

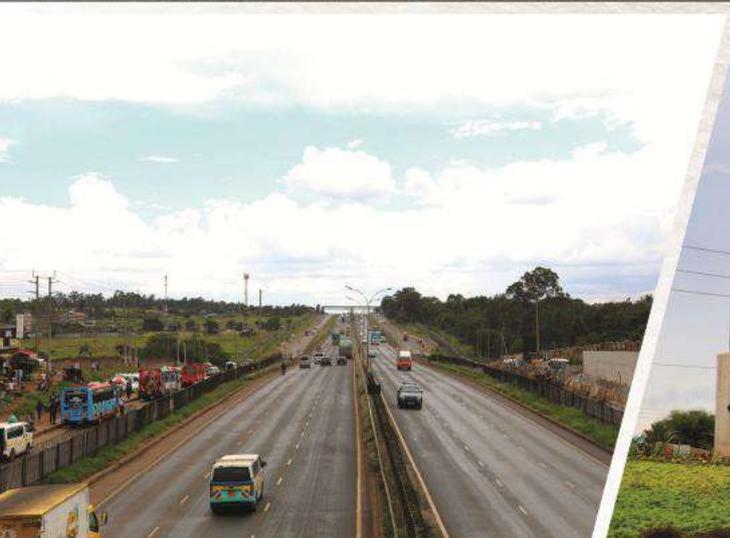


RUIRU

Integrated Strategic Urban Development Plan

A Well Connected and Livable City with
Vast Investment Opportunities

2020 - 2030



EUROPEAN UNION



Food and Agriculture
Organization of the
United Nations

CERTIFICATION

This Plan has been prepared and published as per the requirements of the Physical and Land Use Act of 2019.

Signed: _____ Date: _____

PLAN. PAUL CHEGE

Registered Physical Planner

Signed: _____ Date: _____

HANNAH N. MARANGA

County Director of Physical and Land Use Planning

Signed: _____ Date: _____

SALOME WAINAINA

County Executive Committee Member-Land, Housing and Physical Planning, Municipal Administration & Urban Development

APPROVAL

This Plan has been approved as per requirements of the Physical and Land Use Planning (Local Physical & Land Use Development Plan), Regulations, 2021 Sec 13, Urban Areas & Cities Act, 2011 (Revised 2019) and County Governments Act No. 17 of 2012.

Hansard No . _____

Signed: _____ Date: _____

JOHN MUTIE

Clerk to the County Assembly

Approved Development Plan No .

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PREFACE



I am glad to introduce Ruiru urban Integrated Strategic Urban Development Plan 2020-2030, which is a road map on development of the town. This is the first comprehensive spatial plan for Ruiru urban and it has been prepared at a time when the County is grappling with the challenges of rapid urbanization. The recent past has seen a deterioration in the quality of our urban areas due to uncontrolled development and increasing congestion.

This Integrated Strategic Development Plan gives us the tools to rectify the situation, and establish a system that will give the County the powers that it needs to direct development to the most appropriate locations and improve service delivery. Most importantly it provides a guidance into how we can

make Ruiru a more attractive and an efficient town.

I am happy to note that this Plan has been prepared in a participatory manner considering the contributions of various stakeholders whose role in the implementation of the proposals as detailed in this plan is fundamental.

Kiambu is the 3rd most urbanized County after Nairobi and Mombasa and has witnessed rapid urbanization in the last few decades with people moving in to settle, set up businesses and other development activities. Ruiru has witnessed population growth and increased economic activities over the last ten years since the onset of the devolved government. However, most of the urbanization is happening in the peri-urban areas where barely little planning takes place. These are areas that are also characterized by piecemeal and disjointed subdivision coupled with a haphazard conversion of agricultural land that consistently distorts urban planning processes. In addition, due to an absence of a plan to guide and manage this sprawl, the urban is suffering from uncoordinated growth, land-use conflicts, inadequate basic infrastructure facilities and services, poor housing, and loss of rich agricultural land, amongst other challenges.

In order to cope with this scenario, the County therefore is expected to commit resources to guide and manage urbanization and growth in a more efficient manner. The increased population needs to be accommodated in a suitable environment, with ease of movement, adequate physical and social infrastructure, and employment opportunities.

This plan is prepared within Kenya's global commitments for sustainable development, and existing policy and legal framework which includes inter-alia, Kenya's Vision 2030, Constitution of Kenya (2010), County

Governments Act (2012), Urban Areas and Cities Act (2011), the Physical and Land Use Planning Act, 2019, and other applicable statutes which form the legislative framework within which the County will be able to implement this ISUDP. It therefore gives the County the necessary tools to address current development challenges.

The plan has taken into cognizance the many opportunities and resource potentials that the town has and needs to exploit when addressing its development needs while ensuring that resources are sustainably utilized. Implementation of the plan will therefore enable the County to not only improve service delivery but also direct development to the most appropriate locations. Sectoral programs and projects form key components of the plan, whose objective is to ensure integration and coordination of development priorities.

Institutionalizing the County Planning Unit (CPU) as provided under Clause 105 of the County Government Act (2012), will ensure consistency across the entire planning and implementation cycles. In the end, sectoral strategies will be implemented within a spatial framework and, in turn, reflect the socio-economic analysis across the entire town. The plan has also identified several action areas and quick-win projects, which are to be implemented within the first year of the project cycle, hence ensuring fast-tracking of the implementation of the identified priorities and set the pace for realization of the medium and long-term projects.

My administration acknowledges with appreciation the support of the World Bank in the preparation of this Plan. I commend the National Government through the Ministry of Transport, Infrastructure, Public Works, Housing and Urban Development; Directorate of Nairobi Metropolitan Development for providing technical and supervisory roles. I also appreciate the efforts of other stakeholders, including professional bodies; resident associations; the business community; community-based organizations; and the wananchi for their engagement and valuable inputs during various stages of the preparation of the plan. My government pledges to ensure during implementation of this plan, the involvement of and collaboration with all stakeholders to achieve its full realization. It is hoped that the implementation of the plan will produce positive changes and improvements in our peoples' lives.

I therefore welcome all to support this noble course in realizing the vision of this plan.



H.E. Dr. Kimani Wamatangi

Governor, Kiambu County

FOREWORD



Ruiru Integrated Strategic Urban Development Plan is a ten-year geographical information-based database system plan that will guide the spatial development of Ruiru urban from 2020 to 2030. This development blueprint is a statutory requirement, as outlined in Section 111 of the County Governments Act, 2012(CGA). Section 36 (1) of Urban Areas and Cities Act (UACA) further states that an ISUDP shall be basis for development control; preparation of environmental management plans; preparation of valuation rolls for property taxation; provision of physical and social infrastructure and transportation; preparation of annual strategic plans for an urban area; disaster preparedness and response; and overall delivery of service including provision of water, electricity, health, telecommunications and solid waste management.

The ISUDP is a tool for efficiently controlling and managing the use of space over the next ten years in a sustainable manner. The Plan will serve as a base for all future physical development plans within the urban area. The Plan also aims to help coordinate implementation of sectoral projects and programs, especially to reduce wastage of scarce resources and to avoid the duplication of efforts.

This ISUDP forms part of the Nairobi Municipal Services Improvement Programme (NaMSIP) which is a World Bank funded project. The Ruiru Integrated Strategic Urban Development Plan reflects the desired spatial form for Ruiru and the preferred land use zoning within the 2020-2030 plan period.

The desired patterns of land use have been synchronized to other existing regional, national and other county plans. Indeed, the plan reflects the objectives and aspirations of the County as outlined in the County Integrated Development Plan (CIDP) for the said period.

The ISUDP provides strategies for conservation, use and management of natural resources. In addition, the spatial structure of the population, existing infrastructure, economic activities and human settlements have been mapped.

Similarly, the challenges and opportunities for tapping into these resources have been identified. I also take note that the Plan has identified areas where priority strategic intervention and funding is required. Equally important, the Plan has considered the rights of all special groups within the County within the constitutional requirements for participatory planning and development.

The preparation of this Integrated Strategic Urban Development Plan was carried out through a participatory process as per the requirements of the County Governments Act 2012 as well as the Physical

and Land Use Planning Act, 2019. The process involved representation from the general public, the County Government and National Government stakeholders as well as with consultation with special interest groups.

I believe that this Plan will be an important pillar in stimulating industrial production, infrastructural investment and social-economic development in Ruiru towards the desired Vision. I am further confident that this plan will become an important guide for investments for the County. I therefore take this opportunity to appeal to the people of Ruiru to participate in the implementation of this Plan as part of the County transformation agenda towards improved livelihoods.

Salome Wainaina

SALOME WAINAINA

County Executive Committee Member-Land, Housing and Physical Planning, Municipal Administration & Urban Development

ACKNOWLEDGEMENT



The preparation of the Ruiru Urban ISUDP is a milestone in the Physical Planning Department, and I would like to express my gratitude to everyone who was instrumental in making this assignment a success.

Thanks to the County Government of Kiambu especially to His Excellency the Governor of Kiambu, Hon. Dr. Kimani Wamatangi for his support in the preparation and approval of this Plan.

My gratitude also goes to the Kiambu County Assembly for their leadership in overseeing and adopting this Plan which will guide the planning and development of Ruiru Urban

I would like to acknowledge efforts of staff of the Ministry of Transport, infrastructure, Housing, Urban Development and Public Works (MoTIHUD & PW), the State Department for Housing and Urban Development and the Nairobi Metropolitan Services Improvement Project- NaMSIP (under the Department of Metropolitan Development) for supervising, and supporting the entire preparation of this Plan.

Special thanks go to the NaMSIP Project Coordinator, Engineer Benjamin Njenga, Planner Ann Mugo (Project Supervisor), as well as Planner Esther Muthoni, Planner Mutisya Mutua, Engineer Anthony Moire, Alex Maroko, Kevin Onjiko Kevin Gitau, Michael Ibabu, Mercy Kirema and Kelvin Ruto.

I also wish to acknowledge the team from Kiambu County's Physical Planning Department who include Martin Kang'iri (Chief Officer); Jane Mwaniki (Director Urban Development), Nicholas Waweru (Deputy Director Urban Development), Deputy Directors Physical and Land Use Planning:- Dennis Abuya and Salome Ng'igi, Assistant Directors Physical and Land Use Planning:- Charles Mugambi, James Ndung'u and Daniel Murage, Eric Matata (Assistant Director Municipal Administration), Physical Planners:- Christine Kamau, Charles Mwangi, Judith Nyamongo, Rehema Nyabuga, Stephen Njiraini, Wallace Mochu, Peter Mwenga, Eston Kibutu, George Maina, Hilda Mwai, Christine Njeru, Beth Njoroge, Alex Waweru, Rachael Gachara, Onesmus Ng'ang'a, Evelyn Kanana, Martin Kung'u; Sharon Gitahi, Francis Ndugo, Alex Gitau, and Daniel Waweru; Cartographer Lucy Muiruri, Surveyors Jennifer Mueni, Hellen Gathiani and Carlos Gikonyo and Deborah Biwott.

The County Government of Kiambu is grateful to VisionRI and Urban Lines Consultants led by Arch./Plan. Requito Bellosillo (Team Leader), Plan. Paul G. Chege (Deputy Team Leader, Cluster Planning Team members which include Plan. Alice Menya, Plan. David Gatimu, Ephraim Njogu, Mark Nyamu, Mr. Jitender Pal Singh Economist/Business Analyst, and Joan Watetu who worked together with Kiambu's Department of Planning to prepare this Plan. The Plan's preparation was supported by thematic experts including; Dr

Joseph K. Kurauka and Evelyn Amile (Environmentalists); Dr Luke Obala and Abigail Gacheru (Land Economists); Elijah Kimani Mutuango (Social Expert); Mr Imtiyaz Ahmed and Peninnah Ndegwa (Transportation Planners); Francis Muchiri (Communications); and Dennis Wakaba (Urban Design).

Further gratitude goes to the different State and County Departments and Agency members, who patiently met the members of the study team, and provided useful information that was essential in carrying out this planning exercise. To this, we say thank you all.

We also express profound gratitude to the Food and Agriculture Organization of the United Nations (FAO) and the European Union (EU) for generous financial and technical support. Special Thanks to Mr. Josphat Kariuki for mobilizing and coordinating support from the Digital Land Governance Programme (DLGP).

Finally, I wish to thank the people of Ruiru for sharing their proposals during the county-level stakeholders' workshops. It was their contributions that shaped this advisory plan.



HANNAH N. MARANGA

County Director of Physical and Land Use Planning

EXECUTIVE SUMMARY

The Ruiru urban Integrated Strategic Urban Development Plan (ISUDP) for the period 2020-2030 has been prepared by the County Government of Kiambu in collaboration with the National Government through the Nairobi Metropolitan Services Improvement Project (NaMSIP), Ministry of Lands, Housing and Urban Development. The plan was prepared within the framework of the Kenya Constitution 2010, County Government Act 2012, Urban Areas and Cities Act 2011 and the Physical and Land Use Planning Act 2019, among others. The plan is guided by Kenya Vision 2030, National Spatial Plan 2015-2045, National Land Use Policy 2018, and the National Land Policy 2009.

The purpose of the plan is to define the vision and spatial structure of the centre up to the year 2030. Specifically, the plan intends to achieve the following objectives: provide a basis for infrastructure and service provision for present and projected population over the plan period; determine demographic changes in the last ten years and those expected over the life of the plan, and how these relate to economic changes, welfare and administrative shifts; identify environmental issues and concerns affecting Ruiru; identify development potentials of the planning area (social, economic and environmental profiling); provide a basis for development control and investment decisions; allocate sufficient space for various land uses to ensure efficient function and convenience of users and accommodate future growth; provide for adequate land for recreation and open spaces; enhance and promote safety and security; and to uphold innovative civic and urban design that enhances its character and form.

The ISUDP was prepared in a participatory process bringing together all actors, including the local community, Kiambu County Government, and NaMSIP. The planning process began with the notice of intention to plan, inception workshops, reconnaissance survey, delimitation of planning boundaries and base map preparation. The planning team used both secondary and primary data for the planning process. Consultative meetings and workshops with all stakeholders were held for purposes of visioning, validation of situational analysis, presentation of draft plans and validation of the same.

Ruiru is located within Kiambu county and transversed by major arterial roads that is Thika road and eastern bypasses. It comprises 8 wards namely Gatongora, Gitothua, Biashara, Mwiki, Mwihoko, Kiu, Kahawa Sukari and Kahawa Wendani . The planning area covers an area of approximately 201 square kilometres. is the main source of livelihood, with the area dominated by residential and industrial, manufacturing and agricultural investment

Guided by the social, physical and economic data, a vision for the urban area was formulated during the visioning workshop as “A well connected and liveable urban area with vast investment opportunities”

Towards developing the plan proposals, various spatial development opportunities and challenges in the area were analysed. Three scenarios were considered in the preparation of the ISUDP, namely service led strategy, urban economic regeneration strategy, and green growth strategy. The development model that was eventually selected was a hybrid of the three development trajectories, integrating revamping of the

service function (administration, education and health), commercial revitalisation strategies (trade, industry, agriculture) and environmental conservation of key resources and the environment.

The urban economic regeneration strategy uses agricultural development as the basis upon which the area is to grow. The plan identifies protection of key agricultural lands, enhancement of industrial production, and manufacturing. The area also boasts a modern market at Githurai and various commercial activities. Several banks and financial institutions have setup branches within the urban area. These services can be enhanced to attract more population, thus providing more market for goods and services and thus driving economic growth. Provision for light industries and value addition can further generate employment opportunities and contribute to the urban growth. The ultimate goal of the strategy is urban regeneration. This will be achieved through regeneration of the Core CBD to include a financial district, as well as a service hub incorporating administrative services, health and education. Expansion of commercial and retail space will spur trade, while zoning of residential functions will ensure adequate land for human settlements. The plan also provides for improved access to basic services: water, sanitation, education and recreation facilities.

Transportation strategies provide an enabling framework for achievement of the vision through identification of key roads for opening up and upgrading so as to enhance linkages and facilitated access to markets. The strategy also proposes measures for improvement of circulation within the town by opening up select roads and investments in non-motorised transport facilities.

The Integrated Strategic Urban Development Plan (ISUDP) is structured in four (4) parts as follows: -

Part I: Introductory and Planning Context

Part one consists of chapter one and two. Chapter one which presents the background covers the purpose of the plan, the planning challenges, objectives, scope, deliverables of the plan, and the organizational structure that presents the plan.

Chapter two presents the planning context which describes the National, Regional and Local context, the policy and legal framework guiding the ISUDP process. It provides linkages to other relevant plans i.e., CIP and previous planning interventions in the town and explains the methodology and approach employed in preparing the ISUDP.

Part II: Situational Analysis

Part two consists of chapter three to twelve, covering the different aspects of situational analysis.

Chapter three discusses the physiographic characteristics with focus on terrain, slope, geology, soils, hydrology, vegetation, and how they affect development:

Chapter four discusses the population and demographic characteristics of the town; focusing on population size and structure, population projections, morbidity and mortality, poverty levels as well as employment data.

Chapter five analyses the land uses in the planning area, land tenure details, land administration arrangements as well as land suitability analysis for the planning area.

Chapter six analyses the environment with focus on key natural resources found in the planning area, as well as environmentally fragile areas within the area. The chapter also looks at environmental challenges related to waste management, as well as climate change.

Chapter seven analyses housing and human settlements within the planning area, with focus on settlement patterns for rural and urban areas, housing typologies, housing demand, as well as housing materials used with the planning area.

Chapter eight analyses the physical infrastructure systems within the planning area, with focus on transportation infrastructure, water and sanitation supply infrastructure, waste management infrastructure, energy as well as communication infrastructure within the planning area.

Chapter nine analyses the social infrastructure, looking at education facilities (primary, secondary and tertiary), health facilities, recreation, administrative, as well as religious facilities.

Chapter ten analyses the economic characteristics of the planning area, looking at key economic drivers (agriculture, industries, trade and commerce, mining, among others)

Chapter eleven analyses the governance and administrative framework that is relevant for the implementation of this plan, and what is required for effective implementation of the plan.

Chapter twelve synthesizes all the issues discussed with the aim of laying the framework for the plan formulation process.

Part III: Plan Formulation

Part three details the plan formulation process and the contents of the plan. It consists of chapters thirteen to nineteen.

Chapter thirteen analyses the different scenarios for achieving the vision of the plan, looking at nil intervention scenario against scenarios for economic development, green growth as well as integrated approach to development.

Chapter fourteen highlights the different strategies for achieving the preferred scenario.

Chapter fifteen presents the spatial development propels in the form of a structure plan, presenting the different land use options recommended for attainment of the vision.

Chapter sixteen presents the zoning plans to guide the spatial development proposals outlined in the structure plan. It also presents action plans within the structure plan.

Chapter seventeen presents the plan implementation matrix, outlining the actions, the actors and the time frames for implementing the different strategies. It also presents a capital investment plan outlining the cost implications for implementing the plan.

Chapter eighteen presents the Monitoring, Evaluation and Reporting, outlining the projects, targets, indicators, actors and time frame.

Chapter nineteen presents the recommendations and conclusions

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ABBREVIATIONS AND ACRONYMS

BOT	Build Operate Transfer
CBD	Central Business District
CDR	Crude Death Rate
CIDP	County Integrated Development Plan
CIP	Capital Investment Plan
CoK	Constitution of Kenya 2010
CRA	Commission of Revenue Allocation
CSP	County Spatial Plan
CTWG	County Technical Working Group
DoNMED	Directorate of Nairobi Metropolitan Development
EAC	East African Community
ECDE	Early Childhood Development Education
EDAM	Electronic Development Application Management
EPZ	Export Processing Zone
ERS	Economic Recovery Strategy
FBOs	Faith-Based Organisations
FDI	Foreign Direct Investments
FGD	Focus Group Discussion
FMCGs	Fast Moving Consumer Goods
GCI	Global Competitiveness Index
GDP	Gross Domestic Product
GIS	Geographic Information System
GJLOS	Governance, Justice, Law and Order Sector
GoK	Government of Kenya
ICT	Information Communication Technology
IDS	Institute of Development Studies
I&M Bank	Investments and Mortgages Bank
ISUDP	Integrated Strategic Urban Development Plan
KCB	Kenya Commercial Bank
KNBS	Kenya National Bureau of Statistics
KPLC	Kenya Power and Lighting Company
Kshs	Kenyan Shilling
KUSP	Kenya Urban Support Programme
KWCL	Kiambu Water & Sewerage Company Ltd
KWFT	Kenya Women Finance Trust

MoTIHUD&PW	Ministry of Transport, Infrastructure, Housing, Urban Development and Public Works
MTP	Medium-Term Plan
NaMSIP	Nairobi Metropolitan Service Improvement Project
NBFIS	Non-Banking Financial Institutions
NEMA	National Environment Management Act
NLC	National Land Commission
NMR	Nairobi Metropolitan Region
NMT	Non-Motorized Transport
NSDI	National Spatial Data Infrastructure
PCEA	Presbyterian Church of East Africa
PPA	The Physical and Land Use Planning Act, 2019
PPP	Public-Private Partnership
PSV	Public Service Vehicle
ROW	Right-of-Way
SHEP-UP	Small Scale Holder Horticulture& Promotion Unit Programme
SIDA	Swedish International Development Cooperation Agency
SMEs	Small and medium-sized businesses
SPC	Spatial Planning Concept
STI	Science, Technology & Innovation
SWOT	Strengths-Weaknesses-Opportunities-Threats
TFR	Total Fertility Rate
TOD	Transit-Oriented Development
TOR	Terms of Reference
TV	Television
UACA	Urban Areas and Cities Act
UNEP	United Nations Environment Programme
WHO	World Health Organization
WRMA	Water Resources Management Act



REPUBLIC OF KENYA



COUNTY GOVERNMENT OF KIAMBU

PART I

INTRODUCTION AND PLANNING CONTEXT

1 INTRODUCTION AND PLANNING CONTEXT

1.1 Background

The preparation of the Ruiru Integrated Strategic Development Plan (ISUDP) 2020-2030 **hereafter referred to as the Plan** is part of Component 1: Institutional Reform and Planning of the Nairobi Metropolitan Service Improvement Project (NaMSIP) which is a broader initiative that addresses key urban development issues such as infrastructure and governance capabilities in the metropolitan area. This Project was implemented by the Directorate of Nairobi Metropolitan Development (DoNMED), with the support of the World Bank. The consulting firm VisionRI Connexion Service Private Limited of India supported by Urban Lines Consultants Ltd, Kenya was commissioned to provide technical consultancy services for the Project.

1.2 The ISUDP Conceptual Framework

The conceptual framework, with reference to the Terms of Reference (ToR), is anchored on looking “at urban development from a perspective that integrates physical, economic, social, cultural, and environmental as well as institutional aspects in urban planning”. It also seeks “to align urban development planning with the on-going socio-economic and political reforms and transformation in the county” and employs a “strategic planning approach that is more flexible and development-oriented that is desirable to catalyse the government’s economic recovery strategy for wealth and employment creation”.

The strategic planning approach involves the identification of **“priority programmes and projects that can transform the project towns into vibrant well-planned satellite towns of NMR that tap on the advantages of their proximity to the capital city”** It is focused on identifying means to improve living and working environments, generate more employment opportunities, enhance local government revenues, create efficient transport systems, exploit opportunities for industrial growth and urban linkages, and imbue towns with unique urban form and character through innovative urban design.

The key planning principles that underlie Plan preparation are:

- Consultative/participatory process that allows for public participation and ownership of plans as the basis for shared responsibility for implementation;
- Strategic processes which require a focused approach, and the systematic search for the most appropriate and effective solution, keeping in mind available resources, and overall policy guidelines and principles;
- An integrated approach as a tool for promoting sustainability which requires thinking and acting holistically across conventional sectorial boundaries. Functional integration with the purpose of improving availability and accessibility by reducing travel and transport needs and improving convenience for those with fewer resources;
- Provide equal access to services and facilities and provide for functional, socio-economic, cultural and ethnic interaction; provide for economic development and employment, facilitate institutional cooperation and encourage community participation;

- Create a balance between natural and physical environments, viable economic systems and greater integration, equity and responsibility; and
- Promote gender mainstreaming to incorporate the needs and aspiration of men and women.

1.3 Purposes of the Plan

The general purposes of this Plan entail:

- Articulating the aims of the National and County governments for the area together with strategies, policies and general proposals which are intended to achieve those aims;
- Providing a framework for detailed development policies and proposals for Ruiru Sub-County;
- Indicating action areas for immediate development or re-development; and
- Providing a coordinated basis upon which various implementing agencies can carry out their individual programmes of work for which they have executive responsibility, for example, housing, transportation, water supply, electricity supply, sewerage development, etc.

1.4 Specific Planning Challenges

The key planning challenges facing Ruiru Sub - County include:

- Urban sprawl, unplanned and uncoordinated urban growth especially along the transport corridors;
- Inadequate serviced land to accommodate urban growth;
- Uncontrolled land sub-divisions without meeting planning standards and encroaching into rich agricultural areas;
- Proliferation of informal and un-serviced settlements;
- Inadequate infrastructural services such as narrow roads, lack of sewer, water supply, waste disposal and stormwater drainage;
- Poor quality or inadequate community services including housing, sanitation and facilities for recreation;
- Unemployment and declining employment opportunities especially leading to high rate of youth unemployment;
- Deteriorating urban safety and security due to declining employment opportunities;
- Absence of, or failure to update development plans that could form the basis for planning decisions;
- Poor coordination and participation amongst relevant government agencies, private sector and community in planning and projects implementation;
- Environmental degradation and encroachment on riparian reserves and other fragile areas;
- Poor coordination amongst relevant government authorities, private sector and other actors on planning and projects implementation;
- Ineffective engagement and participation of local communities and the private sector in planning and development activities;

- Environmental degradation and encroachment on riparian, wetlands and other fragile areas; and
- High incidence of urban poverty.

1.5 Objectives of the Plan

The broad objective is to provide a basis for an integrated and strategic approach to sustainable development for Ruiru Sub-County for a period of ten years.

The specific objectives of the Plan include efforts to:

- Determine the boundaries of the planning area considering projected requirements for urban land within the plan period;
- Analyse demographic changes in the last ten years and those expected over the life of the plan, and how these relate to economic changes, welfare and administrative shifts;
- Identify development constraints, potentials and challenges of the planning area (social, economic, infrastructure and environmental profiling) and propose strategies to address them;
- Identify environmental issues and propose strategies for effective environmental management including, amongst others, climate change adaptation and disaster risk reduction and management measures;
- Allocate sufficient space for various land uses, including recreation and open spaces, to ensure efficient function and convenience of users and accommodate future growth;
- Uphold innovative civic and urban design that enhances the character and form of the planning area;
- Provide a basis for development control and investment decisions; and
- Develop a plan implementation and monitoring framework.

1.6 Scope of the Plan

1.6.1 GEOGRAPHICAL SCOPE

The geographical scope of the Plan was agreed upon with the County Technical Working Group (TWG) after a series of discussions and site surveys and it was resolved that the area defined in Ruiru Municipal Charter 2018, Gazette No. 11311 dated 2nd November 2018 holds. Ruiru Municipal boundaries replicate the Sub-County boundaries. The details are provided in section 2.1 of this Plan.

1.6.2 PLANNING SCOPE

This Plan is a medium-term spatial urban development framework with a planning period of 10 years from 2020-2030 subject to five-year review. The planning process as defined in the Terms of Reference (TOR) covers the following scope: a detailed analysis of legal and policy framework, population and demographic issues, natural and physical environment, land and human settlements, economic analysis, urban development, governance, physical infrastructure, and social infrastructure.

1.7 Deliverables of the Plan

Key deliverables for this Plan include:

- Contextual analysis of Ruiru Sub-County and its environments as per thematic areas;
- Detailed base map showing existing spatial information;
- Legal and policy analysis informing the preparation of the plan;
- Assessment of transport, physical and social infrastructure needs;
- Assessment of housing and community facility needs;
- Structure plan to guide the spatial development of the planning area;
- Zonal plan for the planning area indicating development densities and guidelines;
- Spot zones which require action area plans;
- Central business district (CBD) re-development strategies and programmes, and future growth limits;
- Sectorial programmes and projects within the Sub-County and their spatial distribution;
- Revenue and financial enhancing strategies for the Sub-County; and
- Implementation strategies and framework for proposed sectorial projects.

1.8 Vision and Mission of the Plan

Visioning gives communities a strong sense of control over their destinies. In this approach, the stakeholders discussed the community ideals in shaping the future and agreed on the vision statement stating, **“A well-connected and liveable city with vast investment opportunities”**.

This vision is propelled by the mission statement that paves the roadmap and underscores Ruiru’s strategic location and accessibility by major roads, railway line and proximity to the Jomo Kenyatta International Airport (JKIA), local investment potential reflected on the emerging trends in the area.

The mission statement is **“Enhanced infrastructure for connectivity and promote investment opportunities for the local, regional and global markets”**.

1.9 Methodology

1.9.1 PREPARATORY STAGE

The preparatory stage in the preparation of this Plan involved profiling, transect surveys, and preparation of the Inception Report and Project Design Report. Profiling involved scanning general aspects of Ruiru Sub-County to appreciate the challenges and opportunities. The outputs were the refinement of the problems and objectives of the plan. Transect surveys involved reconnaissance surveys of the planning area. The output at this stage were: identification and appreciation of the Sub-County’s major planning issues, challenges and opportunities in line with the metropolitan spatial development plan; delineation of the planning area and consolidation of the base maps as provided for by the Directorate of Nairobi Metropolitan Development (DoNMED) and County; and preparation of the Inception Report. The Project Design Report involved fine-tuning of the scope and timeframe of the ISUDP, and preparation of the detailed work plan.

1.9.2 1.9.2 SENSITISATION

Sensitisation of key stakeholders was carried out through publication of a Notice of Intention to Plan. This was done in collaboration with the Director Metropolitan Planning & Environment (DoNMED), Director of Physical Planning (Land) and the County. This was followed by stakeholder's engagement through direct interviews and focus groups discussions that led to stakeholders' workshops where wider ranges of stakeholders were involved in validating the situational analysis and later, the draft plan.

1.9.3 1.9.3 DATA COLLECTION

The preparation of this Plan was based on mapping and primary and secondary data collection methods. The data collection stage involved preparation of data collection tools, training of field staff, and secondary and primary data collection.

- i. **Mapping Phase:** This stage involved the preparation of the base map and facilities map using digital maps and survey plans for the planning area from the County Government and Survey of Kenya. During this phase, existing plans and cadastral data were reviewed which helped in the establishment of ground control points, positioning with a global positioning system (GPS), the establishment of photo control points, survey reconnaissance, postmarking and concreting GPS and GPS computations, ground control reporting, aerial triangulation and field verification. At the end of the mapping exercise the following information was captured in the form of shapefiles:
 - Physical infrastructure;
 - Social infrastructure;
 - Resource mapping;
 - Water resources and drainage systems;
 - Land uses/economic activities;
 - Depiction of terrain characteristics; and
 - Names and annotations.
- ii. **Primary Data Collection:** Primary data consists of raw data collected directly from the field and interaction with different stakeholders. The approach of primary data collection entailed:
 - **Key Informant Interviews (KII):** Key informant interviews were conducted to provide a good understanding and sound basis of the existing situation of the planning area, its developmental problems, and challenges prior to the formulation of the development proposals. Some of the key informants included senior county officials including Heads of County Departments and Directorates, Line Managers in the Finance Department, Managers of Utility Companies and Agencies such as National Environmental Management Authority (NEMA), Kenya Urban Roads Authority (KURA), Kenya National Highways Authority (KeRRA), and Kenya Roads Board (KRB).
 - **Focus Group Discussion (FGD):** This involved identification of different focus groups with relevant information. The groups captured proposals on various issues such as land use,

environment and physical infrastructure amongst others. The concerns and responses given by the respondents were recorded and analysed. Some of the key stakeholders involved in the focus group discussion include:

- Public health & environment;
 - Business community;
 - Transport & utility service providers; and
 - Educational institutions.
- **Field Observations:** This was an integral part of data collection involving extensive observation for the phenomena occurring in the natural environment. These observations aided the verification of the facts gathered through interviews and questionnaires. Examples of data that were collected using this technique include surface condition and type, traffic volumes, physical infrastructure and social infrastructure amongst others.
 - **Photography:** Photographs were taken to show the existing situation and resources available and the neighbouring developments in the planning area.
 - **Traffic Surveys:** These involved random sampling of major roads within the planning area where traffic counts were administered to establish vehicular patterns and flow, and pedestrian movement.
 - **Structured Transect Surveys:** These include initial transect (appreciation) survey, environment transect survey, infrastructure and facilities inventories and conditions survey and land use pattern and urban design characterisation survey.
 - **Thematic Group Discussion (TGD):** Five thematic groups were identified and formed which included economic, environmental, and natural resources, physical and social group, land use and governance. The groups contributed and validated the data collected by the consultants. Group discussions were held during the stakeholders' planning workshops.

1.9.4 1.9.4 PLAN FORMULATION

The formulation of the Plan was based on thematic studies which involved in-depth studies and data collection. The output included a detailed analysis of secondary and primary data and identification of critical issues for planning. These key findings of the thematic studies were presented to key stakeholders for validation. Based on the validated situational analysis, a draft plan and development proposals were prepared. Findings and conclusion of studies were modelled and presented in a spatial context showing desired outcomes, alternatives, strategies, and programmes. The output was presented to the stakeholder forum for comments. This was followed by the formulation of alternative development proposals and selection of preferred alternative to inform land management and investment decisions. A stakeholder meeting focussing on the presentations of the draft plan proposal and preferred models was then organised to gain consensus on preferred plans and strategies for approval.

1.9.5 1.9.5 PLAN APPROVAL

Approval of this Plan will be in line with provisions of Section 50 of the Physical and Land Use Planning Act 2019. This entails the presentation of the Plan to the County Assembly for approval and onward gazettment by the County Executive Committee Member in charge of physical and land use planning. The output will be a gazetted plan for implementation for the period 2020-2030.

2 PLANNING CONTEXT

2.1 Ruiru's Historical Development

The growth and development of Ruiru town can be attributed mainly to the construction of the then Nairobi-Nyeri Road, which was a link road constructed in 1908 linking the capital city, Nairobi, to administrative centres of Thika, Murang'a and Nyeri (Gateri, 2002). When the railway line later opened in 1913, a sub-station was opened up in Ruiru, heralding the development of the town as a focal point connecting the area with major transport networks. With improved transport network connectivity, Ruiru became attractive for European settlement, who embarked on extensive farming activities of mainly coffee, sisal, and ranching. Over time, Ruiru evolved from a sub-station town to a service centre.

Administratively, before independence, Ruiru then known as the Western Rural District was managed by the Nairobi County Council. After Kenya attained its independence, the area came under Kiambu County Council. Ruiru since then achieved urban centre status as per the National Development Plan of 1974-1978, and later upgraded to Ruiru Town Council in 1986. In 1997, under the provisions of the repealed Local Government Act, it was promoted to Municipality status. In 2018 Ruiru was again designated as a municipality under the Urban Areas and Cities Act 2012. Ruiru has a charter and a municipal board which has a delegated responsibility to manage the affairs of the municipality.

2.2 Previous Planning Attempts

The past planning interventions were done by the Department of Physical Planning in 1972 as shown on the two Development Plans that cover only the CBD area and environs.

2.2.1 RUIRU UNDER THE NEW DISPENSATION

More than before, Ruiru's status especially within the NMR stands out due to its major urban transformations and strategic linkages. Under the current devolution of governance, the decentralised units of Sub-County, municipality, ward and village are under severe pressure for urban services. Of all its wards, the levels of urbanisation are such that the commercial nodes and residential neighbourhoods have overgrown or surpassed what is envisages of a village status. The societal and urban governance is more of a suburban nature than under the village council.

The Ruiru Town CBD and the bustling commercial nodes of Mwiki, Kahawa Sukari, Kahawa Wendani and Mwhoko are intertwined with the inevitable block-scale approach to planning and urban management. Solving this existential urban challenge will require institutional reforms for a block-scale strategy. The sustainability and resilience of Ruiru under this block-scale approach make its unique for new thoughts and a special approach of investing in neighbourhoods and business district by building modern infrastructure that increases capacity, improves resilience, and boosts economic competitiveness and adopting innovative solutions. This is the approach in other global metropolitan regions.

2.3 Geographical Location

Ruiru Sub-County is located in the central region of Kenya. Map 2-1 shows the Sub-County shaded in red, perched on the southern west fringe of Kiambu County, shaded in orange. It is bordered to the Southwest by Nairobi County and Northeast by Juja Sub-County.

Ruiru's major urban centre, Ruiru Town, is the most populous urban centre in Kiambu County and ranks first in Kenya for high-speed urban growth. Ruiru, according to 2019 census, is the fourth fastest-growing town in Kenya. The town lies almost mid-point between Nairobi City and Thika Town (21km from the Nairobi city centre and 17km from Thika town).

2.3.1 NATIONAL CONTEXT

The mapped location of the planning area in relation to the national contexts is shown in Map 2-2.

2.3.2 REGIONAL CONTEXT

From a regional context, all counties within the NMR have connections to Ruiru – both by road networks and the railway line – for both commuter and freight movement. From its location shown in Map 2-3, Ruiru knits and connects key nodes within and as a transit axis across the northern frontier of the NMR.

2.3.3 LOCAL CONTEXT

In the Kiambu County context, Ruiru's proximity to production and trading centres provides an essential element of local transportation systems that accommodate and integrate with national and arterial road networks as shown in Map 2-4.

2.3.4 SIZE, POLITICAL AND ADMINISTRATIVE UNITS

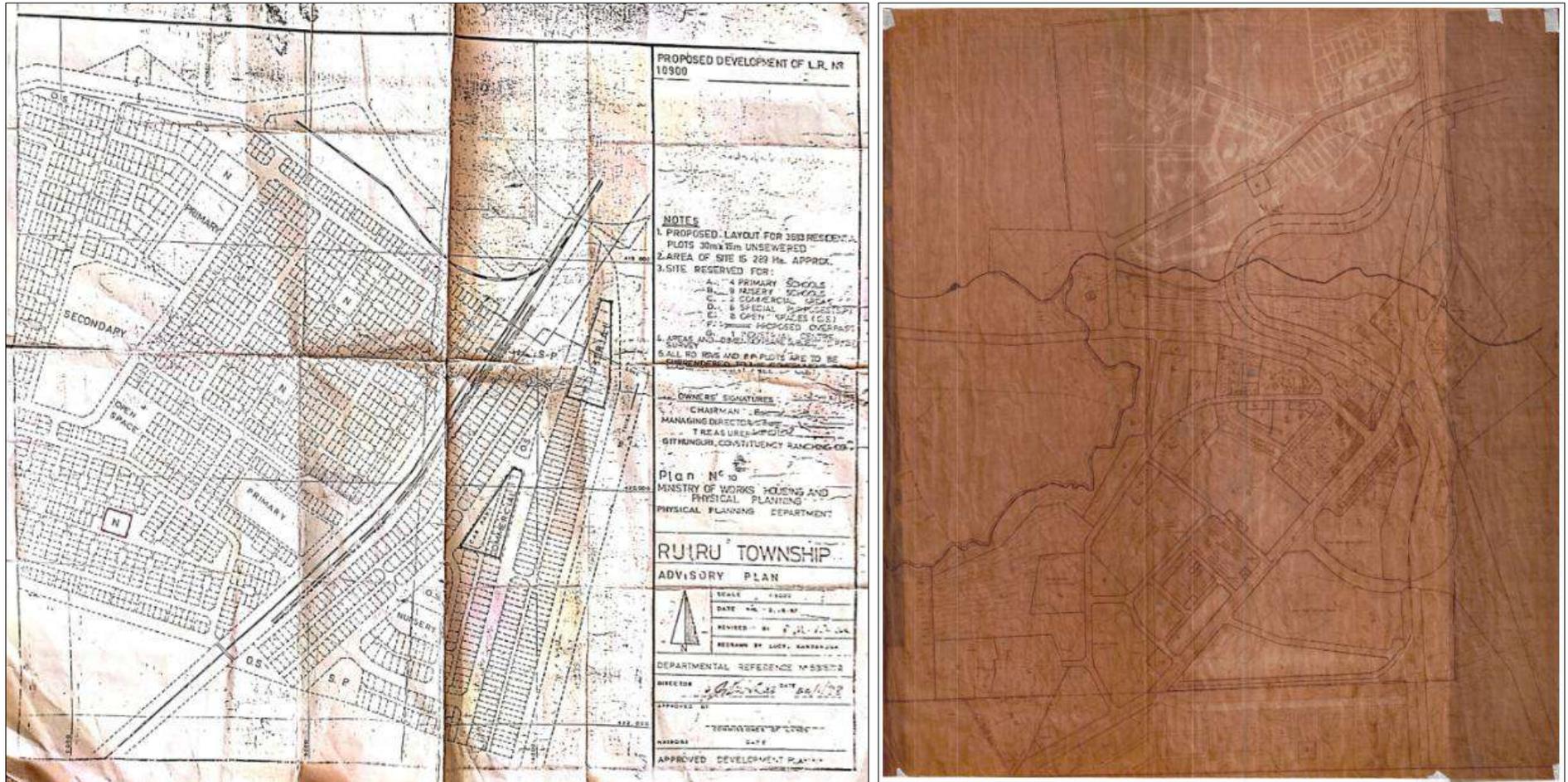
Ruiru Sub-County covers approximately 20,240.16 hectares. It is composed of eight wards with eight sub-locations whose respective land areas are presented in Table 2-1. Gatongo'ra Ward is the largest accounting for 55% of the total area, though it has the lowest population density.

Table 2-1: Wards and Sub-location units

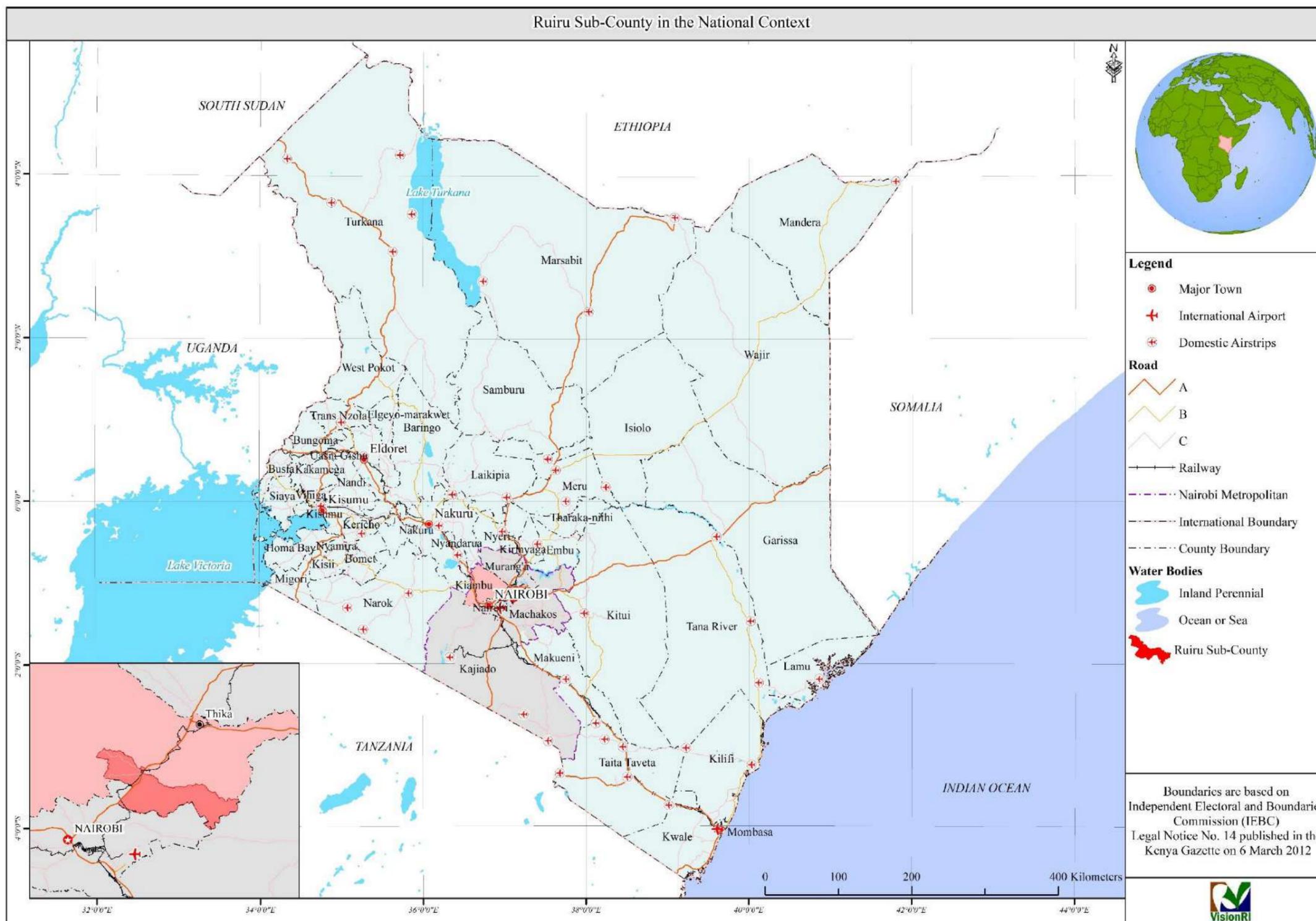
Ward	Sub-location	Area in hectares		Ward Area Share in %
		Ward	Sub-location	
Mwiki		151.45		0.75%
	Mwiki		151.45	
Kiuu		502.45		2.48%
	Kiuu		502.45	
Kahawa Wendani		121.22		0.60%
	Kahawa Wendani		121.22	
Kahawa Sukari		450.91		2.00%
	Kahawa Sukari		450.91	
Mwihoko		3088.29		15.26%
	Mwihoko		3088.29	
Gatongora		11193.37		54.3%

Ward	Sub-location	Area in hectares		Ward Area Share in %
		Ward	Sub-location	
	Gatongora		11193.37	
Biashara		981.49		4.85%
	Viwanda/Biashara		981.49	
Gitothua		4201.90		19.76%
	Gitothua		2117.93	
	Mukuyu		2083.97	
		20240.16	20240.16	100%

Source: Kiambu CIDP 2018-2022

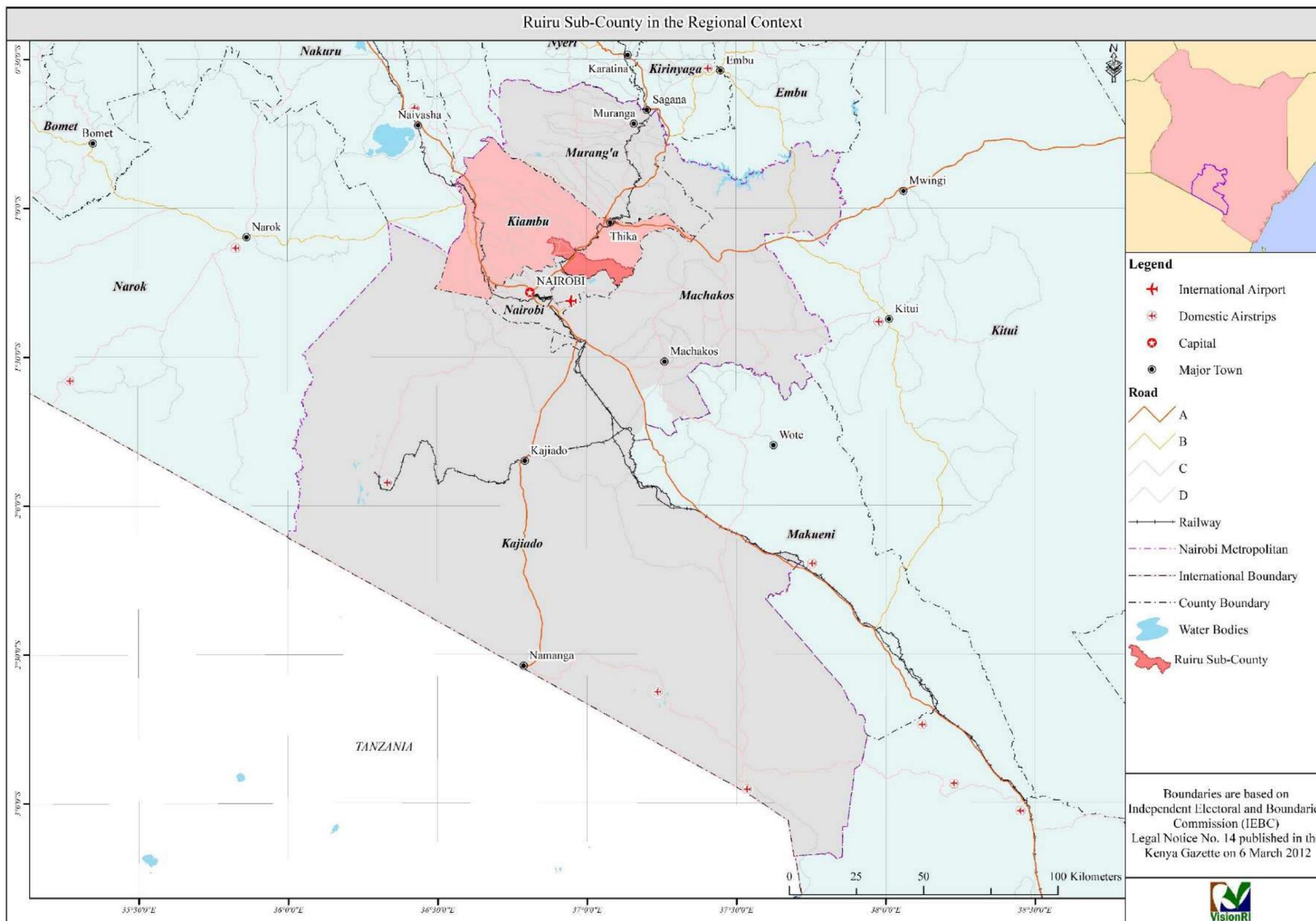


Map 2-1: Previous Development Plans, 1972
 Source: Kiambu County Physical Planning Department



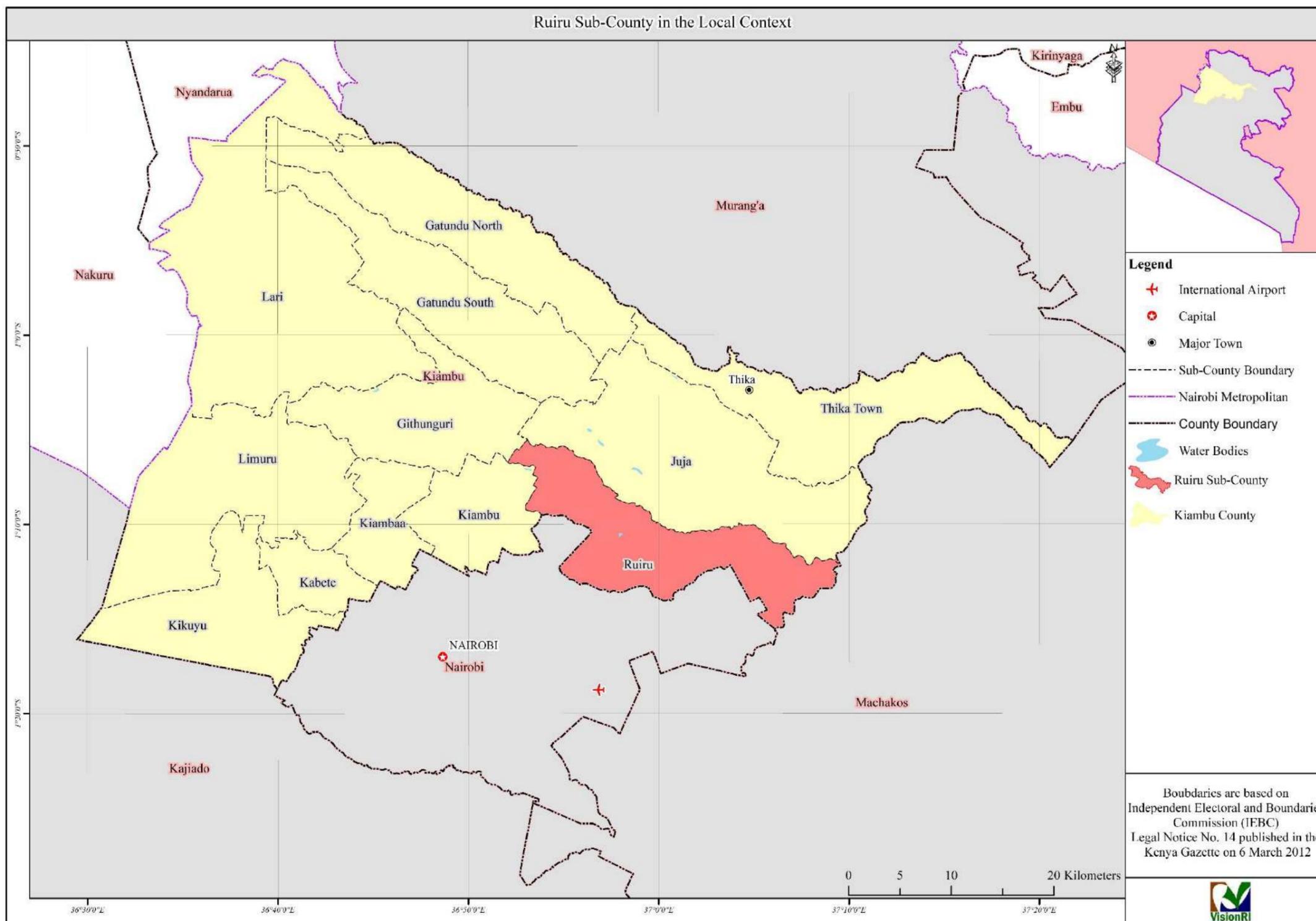
Map 2-2: Location of Ruiru Sub-County in the National Context

Source: VisionRI



Map 2-3: Location of Planning Area in the Regional Context

Source: VisionRI



Map 2-4: Location of Planning Area in the Local Context

Source: VisionRI

2.4 Legislative Context

2.4.1 NATIONAL LAWS

- i. **The Constitution of Kenya:** The Kenya 2010 Constitution provides for a two-tier government structure – national and county. Articles 186(1) 67(2) (h) of the Constitution and its Fourth Schedule assigns specific planning functions to both levels of government. Pursuant to its Fourth Schedule, the national government is mandated to formulate the general principles of physical land use planning and the coordination and oversight of planning in the counties while counties are in charge of county planning and development control within their jurisdictional areas. To a large extent, the bulk of the physical and land use function is devolved. As an enhanced county governance function, it provides a platform for integrating spatial and sectoral planning, aligning of county financial and institutional resources to budgeting, financing and programme implementation and performance review.

The preparation of this plan was further guided by the spirit of public participation, human dignity, equity, social justice, inclusiveness, equality, human rights, non-discrimination and protection of the marginalised with the overall goal of attainment of sustainable development. With regards to achieving the objectives of Article 60 of the Constitution, this plan has observed and achieved various principles such as security of land rights, sustainable and productive management of land resources and sound conservation and protection of ecologically sensitive areas such as forests, swamps and wetlands. Subject to National Government in close liaison with the National Land Commission is responsible for monitoring and oversight of land use planning throughout the country, the general principles of land planning and the coordination of planning by the counties. The main aim of this renewed approach is to ensure planning and urban development integration with other strategies and plans with clear programme management.

- ii. **County Governments Act (17 of 2012):** The County Governments Act (2012) mandates County Governments to prepare county plans under Part XI (County Planning). The Act provides for the “county planning framework to integrate economic, physical, social, environmental and spatial planning” (Article 104(2)). The key principles of planning and development facilitation require the integration of national policies and plans in all processes and concepts and further serve as a basis for engagement between county government and its citizenry, other stakeholders and interest groups. The county plans include spatial plans, sectoral plans and cities and urban areas plans. Part X of the Act provides for civic education to empower the community for empowerment and enlightenment. The objective is to make planning a genuinely people-led by empowering local communities to shape their surroundings and setting a positive vision for the future.
- iii. **Urban Areas and Cities Act (13 of 2011) (UACA):** The primary objective and purpose of this legislation is three-fold:

- The classification of areas as urban areas or cities;
- The governance and management of urban areas and cities; and
- Participation by the residents in the governance of urban areas and cities.

In the first objective, it provides guidance on the classification and establishment of urban areas and cities by providing the criteria and thresholds for eligibility based on infrastructure level and population served. On governance, the Act provides the guiding principles and the finer details of appointment of management boards, and the day-to-day operations through administrative structures of managers guided by service charters partnerships and joint ventures in delivery of urban services.

This is the legislation that provides the direct anchor upon which the framework of integrated development planning operates and the basis for:

- Preparation of environmental management plans;
- Preparation of valuation rolls for property taxation;
- Provision of physical and social infrastructure and transportation;
- Preparation of annual strategic plans for a city or municipality;
- Disaster preparedness and response;
- Overall delivery of service including provision of water;
- Electricity, health, telecommunications and solid waste management; and
- Preparation of a geographic information system for a city or municipality.

Integrated planning nurtures and promotes development in an orderly and sustainable manner, and most critical be the basis for development control.

- iv. **Physical and Land Use Planning Act (13 of 2019) (PLUPA):** Enacted in August 2019, this legislation in its novelty within the devolution transition brings in the values, principles procedures and standards of physical and land use planning across the two governance levels in the preparation and implementation of physical and land use plans. The Act provides the broad framework of the physical and land use planning institutions from the apex National Physical and Land Use Planning Consultative Forum and the County Physical and Land Use Planning Liaison Committee and the two frontline offices of the Director-General at the national level and the County Director of Physical and Land Use Planning at the county level.

Read in conjunction with the two Acts preceding above, the PLUPA defines the types of physical and land use plans, the procedure of their preparation and approval, the declaration of special planning areas, the basis of plan implementation, revision/amending and status reporting.

This Plan, in the context of this Act, is provided under Section 46 states that a Local Physical Development Plan is prepared for the purpose of:

- i. Zoning, urban renewal, or redevelopment.
- ii. Guiding and coordinating the development of infrastructure.
- iii. Regulating land use and land development.
- iv. Providing a framework for coordinating various sectoral agencies.
- v. Providing a framework and guidelines on building and works development in the city, municipality, urban area, or other smaller urban centres including local centres, and market centres.

As one mechanism of plan implementation, the Act empowers County Governments to regulate developments within their areas of jurisdiction. The Act, therefore, provides the objectives of development control coupled with procedures that promote sustainable use of land and liveable communities which integrates human needs in any locality.

- v. **Environment Management and Co-ordination (Amendment) Act of 2015:** This plan seeks to ensure that every person has access to a clean and healthy environment and a duty to safeguard and enhance the environment pursuant to Section 3 of Environment Management and Co-ordination (Amendment) Act of 2015. The entitlement to a clean and healthy environment in the plan has included access by any person to various public elements or segments of the environment for recreational, educational, health, spiritual and cultural purposes. Other regulations that stem from EMCA (Amendment) Act of 2015 which have been considered during the preparation of this plan include Environmental (Impact Assessment and Audit) Regulations, 2003, Air Quality Regulations, 2013 (Legal Notice No. 34), Waste Management Regulations, 2006 (Legal Notice 121), Water Quality Regulations, 2006 (Legal Notice No. 120), Controlled Substances Regulations, 2007 (Legal Notice No.73), Wetlands, Riverbanks, Lake Shore and Sea Shore Management Regulations, 2009 (Legal Notice No. 19) and Noise and Excessive Vibration Pollution (Control) Regulations, 2009 (Legal Notice No. 25).

2.4.2 COUNTY LAWS

- i. **The Kiambu County Valuation and Rating Act, 2016:** This Act is meant to support the implementation of Article 209 (3) (a) of the Constitution of Kenya that involves valuation and rating of land and for connected purposes. The purpose of this Act is to provide a framework for valuing and rating land in order to ensure efficiency, accountability and transparency in the administration of valuation of land for rating; promote economic development; ensure equity and fairness in land valuation and rating system and ensure compliance with payment of rates related to land. The Act has established the Directorate of Valuation and Rating whose functions include undertaking valuation; preparing the draft valuation and supplementary valuation rolls; administering the draft valuation rolls; preparing the schedule of rates; as well as advising the Executive Committee Member on the appropriate methods of rating amongst other functions.
- ii. **The Kiambu County Community and Neighbourhood Associations Engagement Act, 2016:** This Act gives statutory recognition to community and neighbourhood associations in

complementing county government service delivery; to enable structured co-operation between the County Government, residents and businesses; to facilitate the activities of the associations and organisations, and to give further effect to Articles 10 and 174 of the Constitution as regards the principle of participation of the citizens and for connected purposes.

2.4.3 OTHER RELEVANT LAWS

Other laws considered in this plan are summarised in Table 2-2.

Table 2-2: Other Relevant Laws

Laws	Purpose
The Land Laws Amendment Act, No 28, 2016	To amend the laws relating to land in order to align them with the Constitution, to give effect to Articles 68(c)(i) and 67(2)(e) of the Constitution, to provide for procedures on evictions from land, and for connected purposes.
The Kenya Roads Act, 2017	To provide for the classification, management, construction, and maintenance of public roads; to establish the Kenya National Highways Authority, Kenya National Urban Roads Authority and Kenya National Secondary Roads Authority; and to provide for their functions and powers and connected purposes.
The Government Lands Act, Cap 280	An Act of Parliament to make further and better provision for regulating the leasing and other disposals of government lands, and for other purposes.
The Registration of Titles Act, Cap 281	An Act of Parliament to provide for the transfer of land by registration of titles.
The Land Titles Act, Cap 282	To make provision for the removal of doubts that have arisen in regard to titles to land and to establish a Land Registration Court.
The Registered Land Act, Cap 300	To make further and better provision for the registration of title to land, and for the regulation of dealings in the land so registered, and for purposes connected therewith.
The Wayleaves Act, Cap 292	Relating to wayleaves, and the processes involved in creating and management.
The Dairy Industry Act, Cap 336	To provide for the improvement and control of the dairy industry and its products.
The Land Acquisition Act, Cap 295	To make provision for the compulsory acquisition of land for the public benefit.
The Land Act, 2012	To give effect to Article 68 of the Constitution, to revise, consolidate and rationalize land laws; to provide for the sustainable administration and management of land and land-based resources, and for connected purposes.

Laws	Purpose
The Land Registration Act, 2012	To revise, consolidate and rationalism the registration of titles to land, to give effect to the principles and objects of devolved government in land registration, and for connected purposes.
The National Land Commission Act, 2012	To make further provision as to the functions and powers of the National Land Commission, qualifications, and procedures for appointments to the Commission; to give effect to the objects and principles of devolved government in land management and administration and for connected purposes.
The Special Economic Zones Act, 2015	To provide for the establishment of special economic zones; the promotion and facilitation of global and local investors; the development and management of enabling environment for such investments, and for connected purposes.

Source: VisionRI

The other sectoral laws considered in this plan are summarised in Table 2-3.

Table 2-3: Other Sectoral Laws

Laws	Relevance
Agriculture, Fisheries and Food Authority Act, (2013)	Provides the confines within which to make proposals on agriculture promotion and conservation of soils and fertility for sustainable agriculture and optimization of land use.
Water Act (2002)	Provide guidelines on plan proposals touching on management, conservation, use and control of water resources, water supply, and sewerage services.
Land Act, 2012	Provides for sustainable administration and management of land and land-based resources nationally.
National Land Commission Act, 2012	Provides for County Land Management Boards which are critical in processing Development applications and allocation of public land as well as NLC that will monitor and have oversight responsibilities over land use planning throughout the country.

Source: Vision RI

2.5 Policy Context

2.5.1 GLOBAL POLICIES

- i. **The Strategic Development Goals (SDGs):** The SDGs have five universal drivers that enable the localisation and ownership of the 17 global goals and 169 targets. These drivers are: (i) sensitisation and engagement of local actors, (ii) accountability mechanisms, (iii) participatory planning and service delivery, (iv) local economic development, and (v) partnerships.

Planning, which is a mechanism of governance, allows all these drivers to have an anchorage in engaging the community in visioning and creating goals. As a community-driven process, it involves making choices and deciding on planning strategies and actions. Sustainable Goal No 11 on sustainable cities and human settlements brings world perspectives to local spaces for development and service delivery.

In the spirit of the SDGs, the achievement of this plan places responsibilities on National and County Governments to set the targets and support the Sub-County to deliver. Municipalities being the closest governance level with the community play an important role in the planning process, identifying the problems and possible solutions which constitute the goals and targets to be met.

- ii. **New Urban Agenda:** The New Urban Agenda (NUA) represents a shared vision of embracing urbanisation as an opportunity to integrate equity in development and bridge the spatial planning gaps in human settlements in urban peri-urban and rural areas. The implementation of the NUA is premised on three pillars of urban planning and design; urban rules and regulations and municipal finance.

The making of this Plan has made deliberate recommendations for strengthening institutional roles and aligning them to the vision of the community.

- iii. **Africa Union Agenda 2063:** Agenda 2063 is Africa’s blueprint and master plan for transforming Africa into the global powerhouse of the future. The agenda is an affirmation of African leaders’ commitment to support Africa’s new path for attaining inclusive and sustainable economic growth and development. The Agenda was passed and an Africa Union (AU) resolution in May 2013 and signed during the 50th Anniversary of the formation of the OAU.

The Agenda has 7 aspirations and 20 Goals each with a set of priority areas of action. Table 2-4 shows selected Goals (No 1, 4, 12, 19 and 20) which is relevant to Ruiru’s development and their linkage to the relevant SDGs.

Table 2-4: AU Agenda 1 and Linkage to Relevant Urbanisation SDGs

Agenda 2063 Goals	Agenda 2063 Priority Areas	UN Sustainable Development Goals
Goal 1. A high standard of living, quality of life and well-being for all citizens.	<ul style="list-style-type: none"> • Incomes, jobs and decent work; • Poverty, inequality and hunger; • Social security and protection, including persons with disabilities; and 	SDG 1: End poverty in all its forms everywhere in the world SDG 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture. SDG 8: Promote sustained, inclusive and sustainable Economic growth, full and

	<ul style="list-style-type: none"> • Modern, affordable and liveable habitats and quality basic services. 	<p>productive employment and decent work for all.</p> <p>SDG 11: Make cities and human settlements inclusive, safe, resilient and sustainable.</p>
Goal 4 Transformed economies.	<ul style="list-style-type: none"> • Sustainable and inclusive economic growth; • STI driven manufacturing, industrialisation and value addition; and • Economic diversification and resilience. 	<p>SDG 8: Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.</p> <p>SDG 9: Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation.</p>
Goal 12. Capable institutions and transformative leadership in place.	<ul style="list-style-type: none"> • Institutions and leadership; and • Participatory development and local governance. 	<p>SDG 16: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.</p>
Goal 19. Africa as a major partner in global affairs and peaceful co-existence.	<ul style="list-style-type: none"> • Africa's place in global affairs; and • Partnerships 	<p>Goal 17: Strengthen the means of implementation and revitalise global partnerships for sustainable development.</p>
Goal 20. Africa takes full responsibility for financing her development goals.	<ul style="list-style-type: none"> • African capital markets; • Fiscal systems and public sector revenue; and • Development assistance 	<p>SDG 10: Reduce inequality within and amongst countries.</p> <p>SDG 17: Strengthen the means of implementation and revitalize the global partnership for sustainable development.</p>

Source: Africa Union

2.5.2 NATIONAL POLICIES

- i. **Kenya Vision 2030:** Conceptually, the implementation of plans at the lower levels contributes to the transformation strategy of Vision 2030. This plan helps to enable the prudent use of resources, provision of physical and social infrastructure, raise productivity and promote democracy geared to achieve a “globally competitive and prosperous country with a high quality of life by 2030”. In its three pillars – social, economic and political – upon which the foundation is erected, this plan provides the elements that strengthen the institutional and governance reforms through planning towards macroeconomic stability, continuity in governance reforms, enhanced equity and wealth creation opportunities for the poor, infrastructure, energy, science, technology and innovation (STI), land reform, human resources development and security as well as public sector reforms.

- ii. **National Land Use Policy (Sessional Paper No. 1 of 2017):** This policy emphasises the importance of land as a resource for the economic life of the majority of people in Kenya. The way people handle and use land resources is decisive for their social and economic well-being as well as for the sustained quality of land resources. In tandem with this policy, this plan seeks to strike a balance between satisfying the human livelihood needs and sustainable use of resources for posterity by taking into consideration the following:
- Anchoring Ruiru's land development initiatives that will respond positively to market demands;
 - Environmental management and sustainable production initiatives in the utilisation of land resources;
 - Coordination and integration of institutional linkages in planning at sectoral and cross-sectoral levels to foster collaboration and decision making amongst different land users; and
 - Optimum utilisation of land resources to meet governance, social-economic, political and cultural obligations of the people of the county and Kenya at large.
- iii. **Land Policy:** The Land Policy sets out goals and direction for the present and the future management of land in Kenya. It consists of measures and guidelines which the government shall implement to achieve optimal utilisation and management of land, and from which laws governing land administration and management shall be drawn.
- iv. **The Land Use Policy:** The policy provides guiding measures that include sound land-use practices, conservation and enhancement of the quality of land and land-based resources and the proper management of demographic and health parameters. Other key guiding measures in the policy include issues of land cover, land use data, maintenance of forest cover, smart and green urban growth, land banking for industrial, commercial, agricultural, residential and infrastructure development.
- v. **National Urban Development Policy (NUDP):** The process of urban development in Kenya from its outset was not backed by any robust urban policy intervention. Urbanisation has progressed at a tremendous speed especially in the last three decades with projections indicating that it is set to grow steadily in the next few years. Ruiru, the current urbanisation hotspot, is expected to urbanise at an average growth rate of 3.9 per cent per year for the period 2020-2030.

Urbanisation is increasingly important, particularly in, under devolution governance and hence better planning methods are essential to manage the process. The NUDP was launched in 2016 as a roadmap to guide urban development from the prevalent current spontaneous growth and haphazard developments that characterise many Kenyan towns. The NUDP touches issues of development planning, land management, urban investment and delivery of infrastructure services.

- vi. **National Environment Policy, 2013:** With regards to the provisions of the National Environment Policy, 2013, the Plan recognises the importance of the link between development and sustainable environment by:
- Addressing environmental degradation concerns and challenges; notable drivers of environmental degradation are the high rates of population growth, inappropriate technology, unsustainable consumption and production patterns, increased incidences of poverty and climate change;
 - Providing a framework for an integrated approach to planning and sustainable management of Kenya’s environment and natural resources;
 - Ensuring sustainable management of the environment and natural resources, such as unique terrestrial and aquatic ecosystems, for both county and national economic growth and improved livelihoods; and
 - Promoting and enhancing cooperation, collaboration, synergy, partnerships and participation in the protection, conservation, sustainable management of the environment and natural resources.
- vii. **National Land Policy (Sessional Paper No. 3 of 2009):** The objective of this policy is to secure rights over land and provide for sustainable growth, investment and the reduction of poverty in line with the Government’s overall development objectives. The policy provides an overall framework that defines the key measures required to address, amongst others, the critical issues on land, land use planning, environmental degradation, conflicts and unplanned proliferation of informal urban settlements, outdated legal framework, institutional framework and information management. In tandem with the provisions of this policy, this plan promotes and encourages a multi-sectoral approach to land use, provision of social, economic and other incentives and puts in place an enabling environment for investment, agriculture, livestock development and exploitation of natural resources.
- viii. **Other Relevant Policies:** Other relevant policies that this Plan has considered and integrated are summarised in Table 2-5.

Table 2-5: Other Relevant Policies

Policy	Relevance
Housing Policy (Sessional Paper No. 3 of 2004)	That comprehensive land-use planning as a major component of housing in facilitating provisions of adequate shelter and a healthy living environment, at an affordable cost to all socio-economic groups in Kenya in order to foster sustainable human settlements.
National Information & Communications	Seeks to improve the livelihoods of Kenyans by ensuring the availability of accessible, efficient, reliable and affordable ICT services.

Technology (ICT) policy, 2016	
National Climate Change Response Strategy, 2010	Seeks to strengthen and focus nationwide actions towards climate change adaptation and GHG emission mitigation.
Integrated National Transport Policy Sessional Paper No. 2 of 2012	Aims to develop a world-class integrated transport system that is responsive to the needs of people and industry since the government recognizes the transport sector as one of the critical enablers in achieving Vision 2030.
Sessional Paper No. 2 of 2009 on Forest Policy	Requires County Governments to establish and maintain arboreta, mini-forests, or mini-recreational parks within their areas of jurisdiction and during the construction of housing estates by the public and private investors.
Energy Policy, 2012	Seeks to ensure adequate, quality, cost-effective, and affordable supply of energy to meet development needs while protecting and conserving the environment.
Public Health Policy, 1994	Focuses on the essential priority packages based on the burden of disease and the required support systems to deliver service amongst major players in the health sector include the government represented by the Ministry of health and the county government, private sector and non-governmental (NGOs).
National Urban Development Policy	Creates a framework for sustainable urban development in the country and addresses the following thematic areas: urban economy; urban finance; urban governance and management; national and county urban planning; land, environment and climate change; social infrastructure and services; physical infrastructure and services; urban housing; urban safety and disaster risk management; and marginalized and vulnerable groups.

Source: VisionRI

2.5.3 PLANNING POLICY LINKAGES

- i. **National Spatial Plan (NSP):** The NSP anchors its framework on Vision 2030 and strives to achieve a balanced and sustainable national development. The Plan provides comprehensive strategies and policy guidelines to deal with issues of rural and urban development. The plan also focusses on issues of modernising agriculture, infrastructure, energy production, mining and industry, as well as sustainable human settlements.

The specific objectives of the NSP include:

- Creating a spatial planning context that enhances economic efficiency and strengthens Kenya's global competitiveness;
- Optimising utilisation of land and natural resources for sustainable development;
- Creating a liveable and functional human settlement in both urban and rural areas;

- Securing the natural environment for a high quality of life; and
- Establishing an integrated national transportation network and infrastructure system.

Based on the characteristics of the planning area, the key strategies outlined in the NSP that have been integrated into this plan are illustrated in Table 2-6.

Table 2-6: Relevant National Spatial Plan Strategies

Objective	Strategies
Promoting regional balance include	<ul style="list-style-type: none"> • Promoting industrialization and value addition; • Encouraging equitable exploitation and sound management of mineral resources; • Promoting investment in tourism including eco-tourism aspects; • Developing appropriate transport and infrastructural facilities and services; • Promoting rural industrialization; • Promoting commercial and large-scale livestock production practices; and • Promoting urban containment to reduce the effects of urban sprawl into rich agricultural land.
Urbanisation strategies include	<ul style="list-style-type: none"> • Strengthening urban-rural linkages through the provision of integrated physical infrastructure; • Creating an enabling environment for commercial and industrial developers; • Providing alternative areas for development of urban centres by the provision of services and infrastructure; and • Promoting the development of centres as per their potentials and population.
Environmental conservation and protection	<ul style="list-style-type: none"> • Intense forest cover through afforestation and reforestation; • Controlling water abstraction; • Putting flood mitigation measures in place; • Ensuring optimal utilization of available natural resources.
Transport infrastructure	<ul style="list-style-type: none"> • Creating an integrated road transport corridor; • Preserving and securing adequate land for future transport infrastructure development; • Encouraging the use of green transport; and • Creating linkages between agricultural, tourist and urban centres as well as rural areas.

Source: National Spatial Plan

2.5.4 REGIONAL POLICIES

- Nairobi Metro 2030:** The Nairobi Metro 2030 provides the policy direction for the development of the metropolis to support Kenya Vision 2030. This Plan is guided by these

policies, particularly in the course of determining Ruiru’s overall development goals and the various strategies to achieve them. Nairobi Metro 2030 envisions the Nairobi Metropolitan Region (NMR) becoming a “world-class African metropolis” characterised by a world-class working environment, living environment, business environment and governance. Its key result areas are the following¹ building an internationally competitive and inclusive economy for prosperity; deploying world-class infrastructure and utilities for the region; enhancing mobility and connectivity through effective transportation; enhancing the quality of life in the region; delivering a unique image and identity through effective place branding; ensuring a safe and secure region and build world-class governance systems.

- ii. **Spatial Planning Concept for NMR:** The Spatial Planning Concept for NMR provides the physical direction for the region’s development in support of Kenya Vision 2030 and Nairobi Metro 2030. It provides a holistic “conceptual framework” that defines the future spatial growth of the NMR and provides a guide in the preparation of local development plans. The document promotes a land-use system intended to ensure the development of an “environmentally sustainable region”² that will build an internationally competitive and inclusive economy for prosperity, deploy world-class infrastructure and utilities for the region, optimise mobility and accessibility through effective transportation, enhance the quality of life and inclusiveness in the region, deliver a unique image and identity through effective place branding, ensure a safe and secure NMR, and employ World-Class Metropolitan Governance Systems.

Tables 2-7 and 2-8 show key parameters that are provided in the NMR Spatial Plan that will guide the development of the ISUDP for Ruiru is its envisioned Economic Function of being an “A Trading Town”.

Table 2-7: Economic targets for Urban Centres

Spatial Units	Envisaged Function
1. Ruiru	Trading Town
2. Thika	Industrial Town
3. Limuru	Agro-based Industrial Town
4. Kiambu	Administrative -cum- Agro based Industrial Town
5. Juja	Service Town
6. Kikuyu	Agro-based Industrial Town
7. Karuri	Agro-based Industrial Town
8. Githunguri	Agro-based Industrial -cum- Administrative Town
9. Gatundu	Administrative Town
10. Machakos	Administrative -cum- IT Industrial Town

¹ Nairobi Metro 2030, Chapter 4, pp. 45-80

² Spatial Planning Concept for NMR, page ix

11. Mavoko	Industrial Town
12. Kangundo/ Tala	Trading Town
13. Kathiani	Service Town
14. Ngong	Industrial Town
15. Kitengela	Service Town
16. Ongata Rongai	Service Town
17. Kiserian	Service Town
18. Namanga	Trading Town
19. Isinya	Service Town
20. Bissil	Service Town
21. Kajiado	Administrative -cum- Service Town
22. Loitoktok	Administrative Town
23. Sultan Hamud	Transit Town
24. Magadi	Industrial Town

Source: Spatial Planning Concept for NMR

Table 2-8: Proposed Settlement Hierarchy for NMR, 2030

Level	Settlement Hierarchy	Settlements	Characteristics
I	Regional Complex	Nairobi- Ngong- Ongata Rongai- Ruiru Complex	<ul style="list-style-type: none"> • Highest administrative functions; • Specialised & world-class facilities; and • Tertiary activities.
II	Sub-Regional Centre	Thika, Kikuyu, Kiambu, Machakos, Tala/ Kangundo, Kajiado	<ul style="list-style-type: none"> • Administrative function/County headquarters; • Higher-level infrastructure; • Secondary & tertiary activities; and • Strong industrial base.
IIA	Priority Town	New Towns	<ul style="list-style-type: none"> • Planned to decongest Nairobi & developments in the surrounding regions; • Designed with specialised facilities on the basis of world-class norms; and • To be planned as special packages and special focus for development.
III	Growth Centre	Limuru, Karuri, Juja, Mavoko, Kitengela, Loitoktok	<ul style="list-style-type: none"> • Intermediary towns; • Important role in promoting rural development and in achieving a balanced distribution of the urban population; and

			<ul style="list-style-type: none"> • Provide functional linkages between the smaller towns and Sub-Regional Centre.
IV	Market Centre	Gatundu, Githunguri, Kathiani, Kiserian, Namanga, Isinya, Bissil, Sultan Hamud Magadi	<ul style="list-style-type: none"> • Small towns having linkages with immediate rural hinterlands; and • Is the higher-order village having a central location and potential for development within its catchment area with relatively better services and facilities in terms of education, health, communication, accessibility and has the capacity to serve a group of basic villages.
V	Central Village Centre	To be identified as part of sub-regional plans	<ul style="list-style-type: none"> • Would cater to the rural hinterland as an agro-service centre in the collection and distribution of agricultural goods and services with processing, marketing, warehousing, and storage facilities.
VI	Basic Village	All villages	

Source: Spatial Planning Concept for NMR

2.5.5 COUNTY POLICIES

- i. **Kiambu County Spatial Plan:** The Kiambu County Spatial Plan 2016-2026 has a strategic focus on land use planning, multi-modal transportation planning, informal settlements as well as zonal planning. Other elements that have been focused on the plan include environmental protection, heritage conservation and physical and social infrastructure management planning. The CSP views Kiambu as a rapidly urbanising county with rapid outward growth from its core. The CSP is inextricably linked to the CIDP having a key focus on optimal utilisation of resources and ensuring infrastructural development in the region. The planning area will have its plans and programmes mainly pegged to the Kiambu CSP and Kiambu CIDP. This will act as the base for the articulation and formation of action area plans and zoning plans for this plan. The Table 2-9 provides a summary of key programmes and strategies in the CSP.

Table 2-9: Relevant Strategies in Kiambu County Spatial Plan

Sector	Strategies
Agriculture and Rural Development	<ul style="list-style-type: none"> • Promotion of agriculture, livestock, and fisheries development; • Ensuring proper access to infrastructure and utilities; • Ensuring the promotion or marketing of agricultural, livestock and fisheries products; • Ensuring quality control on-farm inputs; • Ensuring proper access to available and affordable credit; and • Enhancing effective institutional and legal framework.

Urbanization	<ul style="list-style-type: none"> • To enhance the creation of employment opportunities in rural centres; • To promote the development of strategic growth centres; • To densify residential areas to avoid urban sprawl; • To provide adequate sewer and solid waste disposal infrastructure in urban centres; and • To promote efficient linkages and connectivity within and between urban centres.
Industrialization	<ul style="list-style-type: none"> • To provide an enabling environment for industrial growth; • To promote innovative technologies; • To revive collapsed industries and promote the establishment of Jua Kali and other light industries; and • To strengthen and promote community-based financial institutions.
Tourism and Environmental Conservation	<ul style="list-style-type: none"> • Ensuring conservation and sustainable use of the environment and natural resources; • Supporting protection and sustainable management of water resources; • Promoting the conservation of natural heritage and indigenous cultural sites; • Ensuring diversification and improvement of tourist attraction sites/products; • Coordinating infrastructure planning and development; and • Promoting tourism investment opportunities in the region.

Source: Kiambu County Spatial Plan

- ii. **Kiambu County Integrated Development Plan, 2018-2022 (CIDP):** Kiambu CIDP 2018-2022 has five main pillars (security, employment, education, health and urban planning) that are meant to steer development in the County. The specific contents of this CIDP include providing a general overview of Kiambu County information such as its location and size; physical and topographic data; administrative subdivisions; population density and distribution; infrastructure development evaluation; land and land-use patterns; employment; service provision in water and sanitation; education; health access and nutrition and social protection strategies. The CIDP has also envisaged linkages with Kenya's Vision 2030 and other lower-level plans. The CIDP has clear connections on implementation of the previous CIDP (2012-2017) as outlined in the county development priorities and strategies and the implementation framework, and finally the monitoring and evaluation structure.

This plan has made reference to this structure to ensure that it is in concordance with the CIDP objectives. Some of the programmes and projects in Kiambu CIDP relevant to this plan are summarised in Table 2-10 and the relevant implementing authorities in Table 2-11.

Table 2-10: Relevant CIDP Strategies

Sector	Strategies
Agriculture and Rural Development	<ul style="list-style-type: none"> • Ensuring small-scale holder horticulture and promotion unit programme (SHEP-UP); • Promoting livestock production and curbing parasites and diseases; • Laying out proper physical infrastructure in agricultural zones linking them properly to the markets; • Improving livelihoods of the community adjoining forests while providing alternative income sources; and • Improving forest cover for biodiversity and water catchments.
Energy, Infrastructure, and IT	<ul style="list-style-type: none"> • Supporting ICT infrastructure development hence ensuring efficiency inaccessibility; • Creating incentives for service providers to deploy services in rural and underserved areas; and • Ensuring proper physical infrastructure layout to ensure proper connectivity between land uses enhancing mobility and accessibility.
Environment Conservation and Water	<ul style="list-style-type: none"> • Reclaiming the riparian reserve and maintaining them through planting vegetation cover; • Providing adequate potable water within the County; • Ensuring proper solid and liquid waste disposal mechanisms; and • Increasing the forest cover in the county mainly through afforestation and reforestation.
Community facilities	<ul style="list-style-type: none"> • Ensuring proper distribution of educational facilities within the County; • Improving sanitation in schools at all levels; and • Improving health services in the hospitals by equipping the health centres, increasing the number of staff as well as the number of health centres.

Source: Kiambu County Integrated Development Plan, 2018-2022

Table 2-11: Related Authorities

Authority	Responsibility
Kenya Rural Roads Authority (KeRRA)	A State Corporation within the State Department of Infrastructure under the Ministry of Transport, Infrastructure, Housing and Urban Development and established through the Kenya Roads Act, 2007, mandated to maintain roads in all 290 Constituencies guided by respective Constituency Roads Committees (CRCs) through the annual Roads Maintenance Levy Fund (RMLF) allocations, as the provider of an adequate, quality, safe and efficient rural road network for sustainable socio-economic development.

Kenya Electricity Transmission Company Limited (KeTRACO)	KETRACO is a state corporation regulated under the State Corporations Act, Cap 446 mandated to develop new high voltage electricity transmission infrastructure that will form the backbone of the National Transmission Grid. Its core business is to plan, design, build and maintain electricity transmission lines and associated substations. The voltage rating of the transmission lines includes 132kV, 220kV, 400kV and 500kV (HVDC).
Kenya Roads Board	The Kenya Roads Board (KRB) was established through an Act of Parliament (KRB ACT No. 7 of 1999), with a vision to ensure that Kenya has an efficient road network. It has the sole mission to fund, oversee and coordinate road maintenance, rehabilitation, and development through optimal utilisation of resources for a sustainable road network. KRB is mandated to oversee the road network in Kenya and thereby coordinate its development, rehabilitation, and maintenance and to be the principal adviser to the government on all road-related matters.
Energy and Petroleum Regulatory Authority (EPRA)	It was formerly known as Energy Regulatory Commission (ERC). The Energy and Petroleum Regulatory Authority (EPRA) was established with an expanded mandate of energy resource regulation including upstream petroleum and coal. Its functions as provided in Section 10 of the Energy Act 2019 include: to regulate; generation, importation, exportation, transmission, distribution, supply and use of electrical energy with the exception of licensing of nuclear facilities; importation, refining, exportation, transportation, storage and sale of petroleum and petroleum products with the exception of crude oil; and production, conversion, distribution, supply, marketing and use of renewable energy amongst other functions as provided in the Act.
Special Economic Zones Authority	This is the regulator of all SEZs. It is responsible for designing, approving, establishing, developing, operating, promoting, and regulating an SEZ. The Authority also licenses and implements Government policies and programmes. It is also in charge of determining the investment criteria and investment thresholds for the businesses in the zone and maintains records of the enterprises and residents operating in each zone.
Kenya Tea Development Agency (KTDA)	Kenya Tea Development Agency provides tea production and management services to over half a million small-scale tea farmers, such as agri-extension, transportation, processing, and marketing, while ensuring effective management of the smallholder tea sub-sector in the production, processing, and marketing of high-quality tea.
Kenya Poultry Development Board	Established through the Poultry Development Act, 2012, the Board is responsible for: advising Government ministries, departments and other agencies on policy matters relating to the development of the poultry industry and facilitating the relevant bodies, organs or departments of Government to develop and implement comprehensive and integrated poultry development programmes; and liaise, co-operate and coordinate the working of all ministries, agencies and persons charged

	with the development of the poultry industry, amongst other functions stipulated in the Act.
Kenya Dairy Board	Kenya Dairy Board (KDB) is a state corporation under the Ministry of Agriculture Livestock and Fisheries established through an Act of Parliament, CAP 336, that regulates and facilitates a value-driven and sustainable dairy industry.

Source: VisionRI

2.6 Institutional Planning Mandates

The Kenya 2010 Constitution provides for a two-tier government structure – national and county. Article 186(1) and Article 67(2) (h) and its Fourth Schedule assigns specific planning functions to both levels of government. The Fourth Schedule Part 1 (21) and (32) forms the foundation of national government planning mandates while Part 2 (8) of the schedule forms the foundation of county governments' planning mandates.

The Physical and Land Use Planning Act (13 of 2019) provides a detailed framework across the two levels. It provides the framework under Schedules 1, 2, 3 and 5 (matters to be considered in spatial planning); Part V (framework control for development control) and Section 16, 17 and 24 (purpose and content of spatial plans).

The Intergovernmental Relations Act (No.2 of 2012) provides the basis for planning mandates in Part III; the transfer and delegation of powers, functions and competencies (Section 24-29) and Part IV; and dispute resolution mechanisms (Section 30-36).

At the county level, planning mandates are guided by the County Governments Act in Part XI [County Planning (Section 102-115)].

The Urban Areas and Cities Act, 2011 Part V narrows down to cities and municipalities whose mandate is the formulation of Integrated Development Planning (Section 36-42).

Table 2-12: Planning Roles and Responsibilities

Level of Government	Roles and Responsibilities
National Government	<ul style="list-style-type: none"> • Formulating general principles, policies, standards, and guidelines of land planning; • Preparation and approval of the National Physical Development Plan, National Policies, i.e., land use; • Planning at international boundaries within Kenya borders amongst Tanzania, Uganda, Somalia, South Sudan, and Ethiopia; • Coordination of Regional Spatial Plans/Inter-County Spatial Plans; • Capacity building and technical support to counties; and • Planning research at the national level.

County Government	<ul style="list-style-type: none"> • Preparation, approval and implementation of County Spatial Development Plans, Local Physical Development Plans, County Integrated Development Plans, Integrated Strategic Urban Development Plans, Sectoral Plans, development control and enforcement; • Formulating county-specific policies; • Implementing national policies, standards, and guidelines; and • Planning Research at the county level.
Municipal Boards	<ul style="list-style-type: none"> • Exercise executive authority as delegated by the county executive; • Preparation of urban economic plans (IDePs); • Ensure the provision of services to its residents; • Impose such fees, levies and charges as may be authorized by the county government for the delivery of services by the municipality or the city; • Promote constitutional values and principles; • Ensure the implementation and compliance with policies formulated by both the national and county government; • Make bylaws or make recommendations for issues to be included in bylaws; • Ensure participation of the residents in decision making, its activities and programmes in accordance with the Schedule to this Act; and • Exercise such other powers as may be delegated by the county executive committee.
County Assembly	<ul style="list-style-type: none"> • Approval of plans.

Source: VisionRI

2.7 Role of the County Planning Unit (CPU)

The new planning approach under devolution provides counties with the statutory duty with the considerable widening of the scope and thread running through both plan-making and implementation by establishing structures and networks that influence strategies and investment. Overall, spatial planning under the county governance institutional context is a tool for coordinating spatial equity and integrating balanced redistribution of resources through explicit and agreed policy framework.

At the core of demonstrating key dimensions of planning processes in the county is the County Planning Unit³. As illustrated in Figure 2-1, the unit has the strategic role and duty of integrating and coordination all county sectors and provide a degree of certainty and consistency across the entire planning and implementation cycles.

³ County Government Act Section 105

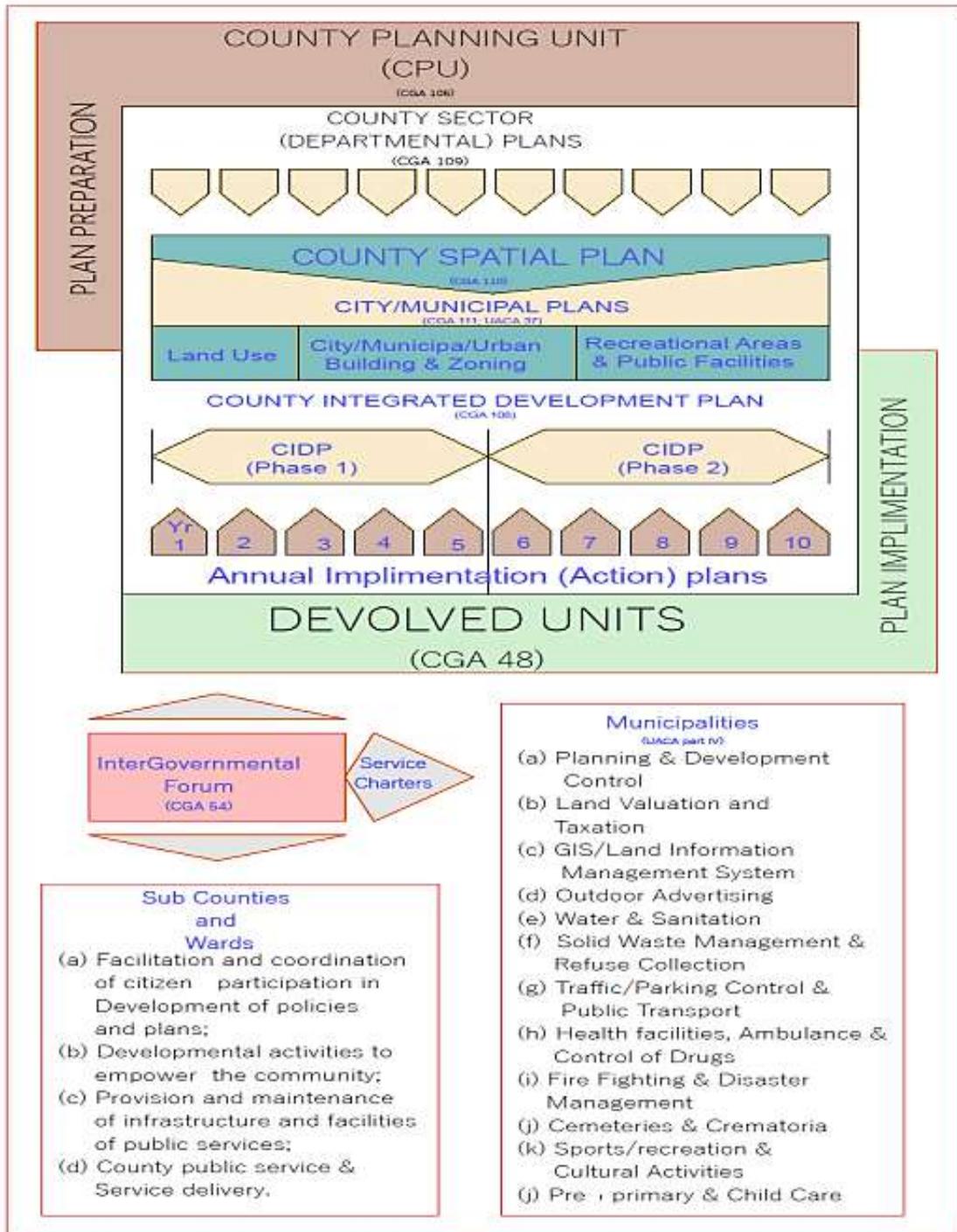


Figure 2-1: County Plan Preparation Framework

Source: Vision RI

2.8 Key Emerging Planning Issues

Table 2-13: Key emerging planning issues on the Planning Context

Focus Area	Key Challenges	Opportunities
Legislative	<ul style="list-style-type: none"> • Belated enactment of the PLUPA; • Unimplemented provisions of CGS; • Ambiguity and lack of clear-cut linkages between CGA, UACA and PLUPA; • Non-implementation of locally enacted legislation; and • Lack of municipal by-laws. 	<ul style="list-style-type: none"> • Fast-track operational regulations; • Operationalise Section 54 of CGA (County Inter-Governmental Forum); • Streamline the missing gaps through local legislation and regulations; and • Enact municipal by-laws to regulate urban order and offer quality service.
Policy	<ul style="list-style-type: none"> • Lack of ISUDPS as the backbone for guiding urban growth; • Lack of sectoral policies and strategies for service delivery; and • Lack of technical capacity to formulate internal policy. 	<ul style="list-style-type: none"> • Adopt the Plan and start the funding mechanisms for the recommended action plans; • Formulate sectoral policies to drive forward the programmes and projects; • Build technical capacity at the municipal level for urban based policies.
Institutional	<ul style="list-style-type: none"> • Conflicts of roles between devolved units; • Lack of inter-and intra-government policy coordination; • Absence of delegation guidelines and mechanisms; • Lack of oversight and compliance with institutional performance; and • Lack of Results-Based Management (RBM). 	<ul style="list-style-type: none"> • Elaboration of roles on Sub-County Administration and Municipalities; • Establish County Planning Units; • Formulate delegated powers guidelines; • Operationalise oversight and municipal inspectorate; and • Operationalise RBM and performance contract to municipal staff.

Source: Vision RI



REPUBLIC OF KENYA



COUNTY GOVERNMENT OF KIAMBU

PART II

SITUATIONAL ANALYSIS

3 PHYSIOGRAPHIC CHARACTERISTICS

3.1 Overview

Urban development directly transforms large areas of the earth's surface. Urbanisation involves the massive transfer of materials into towns, and in this development process, creating modification to the earth's surface and interference to the hydrological cycle. A fully functioning town brings about new changes on earth forms and buildings that exert stress on the earth's surface and pressure on the environment creating problems such as heat islands, surface run-off and pollution. This chapter analyses Ruiru's physiographic characteristics that are key factors in its urban expansion. Ruiru's terrain requires careful evaluation of each of the geomorphic process that has limitations for urban development. Land uses must be well guided by physiographic characteristics and avoid future conditions that may become unstable or disruptive. Effective urban governance must therefore consider the physiographic influence on urban change and environmental problems.

3.2 Base Map Preparation

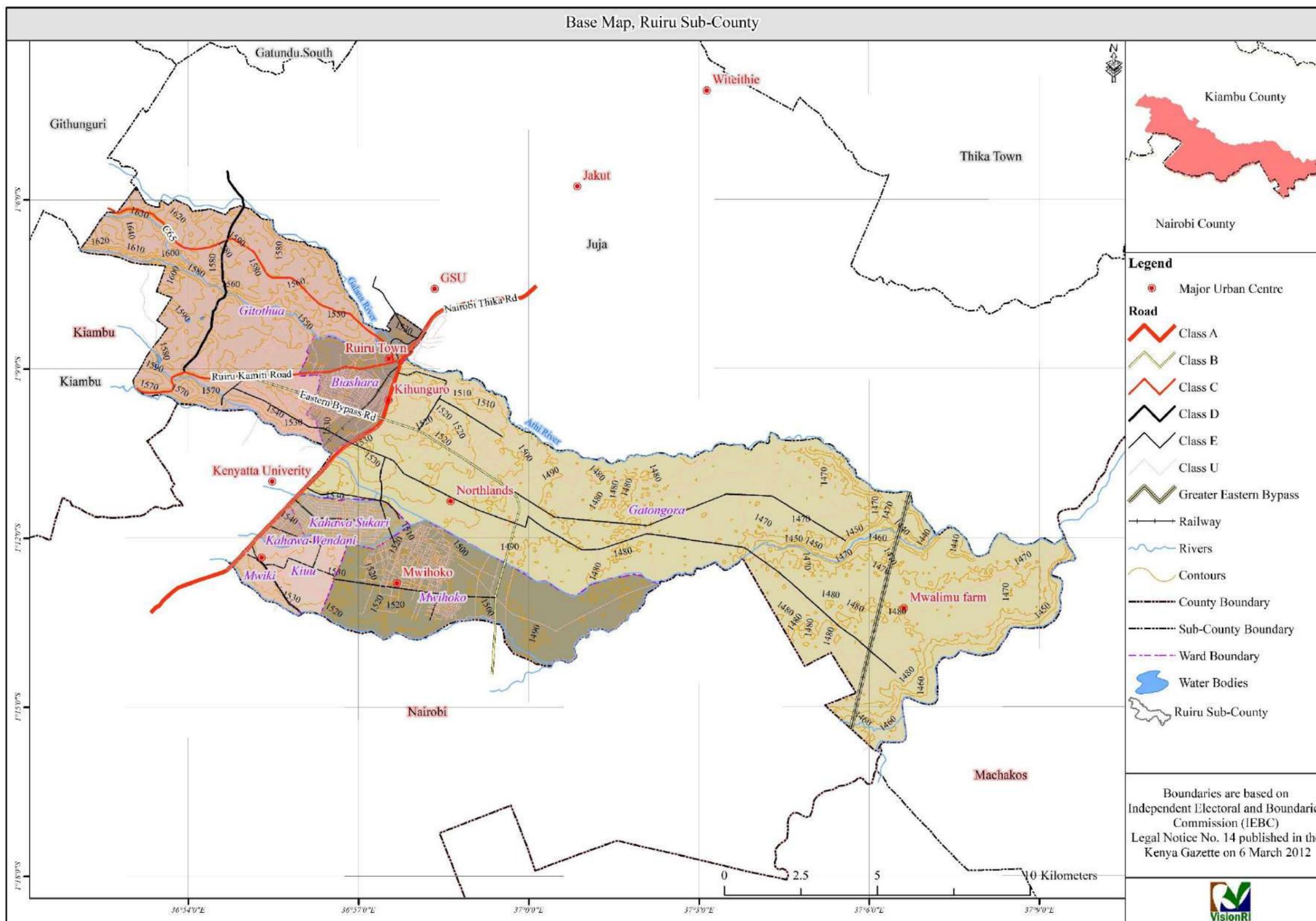
The geographic extents of this analysis were spread out within the areas defined by structuring elements that include but not limited to topographic features, transportation networks, water bodies, key physical and social facilities, major landmarks, and political and administrative boundaries. These elements were carefully identified on a base map that was prepared in a GIS environment. Base map preparation entailed the acquisition of hard copies of Registry Index Maps (RIMs) and survey plans showing land subdivisions, and other official maps showing administrative boundaries, existing and proposed road networks, rivers, forests, public lands, etc. These maps were systematically scanned, geo-referenced and digitised into vector maps on the same coordinate system to generate Map 3-1 below. High-resolution satellite imagery was also acquired to further detail the base map. Field exercises were also conducted to collect more data using handheld GPS devices to fill in gaps and for verification purposes.

3.2.1 TOPOGRAPHY

Ruiru Sub-County lies on the south-eastern fringes of the Aberdare range within the Athi River Drainage Basin. Contour Map 3-2 and Slope Map 3-3 show that the planning area is characterised by relatively gentle terrain that slopes from an altitude of 1,550m above sea level at the western boundary down to 1,440m above sea level towards the eastern edge. The average altitude is about 1,520 m above sea level. The highest elevation is 1,550m above sea level around the Ruiru Prison Training School while the lowest elevation is 1,440m above sea level towards the sewage treatment works site.

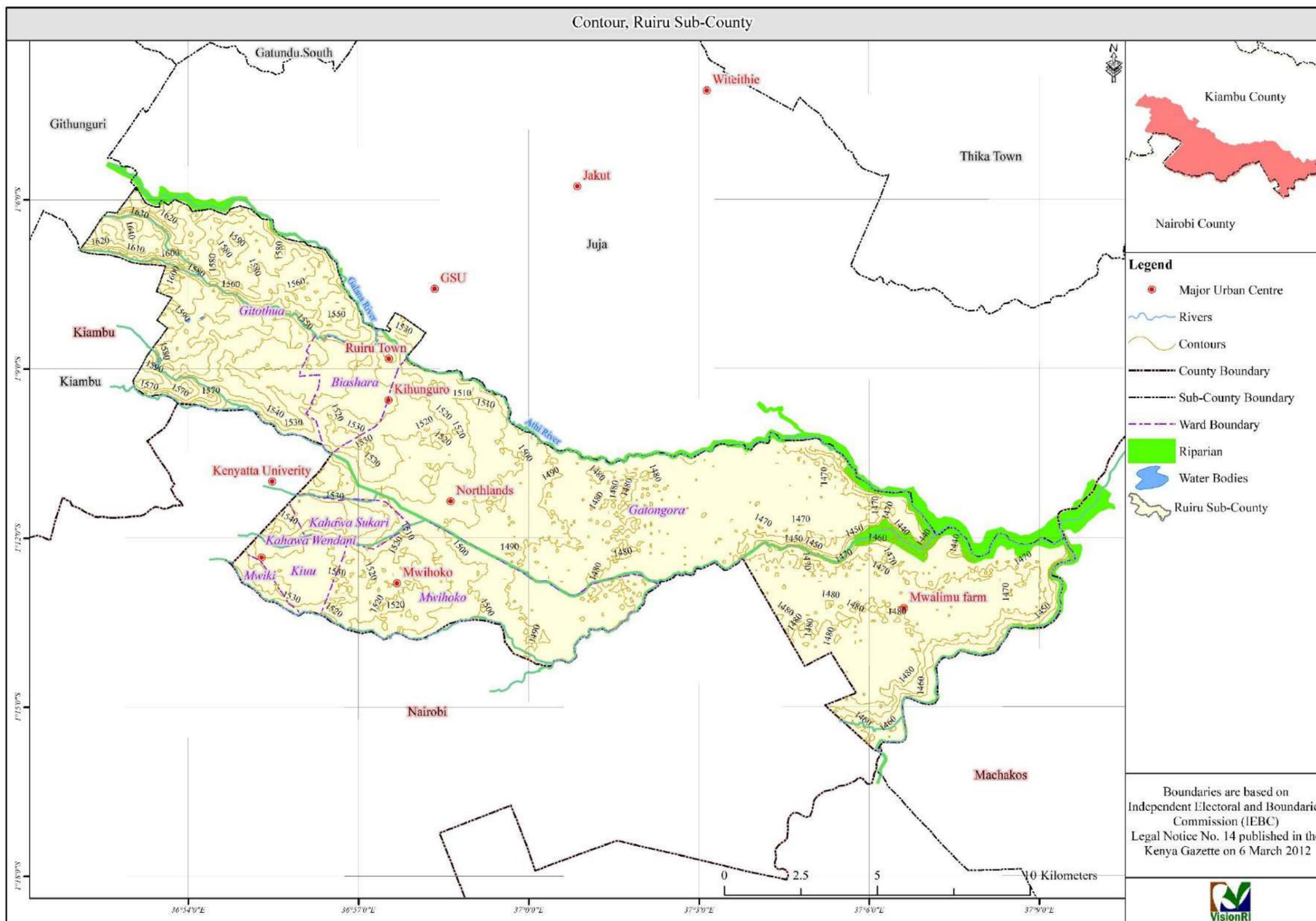
3.2.2 LANDFORMS

Ruiru Sub-County is located at the transitional zone of the Upper Athi basin and the Kikuyu dissected plateau as shown on Elevation Map 3-4. The higher areas northwest of Nairobi-Thika Highway is characterised by deeply dissected topography with numerous streams and ridges. These areas are characterised by undulating coffee plantations with many scattered large trees. The area between the CBD and Majengo estate is trough-shaped and liable to floods during heavy rains. The south-eastern parts are lowlands with fewer streams, shallower and wider valleys. These areas form a major part of the undeveloped area to the east of the Nairobi-Thika highway (A2) characterised by uncultivated plains with scattered trees and shrubs.



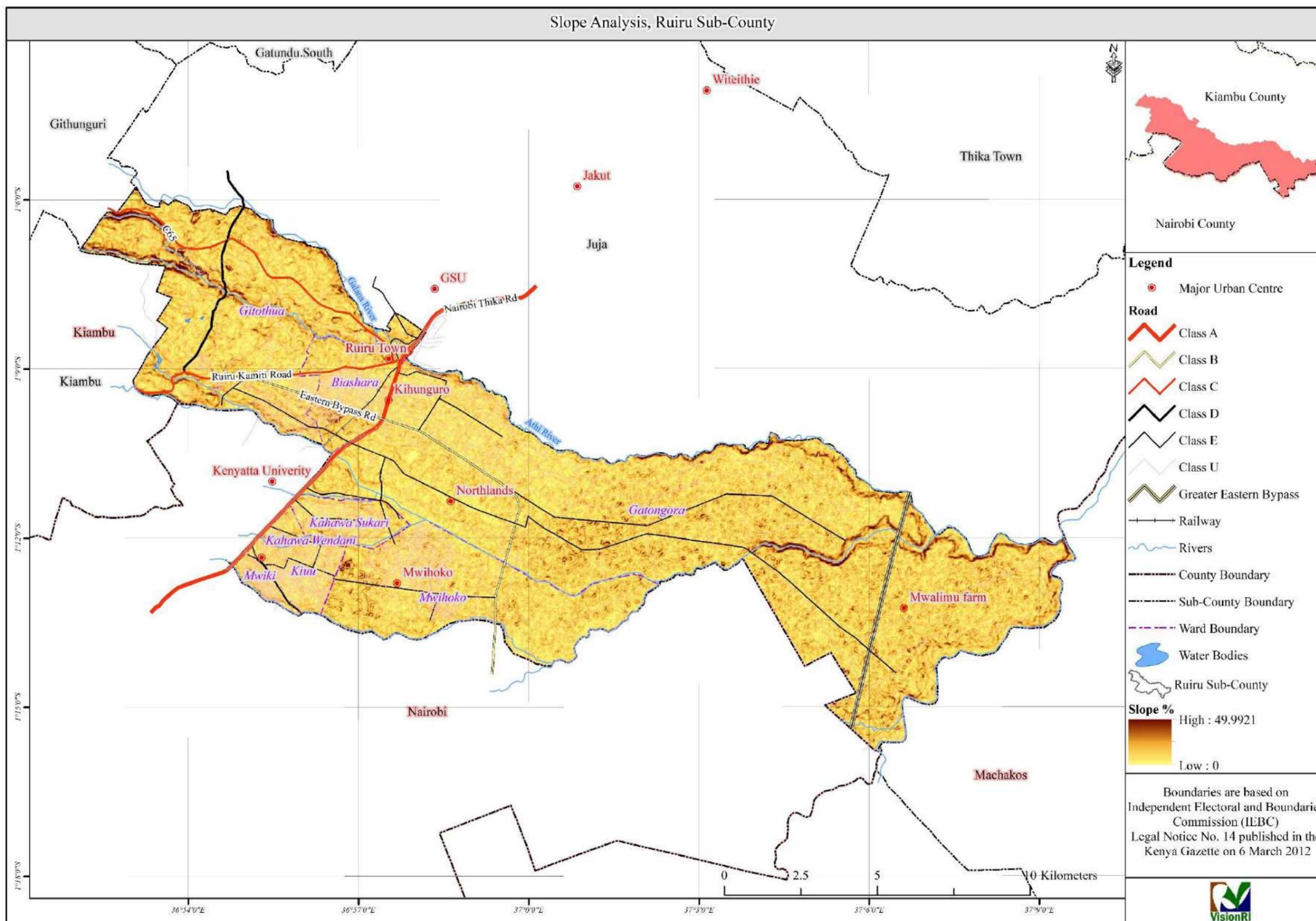
Map 3-1: Ruiru Sub-County Base Map

Source: VisionRI



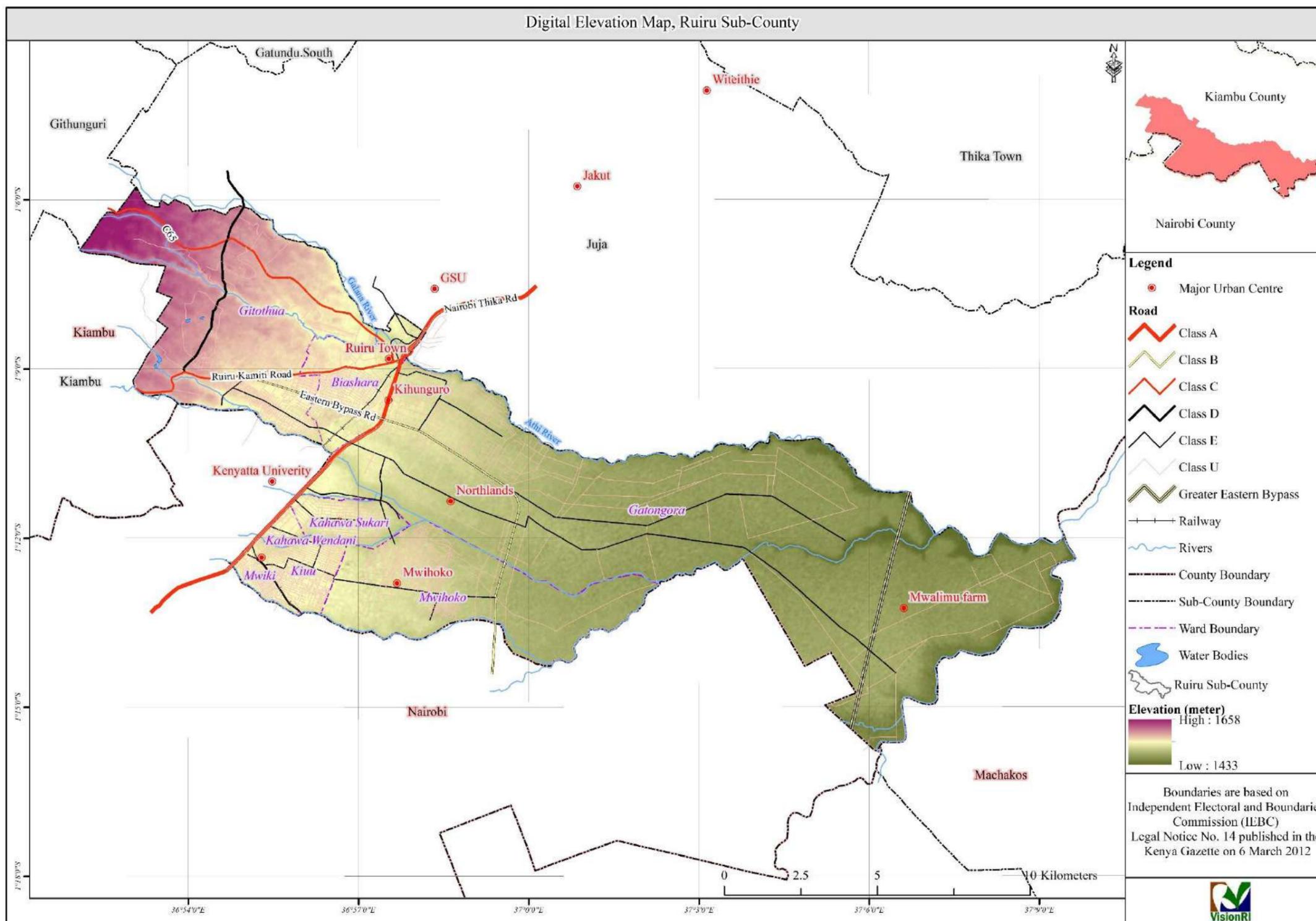
Map 3-2: Ruiru Sub-County Contour Map

Source: SRTM Data



Map 3-3: Ruiru Sub-County Slope Map

Source: SRTM Data



Map 3-4: Ruiru Sub-County Elevation Map

Source: SRTM Data

3.3 Geology and Soils

3.3.1 GEOLOGY

Geologically, Ruiru area lies on Cenozoic volcanic material overlying Basement System rocks at greater depth as shown on Map 3-5. Before the volcanic episode, Nairobi area was made up of the Pre-Cambrian Basement System crystalline rocks of the Mozambique Belt. These very old rocks were laid down, metamorphosed, exposed and eroded and were in pre-tertiary times an ancient land-surface. The formation of the Great Rift was followed by extensive and widespread volcanic activity throughout much of Kenya. In the Nairobi area, this activity covered the old land surface ('OLS') and was characterized by periodicity. That is periods of extrusive activity followed by periods of relative calm activity during which erosion by wind and water occurred. In the early tertiary period during a period of substantially moisture climate, numerous river system deposited erosion debris in extensive lakes the resulting deposits are known as the Athi tuffs and Lake Beds, which today form a very important Aquifer (Athi Series). The geology of Ruiru provides a good foundation for building construction and also rich underground water reservoirs.

This intermittent volcanic and erosive activity continued throughout the Tertiary period and into the Pleistocene Epoch of the Quaternary period. The combined volcanic and sedimentary series locally reach a thickness of five to seven hundred meters. In general, this sequence is relatively well understood, though local detail is sometimes lacking. In recent geological times, volcanic activity has given way to a prolonged erosive period. As a result, large parts of the volcanic rocks and sediments have been exposed in a terraced topography of successive flows and tuff deposits. To the east of the city the lava, sediments and pyroclastic are significantly more eroded than they are to the west. A well-developed soil cover and alluvial deposits lie in the valley bottoms of many of the small rivers that transverse the region running roughly west to east. These volcanic rocks have good water capacity when associated with adequate recharge (GoK, 2000). The area has a high potential for underground water and there are many boreholes scattered in the Sub-County. Examples include Murera, Mbugu, Mugutha and Ruiru East boreholes, which supplement water for use by the nearby communities. Many private premises and institutions also have their boreholes.

Below Figure 3-1 shows the Archean Basement System is believed to represent an original sedimentary series of limestones, shales and sandstones, into which basic magma has been intruded. Intense compression with rising temperatures has resulted in these rocks being transformed into a highly folded metamorphic series. The volcanic and sediments are probably all of the tertiary age but, as no fossils are available and no age determination have been made, it is not known whether they range into Pliocene. The term "building stone" is used to describe the series of massively bedded, fine-grained tuffs or claystone occurring in the area.

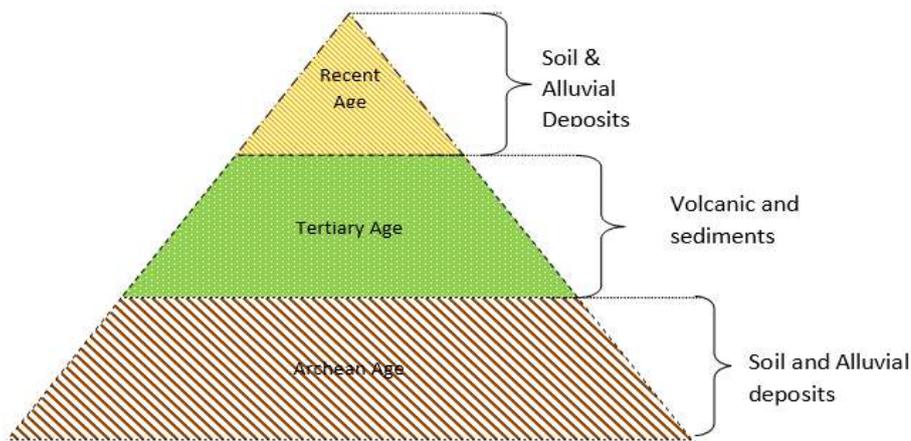


Figure 3-1: Ruiru Sub-County Archean Basement System

Source: ESIA for the proposed sewerage system in Juja and Thika South

3.3.2 SOILS

Map 3-6 shows the soils in the planning area that are derived from volcanic rocks that gradually occur in levels between 1200 to 200m.a.s.l. The general nature of soil ranges from shallow to red friable clays. In geological terms, these are youthful soils formed after the removal of black clays by the erosion process. However, there are patches of black cotton soils. Thus, apart from the areas with black cotton soils, the other areas have soils with high safe-bearing capacity, which can support foundations at even shallow depths. The soils also support shrub vegetation and hence the area is zoned as medium potential and favourable for urban development.

3.3.3 SOIL CONDITIONS

The depth to rock or non-penetrative hard soil level varies considerably throughout the planning area as shown on Map 3-6. The total variation in depth is 0-3.9m with an average of 1.2m. The soil layers are deeper to the west of the Nairobi-Thika Superhighway, with a variation of 0.35-3.9m and an average of 1.75m, and on the plain south-east, the total variation is 0-3.8m with an average of 0.95m.

Table 3-1: Soil Variations in the Planning Ecosystem

Location	Total variation range	Average variation
Ruiru area	0-3.9m	1.2m.
West of Nairobi - Thika Superhighway	0.35-3.9m	1.75m
South-east	0-3.8m	0.95m

3.4 Hydrology

The hydrology of the planning area consists of both surface and sub-surface water which accounts for about 90% of the water resource.

3.4.1 SURFACE WATER

Map 3-7 shows the surface water resources in Ruiru planning area include the following rivers: Ruiru, Thiririka, Gathairani, Nairobi, Kiuu, Kamiti and Athi. Ruiru River has a low catchment discharge of 38,790m³/day and a high of 1,331,300 m³/day. The Thiririka River drains a basin of around 120 km². The basin is tubular and on average only 2 km wide.

3.4.2 GROUNDWATER

Within the volcanic areas, where the volcanic rocks rest on an old, bevelled land surface, an aquifer is by the weathered gneiss of that surface. Numerous boreholes have been sunk in the area particularly through the volcanic rocks. The boreholes sited on volcanic areas are more successful than those sited on basement system rocks are.

3.5 Flora and Fauna

3.5.1 FLORA

Ruiru is characterised by a variety of vegetation cover. Tree species reported to be dominant are as follows: Acacia species, Azadirachta indica, Calliandra calothyrsus, Senna siamea, Casuarina equisetifolia, Cordia Africana, Croton megalocarpus, Cupressus lusitanica, Eucalyptus species, Ficus species, Grevillea robusta, Mangifera indica, Moringa oleifera, Senna siamea, Sesbania sesban, Terminalia brownie, Schefflera actinophylla, and Spathodea camulanata. These provide sources of a range of forest products, including electricity transmission poles, construction poles, timber, firewood and charcoal.

3.5.2 3.5.2 FAUNA

The planning area is situated within an area where human activities have altered the natural habitat of wildlife over the years. Consequently, there are no major animals in the environs except maybe birds, insects, and small rodents. The species of birds include sparrows, doves, and eagles, amongst others.

The impact of land use planning should therefore be geared at the conservation of areas where these animals may still be found. Habitat alteration may include fragmentation of forested habitat and other wildlife habitats through bush clearing, disruption of watercourses, the establishment of non-native invasive plant species, creation of barriers to wildlife movement and visual and auditory disturbance due to the presence of machinery, construction workers, associated equipment and development operations.

3.6 Climatic Conditions

Generally, the climatic conditions of the Sub-County are controlled by the large-scale pressure systems of the Indian Ocean and adjoining continents. Day-to-day weather is related to the very considerable variation in the detail of these pressure systems. In addition, differences in topography lead to a diversity of climates due to the tendency for greater cloudiness and precipitation at higher altitudes and on windward slopes, and lower temperatures with increasing altitude. In the Sub-County, the year can be sub-divided on the basis of predominant wind direction and general weather characteristics into four well-marked seasons, namely:

- i. **North-East Monsoon:** This season runs from December to March and is warm, clear, and sunny with persistent north-easterly winds and occasional showers.
- ii. **“Long Rains”:** The “Long Rains” usually run from late March to May bringing warm rainy weather with light winds varying from north-easterly to south-easterly by the end of the period.
- iii. **South-East Monsoon:** From June to September, the weather is usually cool and overcast with persistent south-easterly winds, little rain drizzle which becomes heavier towards the end of the season.
- iv. **“Short Rains”:** The “Short Rains” usually occupy the months of October and November when the weather is warm, sunny and showery, with a light wind changing from south-easterly to north-easterly during the month.

3.6.1 RAINFALL

The Sub-County experiences a bimodal type of rainy season depicted in Figure 3-2. The long rains season occurs around the months of Mar to May while the short rains occur in the months of October to December. The rainfall ranges from 500 to 1500 mm with an annual mean of 900 mm as shown on Map 3-8.

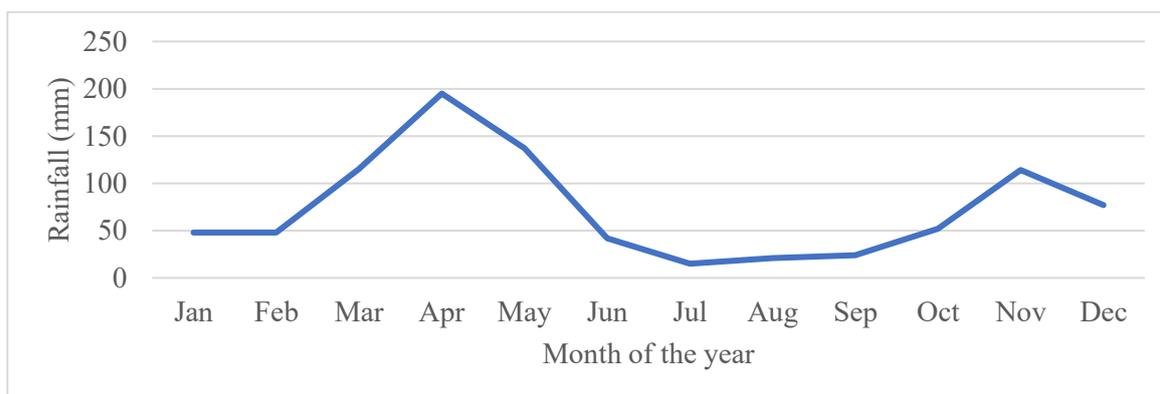


Figure 3-2: Average Rainfall in the last 50 Years

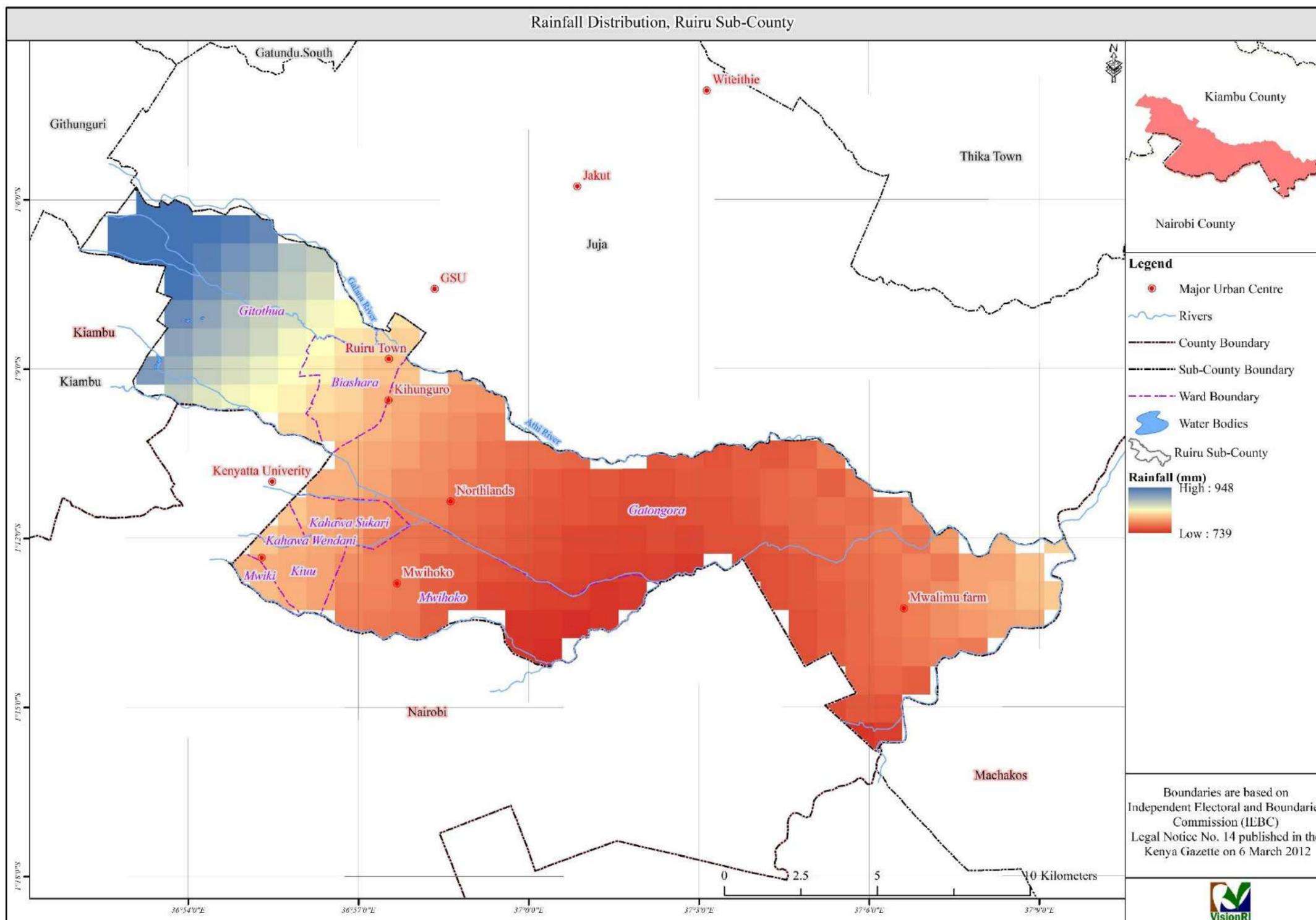
Source: Kenya Meteorological Department

3.6.2 WINDS

The direction of surface winds is predominantly easterly throughout the entire year. It is shifted to the northeast between October and April and again shifted to the southeast between May and September. The strongest winds occur right before the “Long Rains” season reaching speeds of 20 to 25 miles per hour. During the rest of the year, winds are usually at speeds of 10 to 15 miles per hour. The potential for wind power generation is yet to be explored.

3.6.3 EVAPORATION

The annual mean evaporation is 1,452mm with a mean monthly maximum of 182mm in March as shown in Table 3-2. The daily net evaporation rate is 3.98mm.



Map 3-8: Rainfall Map

Source: Kenya Meteorological Department

Table 3-2: Net Evaporation Rate

Evaporation data	Annual evaporation	Mean monthly maximum	Daily net evaporation
Ruiru – 2014 data	987.43mm	262.5mm	3.98mm

Source: Kenya Meteorological Department

3.6.4 HUMIDITY

Because of Ruiru's location just south of the equator and in combination with humid air pumped in from the Indian Ocean, the humidity values for each day are generally on the higher end. The Average Humidity Values are given in Figure 3-3.

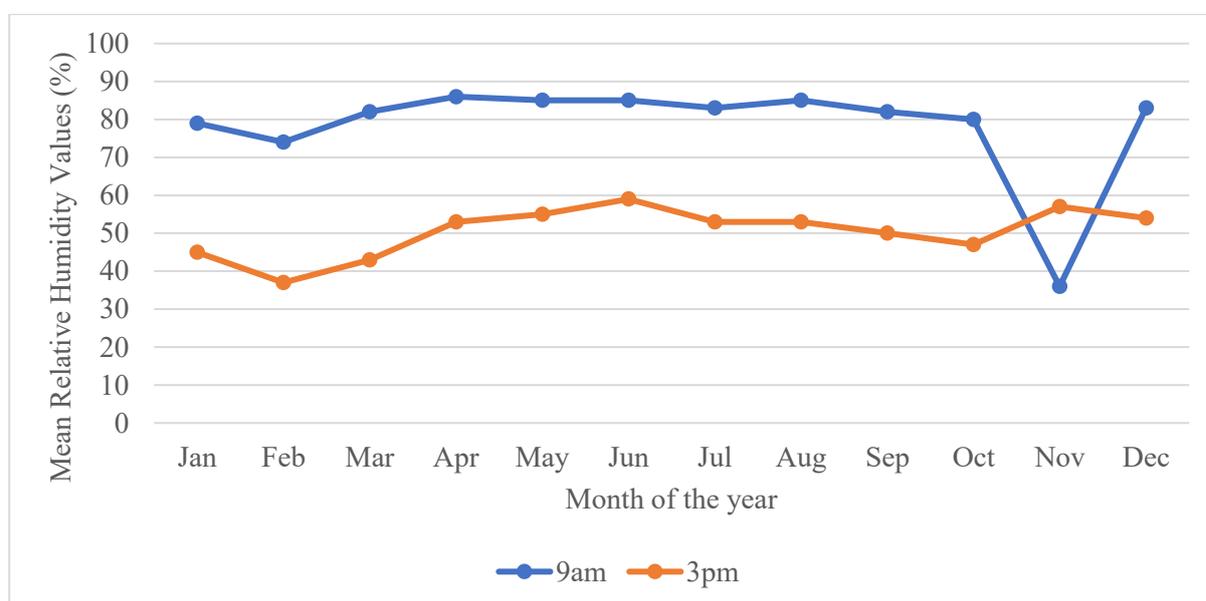


Figure 3-3: Mean Relative Humidity Values (%)

Source: Kenya Meteorological Department

The easterly winds coming off the Indian Ocean tend to keep temperatures standard throughout the country and the “warm sticky” feeling is usually not associated with Ruiru. In the summer to autumn months of January to April, relative humidity values have been known to plummet to anywhere from 10% to 20%. On a typical day, humidity-wise starts with nearly saturated in the morning hours and steadily decreases throughout the remainder of the day.

3.6.5 TEMPERATURE

The annual average daily sunshine is 6.7 hours, with monthly high and low means of 9.0 and 2.9 hours observed in the months of January and August, respectively. The average daily temperature throughout the year is 20°C with the coolest months occurring from June to August. The hottest months are January,

February and March. Temperatures also vary within the year with a minimum of 8°C and a maximum of 30°C. The daily range is much higher, with the differences between maximum and minimum temperatures each day around 10 degrees in May and up to 15 degrees in February (Table 3.5). The solar power potential is limitless given that Ruiru enjoys sunshine all year round.

Table 3-3: Average Daily Temperature in Ruiru

Months	Temperature (°C)		
	Mean Maximum	Mean Minimum	Mean Range
January	26.8	13.1	13.7
February	28.0	13.4	14.6
March	27.4	14.4	13.0
April	24.6	14.3	10.3
May	24.1	14.2	9.9
June	23.1	12.6	10.5
July	22.3	11.5	10.8
August	22.7	11.8	10.9
September	25.3	12.2	13.1
October	26.2	13.7	12.5
November	23.6	14.4	9.2
December	25.1	13.8	11.6
Year	24.9	13.3	11.6

Source: Kenya Meteorological Department

4 NATURAL RESOURCES, CLIMATE CHANGE AND DISASTER RISK REDUCTION

4.1 Overview

This chapter examines Ruiru's ever-increasing use of natural resources and the generation of waste, which conflict with local (and global) ecological processes that justify the concept of sustainable development.

The question of natural resources and the quality of the environment has been gaining momentum both at the global and local scale. Natural resource management in Ruiru is mutually inclusive for both urban and rural development in the process of urban change. The last few decades have been a period of far-reaching impacts on natural resources by competing claims over their use. The depletion of natural resources and the disruption of the ecological processes have resulted in climate change and associated impacts.

4.2 Land and Morphology

Land is unlike most other commodities involved in production processes. Land provides the basic morphological elements or the physical skeleton of a town. It may be altered or damaged in the process of urban development. However, land is uniquely permanent and in fixed supply. Due to these basic characteristics, the use and ownership of land revolve around complex demand factors.

Ruiru's morphology and land use patterns range from very formal (such as the recent large-scale developments) to haphazard industrial establishments and human settlements sprawling into the rural settings. Judged in terms of economic output or capital values, these industrial and urban land continue to be of great demand as typified by the explosive growth of population. Put more plainly, more people consume more land. In this social change, the ownership or occupation of land and the use it is put into requires planning intervention to tame the likely morphological anarchy.

The impacts of these growth patterns come together as a basis for urban planning in resolving competing claims.

4.3 Greenery, Open Spaces and Forests

Greenery and public open spaces play critical roles because they act as breathing pockets for towns and encourage social human interaction. Despite these important roles, there is a lack of sufficient greenery and designated open spaces in Ruiru. There are no public parks and playgrounds in most wards other than within schools where only enrolled students have access to. There are no forests at all. Public spaces have come under increasing pressure during the urbanisation process. This has negatively affected ecosystem services, psychological well-being and the health of urban dwellers, therefore the need to promote urban agriculture.

URBAN FORESTRY

Urban Forestry is simply defined as the planting, maintenance, care and protection of tree populations in urban settings for the purpose of improving the urban environment. The role of these trees and shrubs grown in urban areas is an essential function of urban planning and urban infrastructure. Planned

connections of green spaces encompass not only gardens and parks but also avenues, streets, protected green ways and areas.

Urban forestry provides valuable ecosystem services, such as air pollution removal, Climate management (heat regulation), Carbon Sequestration (carbon storage), oxygen production, and Stormwater Management (runoff prevention). Therefore, by understanding the function and value of urban forestry, this will help in promoting management decisions that improve human health, environmental quality and even local economies by increasing property values and aesthetics in urban communities.

It is important to note that, as we seek remedies for the climate crisis, urban forestry will continue to be a key component to any strategy looking to maximize the benefits that trees provide. In addition to overall improved health and well-being, these benefits include but not limited to fewer illnesses and instances of death caused by extreme heat and poor air quality.

Guiding Principle of Urban Forestry:

To plant the right tree in the right place. Certain species are more tolerant of adverse urban conditions than others, and urban foresters strive to select species that will maximize benefits and minimize costs for a specific site.

Goals of Urban Forestry:

- **Resiliency:** Utilizing trees to position an urban area and its residents to withstand or recover faster from risks related to climate change and natural disasters such as heat waves, flooding, or drought.
- **Sustainability:** Integrating trees into urban landscapes to deliver environmental, social, and economic benefits, such as tree-lined pedestrian walkways along business districts that cool ambient temperatures, promote walking and social interaction, and boost property values and local business revenues.
- **Public health:** Supporting tree-related policies and plans that increase public contact with nature, encourage physical activity, and reduce exposure to harmful vehicle emissions.
- **Safer and more sustainable transportation:** Incorporating trees into transportation projects to improve “last mile” connectivity to public transit by reducing vehicle speeds in low-speed areas, altering microclimates to promote walking and cycling, and reducing flooding along transportation infrastructure.

SDG	Target	The Role of Urban Forestry
SDG 1: No Poverty	1.5	Urban forests create employment, provide a resource for entrepreneurs, reduce the cost of urban infrastructure, provide ecosystem services for all citizens, improve the living environment and increase property values, ultimately boosting local green economies.

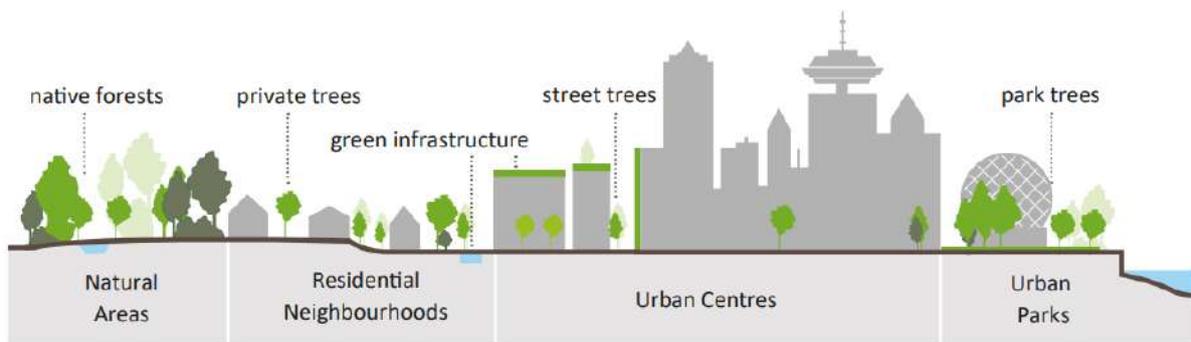
SDG	Target	The Role of Urban Forestry
SDG 2: Zero Hunger	2.1, 2.2, 2.3, 2.4	Urban forests are direct sources of food (e.g., fruits, seeds, leaves, mushrooms, berries, bark extracts, saps and roots, herbs, wild meat and edible insects). Indirectly, they support healthy eating by providing affordable wood fuel, high-quality water and improved soil for sustainable agricultural production.
SDG 3: Good Health and Well-being	3.4, 3.9	Forests and other green spaces in and around cities provide ideal settings for many outdoor recreation and relaxation activities, thereby contributing to the prevention and treatment of non-communicable diseases and the maintenance of mental health. Urban forests filter and efficiently remove pollutants and particulates, which also helps.
SDG 6: Clean Water and Sanitation	6.3, 6.6	Urban forests are efficient regulators of urban hydrological cycles. They filter drinking water by reducing biological and chemical pollutants, reduce the risk of floods and erosion, and reduce water losses by minimising mesoclimatic extremes through evapotranspiration processes.
SDG 7: Affordable and Clean Energy	7.1	The sustainable management of urban forests can produce renewable energy for use by urban communities. This is a vital function for billions of urban and peri-urban dwellers worldwide, particularly in lower-income countries, where wood fuel is often the most affordable and sometimes only available source of energy.
SDG 8: Decent Work and Economic Growth	8.4, 8.9	Investments in urban forests and other green infrastructure add significantly to green economic growth by providing an attractive environment for tourism and business, improving home values and rental rates, creating job opportunities, providing materials for housing, and generating savings in the costs associated with energy and the maintenance of human health.
SDG 11: Sustainable Cities and Communities	11	Well-designed and managed urban forests make significant contributions to environmental sustainability, economic viability and liveability of cities. They help mitigate climate change and natural disasters, reduce energy costs, poverty and malnutrition, and provide ecosystem services and public benefits.
SDG 13: Climate Action	13.1, 13.2, 13.3	Trees and forests in and around urban areas contribute to climate-change mitigation directly by sequestering carbon and reducing greenhouse gas emissions and indirectly by saving energy, reducing the urban heat island effect, and mitigating flooding.
SDG 15: Life on Land	15.2, 15.3, 15.9	Urban forestry helps create and enhance habitats, constitute a pool of biodiversity, significantly improve soil quality, and contribute to land restoration.

Actors to be consulted in the development and implementation of urban forestry. They

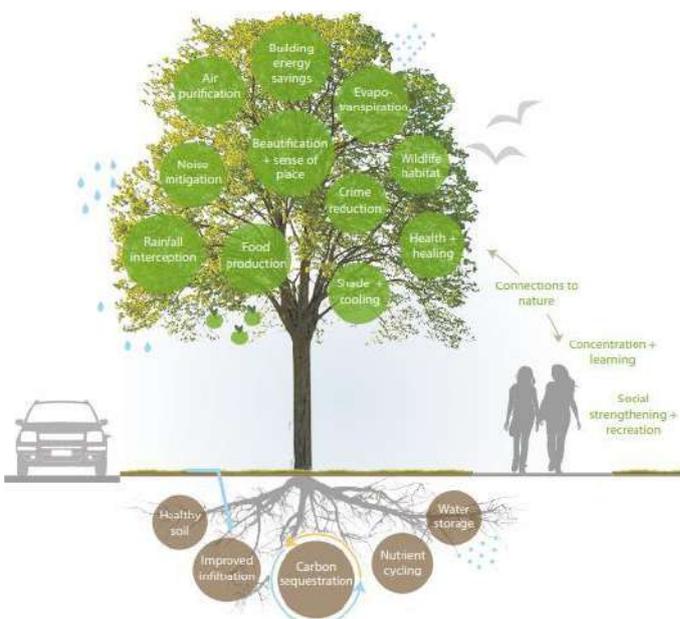
include but not limited to the following categories:

- Political leaders
- Government departments e.g., Planning, public works, roads and highways, forestry, agriculture etc.
- Academic institutions e.g., universities, colleges etc.
- Local residents
- Technical personnel e.g., landscaping architects, planners, environmentalists, foresters, road engineers etc.
- Environmental organizations e.g., NGOs, CBOs.
- Donor agencies

1) Components of the Urban Forestry



2) The Value of Urban Forestry



3) Urban Forestry Model

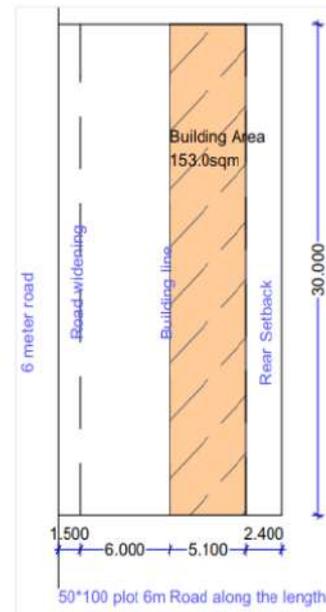
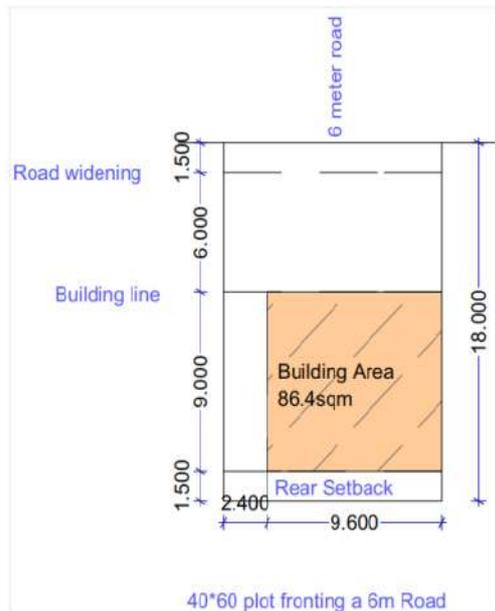


Urban agriculture

Urban agriculture can be a tool for political bargain and inclusiveness. The economic importance of urban agriculture point to an increase in households' incomes at the micro level and contribute to Gross Domestic Product upon value addition at the macro level and lead to job creation. At the household level, it will lead to reduction in the cost of food and enhance health by quality food. It will also lead to food security of the people and enhance neighborhood ties. Urban agriculture can also be a way of sharing knowledge and skills on farming among the urban residents. It can also be an avenue for practical learning for students, parents and general public. The aesthetic value and the fact that it can act as a carbon sink and enhances urban design and spatial planning in the urban set up. Upon well articulation into the society, urban agriculture can influence policy, regulations and legislation in an effort to protect its interests.

Land for Urban Agriculture

Introduction of zero-acre farms that involve vertical farming, rooftop farming, green wall cultivations and indoor greenhouses. Zero-acre farms are best captured by integrating them with architecture. They utilize waste water, human waste, waste heating and organic waste.



Land available for urban agriculture

4.4 Air and Water Pollution

4.4.1 AIR POLLUTION

The sources of air pollution in Ruiru include motor vehicle emissions, industries, and dust from construction sites. Some of the emissions include carbon dioxide (CO₂), carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO₂), ozone (O₃), particulate matter (PM), and sulphur dioxide (SO₂). It is important that air pollution levels are constantly monitored by the relevant institutions (NEMA and County Government) and the necessary mitigations put in place, should they be found to be above permissible levels.

4.4.2 WATER POLLUTION

The main causes of water pollution in Ruiru include the widespread use of septic tanks and soak pits in residential and commercial areas, as well as open sewers and poor drainage system. In some cases, wastewater is discharged into the rivers such as Ruiru and Athi due to poor waste management. The discharge of sewer water into the open channels is also another major challenge. There are also numerous agricultural activities in the water catchment areas which cause siltation. The use of agrochemicals, in turn, causes the pollution of water resources.

Heavy metal pollution in the rivers is increasing due to sources such as lead usually from lubricating agents, lead-acid batteries, and metal alloys amongst others. The main sources of zinc are galvanised steel, paints, metal alloys, roofing materials, gutters, printing inks, plastics, waste combustion, and sewage sludge.

In some of the low-income areas where communities rely on shallow wells, there is a potential for water contamination due to the use of pit latrines. This, in turn, results in health hazards such as diarrhoea, cholera, amoebiasis, and typhoid.

4.5 Water Bodies

Surface water resources include the following rivers: Ruiru, Thiririka, Gathairani, Nairobi, Kiuu, Kamiti and Athi. Ruiru River has a low catchment discharge of 38,790m³/day and a high of 1,331,300 m³/day. The Thiririka River drains a basin of around 120 km².

4.6 Ecologically Sensitive Areas

Ruiru has diverse land uses and is endowed with natural resources such as the Gathairani River, Kiuu River, Ruiru river and Athi River. Uncontrolled human activities have threatened the existence of these environmentally sensitive areas. These rivers face the risk of pollution from raw and untreated agro-industrial waste and discharges in the catchment area. Map 4-1 shows the wetlands map where the steep slopes along river valleys face encroachment due to settlement and agricultural activities.

From the elevation profile illustrated in Figures 4-1 and 4-2 below, and the slope map, it can be deduced that the western region of the planning area has undulating terrain with a slope gradient difference of 62m across the surface. The upper part is well-drained (as shown in Figure 4-2) which may be suitable for but may be difficult in infrastructure provision. The lower side of the planning area as shown in Figure 4-2 below are generally flat which may bring in the issue of flooding.

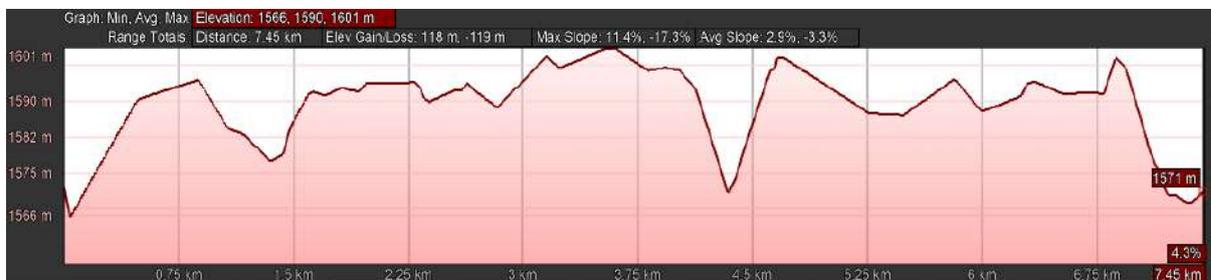
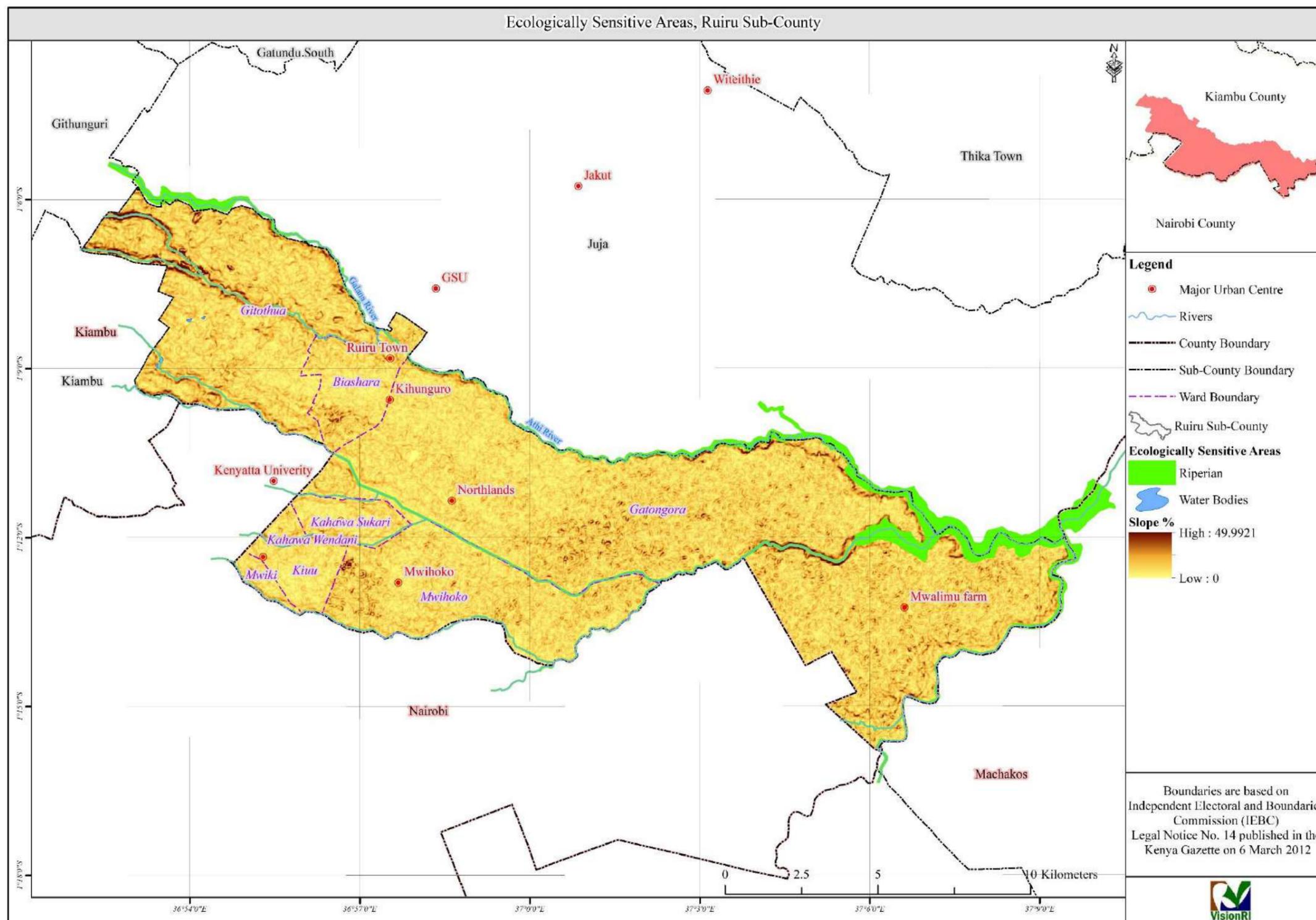


Figure 4-1: Elevation Profile A-B

Source: Adapted from Google Earth



Map 4-1: Ecologically Sensitive Areas
Source: VisionRI using SRTM Data

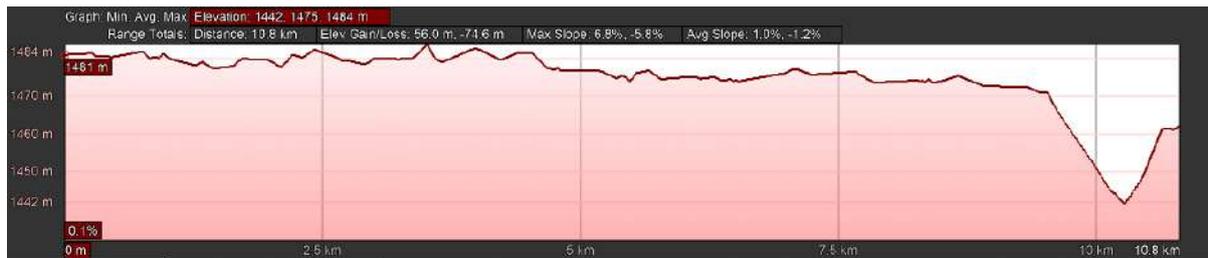


Figure 4-2: Elevation Profile C-D

Source: Adapted from Google Earth

4.7 Encroachment of Wetlands and Riparian Areas

In certain areas of Ruiru, there are many construction activities along riverbanks and on wetlands making these fragile areas prone to water pollution. Encroachments include settlements amongst the poor who are not able to pay rent in secure locations, agricultural activities, and quarrying activities. These activities are carried out without following the guidelines on developments within the river boundary as set by the Urban Rivers Restoration Programme Department of the Ministry of Water and Irrigation, Water Resources Authority (WRA) and Physical and Land Use Planning Act.

The impacts of these activities result in pollution in various forms which have caused health hazards such as diarrhoea, cholera, amoebiasis, and typhoid. Residents along these riparian areas and wetlands are also facing challenges of flooding during rainy seasons.

4.7.1 RIVER POLLUTION

Water pollution is a major challenge in the planning area. There are three main sources of river pollution: industrial discharge, septic tank seepage and direct drainage discharge to the river. This is mainly caused by factories which are sources of lubricating agents, lead-acid batteries, and metal alloys; open sewers; the prevalent use of septic tanks and soak pits; dumping of solid waste into water bodies; and use of agrochemicals in agricultural activities. The presence of pollutants is heavy as shown in Image 4-1 in Kiuu and Ruiru Rivers. These pollutants measure between 10 to 1600 times the established limits, and hence, are significant cases of water-borne diseases.



Image 4-1: Sections of polluted Kiuu and Ruiru Rivers

Source: Field Survey, 2018.

4.7.2 CLIMATE CHANGE

Climate change has become a global challenge affecting national economies impacting human lives and wildlife. A study carried out by Nyakundi *et al.* (2015) on the impact of rainfall variability on groundwater levels revealed that there was a decline in groundwater levels during low rainfall periods. Rainfall variability, caused by climate change, brought about prolonged droughts and low recharge in the planning area. Climate change should be mitigated to cap the decline in groundwater and abstraction controlled to ensure that groundwater resources are managed properly to avoid depletion. Some of the noted effects of climate variability issues identified in Ruiru include, amongst others:

- i. Unpredictable weather conditions such as rainfall patterns and droughts.
- ii. Flooding in the low-lying areas such as Mwalimu Farm, Gatongo'ra and also in low-lying areas in some of the residential areas.
- iii. Declining flora and fauna, and declining rare natural species.
- iv. Increased temperatures.

Climate Change can therefore be defined as long-term shift in temperatures and weather patterns. This has been occasioned by human activities and lack of holistic planning. 70% of cities and urban areas are experiencing extreme effects of climate change such as Global Temperatures, Floods, Droughts, Storm water. To address climate change effects, climate proof approach is required to give solutions or redress mechanisms which include Mitigation and Adaptation measures.

4.7.2.1 Effects of Climate Change

Drought:

Long periods without rainfall results to drought whose indicators are:

- Reduced arable land productivity
- Lower yields
- Insecure fresh water availability
- Increased water related diseases

Flooding:

Extreme Weather/rainfall results in floods which also lower yields/productivity

Temperatures:

Rising Temperatures as a result of climate change results in;

- Water Security and Pollution
- Heat Stress
- Food insecurity

4.7.2.2 Resilience Adaptation Measures;

Water Management:

- Water Recycling
- Use of Grey water
- Improved Storm and runoff water
- Alternative source of water
- Expand storage facilities

Food Security:

- Support Urban and Peri-urban agriculture
- Improve efficiency of markets
- Access of cheaper food
- Cash transfer measures
- Alternative food sources

Housing: Improved through:

- Quality; affordable; located housing in environments which are not fragile
- Green zones, consider wind corridors,
- Rezoning some of the areas that can mitigate the issues
- Improve building standards
- Need for funding of adaptation measures and strategies
- Public Private Partnerships, Grants,

4.7.2.3 *Mitigation Strategies for Disasters and Climate Change Adaptation;*

- Use of Solar/renewable energy to tap the solar energy
- E-mobility/Walkable neighborhood/ to address carbon emissions through compact and mixed-use developments to reduce car ownership and usage
- Retrofit buildings to make them adaptable with weather changes
- Rain harvesting during rainy seasons and smart agriculture
- Identification and mapping ecosystems prone to climate related disasters
- Incorporate climate adaptation strategies during preparation of physical and land use development plans
- Loss of Biodiversity can be mitigated through identification and mapping of areas at high risk of biodiversity loss, prepare special area plan for biodiversity management and designate sites for biodiversity research reserves/ farms
- Flooding mitigation through prohibiting development on areas prone to flooding and water sheds, develop appropriate flood management plans for river basins, designate sites for water collector tunnels, water recharge basins, dams, water pan and construction of flood protection structures such as dykes, canals and identify and map flood prone areas
- Environmental degradation mitigation through identification and map environmental degradation areas conducts an Environmental Social Impact Assessment.
- Soil erosion should be mitigated through identification and map areas prone to soil erosion, encourage greening, afforestation and agroforestry.
- Resource conflicts should be mitigated through prepare a land use plan for sustainable use of the resource, provide buffer zones between different uses, integrate participatory planning approaches in preparation of plans and management of resources, promote alternative livelihoods, sensitization on sustainable use of resources.
- On Fire outbreaks; there is need to get mitigation measures through Identify and map fire prone areas, develop appropriate fire management plans, introduce fire breaks, designate sites for fire stations, water hydrants, fire engine routes, evacuation sites and routes and other appropriate fire management related facilities.
- Deforestation should be mitigated through identification and delineation of forest boundaries, prohibit developments in forest areas except for the purpose of eco-tourism, research and physical infrastructural developments, provide buffer zones around forests, encourage agroforestry and conservation of forests.

4.8 Disaster Incidences

4.8.1 FLOODING

Floods occur due to natural factors like flash floods and river floods, which occur following torrential rainfall. They also occur due to human manipulation of watersheds, drainage basins and flood plains. In some instances, floods have occurred in the river basins even with normal rains because of excess surface water run-off occasioned by deforestation, land degradation upstream and clogged stormwater drains as well as

development on waterways and wetlands. As shown in Image 4-2 the areas prone to flooding in the Sub-County include Membley and Varsity Ville Estates.



Image 4-2: Example of Flooding

Source: Vision RI, 2020

4.8.2 FIRE

Fires commonly occur in built-up residential, commercial, and industrial establishments. These result from accidents or deliberate arson. Image 4-3 shows an incident within the Ruiru CBD in August 2019. The Ruiru fire brigade generally responds to fires within the Sub-County. However, the response is sometimes marred by inaccessibility in particularly informal settlements where the narrow roads impede fire engine accessibility.



Image 4-3: Example of Fire Disaster

Source: VisionRI, 2020

4.8.3 BUILDING COLLAPSE

The collapse of buildings in Ruiru Sub-County is mainly caused by lack of adherence to design and construction guidelines and regulations, use of sub-standard building materials, poor structural design and poor workmanship. The inadequate enforcement of regulations on non-compliant buildings exacerbates the situation.

4.8.4 DISASTER RISK REDUCTION

Disaster management in Ruiru mainly revolves around the activities of the County Fire Service. With regards to fire rescue services, Ruiru Sub-County has a fire station located in Ruiru Town. The fire brigade responds to any adverse events. Based on Kiambu's County Annual Development Plan 2018/19, the types of disaster risks are:

- Natural – flooding, climate variability, epidemics; and
- Human – vehicular accidents, fire, buildings collapse, and spillage of harmful toxic substances either at source or during transportation.

4.9 Emerging Natural Environmental, Climate Change and Disaster Risk Reduction Issues

Table 4-1: Emerging issues on Natural Environment, CC and DRR

Focus Area	Key Challenges	Opportunities
Ecologically fragile areas	<ul style="list-style-type: none"> • Data capture and progressive monitoring of wetlands and other ecologically sensitive areas; • Encroachment of fragile ecosystems; • Declining flora and fauna; and • Lack of appropriate environmental management strategies and monitoring mechanisms. 	<ul style="list-style-type: none"> • Acquisition and use of GIS technology in the Land Information Systems and environmental data analysis; • Formulate robust environment management plans with appropriate mitigation measures to ward off the urban impacts; and • Strengthen environmental enforcement.
Greenery, open spaces and forests	<ul style="list-style-type: none"> • Inadequacy of public open recreational spaces and forests; and • Possible effects of urban heat island in Ruiru. 	<ul style="list-style-type: none"> • Use urban planning opportunities to plan for open spaces and afforestation during plan formulation and enforce these during development application stages.
Air and Water	<ul style="list-style-type: none"> • Air and water pollution 	<ul style="list-style-type: none"> • ISUDP can develop an air and water quality policy that binds developments within all planning areas (such as the

		industrial sector) to control pollution and adhere to air quality regulations.
Climate change and adaptation	<ul style="list-style-type: none"> • Unpredictable weather patterns, including rainfall; and • Flooding and droughts. 	<ul style="list-style-type: none"> • Formulate contingency measures and strategies to stabilise water supply such as water harvesting and storage and grey/black water recycling; and • Development of stormwater runoff and way leaves masterplan for the flood-prone areas.
Disaster reduction and risk management	<ul style="list-style-type: none"> • Lack of disaster preparedness and response strategy; • Low technical and human capacity; • Poor road maintenance; • Poor enforcement of traffic rules and regulations; • Poor disaster management skills; • Lack of disaster warning signs; • Increased population; • Unpredictable weather; • Global warming and climate change; and • Quarrying. 	<ul style="list-style-type: none"> • Formulate comprehensive disaster preparedness and management plans with appropriate technical and human capacity in situations of crisis; • Presence of programmes and funding agencies on disaster management; • Draft Disaster Management Policy; • Existence of the disaster management committee and emergency funds; • Good road network; • Presence of good health facilities; and • Existence of traffic rules and regulations.

Source: VisionRI

5 POPULATION AND DEMOGRAPHY

5.1 Overview

According to the 2019 census, Ruiru is the fourth largest urbanised area in Kenya after Nairobi, Mombasa and Nakuru. This growth has been mainly driven by Ruiru's proximity to Nairobi City and improved infrastructures such as Thika Superhighway and Eastern By-pass whose direct effects are increased demand for land for development.

5.2 Population Size

The current population of Ruiru is 371,111⁴ and is shown in Table 5-1. This represents a substantial increase in population growth from 2009 when the population was 241,007⁵ people. This is an increase of 54% as shown in Table 5-2.

Table 5-1: Total Population in Ruiru Sub County

Wards	Male	Female	Total
Gatongora	22,047	22,993	45,043
Kiuu	39,532	41,040	80,575
Mwihoko	16,057	17,500	33,559
Mwiki	30,853	33,304	64,157
Kahawa-Sukari	6,944	7,694	14,639
Kahawa-Wendani	13,508	14,378	27,890
Gitothua	14,245	14,832	31,001
Ruiru - Biashara	36,714	37,527	74,247
Ruiru Sub County	180,947	190,144	371,111

Source: KNBS Kenya Population & Housing Census 2019

Table 5-2: Proportional Population Growth

Wards	2009	2019	% Change
Gatongora	13,769	45,043	69
Kiuu	46,034	80,575	43
Mwihoko	11,879	33,559	65
Mwiki	44,646	64,157	30
Kahawa-Sukari	8,612	14,639	41
Kahawa-Wendani	16,693	27,890	40
Gitothua	18,083	31,001	50

⁴ Kenya Population and Housing Census Report (Vol. 1), 2019 pg. 16 & 34.

⁵ Kenya Population and Housing Census Report (Vol. 1C), 2009 pg. 48.

Wards	2009	2019	% Change
Ruiru - Biashara	41,353	74,247	44
Ruiru Sub County	198,344	371,111	47

Source: KNBS Kenya Population & Housing Census 2019

5.2.1 POPULATION STRUCTURE

The Kenya Population and Housing Census Report 2019 put the average household size for Ruiru at 3.0 and the gender split showing an almost 50/50 male/female ratio. The age structure shown in Table 5-3 demonstrates a high population on the bands ranging from age 20 to 35.

Table 5-3: Population Distribution by Age Group

Age	Male	Female	Total
0 - 4	23,132	22,693	45,825
5-9	18,163	18,359	36,522
10-14	15,448	15,901	31,349
15-19	12,941	15,967	28,908
20-24	20,951	27,928	48,879
25-29	23,827	26,016	49,843
30-34	20,442	21,065	41,507
35-39	14,434	14,478	28,912
40-44	10,820	9,765	20,585
45-49	7,952	6,748	14,700
Over50	1,488	1,213	24,061
Total	180,947	190,144	371,111

Source: KNBS Kenya Population & Housing Census 2019

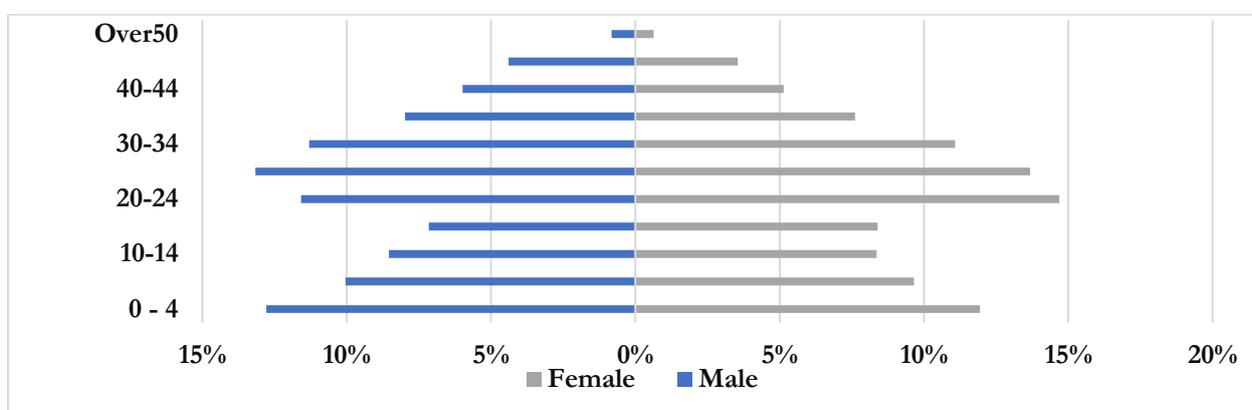


Figure 5-1: Ruiru Population Pyramid

Source: KNBS Kenya Population & Housing Census 2019

5.2.2 POPULATION DISTRIBUTION AND DENSITY

Table 5-4 and Map 5-1 represent the population densities in the Sub-County's Wards. The map below shows the population density by ward with Mwiki, Kahawa Wendani showing the highest densities. Gatong'ora and Gitothua wards have the lowest densities.

Table 5-4 shows the age cohorts between 20-34 is highest in Biashara, Kiuu and Mwiki wards. This is a demographic dividend in need of employment opportunities, and social infrastructure and services such as healthcare, education, housing, and recreation facilities.

Table 5-4: Population Distribution by Ward

Population Density	Total	Land Area	Density
Sub-Location		Sq. Km	Persons Per Sq. Km
Githurai	265,863	151	1,756
Gatongo'ra	45,043	123	366
Githurai	178,291	22	7,964
Kiuu	80,575	5	16,663
Mwihoko	33,559	16	2,089
Mwiki	64,157	2	43,247
Kahawa-Sukari	14,639	5	3,096
Kahawa-Wendani	27,890	1	24,123
Gitothua	31,001	20	1,449
Ruiru - Biashara	74,247	8	8,946
Ruiru	371,111	201	1,846

Source: KNBS Kenya Population & Housing Census 2019

5.2.3 POPULATION PROJECTIONS

Ruiru's population is expected to rapidly increase owing to its current characteristics. These include the availability of land for expansion and investment, its proximity and connectedness with other growth nodes and the hinterlands. This plan projects the population to rise to 745,271 by 2030 as shown in the Table 5-5 below. The projected population is expected to increase from 2009 to 2030, with Kiuu, Biashara Ward and Mwiki having the highest population increase.

Table 5-5: Population Projection by Ward

Ward	2009 Population	2019 Population	2024 Population	2030 Population
Gatongo'ra	13,769	45,043	63,831	90,456
Kiuu	46,034	80,575	114,184	161,812
Mwihoko	11,879	33,559	47,557	67,394
Mwiki	44,646	64,157	90,918	128,841
Kahawa Sukari	8,612	14,639	20,745	29,398

Ward	2009 Population	2019 Population	2024 Population	2030 Population
Kahawa Wendani	16,693	27,890	39,523	56,009
Githothua	15,358	29,078	41,206	58,395
Ruiru Biashara	41,353	76,170	107,941	152,966
Total	198,344	371,111	525,905	745,271

Source: VisionRI

Notes:

Population growth rate formula

$$PGR = \frac{P(t) - P(t_0)}{P(t_0) * (t - t_0)}$$

Previous Population: 0

Current Population: t

5.3 Demography

- i. **Average Household Size:** According to the Kiambu CIDP 2018-2022, 55% of the households in Kiambu County had an average household size of three.
- ii. **Fertility Rates:** Fertility is defined by the total number of live births a woman can have during her productive years. It is influenced by factors including the age of sexual debut, access to education, social practices including female genital mutilation (FGM), teen pregnancy, health factors and access to contraceptives. Kiambu has one of the lowest fertility rates in the country at 2.7 compared to the national figure of 3.9 per woman. In 2009, the County's age-specific fertility rate for girls aged between 15-49 years was at 47 births per 1000 girls which is half the national rate of 96.
- iii. **Birth and Mortality:** There are several concepts related to death rate such as age-specific death rate, child mortality, crude death rate, infant mortality, maternal mortality death and under 5 mortality rates. These rates are vividly observed as the population transitions from one age group to another from conception. The most common death rates are under 5 mortality and infant mortality rates. The maternal mortality ratio is the number of women who die during pregnancy and childbearing. The highest death rate in the planning area, as well as any population, is the crude death rate. The crude death rate is described as the annual number of deaths occurring per a thousand mid-year population. As the population transitions from one age group to another, the number of deaths is recorded.
- iv. **Wellness:** The well-being has been analysed using the human development index (HDI), which is an average of three human development indicators which are health, education and income. According to the 2013 Kenya Human Development Report, the HDI for the country is estimated at 0.52. The HDI estimate for Kiambu is 0.56 which is above that of the countries. One of the key objectives of Kenya's Vision 2030 is to provide a high quality of life for all Kenyans by aiming to provide the lives and well-being of the citizen. Considering this, this

ISUDP aims at the improvement of the well-being of the people in the planning area through the provision of quality physical and social infrastructure.

- v. **Literacy Levels** According to the 2019 Kenya Population and Housing Census, 50% of the population left school having completed their education, about 35% are still enrolled in schools/learning institutions, about 12% dropped out of school before completion, and an estimated 3.4% have never been to school, as illustrated in the Figure 5-2.

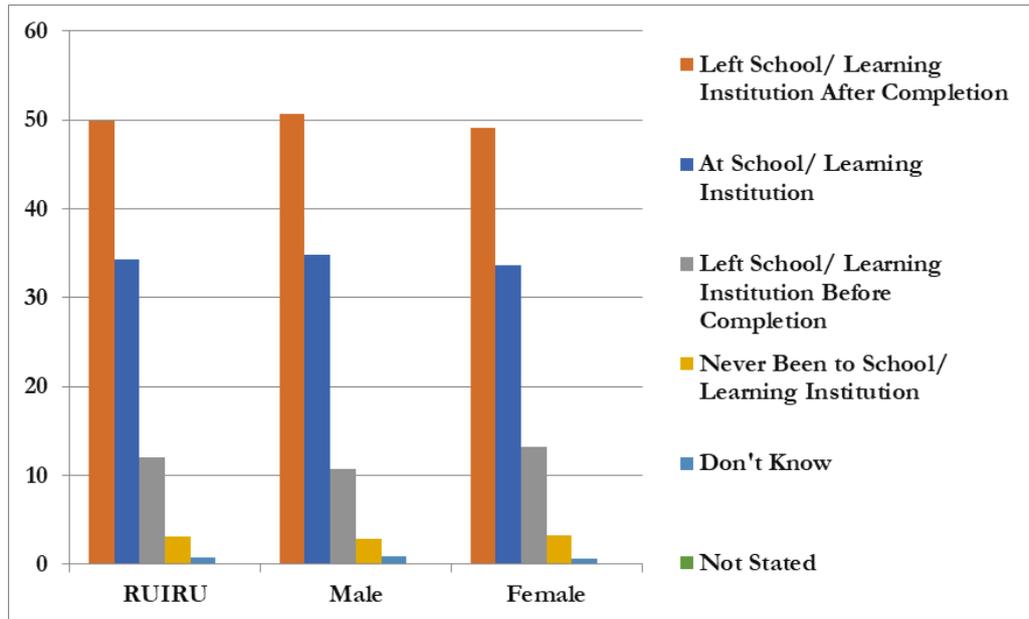


Figure 5-2: School Attendance Status

Source: 2019 Kenya Population and Housing Census

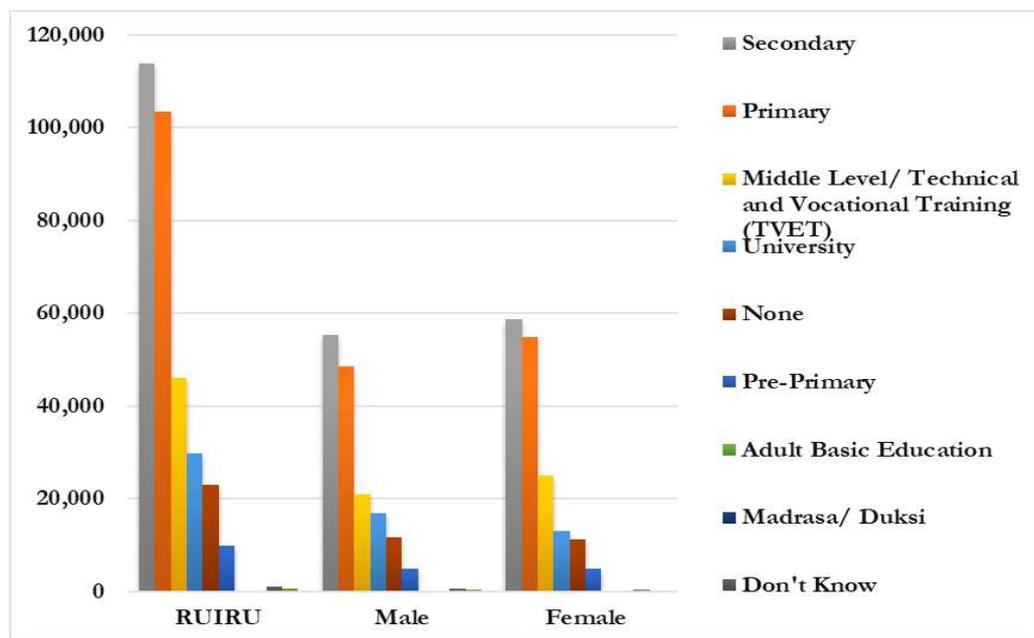


Figure 5-3: Highest Level of Education Completed

Source: 2019 Kenya Population and Housing Census

The figure above illustrates that a larger percentage of the population has completed their education till secondary school level, followed by a population of 103,379 who have completed their studies till primary

school level. This can be attributed to the high rate of people migrating into the area in search of housing and employment. About 14% and 9% have completed their education to middle level/TVET and university levels, respectively. It is important to note that 7% have not attained any level of education.

Life Expectancy: Life expectancy refers to the average number of years a new-born can expect to live based on the mortality conditions at the time. The average life expectancy in Ruiru is expected to increase from 63.4 in 2010 to 65.2 in 2016 and further to 67.5 and 70.5 in 2025 and 2035, respectively. For the males, it increases from 61.4 in 2010 to 65.0 in 2016 and further to 67.8 in 2035 and from 65.7 in 2010 to 67.5 in 2016 to 72.7 in 2035 for the females. This is an indicator of increased food supply and nutrition, improved health facilities and improved hygiene. Most people will be able to live a healthy life with less vulnerability to diseases. Females tend to have a higher life expectancy than males due to vigorous household chores amongst females, the ability to express one's feeling and problems and increased caution to proper health and lifestyle compared to the male.

Table 5-6 below represents a snapshot of important demographics.

Table 5-6: Demographics Summary

Demography	Status
Total fertility	2.7
Mortality rate (infant mortality rate per 1000 live births)	33.9
Mortality rate (under-five mortality rate per 1000 live births)	72
Life expectancy	66.44 years
Ruiru age-sex ratio (male to female)	1:1.04
Children below 1 year in Kiambu	59,053

Source: KNBS 2019 & KHD1 2016&2017

5.4 Social Analysis

5.4.1 CULTURAL DYNAMICS

Ruiru continues to experience tremendous socio-cultural changes due to proximity to Nairobi and Thika coupled with land use/tenure transformations that are responsible for the accommodation of a diversity of ethnic groups. As newcomers join the indigenous farmers and residents, several consequences emerge, and amongst them is the breakdown of communal, kinship and familial ties. The intrusion by newcomers not tied to local customs and norms has weakened the cohesion amongst the members of the formerly rural communities.

5.4.2 RELIGION

Ruiru is a melting pot of diverse communities that are representative of major religious inclinations. Dominant is the Christian faith followed by Islam. Hindu and other religious inclinations have also a presence that reflects diversity.

5.4.3 5.4.3 MARGINALISED GROUPS

Ruiru is a cosmopolitan area with most residents being immigrants from diverse parts of the country. Marginalised and minority groups in Ruiru can be viewed as those amongst the population who are unable to access goods and services due to specific underlying circumstances such as gender, disability, or harsh climatic conditions. The dominant factors affecting the minority and marginalised communities include inadequate political representation, high unemployment levels, low literacy, poverty, lack of social amenities and retrogressive cultural practices. An important disclaimer is that although the two concepts are used together, being a minority is not always an aspect of marginalisation.

5.5 5.5 Emerging Issues on Population and Demography

Table 5-7: Emerging issues in Population and Demography

	Focus Area	Opportunities
Population growth	<ul style="list-style-type: none"> • Inordinate high population growth and demographic dividend⁶ (20-34 years); • Large young population (25 to 45 years); and • Need for physical and social infrastructure that addresses the needs of these age brackets. 	<ul style="list-style-type: none"> • Re-engineered urban planning and management strategies for SMART services and guided growth; and • Tap this pool of youthful population into the urban labour force to support economic growth.
Mortality & life expectancy	<ul style="list-style-type: none"> • High mortality rates for young people (30- 34, 35- 39, and 40-44 age groups); • High life expectancy; • Literacy levels; and • 89% of the population have completed their primary school-university level education. 	<ul style="list-style-type: none"> • Invest in social and health services targeting both young and ageing people for their physical and mental well-being; • Need to plan for services that serve all including an elderly population; and • A literate population is easy to engage in the development agenda.

Source: VisionRI

⁶ Demographic Dividend – the economic growth potential that can result from shifts in population age structure mainly when the share of the working population (15-64 years) is larger than the non-working age of the population (14 and the younger and 65 and older)

6 LAND ANALYSIS

6.1 Overview

This section of the plan presents issues related to land administration and management against a background of rapid urbanisation fuelled by social, environmental, economic, political, and technological transformations. Key amongst the factors is rural-urban migration, declining agricultural productivity and climate change, amongst others.

Ruiru was until three decades ago largely sparse farmland interspersed with limited buildings that were mainly residential homes. Ruiru is unique in that land within it is largely held under a private tenure system with limited public land. Another uniqueness is that it has one of the most rapidly increasing population, and as a result, the direct demand of land for various land uses such as residential, light industry, commercial, industrial, education, recreational and other infrastructural facilities has also increased. This has resulted in a spike in land prices in Ruiru.

6.2 Land Ownership/Categories

The land system tenure varies from freehold for agricultural land to leasehold tenure for 99- and the 33-year period for various land uses such as residential, industrial, and commercial. In Ruiru Sub-County, 80% of the land is privately owned while 20% is publicly owned.

6.3 Land Administration and Management

An efficient land administration and management system ensures ease in land transactions hence enhancing the security of tenure and supporting land taxation and valuation. Land administration and management in Kenya are undertaken at national and county levels as illustrated in Table 6.1.

Until 2016, land matters used to be handled in the Thika registry. Despite the opening of a new registry in Ruiru, there is still an overwhelming capacity challenge in handling the numerous land administration applications since the registry still operates on manual records which make access to land information difficult and slow to process. Manual records are prone to poor handling, slow pace of processing applications and poor record keeping. Other challenges include bulk handling, and the records are prone to disasters like fire, theft and flooding.

On the other hand, there exists procedural challenges between Land Control Boards, surveying and land registration procedures which are done without input from planning. This results in non-compliance to planning and development requirements.

Table 6-1: Land Administration and Management Actors

	Key Actors	Roles	Guiding Legislation
National Government	National Land Commission	Amongst other functions of the National Land Commission, the main ones are:	<ul style="list-style-type: none"> Kenya Constitution 2010 Article 67; and

		<ul style="list-style-type: none"> • Manage public land on behalf of the National and County Governments; • Monitor and have oversight responsibilities over land use planning in the country; and • Alienate public land. 	<ul style="list-style-type: none"> • National Land Commission Act of 2012.
	National Director of Physical Planning	<p>According to the Physical and Land Use Planning Act 2019, the Director has the following functions:</p> <ul style="list-style-type: none"> • Advise government on strategic physical and land use planning matters; • Formulate policies, guidelines, and standards; and • Capacity building and technical support on county planning staff. 	<ul style="list-style-type: none"> • Physical and Land Use Planning Act of 2019.
	Director of Survey	<ul style="list-style-type: none"> • Establish and maintain a national geodetic control network to facilitate other surveys and research; • Produce and maintain plans of property boundaries in support of land registration; • Produce and continuously update national topographical basic maps. • Maintain national and international boundaries; and • Prepare and publish the National Atlas of Kenya, as documentation of National Heritage and promotion of Nation's identity. 	<ul style="list-style-type: none"> • Survey Act.
	Director of Land Administration	<p>Functions of the office include the following:</p> <ul style="list-style-type: none"> • Establish and manage Land Control Boards; • Process and approve development applications e.g., issuance of 	<ul style="list-style-type: none"> • Land Act of 2016; and • Land Registration Act of 2012.

		<p>consents to charge lease or transfer;</p> <ul style="list-style-type: none"> • Process ownership documents such as titles/grants for both public and community; • Setting apart land for public use; • Custody and maintenance of land records; and • Document public land and preservation of fragile ecosystems e.g., wetlands and water catchment areas for purposes of conservation. 	
	Principal Land Registrar/Chief Land Registrar	<ul style="list-style-type: none"> • Registers land titles, leases. 	<ul style="list-style-type: none"> • Land Registration Act of 2012; • Community Land Regulations of 2017.
County Government	County Executive Committee Members of Land	<ul style="list-style-type: none"> • Oversees the entire County Land Management and Administration team. 	<ul style="list-style-type: none"> • County Governments Act of 2012; and • Urban Areas and Cities Act.
	County Director of Physical Planning	<ul style="list-style-type: none"> • Develop sustainable strategies for urban and rural development and management; • Formulate, implement, and review various policies in the Department; • Promote and facilitate the development of decent housing; and • To achieve timely delivery of planning decisions on private sector and community development initiatives. 	
	County Director of Survey	<ul style="list-style-type: none"> • Carry out a survey on public land; • Develop a Geographic Information System and Land Information System database for spatial data management; and • Provide efficient land and property management for effective county 	<ul style="list-style-type: none"> • County Governments Act of 2012; and • Survey Act, 1961 (Revised 2012).

		land documentation and land taxation.	
	Land Control Board (LCB)	<ul style="list-style-type: none"> • Approve or reject subdivision requests on agricultural land; • Approve transactions such as sale, transfer, or mortgage of shares in private companies or cooperative societies that own agricultural land; and • Issue consent to carry out transactions on major agricultural land (freehold land). 	<ul style="list-style-type: none"> • Land Control Act Cap 302 (Revised 2017).
Other key players	Registered Physical Planners	<ul style="list-style-type: none"> • Development approval applications to the county; and • Advise county on new innovations in the land and planning sector. 	<ul style="list-style-type: none"> • Urban Areas and Cities Act, 2011; • Physical and Land Use Planning Act, 2019; • Physical Planners Registration Act, 1996; • Land Act, 2012 (Amended 2016); and • Water Act, 2002.
	Registered Land Surveyors	<ul style="list-style-type: none"> • Boundary confirmation; • Beaconing of approved subdivision and amalgamation scheme; • Amendment of RIM; and • Preparation of deed plans. 	<ul style="list-style-type: none"> • Survey Act, 1961 (Revised 2012).

Source: VisionRI

6.4 Illegal and Unauthorised Sub-Divisions

The high population growth in Ruiru has a direct impact on land administration and management. Ruiru has over the years witnessed an influx of investors of various shades and persuasions. Land buying companies have a long history of acquiring huge tracts of land and subdividing and selling these to shareholders. Unfortunately, some of these subdivisions are informal and do not meet planning standards and some of the approved ones do not comply with approval conditions.

The effects of failure to comply and enforce the development conditions have led to land grabbing and squatting on land surrendered or reserved for public use. For these omissions, the shareholders or buyers end up without titles and some became reluctant to seek development approval. The spill over of these misdeeds breeds room for fraud cases – fake share certificates, or titles leading to multiple ownership documents.

6.5 Emerging Issues

Table 6-2: Emerging Issues on Land Administration and Management

Focus Area	Key Highlight	Key Challenges	Opportunities
Land tenure and ownership	<ul style="list-style-type: none"> 80% of the land is privately owned 	<ul style="list-style-type: none"> Weak control mechanism on regulating land use and development of privately-owned land; Weak institutional capacity of planning authorities; and The remaining 20% of public land is fully developed and there is a need to acquire more land for public utilities. 	<ul style="list-style-type: none"> Pool of existing planning and land administration laws to provide mechanisms for planning and regulation of both private and public land; and Increase public land by using planning and land administration mechanisms such as land surrender, reservation, or compulsory acquisition.
Land administration and management	<ul style="list-style-type: none"> Limited capacity of County Government to handle numerous land administration matters; Land registry still operates on manual systems; and Procedural challenges between LCB, surveying and 	<ul style="list-style-type: none"> Slow pace of land administration. 	<ul style="list-style-type: none"> Automation and establishment of Land Information Management Systems (LIMS); and Streamlined integrated approval system to minimise conflicts between land administration and planning.

	land registration done without planning inputs.		
Illegal and unauthorised subdivisions	<ul style="list-style-type: none"> Land buying companies are operating in an unregulated environment 	<ul style="list-style-type: none"> Failure to comply with land use planning and administration requirements; Failure to surrender or reserve land for public use; and Land grabbing and squatting on public land. 	<ul style="list-style-type: none"> Using the National Land Commission (NLC) mechanisms to secure public land; and Regulating companies or parties venturing into land development.

7 URBAN DEVELOPMENT AND HUMAN SETTLEMENT

7.1 Overview of Urbanisation in Ruiru

The term metropolitan, city, urban, suburban, town and urban settlement may sound confusing as they cover a wide range and circumstances. Curiously enough all these terms are applicable in this Plan. Ruiru falls within the established NMR. In its own right, the sharp rise in the Sub-County's population places on the threshold qualifying for conferment of city status. The rest of the terms fall in place because of its sprawling features. This chapter, therefore, provides the urban development trends that are blurring the distinction of urban and rural, where rural settings are turning into suburbia. The transformation of land uses is very rapid, with the hitherto rural areas being converted into urban use.

The housing analysis – typologies and building material – offers a vivid transformation image from cultivation in the peri-urban areas to new gated communities and compact high-rise housing. These peri-urban areas include Mwalimu Farm, Mwihoko, and coffee estates around the Tatu City area.

7.2 Urbanisation

The Nairobi Metro 2030 and the associated Spatial Planning Concept (SPC) places Ruiru as the second largest urban centre amongst the 24 towns in the Nairobi Metropolitan Region in 2009. Ruiru was next only to Nairobi city and also the seventh-largest urban centre in Kenya during the said year. It is therefore not surprising that according to the 2019 population census, Ruiru had a population of 371,111 becoming the 4th largest urbanised area in Kenya after Nairobi, Mombasa and Nakuru.

Ruiru's population projection of 745,271 by 2030 will sustain the Sub-County's continued leadership in the NMR, behind Nairobi City. By that year, the Sub-County's gross population density was projected in the SPC to reach about 100 persons per hectare (ppha) which, to compare, approximates that of Nairobi North's density (98 ppha) in 2009. Figure 7-1 shows how urban growth nodes within the NMR and how they will be supported by transport networks.

The metropolitan complexes include Nairobi, -Ngong-Ongata Rongai, Ngong and Ruiru complex (pg. 169 SP concept for NMR). Within Ruiru Sub-County, urban growth is reasonably expected to be felt through increased densities in the Ruiru CBD and secondary nodes. Consolidation of developments in currently sparsely occupied residential settlements and expansion towards the western and eastern portions of the Sub-County is also expected.

Ruiru's accessibility and inter-town mobility has already been enhanced by the Nairobi-Thika Superhighway and the Eastern Bypass Road. More connectivity will be added with the implementation of a proposed extension of the Eastern Bypass Road that will connect to another Radial Corridor linking Mavoko Town with two proposed New Towns, namely the Cyber City and the Aerotropolis. The Sub-County's western flank will, in turn, be made more accessible with the proposed development of a Regional Orbital (road & rail) that will connect Kiambaa and Thika. Ruiru will eventually be at the confluence of three major roads, namely a Regional Orbital, Radial Corridor (Nairobi-Thika Superhighway) and the Eastern Bypass to make it a key transport hub.

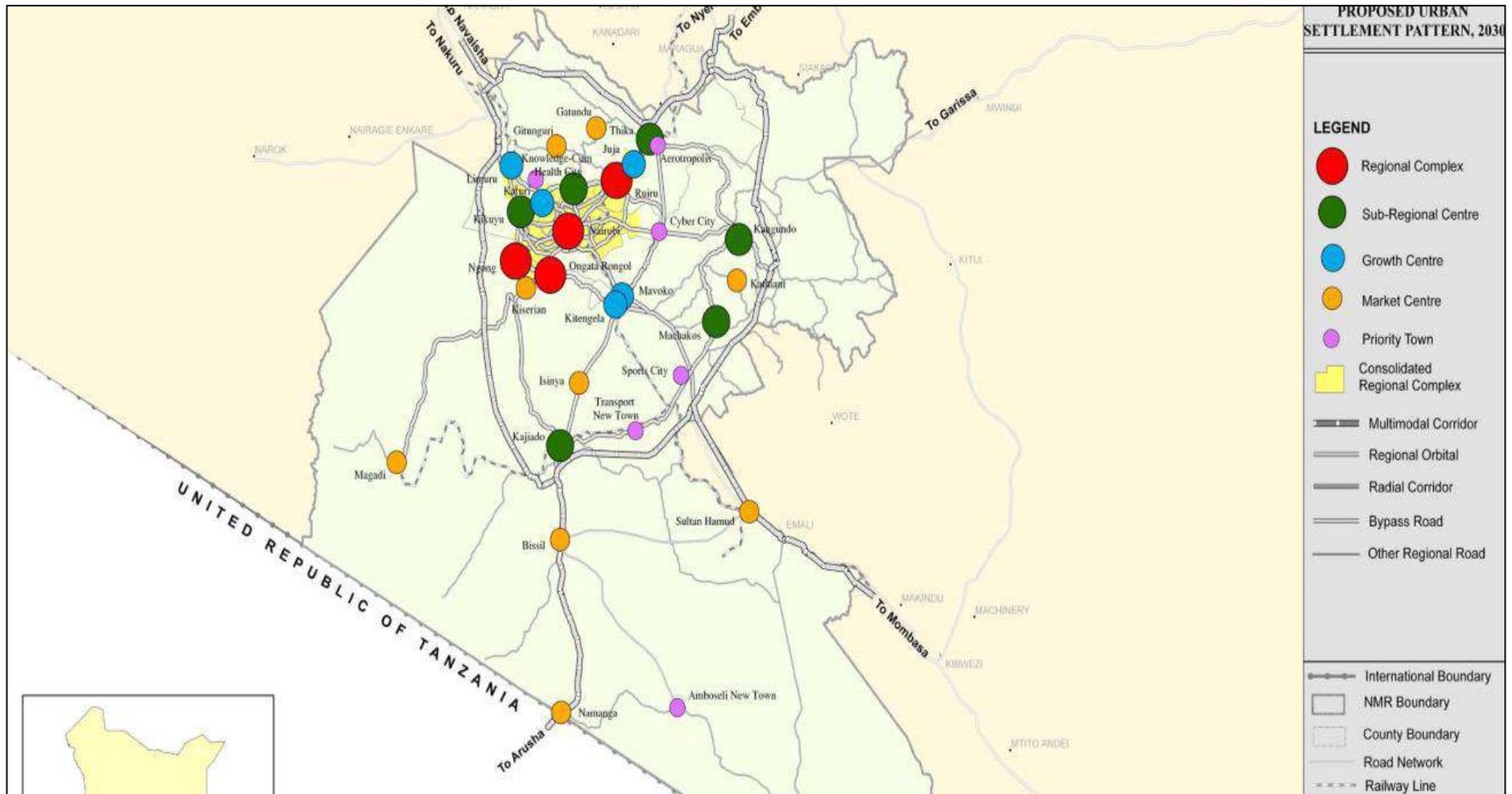


Figure 7-1: Proposed Urban Settlement Pattern for NMR

Source: Spatial Planning Concept for NMR

Hence, the Ruiru Railway Station will be an interchange between a Light Rail Transit (LRT), Bus Rapid Transit (BRT) and General Public Transit (Gen PT) capable of serving local and regional routes. It is also one of the sites of the proposed Integrated Freight Complex (IFC) for the distribution of goods within the urban centres.

Two large-scale real estate developments, Tatu and Northlands, are expected to generate high populations (resident and visitors) peaking at 100,000 and 250,000, respectively having self-sustaining 'in-house municipalities' with respective sets of urban management, infrastructure and development control regulations, amongst others.

Table 7-1 illustrates the summary of SPC for NMR that projected Ruiru's urban land requirements to reach 9, 601 hectares by 2030 using a proposed density of 100 ppha.

Table 7-1: Proposed Indicative Land Use Distribution of Ruiru town in 2030

Land Use Structure	Percentage	Area (ha)
Residential	45	4,321
Commercial	5	480
Public and Semi-Public	10	960
Industrial	10	960
Transport	15	1,440
Open Space	15	1,440
Total	100	9,601

Source: Spatial Planning Concept for NMR

7.3 Nodes and Corridor

- i. **Ruiru CBD:** Ruiru's town is the core urban node and hosts the sub-county offices and high-density mixed commercial-residential developments that are mainly mid-rise. There is an industrial zone within the CBD while predominantly low-rise residential developments are found at its edges. The built-up area is progressively expanding towards the west along the Northern Bypass and Ruiru-Kamiti Roads, and towards the east along the Eastern Bypass.
- ii. **Secondary Nodes:** There are two minor commercial service centres along the Nairobi-Thika Superhighway. These are Kahawa Sukari and Mwiki (Githurai), which serves the southern portion of the Sub-County. The former is located at the intersection of the superhighway and Kahawa Sukari Avenue. A distinct commercial node services the residential areas in Kahawa Sukari and Mwhoko Sub-locations. The commercial node in Mwiki is, in turn, located at the

junction of the Nairobi-Thika Superhighway and Mwhoko Road. This commercial node services the residential areas of Kahawa Wendani, Mwiki, Kiuu and Mwhoko Sub-locations.

- iii. **Other urban nodes within the Sub-County:** Mwiki and Kahawa Sukari nodes are noticeable by increases in building densities, traffic volume and commercial activity relative to their surrounding areas. Both may be considered as neighbourhood-scale commercial centres, as they mainly service the residential areas at the interior of Mwhoko and Gatong'ora. Mwiki may be characterised by the presence of mixed-commercial residential mid-rise buildings and an open-air market with temporary structures that give the node a blighted appearance. An informal transport terminal for matatus and boda-bodas may also be found in the area. Developments become increasingly residential going inside and towards Kiuu and Mwhoko Sub-locations. Land use thereafter becomes predominantly open/agricultural with some sporadic settlements observed. The same development pattern may be observed in Kahawa Sukari. Traffic circulation in these areas will be greatly improved if both Mwiki Roads and Kahawa Sukari Avenue can be connected to the Eastern Bypass Road via Mwhoko.

7.4 Urban-Rural Linkages

Ruiru has one axis and two segments defining its urban-rural linkages. The prominence of the axis is defined in the Nairobi-Thika Highway that defines two east-west divisions. The western division has Githunguri, Ngewa and Marige rural settlements that connect with Ruiru their common urban centre. The eastern division is emerging from its large-scale plantation zone that lacked a clear rural distinction save for a few sisal farms labour lines. Since the collapse of sisal farming, the emerging settlements are within Mwalimu Farm and the surrounding area.

7.5 Formal Settlements

Ruiru is dotted with a mix of distinct formal settlements that observe development control guidelines and those that are in contravention. Compliant settlements include areas initially planned as municipal housing estates, private sector housing schemes such as Kahawa Sukari, Membrely and the upcoming Tatu City, Northlands, Varsity Ville, Mitikenda, and Sunrise Estate, amongst others. The compliance is largely a self-regulating measure initiated during the planning stages by the originating developers who institute plot buyers to stringent development standards when putting up their individual homes.

7.6 Informal Settlements

Non-compliant settlements include Gitambaya, Wataalam, Githurai, and some sections of the Mwhoko and Kamakis area. Factors contributing to development non-compliance include lack of an approved local physical development plan that hinders the County from regulating and enforcing development control measures which result in haphazard land development. This includes overdevelopment that manifests in overcrowded units and the prevalent sub-division of land below the minimum planning standards.

There is one informal settlement in Ruiru, namely Matopeni, which has a population of about 1,000 persons on a land parcel measuring about five acres. The settlement is a result of squatting on surrendered public

land that was initially owned by Githunguri Ranchers. The squatters started occupying land in 1978, whereas failure to stem the activity resulted in claims of adverse possession. The land was planned and surrendered to the Sub-County for schools, roads, and health facilities. The settlement's population has continued to grow due to various factors such as proximity to employment opportunities in the established local industries and access to urban community services. However, the settlement has progressively been experiencing various environmental and social challenges according to key informant interviews conducted. These include:

- i. **Potable Water:** Access and affordability to buy clean water given most of the squatters live below the poverty line.
- ii. **Indoor air pollution:** This is generally due to dust and smoke from the resident's use of charcoal and firewood for cooking.
- iii. **Inadequate solid waste management system:** Lack of designated disposal sites for liquid and solid waste, therefore, polluting the ground aquifers, river water and the environment in general.
- iv. **Management of storm drainage:** This refers to flat-terrain areas where the surface run-off requires channels to drain off excess stormwater.

7.7 Housing

7.7.1 HOUSING TENURE

Housing tenure varies with a distinct pattern of owner-occupier and leasing tenancy. Within the urban areas, the majority of people are leasing tenants while most of those in low and medium-density residential neighbourhoods own their houses.

Table 7-2: Household Tenure Status (Conventional Households)

	Total	Owned		Rented/Provided		Not Stated	
		Number	%	Number	%	Number	%
Ruiru	129,470	20,435	16.0	107,423	84.0	52	0

Source: Kenya Housing and Population Census 2019

Table 7-3: Mode of Acquisition of Household in Ruiru

	Total	Purchased		Constructed		Inherited	
		Number	%	Number	%	Number	%
Ruiru	20,435	1,204	5.9	17,344	84.9	1,887	9.2

Source: Kenya Housing and Population Census 2019

Table 7-4: Distribution of Rented/Provided Households

Govt.		County Govt.		Parastatal		Private Company		Individual		FBO		Total
No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
1018	0.9	531	0.5	133	0.1	5318	5	100,140	93.2	283	0.3	107,423

Source: Kenya Housing and Population Census 2019

7.7.2 HOUSING TYPOLOGIES

New housing developments in the Sub-County are demand-driven providing a mix of urban housing that can be categorised as low-density stand-alone maisonettes or single-family townhouses, mid-density comprehensive gated detached or semi-detached units, and high-density flats or apartment targeting rental markets such as those in Gitambaya, Kajawah Wendani, Githurai Kimbo and Mwihoko.

7.7.3 DISTINCT NEIGHBOURHOOD FORMATIONS

An emerging trend of collective neighbourhood formations, standards and values are steadily on the rise. Commonly referred to as “gated communities”, these neighbourhoods within the planning area ranges from low-density estates such as Membley and Varsity Ville. One key challenge in this transitional phase is the conflict between landowners subdividing their land on the premise of disposing of it for high-density developments in zones that have already acquired a distinct low- or mid-density character.

7.7.4 SUB-COUNTY HOUSING

The Sub-County has housing estates bearing these hallmarks, all located within the CBD, comprising of 20 blocks of semi-detached houses, and Majengo Estate with 50 blocks of row housing. These housing estates are in a poor state of disrepair and ripe for urban renewal particularly densification given the prime location they are located in.

7.7.5 BUILDING MATERIALS

According to the field survey, more than 80% of the building in Ruiru Sub-County are built with permanent materials. In parts of the peri-urban areas, housing units for the low-income bracket are made of timber and iron sheets. The transition is marked by the stark agricultural/urban mix of agricultural and buildings of different materials which is quite common as shown in Image 7-1.



Image 7-1: Typical Residential and Agricultural Mix

Source: Filed Survey in Membley Estate

The building materials are locally sourced and include quarry stones, sand, timber, and steel. Table 7-5 shows the sources selected building materials and Table 7-6 shows the various walling materials used in the Sub-County.

Table 7-5: Sources of Selected Building Materials

Material	Source	Remarks
Quarry stones	Mainly within the Sub-County.	Large amounts of deposits in the Sub-County.
Sand	Mainly obtained from neighbouring Machakos County.	The source is 10 – 25 kilometers away.
Timber	Within the Sub-County and from other counties.	Hardwood from Meru and DRC Congo.
Steel	Nairobi's industrial area.	25 – 30 kilometers away.

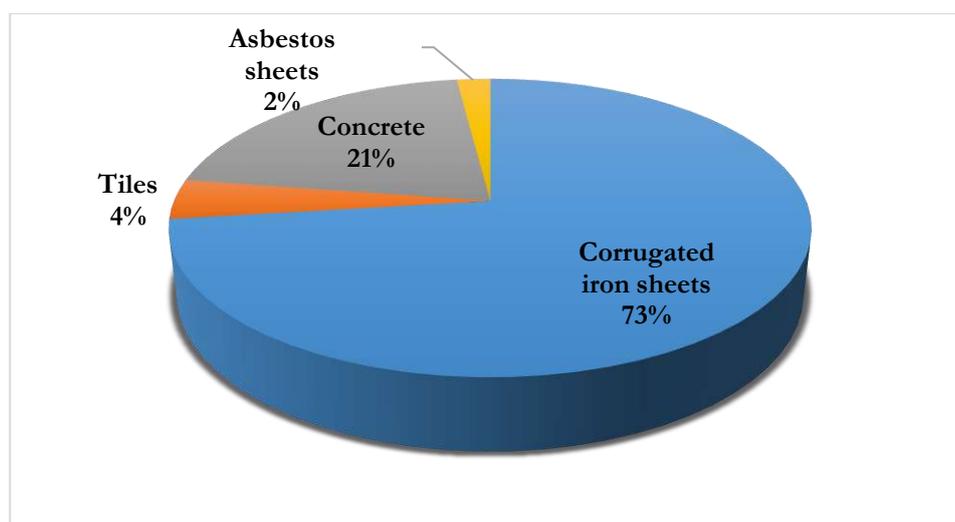
Source: Discussions with Key Informants, 2015

Table 7-6: Walling Materials by Sub-County and Ward

Sub-County/ Ward	Stone	Brick/Block	Mud/Wood	Mud/Cement	Wood Only	Corrugated Iron Sheets
Ruiru Sub- County	78%	8%	1%	1%	2%	9%
Mwiki	84%	11%	0%	0%	1%	3%
Kiuu	80%	7%	0%	1%	2%	8%
Kahawa Wendani	76%	16%	0%	0%	1%	7%
Mwihoko	74%	4%	2%	0%	1%	19%
Gatongora	72%	6%	3%	2%	2%	14%
Biashara	75%	6%	2%	2%	3%	11%
Gitothua	76%	5%	3%	2%	2%	13%

Source: KNBS and SID, 2013

- i. **Roofing Materials:** The roofing materials used vary from one type of housing to another depending on the category of buildings. Permanent housing across the Sub-County are roofed with high quality corrugated iron sheets as indicated in Figure 7-2:

**Figure 7-2: % Share of Roofing Materials**

Source: KNBS and SID, 2013

Seventy-three (73%) per cent of the housing units have their roofs made of corrugated iron sheets with Mwhiko ward leading at 94%, followed by Biashara ward 89% and Gatongora ward at 87%. Other than corrugated iron sheets, 21% of the houses are roofed with concrete with the highest percentage being in Kahawa Wendani ward at 50% and 36.9% in Mwiki ward. A few houses have their roofs made of tiles and asbestos sheets.

- ii. **Walling Materials:** The permanent housing across the County that is for owner-occupier, rental or new estates for sale are walled mainly with quarry stones. The Sub-County has 78% of houses walled with stones and 9% with corrugated iron sheets. Mwiki ward has 84% of houses walled with quarry stones and 11% with bricks/blocks, Kiuu ward has 80% of its houses walled with stones and 8% with corrugated iron sheets. Other materials used for walls include mud with cement and wood.

7.7.6 HOUSING SUPPLY AND DEMAND

Similar to urban areas around it, Nairobi's demand for housing drives the housing supply outlook in Ruiru into high demand due to commuting convenience and relative fair land pricing for urban development. The demand is also being driven by academic institutions of higher learning such as Kenyatta University with a population of approximately 62,000 students and Zetech University.

According to the Kenya Census Report of 2009, the average household size in the area was five members. Assuming that the household number remains the same, the housing demand is projected to grow from 39,660 units in 2009 to 139,682 units in 2030. The population projection shows that the housing deficit, which stood at 14% in 2009, may get worse as poverty deepens and the cost of housing construction rises. Hence, there is a need for strategies to not only bridge the gap between demand and supply but also uplift the standard of housing consistently for low-income groups through appropriate technology.

7.8 Emerging Issues on Urban Development and Housing

Table 7-7: Emerging issues in Urban Development and Housing

Focus Area	Key Challenges	Opportunities
Urban Planning and Land Management	<ul style="list-style-type: none"> • Lack of plan-led urban strategies; • Urbanisation threat to the ecosystem; • Incomplete land subdivision, surveying and conveyance cycle leading to the proliferation of informal settlements; and • Non-adherence to planning guidelines and regulations in land 	<ul style="list-style-type: none"> • Develop urban growth strategies that encourage growth towards the south-eastern zone where land is more suitable for development and away from the more environmentally sensitive sloping north-western zone; • Create a framework for a green infrastructure network;

Focus Area	Key Challenges	Opportunities
	<p>subdivisions and rising land fraud cases.</p>	<ul style="list-style-type: none"> • Institutional reforms in development control and enforcing strict adherence to planning, surveying and conveyancing processes; and • Close monitoring and regulating the low-end land investment sector especially those targeting low-income earners.
Housing Supply and Demand	<ul style="list-style-type: none"> • Demand outstripping supply; • Low standards of housing; • Proliferation of informal and slum settlements; • Poverty because of limited livelihood options and limited returns to any investments made in business as they operate in a context of low incomes and want; • Inadequate basic services including roads, water and electricity mainly because of historical neglect and lack of title to land which is a barrier to the provision of services such as electricity; and • Poor housing standards and sanitation due to inadequate physical investments and inadequate service support from the County Government. 	<ul style="list-style-type: none"> • Formulate housing strategies to bridge the gap between demand and supply; • Promote higher densities and mixed-use developments; • Explore and promote appropriate technology for better housing standards; • Promote informal settlements upgrading programme; • Encourage a resilient community of which forms the basis for hope of realising any slum upgrading programme as they will make the best of any improvement in living conditions; and • The land is available for planning and housing upgrade if resources are available. As residents are mainly squatter whether the land is public or not is immaterial as planning and bye-laws concomitant to it will require a certain minimum standard of housing unlike which has been provided for in the Physical Planning Handbook.

Source: VisionRI

8 PHYSICAL INFRASTRUCTURE ANALYSIS

8.1 Overview

This chapter discusses the prevailing physical infrastructure conditions in the planning area. It presents its connectivity, modes of transportation, water supply, drainages, energy infrastructure, and ICT.

8.2 8.2 Transportation

8.2.1 REGIONAL CONNECTIVITY

Ruiru Sub-County is well connected to the major national trunk road A2 Thika Superhighway which is also a known part of the Great North Road. The road is the gateway of Kenya to Ethiopia and Somalia after joining A3. In Kenya, it links the capital city Nairobi with counties of Murang'a, Kirinyaga, Nyeri, Laikipia, Isiolo and Marsabit. Ruiru is also served by two by-passes which are the Northern and Eastern By-pass Roads. These two play major roles as they allow the movement of people around the NMR without having to go into the Nairobi CBD. Plans are also on-going for the construction of the proposed Greater Eastern By-Pass which will pass through Ruiru at Mwalimu which will further improve the connection of Ruiru with towns within and outside the NMR. The map below shows the regional connectivity of Ruiru with other main towns within the NMR region.

8.2.2 INTER-CONNECTIVITY AND INTRA-CONNECTIVITY

Ruiru is also well served by inter-county road linkages that include the Eastern by-pass covering a 39 km stretch which starts from Mombasa Road to Ruiru. This links with the Northern By-pass which starts from Ruaka to Ruiru where it meets the Eastern By-Pass, C-65 which is Ruiru-Githunguri, and C-63-Kamiti road. Other intra-county roads which are basically lower hierarchy roads that connect different neighbourhoods within Ruiru include Sukari-Mwihoko Road, Mathigu road, Market Road, and Ngina Road.

However, there are notable missing links that need to be opened and improved between Mwalimu Farm and Northlands City, Mwihoko and Eastern Bypass. These important corridors will open up human settlements, economic activities and enhance mobility. The approved Northlands City master plan has provided for these corridors and there is a need to follow up on the implementation of the plan. In this report, this is well captured on Maps 8-2 and 12-2.

The road network is shown on Map 8-2 below.

Table 8-1: Main Ruiru Sub-County Roads

Road Name	Link	Length within the planning area (km)	Surface type	Condition	ADT Volumes (Both directions)	
					NMT	MT
Eastern By-pass	Northern By-pass to A104	10	Bituminous	Very Good	-	-

C63	Eastern By-pass to Devki	4.5	Bituminous	Poor	7,358	11,042
C65	Ruiru-Githunguri-Uplands	11.9	Bituminous	Poor	4,850	9,744
Market Road	C63 to Sub-County offices	1	Under construction	-	-	-
C63	A2 to Kamiti	4	bituminous	Good	-	-
Bus Park entrance	C63 to the bus park	0.5	Bituminous	Fair	-	-
Mathigu Road	C63 To C65	1.5	Bituminous	Fair	5,647	3,111
Sukari Mwhoko Road	Kahawa Sukari to Mwhoko	3.8	Bituminous	Good	-	-
Ngina Road	Mwhoko to Githurai Kimbo road	2	Gravel	Fair	-	-
Mwhoko Road	Githurai-Kimbo-Mwhoko	5	Gravel	Fair	-	-
Kahawa Wendani	A2 to Wendani/Mwhoko	5	Gravel	Poor	-	-
Northern By-pass	Eastern By-pass to Ruaka	3	Bituminous	Very Good	-	-

Source: Roads Department- Ruiru Sub-County Road Report

Notes:

ADT - Average Daily Traffic

NMT - Non- motorised Transport

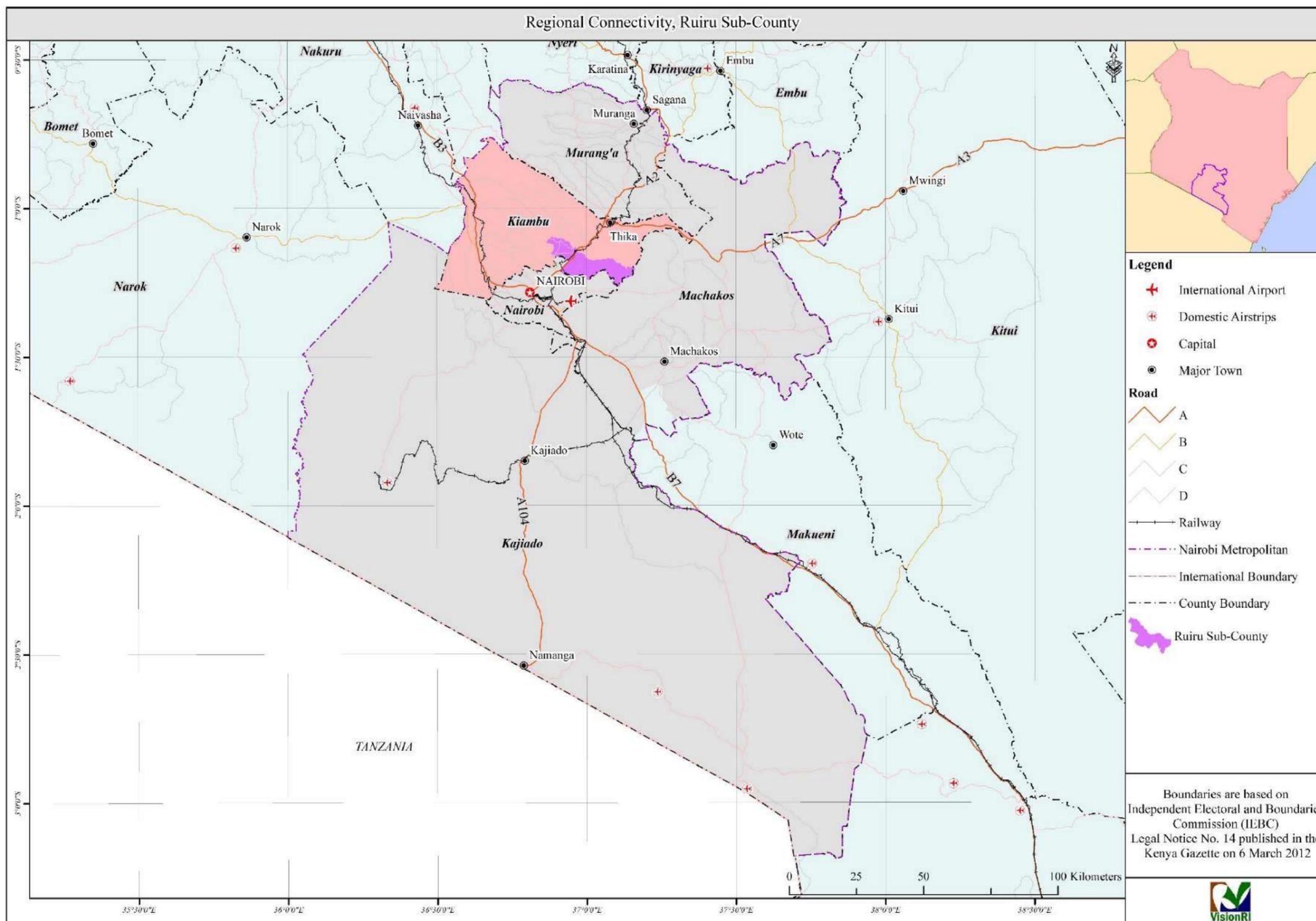
MT - Motorised Transport

8.2.3 TRIP GENERATION

Ruiru town is a convergence of routes from Nairobi, Embakasi, Kiambu, Githunguri, and Thika. External traffic movement of public transportation either ends or begins at the Ruiru bus terminus or the bus stop along the Thika Superhighway. These are the main sources of external traffic. Many trips within the town originate from three key areas, which are the neighbouring residential areas such as Gwa Kairu, Membley, Gitothua. Being an industrial town, most traffic is generated from the industries as workers commute to work.

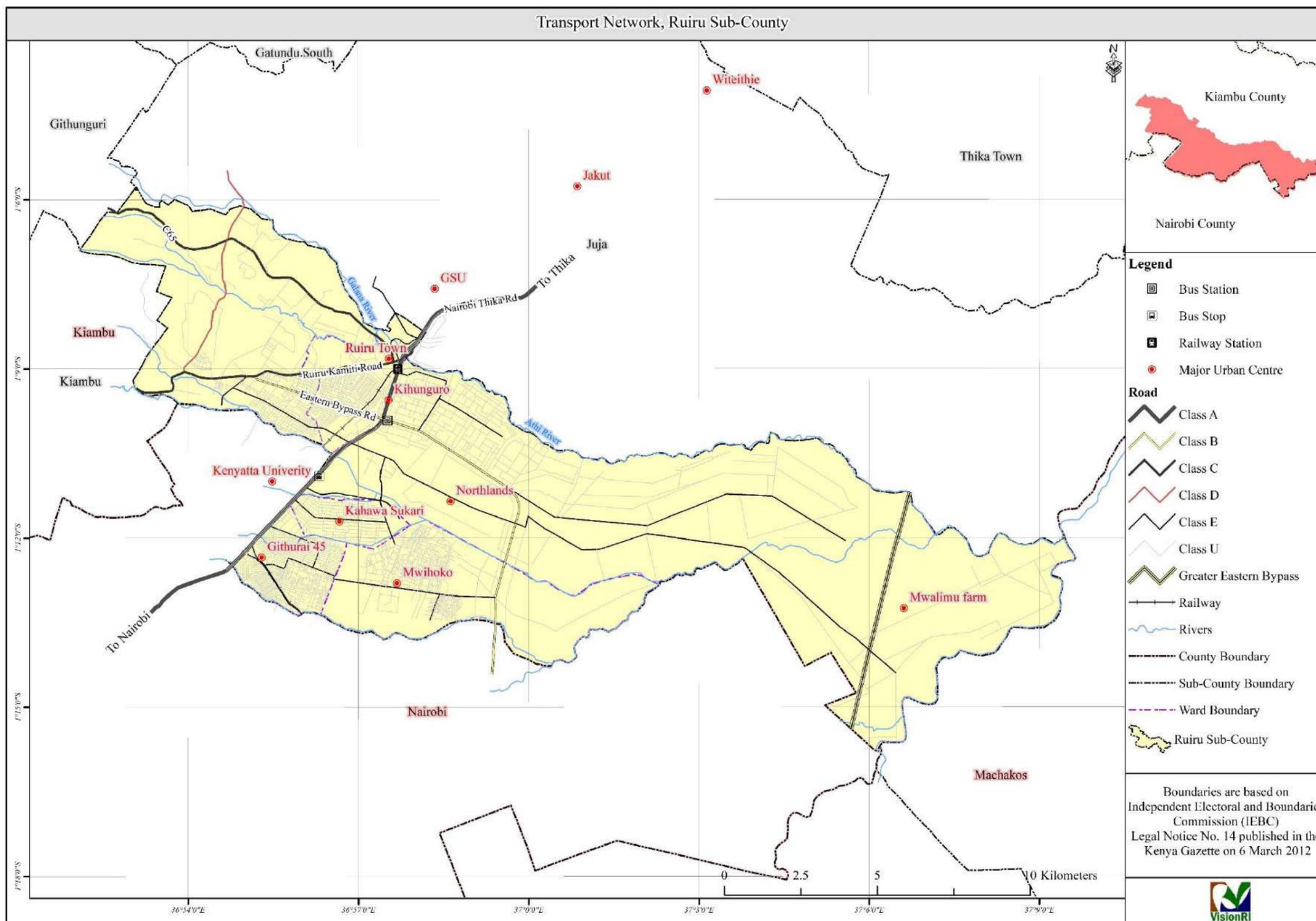
8.2.4 MODAL SPLIT

According to the Institute of Development Studies (IDS) (2016), the modal split for Ruiru is as follows: walking 37%, matatu 36%, motorcycle 17%, cycle 7%, car 2%, 1% other (railway). This modal split is representative of typical trends in towns across Kiambu County i.e., Juja, Kikuyu, Limuru and Kiambaa.



Map 8-1: Ruiru's Regional Connectivity

Source: VisionRI



Map 8-2: Ruiru Transportation Network

Source: Roads Department- Ruiru Sub-County Road Report

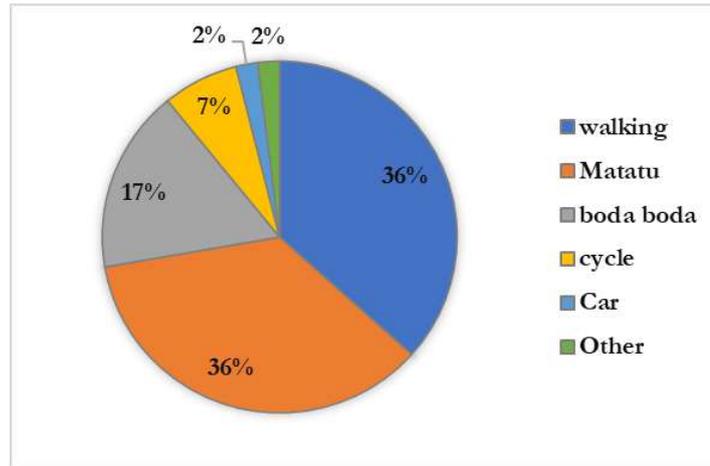


Figure 8-1: Ruiru Modal Split

Source: IDS, 2016

8.2.5 8.2.5 MEANS OF TRANSPORT

- i. **Non- Motorised Transport (NMT):** As indicated in Figure 8-1, 36% of trips in Ruiru are made by walking and cycling. Unfortunately, the demand does not meet the infrastructural provision as most streets lack NMT facilities. Where NMT facilities exist as shown in Figure 8-2, they are in poor states of disrepair and are often encroached by informal vendors and parked cars. This results in dislocating pedestrians onto the carriageway thereby conflicting with vehicular traffic. Additionally, there are few safe pedestrian crossings in Ruiru, which often are disregarded by both pedestrians and motorists alike. Inadequate crossings expose pedestrians to high risks of accidents making it unsafe especially for school-going children. Bicycle tracks are completely absent in Ruiru. This explains the lower number of cyclists in the area. Further, there are no designated safe and secure bicycle parking facilities in Ruiru CBD.

In some sections along Thika Road (A20), footbridges erected at convenient crossing spots are seldom used. To some extent, the design and functionality of these footbridges make them uncomfortable for pregnant women, the elderly, and persons carrying heavy luggage.



Image 8-1: Encroachment onto NMT

Source: Field Survey 2019

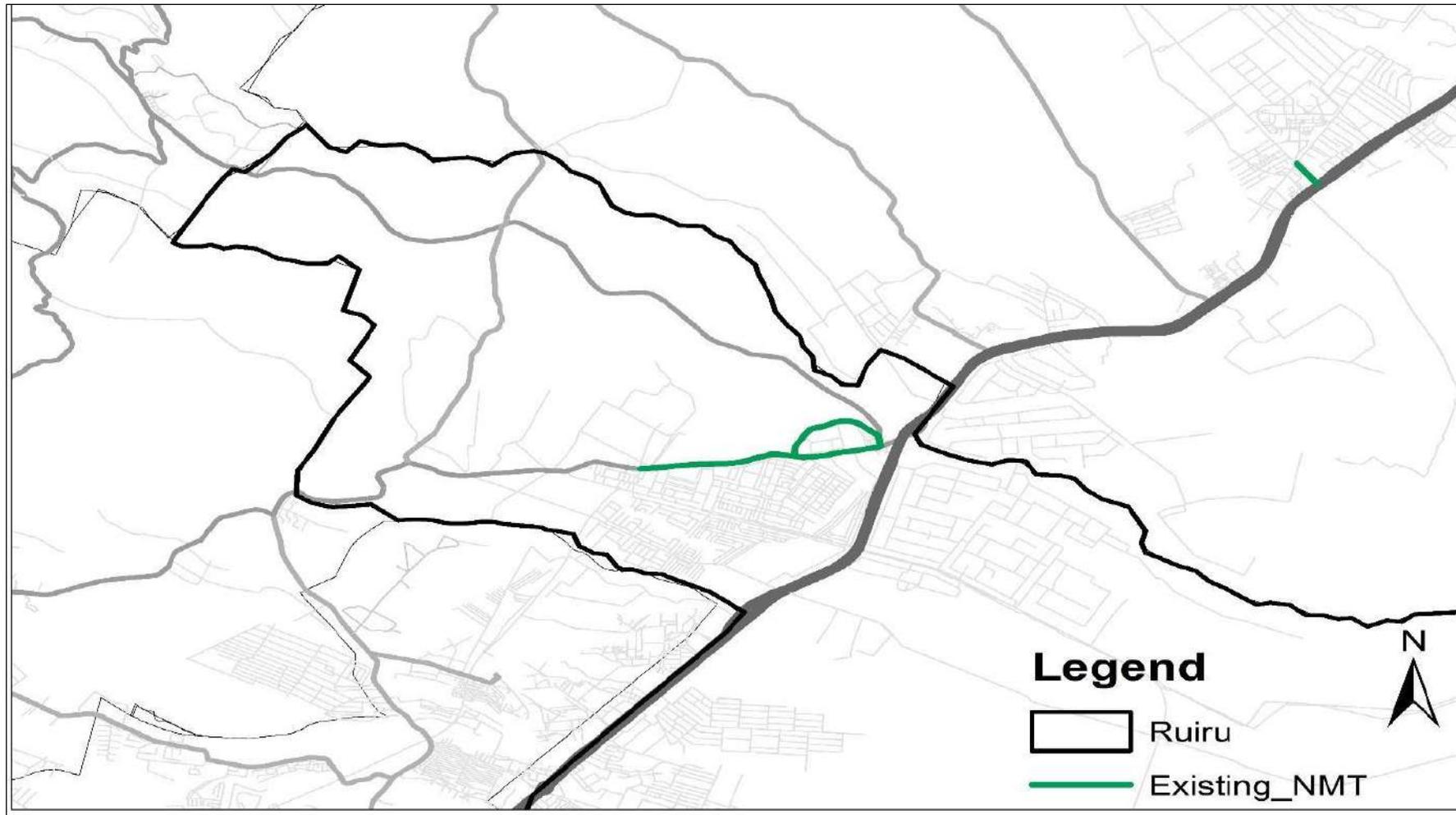


Figure 8-2: NMT in Ruiru

Source: Roads Department- Ruiru Sub-County Road Report



Image 8-2: Informal Activities/NMT Conflicts

Source: Field Survey 2019



Image 8-3: NMT in poor state of disrepair

Source: Field Survey 2019



Image 8-4: Displaced Pedestrians on Vehicular Carriageway

Source: Field Survey 2019

ii. Motorised Transport

- **Public Transport:** After walking, public transport is the second most commonly used mode in Ruiru. Public transport is largely provided by privately owned mini-buses (matatus) and buses. Within Ruiru Sub-County, the National Transport Safety Authority (NTSA) has registered over 160 matatu savings and credit cooperative organizations (SACCOs) with approximately 1,448 vehicles, with the majority being 14-seater matatus. The matatus ply routes within Kiambu County as well as the neighbouring counties of Nairobi, Nakuru and Murang' a. Images 8-5 and 8-6 show the Ruiru bus park with a capacity of 100 matatus that is congested and lacks adequate facilities such as public toilets, customer information, and waste bins.



Image 8-5: Buses & Matatu congestion at the Ruiru Bus Park

Source: Field Survey 2019



Image 8-6: Chaotic and poor state of disrepair of the Ruiru Bus Park

Source: Field Survey 2019

- **Buses and Matatus:** The matatus and buses are demand-driven, and this is seen in the unstructured travel schedules and the chaotic and fierce competition for customers including restricted spaces as shown in Image 8-7. This is a major inconvenience to the majority of commuters. Commuter fares are not regulated, and some arbitrary increase may apply during peak hours.



Image 8-7: The effect of Matatu overspill from the Bus Park

Source: Field Survey 2019

- **Commuter Motorcycle/Taxi Services (Boda Bodas/Tuk Tuks):** This mode of commuter services serves short trips within town centres and last-mile connectivity to public transport and paratransit. According to the County Government, there are approximately 5,700 boda bodas operating in Ruiru Sub-County. Their numbers keep increasing due to the high demand for short-dash commuter services. They operate from 'stands' or designated sheds within the Ruiru CBD, in residential areas, trading centres, and at passenger service stops along main and minor roads. These 'stands' are managed by informal stage managers. The operators typically pay a stage fee ranging between Ksh 250-350 per month. There are two types of operating structure which are dependent on a 'stand': compete for clients or queue and go in turns. The boda-bodas are organised in SACCOs and regulated by NTSA largely on road safety measures.
- **Taxis:** Taxis are mostly small passenger cars that provide short- to mid-distance door-to-door services without intermediate stops. The taxi operators have adopted modern technology by using the telephone applications of taxi services such as Uber, Little Cab and Taxi.

- **Rail Transport:** The Nairobi to Nanyuki railway line passes through Ruiru and Juja which falls within the Nairobi–Thika transport corridor. However, railway commuter services are currently offered during the morning and evening peak hours which caters to approximately 2% of Ruiru's population. The railway line has been on a spiral of decline as shown in Image 8-8. Thus, Kenya Railway Corporation (KRC) has embarked to upgrade the platform and rehabilitate the railway station facilities as shown in Image 8-9 in order to promote alternative commuter transport. Rail transport will not only boost commuter services but will be crucial to the numerous industries to transport both raw materials and finished products into the market.



Image 8-8: The dilapidated Ruiru Railway station

Source: Field Survey 2018



Image 8-9: Rehabilitation to the rail line infrastructure

Source: Field Survey 2019

8.2.6 TRAVEL DEMAND

Without significant improvements in public transport and walking and cycling networks to cater to the growing travel demand, the general trend of increasing car ownership is bound to continue. According to the Master plan for Nairobi, the city experiences a 5% annual growth in car ownership⁷. Considering that Kiambu County is a dormitory for Nairobi city, we can assume that the trend in Kiambu is similar to Nairobi County. Using the modal split as representative of the typical trends in towns across Kiambu together with population and car growth forecasts, a simple modal share prediction to glean potential impacts of shifting transport investment priorities to more sustainable modes is shown in Table 8-2.

Table 8-2: Transport Mode Share in Three Scenarios

Mode	2016	2030
Walk	37%	40%
Cycle	7%	10%
Public transport (Matatus + city Bus + BRT)	36%	40%
Motorcycle	17%	5%
Private car	2%	3%
Other/Probox taxi	1%	2%
Total	100%	100%

Source: VisionRI

Under the sustainable mode, the scenario is made with an assumption that the proposed bus rapid transit (BRT) in Nairobi and part of Kiambu County as well as investment in NMT facilities will be implemented by 2030 increasing the ridership of public transport, walking and cycling hence reducing the ridership in the use of private cars.

8.3 Water Supply

8.3.1 MAIN SOURCES OF WATER

According to a household survey carried out by the Ruiru Sewerage Network Improvement Project in 2017, 46% of households are supplied with water from the Ruiru/Juja Water and Sewerage Company (RUJWASCO) while 39% get water from public water points/water kiosks. Most public taps source from boreholes as indicated in Figure 8-3.

⁷ JICA 2014, Integrated urban development masterplan for Nairobi City County <https://www.jica.go.jp/english/news/field/2015/c8h0vm0000966zqy-att/c8h0vm0000966zvzvu.pdf>

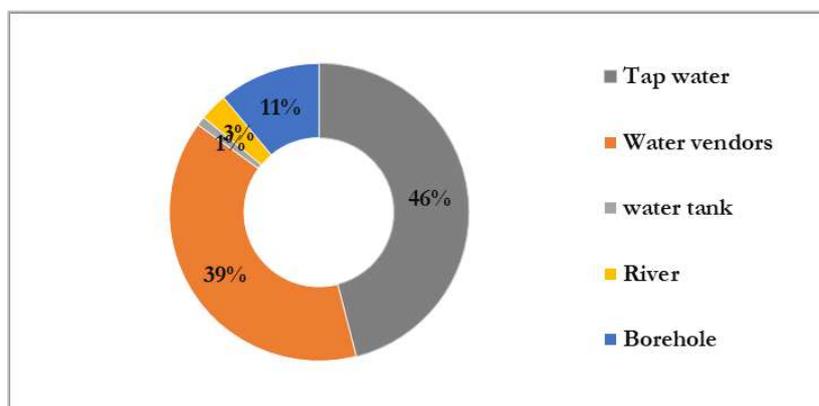


Figure 8-3: Source of Water

Source: Ruiru Sewerage Network Improvement Project, 2017

The other main sources of water in Ruiru Sub-County are:

- i. Rivers (Ruiru, Ndarugu, Kiuu and Makuyu Rivers) supplying 6,480m³/day.
- ii. Underground (boreholes).
- iii. Piped water provided by RUJWASCO.
- iv. NCWSC through Ngethu pipeline (480m³/day).
- v. Rainwater.
- vi. Shallow wells.
- vii. Water vendors.

However, according to the 2019 census, below is a breakdown of the sources of water of households.

Table 8-3: Sources of water of households

Source of water	Percentage
Pond	0
Dam/Lake	0.1
Stream/River	0.5
Protected Spring	0.4
Unprotected Spring	0
Protected Well	0.6
Unprotected Well	0.1
Borehole/Tube well	8.7
Piped into dwelling	24.1
Piped to yard/Plot	34
Bottled water	5.5
Rain/Harvested water	1.3
Water Vendor	14.8
Public tap/Standpipe	9.8
Not Stated	0

Source: KNBS, 2019

8.3.2 WATER SUPPLY AND COVERAGE

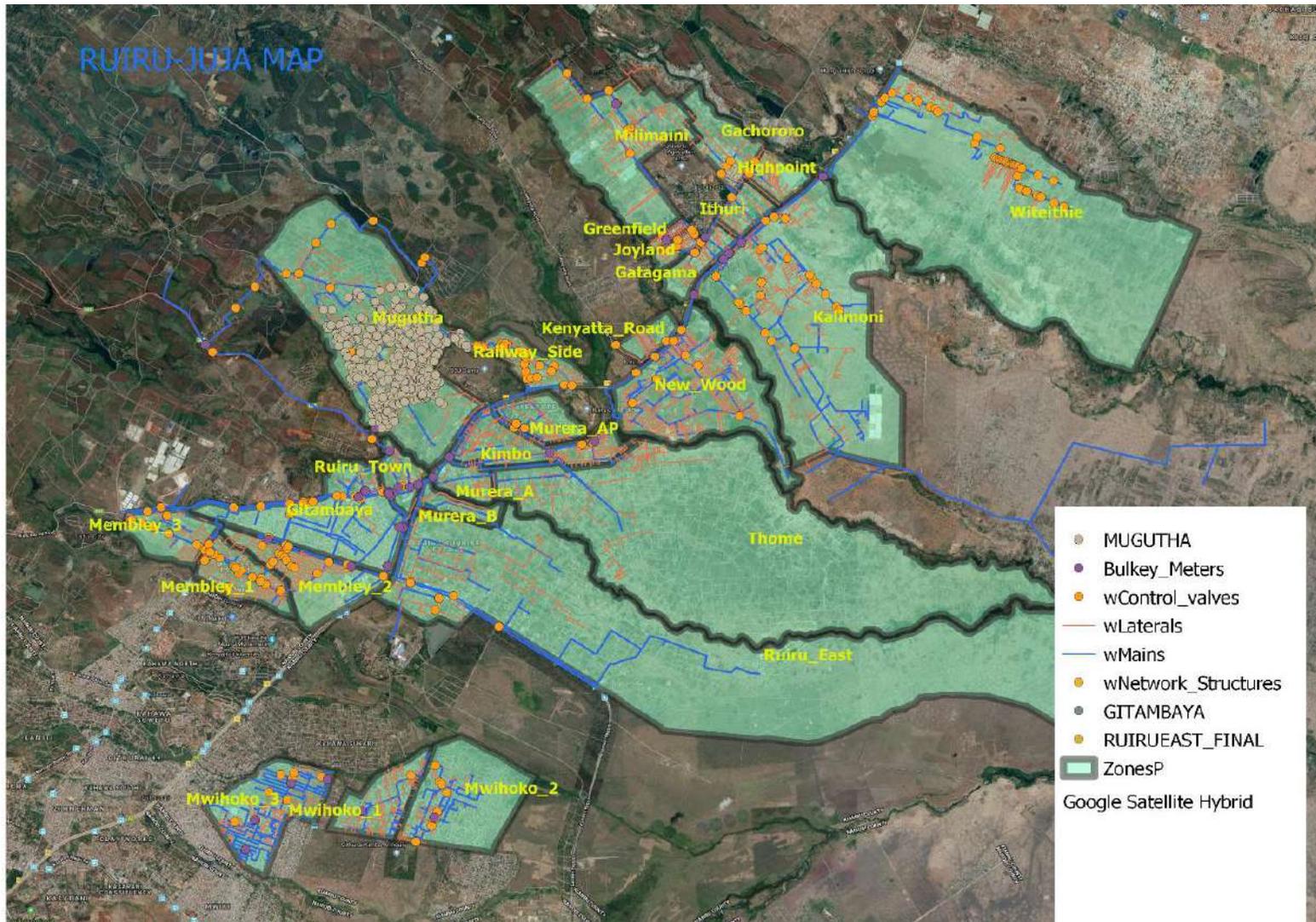
Ruiru is served by RUJWASCO and Nairobi Water and Sewerage Company.

RUJWASCO operates two main water supply systems namely; Ruiru water supply and Juja water supply. Ruiru water supply system previously produces 19,2170m³/day while Juja water supply system produces 7,500m³/day of treated water. The demarcated area of services coverage as provided by the Water Services Regulatory Board (WASREB) is 528km² and water coverage is at 70%.

The water supply covers Ruiru CBD, Membley, Gitambaya, and the Sunrise area. The company also serves a few residents in Githurai and Mwihoko area through six boreholes located at St. Kizito Mwihoko, Kiuu, Langata and Kimbo police posts. Over 2,000 households and institutions are connected to the piped water supply. A water supply project of capacity 15,000m³/day that will serve the greater Githurai area is expected to commence soon.

8.3.3 WATER SUPPLY AND DEMAND

According to RUJWASCO, the current supply is 19,270 m³ against a demand of 43,130m³. This leaves a deficit of 23,860m³. Table 8-4 below shows the schemes, their water sources, and their status.



Map 8-3: Water Supply Coverage Map

Source: VisionRI

Table 8-4: Water supply schemes, sources and status

No.	Scheme	Water sources	Component	Status
1.	Ruiru water supply Supply - 17,500m ³ /day Current demand 24,000m ³ /day Demand deficit 6,500m ³ /day	Ruiru Water Supply (Jacaranda)	Source	River Ruiru abstraction right 13,000m ³ per day (Jacaranda).
			Treatment works	Design capacity of treatment works is 13,000m ³ /day. Current production/ utilisation is 16,500m ³ per day.
			Pumping	2 pumping units 610m ³ /h, 541m ³ /h – Both operational.
			Treatment	Full conventional treatment.
			Storage	6,000m ³ storage at the treatment works.
			Raw main	990m, DN 400mm ferrous iron pipeline.
			Rising Main	8km DN 500mm, 400mm steel pipeline.
			Distribution	210km assorted sizes of pipelines.
		Ruiru Water Supply (Ruiru town)	Source	Ruiru River abstraction of 1,000m ³ /day (Ruiru town).
			treatment works	Design capacity 1,000m ³ /day.
			Treatment type	Composite filtration unit capacity 1,000m ³ /day.
			Pumping	High lift pumping 41.6m ³ /h.
			Rising main	2.9km, DN 160mm HDPE pipeline.
2	Githurai water supply Supply - 1,770m ³ /day Current demand 15,000m ³ /day Demand deficit 13,320m ³ /day	Githurai boreholes	Source	St Kizito-700m ³ /d, Mwihoko-300m ³ /d, St. Hellen ACK-320m ³ /d, Kimbo police post-300m ³ /d, Githurai mixed school -150m ³ /d boreholes.
			Treatment works	None.
			Treatment type	Centralised chlorination.
			Pumping	6 submersible pumps.
			Rising main	13km DN160mm-90mm HDPE pipeline.
			Storage	6no storage- 384m ³ .
			Distribution	38km assorted sizes of pipelines.

Source: RUJWASCO 2020

Nairobi Water and Sewerage Company supplies water to Kahawa Sukari; Kahawa Wendani; Mwhoko and Mwiki.

During the field survey, it was established that areas along the Eastern Bypass Road and in Mwalimu farm are underserved. Further, during the key informant interview with the Managing Director of Kiambu Water and Sewerage Company, it was reported that there are illegal water connections and vandalism of water pipes within the Sub-County which account for water loss.

8.3.4 WATER TARIFFS

RUJWASCO has different tariffs for various water consumers depending on various uses. Table 8-5 shows the different charges.

Table 8-5: RUJWASCO Water Tariff

Consumer Category	Approved Consumption Block in m ³	Approved Tariff KSh./M ³
Residential/Domestic	0-6	Flat Rate KSh. 360
	7-20	85.00
	21-40	105.00
	41-100	120.00
	> 100	150.00
Commercial/Industrial/Government Institutions	0-10	69.33
	11-20	104.00
	21-40	135.20
	41-100	166.40
	> 100	208.00
Standpipes/Kiosks		35.00
Public schools, Universities & colleges	0-600	40.00
	601-1200	50.00
	>1200	90.00

Source: Ruiru/Juja Water & Sewerage Company

For the sewerage tariff, the company charges 75% of the water bill for all customers with sewer connections. Individuals who are domestic customers with no water connection are charged a flat rate of Kshs. 300 per month while all other customers are charged 75% of the volume of water used per the metered source of water.

8.3.5 WASTE MANAGEMENT

- i. **Solid Waste Management:** Like in many other urban centres, a solid waste management system (SWM) remains a challenge in Ruiru Sub-County. SWM in Ruiru is characterised by

poor disposal practice, lack of or inadequate waste disposal facilities, and improper behavioural practices. In peri-urban and informal settlements, SWM is still a challenge due to a lack of infrastructure, waste receptacles and defined collection centres. In such places, the most common disposal methods include dumping on open spaces, along roadsides, along the river, and burning. The most affected areas are Gitambaya; Githurai; Githurai Kimbo; Mwihoko and other upcoming urban nodes such as OJ.

The Sub-County has plans to provide waste transfer stations and to dispose of the waste at Kang'oki landfill in Thika. In order to effectively manage waste, the County needs to promote the 4Rs (Reduce, Reuse, Recycle and Recover) as a best practice.

- ii. **Types and Volumes of Waste Produced:** Municipal solid waste generation is continuously increasing due to rapid population growth in urban areas. This can be linked with increased economic activity and rural-urban migration which further leads to a continued rise in the number of waste generators. Data on the amount of waste generated and solid waste composition is important to ensure that waste is managed effectively. Most municipalities rely on the amount of waste collected to estimate the waste generated in a municipality, which may underestimate the actual information. There are various sources of waste generated in a municipality which includes hotel industries, markets, retail and wholesale outlets, supermarkets, institutions, petrol stations, households and medical facilities.

It is estimated that the rate of generation of solid waste is 0.53 to 0.65 kg per person per day and that it is likely to increase up to 150 tons per day in the future (JICA 2010). Using an average of 0.65 kg/person/day, Table 8-6 shows a comparison of population increase against the expected increase in amounts of waste generated in the Sub-County.

Table 8-6: Population Growth and the Amount of Waste Generated

	Year				
	2019	2022	2025	2028	2030
Population	371,111	396,147	422,872	451,400	471,480
Solid waste generated (tons)	241,222	257,496	274,867	293,410	306,462

Source: County Environment Dept & Consultant's Projection Estimates

- iii. **Types and Sources of Waste:** The sources of waste include:
- a) **Household waste:** This consists of wastes that are generated by the household from activities like sweeping, food preparation, and clearing of unwanted clothing, shoes, utensils, furniture or other household material. Other activities also include gardening, animal rearing and disposal of packaging and reading materials.
 - b) **Commercial waste:** This is waste generated by all commercial premises that include shops, retail stores, banks, service stations, entertainment centres, offices, restaurants

and hotels. The waste comprises packaging materials, office supplies, food waste, glass, plastics, metal, rubber, used oil, and e-waste, amongst others.

- c) **Municipal waste:** This category includes waste such as ash, dirt and leaves from public open spaces, and are mainly collected from street sweeping. Street waste may also comprise of commercial and domestic waste, especially where waste collection from these two sources is poor.
- d) **Institutional waste:** This category covers wastes from schools, churches, government offices, hospitals and police stations. Waste composition is mostly paper and plastics, and when the institutions involve residents most of the wastes are similar to those of households. The waste from hospitals constitutes of infectious and hazardous materials and is managed within medical facilities by incineration.
- e) **Industrial waste:** They come from processing and non-processing industries. Industrial waste constitutes by-products of manufacturing wastes, construction and demolition wastes. The composition of industrial waste is site-specific and depends on the raw resources and product which provide the base for a given industrial activity.
- f) **Agricultural waste:** This is waste from animal and crop husbandry such as manure and crop remain. This waste is mostly generated in the market, which is from traders selling farm products.

Table 8-7 summarises the various waste categories, source and type of solid waste.

Table 8-7: Category, Source and Type of Solid Waste

No	Category of Waste	Source	Type of Waste
1.	Organic	Markets and the hotel industry.	Food remains, and rotten vegetables and fruits.
2.	Recyclables	Institutions, households, retail and wholesale outlets.	Glass, plastics, metal, rubber, and wood.
3.	Non-Recyclables	Petrol stations, construction sites, and commercial premises.	Rubber and e-waste.
4.	Hazardous waste	Medical facilities and industries.	Paints, used batteries, used oil, solvents, cleaning agents, pesticides and medical waste.

Source: VisionRI

- iv. **Distribution of Waste Management Infrastructure:** Collection of solid waste is a very crucial part of the solid waste stream especially in the Sub-County to avoid littered streets and piled-up waste in markets which lead to unsanitary conditions and become breeding grounds for

vector-borne diseases. For an effective collection of solid waste, it should be determined by an inclusive waste collection schedule and the availability and capacity of garbage trucks. For effective collection, more attention is accorded to areas characterised by a large human population and where the rate of waste generation is considered high. An example of a waste collection schedule is given in Table 8-8, which helps ensure that there is less pile-up of waste and all areas within the Sub-County get access to waste collection services.

Table 8-8: Example of a waste collection schedule

Vehicle Type	Mon	Tue	Wed	Thu	Fri	Sat
Compactor Grounded	CBD	Market Jua -Kali	CBD	Stadium By-Pass	Market Jua-Kali	CBD
Side Loader Grounded	Wataalam Prisons Hilton Hotel	Rainbow Roundabout Kahawa Sukari	Murera Kimbo Toll	Angels Nazareth	Spinners Matopeni Bondeni Membley	Murera Kimbo Toll
Momo Tipper	Kihunguro By-Pass Kiambu Rd Kamakias	CBD Kihunguro By-Pass	Kiambu Rd By-Pass Murera Kimbo Main Rd	Kiambu Rd O.J. Kamakias Direct	Kiambu Rd B.T.L. Destiny O.J. By-Pass	Kiambu Rd By-Pass Murera Kimbo Main Rd
22 CG 090 A	Githurai	Githurai	Githurai	Githurai	Githurai	Githurai

Source: Vision RI

With a collection of only 75% of the total solid waste generated in the Sub-County, there is a need for an efficient and consistent collection system to allow for a 100% collection rate and avoid overwhelming storage facilities.

For this to be achieved, it is necessary to classify various areas in the Sub-County into red zones (those with high generation rate of waste), orange zones (with average rates of generation and waste generators), and green zones (with lesser amounts of waste generated). To help in improving collection services, areas in each ward have been classified into red, yellow and green zones as described below (Integrated Solid Waste Management Plan for Ruiru Sub-County, 2019).

- a) **Red Zone:** These are in urban centres as shown in Table 8-9 which are considered hot spots due to the high human population and the rate of waste generation is considerably higher as compared to other areas. These areas require the regular collection of waste to avoid causing eyesores/loss of aesthetic and causing pollution and ill health to the public. There is also a lot of illegal dumping done along the streets in most of these areas.

Table 8-9: Areas classified as Red Zones in the Sub-County

Area	Type of Waste	WorkForce	Collection Schedule	Intervention Measures
Ruiru market	Organic waste – 70% Other waste – 30%	3 – an open-air market 2 – enclosed market 5 – Githurai market	Each market is served by 1 skip, collected twice a week Githurai market is served by two skips which are collected four times a week	<ul style="list-style-type: none"> Collection to be done at least thrice a week; Addition of skips (2 at the open-air market and 1 at the enclosed market); Sorting of waste at the skip area (segregation of organic waste); Engage a community environment volunteer for surveillance; and Daily collection for Ruiru market.
Ruiru CBD	Commercial waste	5	Daily	<ul style="list-style-type: none"> Waste contained in sacks awaiting collection; Elimination of illegal dumps; and Notice to be issued to all business premises to contain their waste awaiting collection.
Ruiru Main Stage	Commercial waste	2	Daily (at night)	<ul style="list-style-type: none"> Provision of a skip; and Provision of colour-coded dustbins.
Ruiru Kiambu Road	Co-mingled waste	3	Thrice (Wednesday, Thursday and Saturday)	<ul style="list-style-type: none"> Waste contained in sacks awaiting collection; and Surveillance required to curb illegal dumping.
Zetech College Road	Co-mingled waste	1	Twice (Monday and Thursday)	<ul style="list-style-type: none"> Elimination of illegal dumps; Surveillance required to curb illegal dumping; and

Area	Type of Waste	WorkForce	Collection Schedule	Intervention Measures
				<ul style="list-style-type: none"> Engage a community environment volunteer for surveillance.
Hospital Road	Residential waste	1	Daily	<ul style="list-style-type: none"> Elimination of illegal dumps; Engage private garbage collectors to manage residential waste; Surveillance required to curb illegal dumping; and Engage a community environment volunteer for surveillance.
BTL, OJ and By-pass Road	Co-mingled waste	1	Daily	<ul style="list-style-type: none"> Engage private garbage collectors to manage residential waste; and Provision of a skip to contain market and municipal waste.

Source: Integrated Solid Waste Management Plan for Ruiru Sub-County, 2019

b) **Yellow Zones:** These are semi-urban areas shown in Table 8-10 which require moderate attention as the rate of waste generation is slightly lower than that of the Red Zones.

Table 8-10: Areas classified as yellow zones in the Sub-County

Area	Type of Waste	Work Force	Collection Schedule per Week	Intervention Measures
Kihunguro	Co-mingled waste	1	Once (Thursday)	<ul style="list-style-type: none"> Provision of skip; and Notice to be issued to all business premises to contain their waste awaiting collection.
Kamakisi	Commercial waste	1	Once (Thursday)	<ul style="list-style-type: none"> Notice to be issued to all business premises to contain their waste awaiting collection.
Masaku	Co-mingled waste	1	Once (Monday)	<ul style="list-style-type: none"> Engage private garbage collectors to manage residential waste; and

Area	Type of Waste	Work Force	Collection Schedule per Week	Intervention Measures
				<ul style="list-style-type: none"> • Notice to be issued to all business premises to contain their waste awaiting collection.
Hilton	Co-mingled waste	1	Once (Thursday)	<ul style="list-style-type: none"> • Elimination of illegal dumps; • Engage private garbage collectors to manage residential waste; and • Notice to be issued to all business premises to contain their waste awaiting collection.
Membley	Co-mingled waste	1	Once (Friday)	<ul style="list-style-type: none"> • Elimination of illegal dumps; • Engage private garbage collectors to manage residential waste; and • Notice to be issued to all business premises to contain their waste awaiting collection.

Source: Integrated Solid Waste Management Plan for Ruiru Sub-County, 2019

- c) **Green Zone:** These areas are mostly rural as shown in Table 8-11 where there are a scarce human population and a low rate of waste generation. These areas are mostly maintained through regular clean-ups.

Table 8-11: Areas classified as Green Zones in the Sub-County

Area	Type of Waste	Workforce	Collection Schedule per Week	Intervention Measures
Mwihoko	Co-mingled waste	1	Once (Friday)	<ul style="list-style-type: none"> • Engage private garbage collectors to manage residential waste.
Kahawa Sukari	Co-mingled waste	1	Once (Wednesday)	<ul style="list-style-type: none"> • Engage private garbage collectors to manage residential waste.
Progressive	Commercial waste	1	Once (Monday)	<ul style="list-style-type: none"> • Engage private garbage collectors to manage residential waste.

Source: Integrated Solid Waste Management Plan for Ruiru Sub-County, 2019

With an increasing generation of municipal solid waste, zoning will help improve and safeguard the health of the environment and community at large by prioritisation of areas in the waste collection schedule depending on the urban population and amounts of municipal solid waste generated.

- v. **Waste Collection and Disposal Mechanism:** The main solid waste management facilities in Kiambu County include landfills, dumpsites, incinerators, recycling facilities and bio-decomposers. There are three options for waste disposal in the Sub-County, namely, landfill, recycling, and incineration. The proposed disposal site in Ruiru was re-allocated and currently, all the waste is transported to Thika. Kiambu County has one operational dumpsite, Kang'oki dumpsite in Thika Municipality which is almost full as the disposal method practised is open dumping. Recycling efforts of waste materials are done mostly by the private sector, where materials such as cartons, metal, glass, plastics amongst other materials are recovered and sold to recycling companies. There are about five companies involved in the recovery and recycling of waste materials in the Kiambu Municipality.

8.3.6 LIQUID WASTE MANAGEMENT

- i. **Sources and Volumes of Waste Produced:** The three main sources of liquid waste in Ruiru are residential, commercial, and industrial areas. Stormwater is also a source of liquid waste. Liquid waste from domestic sources can be classified as black water which contains excreta, and greywater which does not.

The main mode of wastewater disposal systems within Ruiru include pit latrines, septic tanks, and compost pits, as summarised in Figure 8-4. This has led to the pollution of major rivers such as Ruiru River, Mukuyu River, Kiuu River, and Kamiti River. In addition, pipes connected from various facilities to discharge wastewater are connected alongside pipes supplying clean water that is being managed by the RUJWASCO.

Currently, the Ruiru sewerage system wastewater treatment plant located at Gatongo'ra is serving Membley, Gitambaya and Ruiru town. The design capacity of the system is 10,500m³/day and a sewer network of 57km. The Ruiru Sewerage Network Improvement Project is substantially complete with a total network length of 35 km. The Company has so far realised over 2,000 connections. It plans to extend its coverage to cover other areas such as Kahawa Wendani, Mwiki, and Mwioko which are currently under the Nairobi Water and Sewerage Company.

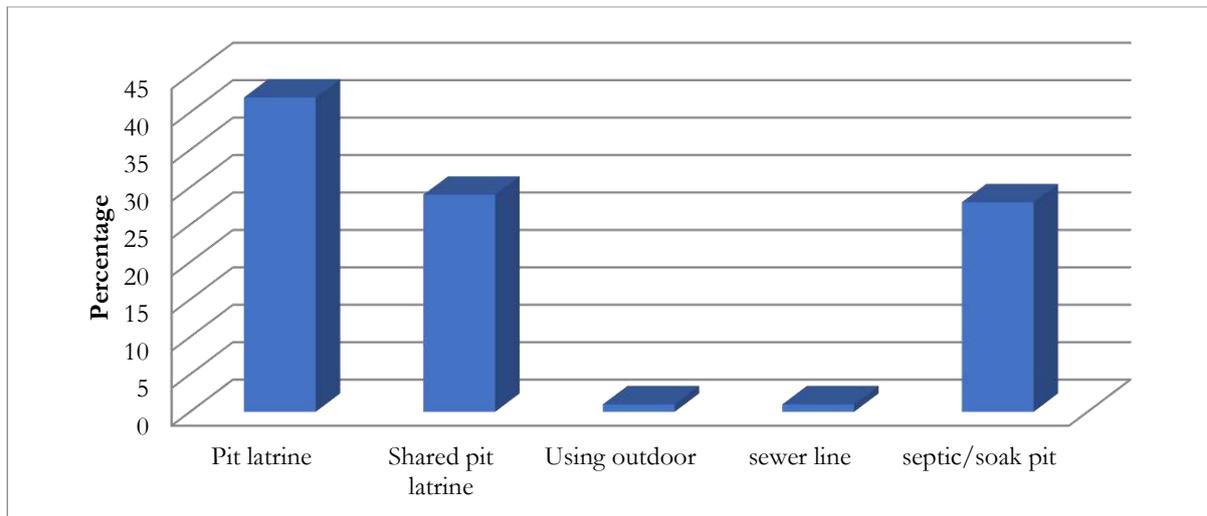


Figure 8-4: Sanitation facilities

Source: Household survey by Ruiru Sewerage Network Improvement Project

It was reported that only 1% of the population in Ruiru Sub-County had connected to the sewer, 28% used septic tanks and soak pit 71% used pit latrines in 2017 (Ruiru Sewerage Network Improvement Project, 2017).



Image 8-10: Main Trunk Sewer in Gatongo'ra

Source: Vision RI Field Survey

- ii. **Distribution Network of Liquid Waste:** The County Government, with support from the World Bank through the Ruiru Sewerage Network Improvement Project, has been constructing the sewer truck systems and upon completion, the system will have a capacity to treat 10,000m/day. A total length of 57,440m of trunk and subsidiary sewer line has been constructed (see Image 8-10). As the population continues to grow, the capacity projection as

shown in Table 8-12 will extend to cover areas under consideration include Membley, Gitambaya, Ruiru town, sections of Mugutha, Murera, Gatongo'ra and Kiwanja Location in Kahawa.

Table 8-12: Wastewater Projections

	Years				
	2019	2022	2025	2028	2030
Population	371,111	396,147	422,872	451,400	471,480
Quantity of wastewater in litres	2,226,666	2,376,882	2,537,232	2,708,400	2,828,880
Assumptions:					
<ul style="list-style-type: none"> • 1 person uses a minimum of 7.5 litres a day • About 80% of the water used results in wastewater 					

Source: Integrated Strategic Urban Development Plans for Ruiru and Juja Water Company Areas

To mitigate wastewater disposal challenges, the County Government initiated the design and construction of a sewage collection and conveyance system to serve Ruiru town, which has been completed. This system is designated to carry municipal sewage mainly composed of:

- Domestic wastewater (includes residential, commercial, and institutional wastewater);
- Industrial wastewater; and
- Unauthorised but unavoidable groundwater infiltration and stormwater inflows.

The treatment works have been designed to deal with medium strength sewage with industrial wastewater expected to be pre-treated before draining to the proposed system.

Some of the salient issues observed during the survey show that Ruiru has a weak waste management system as summarised below:

- **Lack of sanitation facilities:** Lack of sanitation facilities including solid waste management facilities and sewer systems pose a serious public health threat.
- **Municipal solid waste open dumping:** The management of solid waste is worsened by unsustainable practices that improve environmental contamination and the spread of diseases. In particular, the open dumping in uncontrolled sites, open burning of waste fractions and the mismanagement of the leachate produced in final disposal sites, are the main issues detectable. The situation is worsened in Ruiru with additional problems of high-density population, traffic, air and water pollution. Uncontrolled disposal in open spaces near water bodies are issues widespread in these contexts, which corresponds to public health issues.

- **Burning of solid waste:** The open dumping of waste is not the only environmental burden due to waste mismanagement. The burning of waste without any precaution also generates contaminants and increases health risks to the population. Uncontrolled burning, generation of methane gas, and low-temperature burning are major factors for the formation of dioxins in dumping sites.
- **Poor disposal of construction waste:** The main issue due to construction waste is the final disposal of landfill sites which can affect its service life. To avoiding this impact, the volume of waste dumped in landfills should be reduced, imposing safe operating practices. In particular, 4Rs (reduce, reuse, recycle and recover) policies should be implemented.
- **Weak resource recovery:** Efforts for waste prevention and waste recovery should be encouraged.

8.4 Storm Water Management

There are existing urban drainage systems within Ruiru town and other residential neighbourhoods within Ruiru Sub-County. These serve areas that are poorly drained and are prone to flooding and include the following:

- Mwiki (Githurai);
- Gitambaya;
- Parts of Mwhoko and Wendani area;
- Sections of Ruiru-Kamiti Road;
- Mwalimu farm; and
- Membley.

The main causes of flooding are:

- Flat terrain – Mwalimu Farms – formerly sisal growing areas;
- Poorly designed stormwater drains along roads where the invert levels and outfalls are not provided;
- Poor planning leading to sub-divisions in low lying areas prone to flooding;
- Lack of provision of drainage wayleaves e.g., in Membley;
- Clogging of the drainage due to solid waste and lack of routine maintenance; and
- Lack of connectivity, continuity e.g., in Gitambaya.



Image 8-11: Example of Dysfunctional Storm Water Drainage

Source: VisionRI Field Survey

8.5 Energy Infrastructure

8.5.1 SOURCES OF ENERGY

As shown in Table 8-13, electricity is the main source of lighting in the Sub-County while charcoal is the main source of energy for cooking.

Table 8-13: Main Sources of Energy

Cooking	Lighting
Charcoal	Electricity (90%)
Kerosene	Kerosene (5%)
Firewood	Solar Panels (3%)
Gas	Generator (1%)

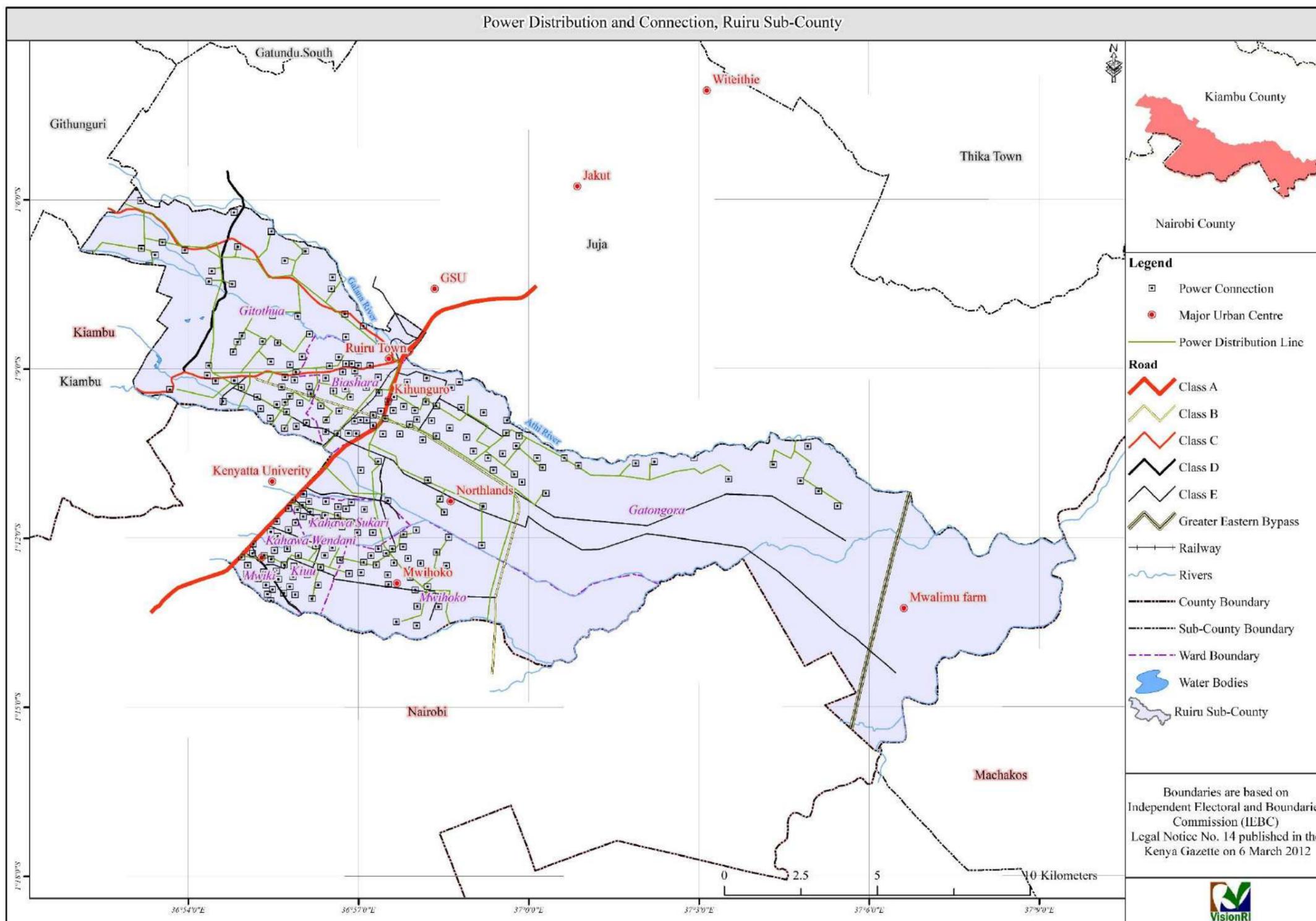
Source: Exploring Kenya's Inequity Pooling Apart or Pooling Together-Kiambu County, KNBS 2013.

The Kenya Power substation that serves the Sub-County is located near the C63/A2 road interchange.

8.5.2 ENERGY DISTRIBUTION NETWORKS

According to Kenya Power's 2017 report, Kiambu County had electricity coverage of 66 per cent. The total number of households connected to electricity within the Sub-County is 80% and this number is expected to rise to 100% by the year 2022. The Directorate of Public Works and Utility Services in the County had, by the FY2016/2017, installed 22 flood masts in Ruiru. That is eight masts of 30m high and 14 masts of 15m high. Further, Kenya Power has played a key role in providing 11 other street lighting masts which are 30m high. However, some areas within the Sub-County like Forty Area lack street lighting connection.

Map 8-5 shows the electricity distribution including power reticulation, transformers and Table 8-14 shows the installed streetlights and floodlights within the Sub-County.



Map 8-4: Electricity Connection in Ruiru

Source: Department of Roads, Transport, Public Works, and Utility Services

Table 8-14: Existing Flood Masts and Street Lighting

Completed Flood Masts and Street Lights FY 2018/2019			
Project Sites for Flood Mast and Street Light	Flood Masts Installed	Streetlights Installed	KM Street Lights Installed
Ruiru Sub - County			
1). Biashara Ward			
Ruiru Stadium Flood Lights	5		
Walaaam Mla Chake Road		25	1.00
Matopeni Road		25	1.00
2). Gitothua Ward			
BTL Road		25	1.00
OJ - BTL AP POST		25	1.00
Mama Shop Road - Margaret Road		25	1.00
OJ Bus Park		25	1.00
Culvert - Chiefs Road - Bypass Road		25	1.00
3). Gatong'ora Ward			
White House Rd to St. ACK Church		10	0.40
Destiny		15	0.60
DC Rd/Destiny		25	1.00
Kwihota Secondary - Kwa Njambi		25	1.00
Versity Ville Estate Main Road		25	1.00
Engen - Full Gospel Church		25	1.00
4). Kahawa Sukari Ward			
Kahawa Sukari Main Road Extension		15	0.60
Kiuu River		10	0.40
5). Kahawa Wendani Ward			
Uncle Steve-Bosnia Bridge		10	0.40
Kwa Njuguna Bridge		10	0.40
Bosnia Bridge-Mak Wanga		5	0.20
Cleanshelf-Whispers-Baptist -Kag Ch Rd		25	1.00
6). Kiuu Ward			
Kwa Ngethe Bridge-Stage 40		11	0.44
Langata Hospital - Manguo		14	0.56
Mumbi Road Junction - Langata Hospital Rd		25	1.00
7). Mwiki Ward			
Mt Kenya Road		25	1.00
Toeiz Road		25	1.00
Kona Mbaya Road		15	0.60

Completed Flood Masts and Street Lights FY 2018/2019			
Project Sites for Flood Mast and Street Light	Flood Masts Installed	Streetlights Installed	KM Street Lights Installed
Toeiz Road-Mosque Rd Junction Road		10	0.40
St Augustine Road		25	1.00
8). Mwihoko Ward			
Ngunju Mutirithia Hardware	1	-	-
Mwihoko 2 Seventh Day Church	1	-	-
Kwa Jeshi Shopping Centre	1	-	-
St. Jude Catholic Church Kizito	1	-	-
Mwireri Shopping Centre	1	-	-

Source: County Department for Water, Environment, Energy, and Natural Resources

8.6 Information and Communications Technology (ICT)

8.6.1 MEANS OF INFORMATION COMMUNICATION

- i. **Telephone Networks and Mobile Phone Networks:** There is a presence of all mobile phone operators in the Sub-County including Safaricom, Airtel, Telkom and Equitel. Mobile Banking is also used in the area and this includes the transfer of money via Mpesa.

Despite the Sub-County enjoying telecom services, some areas in far-flung locations are poorly connected. This is attributable to the low population and is, therefore, not serviced by telecom masts.

- ii. **Television and Radio Transmission Stations:** Various national and local television and radio stations are broadcasted in the Sub-County. The move from analogue to digital broad has already been affected.
- iii. **Internet:** Internet use is evident through numerous cybercafés and local internet service providers. There are numerous cyber cafés and computer learning institutions. The main internet service providers include Zuku, Access Kenya, Safaricom, Airtel and Orange. In addition, fibre optic cables have been laid in the town.
- iv. **Courier Services:** There is one post office in Ruiru town that serves the entire Sub-County. There are also courier services offered by dedicated companies such as G4S while the same is offered by matatus as complementary to their core commuter services.

8.7 Emerging Issues on Physical Infrastructure

Table 8-15: Emerging issues in Physical Infrastructure

Focus Area	Key Challenges	Opportunities
Transportation	<ul style="list-style-type: none"> • Incidences of boda-boda-related accidents; • Over-reliance on private vehicles; • Looping road networks; • Over-reliance on private vehicles due to an unreliable public transport system; • Lack of NMT facilities, making walking and cycling unsafe and unattractive; • Inadequate terminal facilities leading to congestion in major nodes such as Githurai and Ruiru Town; • Increased boda-boda-related accidents due to poor training and mismanagement; and • Inadequate parking. 	<ul style="list-style-type: none"> • Develop and promote NMT to ensure safe walking and cycling making it attractive for all users including the elderly, children and persons with disabilities; • Parking management to facilitate the efficient use of road space and to ensure mobility of public transport, pedestrians and cyclists; and • Opening the missing roads such as Mwihoko –Eastern Bypass Road; Mwihoko-Kahawa Sukari Road.
Water Supply	<ul style="list-style-type: none"> • Underserved areas along Eastern Bypass and Mwalimu farm; and • Water and revenue loss due to illegal water connections and vandalism. 	<ul style="list-style-type: none"> • Presence of rivers and groundwater sources; • Availability of modern technology to monitor unaccounted-for-water (UFW); • Additional water sources to be developed for future and ultimate water demand; • Measures should be put in place to curb the high UFW; • Look at the possibility of alternative power source e.g., solar power to lower power bills; • Use of “Nyumba Kumi” initiative to curb water infrastructure vandalism; • Recruitment of staff and procurement of equipment; • Establish strong enforcement and surveillance systems; • Demolish informal structures; and • Reclaim grabbed/encroached land Sensitise community on proper waste management.
Solid Waste Management	<ul style="list-style-type: none"> • Collection of only 75% of the total solid waste generated; and • Solid Waste Burning: Uncontrolled combustion, 	<ul style="list-style-type: none"> • For 100% to be achieved, it is necessary to classify various areas in the Sub-County into red zones (those with high generation rate of waste),

	generation of methane gas, and low-temperature burning are major factors for the formation of dioxins in dumping sites.	orange zones (with an average rate of generation and waste generators), and green zones (with lesser amounts of waste generated); and <ul style="list-style-type: none"> • Construction of sanitary landfill and transfer facilities.
Liquid Waste Management	<ul style="list-style-type: none"> • Only 1% of the population in Ruiru Sub-County are connected to the sewer, while 28% use septic tanks and soak pit 71% use pit latrines. 	<ul style="list-style-type: none"> • Currently, the construction of the trunk sewer system is still ongoing. Upon completion, the system is designed to treat 10,000m³/day and the total length of 57, 440m of the trunk and subsidiary sewer lines installed.
Storm Water Management	<ul style="list-style-type: none"> • Insufficient internal drains to collect surface run-off. 	<ul style="list-style-type: none"> • Enhance the maintenance of existing drains and expand those alongside new road networks.
Energy	<ul style="list-style-type: none"> • Low-income areas lack access to energy; • Use of pollutive biomass energy in low-income areas; and • The proposed development and project activities will result in higher demand for energy resources. 	<ul style="list-style-type: none"> • Explore alternative energy sources.

Source: Vision RI

9 SOCIAL INFRASTRUCTURE ANALYSIS

9.1 Education Facilities

9.1.1 OVERVIEW OF EDUCATION STATUS IN KIAMBU COUNTY

Over 40% of Kiambu County residents have a secondary level of education and above. However, more than 50% of the residents in the Sub-County only have a primary level of education and above (KNBS and SID, 2013: 12). This means that Ruiru Sub-County has residents with slightly lower educational achievements than its neighbours like Karuri. Kahawa Sukari Ward has the lowest percentage (about 5%) of residents with no formal education in Kiambu County.

With 12% of residents having no formal education as shown in the KNBS and SID publication of 2013, there is significant inconsistency in educational performance and achievement. The main challenge is thus ensuring that all school-age children have access to quality education. The existence of Kenyatta University, (Ruiru Branch) has a great influence on the education profile of the Sub-County. The students' population is a major contributing factor to the economic vibrancy of the area.

9.1.2 CATEGORIES AND HIERARCHY

- i. **Early Childhood Development Education (ECDE) Facilities:** Quality education is one that works for every child and enables all children to achieve their full potential. The United Nation Children's Fund's (UNICEF) manual for child-friendly schools emphasises the design, construction and maintenance of schools that are safe, with welcoming environments in which children can learn, emphasising links with the community, recognises the influence of pedagogic considerations, cost-effectiveness and sustainability (UNICEF, 2009). The safety and environment of an ECDE facility are important because young children are vulnerable to many risks. The location of institutions and their distance from homes are key determinants of access. The distance between schools and home affects the educational advancement of young children because parents are always afraid to let the young ones, especially girls walk alone, and they may be kept out of school unless there is someone to accompany them.

According to the Physical Planning Handbook, the recommended distance from home to an ECDE facility is 300-500 metres. There are 30 public ECDE centres in Ruiru Sub-County with a total enrolment of 1,627 children by 2015. All these public ECDE centres are in public primary schools in the Sub-County. At a ratio of 1:2,500 people, the planning area needed 80 ECDE centres in 2009 with a population of 198,344. In 2030 with a projected population of 745,271, the planning area will require 298 ECDE centres. Hence, there is a need to put up 268 new ECDE centres by the end of the planning period in 2030.

- ii. **Primary School Facilities:** Access to education is the key factor in ensuring the quality of the service. The distance a child covers from home to school has a direct relation with the enrolment, performance, retention, and therefore transition from primary to secondary school. The Physical Planning Handbook provides that a primary school should serve a catchment of a

population of 4,000 and should be between 500 m-2 km as shown in the table below. While the Handbook recommends that a single school occupy at least 3.9 ha, it also encourages schools to build multi-storied buildings.

In 2015, there were 30 public primary schools in Ruiru Sub-County distributed as shown on Map 9-1, with a total enrolment of 20,733 pupils (9,529 boys and 11,204 girls). This means that 54% of the pupils in public primary schools in the planning area are girls.

At the ratio of 1:4000 people, the planning area required 50 public primary schools in 2009 at a population of 198,344. By the end of the planning period in 2030, the planning area will require 186 schools at a population of 745,271.

- iii. **Public Secondary Schools:** Ruiru has 51% of its residents with secondary school education and above and 38.7% of residents with primary education. Kahawa Wendani Ward has the highest number of residents with secondary school education with 68.4% followed by Mwiki Ward with 55.5%. On the other hand, Gatongo'ra Ward has 12.3% of the residents with no formal education. The Sub-County has 17 public secondary schools with enrolments as shown in Table 9-1. The schools had 195 teachers of whom 56 were male and 139 were female.

Table 9-1: Secondary Schools Enrolment in Ruiru

No.	School	Male	Female	Total
1	Ruiru Girls	0	348	348
2	Murera	308	210	518
3	Blessed Mugutha	126	99	225
4	Gitothua	191	128	319
5	Ruiru Township	77	88	165
6	Githurai Mixed	243	176	419
7	Kitamaiyu	146	134	280
8	Githunguri Mixed	117	167	284
9	Kwihota	118	132	250
10	Gikumari Springs	8	15	23
11	Theta	171	153	324
12	Uhuru Kenyatta	110	89	199
13	Spinners Boys	287	0	287
14	Kwang'ethe	91	78	169
15	Ruiru Kihunguro	90	94	184
16	Ruiru Boys	540	0	540
17	Mwihoko	75	57	132

Source: Ruiru Sub-County Education Office

Six of the secondary schools have less than 200 students each, which shows that the quality in these public schools is low and thus they are unable to attract students. In fact, only six of the 17 schools have more than 300 students meaning that the rest of the schools are generally struggling, and their capacity should be improved during the planning period.

Given the population of the area was 198,344 in 2009, the required secondary schools then were 25. By 2030, with a projected population of 745,271 people, 93 schools will be required. Hence, there is a need to build new secondary schools or double the current number by 2030.

Table 9-2 underscores the Physical Planning Handbook standards that recommend the walking distance to a secondary school with a catchment population of 8000 people should be 500m - 3 km.

Table 9-2: Population Catchment for Secondary School

Catchment population	No. of Secondary school	No of streams	Area (ha)	Walking distance
8000	1	1	3.4	500m-3km
		2	3.5	
		3	4.5	

Source: Physical Planning Handbook 2007, GoK

This case scenario has been illustrated in Ruiru Sub-County on Map 9-3.

- iv. **Adult Education Learning Centres:** According to KNBS and SID (2013: 12), and even more recently the KNBS 2019 report, Kiambu County has 12% of its residents with no formal education. The report further indicates that Ruiru has about 5% of its residents with no formal education. This means that the literacy levels are high, with a majority of residents in all wards having at least primary level education.

The Sub-County has seven Adult Education Learning Centres. These currently have an enrolment of 63 learners of whom 35 were female and 28 were male. The demand for adult learning services may be low in an area where only 5% of the residents have no formal education, but 5% in Ruiru represents about 10,000 people at 2009 population levels. This number requires Adult Education Learning Centres preferably in each of the public primary schools in order to reach all that require the services. Additionally, there will be a need to sensitise residents to the availability of these services during the planning period.

- v. **Universities:** There is no public university within the planning area. The Kenyatta University Ruiru Campus sits on the boundary across Juja Sub-County. However, Zetech University, a private institution, is located in the Sub-County.

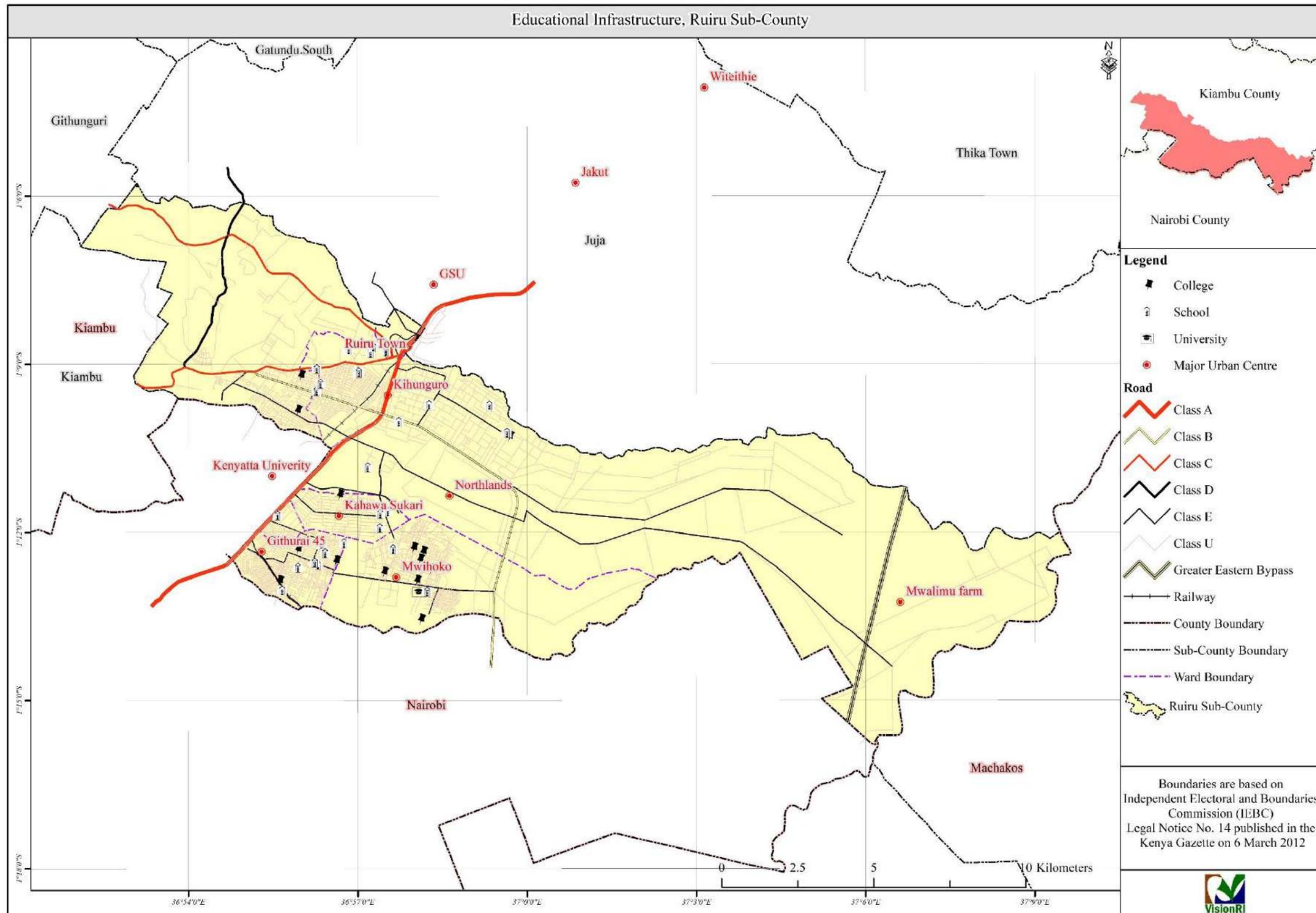
- vi. **Technical and Vocational Education Training (TVET):** There is one private TVET facility in Ruiru, namely, the Institute of Business Studies, which offers certificate and diploma courses in technical skills. Ruiru lacks a public TVET training facility. During the stakeholders' workshop, a TVET was proposed to be established in Kahawa Sukari and Mwalimu farm area.

9.2 Health Facilities

9.2.1 OVERVIEW

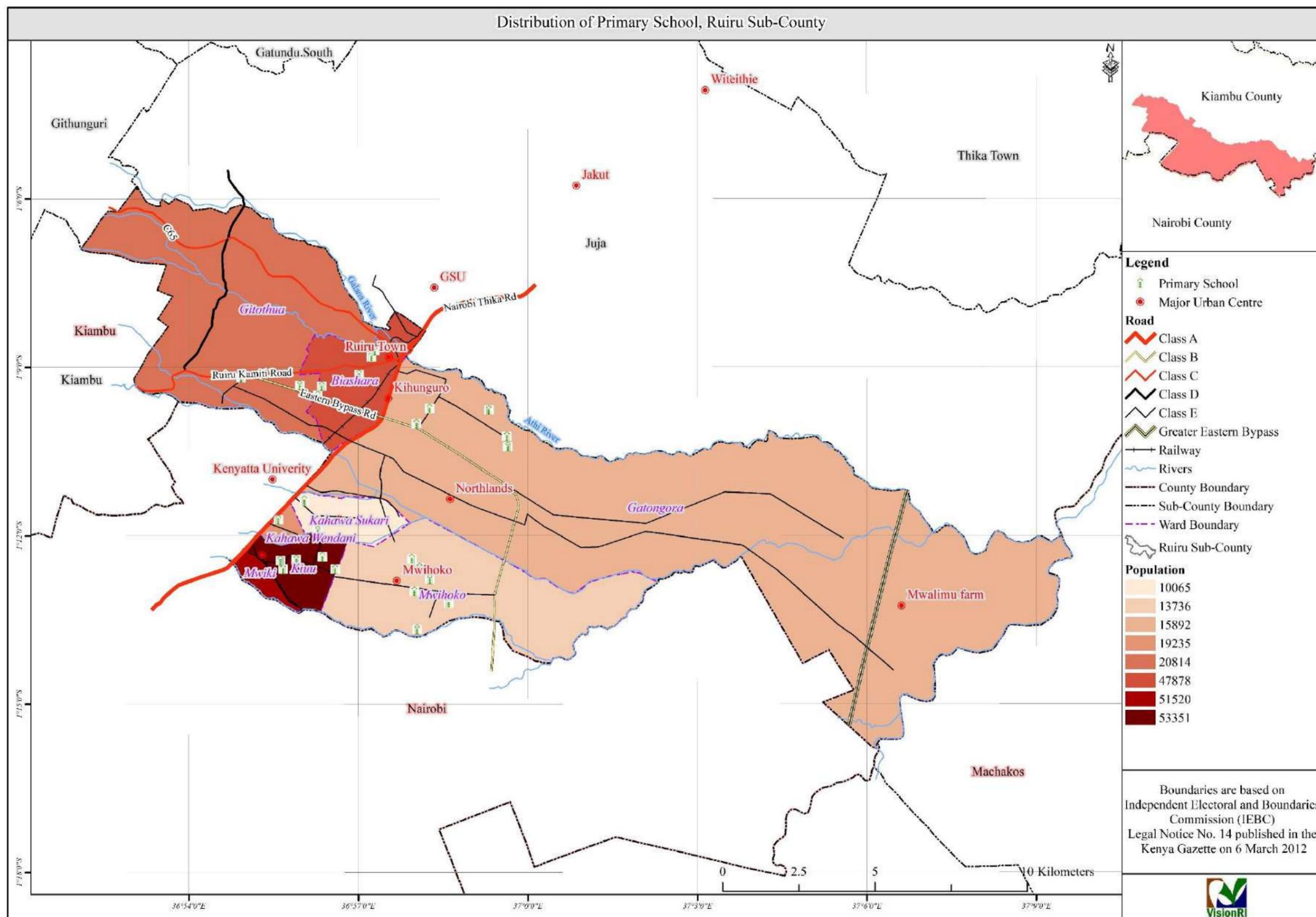
The right to health is a fundamental human right guaranteed in the Constitution of Kenya. Article 43 (1) (a) of CoK provides that every person has the right to the highest attainable standard of health, which includes the right to health care services, including reproductive health care.

The Kenya Health Policy 2014-2030 sets out standards of access to health care. Key to these standards is the requirement for a hierarchy of health facilities of levels 2, 3 and 4 in a Sub-County in order to facilitate referrals. Another requirement is that residents travel no more than 5 kilometres to a health facility.



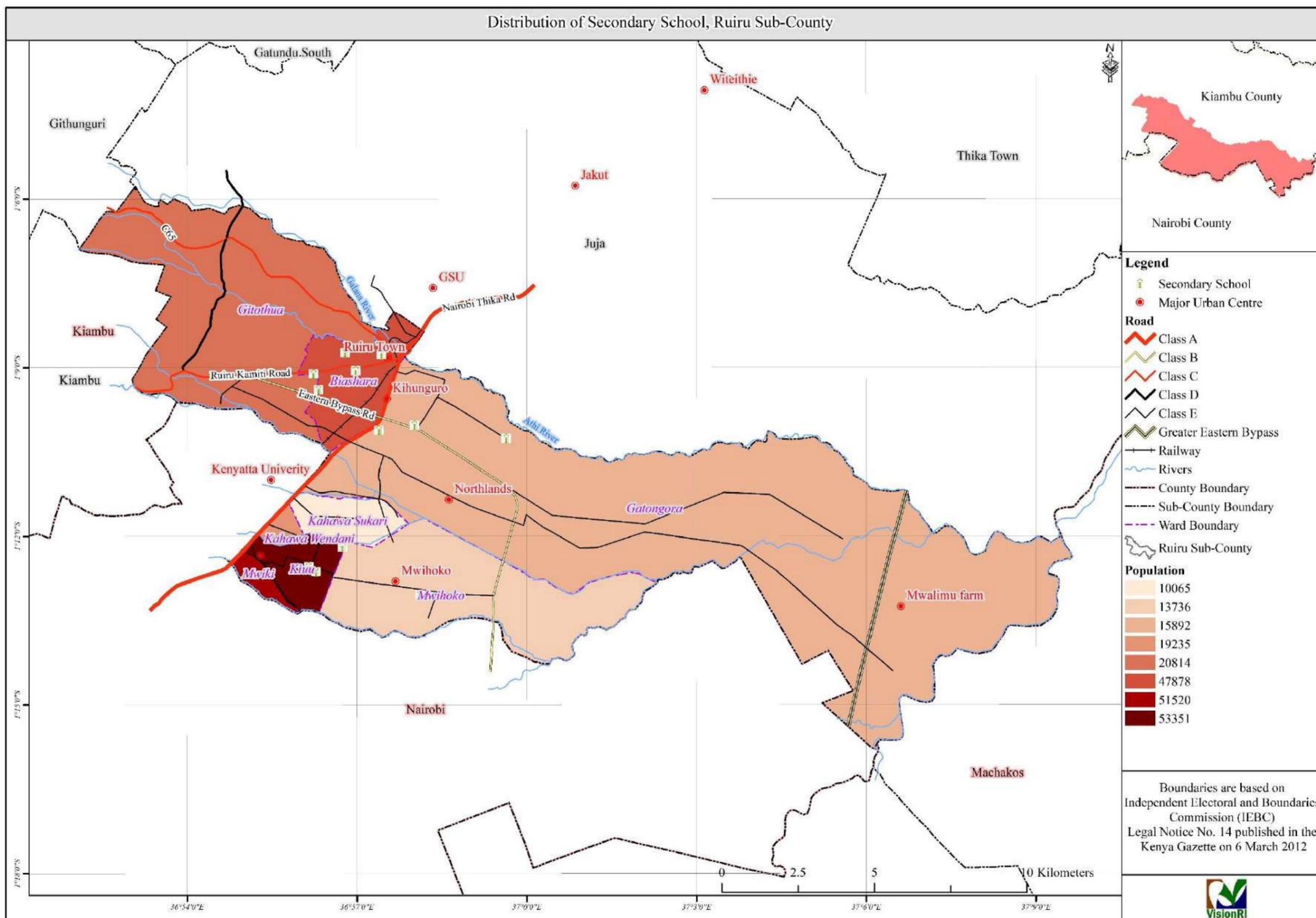
Map 9-1: Educational Infrastructure

Source: VisionRI Field Survey



Map 9-2: Distribution of Primary Schools

Source: VisionRI Field Survey



Map 9-3: Distribution of Secondary Schools

Source: VisionRI Field Survey

The World Health Organisation (WHO), on the other hand, in its World Health Report 2010, sets out the standard of 34.5 skilled health professionals per 10,000 people. These national and international standards of practice require a combination of staffing and facility development to achieve. It is the practice around the country for Sub-counties to have at least one public hospital of level 4 status to manage referrals from dispensaries and health centres.

9.2.2 CATEGORIES AND HIERARCHY

There are a number of public dispensaries, health centres, and hospitals in the Sub-County. These are however not commensurate to the population and sizes of major centres and their distribution does not ensure accessibility to all residents within 5 kilometres or less as shown on Map 9-4.

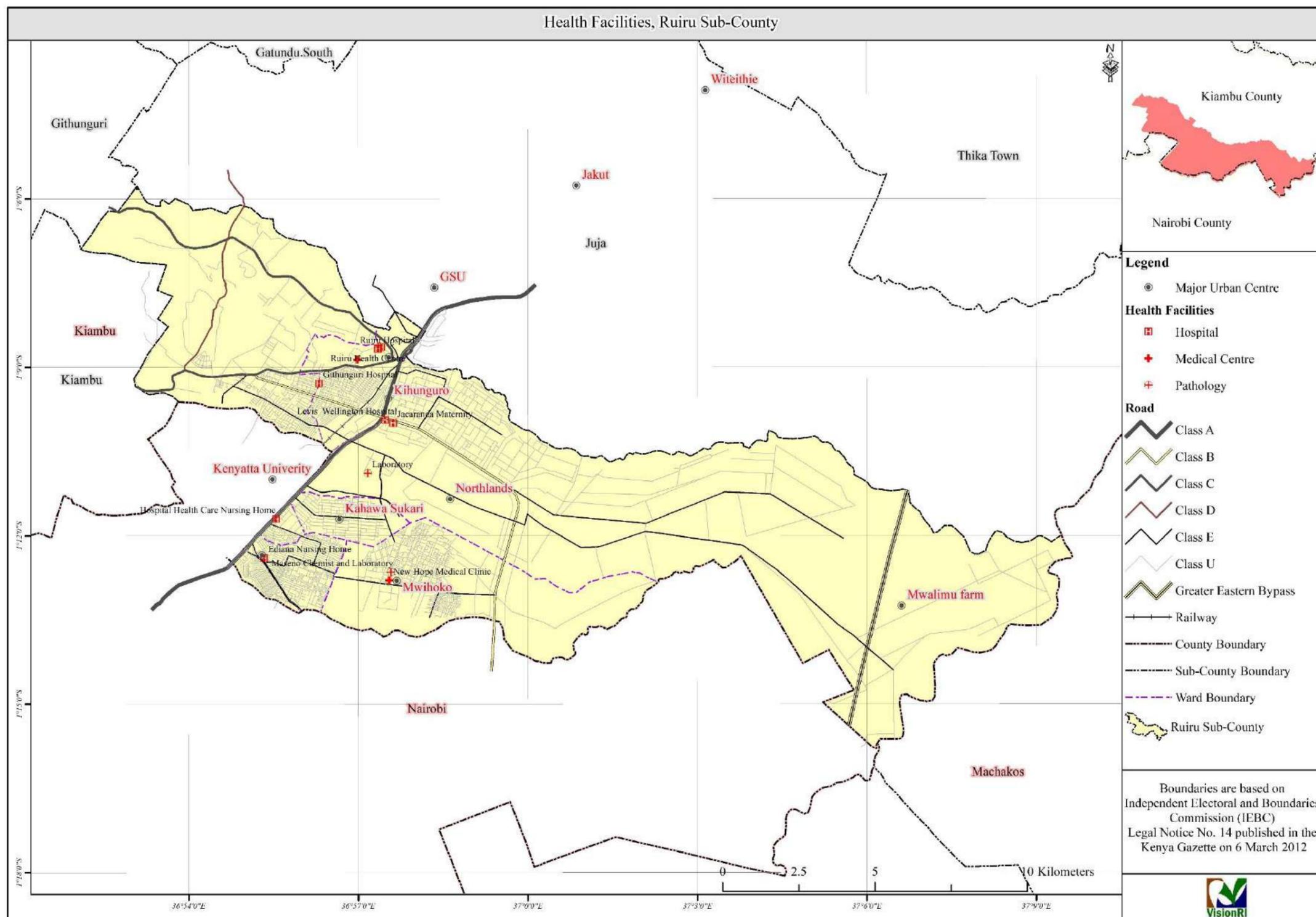
For instance, Kahawa Sukari, Mwiki and Mwhoko have respective population catchments of about 10,000 people and require health centres with maternity facilities as per the Physical Planning Handbook. There are two dispensaries (Mutonya and Githunguri), four health centres (Githunguri, Ruiru Prison, Wendani, and Rithika), and two hospitals (Ruiru District Hospital and Langata Hospital in Githurai).

Nonetheless, the hierarchy of health facilities in the Sub-County adheres to Kenya Health Policy, 2014 – 2030. A table summary of major hospitals and health centres in Ruiru Sub-County and their respective levels is given in Table 9-3.

Table 9-3: Distribution of Health Facilities in Wards

Ward	Facility	Level
Biashara	Ruiru Sub-county Hospital	IV
	Githunguri Health Centre	III
	Nazareth Hospital	Private
Kiuu	Githunguri-Langata Health Centre	III
Gatong'ora	Mutonya Dispensary	II
	Arcade Medical Centre	Private
	Plainsview Nursing Home	Private

Source: Field Survey 2018



Map 9-4: Health Facilities Distribution

Source: VisionRI Field Survey

9.3 Other Social Facilities

9.3.1 LAW ENFORCEMENT, SECURITY AND URBAN SAFETY

- i. **Police Stations/Posts, Courts, Prisons, Chief's camps:** The Sub-County hosts the Ruiru Police Station and four police posts and patrol bases. The introduction of Neighbourhood Watch Community Policing (Nyumba Kumi Initiative) has strengthened the police and the local residents' partnership hence curbing crime in the urban area. There are several chiefs' camps located at the ward level. Ruiru is also home to the Ruiru National Prisons Training College.
- ii. **Religious Facilities:** There are many religious institutions in Ruiru Sub-County including Christian churches and mosques. These need to be planned in terms of location and line with environmental laws and regulations with special regard to noise.
- iii. **Fire Stations:** Fourth Schedule, Part 2 of the Constitution of Kenya, stipulates that the County Government should provide for firefighting and disaster management services to its residents. Further the Kiambu County Emergency Fund Act 2013 was enacted in December 2013. In each financial year, monies contained in the fund are 0.5% of the Counties budget. The purpose of the fund is to enable payments to be made in respect of a County when an urgent and unforeseen need for expenditure arises for which there is no specific legislative authority, and it is for the public interest. This payment may be necessary to alleviate the damage, loss, hardship, or suffering which may be directly caused by an unforeseen event.

The Directorate of Public Works and Utilities has put in place measures for emergency fires and accident in the fire and rescue section. There are plans underway to build capacity within the township to ensure timely fire response. There is one fire station located close to the Ruiru Sub-County office with 10 staff which is operational throughout.

Other achievements of the Fire and Rescue Department include reduction of emergency response time, fire safety and audit, training of fire officers and installation of fire hydrants. Table 9-4 shows the status of fire engines in the Sub-County.

Table 9-4: Available Fire Engines

Sub County	Fire Engine/Vehicles	Status
Ruiru	One 4,000L Fire Engine	Serviceable
	One 400L Rapid Intervention Vehicle (RIV)	Serviceable

Source: Department of Roads, Transport, Public Works and Utility Services

- iv. **Cemetery and Crematoria:** According to the County Department of Health Services, there is one public cemetery, the Kiratina Cemetery, located in the Gatongora ward. However, many local people bury their dead on private land across the Sub-County. Those who do not own a freehold property, mainly tenants, prefer to transport their departed relatives to their ancestral

homes for burial. There is a need for allocation of adequate land for more public cemeteries and crematoria.

- v. **Slaughterhouses:** Ruiru Sub-County has two privately owned Abattoirs as shown in Table 9-5.

Table 9-5: Slaughterhouses in Ruiru

Name of Slaughterhouse	Location	Throughput	Land size(acres)	Category
Ruiru Municipal House	Ruiru Town	30 bovines	10	B
Ruiru Pig S/H	Ruiru Town	5 Pigs	1.2	C

Source: Department of Agriculture, Livestock and Fisheries

- vi. **Rehabilitation Centres, Children Homes and Elderly Care Centres:** According to Ruiru Sub-County's Ad-Hoc Committee Report of May 2018, the County Assembly of Kiambu, through Kiambu County Alcoholic Drinks Control Act 2018, established a framework for licensing and regulation of the production, sale, distribution, consumption and outdoor advertising of alcoholic drinks. The Act established a Directorate whose functions are to coordinate the establishment, implementation and operations of alcohol treatment and rehabilitation facilities and programmes. Section 5 (2) (e) of the Act mandates them to undertake research on alcohol-related matters and disseminate findings. Further, the Third Schedule of the Act outlines Licence Fees to be paid by bar owners.

Ruiru Sub-County works closely with the security agencies, National Campaign on Drugs and Substance Abuse (NACADA) and other non-governmental Organisations (NGOs) to ensure enforcement of laws concerning the prevention of sale and rehabilitation of users of drugs and substances.

There are several faith-based and privately-owned care centres taking care of children, the elderly and rehabilitation. The survey did not establish any county-operated facilities.

- vii. **Markets:** There are three markets in Ruiru Sub-County, namely Ruiru, Githurai and Mwana mwikia. Ruiru and Mwana mwikia markets are open-air and sell foodstuff and clothes while Githurai, also an open market, only sells foodstuff. Some of the key challenges facing these markets include lack of proper waste disposal mechanism in the markets, poor infrastructure, poorly constructed stalls, traffic conflicts, etc.
- viii. **Sports and Recreation:** Like in other parts of the country, the Sub-County lacks sports and recreation facilities. There is, however, land set aside for a stadium, which has been developed into a football pitch (Ruiru Stadium).

There is no social hall with in-door games within the planning area. The Sub-County only has institutional playgrounds as the only public spaces where only students have access.

- ix. **Public Parks and Playgrounds:** Ruiru Town has a small public park and that is the only one in the Sub-County. There are no public playgrounds of any description for local people to use except for the institution playgrounds where only enrolled students have access.
- x. **Heritage:** There were no identified cultural heritage sites in the Sub-County.

9.4 Emerging Issues on Social Infrastructure

Table 9-6: Emerging Issues on Social Infrastructure

Focus Area	Key Challenges	Opportunities
Education facilities	<ul style="list-style-type: none"> Meeting the challenge of providing educational facilities for the growing population; and Raising the technical skill of the youth. 	<ul style="list-style-type: none"> Ensure appropriate budgetary allocation for: <ul style="list-style-type: none"> Construction of extra classrooms in existing urbanising areas and new schools to keep pace with demographics dynamics especially in Gatongora and Mwalimu Farm; and Teacher staffing and curriculum compliance at all schooling levels. Develop more technical and vocational training centres.
Health Facilities	<ul style="list-style-type: none"> Ruiru has several health facilities but some of its areas are not adequately served; and Private sector health providers. 	<ul style="list-style-type: none"> Use of Kenya Health Policy guidelines to inform the distribution and provision of health facilities; Active private and faith-based sectors in health service provision; Availability of land to upgrade existing facilities; and Strong County health delivery system.

Focus Area	Key Challenges	Opportunities
Other Social Facilities	<ul style="list-style-type: none"> • Inadequate social facilities to support rapid population growth; • Encroachment of public land by private developers; • Mushrooming of religious centres in residential areas causing noise pollution; • Fire disasters; • Few burial sites; and • Culture of people burying in their plots. 	<ul style="list-style-type: none"> • Government intervention in the provision of social facilities; • Use community and NLC to identify public land illegally occupied; • Adherence to planning and environmental guidelines; • Upgrading of fire stations, equipment and personnel; and • Availability of planning standards and guidelines in provision for land for these services.

Source: VisionRI

10 ECONOMIC ANALYSIS

10.1 Local Economy

Ruiru is the fastest-growing Sub-County in the NMR and given the on-going and projected population boom and continued commercial and residential developments, it is essential that the benefits of the demographic dividend are reaped through economic planning.

Ruiru's population economic potential stands out and according to the SPC for NMR, 31.69% of Ruiru residents are employed. While 12,268 persons (5% of the total population) are formally employed, 63,426 are employed in the informal sector (27% of the total population) as shown in Figure 10-1. The formal to informal sector employment ration is projected to change considerably over the next 15 years (from 1:5 presently, to 1:2 by 2030).

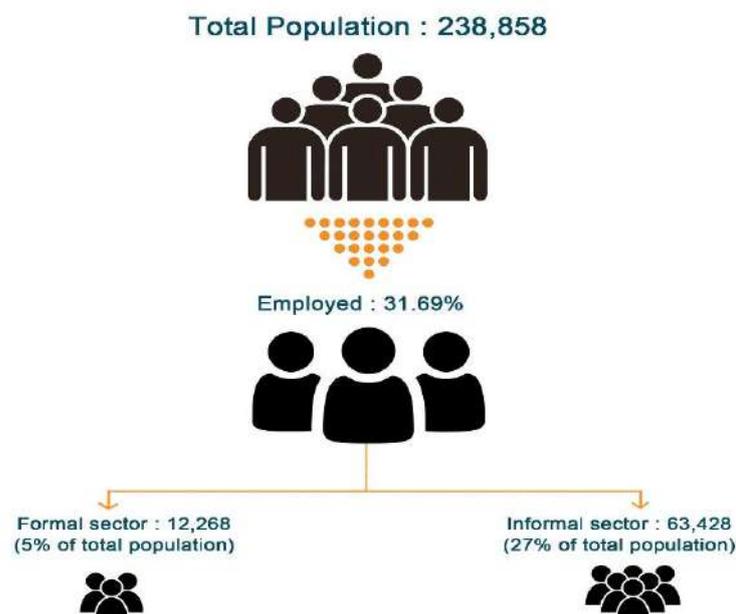


Figure 10-1: Population/Employment Ratio

Source: Spatial Planning Concept for NMR

Key Commercial Activities: Current State

Small-scale businesses: Retail shops, bookshops, butcheries, hair salons, groceries, clothes, electronics, vegetables and fruits, furniture, wine and spirit, Jua Kali Activities.

Medium-size businesses: Supermarkets, hardware shops, resto-bars, petrol stations, regional and national banks.

Education: Primary schools, secondary schools and tertiary institutions.

It must be mentioned that employment in Ruiru reflects two major components: in-town employment, and labour services exported to Central Nairobi and other areas within the NMR. While it currently acts as a 'dormitory town' for many, Ruiru is also a major exporter of labour services. Much as Ruiru is Nairobi's dormitory town, its revenue growth has not kept pace with its population growth as the businesses that employ the majority of Ruiru's labour force are based in Nairobi and pay their taxes in Nairobi⁸. Ruiru's extensive potential for self-nurture economic growth is therefore expected to create employment opportunities within the Sub-County. The ratio of in-town employment to the export of labour force is expected to go up in the future as commercial and business activities in the Sub-County accelerate, and a higher portion of residents are expected to be employed in Ruiru itself.

Qualifying it as a commercial, trading and industrial hub, the largest portion of the population (over 55%) in Ruiru Sub-County is engaged in the tertiary (service) sector activities, comprised of small and medium enterprises, education institutions and jua kali activities (informal sector). Agriculture accounts for 26.67%, construction at 6.48%, manufacturing at 5.92% and transportation at 5.77% as illustrated below.

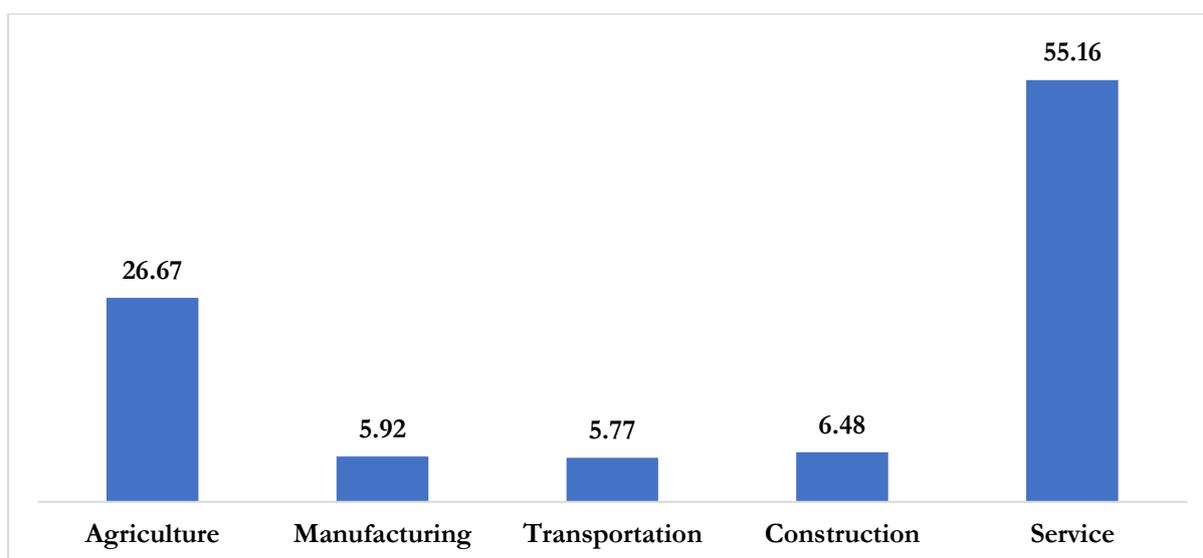


Figure 10-2: Occupation Distribution

Source: Spatial Planning Concept for Nairobi Metropolitan Region, Government of Republic of Kenya, 2012

10.2 Agriculture

Coffee is the main cash crop grown. There are still some large coffee estates in the peri-urban and rural areas of Ruiru. These are located in the North-Western parts of the planning area, transitioning into Githunguri Sub County which is more rural in character. The main food crops include maize, beans, kale, and

⁸ Regional Development of Metropolitan Nairobi and the Ruiru Master Plan, Centre for Sustainable Urban Development, The Earth Institute at Columbia University.

bananas as illustrated below. Other crops include cabbage, sweet potatoes, tomatoes, onions, and cassava. Ruiru by itself does not produce enough maize and beans to feed the local population, resulting in the importation of cereals and beans from other regions.

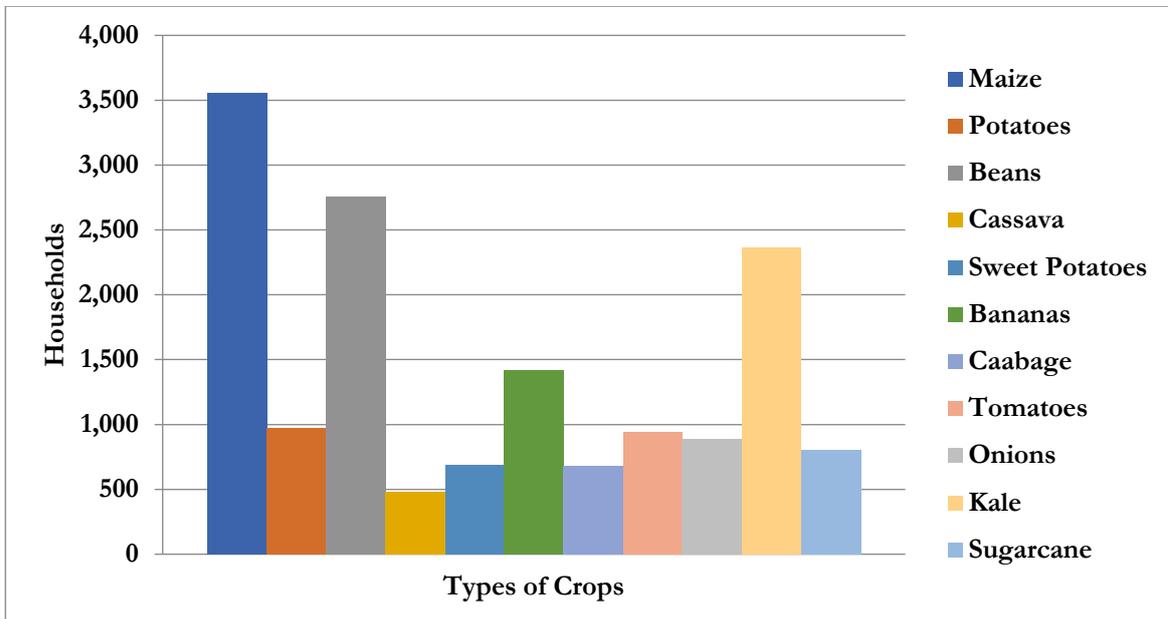


Figure 10-3: Distribution of Types of Crops Grown

Source: KNBS 2019

Other than the above, it is worth noting that there has been a marked rise in new ventures into floriculture specialising in summer flowers targeting the export market.

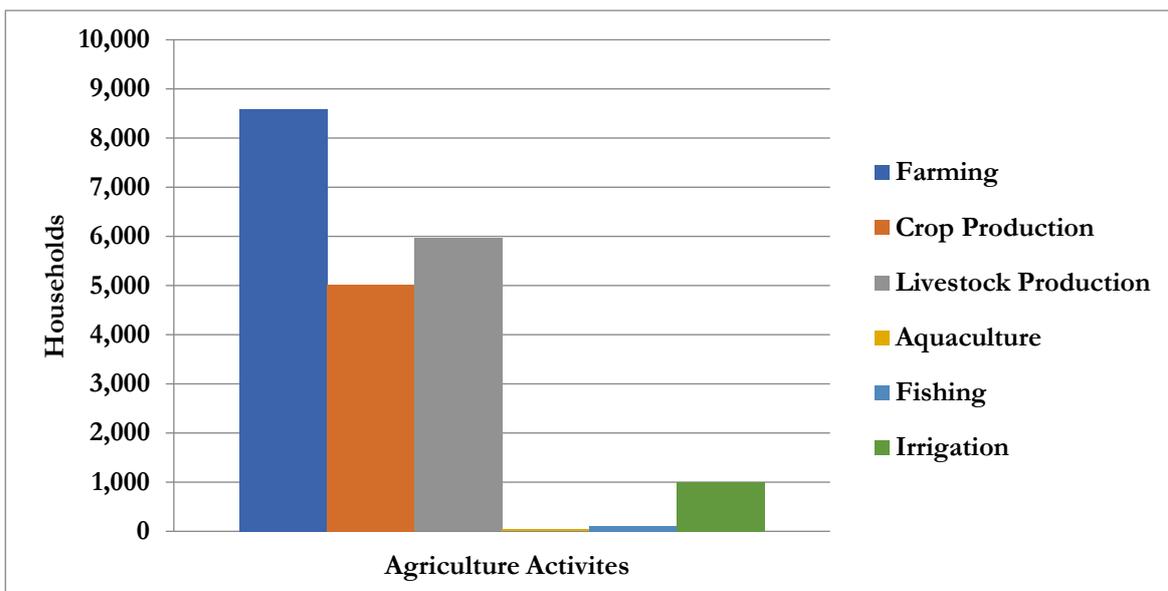


Figure 10-4: Distribution of Households Practising Agriculture, Fishing and Irrigation

Source: KNBS 2019

The majority of the population in Ruiru practise livestock production, with 4,402 households having indigenous chicken rearing as the highest and main livestock. This is followed by goats, exotic layer chicken and exotic cattle dairy as the other main livestock types. Consequently, animal feed manufacturing is also a big business serving about 27% of the population that is engaged in agricultural activities.

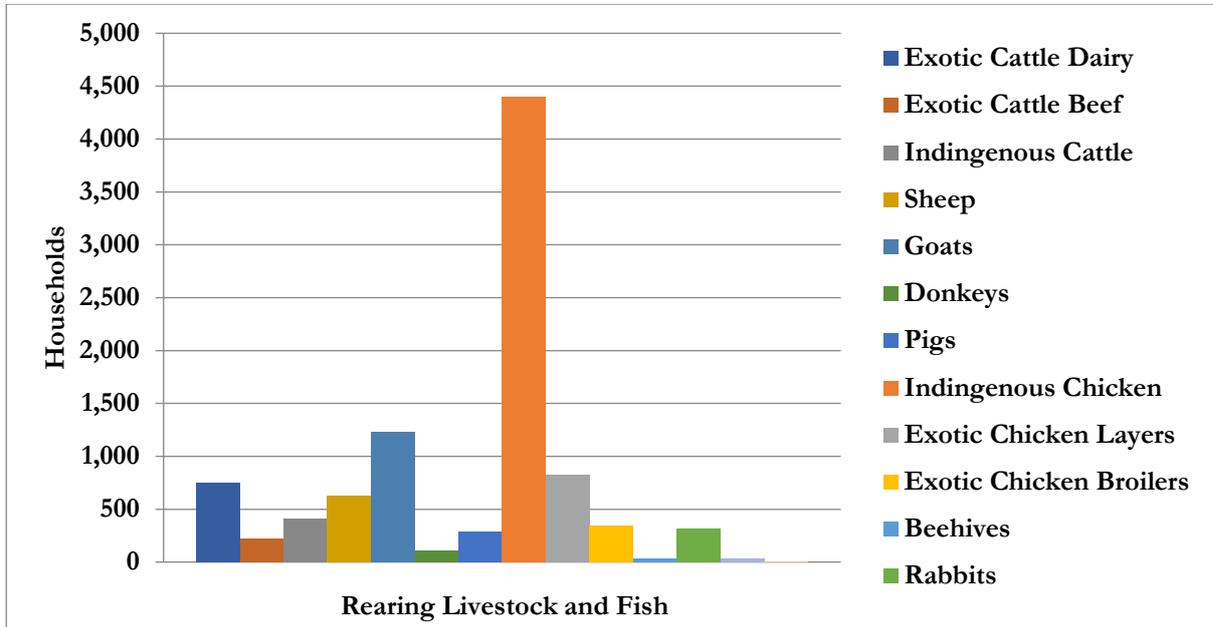


Figure 10-5: Distribution of Households Rearing Livestock and Fish

Source: KNBS 2019

Due to the widespread agricultural activities, the Agricultural Mechanisms Service (AMS) based in Ruiru, a government agency, provides support for mechanisation services to farmers. Similarly, the Agricultural Technology Development Centre provides advisory and specialised training to farmers.

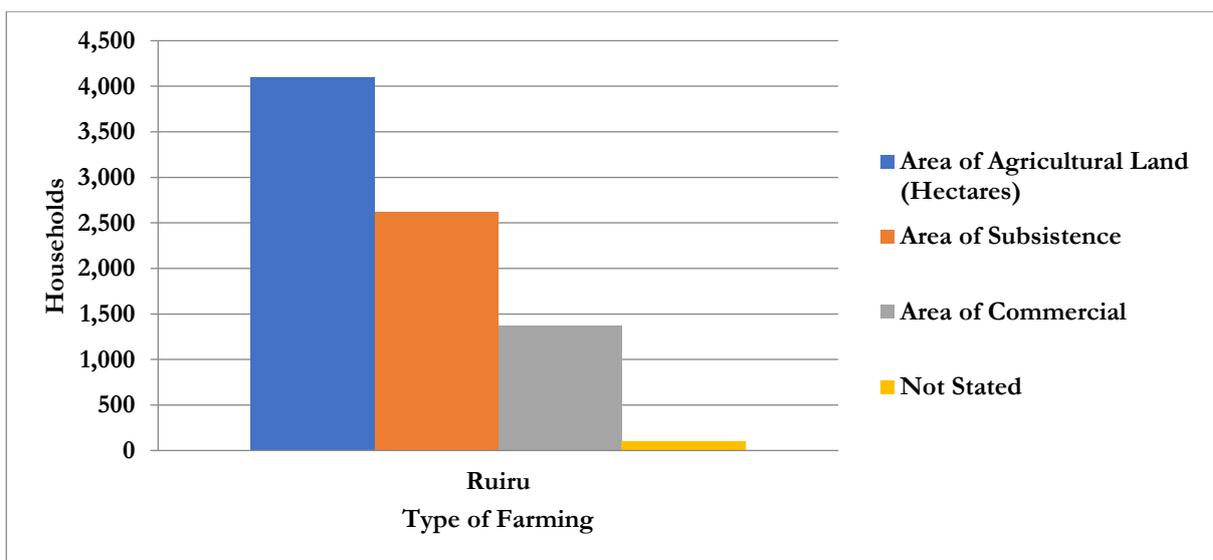


Figure 10-6: Distribution of Agricultural Land by Type of Farming

Source: KNBS 2019

However, agriculture in Ruiru has faced a decline due to low returns in coffee and sisal. The large-scale sisal plantations have been replaced by urban developments and other small-scale farming activities. There has been weak enforcement and implementation of agricultural policies such as in coffee farming, leading to a decline in prices, with farmers opting for real estate investment.

10.3 Trade

The evidence from field tours and synthesis on the informal and the micro-enterprise development in Ruiru underlines the fact that there is a critical mass of investment that forms the backbone of the local economy. These are spread across formally established markets listed in Table 10-1 and private commercial premises and further spread onto informal set-ups such as road reserves and public open spaces. The diversity in these trading activities provides an interest in the distinction between the subsistence and the entrepreneurial potential through associational activity such as pursuing openness of trading opportunities and mechanisms for collective engagement with the government and other relevant institutions.

Table 10-1: Markets within Ruiru Sub-County

Ward	Name of the Market	Market Status
Biashara	Ruiru	Temporary Open-Air Market
Kahawa Wendani	Kahawa Wendani	Permanent/Stalls
Mwiki	Githurai	Open Air Market
Mwiki	Mwana Mwikia phase I	Open Air Market

Source: Department of Trade, Tourism, Cooperatives and Enterprise Development

- i. **Small and Medium-Sized Enterprises (SMEs):** In the concept of the dual economy in the context of Ruiru, the informal economy tends to be the most important source of livelihoods for people and the poor in particular. The cost of being in the informal sector versus the formal sector is more positive in the sense that some costs such as certain tax thresholds can be avoided. In the SME environment, Ruiru is punching way below its weight considering its uncontested urbanisation. As it stands the classification below is generic by way of whether small or medium depending on what types of products are within reach and which activities are most likely to create conditions to invest, expand and create wealth.
 - a) **Small Enterprises:** Various small-scale businesses such as retail shops for food-related commodities, footwear, bookshops, butcheries, hair salons, groceries, garments, electronics, vegetables and fruits, furniture, wines and spirits are most common in the Sub-County. There is also a section of the community involved in artisan workshops (jua kali) activities such as shoemaking, welding, carpentry, tailoring, plumbing, blacksmithing, and repairing.
 - b) **Medium Enterprises:** There are several medium-sized businesses spanning across the Sub-County such as auto serving and spares, construction and interior design products

shops and supermarkets with anchor brands such as Quickmart rolling out branches, hardware shops, resto-bars, fuel stations, regional and national banks, and micro-finance institutions.

Ruiru's trading environment viewed in the urbanisation prism remains the unpolished diamond. The implementation of some of the basic integrated strategic planning principles together with the reduction of barriers to access business development services and finance are needed to spur these enterprises.

- ii. **Special Economic Zones (SEZs):** The Kenyan government has enacted incentives to spur the private sector in the development of Special Economic Zones. Logistic and Industrial Parks are some of the enterprises targeted to set up and complement the government's efforts to plug into the infrastructure deficit and improve the business environment. Ruiru has so far recorded impressive investments, with the establishment of large-scale developments such as Tatu City and Northlands City.
- iii. **Banking and Finance:** The major banks include Cooperative, Equity and Family Bank. There are a number of microfinance institutions offering support to small-scale and lower-income traders. According to the Department of Trade, Tourism, Co-operatives and Enterprise Development, there are 130 registered SACCOs which are mainly in transportation, housing development, land-buying and agricultural-based enterprises.

10.4 Industry

Devki Steel Mills, Brookside Dairy, Super Foam, Ruiru Feeds, and Spinners Garment Factory, amongst others, are some industries in Ruiru offering direct employment. About 6% of the population is employed in the manufacturing sector and another 6% is engaged in construction activities. These sectors are expected to continue providing a substantive base to industrial growth in the Sub-County and NMR. The construction boom and infrastructural expansion around Ruiru will have backward linkages and lead to the expansion of some key industries in the Sub-County.

10.5 Mining

The main mining activity in Ruiru is the quarrying of building materials. There are several quarrying operations, primarily for stones and ballast that are available in abundance for use in local developments and those in neighbouring regions. Stone cutting is an additional employment source for local residents. Despite quarrying being a major economic activity in the area some of the challenges include derelict quarrying sites which pose safety and environmental hazards.

10.6 Tourism and Hospitality

Ruiru has no cultural and heritage attraction sites or tourism circuits as recorded by the Department of Trade, Tourism, Co-operatives, and Enterprise Development. However, there is potential for the creation of opportunities for both. One notable hospitality facility is the Ruiru Golf Club offering golf, lawn tennis, snooker games, bowling, and swimming. The opportunities range from the promotion of MICE Tourism

through the development of high-class hotels, conference, and convention centres to the establishment of theatres, galleries and even the promotion Sub-County level-cultural and art festivals.

10.7 Emerging Issues on Economy

Table 10-2: Emerging Issues on Economy

Focus Area	Key Highlights	Opportunities
Local Economy	<ul style="list-style-type: none"> Ruiru is an industrial, commercial and transport centre. 	<ul style="list-style-type: none"> Accessibility: Ruiru Sub-County is well interlinked as it is served by major road corridors such as Nairobi-Thika Superhighway, Eastern Bypass as well as a railway-line that play a major role in the growth of business activities. The Eastern By-pass has been a major contributor to the growth of the local Sub-County economy and its proximity to Nairobi CBD and its location mid-distance to Thika is also instrumental in its economic growth; Investment attractiveness: The presence of banking and financial institutions supported by a well-developed network of industrial, commercial and transport is a key factor for the investment attractiveness of the Sub-County; Population growth: The substantive migration, high birth rate, and commodities market is a boost for industrial and agricultural products, housing, and other services; Real Estate Investment: Ruiru is arguably amongst NMR's real estate hubs with no end in sight for even more and better opportunities; Development of industrial parks; and Investments in Special Economic Zones.
Market Facilities	<ul style="list-style-type: none"> Few markets; Inadequate infrastructure support; and 	<ul style="list-style-type: none"> Kenya Urban Support Programme on social infrastructure; and Major source of employment.

Focus Area	Key Highlights	Opportunities
	<ul style="list-style-type: none"> Hawking and open markets along road reserves. 	
Infrastructural Gaps	<ul style="list-style-type: none"> Poor road network: Although most roads within Ruiru Town are in good condition, access roads to other parts of the Sub-County are narrow and poorly maintained. Poor stormwater drainage makes the roads inaccessible and impassable during rains; and Scarcity of water: The main water sources are boreholes and rivers – both of which are seasonal. The limited water supply Sub-County hinders many economic activities particularly those related to agriculture. 	<ul style="list-style-type: none"> Existing interior road network that can be improved; and Presence of RUJWASCO and Athi Water Services Board that support the expansion of water supply capacity.
Financial Capacity	<ul style="list-style-type: none"> Presence of financial institutions ranging from banks, SACCOs and community-saving groups; and Financial systems that do not support the informal sector. 	<ul style="list-style-type: none"> Support of micro-finance institutions, targeting the low-income and informal employment sector; and Emerging strong group savings culture.

Source: VisionRI

11 INSTITUTIONS AND GOVERNANCE ANALYSIS

11.1 Introduction

There are two major transformations standing out in Kenya today that will be significant in conditioning its global competitiveness: Institutional transformation for the devolution of power to the local level and the progressive urbanisation across the country. The rapid growth of the urban population in Kenya is the direct result of a shift in the balance between the urban and rural economies influenced by these institutional changes. In all the 47 counties, towns remain the dominant focal point of both public and private sector activities. Kiambu County provides powerful reasons underlying this defining phenomenon. Ruiru's sharp rise in population in the last decade and the sheer numbers of urban activities gives perhaps the clearest indication facing Kenya's urbanisation processes.

The analysis in this chapter simply puts the emphasis on this transformations from the local government framework under the defunct constitution that failed to provide adequate legal, administrative and technological support for urban development to cope with urbanisation challenges. The turning point came in 2010 with the current constitution providing fundamental governance restructuring as illustrated in Figure 11-1. The conferment of greater authority to county governments remains the biggest litmus test to achieve sustainable urban development.

11.2 Mandate and Role of County Government

The Constitution postulates that there are two levels of government: National and County. Distinct as they may be, they are interdependent and given that the government in Kenya is unitary, the two levels are required to observe and adhere to the provisions of the Constitution. County governments are the embodiment of devolution achieved through decentralised units and structures provided under Articles 174 and 175 of the Constitution. The County Government's institutional structure comprises of two arms, namely County Assembly and County Executive.

11.2.1 THE COUNTY ASSEMBLY

The responsibilities of the County Assembly include exercising as an oversight instrument over the County Executive, enacting laws at the county level and approval of plans and policies for the day-to-day operations and management of resources.

11.2.2 THE COUNTY EXECUTIVE

The County Executive Committee is the implementing organ of programmes and projects that have been approved by the County Assembly. The County Service Board provides human capacity for local development at all levels.

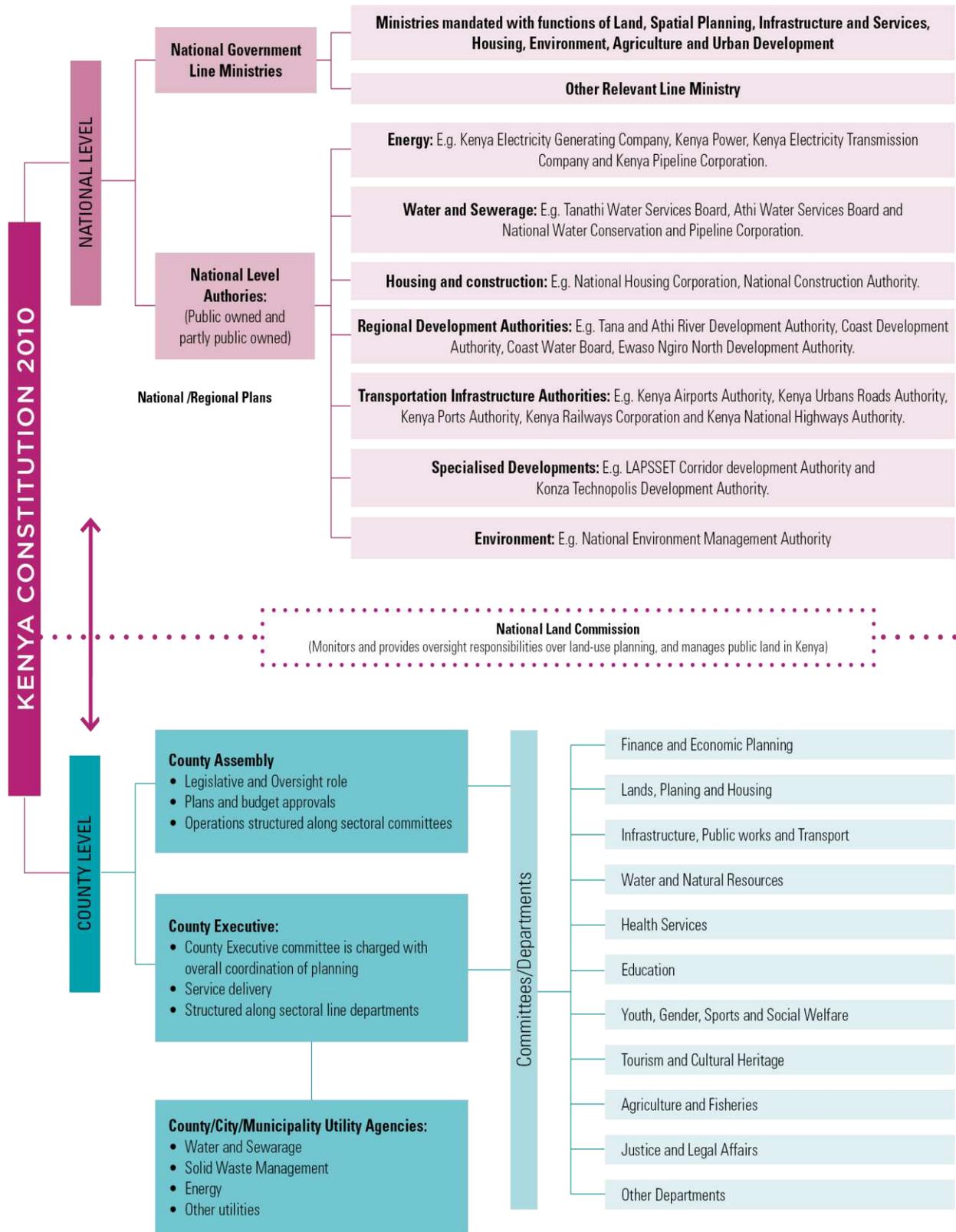


Figure 11-1: Institutional Linkages between National and County Government Stakeholders

Source: Urban Planning for City Leaders Handbook

11.2.3 BOARDS OF MUNICIPALITIES

The Urban Areas and Cities Act states that the management of a city and municipality shall be vested in the county government and administered on its behalf. The role of the Municipal Boards is guiding urban growth, regulating development, and setting priorities for urban environmental action. The key principle in the devolution system is the recognition of the fundamental relationship between the boards and their respective county governments. In other words, they operate on delegated authority from the county government. There is an existing Municipal Board for Ruiru Sub-County which was formed in 2018. However, it was found that though the Board was established, they are experiencing some teething challenges which include the lack of an existing delivery structure to enable it to execute its functions. Apart from the Municipal Manager, the rest of the technical and support directorates have not been fully established. There is still a reliance on the Sub-County Executive to execute Municipal Board functions.

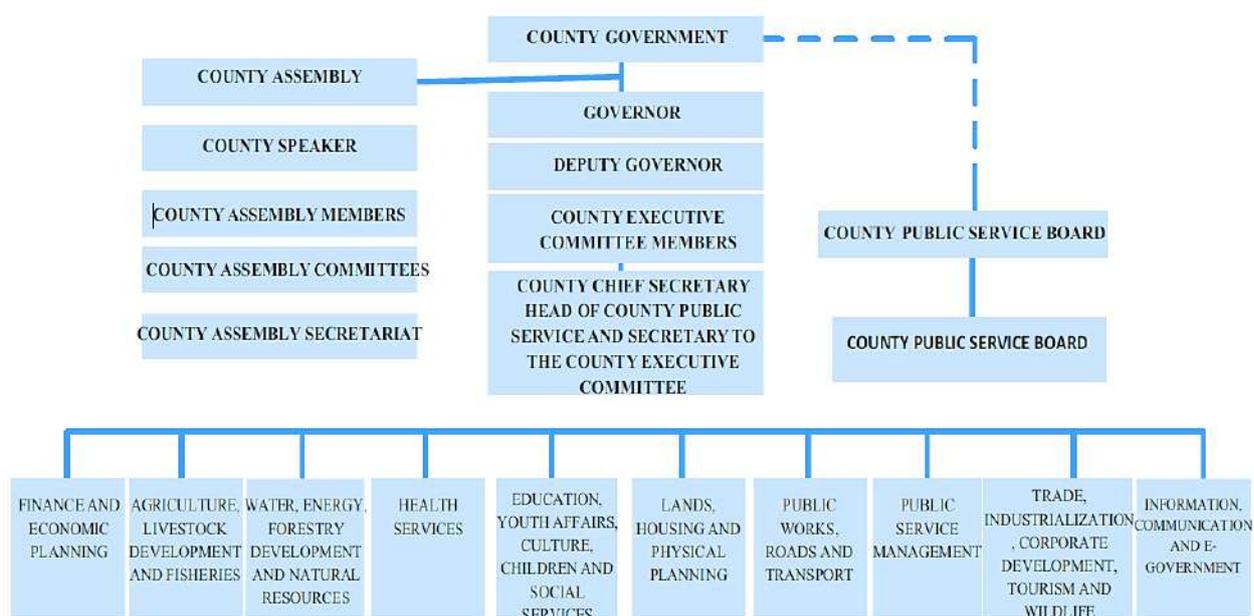


Figure 11-2: County Government Structure

Source: VisionRI

11.2.4 DEVOLVED UNITS

The decentralised units⁹ comprise the urban areas and cities within the county establishment, sub-counties which are equivalent to the constituencies, wards, and village units. Ruiru Sub-County consists of eight wards, namely: Gitothua, Biashara, Gatong'ora, Kahawa Sukari, Kahawa Wendani, Kiuu, Mwiki and Mwihoko.

11.3 Governance

11.3.1 PUBLIC PARTICIPATION

The engagement of stakeholders is a critical factor in satisfying community needs and improves the effectiveness of decision making. These objectives are well provided for in the Constitution of Kenya, 2010

⁹ County government act Section 48

(Articles 174, 201 and 232); the County Governments Act, 2012 (Section 47, 91, 99-100); Public Finance Management Act, 2012 (Section 125, 128, 131 and 137); and Urban Areas and Cities Act, 2011 (Section 21 and 22).

Comments raised by the public in the planning clinics, land development applications and associations in the Sub-County are regularly documented and reviewed by the county planning authorities with the County Executive Committee.

As earlier stated, the Kiambu Community and Neighbourhood Associations Engagement Act 2016 gives the local communities a statutory role in complementing county government service delivery. Further, the Kiambu County Citizen Petition and Participation Act 2015 prescribes conditions for public participation in the administration and management of the county for its development and associated purposes.

11.3.2 ISUDP STAKEHOLDERS PROFILING

For purposes of preparing this ISUDP, public participation was broad-based with stakeholders from both the public and private sectors. Table 11-1 shows the targeted stakeholders that guided concerted participation initiatives.

Table 11-1: Targeted Stakeholders

Targeted Stakeholders	
National Government	Public health and environment
County Government	Utility Service providers
Government Agencies/Parastatals	Informal businesses
Area Member of Parliament	Residential Associations
Sub-County Administrator	Non-Governmental Organisations
Ward Administrator	Community- Based Organisations
MCA's	Religious Institutions
Deputy County Commissioner	Transport Sector
Sub-County departments	Farmers
Local Community	Traditional & cultural centres
Professionals from the private sector	Minority and marginalised groups
Business community	Youth
Women	

Source: VisionRI

Stakeholders were spatially mapped and carefully profiled to ensure fair representation across the planning area. The objective of this approach was to have a broad-based citizenry that actively participates in governance affairs with enhanced local knowledge, understanding to determine desired goals and ownership of the process.

11.3.3 INCLUSIVITY (MINORITIES AND PEOPLE LIVING WITH DISABILITIES [PLWDS])

The County Government Act 2012 Section 97 prescribes mechanisms to protect the marginalised and minorities within counties pursuant to Article 197 of the Constitution.

- i. Protection of marginalised and minority groups from discrimination and the treatment of distinction of any kind, including language, religion, culture, national or social origin, sex, caste, birth, descent, or other status.
- ii. Non-discrimination and equality of treatment in all areas of the economic, educational, social, religious, political and cultural life of the marginalised and minority groups.
- iii. Special protection to vulnerable persons who may be subject to threats or acts of discrimination, hostility, violence and abuse as a result of their ethnic, cultural, linguistic, religious, or other identities.
- iv. Special measures of affirmative action for marginalised and minority groups to ensure their enjoyment of equal rights with the rest of the population.
- v. Respect and promotion of the identity and characteristics of minorities.
- vi. Promotion of diversity and intercultural education.
- vii. Promotion of effective participation of marginalised and minority groups in public and political life.

11.3.4 STAKEHOLDER MEETINGS

Public participation mechanisms were applied with the assistance of the Department of Social Services, various stakeholders representing various groups, agencies, and government departments. The first stakeholders' workshop was convened on the 31st July 2018 where the findings on the situational analysis were presented. Uncaptured issues in each sector were brought out in the workshop deliberations. Following the preparation of the draft report, a meeting with the County Technical Working Group was held on 7th September 2018 at Centurion Hotel in Juja, to evaluate and identify suitable proposed development models. The second stakeholders' forum was held on 21st February 2020 also at Centurion Hotel in Juja. The issues explored and resolved have been incorporated into this plan.

11.4 Emerging Issues on Governance and Stakeholders Participation

Table 11-2: Emerging Issues on Governance

Focus Area	Key Highlights	Opportunities
Governance Structures	<ul style="list-style-type: none"> Weak Coordination especially on physical planning matters due to lack of an approved plan. 	<ul style="list-style-type: none"> Approval of the ISUDP to assist in coordinating project implementation.
Mechanisms of Participation	<ul style="list-style-type: none"> Low levels of awareness on planning and other county operations. 	<ul style="list-style-type: none"> Use existing mechanisms to mobilise and educate the community on planning matters.

Inclusivity	<ul style="list-style-type: none">• Challenge in effectively reaching to PLWDs especially the deaf, dumb and the blind; and• Low levels of awareness on planning and other county operations.	<ul style="list-style-type: none">• Use of PLWD-friendly mode of communication;• Continuous updating of the stakeholders' database; and• Use of innovative social media information dissemination.
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Source: Vision RI

12 SYNTHESIS OF PLANNING ISSUES

12.1 Overview

The preceding chapters have provided an analysis of key thematic areas in the planning area. This chapter presents the detailed key issues to create a foundation for identifying and analysing the opportunities or potentials to guide the plan within the set horizon. The weaknesses and possible threats to such sustainable development are also identified.

12.1.1 KEY PLANNING HIGHLIGHTS

- **Location:** Ruiru's strategic location gives it a competitive edge in terms of ease of connectivity and global investment opportunities. The key national transit networks (roads, railway, and proximity to the JKIA) coupled with suitable land for development are boons of its growth.
- **Population and Demography:** Ruiru recorded high population growth in the 2019 population census making it the 4th largest urban centre, hence an epicentre of urban growth in Kenya. This presents the challenge of commensurate urban services for the rapidly growing urban population. An opportunity lies in the demographic dividend of a high youthful population that is educated and trained in skills that can bolster the economy of the town and the NMR region. The weaknesses associated with a lack of opportunities for gainful businesses or employment are at the forefront of reforms in urban governance and growth management to attract investors to create employment opportunities.
- **Natural Resources and Environment:** Ruiru's diverse natural resources include pleasant weather conditions, and the availability of water and stable rocks amongst others that provides supplies for construction materials. Unfortunately, the poor exploitation of these resources has contributed to pollution, water- and air-borne diseases and general environmental degradation. One key missing resource is natural vegetation due to depletion as a result of human settlement.
- **Economic Analysis:** There is a mismatch of the physical and social infrastructure to support the huge population such as markets and lack of well-distributed trading centres. The concentration of trading areas is along the Thika Superhighway at Githurai and Ruiru town. The hinterland lacks a properly structured trading and commerce environment. Ruiru has some major manufacturing industries which make the town a major industrial node in the County offering employment opportunities to hundreds of people. This contributes to the formal economy. However, the informal economy is also a major employer and has a huge potential for job creation and transforming the economy of the planning area. The upcoming of Tatu City and Northlands are major Special Economic Zones which are key to the economic turnaround across Ruiru. There is a need to strengthen the informal sector and provide them with support to enable them to grow into the formal sector.

- **Land Use Challenges and Management Systems:** Fast-paced urban development has moved ahead of formal land use planning leading to growth patterns that pose numerous development challenges such as linear or ribbon development along major highways, unsustainable land subdivisions, poor traffic flows and poor construction standards. Illegal and unauthorised developments continue unabated in the face of the high speculative investment opportunities in shelter provision and commercial activities. Unfortunately, the weak land management systems result in transactions leading to the registration of land parcels without planning input, and hence to uncontrolled development and land-use conflicts.
- **Urban Design and Public Spaces:** The character of any town or human settlement is guided by urban design standards. Ruiru town has undergone a drastic decline due to neglect of the existing CBD features and lack of a code to enforce new developments. Suck key features and streetscapes features, focal point monuments, street and park and NMT furniture's need to be reintroduced and enforced not only for a pleasant visual quality but also for the safety of the residents and visitors. Public open spaces and recreation centres serve a major social and ecological function in any urban environment. Ruiru suffers a severe shortage of these facilities from the neighbourhood and local level and other nodes like Githurai and Wendani lack formal urban design character.
- **Housing Analysis:** The housing analysis shows Ruiru as a preferred area for shelter provision for all categories of housing. High-end gated housing clusters and high-rise affordable housing have become a common marketing feature taking advantage of the existing and upcoming bulk infrastructure. This has been attributed to many people working in Nairobi and Thika preferring to reside in Ruiru. This has led to a deficit in the planning area to the tune of 14% and to try to bridge this gap. Private developers are coming up with poor housing units that defiantly require improvement given the availability of Ndarugu quarry stones and sand from the neighbouring county Machakos. There is a need for more appropriate technology that is user-friendly in terms of skills, labour requirements and cost. On a positive note, Ruiru's land prices are relatively affordable, therefore, 86% of the households have permanent housing units which are of a good standard.
- **Social Infrastructure:**
 - a) **Education Facilities:** There will be a deficit of 80 public pre-primary units by 2030 if one ignores the private ECDE centres, a deficit of 150 public primary schools by 2030, and a deficit of 69 Adult Learning Centres in order to have a centre in each public primary school by 2030. This needs to be looked at since there is limited public land for establishing the required new primary and secondary schools. The National government should therefore increase the support for free basic education. This means that a generally learned population in which about 95% of residents with primary education and above has potential for prioritising education.

- b) **Health Facilities:** There is an inadequate number of health facilities as most residents cover distances of more than five kilometres to a facility contrary to the Kenya Health Policy 2014-2030 requirements. This means that the planning area has the required hierarchy of health facilities including levels 2, 3 and 4 facilities to facilitate referrals. There are also some large-scale farms in the planning area where land for more health facilities may be accessed by the government.
 - c) **Sports and recreation:** There is only one public stadium in the planning area. This may be the result of the area's close proximity to facilities in Nairobi City such as Kasarani International Sports Centre which is less than five kilometres from the boundary of the planning area with Nairobi. Also, there are no modern social halls for people to use for meetings and indoor games. On a positive note, there is ample private land in large farms that may be acquired for the required facilities. Such facilities can serve the increasing number of urban people living in apartments in different parts of the planning area.
 - d) **Cemeteries and Burial Grounds:** There are no public cemeteries and burial grounds in the planning area. Many people bury the remains of their loved ones on private land. This limits land transfer for commercial purposes and generally lowers the value of the land. The County should therefore acquire public land which may be used for burial purposes.
 - e) **Cooperative societies:** There are limited types of cooperatives mainly in the Church, public transport, and urban entrepreneurship. Other sectors such as the informal and agricultural sectors are not covered adequately by cooperatives. There are also weak cooperative governance structures leading to the casualisation of most of the cooperatives' employees. The public transport industry is now mostly organised around cooperatives. This is the newest sector joining the cooperative movement in Kenya. Given the presence of the Nairobi-Thika Transport Corridor, it has a lot of potential in this sector hence it may be a major driver of the movement in the planning area. Micro-finance companies that are initially organised as cooperatives are also a potential driver in the sector.
- **Physical Infrastructure:**
 - a) **Transportation Infrastructure:** The infrastructure to support both MT and NMT is a chronic and acute challenge due to the large population and the need for a better connection between local and regional employment centres and residential zones. These challenges are heightened during peak travelling times and are aggravated by informal activities that add more strains to infrastructure and services.
 - b) **Water Supply:** The high cost of water connection in Ruiru is a major issue that has led some areas such as Mwalimu Farm Nyacaba and Thena to rely on borehole water and

rainwater. There has also been an issue of vandalism of water pipes due to illegal connections and this calls for using advanced technology of water monitoring which will ensure that every drop of water is accounted for. Due to the increased population in the Sub-County, RUJWASCO has been forced to ration water for two days a week, especially in the urban centres. The company has resorted to sinking boreholes to meet the demand. Other ongoing water projects are the construction of Karimimu dam which is being funded by the World Bank at a cost of Kshs 1 billion, and the DANIDA Water and Sewerage project.

- c) **Energy:** Due to the high cost of accessing and using energy, residents should be encouraged to use renewable sources of energy such as solar panels and use of biogas. The rate of vandalism of Kenya Power and Lighting Company (KPLC) has gone up leading to power surges, blackouts, and unreliable power supply.
- d) **ICT:** Upgrading of roads often lead to disruption of fibre optic cable and other ICT infrastructure. Agencies mandate to repair and upgrade roads should therefore work in consultation with the internet providing companies in order to avoid the disruptions. Mobile operators should expand their network coverage to areas that are not served or that are underserved.
- e) **Solid Waste Management system:** Due to increased population which has led to the growth of un-serviced informal settlements, dumping in undesigned areas has been seen in towns, within the informal settlements, and along riparian reserves. The County Government should therefore increase the number of collection points within these areas and the frequency of collection days since there are delays in collecting garbage. Rehabilitation of rivers and clean-up programmes should be spearheaded by the County. The County should also engage the private sector in the collection of garbage which in return will increase revenue collection.
- f) **Liquid Waste Disposal:** Limited sewerage systems have led to environmental degradation due to spillage of untreated water mostly in informal settlements. The residents also mentioned that the cost of on-plot sewer connection fees is too high hence they opt to dispose of their household liquid wastes through other ways. The County, however, is in the process of increasing the sewer coverage to the areas that are not covered though, due to limited funding, the process is being delayed. The County should also adopt new ways to advance ways of water treatment so that some of the wastewater can be reused.
- g) **Storm Water:** The existing stormwater drainage has been overtaken by rapid development with most of the drains not able to hold the surface runoff. Some of the channels have also encroached and even some traders constructed their kiosks on the drainage channels. Another major problem that is common in informal settlements is the

connection of liquid waste to the stormwater drains which causes the spread of water-borne diseases such as typhoid, amoeba, etc.

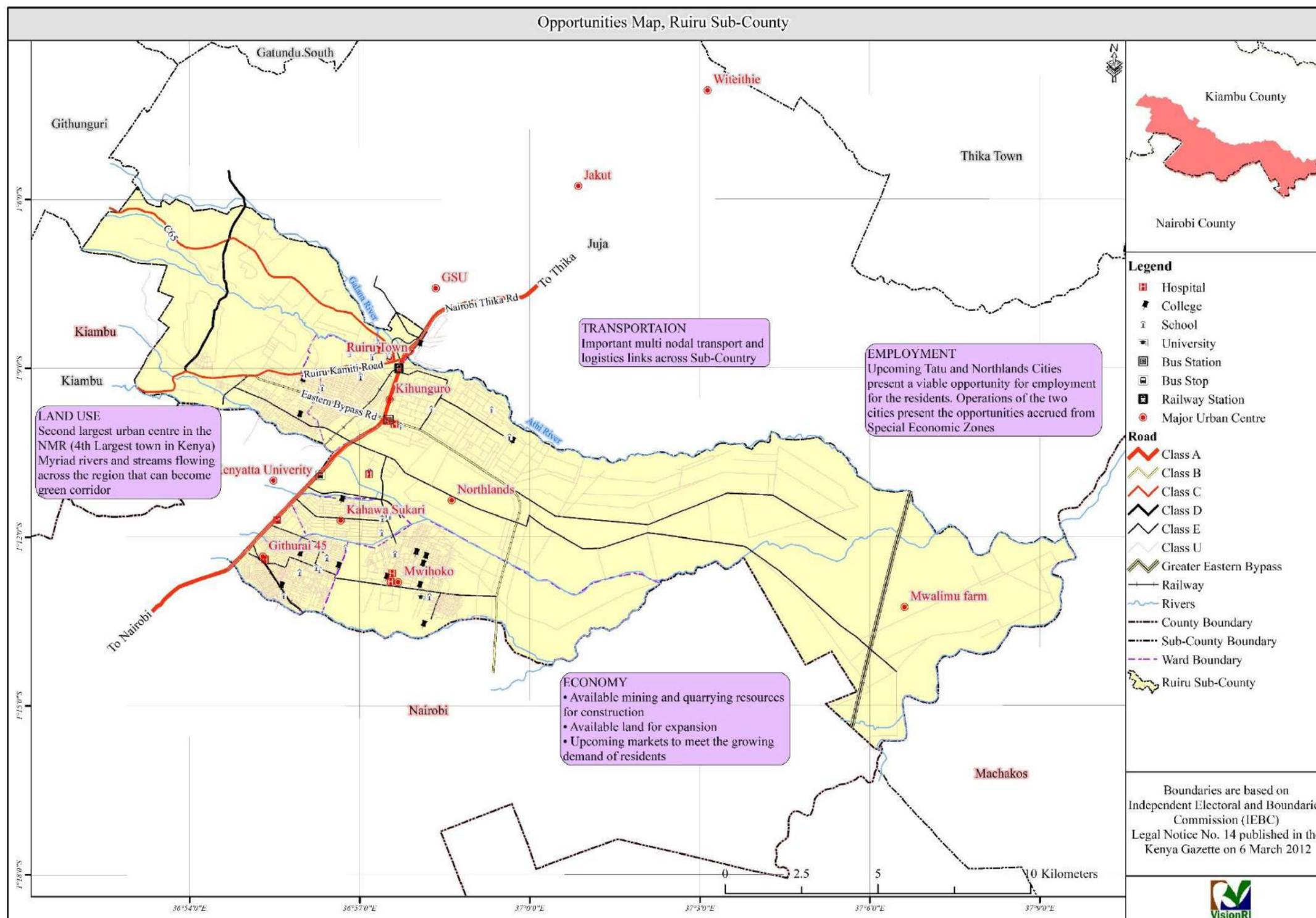
To deal with the above issues, the County should re-design the storm drainage system, relocate residents in informal settlements living near the storm drainage system, and ensure that within the areas that are still undeveloped the drainage that is done will be constructed in a way that it will be wide enough to avoid the current problems. The eastern part of Ruiru such as Gatongo'ra and Mwalimu farm needs a feasibility study on the drainage system to address flooding challenges.

- h) Disaster Risk Reduction:** The planning area has inadequate strategies to mitigate geo-hazards such as floods and landslides. Climate change issues, on the other hand, are not fully mainstreamed in the County's development programmes due to inadequate funding to mitigate disasters. There is also inadequate capacity building on disasters linked to climate change issues. However, there is progress in formulating County strategies to mitigate the effects of climate change and variability, Global partnerships towards addressing climate change and awareness created on disasters associated with climate change and variability and preparedness strategies at the County and National level.

12.2 12.2 Development Opportunities

12.2.1 STRENGTHS AND OPPORTUNITIES

As shown on Map 12-1, Ruiru has several development opportunities that could be capitalised to mutually reinforce simultaneously to achieve sustainable growth.



Map 12-1: Opportunity Map

Source: VisionRI

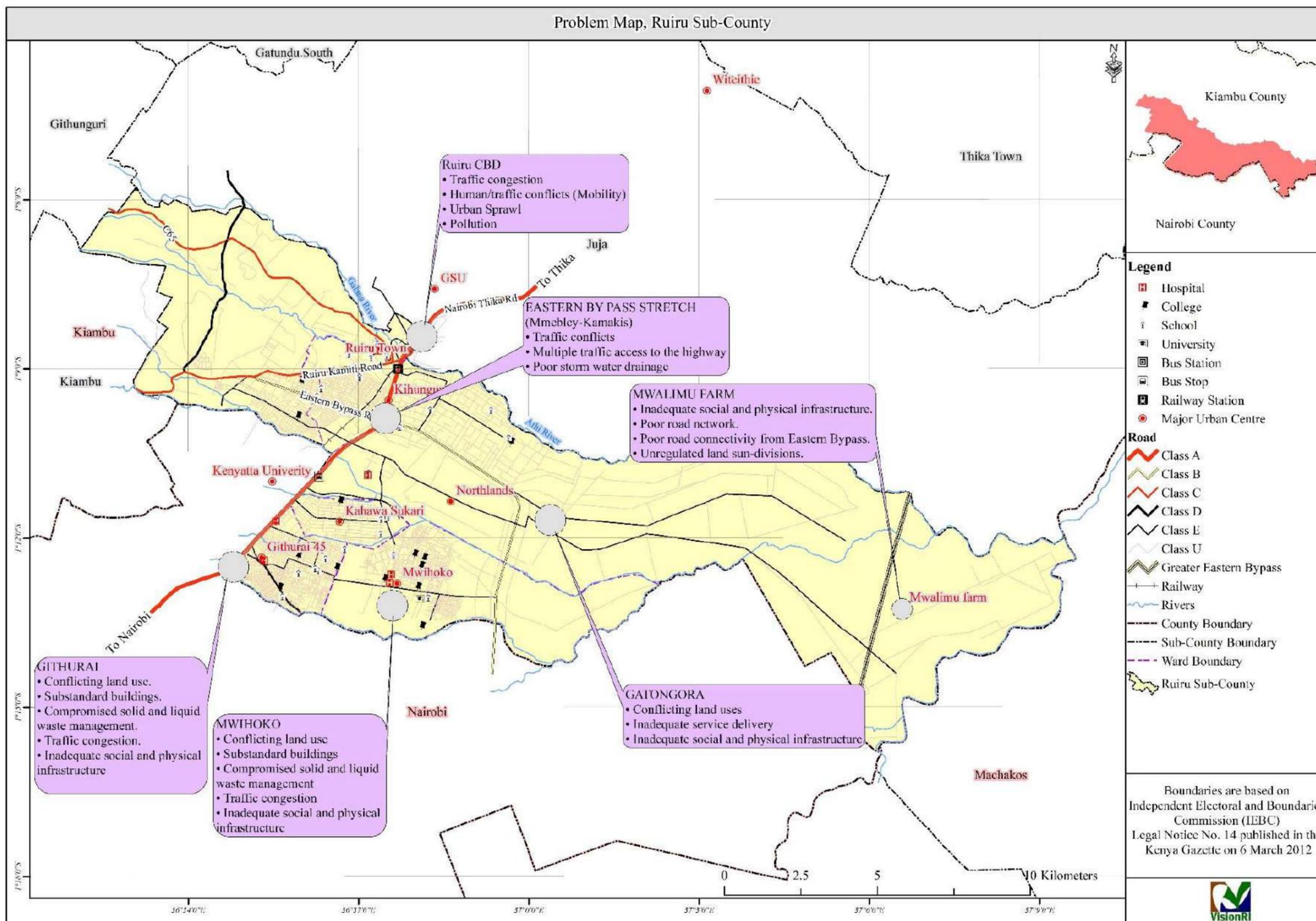
The strengths and opportunities are highlighted as follows:

- i. **Future Centre of the Metropolis:** Ruiru has the potential to become the second City in the NMR and may even become the “Future Centre of the Metropolis” as envisaged in Metro 2030 SPC. The entry of large-scale master-planned developments such as Tatu City and Northland City, coupled with the strategic transport enhancement proposals in the SPC for NMR, are opportunities to push Ruiru towards this direction. Ruiru has inherent transformational strengths such as the locational advantage of proximity to Nairobi and being the transportation bridging town along the Nairobi-Thika Superhighway. Its location at the intersection of Nairobi-Thika Superhighway and Northern and Eastern bypasses makes it a potential intermodal transport hub that can be developed using TOD-based urban planning. Its other advantages include relatively lower land prices and rents, a youthful and educated population, and the availability of open land for development.
- ii. **Education Hub:** Besides the definitive growth of commercial activities, Ruiru also has the potential to be “an educational hub”. The Sub-County can capitalise private sector investment with a large number of public and private sector investment quality primary, secondary, tertiary institutions, to tap on the existing market as a result of high population growth in the area and also within the NMR. The realisation of this potential will contribute to some of the key objectives of Vision 2030 which is to develop NMR into a ‘Regional and Global Research and Education Hub’.
- iii. **Residential Hub:** Ruiru is already one of the preferred residential development areas due to earlier cited advantages such as proximity and good road accessibility to Nairobi as well as relatively lower land prices and rents. Ruiru’s attractiveness for residential developments is also assisted by the presence of a complete array of services such as banks, shopping malls, schools, personal grooming salons, restaurants, and health facilities. This trend is further strengthened with the implementation of major land development and transportation projects in the Sub-County. Attention should, however, be given to creating an urban development pattern that is built around a series of high-density nodes built around TOD schemes in order to increase the Sub-County’s capacity to absorb further residential growth.

12.3 12.3 Development Challenges

12.3.1 WEAKNESSES AND THREATS

The weaknesses and threats present spatially on Map12-2 shows the intervention ‘hot spots’ spread across the Sub-County.



Map 12-2: Problem Map

Source: VisionRI

The following presents the weaknesses and threats that Ruiru should address in order to realise its development potentials.

- i. **Infrastructural Gaps:** Ruiru's development is constrained by a poor intra Sub - County Road circulation network due to poor road conditions in the hinterland that hamper mobility, and the inadequacy of infrastructures such as water supply, solid and liquid waste management, and storm drainage management. These challenges have to be addressed, as they are detrimental to the growth of the local economic and the clean and healthy living environment.
- ii. **Environmental Degradation:** Some sections of the Sub-County's ground and surface water resources have become polluted due to inadequate wastewater, solid waste management, and storm drainage systems. Weak development control and implementation of environmental regulations are also causing environmental degradation. The results may be exemplified by the encroachment of developments into riparian areas, the occurrence of air pollution from vehicle and industrial emissions as well as the inappropriate siting of the dumpsite.
- iii. **Social Infrastructure Backlogs:** Ruiru faces backlogs and future needs in social infrastructure, notably affordable housing, quality public education from pre-primary to secondary, and accessible healthcare services. Additionally, gentrification is a challenge, as most businesses are migrant-owned, while local residents struggle to secure capital for micro-enterprises and large-scale farming.
- iv. **Inefficient Urban Development Pattern:** The current trend of un-guided market-led urban growth that has led to developments occurring in un-serviced areas, pre-mature loss of agricultural and open lands, un-optimised use of land resources, and other related issues have to be corrected. While consideration should be given to the preparation of appropriate land use plans and zonal development plans as well as identifying strategic programmes and projects, equal attention should be given to ensure the proper day-to-day implementation of these interventions. The government should always be at the forefront and address the issue of having to undertake "catch-up planning."
- v. **Artificial Land Scarcity:** While on-ground conditions may show that there are significant tracts of open land that may be developed, the prevalence of a private land tenure system and speculatively increasing cost of land may create artificial land scarcity. As land prices soar, the government may find it more difficult to acquire necessary land, say for public housing, infrastructure or social amenity purposes. At the earliest opportunity, the government should develop effective mechanisms and models for the acquisition of land for future development. Strict adherence to change of use and subdivision requiring setting aside land for public utility need to be enforced jointly with national governments' departments lands, survey, and title registration to ensure total compliance.



REPUBLIC OF KENYA



COUNTY GOVERNMENT OF KIAMBU

PART III

PLAN FORMULATION

13 SCENARIO BUILDING AND CONCEPTUAL FRAMEWORK

13.1 Overall Development Strategy

13.1.1 DEVELOPMENT VISION, MISSION, GOALS AND OBJECTIVES

The vision and mission of Ruiru were derived through a consultative process with key stakeholders.

- i. **Vision:** “A well-connected and liveable city with vast investment opportunities.”
- ii. **Mission:** “Enhanced infrastructure for connectivity and promote investment opportunities for the local, regional and global markets.”

13.1.2 STRATEGIC DEVELOPMENT DIRECTIONS OF THE PLANNING AREA

- i. **Significance of Ruiru in NMR and the County:** Ruiru, according to the NMR spatial planning concept, is designated as part of a consolidated regional centre together with other urban centres such as Thika, Kiambu, Athi River, Ngong and Ongata Rongai. It is therefore conceptualised to be characterised by administrative functions, industrial activities, specialised and world-class facilities, and tertiary activities.
- ii. **Potential to Enhance Growth of Key Urban Nodes:** The growth nodes in Ruiru Sub-County have the following potential roles:
 - Ruiru CBD being commercial and administrative;
 - Kahawa Sukari and Mwhoko being residential;
 - Githurai (Mwiki) being a mixed-use node with a range of services;
 - The upcoming centres at Tatu and Northlands as SEZs; and
 - Mixed-use potential in Mwalimu farm, which is currently sparsely occupied.

Planning for these growing urban nodes will guide growth. Development control measures will encourage and ensure land use harmony, and the presence of good infrastructure shall link them to the primary node (Ruiru CBD). This type of linkage will ensure that the growths of the CBD and secondary urban nodes are intertwined.

- iii. **Potential Transit-Oriented Development (TOD):** The planning area is traversed by regional transportation routes such as the Nairobi-Thika Superhighway, Eastern and Northern bypasses, and the Railway line. These make it strategically positioned within the NMR. Transport proposals for the NMR give provisions for High Occupancy Vehicle (HOV) lanes to accommodate the bus rapid transit system (BRTS), Intermediate Public Transport (IPT) to include tuk-tuks and boda bodas as well as spaces for vehicles with high occupancy (5 or more). Additionally, the proposal to improve the commuter rail network within the existing railway corridor is likely to spur growth within the Sub-County.

This Plan recommends the intensification of development along road and rail transit route corridors and intersections. Some of the transport systems may require to be upgraded to modern transport designs. This is with the aim of creating mixed-use urban growth nodes,

which will be interconnected by road and rail. These nodes will reduce the time needed to access public facilities and working areas as they will be well within walking distance.

- iv. **Protect Environmentally Sensitive Areas:** Ruiru Sub-County has diverse land uses and is endowed with natural resources such as Gatharaini, Ruiru, Athi River and Kiuu rivers. Uncontrolled human activities such as construction on riparian land have threatened the existence of these environmentally sensitive areas as habitats of living organisms and ecological friendly areas. The rivers coursing through the planning area should be transformed into green corridors. The riparian areas should be well-landscaped, and some sections turned into public parks along with the provision of NMT facilities. This will serve several purposes namely, protect the riverbanks from erosion, eliminate the encroachment of illegal settlements, promote health consciousness amongst the population, and serve as filters to air pollution.

13.2 Alternative Development Models

The preparation of alternative development proposals was carried out after the preparation of an updated draft preliminary report and the preparation of stakeholders' forum report. The alternative development models were based on Strategic Planning Workshop outputs, existing land uses, thematic studies, NaMSIP's Spatial Concept and preliminary reports.

The consultant team prepared three alternative development proposals to guide the development growth Ruiru's growth as outlined in the following sections.

13.2.1 ALTERNATIVE 1: MULTI NUCLEI DEVELOPMENT MODEL

The Multi Nuclei Development Model illustrated in Figure 13-1 seeks to intensify development along road and rail transit routes and intersections through TOD strategies. Some of the transport systems will require to be upgraded to modern transport designs. This is with the aim of creating mixed-use urban growth nodes that will be interconnected by road and rail.

The components of this model include:

- i. **Mixed-Use Urban Development Nodes and Corridor:** The proposed primary node is Ruiru CBD. Secondary nodes will include Githurai, Kahawa Sukari, Mwhoko, Tatu, Eastern bypass and Mwalimu farm. These will contain mixed-use developments in close proximity to the commercial/shopping centre and public transport transfer points. Reduced and managed parking inside a 10-minute walk circle around the town centre shall be provided.
- ii. **Industrial Development:** Establishment of industrial districts to take advantage of the rail and road networks. Light and medium industrial users shall be promoted e.g., warehouses/go-downs, and logistics centres in Ruiru CBD and Northlands.
- iii. **Transport Terminus as a Prominent Feature of Urban Centres:** An integrated transport terminus will be provided in Githurai (smaller terminus) and Ruiru CBD where road and rail transport modes shall terminate journeys. Bus Rapid Transit (BRT) shall be promoted along the

highway. Park-and-ride services at main transport terminals shall be provided to discourage the use of private vehicles to go to Nairobi city and Thika town. Public parks or squares fronting main transport terminals shall be provided.

- iv. **Walkable Design:** The highest priority will be given to pedestrians especially within the commercial and residential districts such as Githurai, Wendani, Kahawa Sukari, Membley, Kihunguro, Gitambaya and Eastern bypass estates. A network of pedestrian walkways shall be provided along the highway, collector streets, and neighbourhood streets. Provisions for the high-density walkable district within a 10-minute walk circle around transport transfer stations/bus stops shall be made.
- v. **Improved and Developed Infrastructure:** The physical linkages between the different levels of urban nodes and within the residential and industrial districts will be mainly provided through roads. Collector support transit systems including buses and taxis shall be encouraged and collector streets upgraded to bituminous standard to facilitate smooth transit.
- vi. **Cycling Paths:** Provision of cycling paths to ease the use of bicycles and scooters as daily support transport.
- vii. **Specialised Retail Spaces at Stations Serving Commuters and Locals:** Spaces shall be provided to accommodate small-scale groceries and other retail shops near transport terminals in Githurai and Ruiru.

The merits of this model include:

- a) Promotes compact development through densification of urban nodes thus curbing urban sprawl.
- b) Eases traffic congestion.
- c) Ease of access and mobility in a multi-modal environment (BRT, rail, road and NMT).

The demerits are as follows:

- a) High cost of implementation such as land acquisition, and establishment of requisite transport infrastructure.
- b) Risk of disrupting low-density neighbourhoods where residents are homeowners.
- c) Risk of polarisation since the growth of centres away from the transport corridors may be suppressed due to the vibrancy of areas along the transport routes.
- d) Potential accessibility problems within the nodes in case internal roads are not upgraded.

13.2.2 ALTERNATIVE 2: COMPACT DEVELOPMENT MODEL

Ruiru is approximately 86% developed which has informed the idea of the compact development model illustrated in Figure 13-2.

- **Development Activity (accessibility) links:** An activity link is normally established parallel to the main public transport link to enhance access to job creation in a single strip found between economic activity nodes.
- **Mixed-Use Development:** Mixed land use is normally promoted near activity nodes and links.
- **Densification:** To create the appropriate levels of thresholds needed for both the public transport system as well as economic activity next to the activity links, a higher residential density zone next to the activity link is a key to the success of establishing proper operating development corridors.
- **Mobility links:** Higher and lower order mobility links are established parallel to the activity link in a development corridor to ease movement from one end of the corridor to the other.
- **Accessible public facilities:** Public facilities often form some of the most known bases to encourage the need to travel. Therefore, it is argued that these facilities should be established within or close to a public transport corridor to reduce the need to travel longer distances.
- **Open spaces:** This design element is regarded as an essential element of the concept, as it is regarded as the main ingredient to promote environmental sustainability, easy access to recreation opportunities, and the overall productivity of the Sub-County's population.

Table 13-1: Merits and Demerits of Compact Development

Merits	Demerits
<ul style="list-style-type: none"> • Promotes urban compaction (promotes urban development concentration at activity nodes); • Promotes urban regeneration; • Promotion of public transport; • Increased overall accessibility; • Preserving area suitable for agriculture; and • Potential for freeing areas for green and open spaces. 	<ul style="list-style-type: none"> • High cost of implementation e.g. establishment of requisite infrastructure; • High energy consumption; • Potential urban sprawl; and • May increase roadside friction thus causing traffic congestion.

13.2.3 ALTERNATIVE 3: TECHNO-COMMERCIAL DEVELOPMENT MODEL

This model illustrated in Figure 13-3 with its key feature summed up in Table 13-2 seeks to promote the integration of technology into commerce in order to boost the potential growth of Ruiru as a commercial hub.

Table 13-2: Key Features and Driving Forces of Techno-Commercial Development

Key Features	Driving Forces
<ul style="list-style-type: none"> ● Protection of ecologically fragile areas e.g., rivers; ● Office development (office parks, office blocks); ● Technology Centre (at Tatu and Northland area) acting as an incubation Centre for new innovation; ● Modern markets (fresh produce market, handicrafts, poultry, and livestock products); ● Hospitality industries (modern hotels & restaurants); ● Logistics centre (warehouses, distribution centre, storage facilities, truck services); ● Financial and banking institutions; and ● High-density residential. 	<ul style="list-style-type: none"> ● Efficient and effective integrated transport systems; ● ICT infrastructure; ● Adequate and well-maintained physical infrastructure (water, energy sources, sewer reticulation, solid waste management); ● Adequate and well-maintained social infrastructure; ● Public-private partnership; and ● Special Economic Zones in the area.

Source: Vision RI

The model proposes the establishment of three additional major technological centres - logistics, ICT, and special economic zones – in the following areas:

- Tatu City;
- Northlands; and
- Mwalimu area.

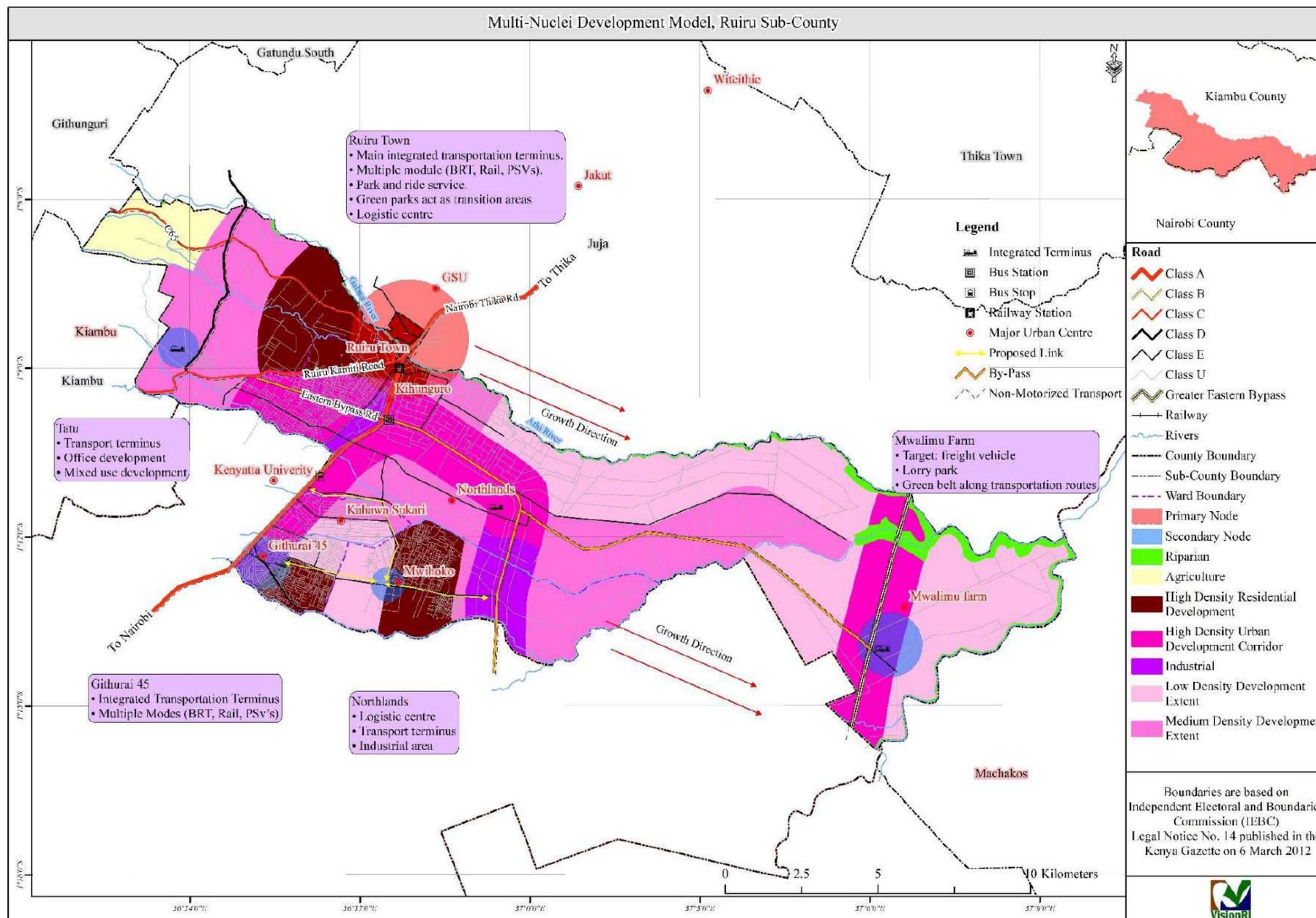


Figure 13-1: Multi-Nuclei Development Model

Source: VisionRI

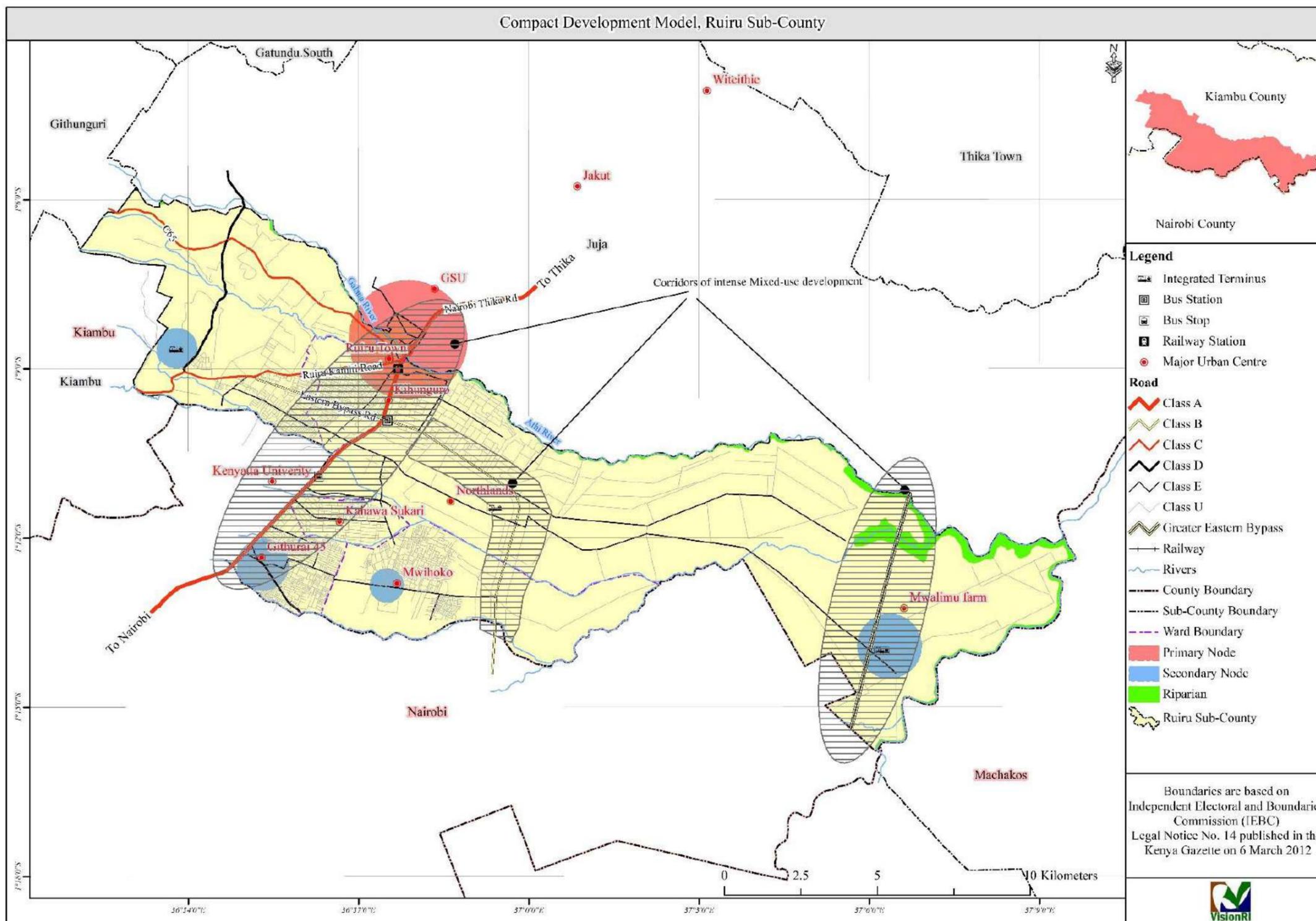


Figure 13-2: Compact Development Model

Source: VisionRI

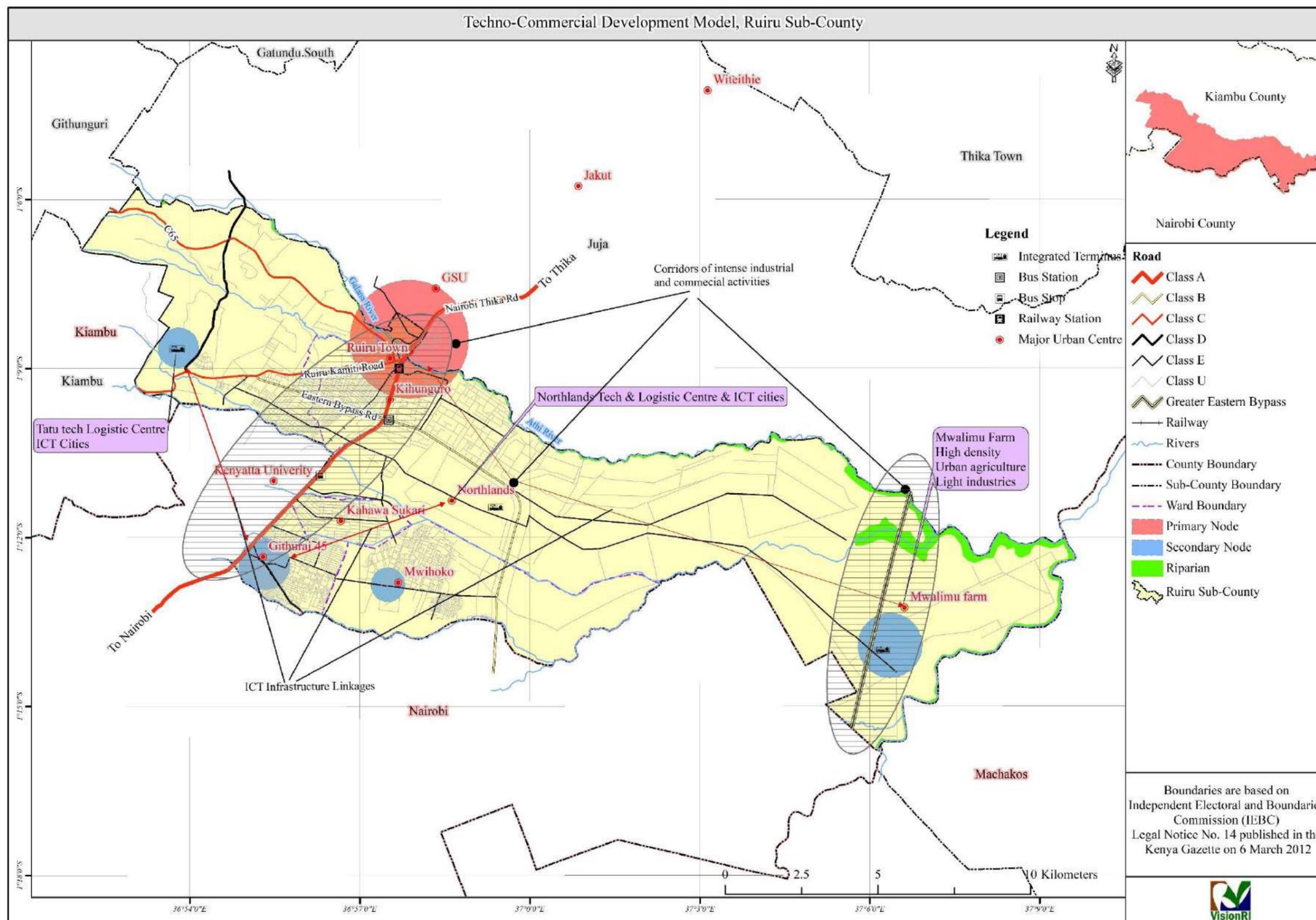


Figure 13-3: Techno-Commercial Development Model

Source: VisionRI

Comprehensive commercial development schemes such as office parks and business parks will be promoted within the existing and upcoming CBDs in the planning area. These are proposed in the main CBD in Ruiru town, upcoming special economic zones of Tatu and Northlands, and minor commercial districts such as Mwalimu farm.

Table 13-3: Merits and Demerits of Techno-Commercial Model

Merits	Demerits
<ul style="list-style-type: none"> • Creation of a milieu for enhanced business and trading activities; and • Promoted economic vibrancy of the Sub-County. 	<ul style="list-style-type: none"> • High cost of implementation (land acquisition, the establishment of requisite infrastructure); and • High-energy consumption.

Source: Vision RI

13.3 Evaluation of Alternative Development Models

The alternatives development models were subjected to the Goals Achievement Matrix to choose the preferred alternative. The County Technical Working Group was involved in ranking each alternative based on the sectoral goals and ability of the alternative to meet the overall vision of the Sub-County. The results were later consolidated to find the preferred model. The output of the analysis is indicated in Table 13-4.

13.4 Preferred Model: Integrated Development Model

The preferred model, as shown in Figure 13-4, entails integrating the techno commerce a compact development model.

Table 13-4: Goals Achievement Matrix

S. No.	Vision/ Goals	Assigned Weight	Alternative Development Proposals					
			Alternative 1		Alternative 2		Alternative 3	
			Multi Nuclei Development Model	Sub-Total	Techno-Commerce Model	Sub-Total	Compact Development Model	Sub-Total
1	To protect, conserve and manage natural resources in a sound environmentally way for the benefit of the current and future generations.	0.17	1.4		0.2	0.03	1.2	0.2
2	To promote a vibrant economy driven by modern technology and entrepreneurship.	0.17	1.4	0.23	2.6	0.43	1.4	0.23
3	To have an efficient and reliable transportation system that integrates all modes of transport.	0.17	2.6	0.43	-0.2	-0.03	1.8	0.3
4	To provide affordable and quality social services.	0.17	1.4	0.23	1	0.17	2.2	0.37
5	To have a well reticulated and maintained physical infrastructure for enhanced service provision.	0.17	2.4	0.4	1.4	0.23	1.8	0.3
6	To promote a good governance system which acts and operate within the rule of law for the interest of the people.	0.17	0.6	0.1	1.4	0.23	1.2	0.2
	Total Score	1.00		1.63		1.07		1.6
	Rank		1		3		2	

Source: VisionRI

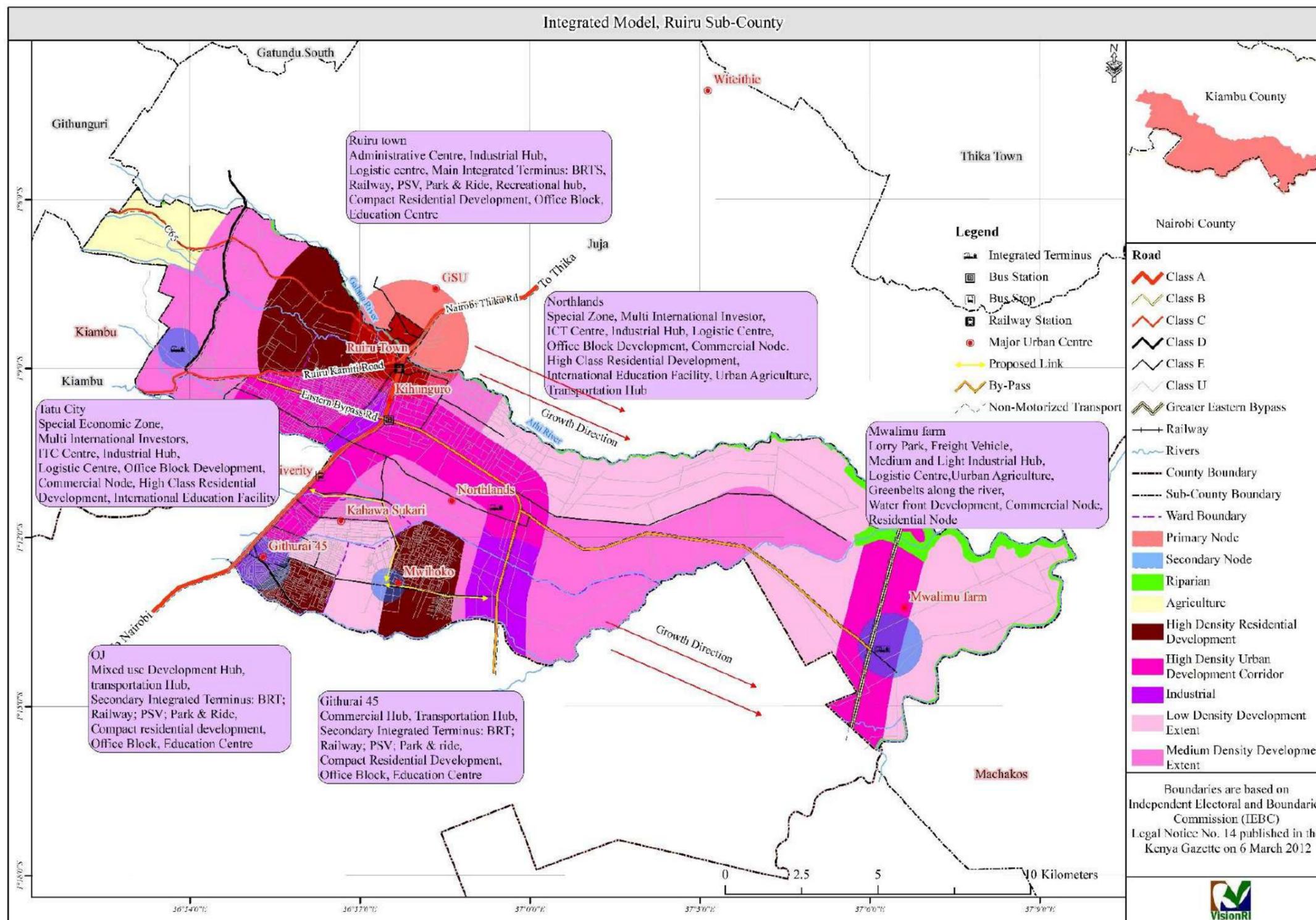


Figure 13-4: Preferred Integrated Model

Source: VisionRI

The model shall incorporate the core elements of the other models and it has contributed to the preparation of the final plan by taking into account the following core functions and attributes:

- i. **Specialisation of Nodal Functions:** The urban areas within the corridor have been classified into two distinct levels - primary and secondary nodes. Ruiru town is the only primary urban node in the planning area. The secondary nodes include Githurai, Kahawa Sukari, Eastern bypass, Tatu, Mwhoko, and Mwalimu Farm. These nodes function co-dependently and are linked to each other by roads and railway.
- ii. **Mixed-Use Development:** Mixed-use development in close proximity to the commercial/shopping centre and public transport transfer points shall be promoted. Reduced and managed parking inside a 10-minute walk circle around the town centre shall be provided.
- iii. **Industrial Development:** Industrial districts shall take advantage of the rail and road networks. Light and medium industrial users shall be promoted e.g., warehouses/godowns, and logistics centres in Ruiru and Northlands area.
- iv. **Multi-Modal Transport:** This shall be encouraged through the integration of road, rail and NMT systems. Integrated transport terminus will be provided in Githurai (smaller terminus) and Ruiru towns, where road and rail transport modes shall terminate journeys. Park-and-ride services at the main transport terminus shall be provided to discourage the use of private vehicles going to Nairobi city and Thika towns. Public parks or squares fronting the main transport terminus shall be provided.
- v. **NMT (Walkable Design and Cycling):** The highest priority will be given to pedestrians and cyclists. A network of pedestrian walkways and cycle paths will be provided along the highway, collector streets, and neighbourhood streets. Provisions for the high-density walkable district within a 10-minute walk circle around transport transfer stations/bus stops shall be made.
- vi. **Improved and Developed Infrastructure:** The physical linkages in-between the different levels of urban nodes and within the residential and industrial districts will be mainly provided through roads. Collector support transit systems including buses and taxis shall be encouraged and collector streets upgraded to bituminous standard to facilitate smooth transit.
- vii. **Specialised Retail Spaces at Stations Serving Commuters and Locals:** Spaces shall be provided to accommodate small-scale grocery and other retail shops near transport terminus in Githurai and Ruiru town.
- viii. **Formulation of Land Use Plans and Development Control Regulations:** This will involve zoning of land uses along the corridor to encourage compact development and densification at activity nodes by prescribing regulations that promote vertical densification and landscaping regulations.

- ix. **Greenways:** This will involve a comprehensive landscaping programme and tree planting along rivers in the Sub-County. Urban design schemes shall be done for purposes of designing waterfronts and wetland areas to enhance their environmental, aesthetic, and recreational functions.

14 PHYSICAL DEVELOPMENT PLAN

14.1 Land Use Plan and Development Ordinances

14.1.1 OVERVIEW

In the last decade, Ruiru has experienced profound and accelerated urban transformation. This is unprecedented as it ushers in urbanisation without limits. When Tatu City's development began over a decade ago, the 4,000 acres seemed ambitious to develop. The entry of Northlands a few years later with its 11,000 acres has resoundingly cemented not only Ruiru's but the NMR's opportunity for hyper and dynamic growth. The population census of 2019 demonstrates that in this short period of time, the high population growth has almost exclusively to do with changes in the consumption of space.

This chapter, therefore, provides land use proposals and development guidelines as effective drivers of creative change to ensure Ruiru develops in a sustainable manner. The recommendations imply a reconfiguration of county planning practices, particularly at the Sub-County level, to cope with devolution governance paradigms and spatial realities. There is sufficient support and understanding from stakeholders – from local neighbourhoods, the regular community for and during this planning process – for the new scale of the planning approach.

14.1.2 LAND USE AND ZONING PROPOSALS

Ruiru being the fastest urbanising Sub-County in Kenya has seen most of the land that was once agricultural being converted to residential to cater to housing and commercial demands. Developments such as Tatu City, Northlands, Amani Ridge, Palm Ridge and other comprehensive developments have played major roles in the urbanisation of this Sub-County. Industrial activities within Ruiru have also played a part in its urbanisation and this calls for more space to be allocated for industrial. With the development and urbanisation trend, this ISUDP proposes to have a user which includes business and commercial. This will help in achieving the Transport Oriented Development model which ensures that people can access all their services within a radius of 800m-1km.

Table 14-1 below, shows the change in land use coverage for the various uses. The proposed land uses have been informed by the development trend on urbanisation. The Sub-County also being strategically located acts as a dormitory for people working in both Nairobi and Thika hence the demand for residential purposes. This being a 10-year plan, it is anticipated that development should be guided by the proposed land use map shown on Map 14-1 below.

Table 14-1: Existing and Proposed Land Uses

User	Existing		Proposed Allocation	
	Area in Hectares	Percentages	Area in Hectares	Percentages
Residential - Low Density	3,582.52	53.58%	2188.49	10.8%
Residential - Medium Density	1,577.31	23.59%	7542.69	37.3%

Residential - High Density	1,526.66	22.83%	2123.27	10.5%
Industrial	114.61	0.57%	978.47	4.8%
Educational	93.85	1.24%	105.99	0.5%
Recreational	104.07	0.51%	461.34	2.3%
Public Purpose	237.52	1.17%	318.66	1.6%
Commercial	173.90	0.86%	431.90	2.1%
Transport & Public Utility	837.69	3.36%	2697.33	13.3%
Agriculture	11,688.61	57.75%	2960.89	14.6%
Mixed Use	304.07	1.50%	430.82	2.1%
Total	20,240.81	100.00%	20,240.81	100%

Source: Vision RI

14.1.3 DEVELOPMENT CONTROL REGULATIONS

The detailed land uses are shown on Land Use Map 14-1 above and the associated development control ordinances are in Table 14-2 below. To guide the implementation and ensure compliance in set planning regulations, zoning guidelines that will provide development control measures based on permitted and allowable parameters and limits of development in each zone are presented in Table 14-2 below.

14.2 Development Ordinances

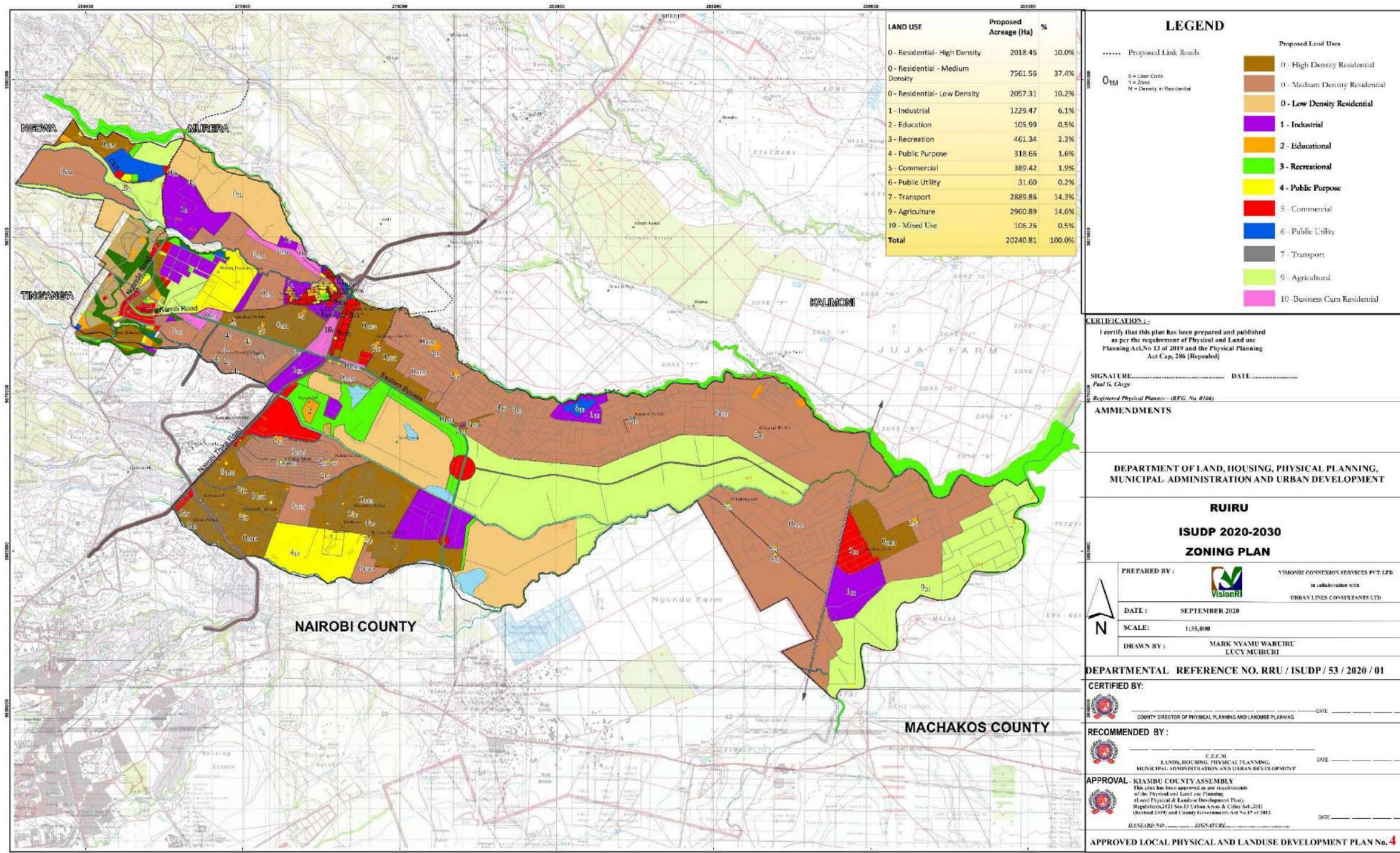
14.2.1 RESIDENTIAL USE

i. **Permitted Development:** The following are permitted development within the Residential Zones:

- Residences–Bungalow, maisonette, multi-family dwelling (multi-storey flats/apartments), row housing, detached, semi-detached, and residential-cum-work;
- Hostels, renting houses, old age home, community hall, police post, and guesthouses (not exceeding 200 m² in floor area);
- Day-care centre, kindergartens, and parks and playground;
- Corner shops, small shopping centres, and health facilities (dispensaries, nursing home, etc.); and
- Educational buildings, religious premises, library, gymnasium, park, technical training centre, exhibition and art gallery, clubs, banks/ATM, and matatu stop/boda stand (not exceeding 100 m² in floor area), post offices, hostels of non-commercial nature, etc.

Map 14-1: Proposed Land Use Zones

RUIRU INTEGRATED STRATEGIC URBAN DEVELOPMENT PLAN 2020-2030



Source: VisionRI

PLANNING STANDARDS AND DEVELOPMENT CONTROL GUIDELINES

RUIRU MUNICIPALITY

Designated Land Use	Zone Description	Zone No. RRU	Local Name	Permitted Land Use(s)	Minimum Plot size (Ha)	Ground Coverage (GC) %		Plot Ratio (PR)		Minimum Setbacks (meters) (Front: Side: Rear)		Minimum Frontage Road Width (meters)	Building Line (metres)	Building Height (No. of Floors)	Special Conditions/Notes			
						S	U	S	U									
RESIDENTIAL (0)	High Density (1)	RRU010H	Ruiru Gitambaya OJ	Highrise apartments; studios; bedsitters; Hostels; event gardens; Parks; residential hotels Conditional: Light & medium industry; colleges; churches; schools Prohibited: Heavy industry	0.1 > _	65	60	9.7	9.0	6	2.4	1.2	12	6	G+14	Single-room developments not permitted For plots of 0.2ha and above, the proposal shall provide for social amenities e.g. recreational; shopping; green areas; kindergarten; security; power; circulation & other utilities according to needs assessment A service lane of 6m to be provided/surrendered for plots fronting 18m road and above. Pent house shall not be more than 30% of the typical floor plan Parking spaces/slots shall be provided as follows: 1 slot for every two- bedroom unit; 1 slot for two (2) one-bedroom units; 1.5 slot for three- bedroom dwelling unit.		
		RRU010H	Kamakisi		0.08 > _ 0.1	65	60	6.5	6.0	6	2.4	1.2	12	6	G+10			
		RRU010H	Karuguru		0.06 > _ 0.08	65	60	5.2	4.8	6	2.4	1.2	12	6	G+8			
		RRU020H	Mutonya Centre		0.045 > _ 0.06	65	60	5.2	4.2	6	2.4	1.2	9	3	G+7			
		RRU06H	Githothua		0.045 > _	65	60	5.2	4.2	3	2.4	1.2	9	3	G+7			
		RRU017H	Githurai		0.045 > _	65	60	5.2	4.2	3	2.4	1.2	9	3	G+7			
		RRU019H	Kimbo		0.045 > _	65	60	5.2	4.2	3	2.4	1.2	9	3	G+7			
		RRU018H	Mwiki		0.045 > _	65	60	5.2	4.2	3	2.4	1.2	9	3	G+7			
		RRU019H	Mwihoko		0.45 > _	65	60	5.2	4.2	3	2.4	1.2	9	3	G+7			
		RRU019H	Kiriri															
		RRU021H	Mwalimu Farm		0.045	65	50	2.6	2.0	3	2.4	1.2	9	3	G+4			
					0.045	65	50	2.6	2.0	3	2.4	1.2	9	3	G+4			
		RRU 19H	Mwhihoko Finance		0.045	65	60	2.6	2.0	3	2.4	1.2	6	3	G+ 2			
		RRU 015 M	Kahawa Sukari Bungoma Road		0.1	65	60	2.6	2.0	6	2.4	1.2	6	3	G+3			

Designated Land Use	Zone Description	Zone No. RRU	Local Name	Permitted Land Use(s)	Minimum Plot size (Ha)	Ground Coverage (GC) %		Plot Ratio (PR)		Minimum Setbacks (meters) (Front: Side: Rear)			Minimum Frontage Road Width (meters)	Building Line (metres)	Building Height (No. of Floors)	Special Conditions/Notes
						S	U	S	U							
	Comprehensive Developments within High Density zone		TatuCity, Northlands, Oaklands, Ngewe Mwalimu Farm.	Highrise blocks	1.2	65	50	9.1	7.0	6	2.4	3	9	6	G+14	Land surrender & reservation for support infrastructure shall be provided (roads; parking; water; onsite sewer; educational; recreational) commensurate to the needs assessment within the locality anchored on PLUPA, 2019
	Medium Density (2)															
		RRU07M	Membley	Permitted: Single family houses; townhouses; semi-detached; duplexes Conditional: Convenient shops; club house; gym; nature trails; low level clinics/health centres; event gardens; schools; church Prohibited: Highrise apartments; heavy industry; clubs	0.045	60	50	1.2	1	4.5	2.4	3	9	6	G+1	One Single-Dwelling only per plot.
		RRU014M	Varsity Vile		0.045	60	50	1.2	1	4.5	2.4	3	9	6	G+1	Typology: Maisonettes & Bungalows; townhouse
		RRU019M	Kiriri		0.045	60	50	1.2	1	4.5	2.4	3	9	6	G+1	One (1) DSQ shall be allowed. Not more than 15% GC of ground floor plinth of the main house.
		RRU010M	Gatongora		0.045	60	50	1.2	1	4.5	2.4	3	9	6	G+1	Attic house shall not be more than 30% of the typical floor plan
		RRU021M	Mwalimu Farm		0.045	60	50	1.2	1	4.5	2.4	3	9	6	G+1	Provide for min 10% greenery/tree cover. Provide at least one fruit tree
		RRU015M	Kahawa Sukari		0.10	60	50	1.2	1	4.5	2.4	3	9	6	G+1	Provide for alternative green energy use e.g. solar, wind power
		RRU05M	Ruiru Githunguri Road		0.045	60	50	1.2	1	4.5	2.4	3	9	6	G+1	Provide for recycling of wastewater through adoption of new technology
					0.045	60	50	1.2	1	4.5	2.4	3	9	6	G+1	Designated refuse collection points
					0.045	60	50	1.2	1	4.5	2.4	3	9	6	G+1	Provide for parking -2 private vehicles
					0.045	60	50	1.2	1	4.5	2.4	3	9	6	G+1	Varsity Vile Front Row Maximum Ground + 3 Floors upto the buffer of road between Varsity and Existing Commercial along Eastern Bypass to be Maximum

Designated Land Use	Zone Description	Zone No. RRU	Local Name	Permitted Land Use(s)	Minimum Plot size (Ha)	Ground Coverage (GC) %		Plot Ratio (PR)		Minimum Setbacks (meters) (Front: Side: Rear)			Minimum Frontage Road Width (meters)	Building Line (metres)	Building Height (No. of Floors)	Special Conditions/Notes
						S	U	S	U							
																Ground + 1 Floors. Permitted Uses are Mixed use development. Membley Front Row Maximum Ground + 2 Floors from Thika Road Round About to road leading to PCEA Membley School. Permitted Uses are Mixed use development.
																<p>Comprehensive for medium density TatuCity, Northlands, Oaklands, Ngewe Mwalimu Farm.</p> <p>Townhouses: Detached; semi-detached</p> <p>1.2</p> <p>60 50</p> <p>1.2 1</p> <p>4.5 2.4 3</p> <p>9</p> <p>6</p> <p>G+1</p> <p>Minimum sub-division shall be at 0.045ha</p> <p>For comprehensive developments on areas with minimum subdivision of 0.2Ha, each unit to be on plot size of 1000sm per dwelling together with auxiliary amenities, for those on min. subdivision of 0.045 Ha, each unit to occupy minimum 375 square metres</p> <p>Provide adequate and evenly distributed amenities commensurate to the introduced population</p> <p>The dominant land use should reflect the zone land use.</p> <p>Master plan in agricultural zones to priorities land for urban agriculture and industrial land use.</p> <p>Land surrender & reservation for support infrastructure shall be provided (roads; parking; water; onsite sewer; educational; recreational among others</p>

Designated Land Use	Zone Description	Zone No. RRU	Local Name	Permitted Land Use(s)	Minimum Plot size (Ha)	Ground Coverage (GC) %		Plot Ratio (PR)		Minimum Setbacks (meters) (Front: Side: Rear)			Minimum Frontage Road Width (meters)	Building Line (metres)	Building Height (No. of Floors)	Special Conditions/Notes
						S	U	S	U							
																commensurate to the needs assessment within the locality anchored on PLUPA, 2019
Low Density (3)																
		RRU05L	Tatu City	Permitted: Single family houses; townhouses; Conditional: Convenient shops; club house; gym; nature trails; low level clinics/health centres; event gardens; schools; church Prohibited: Highrise apartments; heavy industry; clubs	0.2	50	40	1	0.8	6	2.4	3	12	6	G+1	One Single-Dwelling only per plot. Typology: Maisonettes & Bungalows One DSQ shall be allowed. Not more than 15% GC of ground floor plinth of the main house. Provide for min 10% greenery/tree cover At least one fruit tree Provide for alternative green energy use e.g. solar, wind power Provide for recycling of wastewater through adoption of new technology Provide for parking -2 private vehicles
		RRU05L	Northlands		0.2	50	40	1	0.8	6	2.4	3	12	6	G+1	
					0.2	50	40	1	0.8	6	2.4	3	12	6	G+1	
					0.2	50	40	1	0.8	6	2.4	3	12	6	G+1	
	Comprehensive developments within low density (Masterplans)		Tatu City , Northlands		1.2	50	40	1	0.8	6	2.4	3	12	6	G+1	Minimum sub-division shall be at 0.2ha. For comprehensive, plot size of 2000sm per dwelling together with auxiliary amenities Land surrender & reservation for support infrastructure shall be provided for roads; parking; water; onsite sewer; educational; recreational among others commensurate to the needs assessment within the locality anchored on PLUPA, 2019
	Ambassadorial Homes Tatu city and Orkalands		Mansions		0.2	40	30	0.8	0.6	6	2.4	3	12	9	G+1	proposed in medium and low-density residential zones

Designated Land Use	Zone Description	Zone No. RRU	Local Name	Permitted Land Use(s)	Minimum Plot size (Ha)	Ground Coverage (GC) %		Plot Ratio (PR)		Minimum Setbacks (meters) (Front: Side: Rear)			Minimum Frontage Road Width (meters)	Building Line (metres)	Building Height (No. of Floors)	Special Conditions/Notes
						S	U	S	U							
	Mixed Use (BCR) (4)															
		RRU10-1	Kihunguro	Highrise apartments; studios; bedsitters; Hostels; event gardens; Parks; residential hotels; commercial; offices; public facilities Conditional: Light & medium industry; colleges; churches; schools Prohibited: Heavy industry	0.045	65	50	2.6	2.0	3	2.4	1.2	9	3	G+7	Floor occupancy ratio of commercial: Residential at 40:60% Commercial to occupy lower level floors Provide for parking as follows: 1 slot for every two- bedroom unit; 1 slot for two (2) one-bedroom units; 1.5 slot for three- bedroom dwelling unit.
		RRU10-1	Githurai		0.045	65	50	2.6	2.0	3	2.4	1.2	9	3	G+4	
		RRU10-1	Kamakias		0.045	65	50	2.6	2.0	3	2.4	1.2	9	3	G+4	
					0.045	65	50	2.6	2.0	3	2.4	1.2	9	3	G+4	
					0.045	65	50	2.6	2.0	3	2.4	1.2	9	3	G+4	
INDUSTRIAL	Light Industry (1)															
(1)	PSS	Along transit routes/corridors		Permitted: Parking; garages; warehouses; go-downs; indoor storage; workshops; jua-kali; petrol service & filling stations	0.2	40	30	1.6	1.2	9	3	3	15	9	G+3	Fire break after every 20m
		Within CBD			0.1	40	30	0.8	0.6	9	3	3	15	6	G+3	Provide 3.0m buffer all round
	PFS	Within CBD			0.045	40	30	0.8	0.6	6	3	3	15	6	G+1	Must meet environmental requirement as per EPRA regulations
		Along transit routes/corridors			0.045	40	30	0.8	0.6	6	3	3	15	6	G+1	
	Electrical Vehicle Charging (EVC)	Along transit corridors/CBD			0.25	40	30	1.6	1.2	9	3	3	15	9	G+3	Provision of ingress and egress as specified in the National Building Code 2014
	Gas Station	Along transit corridors/CBD			0.2	40	30	1.6	1.2	9	3	3	15	9	G+3	
	Hybrid 1 (Fuel +EVC)	Along transit corridors/CBD			0.4	40	30	1.6	1.2	9	3	3	15	9	G+3	
	Hybrid 2 (Fuel +Gas)	Along transit corridors/CBD			0.4	40	30	1.6	1.2	9	3	3	15	9	G+3	
	Storage/packaging Go-Downs	Storage/ Parking Go-Downs			0.1	60	40	2.0	1.6	9	3	3	15	9	G+3	All Petroleum and Gas Products to align with EPPRA, Road Agencies Standards, Regulations and Recommendations.
	Medium Industrial (2)															

Designated Land Use	Zone Description	Zone No. RRU	Local Name	Permitted Land Use(s)	Minimum Plot size (Ha)	Ground Coverage (GC) %		Plot Ratio (PR)		Minimum Setbacks (meters) (Front: Side: Rear)			Minimum Frontage Road Width (meters)	Building Line (metres)	Building Height (No. of Floors)	Special Conditions/Notes	
						S	U	S	U								
	Go-Downs			Permitted: Agro-based millers; meat & milk processing plants; Brewery; Bakery; Bottling & canning; Food & Beverage; Coffee roaster; Honey processing	0.4	50	50	1.2	0.9	9	3	3	15	9	G+2	Clear indication of entry and exit along access roads Loading points to be located to the structure rear Loading to be buffered from possible residential land use Outdoor storage outlawed	
	County aggregation centres (agro-processing)				4	50	50	2.0	1.6	12	6	6	18	12	G+3		
	Heavy Industrial (3)																
	Go-Downs				Permitted: Heavy processing; manufacturing; quarrying; vehicle assembly plant; power generation; recycling plant; Distillery; concreting; bulk storage of hazardous substances; slaughterhouses; oil & natural gas processing; technological engineering	4	40	30	1.5	1.2	12	9	9	18	12	G+2	Clear indication of entry and exit Loading docks to be located to the rear of the building Loading area to be screened from residential users For comprehensive schemes, approval & execution of civil works (roads: water sewer drainage channels, street lighting) shall be mandatory before implementation of proposed development. Detailed master plan & comprehensive topographical data to support proposed developments
Industrial Parks	1 ₁	Existing Industrial Park		50		40	30	1.2	1.2	9	9	9	12	12	G+2	Elaborate ingress & egress Loading on service lanes	
	1 ₂	Proposed Industrial Park		2.0 ha		50	40	1.5	1.2	9	6	6	18	9m	G plus 1	<ul style="list-style-type: none"> Provide 3 - 6 M green zone as a buffer To provide loading and offloading zones Provide auxiliary services (Restaurant, 	

Designated Land Use	Zone Description	Zone No. RRU	Local Name	Permitted Land Use(s)	Minimum Plot size (Ha)	Ground Coverage (GC) %		Plot Ratio (PR)		Minimum Setbacks (meters) (Front: Side: Rear)			Minimum Frontage Road Width (meters)	Building Line (metres)	Building Height (No. of Floors)	Special Conditions/Notes
						S	U	S	U							
																<ul style="list-style-type: none"> clinic and recreational facility). Provide mothers daycare.
EDUCATIONAL (2)	Daycare (Below 3 years)		Single		0.1	50	40	1.0	0.8	9	3	3	9	6	G+1	
	Pre- (Playground; PP1; PP2)		Single		0.1	40	30	1.2	0.9	9	3	3	9	6	G+2	
			Double		0.2	40	30	1.2	0.9	9	3	3	9	6	G+2	
			Triple		0.4	40	30	1.2	0.9	9	3	3	9	6	G+2	
	Primary School		Single		0.8	40	30	2.0	1.5	9	3	3	12	6	G+4	
			Double		1.6	40	30	2.0	1.5	9	3	3	12	9	G+4	
			Triple		2.4	40	30	2.0	1.5	9	3	3	12	9	G+4	
	Junior Secondary School (JSS)		Single		0.4	40	30	2.0	1.5	9	3	3	12	6	G+4	
			Double		0.8	40	30	2.0	1.5	9	3	3	12	6	G+4	
			Triple		1.6	40	30	2.0	1.5	9	3	3	12	9	G+4	
	Senior Secondary School		Single		0.8	40	30	2.0	1.5	9	3	3	12	6	G+4	
			Double		1.6	40	30	2.0	1.5	9	3	3	12	9	G+4	
			Triple		2.4	40	30	2.0	1.5	9	3	3	12	9	G+4	
			Quadruple		3.0	40	30	2.0	1.5	9	3	3	12	9	G+4	
	Youth Polytechnic/TVETS				0.3	40	30	2.8	2.1	9	3	3	12	6	G+7	
College				2	40	30	4.0	3.0	9	3	3	12	9	G+9		
University				20	40	30	4.8	3.6	12	3	3	18	12	G+12		
RECREATIONAL	For Boarding schools, additional land requirement of 50% of minimum land requirement															

Designated Land Use	Zone Description	Zone No. RRU	Local Name	Permitted Land Use(s)	Minimum Plot size (Ha)	Ground Coverage (GC) %		Plot Ratio (PR)		Minimum Setbacks (meters) (Front: Side: Rear)			Minimum Frontage Road Width (meters)	Building Line (metres)	Building Height (No. of Floors)	Special Conditions/Notes
						S	U	S	U							
(3)	Stadium				2	30	20	0.3	0.3	9	6	6	18	9	G+3	Support and convenience stalls acceptable
	Playground				0.2	20	10	0.1	0.1	9	6	6	9	6	G+1	Provide central Parking spaces
	Recreational Garden				0.4	20	10	0.2	0.2	9	6	6	12	6	G+3	Auxiliary survives
	Park				0.4	20	10	0.1	0.1	9	6	6	12	6	G+3	
	Private Zoo				4	20	10	0.2	0.2	9	6	6	12	9	G+2	
	Amusement Park				0.2	30	20	0.1	0.1	9	6	6	12	9	G+2	
	Botanical Garden				1.2	15	10	0.45	0.30	9	6	8	12	9		
PUBLIC PURPOSE	1. Health Facilities															
(4)	Level 6 -National Referral & Teaching Hospitals				20	40	30	8.4	8.4	15	5	10	25	15	G+14	
	Level 5 -County Referral Hospitals				8	40	30	4.4	4.4	9	5	5	18	9	G+9	
	Level 4 -Hospitals				1.6	40	30	2.4	2.4	9	3	5	15	6	G+7	
	Level 3 -Health Centres with Maternity wing				1	40	30	4.4	4.4	6	2.5	5	12	6	G+7	
	Level 2 -Dispensaries & clinics				0.1	40	30	2	2	6	2.5	3	9	6	G+3	
	Specialized clinics with inpatient wing e.g. palliative care				0.2	40	30	4.4	4.4	6	2.5	5	12	4.5	G+7	
	Level 1 -Community facilities/Health clubs/Rehab centres				0.1	40	30	1.5	1.5	3	2.5	3	9	4.5	G+3	
	2. Other Public Purpose facilities															
	Police Station				1.2	40	30	1	1	9	6	6	12	9	G+7	
	Police Post				0.1	50	40	1.5	1	6	2.5	2.5	9	6	G+3	
	Patrol Base				0.045	50	40	2	1	6	2.5	2.5	9	6	G+3	
	High Court				1.2	50	40	2	1	9	6	6	15	9	G+7	
	Magistrate Court				0.4	50	40	1	1	6	6	6	9	6	G+3	
	Prisons				16	40	30	0.25	0.25	20	20	20	15	20	G+4	

Designated Land Use	Zone Description	Zone No. RRU	Local Name	Permitted Land Use(s)	Minimum Plot size (Ha)	Ground Coverage (GC) %		Plot Ratio (PR)		Minimum Setbacks (meters) (Front: Side: Rear)			Minimum Frontage Road Width (meters)	Building Line (metres)	Building Height (No. of Floors)	Special Conditions/Notes
						S	U	S	U							
	Religious Institutions				0.1	50	40	1	1	4.5	2.5	2.5	9	4.5	G+3	
	Cultural Centre				0.2	40	40	1.5	1.5	6	6	6	9	6	G+3	
	Fire Station				0.4	40	30	0.5	0.5	6	2.5	4.5	12	9	G+5	
	Library				0.1	50	40	0.5	0.5	6	2.5	4.5	9	6	G+7	
	Home for the Elderly				0.2	40	30	0.5	0.5	9	6	6	9	6	G+2	
	Funeral Homes/crematorium				0.2	30	20	0.5	0.5	9	6	6	12	12	G+2	
	Social Hall				0.1	40	30	1.5	1.5	9	6	6	9	6	G+4	
	Youth Centre				2	30	20	0.3	0.3	9	6	6	9	6	G+4	
	Private Clubs and Lodges				0.2	20	10	0.1	0.1	9	6	6	9	6	G+4	
	Cemetery				1	20	10	0.1	0.1	9	6	6	12	9	G+3	
	Children's Home				0.1	50	40	2.0	2.0	9	6	6	12	6	G+5	
	Innovation Hub				0.045	60	50	2.0	2.0	9	6	6	9	4.5	G+3	
	Abattoirs				1	40	30	1.5	1.5	9	6	6	9	9	G+2	
	Slaughter slab				0.2	40	30	0.8	0.8	9	6	6	6	6	G+1	
	Administrative Office				0.2	60	50	3.0	2.5	9	6	6	12	9	G+5	
COMMERCIAL (5)	Ruiru Town		Permitted: Modern markets; multi-storey developments; shopping complexes; office buildings; showrooms; retail	Shopping mall	0.4 >	70	60	3.5	3.0	4.5	1.2	6	9	9	G+5	Double volume in heights 1 parking lot per 100sm
				Supermarkets	0.1	70	60	3.5	3.0	4.5	1.2	6	9	6	G+5	Additional parking in basement or top floor Shall create space for recreational amenities e.g. kids playing area
	Mini Marts			0.045	70	60	3.5	3.0	4.5	1.2	3	9	3	G+5	Double volume in heights 1 parking lot per 100sm	
	Northlands Kamakias			0.1	70	60	3.5	3.0	4.5	1.2	6	9	6	G+5	Double volume in heights 1 parking lot per 100sm	
			wholesale shops; hotels; eateries; professional offices; hostels;													

Designated Land Use	Zone Description	Zone No. RRU	Local Name	Permitted Land Use(s)	Minimum Plot size (Ha)	Ground Coverage (GC) %		Plot Ratio (PR)		Minimum Setbacks (meters) (Front: Side: Rear)			Minimum Frontage Road Width (meters)	Building Line (metres)	Building Height (No. of Floors)	Special Conditions/Notes
						S	U	S	U							
	Mwihoko Mwalimu Farm		transport yards; public facilities; parking silos		0.045	70	60	3.5	3.0	4.5	1.2	3	9	3	G+5	
PUBLIC UTILITIES (6)																
	Power Sub-Station				0.1	20	10	0.8	0.4	9	3	3	15	9	G+3	
	Data Centres				0.2	60	50	3.0	2.5	9	3	3	15	9	G+5	
	BTS Communication masts				0.045	80	60	1.6	1.2	9	1.2	2.4	12	4.5	G+1	
	Waste Transfer Stations				0.4	30	20	1.2	0.8	12	3	3	12	9	G+3	
	Solid Waste Treatment Plant				0.2	30	20	1.2	0.8	9	3	3	12	6	G+3	
	Scrap/ Junk yards				0.1	30	20	1.2	0.8	9	3	3	12	6	G+2	
	Waste treatment plant				0.1	20	10	0.2	0.2	12	3	3	12	6	G+2	
	Water Towers				0.1	30	20	1.5	1.5	12	3	3	9	6	G+2	
	Water Hydrants				0.045	50	40	1	1	12	3	3	9	6	G+1	
TRANSPORTATION (7)																
	Weighbridge				0.4	20	10	0.6	0.3	9	3	3	15	9	G+3	
	Parking Silo				0.2	80	60	4.0	3.0	9	3	3	15	9	G+5	
	Bus Parks/Stage				1.6	30	20	0.9	0.6	9	3	3	12	6	G+3	
	Boda-Boda sheds				0.045	60	50	1.2	1.0	4.5	1.2	3	12	3	G+1	
	BRT Stations				1.6	30	20	0.9	0.6	9	3	3	15	6	G+3	
	Parking lot for bicycles				0.045	60	50	1.2	1.0	4.5	1.2	3	12	3	G+1	
	Railway Station				1.6	30	20	0.9	0.6	9	3	3	15	6	G+3	
	Parking Yard for trucks				1.2	30	20	0.9	0.6	9	3	3	15	6	G+2	
	Air strip				8.0	15	10	0.45	0.30	9	6	6	18	12	G+2	
AGRICULTURE (8)																
	Large Scale	RRU9-21		All Agricultural and aligned land uses supporting this land use	0.2	50	40	2.25	1.8	6	3	3	15	9	G+2	Major land use remains agricultural 0.2 for land below 2.5ha

Designated Land Use	Zone Description	Zone No. RRU	Local Name	Permitted Land Use(s)	Minimum Plot size (Ha)	Ground Coverage (GC) %		Plot Ratio (PR)		Minimum Setbacks (meters) (Front: Side: Rear)			Minimum Frontage Road Width (meters)	Building Line (metres)	Building Height (No. of Floors)	Special Conditions/Notes
						S	U	S	U							
Mixed Use																Above 2,5 minimum 0.4 ha
	Medium scale	RRU 9-22	Mwalimu Farm and all Horticultural and Urban agriculture		0.045	50	40	2.25	1.8	6	3	3	15	9	G+2	Urban Agriculture
	Small Scale		Within The Municipality		0.045	--	-	-	-	-	-	-	-	-	-	This applies mostly to urban agriculture for horticulture
		RRU 10-1	Tatu city & northlands		As Per approved spatial master plans											As Per Approved Master Plans

ALL HIGH-DENSITY ZONES	LAND SIZES	G C (%)		SPECIAL CONDITION
		S	U	
Residential high density	0.03-0.044Ha	65	55	G+4FLOORS 2.5M BUIDLING LINE

Residential High Density	Below 0.03Ha	70	60	G+3 FLOORS 2.0 M BUILDING LINE
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NB.

High density zones with Land between 0.045HA -0.1HA and 0.1HA-0.2HA to provide building line of 4.5M and 6M respectively.

Every development to have a fruit tree planted in the plot.

Every development to install solar water heating systems as an art of environment conservation.

To provide a kitchen garden in all residential development.

Legend: GC =, Ground Coverage; PR = Plot Ratio; S = Sewered area, U = Unsewered area

Reference: Draft Kiambu County Spatial Plan 2016-2022 & Consultants' Input

- i. **Restricted Development/Development Permitted with Special Sanction of the Competent Authority**
- Night shelters, petrol pumps, motor vehicle repairing workshop/garages, household industry, bakeries and confectionaries, storage of LPG gas cylinders, burial-grounds, restaurants, and hotels (not exceeding 200 m² in floor area), and small butchery;
 - Printing press, cinema hall, auditoriums, markets for retail goods, weekly markets (if not obstructing traffic circulation and open during non-working hours), informal markets, multipurpose or junior technical shops, municipal, county, and central government offices, and police stations; and
 - Public utility buildings like electrical distribution depot, water/sewerage pumping stations, waterworks, fire stations, telephone exchanges/mobile tower, and matatu station/boda stand (occupying a floor area not exceeding 200 m²).
- ii. **Prohibited Development:** All development not specifically permitted as above are prohibited in residential zones including the following:
- Heavy, large and extensive industries: noxious, obnoxious, and hazardous industries;
 - Warehousing, storage go-downs of perishables, hazardous, and inflammable goods;
 - Workshops for matatu/boda boda/buses etc.;
 - Slaughterhouses; and
 - Waste treatment plants and shooting range.
- iii. **Amendments to development permitted:** The County Government may from time to time add to or amend the above list by considering overall land use compatibility through notification. The land-use regulations in terms of plot size, plot coverage, density, plot ratio and set-backs are presented in the Table 14-3:

Table 14-3: Residential Use Development Ordinances

Housing Typology	Density	Zoning Code	Minimum plot size (Ha)	Plot Coverage %		Plot ratio		Minimum Road width (m)	Building line (m)
				S	U	S	U		
Bungalow	Low		0.1	3	3	0.	0.	9	6
				5	5	4	4		
	Medium		0.045	5	5	0.	0.	9	4.5
High			0.045	6	6	0.	0.	9	3
				5	0	6	6		
Maisonettes	Low		0.2	2	2	0.	0.	9	6
				5	5	5	5		
			0.1	4	4	0.	0.	9	6
				0	0	8	8		
Semi-detached and row housing	Low		-	-	-	-	-		
	Medium		0.045	5	5	1.	1	9	4.5
				5	0	1	1		
High		0.045	6	6	0.	0.	9	3	
				5	0	6	6		
						5			

Housing Typology	Density	Zoning Code	Minimum plot size (Ha)	Plot Coverage %		Plot ratio		Minimum Road width (m)	Building line (m)
				S	U	S	U		
	Special density (rentals)		0.03	70	60	3.5	3	9	3

Legend: S = Sewered; U = Unsewered

Reference: Kiambu County Spatial Plan 2016-2022

- iv. **Parking allocation for residential development:** The general principle to be followed is one car parking space per 100m^2 gross built area (refer to 'Car Parking in Buildings' of Kenya Planning and Building regulations 2009) and considering the different bedroom dwelling units in the Sub-County. The following parking norms need to be followed for parking in residential areas:
- 1 parking space per 2 (1-bedroom dwelling unit);
 - 1 parking space per 1 (2-bedroom dwelling unit); and
 - 1.5 parking space per 1 (3-bedroom dwelling unit).
- v. **Dead-end streets (cul-de-sac):** A dead-end-street should be aligned in such a way that it shall give access to not more than 8 to 10 residential plots, and it should not exceed 60 m in length and shall have a turning radius of at least 15 m hammerhead.

Table 14-4 below shows the required land and the regulations guiding the development of primary schools which include nursery and secondary schools.

14.2.2 COMMERCIAL USE

- vi. **Permitted Development:** The permitted developments in commercial areas include: shops, convenience/neighbourhood shopping Centre, local shopping centres, cluster Centre, sub-CBDs, professional offices, workplaces/offices, banks, stock exchange/financial institutions, bakeries and confectionaries, cinema halls/theatres, malls, banqueting halls, guest houses, restaurants, hotels, petrol pumps, warehousing, general business, wholesale, hostel/boarding housing, banks/ATM, auditoriums, commercial service centres/garages/workshop, wedding halls, weekly/informal markets, libraries, parks/open space, museums, police stations/posts, matatu stands, boda-boda stands, parking sites, post offices, government/institutional offices, etc.
- vii. **Restricted Development:** Non-polluting, non-obnoxious light industries, warehousing/storage go-downs of perishable, inflammable goods, coal, wood, timber yards, bus and truck depots, gas installation and gas works, poly-techniques and higher technical institutes, junkyards, railway stations, sports/stadium and public utility installation, religious buildings, hospitals, and nursing homes.
- viii. **Prohibited Development:** All development not specifically mentioned above are prohibited in this zone.

14.2.3 INDUSTRIAL USE

- ix. **Permitted Development:** The following uses will be permitted for the main purposes and accessory uses:
 - All developments are permissible in the Industrial Zone with the special sanction of the authority except residential uses;
 - Residential buildings for security and other essential staff required to be maintained within premises;
 - Police posts or security company offices; and
 - All kind of industries, public utilities, parking, loading, unloading spaces, warehousing, storage and depot of non-perishable and non-inflammable commodities and incidental use, cold storage and ice factory, gas go-downs, cinema, workshop, wholesale business establishments, petrol filling stations with garage and service stations, parks and playgrounds, medical centres, restaurants, matatu station, etc.
- x. **Restricted Uses or Use Permitted with the Special Sanction of the Authority:** Some of the developments may be permitted with the special sanction of the competent authority. These may include noxious, obnoxious, and hazardous industries, storage of

explosive and inflammable and dangerous materials, junkyards, electric power plants, service stations, cemeteries, business offices, bank and financial institutions, helipads, religious buildings, gas installations and gas works, stone crushing, small shopping centres, etc.

- xi. Developments Prohibited:** All developments not specifically permitted as mentioned above shall be prohibited.
- xii. Sewerage Connection:** The industrial unit needs to be connected with the sewer system. If there is no sewer available in the area, then an adequate bio-digester must be approved by the utility company before installation. Industrial establishments emitting chemical/toxic waste shall abide by NEMA guidelines that include providing an effluent treatment plant with a capacity of treating the discharge.
- xiii. Land Use of the Industrial Area:** The new industrial area may be planned as per the following norms for allocation of land for various compatible land uses

GENERAL STANDARDS FOR COMPREHENSIVE DEVELOPMENTS

All development proposals on land size 8ha (20 acres and above) constituting at least 2 principal land uses will be considered as comprehensive developments. The applications will be required to indicate permitted use, densities, access roads, plot coverage, plot ratio and building heights, and shall include 3D models. Each comprehensive development should provide detailed standards and guidelines to be considered by the county for advice/approval. Land allocation shall take into account compatibility of adjoining land uses and conform with long-term plan proposal for the area (existing plans and policies)

All comprehensive development proposals must surrender adequate land for public purpose to the relevant authority. Land Uses and sizes to be surrendered for public use in a comprehensive development should be as per the planning standards in specific ISUDP and will be based on expected population and distances of access to these facilities. A needs assessment shall be required for all comprehensive development proposals. Surrendered land shall be forwarded to the relevant authority for development.

Minimum land requirements for the principal land use in Ruiru subcounty within comprehensive development shall be based on industrial and Residential as indicated on the vision of the ISUDP.

NB: Review/amendment of comprehensive developments shall not be done before the expiry of 3 years.

Other general considerations for comprehensive developments

- a. Shall provide for use/application of green energy (at least 30% of total energy needs)
- b. Shall provide 10% of the area for forestry/tree planting
- c. Shall provide for solid waste disposal mechanism (transfer station(s))
- d. for residential units on less than 0.1ha each, the proposal shall provide a common onsite liquid waste treatment plant/centralised wastewater management system
- e. Shall provide for recycle of grey water

- f. Shall provide for water harvesting/roof tanks/underground collection
- g. Civil works (electricity, roads, wastewater, water, communication lines) shall be completed to county standards before development
- h. Shall take into account urban design considerations: orientation towards maximum solar capture, lighting and ventilation; consider direction of wind; movement of wildlife/protection of rare ecosystem/protection of heritage sites (sacred trees, structures)
- i. Shall ensure adoption of locally available & environment friendly construction materials
- j. Shall provide for Non-Motorized Transport (NMT) facilities: provision of friendly pedestrian walkways, cycling lanes, footbridges, zebra crossings, pick and drop points, etc

RESIDENTIAL APARTMENTS IN COMPREHENSIVE DEVELOPMENTS

- a. Minimum land that allows for comprehensive development (apartments) shall be 1.2ha (3 acres)
- b. Shall have minimum allowable ground coverage of 40% & Plot Ratio of 10 (ground+9 floors)
- c. Parking requirements shall be as provided in the respective ISUDP
- d. Shall provide recreational/children play area (or floor area for play area),
- e. Shall provide for pre-primary facilities, laundry area, corner shop/minimart, mechanical sewer space, alternative water source, among others as guided in the proposal

14.3 Detailed Action Plans

The detailed action plans are associated with the vision and goals and adaptation strategies with specific spatial restructuring parameters and mitigation measures with clear quick win goals. These action plans will require the establishment of both horizontal and vertical collaborations within and amongst government departments and relevant agencies and the private sector for resource optimisation.

The plan has considered two action areas namely.

- Ruiru CBD; and
- Githurai.

14.3.1 ACTION AREA 1: DELINEATION OF RUIRU CBD

The CBD Extent Delineation: The delineation of Ruiru CBD is defined by the Ruiru River, which serves as its north-western edge, Eastern By-Pass Road and the southern edge and the 2nd Sunrise Avenue, as the Eastern boundary.

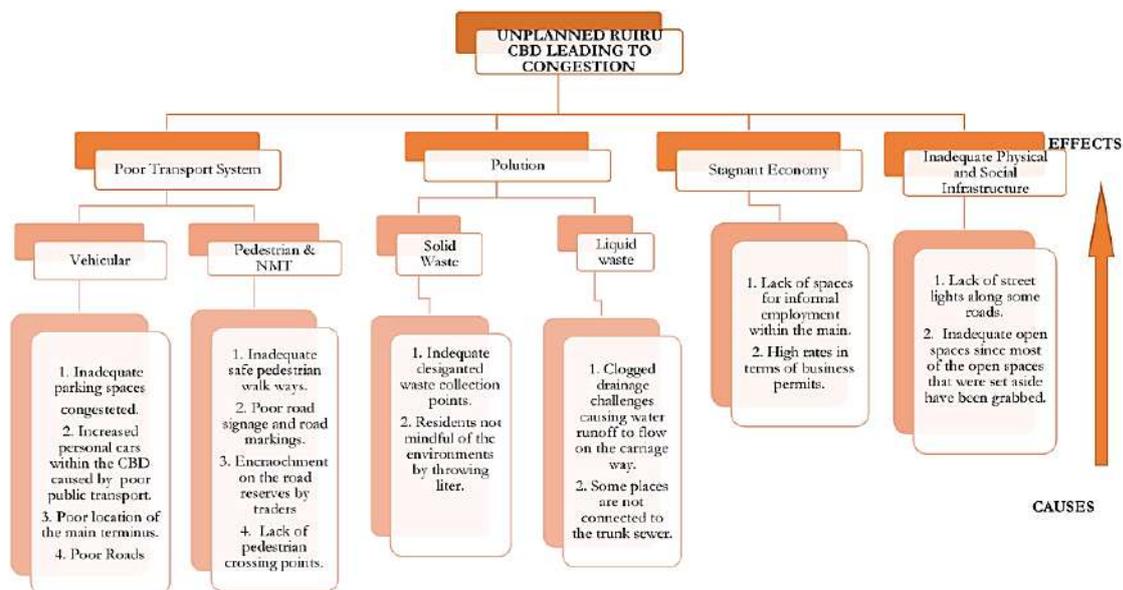
Planning Challenges: Currently, some of the major planning challenges in Ruiru are as illustrated in the problem tree shown in Figure 14-1.

Goal: To create a sustainable, economically vibrant modern town with well-planned and integrated transportation systems and reliable physical and social infrastructure for its residents and visitors.

Objectives: From the stakeholders' workshop, the residents had the following objectives for Ruiru CBD:

- To have an efficient, modern, and reliable, transportation system that integrates all modes of transport;
- To provide affordable, reliable, and modern public amenities and services to meet the needs of the people;
- To provide adequate social service infrastructures that are well within reach, equipped and in good condition; and
- To be a 24-hour economy that will attract even foreign investors; and
- To have a proper waste management system that ensures proper waste disposal.

Figure 14-1: Ruiru Town Problem Tree



Source: Vision RI

Intervention 1: Land Use Interventions

In reference to the identified challenges, the land use allocation (Figure 14-2) has been recommended to support various initiatives: and measures to address short- and long-term outcomes. Already the County Government, in collaboration with other agencies, has in place various programmes and projects listed in Table 14-10, which will contribute to the objectives and desired outcomes.

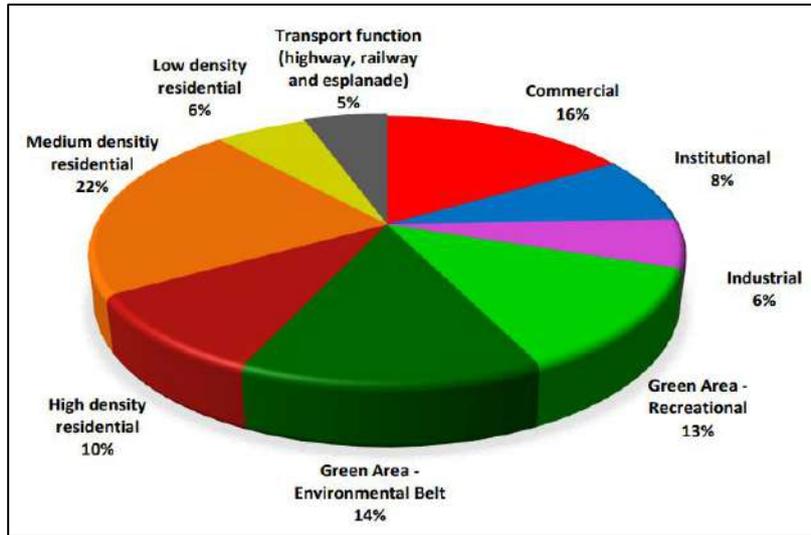
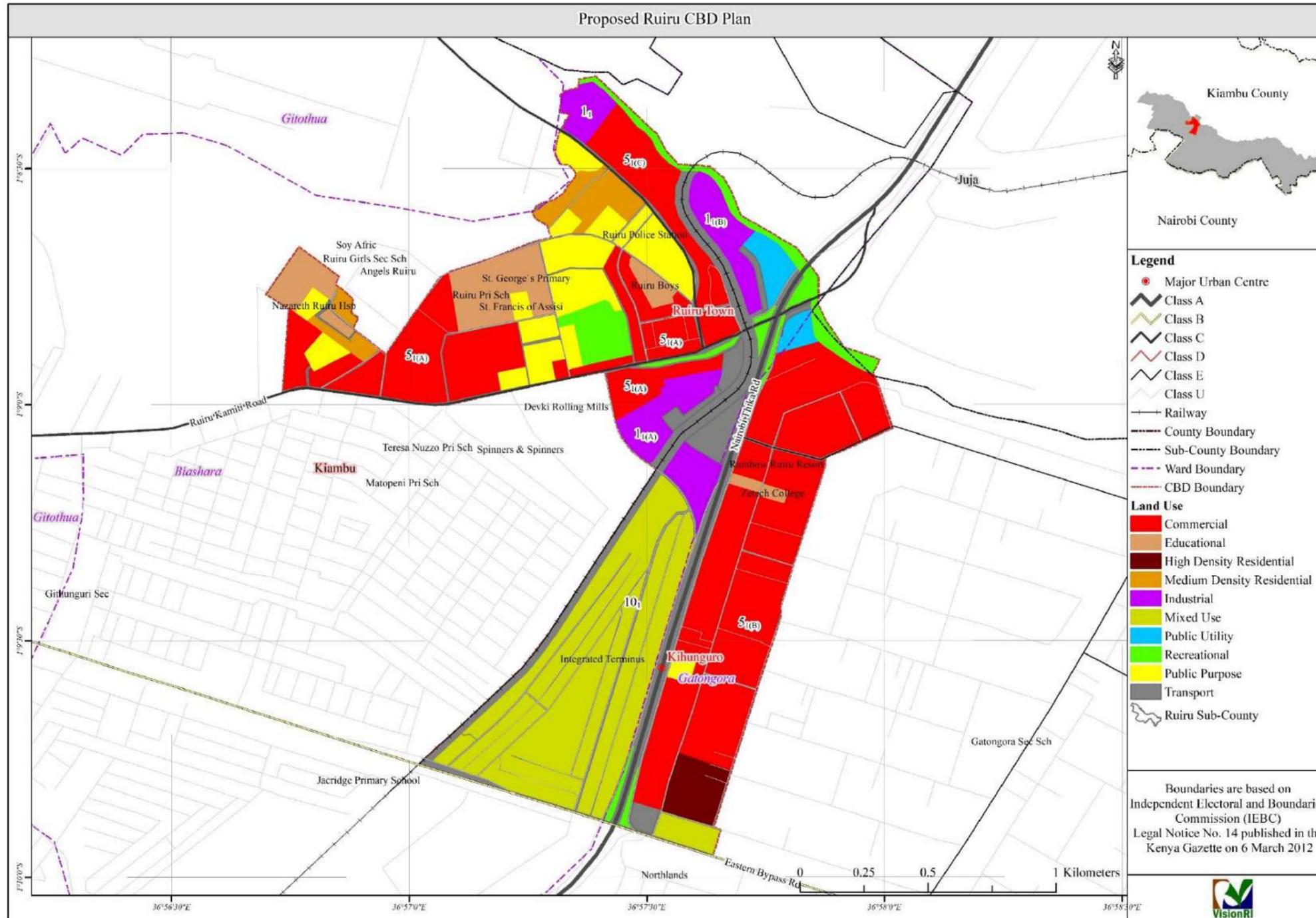


Figure 14-2: Proposed Land Use Share in Ruiru Town

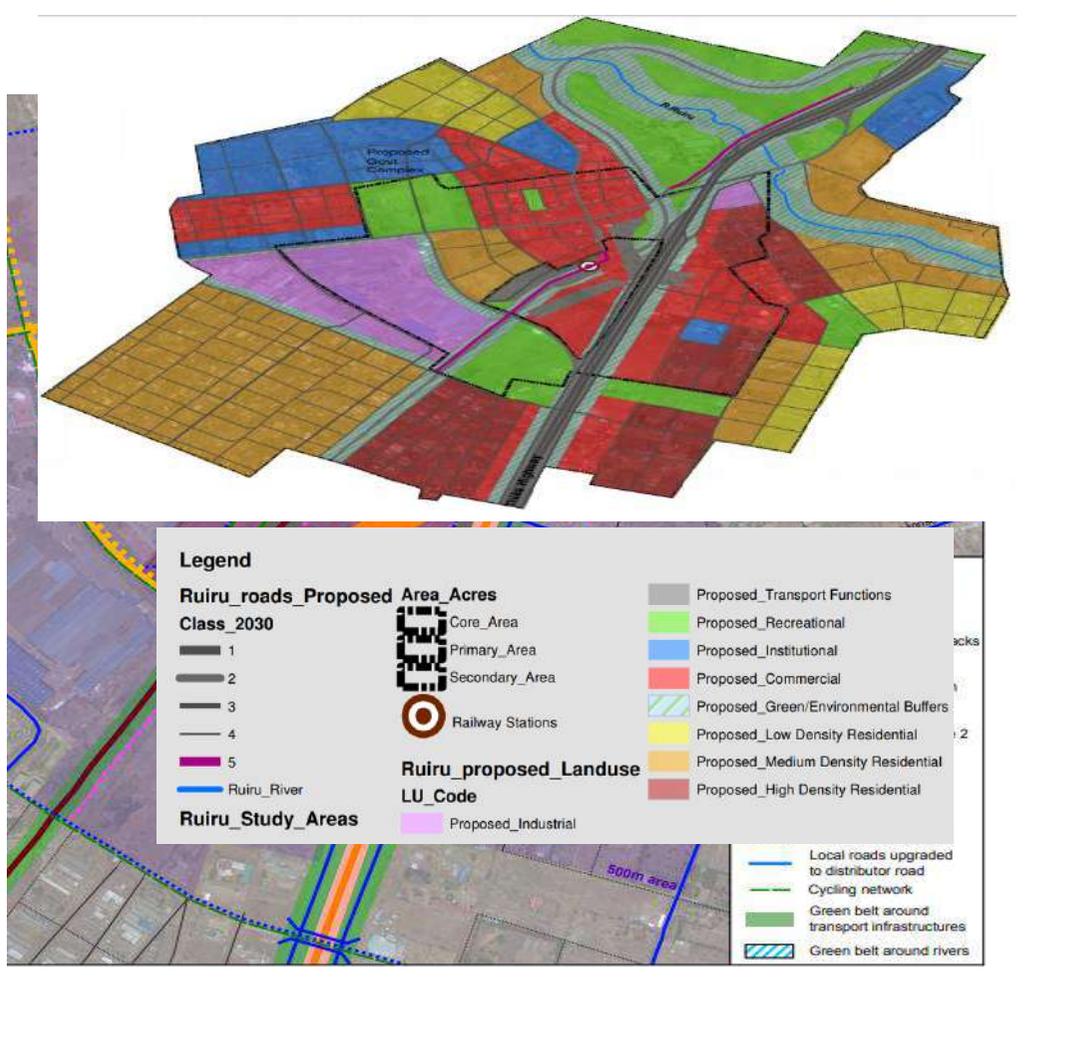
Source: Interdisciplinary Land-Use and Transport Metropolitan Analysis within the Nairobi Metropolitan Region (ILUT) 2015

Map 14-2: Proposed Ruiru CBD Plan



Source: VisionRI

Table 14-2: Actions/Interventions in Ruiru Town

Land Use/ Sector	Action/Interventions																																								
Transport	<ul style="list-style-type: none"> ● Improve the NMT by improving the pedestrian walk and cycling lanes on all roads within the CBD; ● Construct a modern bus park on the land adjoining the railway station and Thika Super highway to integrate the BRT and Commuter Railway station; ● Upgrading the entrance road from Thika Superhighway into four lanes. 	 <p>Legend</p> <table border="0"> <tr> <td>Ruiru_roads_Proposed Area Acres</td> <td></td> <td>Proposed_Transport Functions</td> </tr> <tr> <td>Class_2030</td> <td>Core_Area</td> <td>Proposed_Recreational</td> </tr> <tr> <td>1</td> <td>Primary_Area</td> <td>Proposed_Institutional</td> </tr> <tr> <td>2</td> <td>Secondary_Area</td> <td>Proposed_Commercial</td> </tr> <tr> <td>3</td> <td></td> <td>Proposed_Green/Environmental Buffers</td> </tr> <tr> <td>4</td> <td>Railway Stations</td> <td>Proposed_Low Density Residential</td> </tr> <tr> <td>5</td> <td></td> <td>Proposed_Medium Density Residential</td> </tr> <tr> <td>Ruiru_River</td> <td>Ruiru_proposed_Landuse LU_Code</td> <td>Proposed_High Density Residential</td> </tr> <tr> <td></td> <td>Proposed_Industrial</td> <td></td> </tr> <tr> <td>Ruiru_Study_Areas</td> <td></td> <td>Local roads upgraded to distributor road</td> </tr> <tr> <td></td> <td></td> <td>Cycling network</td> </tr> <tr> <td></td> <td></td> <td>Green belt around transport infrastructures</td> </tr> <tr> <td></td> <td></td> <td>Green belt around rivers</td> </tr> </table>	Ruiru_roads_Proposed Area Acres		Proposed_Transport Functions	Class_2030	Core_Area	Proposed_Recreational	1	Primary_Area	Proposed_Institutional	2	Secondary_Area	Proposed_Commercial	3		Proposed_Green/Environmental Buffers	4	Railway Stations	Proposed_Low Density Residential	5		Proposed_Medium Density Residential	Ruiru_River	Ruiru_proposed_Landuse LU_Code	Proposed_High Density Residential		Proposed_Industrial		Ruiru_Study_Areas		Local roads upgraded to distributor road			Cycling network			Green belt around transport infrastructures			Green belt around rivers
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		Cycling network																																							
		Green belt around transport infrastructures																																							
		Green belt around rivers																																							
Residential	<ul style="list-style-type: none"> ● To achieve high-density within the town, higher plot ratios are proposed buildings to have 7-10 floor with the ground floor being mixed-use; and ● For medium density, buildings shall have between 4 to 6 floors with the ground floor being mixed-use. 																																								
Commercial	<ul style="list-style-type: none"> ● Increase plot ratios to accommodate more plinth area for commercial activities; and ● Promote alternate use of selected public spaces (flea/Curio artefacts markets concept). 																																								
Industrial	<ul style="list-style-type: none"> ● Promote new investments and expand current industrial activities; and 																																								

Land Use/ Sector	Action/Interventions	
	<ul style="list-style-type: none"> ● Identify tax incentives and friendly tariffs for ease of doing business. 	
Recreation	<ul style="list-style-type: none"> ● The main recreation space available in the Ruiru stadium. Urban design intervention is recommended; ● Covert the current bus terminus into a picnic recreation space upon relocation to the new terminus site; and ● Other recommended sites are along Ruiru river belts as shown in the action plan. 	

Source: VisionRI

According to the EGIS report on the Interdisciplinary Land-Use and Transport Metropolitan Analysis within the Nairobi Metropolitan Region (ILUT) for the MoLH&UD, various projects have been identified and others have already commenced. Below are some of the major projects proposed within the CBD.

Intervention 2: Traffic Management Strategy

The town's main structure is radial with the centre defined by the intersection of Ruiru-Kamiti Road (C63) and Ruiru-Githunguri Road (C65) near the superhighway.

Existing Traffic Situation: Ruiru town's urban form is influenced by the following structuring elements: Nairobi-Thika Highway, railway line, Ruiru River, institutions of higher learning, and major industries around the town. The functioning of these elements along the existing situation is summarised as follows:

- **Poor NMT Facilities:** Ruiru's streets are vehicle-oriented and not pedestrian-friendly. In a town where more than 50% of the residents walk, there are no adequate facilities that cater to pedestrians such as sidewalks, cycle lanes and proper traffic calming measures. The existing sidewalks are either not well-paved, not provided at all, or have been encroached on by illegally parked vehicles, hawkers, and shops.
- **Pedestrian/Vehicular Conflicts and Encroachment:** Pedestrian/vehicular and traders/pedestrians' conflict in Ruiru are caused by lack of dedicated infrastructure, undesignated parking spaces, leading to haphazard parking, poor street signage/road markings, the encroachment of trading activities onto the streets forcing pedestrians into the vehicular space. (see Image 14-1)
- **Dysfunctional Bus Terminal within the CBD:** The bus terminal is congested, poorly maintained, has poorly paved access roads, and has poor linkage with the railway station.
- **CBD Street Patterns:** Ideally, the street scene is the public 'living space' that reflects its importance and can be enjoyed by the local residents. Ruiru town is characterised by an organic street pattern, defined by two major roads – Kiambu-Kamiti Road and Ruiru-Githunguri Road – that traverses the town and serve as its main spines. As such, these roads have been given priority leading to the neglect of other roads. Although the road carriageways are sufficient, encroachment by hawkers and unauthorised parking as a result of mismanagement cause heavy traffic congestion on the road. The town's main structure is radial with the centre defined by the intersection of C63/65 Road and the Ruiru-Kamiti Road near the superhighway. These two roads are linked by a local circumferential road. The enclosed area defines the commercial centre where the Ruiru Sub-County Market may be found and where streets are laid out in a grid manner.

The streetscape within the CBD is disorganised as there is no definitive division between spaces for vehicles and pedestrians due to minimal sidewalks. The inadequacy of sidewalks

causes pedestrians and vehicles to use road carriageways together for movement. Only the main roads have all-weather pavements while interior roads are mostly earth paved.

- **Vehicular Parking:** Vehicle parking in towns is viewed as a major source of revenue for the County. The most dominant type of street parking is perpendicular, angular, or unorganised parking mainly along spaces meant for NMT. It is advisable to have pedestrian-friendly parallel parking at designated points which would make traffic and parking management as well as revenue collection easier for the County.

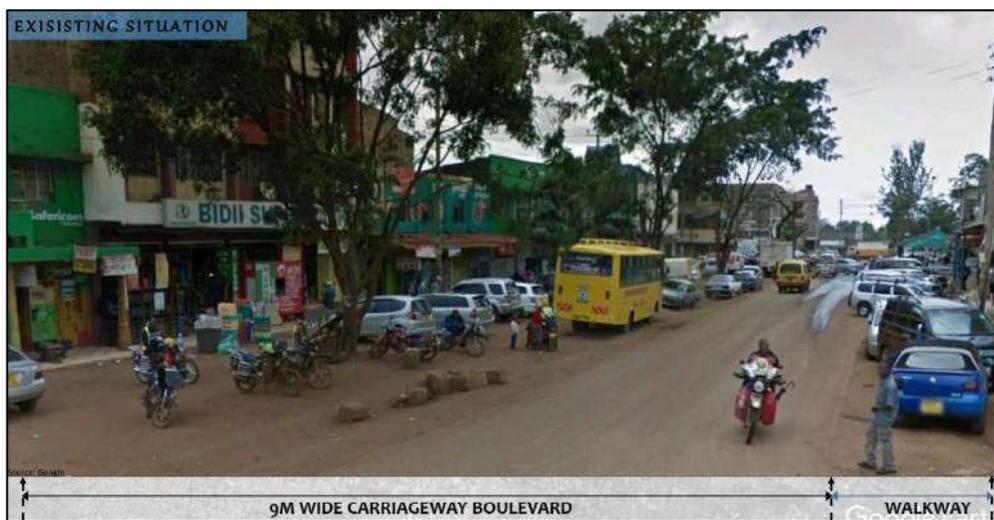


Image 14-1: Sample Images of Ruiru CBD

Source: VisionRI Field Survey

The Image 14-2 shows the proposed traffic circulation plan for the inner CBD.



Image 14-2: Proposed Vehicular Circulation

Source: VisionRI



Image 14-3: Proposed Market Upgrade and Pushcart Parking

Intervention 3: Urban Design

The urban design goal is to secure a CBD that has distinct and desired town character, economic vibrancy, visual appeal and mobility comfort and convenience necessary to attract residents and businesses. Aerial Image 14-4 shows the extent of the urban design scheme precinct.

The achievement of this goal will be guided by formulating policies and by-laws on the following CBD elements:

- Way finding systems (commonly referred to as property numbering system);
- Storefront designs, (canopies, window displays, etc.);
- Products audio and visual advertisements;
- Tuck-kiosk and pavement services designs;
- Focal points (such as monuments); and
- Height and roof shapes and profiles.

14.3.2 URBAN DESIGN INTERVENTIONS

- i. Building Form:** Most buildings are mixed-use with commercial below and residential on the upper floors. Buildings range from 1 to 6 storeys with no common architectural style or motif. Streetscape is disorganised and characterised in informality. The regular street pattern and relatively flat terrain within Ruiru have resulted in the development of high-rise buildings.

Image 14-5 shows urban design action spots for detailed design considerations of the downtown elements.

- ii. Street Furniture & Pedestrian Outlay:** The street networks and connectivity in CBDs should be accommodative both street furniture and landmarks. Pedestrian priority allows vehicular traffic is controls and only permitted during delivery of merchandise or in situations of emergency. It is, therefore, prudent to consider sufficient furniture and pedestrian mobility outlay along the business centres and markets.
- iii. Landmarks:** Notable landmarks in Ruiru town are the rehabilitated railway station and bus terminus located at the heart of the CBD. Other landmarks include the industrial zone which hosts Devki Maisha Mabati Limited and Spinners and Spinners Limited. The town lacks an entrance 'gateways' especially from the main road such as Ruiru-Kamiti Road and the exit road from Thika Superhighway.
- iv. Median Improvement:** This is the High Street of Ruiru Town (on Ruiru-Kamiti) with a median of approximately 9m wide and 300m long. The main activities on the median are parking of boda-bodas, hawking, kiosks and a public toilet.

Image 14-7 below depicts the current poor state of the median. The designs will include spot actions that will yield ample pedestrian sidewalks that are landscaped and provided with stormwater drains. The road right-of-way widths shall be 9m and 27 meters. Images 14-9 and 14-10 are conceptual illustrations for further detailed designs during implementation.

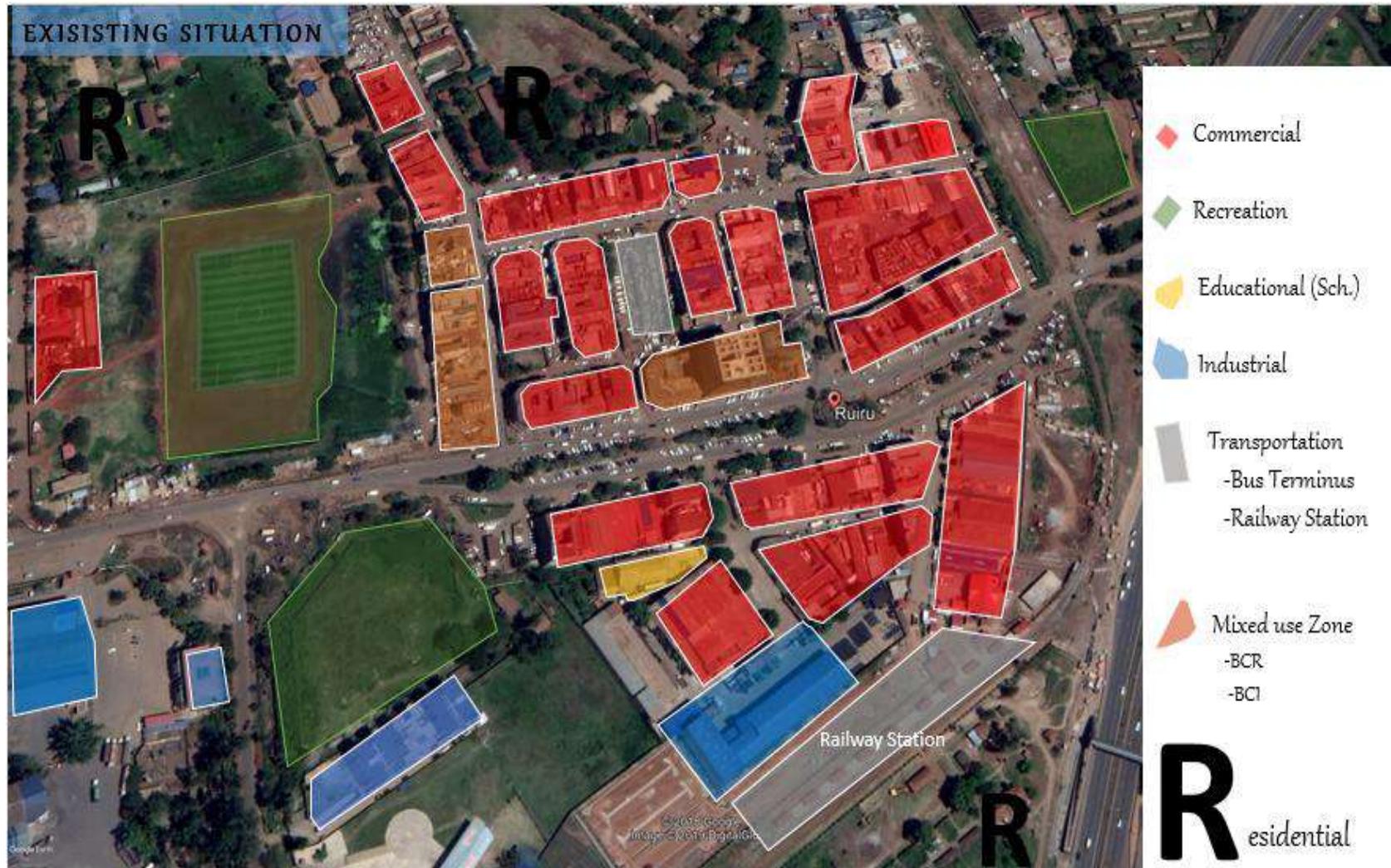


Image 14-4: Ruiru Urban Design Precinct

Source: VisionRI

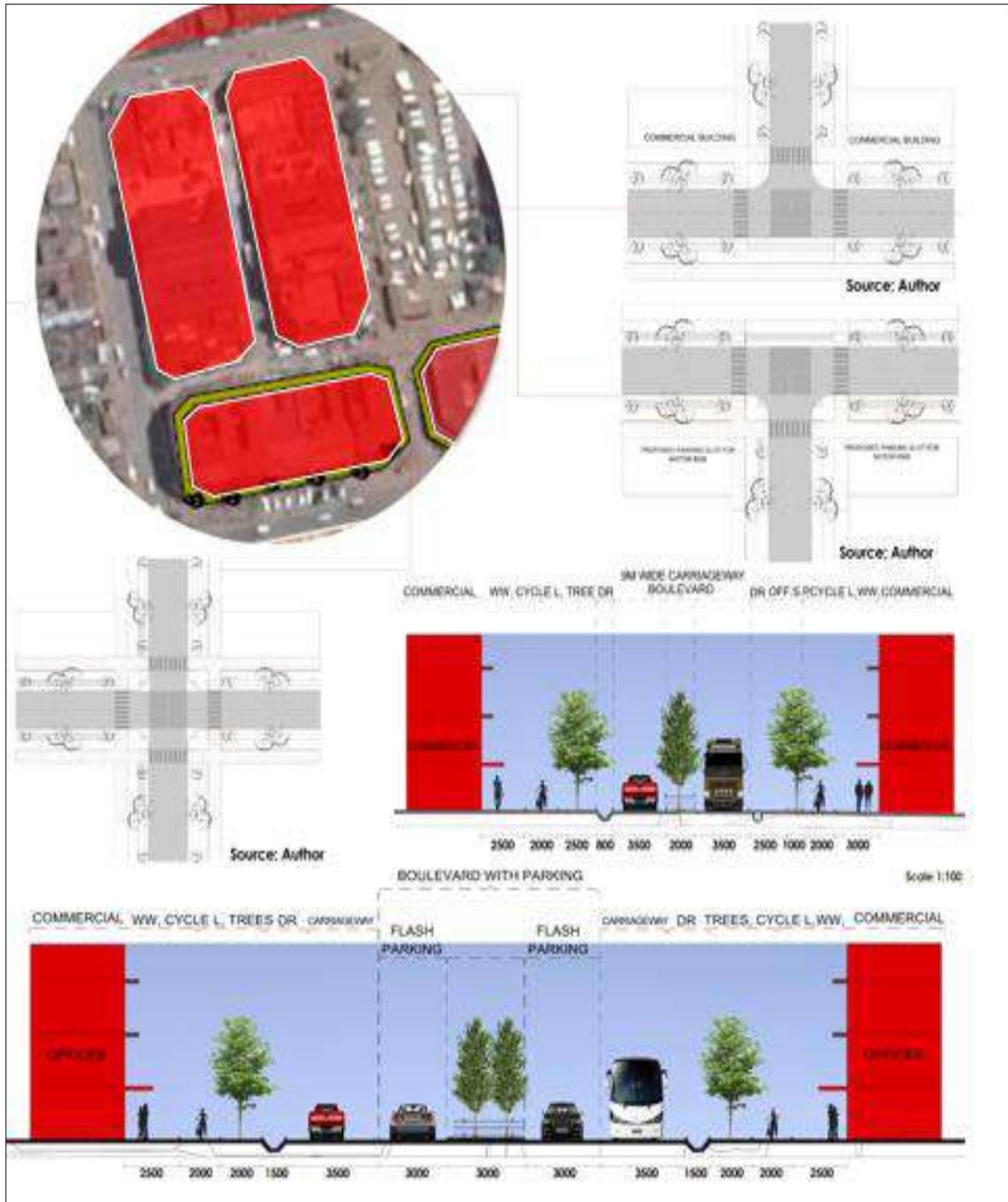


Image 14-5: Spot Action Proposals

Source: VisionRI



Image 14-6: Conceptual Street Section Design

Source: VisionRI



Image 14-7: Existing Median Situating

Source: Field Visit, 2019



Image 14-8: Ruiru High Street Median

Source: VisionRI

The main focus is to utilise the median to improve the streetscape, value to the adjacent properties, make it people friendly and improve safety for all street users. The recommended interventions include:

- **Calming Vehicular Traffic:** Instead of stiff bumps use of friendly plateau topped ramps that double as zebra crossing points;

- **Street Trees:** The trees planted on the median should be short while those along the sidewalks should be tall to maintain cross-street visibility of businesses while avoiding motoring blind spots.
- **Pavement Services:** Shoeshine services and newspaper/magazine selling stands at convenient spots without compromising pedestrian mobility;
- **Guardrails:** Since providing seats and cafes/kiosks on the median could cause crossing of streets at the wrong crossing points, erecting guardrails along the median edges up to the crossing points to enhance the use of provided entry and exits to the median; and
- **Bollards:** Installing bollards will prevent the rampant driving or parking of vehicles on the pedestrian walkway.

Images 14-9 and 14-10 show the proposed improvements.



Image 14-9: Proposed Median Improvement

Source: VisionRI



Image 14-10: Proposed Traffic Calming & Median Greening

Source: VisionRI

Table 14-3: Summary of traffic and urban design interventions

Challenges	Proposed Traffic Interventions
Inadequate NMT facilities.	<ul style="list-style-type: none"> • Improve walking pavements; • Improve safety signage; • Provide cycling and pushcart lanes; and • Enhance traffic calming measures. • Provide street lighting; • Provide crossing points; and
Pedestrian/vehicular conflicts.	<ul style="list-style-type: none"> • Provide bollards and road markings for road separation.
Dysfunctional bus terminal within the CBD.	<ul style="list-style-type: none"> • Construct integrated bus terminus next to the commuter railway.
Poorly designed streetscapes within the CBD.	<ul style="list-style-type: none"> • Provide street furniture; • Undertake urban greenery and beautification; • Establish focal points such as monuments; and • Provide information on notice boards/environmental graphics.
Inadequate vehicular parking:	<ul style="list-style-type: none"> • Promote mass transit that is well-connected to the CBD's suburbs; and • Provide parking in suburban areas.
Poorly planned pavements.	<ul style="list-style-type: none"> • Promote pavement services; and • Erection of guardrails.

14.3.3 ACTION AREA 2: GITHURAI 45

The action area is anchored on Thika Superhighway and Mwhiko Road and is generally a residential and commercial neighbourhood. Its main defining features are:

- Thika superhighway;
- D. O's Road, and Mwiki- Mwhiko Road;
- Railway line; and
- Matatu Terminus, Githurai Open-Air Market, and neighbouring residential areas.

The Figure 14-3 shows a section of the existing situation in the area.



Figure 14-3: Githurai round-about/market

Source: Field Survey 2020

The site is laid out in a grid fashion with compact mixed-use developments of 3 to 6 storey abutting buildings. Significant landmarks include the open-air market, co-operative bank and Kassmatt supermarket, amongst others.

The street design in Githurai takes a car-oriented approach that prioritises vehicular movement over pedestrian and cyclist mobility resulting in an increased demand for parking. Majority of the streets in the action area lack sidewalks, crossings, and traffic calming features. In addition, there exist underutilised pockets of spaces in Githurai and decaying areas especially north of Mwhiko Road. These pockets of underutilised spaces weaken Githurai's visual appeal, identity and liveability.

Key Issues/Challenges:

- Congestion on Mwhiko Road and Thika Road Superhighway service lane caused by encroachment of public service operators who use the carriageway as a terminus;
- Haphazard on-street parking;
- Lack of adequate non-motorised transport infrastructure;
- Inadequate designated pedestrian crossings;
- Conflicts between motorised and non-motorised users;

- Lack of proper solid waste management;
- Risk of fire outbreak and slow emergency response and fire-fighting services at the market due to the fire integrity of the building materials, congestion and narrow access roads leading to the market;
- Insecurity; and
- Insufficient public toilets.

Goal:

- To achieve better utilisation and organisation of space to enhance the transportation system and community facilities.

Proposed Interventions:

- Construction of an integrated transport terminal (bus and boda-boda) to relocate the picking and dropping off passengers by matatus and buses on Thika Superhighway;
- Provision of NMT facilities along Mwhoko road to connect with the commuter railway station;
- Introduce traffic calming measures such as speed bumps and raised crossings along Mwhoko and D. Os road;
- Construction of modern vending kiosks at the bus terminus to relocate hawkers from Thika Superhighway;
- Enhance key gateways into the area i.e., off Thika Superhighway;
- Landscaping and beautification of the traffic islands at the junction of Mwhoko Road and Thika Superhighway;
- Encourage active building facades towards the streets with human-scale fenestration; and
- Promote densification by allowing more building levels and providing open spaces.

Map 14-3 below shows the Githurai action area and the proposed interventions.

The Plan proposes a mixed land use of commercial and residential activities.

Street Designs

D.O's Road



D.O's Road takes a transportation model that is inequitable as it is car-based. For instance, there lacks dedicated cycle and pedestrian paths or designated pedestrian crossings although there are educational facilities such as Macwilliams Academy and Brainston Academy for young children along the road.

The public realm should therefore be designed to be age-friendly and supported by a pedestrian environment that

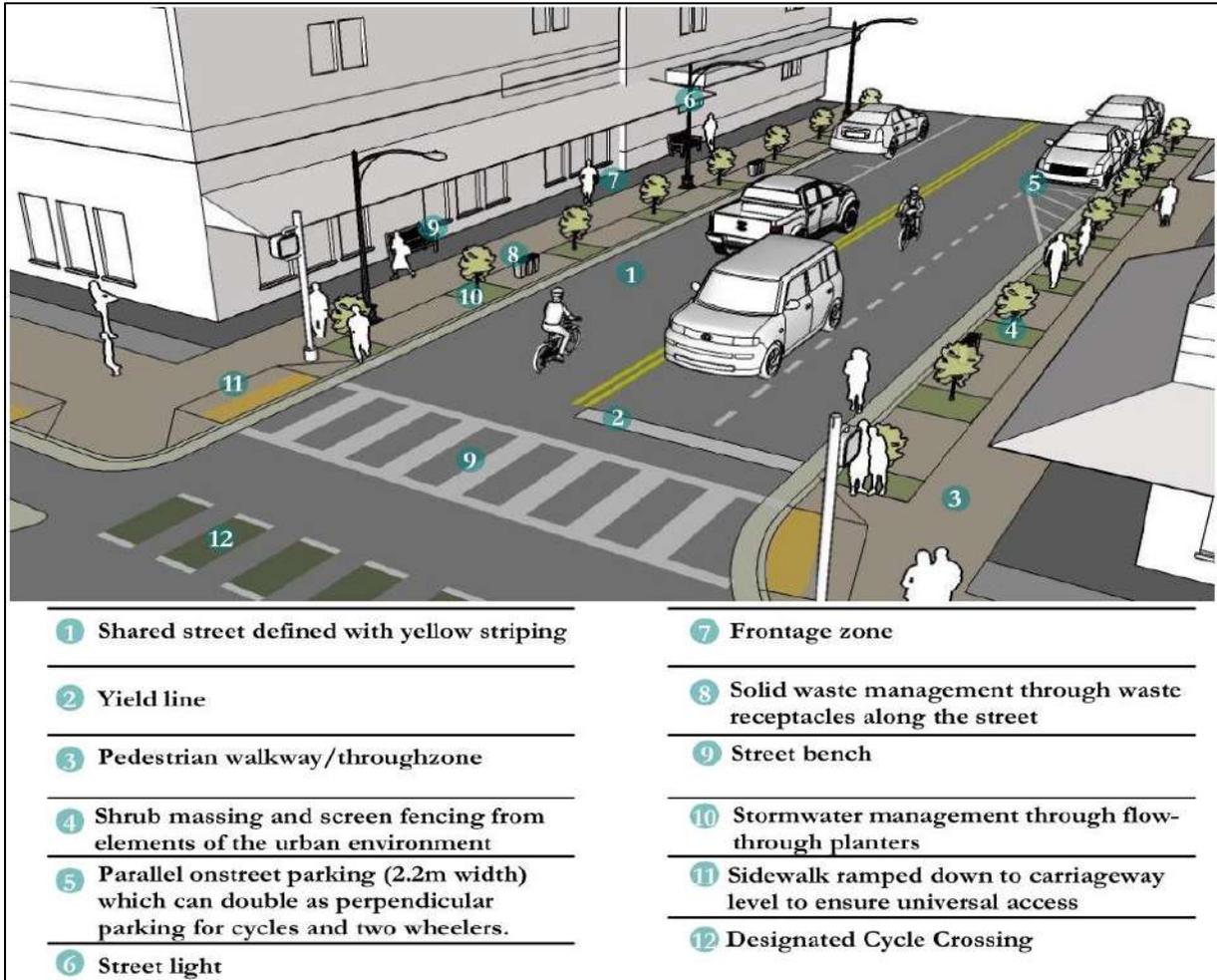
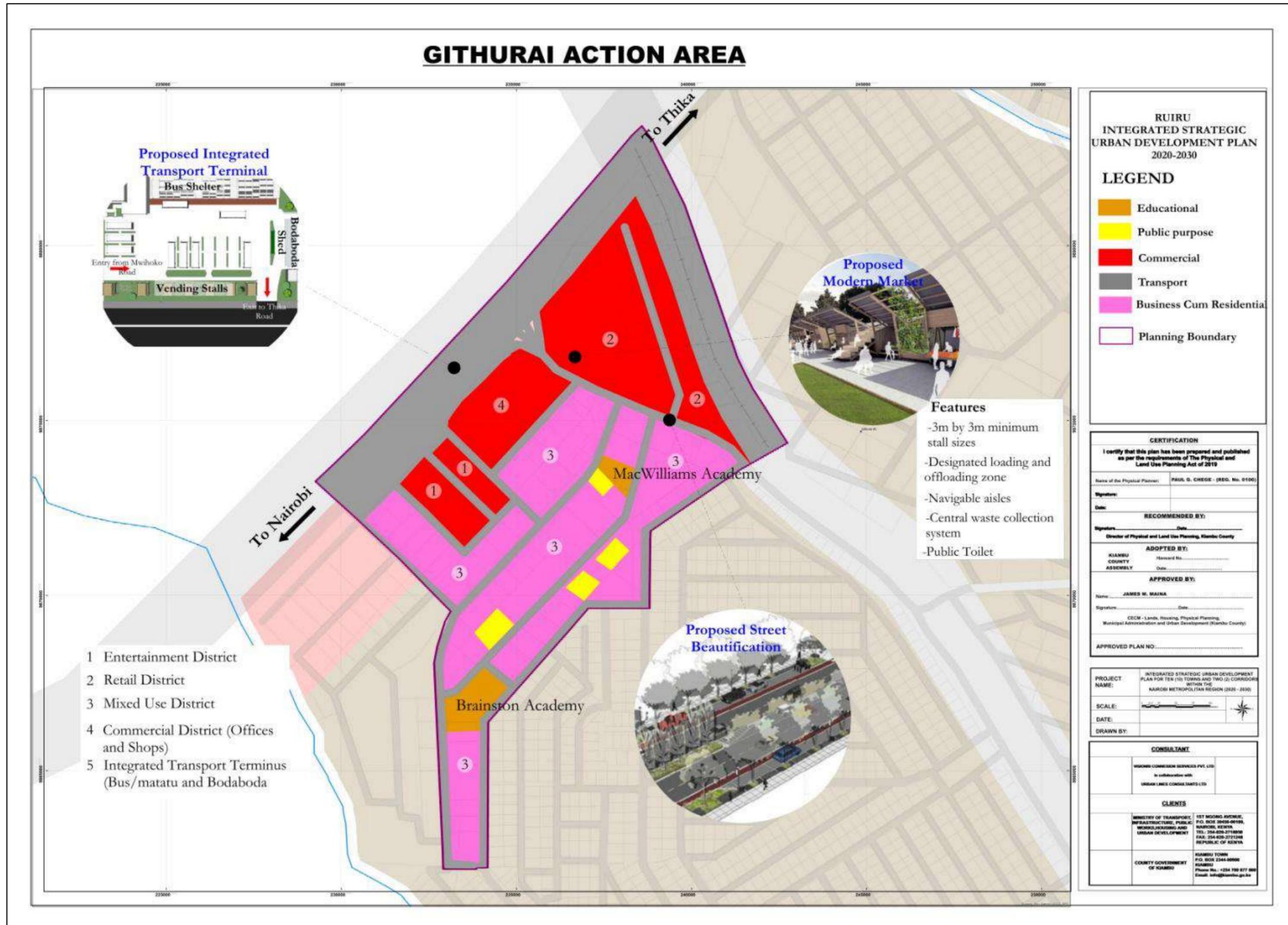


Figure 14-4: Proposed D. O's Street Design Elements

Source: VisionRI



Map 14-3: Githurai Action Area Plan
Source: VisionRI

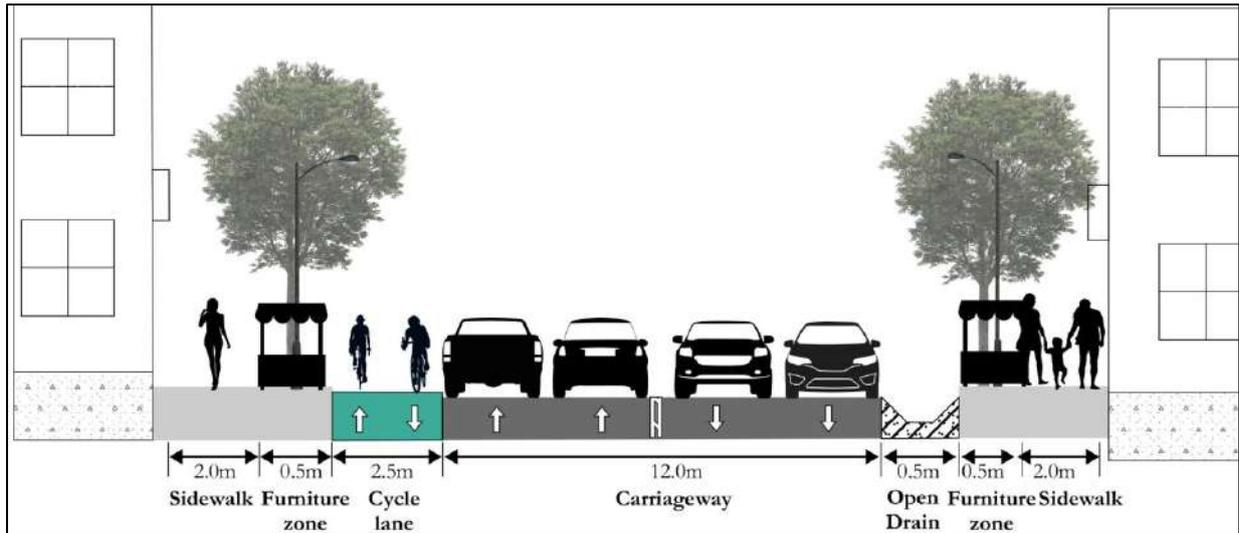


Figure 14-5: Proposed Mwihoko Road Cross Section (20m)

Source: VisionRI

The street design of Mwihoko Road appreciates the need for integrating the informal sector into the wider economy while providing adequate spaces for non-motorised transport. This is achieved by providing dedicated spaces for street vending whose placement is determined by the demand for goods along the main pedestrian route which also helps to create vibrant and people-friendly streets. Designated spaces for vendors can be strategically located along Mwihoko Road in the furniture zone while leaving an adequate throughway for pedestrian movement and cyclists on either side. The preferred locations can include near the intersection of Thika Road and at proximity to the proposed integrated transport terminal.

The concept of the proposed integrated transport terminal is shown in the Figure 14-6 below.

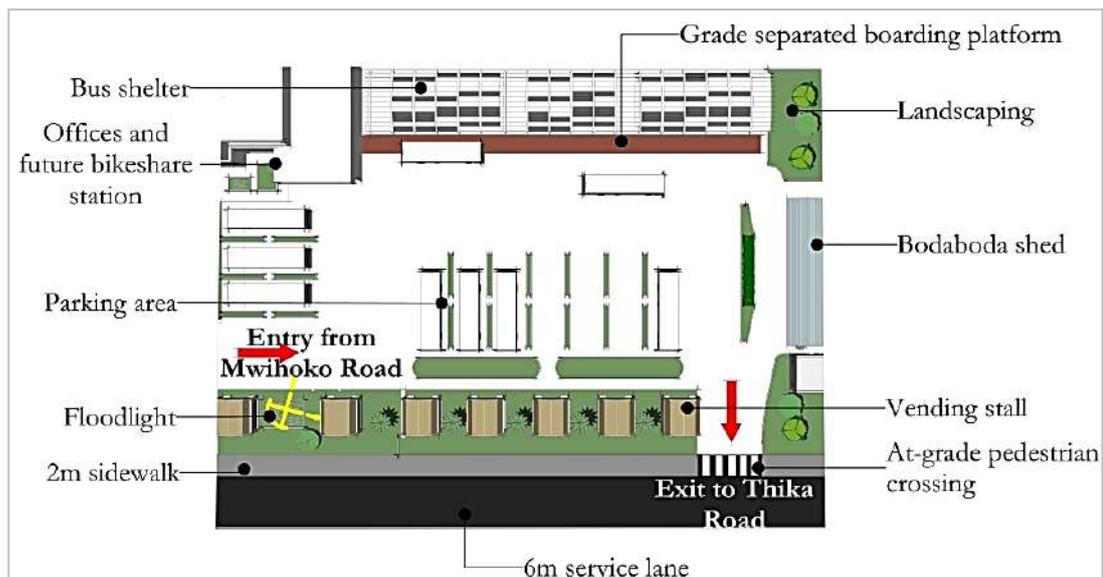


Figure 14-6: Concept of Githurai integrated transport terminal

Source: VisionRI

The proposed integrated transport terminal conceptualises a node that serves an important function of transfer between different modes of transport such as cycling, walking and vehicular transportation and includes amenities such as public toilets.



Figure 14-7: Axonometric view of the proposed integrated transport terminal

Source: VisionRI

15 SECTORIAL STRATEGIES AND MEASURES

15.1 Overview

This chapter provides detailed strategies and measures which are required for the different sector plans. Applying the SPC for NMR's density parameter of 100 ppha and the population projection for the planning period, it is estimated that Ruiru's urban land requirements by 2030 will be 6,984 hectares. It is against this background the Plan provides specific sector strategies and measures on how to meet the Sub-County's development needs.

15.1.1 INCORPORATING SESA FINDINGS

This Plan will ensure that the implementation of proposed programmes and activities will not cause undue adverse social and environmental impacts while striving to enhance the benefits of sustainable development to the local communities and the environment. Hence, Strategic Environmental and Social Assessment (SESA)¹⁰ was undertaken as a parallel study and its findings were integrated into the Plan's policies, plans, and programmes.

15.1.2 INTEGRATION WITH KIAMBU COUNTY'S CIDP

Short-term Scenario: In terms of short-term interventions, below are amongst the strategic proposals in the CIDP that were considered in this ISUDP:

- i. **Eastern Bypass Area:** Areas north of the Eastern Bypass Road and within Gatong'ora Ward is also characterised by the sprawl of individual residential subdivisions. Settlements in this area are each laid out in grid fashion but are not provided with an appropriate overall circulation network. It is notable that industrial developments are emerging along the Eastern Bypass Road. The large open area to the south of the Eastern Bypass Road is the proposed Northland City.



Image 15-1: Development along the Eastern Bypass in Kihunguro (Right) and Membley (Left)

Source: Field Survey, 2018

¹⁰ SESA involves an evaluation of the environmental and social consequences of a proposed policy, plan or programme initiative in order to ensure that they are fully included and appropriately addressed at the earliest appropriate stage of decision making in line with economic and social considerations.

ii. **Other urban nodes within the Sub-County:**

- a. **Mwiki and Kahawa Sukari Commercial Service Centres:** Mwiki and Kahawa Sukari nodes are noticeable by increases in building densities, traffic volume and commercial activities relative to their surrounding areas. Both may be considered as neighbourhood-scale nodes, as they mainly service the residential areas at the interior of Mwhiko and Gatong'ora. Mwiki may be characterised by the presence of mixed-commercial residential mid-rise buildings and an open-air market with temporary structures that give the node a blighted appearance. An informal transport terminal for matatus and boda-bodas may also be found in the area. Developments become increasingly residential going inside and towards Kiuu and Mwhiko Sub-locations. Land use thereafter becomes predominantly open/agricultural with some sporadic settlements observed. The same development pattern may be observed in Kahawa Sukari. Traffic circulation in these areas will be greatly improved if both Mwiki Roads and Kahawa Sukari Avenue can be connected to the Eastern Bypass Road via Mwhiko.



Image 15-2: Mwiki (Githurai) (Right) and Kahawa Sukari (left) Commercial centres

Source: Field Survey, 2018

- b. **Economic interventions:** With focussed attention to agricultural development, these include an irrigation project in Gatong'ora Ward that is intended to enhance horticultural farming activities, as well as cattle, dips project to improve livestock production. Trading activities may also be improved by way of upgrading the Ruiru market in Biashara Ward.
- c. **Transportation projects:** These include upgrading the Sub-County's roads to bitumen standards, rehabilitation of railway stations and associated car parks, and the construction of non-motorised transport (NMT) facilities. Vehicular mobility has also been earmarked for improvement on identified roads such as the upgrading of a section of Gikumari Road-Highway and Ruiru Kihunguro Secondary-Highway to bitumen standards, construction of the Ruiru-Theta Bridge, and murraming of all roads in Mwiki and Mwhiko.

- d. **Physical infrastructure proposals:** These include the rehabilitation of the storm drainage system in Ruiru town, improvement of the water supply system which includes the identification of new water sources and laying of distribution mains, and improvement of security by the installation of streetlights and floodlights in all wards.
- e. **Social infrastructure projects:** These include the upgradation of existing recreational facilities, construction of library/resource centre and social halls in all wards, and establishment of a polytechnic and two nurseries in Mwihoko Ward. Health has also been given a priority with projects such as the construction of a modern hospital in Mwiki Ward, a drug rehabilitation centre in Mwihoko Ward and public health centres in Gatongo'ra, Mwihoko, and Kahawa Wendani Wards.

15.2 Urbanisation Strategies and Measures

15.2.1 OVERVIEW

In envisioning the future growth of Ruiru, the following four core values should guide its planning and development:

- **Equity:** All residents should have equal opportunities for a productive life;
- **Health:** Everyone deserves the opportunity to live a healthy life;
- **Prosperity:** Ensure a high standard of living for all residents; and
- **Sustainability:** Promote a life-sustaining natural and living environment for current and future generations.

15.2.2 FUTURE URBAN GROWTH STRATEGIES

With a high population growth rate, availability of land for development, major transportation proposals, and two large-scale urban development, urban growth has been carefully considered bearing in mind the following factors:

- i. **Direct Urban Growth to Suitable Locations:** Urban growth should be encouraged towards the south-eastern portion of the Sub-County where land is more suitable for development and away from the more environmentally sensitive sloping north-western zone. This approach follows NaMSIP's 'territorial sustainable strategy for Ruiru' which is presented in conceptual Figure 15-1.
- ii. **Encourage Higher Density and Mixed-Use Developments:** Higher-density and mixed-use developments are encouraged to accommodate future urban growth and reduce the inefficiencies of a sprawling urban pattern. The present nodes such as Ruiru CBD, Mwiki and Kahawa Wendani should be the centres of this type of development. These nodes should be centres of trade, commerce as well as high-density housing supported by the TOD approaches such as the NaMSIP initiated projects for Ruiru Town that revolve around the commuter train.

- iii. **Create a Framework for a Green Infrastructure Network:** The waterways traversing the planning area should be protected, conserved, and transformed into green corridors. In line with NaMSIP's proposals, opportunities to construct stormwater catchment areas, as well as water treatment and recycling facilities, should be explored.
- iv. **Ensure an Appropriate Transportation Network:** The Nairobi-Thika Superhighway needs to be supplemented by a parallel road at the southeast as an appropriate transportation network that considers regional and local circulation. Starting from the Eastern Bypass and going all the way to Thika, this parallel road can supplement the superhighway as well as open the south-eastern portion of the Sub-County for development. Intra-Sub-County traffic circulation should likewise be enhanced by creating a linked network of local roads.

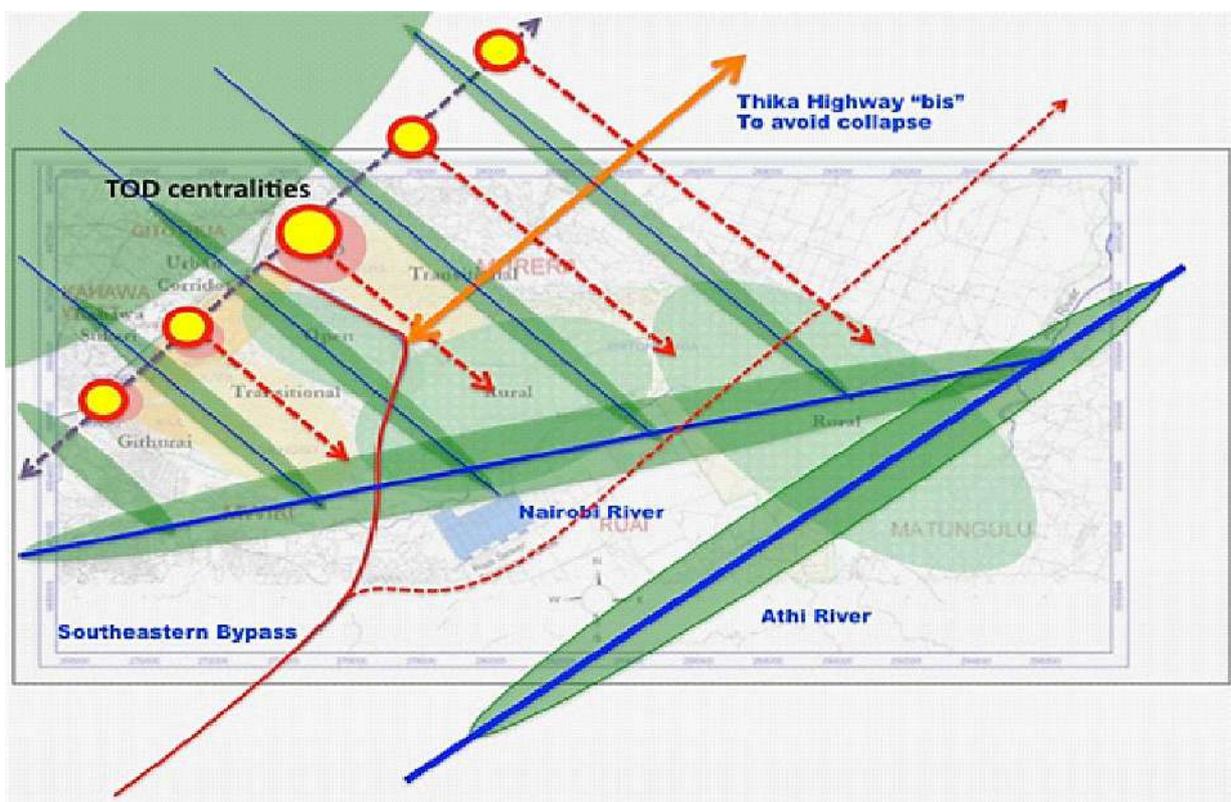


Figure 15-1: Suitable Territorial Urban Growth Locations

Source: NaMSIP

15.3 Land Use Planning and Administration Strategies

Given the existing land issues and dynamics related to land in the Sub-County, it is recommended that the following strategies be adopted for the planning period:

- **Land banking:** Due to the scarcity of public land and increasing prices of land, the County government in consultation with the national government must consider acquiring land for future public projects. The land so acquired should be protected from further allocation to private individuals by successive County and/or national government.

- **Land acquisition:** There is a need to encourage and/or develop an appropriate legal framework to facilitate collaborative development and/or partnership for land acquisition by private envelopers that ensures that land is acquired at reasonable prices and the landowner also benefits. This will ensure that housing prices and rents are reasonable and the cost of living manageable within the county.
- **Support infrastructure for urban expansion:** In order for the county to sustainably undertake the tasks proposed to encourage orderly, responsive development of infrastructure to support increasing housing, commercial activities, urban expansion and management of land within the county there is a need to come up with an infrastructure master plan and adopt equitable rating approaches.
- **Land information management systems:** Mapping all properties in the Sub-County with their attributes such as use, area, ownership, rent, value, and the number of units, amongst others, to enable assessment of rates that reflect the incomes and therefore promote equity in rate payment.
- **Regulating land buying companies and parties:** All companies or parties venturing in land development need to be regulated to ensure compliance to land use planning and administration requirements and ensure surrender and reservation of land for public use.

15.4 Housing Development Strategies

15.4.1 OVERVIEW

Clearly, insofar as what the government can achieve in the affordable housing pillar under the Big Four Agenda to scale up the supply, two distinct paradigms stand out: the first one is the 'enabler' paradigm. As a case study, Ruiru's housing stock deficit holds that a robust approach by public authorities to formulate strategies and support resource mobilisation and incentives to support the delivery of decent affordable housing. The second paradigm, the 'provider' whose investment is capital intensive has the reliance on the enabler not because of benevolence but out of necessity. Both paradigms are mutually supportive in a way that converges rather than diverges interest in delivering housing.

15.4.2 HOUSING DEMAND

The housing demand in the planning area is projected to grow from 39,669 units in 2009 to 139,681 units in 2030. The County Government of Kiambu is in partnership with the National Government under the Big Four Agenda to provide affordable housing on suitable sites recommended in Table 15-1. The programme intends to roll out the initial stock on approximately 19.166 acres of land across various sites within the County. The projected units per acre is 260 where the Sub-County has dedicated 3.064 acres that is expected to yield 797 units.

Table 15-1: Housing Projections for Ruiru Sub-County by 2030

Wards	Years				
	2009	2014	2018	2023	2030
Githothua	3,072	4,278	5,576	7,766	10,816
Biashara	8,271	11,519	15,014	20,910	29,122
Gatongora	2,754	3,835	4,999	6,962	9,697
Kahawa-Sukari	1,722	2,399	3,127	4,355	6,065
Kahawa-Wendani	3,339	4,650	6,061	8,441	11,756
Kiuu	9,207	12,823	16,713	23,277	32,419
Mwiki	8,929	12,436	16,210	22,575	31,441
Mwihoko	2,376	3,309	4,313	6,007	8,366
Total	39,669	55,248	72,012	100,293	139,681

Source: Based on the 2009 Population and Housing Census Report Vol. II, Page 300 and Population Projections

15.4.3 HOUSING STRATEGIES

The housing policy as an instrument of political and social reform has to examine whether the public or private sectors have been effective in delivering housing to the low-income earners and whether construction standards should be relaxed to meet the affordability threshold. In this approach, the economies of the building must be critically examined in face of the private companies whose fragile operations do not inspire confidence in the market. Incidences of fraud and dishonest transactions are rampant across the housing sector.

The idea of collective action, whether through SACCOs, or similar arrangements requires institutional intervention to build capacity through skilled management, technical staff and strategies to sustain the housing supply. This should be flagged out as a priority otherwise the housing supply deficit could get worse as poverty levels deepen and the cost of housing construction rises. Table 15-2 summarises the key strategies focussing on affordable housing and informal settlements.

Table 15-2: Summary of Housing Strategies

Key issues	Location	Objective	Strategies
Affordable Housing Deficit	All Wards	To provide affordable housing to all residents of Ruiru.	<ul style="list-style-type: none"> ● Preparation of County Housing Policy; ● Upgrading all dilapidated county housing; ● Promoting compact development in urban areas; ● Encourage PPP and a joint venture in housing project investments; and ● Devolving the National housing tax to meet specific county housing needs.

Key issues	Location	Objective	Strategies
Informal settlements	Gitambaya	To upgrade all informal settlements.	<ul style="list-style-type: none"> ● Regularization/formalisation of plots without titles deed to promote investments in housing; ● Provision of basic infrastructure services; ● Provide tenure security to plot owners; ● Improve infrastructure facilities and services; ● Controlling illegal subdivisions; ● Promoting affordable building technologies; and ● Promote public-private sector initiatives.

Source: VisionRI

15.5 Transportation Strategies

15.5.1 GOAL

The overall goal of the transportation strategy is to ensure sustainable integration of all transportation modes within the Ruiru planning area. This is further supported by the following objectives:

- To ensure ease in movement hence reduced travel time;
- To decongest the roads especially within Ruiru CBD;
- To revive the railway line traversing Ruiru town for mass transit;
- To promote an efficient public transport system for the Sub-County; and
- To promote active transport.

15.5.2 PROPOSED STRATEGIES

- Provision of transit-oriented development centred on important transit hubs like bus terminals and railway stations by creating compact, walkable, pedestrian-oriented, mixed-use communities;
- Increase the productivity and efficiency of existing transportation facilities through transportation system management practices;
- Promoting and increasing access to multimodal transportation modes within the planning area such as and mass transit, NMT (dedicated walking and bike lanes),
- Establish road reserves complete with NMT, pedestrian pathways and appropriate stormwater drains;
- Establish transit stations like Traffic and Transit Management Centres (TTMC) along with parking facilities for private vehicles for park-and-ride along bus routes and concentrate housing near these stations to maximise accessibility, convenience, and employment opportunities;
- Provision of boda-boda sheds at strategic locations within the nodes/centres;

- Revive commuter rail transport and modernise the station at Ruiru;
- Establish dedicated bus routes;
- Prevent encroachment on road reserves through regular inventory survey, beaconing, engineering and enforcement;
- Reduction of conflict points through design strategies such as channelized intersections, roundabouts, signalised intersections, grade separation and protected lanes;
- All season maintenance of roads;
- Improve signage on all roads;
- Provide way finding information at convenient points in the urban areas;
- Promote sustainable land uses along transport corridors;
- Discourage direct access of plots onto main arterial, sub-arterial and collector roads;
- Develop a comprehensive transportation mobility plan for the entire Sub-County;
- Open missing link roads in Ruiru East;
- Enforcement of traffic management guidelines through retraining road users and enforce set traffic laws and regulations;
- Construction of parking bays and spaces for both on-street and off-street parking;
- Expand to 9 meters all roads below through reclaiming encroached roads and negotiating setbacks;
- Enforcement of development control (Physical Planning) guidelines on all roads to reduce encroachment and to ensure subdivisions are providing adequate road reserves, permitting nothing below 9 meters;
- Upgrade roads in Ruiru to bitumen and gravel standards placing priority on roads that lead to important facilities e.g., hospitals, fire stations, industries, education facilities and into residential areas in case of emergencies;
- Upgrading and maintenance of feeder roads; and
- Installation of streetlights along key Sub-County roads and in all urban centres.

15.5.3 FUNCTIONAL CLASSIFICATION OF ROADS

Functional classification groups streets according to the character of the service they are intended to provide. Higher function highways place more emphasis on mobility for through traffic, and lower function highways and roads place more emphasis on land access. B.C. highways are functionally classified into five groups:

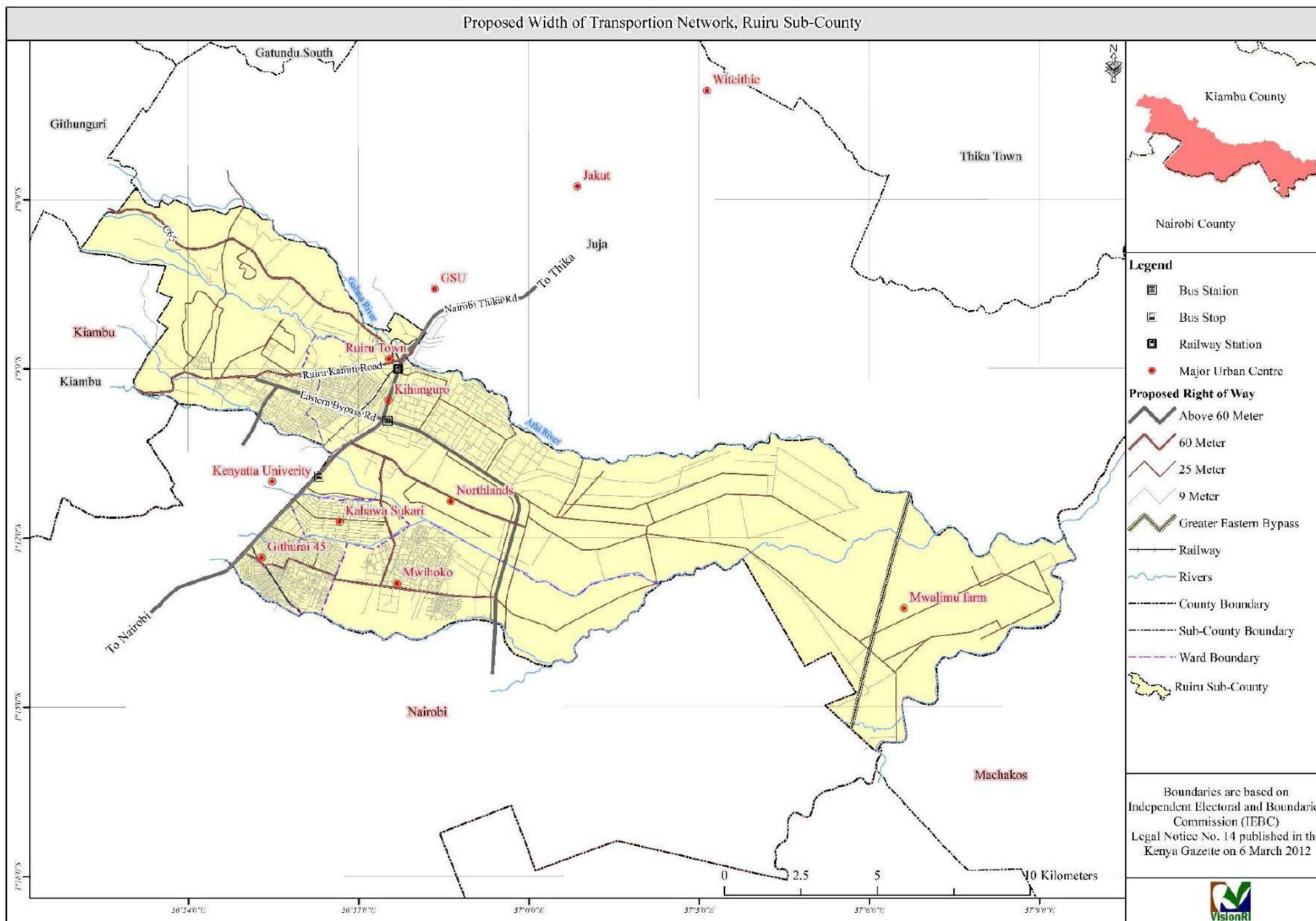
- i. International trunk roads (A & S); typically, highways and expressways.
- ii. National trunk roads (B); Secondary Highways.
- iii. Primary Highways (C); Arterials. Class H urban.
- iv. Major Roads (typically arterials but may include). Class D, J-urban; principal bus routes.
- v. Minor Roads (typically collectors but may include some arterials) Classes E, F, G, K, L, M.
- vi. Special Purpose Roads.
- vii. Local Roads (typically access roads for residential areas/farmland) Class N, and P.

15.5.4 RECOMMENDATIONS

- i. **Provide Non-motorised transport:** Based on both the current and projected modal split, the majority of Ruiru residents will be walking. There is thus a need for making walking and cycling safe and attractive for all users including the elderly, children, and persons with disabilities. NMT provides basic mobility, affordable transport, access to public transport, as well as health and recreation benefits.

In order to achieve a walkable urban area in Ruiru, complete street designs need to be articulated. Complete street designs ensure that all streets have dedicated spaces for non-motorised transport modes, designated cycle parking facilities, traffic calming with at-grade crossing facilities for pedestrians, well maintained NMT facilities with smooth surface conditions and with ramps at grade changes to enhance universal accessibility, provision of shade, street furniture and landscaping to enhance attractiveness and comfort of pedestrians and cyclists. Facilities may also be provided by creating space for street vendors so that they may not lose their lively hood. All intersections need to provide at-grade pedestrian crossings to enhance the comfort and convenience of pedestrians especially the elderly and children. Where space allows, street furniture such as benches, trees, flowers/landscaping should be provided. The county government needs to put strict measures to ensure that parking is prohibited in pedestrian facilities as well as street vending.

- ii. **Public transport:** Being the second most common mode of transport in Ruiru, public transport needs major improvement in order to meet the need of the current commuters as well as the projected growth. Ruiru bus park needs to be relocated – one near the market and the other to be integrated with the railway terminus with the aim of accommodating the volume of buses and matatus as well as offering convenience to residents. Some of the key facilities that need to be incorporated in the new bus terminal include toilets with facilities for persons with disabilities and baby changing stations, ample passenger sitting area with shelter, luggage storage facilities, and customer information on the routes and fare. Bus stops with shelters should also be provided at deliberate intervals and on a need basis. BRT and commuter rail should be seamlessly integrated to ensure the seamless modal change in the town. This will increase ridership in public transport.
- iii. **Boda Boda:** Boda bodas play a key role in last-mile connectivity especially in areas where public transport is not readily available. The following are ways in which the boda boda sector could be improved in Ruiru: 1) It shall be a mandatory requirement for all boda boda operators to join a registered Sacco for easier regulation. 2) The Sub-County administration should provide dedicated stands/stops for operators, 3) Mandate all boda boda operators to take advantage of new technologies e.g., Safe Bodas, Uber boda boda, etc. to avoid overcrowding in urban centres, and 4) Regular training on safety and business development.

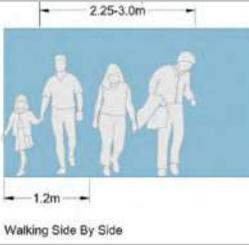
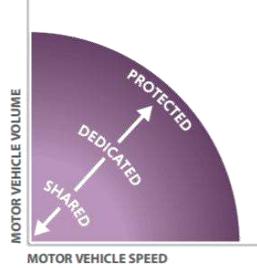
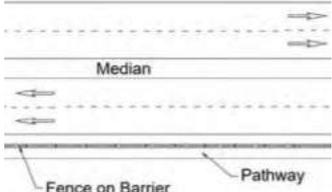


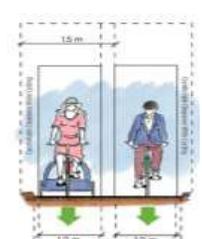
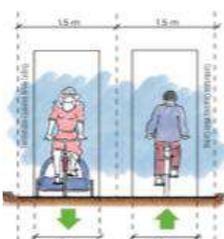
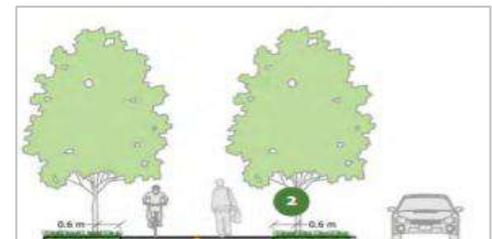
Map 15-1: Proposed right of way and Classification

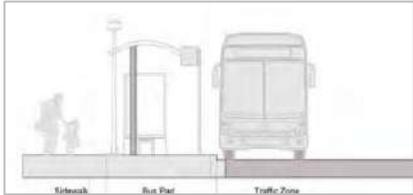
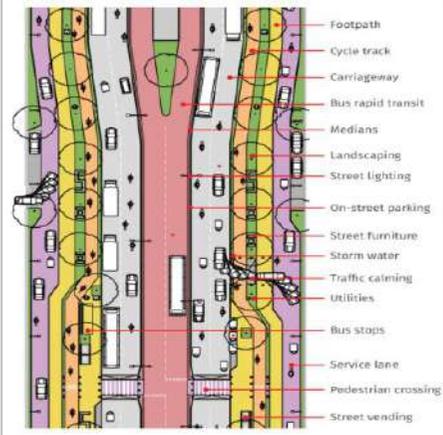
Source: VisionRI

Table 15-3: Transport Implementation Guidelines: Designing safe and accessible roads for everyone

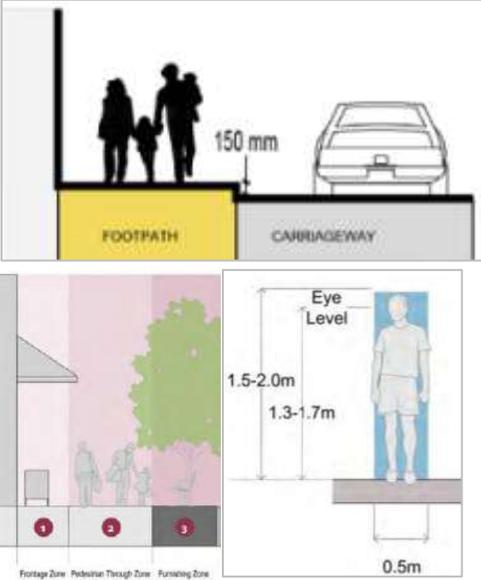
Parameter	Primary/Highway/Arterial Roads (Classes A, S, B, C)	Major/Secondary/Collector Roads (Classes C, D, E, J)	Tertiary/Minor Roads Classes E, F, G, K, L, M)	Local/Access Roads (Class N, and P)
Design Speed	60-110kph	60-80kph	≤ 50kph	<30kph
Width of Traffic Lane	3.75m	3.5m	3.25m	3m
Shoulder Width	2.5m -3m	1.5m-2.5m	1m	0.5m
Width of Parking Lane	None	2.5m	2.5m	-
Streetlight requirements and spacing	Base on the applicable road/street luminaires and spacing guidelines.			
Road Gradient	Minimum slope: 0.5% to facilitate drainage; Maximum slope: 10% for long stretches and 15% for stretches not exceeding 100 meters; and Cross slopes: 1 in 100 for paved roads and 1 in 50 for unpaved roads.			
Visibility at Junctions: Splay Angle and distance	30 degrees; >5m Truncation standards to be observed	30 degrees; >4m Truncation standards to be observed	45 degrees; >3m Truncation standards to be observed	45 degrees: >2m Truncation standards to be observed
Traffic Calming Strategies	Where applicable with consultations: Speed humps/bumps; table-top crossings, raised crosswalks; median islands and bulb-outs/curb extensions, traffic circles, speed limits (designated areas e.g.: community areas, school zones, certain public facilities)			
Pedestrian walkways Sidewalk placement and crossings	Off-street pathway or Enhanced separated sidewalk; overpass crossings	Separated sidewalk or enhanced separated sidewalk; table-top crossings, raised crosswalks	Separated or non-separated sidewalk: table-top crossings, raised crosswalks	Shared space; marked crossings
Pedestrian walkways widths (Area of high pedestrian activity >2.4m)	1.8m	2.4m	>2.1m	1.8m
Maximum Longitudinal Grade	Preferably less <5.0% else, > 5.0% to 8.3%, landings should be provided every 9.0 meters, > 8.3% Alternative accommodations recommended (railings, rest areas, adding switchbacks, accessible ramps, circulating shuttle, ladder sidewalks, stairways, escalators, etc.).			
Pedestrian walkways Surface Materials	Asphalt (long stretch, rural areas, and parks); Brick (high pedestrian volumes; brick may not be a comfortable surface for people using mobility devices); Decorative paving materials (cobblestone, unit pavers, exposed aggregates, exposed			

Parameter	Primary/Highway/Arterial Roads (Classes A, S, B, C)	Major/Secondary/Collector Roads (Classes C, D, E, J)	Tertiary/Minor Roads Classes E, F, G, K, L, M)	Local/Access Roads (Class N, and P)
 <p>Walking Side By Side</p>	<p>glass) Decorative paving materials may be used to enhance the visual aesthetic; Permeable pavement (Permeable pavement can include permeable concrete or porous unit pavers). The pavement should be raised 150mm from the road. Note: The Sub-County shall formulate a strategic approach to managing footpath obstructions; i.e., by hawking activities, parking, advertising, improperly placed street furniture, dumping, and surface degradation.</p> <p>Crossings: Ensure clearly marked crossing and placement of curb ramps.</p>			
<p>Furnishing Zone</p> 	<p>0.9 metres is the absolute minimum required for streetlights and utility poles; street trees 1.2 metres minimum; roads with transit stops require the desired width of 3.0 meters for passenger landing pads, benches, and bus shelters.</p> <p>Road Hardware: Road lighting, traffic signals, pedestrian and cycling push buttons, traffic signage, utilities, fire hydrants, parking metres, and/or bollards, fences, or other barriers.</p> <p>Pedestrian Amenity: Coloured and/or textured surface materials, benches, tables, and chairs, other seating amenities, waste receptacles, mailboxes and newspaper corrals, drinking fountains, bicycle parking, transit stops and shelters, wayfinding signage, public art (sculptures, murals, fountains, clocks, and other decorative features), road banners, flags, and other graphics, and public washrooms/restrooms.</p>		<p>Basic (0.6m to 2.0m); and Enhanced (3.0m to 5.0m)</p>	
<p>Cycling Facilities</p> 	<ul style="list-style-type: none"> - Protected bicycle lanes; and - Bicycle pathways/highways. 	<ul style="list-style-type: none"> - Protected bicycle lanes; - Painted and buffered bicycle lanes; and - Advisory bicycle lanes. 	<ul style="list-style-type: none"> - Protected bicycle lanes; - Painted and buffered bicycle lanes; - Advisory bicycle lanes; - Bicycle accessible shoulders; and - Shared street. 	<ul style="list-style-type: none"> - Bicycle accessible shoulders; and - Shared street.

Parameter	Primary/Highway/Arterial Roads (Classes A, S, B, C)	Major/Secondary/Collector Roads (Classes C, D, E, J)	Tertiary/Minor Roads Classes E, F, G, K, L, M)	Local/Access Roads (Class N, and P)
Dedicated cycling lane width 	2.5m Uni-directional 	3m Bi-directional 	Multi-use pathway (cyclist and pedestrians= 3 to 4m) 	
Bicycle and Pedestrian Accessible Shoulders for rural areas	2.0m- 3.0m	2.0m - 3.0m	1.5m - 2.0 m	1.5m - 2.0 m
Bicycle and Pedestrian Accessible Shoulders for Urban areas	-	-	1.5 - 1.8 m	1.5 - 1.8 m
Cycling lane desired paving material	The preferred material for a bicycle pathway is asphalt; may add oxides to differentiate with traffic lanes. Rough surfaces are uncomfortable, smooth surfaces are comfortable.			
Cycle parking racks 	Offer short- and long-term bicycle parking areas/racks in urban areas; shopping centres, malls, markets, and other public spaces and facilities which must be convenient, accessible, safe/secure, functional, and supportive.			
Drainage	Drainage and maintenance should be considered upfront in the design process to ensure that issues can be avoided. The gradient should not be less than 0.5%. This is to facilitate drainage in flat terrains.			
Lighting	Roads and ways should be well lit at night especially at crossings, urban centres, institutions, bridges, major conflict spots, alleys, tunnels and underpasses, and intersections.			
Signage and Wayfinding	A seamless, predictable, consistent, and easy-to-understand system of wayfinding, signage, and trip planning tools for vehicles, walking and cycling is important as well as to consider that many residents and visitors may not be familiar with certain locations. This should include but not limited to centres, local neighbourhoods, major attractions, local destinations, road names, traffic signs, information booths, fingerposts, monoliths, etc.			
Other Guidelines				
Other Road Systems	Cul de Sacs: When a cul-de-sac is used in residential development it should be provided with a curved turning circle of sufficient width to facilitate easy access and the turning of not only cars but trucks and other heavy			

Parameter	Primary/Highway/Arterial Roads (Classes A, S, B, C)	Major/Secondary/Collector Roads (Classes C, D, E, J)	Tertiary/Minor Roads Classes E, F, G, K, L, M)	Local/Access Roads (Class N, and P)
	vehicles. The recommended minimum radius is 12 meters. The cul de sac should serve no more than 20 dwelling units and a maximum length of 120m.			
Parking Management Strategy	Parking standards; (See building code), parking restrictions, parking Pricing and parking supply and demand position.			
Building Setbacks from Roads	See development control guidelines; ensure a building-street relationship through the urban design			
Corridor Development	Strip development, or development that contributes to the growth of a linear of plots, must not be permitted to the front on or directly connect to a highway or major arterials; road classes (A, S, B and C). An exception may be considered on a highway route if development adjacent to the route has already occurred to the extent that this policy document can no longer be fully applied.			
<p style="text-align: center;">Public Mass Transport</p> 	<ul style="list-style-type: none"> - Public transport should be guided with the following principles: Stronger integration of transportation and land use, Integrating fares and service, reliable, frequent service, Protection from mixed traffic, safe, comfortable stations with passenger information and development of an intelligent transportation system for the Sub-County; - Bus routes will be located not more than 1km from an urban area and 2.5 km from a rural area; and - In establishing bus schedules, the objective is to arrange for buses to arrive at known intervals, but they need to be consistent and regular. 			
<p>Efficiency of public transport routes</p> 	<p>Dedicated busways and priority; improves efficiency;</p> <p>Bus stops will be permanent whenever practical, allowing the public to become familiar with stop locations;</p> <p>Consider all modes; Walking, Cycling, Trams, LRT, BRT, MRT;</p> <p>Coordinate station access design with land development;</p> <p>Address existing and future needs;</p> <p>Integrate community design into station development;</p> <p>Consider station access in route alignments; and</p> <p>Universal design and universal access.</p> <p>Roads must be at least 18 metres wide;</p> <p>Provide a location for a change of bus direction with no backing;</p> <p>Have adequate shoulders to allow the bus to pull off the roadway; and</p> <p>Be kept clear of any obstructions that would prevent the safe movement of buses.</p>			

Parameter	Primary/Highway/Arterial Roads (Classes A, S, B, C)	Major/Secondary/Collector Roads (Classes C, D, E, J)	Tertiary/Minor Roads Classes E, F, G, K, L, M)	Local/Access Roads (Class N, and P)
Travel Demand Strategy	Increasing public transport modal shares, additional demand management interventions need to be implemented i.e.: Congestion pricing - mobility management strategy to reduce traffic congestion; and Restricted parking supply or imposing restriction of vehicles.			
Pollution reduction and mitigation	Improving transport options (walking, cycling, ridesharing, public transit, carsharing, etc.), more fuel-efficient vehicles tend to reduce energy consumption, pollution emissions and fuel cost; and Streets to be lined with trees to enhance the sequestration of pollutants.			

Parameter	Primary/Highway/Arterial Roads (Classes A, S, B, C)	Major/Secondary/Collector Roads (Classes C, D, E, J)	Tertiary/Minor Roads Classes E, F, G, K, L, M)	Local/Access Roads (Class N, and P)
<p>Pedestrian facilities, people walking and using mobility devices</p> 	<p>General Design Guidance</p> <ul style="list-style-type: none"> Preferred 2m-3m; Physical separation from other road users; Firm, smooth, and even surfaces; The pedestrian through zone should be straight and unobstructed; Enough pedestrian crossing opportunities; Short distances between destinations; Continuous and direct routes between destinations that reflect pedestrian desire lines; Buildings that are oriented towards the road, creating an engaging environment; Diverse land uses that create a varied and interesting walking experience; Wayfinding that makes it easy to navigate between destinations; Street trees and other vegetation; Weather protection elements to provide refuge from rain; Adequate lighting for safety, security, and visibility; Enough benches and rest areas; Pedestrian amenities including landscaping, water fountains, washrooms, garbage and recycling receptacles, public art, and street furniture; and Well-maintained pedestrian facilities in all seasons. 			
<p>Maintenance</p>	<p>Follows the road classification guidelines and related legislations; and Maintenance of private driveway access within the public right-of-way shall be the responsibility of the property owner and well as adjoining drainage improvements.</p>			
<p>Providing Loading and unloading zones</p>	<p>Loading zones shall be provided within the urban centres on main streets and back streets; and Loading bays along roads may be provided in rural areas.</p>			

Source: VisionRI

- iv. **Parking management:** Effective parking management is an essential tool to facilitate the efficient use of road space and to ensure the mobility of public transport, pedestrians, and cyclists. In addition, appropriate parking fees can act as a lever to manage the use of personal motor vehicles and ensure that personal motor vehicle users compensate the city for the use of valuable land on which they park their vehicles. Ruiru Sub-County needs to define and designate both on-street and off-street parking areas in order to prevent encroachment of parking into other areas including footpaths.

For a parking system to succeed, users need clarity on where they can and cannot park. This requires the physical definition of spaces for parking, protection of pedestrian spaces from encroachment through physical barriers such as bollards and strict enforcement. Secondly, customer information is key to ensuring successful parking management. On-street parking charges should vary by location, with higher fees levied in areas with high demand. This results in a high turnover of parking slots as it discourages motorists from unnecessary long parking. At locations where there is a demand for long term parking, the Sub-County can identify land for off-street parking with parking charges on a weekly or monthly basis. This increases revenue generation by the government. Higher parking fees encourage people to use sustainable modes of transports including walking, cycling and public transport. Finally, enforcement is key in ensuring that parking rules and regulations are maintained, and offenders are penalised.

15.6 Environmental Management Strategies

15.6.1 OVERVIEW

The concentration of people in urban settlements is reflected in their form and layout whose environmental goal is to make inhabitants feel safe and valued. The precise nature of the interaction between environmental factors and human well-being is a government function. The scale and severity of environmental problems in urban areas provide clear indicators of government performance. As the fasted urbanising region in Kenya, Ruiru needs a new environmental agenda that enhances the capacity to match the spatial strategies that address the intense transformations that must translate to healthy and a well-functioning Sub-County.

Without imposing unsustainable demands on the natural environment, the following activities provide the basis for a healthy relationship between the urban demands of people and the ecosystems from which they draw.

- i. Mapping and securing all riparian reserves within the Sub-County.
- ii. Extending the sewer trunk system to cover the whole of the Sub-County.
- iii. Improved solid waste management, including the provision of solid waste transfer points.
- iv. Improving the drainage systems to avoid flooding.

Attaching the goals of promoting proper utilisation of the natural resource, minimising pollution and protection of environmental fragile provides relative importance in the scale and range of strategies highlighted below for minimising the challenges.

15.6.2 SOLID WASTE DISPOSAL STRATEGY

- Coordinating waste producers, i.e., households, market users, industry, hospitals amongst others;
- Identification of suitable waste transfers stations in each ward;
- Provision of different waste types bins in neighbourhoods clearly labelled to enable waste sorting;
- Enhancing waste recycling through public awareness and campaigns;
- Identification of suitable sites for waste disposal points and mapping them; and
- Involvement of all stakeholders in environmental conservation and management.

15.6.3 WATER /RIVER POLLUTION STRATEGY

- Identification of water pollutants sources;
- Heavy fines for the discharge of waste effluents on water bodies;
- Discouraging human activities along water bodies such as farming and quarrying; and
- Reducing connection fees to the sewer line.

15.6.4 STORM WATER DRAINAGE CHANNELS STRATEGY

- Undertaking a topographical analysis to identify and map up all the natural drainage channels;
- Maintain drainage of all constructed roads and keep the road camber off stormwater; and
- Construct stormwater retention facilities.

15.7 Disaster Risk Management Strategies

15.7.1 OVERVIEW

In most urban areas, there is a complex interaction between disasters and human actions. The scale and severity can be controlled by managing the susceptibility of those involved and the vulnerability of the sites where they live. The most immediate disaster risks in homes, workplaces and neighbourhoods are fires, floods, industrial pollutants, and the collapse of buildings due to poor construction standards. These risks are further heightened by poor housing standards and overcrowding that also aggravates acute respiratory infections.

15.7.2 DISASTER RISK MANAGEMENT OBJECTIVES

Disaster risk resilience goals in Ruiru may be achieved by the following objectives:

- i. To establish a policy/legal and institutional framework for the management of disasters in the Sub-County.
- ii. To ensure that institutions and activities for disaster risk management are coordinated, focused to foster participatory partnerships between the County government and local stakeholders.
- iii. To promote linkages between disaster risk management and sustainable development for the reduction of vulnerability to hazards and disasters.
- iv. To mobilise resources, including the establishment of specific funds for disaster risk reduction strategies and programmes.

- v. To promote mass sensitisation and awareness creation on disaster management and climate change for the general public.

15.7.3 DISASTER RISK MANAGEMENT STRATEGIES

- i. Regular monitoring, collection, analysis and evaluation of information on the most frequent disasters.
- ii. Coordination of all Early Warning System/Information Service providers in order to harmonize the information available on Disaster Management, especially on flooding.
- iii. Production of regular Early Warning Disaster Management bulletins and publications.
- iv. Maintenance of a database of information and trends on disaster management.
- v. Establishment of the disaster response team with a clear line of command.
- vi. Conducting regular disaster response drills.

15.7.4 ACTIVITIES

- i. Undertaking multi-hazard risk assessments and mapping.
- ii. Planned relocation from disaster-prone areas such as those that experience flooding.
- iii. Development of resilient livelihoods development.
- iv. Preparation and implementation of DRR policy and strategy.
- v. Strengthen early warning systems including community-level response mechanisms for hydro-meteorological hazards, especially floods.
- vi. Increase the number of fire hydrants and elevated water tanks to improve response to fire outbreaks.
- vii. Construct and equip a new fire station to improve response to fires.
- viii. Buy and equip additional ambulances to respond to accidents along the highways.

15.8 Climate Change Strategies

15.8.1 CLIMATE CHANGE OBJECTIVES

To build resilience to the impacts of climate change through the following objectives:

- i. Improve the ability of people to cope with drought.
- ii. Improve the ability of people to cope with, and infrastructure to withstand floods.
- iii. Build the capacity of institutions to respond to climate change.
- iv. Develop the necessary policy and regulatory framework for climate change adaptation.

15.8.2 STRATEGIES

- i. Improve drought early warning systems including the promotion of people-centred systems at the county level.
- ii. Capacity development of the existing Water Resources Users Associations (WRUA), which are community-based organisations that are rights-based groups with female and male membership.

- iii. Develop standards and regulations, including social and environmental safeguards, for sustainable forestry management.
- iv. Develop guidelines and standards for the establishment of green zones as required by the 2016 Forest Act.
- v. Mainstream climate change into environment audits, environmental impact assessments and strategic environmental assessments.
- vi. Build the capacity of county-level institutions for the efficient transfer and implementation of climate change adaptation strategies.
- vii. Reduce deforestation and forest degradation reduced through enhanced protection of forests.

15.8.3 ACTIVITIES

- i. Increase water harvesting and storage practices.
- ii. Use mobile technology to disseminate early warning information on floods and droughts.
- iii. Implement existing integrated flood management plans such as on water storage, drainage networks, reforestation and rehabilitation of riparian areas, construction of dams, and land-use restrictions.
- iv. Improve water and flood control infrastructure including dikes, drainage systems, and water storage.
- v. Develop alternative technologies to reduce demand for biomass (such as clean cooking and efficient charcoal production).

15.9 Social Infrastructure Strategies

15.9.1 OVERVIEW

Social amenities play a major role in enhancing the desirability of a place. They create a strong connection between the quality of the social infrastructure and the wellbeing of society. The presence of social facilities enhances unity, instils a sense of care, and encourages high morals, and competitiveness in an area. Social infrastructure ranges from educational facilities, health facilities, recreational facilities, fire stations, libraries, parks community centres and security.

15.9.2 GOAL

The goal for social infrastructure is to provide adequate, accessible, affordable and quality social services.

15.9.3 EDUCATION FACILITIES

Projected Demand

The planning area had 30 public primary schools with a total enrolment of 20,733 pupils including 9,529 boys and 11,204 girls. At the ratio of 1:4000 people, the planning area required 50 public primary schools in 2009 at a population of 201,986. By the end of the planning period in 2030, the planning will require 174 public primary schools at a population of 698,403.

In 2009, the planning area required additional 25 secondary schools to meet the demand while in 2030 the planning area will require 81 secondary schools.

Strategies

The proposed strategies for education are:

- i. Encourage private sector investments in education.
- ii. Establish the required number of ECDE facilities, and primary and secondary schools to meet current and projected requirements.
- iii. Densify existing facilities to accommodate higher capacity for example going high-rise.
- iv. Apply development control mechanisms on large parcels of land that are capable of accommodating large surrenders or reservations such as primary schools and secondary schools.
- v. Entering into strategic partnerships with the private sector or provide incentives to private developers by providing concessions and thereafter ensuring inclusivity.
- vi. Compulsory land acquisition.

15.9.4 HEALTH FACILITIES

The planning area has two dispensaries (Mutonya and Githunguri), four health centres (Githunguri, Ruiru Prison, Wendani, and Rithika), and two hospitals (Ruiru District Hospital and Langata Hospital in Githurai). These are however not commensurate to the population and sizes of major centres and their distribution in the Sub-County does not ensure accessibility to all residents within 5 kilometres or less as provided for by the World Health Organisation.

Goal: Easy access to affordable and high-quality health facilities within the planning area.

Challenges:

- Inadequate medical facilities and understaffing of health facilities; and
- Low bed capacity in the hospitals.

15.9.5 SUMMARY OF SOCIAL INFRASTRUCTURE ISSUES AND STRATEGIES

The Table 15-4 presents a summary of social infrastructure issues and strategies.

Table 15-4: Summary of Social Infrastructure Issues and Strategies

Key Issues	Location	Objective	Strategy
Understaffing and lack of equipment in education and health facilities	All health and education facilities	To equip and upgrade existing facilities.	Provision of basic facilities in all existing education and health facility.
Inadequate health and education facilities	Kahawa Wendani	Improve access to education facilities; and Improve access to health facilities.	Development of new education facilities.

Source: VisionRI

15.10 Physical Infrastructure Strategies

15.10.1 WATER SUPPLY

Projected Demand

The main sources of water in the planning area include piped water from KCWSC, rivers, wells, dams, boreholes, rainwater, and others. The water is mainly used for domestic purposes, livestock and farming. The current demand for water in the planning area is 29,254.955 (m³) using the WHO global standard of 65l/c/day. The projected water demand for the planning area by the year 2030 will be 56745.285 (m³).

The total capacity of water supplied within the planning area is approximately 2,700M³ per day by KCWSC. The current water connection stands at 15,000 and only 14,800 are active (KUSP Report 2018). If KCWSC maintains its production capacity, the supplied water will not be adequate to meet the projected demand of 56745.285 (m³) by 2030. There is a need to expand water generation and explore other alternatives to meet the expected increase in water demand.

Table 15-5: Water Demand Projection

Year	Population	Demand Cubic Meters	Other uses (25%)	Total
2009	201,986	13,129.09	3,282.27	16,411.36
2018	360,061	23,403.965	5,850.99	29,254.955
2023	501,465	32,595.225	8,148.8	40,744.025
2030	698,403	45,396.195	11,349.09	56,745.285

Source: VisionRI

Water Supply Goal

Access to affordable, reliable, clean and safe water for all.

Table 15-6: Objectives and Strategies for the Water Sector

Key issues	Location	Objective	Strategy
Water scarcity	Entire Sub-County	<ul style="list-style-type: none"> To increase access to clean and safe water; To provide affordable and accessible portable water; To increase water supply coverage; and To reduce water shortage. 	<ul style="list-style-type: none"> Extending the water reticulation systems; Regular repair and maintenance of water infrastructure; and Creating public awareness of water recycling.

Source: VisionRI

15.10.2 SOLID AND LIQUID WASTE MANAGEMENT SYSTEMS

Projected Demand

- i. **Solid waste:** The County Government of Kiambu is responsible for collecting and disposal of solid waste in the planning area through its Department of Water, Environment and Natural Resources. The main modes of solid waste disposal in the county include landfills, dumpsites, incinerators, recycling, and bio-decomposers. According to the Kiambu County Spatial Plan, collection, and disposal of waste at urban centres stands at 75%.

Assuming that the average number of persons/households is 5 and the average waste discharge ranges from 0.53 to 0.65 kg/person/day, the total waste generated in the planning area is 107.05 tonnes per day. The waste generated is expected to increase as the planning area continues experiencing urbanisation. An approximate 453.96 tonnes will be generated by the year 2030.

- ii. **Liquid waste:** The County Government of Kiambu with the help from the National Government and the World Bank had been improving sanitation facilities within Ruiru Sub-County. The County Government was funded to undertake the Ruiru Sewerage Network Improvement Project by the World Bank. Currently, the construction of the sewer trunk systems is still ongoing. Upon completion, the system is expected to be able to treat 10,000m³/day and have about 57, 440m of trunk and subsidiary sewer lines installed. The main areas under consideration include Membley, Gitambaya, Ruiru town, sections of Mugutha, Murera, Gatongora and Kiwanja Location in Kahawa. Other modes of liquid waste disposal within the planning area include septic tanks and pit latrines.

15.10.3 SOLID AND LIQUID WASTE GOALS

Access to sanitation for all residents of Ruiru Sub-County.

15.10.4 SUMMARY OF SOLID AND LIQUID WASTE MANAGEMENT STRATEGIES

Table 15-7: Summary of Solid and Liquid Waste Management Strategies

Key issues	Location	Objective	Strategy
Poor solid and liquid waste disposal	The whole of the planning area	<ul style="list-style-type: none"> To extend and improve the sewerage system; To provide communal sanitation facilities; and To realise the SDGs on clean and safe sanitation for all. 	<ul style="list-style-type: none"> Solid waste management to curb dumping on-site and off-site to reduce environmental pollution, etc. Mapping of suitable routes for expansion of sewer lines reticulation coverage; and Increase connectivity to the sewer trunk system.

Source: VisionRI

15.11 Economic Performance Improvement Strategies Source

Ruiru is the fastest-growing Sub-County in Kiambu. It is a busy commercial hub hosting several industries and is well connected by road and rail to neighbouring towns. The main economic activities within the planning area include industrial activities, formal and informal commercial activities such as wholesales, retails, open-air market, financial institutions, Jua kali sectors, hawkers, etc., education due to the presence of private education institutions, hospitality industry, vibrant transport sector, and construction industry, amongst others. The analysis of the economic activities in the planning area has provided the available economic potential of the area informing the proposed strategies.

15.11.1 ECONOMIC IMPROVEMENT OBJECTIVES AND STRATEGIES

Achieve an all-inclusive sustainable economy that creates employment, achieves economic stability, and improves the living standards of the local population.

Table 15-8: Summary of Economic Objectives & Strategies

Objective	Strategy
<ul style="list-style-type: none"> To reduce unemployment levels; To economically empower the community; and To create an enabling environment that encourages the thriving of various economic activities. 	<ul style="list-style-type: none"> Promote diversification of commercial, industrial, and agricultural base; Train community members on business skills and utilisation of locally available resources to earn a living from them; Have regulations and policies such as incentives to encourage investors and locals on promoting the economy of the planning area; Construction and maintenance of support infrastructure such as roads, drainages, markets amongst others; and Provision of designated areas for the Jua kali sector.
Weak inclusion of hawkers and small-scale business operators in the local economy.	Social inclusion in business planning by including hawkers and other small-scale business operators to cushion them from the uncompetitive business environment.

Source: VisionRI

15.11.2 FINANCE AND INVESTMENT STRATEGIES

The Kenya Constitution 2010 and the Public Finance and Management Act empowers County Governments to use other measures to supplement the national allocation and their own sources of revenue to fund devolved functions. Counties can borrow money under the authorisation of the National Treasury and approval by the County Assemblies. Counties can also enter into a joint agreement with other counties or state corporations to enhance their financial capacity.

As per PKF Taxation Services Limited's study carried out in Kiambu County, the following financial strategies were proposed.

- i. **Public-Private Partnerships (PPP):** PPPs are joint ventures between Government agencies and the private sector which come together to offer services while at the same time-share the risk involved. In Kenya, PPPs are governed by the Public-Private Partnership Act of 2013 and the Public Procurement and Disposal Regulations of 2009.

Types of Public-Private Partnerships:

- **Management Contracts:** This is a form of partnership in which the public authority enters into an agreement with private companies to provide management services in return for a fee. In this arrangement, the county will retain the ownership and control of the assets. The County Government of Kiambu can engage in management contracts to outsource private companies and investors in the following areas: billing and collection of parking fees, land rates, recreational use fees, public toilets, and garbage collection, amongst others. The joint venture will result in efficiency in services provided and an increase in revenue generated.
- **Leasing:** This is a form of arrangement in which the county leases its assets to a private investor for an agreed rental sum for a specified timeline. According to the World Bank, leasing is also a form of agreement in which the private sector is given the mandate to operate and maintain a certain facility. According to Kiambu County Affordable Housing Project 2018, the County Government of Kiambu recently advertised leasing partnerships with private investors to provide affordable housing in Ruiru, Thika, Kiambu, Kikuyu, and Limuru. The County Government will provide land and facilities for approval processes while the private investors will provide professional services such as engineering, design and construction. Other areas where the County can explore leasing include stadia, schools, and health facilities as well as leasing machinery for road maintenance, amongst others.
- **Concessions:** This is a joint partnership venture between a public entity and the private sector. In this case, the county leases its assets to private investors at a fee and share the profit and the risks involved. The concession period should not exceed 30 years. The private investors are mandated to maintain and enhance the asset. This model of partnership is ideal for the county considering its rapid urbanisation. This has resulted in the influx of major real estate development such as Tatu City, Tilisi, Migaa, and upcoming Northlands city, amongst others. The developers are required to surrender at least 10% of the total land for public amenities such as health facilities, schools, power substation, fire station, etc. The county can enter into a concession with the private sector where it is not in a position to provide these facilities.

- **Build-Own-Operate Transfer (BOOT):** This is a type of partnership where the private investors invest, build, operate, own and later transfer the property back to the County Government. This type of partnership mostly involves capital intensive infrastructural development. The private investors operate the infrastructure until it recovers its fees. Under this arrangement, the County can explore this form of partnership in the provision of major infrastructural development such as sewer truck in the rapidly urbanising areas and exploring solar and wind energy generation plants.
- **Build-Own-Operate (BOO):** This is a form of a public-private partnership model where the private sector invests, builds and permanently owns an asset on public land under contractual terms that secure public interest under county supervision. The County Government can encourage this mode of investment through financial incentives such as tax exemption. The County Government can use this model such as in the provision of recreational facilities in a residential neighbourhood, fire station and kindergartens, amongst others. At a higher level, the County can employ the model to promote foreign direct investment in areas such as industrial development.

Key considerations for an efficient public-private partnership:

- Undertake thorough screening for suitable projects to be considered for PPP arrangement by assessing value for money and risks involved;
 - Outlining project milestones, responsibilities of actors involved, quality indicators and economic rebalancing methods;
 - Well-structured legal framework and institutional guidelines to ensure transparency and fairness; and
 - Public participation/awareness will bring about political goodwill, transparency and ownership of the project which will in the long run build trust.
- ii. **Development Partners:** Development partners refer to international development organisations that partner with the National and County Government to aid in the development in various sectors such as WASH, energy, health, food security, and urbanisation, amongst others. The major development partners in Kenya from which the County can source funding include World Bank, UK Department for International Development, Africa Development Bank, UNICEF, and International Monetary Fund (IMF), amongst others. The development partners can fund the County Government through the following channels:
- **Grants/Donations:** Grants refer to financial aid given to the County Governments that do not require to be repaid. The grants are mostly need-based. According to the Public Finance Management Act of 2012, the county can enter into an agreement with third parties or any entities and obtain grants. The agreement must be approved by the County Executive Member for finance.

The World Bank has collaborated with the Government of Kenya through the Kenya Devolution Support Programme to give grants to County Governments to improve their human resource and performance, civil education, public participation, and development plans, amongst others. The county has managed to develop municipalities under the support of WB through KUSP. Under this arrangement, the County will get approximately Ksh 1.6 billion per year for the next 5 years to support the provision of infrastructure facilities and services in the six municipalities.

The county can also partner with Kenya Informal Settlement Improvement Programme (KISIP) to upgrade the existing informal settlement in Kiambu. The KISIP projects are funded by the Swedish International Development Cooperation Agency (SIDA).

- **Loans/Borrowing:** The County Government can borrow/loan money for development purposes from development partners. The county is supposed to get approval for borrowing from the County Assemblies and the Cabinet Secretary of Finance under Section 50 of the Public Management and Finance Act. A good example is where the World Bank through the Ministry of Transport, Infrastructure, Public Works, and Housing and Urban Development has loaned counties within the Nairobi Metropolitan to prepare Integrated Strategic Urban Development Plans.
- **State Corporations:** State Corporations are non-profit organisations established by an Act of Parliament. The National Government controls the majority of all the shares in state corporations/parastatals. The County Governments can engage or enter into an agreement with State Corporations for finances and management services. For example, the County Government of Kiambu has engaged the Kenya Revenue Authority to assist in revenue collection in the county such as property taxes and single business permits.
- **Joint Agreements:** The Kenya Constitution 2010 under Article 189 (2) provides for cooperation between the National Government and County Government. It also provides for cooperation between different counties in endeavours to meet their obligated mandates. The County can exploit this opportunity to enter into an agreement with neighbouring counties within Nairobi Metropolitan Region to provide services, which cut across counties such as public transport.
- **County Government Corporations and Companies:** After the devolved form of governance came into effect, all local bodies within previous local authorities were transferred to the management of county governments. The County Government can establish its specialised corporations, which can then generate revenue through offering services and can get funding from external sources. For instance, the formation of Kiambu County Water and Sewerage Company is providing water supply in the County.

16 INTEGRATION OF STRATEGIC ENVIRONMENTAL AND SOCIAL ASSESSMENT

16.1.1 OVERVIEW

The preparation of the Plan has been done alongside Strategic Environmental and Social Assessment (SESA) with the aim of assessing the potential impacts of proposed developments. SESA is complemented by an Environmental and Social Management Framework (ESMF) which establishes the principles, guidelines, and procedures for reducing, mitigating, and/or offsetting potential adverse environmental and social impacts, enhancing positive impacts and opportunities, and otherwise guiding potential investments towards compliance with relevant safeguards. The SESA, therefore, integrate social and environmental considerations into planning, leading to more sustainability of the expected outcomes of this Plan.

16.1.2 SUMMARY OF IMPACTS, MITIGATION MEASURES AND INTERVENTIONS

Table 16-1 summarises the key social and environmental impacts, mitigation and interventions due to land use proposals and projects as identified in the plan.

Table 16-1: Summary of impacts, mitigation measures and interventions

No	Impacts	Sources of Impact	Suggested Mitigation Measures in the SESA	Interventions
1.	Impacts on air quality (emissions expected at construction sites)	Industrial activities, chemicals, quarrying, improper waste management and automobiles, heavy equipment and vehicles from construction sites, and construction activities.	<ul style="list-style-type: none"> • The Plan should ensure maintenance and enhancement of green zones to sequester carbon from emissions; and • Control pollution and adhere to air quality regulations. 	<ul style="list-style-type: none"> • Continuous monitoring of air quality has been identified in the ISUDP's implementation plan; and • Preparation of ESIA to be carried out on specific projects.
2.	Noise and vibrations impact on activity sites	Construction sites, excavators, mixers, delivery trucks, industries, etc.,	<ul style="list-style-type: none"> • Land-use planning should encourage the location of noisier activities (such as industrial and commercial uses) near main roads or peripheral areas, and the residential, recreational, educational uses inwards in the more serene areas; • Establishment of buffer zones between different land uses will attenuate noise, further reducing the potential impacts; and • Adherence to noise ordinances such as the Environmental Management and Coordination (Noise and Excessive Vibration Pollution Control) Regulations, 2009 and employment of noise attenuation mechanisms for point sources will mitigate the impact. 	<ul style="list-style-type: none"> • There is a need for the County Government to do continuous monitoring to ensure compliance; and • The zoning plan has taken into account compatible land uses and buffer zones where appropriate.

No	Impacts	Sources of Impact	Suggested Mitigation Measures in the SESA	Interventions
3.	Impact on energy resources	<ul style="list-style-type: none"> The proposed development and project activities will result in higher demand for energy resources both during the execution of the planned developments and operation phases. 	<ul style="list-style-type: none"> Institute energy conservation measures in proposed developments while at the same time taking advantage of the renewable energy opportunities that the site and proposed developments provide, including solar energy, green buildings, etc. 	<ul style="list-style-type: none"> ISUDP has recommended that the County may integrate renewable energy and green building plans approvals in compliance with building code regulations; Building plans to be approved subject to compliance on provision for solar energy; and Promote green building technologies and designs.
4.	Impact on soils and geology	<ul style="list-style-type: none"> Activities such as landscaping, excavation, quarrying, and carting away soil may lead to soil degradation from compaction and soil sealing leading to increased surface runoff and soil erosion; and Spillage of materials (such as oils, fuel, grease, paints, solvents, curing compounds, adhesives, acids, soil stabilizers and binders, etc.) may also lead to soil contamination while the importation of soil in landscaping and fill activities may lead to the introduction of invasive species/noxious weeds and pathogens such as bacteria, fungi and nematodes. 	<ul style="list-style-type: none"> It is considered that these impacts can be mitigated and should be adequately addressed in Environmental and Social Management Plans (ESMPs). Impact on soils and geology is expected to be moderate hence a rating of 2. This is because the planners have taken adequate measures to ensure re-vegetation and management of stormwater in all cleared sites, landscaped areas and farmlands. 	<ul style="list-style-type: none"> Compel miners and landscapers to ensure vegetation to reduce soil erosion; The plan has identified steep slopes as fragile areas and unsuitable for development activities.

No	Impacts	Sources of Impact	Suggested Mitigation Measures in the SESA	Interventions
5.	Impact on water resources	<ul style="list-style-type: none"> The development is likely to lead to increased demand on water resources; and. Generation and disposal of wastewater/ effluent from the proposed developments have the potential to cause ground/surface water pollution and health hazards to human and aquatic life. 	<ul style="list-style-type: none"> Include measures to ensure adequate water supplies for the envisioned developments by the proposed ISUDP; and Provision of wastewater, spill control mechanisms, and treatment of effluent will be required to ensure the protection of water resources 	<p>The water demand and strategies on water supply are integrated into the water resource and supply strategies;</p> <ul style="list-style-type: none"> Awareness and promotion of technologies like bio-digesters etc. in unserved areas to curb wastewater and sewerage pollution; and Water quality monitoring to curb pollution to be done on a regular basis.
6.	Solid Waste Generation	<ul style="list-style-type: none"> All the proposed developments and land uses will generate a substantial amount of solid and liquid waste. During the development phase materials (soil, rocks, vegetation) packaging materials (e.g., paper, polythene, plastic and metallic packaging), reject materials (including damaged bricks, concrete and mortar, plastics), wastewater, used oil among others will be generated. 	<ul style="list-style-type: none"> Adequate waste management measures are required since dumping/careless disposal both on-site and off-site may cause environmental pollution, interfere with aesthetics and lead to the creation of breeding grounds for vermin. 	<ul style="list-style-type: none"> Solid waste management strategies have been incorporated into the plan.

No	Impacts	Sources of Impact	Suggested Mitigation Measures in the SESA	Interventions
7.	Impacts on Flora	<ul style="list-style-type: none"> • An upsurge in catchment degradation through the clearing of vegetation may lead to loss of economically significant flora and degradation of environmentally important areas; • Habitat alteration may include fragmentation of forested and other wildlife habitats through bush clearing, disruption of watercourses, the establishment of non-native invasive plant species, creation of barriers to wildlife movement and visual and auditory disturbance due to the presence of machinery, construction workers, associated equipment and development operations; and • Environmental degradation on change of land use from agricultural land to a built environment was identified as a concern by the stakeholders. 	<ul style="list-style-type: none"> • Some of the key management strategies include carrying out landscaping of different zones and maintaining the proposed green spaces as per the Plan. • The Plan should also ensure the protection of the riparian environment and the establishment of a riparian reserve management plan. Based on the precautionary measures to be put in place, this impact is expected to be moderate. 	<ul style="list-style-type: none"> • This has been identified as a challenge in the situational analysis and provided for in the strategies.

No	Impacts	Sources of Impact	Suggested Mitigation Measures in the SESA	Interventions
8.	Impacts on Fauna	<ul style="list-style-type: none"> There would be visual and auditory disturbance due to the presence of machinery, construction workers, and associated equipment. There is also the likely loss and fragmentation of wildlife habitats. Some of the natural forests which act as habitat for wildlife are likely to be cleared to pave way for the proposed development. This will result in habitat loss and fragmentation. Changes that may alter the existing natural conditions are known to impact negatively on wildlife. 	<ul style="list-style-type: none"> A wildlife management plan can be developed in collaboration with the Kenya Wildlife Service (KWS) to determine the carrying capacity of the conservation area, translocations and/or introduction of any new wildlife species. Since the ISUDP has recommended preservation of areas ecosystems, this impact will be moderate (value of 2). 	<ul style="list-style-type: none"> Collaboration between the County Government, KWS, KFS in the management of areas with flora and fauna need to be enhanced.
9.	Impacts on the socio-economic environment	<ul style="list-style-type: none"> Weak inclusion of hawkers and small-scale business operators in the local economy. 	<ul style="list-style-type: none"> Social inclusion in business planning by including hawkers and other small-scale business operators to cushion them from the uncompetitive business environment. 	<ul style="list-style-type: none"> The Plan has identified the need to engage with the business operators to increase their participation in the local economic activities; Construction of markets at conducive locations; and Promote open market days in the urban centre to allow small traders to sell their products.

Source: Kiambu SESA Report 2020



REPUBLIC OF KENYA



COUNTY GOVERNMENT OF KIAMBU

PART IV:

IMPLEMENTATION, MONITORING, EVALUATION AND REPORTING

17 PLAN IMPLEMENTATION AND CAPITAL INVESTMENT

17.1 Rationale

The test of the soundness of plans and the success of their implementation should be done through a prioritisation process by comparing possible alternatives, based on effective joint working strategic priorities. In broad terms, ISUDPs tend to deal with some key aspects of specific projects, programmes and processes of urban services that should bear an impact on the citizens. Urban residents tend to rely on the infrastructure – physical and social – and attendant public services to meet their daily needs. Prudent investment in the identified interventions cannot therefore be overemphasised.

17.2 Priority Programmes Framework

Much as the plan recommendations must meet the objectively assessed needs, the implementation mechanisms should be sufficiently flexible to adapt to rapid change without adverse impacts. Figure 17-1 illustrates the framework upon which the identified sectoral plans provide a clear understanding of their magnitude and their budgetary implications. This provides a basis of implementation concepts by factoring in the future and the treatment of performance time.

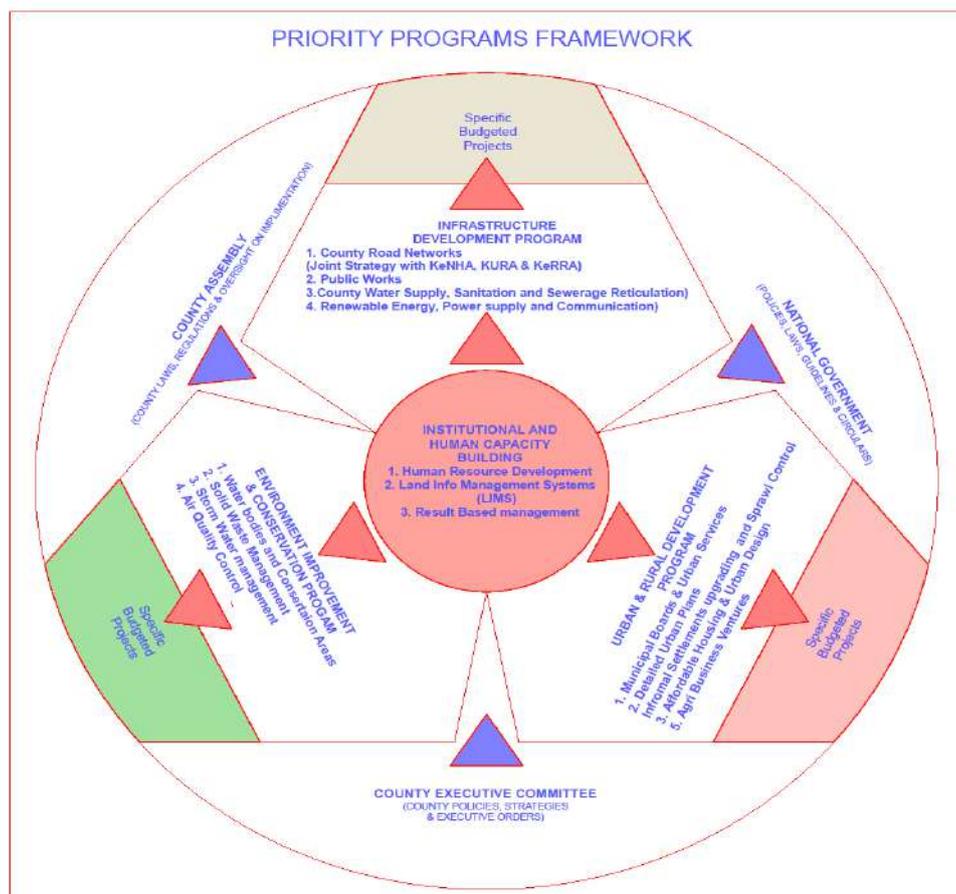


Figure 17-1: Priority Programmes Framework

Source: VisionRI

17.3 Institutional and Human Capacity Building

At the core of the framework is the Result Based Management (RBM) that should be the prerequisite to hone the professional capacity under the institutional and capacity building program. The County Executive Committee, guided by provisions of clause 47 of the County Government Act, is required to develop a performance management plan that provides for amongst others:

- Objective, measurable and time-bound performance indicators;
- Linkage to mandates;
- Annual performance reports;
- Citizen participation in the evaluation of the performance of the County Government; and
- Public sharing of performance progress reports.

It is important to mention at this stage that some functions handled by the national government must translate into the county planning and implementation framework through the County Inter-Governmental Forum¹¹ (County Government Act section 54) chaired by the County Governor. As the head of the County Government, the Governor occupies the pivotal role of executive authority through the County Executive Committee and as the symbol of political sovereignty in the County Assembly for the execution of county functions and oversight, respectively. Both arms of the government must operate within established processes and deploy the tools of performance appraisal.

Using budgetary procedures, these are broken down and aggregated into 5-year County Integrated Development Plans (CIDPs) and further into performance/result based annual action plans cascaded to individual performance targets and deliverables.

The Joint Capacity Assessment and Rationalisation Report of 2015 which was carried out in Kiambu County came up with a human resource framework for both arms of the County. With the establishment of Municipalities, a new capacity assessment is necessary to factor in the role and mandate of Ruiru Sub-County.

17.4 Capital Investment Plan

17.4.1 QUICK WIN PROJECTS

This plan has identified the following ongoing and new projects as key in transforming Ruiru into a new City while improving the livelihoods of the residents. The quick-win projects are given in the Table 17-1.

¹¹ County Government Act Section 54

Table 17-1: Programmes and Projects in Ruiru CBD

Proposed Projects	Short-term (0-2)	Medium-term (3-5)
Construction of an integrated terminus	ST	
Improvement of NMT within the CBD		MT
Construction of an esplanade	ST	
Converting and landscaping the current terminus to act as recreation space		MT
Redesigning C63 Road to a green boulevard	ST	
Redesigning the C63 intersection with the entry road from Thika Superhighway	ST	
Upgrading the entry road from Thika Superhighway into a two-way road	T	
Upgrading Ruiru Market		MT
Setting aside land for hawkers/informal businesses		MT
Provision of safe pedestrian crossings within the CBD	ST	
Construction of new Municipal HQ		MT

Source: VisionRI

17.4.2 SECTORAL PROJECT IMPLEMENTATION MATRIX 2020-2030

For ease of plan implementation, the final outputs of the plans are specific programmes and projects as shown in Table 17-2 below:

Key

Time Frame	Driving Department	Other Implementing	Number of Actors (Score)
1-2 yrs. Short term (ST) 3-5 yrs. Medium-term (MT) 6-10 yrs. Long term (LT)	Public Service & Admin; Roads, Public Works & Infrastructure; Health Services; Education, Vocational Training & ICT; Youth, Sports & Culture; Agriculture, Livestock & Fisheries; Trade, Tourism, Industry, Cooperatives; Land, Housing, Physical Planning & Urban Development; Social Services; Finance & Economic planning; and Environment, Water & Sanitation.	<ul style="list-style-type: none"> • Actors • KIWASCO • Kenya Power • KeRRA • KeNHA <ul style="list-style-type: none"> - KURA - ERC - WRA - NEMA - NLC • KEMSA • KRC <ul style="list-style-type: none"> - NACADA - National Government • Development partners 	<ul style="list-style-type: none"> • Actor • Actors • Actors • Actors • Actors

Table 17-2: Sectoral Programmes and Projects Matrix

Sector	Project	Timeframe	Driving Dept.	Other actors	Number of Actors (Score)	Ward/Towns/Market	Estimated Cost (Kshs.)
Water supply	Increase coverage of piped water within the Sub-County, especially in the developing areas.	ST	Water, Environment, Energy and Natural Resources	KIWASCO	2	Gatongora Mwihoko Kiuu Mwiki Kahawa Sukari	250 M
	Awareness campaigns on rainwater harvesting and water recycling.	ST	Water, Environment, Energy and Natural Resources	KIWASCO	2	All wards	
	Corporate Social Responsibility (CSR) in water provision.	LT	Water, Environment, Energy and Natural Resources	KIWASCO	2	All wards	
	Construction of communal water points - boreholes in areas such as Mwalimu farm.	MT	Roads, Public Works & Infrastructure Water, Environment, Energy and Natural Resources	KIWASCO	3	Mwalimu farm	
	Repair of broken water pipes.	ST	Roads, Public Works & Infrastructure	KIWASCO	2	All wards	
	Promoting water harvesting techniques dams, water reservoirs tanks, etc.	MT	Water, Environment, Energy and Natural Resources	KIWASCO	2	All wards Ruiru dam	

Sector	Project	Timeframe	Driving Dept.	Other actors	Number of Actors (Score)	Ward/Towns/Market	Estimated Cost (Kshs.)
	Upgrading of intake works, new treatment plant of 15,000 m ³ capacity DN1000mm main transmission line, distribution system in Kimbo, Kahawa, Mwiki.			RUJWASCO			2B
	Water network of DN 225mm-63mm HDPE pipeline in Kahawa, Kimbo, Mwihoko, Mwiki- 100 km.			RUJWASCO			300M
	Construction of earth dam 47,000 m ³ , treatment plant, transmission main and storage tanks.			RUJWASCO			
	Construction of sewer connectivity for Ruiru and Juja system 100km.			RUJWASCO			500M
	Construction of sewer network in greater Githurai of approximately 80 km.			RUJWASCO			500M

Sector	Project	Timeframe	Driving Dept.	Other actors	Number of Actors (Score)	Ward/Towns/Market	Estimated Cost (Kshs.)
Energy	Installation of streetlights along major roads within the Sub-County.	MT	Water, Environment, Energy and Natural Resources	KPLC	2	All Wards	100M
Solid waste	Promoting PPPs in the waste collection via licensing and training waste collectors.	ST	Environment	NEMA		Urban area	500 M
	Construct and equipping waste transfer stations at strategic points.	ST	Water, Environment, Energy and Natural Resources	NEMA	2	All wards	
	Provision of waste collection bins in all neighbourhoods and CBD and market centers.	ST	Water, Environment, Energy and Natural Resources	NEMA	2	All Wards and urban centers	
	Conducting public awareness of waste recycling.	ST	Water, Environment, Energy and Natural Resources	NEMA	2	All wards	
	Enforcing County bylaws on waste collection and disposal.	ST	Water, Environment, Energy and Natural Resources	NEMA	2	All wards	
	Increasing the number of Sub-County waste collection trucks.	ST	Water, Environment, Energy and Natural Resources	NEMA	2	All wards	

Sector	Project	Timeframe	Driving Dept.	Other actors	Number of Actors (Score)	Ward/Towns/Market	Estimated Cost (Kshs.)
Liquid waste	Construction of public sanitation facilities in strategic areas.	ST	Water, Environment, Energy and Natural Resources	KIWASCO	2	All urban centers and other strategic areas in all wards	100 M
	Extension of the existing sewer trunks systems within the underserved area such as Gatongora and Forty Area.	LT	Water, Environment, Energy and Natural Resources	KIWASCO	2	All wards	
	Enforcement of public health regulations on safety liquid waste disposal for all premises.	LT	Water, Environment, Energy and Natural Resources	KIWASCO	2	All wards	
Land Use Planning and Administration	Land banking and acquisition for future public projects.	MT	Physical and Land Use Planning Department	NLC Ministry of Lands LCB National Treasury	5	All wards	To be estimated according to actual needs.
	Enhance the existing two LIMS in Thika and Kiambu towns to enhance capacity in Ruiru.	MT	Physical and Land Use Planning Department	Ministry of Lands NLC	3	County-level	200 M

Sector	Project	Timeframe	Driving Dept.	Other actors	Number of Actors (Score)	Ward/Towns/Market	Estimated Cost (Kshs.)
	Regulating land buying companies and parties.	ST	Physical and Land Use Planning Department Department of Trade and Cooperatives	Registrar of companies NLC	4	County-level	5 M
	Prepare an infrastructure master plan.		Physical Planning Department Department of Roads and public works	KeNHA KURA KeRRA KeTRACO KPLC Athi Water Services Board RUJWASCO Internet Service Providers		Entire Sub-County	100 M
Housing	Upgrading the dilapidated Ruiru County Housing Estate.	MT	Land, Housing, Physical Planning & Urban Development	National Government	2	Ruiru town	
	Rezoning urban areas to promote densification and lowering the approval period.	ST	Land, Housing, Physical Planning & Urban Development		1	Densification in all Urban areas	500 M

Sector	Project	Timeframe	Driving Dept.	Other actors	Number of Actors (Score)	Ward/Towns/Market	Estimated Cost (Kshs.)
	Preparation of County Housing Policy to guide the provision of affordable housing.	MT	Land, Housing, Physical Planning & Urban Development	Development partners	2		
	Servicing undeveloped land to promote investments by the private sector such as Mwalimu farm.	ST	Land, Housing, Physical Planning & Urban Development	National Government	2	Mwalimu farm	
	Enhancing the security of tenure through the issuance of title deeds.	MT	Land, Housing, Physical Planning & Urban Development	Development partners	2	All affected settlements with share certificates	
Informal settlement	Extension of essential services to informal settlement areas such as sewer trunks systems and water reticulation.	MT	Land, Housing, Physical Planning & Urban Development	Development partners National Government	3	All affected settlements	100 M
	Upgrading road networks in informal settlements.	ST	Roads, Public Works & Infrastructure Land, Housing, Physical Planning & Urban Development	National Government	3	All affected settlements and peri-urban areas of Ruiru	

Sector	Project	Timeframe	Driving Dept.	Other actors	Number of Actors (Score)	Ward/Towns/Market	Estimated Cost (Kshs.)
	Invest in affordable housing and associated infrastructure to meet the need of the youthful population and young families.	MT	Land, Housing, Physical Planning & Urban Development	National Government, Private sector	3	All wards especially Biashara, Kiuu, and Mwiki	5 B
Transportation	Upgrading Ruiru-Kamiti road to a dual carriageway and integrating it with NMT and the exit road from Thika superhighway.	MT		KeNHA	1	Ruiru - Kamiti Road	1.25 B
	Redesigning the intersection of Thika Road and Eastern Bypass to eradicate traffic grind.	ST		KeNHA	1	Thika Road and Eastern Bypass junction	
	Providing safety for pedestrians crossing along Ruiru -Kamiti Road at OJ and along the Eastern and Northern Bypass.	ST		KeNHA	1	Ruiru -Kamiti Road Eastern and Northern Bypasses	
	Dual and provide for dedicated lanes for heavy	LT		KeNHA	1	Eastern and Northern By-passes	

Sector	Project	Timeframe	Driving Dept.	Other actors	Number of Actors (Score)	Ward/Towns/Market	Estimated Cost (Kshs.)
	commercial trucks along the Bypass roads.						
	Construction of missing links such as Mwalimu Farm and Eastern Bypass and Mwihoko area and Eastern Bypass.	LT	Roads, Public Works & Infrastructure	KeRRA	2	Mwalimu Farm-Mwihoko Eastern Bypass	
	Redesigning of C63 from Ruiru town to be an active artery.	MT	Roads, Public Works & Infrastructure	KeNHA	2	Ruiru Town C63 Road Junction	
	Construction of modern bus park at Githurai 45.	ST	Roads, Public Works & Infrastructure	National Government	2	Githurai 45	
	Construction of a central station at Ruiru linking both commuter rail and public road transport. The station should provide park and ride facilities.	ST	Roads, Public Works & Infrastructure	Development partners	3	Biashara Ward	
	Upgrading of the main road from KAG to Kahawa Wendani road via Booster to bitumen standard.	MT	Roads, Public Works & Infrastructure	KeRRA	2	Mwihoko Ward	

Sector	Project	Timeframe	Driving Dept.	Other actors	Number of Actors (Score)	Ward/Towns/Market	Estimated Cost (Kshs.)
	Maintenance and rehabilitation of road from Z-Corner via Josu Academy to Githurai Mixed Secondary School.	ST	Roads, Public Works & Infrastructure	KeRRA	2	Mwihoko Ward	
Education and Enhancement of Skills	Construction of ECDEs, primary and secondary schools to meet the need of youthful families.	MT	Roads, Public Works & Infrastructure	National Government	2	All wards	1 B
	Procurement of education materials and recruitment of ECD Teachers in all public schools.	ST	Education, Vocational Training & ICT	National Government	2	All wards	
	Setting aside land for education development through enforcement of 10% public surrender.	ST	Physical Planning Dept. and Education, Vocational Training & ICT	National Government	2	All Wards/ Sub-County	
	Establishment of a TVETs in high population areas.	MT	Education, Vocational Training & ICT	National Government	2	Biashara; Kiuu Mwalimu farm, Mwihoko, Mwiki	

Sector	Project	Timeframe	Driving Dept.	Other actors	Number of Actors (Score)	Ward/Towns/Market	Estimated Cost (Kshs.)
Health Services	Upgrading of Ruiru level 4 Hospital.	ST	Health Services Dept.	National Govt.	2	Biashara ward	500 M
	Improvement and construction of health facilities.	MT	Health Services Dept.	National Govt. FBOs Private sector	4	All wards	
	Enhance emergency medical services such as ambulances.	ST	Health Services Dept.	National Govt.	2	In level 5, 4, and 3 hospitals.	
Local economy	Establish EPZ in Mwalimu farm.	MT	Trade, Tourism, Industry, Cooperatives		1	Mwalimu Farm	1.5 B
	Training the youth on vocational skills and business ventures e.g. trade courses, and digital platforms.	ST	Youth, Sports & Culture		1	Entire Sub-County	
	Strengthen and streamline existing revolving funds to support youth in establishing local businesses.	MT	<ul style="list-style-type: none"> Youth, Sports, ICT & Communications, Finance Dept, Cooperatives, Industrialisation and Tourism Ministry. 	<ul style="list-style-type: none"> National Government KenInvest, 	6	Entire Sub-County	

Sector	Project	Timeframe	Driving Dept.	Other actors	Number of Actors (Score)	Ward/Towns/Market	Estimated Cost (Kshs.)
	Expand existing markets and construct new ones and encourage farmers markets	ST	Trade, Tourism, Industry, Cooperatives	National and County Governments, Private sector	4	All wards	
	Modernise Ruiru's jua kali.	ST	Trade, Tourism, Industry, Cooperatives		1	All wards	
Natural Resources	Surveying and mapping all river riparian reserves.	MT	Water, Environment, Energy and Natural Resources	WRA	2	All wards	150 M
	Reclaiming the encroached wetlands and riparian reserve.	MT	Water, Environment, Energy and Natural Resources	WRA	2	All wards	
	Enforcing county bylaws and NEMA law on the polluter pay principle.	MT	Water, Environment, Energy and Natural Resources	NEMA	2	Entire Sub County	
	Institutionalizing committee to check on water bodies pollution.	MT	Water, Environment, Energy and Natural Resources	WRA	2	All the wards	
Disaster Risk Management	Establish a full disaster response department in each ward.	ST	County DRR Unit	National Government	2	All the wards	300 M
	Installation of fire detectors in all buildings.	MT	County DRR Unit	National Govt.	1	Entire Sub County	

Sector	Project	Timeframe	Driving Dept.	Other actors	Number of Actors (Score)	Ward/Towns/Market	Estimated Cost (Kshs.)
	Training and regular drills on disaster response.	ST	County DRR Unit	National Govt.	1	All the wards	
	Public awareness of occupation and safety.	MT	County DRR Unit	National Govt.	1	All the wards	
	Regular maintenance of disaster response equipment.	MT	County DRR Unit	National Govt.	1	All the wards	

17.4.3 PLAN IMPLEMENTATION AT THE DECENTRALISED UNITS

The objectives of devolution essentially outline the sovereign reasons for transfer authority for decision-making, finance, and management to quasi-autonomous units. Both the executive and legislative arms of the County Government have complementary roles in executing the recommendations of the ISUDP. Part VI of the County Government Act classifies the units as urban areas (city or municipality), sub-county, wards, and village units. The Urban Areas and Cities Act provides the mandate of the Municipal Boards in performing responsibilities in its First Schedule.

Figure 17-2 provides a snapshot of the two main decentralized units with the greatest burden of the identified programs and projects and the delivery of defined services. If sub-county and municipality units are well managed, the two others (wards and village units) can be easily be handled.

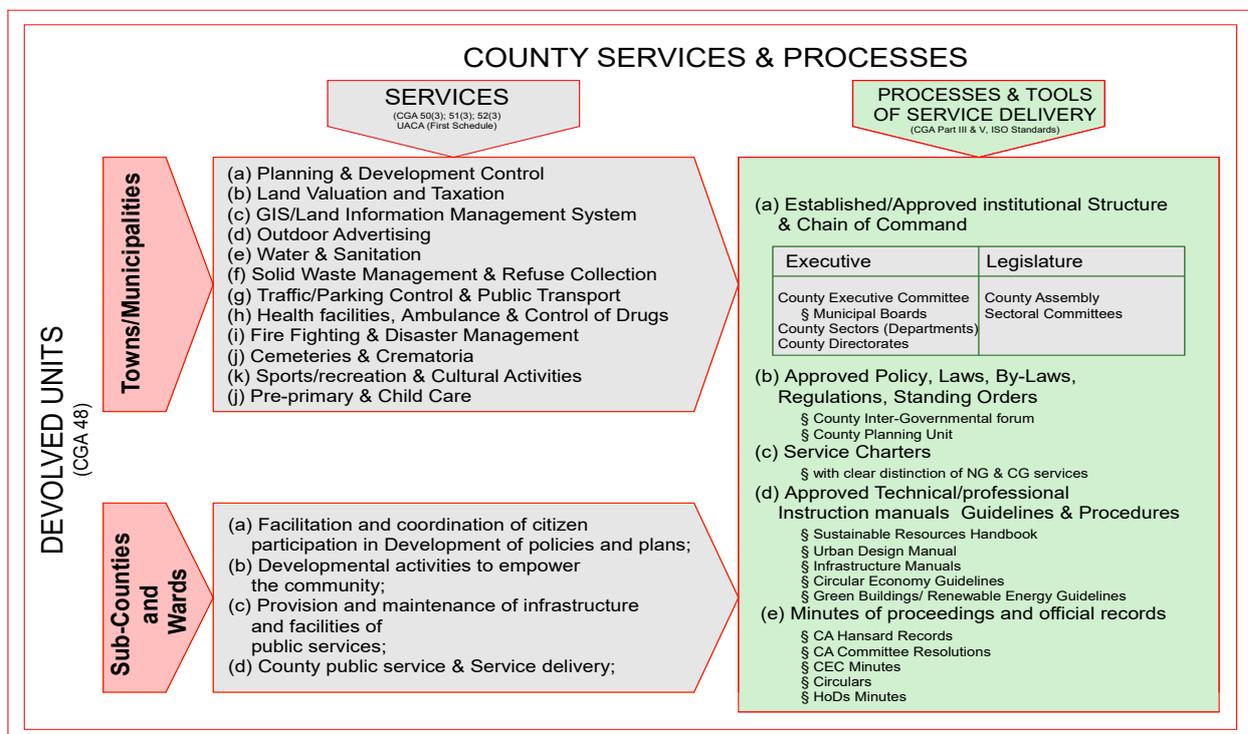


Figure 17-2: Delivery of County Programmes, Projects, and Municipal Services

Source: VisionRI

17.5 Revenue Sources

17.5.1 SECTORAL REVENUE STREAMS

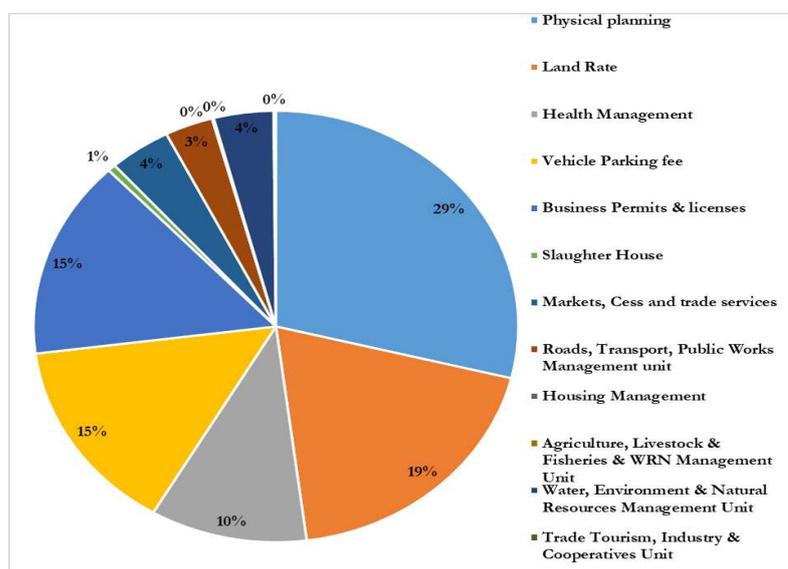
The table below provides key revenue streams with physical planning leading in revenue generation. This is attributed to the high rate of urbanization and construction activities. Table 17-3 shows the trend and amount of revenue collected from 2016 to 2019.

Table 17-3: Departmental Revenue 2016 to 2019

Management UNIT	2016/2017 (Ksh.)	2017/2018 (Ksh.)	Projected 2018/2019
Physical Planning	84,934,790	50,323,247	105,319,139
Land Rate	57,238,931	33,326,546	70,976,274
Health Management	27,946,321	18,275,620	34,653,438
Vehicle Parking Fee	30,992,840	25,357,480	38,431,122
Business Permits & Licenses	53,223,540	25,974,066	65,997,189
Slaughterhouse	1,272,400	929,200	1,577,776
Markets, Cess and Trade Services	17,550,612	7,186,371	21,762,759
Roads, Transport, Public Works Management Unit	3,140,250	5,602,300	3,893,910
Housing Management	73,500	57,300	91,140
Agriculture, Livestock & Fisheries	2,020,366	140,915	2,505,253
Water, Environment & Natural Resources Management Unit	9,630,600	6,949,500	11,941,944
Trade Tourism, Industry & Cooperatives Unit	2,125,352	260,560	2,635,436
Total	290,149,502	174,383,105	359,785,380

Source: Kiambu County - Kenya Urban Support Programme (KUSP)

Ruiru happens to be amongst the top three sub-counties in income generation in the county. This is attributed to the high rate of urbanization brought by the increasing population over the years. It is worth noting that the revenue dropped immensely to Ksh. 174,383,105 in the financial year 2017/2018 compared to the FY 2016/2017 where the revenue was Ksh. 290,149,502. This was due to the reduction of fees and charges within the county. The county has put measures to rectify the situation and this FY 2018/2019 and the revenue is expected to increase to Ksh. 359,785,380. The chart below represents the above information for FY 2017/2018.

**Figure 17-3: Revenue Source during FY 2017/2018**

Source: Author (2018), Adopted from Proposed Kiambu Municipality (KUSP)

17.6 Revenue Enhancement Strategies

17.6.1 FINANCE AND REVENUE DIVIDENDS

Overview

Previous studies carried out by UN-Habitat¹² and PKF Taxation Services Limited¹³ identified various challenges Kiambu County is facing in terms of fiscal discipline and revenue strategies and came up with various proposals through which the County can remedy this and enhance revenue collection.

- i. **Public Participation and Awareness Creation:** A good number of the members of the public are not properly sensitized on matters of finance, budgeting, and revenue within the County. Some are not aware of their financial obligations to the County. There is a need to create awareness on the need to honour their financial obligations regularly and in time to the County. Some of the ways to achieve this are by:
 - The County should come up with an electronic system e.g., SMS to notify people of impending charges;
 - It should also advertise on media, public forums, and churches on the existing revenue streams and financial obligations; and
 - Hold regular public forums/barazas to notify people of their fiscal obligations.

- ii. **Fiscal Discipline:** This calls for prudent measures to manage funds that have been collected. These measures can be rolled out at the point of collection, accounting, auditing, and allocation to various expenditures. Some of these measures include:
 - Analyze budgets and expenditure to check on affordability;
 - Ensure value for money for goods and services rendered;
 - Monitor spending habits by only spending allocated funds for intended and priority purposes;
 - Ensure transparency and tight spending controls;
 - Avoid unnecessary wastage on expenditure;
 - Regular and consistent auditing of financial records;
 - Reduce handling of money by officers by encouraging online payment; and
 - Encourage compliance by those living or working in the County to fulfil their financial obligations regularly and in time.

- iii. **Development Levy¹⁴:** This fee can be imposed on those intending to put up developments. The charges may vary depending on the size, location, and type of development. The funds

¹² UNHABITAT (March 2017) Supporting Revenue Enhancement in Kiambu County, Kenya Discussion Paper No. 8.

¹³ PKF Taxation Services Limited (June 2015) Expanding Counties' Tax base and sources of Revenue.

¹⁴ Physical and Land Use Planning Act Section 63.

collected can then be channelled to service upcoming developments and upgrade existing physical infrastructure including roads, sewer trunks, drainage channels, and water services.

- iv. **Other Sources:** Other sources include introducing charges on the use of public cemeteries, county parks, and tourist sites. The funds collected can then be used to maintain these facilities.

17.6.2 OTHER STRATEGIES

- i. **Automation:** This means making it possible for the public to honour their financial obligations to the County via electronic means and online platforms. Examples include mobile applications, web-based applications, and Unstructured Supplementary Service Data (USSD). Currently, Kiambu County has rolled out USSD code *419# for parking, quarrying, markets, livestock, and cess. The County has also made it possible to pay for building development applications through the bank or their respective agents. The Land, Housing, Urban Development, and Physical Planning Department has deployed a web-based electronic Development Applications Management System (eDAMS). This has resulted in efficiency and an increased volume in the number of development applications processed. However, there is a need to expand this to other county departments in order to increase efficiency and productivity in public service provision.
- ii. **Incentives:** Incentives are measures that governments can undertake to encourage members of the public to do in order to stimulate greater output. One area that Kiambu County has not fully exploited is the payment of land and property rates. The County can offer incentives to the public to encourage them to comply. Some of the incentives the county can implement include:
- Introduce waiver on penalties imposed on land rate defaulters to encourage them to pay up; and
 - Offer discounts to those who comply before a specified period.
- iii. **Enforcement:** The County can enhance revenue collection by ensuring compliance. According to Kiambu County Budget Review and Outlook Paper, 2018 lack of compliance in building plan approval and land rate payments were major reasons for underperformance in revenue generation. To remedy this, the County can do the following:
- Conduct regular and random checks;
 - Impose penalties on defaulters;
 - Increase human and capital capacity for enforcement; and
 - Outsource to the private sector to undertake the enforcement.
- iv. **Tariffs and Pricing of County Services:** The fluctuations of revenue may be attributed to the poor revenue management strategies that include arbitrary pricing of county services. The way forward is to identify all Sub-County revenue streams and to formulate a Tariffs and County Services Policy.

18 MONITORING, EVALUATION AND REPORTING

18.1 Procedure for Monitoring

The purpose of monitoring and evaluation is to assess the effectiveness of the implementation of the plan. A fully functional M&E system is important for the implementation and review of the plan to ensure it delivers the intended results.

An effective M&E requires inter-agency/departmental coordination to ensure inclusiveness, which reflects the multi-sectoral framework of the plan. This means that all the departments and agencies need to be engaged.

M&E verifies whether the activities of each county's priority project or programme are happening according to planning timelines and targets presented in the County Integrated Development Plan (CIDP); and whether resources are being used in a correct and efficient manner.

On the matters of physical and land use planning, the CoK (2010) requires the Department of Physical Planning and the National Land Commission (NLC) are expected to work in concert on matters of physical and land use planning. The National Spatial Plan has spelt out the need to develop performance indicators to facilitate the monitoring of the plan¹⁵.

The National Land Commission (NLC) has developed the Urban Land Use Planning Monitoring and Oversight Guidelines to "provide a lawful basis for engagement between the County Governments as planning authorities responsible for preparing, approving, implementing and reviewing Urban Land Use Plans and the National Land Commission as a monitoring and oversight agency over land-use planning."¹⁶

The guidelines provide for:

- Systematic, purposeful and regular checking of the plans;
- Documenting and providing feedback on land use planning activities undertaken by planning authorities;
- Ensure the quality of the planning outputs and outcomes;
- Adherence to the Constitution, relevant policies, legislation, planning standards and guidelines;
- Take remedial actions to mitigate inappropriate practices;
- Hold the planning authorities accountable for their actions so as to enhance performance; and
- Guide and systematise the practise of preparing, implementing, and reviewing Urban Land Use Plans in the country.

¹⁵ Government of Kenya, 2016:254

¹⁶ Republic of Kenya (2016), Urban Land Use Planning: Monitoring and Oversight Guidelines - National Land Commission

18.2 The M&E Role

M&E process for the programs and projects is best bound within the County Planning Unit to reflect the spatial, social, and economic development programmes and projects in the County to ensure that the ideals of the ISUDP are funded, completed and commissioned.

18.3 Planning Indicators of Progress

An effective physical and land use planning M&E system should be domiciled within:

- National policies such as Vision 2030, National Land Use Policy, Urban Policy, Housing policy, etc.;
- County planning and development framework as provided in the County Government Act, 2012, UACA, Physical Planning and Land Use Act 2019, etc.;
- Public participation with an emphasis on grassroots aspirations; and
- Effective partnerships to ensure inclusivity, resource mobilization and timely delivery of programmes and projects.

Table 18-1 below defines the physical planning indicators.

Table 18-1: Physical and Land Use Indicators

Physical Planning Indicators	Means of Verification
Targets Indicators	
Legal and Policy Compliance	Compliance with ISUDP and Urban Dev. Sector with Vision 2030.
	Compliance with Urban Agenda, National Spatial Plan.
	Compliance with the relevant legislation.
	Compliance with the relevant policies.
	Compliance with the NLC guidelines.
	Compliance with other national agendas.
Physical Planning process	% of entities using the ISUDP.
	% of applications in compliance with the plan.
	% of planning areas defined as problem areas.
	No. of reviews of the ISUDP.
	No. of projects/initiatives completed per year.
	% of functional planning committees in accordance with the Act
	Integration with other plans.
Institutional framework	Effectiveness of Municipal Boards in plan implementation.
	Effectiveness of the relationship between the Municipal Board and County.
	Functionality of the physical planning liaison committee.
	Technical staff capacity of the Sub-County.
	Technical equipment capacity at the Sub-County.
	No. of committees constituted as per legal requirements.

Community participation	Level of resident consultation on physical and land use planning issues.
	No. of neighbourhood associations engaged in planning issues.
	No. of planning clinics on awareness held per year.
	Responses on public notices on plans and planning intention adverts.
	% of participation in planning forums.
Monitoring and evaluation	No. of Departments/Units reporting well functional M&E.
	No. of annual physical planning needs assessments carried out.
	No. of staff trained and applying M&E tools.
	Availability of M&E tools.
Resource Mobilisation	No. of partners/agencies supporting ISUDP implementation.
	Revenue generated by physical planning activities.

Source: VisionRI

18.4 Existing M&E Situation

The M&E system in the Urban Land Use Planning recognises the present veracities which include:

- Lack of an effective M&E system: Currently, the system is mainly used on how funds are used and not in programme/project planning;
- M&E activities at the County level are limited due to lack of capacity and backstopping role from NLC, National Physical Planning Department;
- Lack of clear indicators and tools to guide tracking of changes at all levels;
- Most sectoral (infrastructure, social and economic) plans are not synchronised with the physical development plans;
- Most of the planning activities are on development control with little emphasis on plan preparation and reviews, leading to development happening in unplanned areas;
- Low appreciation of physical and land use planning by policymakers; and
- Inadequate resources availed for land use planning at the county level.

18.5 Financial Monitoring

CoK 2010 requires all county governments to plan and budget for the delivery of goods and services under their mandate. The Constitution requires counties to prepare the following plans to guide expenditure and investment programmes within their areas. These include:

- County Integrated Development Plan (CIDP).
- County Sectoral Plans.
- County Performance Management Plans.
- County Spatial Plan.
- Cities and urban area plans.

- Annual budgets are based on the approved plans by the respective county assemblies. Related guidelines are mainly directed to the monitoring and implementation of programmes and projects that outline the CIDP, Constituency Development Fund (CDF) and other devolved funds as well as priority government and private sector priority investment programmes being undertaken within the county¹⁷.

19 RECOMMENDATIONS AND CONCLUSIONS

19.1 Conferment of Ruiru Sub-County into City Status

Ruiru's tremendous growth warrants it to be conferred a City status in accordance with the provisions of the Urban Areas and Cities Act, having surpassed the 250,000 thresholds and the tremendous potential for further growth by the end of the planning period. The two special economic areas – Tatu and Northlands – have created an innovative planning model whose benefits in the future will definitely stir decisive action in making the planning of the Sub-County cohesive.

Ruiru Sub-County is one of the rapidly urbanising towns in Kenya. According to the 2013 National Spatial Plan, Ruiru was approximately 86% urbanised. It was projected to transform from a town into an urban centre. It currently has become the fourth-largest urban centre in Kenya, after Mombasa, Nakuru and Nairobi.

The essence of transforming urban areas into towns, municipalities and cities is important in enhancing urban management and service provision. Ruiru has reached this crossroad and therefore, a holistic and sustainable transitional model of developing and managing Ruiru must be established. Its management levels need to be elevated to City status.

This plan, therefore, recommends that the process of conferring Ruiru into City status commence in earnest, in accordance with the provisions of the Urban Areas and Cities Act as Section 5 and also contained in the First schedule of UACA amendment 2019. Once this is done, Ruiru will manage to create innovative approaches that will position it to tackle urbanisation challenges and take advantage of its strategic opportunities.

19.2 Neighbourhood Governance for Plan Mitigation and Adaptation

In furtherance to promoting continuous community engagement and enablement, it is necessary to cascade the benefits of this Plan with a neighbourhood focus to mitigate and adapt structured and detailed measures to deliver particular forms of services and resources. This includes awareness creation through identification and utilisation of effective communication systems and modes on the importance of land use planning and management at all levels.

¹⁷ Kenya's County Integrated Monitoring and Evaluation System (CIMES 2016)

This is in furtherance of the County Government Act (Section 48, Parts VII and X), Urban Areas and Cities Act (Section 22) and Kiambu County Community and Neighbourhood Engagement Act, 2016. The neighbourhood Plans should be on clearly delineated sub-zones derived from this Plan and be driven under legally constituted Neighbourhood Associations. The purpose of the Neighbourhood Plans is to re-frame the detailed neighbourhood mitigation issues and the appropriate adaptation actions that extend to this Plan or any other statutory governance action.

19.3 County Affordable Housing Strategy

Kiambu County and more so Ruiru is often referred to as the dormitory of Nairobi City. Under the Big Four Agenda Pillar, affordable housing is a complex challenge and a major public policy issue that requires wholesale articulation in Ruiru by putting it to test for both land use and physical development that attracts investment in affordable housing. The Kiambu County Affordable Housing Strategy has the potential to improve the efficiency and priority and equity of housing markets, if well designed and implemented.

19.4 Infrastructure Master Plans

19.4.1 WAYLEAVES/EASEMENT MASTER PLAN AND STORM WATER AND FLOOD MANAGEMENT STRATEGY

Pursuant to the provisions in the PLUPA Third Schedule Section 12, there is a need to develop a master plan for wayleaves and easements for the management of bulk infrastructure such as telecommunications, electrical power supply, water and sewerage networks, fibre optics and ICT base transmission stations. The acute stormwater and surface runoff challenge bedeviling Ruiru require this intervention for comprehensive stormwater and flood management programme. The wayleave and easement masterplan should further support the expansion and continuous improvement of other infrastructure including roads, water and sanitation, sewerage expansion, energy supply, solid waste management, and ICT to support the envisaged development programmes in the Sub-County.

19.4.2 TRANSPORTATION MASTER PLAN

Land use shapes the demand for transportation. However, for the case of Ruiru and other towns within the NMR, the construction of trunk infrastructure has influenced land uses that spiral out of control such cases as the Southern Bypass (Kamahis, OJ's amongst others). The development of a transportation comprehensive master plan including a Ring Road Circuit, a BRT and commuter rail transport that integrates urban, peri-urban and rural roads across the Sub-County and incorporates and traffic management systems will enable clear localised travel demand management.

19.5 Urban Agriculture and Food Security

No other county is best confronted by the challenge to drive the Big Four Agenda Pillar of food security and nutrition than Kiambu. The high-speed growth indications in the NMR as we witness them today leave no doubt that Kiambu has to plan for these developments in the food supply chain and have a firm position in answering this increasing market demand by translating the land use recommendations into a 'green port' concept of producing and processing high-value crops by implementing the right logistics, storage, treatment and marketing.

The key recommendations for Kiambu Urban Agriculture Strategy include:

- The introduction of enhanced training on modern agricultural practices where traditional farmers have the choice to step in and go through a learning curve ending up with a better income;
- Strengthening food security mechanisms through research on improved seed and right fertilizer to optimise crop yields;
- Automation and value addition techniques;
- Logistics and food chain; and
- Developing logistics centres and improvement of produce and food supply chain.

The strategic location of Kiambu County within the NMR, and especially the unexploited opportunities in Ruiru and neighbouring locations will soon pay off with the creation of jobs that were not there before, with local food provision in a sustainable manner. Only a portion of the County's land is needed to reap these benefits, but it should be dedicated and well planned for this sector.

19.6 Additional General Recommendations

19.6.1 COHESIVE PLAN COORDINATION AT ALL LEVELS

There is a need to have cohesive coordination within the National, NMR and Kiambu County planning frameworks. Specifically, these include the County Spatial Plan, CIDP, ISUDPs, IDePs and other sectoral plans and initiatives across the NMR. Cohesive coordination will improve matching similar development models along and across inter-county boundaries and regions.

19.6.2 CAPACITY BUILDING AND INSTITUTIONAL COORDINATION

At the heart of building multi-level networks is the County Planning Unit (CPU) – evidentially this unit is moribund – and would need to be rejuvenated and given the necessary merit and structure. This is to facilitate their delivery especially on matters related to land administration and management that will coordinate the implementing agencies/entities at all levels on urban planning development and management to ensure effective implementation of this plan. The entrenchment of the CPU's actions within the devolution mechanisms should be exercised through the County Inter-Governmental Forum under the provisions of the County Government Act (section 54(2)) for smooth information flow and feedback across the national and county government departments and agencies implementing programs and projects and other routine services.

Pursuant to the provisions of the Performance Management Plan (PMP) in the County Government Act Section 47, continuous monitoring, evaluation and performance appraisal of interventions – in relation to identifying and strengthening the working of each intervention process and system. An unremitting M&E framework provides a consistent forecast of failure and emerging opportunities.

19.6.3 GOVERNING BY PROVISION

The relationship between the County and Municipalities is through delegated authority. This will require elaborate governing provisions of delegation to the strengthening of the implementing institutions at both

the Sub-County and Municipality levels. This will streamline the operations and symbiosis of all strategies and deliverables within the plan's timeframe. This includes integrating NMR intra- and inter-regional learning to help in scaling best practices across all NMR municipalities for effective monitoring and evaluation.

19.6.4 REVENUE ENHANCEMENT

Revenue enhancement through different sources – beyond County allocations from the national government, mooted strategic partnerships and ensuring delivery of each agreement – will see the Sub-County improve its planning delivery within the proposed timeframe.

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Appendices 1.2: Notice of Completion



REPUBLIC OF KENYA
State Department for Housing and
Urban Development



**COUNTY GOVERNMENT
OF KIAMBU**

PHYSICAL AND LAND USE PLANNING ACT, 2019

NOTICE OF COMPLETION OF DEVELOPMENT PLANS

Names of Developments Plans:-

1. Juja Integrated Strategic Urban Development Plan. JJ/ISUDP/457/2020/01
2. Ruiru Integrated Strategic Urban Development Plan No. RRU/ISUDP/53/2020/01
3. Kikuyu Integrated Strategic Urban Development Plan No. KKY/ISUDP/43/2020/01
4. Limuru Integrated Strategic Urban Development Plan No. LMR/ISUDP/94/2020/01
5. Kiambaa Integrated Strategic Urban Development Plan No. KBA/ISUDP/605/2020/01
6. Nairobi-Thika Transport corridor Integrated Strategic Urban Development Plan No. NTTC/ISUDP/022/2020/01.

NOTICE is hereby given that preparation of the above Development Plans was completed on **11th September, 2020.**

The Development Plans relate to the Plans situated in Kiambu County.

Copies of the plans as prepared have been deposited for public inspection at the office of **Kiambu County Director of Physical Planning**, located in Red Nova Building, Kiambu Town, and respective Sub county Physical Planning offices of **Juja, Ruiru, Kikuyu, Limuru and Kiambaa Sub-Counties.**

The copies so deposited are available for inspection free of charge by all persons interested at the above-mentioned address between the hours of 0800hrs and 1700hrs.

Any interested person(s) who wishes to make any representation in connection with or objection to the above Development Plans may send such representations in writing to be received by the Kiambu County Director of Physical Planning, P. O. Box 340-00900 Kiambu not later than 14 days from the date of this Notice and any such representation or objection shall state the grounds on which it is made.

Dated the **11th day of September, 2020.**

MUGO KIMANI
County Executive Committee Member
Land, Housing, Physical Planning, Municipal Administration and Urban Development
KIAMBU COUNTY

Appendix 1.3: Gazette Notice

3664

THE KENYA GAZETTE

18th September, 2020

NOTICE is given that the preparation of the above Development Plan was on 20th August, 2020 completed.

The Development Plan relates to the land situated in parts of Nairobi City, Machakos and Makeni Counties.

Copies of the Development Plan as prepared have been deposited for public inspection at the offices of Nairobi Metropolitan Service at KICC, 24th floor, Machakos County Government at the Lands and Physical Planning Offices, Machakos Town, opposite County Commissioner's office and Director of Physical Planning, Makeni County, Wote.

The copies so deposited are available for inspection free of charge at the offices of Nairobi Metropolitan Service at KICC, 24th floor, Machakos County Government at the Lands and Physical Planning Offices, Machakos Town, opposite County Commissioner's office and Director of Physical Planning, Makeni County, Wote, between the hours of 0800 to 1700 Monday to Friday.

Any interested person(s) who wishes to make any representation in connection with or objection to the above Development Plan may send such representations or objections in writing to be received by the following offices not later than fourteen (14) days from the date of this Notice and any such representations or objections shall state the ground on which it is made:

Secretary, Lands and Physical Planning,
Nairobi Metropolitan Service,
P.O. Box 40530-00100,
Nairobi.

Director of Physical Planning,
Machakos County Government,
P.O. Box 1996-90100,
Machakos.

Director of Physical Planning,
Makeni County Government,
P.O. Box 78-90300,
Wote.

AUGUSTINE K. MASINDE,
National Director of Physical Planning.
MR/1324611

GAZETTE NOTICE No. 7095

THE PHYSICAL AND LAND USE PLANNING ACT

(No. 13 of 2019)

COMPLETION OF DEVELOPMENT PLANS

PDP No. JJ/ISUDP/457/2020/01 – Juja Integrated Strategic Urban Development Plan.

PDP No. RRU/ISUDP/53/2020/01 – Ruiru Integrated Strategic Urban Development.

PDP No. KKY/ISUDP/43/2020/01 – Kikuyu Integrated Strategic Urban Development.

PDP No. LMR/ISUDP/94/2020/01 – Limuru Integrated Strategic Urban Development.

PDP No. KBA/ISUDP/605/2020/01 – Kiambaa Integrated Strategic Urban Development.

PDP No. NTT/ISUDP/022/2020/01 – Nairobi-Thika Transport Corridor Integrated Strategic Urban Development.

NOTICE is given that preparation of the above Development Plans was on 11th September, 2020 completed.

The Development Plans relate to the Plans situated in Kiambu County.

Copies of the plans as prepared have been deposited for public inspection at the office of Kiambu County Director of Physical Planning, Red Nova Building, Kiambu Town, and respective Sub-county Physical Planning offices, Juja, Ruiru, Kikuyu, Limuru and Kiambaa Sub-Counties.

The copies so deposited are available for inspection free of charge by all persons interested at the above mentioned address between the hours of 0800 and 1700.

Any interested person(s) who wishes to make any representation in connection with or objection to the above Development Plans may send such representations in writing to be received by the Kiambu County Director of Physical Planning, P.O. Box 340-00900 Kiambu not later than 14 days from the date of this Notice and any such representation or objection shall state the grounds on which it is made.

Dated the 11th September, 2020.

MUGO KIMANI,
CECM,
Land, Housing, Physical Planning, Municipal Administration
and Urban Development, Kiambu County.
MR/1324611

GAZETTE NOTICE No. 7096

THE ENVIRONMENTAL MANAGEMENT AND
CO-ORDINATION ACT

(No. 8 of 1999)

THE NATIONAL ENVIRONMENT MANAGEMENT
AUTHORITY

ENVIRONMENTAL IMPACT ASSESSMENT STUDY REPORT
FOR THE PROPOSED REHABILITATION OF THIKA-NANYUKI
METRE GAUGE RAILWAY (MGR) AND FOR THE
CONSTRUCTION OF NEW CHAKA STATION FOR KENYA
RAILWAYS CORPORATION FROM THIKA TO NANYUKI
THROUGH KIAMBU, MURANG'A, KIRINYAGA, NYERI,
LAIKIPIA COUNTIES

INVITATION OF PUBLIC COMMENTS

PURSUANT to regulation 21 of the Environmental Management and Co-ordination (Impact Assessment and Audit) Regulations, 2003, the National Environment Management Authority (NEMA) has received an Environmental Impact Assessment Study Report for the above proposed project.

The proponent, Kenya Railways Corporation, is proposing rehabilitate the 178Km long Thika Nanyuki Metre Gauge Railway (MGR) and for the Construction of New Chaka Station for Kenya Railways Corporation traversing through Kiambu, Murang'a, Kirinyaga, Nyeri and Laikipia Counties.

The following are the anticipated impacts and proposed mitigation measures:

Impact	Proposed Mitigation Measures
Solid waste generation	<ul style="list-style-type: none"> Special attention should be given to minimizing and reducing the quantities of waste produced during all the sites preparation and rehabilitation. Materials to be reused or recycled where possible. Wastes generated during the renovation and construction phase will be disposed of as stipulated in the EMCA (Waste Management) Regulations 2006. Conduct training for waste management, such as waste disposal and segregation practices. Comply with Waste Management Regulations, 2006.
Asbestos Roof Removal	<ul style="list-style-type: none"> Dispose all Asbestos Containing Materials according to WBG/IFC EHS Guidelines NEMA Guidelines/ requirements. Use recommended PPE. Conduct Risk Assessment before removal of ACMs. Notify the authority by filling in the notification form.