављање бициклистичких стајалишта.

Бициклистичка стајалишта не смеју да представљају препреку у простору. Потребно је поставити их тако да буду на прописном растојању и да им се лако приступа и да се на једноставан и брз начин бицикл паркира и закључа. Једно бициклистичко стајалиште треба да буде дизајнирано за највише две бицикле. Слободностојећа бициклистичка стајалишта су лакша за одржавање, и да би се спречила крађа њих је потребно причврстити их за тло. Још један бенефит слободностојећих бициклистичких стајалишта је флексибилност постављања, па се у зависности од прометности и потребе места може поставити различити број бициклистичких стајалишта. Димензије слободностојећих стајалишта могу бити различите па се стога могу постављати на само тло или бити део другог уличног мобилијара.

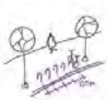
Правила и препоруке:

- Уколико је једно бициклистичко стајалиште предвиђено за један бицикл, минимална удаљеност стајалишта је 0,5m
- Када се слободностојећа стајалишта за бицикле постављају уз пешачке и бициклистичке стазе треба их поставити управно на правац кретања.

уколико за то има простора

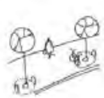
- „П" стајалиште за бицикле је погодно постављати уз стабла дрвећа, јер поред основне функције, овај елемент штити стабла.
- Препоручује се постављање паркиралишта што ближе улазу у објекте за које су намењена како би се максимизирала удобност и сигурност.
- Обезбедити јасан поглед на паркиралиште. Лако-уочљива паркинг локација обесхрабрује крађе и вандализам. Избегавати локације "са стране" и "иза угла".

→ ПРЕПОРУКЕ И ПРАВИЛА: ПАРКИРАЊЕ БИЦИКАЛА

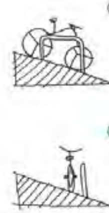


Препоручени минимум удаљења слободностојећих бициклистичких „П" и косих стајалишта износи 0,9m.

Препоручен потребан простор да се на једно бициклистичко стајалиште паркирају два бицикла је 1m x 2m (минимум је дат у поглављу *Паркирање за бицикле и мопеде*)



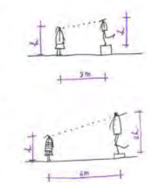
Када се постављају на тротоаре треба их постављати у линији са осталом уличном инфраструктуром као и у линији са дрворедима



Паркинг за бицикле увек мора бити постављен на равну подлогу.

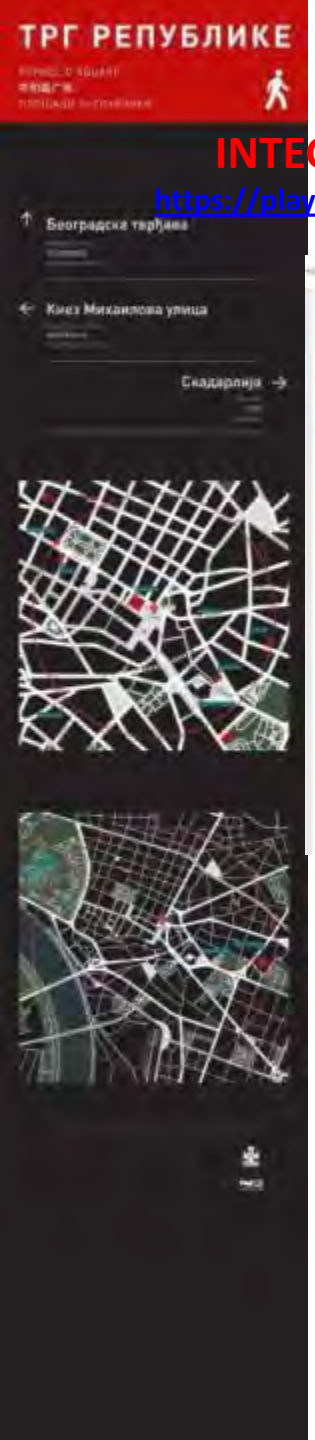
Трг	појединачне скулптуре (фигура човека, биста, флорална, анимална структура, апстрактна или асоцијативна форма), скулптурална композиција, рељеф, фонтана, водене структуре, чесма
Парк	појединачне скулптуре и скулптуралне композиције, групације скулптура, фонтане, водене структуре, чесме
Улица	појединачне скулптуре, рељеф, линеарне водене структуре, чесме
Урбани џеп	појединачне скулптуре, чесма
Променада, шеталиште, кеј	појединачне скулптуре, линеарна групација скулптуралних дела (може бити тематска), рељеф, линеарне водене структуре, чесме, фонтане

→ ПРИМЕРИ: СКУЛПТУРЕ И ИНСТАЛАЦИЈЕ



INTEGRAL PEDESTRIAN INFORMATION SYSTEM

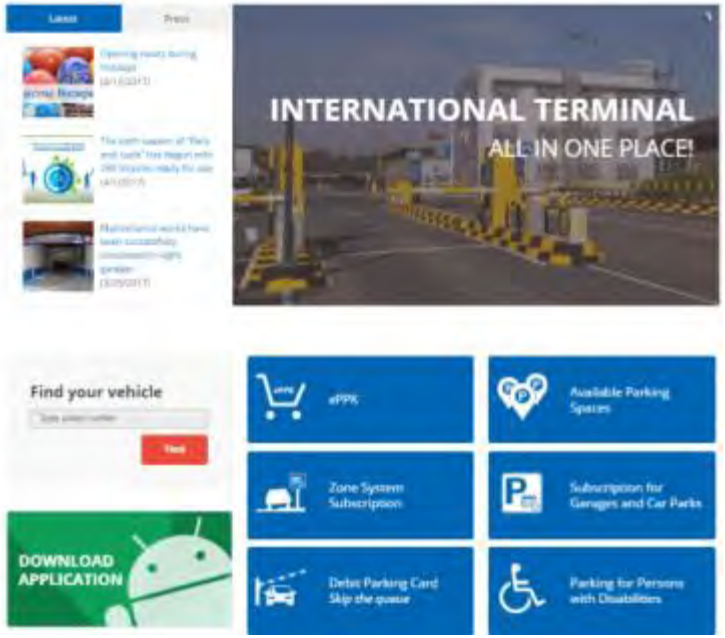
https://play.google.com/store/apps/details?id=com.belgradetravelcard&hl=en



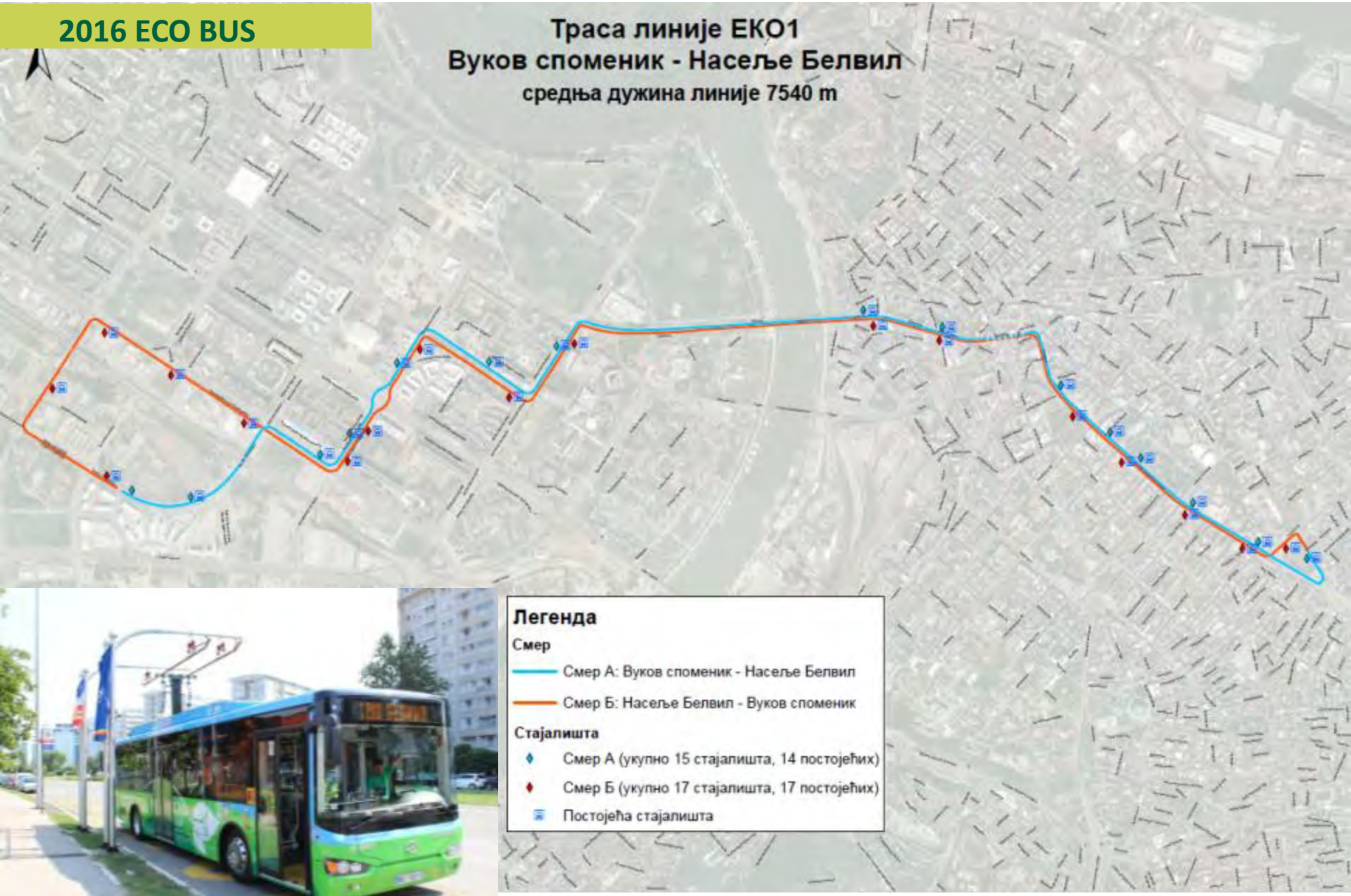
SMART Parking

PARKING SERVIS

http://parking-servis.co.rs/eng/



2016 ECO BUS


Траса линије ЕКО1
Вуков споменик - Насеље Белвил
средња дужина линије 7540 m
Легенда
Смер
Смер А: Вуков споменик - Насеље Белвил
Смер Б: Насеље Белвил - Вуков споменик
Стајалишта
Смер А (укупно 15 стајалишта, 14 постојећих)
Смер Б (укупно 17 стајалишта, 17 постојећих)
Постојећа стајалишта

Belgrade Waterfront - THE MAIN CITY/NATIONAL DEVELOPMENT PROJECT 150ha OF THE CENTRAL CITY AREA

(MIXED CITY/STATE/PRIVATE LAND)


APARTMENTS
5,700
OFFICE SPACE
120,000 SQM
HOTEL ROOMS
600
KULA BELGRADE
height of 168m
BELGRADE MALL
200,000 SQM
EAGLE HILLS

BW|RESIDENCES

SAVA PROMENADA

- Inseparable part of Belgrade Waterfront and favouritee destination for river lovers
- A range of activities for the whole family to enjoy throughout the year
- Children playgrounds, sport courts, restaurants, water terraces
- Stretching along 1.8 kilometers, ideal destination for jogging, cycling, walking and spending the quality outdoor leisure time

Belgrade Waterfront

- Suited for pedestrians and cyclists,
- The share of car traffic is only 25% ,
- Only treated atmospheric waters will flow into the Sava River,
- The energy of Sava River will be used for heating and cooling of Kula Belgrade,
- Watering green areas with rainwater.

Stakeholder mapping of agencies

3.

NATIONAL LEVEL

MINISTRY OF CONSTRUCTION, TRANSPORT AND INFRASTRUCTURE - Technical & Functional Aspects of the project, Procedures **:**

- Department for Railways and Intermodal Transport,
- Department for Construction Works and Land for Construction

MINISTRY OF FINANCE - responsibility for PPPs, DFI, Procurement, Legislation.

CITY LEVEL

- Mayor's Office,
- Land Development Agency, PE , and

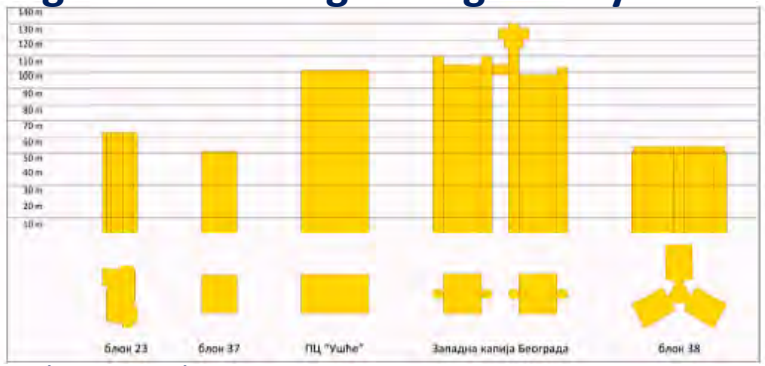
City Authorities:

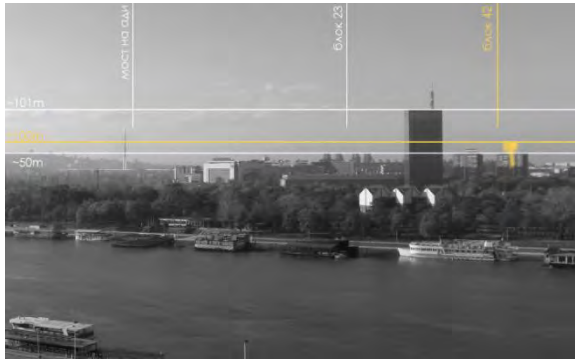
- Secretariat for Investments,
- Secretariat for Transportation,
- Secretariat for Public Transport,
- Secretariat for Urban Planning and Constructing,
- Secretariat for Finance, and
- Secretariat for Environmental Protection.

Relocation of the existing Central **Bus Station to New Belgrade Block 42**

Design competition - 2014
Conceptual design and the Plan of Detail Regulation - 2016
Design and build - 2018

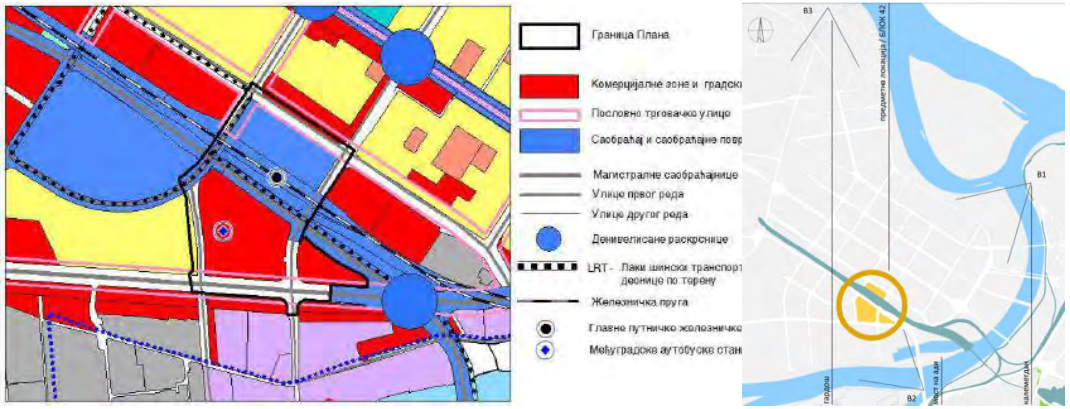
High-rise buildings Design analyses



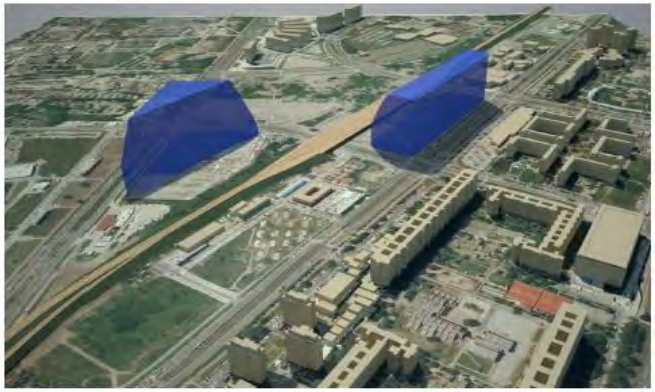


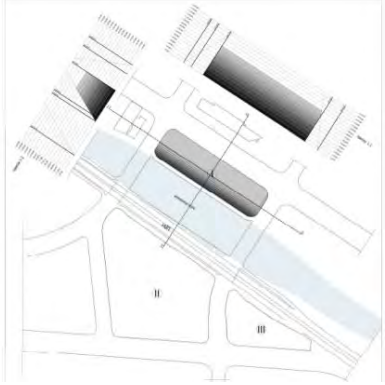
High-rises in the area

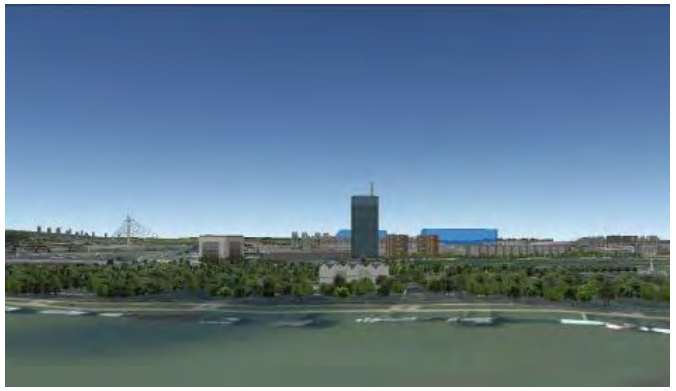
Street network traffic load -morning peak



Belgrade Master Plan 2021 / Land use plan







Design analyses – Site restrictions, building envelopes, and skyline modeling

The 3 key challenges Belgrade would like to address:

4.

1. Understanding TOD opportunities based on site specific conditions, preparing detailed site specific TOD design and plans for implementation.
2. Creating the enabling legal and regulatory framework for TOD (planning/implementation), and
3. Financing models and cross sectoral collaboration.

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2nd TECHNICAL DEEP DIVE (TDD) ON TRANSIT-ORIENTED DEVELOPMENT
WORLD BANK Tokyo Development Learning Centre
May 29 – June 2, 2017

PEER PRESENTATION - TANZANIA

Overview of WB TOD Projects

- WB is financing a study to develop an integrated transportation-use strategic plan for DART BRT corridors.
- Study includes carrying out a BRT corridor development strategy.
- Consultant Broad way Malyan from the UK carrying out the study (18 months).
- Study commenced in January 2017 and is expected to be completed by June 2018.

Overview of the city's experience and/or approach with respect 1) City scale, 2) Station scale or 3) Corridor scale development

1) City scale
   - City and Municipal Councils own majority of the land near the brt and expect to use it for TOD.
   - DART has acquired some land for terminals, feeder stations and a depot. Compensation paid to affected owners.
2) Station scale
   - DART is providing toilet services for a fee at the terminals.
   - DART charges a fee for access of local buses into the feeder stations atGerezani and Kivukoni terminals.
3) Corridor scale
   - DART is providing advertisement spaces on the pedestrian bridges located near the Ubungo, Kimara and Morocco terminals.
   - DART has earmarked areas for park and ride near Kimara terminal and Korogwe station. Preparations are continuing to clear the areas and carryout designs. A budget for construction has been allocated for Financial Year 2017/18.
   - The road reserve along the trunk roads is owned by the Ministry of Works. Rent fees are applicable for use of the space.

Rapid Growth of Population

Insufficient Infrastructure

Expansion of Urban Areas

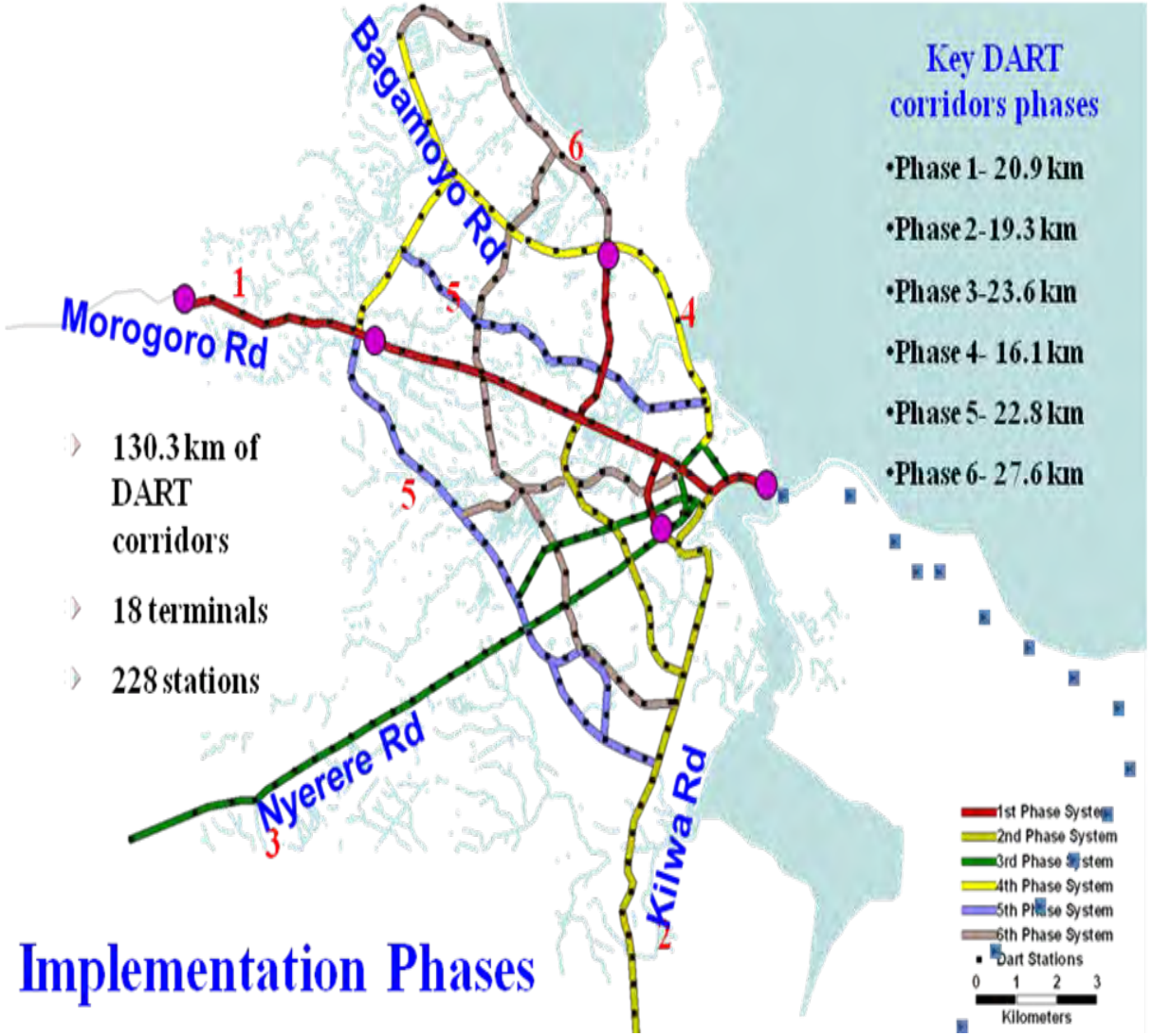
Emission from Vehicles

Congestion and traffic jams

Inadequate Traffic Management

Air quality and Health issues

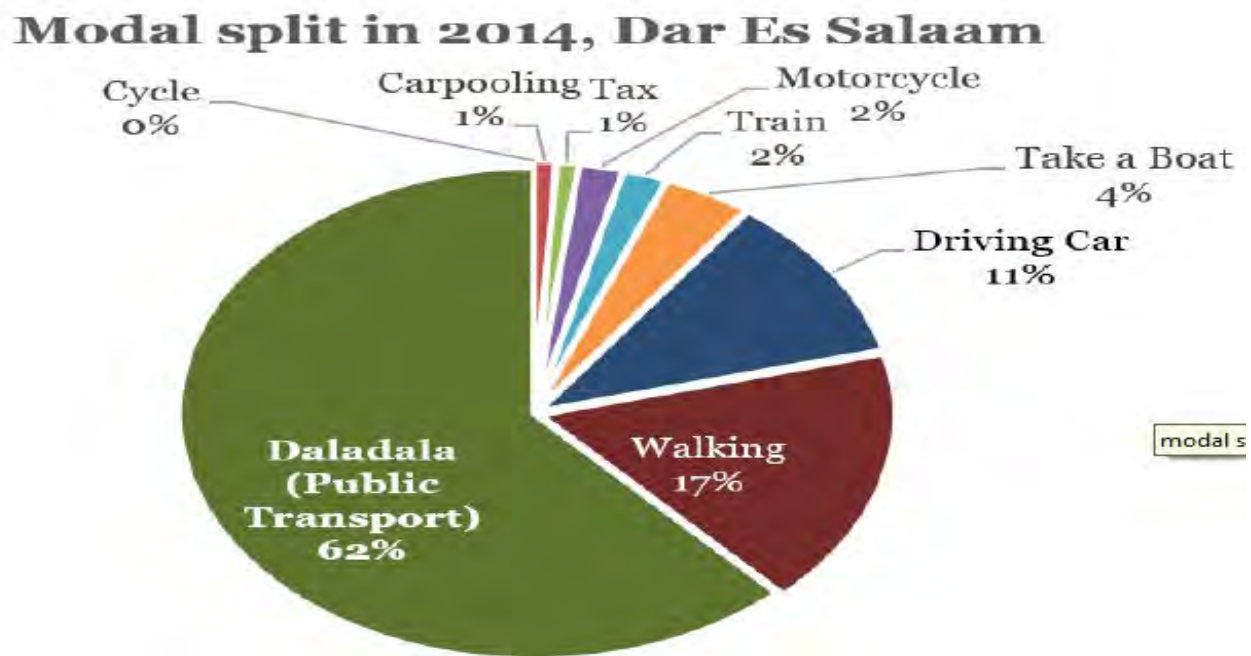
Dar es Salaam Bus Rapid Transit



- DART was established in 2007
- Six BRT routes are planned to be built
- First line was completed and is under interim operation since May 2016. 140 buses
- Construction of second, third and fourth phases is planned to start soon after securing financing.
- Trunk and Feeder services provided. Trunk has exclusive lanes.
- Automated Fare Collection system (includes smart cards) and Intelligent Transportation System used.

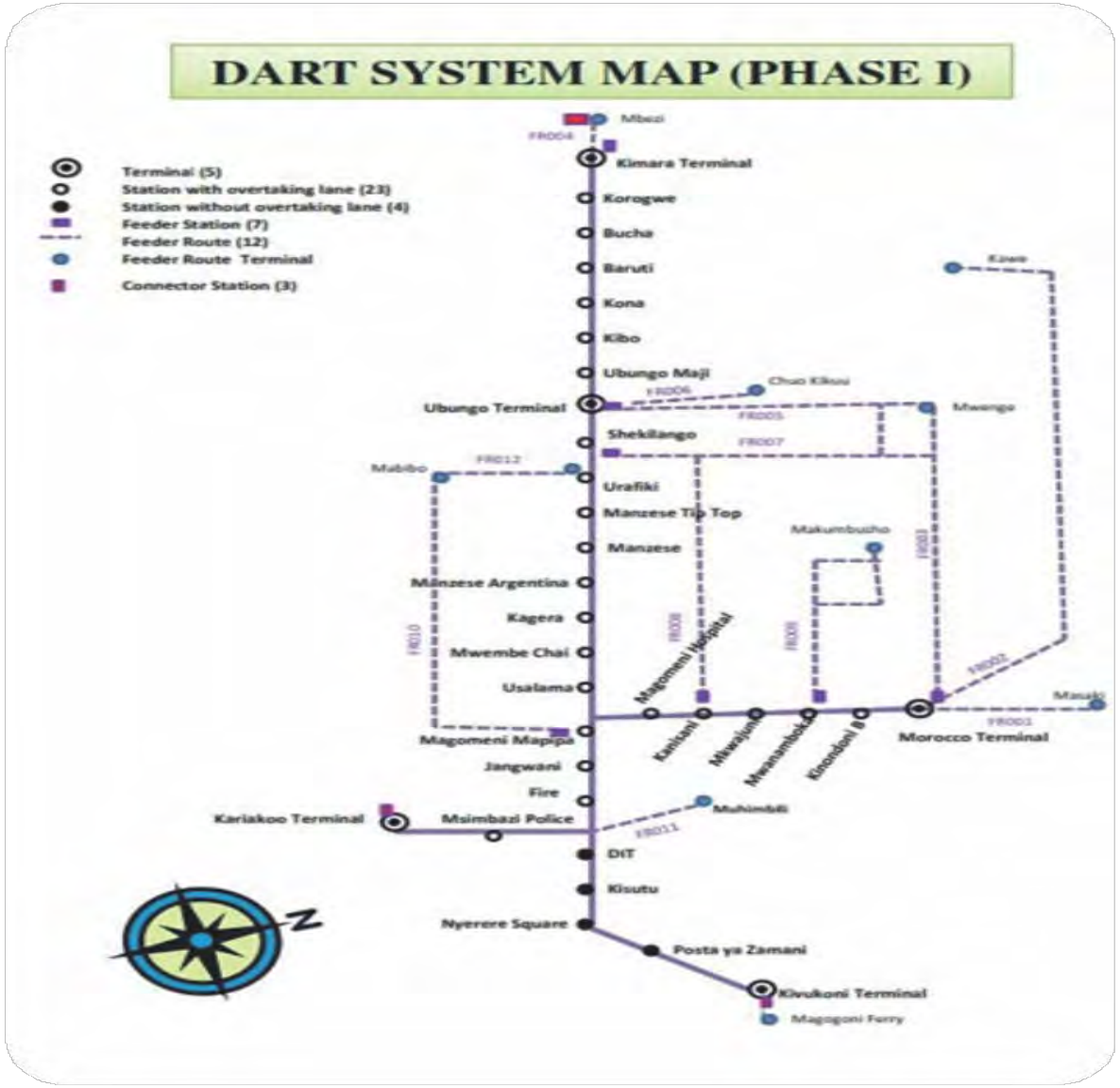
MODES OF TRANSPORT

- Average Annual Vehicular Growth is around 19% per annum (2002-2015)
- Modes of Transport
  - Daladala
  - Bajaji
  - Bodaboda
  - Private Car



Dar BRT- Phase 1

- 27 stations
- 5 terminals
- 1 depot
- 3 pedestrian bridges
- 20.9 km



Infrastructure (Public)

Corridor (roadways, bicycle and pedestrian paths)

Stations/Terminals

Depot

Pedestrian bridges

Control room

Fare Collection (Private)

Fare collection system

Equipment (Turnstiles, Ticket Office Machines)

Smart Cards, mobile top ups

Bar coded paper tickets

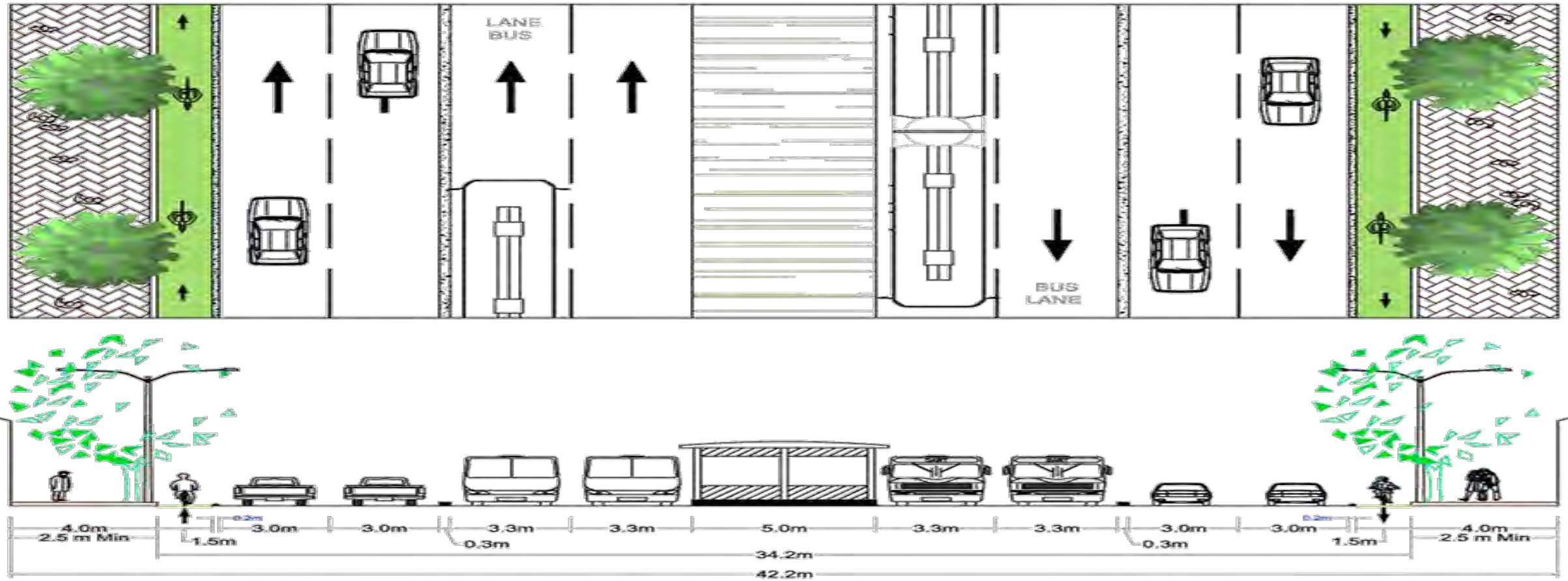
Bus Operations (Private)

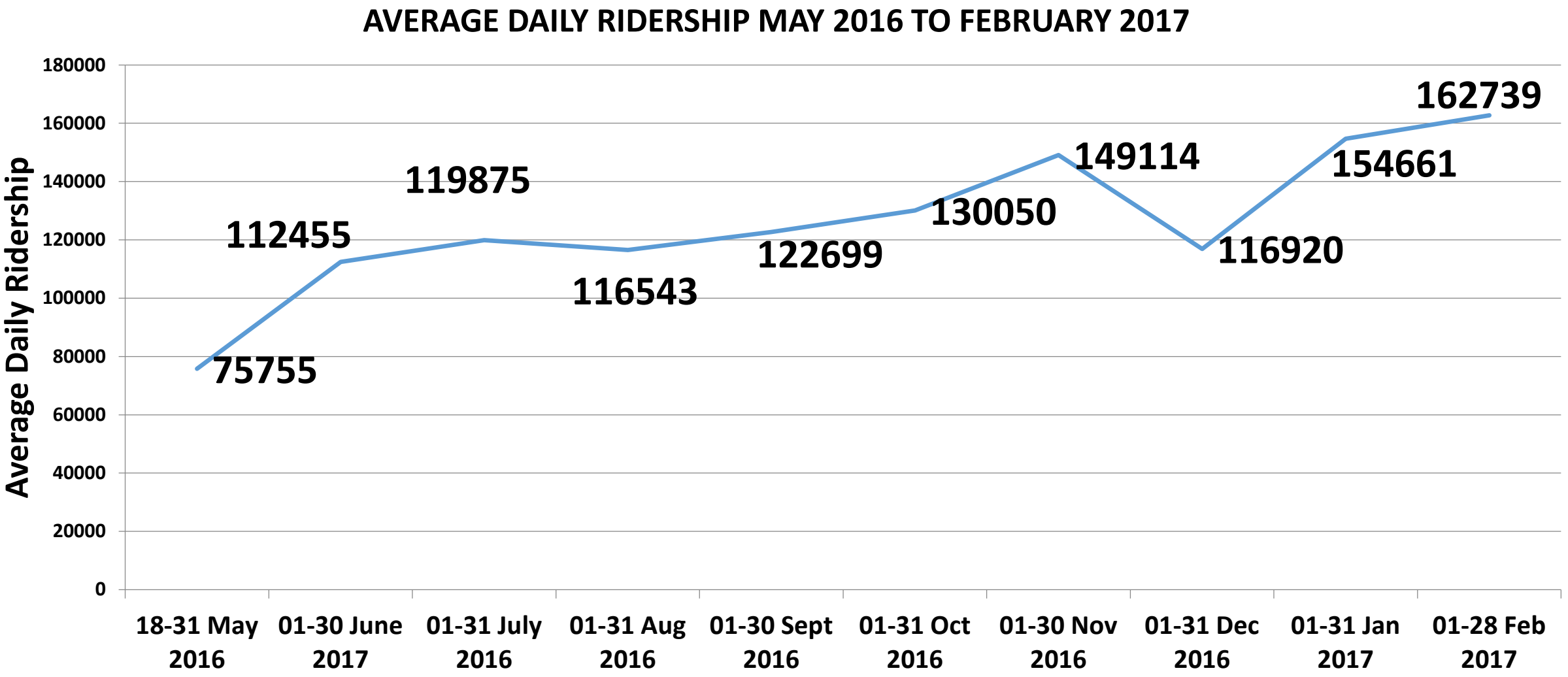
Buses, articulated 18m, standard 12m, hybrid 12m

Bus Operations

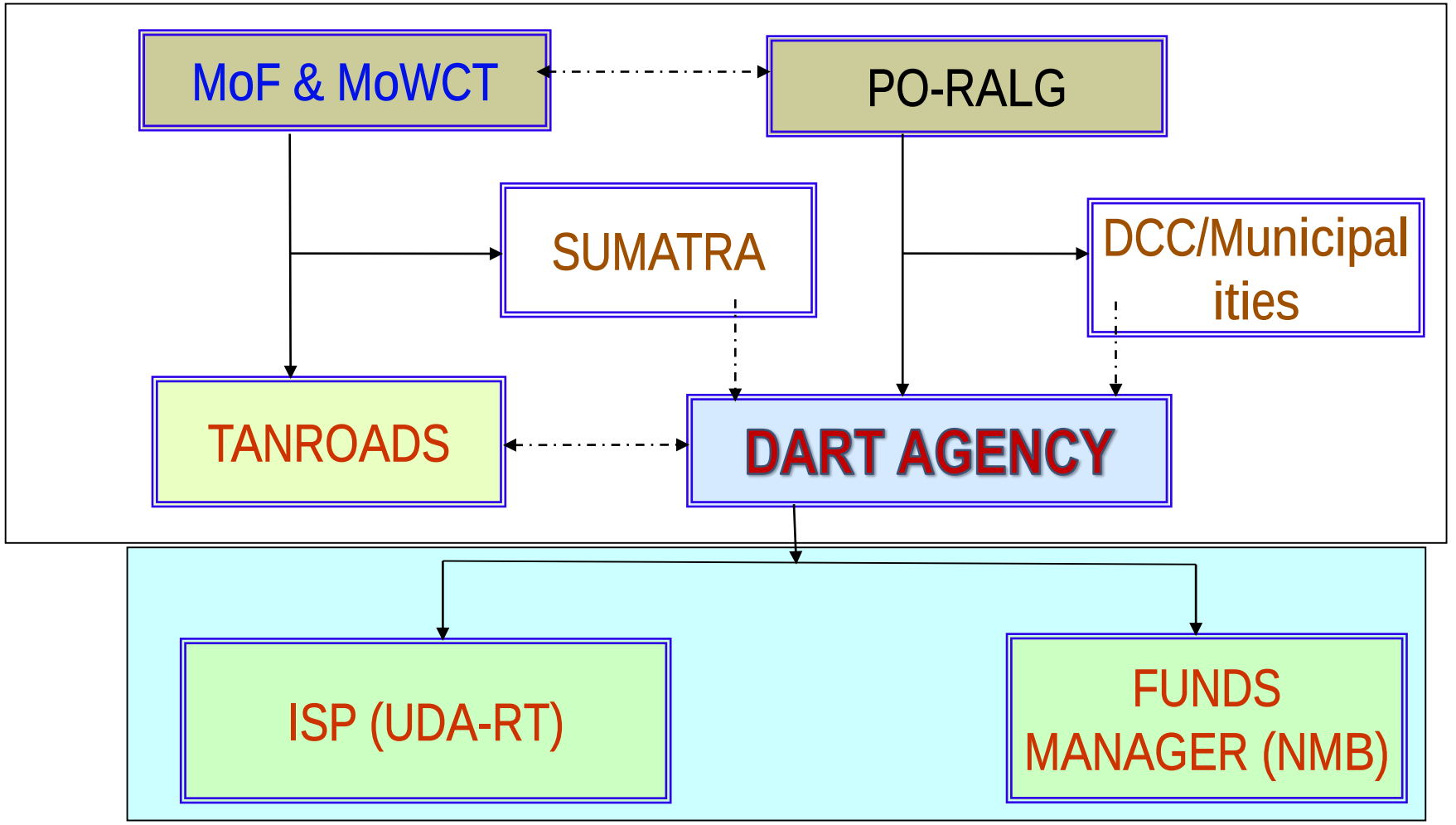
Cleaner fuel, Euro III standard

Intelligent Transportation System


LANE
BUS
BUS
LANE
4.0m
2.5 m Min
1.5m
3.0m
3.0m
3.3m
0.3m
3.3m
5.0m
3.3m
3.3m
3.0m
0.3m
3.0m
1.5m
4.0m
2.5 m Min
34.2m
42.2m


AVERAGE DAILY RIDERSHIP MAY 2016 TO FEBRUARY 2017
Average Daily Ridership
180000
160000
140000
120000
100000
80000
60000
40000
20000
0
75755
112455
119875
116543
122699
130050
149114
116920
154661
162739
18-31 May 2016
01-30 June 2017
01-31 July 2016
01-31 Aug 2016
01-30 Sept 2016
01-31 Oct 2016
01-30 Nov 2016
01-31 Dec 2016
01-31 Jan 2017
01-28 Feb 2017

Stakeholder mapping of agencies (national/subnational, transport/urban)



Others: Development Partners (WB, AfDB), Property Developers (NHC, TBA, LAPF, NSSF), Ministry of Lands, Housing and Human Settlement development.

Key challenges

1. Creating the enabling legal and regulatory framework for TOD (planning/implementation)
2. Formulating the TOD/LVC policy/approach for a city
3. Developing TOD in built up areas
4. DART acquiring land for TOD
5. Establishing TOD delivery mechanisms/institutional arrangements
6. Developing the business case for TOD and implementing land value capture (direct/indirect)
7. Understanding TOD opportunities based on site specific conditions
8. Preparing detailed site specific TOD design and plans for implementation

Proposed integrated land dev. for BRT 1

(Corridor Dev. Strategy)

- 5- 10 walking distance from home to transit station/service

Example of different approaches to mapping scales for node catchment areas, project area and wider city

What is transit- oriented development?

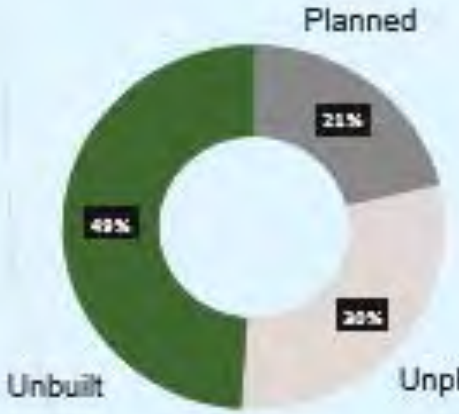
- Mixed-use, higher density, pedestrian friendly development within 0.25 to 0.5 mile or 5-7 minute walk from transit station
- Characteristics of TOD:
- A mix of uses
- Moderate high density
- Pedestrian orientation/connectivity
- Transport choices
- Reduced parking
- High quality of design

CDS will enable;

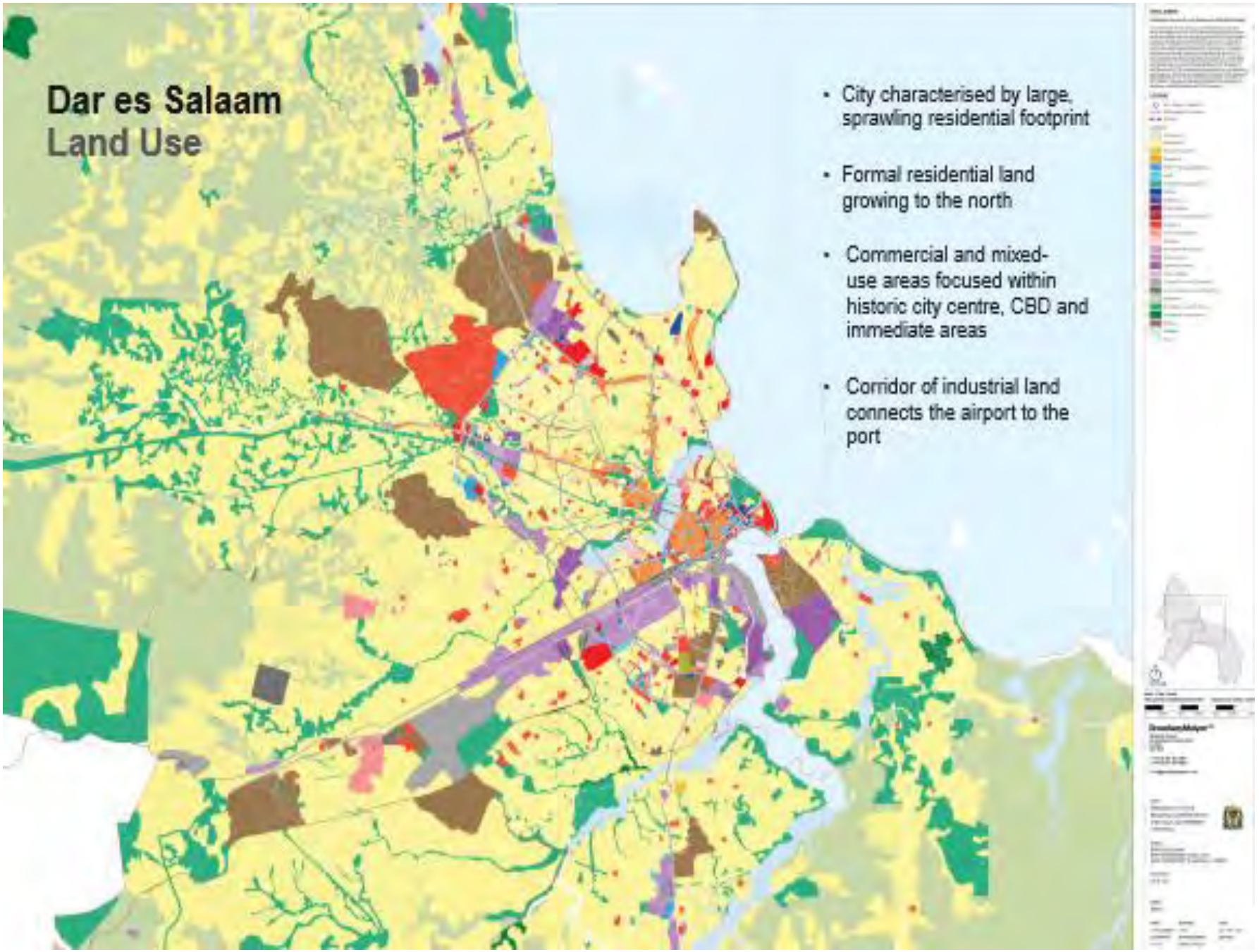
- Effective Integration of Urban structure, coordinated mixed land Road network, Public Transport net work and Traffic management measures.
- Providing Better Public Transport Services with integrated public transport network s that facilitates movement within DSM.
- Improving Quality of Life in Sustainability , Mobility, Accessibility, Safety and Comf ortability
- To make the city more resilient

Part of Dar City

Dar es Salaam
Planned vs Unplanned Development



- 60% of all development is unplanned. These are the areas likely to be in greatest need


Dar es Salaam
Land Use
• City characterised by large, sprawling residential footprint
• Formal residential land growing to the north
• Commercial and mixed-use areas focused within historic city centre, CBD and immediate areas
• Corridor of industrial land connects the airport to the port

Reason to peruse TOD

- Encourage smart growth development
- Decrease cost of Municipal services
- Improve environmental quality
- Broaden transit financial options
- FACTORS THAT SUPPORT TOD

strong market conditions

Regional commitment to transit

Strong and respected local leadership

Supportive policies & tools

Challenges of Transportation in Dar City

- Dar is one of the fastest population growth in East Africa and Africa in general
- Poor connectivity
- Monocentric and centralized services
- Heavy traffic jams especially in peak hours which leads to loss of time, pollution, low productivity and stress.
- Poor land administration and development
- Weak institutional to manage City growth as well as urban transportation

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2nd TOD TDD Action Planning

TOD PROPOSAL IN URBAN DEVELOPMENT MANAGEMENT LAW IN VIET NAM

May-June 2017

Mr MIINH Nguyen Du and Mrs THUY Le Thi Hong
Urban Development Agency, Ministry of Construction

CUONG Dang Duc, WB Task Team Leader

Government of Japan

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1. URBAN DEVELOPMENT MANAGEMENT LAW

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- **Governing development investment and enhancing the urban system development management** according to Orientation, Master Plan, Strategy, Urban development program and as scheduled;
- **Developing municipalities, urban development areas, urban devevelopment projects** with complete, modern and environment-friendly infrastructure systems;
- **Supplementing legal framework for urban development** toward proactive response to climate change, energy saving, development of green cities, eco-cities; diversifying resources for urban development.

1. **Urban development according to orientation, strategy, urban planning and plan**
2. **Synchronized urban infrastructure development**
3. **Urban development investment management**
4. **Urban development toward climate change resilience, energy saving, green and eco-cities**
5. **Diversification and efficient use of resources for urban development**
6. **Enhancing state management efficiency on urban development**

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2. TOD in Law's Policy

Tokyo Development Learning Center

i) The 1st : Urban network development according to orientation, strategy, urban planning and plan

- Viet Nam Urban Development System is planned as a network.

"Providing legal framework for various concepts of urban development"

i) The 2nd : Synchronized urban infrastructure development

- Demanding development of infrastructure must be considered comprehensively with other factors.
- There are two levels: regional infrastructure and city level.

"How TOD can be fitted in those levels ?"

i) The 3rd : Urban development investment management

- This policy is about investment implementation which will category different kind of investment projects (by fund, scale of population, land mechanism…).
- There is no link between transportation project and urban development project and land use? (expanding road project; land acquisition for stations; balancing profits of different stake holders within project boundary..).

"Concepts of LR will be provided here which is also helpful for TOD project."

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2. TOD in Law's Policy

Tokyo Development Learning Center

The 4th: Urban development toward climate change resilience, energy saving, green and eco-cities

- Providing principles, demand, criteria for various model of development.
- Mechanism that encourages or asks authorities, developers and other relevant partners must do to participate in urban development and investment.

"TOD's technologies will be supported to integrate in urban development process"

The 5th: Diversification and efficient use of resources for urban development

- Land will be considered the most important resources for mobilizing fund. (conversion of land use purpose; permission for increasing land use…)
- Mechanism to mobilize other funds for crucial infrastructure projects. Responsibilities of local and central government.

"Subsidies or land mechanism (LR) for TOD project"

The 6th: Enhancing state management efficiency on urban development

- Capacity building for official.
- Participation of public sector

"TOD management and supervision of public sector"

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4. Challenges

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- No existing experiences in implementing a pilot TOD project in Viet Nam.
- A need of change in urban planning. TOD must be considered seriously in urban planning process.
- A change of procedure of investment especially regarding to land issues. Integrating three main factors: land, transportation and urban development.
- Enhancing public participation.
- Capacity building for stake holders.

THANK YOU

Government of Japan

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URBAN TRANSPORTATION DEVELOPMENT IN DANANG CITY, VIETNAM

MR. PHONG PHUNG
MR. VINH DINH

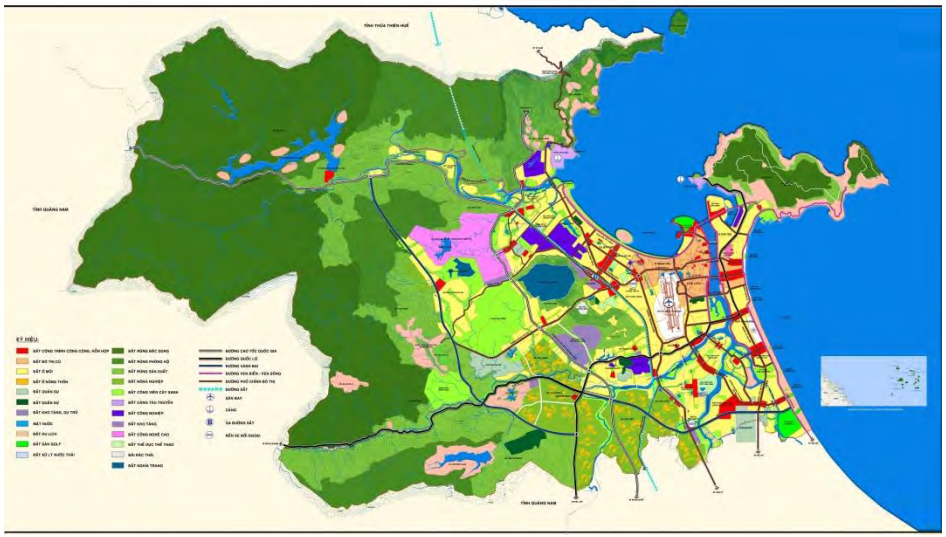
CONTENTS

1. Overview of Danang City
2. Developed Infrastructure
3. New Railway Station Project
4. Key challenges on Integrating TOD
5. Other challenges the City would like to address
6. Orientation on Transportation Development
7. Public Transportation Plan up to 2030

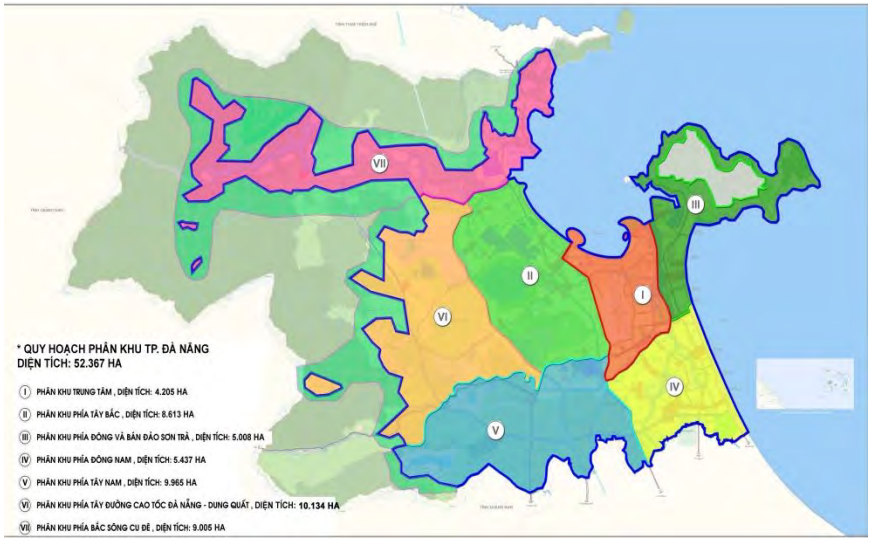
Overview of Danang City

- Area: 1,285 km^2
- Population: 1,018,900
- Urban population: 879,000 (85%)
- GRDP: US$ 3,504 million
- GRDP per capita: US$ 3,059
- The powerhouse for economic growth of Central Vietnam Key Economic Zone
- The entrance to 04 UNESCO World Cultural and Natural Heritages in Central Vietnam

Overview of Danang City

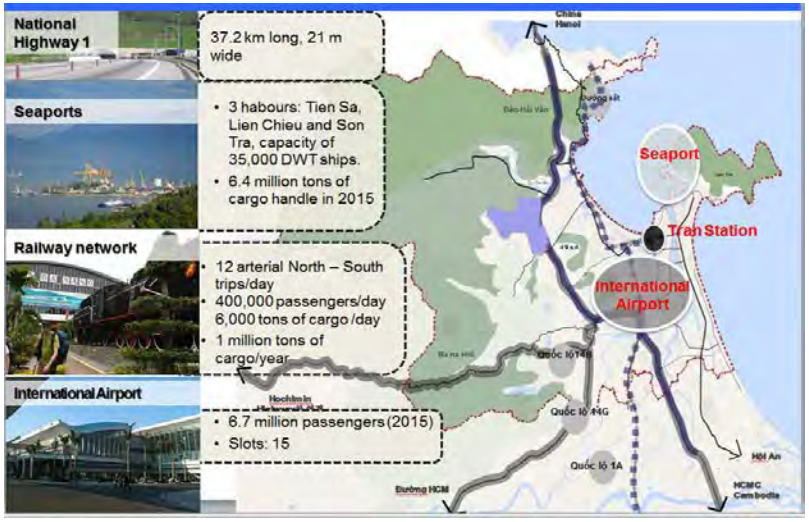


1. Master Plan 2030



2. Zoning Plan 2030

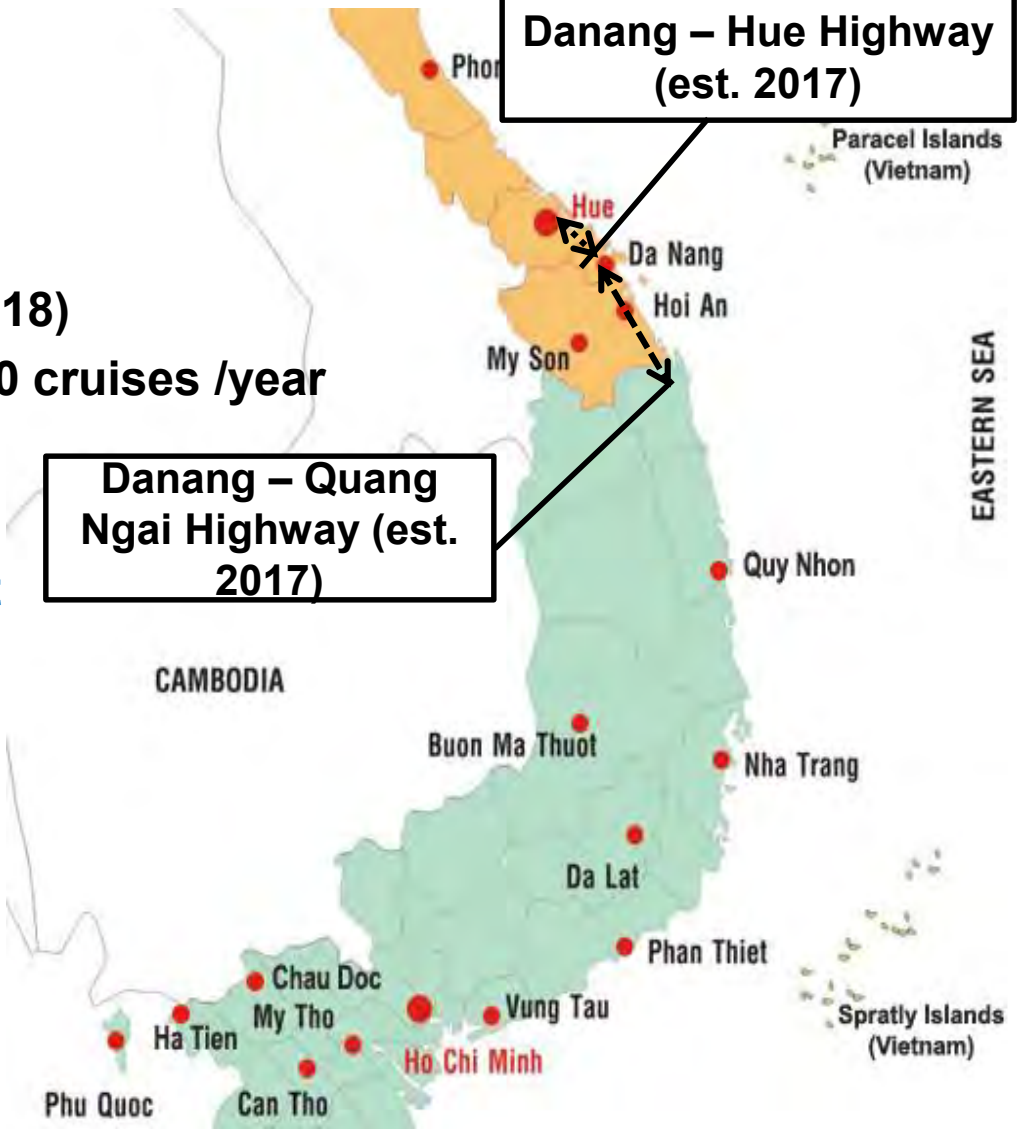
3. Strategic location



Transport Infrastructure system

Developed Infrastructure

Road transportation



Da Nang Port

3rd biggest port in Viet Nam

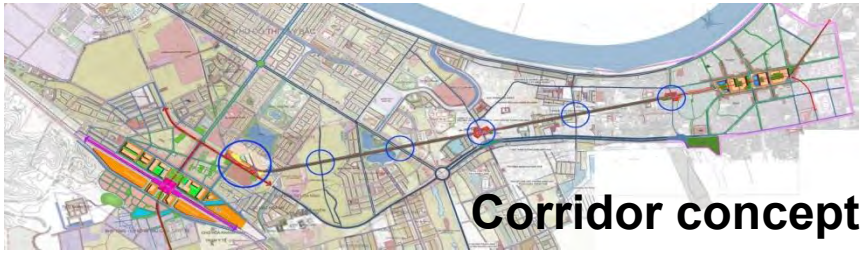
- **Capacity of 07 million DWT;**
- **Upgraded to 12 million DWT (2018)**
- **18 – 20 container ships/week; 70 cruises /year**

Da Nang International Airport

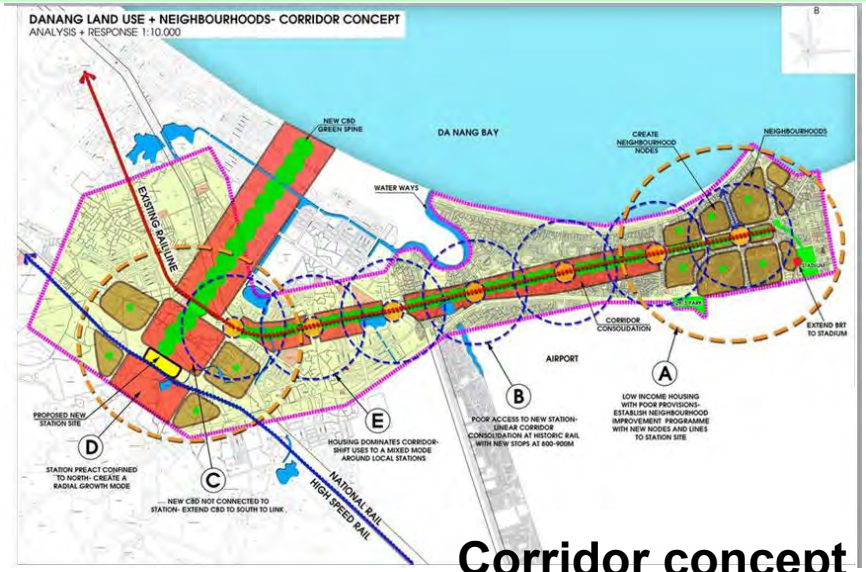
3rd biggest int. airports in VN

- **Capacity:**
  - **12 million passengers/year;**
  - **50,000 tons of cargo/year**
- **390 international flights/month to 25 cities in Asia**
- **26 international direct flights**

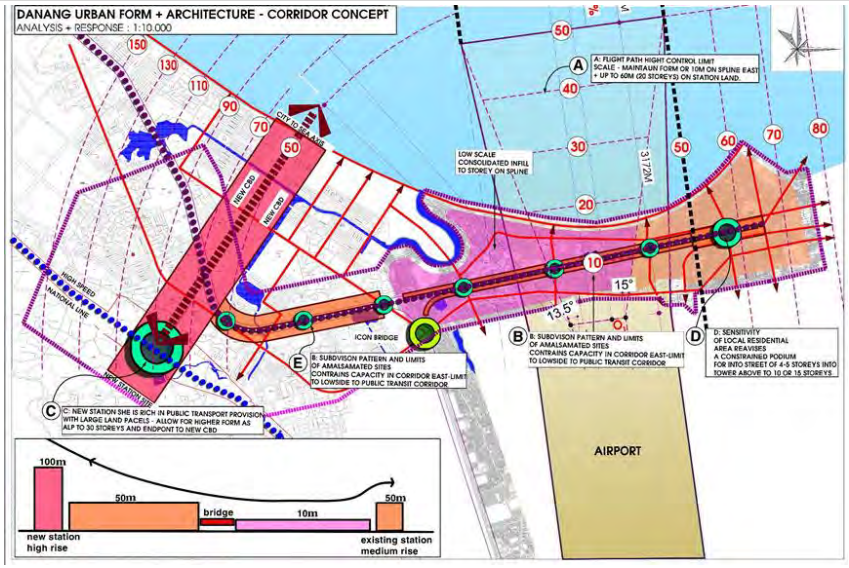
New Railway Station Project



Corridor concept



Corridor concept



Corridor concept

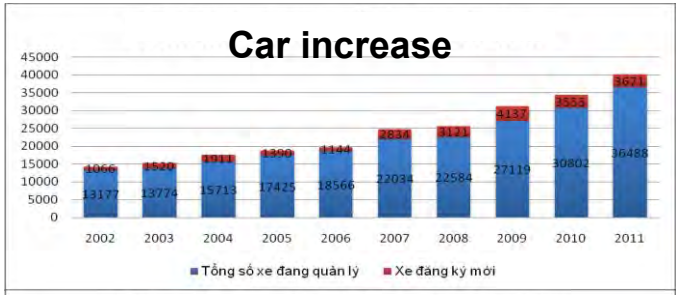
Existing railway-concept design

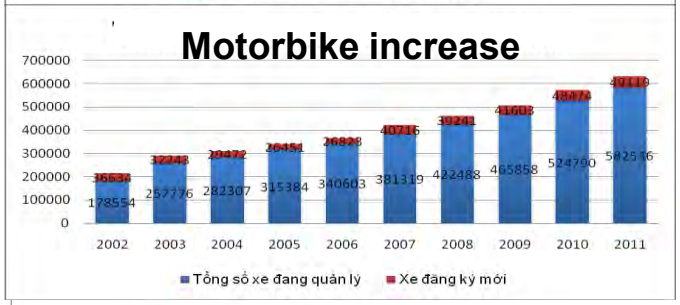
Key challenges in integrating TOD

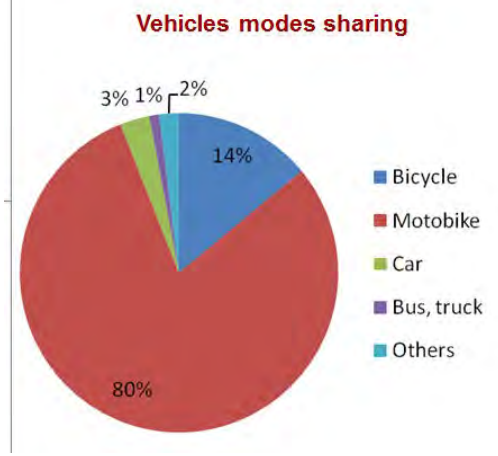
- TOD is still a new concept/approach in planning/designing
- Lack of National Standards, Construction Law, Procedures to guide TOD
- Public transportation of Danang has not developed leading to difficulties in research and application of TOD
- Urban planners, traffic designers, managers, policy-makers, decision-makers do not have comprehensive knowledge of TOD
- Lack of coordination mechanism between government agencies: DOC, DOT, DoNRE, UPI…

Other challenges the City would like to address

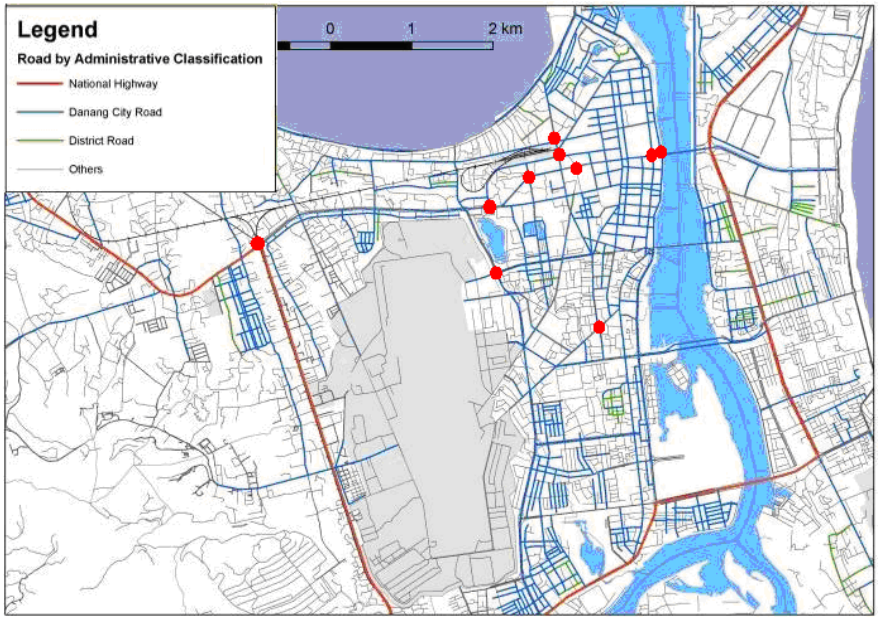
- **Motorbike** is the main vehicles (80%).
- High rate of **private vehicle increase** (motorbike: 11.9%/year, car: 10.9%/year)







1. Private vehicle increase issues



Locations of congestion

- Traffic congestion has occurred at some intersections

+ Rush hour:

6:30-7:15 am

4:30-6:00 pm

+ 10 intersections

Other challenges the city would like to address

Urban bus service is limited, sharing about 0.9% of trips.

+ 06 Unsubsidized bus routes (01 inner-city route and 05 routes connecting close-by cities)
+ Fleet of 144 buses
+ 452 trips/day; 15.500 passengers/day
+ Frequency: 15-30 minutes/trip

2.Public transport system &pedestrian way: Limited

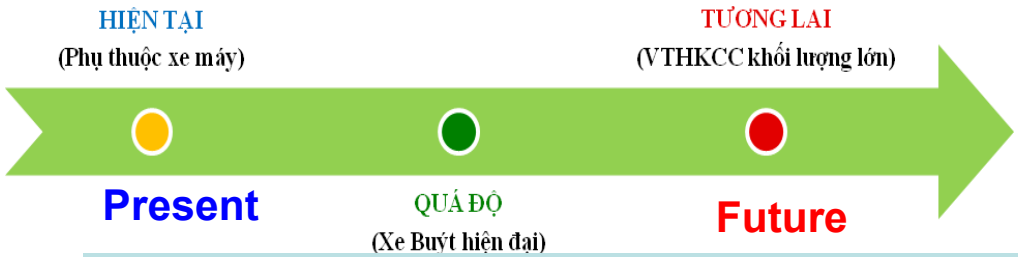
-Current licensed public parking is only meet about 2-5% of the actual demand.
-Severe lack of parking lots, parking areas in the downtown area.
-Many illegal parking lots, parking areas appeared out of planning or located irrationally which causes traffic jams.
-The violations of traffic laws on stops and parking have increased significantly and affected to the urban landscape, seriously to transport safety and order.




3. Lack of parking area

Orientation on Transportation Development

	2012	2020	2030
Bus	1%	35%	50%
Car	9%	15%	35%
Motorbike& Bicycle	90%	50%	15%
Number of bus route	5	20	28
Number of bus	91	371	427



- Improving and develop transportation Infrastructure in accordance with master plan
- Modernizing urban transportation management by appplying Intelligent Transportation System
- Developing Public Transport, including MRT, Tramway, BRT

- Current: 12 bus routes; 5 subsidized bus route: operated on December 2016
- Subsidized buses: 5 new route on December/2017. Ridership increases 10-1/% per month

Milestone on Developing Public Transportation:

- BRT: Operation in 2019
- Relocation of Railway Station: 2021-2024
- Tramway: 2025-2030
- Metro: 2025-2030
- TOD: 2022-2028 (Phase 1)
  : 2028-2038 (Phase 2)

Public Transportation Plan up to 2030

Metro Branch 1: Trung Vuong Theatre – Hue Intersection – Lien Chieu.

Metro Branch 2: New Da Nang Station – Southern Coach Station

Tramway 1: Nam O Bridge - Da Phuoc Residential Area

Tramway 2: Son Tra – Hoi An

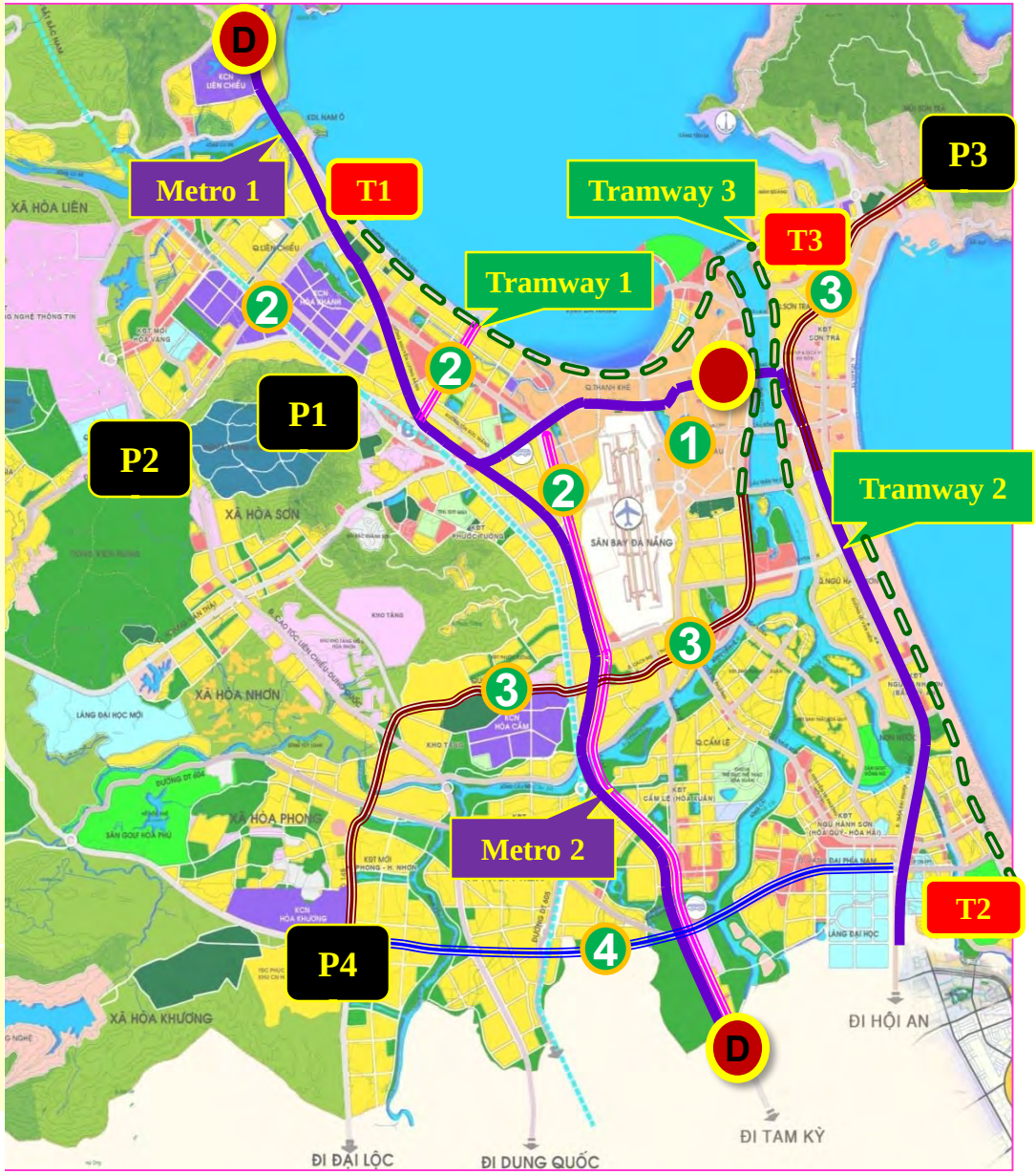
Tramway 3: Along Han River (both sides)

BRT1: Hoa Khanh IZ – Nguyen Luong Bang - Ton Duc Thang – Dien Bien Phu – Nguyen Tri Phuong – Nguyen Van Linh – Rong bridge – Vo Van Kiet – Ngo Quyen - Ngu Hanh Son – Le Van Hien – Tran Dai Nghia

BRT2: High Technology Area – Nguyen Tat Thanh – Nguyen Sinh Sac – Ton Duc Thang – Hue Junction – Truong Chinh – Southern Coach Station

BRT3: Tho Quang – Le Duc Tho – Yet Kieu – Ngo Quyen – Rong Bridge – 2/9 – August Revolution – Hoa Cam Interchange – Hoa Vang Admin Centre.

BRT4: Hoa Vang Admin Centre – Southern Link – Southern Coach Station – University Village (Vietna-Korea College).




Thank you for your attention!