CIG UGANDA

ASSESSMENT OF LAND USE PLANNING

Bus Rapid Transit-KCCA/GKMA | June 2020

UKaid from the British people

Cardno®

CIG Uganda is funded with UK Aid and implemented by Cardno International Development

This work is a product of the staff of the Cities and Infrastructure for Growth Uganda, a UK Government funded programme implemented by Cardno International Development in Uganda. The views expressed in this publication are those of the authors and do not necessarily reflect the views and policies of the UK Foreign and Commonwealth Development Office (FCDO), Cardno International Development or its Board of Governors of the governments they represent.

Cardno International Development does not guarantee the accuracy of the data included in this publication and accepts no responsibility for any consequence of their use.

Any queries should be addressed to the Publisher, CIG Uganda, Plot 31 Kanjokya Street, 3rd Floor, Wildlife Tower, Uganda Kampala or Cardno International Development, Level 5 Clarendon Business Centre, 42 Upper Berkley Street, Marylebone, London, W1H5PW UK.

Cover photos: CIG Uganda

Table of Contents

LIST OF FIGURES

LIST OF PLATES

LIST OF TABLES

ACKNOWLEDGEMENTS

The report was prepared by CIG Consultant; Dr. Charles Koojo and peer reviewed by CIG team comprising of Benjamin Olobo, Infrastructure Advisor; Dick Komakech, Deputy Team Leader and Helena McLeod, Team Leader.

We would like to acknowledge the input of the team at the Ministry of Works and Transport and other sector players for their contribution and input into the report.

EXECUTIVE SUMMARY

The Cites and Infrastructure for Growth (CIG) Uganda is a five-year UK Government funded programme implemented by Cardno International Development with partners Genesis, ORI and Riccardo. The programme commenced in June 2018 and is expected to run over a 5-year period to June 2023. CIG delivers the support to MDAs through either TA or support to planning and implementation programmes.

In July 2019, DFID approved the project proposal for GKMA Bus Rapid Transit (BRT) preparatory and planning studies that is focusing on coordinating and supporting the technical and strategic aspects of BRT planning. This is expected to feed into the next stage of finance mobilization and implementation of the BRT project. As part of this BRT preparatory planning activity, there is a requirement to undertake an assessment for Land use planning and integration with BRT to identify areas for policy revisit or amendments prior to BRT project implementation and eventual operation and management.

The objective of this report is to present the findings on land use development within the 3 identified BRT corridors along Jinja Road, Gayaza Road and Entebbe Road, and provide recommendations to improve and maximize the future operation of the BRT.

The land use assessment utilized a methodological approach that comprised both desk review of primary and secondary information and interrogated GIS data with a mapping survey to zone out the areas of interest that extended to a 1Km corridor from the center line of each BRT road corridor.

Major Findings

- There is a wide mix of land uses in the proposed BRT corridors, including residential areas, retail office, and public areas distributed throughout the corridor but particularly focused within KCCA;
- A more comprehensive understanding of the relationship between land uses and BRT systems is needed, particularly in comparison to other multi modal transport systems in the GKMA as this was not undertaken in all the earlier BRT feasibility studies;
- It is crucial to use integrated land use strategic development options to guide the development of GKMA's transport systems (more specifically BRT). This should take into account their development trends, so that urban nodes / centers can fulfill their potential and discharge their essential role in ensuring rapid socio-economic development;
- The land use assessment revealed that developers within GKMA tend to prefer development of peripheral green fields rather than urban redevelopment in the city core, because green field development is faster and costs less up front;
- During the land use assessment, it was found out that the various urban authorities have neglected urban design at the neighborhood and street level hence transit development orientation investment development not taken into account and not a priority. The lack of urban design elements creates a disconnect between the transit system and the surrounding neighborhoods.

Recommendations

- To support the maximization of the future BRT there is a need to undertake a deeper review of GKMA density and land values and adopt the use of Transit Oriented Development (TOD) in BRT subsequent planning
- A number of GKMA transport improvement initiatives (e.g. Tondeka buses, Green Buses, Non Motorised transport) have been highlighted recently and it is imperative that coordination and planning are critically looked into to ensure strengthened coordination and assessment from a land use perspective;
- Introduce use of Urban hierarchy Service areas, since a number of core economic nodes within the City do not have sufficient capacity (residual floor area or vacant land) to absorb the demand for new residential development (or trip producing land uses);
- GKMA and the planning authorities to have a Densities and Interventionist approach to effectively have the BRT scale up creation and distribution of employment within KCCA and the GKMA

Overall the noted findings and recommendations are expected to lead to a more focused policy discussion between MOWT, KCCA, Planners and Policy makers with a view to firm up the future planning and development of the GKMA BRT system.

1.0 INTRODUCTION

1.1 Linkage of Land Use Planning and Transportation

The general urban planning concept for urban structure should be able to organise and direct human activity and land use. This in turn determines the city's legibility and impacts on its functioning and hence its efficiency and productivity. The urban structure attracts channels, enables or constricts movement. It sorts, orders, enables or limits levels and scale of activity (residential, economic, recreational, et al). It contributes to the urban form, intuitively informing both resident and visitor as to the "natural" location of facilities and activities; or fails to do so. It balances and integrates the natural and the built elements into a cohesive whole or mixes them in a haphazard, mutually detrimental manner. It confers identity to the City and the specific neighborhood, be it positive or negative, in as much as the individual home confers identity to its residents.

Transportation and land use are closely linked aspects of urban development and calls for integration for the proposed Kampala physical Development Plan (KPDP 2013) and GKMA BRT project. Transportation is the means for making a city accessible for its residents; a well-maintained, multi-modal, efficient transportation system is essential to a healthy, sustainable city. In terms of operational efficiencies BRT can be most effective when integrated within a broader planning framework encompassing land use policies, zoning regulations and economic and community development and regeneration. Unplanned land use utilization may have negative effect on BRT, in terms of terminals, bus stops, shelters, traffic generation, collection etc.

The aspects of land use planning challenges, although known in GKMA have not been fully integrated and considered within the context of Urban Transport and especially the plans to introduce BRT. Therefore, the benefits of BRT could be improved through a broadened land use planning level assessment and integrated neighborhood detailed development strategy. In turn, the relationship of BRT's modal interchanges must be connected to the parallel other modes of transport and the corridor transportation initiative and the inland waterway system.

1.2 Scope

The land use assessment for the GKMA BRT was undertaken between June 2019 and March 2020. Not all types of development, which have implications on the land use, and urban development regularly occur along BRT corridor but could be within the easy reach of other types of transport. This land use assessment focuses on developments that have occurred and more likely to occur along the proposed BRT corridor from 2012-2019. This study counts a development as being along BRT transit if it is permitted within a radius of 500 m corridor.

The study finding provides insights on the urban and transportation dynamics within the KCCA and GKMA BRT corridors with regard to the urban physical space, the built environment and local users.

1.3 Overall Objective

The objective was to obtain a comprehensive understanding of the BRT project and opportunities within GKMA urban transport system. This would inform the intervention to support the preparation and planning for the BRT project, which had previously stalled since 2014 and is reported to have been on the national transport priority agenda (NPD 11) for the past ten years. The current NDP 111 under integrated infrastructure prioritizes the Implementation of the mass rapid transport system (Light Rail Transport (LRT), BRT/Mass Bus Transport (MBT) and cable cars (Third National Development Plan, 2020/2012- 20240/2025.)

Specific objectives of the land use assessment were to:

1. Assist decision makers by conducting land use inventories and analyses in the BRT specified corridor area for study; and
2. Determine appropriate land use and transportation interventions along this section of the BRT corridor;

2.0 METHODS FOR BRT LAND USE ASSESSMENT

a) Desk top literature review: The desktop was used to help the consultant to define with high degree of certainty the area of influence to be able to assess the proposed land use changes of the BRT corridor. Relevant documents related to the BRT have been the basis for review in order to identify gaps and relate it with the current existing situation. Identified gaps in all these feasibility studies land use planning was not a very significant factor in determining the BRT corridor.

b) Policy Documents Review: Reviewed the National Land Use Planning Policy(2014) and practice in GKMA and overall for BRT implementation: The review included consultancy reports on physical development plans and transportation master plans for KCCA and GKMA, UBOS census reports, research reports, policy documents, regarding social services and infrastructure related subject matter with emphasis on related KCCA and GKMA. Further relevant national and local legislation that are likely to have urban land use impact on the implementation of the BRT Project were analysed:

i. **Documents reviewed.** The national physical planning Act, 2010: it has no integration and linkages of land use and transportation plans. However, the draft national physical development plan 2019-2040 does highlight these linkages and recommends that action plans for the GKMA should be undertaken by KCCA.
ii. **Multi-Modal Urban Transport Master Plan for Greater Kampala Metropolitan Area (GKMA), 2017:** The aspect of land use was not a major factor in determining the BRT route and therefore there is a need to further explore future Kampala city and GKMA land use growth patterns.
iii. **Desirable development will also probably require a change in mind-set of many sectors of the population,** whereby houses on single plots are desirable, even if this means locating in areas at increased distances from concentrations of employment in the CBD and other commercial and industrial areas. Both services and transport facilities cannot be provided in a cost effective manner under conditions of urban sprawl.
iv. **There are a number of opportunities to resolve this situation:** Kampala Physical Development Plan, 2013 did emphasize on the need of integration of the land use and transport. A feasibility study for a BRT in Kampala was carried out in 2011-2013 with a World Bank financing and did not incorporate the anticipated future land densities and zoning.

c) The land use assessment employed a participatory analysis approach: The assessment explored how individuals livelihood strategies were influenced by transport service and, in turn, how transport services influence individuals livelihoods. Participatory land uses was applied to form a direct link between the sharing of knowledge about transport and land use and how that knowledge might be put to use by KCCA, local governments, operators, regulators and others.

d) Identification of Key Stakeholder for Consultation and Meetings: Meaningful consultation and engagement with various interest groups located along the BRT corridor, engagements with MDA's(government ministries, departments and agencies i.e. KCCA, Wakiso and Mukono districts, Uganda Railways, MOWT&C,MLH&UD/Physical Planning Directorate,) bus riders, bus operators, market vendors, and civil society organizations is critical to ensure that the views, interests and concerns of project stakeholders are taken into account in the assessment of the land uses and integration of the project

e) A land use planning SWOT Analysis: A SWOT analysis of current urban planning/ land use policies was undertaken and identifies gaps that may have a pertinent bearing on efficient BRT implementation

f) Land use conditions and analysis of the Kampala BRT Study: An area within the BRT corridor using a land use classification system was developed by the consultant in close collaboration with KCCA in order to delineate a relatively major activity. **Annex 1**

g) The assessment exercise was supplemented by baseline inventory of various land uses conditions and urban development along the BRT corridor project area: This would be the basis for urban transportation and land use strategy that could encourage sustainable development in Kampala city and the GKMA.

h) Evaluation of Urban Density: High urban density was identified as a primary determinant of public transport ridership; the land use assessment evaluated the density as a determinant factor for the success of the BRT implementation. Density is seen as a significant factor influencing the success of Transit Oriented Development (TOD). Urban density is one of the key features affecting the performance of TOD in reducing private auto travel needs compared to lower density suburbs.

i) The sampled economic activity and employment inventory: This was undertaken in order to help in determining future trends and frequencies of land use changes. A simple but effective method was developed to explore and quantify the types of economic activity. Because individual commercial developments and structures often contain many different types of land uses, each individual economic activity was counted as a separate economic activity.

j) BRT field Observation: This has been supplemented by the urban planning observation of the proposed BRT current corridor and pilot routes through visual scoping exercise;

k) Non-participant observation: This was documented with the use of photographs, to determine and compare land use and transportation activities within the BRT study area.

l) Selection of the initial study focus area was crucial: The Selection and study catchment areas extending (500m either side of the road Centre line) and selection around the proposed BRT stations within the corridors were critical aspects of the spatial area of study: Survey methods included sample interviews with property owners or real estate developers. This was planned to take into account significant clusters of housing or commercial service; the nature of the property sub-market along the BRT corridor; and the need to avoid the restricted land use type, such as institutional land.

m) GIS data collection and mapping: Google Earth in the identification and mapping out the different clusters (Class classifications) over the years and then this data were exported to arc GIS software for further analysis and making of maps.

Limitations

An economic/ employment activity inventory and land use analysis was undertaken based on the smallest unit available for analysis (that is, a semblance of city blocks were created, using the street layout of the area). It was not possible to get employment statistics for employment areas within the GKMA.

To determine where land is developing and where no transit has yet been designed to serve the new development, one should look at net changes in housing and commercial units over the past ten years.

Another good source of data would have been building permits issued but not constructed as a guide to where new development is likely to take place but it was not possible to collect this data from the planning department or the building department of KCCA and the municipalities in the GKMA.

3.0 SITUATION ANALYSIS OF KAMPALA CITY STRUCTURE AND THE GKMA

There are nine corridors that were identified in the BRT study undertaken in 2012 by ARUP. This assessment according to CIG has however been limited to three phases identified as a possibility to collaborate with KCCA to implement a full BRT network. The pilot phase (phase A) will focus on the implementation of the BRT corridors on Jinja Road, Gayaza Road and Entebbe Road. Phase B1 will comprise the extension of the Entebbe BRT corridor up to Kajjansi in parallel with Phase B2 for the BRT corridors on Port Bell Road and Kira Road as well as the BRT corridor on Yusuf Lule Road. The planned BRT network with conceptual BRT station in figure 3-1 below.

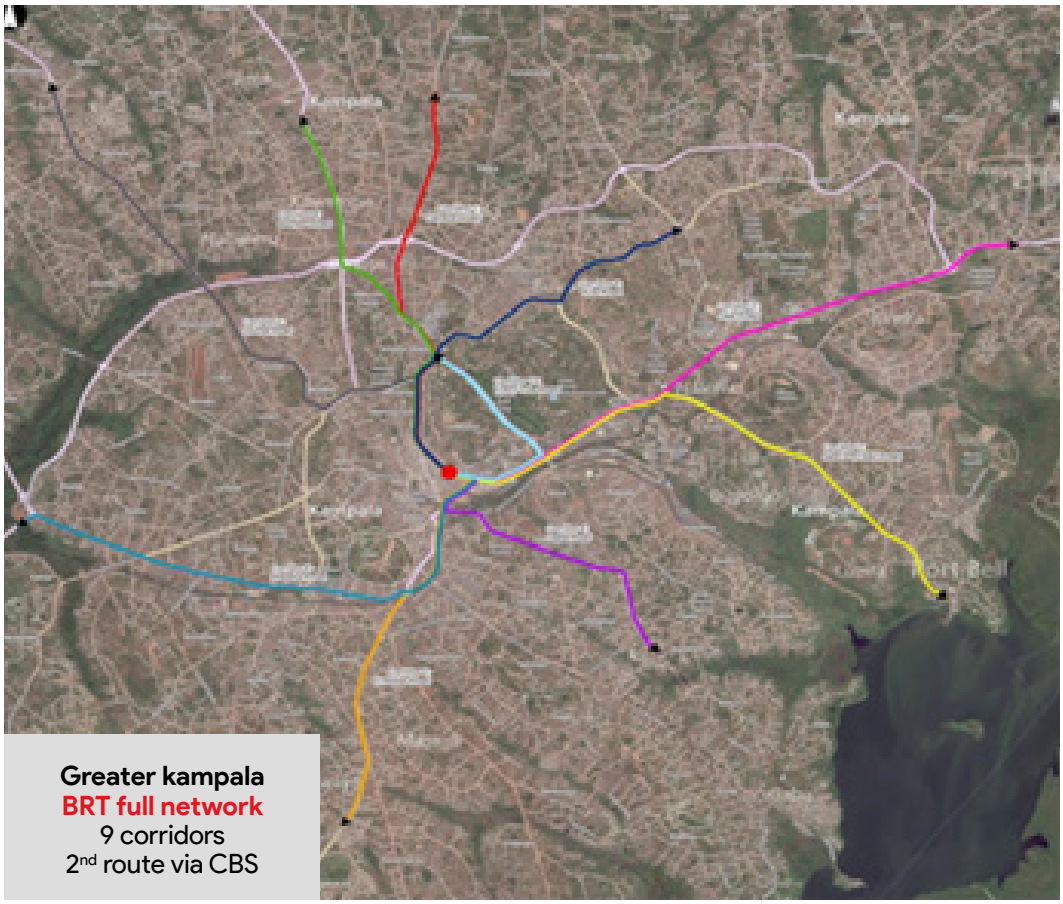

Figure 0-1: BRT full network

The pilot KBRT scheme design length comprises a "Y-shaped" corridor that runs along 3 alignments: from Bwaise via Gayaza Road and Bombo Road; Bombo Corridor along Jinja Road to Kireka; Jinja and corridor along a branch to the south via Entebbe Road to Zana;

As such, Kampala urgently requires a coherent, legible, functionally efficient structure, on the metropolitan and city scales, and indeed on the local neighborhood scale, to begin tackling its current severe social, economic and environmental problems and its considerable future challenges. The GKMA is effectively composed of the following:

i. The Metropolitan Core - the City Centre;
ii. An Inner Ring - the Inner City Suburbs - with only minor gaps in the ring defined by significant natural constraints (channels and large wetlands) to the south-east; An Outer Ring - the Outer Dormitory Towns and Suburbs - with gaps to the south and east again defined by the same natural constraints; incorporating most of Kira and Nansana Towns;
iii. Peripheral Towns - specifically Entebbe (distinctly the most urbanised), Mukono (with a small, weak urbanisedcentre) and Wakiso (with a town centre reminiscent of an enlarged village centre).
iv. Significant Peri-Urban extension "fingers" to the south-west towards Entebbe (with a peri-urban extension developing from Entebbe northeast towards Kampala) and to the east towards Mukono.

3.1 Typology, Land use and Population Density in the GKMA

The present land use of the Greater Kampala Metropolitan Area, shows that 60% of the are remains underdeveloped (See figure below), however, the project road dalls into Kampala Capital City Authority, which is entirely built up, unlike the rest of the GKMA.

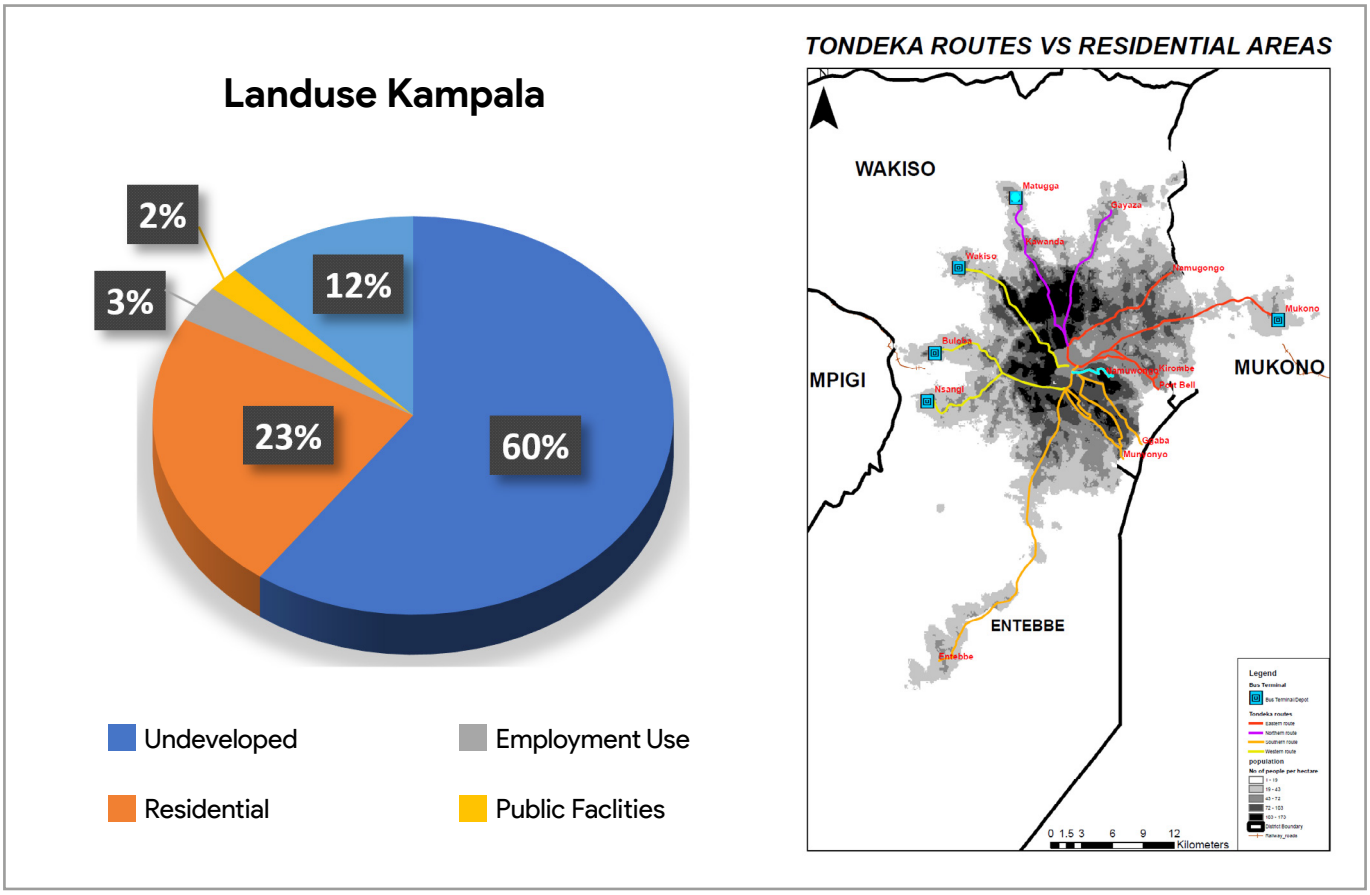

Figure 0-2: Land Use in the GKMA

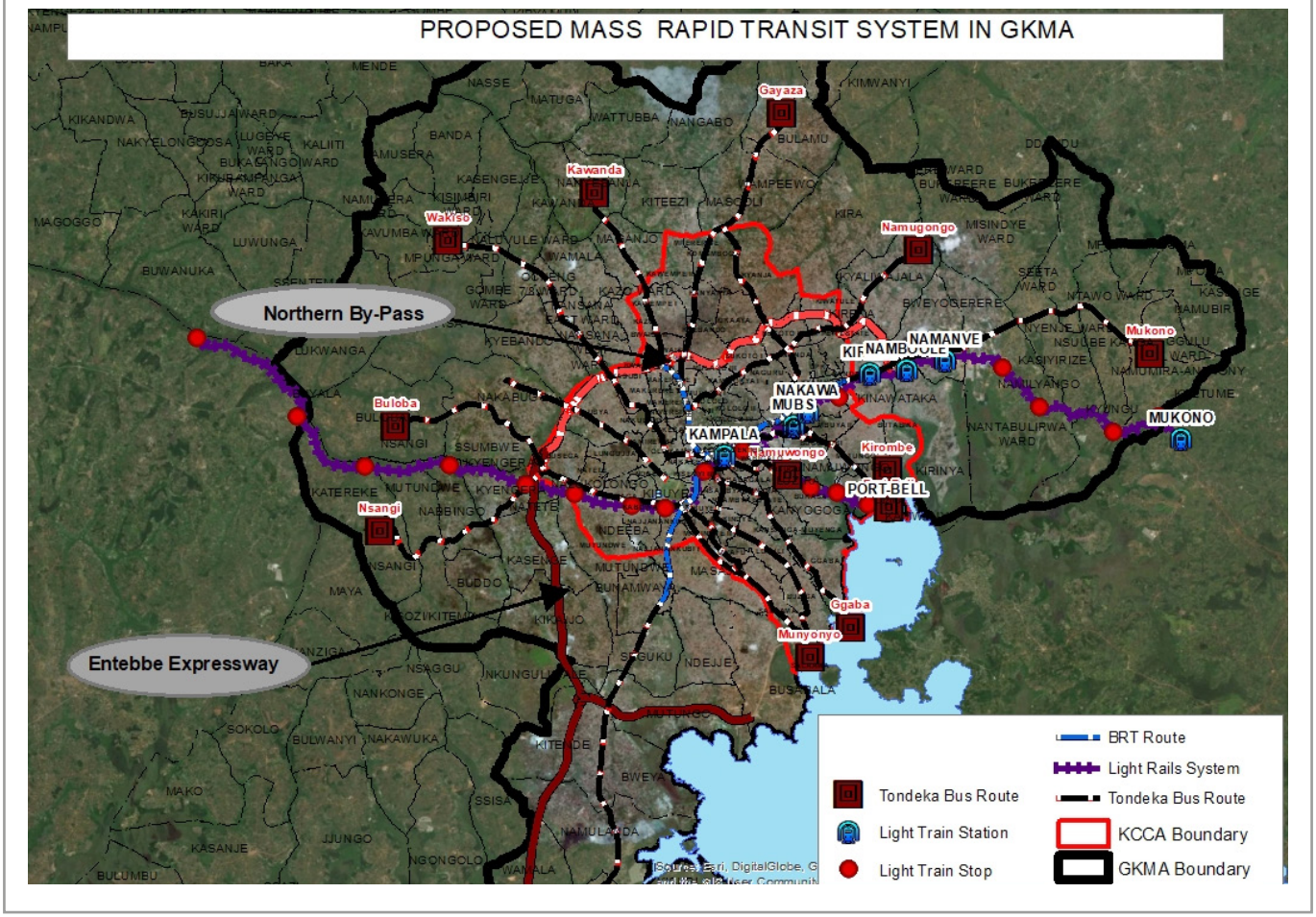

Figure 0-3: Tondeka Routes

3.2 Population Density and Work Place in GKMA

The population density within the BRT and the proposed Tondenka is indicated as above. The highest ha is towards Kawempe division along Bombo and Hoima road. Population density distribution, land use mix and corridor length can each have considerably stronger causal links to public transport viability, than city population density in isolation. Employment assumes ongoing urban sprawl throughout the GKMA with some densification of existing urban centres. Using population density, unemployment and household income the areas with the highest social inequality were mapped with GIS (the highest concentration highlighted with red), including economic clusters and employment opportunities, using the integrated zoning of the KPDP.

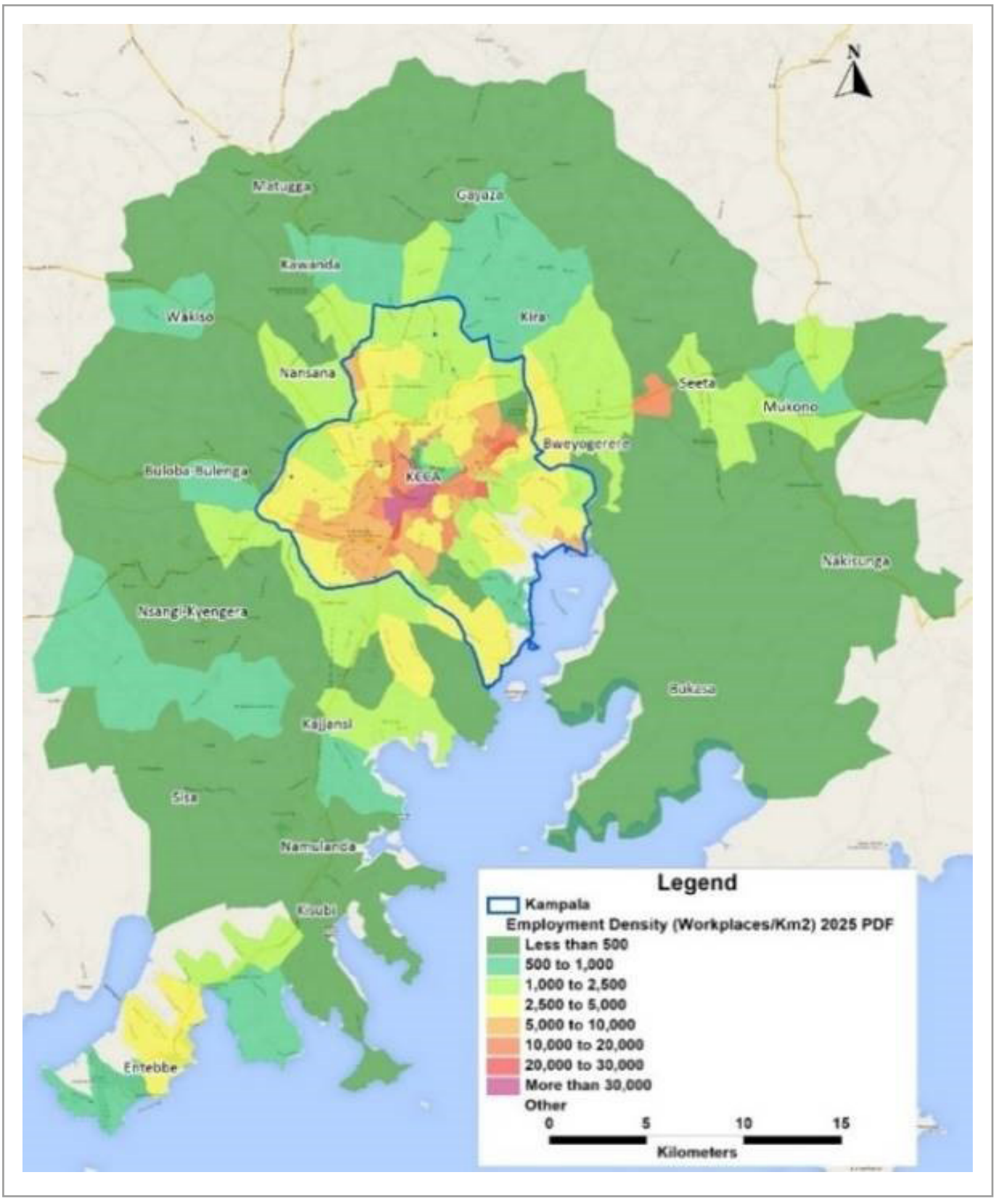

Figure 0-4: Employment Density (Workplaces/Km²) 2025

GKMA Metropolitan Transportation Plan: The new metropolitan transportation plan incorporates new metropolitan highways and the existing roads system as a local system, which passes through and serves the existing and new urban organs. The metropolitan transportation plan was based on a radial structure combining radial highways and concentric ring roads, which together create an efficient and coherent structure. The ring-roads system is divided into three rings; inner ring, mid ring and Outer ring.

The proposed new roads are located in presently "vacant areas /undeveloped" and will serve as a highway system for rapid transport. An extensive BRT system will pass along the existing roads and routes, reaching the centres of population and moving them in and out of the KCCA.

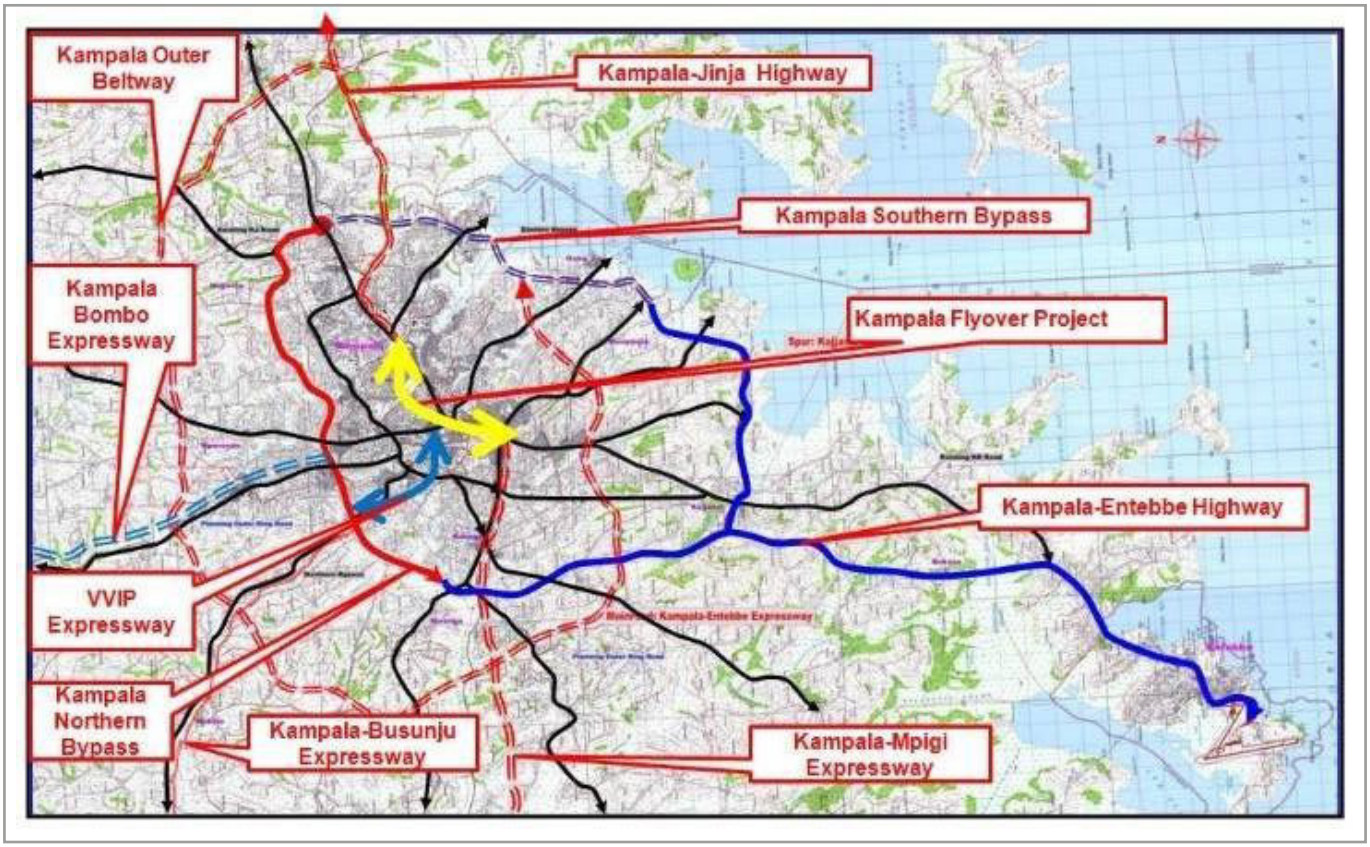

Figure 0-5: Proposed Express Ways in GKMA

Figure 0-6: Conceptual Drawing Flyover Clock Tower to Jinja road and Yusuf Lule road

4.0 LAND USE ASSESSMENT FINDINGS OF THE BRT CORRIDOR 2012 -2019

There is a wide mix of land uses in the proposed BRT corridors, including residential areas retail, office, and public areas distributed throughout the corridor but particularly focused within KCCA. The commercial areas represent the population centres, and the retail, office, market areas, public, and informal small-scale industrial areas represent significant employment centres.

The figure 0-7 below Illustrates the land uses in the selected KCCA BRT corridor study area.

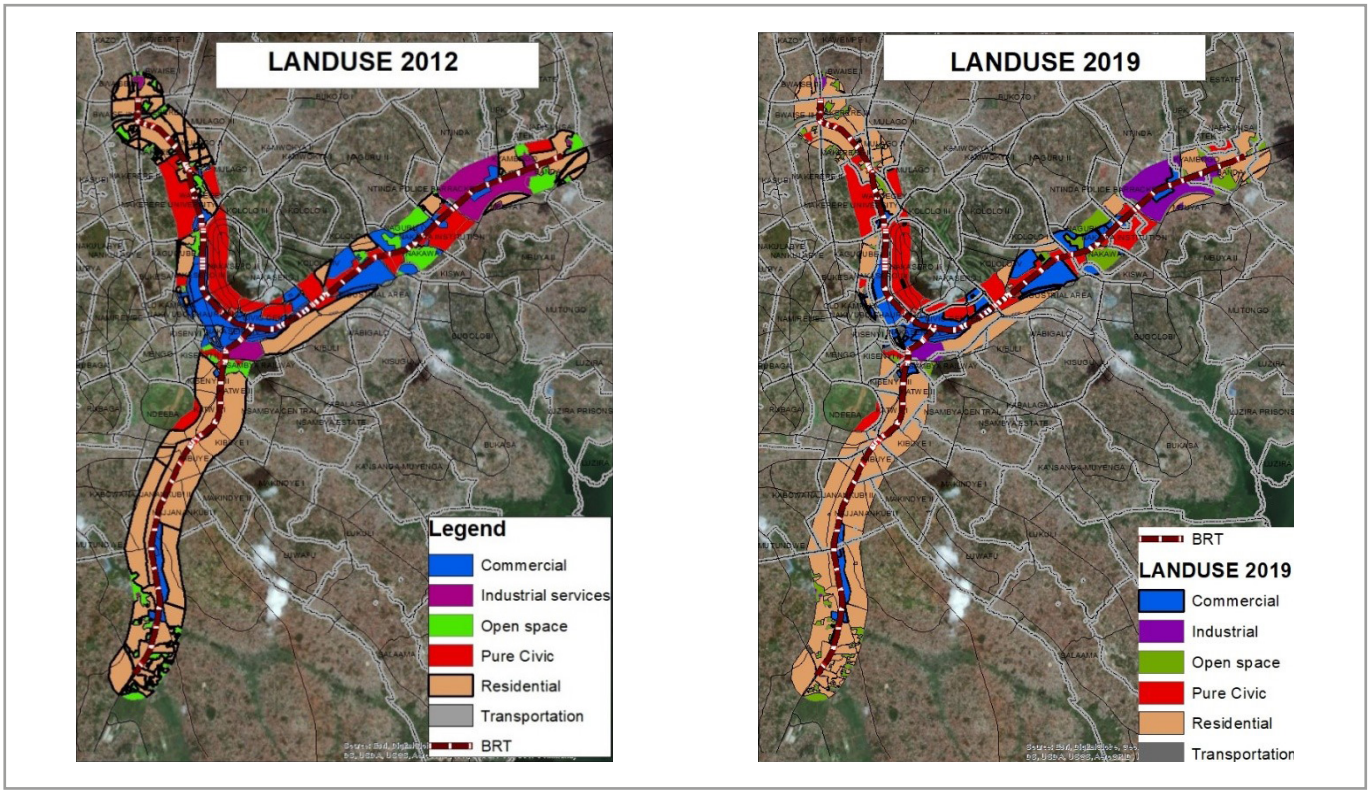

Figure 0-7: Selected BRT Routes Land Use Changes 2012-2019

4.1 Classification of Major Land Uses

The quick land use analysis of the BRT corridor confirmed a medley of mixed-use commercial, stand-alone commercial, and combined residential and commercial activity, and particular relationships of these land-use activities with the area's transportation network.

There is a sign of commercial activity prevailing along the core CBD and extending in the outer CBD being converted into commercial high-rise and density increase within the core land uses. The intensification of areas within KCCA is a possibility that should be considered as part of the land use strategy for the BRT implementation and should be further be explored in details.

4.2 Functional Corridors within the KCCA and GKMA

The study findings indicate that largely beyond the inner city these routes do not constitute functional corridors. They lack almost all complementary elements except movement, housing, basic local services (primary schools, low order clinics) and largely local, informal commerce.

Entebbe (with its airport, government institutions, recreation) and Jinja road (Shop rite-Nakawa industrial area, Namanve industrial zone, Makerere University) retain anchor elements and the routes display signs of developing into "activity corridors".

In the city itself, these routes, as well as Hoima Road and to a lesser extent Kira and Ggaba roads, display intensive generally lower-order activity but are not structured to function as integrated functional Corridors. Both the GKMA and the KCCA lack a clear hierarchy of urban centres and sub centres, with most all high and medium order facilities and activities concentrated in and around the city centre and lower order activities strung out along the primary radial routes.

Apart from the primary radial routes, the city also lacks a clear movement hierarchy. Structure on the metropolitan, city and neighborhood scales is essential to the functioning of a city and its constraints, and in many areas, its effective absence in Kampala is readily evident

4.3 Integration of Urban Plans with the BRT

Overall, there are some identified gaps in all the BRT feasibility studies pertaining to KCCA urban plans/land uses and it can be concluded that aspects of land use planning were not a very significant factor in determining the BRT corridor. The BRT study did not adopt strong land-use controls to effectively guide growth and to encourage mixed-use and high-density development patterns along structural axes that reinforce and encourage the bus system usage. While the approved physical development plans are in effect; all government departments and all statutory bodies must have due regard to the plans when formulating and preparing any project of public investment and development within the area to which the plans apply. No development permit may be issued if it would authorize any development that contravenes the plans.

4.4 Absence of larger parcels of vacant land linked to corridor

There are no large parcels of land presenting redevelopment opportunities through which densification can be achieved. Any densification or intensification will therefore have to happen through a brown field's redevelopment process. These areas are identified where there is high density/slum areas along Bombo road i.e. Katanga, Kalerwe, Makerere-Kavule, Bwaise etc. Kampala–Nakawa-Kireka i.e. Nakawa, Banda, Kamuli and Kinawataka, etc., Kampala-Entebbe-Zaana i.e. Katwe, Ndeba, Najanakumbi, NamasubaZanaetc

4.5 The value of well-located properties in the corridor is relatively high

Through an assessment of recent sales data, it was confirmed that prices for commercial, industrial and residential units in the study area are not low and this will impact on the feasibility of redevelopment/regeneration. The acquisition of number of properties for redevelopment may therefore present a challenge for project feasibility.

4.6 Land Tenure

Vesting of land ownership into the hands of the citizens has further complicated the implementation of the few existing plans, especially where there are no resources to acquire and for public use. This was found to be the case for the proposed terminals and in some case with bus stops within the corridor. This has an impact on land use and likely development types.

4.7 Neighborhood Development Guidelines

KCCA is currently preparing neighborhood development guidelines for selected areas within the city centre (i.e. Kololo, Wandegeya, Makerere, Nakasero and Kamwokya) and they are considering the following to constitute mixed-use light retail, offices, financial institutions, apartments/hotels, knowledge etc. The following are what will be considered for determining the mixed-use land use/locations.

a) Compatibility with each other, existing trends of developments as long as the existing or proposed infrastructure supports densification and reduces costs.
b) The proposed skyline to range between 6- 8 floors
    - Take into consideration of the generally changing area and the trend.
    - If the density could support the expected new working population in the hubs
c) Consideration of the KPDP population targets for a particular area.

4.8 The National Physical Planning Standards and Guidelines

The National Physical Planning Standards and Guidelines (NPPSG) 2010 is a Government manual of criteria for determining the scale, location and site requirements of various land uses and facilities. The guidelines and standards are intended to guide both the formulation of physical development plans and their implementation, with the basic aim of ensuring that physical developments take place in an orderly, coordinated and efficient manner. The guidelines do not explicitly take into account the BRT and the development standards around the stations, which has a bearing on the land use.

4.9 Metropolitan service centres/nodes hierarchy

According to the Kampala physical Development framework metropolitan service centres hierarchy proposed four levels of service centres:Central zone (CZ), Metropolitan Zone (MZ) Centres, Quarter Centres, and Local Centres. This hierarchy has not been implemented and has an implication on the BRT and the transport system in the GKMA. There are however indicators of some locations within the BRT that could eventually become functional nodes if well planned to integrate transport oriented development i.e. Kalerwe, Bwaise, Kawempe, Nakawa, Kireka etc.

4.10 Preliminary SWOT analysis

The literature review and discussions with key informant interviews was a basis for the preliminary SWOT analysis. The Strength, Weaknesses, Opportunity and Threats (SWOT) analysis was used as a verbal-argumentative method for the identification and assessment of key factors influencing the achievement of the BRT in the GKMA goals in relation to the object of investigation for the land use assessment. The advantage of a SWOT is the systematization of the factors influencing the outcome of the BRT GKMA project at an early stage formulation of an objective.

Strengths	Weaknesses	Opportunities	Threats
a) GKMA/City capable of attracting high level investments b) Several plans and studies on key areas of urban plans and mobility have been developed or are under developed c) Level of motorization d) Pattern of GKMA development trends have been analysed e) Policy coherence/ framework and implementation for GKMA as priority in NPD 11	a) Level of mobility not well organised b) Availability of financing c) Quality of integrated land use transport infrastructure and services d) Difficult for implementing urban plans e) Increasing participation of informal transportation players f) Lack of capabilities for enforcement and regulations g) Invasion of public spaces, lack of continuity of pedestrian paths	a) The Government has BRT project as a top priority and is keen to develop and implement this project. b) Learning from international experience c) New funding streams d) Local dynamism e) Emerging technologies f) There is a growing awareness of the relative advantages of good land use planned GKMA	a) Economic shocks/ slowdown as a result of lack of urban plans b) Unfettered economic growth c) Challenging demographic trends impacting on land use planning and infrastructure d) A sudden resistance and hesitation from existing transporters if they are not included in consultations and the BRT project in general. They will see their livelihood threatened and will have little opportunity for income in the narrow economic base of the city

Table 0 1: SWOT for the BRT in the GKMA

4.11 Land use and Settlement Patterns

Along the proposed project areas, the housing pattern and standards differ. Areas along Bombo road, Kampala road, Jinja Yusuf Lule road are spaciously developed with high standard housing associated with office developments, banks, and commercial shopping Centre's (e.g. garden city, Nakumatt), hotels (e.g. Golf course, Humura etc.) and the Kampala golf course. Along Mulago area- Binaisa road, these areas are characterized by an organised development of Mulago hospital with good structures in the hospital and squalid settlements on the left characterized by garages, car washing bays and the Katanga slum area. Some of the structures are temporary and the area is largely congested with no breathing space. Towards Kubiri roundabout, a church, fuel station and some commercial structures characterize the area. Along Bombo road, the road is characterized with dense developments of commercial buildings, which are often mixed with some residential buildings, institutions (Umeme and NWSC), churches (Christian life), schools, hotels (e.g. Kolping and Lagrande), fuel stations (Total, Hass, fuelex etc.) and medical facilities. Most of the structures are permanent with some old and new structures.

Generally, there is a presence of low-density land uses, which are not efficient and not suitable for the KCCA City Centre. The concentrated and mixed pattern described above was very effective and convenient when the city was relatively small of urban areas and populations.

Urban hierarchy integration of services is lacking within the BRT corridor in terms of functional nodes and sub nodes to be part of the GKMA urban hierarchy.

4.12 Lack of Urban Design

There is lack of new urban design elements within KCCA city and the GKMA as this creates disconnect between the transit system and the surrounding neighborhoods. This lack of integration does not promote the reconfiguration of the city layout along the BRT lines in a way that fosters vibrant urban life and economic activities.

5.0 SPECIFIC BRT CORRIDOR

5.1 Kampala-Bwaise–Mpererwe BRT Corridor Route

The land use within the route is undergoing transformation more especially around the junction to Bwaise and Kalerwe where there are signs of new high-rise average of five ⑤ floors and above. The route has one of the biggest markets at Kalerwe, which is providing lots of employment and residential neighbourhoods is likely also to change to a medium density as the urban renewal takes place.

Presence of low-density land uses, which are not efficient and not suitable for the City Centre. The concentrated and mixed pattern described above was very effective and convenient for a city centre when the city was relatively small in the size of urban areas and populations

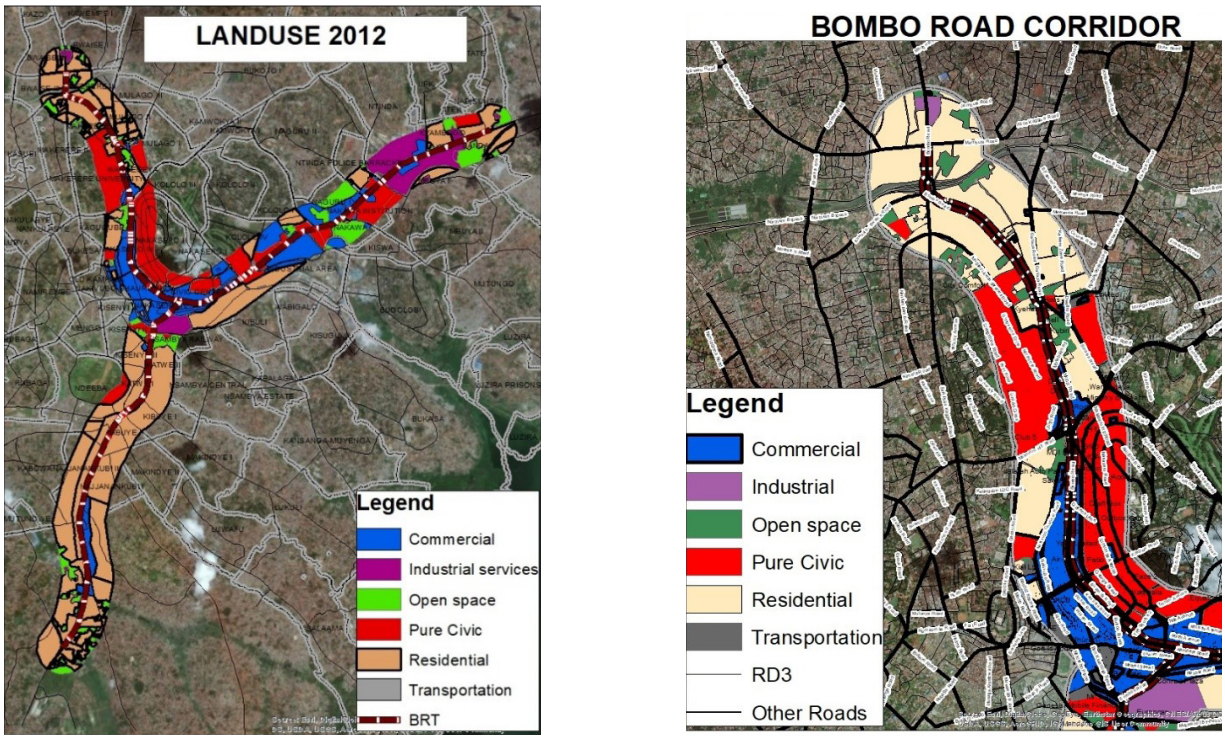

Figure 1-1: Land Use Changes 2012 to 2019

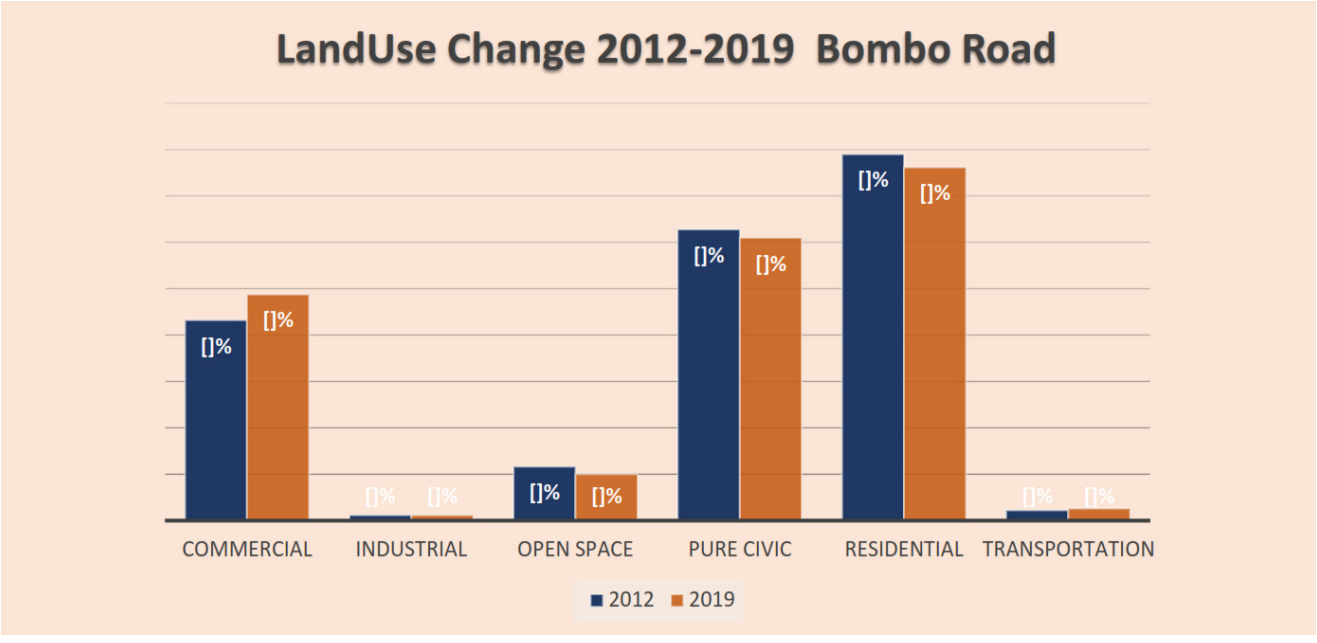

Figure 1-2: Land Use Change 2012-2019 Bombo Road

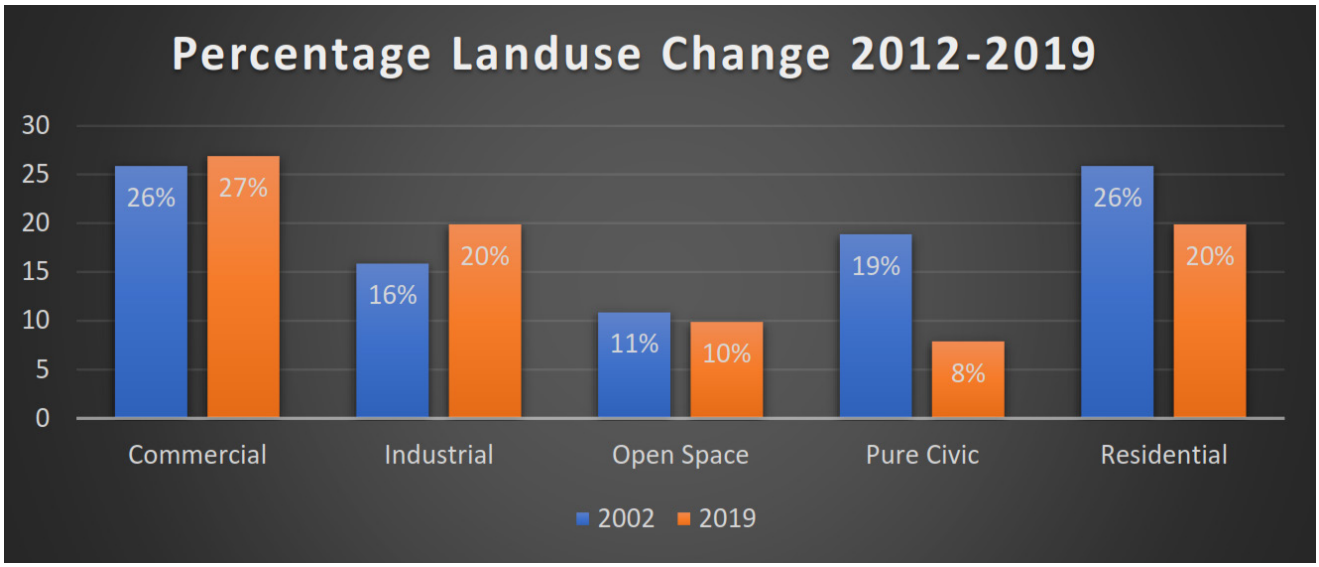

Figure 1-3: Land use changes Kampala-Bwaise BRT Corridor 2012-2019

The findings reveal that in 2012 commercial land use activities increased from 26.9% to 27.5% and industrial land by 4% from 16.6% to 20.3%, pure civic reduced significantly from 19.1 % to 8. 7 % registering 10.4% change in land use areas.

Most of the storied buildings along the proposed Nakasero-Northern by-pass road are associated with commercial in the down floor and residential on the upper floors with the exception of Hajji-Kasule road where buildings are used for Civic /office development i.e. at public service, Wandegeya Police station, Government Laboratories, Ministry of Health, etc.

Plate 1-1: Kubiiri-Bwaise road –urban regeneration/redevelopment

A significant consequence of the decades of rapid urbanization is manifest in the vast area of informal settlements that have proliferated in Kampala like Katanga along the project road and have increasingly encroached into the wetlands and drainage corridors. By their very nature, these settlements have developed without any formal urban planning or organization – although they are structured and organized by informal social and economic systems. The dense and un-serviced informal settlements are lacking basic public infrastructure such as water, sewage, solid waste collection, and transit services.

5.2 Kampala-Jinja Road BRT Route

The route corridor has various land uses and mostly commercial, institution and service activities hence providing employment hub for the city. This corridor has all the indicators of a functioning transport corridor. The land use is mostly generating trip from residential to work places.

The corridor needs a major redevelopment planning as part of the densification and be able to utilize the BRT effectively.

Plate 1-2: Lugogo Sports –Nakawa Section of the Kampala-Kireka BRT Corridor

Plate 1-3: Banda-Kinawataka BRT section of the Kampala-Kireka BRT Corridor

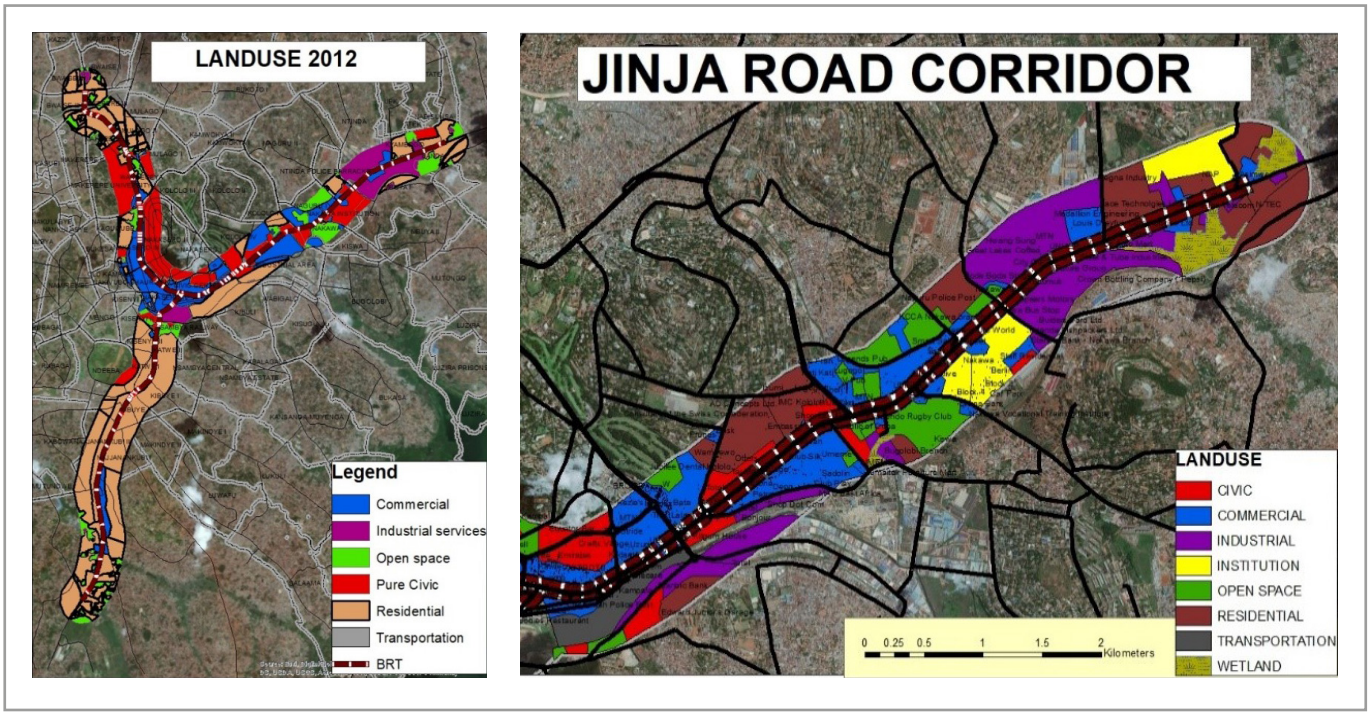

Figure 1-4: Land use changes Kampala-Kireka Section of the Jinja Road Corridor

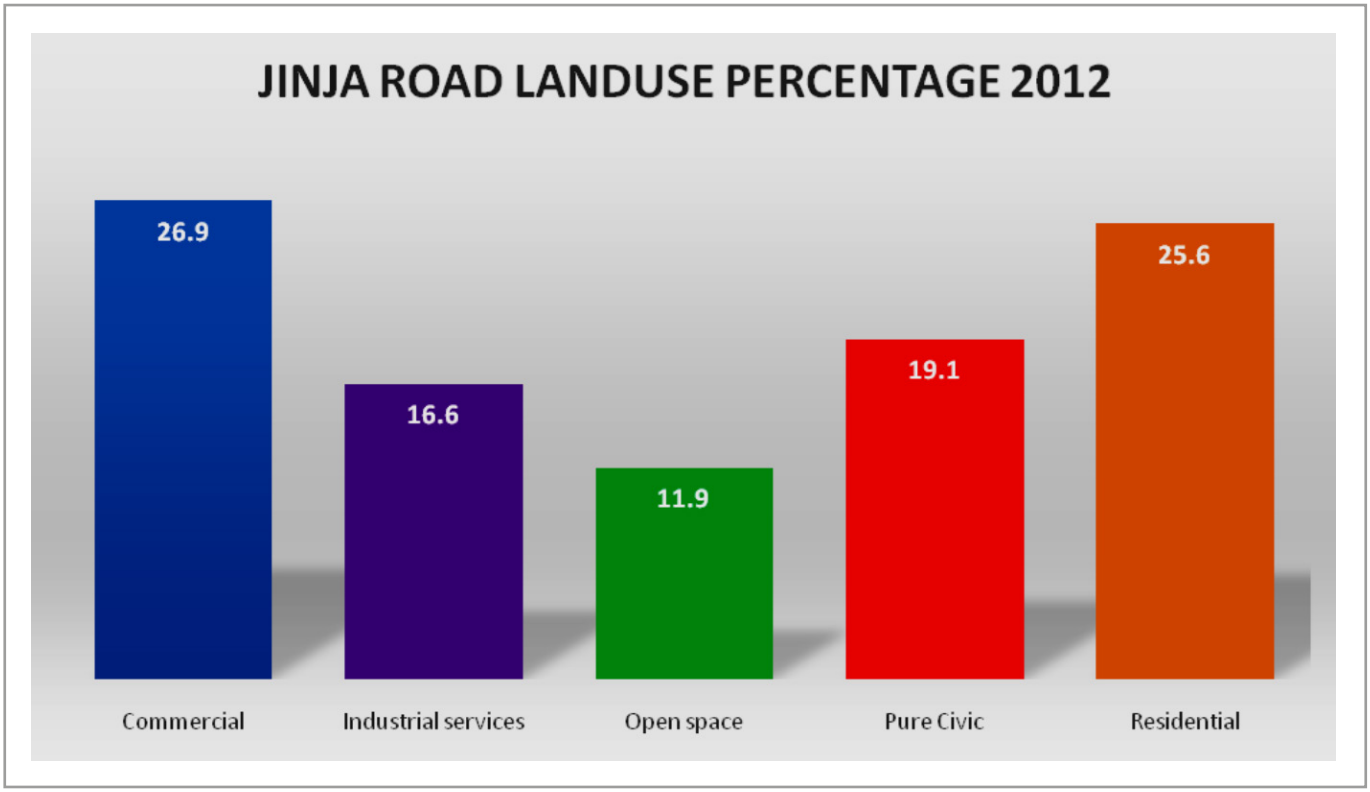

Figure 1-5: Land use changes Kampala-Kireka BRT Corridor 2012-2019

5.3 Kampala-Entebbe BRT Route

Significant retail activity and land use changes have been registered and land consolidation and urban renewal alongside Katwe road on approach to City Centre and through Nakukuba area. The BRT corridor. The Entebbe Express way interchanges would have a bearing to the BRT as it would eventually have to be integrated.

There are many residential areas i.e. Najjanakumbi, Namasuba, Zaana where the low to medium density and institutions could be integrated with the BRT and being a gate way to Kampala it would be efficient and the land use is slowly changing.

Plate 1-4: Katwe-Kibuye section road of the Kampala-Entebbe BRT corridor

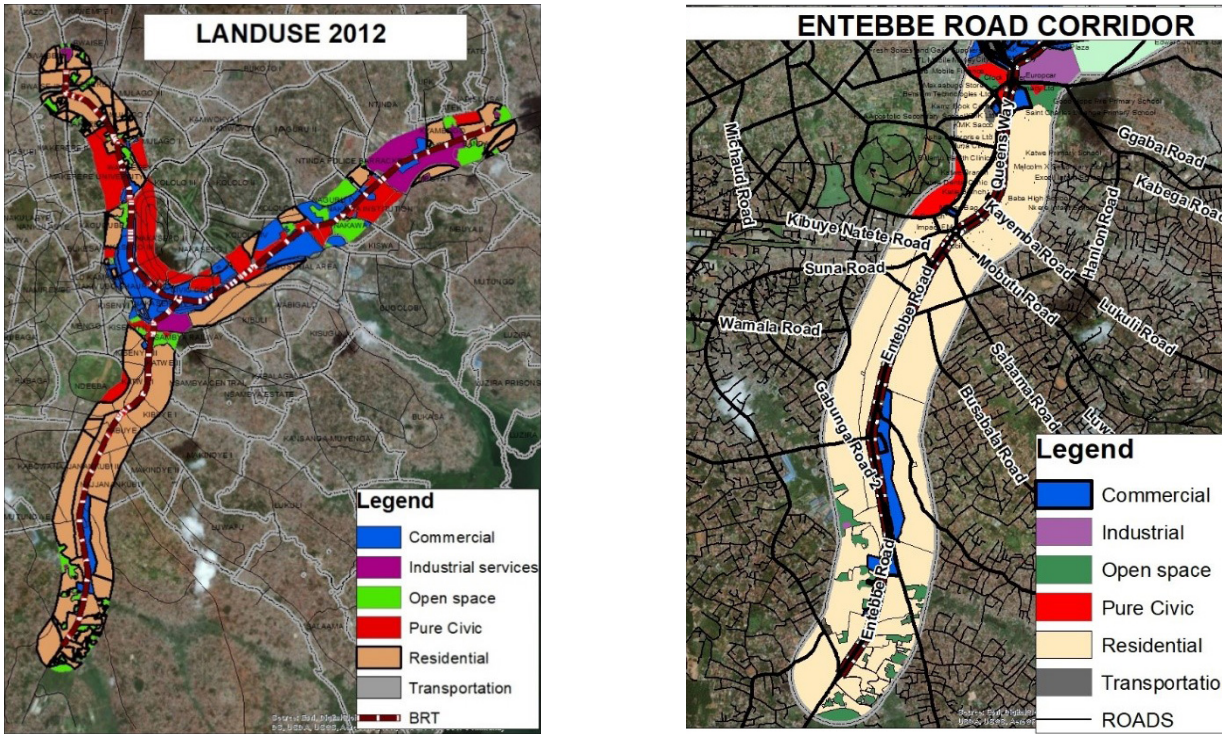

Figure 1-6: Land use changes Kampala-Zaana Section of the Entebbe Road Corridor

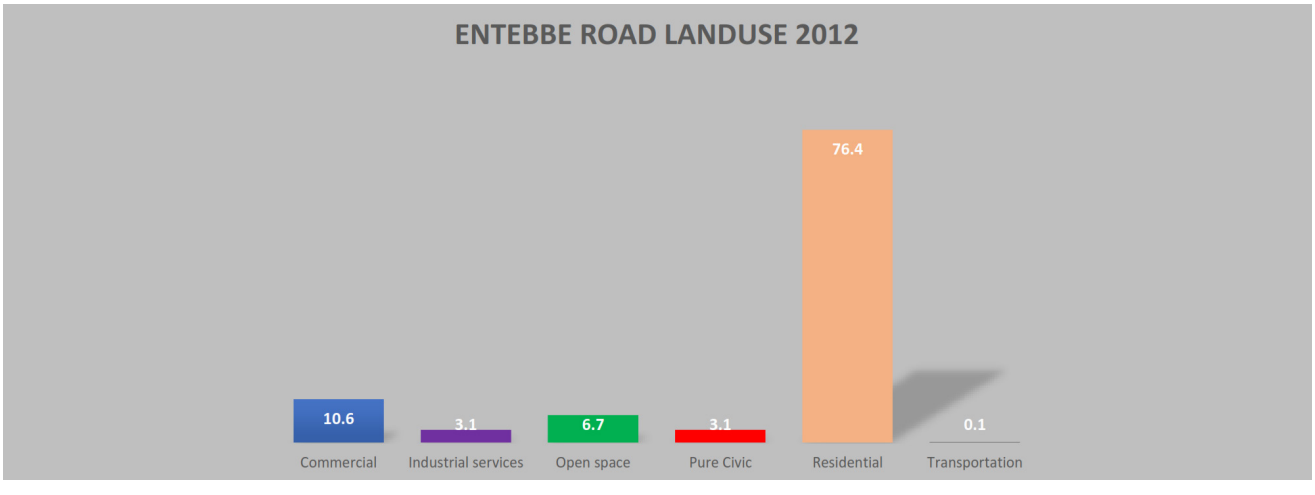

Figure 1-7: Land use changes on Kampala-Zaana section of Entebbe BRT Corridor 2012-2019

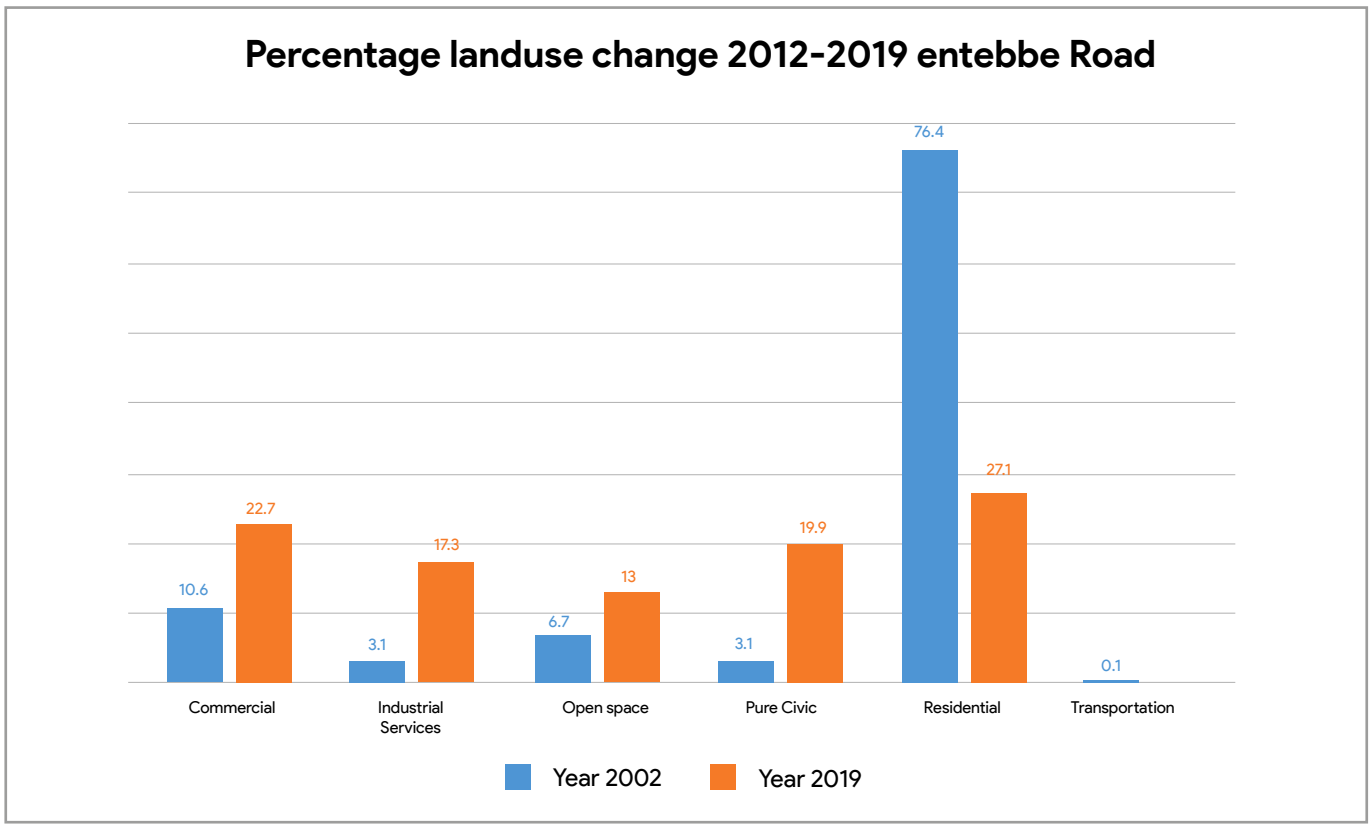

Figure 1-8: Land Use Changes on Kampala-Zaana Section of Entebbe BRT Corridor 2012-2019

6.0 RECOMMENDATIONS

Despite the highlighted challenges and issues, there remains adequate evidence that residential densification and employment intensification along key BRT corridors in the GKMA. Importantly, urban areas should not be viewed as areas that are static, but rather as areas that continue to grow and take shape as the requirements of specifically users change with the introduction of new technologies and approaches to urban living.

Added motivation for densification is that few urban environments have an intrinsic quality that will see it retaining its value and condition over an extended period without focused interventions. Investment and redevelopment are required in order for property values to be retained or grown.

6.1 Maximization of the future BRT

The issues of density and land values have been taken into consideration to be able to determine maximization of the future BRT and be able to guide preferred alternative BRT for implementation specifically to include the following:

a) Many of the middle and upper income areas within the City and GKMA are not fully developed and can accommodate a much larger population
b) There are key highly underutilised public sector landholdings in very central locations, which can be used for high-density residential development. It is in those areas that there is likely to be less resistance to traditional ideas of single plot housing, because of the convenience of living so close to the CBD and other centres of employment. Examples include Nsambya Police Barracks; part of the railway lands, Naguru police barracks. However, progress in this regard seems to be very slow.
c) Transit Oriented development (TOD) may enable increasing densities along BRT corridors
d) Some informal areas are not that dense and there are opportunities to reorganise them with proper layouts and achieve higher densities and better living conditions.

6.2 Densification and Land Use Optimisation

The KPDP proposed density was that in the city centre residential neighborhoods target was put at more than 200 persons/ha and the inner city at 200 persons/ha.

The land use assessment shows that the target has not been achieved yet and KCCA should endeavor to ensure that this is attained. This will be in conformity with the desired BRT goals and be able to serve as many people as possible. The land use assessment findings show that land use has not been well optimised to its full capacity to enable the urban functions to maximize the potential of the BRT when put in place. Optimization of land use in the GKMA refers to

i. Maintaining an efficient intensity of land use and safe levels of development and population.
ii. promoting an acceptable standard of environment and amenity for the population; and
iii. Ensuring an appropriate balance between the population and the capacity of infrastructure required to service it.

6.3 Carefully articulated land-use mixtures

Density is not the only important element of land use and built environ¬ments. Other elements include carefully articulated land-use mixtures; safe and smooth accessibility to transit stations (enabled by footpaths, cycle paths, and streetlights, for example); —contribute to the development of a good built environment.

6.4 Urban hierarchy Service areas

However, a number of core economic nodes within the City do not have sufficient capacity (residual floor area or vacant land) to absorb the demand for new residential development (or trip producing land uses), this will be done by adjusting the following variables:

a) Land use mix and intensity of use of building floor space (persons per m²: household size / employment density) b. Space recovered through parking zone change (lower parking requirement) c. [a] and [b] further optimised through rezoning/ departures from standard development rules (height, coverage, floor factor)
b) The City of Kampala should adopt policies (such as the Densification Policy, Tall Buildings Policy and the Urban Design Policy) which set sustainable design parameters to guide the form of future development.
c) Whilst these policies currently support the principles and objectives of TOD, they often are misinterpreted or disregarded in the planning of infrastructure and assessment of land use applications at the nodal and precinct level. The use of standards that relate to road layouts, parking and/or access are often inappropriately applied in Kampala and GKMA context, especially in terms of human settlements planning.
d) Densities and Intervention Approach - to constrain the scale of the built area priority needs to be given to the densification of the existing built areas and to ensuring future development occurs at the requisite density.

e) Re-development can take place to achieve optimization of land use if planning is done now to make use of appropriate opportunities. Redevelopment of existing low residential density and medium areas can be such an opportunity. This re-development could take place progressively over the next five to 10 years which would allow the KCCA and GKMA to upgrade the infrastructure to meet the demands of the new land use

6.5 Linkages with Tondenka and other Transport Modes

The BRT and Tondenka will be operating in the same corridor and hence need to integrate their activities and phasing in order to achieve the objective of an efficient and complimentary services to each other and the general public. This also applies to the ongoing current expansion of the URC passenger train services as the land uses are the same and should have stop or interchanges which will link to more areas.

6.6 Densities and Intervention Approach

To constrain the scale of the built area, priority needs to be given to the densification of the existing built areas and to ensuring future development occurs at the requisite density. The recommended Long Term Gross Density Targets are indicated in the KPDP 2013.

Urban planning to effectively have the BRT functional need creation and distribution of employment in KCCA and the GKMA will require, inter alia;

i) Extension of the CBD;
ii) Extension of mixed-uses in the City Frame including redevelopment of City Centre slums;
iii) Upgrading of the Central Industrial Zone to mixed Employment Zone;
iv) Knowledge precept within Makerere, Nakawa and Kyambogo
v) Developing a set of Employment sub-Centres(~ 20 Ha. each) located at high access points along the movement system;
vi) Mixed Business-Commerce-Residential Urban Centre's and Corridors;
vii) Neighborhood scale commercial Centre's (markets, services).

In addition to using BRT to serve development that is already occurring, BRT is more and more commonly being used to help stimulate development in designated areas. A recent study conducted by ITDP analyzing transit corridors throughout North America found that if BRT is built in the right corridor and the government institutes policies that encourage development around that corridor, there is a strong chance that the land along the corridor will attract development. However, using BRT to drive development is not enough. BRT planning, when premised on development, must be directly linked to government development initiatives.

6.7 KCCA and GKMA Local Authorities

Often, local planning and urban development authorities have a good sense of where they want to develop, what new development is likely, and where they have been approached by developers asking for zoning variances or other support from the municipality.
Sometimes planning authorities have regulatory structures that guide new development in specific areas through spatial development plans, and they may have a good sense of the likely period for these developments. Therefore, if one of the purposes of BRT corridor selection is to simulate development, information regarding the government's development plans should be collected and the locations mapped.

ANNEX 1

A comprehensive land use classification scheme to use for the Kampala and GKMA BRT project is described below. Density, height and use were the major factors impacting the classification scheme, which included the following categories: residential, commercial, pure civic, light and major industrial services and transportation

1) Residential Class

i. High in density, height
ii. Medium in density, height
iii. Low in density, height

4) Commercial Class

i. Commerce
ii. Mixed use commercial
    a) Mixed residential/commercial
    b) Mixed residential/industrial
    c) Mixed residential/office

3) Pure Civic Class

i. Pure Civic (Government use)
ii. Civic commercial
iii. Civic cultural/religious
iv. Educational
v. Recreational

4) Light and Major Industrial Services

5) Transportation

i. Rail
ii. Road
iii. Parking

REFERENCES

1. John van Nostrand Associates Ltd. with counterparts from Ministry of Lands Housing and Urban Development, Ministry of Local Government, Ministry of Justice, Kampala City Council, March 1994, Kampala Urban Study Final Report, Part Two, Structure Plan, John van Nostrand Associates Ltd., Kampala

2. Kampala capital City Authority(KCCA), 2012 Kampala Physical Development Plan

3. Kampala City Council, Kampala Strategic Framework Volume 1 – SFR Analytic Review, May/June 2004

4. Kampala Multi Modal Transport Master Plan, 2018

5. KCCA, GIS Unit, Distribution of Markets in Kampala Capital City,2012

6. National Physical Planning Standards and Guidelines, Ministry of Lands, Housing and Urban Development 2010

7. Republic of Uganda, Ministry of Lands, Housing & Urban Development, National Physical Planning Standards & Guidelines,2010, Kampala

8. Republic of Uganda, National Development Plan 2014/15 -2015/2020, April 2014

9. Republic of Uganda, Physical Planning Act, 2010, 24. April 2010

10. Statistical Abstract, UBOS, 2014

11. Tahal Consulting & Engineers Ltd., March 2005 Road Sector Development Programme Phase 2 Project (RSDP2) – Consultancy Services for Preparation of the National Transport Master Plan - including Plans for the Greater Kampala Metropolitan Area–Final Report

12. Third National Development Plan 2020/2021-2024/2025 National Planning Authority, January 2020

13. UN-Habitat, 2007 Cities without Slums Sub-Regional Programme for Eastern and Southern Africa, Kivulu (Kagugube) and Kinawataka (Mbuya 1) Parishes, Nairobi

14. World Bank, Kampala Institutional and Infrastructure Development Project, Uganda, October 19, 2007, Project Abstract, http://web.worldbank.org/external/projects/main

15. World Bank (The) and Sub-Saharan Africa Transport Policy Program (SSATP) Africa Infrastructure Country Diagnostic Project 2008, Stuck in Traffic: Urban Transport in Africa, by Kumar, A. and Barrett, F., The World Bank, Washington D.C.

Cities and Infrastructure for Growth Uganda
Plot 31 Kanjokya Street
3rd Floor, Wildlife Towers
Kampala Uganda
Tel: +256 393208132.
www.ciguganda.com

Cities and Infrastructure for Growth Uganda
Cardno International Development
Level 5 Clarendon Business Centre,
42 Upper Berkeley Street, Marylebone
London, W1H5PW
Telephone: +44(0)1844216500
www.cardno.com