Corridor Development Strategy
in Dar es Salaam, Tanzania

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TOD CoP Meeting, November 2018
Challenges

- Uncontrolled growth (approximately 70% of Dar’s developed areas are unplanned)
- Sprawl and the proliferation of unplanned settlements
- Inadequate and limited access to infrastructure and services
- High congestion and long travel time
- Lack of clear strategic housing and development policies
- Accompanying impacts on public health, the environment and the region’s economy
- Fragmented institutional arrangements
BRT as an opportunity

- Improved mobility, access to jobs, and better quality services for the urban poor
- Catalyst for rejuvenation and urban upgrading, including improvements in streetscape, pedestrian mobility & overall environment
- Potential to curb expansion and encourage further densification
Today: City at a Standstill

Dar es Salaam suffers from urban congestion, resolved in part, by the implementation of Phase 1 of the BRT, opened in May 2016!

...average commuting times have significantly reduced...leading to improved lifestyles and higher productivity...

Tomorrow: Growth is coming!

Dar es Salaam and the wider region, are subject to great demographic change. Population growth is challenging the way the city currently operates and looks. Density, housing and employment needs are at the forefront of the agenda...

...The Corridor Development Strategy aims to prepare for it!
IMPROVING CORRIDOR CAPACITY

Corridor's Population Change
- 2017: 1,037,000 people
- 2032: 1,800,000 people

Proposed Land Value Capture could save...
- US$ 4.4 Bn
- 76,000 Affordable Homes

Corridor's Employment Offer
- 2017: 310,000 jobs
- 2022: 650,000 jobs

New Homes Needed
- 2022: 218,000 homes (new & upgraded)

Open Space
- 2032: 1,560 Ha

Corridor Land Value Capture Capability:
- MOBILITY IMPROVEMENTS
  - Provision of new roads & links
    - 2022: 203 km of new roads
    - 48% extra capacity
  - Extra BRT users
    - 2017: 155,000 passengers daily
    - 2032: 395,000 passengers daily

IMPROVING CORRIDOR FACILITIES

New Infrastructure
- Access to Sanitation
  - 2017: 54,000 homes
  - 2032: 450,000 homes
- Access to Electricity
  - 2017: 90,000 homes
  - 2032: 450,000 homes
BRT Phase 1 Corridor Development Strategy (CDS)

This TOD planning strategy seeks to maximise the benefits of the BRT Phase 1 Corridor with a new land use plan for the corridor area, articulated through the following points:

01. An up-skilled BRT Corridor focused team within the City Council. To manage strategic planning, development and to coordinate between city players, systems and infrastructure & attract investment.

02. Incentives to provide formal employment. As part of the TOD mixed use approach resulting in more jobs, more tax revenues and improved economic resilience.

03. The regulation of street trading along the corridor. Accompanied by measures to consolidate traders into purpose built facilities at strategic locations.

04. Gradual regeneration of unplanned areas - provision of affordable homes. To include the provision of infrastructure and better living conditions where tenure is formalised.

05. Increased density of development. Providing approximately 25% more capacity and increasing population along the BRT Corridor.

06. Formalise tenure where residents are willing to comply. This clarifies owners and tenants rights and confirms the habitable land within the corridor, taking households out of areas known to be at risk.

07. Creating recreational space & cycle network. Using existing rivers, floodwater channels with the BRT corridors to implement a safe and attractive park & cycling network.

08. Prioritisation of bulk utility provision. For the full length of the corridor bringing dependable services to all station areas.

09. New public amenities. Distributed to meet forecast demand underpinning better neighbourhood health, education, recreation and security.

10. Phased investment & development. That reflects the implementation of subsequent BRT lines, other planned infrastructure delivery and maintains return on investment (avoid flooding market with available land)

11. Reinvigorating historic city centre. Through enhancement adjacent to station areas.

12. Healthy city strategies. Such as adopting “WHO” open space standards and using tax incentives for new amenity space.

13. Developer Contributions. The CDS outlines a number of mechanisms that encourage investors and developers to broaden the benefits of their work, through agreed local planning contributions.

14. Place-making at the heart of TOD strategy. Creating attractive places to work and live-in Delivering liveable neighbourhoods, with emphasis on public realm.

15. TOD policies to supplement the current legal framework. This makes it simple to incorporate the codes into statutory law to make them effective & enforceable.
Strategy and Guidelines

Volume 1 - Part A:
CDS Vision and Strategy Report

(this document)

The report describes the TOD Strategy for the BRT Phase 1 Corridor. The Spatial and Economic Strategies are illustrated and supported by the explanatory narrative with necessary data and supported by and Station Evaluation Matrix. This volume is accompanied by a separate Executive Summary magazine.

Volume 1 - Part B:
TOD Guidelines for BRT Corridors

This document sets out planning, development and design guidelines to help direct development at all (existing and future) BRT stations and their wider areas. The document describes how the guidelines have been developed, sets out a series of different station typologies and gives guidance on how to implement good TOD design.

Supporting Documents

As part of the study, the team assessed a range of baseline data and material relevant to the study area and context, now retained by PO-RAI. Please note this material is for the purpose of formulating the CDS only.

Volume 2:
Baseline Assessment & Diagnosis of the BRT Corridor

(Published October 2017)

Containing analytical studies examining the baseline data within the study area. The topics range from socio-economics and real estate overview, environment, transport to urban planning and infrastructure studies. This is a 400-page set of analysis on the corridor and its city context undertaken for this project, also supported by the Appendix containing the drawings.

Volume 3:
Benchmarking Transit Oriented Development

(Published October 2017)

The volume of work capturing the key findings from the international benchmarks studies around TOD. Lessons learned in the field of land planning, land value capture mechanisms and good governance, among other topics.

Preliminary CDS Report:
Development Scenarios

(Published December 2017)

The document examines three contrasting scenarios evaluating growth strategies for the corridor. The recommended scenario has been put forward as a basis for the Corridor Development Strategy found in this document.

Appendices

Three Appendix documents supplement the main volumes to provide more detailed background information on the study work underpinning the CDS. This pertains to the following:

Appendix A:
Surveys and Methodologies

Explaining the surveys, mapping methods, assumptions applied as well as the station evaluation matrix. The outcomes of the surveys are also captured within this document as well as sources, methods and assumptions used while mapping and producing drawings of the existing conditions and proposed scenarios (such as assumptions on population, spatial standards etc.). This document also outlines the methodology used to develop the TOD Matrix.

Appendix B:
Design Strategies & Layered Basemaps

Set of A3 drawings of basemaps produced during the baseline analysis stage as well as drawings for all of the strategies found within this Report.

Appendix C:
Implementation Report

This report provides practical guidance on the implementation of development in the BRT corridor. It builds on the baseline study, stakeholder workshops, secondary research, and the CDS.

It considers numerous commercial, social and economic objectives associated with the successful development of the corridor.
How to Use the Suite of Documents

Use it regularly
Refer to the CBS for all development in the designated corridor area and for any infrastructure or social amenity provision.

Request and organise training for your team
Ensure that the public service teams involved with the corridor all have an understanding of the CBS and its strategy plans to inform any decision making.

Make notes and observations for future improvements
Review the initiatives and action plans to understand the future plans for the corridor and its key nodes. It is recommended that the strategy is reviewed every 5 years to determine whether the city is making good progress and to align it to changes in circumstance.

Have a hard copy of the Strategy Document in your office
Ensure the Corridor Strategy is used and understood by all members of your team.

Have a set of drawings available to use...

Use the digital copy of the Strategy to search topics of interest...

The strategy should be used to steer the content of more detailed plans for each community/district, and for every station area core.

Guidelines help to direct the development towards TOD principles...

Who Could be Using the Strategy?

Policy Makers
To promote spending and improvement in the corridor area.

Developers
To realise better urban forms and build to higher density in the corridor.

Ministries
To align budget spending and enhance the roads, utilities, social amenities in the corridor.

Communities
To combine forces and leverage their positions to get improved amenities and services in the corridor. They can work with the Municipalities to amalgamate land parcels to build better housing and deal with environmental and health risks.

Is the Strategy applicable at the individual plot level?

Yes & No...
It provides an overview on how the Corridor might be developed over the next 15+ years.
Overview of Scenarios

Preferred Scenario - Hybrid Framework
Development Framework

Legend

- Study Area Boundary
- Phase 01 BRT Stations
- Main Centrality - Business Oriented
- Main Centrality - Residential Oriented
- Main Centrality - Community Facility Oriented
- Secondary Centrality - Residential Oriented
- Secondary Centrality - Community Facility Oriented
- Synergies Between Centralities

Legend:
- Market
- Main Health Facility
- University
- Industrial Hub
- Hotel Cluster
- Municipal Offices
- Emergency Services
- Business Centre
- Primary / Secondary Education Cluster
- Research Centre
- Open Space / Parks
- Dedicated Parking
- Park & Ride Facility
- Train Station
- Ferry Terminal
RECOMMENDED INITIATIVES

Twelve suggested initiatives are summarised to promote the strategy and enhance the Corridor. In each case a lead agency is suggested, which could take responsibility for delivering the recommended initiative. Each varies in scope and difficulty.

The first are planning-related, moving on to funded programmes and grants for third parties, ending with physical projects that apply the CDS principles to sites of key importance.
Pilot Project – Ubungo Secondary City Center

Seed Project

Area for local regeneration through incremental process, greening, and implementation of utilities and landscaping.
The existence of a large plot currently used as coach station which will be relocated in the future and the high accessibility of the area which will be covered by BRT Phase 1, 4 & 5 offers a great opportunity for setting a new secondary centre and pilot project for future station areas.
Methodology

The model uses a discounted cashflow including development costs and property values to calculate the Internal Rate of Return (IRR) to the developer. All calculations are before interest payments and tax as these components require specialist financial advice. The results of this modelling exercise do not constitute investment advice but are intended to illustrate an approach to options appraisal and business case development.

The model is blind as to whether the developer is a public or private sector developer and assumes that the developer is paying for land. Land that is clearly exclusively for BRT use has been excluded from the land price.

This approach allows for the examination of the potential for Land Value Capture in three respects:

- A variable, developer, contribution to site infrastructure and bulk infrastructure (city-wide needs)
- A developer contribution in the form of affordable housing to be built and given to third parties to operate
- A developer contribution in the form of a City Infrastructure Payment to subsidise more affordable housing and infrastructure elsewhere in the corridor.

The Scheme

The Utongo scheme is built in an area adjacent to the existing terminal. Figure 5.12 and Figure 5.13 summarise the proposed development mix.

<table>
<thead>
<tr>
<th>Land use category</th>
<th>GFA (m²)</th>
<th>%</th>
<th>Pop</th>
<th>Units</th>
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<td><strong>Total</strong></td>
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<td><strong>2,156</strong></td>
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* GFA excludes parking areas

Phasing

The development phasing takes into account the construction of additional BRT lines in the future and consequent increases in footfall as the station facilities are extended. The increase BRT capacity in the local area will increase demand for retail space and parking.

The development period used in the model, currently five years design and construction, may be flexed as local demand changes or market capacity varies across the city. The pace of development could be speeded up or slowed down depending on demand. It should be noted, however, that slowing down the rate of development will have an adverse impact on profitability and may ultimately make the proposals uneconomic.

The scheme has been phased considering proposed additions to the City’s BRT network. Figure 5.14 shows the phasing.

<table>
<thead>
<tr>
<th>Parcel Code</th>
<th>Subcode</th>
<th>Use Components</th>
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<td>1a-B</td>
<td>1 to 5</td>
<td>Residential &amp; Retail</td>
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<tr>
<td>2a-B</td>
<td>Mall</td>
<td>Residential &amp; Retail</td>
</tr>
<tr>
<td>2a-C</td>
<td>1</td>
<td>Office</td>
</tr>
<tr>
<td>2a-C</td>
<td>1</td>
<td>1</td>
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<tr>
<td>2a-C</td>
<td>1</td>
<td>2</td>
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<td>2a-D</td>
<td>Station</td>
<td>Transport Infrastructure</td>
</tr>
<tr>
<td>3c-D</td>
<td>1 &amp; 5</td>
<td>Residential Market</td>
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<tr>
<td>3c-D</td>
<td>1</td>
<td>Community Facilities</td>
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<td>3c-D</td>
<td>1</td>
<td>Hospital</td>
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<tr>
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<td>2 &amp; 5</td>
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<td>3c-D</td>
<td>Station</td>
<td>Transport Infrastructure</td>
</tr>
<tr>
<td>3c-E</td>
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<tr>
<td>4A</td>
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<td>Residential Affordable</td>
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<tr>
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Figure 5.12 Proposed Development Mix
Figure 5.13 Development Mix, Percentage Split
Figure 5.14 Proposed Phasing
Figure 5.15 Phasing GFA (sqm) per year
Delivery

It is recommended that a master developer oversees the land project and the transformation of Utengo. This ensures each parcel is developed in line with the CBD. Individual parcels would be auctioned and sold for private developers to develop, including any land value capture benefits, such as affordable housing.

City and transport authorities will promote the implementation of the transport interchanges.

Land Use / Public Realm

The site has been modelled to maximise the ridership of the BRT, with diverse retail, residential and commercial uses on the west side of the site, and with mixed DART BRT transport services on the west side, interconnected by an enhanced public realm and pedestrian links. The main plaza will serve the BRT Phase 1 stations, the retail centre and will articulate to the future connections with Phase 4 & 5 interchange.

Phasing

The seed project will be phased with the initial work associated with the retail centre and residential development above. As the subsequent BRT lines are phased as the area of the site would develop. Once the 2 main elements (retail centre and BRT interchange) subsidiary elements will be included such as parking and secondary retail areas. The affordable residential cluster in the north will depend on the market trends and a construction capacity.

Subsequently the project would widen its remit to include the office campus to the west and the economic zone to the south.
Ubungo Today (Before)

Today, Ubungo station area is difficult to distinguish as a centre of activity, and is characterised by street vending stalls and transport infrastructure.

The coach station plot is underutilised having a large dimension that creates an urban barrier for the local neighbourhood.

The industrial plots, particularly on the Southern part of the study area, also offer a great opportunity. Due to the large underutilised parcels and the absence of a clear centrality gives a chaotic character to the station area.

Vision for Ubungo (After)

The seed project at Ubungo, on the north side of Mologoro Road provides dense mixed-use activity to intensively develop this important node, with enhanced streetscapes and high-quality buildings that address the highway and create a prominent gateway to the city.

It has the capacity for becoming a city destination with adequate open space areas and commercial or employment offer. At the same time, it will be one of the key hubs along Mologoro Rd and therefore, one of the most important city centres.
Key Takeaways and Material for CoP

- Methodology, process and approach of CDS
- International benchmarking
- Station Evaluation Matrix
- Station area typologies and development approach
- Universal TOD Toolbox & Guidelines

TOD Guidelines: Step by Step

The “4 steps” below describe how to use the overall TOD framework and the TOD guidelines to encourage and direct TOD development along a BRT or other transit corridor. These steps are the recommended approach to be used by planning authorities, developers, investors and consultants to plan for TOD development and assess whether development proposals are compliant with the TOD guidelines.

**STEP 1**
Review & Understand the Corridor Framework Plan and identify the Recommended Station Area Typology
- Review and understand the characteristics of the overall corridor and identify the correct typology for the station

**STEP 2**
Define Station Influence Areas and undertake relevant station assessment
- Define the various different levels of station influence and carry out a full assessment of the station and surrounding area

**STEP 3**
Review & Apply the Recommended Station Area Typology Guidelines
- Use the Station Area Typology Guidelines to ensure development proposals fit station specific TOD approaches

**STEP 4**
Apply Recommended General TOD Guidelines using the TOD Toolbox
- Use the TOD Themes and TOD Toolbox to understand the general set of components and guidelines that should be integrated in all station typologies
The Top 5 Benchmarks

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

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 planning 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.

Key Data: Curitiba & Dar es Salaam

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<th></th>
<th>Curitiba</th>
<th>Dar es Salaam</th>
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<td>Pop.</td>
<td>1,879,365</td>
<td>4,344,561*</td>
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<tr>
<td>Area</td>
<td>431 km²</td>
<td>1,056 km²</td>
</tr>
<tr>
<td>Den.</td>
<td>4,062 pk/km²</td>
<td>1,133 pk/km²</td>
</tr>
<tr>
<td>BRT</td>
<td>76.6 km</td>
<td>21.7 km</td>
</tr>
<tr>
<td>Stations</td>
<td>123</td>
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</tr>
<tr>
<td>Daily Demand</td>
<td>619,600</td>
<td>294,000*</td>
</tr>
<tr>
<td>Peak Frequency</td>
<td>54</td>
<td>30*</td>
</tr>
</tbody>
</table>

Curitiba BRT

System Length: 76.6 km
Stations: 123
Daily Demand: 619,600
Peak Frequency: 54

Dar es Salaam BRT

System Length: 21.7 km
Stations: 32
Daily Demand: 294,000*
Contextualise the Stations

Understand station as a part of larger network in DSM

TOD Station Evaluation Matrix

Evaluate individual stations and group them through their potential to achieve TOD development

The selected criteria are:

Market Potential
- Investor attractiveness
- Market vibrancy
- Prosperity
- Nodal value
- Public transport population catchment
- Public transport employment catchment
- Ridership

Development Readiness
- Ease of land assembly
- Ownership
- Developable land
- Planning status
- Land formality
- Access to infrastructure

TOD Characteristics
- Connectivity to public transport
- Human density
- Development density
- Mix of uses
- Permeability
- Access to community facilities
Universal TOD Toolbox

Comprising typical features and components that are common to all station typologies. Focused on transit supportive outcomes that reflect best practice.

Please refer to Part 2 of this document.

Each of the Station Area Typologies will have different characteristics and therefore development guidelines to suit. The guidelines are structured into 7 broad themes which are accompanied by a ‘toolbox’ of best practice which is to be applied to all stations regardless of its typology.

7 Broad Guideline themes:
01 Station Influence Zone
02 TOD Compatible Land Uses
  - Typical Land Uses
  - Recommended Land Use Mix (%)
03 Development Density / Massing
04 Typical FAR (200-500m and 500-1km Density Gradient)
  - Average Employment Density
  - Residential Employment Density
  - Typical Building Heights (Range)
  - Typical Urban Block Parameters
05 Connectivity / Network
  - Assessment of Existing Network
06 Place-Making & Soft Mobility
  - Connect
07 Parking
08 Infrastructure

02 TOD Compatible Land Uses

BRT Stations should be prioritised for transit access and the flow of people to the corridor. The station provides greatest accessibility at the concourse areas and diminishes as land is placed further away, and is also influenced by feeder systems that connect with the station.

Ensure TOD precincts support the operation of transit services. Station areas should accommodate higher density activity that relies upon transit access, rather than car access. Typically this prioritises urban offices, blocks over business parks or industrial development, high street shops over retail parks, and apartments over single family homes.

Incorporate higher-density uses in TOD precincts to boost ridership while leveraging value from the BRT system. This helps set density and height parameters for Station Areas to ensure development is transit supportive.

Establish a fully integrated system of intermodal networks. Define and promote uses that achieve an appropriate modal share for public transport, cycling and walking, by providing high levels of accessibility and public amenity.

03 Development Density & Massing

Allocate an appropriate level of on- and off-street parking provision to support modal shift and support walking, cycling and public transport accessibility.

Provide TOD parcels with adequate capacity of essential utility services to allow planned densities to operate while maintaining a sustainable approach to the use of power, water, telecommunications, waste and sanitation.

04 Connectivity Network

05 Place-Making & Soft Mobility

These guidelines consider how the public realm can respond to the quality of built form to create memorable places within a safe, legible streetscape network for a range of users.
THANK YOU!
Access full report here.

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Artist impression of the aerial view of the BRT Phase 1 Corridor © Broadway Malyan