Produced for

The President's Office
Regional Administration and Local Governance (PO-RALG)

DAR ES SALAAM METROPOLITAN DEVELOPMENT PROJECT

DAR ES SALAAM BRT PHASE 1 CORRIDOR DEVELOPMENT STRATEGY

VOLUME 3
BENCHMARKING TRANSIT ORIENTED DEVELOPMENT

Integrated Transport and Land Use Planning Strategy
Dar es Salaam Bus Rapid Transit (BRT) Phase 1 Corridor

Sponsored by

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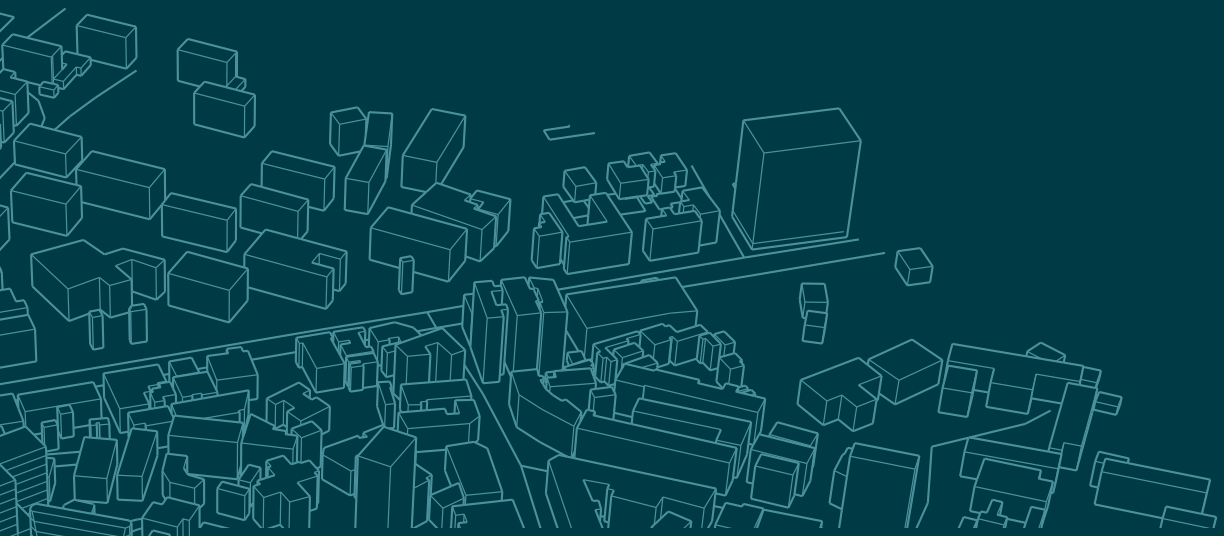

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Preface

With a current population estimated to be 5.7 million people (Project Team estimation), Dar es Salaam **is expected to grow to over 13 million people by 2030. This will put even more strain on a city that has grown rapidly, with its infrastructure and essential services already stretched.**

One of the biggest problems for Dar es Salaam is its poor public transport infrastructure. Until the recently opened Phase 1 of the BRT line, the city had to manage with informal minibus routes (dala dalas) and irregular and limited commuter rail services, which are entirely unsuitable for a city of this size, profile and aspirations.

Public transport can be fundamental in transforming a city. Connecting people (often the people in most need) to employment opportunities, education, health and other essential services is one of the key city objectives. Improving living conditions, unlocking housing opportunities, increasing productivity, attracting business and investment, re-balancing the economic distribution or 'gravity' of a city to better and developing a better and more "compact" city shape are also critical aims for Dar es Salaam.

Helping to deliver these aims requires an integrated approach to city planning at all policy and investment levels. Transport Orientated Development (TOD) approaches can be very effective in helping a rapidly growing City like Dar es Salaam achieve the above aims. This study explains how the BRT corridors, in particularly line 1, can be much more than transport routes and play a bigger part in a creating a more liveable City.

The Suite of Documents

Volume 3, of the suite of documents, should be read in conjunction with: **Volume 1** - "Draft BRT Corridor and Station Typology Guidelines" and **Volume 2** - "Baseline Assessment and Diagnosis". The complete set of documents, sets out the picture of the current conditions, outlines the development strategies for the BRT network and station typologies and captures the key findings from the international benchmarks studies.

Supporting Information

For detail information about the project process and methodology, please refer to **Volume 2** and **Appendix A**. For information regarding the client and consultant project team please refer to the final pages of this **Vol 3** document.

The Purpose of this Volume

Volume 3 covers selected benchmark research on BRT strategies and guidelines. This has been used to help develop the Dar es Salaam BRT network, corridor and guidelines explained in Volume 1. The benchmarks covered in the following pages capture best practice examples in the delivery of Transit Oriented Developments (TOD). They highlight key TOD lessons that can be applied to Dar es Salaam. Volume 3 also includes a section evaluating current institutional capacity of Dar es Salaam's public sector organisations, as well as appropriate global benchmarks in the planning, delivery and operation of TOD initiatives. The final section covers high level recommendations for future policies and strategies which have informed Volume 1.

Introduction

Benchmark best practice in Transit Oriented Development (TOD) and related Institutional models and approaches

Applying international best practice to Dar es Salaam's TOD Guidelines & Strategies

By 2030, 60% of the world's population will live in cities, up from 50% today. More than two billion people are likely to enter the middle class, with the majority of them living in cities in emerging countries, especially in Asia and Africa where nearly 90% of the population is subject to rural to urban migration and income shift. Cities like Dar es Salaam have to change and adapt rapidly to successfully meet these challenges.

To deal with this unprecedented demographic & economic shift, many world cities are looking at various sustainable growth models for integrated urban mobility-heavy mass rail (MTR), light rail transit (LRT) and bus rapid transit (BRT). **Transit Oriented Development (TOD)** based on integrated urban planning & mobility can deliver comprehensive city growth and social benefits in addition to the provision of new sustainable transport infrastructure.

For Governments and City Authorities in rapidly developing countries Bus Rapid Transit (BRT) together with TOD offers a highly effective, relatively rapid and cost effective means of providing public transport and integrated development to many people. Despite these advantages, the actual number of successfully implemented BRT systems (especially in developing countries) is relatively limited.

In looking for relevant "best practice" we have therefore also considered TOD related to other modes of transit (like LRT and MRT).

Dar es Salaam through the DMDP project wishes to apply Transit Orientated growth approaches to its Bus Rapid Transit (BRT) network, initially focussed on Line 1. Line 1, opened in May 2016, consists of 5 terminals, 2 depots and 27 bus stations.

This volume focuses on a number of TOD benchmarks growth models (from around the World) that can provide good models and lessons for Dar es Salaam. The aim has been to highlight suitable and relevant growth models and to draw out the most applicable principles and guidelines, that can be applied or adapted to Dar es Salaam BRT Line1, and future phases.

Definition: Transit Oriented Development (TOD)

Transit oriented development (TOD) brings higher density, more compact, mixed-use development within easy walking distance of rapid public transit. TOD features vibrant streetscapes, pedestrian-oriented built forms, and land use characteristics that make it convenient and safe to walk, cycle, and use public transport.

Institute for Transportation & Development Policy, USA

What isn't TOD:

In general terms, uses, such as warehousing, logistics, surface-parking, low-rise / lower density development and housing are not compatible with the TOD approach. It is also recognised that certain city specific characteristics and conditions will require exceptions and adjustments in the TOD approach.

For example large manufacturing facilities, usually located away from the city centre, might be located in close proximity to the BRT station. The co-relation between employment areas and public transport might result in the need for non-typical TOD approaches. This however, is seen as a transitional situation and over time the density around the station will need to increase to meet TOD objectives.*

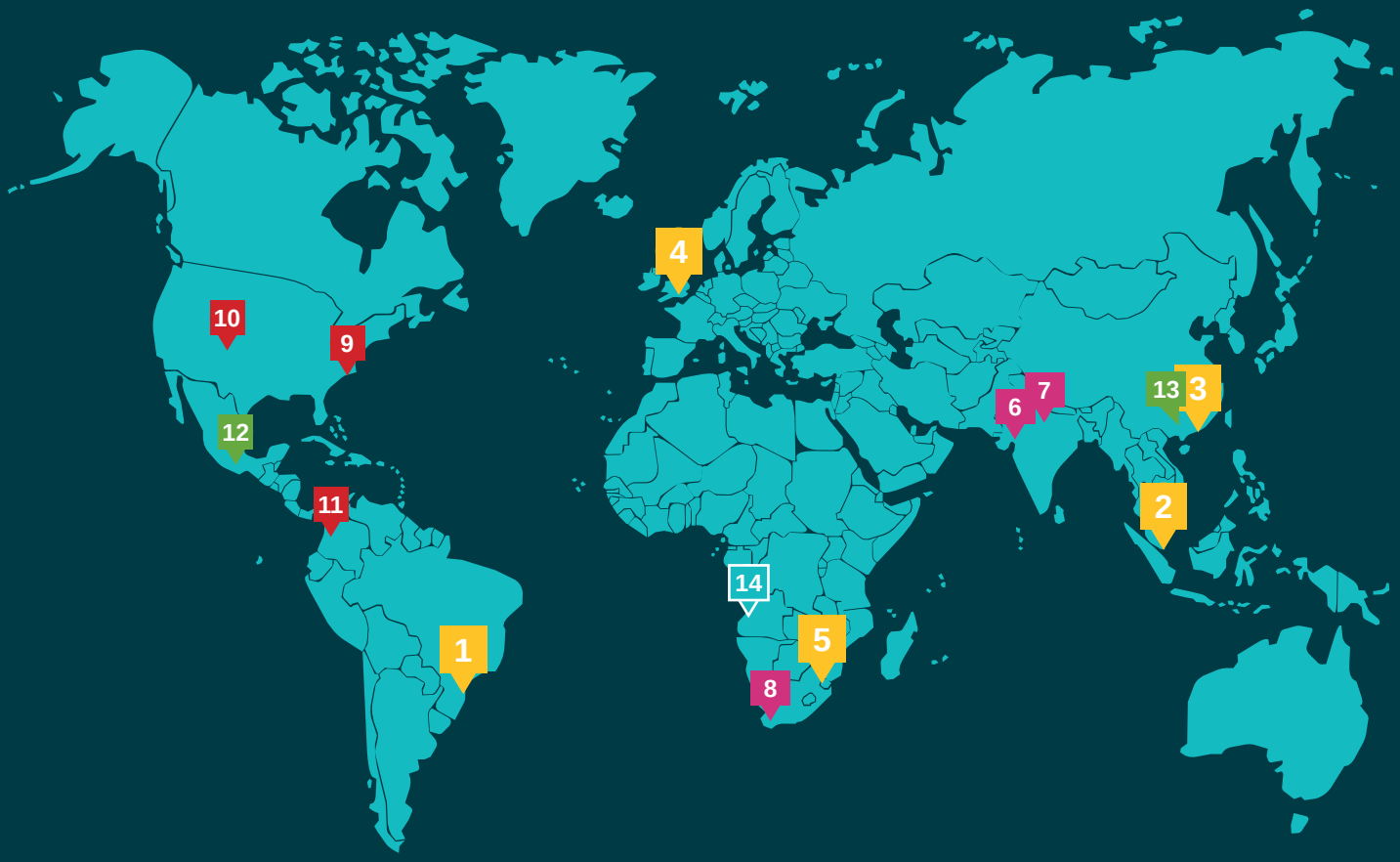
Assessing Benchmarks

Successful TOD precedents around the world have been assessed, both in developing and developed countries irrespective of the mode of transit system used. The lessons and outcome of the assessment primarily focuses on two core aspects: firstly institutional capacity and arrangements and secondly development and planning principles. The institutional capacity assessment captures best practice governance models, implementation, financing of transits and land value capture mechanisms. It also analyses the challenges encountered TOD system-wide application. The planning and development assessment captures and highlights specific planning approaches and mix-use integration across scales. It also illustrates that TOD principles are not universal, needs and does vary from city to city, setting to setting, with different mixes of land use; different levels of population, employment, and civic activity; and different scales of development. This is important because it re-enforces the need to have specific TOD approaches tailored to the unique characteristics of Dar es Salaam.

The Dar es Salaam specific TOD Guidelines described in Volume 1 therefore reflect benchmark lessons, but adjust these to respond to the local realities of Dar es Salaam.

*Example: Curitiba Industrial City - industrial area, providing large number of employment opportunities to semi-skilled workers, is well faciltated by BRT

Benchmarks Location Map



1. Curitiba, Brazil
2. Singapore
3. Hong Kong, SAR China
4. London, UK
5. Johannesburg, SA

6. Ahmedabad, India
7. Delhi, India
8. Cape Town, SA
9. Arlington, Washington DC, USA
10. Denver, USA
11. Bogota, Columbia
12. Mexico City, Mexico
13. Guanghzou, China
14. Luanda, Angola

- Institutional Capacity
- Urban Planning
- Transport Planning
- Infrastructure Planning

The Top 5 Benchmarks

The key benchmark studies explained in Volume 1 focus on five cities, renowned for their TOD qualities and succesess:

1. Curitiba, Brazil
2. Singapore
3. Hong Kong, SAR China
4. London, UK
5. Johannesburg, SA

Other case studies were researched and considered based on their individual topic & component achievements in the particular fields: public transit, institutional capacity, integrated urban planing or city infrastructure.

Volume 3 also considers some “What not to do” found in some aspects of case studies as for Delhi and Cape Town BRT systems.

TOD at Different Scales

TOD occurs at different scales, ranging from the city-wide, metropolitan, down to station level scale. Understanding this difference helps to identify the appropriate tools and mechanisms to implement TOD and the scale of planning, at which they should be applied. The following pages illustrate a selection of benchmarks, illustrating those principles.

Metropolitan Scale

At a metropolitan scale, TOD intervention should aim to consolidate the relationship between land use and travel patterns across the wider city, to achieve a compact urban growth scenario and long term efficiency and sustainability.
The benchmarks for sustainable metropolitan TOD approach are: Singapore, Cape Town, Hong Kong and Tokyo.

Corridor Level

The next level of TOD can be applied at a corridor level, as seen in the cities such as: Curitiba, Arlington, Ahmedabad and Guangzhou. The focus, in those, has been on land development to promote bi-directional flow of trips and the financial sustainability of the public transport services. Integrated transport and land use approach at a corridor level, provides the context for the precinct planning initiatives.

Local Level

At nodal and project level, as illustrated by benchmarks of Denver, St Giles Place and Kings Cross Place in London, TOD principles can be applied to facilitate better interfaces between the transport systems, land developments and the people. A key consideration is the allocation of quality public space and creation of more opportunities for walking and cycling.

Volume 03

Part 01

Current Governance Model in Dar Es Salaam

Understanding Dar es Salaam's Current Governance Patterns, at both national and city level, their good aspects, shortcomings and areas for improvements, is crucial in helping to develop recommendations and actions for TOD institutional arrangements. The conclusions drawn from section 2 of this document - the benchmark studies - will be used to create a range of recommended actions.

1

Understanding the current Dar es Salaam Governance Model

Dar es Salaam is the largest city in Tanzania and is the commercial capital of the country. Until 1974 it was also the political capital of the country. Dodoma is now the nation's capital and national government have been transferring there since its completion in 1996. Dar es Salaam is also one of the country's 31 administrative regions. Local Government operates under the Ministry for Regional Administration and Local Government PO-RALG, under the responsibility of the Prime Minister's Office. There are three types of mainland urban authority: City, Municipal and Town Councils. There are also other structures in rural areas and within Zanzibar. In the capital there are five municipalities: Kinondoni, Ilala, Ubungo, Temeke and Kigamboni.

Central Government Context

Mainland Tanzania has a unicameral National Assembly (the Bunge) made up of 357 members; of whom 239 are elected from constituencies, 102 are special seats reserved for women; five are members elected by the Zanzibar House of Representatives; ten members appointed by the President and the Attorney General, who sits as an ex-officio member. Zanzibar has its own House of Representatives.

The president is both head of state and head of government and is directly elected by popular vote. The president may serve for a maximum of two five-year terms and appoints the prime minister, who serves as the government's leader in the National Assembly and must be chosen from the constituency based members of the Parliament's majority party.

The president appoints the chief minister and members of the cabinet from the House of Representatives. Elections for the President, the Bunge, the House of Representatives and Local Government are held every five years. Tanzania has a first-past-the-post system.

Legal Basis For Local Government

Article 145 of the Tanzanian Constitution is the basis of law for the Local Government. It stipulates that Parliament will enact a law elaborating the procedure for establishing Local Government Authorities (LGAs), as well as spelling out their functions, responsibilities and powers. The Local Government (District Authorities) Act 1982 and the Local Government (Urban Authorities) Act 1982 provide for the LGAs. A number of subsequent acts have amended the role of local government and have modified local government finances.

LGAs have the power to levy taxes, fees and charges, however the majority of local authority revenue comes as funding from central government departments. The main purpose of LGAs is to consolidate local services and support social and economic development.

In addition, Local Authorities are responsible for maintaining law, order and good governance; promoting the economic and social welfare and ensuring effective and equitable delivery of quality services.

Structure Of Local Government

There are 30 regions and 143 districts, which are the administrative entities charged with maintaining law and order. They are govern by the Minister for Regional Administration and work under the Prime Minister's Office.

The Department's main role is to formulate broad national policies and to monitor local authorities to ensure that these policies are integrated into locally developed programmes. The Department works in collaboration with sector Ministries, which also formulate policies relating to areas such as education, health, transport, water and agriculture.

In mainland Tanzania, there are 37 Urban Councils. There are three types of urban authorities: Town Councils, Municipal Councils and City Councils. Tanzania consists of: 19 Municipalities, 15 Town Councils and 3 Cities. The Chairpersons of the Town Councils, the Mayors of the Municipal Councils & their Deputies are indirectly elected by the other Councillors. Urban Councils have all the same standing committees as the District Councils and the discretion to establish further ones. Non-elected members may be co-opted on to committees.

Below the level of Local Authorities there are democratic bodies to debate local development needs.

In urban areas, the *Mtaa* (street – a small urban area or geographical division of a ward), is the smallest unit within an urban authority. *Mtaa* Committees, have a fully elected membership comprising a Chairperson, six Members and an Executive Officer. These committees provide a grassroots link to the ward structure, and mobilise participation of local people in local development. Priorities for local service delivery and development projects are discussed by the committees, before being forwarded to the Ward Development Committee (WDC). Elections for Local Government leaders are held every five years alongside those of the President and Members of Parliament. They were last held in October 2015. Eligible candidates must be a member of a recognised political party, a Tanzanian citizen, at least 21 years of age, and able to read and write in Swahili and/or English. One-third of all seats are reserved for women. Voting is a right granted to all persons of 18 years and above.

On mainland Tanzania, Chairpersons and Mayors are appointed by the elected members of their authorities. The Urban and District Councils comprise members elected from each ward, the MPs representing the local constituency, and women members appointed by the National Electoral Commission.

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Intergovernmental Relations

There is currently no e-government strategy for local government. Intergovernmental relations are formally structured under the amended local government legislation and the Regional Administration Act 1977. The regional secretariats have a pivotal role, facilitating links with the centre and carrying out their enabling function at regional, district and divisional levels. The Regional Administration Act 1977 also established regional and district consultative committees for each region and district. These committees must provide advice to LGAs regarding their development plans and monitor and ensure coordination of the overall economic development of the region. Each committee consists of the regional commissioners and district commissioners of all districts within the region, all chairpersons / mayors of district and urban authorities, all directors of urban and district authorities, and MPs of constituencies within the region. The Association of Local Authorities of Tanzania (ALAT) has a formal role for collective bargaining and dispute resolution in the local government service.

Central government ministries issue guidelines which should be used by LGAs in the implementation of national policies. Decisions made by LGAs should not be at variance with national policies. At the regional level there are central government offices, which serve as extended arms of central government. These 24 regional offices coordinate and provide advice and technical support to help LGAs discharge their duties to the required standard. The regional offices have a duty to create an enabling environment for LGAs to provide services and bring about development at the local level.

There is a regional consultative committee in every region chaired by the regional commissioner and drawing members from the districts, including council chairpersons, district commissioners, MPs and the chief executives of the councils in the region. The functions of regional consultative committees, which are established by law, include considering and providing advice to LGAs regarding development plans. ALAT, whose membership includes an MP from each region, will be involved whenever there is a policy issue that relates to local government, before a decision is made at cabinet level. This is normally done through workshops and working sessions organised by the ministry responsible for local government, and representatives of ALAT are invited. Policy recommendations are sometimes discussed at meetings of the executive committee of ALAT and later at the annual conference where all LGAs are represented.

There are three parliamentary committees which handle issues of direct consequence to LGAs: the Legal and Administrative Committee, the Local Authorities Accounts Committee and the Parliamentary By-laws Committee.

Monitoring Systems

Tanzania has a multi-faceted system for monitoring local government performance. The Regional Commissioner, appointed by the President, has responsibility for monitoring the legal conduct of councils. A number of systems are used to monitor the performance of LGAs:

- Quarterly financial reports
- Annual assessment of LGAs for development fund grants
- Inspection of projects by the Local Authorities Accounts Committee
- LGA internal audit
- External audit by the National Audit Office
- Inspectorate Section of the ministry which may probe any financial mismanagement or other governance irregularities
- Inspections of the delivery of goods and services by the Public Procurement Regulatory Authority
- Monitoring of LGAs by the opposition.

Finance, Staffing & Resources

LGAs have the power to levy taxes, fees and charges. The typical taxes levied are direct ones, which are difficult to collect. LGAs receive specific grants to assist in the provision of education, health, water, roads and agriculture. These grants cover recurrent expenditure includes salaries and operating expenses. Conditional transfers form approximately 80% of the total grants received.

Elected representatives are not paid salaries but receive responsibility allowances, the rates of which are set by the minister responsible for local government. The head of the paid service is the District Executive Director in the district authorities and the town / municipal / city director in urban authorities. Typically, below the director there are a number of heads of department, usually including personnel and administration, planning and finance, engineering or works, education and culture, trade and economic affairs, urban planning, health and social welfare, cooperatives, agriculture and livestock development, and community development. City council directors are appointed by the President, while directors of town, municipal and district councils are appointed by the Minister for Regional Administration and Local Government. LGAs appoint heads of department and other personnel.

Systems for Community Engagement

Tanzania has well developed systems to ensure that local views are considered in reaching decisions. Amendments to the Local Government (District Authorities) Act 1982 provide for Councils to organise public hearings for people to question political leaders and staff. Councils are also empowered to establish Service Boards, open to all citizens in the area, providing an opportunity to influence service provision. Participatory budget-making is encouraged and enabled by bottom-up budgeting through the WDCs and the democratic structures above them. Local authorities are now required to promote and ensure democratic participation.

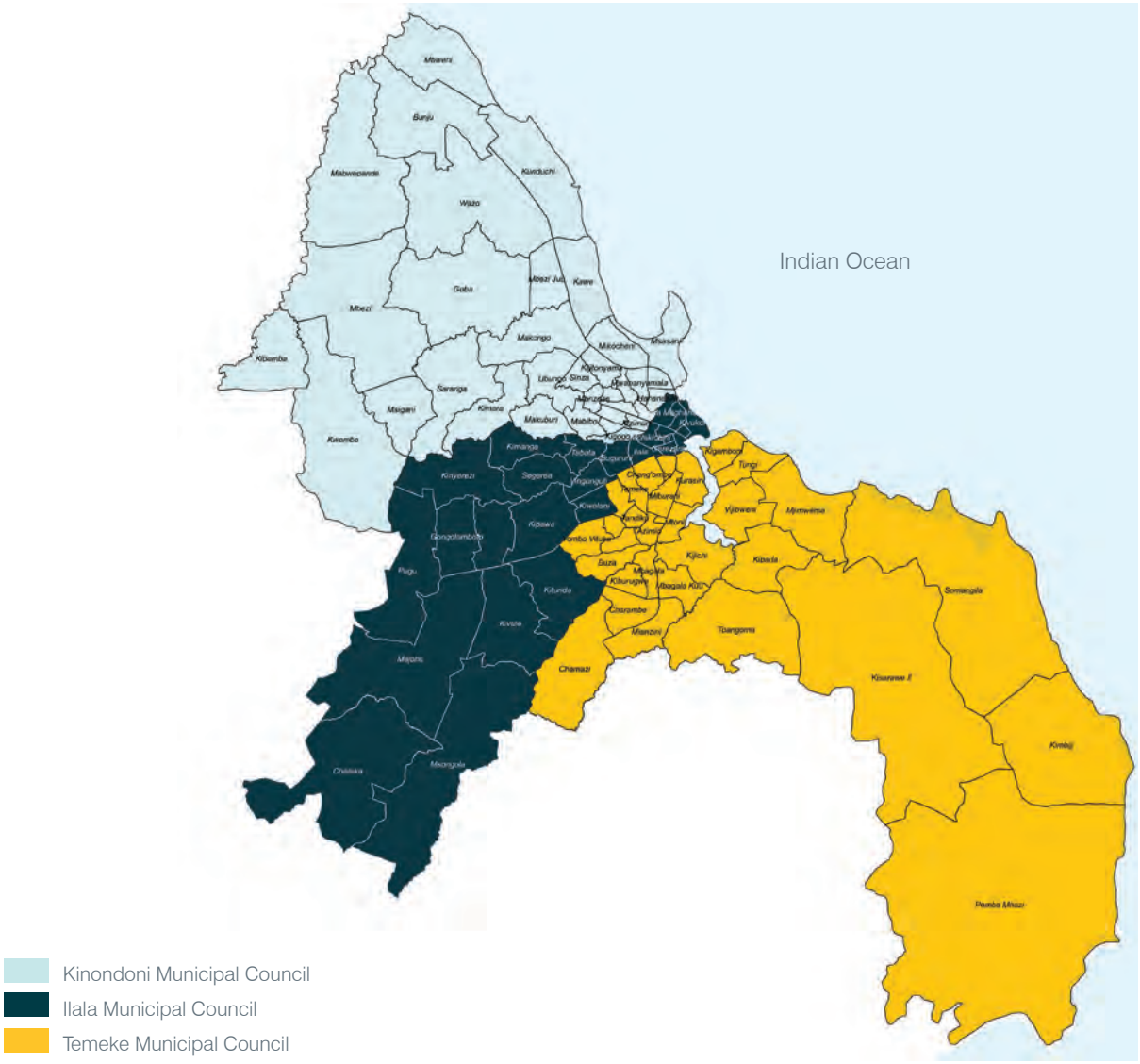
Opportunities and Obstacles to Development (O&OD), is a planning methodology that allows communities kick-start the planning process. During the O&OD process the needs of various social groups are considered. A Council must organise public hearings, where project benefits and implementation plans are explained and the public views sought.

1

Dar es Salaam Governance Model

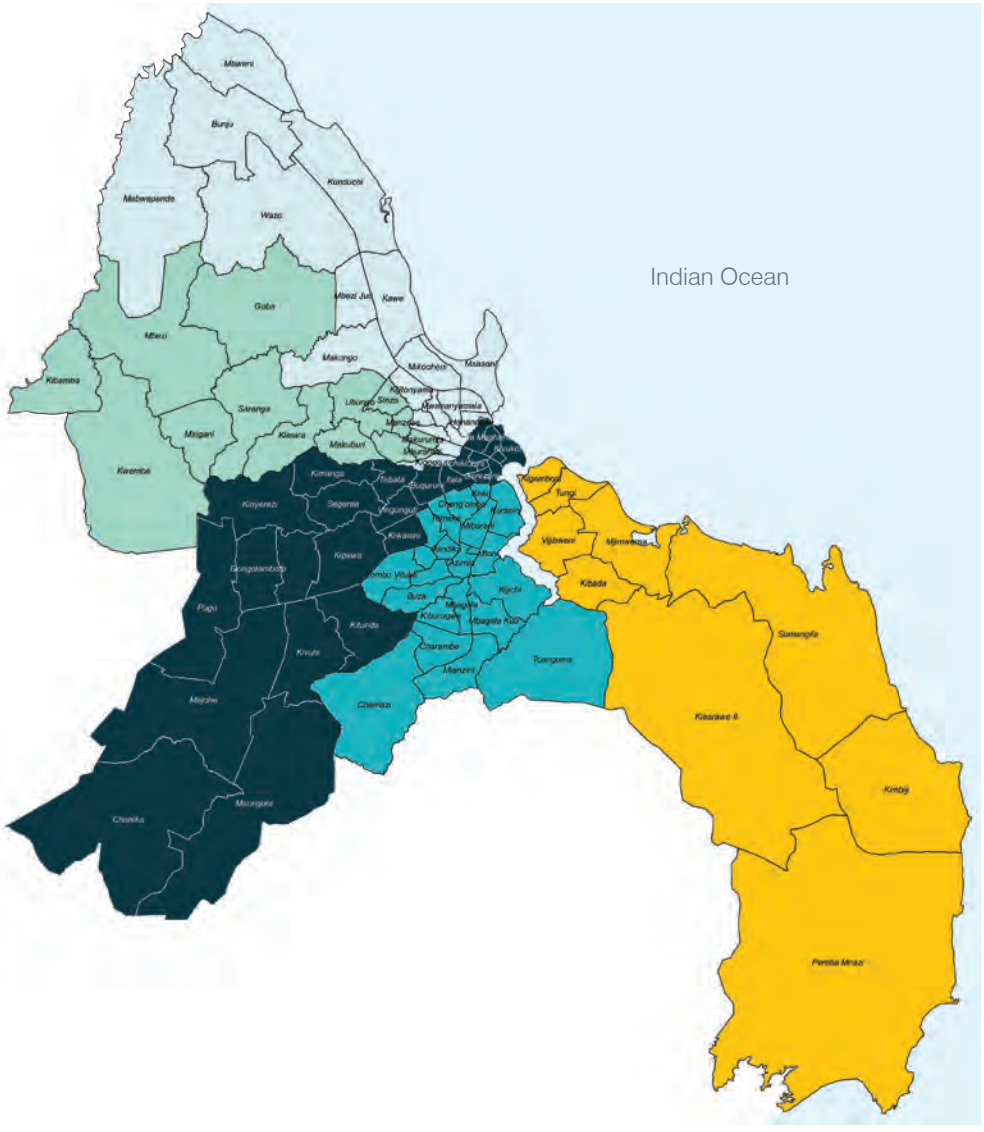
Dar es Salaam City Council has an indirectly elected Mayor and Deputy Mayor. Both are elected by an electoral college comprising all Councillors of the urban authorities over which the Council is established. The Deputy Mayor must come from a different urban authority than the Mayor. The membership of City Councils is made up of all the Mayors from the urban authorities within their jurisdiction, all MPs representing constituencies within their area, at least two women MPs(resident in the city and elected from the women in Parliament), and three Councillors from each Urban Council, one of whom must be a woman. In the last few years, it was decided that Dar es Salaam's Municipalities would be increased from three to five. In addition to Ilala, Kinondoni and Temeke, the following would be added: Municipality of Kigamboni (incorporating parts of Temeke) and Ubungo (incorporating parts of Kinondoni).

Three (3) Municipality Model of Councils (until 2015)



The maps below illustrate the areas covered by the three Council formats (as per the Census 2012), and the five Council boundaries now in place. We have included illustrations of both sets of boundaries as some historic data refers to the old arrangement.

Five (5) Municipality Model of Councils (from 2015)



Kinondoni Municipal Council
Ubungo Municipal Council
Ilala Municipal Council
Temeke Municipal Council
Kigamboni Municipal Council

1

Local Government Roles and Responsibilities

The table below*, sourced from the Commonwealth Local Government Forum website, describes the distribution of responsibilities between central and local government.

* Commonwealth Local Government Forum www.clgf.org.uk/tanzania

Services	Delivering authority		
	Mainland		
	Central	Urban councils	Rural councils
GENERAL ADMINISTRATION			
Police	■	■	■
Fire protection		■	
Civil protection	■		
Criminal justice	■		
Civil status register		■	■
Statistical office	■		
Electoral register	■		
EDUCATION			
Pre-school (kindergarten & nursery)		■	■
Primary		■	■
Secondary	■	■	■
Vocational & technical	■		
Higher education	■		
Adult education	■		
SOCIAL WELFARE			
Family welfare services		■	■
Welfare homes		■	■
Social security		■	■
PUBLIC HEALTH			
Primary care			
Hospitals	■	■	■
Health protection	■	■	■
HOUSING & TOWN PLANNING			
Housing		■	■
Town planning		■	■
Regional planning	■		
TRANSPORT			
Roads	■	■	■
Transport	■	■	■
Urban roads		■	■
Urban rail	■		
Ports	■	■	■
Airports	■	■	
ENVIRONMENT & PUBLIC SANITATION			
Water & sanitation		■	■
Refuse collection & disposal		■	■
Cemeteries & crematoria		■	■
Slaughterhouses		■	■
Environmental protection		■	■
Consumer protection		■	■
CULTURE, LEISURE & SPORTS			
Theatre & concerts		■	■
Museums & libraries		■	■
Parks & open spaces		■	■
Sports & leisure		■	■
Religious facilities		■	■
UTILITIES			
Gas services			■
District heating			
Water supply		■	■
Electricity	■		■
ECONOMIC			
Agriculture, forests & fisheries	■	■	■
Local economic development/promotion	■	■	■
Trade & industry	■	■	■
Tourism	■	■	■

■ Sole responsibility service

■ Joint responsibility service

Effectiveness of Local Government

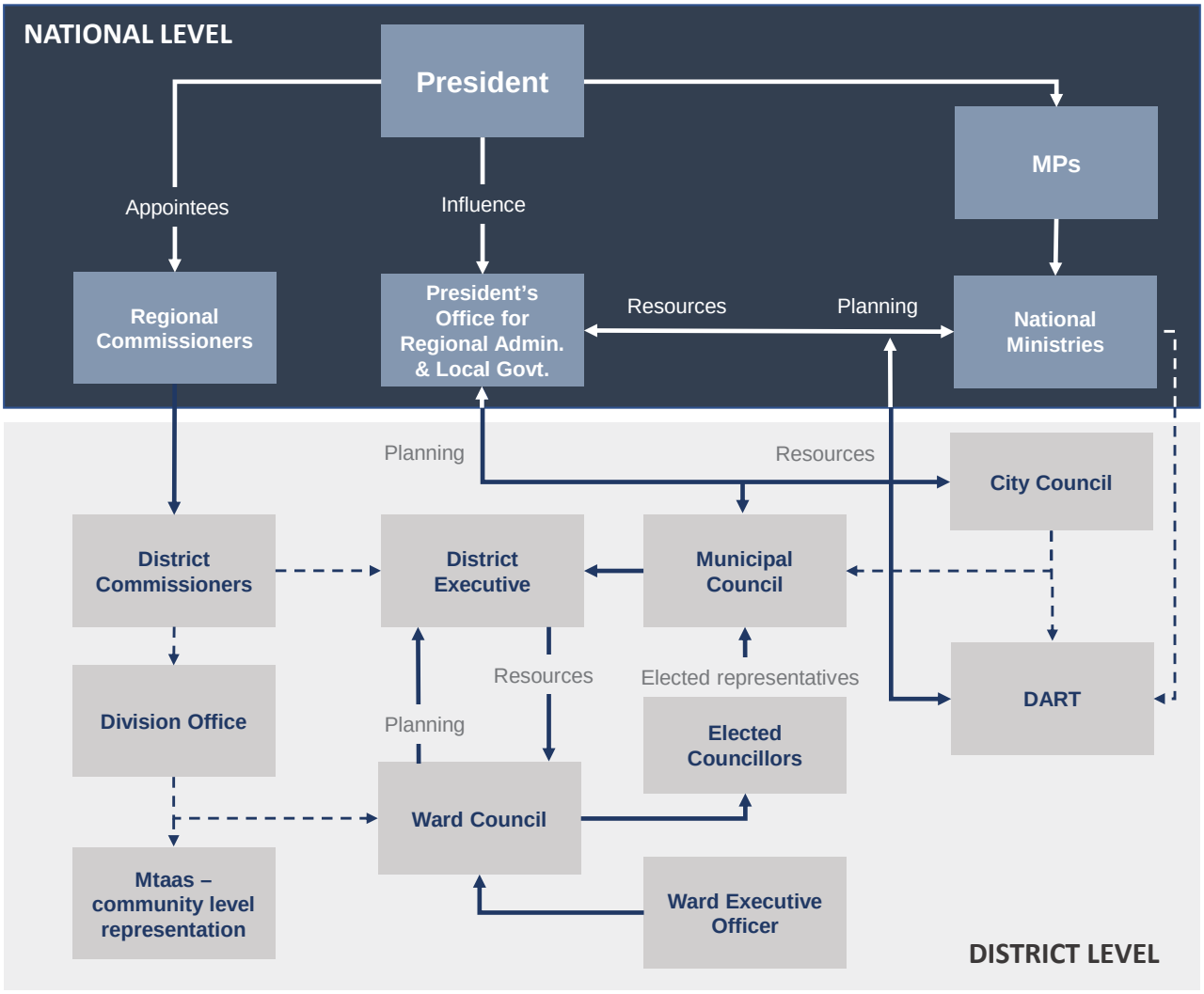
Local Government is Dar es Salaam is very much democratically accountable and there is close monitoring of performance, service delivery and finances by central government and agencies. Whilst this has many admirable outcomes it can add to the complexity of local government and slow down decision-making.

Furthermore there is, as identified by World Bank*, there is *"Institutional fragmentation between and across levels – weak integration and coordination".* Dar es Salaam, in particular, suffers from the inability to deal with issues that cross jurisdictions. Furthermore it is difficult in the city to prioritise or plan large projects or manage phasing to achieve more efficient use of resources and produce positive impacts.

The Dar Rapid Transport Agency (DART), which has developed and operates the Bus Rapid Transit (BRT) would appear, in theory, to be the responsibility of the City Council, yet is administered by central government. This would appear to be a practical response to the lack of capacity and capability at the local government level.

* Promoting Green Urban Development in African Cities DAR ES SALAAM, TANZANIA Urban Environmental Profile – World Bank Group

Dar es Salaam, Relationships between central and local government



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Effectiveness of Local Government

There is a lack of clarity regarding responsibilities for town planning with both local and central government having mandates and responsibilities. As World Bank points out the Planning Act states that the local authorities shall *"prepare general planning schemes, and detailed planning schemes for implementation in its area of jurisdiction"* and *"control the use of land, development of land and buildings in the interests of proper and orderly development of the planning area".* Yet, the Director of Urban Planning in Ministry of Lands, Housing and Human Settlements Development MoLHSSD is required to "approve applications for change of use of land in planning areas" and "approve applications made by developers for subdivision of land or plots in planning areas." As well as causing confusion this lack of clarity is slowing down the process.

Further adding to the confusion, central government departments and agencies often have overlapping responsibilities and lack coordination. The consequences of the lack of coordination have resulted in slow progress in the delivery of institutions, plans, regulations and guidance and the regulations, for example:

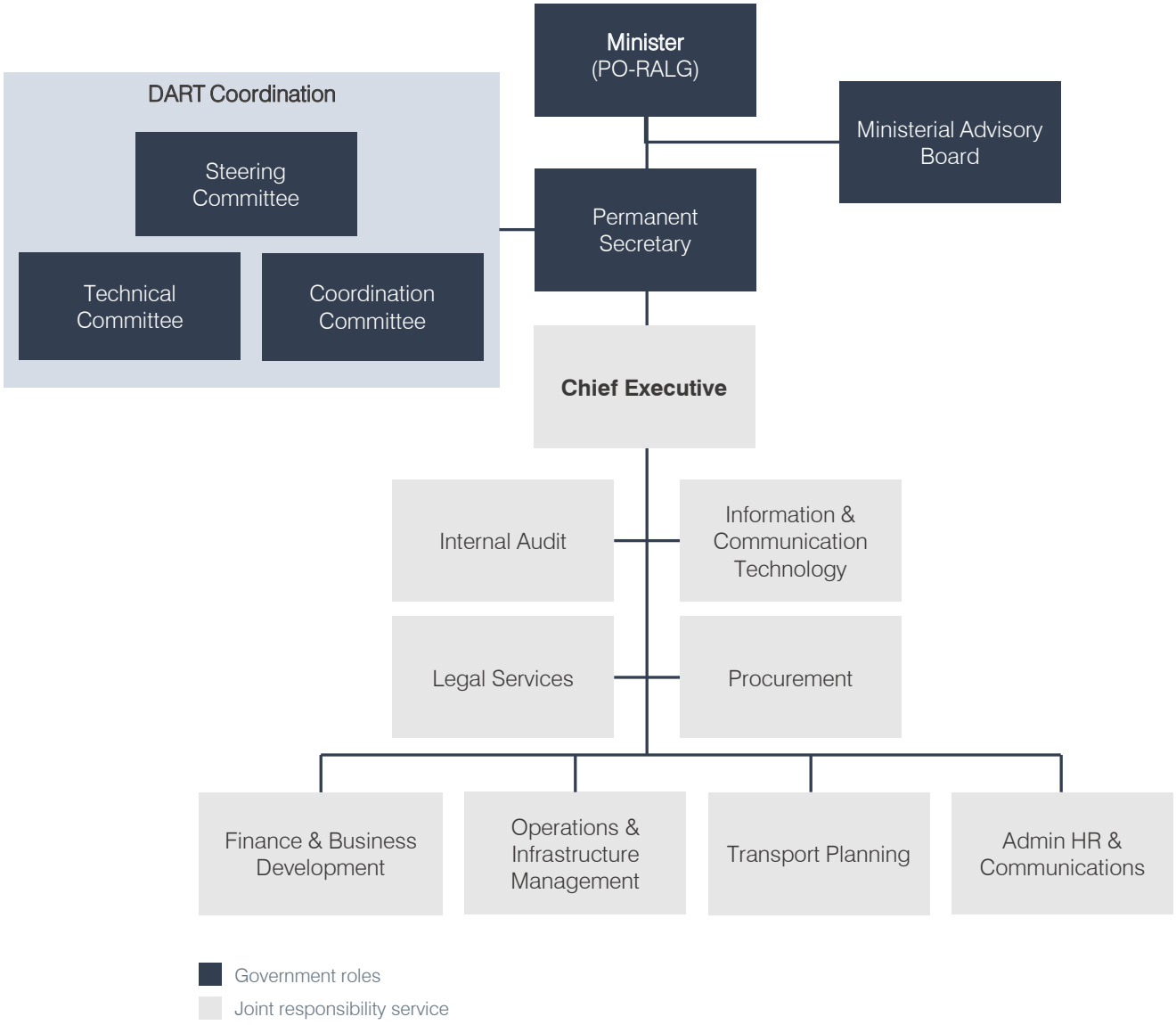
1. **Dar es Salaam City Council (DCC)** was restructured in 2000 to bring back a coordinated approach to the management of the city. UN Habitat reported in 2009* the council was making slow progress in becoming effective, suffers from central government control, is under-funded and lacks human resources – there is every indication that this is still the case. DCC lacks jurisdiction and is largely mandated to have a coordinating role and to manage to cross-jurisdictional issues. It is nominally responsible for the Bus Rapid Transit (BRT) project, but in practice this comes under central government control. It also has the mandate to oversee the updating of the physical master plan for Dar es Salaam (however, the latest round has been coordinated mainly by MoLHHSD. The DCC has around 200-300 staff.
2. **New Municipalities** Ilala, Kinondoni and Temeke the existing Municipalities in the City were joined by two additional authorities; Kigamboni and Ubungo in 2015. The transition to the new municipalities is still in progress. They are yet to build full administrative teams. We have come across issues into the formalisation of some boundaries. Historic demographic, economic and real estate data still refers to the old municipality boundaries.
3. **City Masterplan** Dar es Salaam is still relying on the 1979 Masterplan which can, at best, be described as a historical document. The current draft Masterplan has been stuck in the development process for several years it still remains to be seen whether this to be a relevant or effective document.
4. **Data** Dar es Salaam's municipalities do not have an integrated information database to serve different agencies and for different sectors; economic and social data are also not supported spatially nor do they share data, not even upon succession from one authority to another when re-organization occurs.

* Tanzania: Dar es Salaam City Profile – UN Habitat Regional and Technical Cooperation Division 2009

Management of Public Transport

Dar Rapid Transport Agency (DART) is the body responsible for delivering and operating the BRT in Dar es Salaam. This body reports to the President's Office for Regional Administration & Local Government (PO-RALG) and works closely with other stakeholders especially Dar es Salaam City Council.

DART management and supervision



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Poor Process

Whether because of lack of process, poor resourcing or motivated by a desire for control, central government bodies such as MoLHHSD often end up with a major role in what should be local government responsibilities. A good example is the current revision to the City Masterplan.

Capacity and Capability

World Bank identifies a lack of resources in all resources, with insufficient finances, capacity, skills and experience.

Governance - African Context

Tanzania continues to fall behind in its attempts to improve governance. As the Economic and Social Research Council pointed out in 2016, despite external help and financial assistance the Tanzania is not catching up*.

* ESRC-Good governance, local government, accountability and service delivery in Tanzania - Exploring the context for creating a local governance performance index Anna Mdee and Lisa Thorley October 2016

Governance Performance in Tanzania (ESRC 2016)

Conclusions

It can be argued that planning and development in Dar es Salaam are hampered by the way governance works in the city.
This happens in a number of ways:

1. **Alignment of planning and Development:** There is poor alignment between the public-sector parties involved in the planning and development. Municipalities, responsible for the day-to-day running of the city appear not to have a strategic context to respond to. Dar City Council, notionally responsible for the City Masterplan, appears to be unable to deliver an acceptable document that can support the municipalities in their role. PO-RALG is powerful and is a concentration of experience, skills and resources, but has many other responsibilities, which prevent it from bringing city planning into sharp focus. Other public bodies such as DART, the National Housing Corporation and the Pension Funds appear to be competing to develop the city – each with their own specific objectives.
2. **Capacity and Capability:** There is a shortage of capacity and capability to deliver planning and development in an effective way. The lack of alignment between public bodies does not help. A concentration of resources to focus on strategic schemes would promote more effective and speedier development. This could be done if public bodies were encouraged to cooperate in a common enterprise and to share resources.
3. **Lack of Transparency:** There appears to be a lack of transparency around the planning process, how decisions are reached and how they fit into an overall plan. This is exacerbated by the lack of a city plan and confusion about public sector responsibilities. Lack of transparency does not engender public support or encourage private sector investors to become involved in schemes.
4. **Dislocation between transport and Transit Oriented Development (TOD).** Although DART falls under PO-RALG and the City Council, there appears to be only a weak link between transport planning and TOD. This might be remedied if there was a stronger role for the City Council, if DART was allowed directly or indirectly to be involved in TOD and other public sector parties were encourage to collaborate on schemes through joint-ventures or by becoming involved in a body with special focus on TOD.
5. **Incentives.** Public sector bodies must see clear incentives to cooperate with one another. These incentives must outweigh the benefits they currently see in acting independently.

Volume 03

Part 02

International Best Practice in Transit Oriented Development

A wide range of TOD benchmarks from developing and developed counties have been researched. This has enabled the identification of best practice trends in driving successful TOD approaches and the selection of TOD ideas that are most relevant to Dar es Salaam's BRT network and line 1 corridor.

2

Introduction - Selection Criteria

Many factors influence and shape a successful TOD growth model, such as strong political and planning effort, the wider city vision and growth objectives, successful financing and implementation of transit model and comprehensive land use and transit integration to outline a few.
While selecting the most relevant benchmarks a variety of topics influencing the TOD were considered. Unfortunately, there is not a single city delivering every aspect of TOD in the most successful manner. Some exceed in institutional capacity, some in urban planning or transport network delivery, some in combination of few factors.
In making the assessment the balance between what might be ideal and what is appropriate in Dar es Salaam setting was considered. The examples from the developing countries similar to Dar es Salaam have been included wherever possible. Places such as Bogota, Curitiba, Mexico City and Ahmedabad arguably have overcome similar challenges of the implementation, financing and governance of their respective BRT corridors as Dar es Salaam. Other cities such as Surabaya, Kigali and Quito are either at the tendering stage of implementing transit corridors or have limited information and data available that could be assessed.
A total number of 22 cities, districts and places were researched, both from developing and developed countries worldwide, with a final selection focusing on 5 key benchmarks and further 9 topical examples (exceeding in transport, governance, infrastructure delivery or planning fields). The list also includes some institutional failures, as a way of illustrating what actions to avoid. The three key factors led to the key 5 benchmarks:

- Selecting cities leading in innovation in TOD by improving urban development and/or capturing land value uplift for public benefit
- Selecting cities in less developed economies that have progressed TOD
- Selecting cities which had achievements in TOD at multiple fields, such as planning, land value uplift, governance etc.

Key topics researched:

1. Overall success rates in achieving Transit Oriented Development
2. Mechanisms and models used in the implementation and operation of TOD and network itself
3. Lead institution responsible for planning, delivery and post delivery phases
4. Policies and planning regulatory tools used during and after the implementation stage
5. Primary transport and land-side investments

Where information was available:

6. Cash-flow models
7. Financing sources and debt instruments
8. Public sector contributions and fiscal transfers
9. Private sector contributions
10. Projected economic rates of return.

Key reminder "change is possible"

We have deliberately selected benchmarks from both "developing" and "developed" cities. It is important to remember that "developed" cities have not always been developed and have gone through periods of transition and change. Whilst it some of the benchmark cities that we have included may seem very different from Dar es Salaam today we know from our experience and knowledge that cities can and do change, grow and develop overtime. Cities like Singapore, Hong Kong and Curitiba have transformed themselves over a relatively short space of time. We believe that Dar es Salaam can achieve many of the approaches shown in the developed benchmarks, and can itself become a benchmark for great and highly successful integrated TOD planning.

2 Curitiba, Brazil

Curitiba city centre © Francisco Anzola

2

2 Curitiba, Brazil

Vision and political commitment to foster strong public transport, social inclusion and to maximise land values by applying a compact and linear intensification model along BRT transit corridor.

Key Data: Curitiba & Dar es Salaam

	Population	Municipal Area	Density
Curitiba	1,879,355	431 km²	4,062 p/km²
Dar Es Salaam	4,364,541*	1,654km²	1,133 p/km²

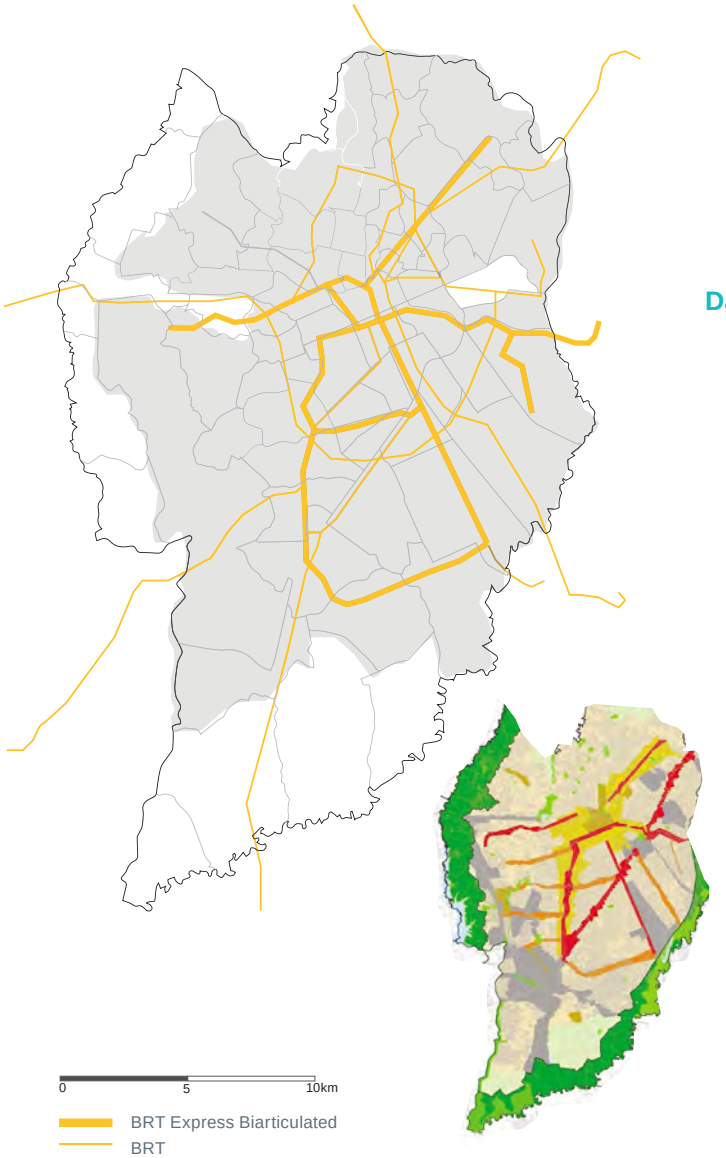
* Population Based on 2012 Census Data

Curitiba's BRT

	System Length	Stations	Daily Demand	Peak Frequency
Curitiba	76,6km	123	619,500	54”
Dar Es Salaam	21* km	32	294,000*	90”

**Phase 1 Only

**Interim Phase



Curitiba Public transport network coverage (metropolitan area) and related predominant land uses and densities

Modal Share

	28%	26%	46%
Dar	45%	12%	43%

Overview

Successful Regeneration Despite Budgetary Constraints

The example of Curitiba proves that low budgets are not a barrier to successful regeneration. Since the 1970s, Curitiba has integrated public transportation planning into the overall city plan, promoting the trinary system, which sought to integrate mass transit, access roads, and dense land uses together. **Unable to afford a light rail system, the city gave priority to buses, allowing them to move faster and be more efficient.** The bus system has been transformed into a mass Bus Rapid Transit (BRT) with features such as fast and large buses, exclusive priority lanes, free transfers between routes, pre-board fare collection, enclosed and elevated stations, information displays and traffic signal priority.

Urban growth was structured along key urban transport axes radiating out from the centre, with regular stops and nodes. These corridors were zoned to accommodate high density residential and commercial development, serviced by a more affordable, yet innovative and distinctive bus transit network. BRT was fast and simple way to ''retro-fit'' to existing urban infrastructure and quick way to make a positive impact. The new bus system helped shift public perceptions of the city and resulted in increased ridership utilisation figures, while reaching out to previously unserviced parts of the city. It operates a flat "social" fare structure for all bus types and routes, enabling poorer and more remotely located workers to get to work for the same cost as wealthier downtown residents.

Curitiba's Success Factors

> Innovative initiatives and strategies were put in place regardless of budgetary constraints.

> Right to Build, tax relief and other innovative incentives.

FAR bonuses for provision of extra open space within the plot, property tax % reduction when planting local species, land-swap and property right swap, are among many initiatives implemented to aid regeneration and development within the corridor and the city.

> Successful BRT Mas Transit model used as one of the tools to shape the city.

BRT was used as a lens to focus number of parallel initiatives to improve in the quality of life within the city.

> Structural Axis focused urban density and investment along the BRT corridors.

To maximise return on investment and overall accessibility levels, the core of density was focused along BRT routes. Variety of incentives were put in place to encourage investment and density along those corridors.

> Independent, technical body leading planning and implementation of the TOD strategies along the corridor and the wider city.

Research and Urban Planning of Curitiba (IPPUC), provided consistency in strategy implementation amid turnover in city administrations.

> BRT & Bus Network supported economic transformation of the city.

Despite aspirational TOD density and land use recommendations, Curitiba took on board economic and employment profile of the city. BRT connectivity was applied across the city, also to some of the low density employment hubs. This supported economic growth and responded to the employment profile of the city.

> Environmental policies achieved affordable way to mitigate flooding issues.

Parks were created in flood-prone areas reducing expenditure by 80% comparing to engineering measures

2

01. Successful BRT Mass Transit Model helped to shape the city

The system currently contains stops approximately every 500 meters with 390 bus routes and 2,000 vehicles that are used for approximately 2.1 million passenger trips daily, nearly 50 times the amount of travellers 20 years ago. After its construction in 1974, the BRT gained an annual ridership of 2.3% of the population for over 20 years. The ridership has now reached 46%, reducing traffic congestion and fuel consumption, while enhancing air quality (Curitiba has now the lowest rate of air pollution in Brazil*). Bus service reaches almost 90% of the city, and all users can access public transportation services within 500 meters walking distance.

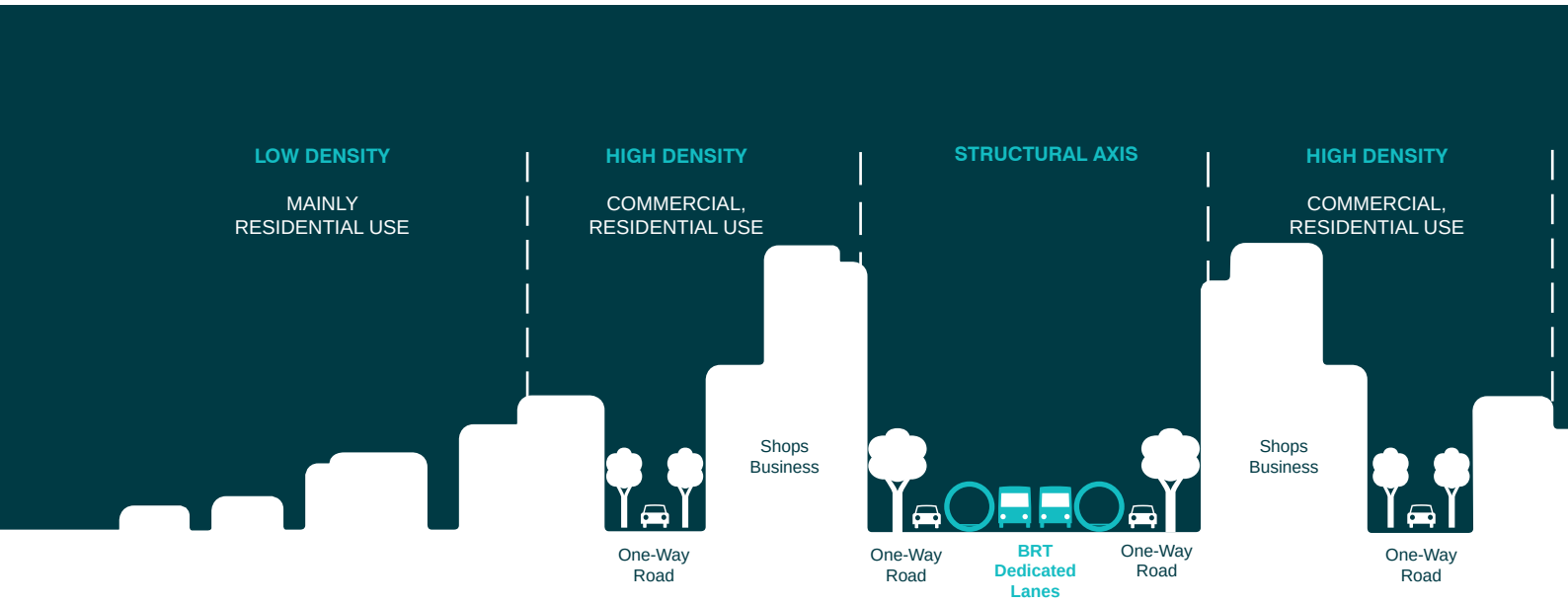
The city implemented a detailed regulation zoning plan based on the public transport network. Curitiba zoning plans reflect the master plan's strategic vision, geographical and geological constraints, water and wind directions, Curitiba's industrial profile, and urban cultural and social factors.

Nearly all parcels have been zoned for mixed commercial-residential uses. This provided additional nodes and mixed use areas to take pressure away from its overloaded and congested centre. Alongside the basic zoning of the transitways, the planning authority: Institute for Research and Urban Planning of Curitiba (IPPUC), has adopted a number of policies that have bettered the quality of the city and ensured a rich mix of function, from the pedestrianising of central streets (Curitiba's car free zone) to the construction of low income housing in proximity of the structural axes.

Because of its emphasis on the pedestrian environment, the IPPUC has always tried to flank the main busway with low-speed, auxiliary lanes rather than making them a part of an urban highway. This ensures that pedestrian crossings can safely remain at grade, and avoids costly infrastructure such as tunnels or overpasses.

High traffic areas such as shopping centres and high-rise apartment buildings in a land-use mix are conveniently located next to public transport stations, reducing car dependence. By coupling the development of a pedestrian friendly community with the **introduction of the BRT (and a 72km dedicated BRT lane), Curitiba has successfully reduced the overall travel of its residents. The system is exceptional in terms of its affordability for customers, efficiency and sustainability and it is used by 75% of Curitiba population to commute to work.**

* Leitmann 1999



Curitiba - Conceptual Section Through Transport Corridor

There is very little parking in central Curitiba, and that little parking is available is mostly for short term use, while off-street parking are privately owned and expensive. Over 150 km of bikeways have been built. Curitiba has maintained high levels of road safety, with only 4.2 traffic fatalities per 100,000 people (compared to a 9.6 average in the region).

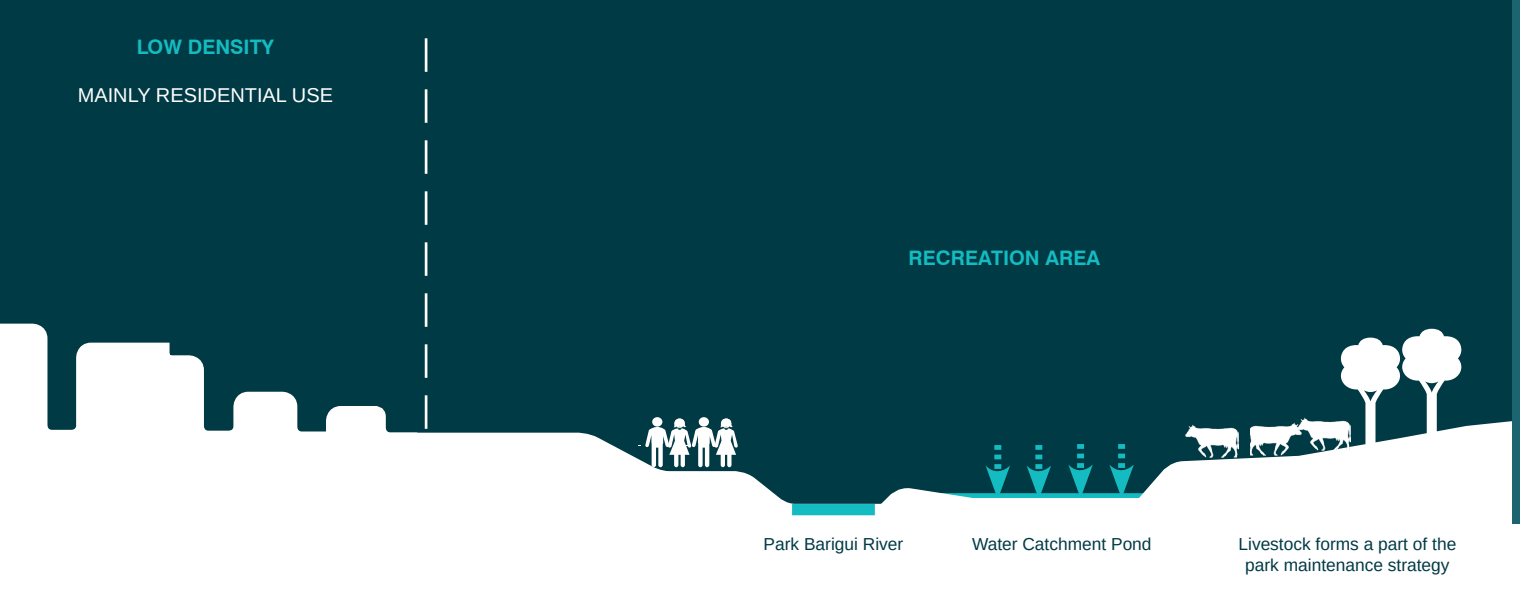
02. City taxes, tax incentives and land exchange

Guided by market principles, IPPUC regulates and monitors the implementation, negotiation, and transfer of development rights among interested parties (that is, private developers and landowners). This methodology enables the city to implement, in the affordable way, a variety of planning strategies. For example, to encourage increase of urban trees, the city offers landowners relaxation of Floor Area Ratios (FAR) rules and tax reductions. The city tax is discounted 10%, if a private landowner has one Paraná pine tree on his land. Also, rights to develop forest areas may be exchanged for rights to develop other city areas.

Property tax revenue - while regenerating flood prone areas, city acquired the land, relocated the slum dwellers to better land, and provided compensation. After the park was established within the zone, the areas facing the park became neighbourhoods with high-end housing. Houses with good views of the park and lake have high real-estate values; hence property tax revenue has increased. Property taxes collected from the high-end housing have been estimated at the equivalent of the cost of park construction, including favela relocation and compensation.

The role of tax incentives to attract foreign investment. Curitiba focused largely in the concession of fiscal incentives to attract foreign investment. It was put at investor's disposal fiscal incentives, such as exemption from VAT and property tax, and areas with direct funding were offered. Through the incentives, but also from infrastructure development, Curitiba succeeded in attracting new industry to its Industrial City, with key sector being car manufacturing with Renault, Audi / VW and Chrysler moving in.

Value Capture Mechanism. The city closely controls land use and allows for additional development only through the purchase of development certificates. These CEPAC, (certificate of additional development potential) are auctioned off as a trade-able credit within specified areas. The auctions for the **CEPACs** sometimes occurred at a time when the property market was severely depressed. Yields were only slightly over minimum prices and less than 60% of the anticipated funds were raised. Since this time, property has recovered strongly and these CEPACs have increased in value, meaning this project missed out on value gains that could have gone into the development of the BRT.



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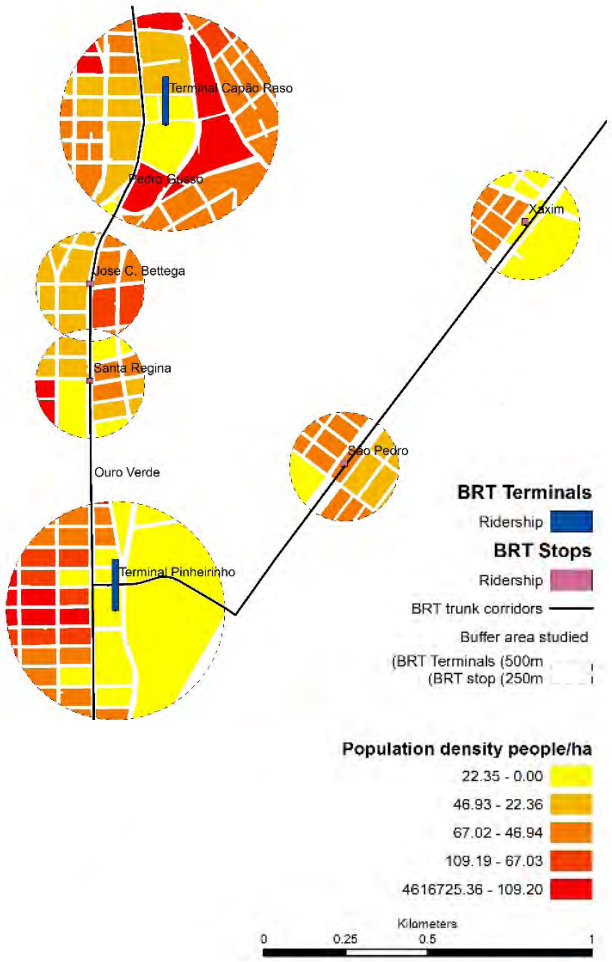
03. Structural Axis - Focused urban density, and Investment along the BRT Corridors

Linear development along the arteries reduced the traditional importance of the downtown area as the primary focus of the day-to-day transport activity, making it a more attractive place for living, leisure and mixed uses. The typical 'Structural Axis' includes two side blocks and three roadways called as 'Trinary System'. Land within two blocks of the transit arteries is zoned for high density, since it generates more transit ridership per unit area. Beyond the two blocks, zoned residential densities taper in proportion to distance from transit-ways. Special zonal policies and incentives on more Flor Area Ratio (FAR) in the transit corridor has created density ranges 300-400 pph around the key terminal stations within the central business area and around 150-200 pph around the suburban residential neighbourhood areas.

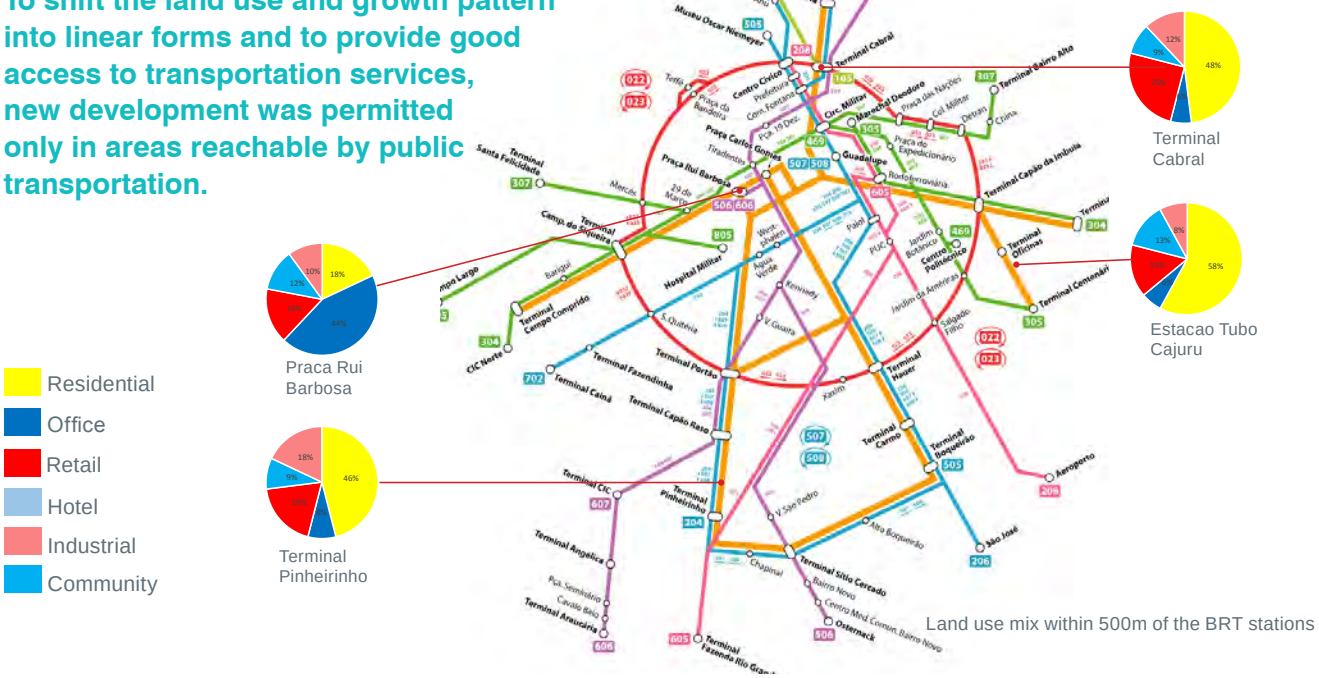
Social benefits are provided through special transit supportive incentives - density bonuses are granted for the residential parcels within walking distances (500m, 800m and 1000m) of the transit way.

To shift the land use and growth pattern into linear forms and to provide good access to transportation services, new development was permitted only in areas reachable by public transportation.



© IBGE (2104) URBS (2014) Geodata processing Vergel-Toval (2014)

Population densities within 500m of the BRT stations



Land use mix within 500m of the BRT stations

04. Institutional capacity and innovative initiatives

Although some of the approaches and strategies were not directly influenced by the implementation of the BRT, many of them were successful though ease of access provided by BRT. Many topics illustrated below, can be found in along Dar es Salaam, hence their inclusion in the below pages.

Dedicated Institution. Much of Curitiba's forward planning success may be attributed to the Institute for **Research and Urban Planning of Curitiba (IPPUC)**, an independent public authority that handles not only research and planning, but also the implementation and supervision of urban plans. IPPUC has coordinated the various aspects of urban development and ensured continuity and consistency in planning processes amid turnover in city administrations. This is an illustration of successful path dependency in urban development in terms of the spatial, institutional and cultural aspects. Starting with Jaime Lerner-Mayor of Curitiba (who previously worked with the IPPUC), all following Mayors conducted regular meetings with the IPPUC to discuss improvements in land use and transportation planning. **Leadership -** The mayors of Curitiba have focused on urban planning. Many mayors have had technical backgrounds in engineering or architecture or planning.

Innovative Initiatives

Social Housing Strategies Along the BRT Corridors - Curitiba initially acquired land and reserved rights-of-way along the strategic axes, which enabled the city to build social housing in these areas. Subsequently, major economic activities and urban functions, including residential neighbourhoods and schools, were reorganized densely along these axes.

Shanty Town Regeneration - Rather than spending time and money on relocating residents of shanty towns and restoring the areas that had been occupied, the city, at low cost, purchased privately held lands that could be occupied. It then provided this land for unofficial occupancy. A formal land use zoning category was developed for such land. Simple land arrangements, water and electricity were offered to mitigate future problems. Under city agency coordination, the value of the occupied land may be reimbursed through long-term loans. In addition, legal mailing addresses were provided for occupiers, which helped people finding jobs. Social housing strategy encourages tenure mix for inclusive neighbourhoods. Apartments and small detached homes are provided as social housing; poor people who can afford to purchase small detached houses are given incentives to improve the properties and their overall living environment. Building rights may be purchased and money paid by the developers are used to build social housing in other areas.

Heritage Preservation Strategy - Rethinking public transport and road hierarchy allowed for some of the vehicular streets in the city centre to be converted into pedestrian zones. Under Curitiba's '77 Metropolitan Area Heritage Plan, 363 buildings were identified for preservation. Most of these buildings were privately owned, managing their preservation was difficult. The city adopted a policy under which development or building rights may be transferred to other areas in the city. They also identified special preservation units, money earned from selling development rights over these were used to preserve heritage buildings. Through these measures, the preservation founds are mainly market generated, and the city does not need to fund preservation.

Public Private Partnerships in Transport Infrastructure - The transport system and it's financing model is considered a world-wide success-regulated by the state company URBS, that subcontracts private bus companies to provide the service. It charges all tariffs and distributes payments to bus companies based on distance travelled. In turn, bus companies are responsible for purchasing their own vehicles, whose capital costs are reimbursed by the URBS at a rate of 1% per month, thereby encouraging investment in new vehicles.

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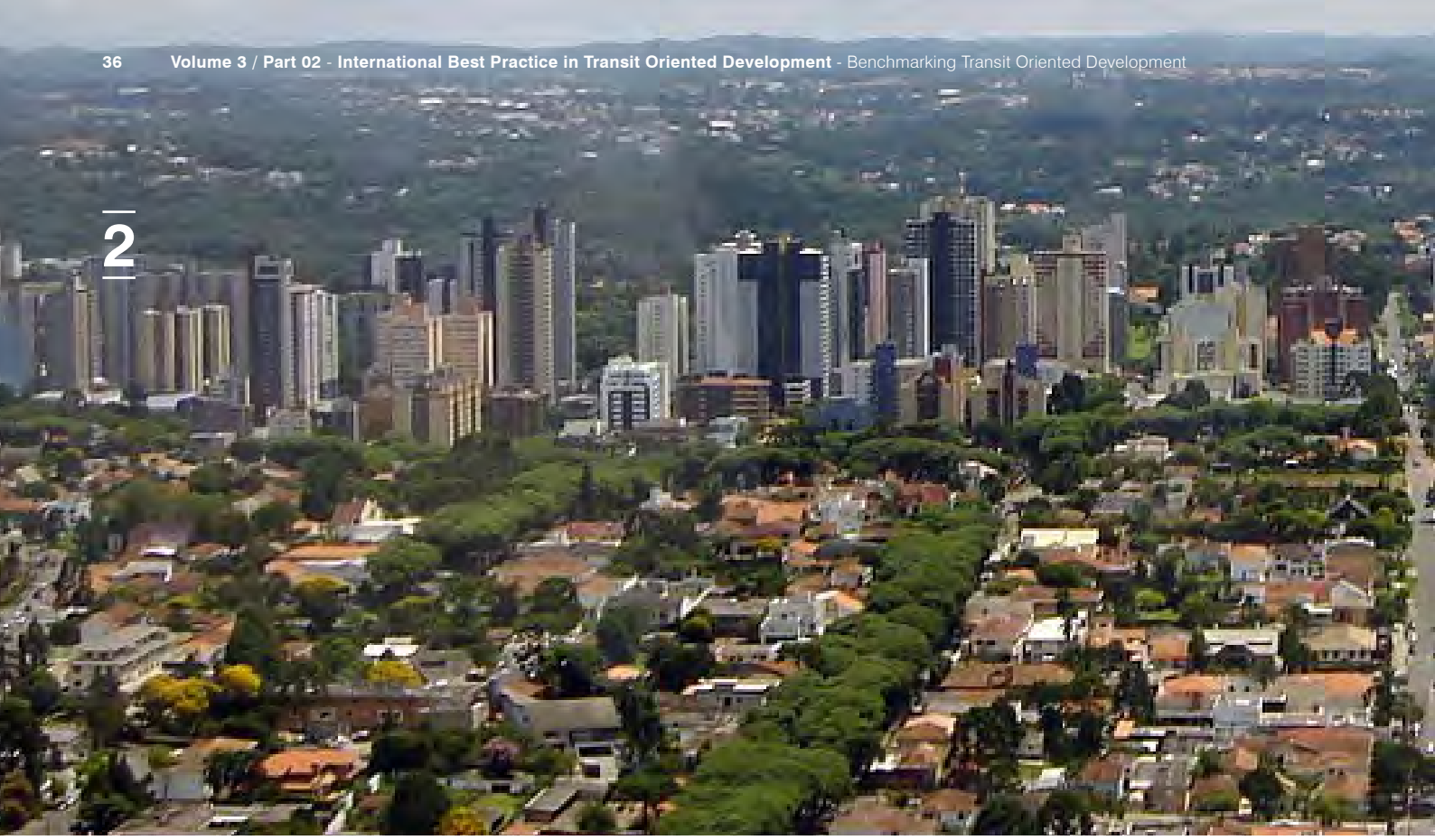

Curitiba's density © Mariordo, Mario Roberto Durán Ortiz | wikimedia.org

05. BRT & bus network in the support of the economic transformation of the city

In the 1970's Curatiba's economy was based on agriculture and service related activity and the government realised the need to increase its scale of manufacturing and light industrial operations.

The city converted the undeveloped land under a high-voltage line, in a south-west area of the city, into a **"job line"** that helped people start businesses and encouraged the growth of the local economy. **The Curitiba's Industrial City (CIC)**, an accessible industrial area was also planned, accounting for winds blowing emissions away from the city centre, all well connected by the Bus network. CIC, substantial in size (representing over 10% of the total city area), now provides 50,000 direct jobs, with over 700 firms locate there, levering 25% of the industrial tax revenues of the State of Parana*.

Thanks to the attractive environment and good connectivity, Curitiba was able to attract skilled workers and diverse industries. United Nations Human Development Index (HDI) ranks Curitiba's human welfare / quality of life at 0.823 out of 1, which is very high**. A good indication of the quality of life is the higher GDP and a lower unemployment rate than the Brazilian average, as well as increased life expectancy.

06. Environmental policies and open space accessible to all

To improve the quality of life within the city and to prevent flooding issues, Curitiba decided to enhance its green areas and recreational facilities by creating natural drainage systems. Urban Drainage Master Plan was put in place, with network of parks, often located in low lying land, absorbing overflow water, while avoiding downstream flooding and preserving natural ecosystem.

* Hattori 2004; Prefeitura Municipal de Curitiba 2009

** HDI, 2010

2

The cost of building parks and relocating favela dwellers has been estimated at five times less than the cost of building concrete drainage system.*

In 70's Curitiba's environmental issues were under control of state and central government. After first failed attempt of land preservation strategy (called Leisure and Recreation Program), IPPUC re-framed the argument under name Flood Control Program, by saying that strategically placed parks would preserved the riverbanks from flooding. This eventually resulted in creation of 34 parks and wooded areas, increasing the provision of open space per person from 1 to 55m^2, well above 16m^2, the value recommended by the Word Health Organisation (WHO)**. Eventually the local government took formal power over management of open spaces in the city.

To reduce the cost of open space maintenance, grass is grazed by livestock rather than mowed, introducing urban agriculture and reducing park maintenance costs by 80%!

Barigui Park, Curitiba © Wikimedia.org

*Vaz Del Bello and Vaz 2007

** IPPUC 2009a

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BRT Verde Line, Curitiba © mariordo59, 2013

07. Innovative waste managment initiatives; “Garbage That is Not Garbage” Program

© www.curitiba.pr.go.br

Curitiba has several innovative programs in solid waste management. Although they are not directly related to BRT, the principles behind them might influence some strategies and policies for the corridor itself. City initiated a unique waste management programs that depend on citizens, rather than constructing new and expensive waste treatment facilities. *“Garbage That Is Not Garbage”* Program encourages people to separate waste into recyclable and non-recyclable waste. Increased recycling also leads to other benefits, for example, recycled fibre is used to produce asphalt for roads. Nearly 70% of city residents participate in this recycling program resulting in approximately 13% of city’s waste being recycled. In addition, the Corporate Commitment for Recycling (CEMPRE), a non-profit organization dedicated to the promotion of recycling was created. This organization is the interface between informal waste pickers and the formal waste industries in Curitiba. To combat illegal dumping, both in public places and on private land, the city introduced **Garbage Purchase Centres** specifically in low income areas where conventional waste collection services were inappropriate. For every bag filled with between 8 and 10 kg of waste deposited, residents receive either bus tickets and / or agricultural products. In addition, children have been allowed to exchange recyclables for school supplies, chocolate, toys, and show tickets. The city purchases vegetables at discounted prices from farmers who have trouble selling abundant products. Through this program, the city saves the costs of arranging waste collection in slum areas, which often have inadequate roads, and helps farmers unload surplus produce. The cost of the program is comparable to that of contracting a private company to collect waste. It has been implemented in 52 communities.

Curitiba BRT corridor (©Mariana Gil/EMBARQ Brasil, 2013)

2 Singapore

Singapore's contrasting densities © Someformofhuman, 2010

2

2 Singapore

A transit-oriented city model, that is accessible to all through a strong network of public transport routes and high-density development built around transport interchanges, key nodes and transit corridors. Singapore enjoys over 5.3 million trips daily!

Key Data: Singapore & Dar es Salaam

	Population	Municipal Area	Density
Singapore	5,535,000	641 km²	7,681 p/km²
Dar Es Salaam	4,364,541*	1,654km²	1,133 p/km²

* Population Based on 2012 Census Data

Singapore's MRT

System Length	Stations	Daily Demand	Peak Frequency
176,7km	102	2,755,000	43”

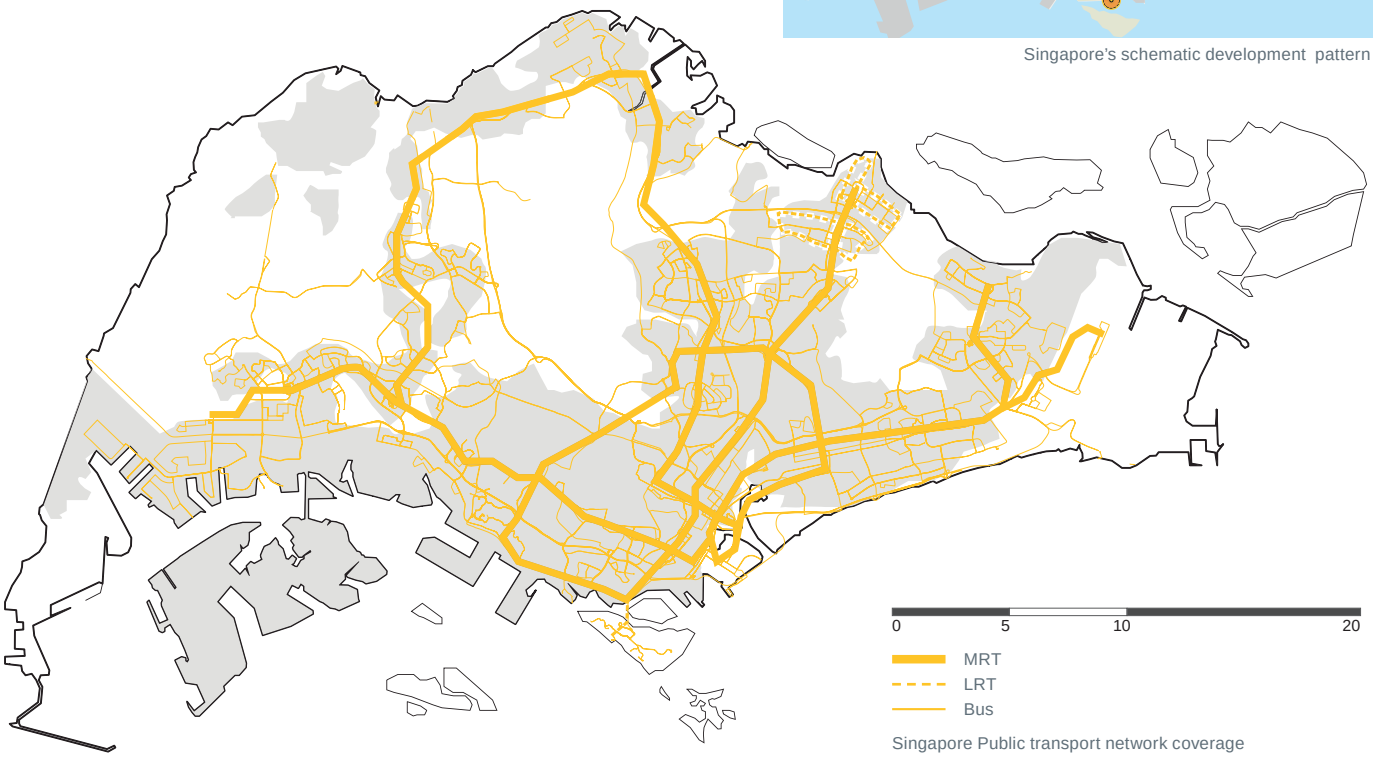
Singapore's Bus Network

Services	Daily Demand	Buses
300	3,991,000	4,600

Modal Share

Singapore	22%	29%	48%
Dar	45%	12%	43%

Singapore's schematic development pattern



Singapore Public transport network coverage

Overview

Mass Rapid Transit, a multi-modal, efficient & fast public transport network

Providing quality public transport choices has been one of the main strategies implemented in Singapore since the 1971 Concept Plan, making it a thriving city and international business hub characterised by a high standard of living. Today Singapore offers to its citizens and tourists fast connections through a highly penetrative integrated public transport system. About 5.3 million trips are made on a daily basis via public transport network and at least half of its population uses it daily.

The Mass Rapid Transit (MRT), provides speed and efficiency, especially during peak hours. The MRT is public owned, while bus and taxis are privately owned; bus services are run under the license of the Singapore government. This integrated multi-modal system has a common fare-payment mode, information platform, real-time information for transport users, motorists and cyclists. The network works without duplication of services. Integrated transfer and interchange facilities are provided, aiming to make interchange stations lifestyle hubs.

The current policy in Singapore is to service growth through partially self-sufficient towns and districts to reduce the strain on the CBD. The urban planning policy relies on effective public transport to link each new community to each other and to the city centre. 20 town centres, all served by MRT, are mixed-use and connected by the extensive pedestrian-cycling network. High-density housing, retail shops, community facilities and open spaces are typically found in all hubs. The public ownership of land is critical to the plan implementation. This empowered the state to take land for public purposes, including the development of new towns.

Singapore's Success Factors

> Perseverance and long term planning (50-year strategy)

Infrastructure, public transport and development, implemented as a long-term strategic objectives based on the overall planning, efficiency, competition, clustering and cost benefit analysis, which includes economic & social development objectives.

> Focused, dense development along transport nodes

Planed new residential centralities to coincide with the improvement and extension of the public transport system, promoting high floor area ratios at nodes.

> Policies and approaches targeted to reduce private car ownership

Determine approaches to generate high transit ridership to reduce private vehicle numbers, reduce congestion and improve average journey times.

> Support of diversification of economy through provision of varied commercial centres

Create centralities with mixed-use and commercial content to take pressure off traditional central areas and diversify the economy, all supported by public transport.

> Improve quality of life with smart open space strategy policies

Consider storm-water drainage as potential park and green space systems, and as conduits for road and utility infrastructure. Combining access, services and communications routes while retaining flood attenuation capacity.

> Private sector involvement

Encourage the role and involvement of the private sector, as it often sets the standard of efficiency and benchmarking of quality and competitiveness.

2

01. Inter-Ministerial Committee to promote integrated approach

Sustainable development is championed by the inter-ministerial task force, which was established in 2008, enabling integrated approaches across ministerial boundaries in the formulation of strategies for sustainable growth. Since 1959, Singapore has actively expropriated land for public facilities to promote city redevelopment, and catalyse new development. Today, about 90% of land is owned by the city-state. **Urban Redevelopment Authority within the Ministry of National Development** is in charge of urban planning and promotes Singapore's policy of high-density development.

02. Encouragement of usage of public transport through implementation of Certificate of Entitlement

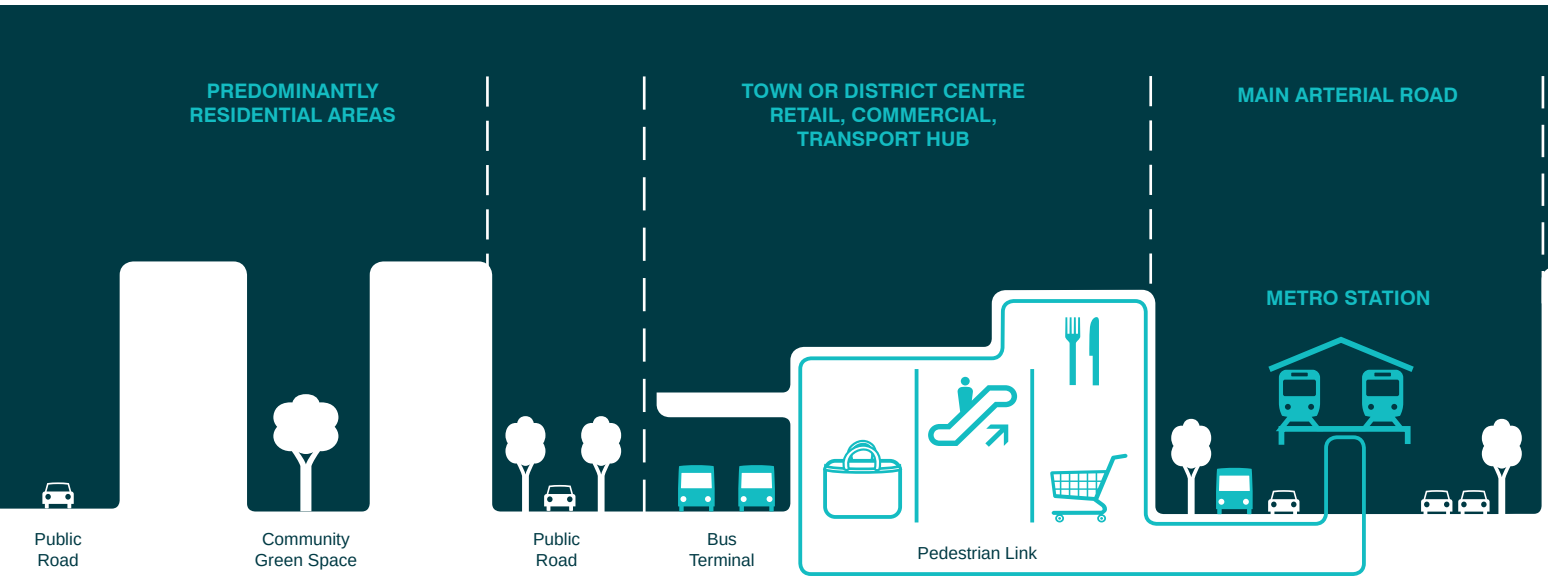
The road system and network are closely monitored, to control the vehicle growth rate, fine-tune road usage charges and improve road safety. The Electronic Road Pricing (ERP) scheme is based on electronic toll collection at toll-gates. Fares are adjusted frequently to aim for a certain traffic flow. To reduce vehicle usage, a Certificate of Entitlement (COE), costing more than $80,000 to successful bidders, is required before a car-owner can drive a vehicle in Singapore. This permits ownership of the vehicle for a period of 10 years after which the vehicle must be scrapped or another COE paid for allowing an additional 5 or 10 years of usage.

Road traffic restrictions, public transportation offer, and other mobility measures mean that 71% of trips in Singapore may be completed in less than an hour (IMCSD 2009). Traffic congestion is alleviated, and average traffic speed is maintained and unnecessary vehicular emissions avoided.

03. Walkability

The city heavily promotes walkability and other eco modes of transport. In order to improve pedestrian experience, the **Walk2Ride programme** significantly extended the sheltered walkway network to connect MRT stations to trip-generating hubs, such as schools, healthcare facilities, public amenities, offices and residential developments within 400m of the stations.

Singapore has also introduced urban design guidelines to encourage the provision of new, through-block pedestrian links and view corridors within selected developments in order to break down the scale and improve permeability of street blocks. Specific design guidelines have also been implemented on some key sites, alongside minimum widths and heights of urban blocks.



Choa Chu Kang New Town Centre - Sectional Study

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04. Quality of life delivered through environmental improvements

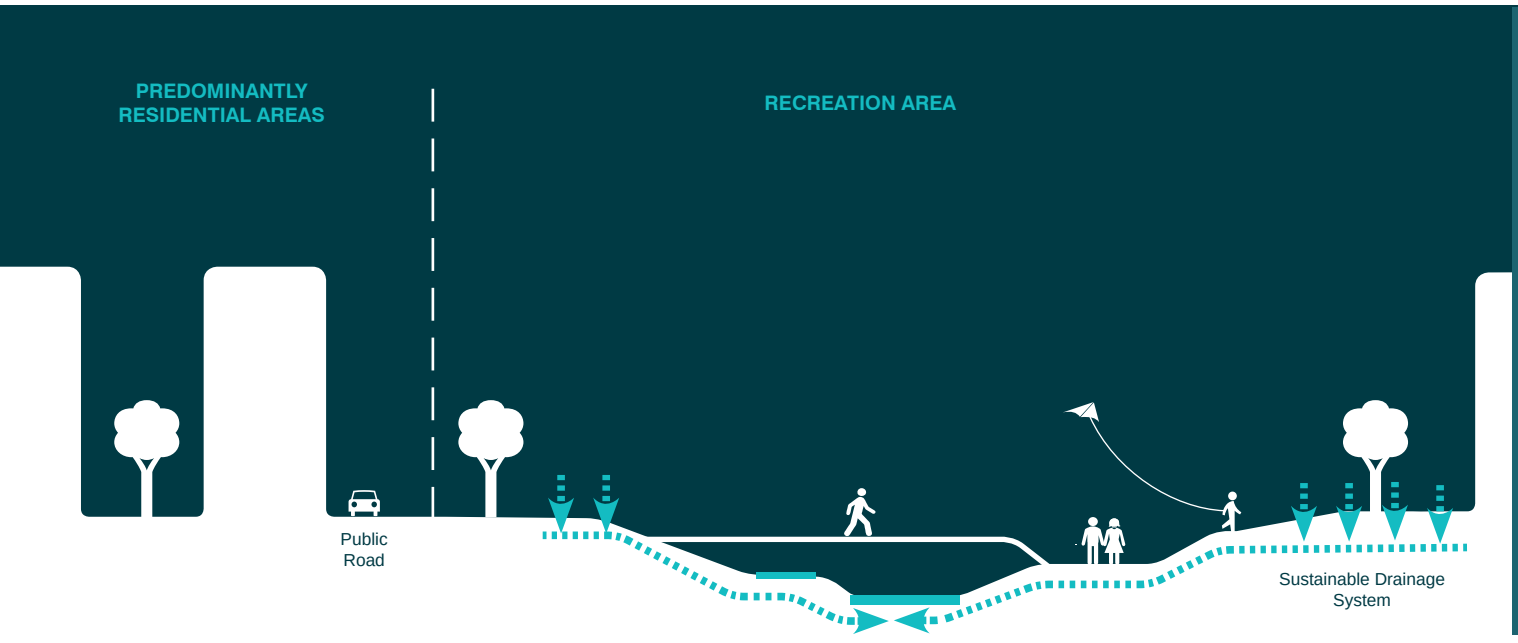
Singapore's high-density, built-up areas have enabled the preservation of open spaces, natural parks, and greenery. The city–state implemented very early sound environmental policies that would conserve its natural resources in tandem with planned economic growth. Since late 60's coordinated approach has been established aiming to address environmental pollution of the city's rivers.

Ministry of Environment became the coordinator of the action plan that was formulated jointly with the Drainage Department and involved a various ministries and government agencies, as the catchments represented 30% of Singapore's area.

Total of 46,000 squatters have been relocated, of which over **26,000 families were resettled into public housing constructed by House Development Board (HDB). Nearly 5,000 hawkers were relocated into food centres built by Ministry of the Environment and over 2,800 cottage industries were also moved, most of them into industrial estates built by the HDB and Jurong Town Corporation.**

The environmental cleaning has been estimated (2009, Tan) at cost of over S$300 million, excluding the resettlement compensations. When the costs of the river cleaning programme are compared with its benefits, it is clear that it was an excellent investment. The programme had numerous direct and indirect benefits. Since its unleash, many development related activities took place, which transformed the face of Singapore and enhanced its image as a model city in urban planning and development. The value of land and its demand along the water courses increased significantly. The process of environmental improvements was slow; Singapore paid roughly ten times the original price for delay in cleaning its rivers.

However, the environmental initiatives and achievements, illustrate the fundamental value of political drive in making a vision a reality. A sustained process of social and economic development was put in motion, focused on improvement of quality of life through stimulated urban development, while protecting the environment. Huge investment was made to attract tourism, recreation and related-business activities. Economic development along the banks of the Singapore River or construction of a mass rapid transit tunnel under the Singapore River would have been impossible if the river and its surrounding areas had remained severely polluted and congested. The entire programme left a legacy for the future generations and gave the present one a refreshing sense of achievement.



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05. Innovate infrastructure systems - sanitation innovation

Singapore is a shining light in sanitation innovation. They have pioneered a successful Deep Tunnel Sewerage System. By going deep underground, using trenchless technology, they have installed a complex sanitation system with little to no disruption to the city above. This has further allowed for a reduction in the land needed for infrastructure and unlocked parcels of land for new development that had been set aside for infrastructure provision. While this level of infrastructure investment may be out of the scope of the Dar es Salaam Phase 1 study area objectives, the use of trenchless technology and methods to disturb the current population as little as possible should be considered going forward.

Despite the watery location of the city, Singapore has been importing potable water from Malaysia. Through the introduction of the Four Taps, they hope to be fully self-sufficient and generate excess water which they can pipe to their neighbours, allowing for the infrastructure investment to be paid off both by the citizens and by selling the excess to Johor and Malaysia. The use of desalination plants and treated sewerage for additional potable water sources is an area that should be explored further for Dar es Salaam, where the current potable water supply may be insufficient and need supplementation for additional sources.

Singapore's Stamford Diversion Canal has been designed to collect and store excess storm water for reuse. There is great flexibility in the overflow system. A similar drainage system at a smaller scale could potentially mitigate the flooding that results from storm water overflow along the BRT and surrounding neighbourhoods during the rainy season.

The EXPO MRT Station © William Cho, 2011, Flickr.com, (CC BY-SA 2.0)

Central Singapore, construction of new MRT near Toa Payoh Rise © Brent 2014, Flick. com, (CC BY-ND 2.0)

2 Hong Kong

Hong Kong © Daxis, 2015, Flickr.com (CC BY-ND 2.0)

2

2 Hong Kong SAR, China

Delivering compact growth and capturing increase in land value through a unique Rail Plus Property Model

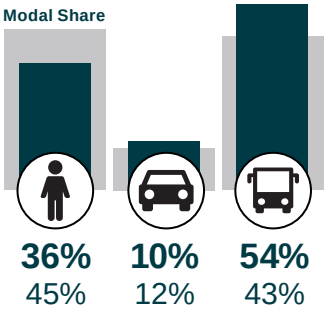
Key Data: Hong Kong & Dar es Salaam

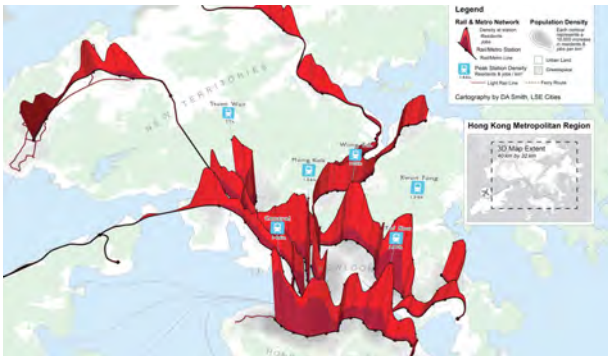
	Population	Municipal Area	Density
Hong Kong	7,374,900	2,755km²	6,544 p/km²
Dar Es Salaam	4,364,541*	1,654km²	1,133 p/km²

* Population Based on 2012 Census Data

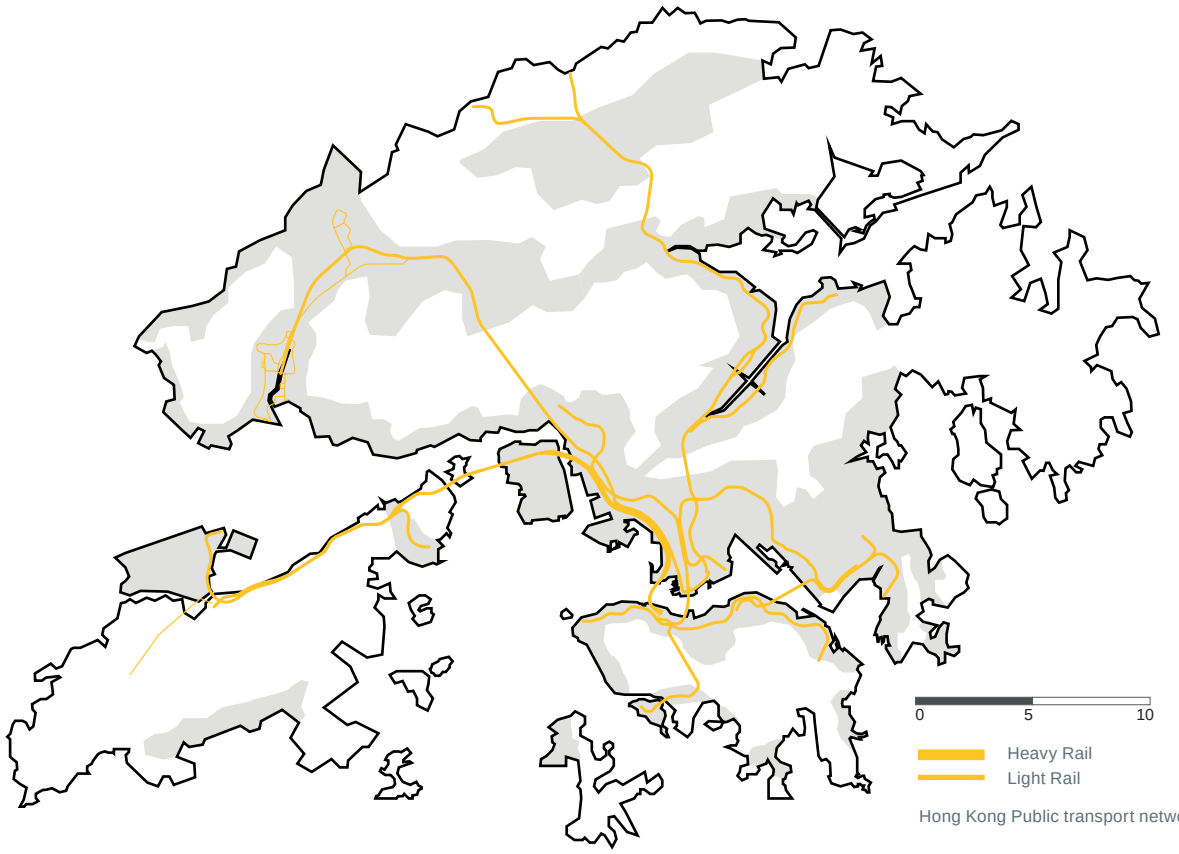
Hong Kong MRT

System Length	Stations	Daily Demand	Peak Frequency
230,9km	91 Heavy Rail Stations 69 Light Rail Stops	5,200,000	120”





Hong Kong population density along major transit routes © CityGeographic, 2012



Hong Kong Public transport network coverage

Overview

Being a highly compact city land area, Hong Kong's spatial development pattern is underpinned by the planning concept of clustering the bulk of development around mass transit railway stations to create compact growth and facilitate fast mass movement of people in an environmentally friendly way.

Hong Kong has a highly developed public transport system with buses, trams, trains a metro network and numerous ferry services. Over 90% of daily journeys (11 million) are by public transport.

Hong Kong has managed to decentralised from historic central business areas to new territories. A sizeable proportion of living quarters and commercial/office floor space are within 500m - walkable catchment of transit stations. Carefully planned open spaces and parks are integrated with the transit stations, further offered a vast majority of population to live within 400m of district parks/public open spaces and within 3km of country parks and green spaces.

The Mass Transit Rail Corporation (MRTC)
Hong Kong's underground and railway networks are owned by MTRC. In 2000, the publicly owned company was privatised and in 2007 merged with Kowloon–Canton Railway Corporation (KCRC). Capitalised at HK$222,629 million (US$ 28,600 million) in 2016; is currently 75% owned by the Hong Kong Government and now employs over 27,000 staff globally. MRTC has positioned itself as the largest provider of light-rail, tramway, and metro transportation in Hong Kong.

2

01. Sofisticated transport network

Hong Kong has one of the best public transport systems in the world. The government's Transport and Housing Bureau, headed by the Secretary for Transport and Housing, formulates policies on Hong Kong's internal and external transport, including land transport, maritime transport and logistics, and air services. The Bureau is supported by the Civil Aviation Department, the Highways Department and the Marine and the Transport Departments.

Railways are the backbone of the public transport system, and are essential to Hong Kong's continued economic, social and land development. They account for about 41% of daily public transport passenger travel and about 55% of land-based, passenger trips to the Mainland.

Hong Kong's Success Factors

>Innovative implementation and financing model

Hong Kong, adopted innovative and unconventional models of implementing and financing mass transit at city scale, through its R+P model.

> Focused design model based on "3Ds"

Hong Kong case also demonstrates how high density liveable communities could be created through capitalising on transit stations and focus on designing stations as places through 3Ds: Density, Diversity and Design.

> Continuous review of the typologies and approaches

The constant evolution and effort in planning TOD is also evident. In the last decade, MTR has evolved from developing stand-alone station and adjacent development to more comprehensive models and produced specific station typologies that promote TOD growth.

> Healthy lifestyle supported by planning and TOD policies

Special policies, station focused public realm design encouraging walking and cycling.

2

Trams have been running on Hong Kong Island since 1904. Hong Kong Tramways Limited runs seven routes on 13km of double tracks along the northern shore of city. The company's 166 trams, including two open-balcony trams for tourists and private hire and three special maintenance trams, make up the world's largest fleet of double-deck trams in operation. The tramway recorded a daily average of 180,000 passenger trips in 2015.

Franchised buses are the largest road-based carriers, accounting for 31% of the total daily public transport.

Public Light Buses (PLBs) are licensed to carry a maximum of 16 passengers each. The number of PLBs has been capped at 4,350 since 1976. They together provide about 1.86 million passenger trips per day.

02. MTR a trusted development partner to the government

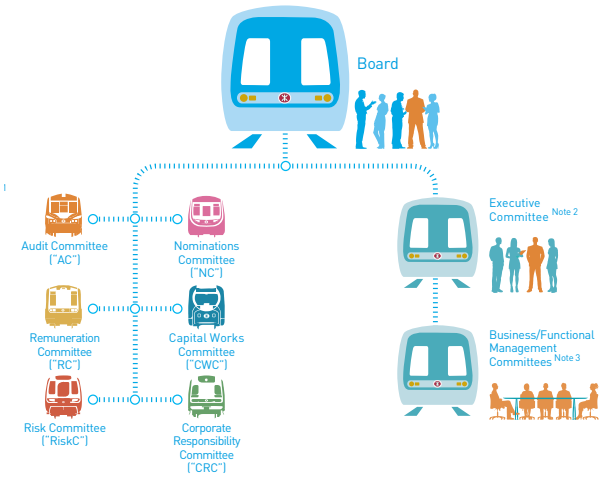
Although long-established and, in some ways, one of the most advanced approaches to land value capture, the Hong Kong approach avoids the need to develop new taxes or to seek to capture infrastructure benefits from the business community or public from special taxes. The government benefits repeatedly from the success of the corporation's development activities, by acting as a development partner to the government.

The provision of new infrastructure increases the value of assets and so potential to improve tax revenue. In Hong Kong this includes: personal property tax (for individual landlords), stamp duty on transactions and rates – a tax played to central government by all commercial and residential occupiers based on the value of the premises.

- The government is a 75% shareholder in the MTR Corporation and benefits from the dividends paid by the company
- The MTR Corporation pays the government the usual business taxes
- The MTR corporation uses the profits made from property development obviate the need to borrow to invest in further developing the transport infrastructure.

MRT's governance structure and risk management

MTR's governance is sophisticated and includes high-level government involvement. The non-executive directors include: Secretary for Financial Services and the Treasury, Secretary for Transport and Housing, Permanent Secretary for Development (Works), Commissioner for Transport. Risk management within the company is highly evolved and is subject to a continuous improvement.



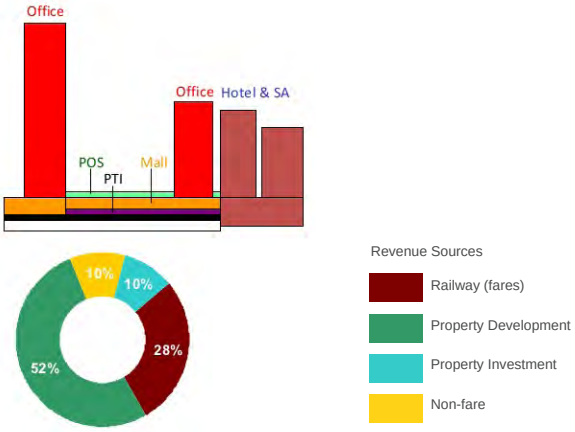
MTR Governance © MTR Annual Report, 2016

03. Smart phasing of infrastructure

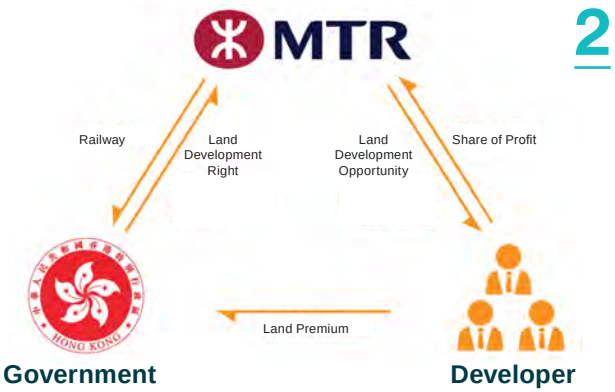
The Hong Kong idea of a separate masterplan for each of the 16 identified sewer catchments is one that allows for phased infrastructure investments. The infrastructure network and treatment upgrades can be achieved by focusing on each individual area and meeting the specific needs of that area's type and zoning. The 16 Sewer Masterplans promote the use of new technologies, such as pipe jacking/microtunneling, tunnel boring, and trenchless pipe repair. These modern techniques have the potential to help Dar es Salaam reduce the infrastructure spend on existing networks, leaving the potential networks with the funding to be realised.

04. Integration of transit and land use planning

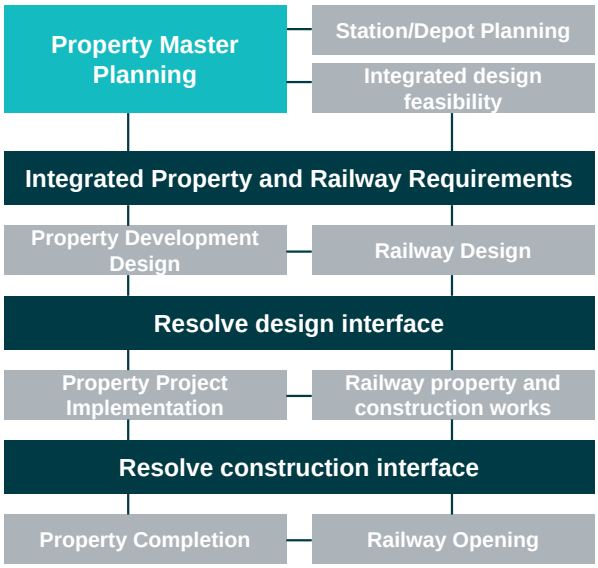
While many properties are high-rise towers above MTR station podiums, the R+P model is not a "cookie-cutter" approach to making the cityscape transit supportive. MTR as a Master Developer plays special attention towards the development parameters such as area size, building densities, floor uses and site designs, working closely with the developer, community and the urban planning authorities. FAR of at least 4.0 is generally viewed as necessary if R+P model is to be financially viable, however MTR actual site coordination remains flexible and encourages good placemaking and design through specific rail typologies.



Typical R+P station typology model and revenue share of MTR



MTR Rail Plus Property Mechanism model



Typical Implementation flow Diagram for R+P

05. Development density

Hong Kong is one of the most densely inhabited places on earth. Whilst its population density over the city averages almost 7,000 people per square kilometre, this varies greatly, and includes some peaks of over 50,000 people per square kilometre, in Kwun Tong district, for example. Residential densities in the most dense areas, such us Kowloon, are as high as 1,700 dwellings per hectare. To some extend those densities are possible due to the efficient, mass public transport system.

High densiy neighbourhoods in Hong Kong
Overlooking Hong Kong Island north coast, Victoria Harbour and Kowloon from middle section © Wikimedia.org

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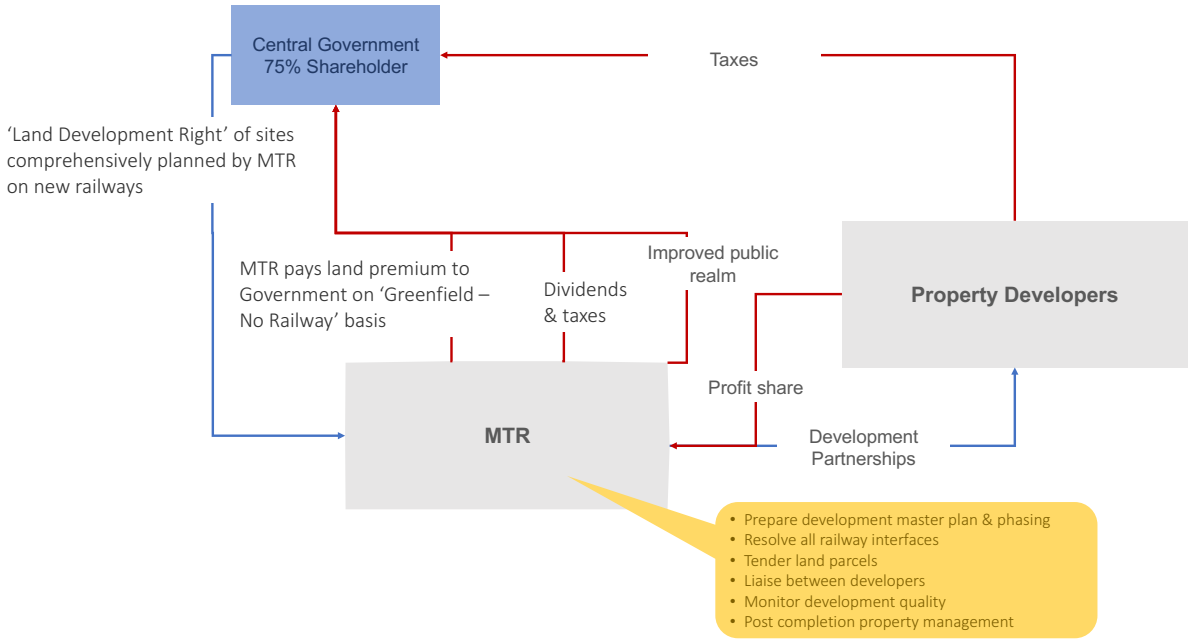
06. Unique Rail + Property Model

Rail Plus Property (R+P) development is a core part of MTR Corporation's business model, capturing real estate income to finance the capital and running costs of new railways through public-private partnerships.

Under the R+P program, the government grants exclusive development rights to developers on land plots of station through MTR. MTRC ensure seamless design of stations with adjacent or above station land uses fully integrated facilitating a compact liveable density. The property sales and rental profits cover capital investments of the railways and fare incomes covers the operating costs.



The diagram above summarises the approach to Rail Plus Property Model.

07. Land and Property Taxes and Revenue Distribution

Property taxation in Hong Kong is highly organised and is still similar to the British systems on which it was based. The primary property tax is Rates. This is based on a regular valuation of all property, commercial or residential. All occupiers are normally subject to rates. Rating assessments and collection are a function of central government. Stamp Duty is paid on the sale of properties – there is a sliding scale of charges depending on the value of the asset. Stamp duty is also payable on a new lease, the amount depending on the term of the lease and the rent payable. Individuals who let or sub-let property are also subject to property taxes.

Tax enforcement

Hong Kong has very efficient and effective property taxation. This is underpinned by: central control over all taxation, regular assessment and valuation of all property in the territory and an absence of informal property ownership.

Revenue redistribution

Revenue receipts and distribution in Hong Kong are transparent and can be found in the Hong Kong Annual Digest of Statistics. The receipt and distribution of revenues for MTR is also transparent and clearly reported in the annual report and accounts.

Government Land

Government land is usually disposed of through public land sale for private residential, commercial and other developments. In 2015, 17 residential sites, five commercial/business sites, one industrial site and two petrol stations, covering a total area of about 20.92 hectares, were sold for about $44.88 billion.

For leased land, lessees (commonly known as 'private landowners') may change the terms of their leases so as to, for instance, redevelop based on the prevailing town plan. In 2015, 121 lease modification and land exchange transactions were concluded, involving an area of about 288.19 hectares and land premiums amounting to about $5.88 billion.

08. Real estate market

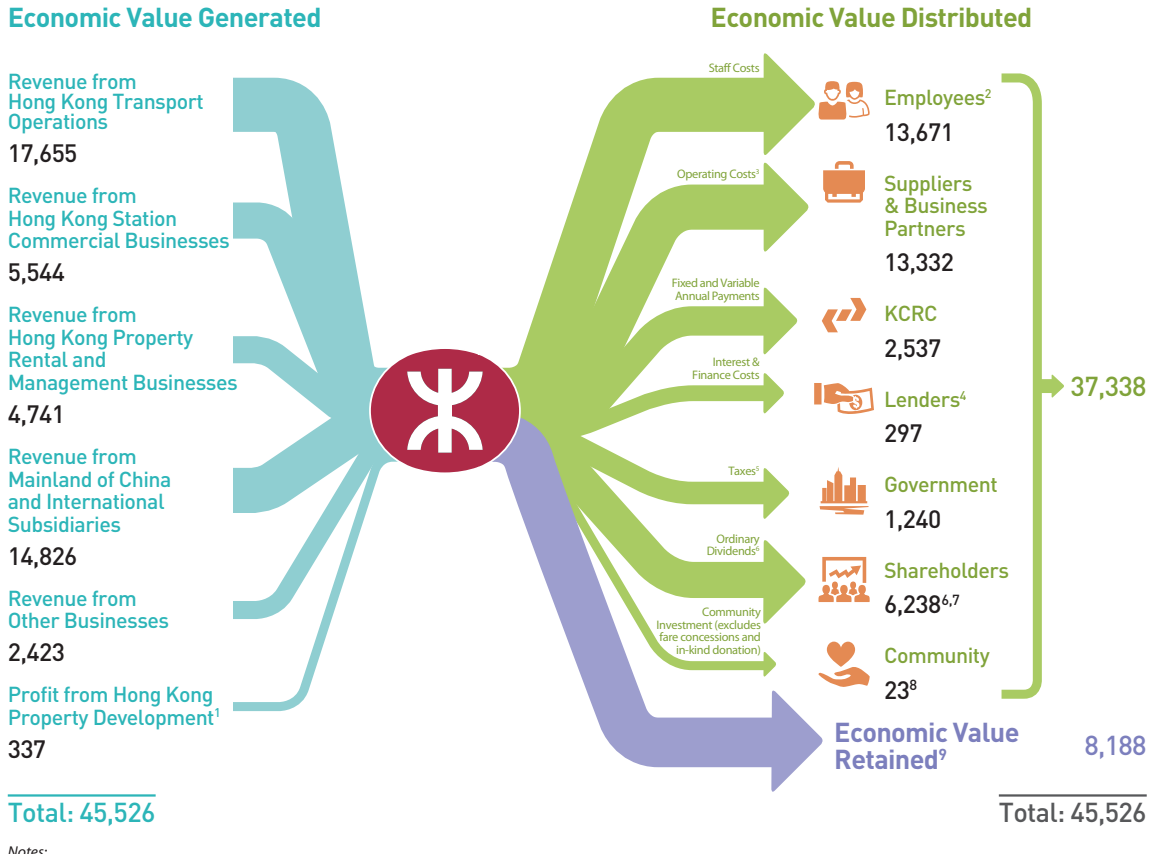
2

Hong Kong is one of the world's largest and most mature property markets. It saw around US$10.4 billion of direct property investment in 2016.

There is growth in the provision of office space, but it remains at a sustainable level at around 5% of overall stock in the development pipeline.

Hong Kong's Commercial property market has rental growth rising at over 9% per annum and a very low vacancy rate at around 4.5%. These strong indicators together with careful management of land supply by the government, and the strength of financial institutions, point to the territory remaining one of the strongest property markets in the world.

Value Added And Distribution Statement In 2016 (HK$ million)



Value added and distribution statement in 2016 (HK$ million)

2

09. R+P station typologies

The evolution of R+P station typologies highlights how MTRC's objectives of land value capture has shifted from supplemental finance on small and simple residential uses in towers in limited land plots, towards sustainable finance and urbanism with large and complex packages.

MTRC has constantly reviewed the physical TOD typologies and followed simple parameters to ensure a successful, viable and vibrant rail station and precincts.

Three TOD principles, as an assessment tool, so called **'3Ds'**, has been used:

Hong Kong Stytion Typologies in summary, including station examples:

Type 1 - MR
Mid Rise Residential (MR)
Medium density, predominantly housing projects on medium size plots.

Type 2 - LR
Large Scale Residential (LR)
Predominantly residential uses on large sites comparatively low plot ratios.

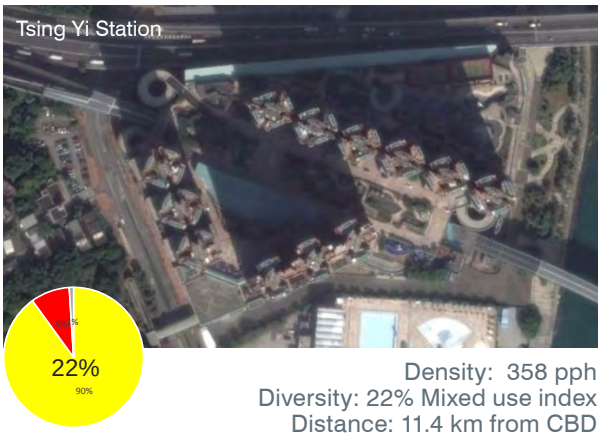
Type 3 - HO
High Rise Office (HO)
High rise, predominantly office uses on small sites.

Type 4 - LM
Large Scale mixed use (LM)
Mixture of housing, offices, retail, hotels and others on large sites with medium plot ratios.

Type 5 - HR
High Rise Residential (HR)
High rise, predominantly residential uses on small sites.

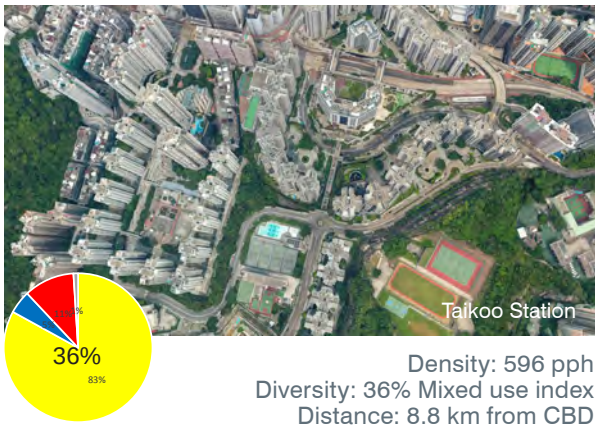
Aerial photographs of selected Station Types © Google Earth:

Type 1 Mid Rise Residential (MR)



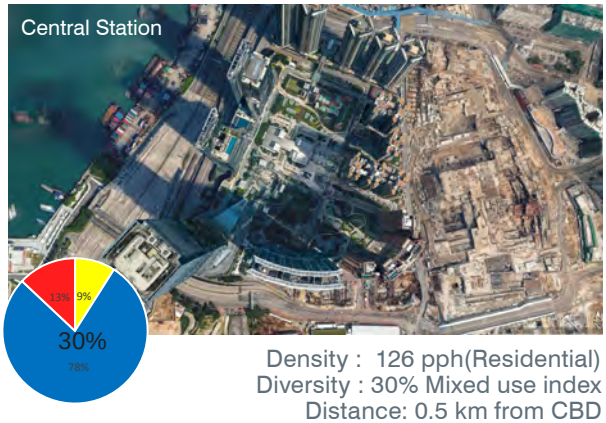
Density: 358 pph
Diversity: 22% Mixed use index
Distance: 11.4 km from CBD

Type 2 Large Scale Residential (LR)



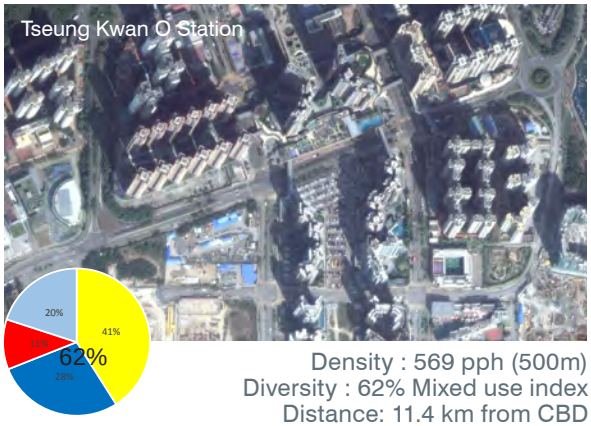
Density: 596 pph
Diversity: 36% Mixed use index
Distance: 8.8 km from CBD

Type 3 High Rise Office (HO)



Density : 126 pph(Residential)
Diversity : 30% Mixed use index
Distance: 0.5 km from CBD

Type 4 Large Scale Mixed use (LM)



Density : 569 pph (500m)
Diversity : 62% Mixed use index
Distance: 11.4 km from CBD

10. Alignment of public bodies

Planning in Hong Kong is centralised under the Hong Kong Government. The Planning and Lands Branch of the Development Bureau oversees the policy portfolios of planning, land use, buildings and urban renewal in the territory. The planning system oversees development strategies at the territorial level and various plans at the district/local level. The Hong Kong Planning Standards and Guidelines provide the criteria for determining the scale, location and site requirements of various land uses and facilities. These are reviewed from time to time to take account of changes in government policies, demographic characteristics, and social and economic trends.

There is a need to increase land supply to support Hong Kong's sustainable development. The government has a multi-pronged strategy to increase land supply in the short, medium and long term, by:

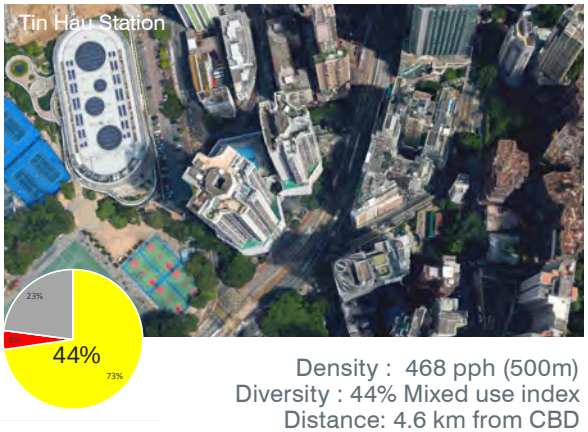
- increasing development intensity of developable land
- changing use of existing land and converting reserved sites
- facilitating/expediting development/ redevelopment on existing land
- taking forward major land development projects, mainly by taking forward planning and engineering studies and works for comprehensive development of new areas and new town extensions
- exploring new sources of developable land/space.

The Railway Development Strategy 2014 provides good evidence of a totally integrated approach to the planning and transport across the territory. Although there is record of public consultation regarding planning proposals, it is clear that there is a centrally controlled approach to the integrated land and that transport planning.

Conflicts of interest

The high value of land in Hong Kong, coupled with prevalence of rich and powerful property developers and a pivotal role for government officials, has at times led to corruption. Since the 1970s the Independent Commission Against Corruption (ICAC) – has been responsible for monitoring and weeding out corrupt practices, with many examples of executed powers resulting in arrests and imprisonment of guilty individuals.

Type 5 High Rise Residential (HR)



Density : 468 pph (500m)
Diversity : 44% Mixed use index
Distance: 4.6 km from CBD

Density: High Development Density Intensive and efficient land use within the station walk-in catchment area.

Diversity: Land use diversity to enhance the life and vibrancy of the community.

Design: High quality community design offering seamless connection and interchange, segregation of pedestrian and vehicular traffic and open spaces.

2 London

London © Davide D'Amico 2014, Flickr.com (CC BY-SA 2.0)

2

2 London, UK

Sophisticated public transport system; inventive delivery models for complex, large, inner-city regeneration schemes.

Key Data: London & Dar es Salaam

	Population	Municipal Area	Density
London	8,673,713	1,572km²	5,518 p/km²
Dar Es Salaam	4,364,541*	1,654km²	1,133 p/km²

* Population Based on 2012 Census Data

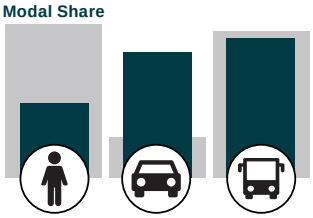
London Underground

System Length	Stations	Daily Demand	Peak Frequency
402 km	270 Stations	4,800,000	106”

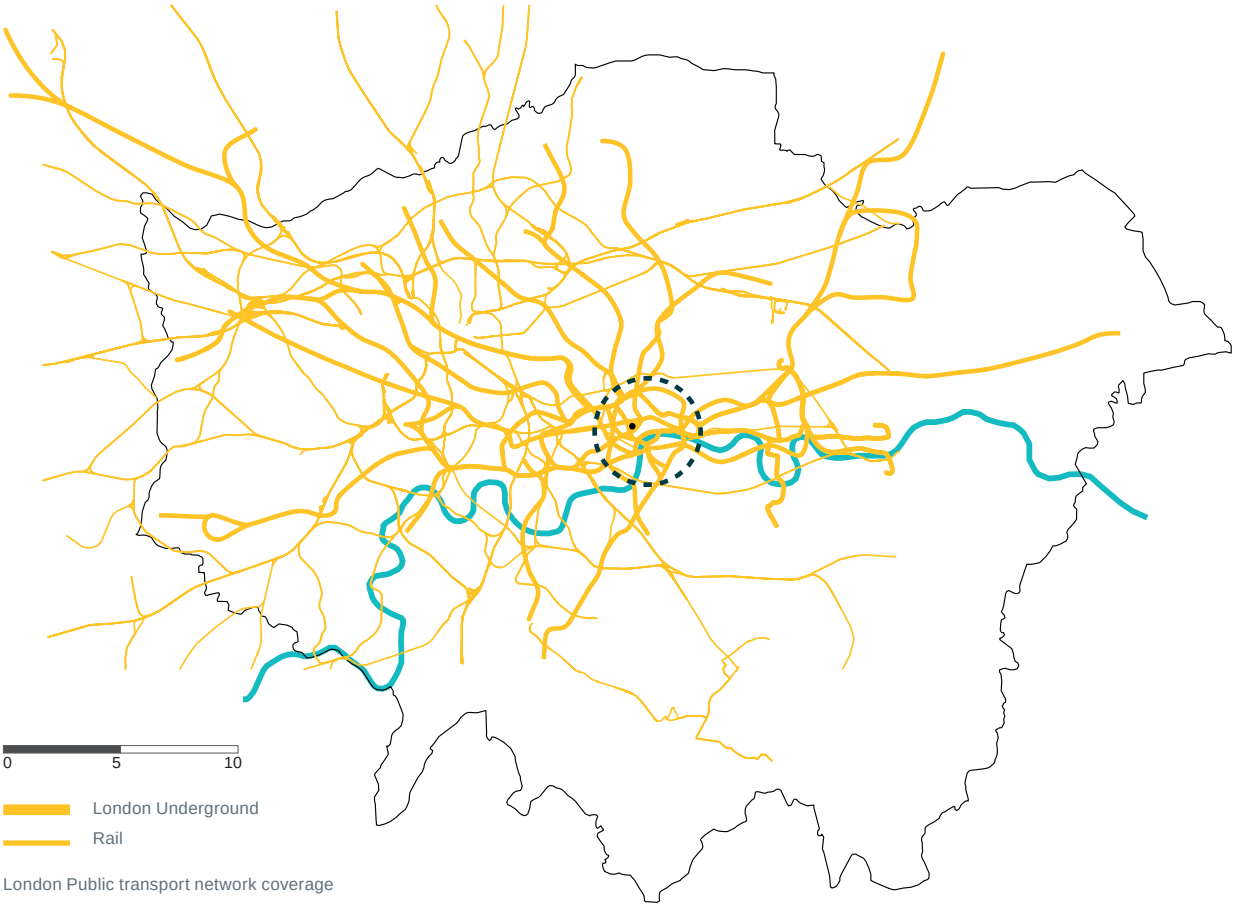
London Buses

Services	Daily Demand	Stops
673	6,000,000	19,000

Modal Share



	22%	37%	41%
Dar	45%	12%	43%



London Public transport network coverage

Overview

London has a resident population of around 8.7 million within the city limits and a wider catchment area extending into the South-East region, home to another 8.7 million. London is the administrative centre of the UK with a strong diverse employment base dominated by financial services and media and tech companies.

London is managed under two tiers of local government. The Mayor for London is a directly elected leader of the City who leads an Assembly of 25 elected representatives. The Mayor's office through the Greater London Authority (GLA) takes responsibly for strategic matters in the city including strategic planning and transport. The Mayor's office becomes involved where there are plans for developments that cross the boundaries of the smaller local authorities within the capital.

The second tier of local government is made up of 33 boroughs. These are governed by elected councillors. The boroughs include "The City of Westminster" and "The City of London" the two neighbouring political and trading centres from which London grew. The boroughs are responsible for a range of public services including, education, local social services.

Public Transport Network

Public transport within London is run by Transport for London (TfL) and falls under the ultimate responsibility for the Mayor for London. In 2015-16, TfL had a budget of £11.5 billion, 40% of which come from fares. The rest comes from government funding (23%), borrowing (20%), other income (9%) and Crossrail funding (8%). TfL has responsibility for London's network of principal road routes, for various rail networks including the London Underground, London Overground, Docklands Light Railway and TfL Rail, London's trams, buses and taxis, cycling provision, and river services. The underlying services are provided by a mixture of wholly owned subsidiary companies (principally London Underground), by private sector franchisees (the remaining rail services, trams and most buses) and by licensees (some buses, taxis and river services). TfL is also responsible, jointly with the national Department for Transport (DfT), for commissioning the construction of the new Crossrail line, and will be responsible for franchising its operation once completed.

London's transport network is not comparable to Dar es Salaam's. It is well-developed, multi-modal and covers the entire city.

London's Success Factors

Kings Cross Development - a good benchmark for complex TOD regeneration scheme:

> Creation of effective JV, uniting variety of land owners under one delivery vehicle

In 2008, Argent, London & Continental Railways and DHL formed a joint partnership: Kings Cross Central Limited Partnership. The importance of partnership and the early and ongoing involvement of a wide range of stakeholders was crucial not only to the successful delivery of the project, but also in building support and creating a sense of ownership in the wider community.

> Use of public realm as a regenerative tool

People's perception of King's Cross is greatly influenced by their experience of the public realm. High-quality spaces that capitalise on the site's heritage and setting, create added value for the entire site. Pedestrian connectivity to the transport hub lies at the core of the scheme.

> High density and varied land use

The fundamental principle of TOD has been exquisitely delivered in this scheme.

2 Recent major transport improvement commitment - the Crossrail

The £14.8 billion Crossrail project is currently Europe's largest infrastructure project. Originally proposed in 1948 this complex project has taken a while to be approved, funded and delivered. Construction began in 2009 and due to be completed in 2018 year.

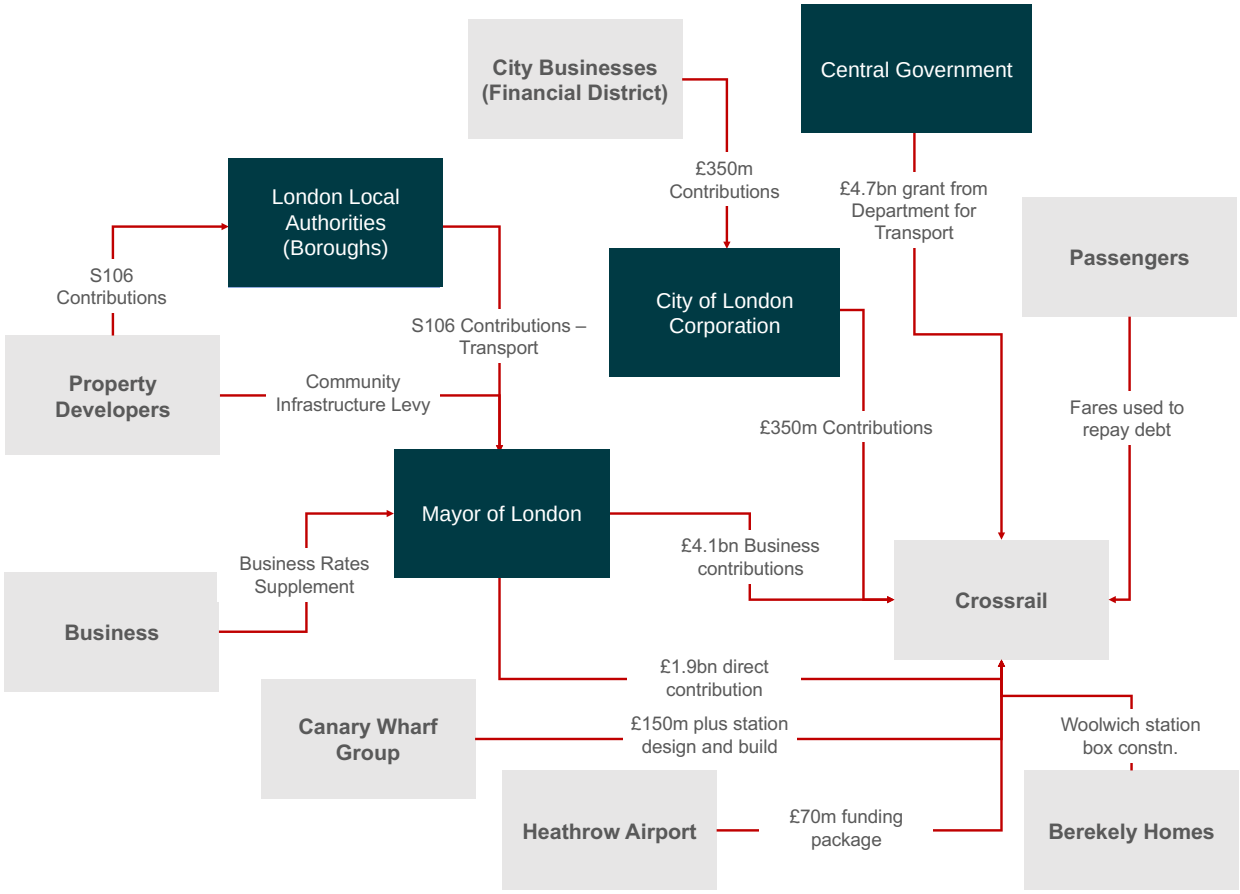
The line will run from Reading and Heathrow in the West, through 42km of new tunnels under London to Shenfield and Abbey Wood in the East. The project is building 10 new stations and upgrading 30 more, while integrating new and existing infrastructure. Trains will carry an estimated 200 million passengers per year. The new service will speed up journey times, increase central London's rail capacity by 10% and bring an extra 1.5 million people to central London.

01. Multi-layered funding model

When it came to funding, Crossrail posed a challenge to both national and local government. London needed additional infrastructure, to cope with growth in business and population, but no single entity could deliver the funding required. The solution, is a mixture of central and local government funding, new taxes, contributions from businesses, and in part from Land Value Capture.

The funding framework for Crossrail was put in place in October 2007 by the Prime Minister. Following the Comprehensive Spending Review in October 2010, a funding envelope of £14.8bn was agreed. The Mayor of London, through Transport for London (TfL) and the Greater London Authority (GLA), has contributed £7.1bn, this included a direct contribution from TfL of £1.9bn and contributions raised through the Crossrail Business Rate Supplement (BRS), section 106 and the Community Infrastructure Levy (CIL).

Crossrail Sources of Funding



02. Section 106 - "developer contributions"

Planning obligations under Section 106 of the Town and Country Planning Act 1990 (as amended), commonly known as **S106 agreements**, are a mechanism which make a development proposal acceptable in planning terms, that would not otherwise be acceptable. They are focused on site specific mitigation of the impact of development. S106 agreements are often referred to as 'developer contributions'.

There is little consistency in the way S106 agreements are applied across the country. Developers find the process of negotiating the agreements expensive and frustrating. Planning authorities are seen by some as imposing whatever they can get away with. There can be a lack of transparency, as to how money raised is later spent by the planning authority.

The common uses of planning obligations are to secure affordable housing, and to specify the type and timing of this housing; and to secure financial contributions to provide infrastructure or affordable housing. However, these are not the only uses for a S106 obligation. A S106 obligation can:

- restrict the development or use of the land in any specified way
- require specified operations or activities to be carried out in, on, under or over the land
- require the land to be used in any specified way
- require a sum or sums to be paid to the authority (or, to the Greater London Authority) on a specified date or dates or periodically.

A planning obligation can be subject to conditions, it can specify restrictions definitely or indefinitely, and in terms of payments the timing of these can be specified in the obligation. If the S106 is not complied with, it is enforceable against the person who entered into the obligation and any subsequent owner. The S106 can be enforced by injunction. In case of a breach of the obligation the authority can take direct action and recover expenses.

Development Type	Threshold	S106 Obligation
Mayoral Crossrail S106	500m² GIA Office Retail Hotel	£140 per m² net increase £90 per m² net increase £61 per m² net increase
Affordable Housing (Commercial development)	500m²	£20 per m² net increase
Affordable Housing (Residential development)	10 or more units	£165,000 per unit Off-Site OR 30% Provision On-Site
Local training, skills and job brokerage	500m² GIA (commercial) 10 units or more (Residential)	£3 per m² net increase
Carbon Offsetting	35% improvement in CO^2 emissions over 2013 Building Regulations	£60 per tonne of carbon to be offset over a 30-year period

The table give examples of the S106 contributions currently expected in boroughs of London.

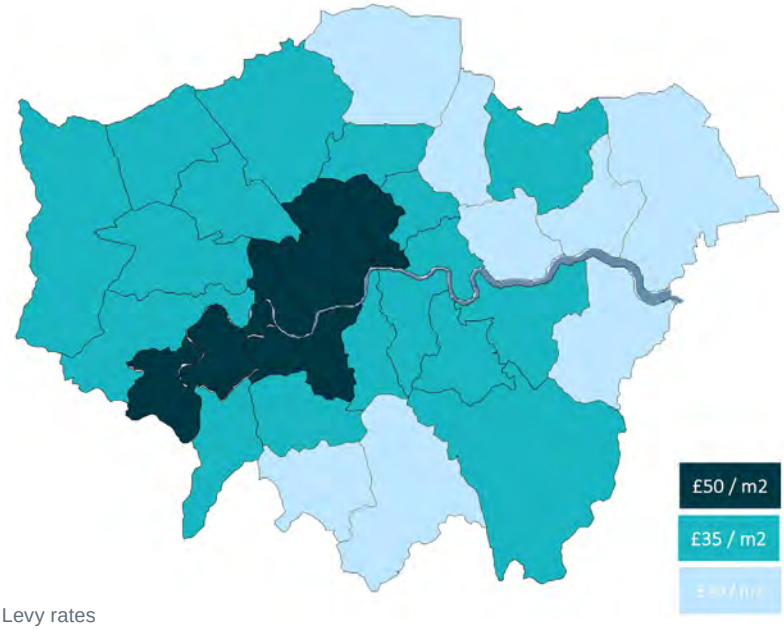
2

03. Community Infrastructure Levy and Mayoral Community Infrastructure Levy

The Community Infrastructure Levy came into force on 6 April 2010. It was intended to help deliver infrastructure to support the development of an area. As a land value capture mechanism it is crude – the levy does not attempt to anticipate the benefit a developer might gain from specific investment in infrastructure and as such can be seen as an additional property tax. The counter argument is that its very simplicity makes it impossible for developers to benefit from "gaming" the system and under-represent the value of developments to maximise their returns.

The Mayoral Community Infrastructure Levy was introduced in specifically to finance Crossrail. The levy per m^2 of commercial developments varies across London, as illustrated on the map below. Developments in more central, more valuable, areas are charged at a higher rate.

The table adjacent, again from the City of London illustrates the combined impact of the Community Infrastructure Levy and the Mayoral Community Infrastructure Levy at the centre of the capital.



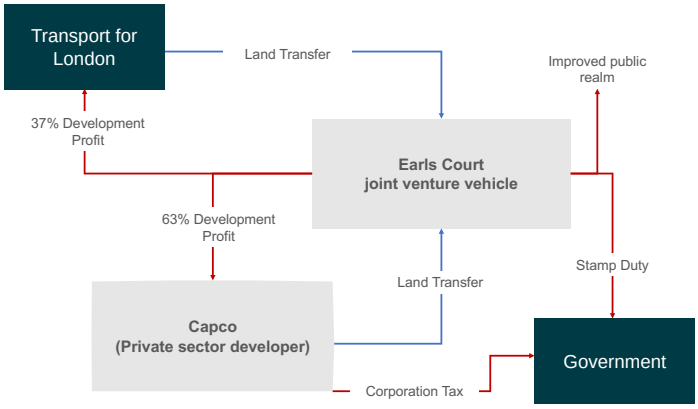
Greater London Mayoral Community Infrastructure Levy rates

Offices	City-wide	£75	£50
Residential	Riverside	£150	£50
Residential	Rest of City	£95	£50
Development used wholly or mainly for the provision of medical or health services, except the use of premises attached to the residence of the consultant or practitioner	City-wide	Nil	Nil
Development used wholly or mainly for the provision of education as a school or college under the Education Acts or as an institution of higher education	City-wide	Nil	Nil
Development used wholly or mainly for the operational purposes of the emergency services	City-wide	Nil	Nil
All other uses	City-wide	£75	£50

2

04. Property Development Joint Ventures

Crossrail and TFL have, where they can, been using development joint ventures to share in the uplift in property values. The example shown below is from a JV between TfL and the developer Capco at Earls Court in West London. The £1.1bn scheme will provide 7,500 new homes and 7.5 acres of green space. As well as the S106 contributions, 1,500 affordable homes, improvements to local tube stations and bus services plus investment in cycle hire hubs, parking spaces and lanes, new local amenities including a new primary school, community centre, leisure centre, health centre, cultural space and money towards a cultural fund for the area. The opposite diagram summarises the structure.



An Example of JV: Earls Court Joint Venture Structure

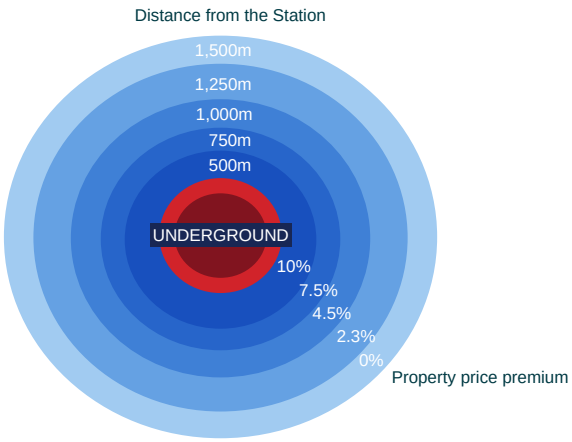
Criticisms of Land Value Capture in London

TsL's Land Value Capture Final Report (February 2017) gives a good account of the pros and cons for the systems used in the UK. The report summarises current weaknesses:

"In essence, the planning policy on affordable housing and other developer contributions consistently fails to be enforced due to the information asymmetry between the local planning authority and the developers. At the heart of the problem lies the process of viability assessment, which determines the level of affordable housing provision and other contributions that the developer can afford to make without making their development unviable."
(Guardian, 2015)

Whilst there is good evidence of the relationship between transport infrastructure and the value of property (see diagram) and the impact of new infrastructure on land and property values, the mechanisms for Land Value Capture in London have been complicated yet at the same time crude.

The capital suffers from lack of alignment of planning policy, and too numerous and over-complicated revenue raising approaches. This has resulted in very significant delays and huge costs associated with legal and professional advice. We can learn from this and focus on the simple elements that work or could work: joint-venture developments and development rights auctions.



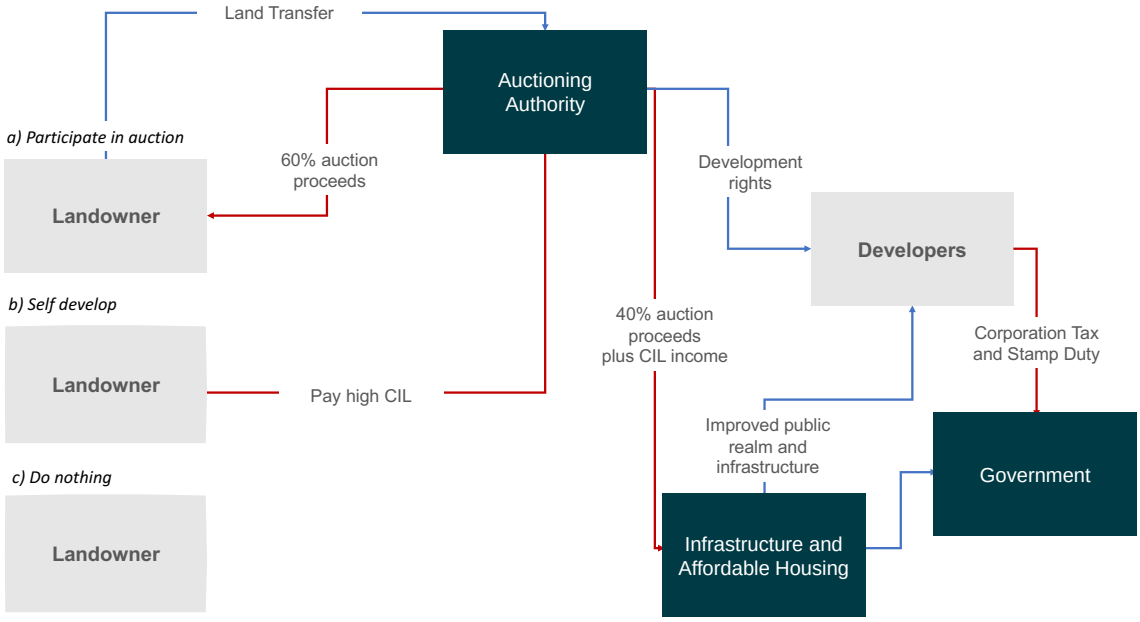
Property price premiums for proximity to tube stations (2014, Nationwide Building Society)

2

The report proposes that current approaches do not effectively capture the uplift in land value resulting from investment in infrastructure. Too much of various forms of property taxation go to central government and so are not available to spend where they are raised and that there is room for a fare and transparent additional tax that relates directly to uplift in land and property values.

Furthermore, the report proposes that the planning gain system (S106 Agreements) should be revised and a Development Rights Auction Model (DRAM) introduced to ensure that Land Value Capture operates on an open market basis. Finally, they propose that there should be reforms to the way that compulsory purchase of strategic sites works to ensure that landowners are fairly compensated.

Development Rights Auction Model (DRAM) and CIL in London – a proposal



05. Governance models, planning and development controls

The governance and legal system in London has some initial similarities to Dar es Salaam. In both countries the legal system is one of common law. Both cities are hierarchical with a city-wide authority responsible for strategic matters and boroughs (or municipalities) responsible for the day-to-day running of the area. Central Government tends to keep out of the running of the London save for matters deemed to be of national importance. So, for example, the decision over the future of London's main airport is now being taken at a national level.

Since the introduction of an elected Mayor for London in 2000 there has been clearer focus on the development of strategic plans. At the same time TfL has taken a more strategic role in coordinating all forms of transport within the city. Both these strategic roles continue to evolve.

By contrast, recently established, Dar es Salaam City Council has yet to develop such clear roles as the GLA does in London. It appears to lack authority over the municipalities, does not yet have an effective strategic plan in place and has yet to coordinate the transport planning and urban development at a strategic level.

Planning & Development Controls - achievements and challenges

The UK has a long history of a highly-developed town and country planning. The concept of "Green Belts" has curtailed urban sprawl and promoted the densification of cities. At the same time, careful development controls have protected historic buildings and ensured that the public realm is protected. In more recent years innovations such as S106 agreements have ensured that developers make contributions to the improvement of the local area in return for the right to develop.

However, the planning regulations, development controls and building regulations combined, make any urban development complex and expensive. Recent government have responded to demands by the property and construction industry to simplify the system by loosening controls. Local government, responsible for enforcing the regulations has come under immense pressure. The conflicting demands of developers, conservationists and environmental activists have put great pressure on planning departments. Planning cases can be lengthy, costly and often end in court. At the same time funding to local government has become more constrained. The cost of maintaining large teams of experienced planners in now beyond the reach of some authorities. This has led to an asymmetry in the system with developers able to fund teams of professional advisers and lawyers who can out-manoeuvre local

06. Complex land and property taxes

The UK has extensive land and property taxes.

Business Rates and Council Tax

All commercial and property in the country is valued for the purposes of taxation. Commercial property is subject to business rates, payable by the occupier and based on the value of the assets. Commercial properties in London have just been re-valued and this is leading to significant increases in the rates payable. Occupiers of residential properties pay Council Tax, also based on the value of the property. The last re-valuation of residential property in London was in 1991. The infrequent valuation of property (to save money) has led to many anomalies as the market has changed over the years. Both forms of taxation are unpopular because of the lack of transparency of the underlying valuations.

Councils retain around half of business rates the remainder going to central government for re-distribution. On average Council Tax contributes about 25% of local government revenue.

Stamp Duty

Stamp duty is payable on land and property transactions for freeholds and leases on a sliding scale depending on the use and value of the asset.

Capital Gains Tax

Individuals who gain from the disposal of assets (other than their primary residence) are subject to Capital Gains Tax.

Corporation Tax

Companies that profit from the sale of assets will pay Corporation Tax on those profits.

Death Duty

Anyone who inherits may, subject to allowances, be liable to pay death duty on the value of the total estate including land and property.

Tax Enforcement

Tax enforcement in the UK is generally good. There is, however, growing concern that property assets, particularly in London are held by companies registered in off-shore tax havens. Around 40,000 properties in the capital are held in such companies.

Revenue Redistribution

The distribution of revenues from Land Value Capture in London can be murky – particularly in relation to funds held from S106 payments and from contributions made in kind under S106. Proposed improvements to Land Value Capture in London would help this government.

2 07. Spcial Delivery Vehicles for Significant Schemes

There is a long history of conflict between the Boroughs in London, The City Authority (currently the GLA) and Central Government. The power to make decisions is shared across these bodies and major infrastructure and development decisions are by their very nature politically sensitive. In many cases significant schemes have been taken out of local (even London) control to overcome conflicts of interest:

Between 1981 and 1994 the Docklands area of East London was taken out of local government control and put in the hands of the **London Docklands Development Corporation (LDDC)**. This body was responsible for planning and developing 22km^2 of this largely run-down industrial area. The successful regeneration included the development of Canary Wharf, construction of new roads and the improvement of public transport with the Docklands Light Railway and the Jubilee Line Extension (Underground).

Olympic Park

When London won the competition to host the 2012 Olympics it had offered a sustainable development and urban regeneration in a run-down area of London on a tight budget. The delivery would require strategic investment in transport infrastructure, purchase of myriad small plots of land and the decontamination of extensive areas on polluted land. The local authorities in the area were seen to lack the experience and capacity to deliver the project requiring joined-up approach. The **Olympic Delivery Authority (ODA)** was set up in 2005 and was responsible for the delivery of the infrastructure required for the Olympic and Paralympic Games. Following the conclusion of the events, the authority took on the role of adapting the Olympic Park with the construction of new facilities and venues, as well as the removal of the temporary venues used during the Games. The area is now managed by the **London Legacy Corporation**. It is responsible for delivering one of the most important Olympic legacy promises made in the original London 2012 Games bid. This pledge concerns the physical legacy of the Games – the long-term planning, development, management and maintenance of the Park and its impact on the surrounding area after the London 2012 Games. This corporation reports to the Mayor for London.

King's Cross
A Major Story of TOD Success

Historically, Kings Cross land was part of a large industrial area of the city, but by the late 20th century it had deteriorated into disused buildings, railway sidings, warehouses, and contaminated land. Regeneration was debated but it was not until the site became an integral part of High Speed 1 (HS1) development and key interchange within inner city London.

Diversity of Land Uses

Around 27 hectares of the land was planned to contain more than 1,900 homes, 23 new and refurbished office buildings, 47,000m^2 of

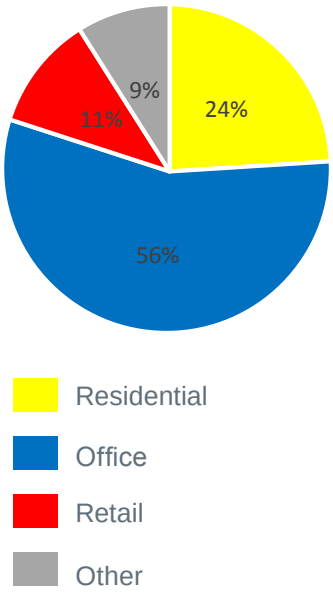
Kings Cross Station © James Lewis, Flickr.com 2012, (CC BY-ND 2.0)

shops and restaurants, 20 new streets, and 10 major new public spaces for a projected 45,000 people. While the majority of private floor space is allocated to business and commercial uses, more than 40 percent of the redeveloped former brownfield site is used for public purposes, open spaces and including redevelopment of 20 historic buildings will be restored for modern use.

Financing through Section 106 Agreement

The Section 106 Agreement package includes cash and in-kind contributions to the provision of local infrastructure and community services by the joint developer for the local council, creating 24,000–27,000 local jobs through a Construction Training Centre and Skills and Recruitment Centre; 1,900 homes, of that more than 40% of affordable housing, community, sports, and leisure facilities, new green public spaces, plus new landscaped squares and well-designed and accessible streets.

King's Cross © ULI Case Studies, casestudies.uli.org



King's Cross, predominant land use mix

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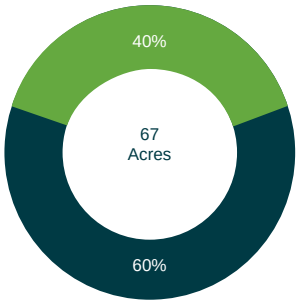
Kings Cross-Granary Square, 2013 © Sludge G, Flickr.com, (CC BY-SA 2.0)

Kings Cross Development - Built and open space ratio. Built includes public courtyards and gardens.



Regents Canal Towpath, Granary Square © Tee Cee, Flickr.com, (CC BY 2.0)

The King's Cross Central Limited

Partnership was created to deliver the scheme. KCCLP is the collective name for the single landowner that comprises three groups: U.K. property developer Argent (owning 50%), the U.K. state-owned London and Continental Railways Limited (LCR) holding a 36.5% interest and DHL Supply Chain (formerly Exel), with a 13.5% stake.

Promoting Smart Employment Strategy

King's Cross and St. Pancras Business Partnership (KXSP), KX Recruit and The Construction Skills Centre, help local people to access the jobs created by the development. It provides training, apprenticeships and job placements on the development. All King's Cross construction partners are signed up to support the project.

Public Realm at the Heart of Regeneration

Public space at King's Cross is about providing uses for everyone, achieved via civic spaces, grass planting, paved areas, and small gardens. Landscape that changes seasonally contributes to the vitality of the site. King's Cross is also London's largest outdoor, free public wi-fi zone, creating an "always on" experience throughout the public areas with events programme designed around the different user groups.

The Masterplan avoided appealing only to the audience of workers and commuters. It wanted a busy, lively space that allowed people to come to work, shop, or simply play. The King's Cross Granary Square since its opening in 2012, it hosted over 175,000 visitors.

London, St. Giles: Mixed Use Quarter, - highest TOD score by The Institute for Transportation and Development

Central Saint Giles is a mixed-use development in central London. The development consists of two buildings that reach 15 storey and 11 storey in height, arranged around a public courtyard lined with shops and restaurants. The buildings contain 46,000m^2 of office space and 109 flats, of which 53 are designated as affordable units, **located close to an important transit hub**. The ground floor is dominated by the public square, fronted by cafés, restaurants and retail units.

The St. Giles area was identified in London Plan, by the Mayor of London, as the key area for regeneration. The development was completed in 2010 and has since attracted major firms such as Google and Mindshare.

The reasons for its success lie in the revitalization of a large area in central London by investing in high quality offices and residences, with emphasise on shared and quality public realm.

This well-connected development is dense, with small block footprints, active and permeable frontage, and provides easy access for pedestrians and cyclists with a porous ground level. In this way, it establishes visual and physical links, via its central courtyard, through the site.

Moreover, the buildings minimise their environmental impact through biomass boilers, planted roof terraces, recycle rain and grey water and extremely limited parking: there are only ten car parking spaces in the whole area. The local planning authority insisted upon a largely car free development, with each parking space at a very high cost (£100,000), thereby creating a strong financial incentive to use other modes of transport.

Central St. Giles © liptonrogers.com

2 08. Visionary action plan for the sustainable drainage

The London Sustainable Drainage Action Plan realises that the urbanisation process promotes an increase in the number of impermeable surfaces, which effectively serve to 'waterproof' the city. Through a Vision 2020, London promotes sustainable drainage techniques, such as bioswales, green roofing, geocellular storage, permeable pavements and raingardens. By recognising the challenges of urban density to drainage efforts, London provides Dar es Salaam with non-traditional and forward thinking drainage techniques.

Bazalgette's 19th century sewer remains the current system in use for the city of London. The construction of this large gravity sewer is still considered to be ahead of its time. This highlights for Dar es Salaam that a large infrastructure investment now may pay off for generations to come. It is only now that these combination waste water and rainwater sewers have reached and exceeded their capacity that new solutions must be found. London is planning to invest £4.2 billion in the Thames Tideway Tunnel, a wide diameter storage-and-transfer tunnel, to ensure that the city residents continue to enjoy good waste water services for years to come.

Thames Water supply both London and the greater Thames Valley. The similarity to Dar es Salaam is that the supply is all from groundwater resources. The majority is drawn from rivers, with 35% of the supply sourced from boreholes accessing the natural aquifers. Thames Water has acknowledged the need for future planning, and have instituted the North London Artificial Recharge Scheme to replenish the North London aquifer. A similar scheme for Dar es Salaam would help to mitigate the risk of contamination of groundwater by sea water ingress and provide a sustainable water source in times of drought.

London's Underground © Hernán Piñera 2012, Flickr.com, (CC BY-SA 2.0)

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2 Johannesburg

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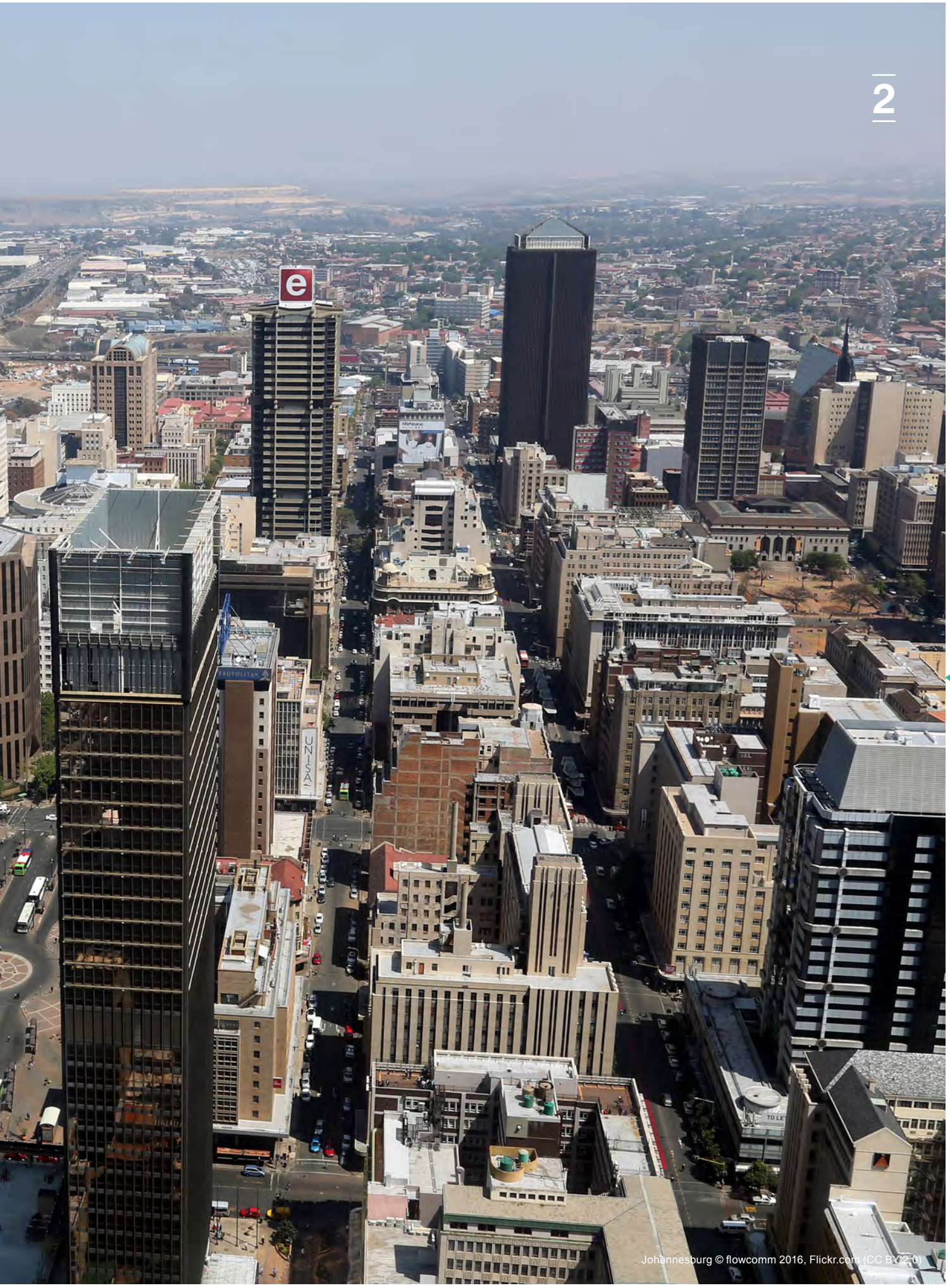


Johannesburg © flowcomm 2016, Flickr.com (CC BY 2.0)

2 Johannesburg, SA

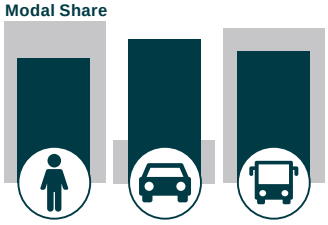
"Corridors of Freedom" to restructure and integrate the City

Key Data: Johannesburg & Dar es Salaam

	Population	Municipal Area	Density
Johannesburg	4,434,827	335km²	2,900 p/km²
Dar Es Salaam	4,364,541*	1,654km²	1,133 p/km²

* Population Based on 2012 Census Data

Modal Share



Dar	31%	37%	32%
	45%	12%	43%

Johannesburg Metrorail Gauteng

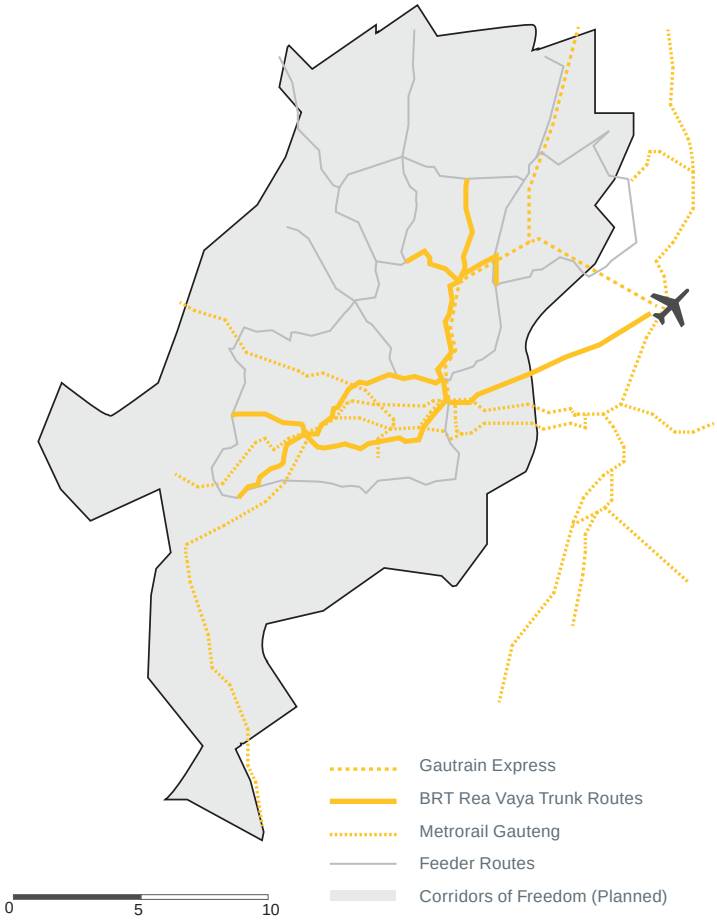
System Length	Stations	Daily Demand
2,228 km	471 Stations	2,000,000

Johannesburg Gautrain

System Length	Stations	Daily Demand
80 km	10 Stations	100,000

Fider Lines	Rea Vaya BRT	
50 routes	59km	277 Buses

Daily Demand	Stations	Daily Demand
90,000	48 Stations	40,000



Overview

The city of Johannesburg is embarking on a new spatial vision for the city in line with its growth and development **Strategy 2040, based on corridor Transit-Oriented Development.** Through this approach, it is envisaged that the growth of the future city will be guided toward well-planned transport arterials, a vision to be guided by the current focus on the "Corridors of Freedom", with a focus on mixed-use development, higher density residential accommodation,supported by office buildings, retail development and opportunities for leisure and recreation.

The "Corridors of Freedom" will transform entrenched settlement patterns, which have shunted the majority of residents to the outskirts of the city, away from economic opportunities and access to jobs. The aim is to create a compact city, which is energy efficient, provides residents with universal access, promotes social cohesion and creates a vibrant urban environment. The Corridors of Freedom will usher a new era of access to opportunity and a choice for residents to work and play within the same space without the inconvenience and high costs of travelling over long distances every day.

The National Household Travel Survey (2003) found that the average travel time between home and work for commuters making use of public transport is 59 minutes. More than 1.3 million South Africans spend more than two hours a day travelling to and from their places of residence. Currently 16.4% of Gauteng residents spend more than 20% of their monthly income on transport. The "Corridors of Freedom" are designed to reverse these trends. Medium and high density housing will be encouraged next to the transport arteries and around the transport hubs – linking home and work. Travel time will be significantly reduced because of shorter distances and more effective public transport.

2

Johannesburg's Success Factors

Overall, there is much to be learned from the first few years of the programme that can improve the CoJ's TOD initiatives going forward: better engagement and participation, clearer plans, better marketing and overall communication within and outside the CoJ, and careful consideration of the limits of built environment interventions. Here are some initiatives which already stand out:

> Capturing entrepreneurial spirit to stimulate economic growth

Across the Corridors it is clear that there is significant youthful energy directed towards micro-businesses, with many residents starting new enterprises. Louis Botha Avenue, Marlboro South and Park Station are already showing signs of being complex multi-use sites that attract people from all over South Africa and the continent.

> Appointed 'Point people' for specific nodes

Johannesburg Development Agency (JDA) dedicated expert individuals to specific nodes and corridors, which continues to be an excellent practice.

2

01. BRT helping to reduce energy consumption

A 10% shift of private car users to public transport for their daily commute will result in an 8% reduction in energy consumption. Routes and nodes of the Corridors of Freedom will be developed with the following key features, helping to achieve more sustainable energy consumption:

- Safe neighbourhoods designed for cycling and walking with sufficient facilities and attractive street conditions
- Safe complete streets with features to calm traffic, control vehicle traffic speeds and discourage the use of private transport
- Mixed-use developments where residential areas, office parks, shops, schools and other public services are close together, stimulating economic activity and creating opportunities for emerging entrepreneurs
- Limited and managed parking to reduce the amount of land devoted to parking and further discourage the use of private transport with conveniently located transit stops and stations.

02. Broadcasting the message as part of the strategy

Public participation needs to be seen as part of long term-relationships with communities and stakeholders that occur throughout the process rather than a once-off compliance-led activity.

This has been recognised as one of the key components in achieving a successful TOD.

It is recommended, all processes taking place within the corridors should be supported by up-to-date website updates, with ease of access to all relevant information.

Promotion and publicity of the achievements, and letting the general public and other departments know what has been accomplished is seen as essential element of the successful long term strategy.

03. Key Lessons worth hearing & considering for Dar es Salaam

In 2016 the City of Johannesburg supported by various research and strategy agencies undertook a comprehensive review of the "Corridors of Freedom" and TOD initiative in Johannesburg. The objective was understand how effective the TOD corridor initiative had been and what could be addressed / done better for future phases. The following is a selection of the key lessons learned:

- TOD corridors are an effective programmatic choice in restructuring the spatiality of the City of Johannesburg and dealing with some of the most intractable urban problems
- Incentives being developed to enhance partnerships with private sector developers could be extended to urban management; the release and development of state-owned land, and examining the development of demand rather than supply-side investments.
- Safety and security is a key concern and has a significant impact on the quality of life for residents and the potential future investment from private developers. Make places safe is very important.
- Public participation needs to be seen as part of long term-relationships with communities and stakeholders that occur throughout the process rather than a once-off compliance-led activity.
- Given the need for cross-sectoral and interdepartmental co-ordination, area-based management models could be highly effective in addressing these issues and should be considered as a way of addressing the host of differentiated needs across the transit corridors.
- All processes in the corridors must be supported by up-to-date websites that are current with ease of access to all relevant information.
- The need to promote and publicise TOD achievements, and let the general public and other departments know what it has accomplished is critical in ensuring on-going project support
- Exceptional care needs to be taken to ensure that built environment interventions do not worsen conditions in vulnerable communities, highlighting the need for better empirical evidence and consultation before implementation.
- Built environment interventions must be complemented with social development and engagement in order for the full potential of the transit corridors to be realised, in terms of addressing the social and economic aspects of marginalisation

Overall, there is much to be learned from the first few years of the programme that can improve the TOD initiatives going forward: better engagement and participation; clearer plans; better marketing and overall communication within and outside the CoJ, and careful consideration of the limits of built environment interventions. All of these aspects are worth considering for the preparation, implementation and management of a BRT Corridor Development Framework for Dar es Salaam.

2 Topic Study: Governance and Implementation Mechanisms

By CoLab

Assessment of benchmarks examined the following factors:

Governance and Legal System - is the underlying governance and legal system in the researched country greatly different to Tanzania's?

Models used – an assessment of the types of models used to promote development and capture land value for the public benefit.

Planning & Development Controls – are there strong, efficient, and effective planning and development controls in the city undertaking TOD?

Alignment of public bodies – do the public bodies, in the studied city, act in concert or is there conflict resulting in delay and sub-optimal outcomes?

Conflicts of interest – how well are conflicts of interest between public bodies, developers and citizens managed?

Land and property taxes – does the country have a strong, well-managed system of land and property taxes?

Tax enforcement – is the taxation system equitable, well enforced, and with good recovery rates?

Revenue redistribution – is the revenue raised from land value capture distributed in a transparent and equitable way?

Comparable market – is the property market in the subject city, comparable to that in Dar es Salaam?

Ahmedabad / Issues	Comments	R
Legal		
Models used	Land readjustment programme good at increasing density. Less good at delivering extra value through TOD	
Planning & dev. controls	Largely left to market forces	
Alignment of pub.bodies	Steering committee very effective	
Conflicts of interest	Not much to note in public domain	
Land and property taxes	Guidance value prop. tax could be useful	
Tax enforcement	Said to be high	
Revenue redistribution	Advanced mechanisms such as TPS	
Relevant dev.density	Not good practice to keep low across city	
Comparable market	Not part of the global property market and poorly performing; may see high levels of residential growth	

Janmarg BRT, Ahmedabad, India

Contextual Overview

"Janmarg", Ahmedabad's BRT has been in operation since 2009 and is expanding to this day. City's population is similar to that of Dar es Salaam (5.5 million in 2013, according to the World Bank), and, like Dar, expects to exceed 10 million in the next 20-30 years. The city is currently undergoing rapid economic growth and facing similar issues, such as: increased vehicular congestion, slow commute times and uncoordinated land ownership (public and private). Where Ahmedabad has struggled is in transforming the BRT project into a tool for guiding growth in the city. Like Line 1 of the BRT in Dar es Salaam, the *Janmarg* project has greatly improved mobility, but not catalysed sustainable urban development in the city.

Ahmedabad's Success Factors

> Effective Governance Structure - SPV approach

Ahmedabad is an effective governance example for Dar es Salaam. By bringing together various agencies with a stake in the transport and development of the future city, Ahmedabad was able to anticipate any conflicts, and create a public transport and development "product" that satisfied myriad views.

> Densification around the Corridor despite weak property market

Ahmedabad is an example of a city with high growth, but a weak property market. The land readjustment programme shows a way of increasing density and consolidating land around the transport corridor, without having to make direct investment.

2

Governance and Legal System

The legal system in India is comparable, to that of the UK, having evolved from or been based on imposed British rule of law during colonial times.

Special Purpose Vehicle (SPV)

The Ahmedabad's BRT is run as a Special Purpose Vehicle (SPV), by the company called: *Ahmedbad Janmarg Ltd* and is 100% subsidiary of Ahmedabad Municipal Corporation, who are the Urban Planning and Management lead for the city. The board of the SPV comprises members of the most relevant public sector agencies and branches of government and it is chaired by Municipal Commissioner (mayoral equivalent).

Models Used

Conditional Central Government Funding

Funding was obtained from central, state and municipal levels of the government. The BRT project was funded by a scheme called JnNURM (*or the Jawaharlal Nehru National Urban Renewal Mission)*, and funds were channelled through various levels of state agency. The proportion of funds by level of government were as follows:

- Government of India 35%
- Government of Gujarat (state) 15%
- Ahmedabad Municipal Corporation (50%)

The JnNURM funding scheme existed from 2005 to 2014 (after being extended 2 years), and was pioneered by the Ministry of Urban Development of the Government of India. Its main aims were to improve quality of life and infrastructure. Funds were released, in exchange for the production of detailed mid-term city strategy and planning documentations, as well as the implementation of measures to improve levels of public service.

The scheme channelled funds through state agencies, pooling grants from different levels of government, and passing them on to city governments, to be combined with their own funds. Funds might also be passed on as soft loans, provided they have produced the strategic planning documentation referred to above.

Public Private Partnership (PPP)

Bus procurement is undertaken through Public Private Partnership contracts, whilst depot space is provided by the Ahmedabad Municipal Corporation. All running costs and maintenance of the fleet is undertaken by the operators.

Fines may be levied by AJL against operators, who do not meet the quality of service standards with regards to vehicle cleanliness, traffic infractions and scheduling. These fines are debited from kilometres payable. Whilst advertising revenue is collected by the operators, it is paid to AJL.

Urban Transport Fund (UTF)

Urban Transport Fund (UTF) was created in order to pool the various sources of income from the BRT system and it is the principal source of revenue for AJL, combining:

- Advertising revenues from station, bus and corridor
- Parking charges for AJL operated *Park and Ride* facilities
- Fares charged for use of the BRT
- Proceeds from the sale of additional FAR (Floor Area Ratio) along the corridors.

Planning & Development Controls

Centre for Environmental Planning and Technology University (CEPT), authors of the original 2008 documentation, included many references to how the BRT could incorporate planning and development levers and tools, to incentivise and catalyse more sustainable forms of urban development, which created less dependency on private vehicular transport. Imperatives and policies were proposed, to guide the positive change.

It was intended to densify the corridor (defined as 250m setback from the BRT line), by approximately 2.5 times the current density. Adjustments to FSI (Floor Space Index – an equivalent unit to FAR, used in India) were proposed, allowing developments within the corridor build to an FSI of 2.8. Recent research shows that increased FAR (4-5) is now being considered in parts of the corridor.

Lack of proactive planning and coordination of the development (according to the World Bank) meant city hasn't been successful in either catalysing denser development around the BRT stations, or stopping the progressive growth around the periphery of the city. The city didn't overcome the difficulties of improving already built-up, dense, existing areas where BRT line provided new, improved access. Since the development has more or less been left to market forces, the densification appeared to spring up in areas which are already economically vibrant. The BRT cannot (yet) be said to be a force for urban regeneration.

Aligment of Public Bodies

The Janmarg system, from a mobility point of view, is a great success. Ridership is high, the quality of the system is high, and the construction was fast and without any major issues. It is said that a "supportive institutional framework" contributed to these positive elements, and that this framework makes collaborative planning between agencies at different levels of the hierarchy possible.

The Ahmedabad Municipal Corporation made sure that the Gujarat State government, who were providing 15% of the funding for the project, were part of the decision making process, in addition to simply providing funding. Being involved directly sped up many of the decision milestones. The AMC also created a steering committee which included other agencies and departments which have a bearing on transport and urban development in the area. These included:

Gujarat Urban Development Corporation / Gujarat Infrastructure Development Board / Most of the departments of the AMC / The Ahmedabad Urban Development Authority.

Conflicts of Interest

There is always some nervousness across India about the potential to be perceived as corrupt. According to 2013 research, the AMC was wary of changing FAR ratios along the BRT route, for fear of being accused of "land-related corruption", or conflict of interest. However, this has now taken place to stimulate development. Transparency and accountability are at the heart of the JnNURM financial mechanism. Whilst allegations of corruption are not unheard of around the Ahmedabad BRT scheme, nothing of note appears in the online press, and the security of the JnNURM mechanism is often referred to as contributing to the transparency of the funding process for the Janmarg project.

Land and Property Taxes

An issue with having left development to market forces has been land speculation around station areas. Private developers report an increase in land prices of 100% between the launch of the BRT project in 2009, and 2011 alone. Despite the initial 2005-8 documentation containing many assertions about using "Land Value Capture" or "Impact Charges", to date, the principle beneficiaries in land value increase have been private developers, except for a few cases where the AJL has been able to sell additional FSI along BRT corridors. In 2011, the Municipal Corporation earned about 4.5% of its revenue (i.e. about $26 million USD) from the sale of FAR/FSI bonuses. Online sources of information from the private sector suggest that in 2014, the AMC decided to adjust FARs from 1.8 to 4 along BRT corridors, and as high as 5.4 on the "Eastern High Density Corridor", which connects the Central Business District and the large Waterfront regeneration project. It is said that the increase from FAR 1.8 to 5.8 is sold at 40% of indexed market value.

2

An additional tax exists in Ahmedabad, which, does act as a mechanism for capturing the land value increases caused by public investment. Called the *"Guidance Value Property Tax"*, this levying system captures uses revised values, every 3 years, which are based on location, land use and the occupation of the owner or tenant, to determine a property levy.

Tax Enforcement

Tax enforcement and collection rates are high in Ahmedabad. The city is well-versed in collaborative planning mechanisms between the private and public sector, having used tools such as the *"Town Planning Scheme"*, which rewards land owners for giving up irregularly shaped pieces of land, to adjust parcels into more productive shapes, whilst allowing for infrastructure investment to take place. In turn, land values almost always increase, along with infrastructural service provision. Residents are not required to invest additional capital – the scheme works in a virtually self-financing manner.

Comparable Market

Ahmedabad and Dar es Salaam are both experiencing economic growth, but the economy of Dar es Salaam is significantly less developed than that of Ahmedabad. Also, The AMC and other apex agencies have long been described as having created a "business-friendly" environment in the city. Local reports suggest that there is an over-supply of commercial space, with vacancy rates currently at around 8%. There is an oversupply of retail space with vacancy rates in malls showing at around 30%.

Delhi, India (BRT now defunct)

Delhi's Failure - lessons learned

> Lack of planning & development controls

Despite creation of dedicated agency - Delhi Integrated Multi Model Transit System (DIMTS) to take forward the implementation of the BRT network, the project spectacularly failed. City's poor planning and development controls, lack of creation any real accompanying urban interventions along the pilot corridor or around stations, were the major factors contributing to the failings of Delhi's BRT.

> Lack of alignment between public bodies

DIMTS was disconnected in collaboration and governance terms from the city and the national governments, and as such, was unable to achieve its remit.

> Lack of provision of corrdinated road network system

Lack of coorination between public transport and road network, as well as limited traffic control enforcment resulted in high level of congestion on BRT routes, which comromised service provision.

Like Cape Town's BRT system, the Delhi BRT project ended up in court, and eventually the corridor was returned to use as a standard, mixed-traffic road!

MyCiti BRT, Cape Town, South Africa

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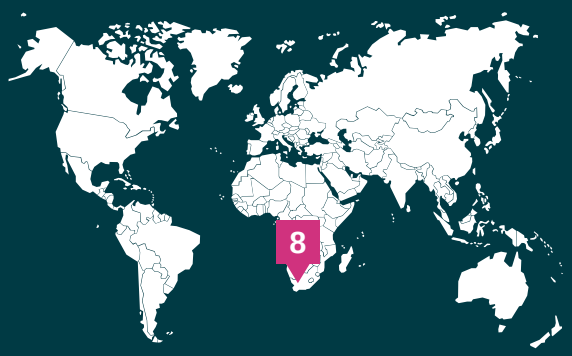
MyCiti's BRT - lessons learned



Overview

The Cape Town BRT system, called MyCiti, is a was developed from 2007 onwards, in advance of the 2010's football World Cup in South Africa.

Transport for Cape Town was formed as a unified transport authority, which had both political and administrative leadership in transport issues. In 2017, TCT has been superceded by the *Transport & Urban Development Authority*, making its remit wider.

So far, the MyCiti system has proven unable to sustain itself financially, covering only approximately 49% of its operational cost. It also have relatively low ridership.

> Realisation of TOD benefits...

In context of low BRT ridership the TCT began to think about Transit Oriented Development. It calculated that BRT "cannot break even until there are about 40-45 dwellings/hectare, and transport provision will only become profitable at about 75 dwellings/hectare". As a result the *TOD Strategic Framework* document, was created, from which the TDA now derives strategy. However, there are no firm incentives or mechanisms based around land or property tax, found as yet. *TOD Game Changer Working Group*, has begun investigating the possible development of a "Land Increment Tax", as well as a monthly "Operating Levy" for zones identified as "Transit Accessible Precincts".

> United Transport Authority

Direct and successful cooperation between the political and the administrative elements of the leadership, was effective in Cape Town.

> Apply context-appropriate strategies

Cape Town aimed to replicate the successful BRT systems of Bogota and Curitiba. Whilst these systems are "best in class", they are not necessarily context-appropriate to Cape Town, which ended-up costly for the South African central government.

> Include existing providers in the strategy, to ensure successful outcome

MyCiti BRT suffered a long running conflict with the city's minibus drivers, and in particular the Golden Arrow Bus Service, which represents the majority of the city's minibuses. A long running legal battle over operating rights in BRT corridors, and a perceived lack of integration of the drivers into the MyCiti scheme (as drivers of BRT buses or feeder services) was costly in both financial and good will terms. The legal battle has been now resolved.

2 Topic Study: Land Use Planning

By Broadway Malyan

Arlington, Washington DC, USA

Transit investments as a catalyst to reshape communities (Rosslyn-Ballston Metro Corridor)

Contextual Overview

Arlington is a 26 square mile (67 km2), urban county located in the core of a rapidly growing Washington region. **It is considered as one of the most successful USA examples of Transit Oriented Development model along the Metro Corridor level.**

Arlington and the entire Washington, D.C., area experienced considerable growth during the 1960s as demand for office space soared and new residents flocked here for jobs. County planners and officials saw an opportunity to manage this growth in a way that would re-imagine the communities, reduce dependence on cars and revitalize struggling retail and businesses.

The Rosslyn-Ballston corridor, 5 metro rail stations located at the heart of the city, illustrates smart growth planning and the type of Transit Oriented Development that concentrates high-density, mixed-use areas along a major transit corridor, while preserving and enhancing existing residential neighbourhoods.

Planning for the Rosslyn-Ballston Corridor involved a 12-year intensive effort by citizens, staff and county officials. It was the first of several key planning efforts that had a significant impact on shaping Arlington as it is today.

Arlington's Smart Growth Journey-Setting the Stage

In early 1960's, the city observed a rapid increase in the demand of family housing as a result of the emerging market for government office spaces. But at the same time the city faced a huge decline in the retail and other supporting sectors leading the core of the city as mono-use with large swathes of car parking.

The existing large single family neighbourhoods also started to show a decline resulting a inefficient sprawl of office and other employment oriented uses across.

The region was preparing for the expansion of Interstate 66 and Metro, when Arlington made a landmark planning decision to concentrate growth in mixed-use, transit centres. **The "Bulls Eye" concept for the Rosslyn-Ballston corridor** was an innovative planning decision.

	Population	Municipal Area	Density
Arlington	229,164	67 km²	3,198 p/km²
Dar Es Salaam	4,364,541*	1,654km²	1,133 p/km²

* Population Based on 2012 Census

Arlington's Metro	System Length	Stations
	4 km	5
Dar Es Salaam BRT Phase 1	21* km **Phase 1 Only	32

Washington Metro Network ©

The "Bulls Eye" Concept and General Land Use Plan (GLUP)

Following extensive study and community input, the county decided on a plan that concentrates the highest density uses within walking distance of Metro stations, tapers densities, heights and uses down to surrounding single family residential neighbourhoods, and provides for a mix of office, hotel, retail and residential development. "Bulls-Eye Approach" targeted the tallest and most dense development within one-quarter mile of each Metro station. **The County's General Land Use Plan (GLUP)** incorporates this approach and defines the appropriate land use for each area.

One of the pillars of GLUP involves focusing high-density, mixed-use development along three primary transportation corridors, while preserving open space and existing neighbourhoods.

Building Unique Urban Villages - Stations Designed as 'Places'

Once an overall plan was agreed, sector plans were created to guide future development in each of the 5Metro Station Areas. These plans establish goals and guidelines for desired public improvements, urban design, retail locations, infrastructure and open space.

This also marked the beginning of Arlington's urban village concept.

Compact growth along Rosslyn-Ballston Metro Corridor (2005) © Livingrail website

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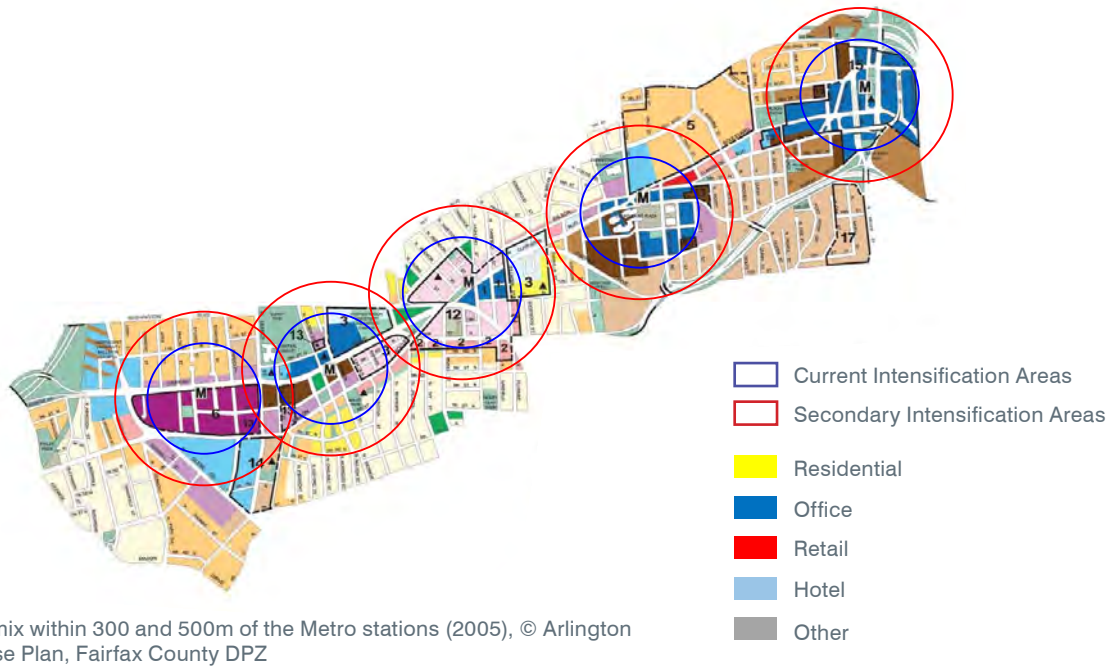
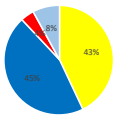
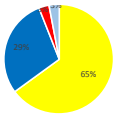
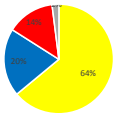
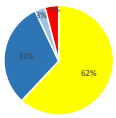
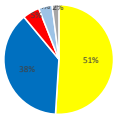


Land use mix within 300 and 500m of the Metro stations (2005), © Arlington General Use Plan, Fairfax County DPZ

Stations	Land-use mix (500m)	Population density	Overall FAR	Special Planning ncentives (Site Plan)
1. Rosslyn		490 pph 73% Office 27% Residence	1.78	• High-rise resi: FAR 4.8 • Offices: upto FAR 10 (in exchange of amenities to community) • 100-300 ft height
2. Courthouse		428 pph 54% Office 46% Residence	1.45	• Resi: FAR 4.8 & 3.8 for Hotels • Offices and resi use 50/50 split can have upto FAR 6
3. Clarendon		156 pph 39% Office 61% Residence	0.60	• Mix-use (residential and retail) to have FAR 1.8 • Office/apartment/hotel upto FAR 3.8
4. Virginia Square		200 pph 26% Office 74% Residence	1.02	• Office/apartment/hotel upto FAR 4.3 • Residential upto FAR 4.8 • Special coordinated mix-uses upto FAR 5 (Education related)
5. Ballston		436 pph 69% Office 31% Residence	1.41	• Special coordinated mix-uses up to FAR 6 (office related) • 2 car parking spaces per 1000 sq ft • 50/50 resi/office up to FAR 6

Comparative study of Land use mix, population density and special policies along Rosslyn-Ballston Metro Corridor

Arlington lessons learned

A comprehensive growth plan, the 'Site Plan' in Arlington case, serving as a decision making tool and reviewed every five years as required by State law. It includes eleven elements that cover: land use, economic development, community character, natural resources, parks and recreation, transportation, housing, energy and historic preservation.

Denver, USA, USA

The reshaping of land use and urban form through TOD station typologies

2

	Population	Municipal Area	Density
Denver	600,158	400 km²	1,561 p/km²
Dar Es Salaam	4,364,541*	1,654km²	1,133 p/km²

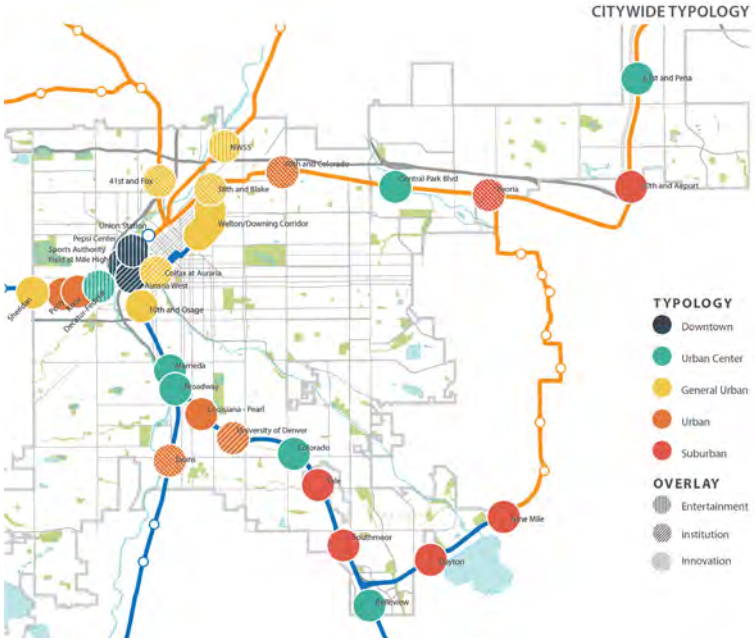
* Population Based on 2012 Census

Contextual Overview

Denver took a system-wide approach to implement a city wide TOD Strategic Plan, that provides not only a foundation to guide public/private investment, but also to create communities that have an easy access, by foot, bicycle, and public transport to destinations like shopping, dinning, employment, open space, and education. These TOD oriented communities will provide the variety of housing types, opportunity for a healthy lifestyle, and are designed to maximize access to public transportation by focussing activities around a major transit stop.

In order to implement the Transit Oriented Community strategy, **Denver classified each of its station areas into station typologies** which aim to provide: 1) a snapshot of aspirational character or vision, 2) set expectations for development, 3) establish a level of framework for possible investments.

The station area characteristics are grouped into five categories: land use mix, street and block pattern, building placement, building height and mobility.



Denver Station Typologies and station area characteristics groups © Denver TOD Plan 2014

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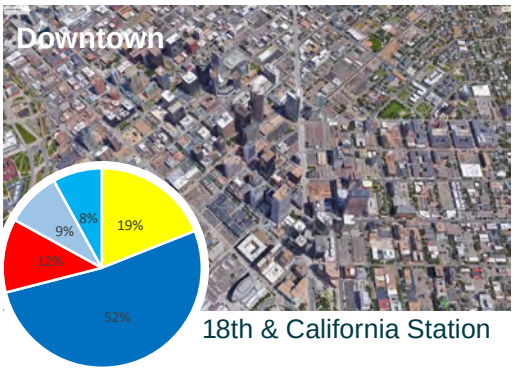
Typology framework

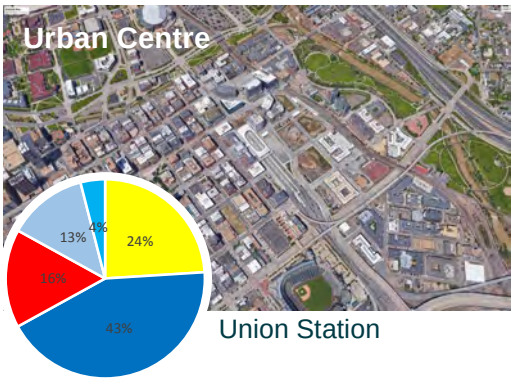
A typology framework has been prepared to provide and create a visual representation of the desired scale and form around each station area. In addition to these, special innovation, institutional and entertainment station areas are identified to clarify future development expectations around them.

Typology	FAR range	Prime transport mode	Sizes	Mix of uses	Residential density
Downtown	3.0-15.0	Transit plus high level pedestrian and bicycle	10 to 300acres	office, retail, hotel, entertainment and civic	75-150 DUA (Dwelling units per acre)
Urban Centre	2.0-4.0	Major transit with some auto uses	50 to 200 acres	Light industry, office, retail and entertainment uses-horizontal and vertical	20-50 DUA
General Urban	0.75-2.0	Good transit plus ped and some auto	50 - 100 acres	Primary residential with some commercial	>20-200DUA<
Urban	0.5-1.5	High level of pedestrian zone with good transit	25-50 acres	Primary residential with periodic light commercial	20-150 DUA
Suburban	Average 1	Mixed transport mode	not more 600feet in length	Primary residential	150-300 DUA

Land use assessment around (500m) of recently completed stations with TOD typologies

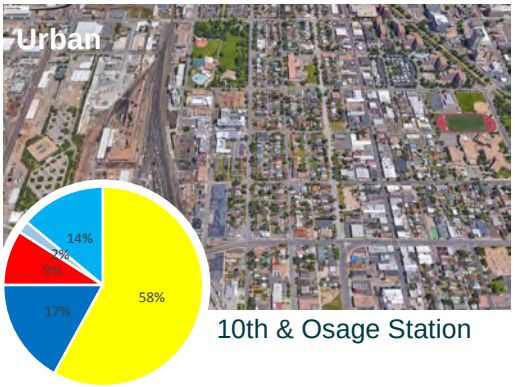


18th & California Station

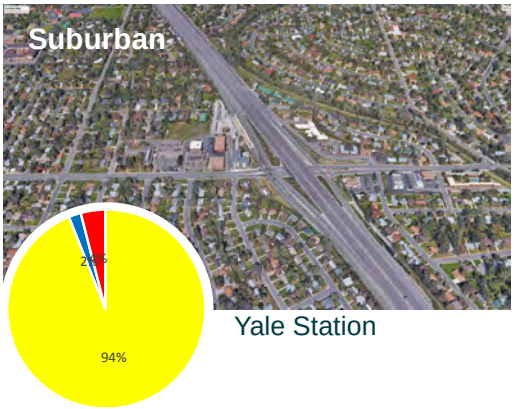


Union Station

Resi
Office
Retail
Hotel



10th & Osage Station



Yale Station

Multi-modal Streets

Denver recognized the importance of streets in city planning and the design of a multi-modal street is based on both the function of the street and the adjacent land use. TOD typologies include the key objectives of these characteristics identified under multi-modal street characteristics.

Typology	Pedestrian scale facades and contextual design	Prominent street facing entry	Active ground floor windows and frequent access	Landscaping between structures and primary street	Street trees and preservation of mature trees in front setback
Downtown	X	X	X	X	X
Urban Centre	X	X		X	
General Urban	X	optional		X	X
Urban	X	optional			X
Suburban	X			X	X

Design Standards guidance (Streets)

Denver lessons learned

Denver's ongoing planning efforts for the implementation of TOD Strategic Growth Plan has started to rezone and reshape the areas around the station and citywide with enhanced accessibility, legibility and creation of mix neighbourhoods.

Simple, clear and flexible mechanism of TOD typologies has provided Denver a pragmatic framework of city growth along transit stations.

Number of partnerships were created, to achieve common goal, between the city, property owners and NGOs. Denver TOD fund is a good example of PPP which acquires and preserves sites for affordable housing at TOD rail stations.

2 Bogota, Colombia

Urban Land Use Transformation Driven by Transportation-BRT (TransMilenio) System

	Population	Municipal Area	Density
Bogota	8,081,000	5,103km²	5,103 p/km²
Dar Es Salaam	4,364,541*	1,654km²	1,133 p/km²

* Population Based on 2012 Census

Contextual Overview

Bogota is very dense and socially segregated city with 7.5 million inhabitants living inside the city and additional million in satellite municipalities with no institution directly in charge. Density within the city is close to 14,000 inhabitants per square kilometre with a clear spatial segregation, whereby low income groups settled in the periphery, far away from the CBD. An average of 30% of household income of low income groups went into transportation, leaving 70% for housing, food and other needs.

Land Use Plan (POT) and Masterplan

Bogota City Mayor carried out an ambitious plan of decentralisation, in the middle of 1990's, and introduced **Territory Development Law called Land Use Plan (POT)**. A POT defines the vision for the city growth and the main strategies to achieve it. POT is the main tool for defining the land use developments.

Bogota and the BRT TransMilenio

The perception of Bogata changed from an example of failed city to an example of a sustainable and promising one, following the integrated BRT system called TransMilenio. The completion of the first phase of TransMilenio was achieved in just three years (1998-2000) with a strong focus towards sustainability-a transit oriented city, with new infrastructure for bicycle use and pedestrians, discouraging the use of automobile. TransMilenio has the highest capacity worldwide which carries up to 40,000 passenger/hour per direction.

Changes in Land Value

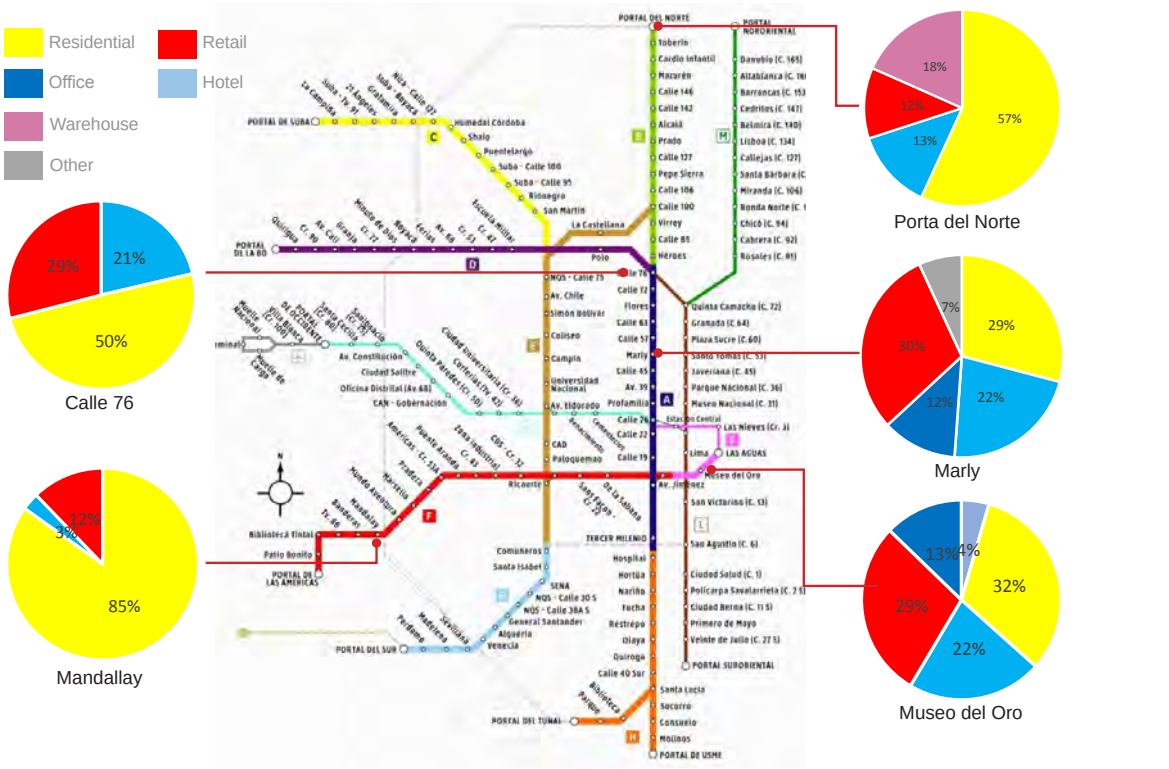
Properties served by TransMilenio benefited from the increase in value - a premium of 6.8 to 9.3% for every 5 minute walking distance to BRT Station. Properties within the immediate proximity of feeder lines (0-5minute walk) were valued more than those requiring a 5-10 minute walk. In summary, property prices increased between 0.12 and 0.38%, depending on the distance to the BRT.

Strategic Growth

Bogota's strategic growth (1952-2008) has increased tenfolds, although not equal and not so concentrated within the centre as planned, hence leading to sprawl in suburban areas and impacting on travel time. Bogota is now also considering the expansion and integration of new suburban train as a possible solution for the problems caused by suburbanisation, dispersion and population growth.

Commercial Activities

Land use and activities hot spots, start showing new trends along TransMilenio routes. High end commercial land use seem to be strengthened, while smaller shops seem to maintain its previous tendencies; it is observed growth of new departmental stores and shopping centres, along the main stations, with restricted car parking areas.



Bogota lessons learned

Bogota used BRT system to overcome the immediate issues of commute, social segregation and rapidly increasing urban sprawl. However the effort had limited impact on the land use makeup of the city centre.

The impact of BRT system was evident in the uplifted land values, creation of diversity in land use, concentration of new commercial zones and contribution to higher density along the main transport corridor. However, some opportunities to optimize the impact of the BRT were lost, as a clear land use regulation was not adopted.

Bogotá is among a few cities in the world to use carbon credit mechanisms to finance its BRT system, covering 12% of its initial investment.

2 Topic Study: Transport Network & Soft Mobility

By Mobility in Chain

Introduction:

The chosen examples are a collection of assets connected by the use of TOD principles in their design. The studies show, how TOD can be successfully applied at different scales of intervention, that vary widely in motorisation, public transport provision, wealth and urban form. All however, have in common the current or future provision of a **strategic and integrated transit oriented vision**.

Three key TOD typologies are examined:

Corridor-based development patterns:

Bus, BRT and LRT systems are characterised by frequent stations, generally located at a distance of 400-500m. When the city applies TOD principles in planning, high density and mix uses are continuously concentrated along the public transport line, creating functional development corridor. The connection with the existing urban fabric is gradually achieved starting from the line itself. Applied at the city scale, the public transport network defines the city shape. If the TOD development concentrates only on one corridor, it will affect only a part of the city.

Node-based development patterns:

That is the general case of metro or railway networks; a greater distance between the stops (more than 800 m) gives as a result, TOD developments concentrated on specific nodes. The highest density and the mix of land uses are centred on the station, gradually tapering down to existing neighbourhoods.

Catalytic development patterns:

The design of a developments strategically located, close to the transportation line; In this case, a single project can have a much wider impact on the neighbourhood and on the city itself.

Mexico City Public transport network coverage

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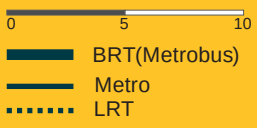

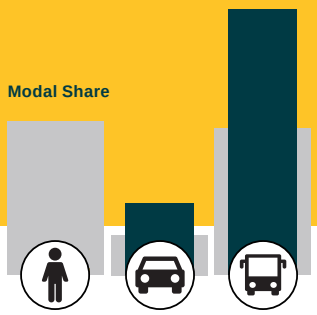

	1%	21%	78%
Dar	45%	12%	43%

Mexico City, Mexico

Contextual Overview

A hierarchy of transportation services, both public and private, has emerged in Mexico City from 60s, providing a rich mix of travel options in and good geographical coverage. The backbone of the network is 226km long metro system, supported by BRT, trolley buses, commuter train and LRT. As a hybrid between public mainline and private feeder services, it represent a mix of both government-sponsored and commercially run distributor service.

BRT network delivers 125km of routes, with 177 stations, daily demand of over 1million passengers and peak load of 12,000 people per hour/day. This service is supported by 226,5km of metro lines, with 195 stations moving 1,600,000 passengers a day. Tertiary, para-transit network, supports further 14million passengers daily, with a fleet of 29,000 buses.

Mexico lessons learned

Use of public transport to combat congestion and prioritise pedestrians

In parallel to delivery of the new BRT Lines, the Mexico City pays equal attention to creation of pedestrianised streets. 15 downtown roads have been transformed into car-free zones, benefiting the pedestrians and the local economy.

Integrated public network system embraces the bike routes

Mexico City began installing the fourth largest bike sharing system in the world, providing 6,000 bikes across the city, in multi-modal locations!

2 Topic Study
Integrated City Infrastructure

By Aurecon

Luanda, Angola

The Angolan government initiated the creation of a strategic masterplan for the development of the Province of Luanda. This ambitious document was designed to plan the way forward for this post-civil-war African city that was growing at a rate far outpacing the infrastructure development. By promoting infrastructure investment in Luanda, via a consolidated planning, the hope is that strategic initiatives will further strengthen this centre of economic and cultural growth.

The parallels with Dar es Salaam are immediately apparent. Urban sprawl and unplanned informal development severely curtailed development within Luanda, as is the case in Dar es Salaam. The pace of development is similar, where the rate of expansion far exceeds the rate of infrastructure provision. The proximity of the city centre to the coastline and the linear nature of the proposed infrastructure networks further strengthens the choice of Luanda as one of the focus cities for this study.

The Luanda strategy focused on three Pillars of Change-Liveable Luanda, Beautiful Luanda and Strategic Luanda. The philosophy behind each of these pillars ties in with the TOD strategy for Dar es Salaam, in that it promotes development for the citizens of the city, via the provision of all essential services and facilities in a way that both acknowledges and enhances the distinct character zones within Luanda.

Infrastructure provision is envisioned along infrastructure corridors aligned with the road network. The road reserve will incorporate service zones for infrastructure assets both above and below the road surface. The service zones enable ease of installation, maintenance and operation of the different infrastructure assets. The underground nature of bulk and reticulation infrastructure in urban areas will provide a safe and efficient way to extend the network without disturbing the communities above those service lines.

Luanda PDGML © Broadway Malyan

2

Future Cape Town, Voortrekker Road Corridor, Parow, Cape Town

The Voortrekker Road Corridor projects acknowledges the importance of the communities aligned with the existing train precincts. This historically underfunded and neglected area is poised for TOD regeneration. The Future Cape Town initiative hopes to right the wrongs of South Africa's political history by investing in and uplifting one of the communities most affected by the forced removals under the Group Areas Act.

Low land values have resulted in bulk infrastructure constraints, where the investment in utility infrastructure networks has not been made and this in turn has resulted in a lack of social cohesion and the increase in crime. By tapping into the potential interaction between affordable housing and TOD, Future Cape Town hopes to bring about a period of urban regeneration as a part of the Greater Tygerberg Partnership.

There is great synergy between Cape Town and Dar es Salaam. Both are set to become economic power houses for Africa. Both are major cities within walking distance of the coastline. They both have social issues brought by their pasts, and both are working with invested organisations to uplift their communities.

There is great scope to look to Cape Town for an idea of how to successfully tackle both BRT and TOD planning. Cape Town introduced a successful BRT system just prior to the 2010 Soccer World Cup and the system has unlocked great potential for new development, particularly up the West Coast, where the road layout has traditionally barred ease of movement into and out of the city centre. The BRT system has resulted in a development boom in areas such as Big Bay and Blouberg. This highlights the possibility for the same type of development boom for Dar es Salaam if public access is improved.

2

The government is the provider of mainline, high-capacity services, while the private sector largely takes care of most branch connections. Paratransit has evolved to fill service gaps and meet specialized mobility needs, namely connections to mainline carrier to serve poor neighbourhoods outside the district centres.

Urban Areas shaped by Limited Land Use Planning

Mexico City's Metro-paratransit combination has shaped urban form. Limited land use regulations and zoning controls have tended to sprawl a mix of commercial activities around stations, with limited clustering of urban development. Unregulated urban densities define the core of the city, while high-rise towers are concentrated only within few core-areas. Outside the core, employment concentrations have occurred because of proactive planning, such as around the Zapata Station on Line 3. In that case, the possibility to accommodate a mini-bus transfer area and a commercial zone next to new offices attracted many employers to this location.

EcoParq Program helps to combat congestion and delivers quality pedestrian environment

The multi-level transportation system has been essential in restraining car travel and serving the metropolis mobility need. Further to this policy Mexico City government facilitated the program **EcoParq** in order to install meters around core neighbourhoods in the city. The city started the program in the commercial zones and avoided the areas considered more mixed-use/local residential. As a first result, the estimated cruising time has reduced dramatically.

Many of the city's busiest downtown areas have been closed to automobile traffic: 15 downtown streets have been transformed into car-free streets and enhanced pedestrian zones. In particular, when the BRT Line 4 was implemented, improvements were made to the whole street. That led up to a safer and more comfortable pedestrian environment in the historical centr.e

Mexico City also benefits from a significant public push in recent years, to improve bike-ability. **The city installed over 90 miles of attractive, well-protected bike lanes around the city. Furthermore, in 2010 Mexico City began installing the fourth largest bike sharing service in the world (Ecobici), providing over 6,000 bikes spread across more than 452 stations around the city.** Ecobici generates 11,000 daily trips on the system, of those the 48% are made in intermodality.

Metrobus in Mexico City (©lanotaesroja, 2017)

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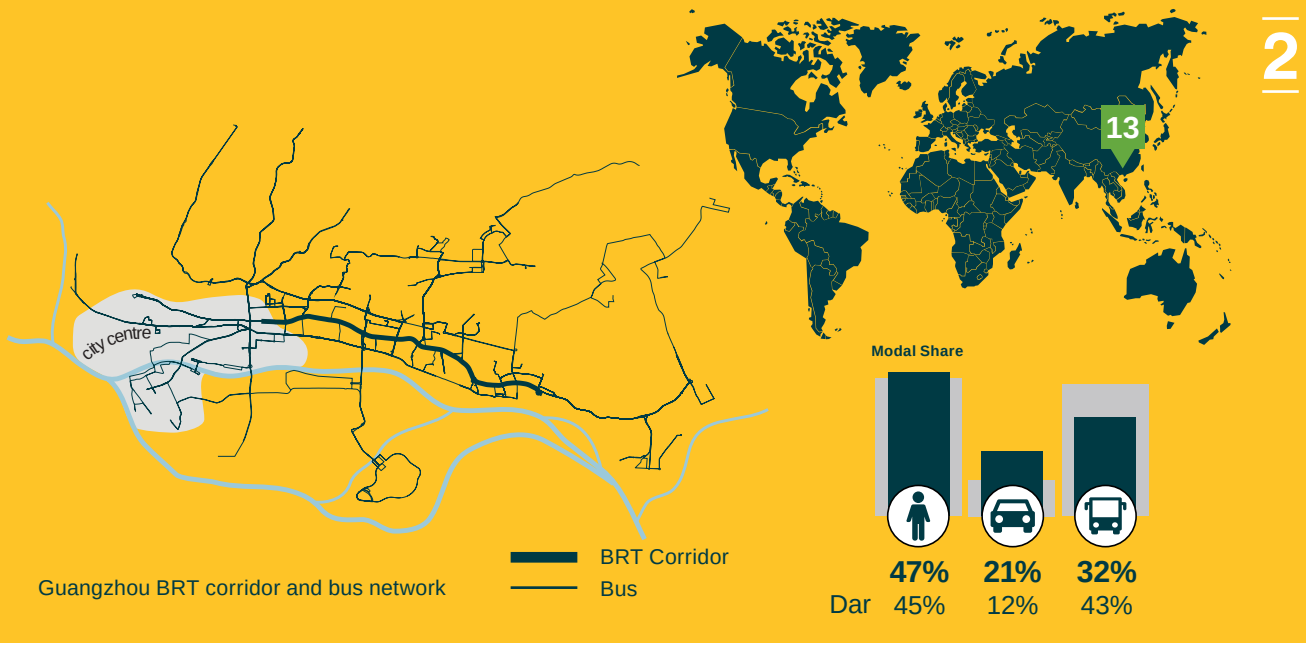


Guangzhou BRT corridor and bus network

Guangzhou, China

Contextual Overview

The Guangzhou BRT, which opened in 2010, is breaking passenger records and revolutionizing perceptions of BRT in China and Asia. Designed to meet the high-volume transport needs of a fast-growing city, the system averages 850,000 passengers daily and manages a peak capacity of 27,000 commuters per hour per direction, which is higher than most metro lines in the world. Nearly 23km of routes, with 26 stations, serve daily 850,000 passengers, with peak frequency of 11 seconds.

BRT combating air pollution

The Guangzhou BRT is at the core of a strategy to promote the use of mass transit and non-motorised transport to improve mobility and air quality in the city. The BRT corridor at the centre of Zhongshan Avenue, was designed as part of a multi-modal transport plan, which includes direct access to the metro system and bicycle facilities at stations. As a Sustainable Urban Development, the corridor includes a new greenway and high-quality public spaces.

The introduction of the BRT links some of Guangzhou's most developed areas to places where future growth is expected, in the northeast sector of central Guangzhou. High-rise residential developments, large shopping and office towers are connected to ultra-dense, unplanned, low-rise "urban villages", Large new-gated communities filled with high-rise residential towers, large public parks, universities and large industrial sites. The plots along the corridor increased land values by 30% in comparison to the Tianhe District average.

The project has improved trip times for bus riders, as well as drivers in the corridor by 29%. Another positive effect will be achieved on the environment and public health: it is estimated, the Guangzhou's BRT will reduce an average of 86,000 tonnes of CO^2 per year over its first ten years.

The high-quality greenway along the corridor, with bikeways on both sides, provides bike parking and bike sharing at each of the stations. Bicycles are currently used for over 20,000 trips per day, of which more than two-thirds were previously motorized. Pedestrian-friendly features include green spaces on both sides of the BRT corridor, escalators, wheel-chair lifts, safe crossings and bridges connecting nearby buildings with the BRT stations. The on-street parking reform has been implemented, including parking zoning.As a result, the central area of Guangzhou has one of the highest parking fees in China. Given the low occupation rate many parking areas along the Guangzhou BRT corridor were transformed into public spaces.

Volume 03

Part 03

Recommendations for Dar es Salaam Effective TOD Model

No existing TOD model can be directly and unchangeably applied to Dar es Salaam. Current context, both physical and political, cultural and employment setting and institutional capacity must be considered while deriving the city's unique way of delivering and maximising positive impact of BRT. The variety of innovative initiatives are being considered for Dar es Salaam, many tested approaches from both developing and developed countries. The key aim is to create a tailor-made approach capturing the unique opportunities, while intelligently overcoming difficulties which may lie in the way of successful BRT and assocciated TOD.

3

The Recommendations

Best practice in Transit Oriented Development (TOD) and its applicability to Dar es Salaam

Lessons learned from the Benchmarking research and its aplicability to Dar es Salaam

Through the extensive benchmarking studies the conclusions were drawn, which create a common body of knowledge, that can be used to inform and shape the future strategies for Dar es Salaam's effective Transit Oriented Development.

The relevant TOD approaches are recommended, based on the benchmarking studies and their applicability to Dar es Salaam's conditions and reality. The following pages also look at the potential institutional models that could be applied or adapted to inform the city's BRT / TOD future growth. These strategies and institutional models are set out in the following topics:

Potential Institutional and Land Value Capture Options

Three potential Land Value Capture options and associated institutional models, that could be applied or adapted to Dar es Salaam BRT corridors, has been identified. The study also highlights the drawbacks of each option, against the existing governance setup in the city.

TOD strategies for Land Planning and Development

The set of innovative strategies and associated good practice guidance relevant to Dar es Salaam, has been identified.

TOD Principles for Planning Sustainable Transport

The six core principles, that could be applied while planning the transport infrastructure for Dar es Salaam BRT, has been recognised.

Image 1: Mexico City (©lanotaesroja, 2017)

Image 2: © www.curitiba.pr.go.br

Image 3: Singapore © Brent 2014, Flick.com, (CC BY-ND 2.0)

Image 4: Granary Square © Tee Cee, Flickr.com, (CC BY 2.0)

Image 5: EXPO MRT © William Cho, 2011, Flickr.com, (CC BY-SA 2.0)

TOD Actions

3

Institutional Alignment & Establishment of dedicated Body

To ensure all relevant government agencies are aligned in achieving a common goal

Integrated Business Model

Integrate funding models, and policies enabling sustainable densification of the corridors

Private Sector Collaboration

To unlock the market

Civil Society Participation

To establish effective cooperation

3

Land Value Capture Mechanisms and Potential Institutional Models

Option 1
Do minimum with Land Readjustment and Development Rights Transfer

1 - Identify land for development for public benefit / infrastructure
2 - Give existing owners transferable development rights in lieu of future ownership
3 - Identify a development corridor zone in which land can be developed to a higher density than normal
4 - Permit the development rights to be exercised in the corridor
5 - Developers would in this way pay compensation to the land owners, rather than the government having to do so.

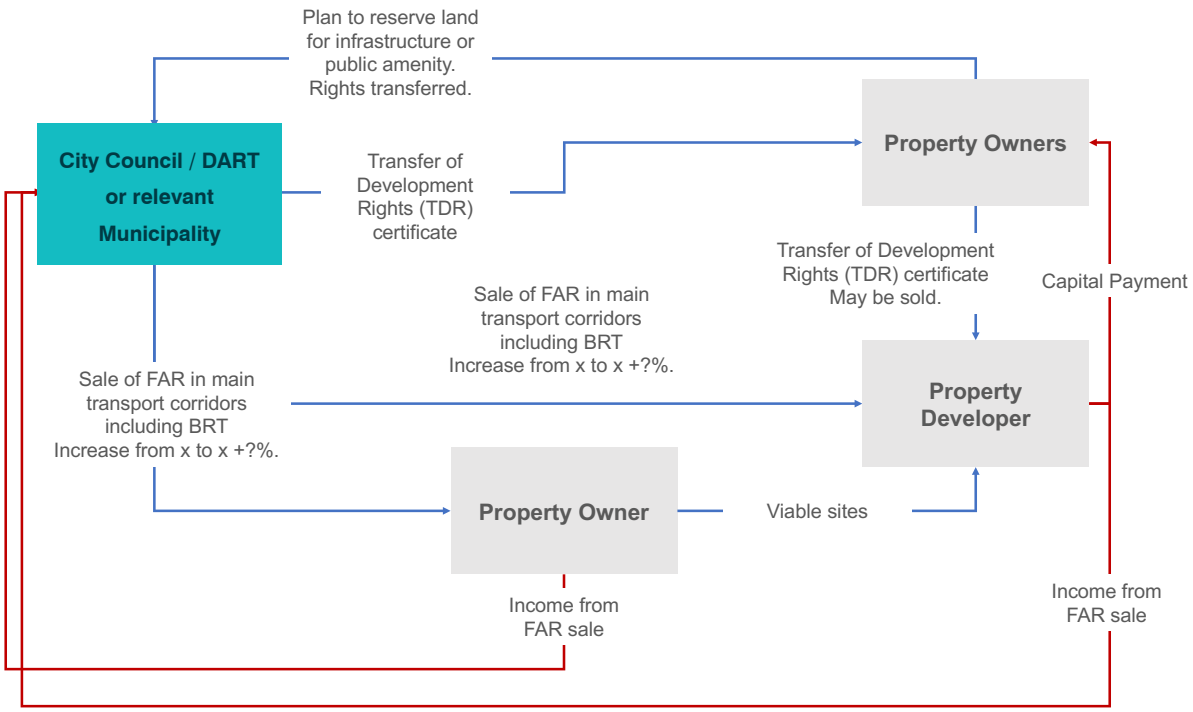
Rationale

Either: The City Council or DART, or the relevant municipality, could act as the authority to lead this approach. Dar es Salaam has a shortage of institutional capacity, skills and experience to deliver successfully the integrated urban development. The introduction of the BRT has already triggered market activity in the corridor and around major transport nodes. The authorities should use market forces and the existing planning regime to allow the densification of development to take place. This could be further enhanced by adopting some of the principles of Delhi's Transferable Development Rights mechanism and Ahmedabad's Land Readjustment Programme.

Drawbacks

This approach is likely to be complicated to administer, does not help in the assembly of development sites and is over-reliant on market forces to deliver integrated development in an immature market.

Land Readjustment & Development Rights Transfer Model



Land Value Capture Mechanisms and Potential Institutional Models

Option 2
Simplified Development Rights Auction Model

1 - Identify land for TOD and public benefit within the development corridor or around transport nodes.
2 - Acquire sites from willing participants in return for a share of the auction receipts
3 - Compulsorily acquisition of strategic land required
4 - Auction the assembled sites in packages to the developers
5 - Use the receipts to pay for compulsory purchase costs and provision of affordable housing / public amenity.

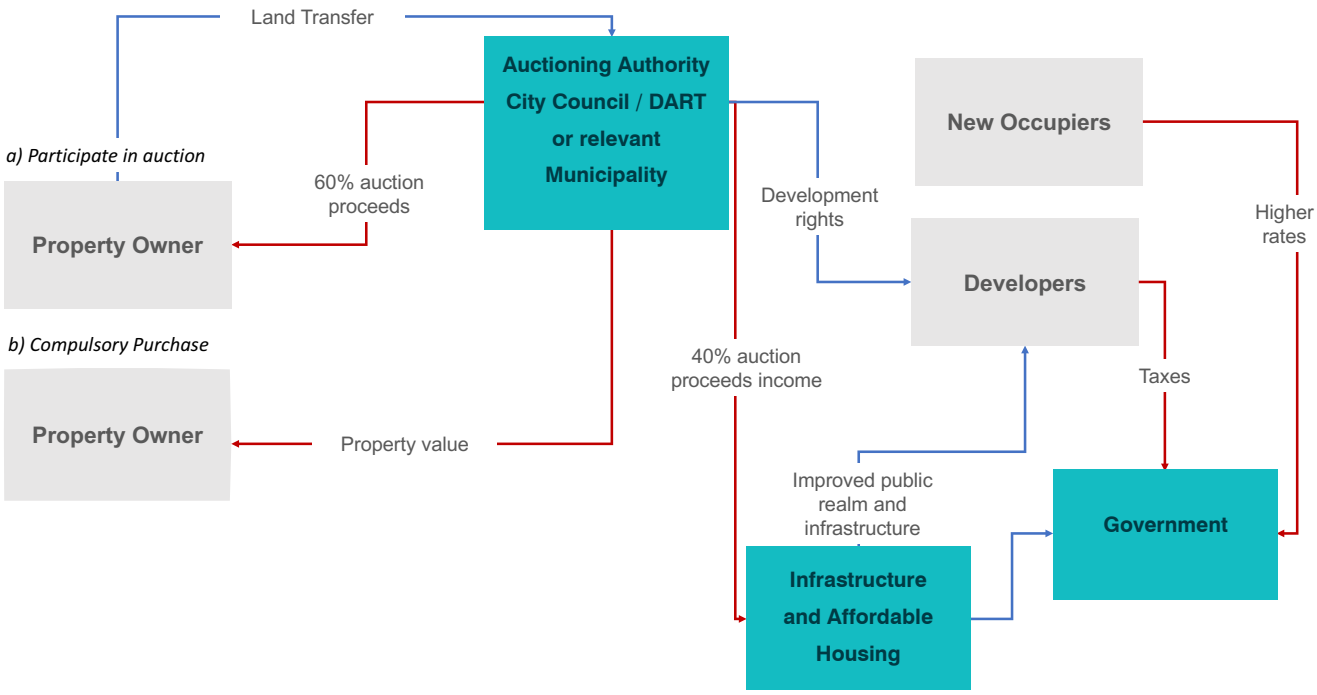
Rationale

Either: The City Council or DART, or the relevant municipality, could act as the authority to assemble sites and auction development rights. This would require fewer skills and institutional capacity than acting as a developer, but would allow for more integrated development. This would be based on a simplified version of the Development Rights Auction Model proposed for London. It would ensure financial transparency and encourage institutional investors to become involved.

Drawbacks

This approach still relies on compulsory purchase of land and may not break down the conflicts between competing public sector bodies.

Simplified Development Rights Auction Model



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Land Value Capture Mechanisms and Potential Institutional Models

Option 3 Development Corporation Models

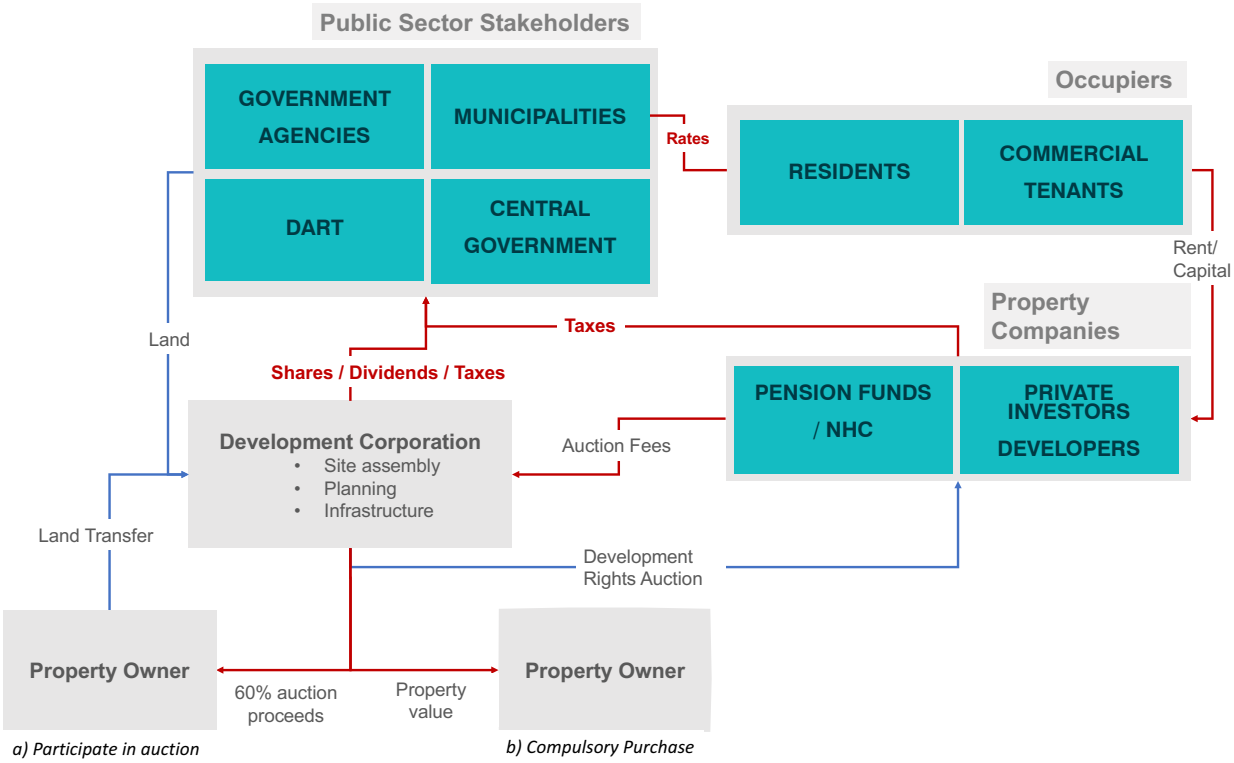
1 - Assemble sites from public sector, development partners and via compulsory purchase
2 - Plan developments
3 - Invest in infrastructure
4 - Auction development rights.

Rationale

This would allow the City to concentrate the right skills, experience and external support in one organisation to optimise development outcomes around the BRT corridor, deliver TOD and maximise Land Value Capture. There could be three versions of this model depending on where the development corporation sits; under the City Council or DART. This model combines and simplifies best practice from London and Hong Kong.

Model a) an independent Development Corporation allows risks and benefits to be shared evenly and transparently across all stakeholders. **Model b)** more closely follows the MRT approach in Hong Kong and Crossrail in London. **Model c)** Places responsibility in the City Council, which should be taking the strategic overview – this is closer to the Mayoral development corporation model in London.

Development Corporation Model a) Independent



Development Corporation Model b) DART - owned

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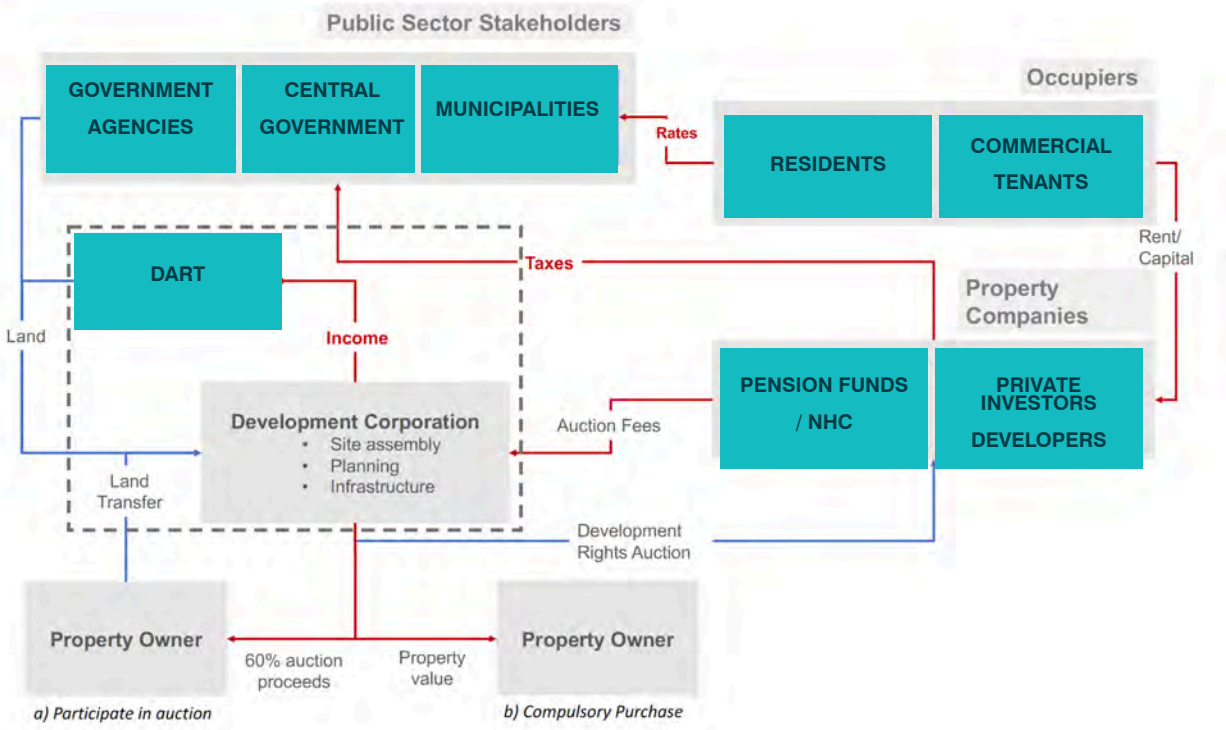
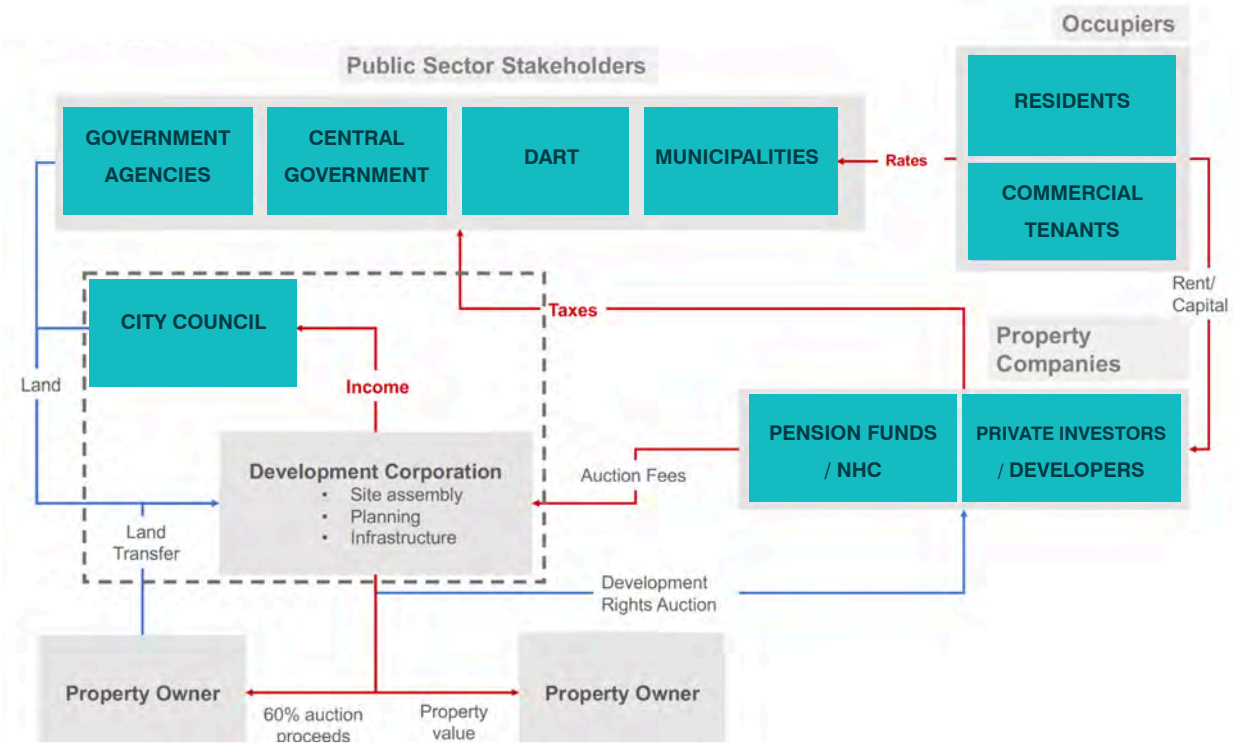


Development Corporation Model C) City Council - owned



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TOD Strategies for Land Planning and Development

Four common and fundamental principles for successful TOD were recognised by the benchmark research:

1. **Diversify the land use mix**
2. **Integrated approach to land-use / transport planning with liveable densities**
3. **Incentivise compact growth models to improve viability**
4. **Plan station areas as special places within the city.**

The benchmark study also revealed a number of successful, individual strategies, policies or initiatives, worth noting for Dar es Salaam. Also notes of caution - where ideas failed for different avoidale reasons.

01. Diversify the land use mix

Whether at the core of the city, such as Central Business District (CBD) or a suburban neighbourhood, there should be provision to accommodate a rich mix of uses appropriate to the station area typology, while reflecting the existing land uses. This mitigates market demand fluctuations and allows more investors and models to become involved.

Encourage complimentary land uses within the station area (500m), to help define the character of the station, with an appropriate land use mix that relates to its typology.

Promote day and night uses, as seen in both Hong Kong and Tokyo examples with transit-oriented land uses applied to the context of the more prominent and central stations of the network.

02. Integrated land-use / transport planning (with liveable densities)

As evidenced by Arlington, Hong Kong, Tokyo, Curitiba and Kings Cross Place, successful TOD stems from **integrated land use and transportation planning.** Seamless and high density development can be successfully delivered by integrating the necessary social amenities and public facilities within compact and walkable neighbourhoods. The key recommendations relevant to Dar es Salaam BRT are:

- Ensure appropriate scale and type of development within TOD station areas reflects and embraces the existing and planned public transport modes
- Coordinate the key stakeholders, governing bodies, host communities, investors/ developers. Explore diverse financing and revenue solutions, as in the case of Arlington, Denver and Hong Kong

- Promote best urban design practice, integrate nature within multifunctional public spaces, with high quality public amenities to facilitate dense, liveable, settled communities
- Promote innovative housing typologies and solutions, to improve urban lifestyles in dense residential and mixed environments.

03. Incentive compact growth models to improve viability

Arlington pioneered compact city growth through investment in transit 40yrs ago and, both Hong Kong and Tokyo have developed innovative Land Value Capture models to finance and regenerate through TOD station typologies. The key lessons from Arlington and Hong Kong and recommendations relevant to Dar es Salaam's BRT are:

- Incentivise development within TOD areas with less restrictions on height and densities
- Establish special area frameworks and incentives specific to identified station typologies
- Encourage PPP procurement processes which enshrine innovative solutions to Land Value Capture
- Promote and build on the increased land value of TOD areas
- Consider preferential land and floorspace taxation mechanisms to draw revenue from TOD development
- Consider how unit rates for utilities can be reduced for bulk provision in denser areas, to reduce occupancy costs as a further incentive.

04. Design stations and surroundings as 'Places'

Early investment in high quality public realm allowed Kings Cross Place (London) to capture sales and faster returns. Arlington clearly differentiated each station on Rosllyn-Ballston Corridor, to attract specific investors to each part of the corridor. Denver strategised TOD growth through unique station typologies. Thus the recommendations for Dar es Salaam's BRT are:

- Prepare specific typologies for Dar es Salaam's BRT corridor and a matrix to evaluate TOD readiness to develop
- Promote distinctive identities for each station area based on existing local spatial and land use characteristics
- Devise good placemaking principles that observe the TOD Guidelines to encourage walkability and social cohesion through creation of public realm and communal spaces
- Ensure the public realm components are realised in the early phases
- Promote active ground floor uses overlooking all nodes and public spaces and optimise the benefits of public surveillance to deter anti-social behaviour.

3

Tables below provide an overview summary of the prevailing land use trends across particular station typologies, based on examined benchmarks (where data was available).

City Centre	Land Use Mix					Population Density	Built Density FAR	Building Height	Housing Type
	Residential	Office	Retail	Other					
Hong Kong Central Station	9	78	13			126 pph (Residential)	14.8	20-80 storeys	Multi-family Apartments
Arlington, Washington DC Rosslyn	43	45	4	8		400 pph	1.78	10-25 storeys	Multi-family Apartments
Denver, USA 18th & California	19	52	12	17		300-435 pph	2.0 - 2.2	10-45 storeys	Multi-family Apartments
Curitiba, Brazil Praca Rui Barbosa	18	44	16	22		150-200 pph		Up to 32 storeys	Multi-family Apartments
Bogota, Colombia Museo del Oro	32	13	29	26		100-225 pph		Up to 26 storeys	Multi-family Apartments

Urban District	Land Use Mix					Population Density	Built Density FAR	Building Height	Housing Type
	Residential	Office	Retail	Other					
Hong Kong Taikoo Station	83	5	11	1		596 pph	3.5	Up to 30 storeys	Multi-family Apartments
Arlington, Washington DC Clarendon	64	20	14	2		156 pph	0.60	up to 10 storeys	Multi-family Apartments
Denver, USA 10th & Osage	58	17	9	16		300-435 pph	0.7 - 0.9	up to 5 storeys	Multi-family Apartments/ Duplexes
Curitiba, Brazil Terminal Cabral	48	6	25	21		325-350 pph		up to 20 storeys	Multi-family Apartments

Transit Gateway	Land Use Mix					Population Density	Built Density FAR	Building Height	Housing Type
	Residential	Office	Retail	Other					
Hong Kong Tseung Kwan O Station	41	28	11	20		569 pph	6.8	30-50 storeys	Multi-family Apartments
Arlington, Washington DC Ballston	51	38	5	6		436 pph	1.4	10-24 storeys	Multi-family Apartments/ Triplexes
Denver, USA Union Station	24	43	16	17			1.0 - 1.2	up to 10 storeys	Multi-family Apartments
Kings Cross, London	24	56	11	9		285-350 pph	2.0-4.0	up to 10 storeys	Multi-family Apartments
Curitiba, Brazil Terminal Pinheirinho	46	8	19	27		100-125 pph		few 10 storey buildings / mostly 2-3 storeys	Multi-family Apartments/ Single family houses
Bogota, Colombia Porta del Norte	47	0	22	31		200-225 pph		up to 5 storeys	Townhouses

Suburban-Neighbour-hood	Land Use Mix					Population Density	Built Density FAR	Building Height	Housing Type
	Residential	Office	Retail	Other					
Denver, USA Yale Station	94	2	4	0		200 pph	0.6 - 0.7	up to 3 floors	Single family 2-storey detached houses
Curitiba, Brazil Estacao Tubo Cajuru	58	6	15	21		150 pph	0.25 - 0.5	up to 3 floors	Low-rise multi-family apartments & single storey detached houses
Bogota, Colombia Mandalay	85	0	12	3				up to 5 floors	Mid-rise multi-family apartments & duplexes

3

Good Ideas Worth Considering for Dar es Salaam...

The following ideas are drawn from the review of best practice at Volume 3 as themes to incorporate within the emerging Corridor Development Strategy

idea 01

BRT catalyst for urban transformation

The BRT network provides high levels of urban connectivity for employees and commercial activity, and helps those who leave near the network to better access their place of learning or work more easily. The BRT corridors quickly become spines of transit-oriented activity and magnets for investment for transit-oriented uses, such as the development of apartments, offices and shopping facilities, leisure attractions and other uses. In time this will act as a catalyst for positive land use change, while moving towards more compact development forms and higher relative land values.

idea 02

Reinvigorating historic city centre

Dar Es Salaam has a historical inventory with the potential to lend character to each station area. Develop strategies to regenerate many of heritage value: historic building clusters, the preservation of historic streetscape, signing, monuments and specimen trees. Use FAR plot density transfers, and the designation of special “heritage” planning areas to 1km station area zones. Establish dedicated body as Cuitiba’s FUNPAC initiative.

idea 03

Develop front-line corridor; interventions

Limit public sector exposure by focusing initial effort along the immediate frontage of the corridor and station areas. Focus on land falling within the first 100m, while encouraging new privately led TOD development as interventions within the 500m/1km range, to stimulate further private investment. Provide for FAR bonuses in exchange for open space provision (similar to Curitiba); promote high density development within 500m of public transport stop/station, incentivise development along feeder routes and ensure development facilitates multi-modal access. Allow GFA bonusing for public realm, street lighting and safety measures.

idea 04

Phased release to maintain return on investment

Phase the sale and disposal of land and any development rights over time to make better returns. Couple this with strategies for property taxation. Care not to flood or saturate market demand by over supply or release to the market of land, which will result in low value returns and development stasis. Care to observe market readiness to avoid Curitiba's Green Line example of low returns on land sales and slow development/poor ridership legacies.

idea 05

Smart & Healthy city strategies

World Health Organisation (WHO) recommends minimum provision of 16m^2 of open space per capita to meet its healthy city status. Consider tax incentives for planting native trees within each plot and the incorporation of accessible open space with FAR bonusing.
Establish a network of TOD parks making use of designated flood areas along river courses, and improve access and foot/cycle path provision from BRT stations to allow visitors to use the amenity.

idea 06

Improving 'shanty towns'

Identify appropriate mechanism to collect and distribute developer contributions along TOD corridors, to help improve adjacent informal neighbourhoods and their amenities. Parallel initiatives for Delivery of *'Safe routes'* and Garbage Purchase Centres (as in Curitiba) can be early local neighbourhood renewal measures for pedestrian security (for pedestrian routes to stations) and waste management in the denser areas deemed inaccessible to waste collection trucks.

idea 07

Place-making at the heart of TOD strategy

Dar es Salaam's BRT completed network will be an effective system bringing transport coverage within reach of a significant proportion of its residents and businesses. In time this will result in competition between station areas to attract new investment and commercial development activity. Creating attractive places to work and live-in, was one of the key success factors in the regeneration of London's King's Cross transport hub. Delivering liveable neighbourhoods with emphasis on public realm is one of the key recommendations for Dar es Salaam. Affordable housing and a varied tenure mix also contributes to a successful TOD, as Curitiba has achieved with its plots for affordable housing to retain a sense of social cohesion in the face of gentrification.

3

idea 08

Plot area rationalisation

Following Ahmedabad's example, Dar es Salaam could evolve a "Town Planning Scheme" tool, to reward land owners for giving up irregularly shaped pieces of land, and to adapt parcels into more geometrically efficient shapes, to reduce the cost of infrastructure. This also allows land values to increase, and densifies the infrastructural service catchment to attain lower service charges.

idea 09

Varied measures of ensuring increased land value is captured for public benefit

Guidance Value Property Tax, similar to that of Ahmedabad, could be applied to capture further land value in the vicinity of BRT nodes. This levying system reviews commercial land values every 3 years, with parameters related to location, land use, occupation (owner / tenant), to determine a property levy figure.

idea 10

Using new BRT corridors to implement in parallel, safe and attractive cycling network

Following Mexico City and Guangzhou examples, establish connected and safe cycle network, ensuring inter-connectivity with other modes of transport. In Guangzhou example over 20,000 trips are made daily by bike, of these trips, more than two-thirds were previously motorized.

idea 11

Safe & Secure BRT Communities / Feeder Network

Safety and security is a "must have" not only to ensure that people living close to BRT stations feel secure but make the station areas attractive for investment. Measures should ensuring that all streets and paths feeding into BRT stations have excellent street lighting and where security a major issue install CCTV. Increase policing around BRT stations and establish community based "watch and warden" schemes to help keep local residents informed of crime and safety measures.

TOD Principles for Planning Sustainable Transport Network

Key principles guiding successful TOD from the transport network perspective:

1. Multimodal system and integrated transportation choices
2. Well connected and fine-grained street network
3. Excellent access and walkability to transit hubs
4. Quality and high capacity service
5. Parking policies and car dependence reduction.

01. Multimodal system and integrated transportation choices

3

BRT is the most successful when it is part of a network with a clear hierarchy, and each typology of service is geared towards addressing demand in a given area. Feeder routes and dala dala services are fundamental in bringing passengers to the main trunk routes, creating enough demand on the corridor to justify the high vehicle frequencies. Successful implementation of the public transport system considers mobility as a whole, including: private traffic, existing public transport, and soft mobility modes, such as walking and cycling to complete the vision.

The proximity between different modes of transport, is the key to enabling for interchanges and to integrate networks, as seen in London and Mexico City. In other cases, such as Johannesburg's, a strong transport network remains isolated if it is not connected to the wider system.

Combined fare and ticketing system among all modes of transport is also an important aspect in delivering a successful network. Many cities adopt ticketing with use of smart cards, that store and transact data at the same time. The value of this data is significant, enabling more equitable ticket pricing. While cities would traditionally subsidise public transport, they can now break down subsidy amounts on multiple levels, to benefit different user groups based on their needs.

3

02. Well-connected and fine grained street network

The BRT corridor presents very different levels of block permeability along its length. In the downtown, a dense network of streets and local paths connects the informal neighbourhoods, guaranteeing a high permeability. High quality public realm guides pedestrians to the key interchanges and key entrances plazas. Most of the locations however, are characterised by low street density, where new, safe pedestrian routes will improve the legibility and performance of the overall area. Accessibility to transit is undoubtedly based on the quantity of walking routes around the station, but it doesn't guarantee the connection effectiveness by itself. A planned fine-grained street network as in example of central London, makes the transit environment permeable and highly used. Cases of Singapore or Guangzhou show how transit can become a barrier, if it is not physically connected with the surrounding neighbourhoods.

03. Excellent access and walkability to transit hubs

The BRT corridor has the potential to bring about a safer pedestrian environment along its course, starting from providing controlled crossings and appropriately scaled sidewalks. Furthermore, the possible introduction of bike mobility, with cycle lanes along the corridor and bicycle parking at the stations, will also take into consideration the ease of pedestrian accessibility to the transit line. A buffer between the street and the bus lane can be transformed in a barrier that deters dangerous behaviour.

Walking is the most natural, affordable, healthy and clean mode of travel for short distances, and a necessary component of the vast majority of transit trips. Singapore city launched a program to improve the walking experience. Walk2Ride significantly extended the sheltered walkway network to connect MRT stations to public facilities, offices and residences located within a buffer of 400m. Moreover, urban design guidelines encourage the provision of new through-block pedestrian physical and visual connections in order to improve blocks permeability.

04. Quality and high capacity service

A full BRT system is described as having the following features: "fully segregated busways, closed stations, pre-board fare collection / verification, frequent and rapid service, modern and clean vehicles, brand identity and operational service control". While some elements are already in place in Dar es Salaam, some others need to be implemented with the introduction of all feeder lines and the adjustment of the dala dala service.

05. Parking policies and car dependence reduction

Measures to manage parking and control car dependency start from a clear definition of parking areas. Even though the car ownership level of Dar es Salaam is low, it has shown a fast growth, which must be controlled. The final strategy should indicate a comprehensive parking requirements and/or regulated parking arrangements for the entire Corridor, with required parking to be provided within each main development sites or urban zones/districts. Parking typologies will need to meet the proposed development density in form of basement, podium, dedicated parking structure or surface level, shaded parking (in lower-density areas).

06. Encouraging cycling

Cycling combines the convenience of door-to-door travel, the route and schedule flexibility of walking, and the range and speed of many local transit services. Mexico City has benefited from a strong push to improve bike mobility. The city installed 90 miles of new bike lanes and a large bike sharing service with over 6,000 bikes and 452 stations. Half of the daily bike trips are made in intermodality. Guangzhou's high quality greenway along the BRT corridor has bikeways on both sides and provides bike parking and bike sharing at each of the stations. Over 20,000 trips are made daily by bike. Of these trips, more than two-thirds were previously motorized trips.

07. Transport as a regenerative catalyst

Concentrating on a few corridor-based and market-supported opportunities to shape urban form. Central St. Giles and Kings Cross developments were appointed as strategic regeneration areas in London. The projects were successful because have revitalized a large area in central London, located near a transport hubs, **investing in high quality private and public spaces** at the same time. The Guangzhou BRT corridor connects the most developed areas to places where future development are planned. The plots values already increased by 30% in comparison to the district average.

08. Making a shift

The shift from being a car dependent city to a multi-modal city is taking place all over the world. A true multi-modal city goes beyond needed transit improvements. The local planning authority insisted upon making St. Giles a largely **car free development** with an extremely limited parking space offer. Only ten car parking spaces are available in the whole area at a very high cost, in order to incentivize strongly the use of other modes of transport. Likewise, the success of Singapore transport system is also based on the city strict **control of the vehicle population and the road usage**. Electronic toll collection on the main roads and expensive certificates of entitlement to drive are two of the policies adopted by the city government.

09. Transport Vision

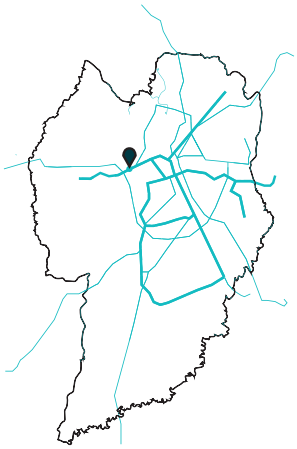
Paratransit and official transit modes cooperate in the wider vision of a transport system that has no service gaps and meets specialized mobility needs. More than one bus operator serves Guangzhou BRT corridor. Seven companies divided in 3 groups offer the same service, allowing multiple routes and a better reliability. In Mexico City, Paratransit has evolved where services were patchy and part of the residents were excluded from public transport, leading to forms of pro-active planning.

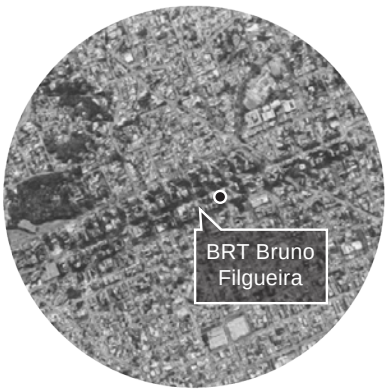
09. TOD Implementation and Investment Plan

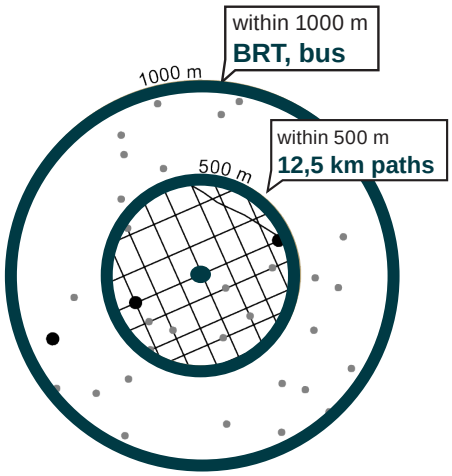
Establish a phased TOD Implementation and Investment Plan. All key studies need to be developed through a planning process, and implemented over different stages. This aspect had a crucial role in establishing the feasibility of the whole project, by prioritising infrastructural interventions.

3 Permeability and connectivity around the Transit Stations
Integrated land use and transport accessibility

Curitiba







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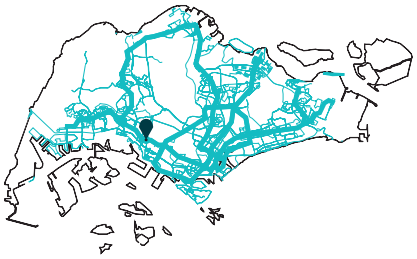

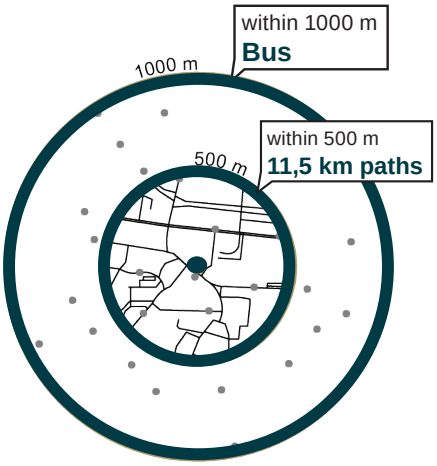

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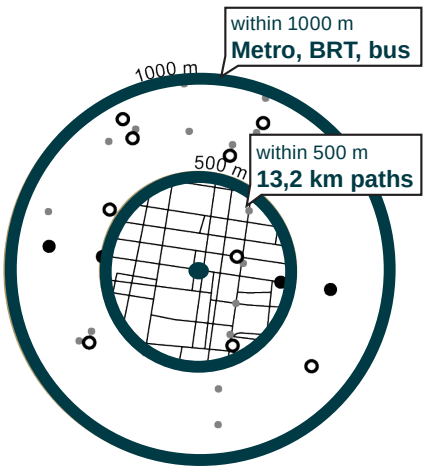
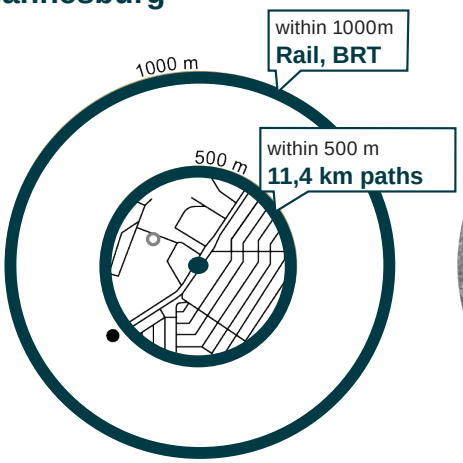
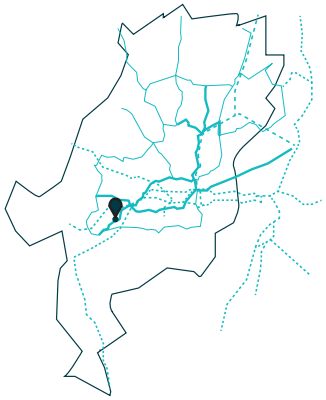


Metro
Rail
BRT
Bus

3

Johannesburg





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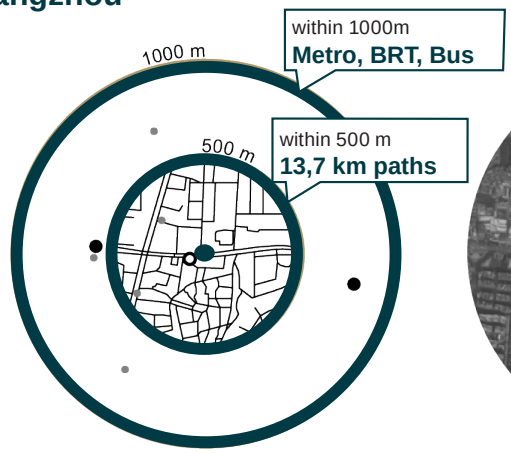

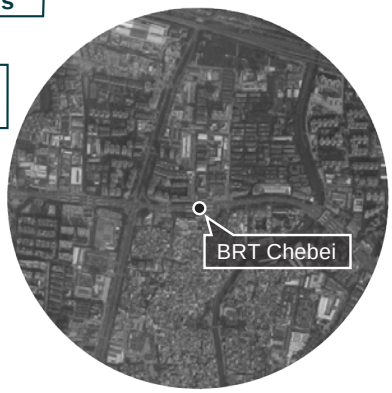

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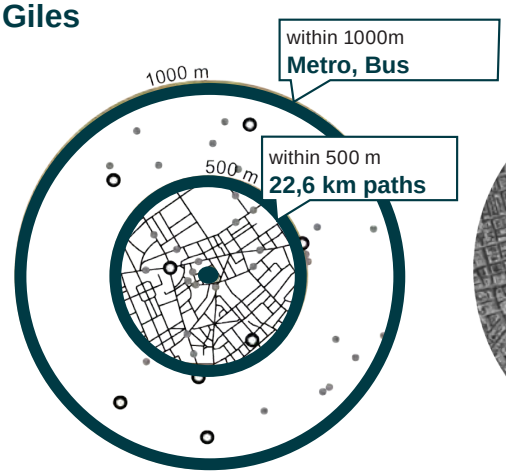
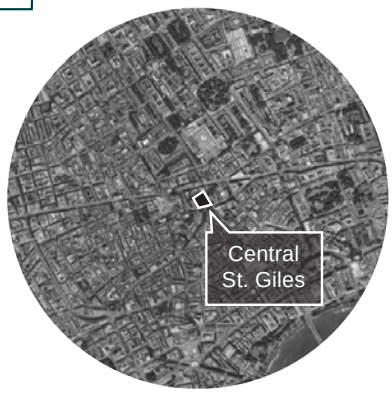
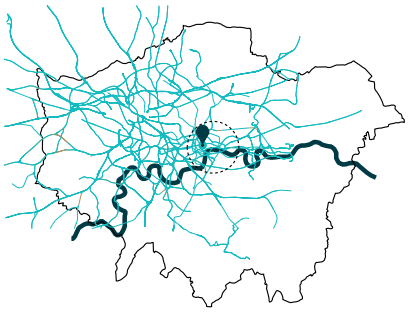






3

Stakeholders Workshop, Dar es Salaam, 2015 © Broadway Malyan

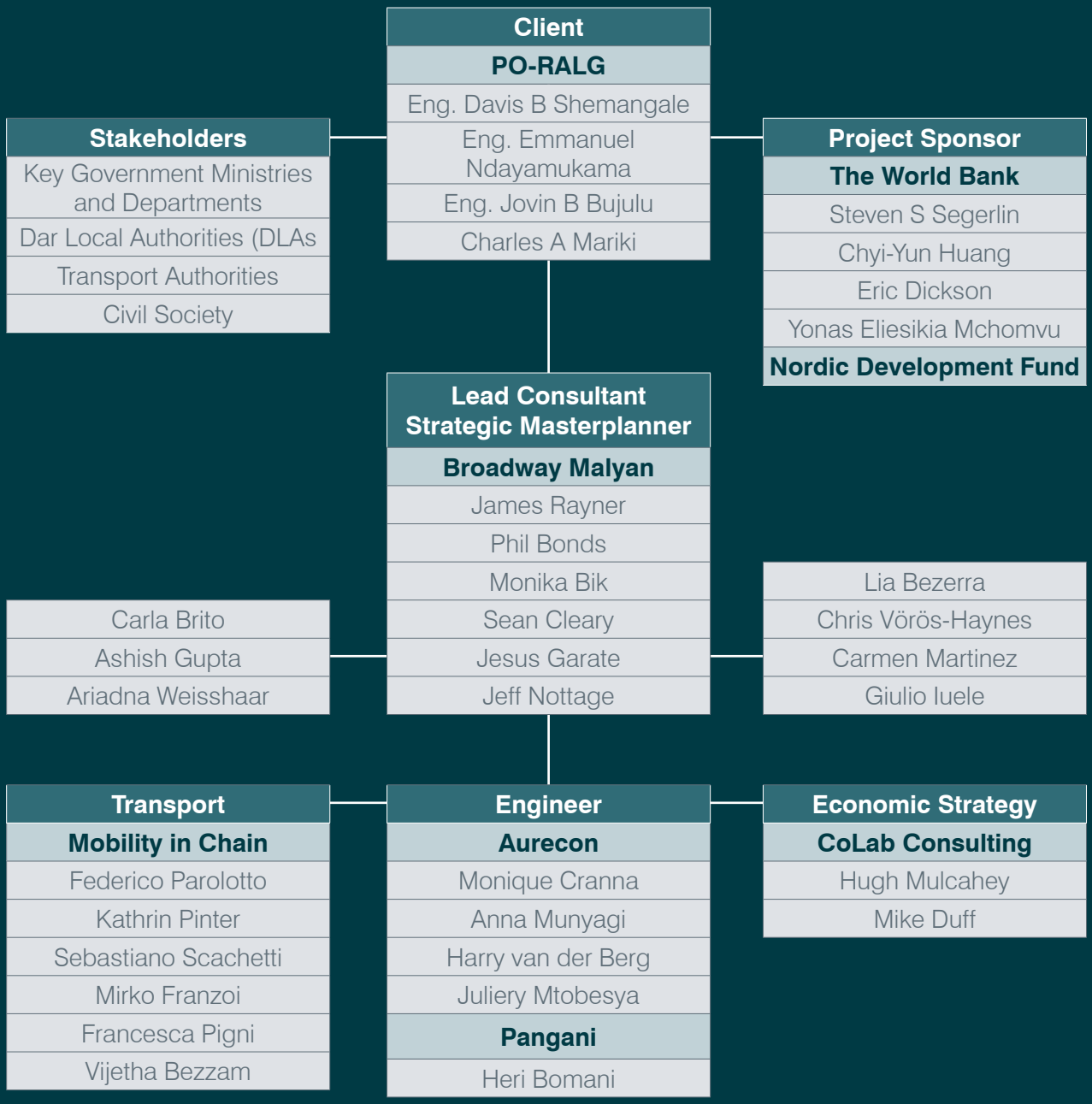
3

Project Team

The Strategy for the Dar es Salaam's BRT Phase 1 Corridor is led by Broadway Malyan, a UK-based urban planning and architectural consultancy, appointed by PO-RALG and sponsored by The World Bank and The Nordic Development Fund.

This workstream is an important segment of the Dar Es Salaam Metropolitan Development Project (DPDM), for which funds totalling $US 300 million have been set aside from 2015 to 2020 through the International Development Agency (an arm of The World Bank).

The team structure is outlined in the diagram below.



Broadway Malyan (BM)
Lead Consultant / Strategic Masterplanner

Broadway Malyan are an international city planning, masterplanning and design consultancy. BM are the lead consultant for this assignment with the following responsibilities:

Technical Role - to lead the overall technical direction of the project and specifically lead on urban planning, master planning, development planning and urban design matters.

Management Role - to lead on the overall progress against programme and scope of work and submission of deliverables. Lead on Client / stakeholder queries and responses in relation to discipline area. Liaise and respond to client queries and be responsible for overall contract matters

CoLab Consulting Group
Economic Strategy Consultant

CoLab are international economic and strategy consultants who work for public and private clients with a particular focus on large-scale urban development business case and assessment.

Technical Role – to lead on technical inputs related to economic strategy requirements of the assignment and assist on the preparation of a fully integrated response and submission.

Management Role - to lead on the overall progress against programme and scope of work and submission of deliverables in relation to the above technical role.

Mobility in Chain (MIC)
Transport Consultant

Supporting the masterplanning and real estate proposals will be Mobility in Chain (MIC), an innovative and respected transport planning consultancy based in Milan, Italy. MIC advocates sustainable mobility solutions based upon an understanding of the context and the area's needs and capacity requirements.

Technical Role - to lead and prepare the transit and transport strategy requirements of the assignment and support and assist on the preparation of a fully integrated response and submission.

Management Role - to lead on the overall progress against programme and scope of work and submission of deliverables in relation to the transit and transport strategy requirements of the assignment. To Lead on discipline related Client / stakeholder queries and responses in relation to the above technical role.

Aurecon (AUR) - Engineer & Multidisciplinary Consultant

Aurecon are a highly respected international engineering and multi-disciplinary consultant with over 20 years of project experience in Tanzania and an established office in Dar-es-Salaam.

Technical Role – to lead (where needed) and support on technical inputs related to infrastructure, utilities, transport, GIS / survey and urban planning requirements of the assignment and support and assist on the preparation of a fully integrated response and submission. Through Pangani Real Estate, Aurecon will provide advice and support on the development of real estate strategy requirements of the assignment.

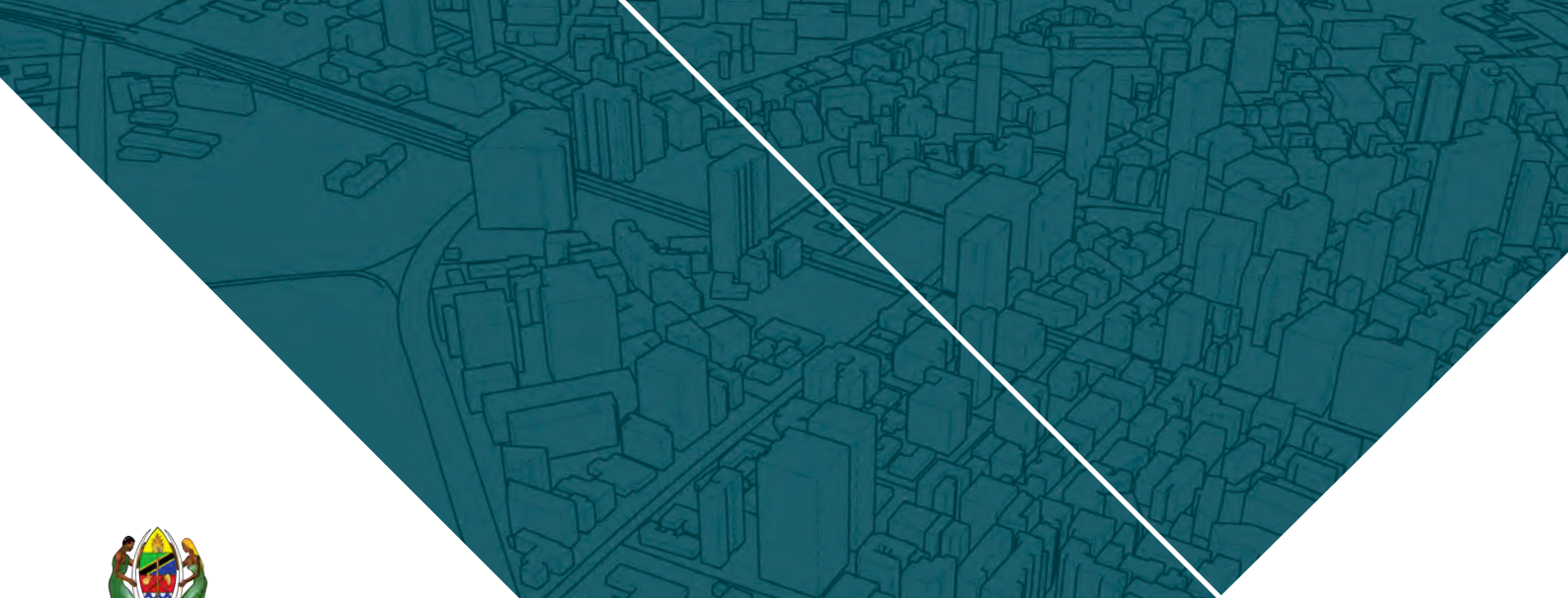
Management Role - to lead on the overall progress against programme and scope of work and submission of deliverables in relation to the above technical role and assist with stakeholder liaison, engagement and participation and logistical support.

Abbreviations

The following abbreviations are used throughout this report:

Abbreviations	
AfDB	African Development Bank
AUR	Aurecon
BM	Broadway Malyan
BRT	Bus Rapid Transit
CBD	Central Business District
CDS	Corridor Development Strategy
CRO	Certificate of Right of Occupancy
DCC	Dar es Salaam City Council
DART	Dar es Salaam Rapid Transit
DMDP	Dar es Salaam Metropolitan Development Project
DLA	Dar Local Authorities
DPH	Dwelings per Hectare
FAR	Floor Area Ratio
GFA	Gross Floor Area
GIS	Geographic Information System
JICA	Japan International Cooperation Agency
JPH	Jobs per Hectare
MC	Municipal Council
MIC	Mobility in Chain
MLHHSD	Ministry of Lands, Housing and Human Settlements Development

Abbreviations	
MOWTC	Ministry of Works, Transport and Communications
NMT	Non-Motorised Transport
OSM	OpenStreetMap
PO-RALG	President's Office, Regional Administration and Local Government
POD	Pedestrian Oriented Development
PPH	People per Hectare
PPP	Public Private Partnership
RACI	Responsible, Accountable, Consulted, Informed
RAHCO	Reli Assets Holding Company
RFI	Request for Information
RSA	Republic of South Africa
SUMATRA	Surface and Marine Transport Regulatory Authority
SWOT	Strengths, Weaknesses, Opportunities & Threats
TANROADS	Tanzania National Roads Agency
TIC	Tanzania Investment Centre
TOD	Transit Oriented Development
ToR	Terms of Reference
TRA	Tanzania Revenue Authority
WB	World Bank



The President's Office
Regional Administration and
Local Government (PO-RALG)

DAR ES SALAAM METROPOLITAN DEVELOPMENT PROJECT

Sponsored by

THE WORLD BANK
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NDF NORDIC DEVELOPMENT FUND

Project Team

BroadwayMalyan BM

aurecon

PANGANI REAL ESTATE SERVICES

MIC mobility in chain

CoLab Consulting Group