



KIAMBAA

Integrated Strategic Urban Development Plan

A Vibrant Commercial, Service and Residential Hub

2020 - 2030



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: _____

COUNTY DIRECTOR

Physical and Land Use Planning

Signed: _____ Date: _____

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.

8

PREFACE



I am pleased to introduce Kiambaa Urban Area, Integrated Strategic Urban Development Plan (ISUDP) 2024-2034 which is a road map on how Kiambaa is geared to develop. This is the first comprehensive spatial plan for Kiambaa and it has been prepared at a time when the County is grappling with the challenges of rapid urbanisation. I am happy to note that this ISUDP has been prepared in a participatory manner taking into account the contributions of various stakeholders whose role in implementation is fundamental.

Kiambu is the third most urbanised County after Nairobi and Mombasa and has witnessed rapid urbanisation in the last few decades with people moving in to settle, set up businesses, and undertake other development activities. Kiambaa has witnessed rapid population growth and increased economic activities over the last ten years since the onset of the devolved government, steadily changing the town's character. However, most of the urbanisation is happening in the peri-urban areas where barely little planning takes place.

These are the areas that are characterised by piecemeal and disjointed land subdivisions coupled with a haphazard change of users that consistently distort urban planning processes. In addition, due to an absence of a local ISUDP to guide and manage this sprawl, Kiambaa continues to be affected by 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 manage urbanisation 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 ISUDP has been prepared cognisant of Kenya's global commitments for sustainable development and existing policy and legal framework which includes Kenya's Vision 2030, Constitution of Kenya (2010), County Governments Act (2012), Urban Areas and Cities Act (2011), 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 the current development challenges.

The Plan recognises the many opportunities and resource potentials that Kiambaa has and needs to exploit when addressing its development needs while ensuring that the resources are sustainably utilised. Implementation of the ISUDP will, therefore, enable the County not only to improve service delivery but also direct development to the most appropriate locations.

Institutionalising the County Planning Unit (CPU), as provided under Clause 105 of the County Governments 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 Kiambaa. The ISUDP has also identified several action areas and quick-win projects which are to be undertaken within the first year of implementation, hence setting the pace for the realisation of the medium- and long-term projects.

My administration acknowledges with appreciation the support of the World Bank. 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 leading to completion of this plan.

Finally, I appreciate the efforts of other stakeholders, including professional bodies; resident associations; the business community; community-based organisations; and the *wananchi*, for their engagement and valuable inputs during various stages of the preparation. My government pledges to ensure, during the course of implementation of this plan, involvement and collaboration with all stakeholders to achieve its full realisation. It is hoped that the implementation of the ISUDP will produce positive changes and improvements in our people's lives.

I therefore welcome all to support the noble cause in realising the vision of this plan.



H.E. Dr. Kimani Wamatangi

Governor, Kiambu County

FOREWORD



Kiambaa Urban Area Integrated Strategic Urban Development Plan (ISUDP) is a ten-year geographical information-based database system plan that will guide the spatial development of Kiambaa from 2020- 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 Kiambaa Integrated Strategic Urban Development Plan reflects the desired spatial form for Kiambaa 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 agricultural production, infrastructural investment and social-economic development in Kiambaa 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 Kiambaa 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 Kiambaa Urban Area 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 Kiambaa) Urban Area town.

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).

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



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County Director of Physical and Land Use Planning

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EXECUTIVE SUMMARY

The Kiambaa 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 Subcounty 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 Kiambaa Subcounty; 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.

Kiambaa is positively identified with the rich, arable agricultural land that supports production of varied cash crops such as coffee, tea, horticulture, and subsistence ones namely, maize, beans, and vegetables.

Physiographically, the Kiambaa is situated in a region of relatively high altitude ranging from 1500m to 1800 m above sea level which supports the flow of Koski, Rui-Ruaka, Ruini and Karura Rivers, drawing from the Aberdare ranges. Due to its proximity to Nairobi and location on the main highway linking Nairobi to other towns, Kiambaa has been attracting investors, particularly in housing developments. Its proximity to Kenya's capital city and adequate road transportation has attracted residents to Kiambaa especially in Ruaka area.

This Plan has identified the key constraints to sustainable development in Kiambaa. These include ineffective land use planning and development control which is a result of weak institutional capacity, deteriorating natural and physical environment and loss of linkages between urban and rural areas. This has led to poor service delivery, loss of natural aesthetics and beautiful landscapes and irregular development patterns in urban and rural areas.

To address these development challenges, the Plan provides for balanced and controlled development. It defines the strategic development directions based on the significance of Kiambaa in the NMR by promoting the main urban growth nodes of Karuri, Ruaka, Gachie and Ndenderu; protecting environmentally sensitive areas; enhanced comparative advantage of ecological zones; Transit-Oriented Development (TOD); decentralised planning; and quality living.

Guided by the Kiambaa's physical, social and economic potentials, the stakeholders, through a multi-sectoral workshop, developed their shared vision for Kiambaa which is to be **'A vibrant regional service, commercial and residential hub.'** The County Government's mission statement with regard to this vision was also determined by the stakeholders during the same multi-sectoral workshop. The mission statement is to **"Realise sustainable Sub-County growth that attracts regional investments in urban services and provide value addition."**

The key goals of the Plan were likewise developed by the stakeholders. These are to:

- Promote local economic growth through the provision of physical and social infrastructure that supports investment and entrepreneurship; and
- Put in place a sound environmental management system for sustainable development.

A preferred development model that is most responsive to the vision and goals for the Sub-County was then developed through another set of stakeholders' workshops and discussions. The stakeholders' preferred model is referred to as the Multi-Nodal Transport Oriented Development Model which is based on the following components:

- Intensified land use within a radius of 400m to 800m around transit node;
- Improving connectivity through upgrading existing roads and incorporating non-motorised transport (NMT);
- Develop and enforce guidelines to control development;
- Designates a hierarchy of nodes based on the allocation of functions (e.g., Karuri town which shall be the commercial and administrative centre); and
- Promotes mixed-use development.

Kiambaa's Land Use Plan is reflective of the preferred development model. The Land Use Plan is structured in a way that it provides a balance in the physical, social, and economic character of the towns in Kiambaa. The Land Use Plan seeks to enhance attract more people in developed high-density areas. This will act as counter magnets to pull away undesirable developments away from agricultural areas under coffee and tea plantations, and environmentally fragile areas such as watersheds and rivers.

The Land-Use Plan is supported by Action Plans which are area-specific interventions that provide focused proposals based on prioritised problem areas and objectives. These have been accompanied by urban design interventions for illustrative purposes and are prepared within the overall framework of the preferred development model. Thus, Action Area plans were prepared for the Karuri CBD comprising Karuri/Banan town and Northern By-Pass corridor.

The Zoning Plan has also been developed as another tool to implement the Land Use Plan. The Zoning Plan delineates residential, commercial, industrial, recreational, agricultural, transport, public purpose, and public utility zones in the Sub-County. Zoning has been done to control the physical development of the land and the types of uses that each individual space shall be put to use and thereby ensuring proper planning of Kiambaa to achieve the desired built urban environment.

The Plan's sectoral strategies revolve around the following priorities:

- Promote the growth of the residential development sector through the provision of pedestrian-friendly infrastructure and implementation of affordable housing schemes;
- Provide efficient and reliable connectivity to all areas through improved road network and supporting facilities including those for non-motorised transport (NMT);
- Promote conservation measures that will protect the environment;
- Delivery of quality, accessible, and affordable social services, and infrastructure;
- Delivery of quality, sustainable, accessible, and affordable physical infrastructure to include clean water supply, waste management, storm drainage, and electricity;
- Strengthen the local economy by encouraging the growth of internal and external investments;
- Enhance and stabilise revenue collection at both the County and Sub-County levels; and
- Put in place disaster risk management measures particularly to mitigate floods, curb the occurrence of fires, ensure the construction of structurally-sound buildings, minimise the risk of landslides, and reduce road accidents.

It is envisaged the County Planning Unit (CPU), headed by the County Director of Physical and Land Use Planning, shall play a strategic role and duty in the implementation of this Plan following the provisions of the County Governments Act (2012).

A Capital Investment Plan (CIP) has also been developed to guide the implementation of projects that were identified in the ISUDP. The CIP includes 'quick-win projects' such as the upgrading of Karuri and Ruaka CBDs and construction of key facilities in Kawaida, Ndenderu, Muchatha, and Gachie such as a bus park, market, NMT facilities, and solid waste transfer stations.

The CIP also includes sectoral projects that will be implemented over the short and long-terms of the ISUDP. Sectoral projects include those for natural resources and environment, social infrastructure, local economy, urban and rural development, urban design, multi-modal transportation, and housing.

A Monitoring and Evaluation (M&E) Framework that is intended to facilitate the assessment of the effectiveness of the ISUDP's implementation has also been prepared. The M&E Framework includes physical planning indicators and their means of verification. The role of M&E will be anchored within the CPU.

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 seventeen.

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

Abbreviations and Acronyms

CBD	Central Business District
CIDP	County Integrated Development Plan
CSP	County Spatial Plan
ECDE	Early Childhood Development Education
GIS	Geographic Information System
ICT	Information and Communications Technology
ISUDP	Integrated Strategic Urban Development Plan
KNBS	Kenya National Bureau of Statistics
KPLC	Kenya Power and Lighting Company
Kshs	Kenyan Shilling
KUSP	Kenya Urban Support Programme
MoTIHUD&PW	Ministry of Transport, Infrastructure, Housing, Urban Development and Public Works
NaMSIP	Nairobi Metropolitan Service Improvement Project
NEMA	National Environment Management Authority
NLC	National Land Commission
NMR	Nairobi Metropolitan Region
NMT	Non-motorised Transport
NSP	National Spatial Plan
SME	Small and medium-sized enterprises
SPC	Spatial Planning Concept
SWOT	Strengths-Weaknesses-Opportunities-Threats
TOD	Transit-Oriented Development
ToR	Terms of Reference



REPUBLIC OF KENYA



COUNTY GOVERNMENT OF KIAMBU

PART I:

INTRODUCTION AND PLANNING CONTEXT

1 INTRODUCTION

1.1 Background

The preparation of the Kiambaa Integrated Strategic Development Plan (herein referred to as ISUDP or Plan) 2020-2030 is part of Component 1 on Institutional Reform and Planning of the Nairobi Metropolitan Service Improvement Project (NaMSIP). NaMSIP is an initiative of the Government of Kenya Government (GoK) to address different elements of urban development and contributes to its governance, growth, and improved environmental management agendas. It is supported by the World Bank under the Country Partnership Strategy (CPS) which emphasises the themes of growth, equity, and environment, with a special emphasis on governance.

The Nairobi Metropolitan Region (NMR) where Kiambaa Urban Area is located is a national, regional, and international strategic centre for education, commerce, transport, regional cooperation, and economic development. It connects eastern, central, and southern African countries. It plays a significant role in the global, regional, and local economy, and is a centre of international diplomacy, finance, banking, and commerce.

One of the major problems and challenges facing the Sub-County is its rapid urban growth against the declining quality of the environment. Key urban centres are experiencing rapid growth and development that is unplanned, uncoordinated, and uncontrolled. As a result, these urban areas are experiencing several development challenges which include inadequate housing and mushrooming of informal settlements, unemployment, environmental degradation, inadequate infrastructure, services and facilities, an escalation in crime incidence, and social distress. Other problems include excessive and uncoordinated piecemeal subdivisions of privately owned land without approved planning schemes and uncontrolled developments without requisite expansion or upgrading of utilities and services.

In light of the above, there is an urgent need to look at urban development of the Sub-County from a perspective that integrates physical, economic, social, cultural, environmental, and institutional aspects. There is a need to align urban development planning with the on-going socio-economic and political reform and transformation in the country, which requires a major shift in planning by utilising a strategic planning approach.

Thus, under the auspices of NaMSIP, the Kiambaa Urban Area ISUDP has been prepared to support the identification and implementation of critical urban services that will allow the Sub-County to meet the needs of businesses and residents. Investments in infrastructure are expected to contribute to improve the competitiveness of Kiambaa Urban Area as a place to live and invest in. Some of the areas targeted for improvement in the ISUDP include transport systems, solid waste management, stormwater management, water supply and sanitation, disaster management, security/street lighting, and social services, amongst others.

Consequently, this ISUDP has identified priority programmes that can transform the Sub-County into a vibrant and well-planned human settlement. With effective implementation, this should be reflected in improved quality of living and working environments of residents, enhanced revenue to the County Government of Kiambu, and efficient transport system. Moreover, the ISUDP provides for the full exploitation of opportunities for expansion of agro-industrial development and rural-urban linkages.

1.2 ISUDP Concept

The ISUDP concept 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 in the country” 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” (Project Terms of Reference (ToR)).

The strategic planning approach mentioned above involves the identification of “priority programmes and projects that can transform the Sub-County into a vibrant well-planned satellite town of Nairobi City that taps on the advantage of its proximity to the capital city” (ToR). 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 forms and character through innovative urban design.

The key planning principles that underlie plan preparation are also provided in the ToR as follows:

- Consultative/participatory process allows for public participation and ownership of plans as the basis for shared responsibility for implementation;
- Strategic process which requires a focused approach, and a systematic search for the most appropriate and effective solution, keeping in mind given municipal resources, and overall policy guidelines and principles;
- An integrated approach, which requires thinking and acting holistically across conventional sectorial boundaries. Functional integration with the purpose of improving availability and accessibility; reducing travel and transport needs; and improving convenience for those with fewer resources. Integration as a tool for promoting sustainability;
- The ISUDP should provide equal access to services and facilities; 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 Purpose of the Plan

The purpose of this ISUDP as provided in the ToR includes:

- 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 the Kiambaa Urban Area;
- Indicating action areas for immediate development or re-development; and
- Providing a coordinated basis upon which various implementing agencies can develop 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 for Kiambaa Urban Area

The key planning issues that face Kiambaa Urban Area include the following:

- Urban sprawl, and unplanned and uncoordinated urban growth especially along the transport corridors;
- Uncontrolled land subdivisions without meeting planning standards and encroaching into rich agricultural areas;
- Lack of an updated development plan that could form the basis for planning decisions;
- Inadequate infrastructural services such as narrow roads, lack of sewer, water supply, waste disposal and stormwater drainage;
- Environmental degradation and encroachment on riparian reserves and other fragile areas;
- Poor quality housing and inadequate community services such as schools, health facilities, community halls and recreation areas;
- Unemployment and declining employment opportunities that lead to a high rate of youth unemployment;
- High incidences of urban poverty;
- Proliferation of informal settlements;
- High crime levels;
- Poor coordination amongst relevant government authorities, private sector and other actors on planning and projects implementation; and
- Ineffective engagement and participation of local communities and the private sector in planning and development activities.

1.5 Objectives of the Plan

According to the ToR, the objectives of the Plan are:

- To determine the boundaries of Kiambaa Urban Area considering projected requirements for urban land within the plan period;

- To 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;
- To identify development constraints, potentials, and challenges of the Sub-County (social, economic, infrastructure and environmental profiling) and propose strategies to address them;
- To identify environmental issues and propose strategies for effective environmental management including, amongst others, climate change adaptation and disaster risk reduction and management measures;
- To allocate sufficient space for various land uses, including recreation and open spaces, to ensure efficient function and convenience of users and accommodate future growth;
- To uphold innovative civic and urban design that enhances the character and form of Kiambaa Urban Area;
- To provide a basis for development control and investment decisions; and
- To develop an implementation plan and monitoring framework.

1.6 Scope of the Plan

1.6.1 GEOGRAPHICAL SCOPE

The geographical scope of the Plan comprises the current administrative boundaries of Kiambaa Sub-County. This includes the major urban nodes and rural areas. The planning area is located at the south of Kiambu County and northwest of Nairobi City, which defines its eastern and south-eastern boundaries. The total planning area is approx. 8079.3 hectares equivalent to 80.8 km².

1.6.2 SCOPE OF PLANNING TASKS

In accordance with the ToR, the preparation of this plan involved the following tasks:

- Delineation of the planning boundaries of Kiambaa Urban Area;
- Preparation of an elaborate base map showing the existing spatial structure of Kiambaa Urban Area to include planning boundaries, existing road network, landmarks, major natural features, and topography;
- Carrying out a contextual analysis of Kiambaa Urban Area and its environs;
- Undertaking a land-use and socio-economic study and survey of Kiambaa Urban Area, accommodating all the changes that have occurred over time and projecting future changes, and comparing how these changes compare in the metro region and county;
- Undertaking an assessment of transport, infrastructure and utility needs, housing, and community services. This included mapping of the transport, infrastructure, and utility network of Kiambaa Urban Area;
- Detailed study on the redevelopment of the central business district (CBD);
- Identifying suitable land for residential, industrial, education, recreational, public purposes, commercial, public utilities, transportation, and other uses applicable to Kiambaa Urban Area;
- Analysing administration and institutional requirements in planning and development;

- Projecting land use, infrastructure and services required over the plan period;
- Preparing a detailed short term, 10-year land-use plan for Kiambaa;
- Preparing detailed 10-year sectorial development plans in support of the land use plan for Kiambaa Urban Area;
- Preparing individual implementation plans to include proposed requisite resource and institutional frameworks; and
- Preparing zoning plans for Kiambaa Urban Area with requisite development densities and guidelines.

1.7 Outputs/Deliverables of the Plan

The outputs of this plan include:

- Spatial plan covering the entire Sub-County;
- Action area plans;
- Detailed transportation strategy;
- Detailed environmental strategy;
- Detailed housing strategy;
- Detailed social facilities strategy;
- Detailed local economy strategy;
- Detailed investment strategy;
- Financing and revenue enhancement strategy; and
- Digitised plan for the Sub-County.

1.8 Vision and Mission of the Plan

A participatory approach in the formulation in the shared vision for the Plan and mission statement was informed by views of various stakeholders who were involved in the ISUDP preparation process.

The community vision for the Sub-County is to be **“A Vibrant Commercial, Service and Residential Hub within the NMR.”**

The mission of Kiambaa Urban Area is **“To Realise World-class infrastructure, an efficient transportation system that Attracts Investments Opportunities.”**

The goals in realising this vision are:

- To have well-planned and connected neighbourhoods that promote mobility;
- To develop world-class physical, social infrastructure and environmental management systems to achieve sustainable development; and
- To promote local economic growth by enabling investment opportunities.

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 Kiambaa Urban Area to appreciate its challenges and opportunities. The outputs were the refinement of the problems and objectives of the Plan. Transect surveys involved undertaking reconnaissance surveys of the planning area. The output at this stage were: identification and appreciation of the towns major planning issues, challenges and opportunities in line with 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 SENSITISATION

Sensitisation of key stakeholders was carried out through the publication of a Notice of Intention to Plan. This was done in collaboration with (DoNMED, Director of Physical Planning (Land) and the County. This was followed by stakeholders' engagements through direct interviews and focused groups discussions (FGD) which led to stakeholders' workshops where broad ranges of participants were involved in validating the situational analysis and formulation of the shared vision and goals.

1.9.3 DATA COLLECTION

A variety of methods were used in order to capture all the data required for planning. First, there were surveys to capture household characteristics, economic activities and so on to plan for. Second, FGDs not only in the slums but also in the towns, corridors, peri-urban and rural areas to capture data on upgrade expectations/fears, sacred places/heritage sites, infrastructure needs, social problems and so on to plan for were conducted. Third, key informant interviews with key actors were conducted to capture data on the status of social infrastructure, population patterns and respective needs and infrastructure needs, amongst others. Fourth, data collection endeavoured to the extent possible to seek to access all existing secondary information on population size, density and trends, economic activities, access to social infrastructure and so on. The data capture tools used include interview schedules, focus group discussion guides and key informant interview guides. These included consultations with stakeholders which were done through the following manner:

- **FGDs:** These involved stakeholders in the slums, towns, corridors, and peri-urban and rural areas to capture information on their expectations/challenges, infrastructure needs, and social problems, as well as to identify sacred places/heritage sites.
- **Key informant interviews:** These were used to collect data on the historical as well as current socio-economic, environmental, land use and infrastructural information. They include officials from the Ministry of Lands, Housing and Urban Development, County Director of Physical

Planning, Kenya Urban Roads Authority, Kenya National Highways Authority, Kenya Roads Board, Ministry of Energy and Petroleum, and Ministry of Transport and Infrastructure, amongst others.

- **Comprehensive Stakeholder Forums:** These included multi-sectorial consultations to establish the key development challenges on transport, access to amenities and community facilities and the challenges involved, amongst others. Some of the key meetings include the first stakeholders meeting to present key study findings, refinement of the Sub-County's problems, visioning and setting the specific objectives of the ISUDP. Other forums included the presentation of Alternative Development Proposals and draft plans for stakeholder's validation.
- **ISUDP Publication:** The ISUDP was publicised for two weeks to solicit and incorporate relevant public comments.

Secondary data were collected through desk studies from past reports and publications in the planning area. This was carried out before field visits were made with the objective of clearly identifying data gaps to be collected. Reports such as publications, topo-cadastral maps and land-use plans were reviewed to give clear insights into Kiambaa Urban Area. It also included reviews of existing plans, policies, and statutes. Some of the documents reviewed are Kenya Vision 2030 and its two Medium Term Plans; County Integrated development plans for Kiambu County; The Nairobi Integrated Urban Development Masterplan (NIUPLAN), 2014-2030; Nairobi Metro Vision 2030 Strategy; Kiambu County Spatial Plan, the Kenya Power and Lighting Company Master Plan; and Konza City Master Plan, amongst others.

Field studies were carried out not only to fill information gaps which were identified during the desk studies but also to verify data. This involved collecting information on existing infrastructure conditions to assess the adequacy and functioning of existing facilities. The field studies also assisted in verifying data collected from secondary sources, identification of planning issues, potential problem areas, and existing and future development potentials of the project areas. Some of the key techniques used to collect various types of data included:

- **Reconnaissance Surveys:** Observations were undertaken to provide information on land use patterns, environmental conditions, traffic volumes by day/hour, and direction and types of vehicles, amongst others.
- **Conducting Origin-Destination (O-D) studies** to determine the nature of traffic and the present volume of freight and passenger movements. The O-D studies were also used to establish the current traffic flow pattern, and to use the data to forecast future patterns. Other information obtained included the number of trips into, within, and through a connection; and time of day, mode of travel and number of occupants in a vehicle during a trip; current travel patterns; areas that generate the most traffic; and adequacy of transport facilities; and flow rates and road safety; and people's perception of the transport system.

- **Roads Inventory and Condition Surveys:** These involved determining the surface type of the roads (e.g., paved or gravel), surface condition (e.g., good or fair), road classification (e.g., class a) and length of the road in the project areas. It also involved determining conditions of other utilities such as water, drainage, and sewer systems.
- **Map preparation** was carried out using surveying and Geographic Information System (GIS) software and saved into distributable formats easily understood outside surveying and GIS profession. Field validation was carried out using a handheld Global Positioning System (GPS) receiver pre-set to the national grid system. Gaps found in the supplied maps were filled using handheld GPS equipment or current high-resolution imagery covering. Spatial data acquired in hardcopy formats were scanned, geo-referenced and digitised into vector maps on the same coordinate system as the base map. Datasets that were acquired in hardcopy formats included registry index maps (RIM) showing the land subdivision, administrative maps, existing and proposed road networks, fibre optic cable network, power distribution network, etc.

1.9.4 ISUDP FORMULATION

Formulation of the ISUDP was based on thematic studies which involved detailed analysis of secondary and primary data, and the identification of critical planning issues. The findings of the thematic studies were presented to key stakeholders for validation. Based on validated situational analysis, a draft plan and development proposals were prepared, modelled, and presented in a spatial context showing desired outcomes, alternatives, strategies and programmes. The output was presented to a stakeholders' 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 stakeholders' meeting focussing on the presentations of the draft plan proposal and preferred models was then organised to gain consensus on the preferred plans and strategies.

1.9.5 APPROVAL

Approval of this ISUDP 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 gazettelement by the County Executive Committee Member in charge of Physical Planning and Land Use. The output will be a gazetted plan for implementation for the period 2020-2030.

2 PLANNING CONTEXT

2.1 Historical Development of Kiambaa Urban Area

The earliest settlers in the Sub-County were the Kikuyu people. As time went by, trade and other human activities led to the influx of more people who brought diverse cultures and traditions. At the beginning of the 20th Century, residents spoke Swahili and English, as well as Kikuyu. The settlement further grew and expanded because of tea, coffee, and farming of other food crops.

During the colonial period, British and other Europeans farmers settled in the area and occupied a location which formed part of the “white highlands,” a term used to claim white man ownership of the occupied land hence leading to expulsion of Africans from their land. They settled with the support of the colonial government and established tea and coffee plantations, cereal farms, and ranches. The area became the largest tea and coffee exporting zone of the country, attributed to the putting up of tea and coffee industries. Over time, milk production and processing formed the industrial character of Kiambaa and attracted many employees, who currently work in both agricultural and manufacturing-based industries.

The headquarters of the Kiambaa Urban Area government administration are in Karuri Town which combines Karuri and Banana Towns. The town was established as a meeting centre in the pre-colonial era where Kikuyu’s Paramount Chief used to meet for deliberations. The town is named after a paramount chief, Karuri wa Gakure. It is well known internationally for its Banana Hill suburb, which is considered a centre for contemporary arts and is home to the Banana Hill Art Studio.

Other major urban centres in the Sub-County are Ruaka, Gachie, Muchatha and Ndenderu.

Kiambaa is one of the 12 sub-counties in Kiambu County and has been gazetted as one of the six municipalities in the County.

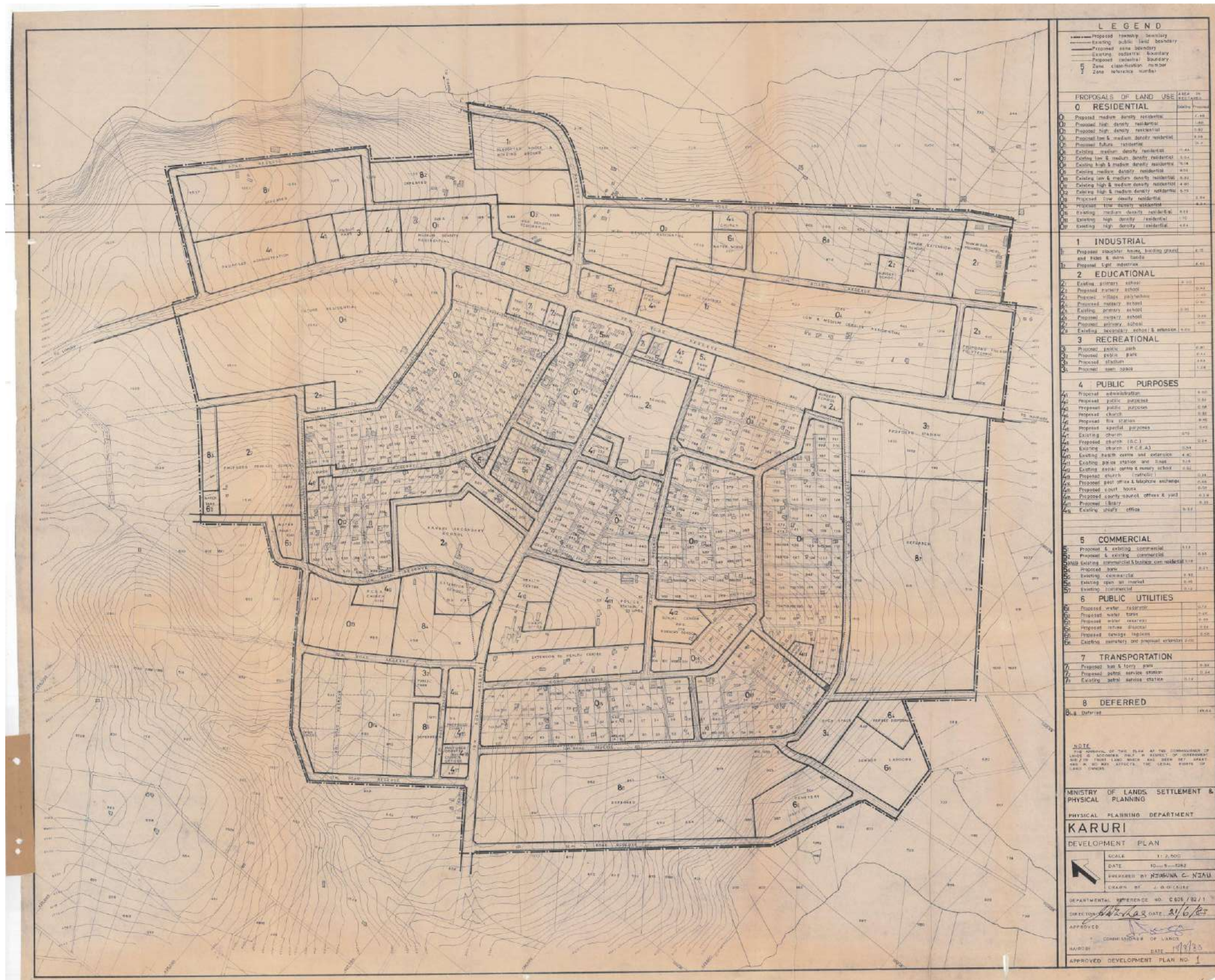
2.2 Previous Planning Attempts

The plan that is in use at the time of the preparation of this ISUDP was prepared by the Physical Planning Department of the then Ministry of Lands, Settlement and Physical Planning in the year 1982 and approved in the following year. As of 2020, the Plan has been in use for the last 36 years. Evidently, it has been overtaken by events owing to population growth, urbanisation, and lack of updating.

The said plan only covered Karuri town which is only a small portion of the entire planning area. This left the hinterlands unplanned and their development uncontrolled. Developments have expanded into agricultural lands which have been subdivided into smaller plots for residential use without considering any planning standards. A lot of the planning challenges facing the Sub-County can be traced to this piecemeal nature of land subdivision and change of user without being guided by a comprehensive spatial plan. Map 2-1 shows the 1982 Physical Development Plan for Karuri town which covered an approximate area of 246 ha against the current planning area of 8079.3 ha which covers the entire Sub-County.

During the field survey and analysis done in the preparation of this ISUDP, it was realised that some of the planned developments like schools, hospitals, and post office, amongst others they have been reserved as planned in the 1982 Physical Development Plan. However, some developments like the light industry park, the bus park, proposed road widening, and restricted developments along the corridor were not actualised as per the approved 1982 plan. As a result, the town has seen haphazard development that has led to ribbon development along the roads towards Muchatha, Ndenderu, Raini and Kanunga.

Map 2-1: 1982 Karuri Town Development Plan



Source: Kiambu County Government - Physical Planning Department

2.3 Geographic Location and Size

2.3.1 NATIONAL CONTEXT

Kiambaa Urban Area is located in Kiambu County. Kiambu County borders Nairobi and Kajiado counties to the south, Machakos to the east, Murang'a to the north and northeast, Nyandarua to the northwest, and Nakuru to the west as indicated in Map 2-2. The County lies between latitudes 00° 25' and 10° 20' south of the equator and longitude 360° 31' and 370° 15' east.

2.3.2 REGIONAL CONTEXT

The Sub-County forms part of the NMR along with Ruiru, Thika, Limuru, Kiambu, Juja, Kikuyu, Mavoko, Kitengela, Ongata Rongai and Ngong', amongst others.

2.3.3 LOCAL CONTEXT

The Sub-County borders Githunguri Sub-County to the North, Kiambu Sub-County to the east, Limuru to the west and Kabete to the south-west. Nairobi County defines its southeast border. It enjoys a strategic location in the NMR with the main access being via Kiambu road, Limuru road and Northern Bypass. It is about 20 km from Nairobi. The town is found within the longitude 36° 45' 23" E and latitude 1°10'35" S.

2.4 Administrative Units

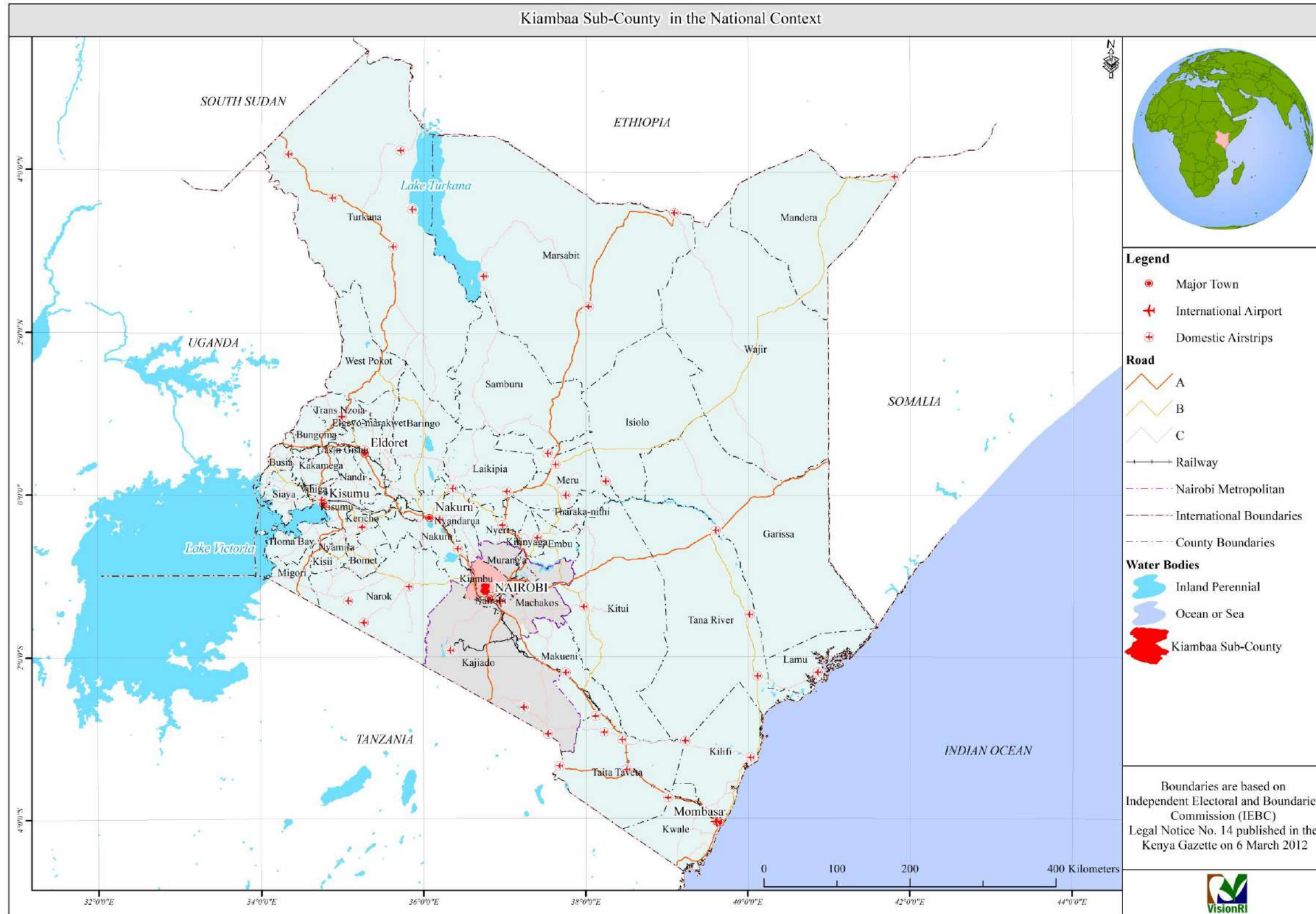
Kiambaa Urban Area covers approximately 8079.3 hectares (80.8 km²). The Sub-County is composed of five wards with 15 sub-locations whose respective land areas are presented in the table below.

Table 2-1: Administrative and Political Units

Wards	Sub-location	Area in hectares		Share in % area
		Ward	Sub-location	
Cianda	Cianda	3669	2103	44.1%
	Kawaida		1566	
Karuri	Karuri	1445	427	17.36%
	Njiku		618	
	Kiambaa		400	
Muchatha	Gathanga	1176	559	14.13%
	Muchatha		316	
	Njoro		301	
Ndenderu	Ndenderu	1495	331	14.96%
	Karura		250	
	Wangunyu		257	
	Ruaka		250	
Kihara	Kihara	536	270	8.69%
	Gachie		256	
Total			8,321	

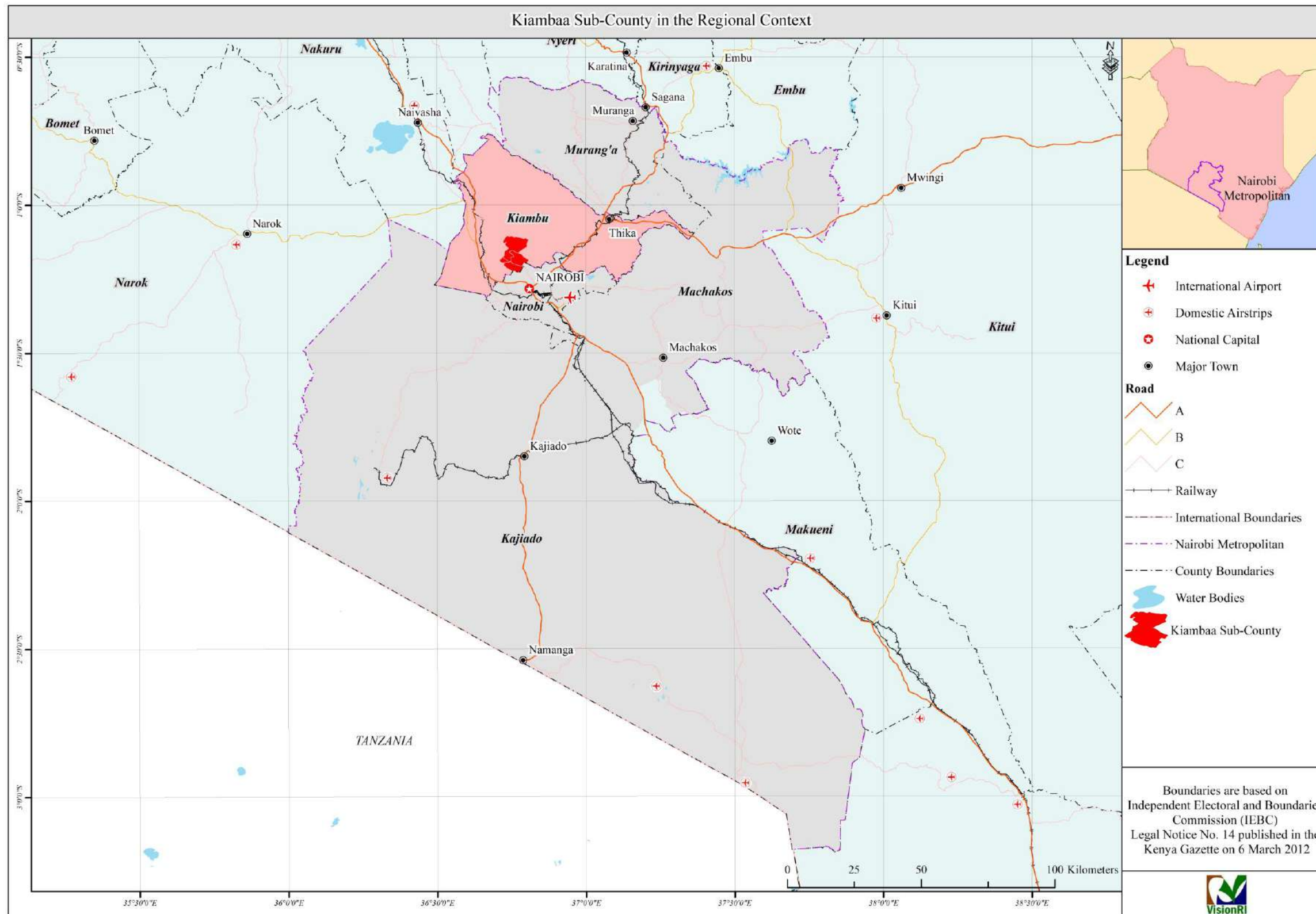
Source: Kiambaa Urban Area Office

Map 2-2: Location of the Planning Area in the National Context



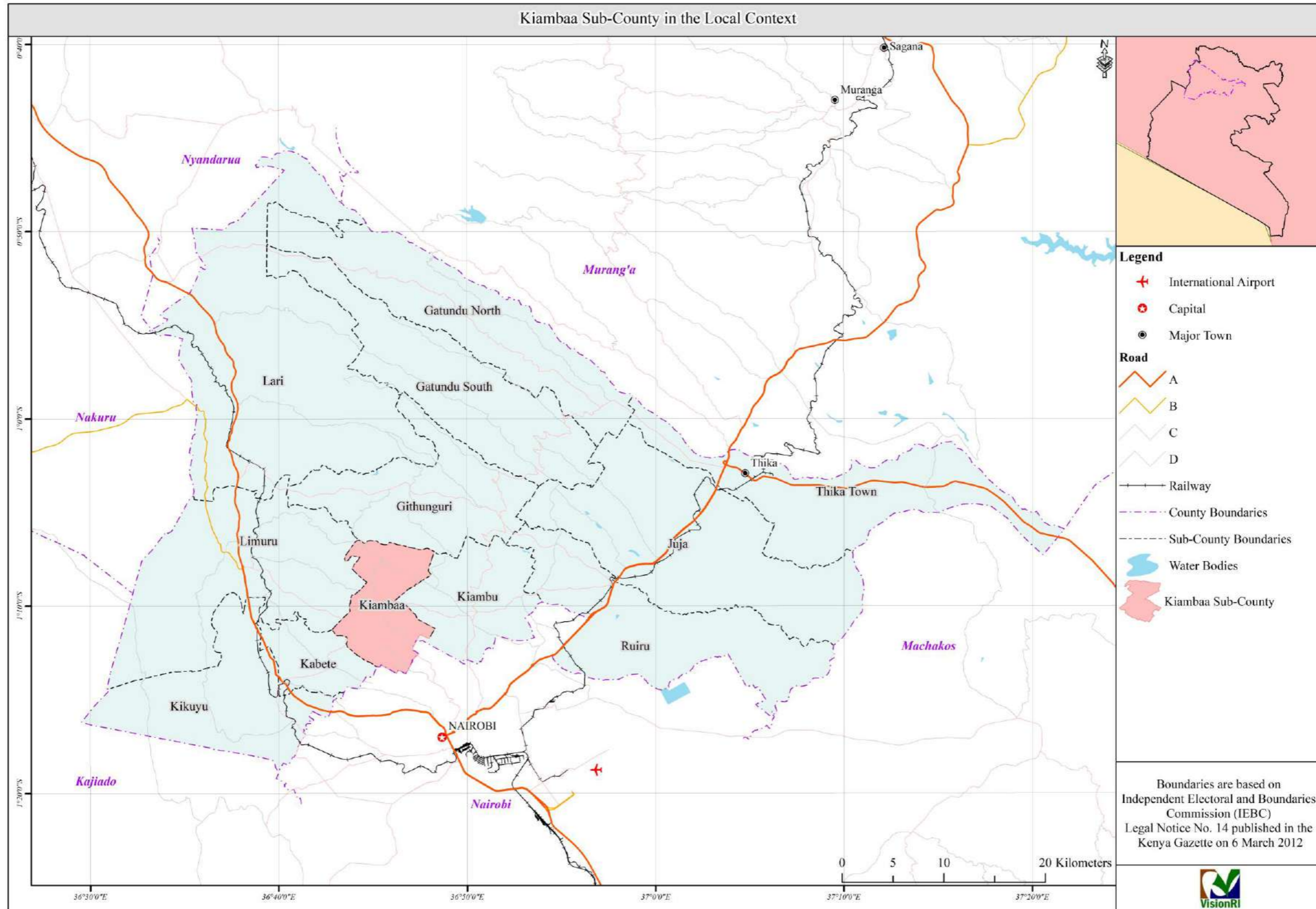
Source: VisionRI & Urban Lines Consultants Ltd

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



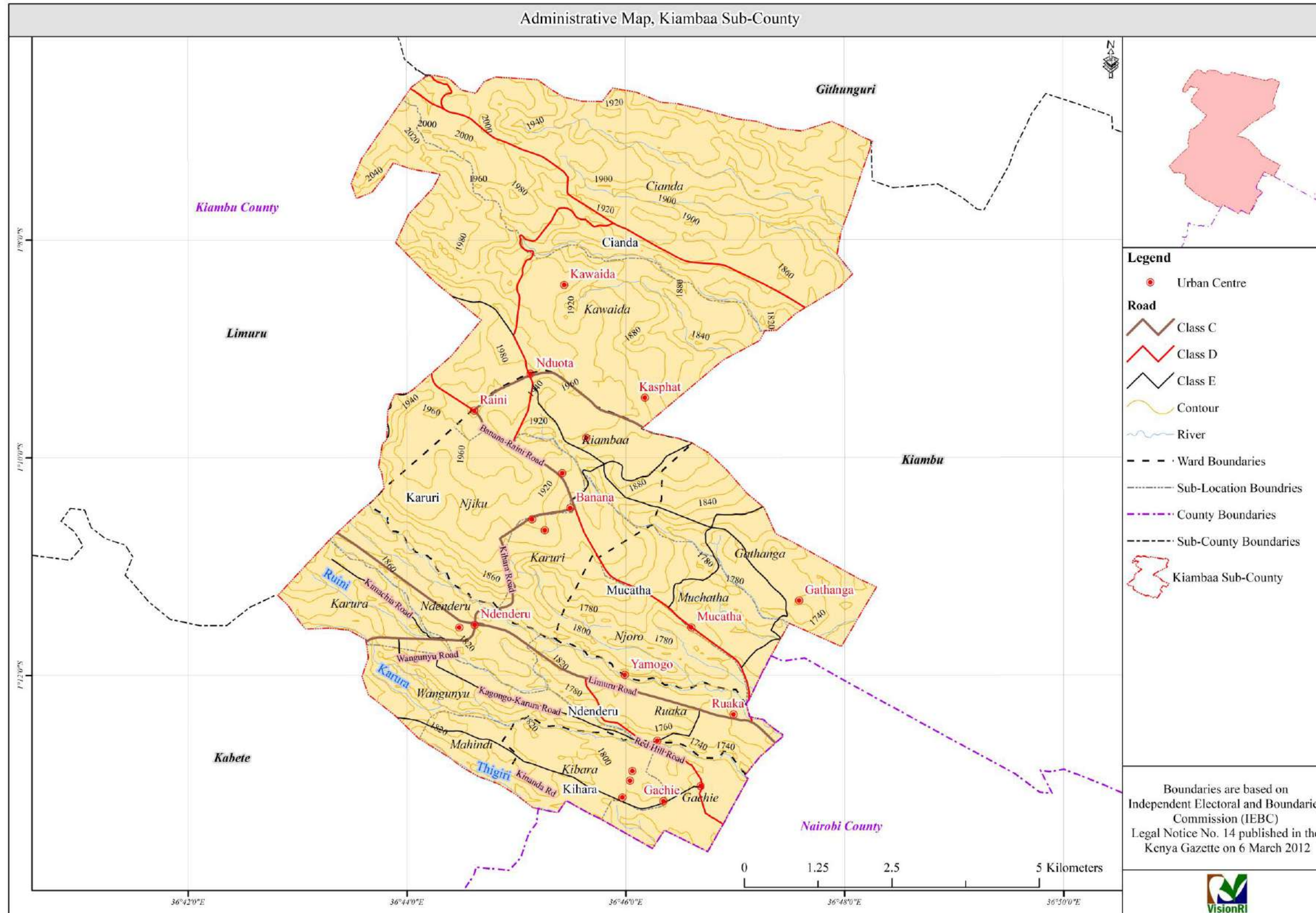
Source: VisionRI & Urban Lines Consultants Ltd

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



Source: VisionRI & Urban Lines Consultants Ltd

Map 2-5: Administrative Units in Kiambaa



Source: VisionRI & Urban Lines Consultants Ltd

2.5 Legislative Context

2.5.1 NATIONAL LAWS

- i. **Constitution of Kenya, 2010:** The Constitution of Kenya, 2010 provides the overarching legislation that guides the preparation of this ISUDP. Through the objects of a devolved system of government, the Constitution places planning functions both at the national and county levels. Pursuant to the Fourth Schedule of the Constitution, the National Government is mandated to formulate the general principles of land use planning and coordination of planning by the counties, while counties are in charge of planning and development control within their area of jurisdiction.

Further to the above, the preparation of this ISUDP was guided by the spirit of participation of the people, 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 pursuant to Article 10 of the Constitution.

With regards to achieving the objectives of Article 60 of the Constitution, this ISUDP has observed 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 Article 66 of the Constitution, this ISUDP has been adopted by the County Government of Kiambu (established under Article 176) in a bid to support the overall state mandate of regulating the use of any land, or any interest in or right over any land, in the interest of defence, public safety, public order, public morality, public health, or land use planning.

Lastly, the overall implementation of this ISUDP will be overseen and monitored by the National Land Commission (NLC) established under Article 67. Other functions to be performed by NLC with regards to the implementation of this ISUDP include amongst others: to manage public land on behalf of the County Government of Kiambu; to conduct research related to land and the use of natural resources and make recommendations to appropriate authorities; to initiate investigations, on its own initiative or a complaint, into present or historical land injustices, and recommend appropriate redress; and to encourage the application of traditional dispute resolution mechanisms in land conflicts within the County.

- ii. **County Governments Act, 2012:** The County Governments Act 2012 mandates the County Governments to prepare county plans which include “cities and urban areas plans,” amongst others. The said Act provides that the “county planning framework shall 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.

Other relevant sections of this Act to the preparation of this ISUDP include:

- Section 102 (c) and 103 (f) that provide for the protection and integration of the rights and interest of minorities and marginalised groups and communities and the integration of under-developed and marginalised areas to bring them to the level generally enjoyed by the rest of the Country; and
- Section 103 (i) that provides for the achievement and maintenance of a tree cover of at least ten per cent of the land area of Kenya as provided in Article 69 of the Constitution.

The Act also provides that all plans prepared for a County should be approved by the respective County Assembly.

- iii. **Urban Areas and Cities Act, 2011:** This Act establishes a legislative framework for the classification of areas as urban areas or cities, their manner of governance and management including the participation of residents. It also provides that Town Committees should “formulate and implement an integrated development plan” (Article 20(2-c)) as well as “control land use, land sub-division, land development and zoning...within the framework of the spatial and master plans for the (town) as may be delegated by the County Government (Article 20(2-d)).” The integrated development plan “shall bind, guide and inform all planning development and decisions and ensure comprehensive inclusion of all functions” (Article 36(2)).
- iv. **Physical and Land Use Planning Act (13 of 2019):** This Act regulates physical planning activities in Kenya. It empowers County Governments to regulate developments within their areas of jurisdiction. Further, it empowers the Director of Physical Planning to prepare various types of physical and land use development plans. In addition, the Director formulates National, Regional and Local Physical development policies, guidelines, and strategies.

Under Article 20 of this Act, the County Director of Physical and Land Use Planning’s responsibilities include: advising the County Government on physical and land use planning matters that impact the County; formulating County physical and land use planning policies, guidelines and standards; preparation of County physical and land use development plans; and preparation of local physical and land use development plans.

The Director also participates in the preparation of inter-county physical and land use development plans and carries out research on matters relating to physical, and land use development planning at the County level. In addition, the Director makes recommendations to the County Government on the establishment of planning units as may be necessary. The Act also stipulates the responsibility of the Director’s office in maintaining the County land

information system to guide physical and use planning; communicate decisions of the County Government on development applications, and issue development permissions and other development control instruments with the approval of the County Executive Committee Member.

Article 36 of the Act mandates each County to develop a 10-year physical and land use development plan. The plan should be in conformity with the National Physical and Land Use Development Plan and any relevant Inter-County Physical and Land Use Development Plan. According to Article 37 of the Act, the plan should provide an overall physical and land use development framework for the County; guide rural development and settlement; provide a basis for infrastructure and services delivery and direct the use and management of natural resources. In addition, the plan should enhance environmental protection and conservation; identify the proper zones for industrial, commercial, residential and social developments; improve transport and communication networks and linkages and promote the safeguarding of national security amongst other purposes that may be determined by the planning authority.

This Act lends guidance to the development of the contents of structure plans, development plans, advisory plans, zoning plans, and subdivision plans, amongst other plans. The Act also stipulates the plan preparation and approval processes.

Article 56 of the Act empowers the Kiambu County Government to prohibit or to control the use and development of land and buildings in the interests of proper and orderly development of its area and to review development applications and grant development Permissions.

- v. **Environment Management and Co-ordination (Amendment) Act of 2015:** This ISUDP seeks to ensure that every person has a clean and healthy environment and has the duty to safeguard and enhance the environment pursuant to Section 3 of Environment Management and Co-ordination Act (EMCA) (Amendment) of 2015. The entitlement to a clean and healthy environment in this ISUDP 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 ISUDP 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).

2.5.2 COUNTY LAWS

- i. **The Kiambu County Valuation and Rating Act, 2016:** This Act is meant to facilitate the implementation of Article 209 (3) (a) of the Constitution 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 others.

- ii. **The Kiambu County Community and Neighbourhood Associations Engagement Act, 2016:** This Act gives statutory recognition to community and neighbourhood associations and effect to their initiatives in complementing the County Government's service delivery; to enable structured co-operation between the County Government, residents and businesses; facilitate the activities of associations and organizations; and give further effect to Articles 10 and 174 of the Constitution as regards the principle of participation of the citizens and for connected purposes.

2.5.3 OTHER RELATED LEGISLATIONS

Table 2-2: Other Laws Applicable to Planning

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 public benefit.
The Land Act, 2012	To give effect to Article 68 of the Constitution, to revise, consolidate and rationalise land laws; to provide for the sustainable administration and management of land and land-based resources, and for connected purposes.
The Land Registration Act, 2012	To revise, consolidate and rationalise 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 per 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

2.5.4 OTHER SECTORIAL LEGISLATIONS

The other sectoral laws considered in this ISUDP are summarised below.

Table 2-3: Other Sectorial Laws

Laws	Relevance
Agriculture, Fisheries and Food Authority (2013)	Provides the confines within which to make proposals on agriculture promotion and conservation of soils and fertility for sustainable agriculture and optimisation 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.

National Commission 2012	Land Act,	Provides for County Land Management Boards which have important roles in processing development applications and allocation of public land as well as a National Land Commission that will monitor and have oversight responsibilities over land use planning throughout the country.
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Source: VisionRI

2.6 Policy Context

The key policy documents which have informed this ISUDP are briefly discussed in the following sections:

2.6.1 GLOBAL POLICIES

- i. **Sustainable Development Goals (SDG):** The 2030 Agenda for Sustainable Development was adopted by all United Nations Member States in 2015. It provides a shared blueprint for peace and prosperity for people and the planet, now and into the future. It defines global sustainable development priorities and aspirations for 2030 and seeks to mobilise global efforts around a common set of 17 and targets.

The goal that is most relevant to this ISUDP is Sustainable Development Goal 11: Sustainable cities and communities. This goal aims to make cities and human settlements inclusive, safe, resilient, and sustainable. To make cities sustainable for all, good and affordable public housing can be created, slum settlements can be upgraded, investments in public transportation made, green spaces developed, and have a broader range of people involved in urban planning decisions.

- ii. **New Urban Agenda:** The New Urban Agenda represents a shared vision for a better and more sustainable future. A future in which all people have equal rights and access to the benefits and opportunities that cities can offer, and in which the international community reconsiders the urban systems and physical form of urban spaces to achieve this. The New Urban Agenda provides a roadmap for building cities that can serve as engines of prosperity, inclusion and centres of cultural and social well-being while protecting the environment. It also provides guidance for achieving the SDGs as well as the underpinning actions to address climate change and a framework for urban policies, urban planning and design and urban governance, rules, and regulations to enhance municipal finance.

2.6.2 NATIONAL POLICIES

- i. **Kenya Vision 2030:** As the country's development blueprint covering the period 2008-2030, Kenya Vision 2030 aims to achieve a "globally competitive and prosperous country with a high quality of life by 2030."

In support of this vision (economic pillar), Kiambaa's ISUDP seeks to increase the level of value addition of local agriculture products such as tea, cereals, seedlings, cheese, ghee, yoghurt,

milk, feeds, and horticulture. Value addition of agricultural produce shall increase the farmers' earnings and therefore enhance their livelihoods. In addition, manufacturing for the East and Central African regional market shall be made possible through export production approach thus increasing the country's foreign exchange earnings.

Moreover, Vision 2030 puts forward proposals in with promotion of information and communications technology (ICT), gender balance and catering for persons with disabilities. All these aspects have been observed in the ISUDP through provisions for all socio-economic groups and the people with disabilities both through access to economic activities and social rights.

- ii. **National Environment Policy, 2013:** With regards to the provisions of the National Environment Policy, 2013, the ISUDP recognises the importance of the link between development and sustainable environment by:
 - Addressing environmental degradation issues and challenges facing the Sub-County. Notable drivers of environmental degradation are high rates of population growth, inappropriate technology, unsustainable consumption and production patterns, and 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.
- iii. **Sessional Paper No. 3 of 2009 on National Land Policy:** Sessional Paper No. 3 of 2009 on National Land Policy provides an overall framework and 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, Kiambaa ISUDP has promoted and encouraged multi-sectoral approach to land use, provision of social, economic and other incentives and put in place an enabling environment for investment, agriculture, livestock development and the exploitation of natural resources.
- iv. **Sessional Paper No. 1 of 2017 on National Land Use Policy:** This policy emphasises the importance of land as a resource for the economic life of a majority of people in Kenya. The way people handle and use land resource is decisive for their social and economic well-being as well as for the sustained quality of land resources. In tandem with this policy, the Kiambaa

ISUDP seeks to strike a balance between satisfying the human livelihood needs and sustainable use of resources for posterity. This has been taken into consideration in the ISUDP through:

- Anchoring the Sub-County'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, socio-economic, political, and cultural obligations of the people of the County and Kenya at large.

2.6.3 OTHER RELEVANT POLICIES

Other relevant policies that the ISUDP has considered and integrated are summarised in the following table.

Table 2-4: Other Relevant Policies

Policy	Relevance
Housing Policy Sessional Paper No. 3 of 2004	That comprehensive land use planning is 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 Technology (ICT) Policy, 2016	Seeks to improve the livelihoods of Kenyans by ensuring the availability of accessible, efficient, reliable, and affordable ICT services.
National Climate Change Response Strategy, 2010	Seeks to strengthen and focus nationwide actions towards climate change adaptation and greenhouse gas 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 recognises 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 priority packages based on the burden of disease and the required support systems to deliver services amongst major players in the health sector including the government represented by the Ministry of Health and County Government, private sector and non-government organisations (NGO).
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

2.6.4 INSTITUTIONAL FRAMEWORK

- i. **Core Planning Mandate:** Institutional mandates for planning in Kenya are examined in relation to urban planning at various scales. Schedule Four of the Constitution distributes planning functions across two-tiers of government - national and county - with provisions for coordination across them. Planning roles and responsibilities at both the national and county governments are governed by the Constitution under Chapter 5: Land and Environment, particularly Article 66. 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.

At the County level, planning mandates are also governed by the County Governments Act, 2012 Part XI: County Planning (Section 102-115) and Urban Areas and Cities Act, 2011 Part V: Integrated Development Planning (Section 36-42). The Physical and Land Use Planning Act, 2019 governs the planning 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). Intergovernmental Relations Act No.2 of 2012 forms a basis in planning mandates under Part III: Transfer and delegation of powers, functions, and Competencies (Section 24-29) and Part IV: Dispute Resolution Mechanisms (Section 30-36). Moreover, statutory instruments (PPA 1, 2, 5, 6 & 7) serves as a tool for development control. The table below shows the allocation of planning mandates from the aforementioned powers.

Table 2-5: Allocation of Planning Mandates

Agencies	Description
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, and national policies on land use; • Planning along international boundaries such as those with 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.
County Assembly	Approval of plans.

Source: VisionRI

The National-County Government Operational Linkages in planning are further presented below:

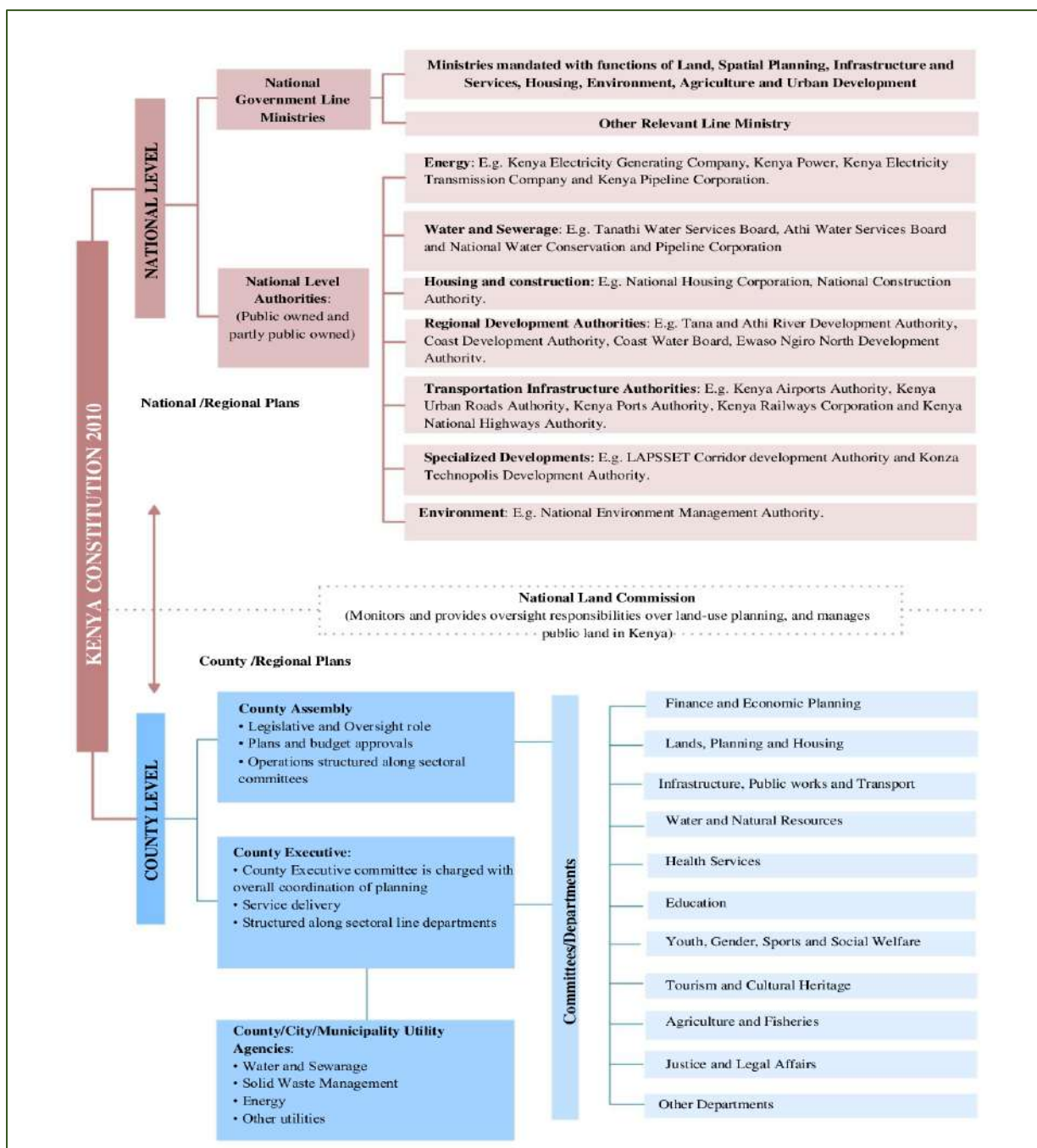


Figure 2-1: National-County Government Operational Linkages in Planning

Source: Urban Planning for City Leaders Handbook

2.6.5 CROSS-CUTTING STAKEHOLDERS

Key stakeholders usually include government agencies; a civil society that includes civil society organisations; residents' associations; community-based organisations; non-governmental organisations; community at large; private sector; developers and property owners; donor agencies or development partners; and local businesses, amongst others. Stakeholders should be spatially mapped to ensure that

there is even representation across the planning area. Public participation whether in form of public consultation and decision making is to involve leaders and stakeholders. Likewise, the public shall be engaged in budget and policy formulation, planning and social service delivery priority setting. These are vested from the powers provided by the following laws:

- Constitution of Kenya, 2010 (articles 174, 201 and 232);
- 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).

Table 2-6: Key Sectoral Government Agencies

Institutions/organizations	Roles and Responsibilities
National Treasury	<ul style="list-style-type: none"> • Responsible for managing Kenya's national government finances.
Ministry of Lands and Physical Planning	<ul style="list-style-type: none"> • Charged with the following functions: National Lands Policy and management; physical planning; land transactions; survey and mapping; land adjudication; settlement matters; rural settlement planning i.e., eco-village; land reclamation; land registration; national spatial infrastructure; land and property valuation services administration; administration of public land as designated by the constitution; and land information systems.
Ministry of Transport, Infrastructure, Housing, Public Works & Urban Development	<ul style="list-style-type: none"> • The Ministry consists of five state departments, namely, transport, infrastructure, housing and urban development, maritime and shipping affairs, and public works. These departments have various roles and responsibilities. For example, the State Department for Housing and Urban Development is responsible for, amongst others, housing policy management, development and management of affordable housing, management of building and construction standards and codes, shelter and slum upgrading, and urban planning and development.
Ministry of Environment & Natural Resources	<ul style="list-style-type: none"> • The main functions of the Ministry include environment and natural resources policy formulation and review; sustainable management of mineral resources and environmental conservation; continuous development of a geodatabase for integrated natural resources and environmental management systems; promoting environmental management activities; and enforcing compliance with regulations and guidelines, amongst others.
National Land Commission (NLC)	<ul style="list-style-type: none"> • Established under Article 67 of the Constitution, the NLC is responsible for, amongst others: managing public land on behalf of the national and county governments; recommending a National Land Policy to the National Government; advising the National Government

	<p>on a comprehensive programme for the registration of title in the land throughout Kenya, and monitoring and oversight responsibilities over land use planning throughout the country.</p>
National Environment Management Authority (NEMA)	<ul style="list-style-type: none"> Established by the EMCA, the NEMA is the agency in charge of the coordination of environmental management activities, ensuring compliance with environmental guidelines, and advising the Government on legislative measures concerning environment management.
Kenya National Highways Authority (KENHA)	<ul style="list-style-type: none"> The KENHA is a state corporation established under the Kenya Roads Act 2007. It is responsible for the management, development, rehabilitation, and maintenance of international trunk roads linking centres of international importance and crossing international boundaries or terminating at international ports.
Kenya Urban Roads Authority (KURA)	<ul style="list-style-type: none"> A state corporation established by the Kenya Roads Act 2007 with the core mandate of management, development, rehabilitation, and maintenance of national urban trunk roads.
Kenya Forest Service (KFS)	<ul style="list-style-type: none"> Established under the Forest Act of 2005, the KFS's mandate is to conserve, develop, and sustainably manage forest resources for Kenya's socio-economic development.
Water Resources Authority (WRA)	<ul style="list-style-type: none"> Established under the Water Act, 2002, the WRA is a state corporation under the Ministry of Water and Irrigation and has the mandate for nation-wide water resources management.
Council of Governors of Kenya (COG)	<ul style="list-style-type: none"> The COG was established under Section 19 of the Intergovernmental Relations Act (2012) with the mandate to provide a mechanism for consultation amongst county governments, share information on the performance of the counties in the execution of their functions, facilitate capacity building for governors, and consider reports from other intergovernmental forums on national and county interests, amongst other functions.
County Government Entities	<ul style="list-style-type: none"> Comprises the County Assembly and County Executive Committee with responsibilities outlined under the Constitution; The responsibilities of the County Assembly include exercising the powers of enacting laws at the county level; acting as an oversight on the County Executive, and approval of plans and policies for smooth operation and management of resources and county institutions; and The County Executive is charged with the responsibility of exercising executive power at the county level, implementing laws for the administration of the county, as well as carrying out other executive functions of the county.

Kenya Investment Authority (Ken invest or KIA)	<ul style="list-style-type: none"> The KIA is a statutory body established in 2004 through the Investment Promotion Act No. 6 of 2004). It is mandated to promote investments in Kenya and is responsible for facilitating the implementation of new investment projects, providing after-care services for new and existing investments, as well as organising investment promotion activities both locally and internationally.
Micro and Small Enterprise Authority (MSEA)	<ul style="list-style-type: none"> The MSEA is a state corporation established under the Micro and Small Enterprise Act No. 55 of 2012. It is tasked in financing, training, infrastructure development and policy development.
Kenya Industrial Estate Ltd (KIE)	<ul style="list-style-type: none"> The KIE was established as a limited liability company (Companies Act, Cap 486) of the laws of Kenya to address indigenisation of businesses, capital formation, regional dispersion of wealth, exploitation of local resources, undertake special government projects, and offer business advisory services.

Source: VisionRI

2.7 Planning Policy Linkages

2.7.1 NATIONAL SPATIAL PLAN

The National Spatial Plan (NSP)2015-2045, is an integrated plan that strives to achieve balanced and sustainable national development. The NSP anchors its framework on Vision 2030 and provides comprehensive strategies and policy guidelines to deal with issues of rural and urban development. The NSP also focusses on issues of modernizing 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 the 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 the 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 ISUDP are as presented in the table below.

Table 2-7: Relevant National Spatial Plan Strategies

Objective	Strategies
Promoting Regional Balance	<ul style="list-style-type: none"> • Promoting industrialisation 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 industrialisation; • 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	<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; and • Ensuring optimal utilisation 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: Study Team

2.8 Regional Policies

2.8.1 NAIROBI METRO 2030

Nairobi Metro 2030 provides the policy direction for the development of the metropolis to support Kenya Vision 2030. This ISUDP is guided by these policies, particularly in the course of determining the Sub-County's overall development goals and various strategies to achieve them. Nairobi Metro 2030 envisions

the NMR to become a “world-class African metropolis” characterised by world-class working environment, living environment, business environment and governance. Its key result areas are the following:¹

- 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; and
- Ensuring a safe and secure region and build world-class governance systems.

2.8.2 SPATIAL PLANNING CONCEPT FOR NMR

The Spatial Planning Concept (SPC) 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 thus provides a guide in the preparation of local development plans. The SPC promotes a land-use system intended to ensure the development of an “environmentally sustainable region” that will² 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. Key parameters that are provided in the NMR Spatial Plan that will guide the development of the ISUDP for Kiamba and its envisioned Economic Function of being an “Agro-based Industrial Town” and its role in the proposed settlement hierarchy for NMR, 2030 of being a “Growth Centre.”

Table 2-8: Economic targets for Urban Centres

Spatial units	Envisaged function
Ruiru	Trading Town
Thika	Industrial Town
Limuru	Agro-based Industrial Town
Kiambu	Administrative -cum- Agro based Industrial Town
Juja	Service Town
Kikuyu	Agro-based Industrial Town
Kiambaa)/Kiambaa	Agro-based Industrial Town
Githunguri	Agro-based Industrial-cum-Administrative Town
Gatundu	Administrative Town

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

² Spatial Planning Concept for NMR, page ix

Machakos	Administrative-cum-IT Industrial Town
Mavoko	Industrial Town
Kangundo/Tala	Trading Town
Kathiani	Service Town
Ngong	Industrial Town
Kitengela	Service Town
Ongata Rongai	Service Town
Kiserian	Service Town
Namanga	Trading Town
Isinya	Service Town
Bissil	Service Town
Kajiado	Administrative-cum-service town
Loitoktok	Administrative Town
Sultan Hamud	Transit Town
Magadi	Industrial Town

Source: Spatial Planning Concept for NMR, 2010

Table 2-9: 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, Kiambaa, 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 • Refers to 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 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, 2010

2.9 County Policies

2.9.1 KIAMBU COUNTY SPATIAL PLAN, 2016-2026

The Kiambu County Spatial Plan (CSP) 2016-2026 has its strategic focus on land use planning, multi-modal transportation planning, informal settlements, and zonal planning. Other elements that have been focused on 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 linked to the County Integrated Development Plan (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 on Kiambu's CSP and CIDP. This will act as the base for the articulation and formation of action area plans and zoning plans for this ISUDP. Below are the key programmes and strategies in Kiambu County Spatial Plan (2016-2026).

Table 2-10: 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;

	<ul style="list-style-type: none"> • Ensuring proper access to available and affordable credit; and • Enhancing effective institutional and legal framework.
Urbanisation	<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 encourage the densification of 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.
Industrialisation	<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 <i>jua kali</i> 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 (CSP) 2016-2026

2.9.2 2.9.2 KIAMBU COUNTY INTEGRATED DEVELOPMENT PLAN, 2018-2022

Kiambu County's bases for the preparation of its second CIDP are the County Governments Act, Kenya Vision 2030 and Medium-Term Plans instituted by the National Government such as the Big-Four Agenda, Kenya Vision 2030, and National Spatial Plan. The CIDP has adopted appropriate policies for each sector in line with delivering the required services to its residents through planned and on-going projects. Some of the relevant initiatives discussed in this CIDP have been summarised in the table below.

Table 2-11: Relevant CIDP Strategies

Sector	Strategies
Urban Development	<ul style="list-style-type: none"> • Enhanced inclusive and sustainable urbanisation and capacity for participatory, integrated, and sustainable human settlement planning and management;

	<ul style="list-style-type: none"> • Densification of residential areas to curb urban sprawl; • Regularisation and upgrading of informal settlement-Kibagare slums in Kiambaa in this case; • Provision of adequate sewer and solid waste disposal infrastructure in urban centres within the County; • Improve provision of social infrastructure; and • Enhance the accessibility of quality and affordable health and other social infrastructure.
Industrialisation	<ul style="list-style-type: none"> • To create an enabling environment for industrial growth; • Promote innovative technologies; • Promote the establishment of <i>jua kali</i> and other light industries; and • Promote community-based financial institutions.
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.
ICT	<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 by providing the appropriate number of health centres, equipping the health centres, and increasing the number of staff.

Source: Kiambu County Integrated Development Plan, 2018-2022

2.10 Cluster Potential

While pointing out to the lack of an integrated approach to development in the NMR, the SPC for NMR suggests that the region should consider using the cluster development strategy as an economic tool for enhancing competitiveness. Considering this, the likelihood of and potential for adoption of cluster development strategy was assessed. This assessment found that the defined four clusters in the Consultant's ToR have got some economic logic, as summarised in Table 2-12.

The key industry verticals within each of the four clusters fit in with the economic priorities of the NMR and fulfil specific economic roles essential to the growth and development of the entire region. The identified key economic planks in each town and urban corridor within the four clusters may be linked to one or more of the NMR Missions under Vision 2030 as described previously. The clusters, therefore, collectively complete the NMR economy and would serve as key economic drivers of the capital city and metropolitan region.

In addition, the economic activities and features of the four clusters complement instead of competing with one another. One cluster's development into an education hub, for instance, would support the economic growth of another cluster by providing high-skilled industrial and tertiary workforce, thus boosting productivity as well as the economic output of the latter. Similarly, 'dormitory clusters' which have seen a high real estate growth, provide residences and commercial services to hundreds of thousands of workforces employed in the CBD of Nairobi as well as in other urban centres of the NMR. The economic spillovers from one cluster too, if absorbed optimally, will have major impacts on the growth and development of others. The need to identify, develop and nurture such economic complementarities and externalities has been highlighted in this strategic report and is recommended to be considered key in all NMR-level strategic planning and policy design.

Table 2-12: Assessment for Adopting a Cluster-Based Planning Strategy

Cluster no.	Town/ Corridor	Existing economic activities	Identified economic planks	Economic clustering potential
One	Juja	Agriculture, quarrying, small-scale businesses, manufacturing industry.	Education, real estate.	Education Real estate Transport hub.
	Ruiru	Small and medium-scale businesses, agriculture, industry including <i>jua kali</i> .	Education, real estate.	
	Nairobi-Thika	Education, transport, real estate.	Education, real estate, agri-business, transport/freight services.	

Two	Kiambaa	Agriculture, small and medium-scale businesses- <i>jua kali</i> , transport services, real estate.	Agriculture, eco-tourism, real estate.	Farming Agro-industry Manufacturing.
	Kikuyu	Agriculture, fish farming, small and medium-scale businesses, transport services, real estate, industry.	Farming, agro-industry.	
	Limuru	Agriculture, manufacturing, small and medium-scale businesses, transport services.	Farming, agro-industry, manufacturing.	
Three	Kitengela	Services, real estate, agriculture, transport services, tourism.	Real estate, industrial, tourism.	Real estate Tourism Services.
	Ngong-	Services, agriculture, transport, hospitality, small - scale industry.	Real Estate, tourism.	
	Ongata Rongai and Kiserian	Services, agriculture, transport, industry.	Real estate, services.	
Four	Mavoko	Services, manufacturing, transport.	Industry, logistics and transportation.	Administrative hub Industry Logistics and transportation IT education and services.
	Nairobi-Malili	IT services, commercial, transport services.	Real estate, logistics and transportation, IT education and services.	

Source: VisionRI & Urban Lines Consultants Ltd.

2.11 Key Planning Issues

The key planning issues in Kiambaa Urban Area were identified based on the review of its planning context and consultations with stakeholders. These issues are given in the table below:

Table 2-13: Key Planning Issues on the Planning Context

Sector	Key Highlights	Opportunities
Location	The area is strategically located within the NMR and the County.	Strategic location for investment.
	Presence of major roads like Limuru and Kiambu roads, and Northern and North Western Bypasses.	Ease of movement and good connectivity.
Legal and Policy	Presence of enabling legal and policy framework.	Favourable laws and policies supporting institutional growth, governance, and citizen participation.
Cluster Potential	Kiambaa is designated as an agro-industrial town.	Existing economic base-agriculture, small and medium-sized enterprises (SME), transport services, and real estate.
		Good road connectivity to other nodes.

Source: VisionRI & Urban Lines Consultants Ltd.



REPUBLIC OF KENYA



COUNTY GOVERNMENT OF KIAMBU

PART II

SITUATIONAL ANALYSIS

3 PHYSIOGRAPHIC CHARACTERISTICS

3.1 Overview

The chapter summarises the physiographic characteristics of the planning area and analyses how and why they impact on planning and general development. The characteristics that were considered include rainfall patterns, hydrology, and temperatures as they influence vegetation, and utilisation of natural resources in Kiambaa Urban Area. Population and demography are also discussed in terms of growth changes and projections.

3.2 Base Map

The Kiambaa Urban Area base map is showing the important natural and man-made features that structure the area. These features include transportation networks, water bodies, facilities, major landmarks, and boundaries both political and administrative. To facilitate the preparation of the base map, hard copies of Registry Index Maps (RIM) showing land subdivisions, administrative boundaries, existing and proposed road networks, rivers, forests, public land, etc. were acquired from the Survey of Kenya's Headquarters which keeps a record of all land boundaries in Kenya. The RIMs were then scanned, geo-referenced and digitised into vector maps on the same coordinate system as the Sub-County's base map.

The Consultant also acquired high-resolution satellite imagery and used a hand-held global positioning system (GPS) device to fill in gaps and for verification purposes.

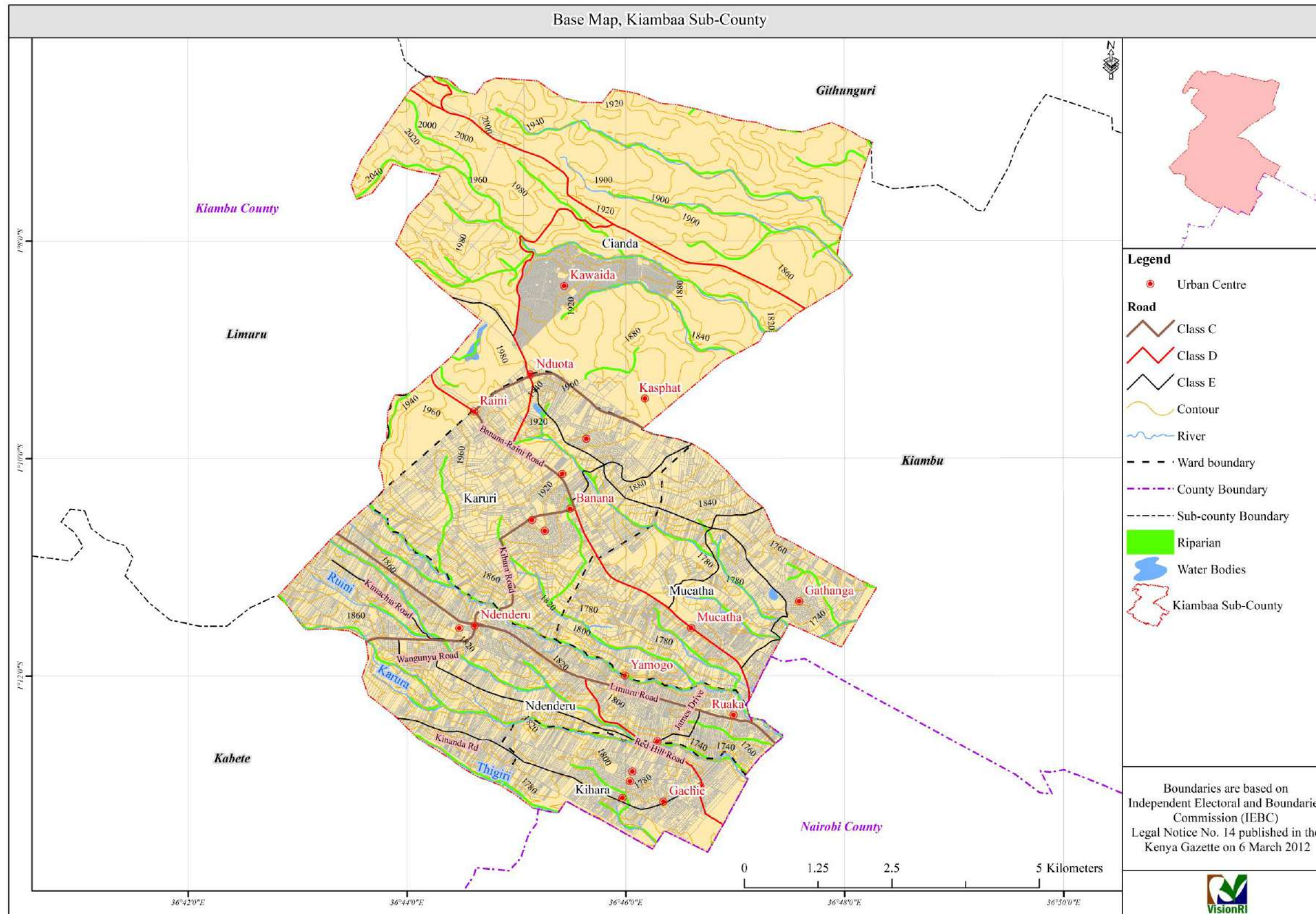
3.3 Topography and Landforms

The planning area is in a region of relatively higher elevation. The altitude ranges between 1500 and 1800 metres above sea level. The area is traversed by Koski, Rui-Ruaka, Ruini and Karura rivers which emanate from the Aberdare ranges and forms the Athi River drainage system as discussed in the hydrology section of this report.

Being part of the lower eastern region of the Aberdare's Mountain range, the planning area's terrain is characterised by undulating ridges and small river valleys. Hills, plateaus, and high-level structural plains that make it easy for the development of road network also characterise Kiambaa Urban Area. The map below provides details on contours and elevation.

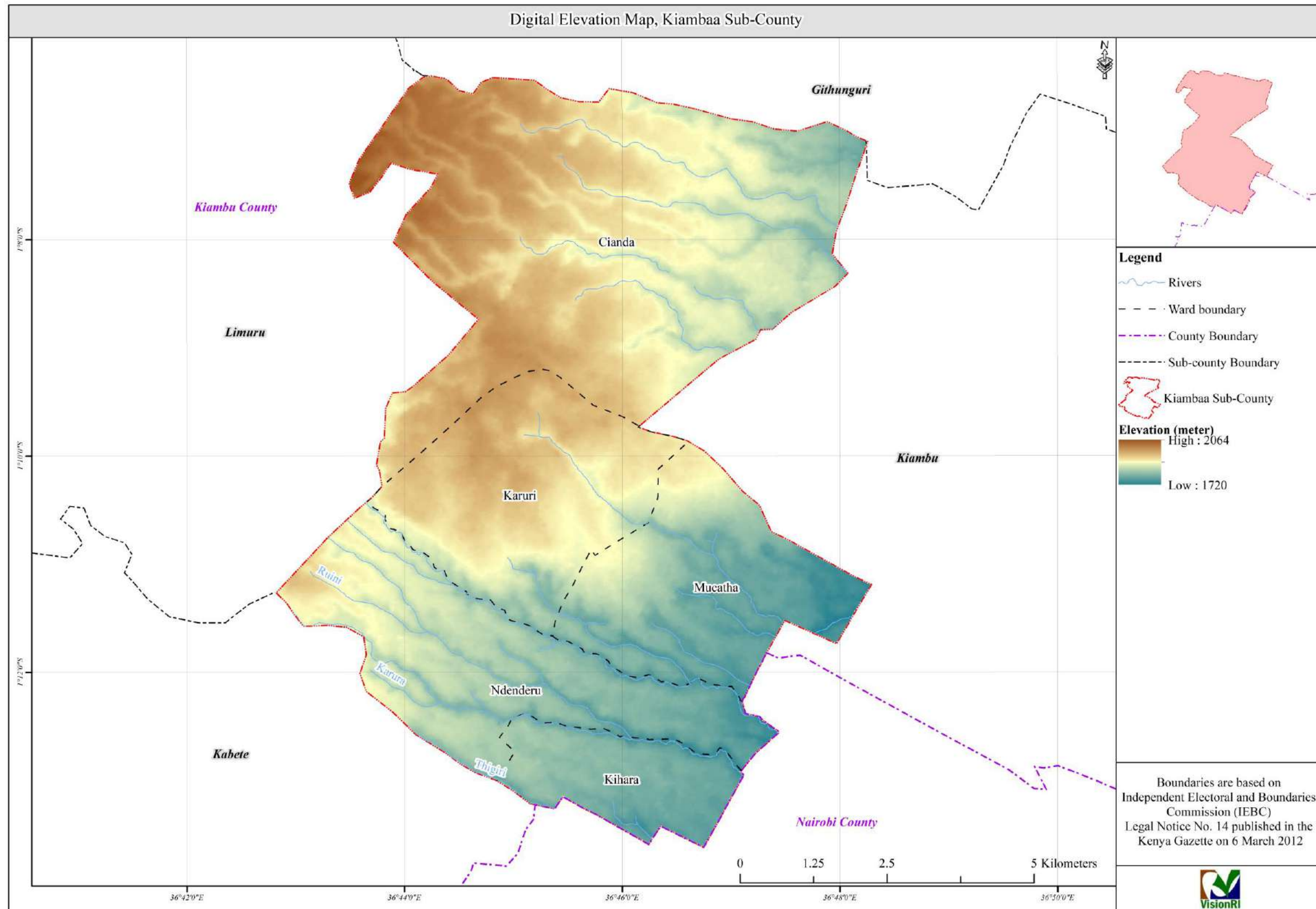
Generally, the whole area has a slope between 0-23°. As per the Physical Planning Handbook (2007), the whole area is fit for human development. The Handbook has categorised areas between 5° and 25° as medium slopes, therefore, suitable/can accommodate human settlement whereas areas with a slope above 25° as steep and, therefore, not fit for such developments.

However, there are several river valleys which have steeper slopes compared to the rest of the areas. Nonetheless, the change in steepness is within what may be considered fit for human development.



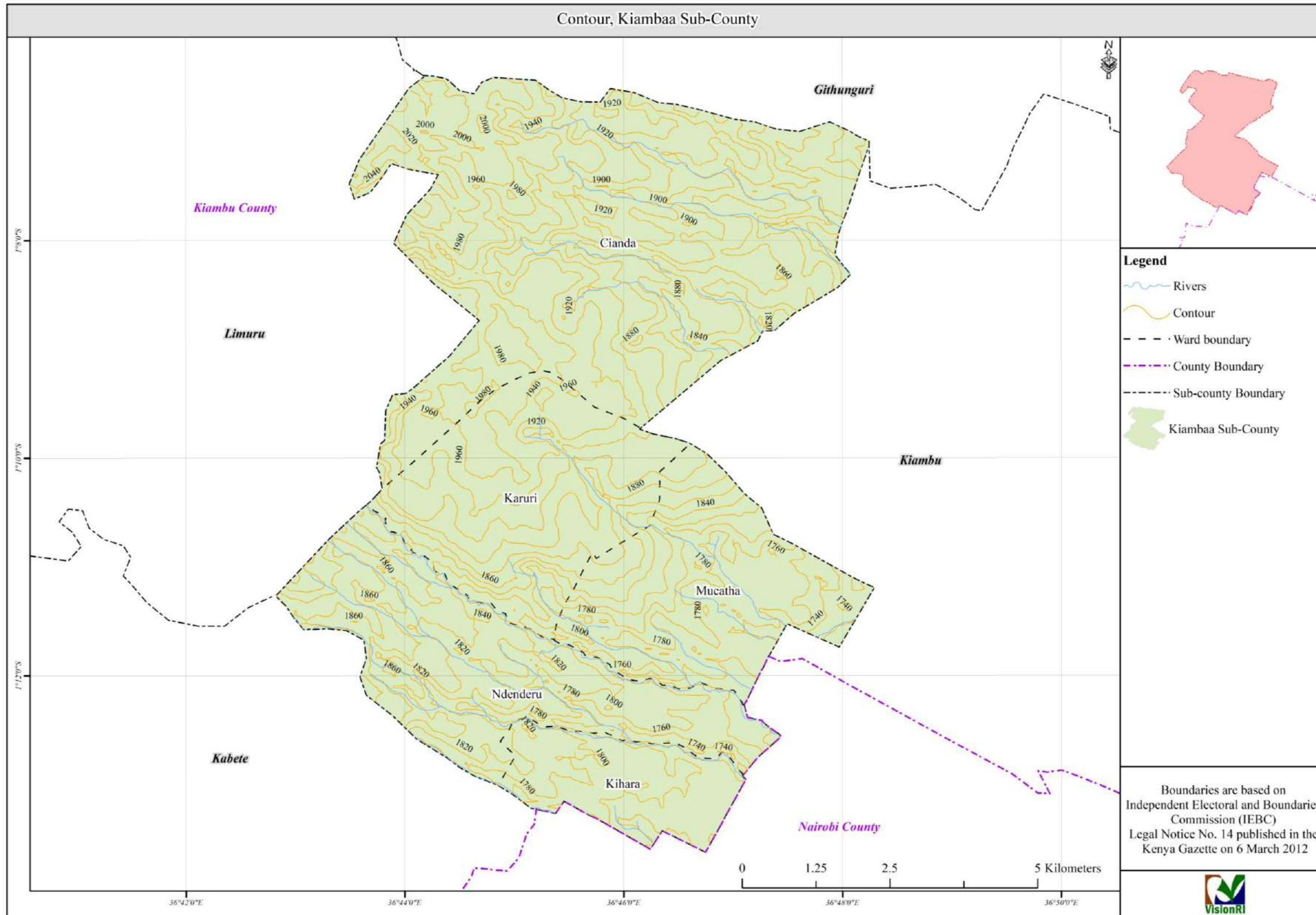
Map 3-1: Kiambaa Urban Area Base Map

Source: VisionRI & Urban Lines Consultants Ltd



Map 3-2: Elevation Map

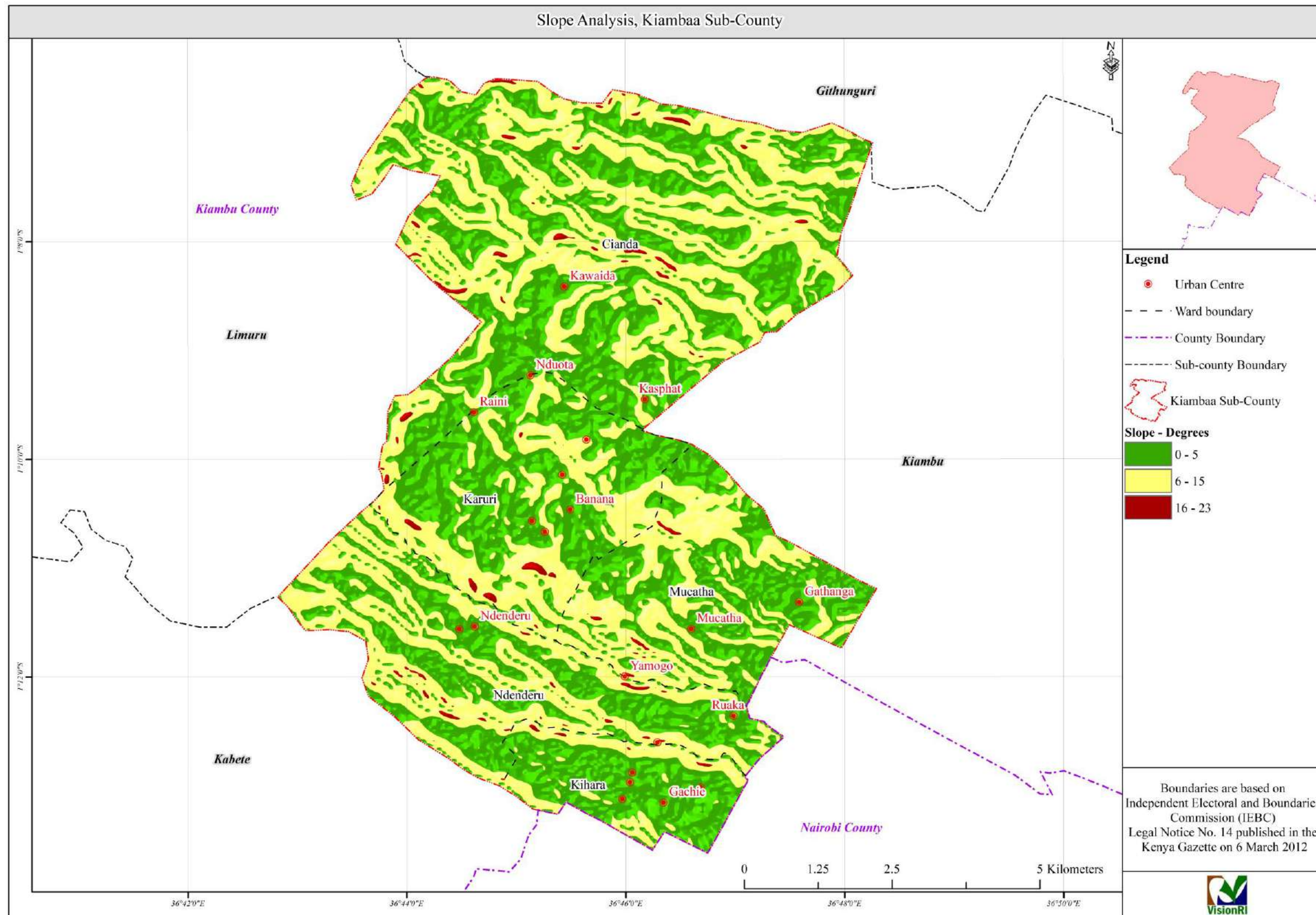
Source: VisionRI & Urban Lines Consultants Ltd



Map 3-3: Contour Map

Source: VisionRI & Urban Lines Consultants Ltd

Map 3-4: Slope Analysis in Kiambaa



3.4 Geology and Soils

3.4.1 GEOLOGY

Kiambaa Urban Area lies on the volcanic rock of basalt igneous and basalt types. The basalt igneous cover the larger area whereas the pure basalt rock is towards the west of the Sub-County. Basalt igneous rocks are extrusive rocks formed by the crystallisation of volcanic magma. It is a dark coloured, fine-grained igneous rock mainly composed of plagioclase and pyroxene minerals. Basalt, on the other hand, is the most common type of solidified lava. It is a dense dark grey fine-grained igneous rock that is composed chiefly of plagioclase feldspar and pyroxene.

3.4.2 SOIL TYPES

Soils in Kiambaa Urban Area basically fall into two categories, nitisols and andosols, with the former forming the larger part of the planning area. Nitisols are basically found in highlands and steep volcanic slopes. They are deep, stable, and well-drained. The soils have good water retention capacity and are very fertile, hence conducive for livestock keeping and growth of the crops both food crop and cash crops like tea, coffee, maize, beans, and potatoes, amongst others. Andosols on the other hand have a high-water retaining capacity and are prone to soil erosion as they occur mostly on steep slopes. The Map 3-6 shows the distribution of the two soil types in the area.

3.5 Hydrology

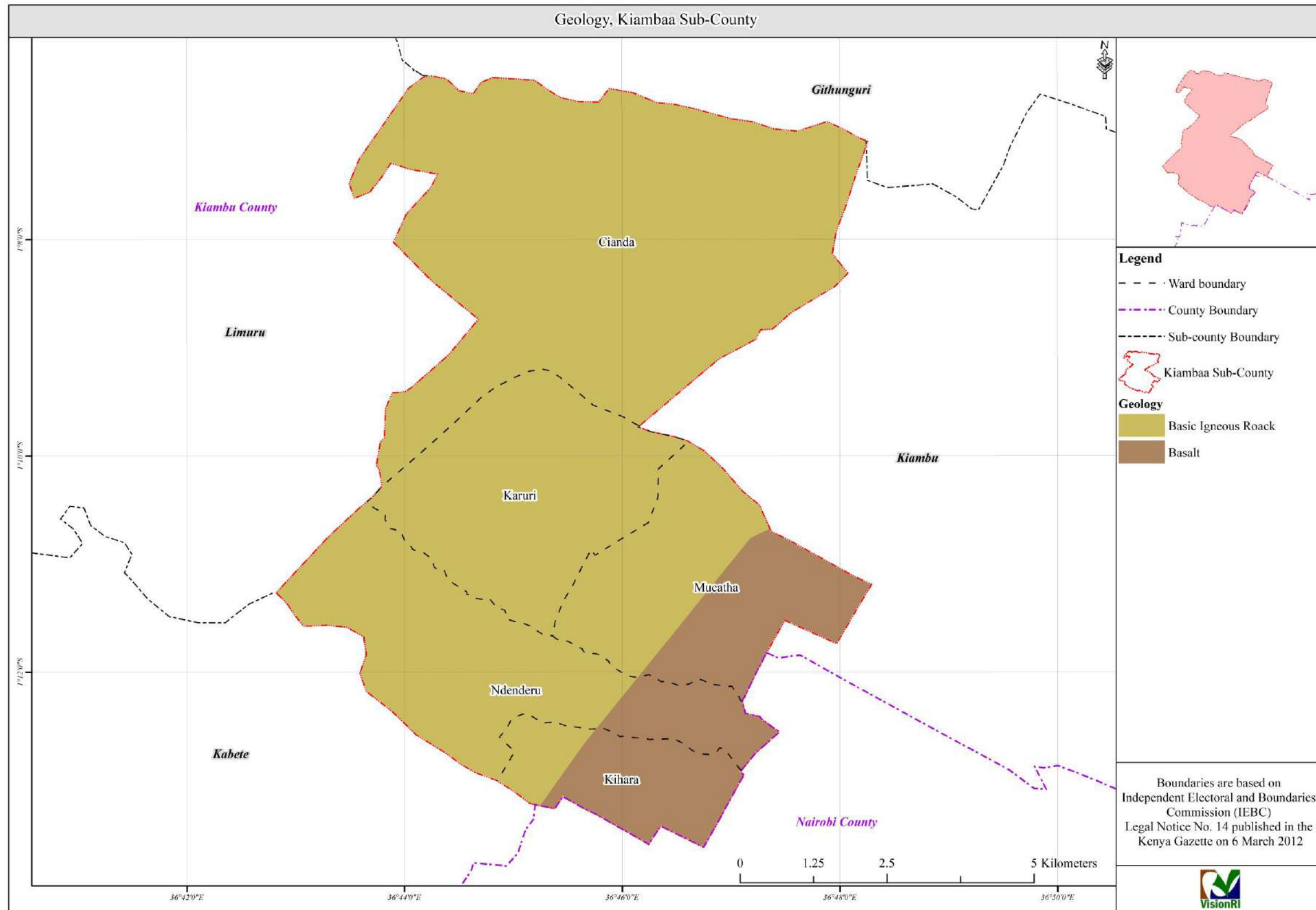
In the planning area, these comprise rivers and underground water. The rivers that pass through the planning area include Koski, Rui-Ruaka, Ruini and Karura which emanate from the Aberdare ranges and form the Athi River drainage system. The rivers are permanent and flow throughout. However, human activities such as construction and agricultural activities have affected the water flow volumes and hygienic qualities of the rivers. There is low adherence to riparian reserves as required by the relevant authorities.

3.6 Vegetation – Forests and Scrublands

Natural vegetation continues to deplete in Kiambaa Urban Area due to intensive human activities. There is limited planted vegetation of eucalyptus and trees planted on coffee and tea farms that can serve as windbreakers. The general vegetation cover in Kiambaa Urban Area consists of grass, flowery shrubs, and bushes as well as large indigenous and exotic trees including cypress, croton megalocarpus, silver oak, and eucalyptus which are found along the perimeter walls of homesteads.

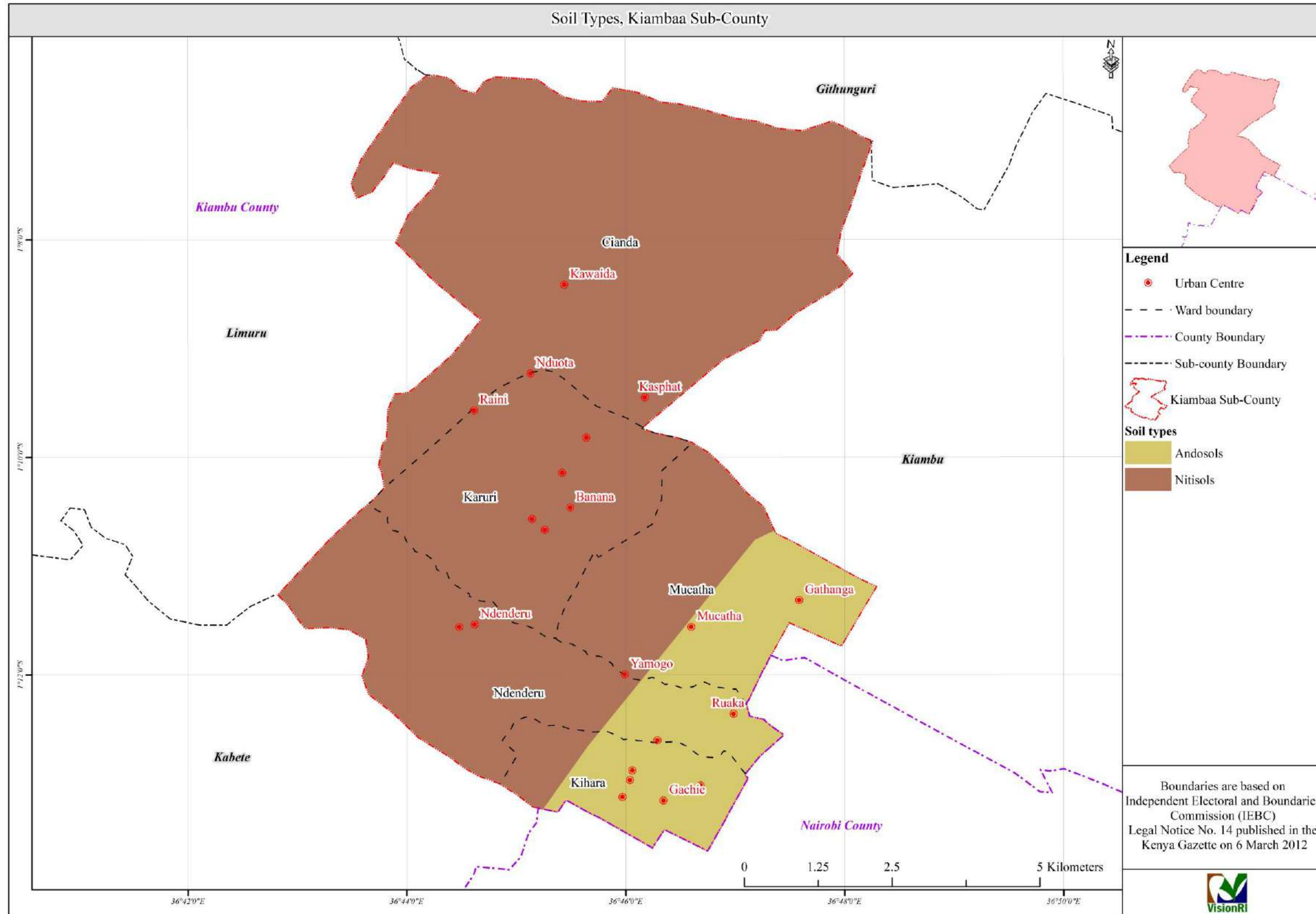
3.7 Wildlife

Kiambaa Urban Area is situated within a predominantly agricultural area where human activities have altered the natural habitat for wildlife over the years. Consequently, there are no major animals in the environs except birds, insects, and small rodents. Some of the bird species in the Sub-County include sparrows, doves, and eagles, amongst others.



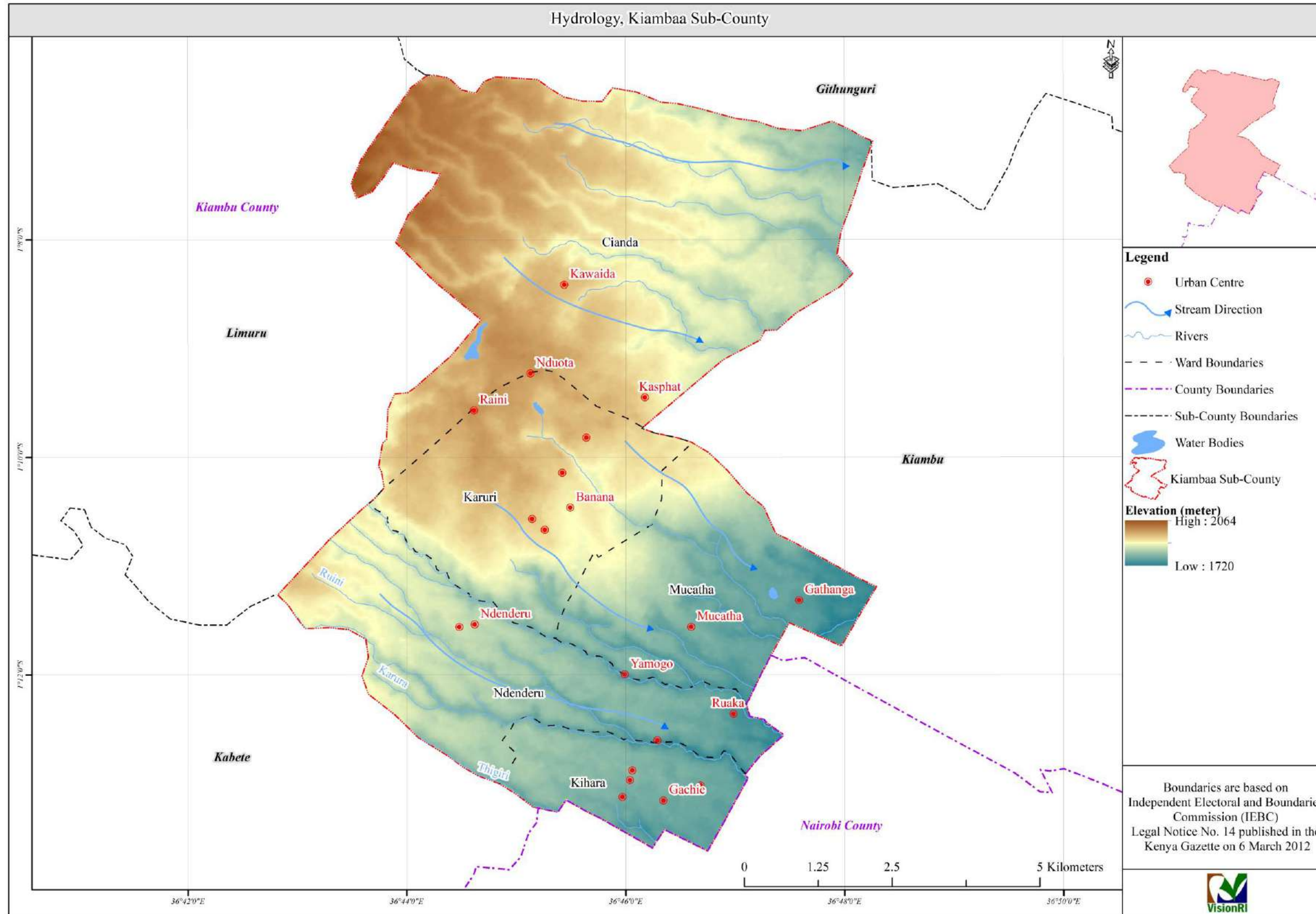
Map 3-5: Geology Map

Prepared by: VisionRI & Urban Lines Consultants Ltd



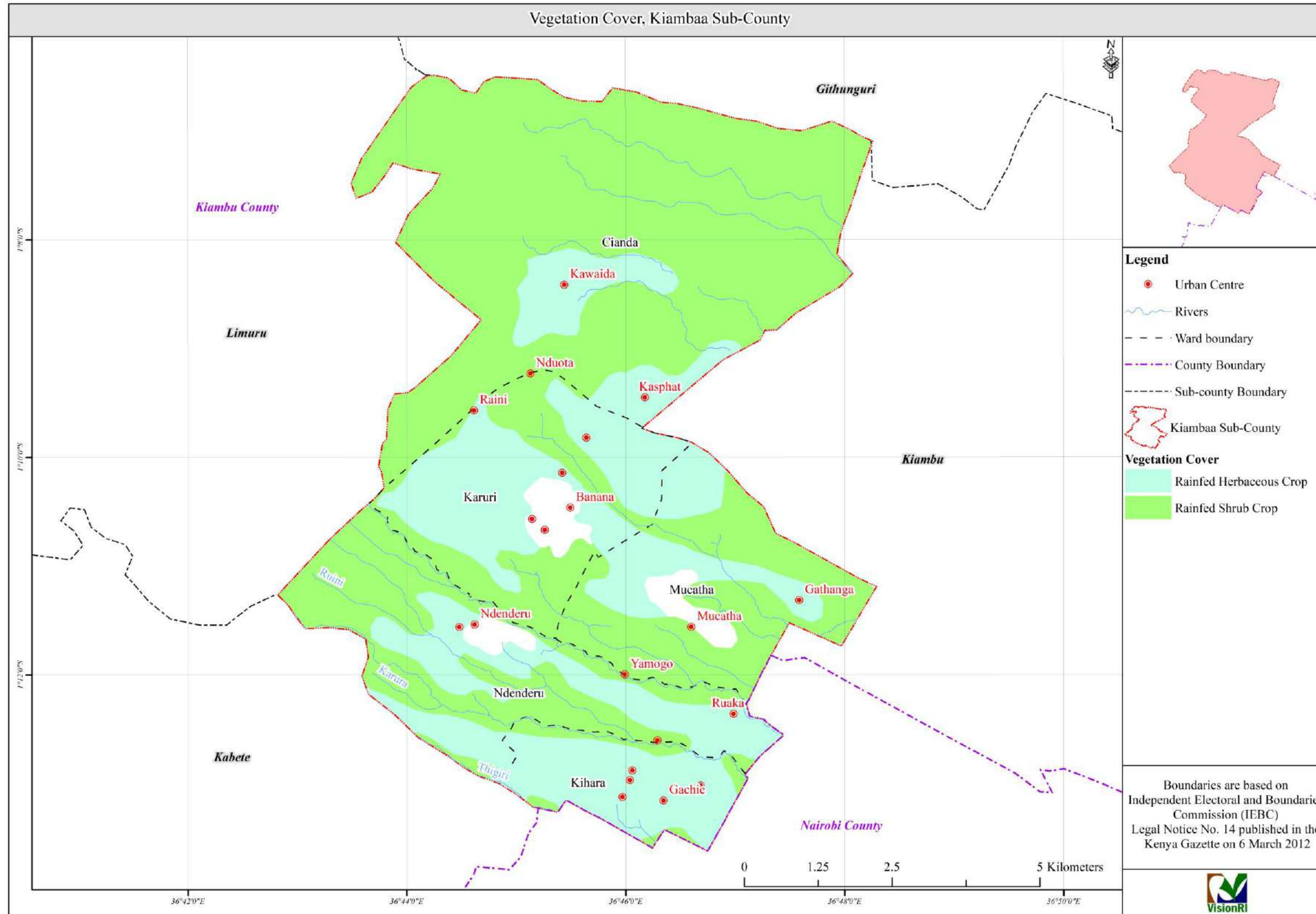
Map 3-6: Soil Map

Prepared by: VisionRI & Urban Lines Consultants Ltd



Map 3-7: Hydrology Map

Prepared by: VisionRI & Urban Lines Consultants Ltd



Map 3-8: Vegetation Map

Prepared by: VisionRI & Urban Lines Consultants Ltd.

3.6 Climatic Conditions

3.6.1 RAINFALL

With routinely high relative humidity, Kiambaa Urban Area's climate enjoys reasonably high rainfall annually. Based on records from the past 50 years, the expected amount of rain ranges from 500 to 1500 mm, with the average reaching about 900 mm. The highest amount of rainfall occurs within the months of March to May and is called the "Long Rains" while less rainfall occurs within the months of October to December and is called the "Short Rains". The average rainfall amount for each month of the year, based on the records for 50 years is shown in Table 3-1.

Table 3-1: Average Rainfall (mm)

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
48	48	115	195	137	42	15	21	24	52	114	77

Source: Kenya Meteorological Department

3.6.2 AVERAGE WINDS

The wind direction is predominantly easterly throughout the entire year. It shifts to a north-easterly direction between October and April and shifts again to a south-easterly direction between May and September. The strongest winds occur right before the "Long Rains" season, reaching the speed of 20 to 25 miles per hour. During the rest of the year, winds are usually at speed of 10 to 15 miles per hour.

3.6.3 EVAPORATION

The annual mean evaporation is about 987 mm, with a mean monthly maximum of about 263 mm in March. The daily net evaporation rate is 3.98 mm.

Table 3-2: Net Evaporation Rate

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

Source: Kenya Meteorological Department

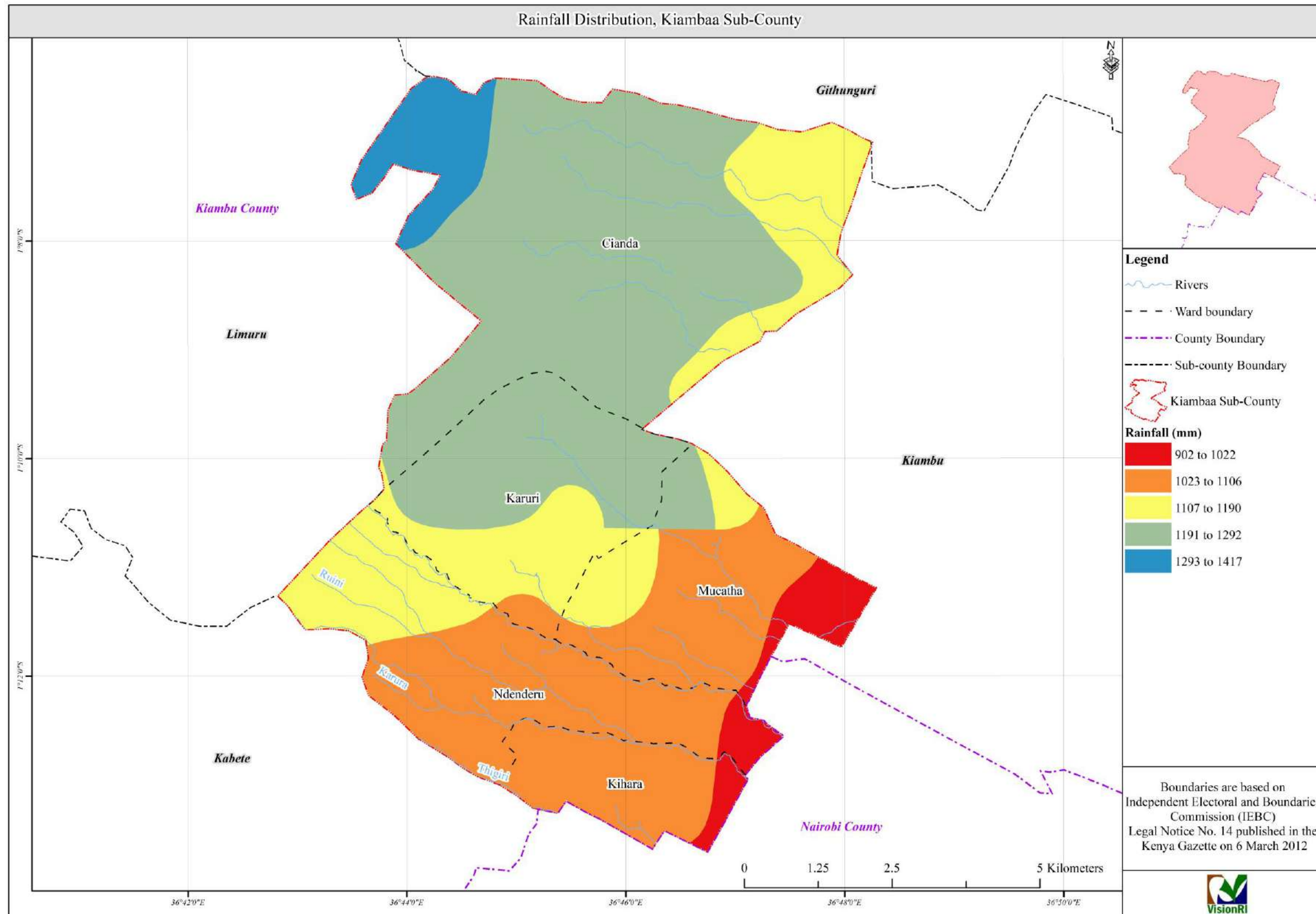
3.6.4 RELATIVE HUMIDITY

Because of Kiambaa Urban Area's location at south of the equator and in combination with humid air pumped in from the Indian Ocean, humidity for each day is generally high as shown in Table 3-3 below. The easterly winds coming from the Indian Ocean tend to keep temperatures standard throughout the country. In the months of January to April, relative humidity values have been known to plummet to anywhere from 10% to 20%.

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

Time	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
9. AM	79	74	82	86	85	85	83	85	82	80	36	83
3. PM	45	37	43	53	55	59	53	53	50	47	57	54

Source: Kenya Meteorological Department



Map 3-9: Rainfall Map

Source: Kenya Metrological Department

3.6.5 TEMPERATURES

Early mornings in Kiambaa Urban Area are often cloudy, but the sun peeks through by mid-morning. Throughout the year, there is an average of seven hours of sunshine per day. Thirty percent more sunlight reaches the ground during the afternoon than in the morning. Usually, there is a lot of sunshine during the summer months when the sun is overhead in the Southern Hemisphere. 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 about 12° Celsius 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° degrees Celsius and a maximum of 30° degrees Celsius. However, the daily range is much higher, with the differences between maximum and minimum temperatures each day around 10° in May and up to 15° degrees in February.

Table 3-4: Average Daily Temperature in Kiambaa Urban Area

Month	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 Metrological Department

3.7 Key Planning Issues

The key planning issues with regard to the Sub-County's physiographic characteristics are given in the following table:

Table 3-5: Key Planning Issues on Physiographic Characteristics

Sector	Key Highlights	Opportunities
Topography	The area has undulating topography.	Undulating topography is less prone to flooding.
Geology and soils	The area has deep fertile soils.	The potential for agriculture activities is high.
Hydrology	Presence of many permanent rivers flowing through the area.	Can be harnessed for provision of water to the residents.
		Can be used for leisure activities.
Vegetation	Natural vegetation is under pressure from intensive human activities.	Good climate.
		Rich volcanic soils that can accommodate agriculture.
Wildlife	Area has no wild animals due to urbanisation and human activities.	There are still birds which can attract tourists.
Climatic Conditions	The area receives annual rainfall ranging between 945 and 1382 mm.	The hot and wet climate can sustain a lot of human activities including agriculture and settlements.
	Temperatures range between 13°C and 28°C.	

Source: VisionRI

4 NATURAL ENVIRONMENT AND DISASTER RISK REDUCTION

4.1 Overview

This chapter analyses the natural environment, ecologically sensitive areas, and disaster risk issues.

4.2 Natural Environment

Natural environment refers to non-human-made surroundings and conditions in which all living and non-living things exist on Earth. These include land, water bodies and forests.

Land is the basis for agriculture encompassing soils, climate, vegetation, topography, and other natural resources (United Nations Food and Agriculture Organisation). Kiambaa Urban Area falls in a hinterland, with fertile, well-drained soils that are suitable for agricultural activities.

The only type of water body found in the planning area is rivers, which as earlier mentioned, include Koski, Rui-Ruaka, Ruini and Karura.

4.3 Ecological Sensitive Areas

These are areas that would be threatened by unrestricted development, therefore, require special protection because of their landscape, wildlife, or historical value. The Physical Planning Handbook (2007) notes these to be hilly areas, rivers, water catchment areas, and areas with very steep slopes.

In the planning area, rivers are the main environmentally fragile areas. Others are the steep slopes along river valleys. These have over time been encroached and polluted as a result of urbanisation and agriculture. The map below shows the ecologically sensitive areas.

4.4 Green and Public Open Spaces

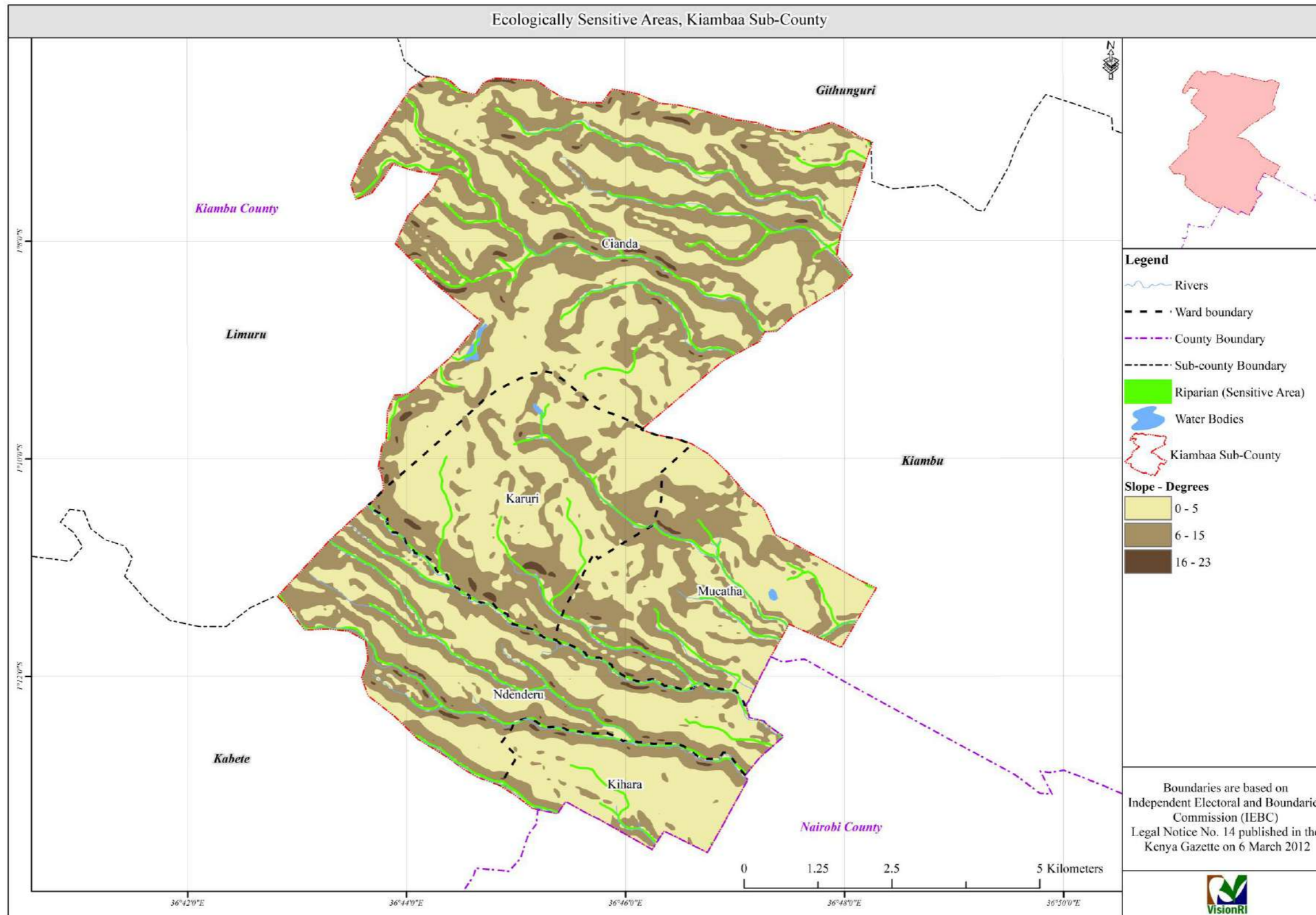
Open spaces are areas reserved for parks, green spaces, and other open areas. These provide areas for recreation, aesthetic value, and positive health impacts.

There are no open spaces in the planning area. This indicates a major gap according to the United Nations recommendation that for every 5,000 people, 1.5 hectares of open space should be provided.

For overall human development, this Plan proposes setting aside land for the purpose of open spaces.

4.5 Environmental Issues

These are harmful effects of human activities on the biophysical environment. The key environmental issues that were observed in Kiambaa Urban Area are given in the table below:



Map 4-1: Ecological Sensitive Areas

Prepared by: VisionRI & Urban Lines Consultants Ltd

Table 4-1: Environmental Issues

Types	Causes	Effects
Water pollution	<ul style="list-style-type: none"> • Disposal of household, commercial and industrial effluent into the rivers like Rui-Ruaka, Ruini and Karura; • The use of septic tanks for liquid waste disposal leads to contamination of underground water; • Use of inorganic fertilisers in agricultural practices; and • Dumping of solid waste such as plastics as well as food waste in water bodies. 	<ul style="list-style-type: none"> • Waterborne diseases such as typhoid, cholera and bilharzia; and • Loss of flora and fauna in the water bodies.
Air Pollution	<ul style="list-style-type: none"> • Vehicular emissions; • Indoor pollution due to use of fossil fuels and biomass (charcoal, firewood and kerosene); • Dust from construction sites; • Bush burning in the upper parts of the Sub-County; and • Illegal dumping of solid and liquid waste causing a foul smell. 	<ul style="list-style-type: none"> • Respiratory diseases; • Eye infection due to indoor pollution; • Withering of crops and vegetation especially along the roads; and • Contribution to depletion of the ozone layer (global warming).
Land Pollution	<ul style="list-style-type: none"> • Intensive use of farm inputs such as fertilisers, chemicals and pesticides; • Dumping of chemicals hazardous waste mainly in the light industries; and • Unregulated disposal of construction and industrial waste. 	<ul style="list-style-type: none"> • Decline in land productivity and value; and • Unsightliness.
Encroachment of fragile ecosystems	<ul style="list-style-type: none"> • Cultivation on riparian land; • Construction along the riparian reserve; • Deforestation; and • Quarries and extraction. 	<ul style="list-style-type: none"> • Flooding; • Loss of flora; and • Pollution of rivers.
Soil erosion	<ul style="list-style-type: none"> • Human activities on steep slopes. 	<ul style="list-style-type: none"> • Loss of fertile agricultural land; and • Siltation.
Flooding	<ul style="list-style-type: none"> • Lack of drainage channels in some areas; and • Blockage of drainage channels as a result of poor solid waste management and lack of routine maintenance. 	<ul style="list-style-type: none"> • Destruction of property.

Source: VisionRI

4.6 Climate Change

Climate change is currently a major global challenge affecting national economies impacting human lives and wildlife. Some of the notable climate change are erratic rainfall, rising of temperatures leading to prolonged droughts and low recharge in the planning area which has led to disappearance of flora and fauna due to limited adaptability and adaptability speed. Other effects include increase of foreign pests and pathogens. 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. According to the County Spatial Plan, some of the impacts within the sub-county are:

- Drying up of rivers and water bodies;
- Reduction in potential of ground water sources;
- Unsustainable human activities such as agriculture; and
- Loss of vegetation.

The overall impact of climate change may lead to increase in poverty, recurrent drought, reduction on rain fed agriculture and few coping mechanisms to increasing the resident's vulnerability to climate change. The effect of the poor and marginalized in Kiambaa will have little security against intense climate change due to their limited access to resources, poor shelter and dependency natural resource for their living such as water, firewood and rain fed agriculture.

4.7 Disaster Risk Reduction and Management

Disaster Risk Management is the application of policies and strategies in order to reduce existing and prevent new disasters from occurring, thereby contributing to the strengthening of resilience and reduction of losses.

4.7.1 NATURAL DISASTERS

A natural disaster is an adverse event resulting from the natural processes of the Earth. Some of the natural disasters evidenced in the Sub-County include:

- **Landslides:** These emanate from encroachments on environmentally sensitive areas such as on the banks of Ruaka and Riara rivers and agricultural activities on sloping lands posing threats of soil erosion, landslides, and accelerated surface water run-off; and
- **Flooding:** This is experienced around Banana Hill Centre and along Limuru road where stormwater drains get blocked during heavy rains.

4.7.2 MAN-MADE DISASTERS

These are anthropogenic hazards caused by human action or inaction. These kinds of disasters have an element of human intent, negligence or error involving a failure of a man-made system. Below is a list of man-made disasters experienced in the Sub-County:

- Collapse of buildings due to poor construction and failure to follow required guidelines;
- Road accidents which mainly involve motorcycles;
- Fire incidents; and
- Drugs and substance abuse such as alcohol poisoning.

4.8 Key Planning Issues

The key planning issues in the Sub-County with regard to the natural environment and disaster risks are given in the table below.

Table 4-2: Key Planning Issues on the Natural Environment and Disaster Risk

Sectors	Key Highlights	Opportunities
Natural environment	Area has a rich inventory of permanent rivers.	The rivers act as natural drainage channels.
Ecologically sensitive areas	Encroachment of river valleys and riparian reserves.	Presence/existing laws on how riparian reserves should be observed.
Greenery and public open spaces	The planning area does not have open public spaces.	Riparian areas present potentials for the provision of linear public open spaces.
Environmental issues	Water pollution is rampant	Existence of laws to curb pollution and demarcating riparian reserves.
DRR	There are instances of the collapse of buildings in Ruaka.	Existence of planning and building laws.

Source: VisionRI

5 POPULATION AND DEMOGRAPHY

5.1 Population Size

The current population of Kiambaa Urban Area stands at 234,600³ as per the 2019 census. This represents a growth of 55.6% from the 2009 population of 145,053. This growth is mainly driven by rapid urbanisation and increase in human settlements in the Ruaka, Ndenderu and Karura areas. The Sub-County continues to experience increased demand for residential land use leading to the uncontrolled conversion of previous agricultural lands (large coffee farms). This phenomenon is common along the Ruaka-Ndenderu-Limuru Road and on the Ruaka, Banana Hill to Karuri Road.

Table 5-1: Historical Growth of Population

Wards	Population		Percentage Change
	2009	2019	
Karuri	30,660	41,879	73.5%
Ndenderu	35,853	67,071	27.7%
Muchatha	26,544	53,168	55%
Kihara	36,877	53,474	69.4%
Cianda	15,119	20,808	63.6%
Total	145,053	236,400	55.6%

Source: Kenya National Bureau of Statistics (KNBS) Population Census 2019 Report

5.1.1 POPULATION DISTRIBUTION AND DENSITY

Population density: The population densities for the various wards in the planning area are shown in the table below.

Table 5-2: Population Density by Ward

Wards	Population	Area (sq. Km)	Density (pop. Per sq. km)
Cianda	20,808	36.7	567.1
Karuri	41,879	14.5	2,898.2
Ndenderu	67,071	15.0	4,486.4
Muchatha	53,168	11.8	4,521.1
Kihara	53,474	5.4	9,976.5
Total	234,600	83.2	2,819.4

Source: Based on KNBS, 2019 Census Report

5.1.2 POPULATION STRUCTURE

The bulk of the population of both sexes is largely youthful. As per the 2019 census, 38% of the population is below the age of 20. Another 33% is between 20 and 35 years of age. The population between the age of 35-50 years accounts for 18%. Only 9.6% is above the age of 50 years. This is also an indication on the need for facilities that directly provide services for the youth such as schools, colleges, and healthcare for under-fives, as well as adequate housing for new families as this is the childbearing age. Figure 5-1 shows the population structure in the planning area.

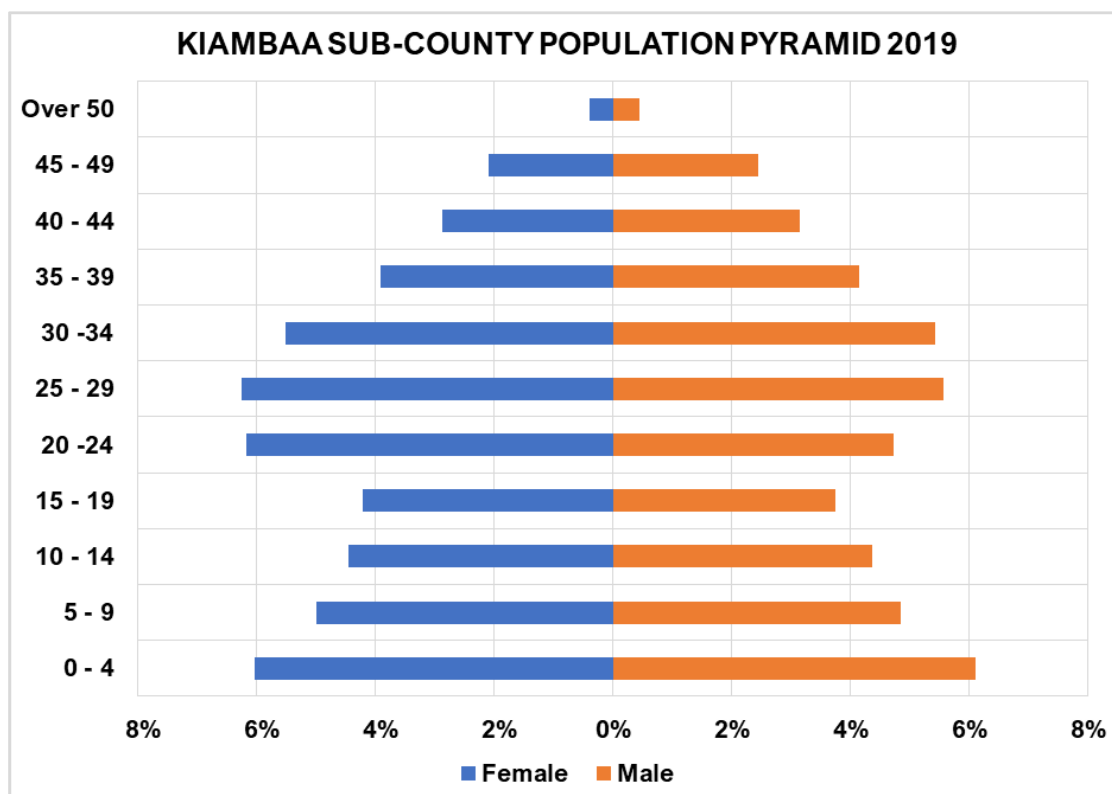


Figure 5-1: Population Structure

Source: Adapted from KNBS Census Report 2019

5.1.3 POPULATION PROJECTIONS

The planning area's population is expected to grow from 236,400 in 2019 to 416,534 by the end of the planning period in 2030 at a steady annual growth rate of 6.17% as shown in

Table 5-3. The ongoing urbanisation and construction of major infrastructure including link roads across the Sub-County as well as the extension of additional services, e.g., sewer, piped water provision, etc. are expected to attract more investments in Kiambaa Urban Area leading to population increase.

Table 5-3: Projected Population, 2019 to 2030

Ward	Year		
	2019	2024	2030
Cianda	20,808	28,069	40,202
Karuri	41,879	56,494	80,912
Ndenderu	67,071	90,478	129,585
Muchatha	53,168	71,723	102,723
Kihara	53,474	72,135	103,314
Total	236,400	318,899	416,534

Source: Based on KNBS, 2019 Census Report

Note:

Population growth rate formula

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

Previous Population: 0

Current Population: t

5.2 Demography

Kiambaa Urban Area's growth has been attributed to its proximity to Nairobi, presence of good transportation links, and availability of land for development.

According to the SPC for the NMR, Kiambaa is the ninth fastest expanding urban centre amongst the 24 centres in the region in terms of population growth. Its growth rate was calculated at 6.16%, almost double that of Nairobi, which was at 3.89%.

5.2.1 AVERAGE HOUSEHOLD SIZE

The average household size in the Sub-County is 2.9. On the other hand, Kiambu County's average household size is 3.0 which is lower than the national average of 3.9 persons per household.

5.2.2 LITERACY LEVELS

Literacy levels in the Sub-County are quite high with 48% having completed their studies and another 32.6% of the population currently in schools. Only 4.4% of the residents have never set foot in a classroom. Another 14.3% began school but could not complete due to varied reasons. The chart below shows the distribution of literacy levels in the Sub-County.

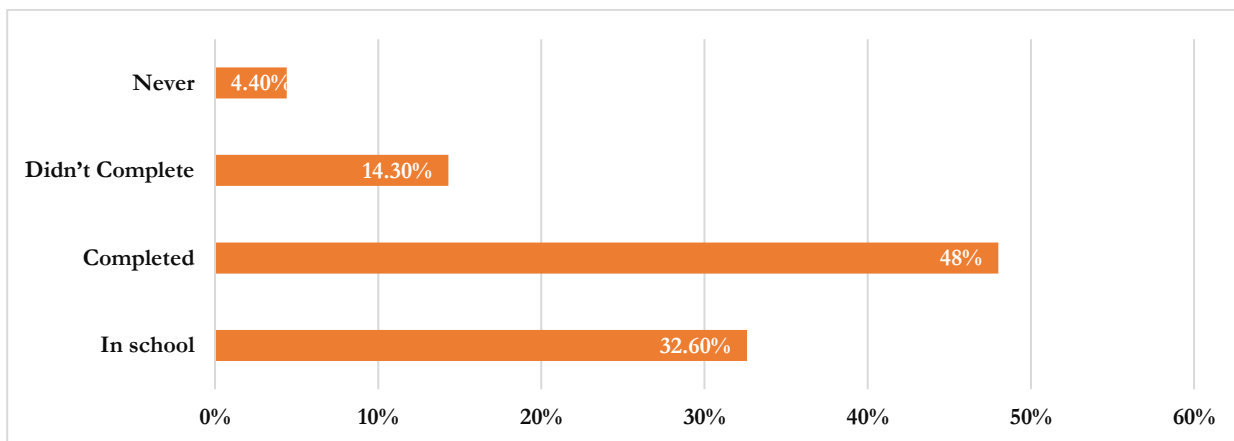


Chart 5-1: Literacy Levels

Source: Kenya Population and Household Census 2019

Out of those currently in schools, about 50% are in primary schools, 21% in secondary and 19% in pre-primary. The chart below shows the distribution of these.

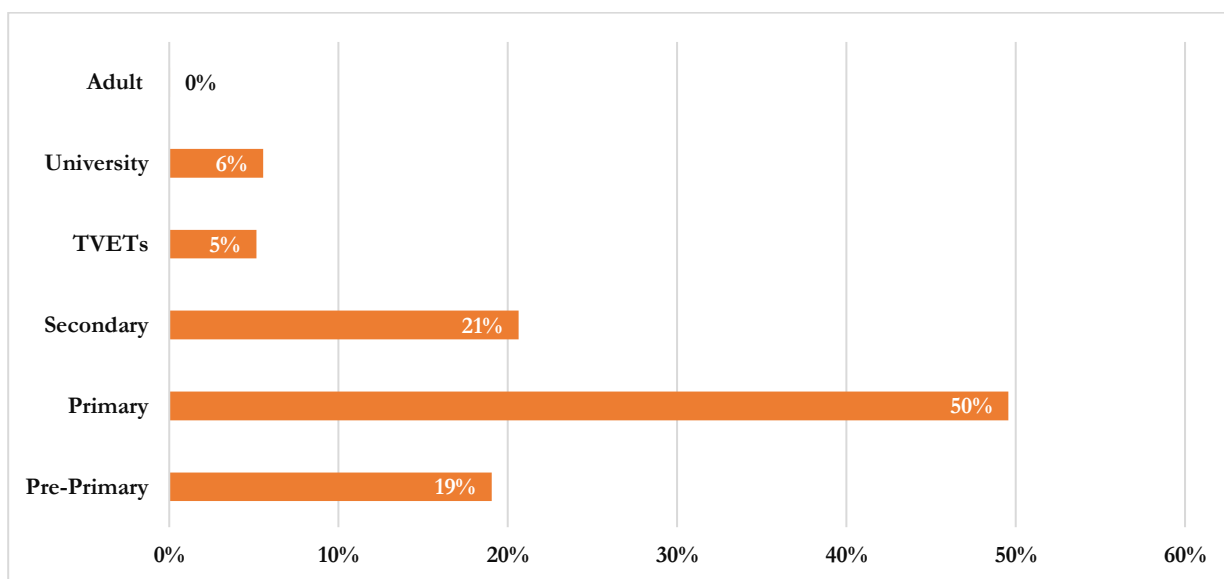


Chart 5-2: Population Currently in School

Source: Kenya Population and Household Census 2019

Out of the 207,042 who have attended schools, about 22% have studied beyond secondary school level. Another 37% dropped out after primary school. The national government has put in place a policy to achieve a 100% transition from primary to secondary schools. By these, the national government intends to have a majority of the population attain a minimum of secondary education.

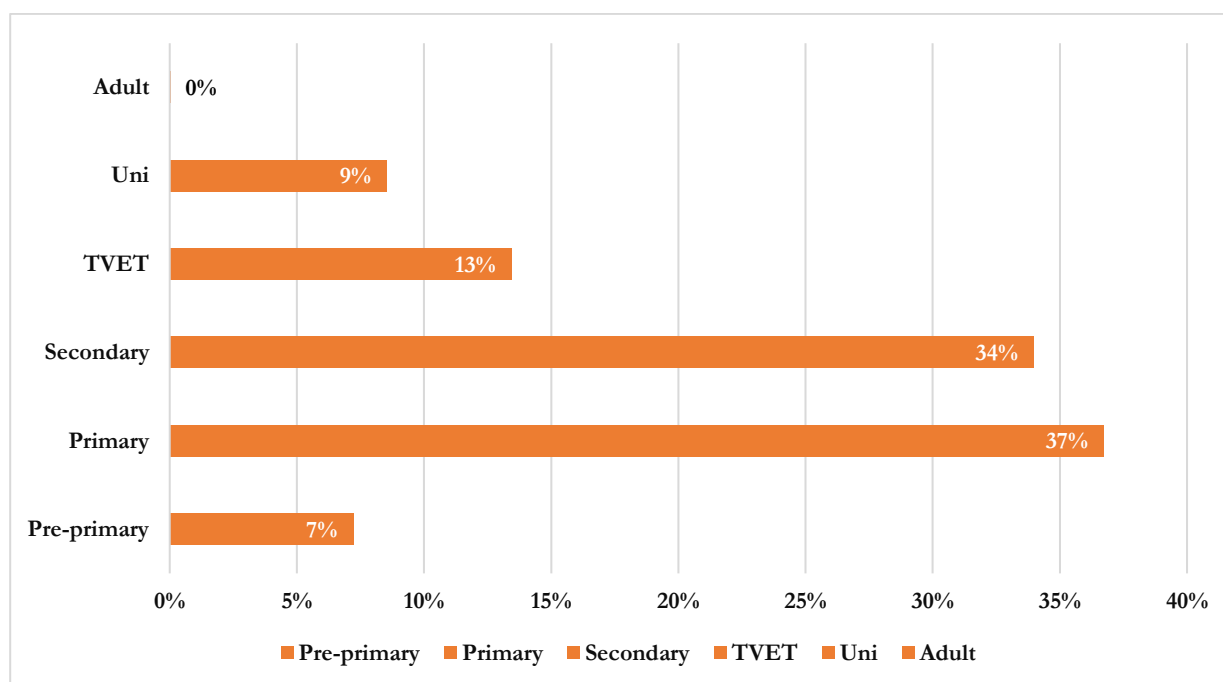


Chart 5-3: Highest Level of Education Attained

Source: Kenya Population and Household Census 2019

5.2.3 MIGRATION TRENDS

Migration into Kiambaa Urban Area is attributable to its proximity to the city of Nairobi, presence of good transportation links and availability of land for development. This has, therefore, driven the residential sector to growth spurred by the demand from the expanding working population of Nairobi.

According to the SPC for the NMR, Kiambaa Urban Area was the ninth fastest-growing urban centre amongst the 24 centres in the NMR in terms of population growth. During the period from 1999 to 2009, population growth in Kiambaa was calculated at 6.16%, almost double the growth rate of Nairobi, which was at 3.89%. The fast population growth resulted in increasing densities within Karuri town and its environs such that Kiambaa Urban Area was rated as having the second-highest population density in Kiambu County in 2009 (CIDP, 2013-2017). The Sub-County's population density during that year was calculated at about 1,979 persons per square kilometre, which was next to Kabete Sub-County's density of about 2,329 persons per square kilometre. Within the Karuri urban centre, the density in 2009 was at 389 persons per hectare (ppha) which is more than seven times higher than Nairobi's 54 ppha (SPC for NMR). From a national perspective, Karuri, which is the largest urban centre in Kiambaa Urban Area, was the 16th largest urban centre in Kenya in 2009 in terms of population.⁴

⁴ <https://www.opendata.go.ke>

5.2.4 DEATH RATE

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. It is evidently seen in the age-sex pyramid that the bars fluctuate in length. This indicates that a high number of people died as they transitioned to 30 - 34, 35 - 39, and 40 - 44 age groups.

5.2.5 LIFE EXPECTANCY

This is the average number of years a person is expected to live. According to the World Health Organisation, the average life expectancy in Kenya was 52.81 years in 1999; 57.80 years in 2009; and 66.44 years in 2019, a 0.39% increase from 2018. The increase in life expectancy is attributed to an improvement in people's health.

5.3 Social Analysis

5.3.1 CULTURAL DYNAMICS

A close look at the family in its socio-cultural context shows that the African family has undergone numerous transformations in structure, form, and functioning, resulting in various dimensions with distinctive characteristics. The family and kinship networks provide the basic support network for most rural communities. They are also responsible for socialising children, caring for the dependent and provide other kinds of support to the members of the concerned community.

Kiambaa Urban Area has experienced tremendous social-cultural changes due to its proximity to the capital city coupled with the land use/tenure transformations that are responsible for accommodating a diversity of ethnic groups. As the newcomers join the indigenous farmers and residents, several consequences emerge such as the breakdown of communal, kinship and familial ties. The intrusion by the newcomers not tied to local customs and norms has weakened the cohesion amongst the members of the formerly rural communities.

5.3.2 HERITAGE

Karuri Town is the traditional centre of the planning area. The town was established as a meeting centre in the pre-colonial era where Kikuyu's Paramount Chief used to meet for deliberations. The town is named after a paramount chief, Karuri wa Gakure. It is well known internationally for its Banana Hill suburb which is considered a centre for contemporary arts and is home to the Banana Hill Art Studio. Other heritage sites

within Kiambaa are Banana Hill Art Gallery, Riu Ruaka (“river of women”, where women used to undergo circumcision), Cianda and Kihururu waterfalls, and scenic hills and valleys.

5.3.3 RELIGION

The Agikuyu people embraced Christianity as early as the sunset of the 19th century, a phenomenon that completely changed moral, social, economic, and even political aspects. Kiambaa Urban Area is a predominantly Christian area and thus churches have taken up a new space of communal get-together where members meet to support each other in times of need such as during bereavements, weddings or sickness; thus, mirroring most of the customary organisational attributes and functions. These are the roles that *Mbari* (family group or sub-clan) members primarily perform, though still being practised by some of the family/clan members in the area who have continued to practice their *mbari*.

5.3.4 MARGINALISED AND MINORITIES

Marginalised and minority groups include those amongst the population who are unable to access goods and services due to underlying circumstances such as gender, disability, or harsh climatic conditions. The dominant factors affecting the minorities and marginalised communities include inadequate political representation, high unemployment levels, low literacy, poverty, lack of social amenities and retrogressive cultural practices. In this ISUDP, these elements are covered in different chapters/sections under specific thematic areas. An important disclaimer is that although the two concepts are used together, being a minority is not always an aspect of marginalisation.

5.4 Key Planning Issues

The key planning issues with regard to population and demography are given in the table below.

Table 5-4: Key Planning Issues on Population and Demography

Sector	Key Highlights	Opportunities
Population size and structure	<ul style="list-style-type: none"> The area is experiencing rapid population growth; There are more younger people compared to the elderly; The 2019 population has grown by 55.6% from the 2009 population; The population density stands at 2,819 persons per square kilometre; and The population is projected to reach 416,534 by the end of the planning period in 2030. 	<ul style="list-style-type: none"> The increased population creates demand and ready market for goods and services produced; Young people may be part of the labour force, both skilled and unskilled; To consider transit-oriented development (TOD) options; Mixed-use development to maximise land availability; and Social inclusion through planning options.

Demography	<ul style="list-style-type: none"> • Kiambaa Urban Area boasts of high literacy levels amongst its populace. 	<ul style="list-style-type: none"> • Young people may be part of the labour force, both skilled and unskilled.
Social analysis	<ul style="list-style-type: none"> • As the town becomes more urbanized, the indigenous culture and way of life of the inhabitants become eroded as they become assimilated into ways perceived to be urban. 	<ul style="list-style-type: none"> • Immigrants are able to fit in without having to conform to the cultures of the initial inhabitants of the area.

Source: VisionRI

6 LAND ANALYSIS

6.1 Overview

This chapter discusses the various land tenure systems, land administration and management, land use patterns, suitability, and land market values in the area.

6.2 Land Tenure Systems

There are three types of land categories in Kenya as outlined in Article 61 of the Constitution and National Land Policy. They include:

- i. Private land which is held by an individual under freehold tenure system or leasehold system or any other land described as private by any other Act;
- ii. Public land which is held by the government or state organ; and
- iii. Community land which is held by a community on the basis of ethnicity, culture or other similar interests.

In Kiambaa Urban Area, most of the land is held by individuals as leasehold, especially in the urban centres' large-scale tea and coffee estates. In the peri-urban and rural areas, the land is under freehold systems. The two systems of land ownership present different opportunities for planning with leasehold being subjected to planning standards, while freehold up until the enactment of the 2010 Constitution, Physical and Land Use Planning Act 2019, etc. has been largely operating without strict planning requirement. This has led to land fragmentation and conversion of land to urban use with minimal land use planning input.

6.3 Administration and Management Functions

Land administration and management refer to the process of registration and dissemination of land information in relation to land transactions. It can also be described as a process of managing the use and development of land resources. An efficient land administration and management system ensures ease in land transactions, hence enhancing the security of tenure, support land taxation, urban and regional planning, as well as valuation.

Land administration and management in Kenya are undertaken at two levels, namely the National and County. At the national level, it is undertaken by the National Land Commission (NLC), Department of Surveys and Department of Lands. The NLC manages public land through activities like renewal and extension of leases and allocation of public land. The NLC also carries out inspections of public land allotments for adherence to planning requirements. It also encourages the use of alternative and traditional dispute resolution mechanism in land dispute amongst others.

On the other hand, there is a Land Registry at the County where all land transactions are recorded. However, the County Land Registry is still operating on analogue platforms which make access to land information difficult.

The District Land Office handles land registration while the County is involved in land use planning, development control, processing of applications like building plans, change of user and land sub-divisions.

The County's major land functions include inter-alia processing change of user, approval of the subdivision, granting of preliminary approvals for extension of the user, sub-division of public land, renewal of the lease, and extension of the lease to be approved by the NLC subject to Physical Planning and Survey Acts.

The key actors in land administration and management at the national and county levels are provided in Table 6-1.

6.4 Challenges of Land use Management and Administration

Certain gaps in management and administration legislation at the county level have affected smooth land transactions. As a result, below are some of the challenges faced in land administration in the Sub-County:

- Poor coordination and communication between different actors such as Land Control Boards and the County; Director of Survey and County; District Land Officer and County; and NLC, County Government and District Land Officer. This eventually leads to delays in the delivery of services related to land;
- The existing land register is still analogue. This makes it difficult to access information related to land and monitor land transactions;
- Land Control Boards play a critical role in land administration and management, yet they have inadequate capacities on matters relating to land use planning and standards requirements;
- Once an application is submitted, it is normally subjected to a number of stops/departments, which leads to unnecessary delays;
- The complex nature of the processes of land administration involving land transactions;
- Lengthy process of amalgamation, subdivision, change of user, etc. leading to many people avoiding the process resulting in unplanned development;
- Inadequate governance, creating a negative attitude to delivering services in the sector and opening up avenues for misinformation in the public domain;
- Misunderstanding of the mandate of the Land Control Board by the public—for example, once a party obtains consent to subdivide land, they do not proceed to the respective County Government department to seek approval of that particular transaction. This leads to an uncontrolled subdivision of land and loss of revenue;
- Rate charging on agricultural land has caused a lot of complaints from the public; and

- Land-use planning has been a preserve of urban areas, hence neglecting rural and agricultural land resulting in subdivision and land uses, which led to the loss of vital agricultural, forest and land uses.

6.5 Land Use Patterns

The planning area generally rests on undulating and hilly terrain accentuated by steep slopes towards the rivers at the southeast. Land use is predominantly open, agricultural, and residential at the northern, central, and southern portions of the town. There are marked urban concentrations in three highly commercial nodes namely; Karuri Town at the junction of Banana-Raini Road and Ndenderu-Banana Road, Muchatha along Banana-Raini Road and Ruaka town at the junction of the Northern By-pass Road and Limuru Road. The latter is notably the most urbanised of the three nodes due to relatively flat terrain and good accessibility. Ruaka already hosts several mid-rise flats as well as commercial establishments.

Secondary urban concentrations are observed in Gachie particularly around the hospital and police station, and in Ndenderu being at the junction of Limuru Road, Gitaru Road and Ndenderu- Banana Link Road. Lesser density urban concentrations may be found at the junction locations of Wangunyu and Nduota. These mainly serve as local transport nodes.

Table 6-1: Key Actors in Land Administration and Management

Level	Key Actors	Roles	Guiding Legislation
National Government	National Land Commission	<p>Amongst other functions of the NLC, the main ones are:</p> <ul style="list-style-type: none"> • Manage public land on behalf of 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"> • Kenya Constitution 2010 Article 67; and • National Land Commission Act of 2012.
	National Director of Physical Planning	<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	<ul style="list-style-type: none"> • Establish and manage land control boards; • Process and approve development applications e.g., issuance of consents to charge, lease, or transfer; • 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 	<ul style="list-style-type: none"> • Land Act of 2016; and • Land Registration Act of 2012.

Level	Key Actors	Roles	Guiding Legislation
		<ul style="list-style-type: none"> 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 and leases. 	<ul style="list-style-type: none"> Land Registration Act of 2012; and 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 Government Act of 2012; Urban Areas and Cities Act; and County Governments Act, 2012.
	County Director of Physical Planning	<ul style="list-style-type: none"> Develop sustainable strategies on urban and rural development and management; Formulate, implement, and review various policies in the Department; Promote and facilitate the development of decent housing; and 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 surveys on public land; Develop a GIS and Land Information System database for spatial data management; and Provide efficient land and property management for effective County land documentation and land taxation. 	<ul style="list-style-type: none"> County Governments Act of 2012; and Survey Act, 1961 (Revised 2012).
	Land Control Board	<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 majorly 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 	<ul style="list-style-type: none"> Urban Areas and Cities Act, 2011;

Level	Key Actors	Roles	Guiding Legislation
		<ul style="list-style-type: none"> Advise County on innovations in the land and planning sector. 	<ul style="list-style-type: none"> Physical and Land Use Planning Act, 2019; Physical Planners Registration Act, 1996; Land Act, 2012 (Amended 2016); and Water Act, 2002.
	Registered Land Surveyors Land and Environment Court	<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 & Urban Lines Consultants Ltd

An urban corridor is observed to be fast developing along Boma Road from Karuri CBD to Muchatha town. The corridor's extension towards Ruaka town is somehow hampered by steep terrain along Boma Road. However, residential flats were observed to already have been built on the sloping areas of Banana and Muchatha wards.

Incongruous developments that were observed include residential houses at the edge of the abandoned quarry along Kihara-Karura Road; public cemetery near residential homes along Ndenderu-Banana road; and the church next to a night club/bar in Karuri CBD.



Figure 6-1: Karuri Urban Centre

Source: Field Survey

6.6 Key Land Use Challenges

Kiambaa has three dormant land use patterns. Large scale farms mainly in Cianda ward which are mainly for coffee and tea with pockets of high-density settlement in Kasphat and Kawaida. However, there is intense pressure to convert the large-scale farms to plots and this calls for stringent development control measures to protect the agricultural land which offers employment opportunities and food security and foreign exchange. The lower part of the planning area from Raini is owned by small scale holder and its inhabited by indigenous community who own small parcels of land.

- Some of the issues in these areas in land subdivision after inheritance into strip plots which are uneconomical;
- Rapid subdivision and conversion of agricultural land to commercial in area of Ruaka, Banana and Ndenderu and this has forced the indigenous people out rendering them landless and this has led to unemployment, poverty and negative social effects such as insecurity;

- Due to the high demand for land exhibited by demand for rental housing, this will have an effect in terms of high rent within these areas hence displacing the locals who may not be able to pay the rent; and
- Narrow roads which are mainly below 6m making the area difficult to service.

Figure below shows an example of incongruous subdivisions within the planning area as described above



Figure 6-2: Example of Subdivision Pattern in Ruaka area

Source: Cadastral Plan for Kiambaa- Ruaka Sheet 9 and Google Map

6.7 Existing Land Uses

Map 6-1 shows the existing land uses in the planning area. Most of the development is following the transport corridors within a radius of 100-200 metres. Settlements have also structured the terrain due to the river's valley and slope. The dominant land use in Kiambaa is agricultural accounting for 64.65% followed by residential development accounting for 25.43%.

Table 6-2 below shows the various land use percentages within the planning area.

Table 6-2: Existing Land Uses

Code	User	Existing	
		Area in Hectares (Ha)	Percentages (%)
0	Residential		
	Residential - High	550.5	6.62%
	Residential - Medium	459.19	5.52%
	Residential - Low	1106.29	13.29%
	Total	2,115.98	25.43%
1.	Industrial	19.1	0.23%
2.	Educational	91.94	1.10%
3.	Recreational	4.8	0.06%
4.	Public Purpose	60.96	0.73%
5.	Commercial	245.96	2.96%
6.	Public Utility	4.73	0.06%
7.	Transportation	391.69	4.45%
8.	Conservation Areas		
	Riparian and water bodies	9.22	0.11%
	Total	9.22	0.11%
9.	Agriculture	5,380.00	64.65%
	Total	8,321.47	100%

Source: VisionRI & Urban Lines Consultants Ltd

6.8 Land Suitability

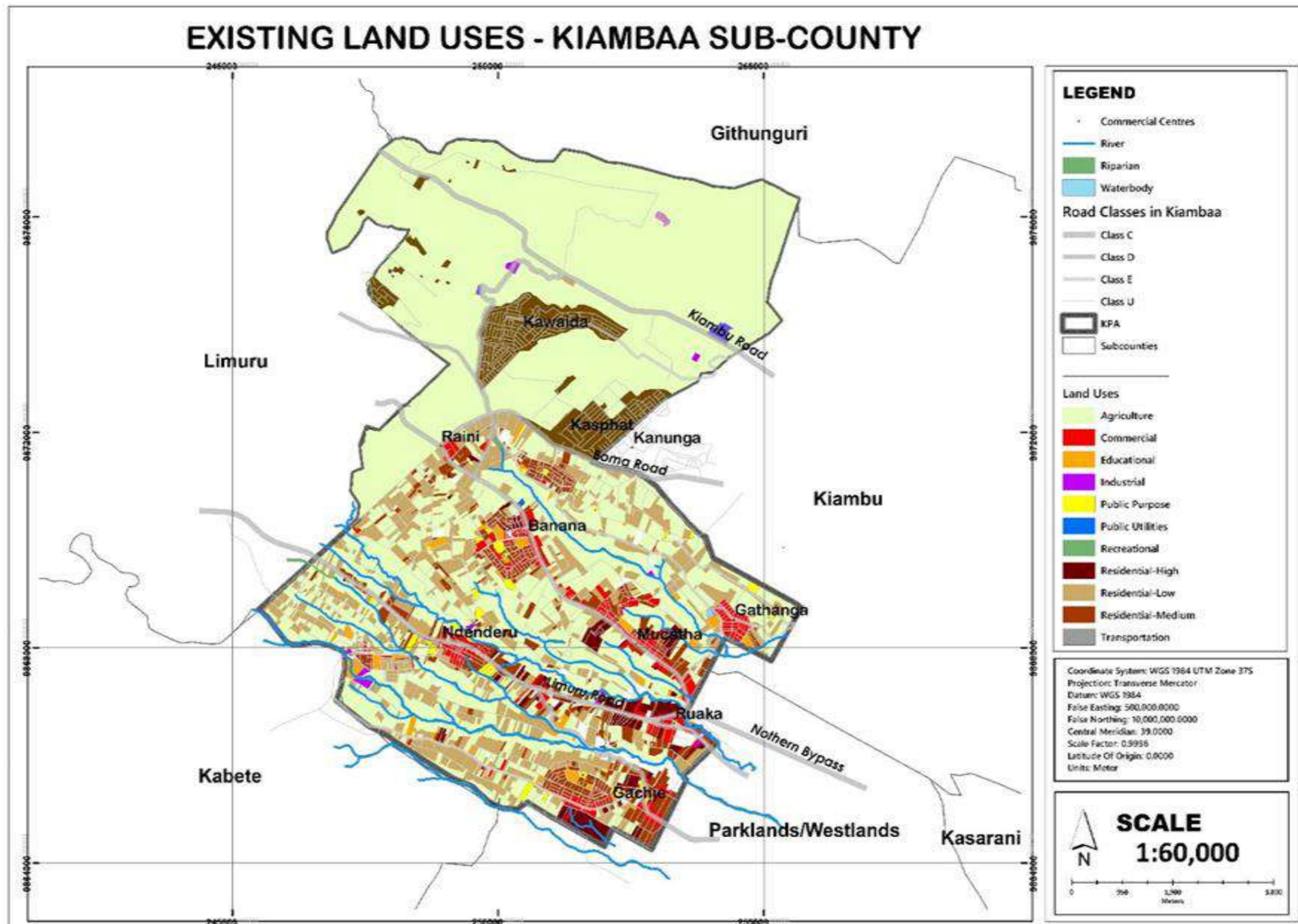
Normally, the suitability of land is gauged by how it can accommodate human activities and urbanisation by analysing parameters like slope, soil types and climate, amongst others. Generally, land in Kiambaa Urban Area is suitable for both agriculture and urban functions, if the three parameters are analysed. However, there are spots/zones where conservation efforts should be enhanced particularly along the rivers, hills, and areas with large tea/coffee plantations. As observed in the earlier section chapter 3 above, much of Kiambaa Urban Area has slopes of 0-5° and 6-15° while the steepest areas have slopes of 23°. As per the Physical Planning Handbook (2007), this still falls within what is considered fit for development as it has categorised that areas between 5° and 25° are medium slopes and suitable/can accommodate human settlement whereas areas with a slope above 25° as steep and therefore not fit for such developments.

6.9 Land Values/Market

According to Maina (2013), land conversions in Kiambaa Urban Area are taking place in circumstances where the practice of farming communities in introducing changes without necessarily selling or converting agricultural land to residential purposes is becoming severely affected by radically evolving new economic, social, cultural, and environmental pressures.

The above situation is overwhelming existing local capacities to respond to rapid changes and pressures. As a result, some residents have ended up selling their land parcels without any clear plan on what to do with sale proceeds. This has contributed to increased squalor in the midst of abundant resources as the Sub-County boasts enormous wealth.

In general, land in the Sub-County is expensive, Similarly, land in the urban-rural fringe is expensive in comparison to those in more rural settings. This is advantageous to landholders since they are able to sell their small portions of land and buy bigger sized ones in farther rural areas. In addition, the land market is fairly active in the area thus land sales, subdivisions, and change of use are frequently undertaken.



Map 6-1: Existing Land Use Map

Prepared by: VisionRI & Urban Lines Consultants Ltd

In addition, land prices have been increasing rapidly. For instance, in Ndenderu/Ruaka an acre of agricultural land was Kshs. 20 million in 2015. Evidence from the market indicates that the price of a similar acreage was about Kshs. 150 million in 2019. This depicts an increase of about 750% in four years. As illustrated in the table below, the appreciation in land prices in the Sub-County was in most cases more than 100%.

The rapid increase in land values, although good for the rich landowners, poses great challenges to potential developers, government, and the poor members of the community. This is because it makes land less accessible. Thus, both County and National Governments are faced with serious challenges in accessing land for infrastructure development.

6.10 Key Planning Issues

The key planning issues with regard to the land sector is given in the table below.

Table 6-3: Key planning issues in the land sector

Sector	Key Highlights	Opportunities
Land Administration	<ul style="list-style-type: none"> Land administration is still analogue; and Consents from Land Control Boards should pave the way for physical planning processes but not be used to skip them. 	Presence of institutional systems at the national and county levels.
Land Use Patterns	<ul style="list-style-type: none"> There is a shift from agriculture to urbanisation in the form of residential and commercial. This shift is not sustainable in the long run. 	Increased economic activities provide potentials for the Sub-County's development.
Land Suitability	<ul style="list-style-type: none"> The slope of the planning area is suitable for urban development; and There is a need to conserve the tea plantations and the river valleys. 	<ul style="list-style-type: none"> Enabling zoning regulations; and Enabling planning regulations regarding riparian reserves.
Land Values	<ul style="list-style-type: none"> As the demand for housing soars, prices continue to rise. 	Enabling zoning regulations.

Source: VisionRI

7 HUMAN SETTLEMENTS

7.1 Overview

Urban growth in Kiambaa Urban Area has intensified and sprawled over recent years. This is attributable to its proximity to the city of Nairobi, the presence of good transportation links and the availability of land for development.

The SPC for the NMR ranked Kiambaa as one of the fastest-growing urban centres amongst the 24 centres in the NMR in terms of population growth. As at that time, its population density stood at 1,979 persons per square kilometre. In 2019, this number increased to 2,595 persons per square kilometre making it the second-highest densely populated Sub-County in Kiambu County after Kabete Sub-County which had a density of 3,289 persons per square kilometre.

While urban growth has spurred economic development, it, however, occurred in an “unplanned, uncoordinated and uncontrolled” manner (CIDP, 2018-2022) thus exerting strains to the provision of urban facilities and services and put development pressure to a sensitive highland environment.

Many privately owned lands have been subdivided and developed on a piecemeal basis without approved planning schemes. There are many cases where such developments are without adequate utility and infrastructure, such as potable water and sanitation systems, leading to a decline in the quality of the urban environment.

There are also cases where inappropriate developments were made on environmentally sensitive locations such as vegetated or sloping sites. These, in turn, have led to the degradation of the natural ecosystem by way of desertification, soil erosion, increased surface water run-off, etc.

7.2 Hierarchy of Urban Nodes and their Functions

Urban development trends are well represented by the analysis of the key nodes existing along the main spines and on major road junctions. There are six major activity nodes in the planning area, namely, Kiambaa, Muchatha, Ruaka, Gachie, Ndenderu and Karuri. Their characteristics are presented in the following sections.

7.2.1 KARURI TOWN

The traditional centre of the planning area is also known as Banana Hill and is the location of the popular Banana Hill Art Gallery. The town is a planned settlement, and the roads are laid in a grid fashion. The predominant land use is commercial with a prevalence of low-rise (single to two storeys) buildings.

There are a few mixed residential-commercial buildings having four or five storeys. Most buildings are old and ill-maintained. Significant landmarks include the Kiambaa Catholic Church, Police Station, Banana Plaza, and Banana Hill Art Gallery.

Boma Road and Ndenderu-Banana Road are all-weather, but the interior roads are mostly earth-surfaced. The town lacks paved pedestrian sidewalks as well as appropriate road drainage systems. The lack of paving gives the town a rustic rural ambience.

Vehicle parking facilities are an issue. Some private commercial-residential establishments do not have parking provisions. The bus park is congested and matatus are observed to park even on the road carriageway.

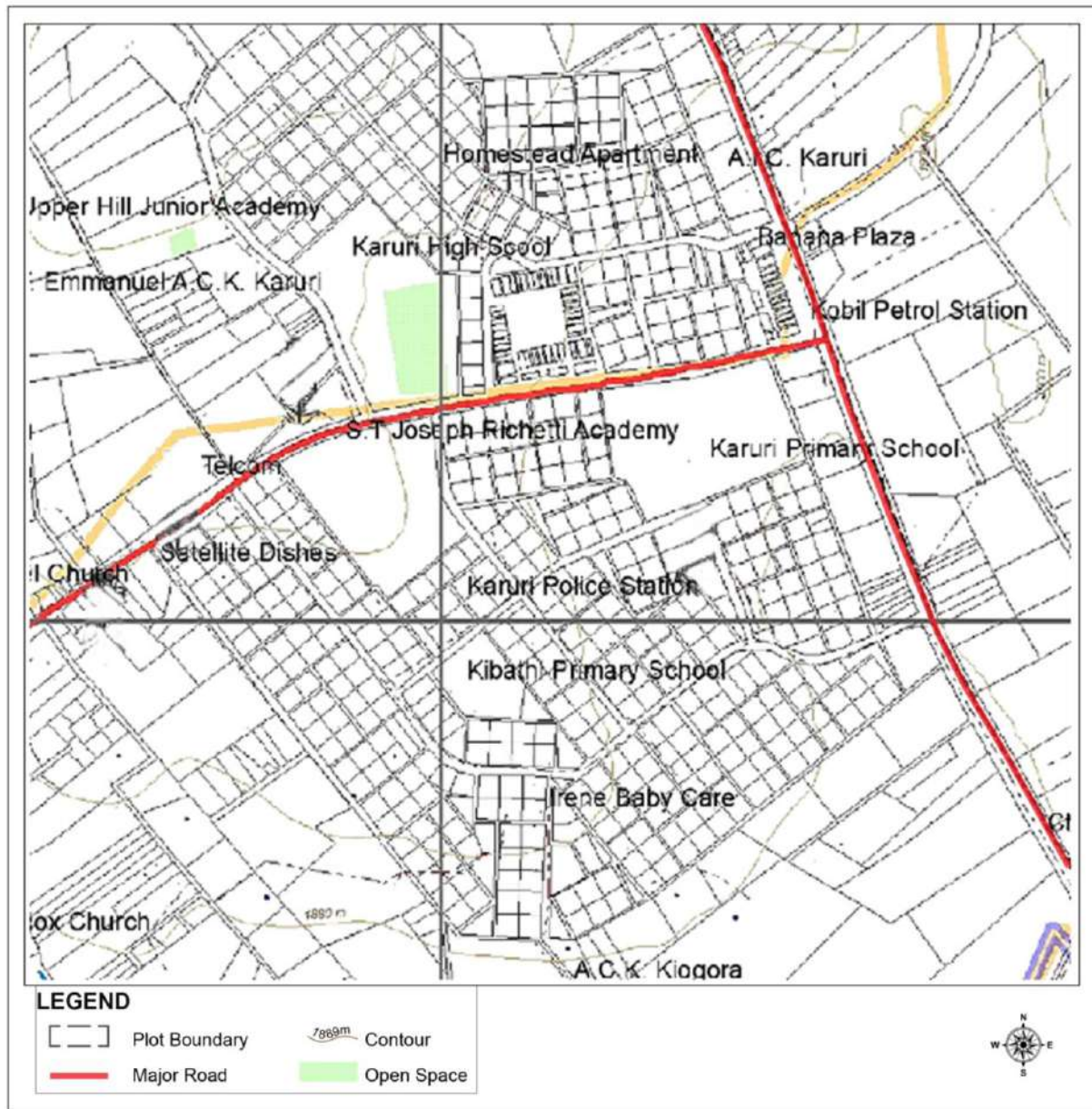


Figure 7-1: Layout of Karuri Town

Source: County records

7.2.2 MUCHATHA

This activity node also lies along Banana-Raini Road although it is of smaller scale compared to Karuri Town. It has a rectilinear structure along Boma Road supplemented by parallel street blocks at the north-eastern side of Banana-Raini Road. Land use in Muchatha is also predominantly commercial along Banana-Raini Road. This becomes increasingly residential towards the interior of the area. Building heights also range from one to five storeys.

The Mary Immaculate Catholic Church is a significant landmark along the main road. Similar to Karuri Town, only the main road is paved while interior roads are earth-surfaced. There is also a lack of pedestrian sidewalks and road drainage facilities.

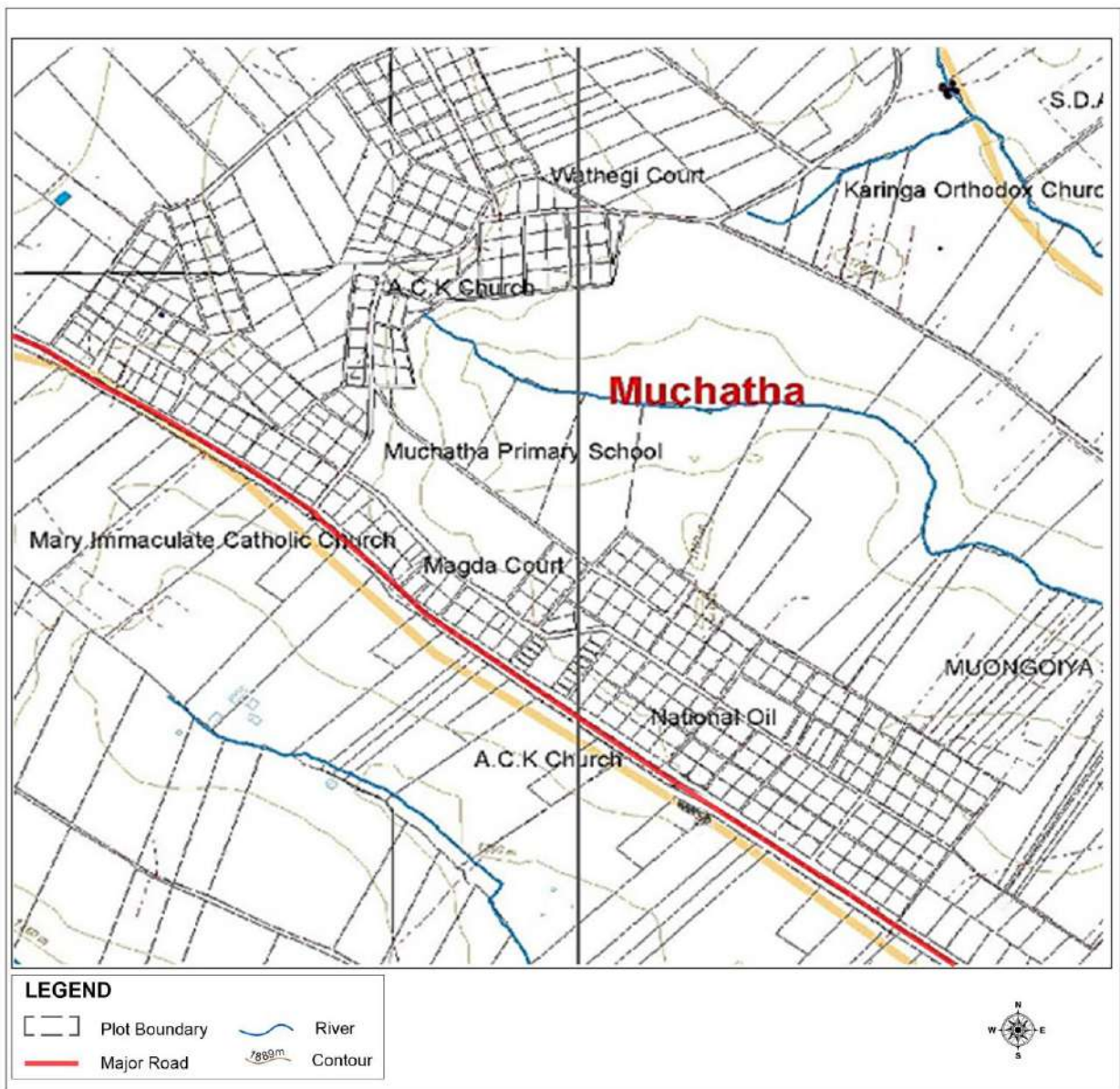


Figure 7-2: Layout of Muchatha

Source: County Record

7.2.3 RUAKA

The area lies at three major road intersections, namely, Banana-Raini Road, Limuru Road, and the Northern Bypass Road. This crossroads location has evidently spurred rapid growth giving the area a bustling urban ambience. This largely contrasts to the laid back almost rural character of the upper portions of the planning area. Ruaka has a linear structure and is observable that local road infrastructure is yet to catch up with the rapid development of residential apartments and commercial buildings.

Land use is predominantly residential with requisite commercial developments including banks, hospitals, and major retail outlets like Quickmart, Cleanshelf and Tusky's. The area hosts an array of residential flats and mixed-use establishments having five and up to 10-storeys. Developments are closely built giving a very dense character to the area. This is attributable to the rectangular shape of individual lot parcels which commonly have narrow frontages and elongated interiors. The informal market, having temporary stalls at the centre of town, occupies the road reserve.

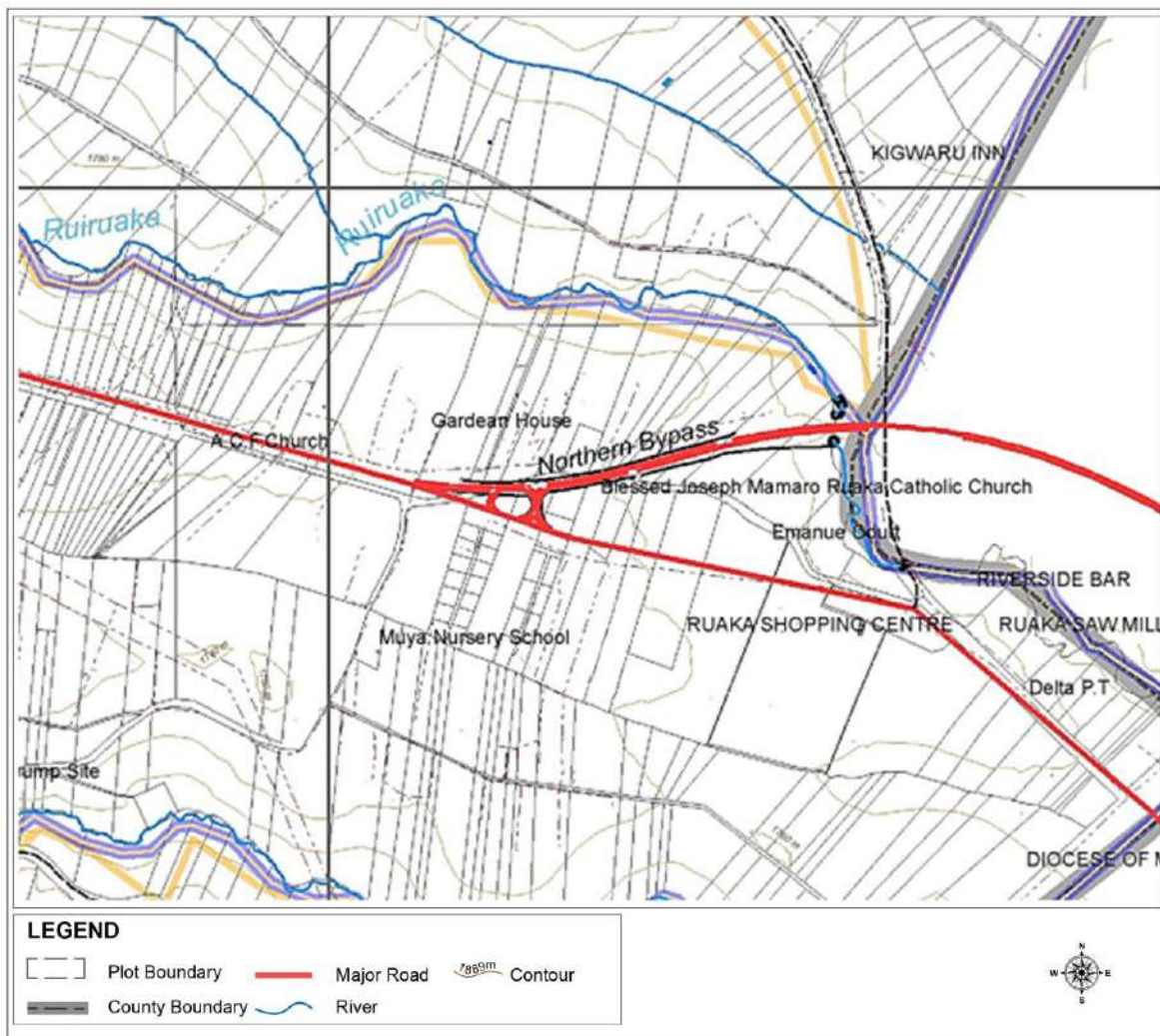


Figure 7-3: Layout of Ruaka Town

Source: County records

7.2.4 GACHIE

This node hosts a bustling residential community where urban growth is being driven by proximity to Nairobi via Waiyaki way - Red Hill Road. It is laid out in a radial pattern built around community facilities such as Gachie Academy and Kihara Level 4 Hospital (formerly Gachie Health Centre). Land use is predominantly residential although there is a commercial strip along Kihara-Karura Road.

Developments are mostly one to two storeys although there are already emerging four to five-storey residential developments. There is a mixture of old and new buildings in the area. There are no sidewalks and other pedestrian amenities in the area. Matatus and boda-bodas park along the road reserve since the area has no formal bus park.

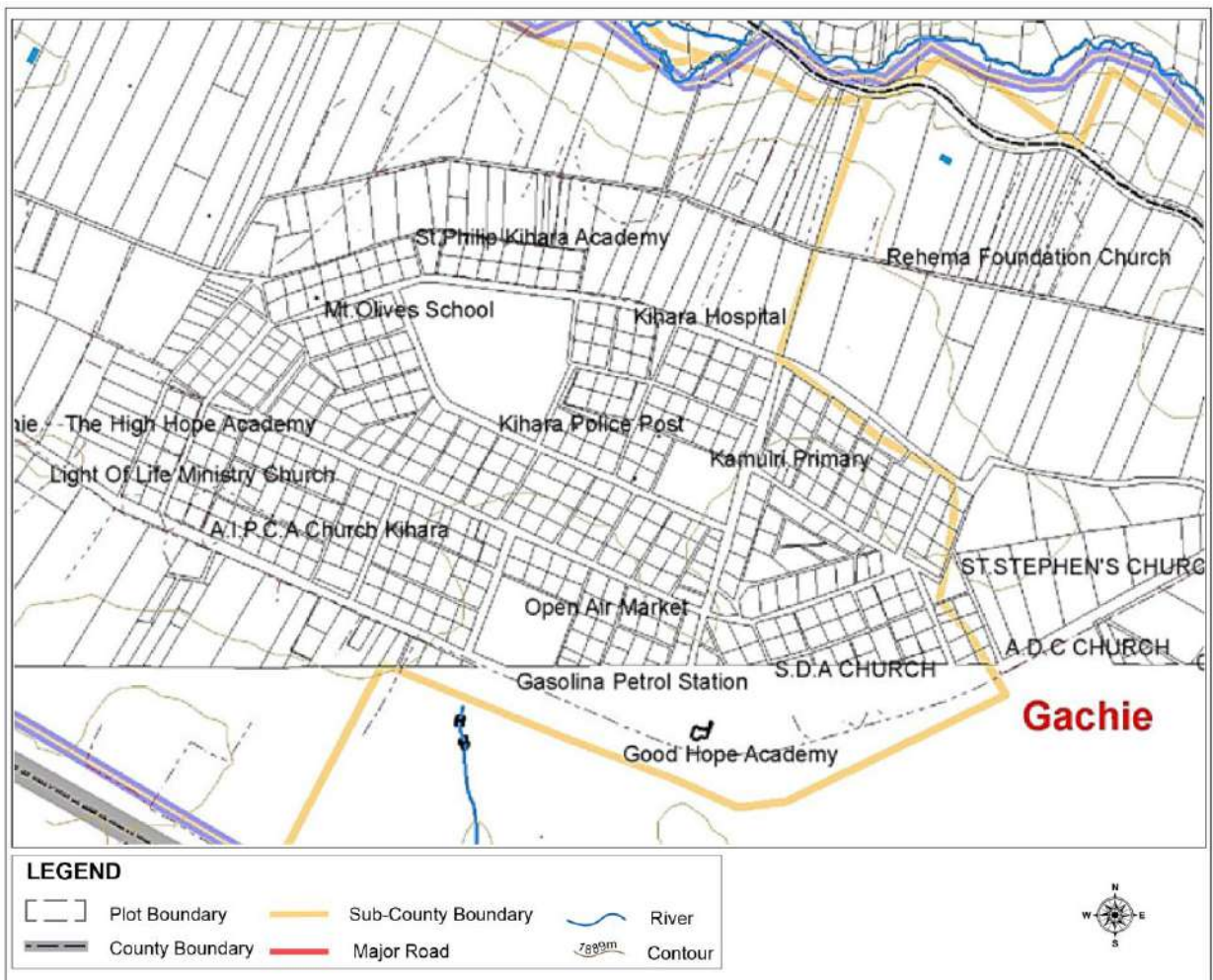


Figure 7-4: Layout of Gachie Urban Centre

Source: County records

7.2.5 NDENDERU

This is a commercial-residential node that is also growing due to its strategic crossroads location although at a slower pace and density if compared to others in the planning area. It is also laid out in a rectilinear fashion with the long side extending along Limuru Road due to more favourable terrain. Buildings are mostly one to two storeys in height with few five storeys structures. There are several newly built flats in the area, which may be attributed to the increasing demand for the residential market. Characteristically, only the main road is paved, and the area lacks pedestrian sidewalks and road drainage facilities.

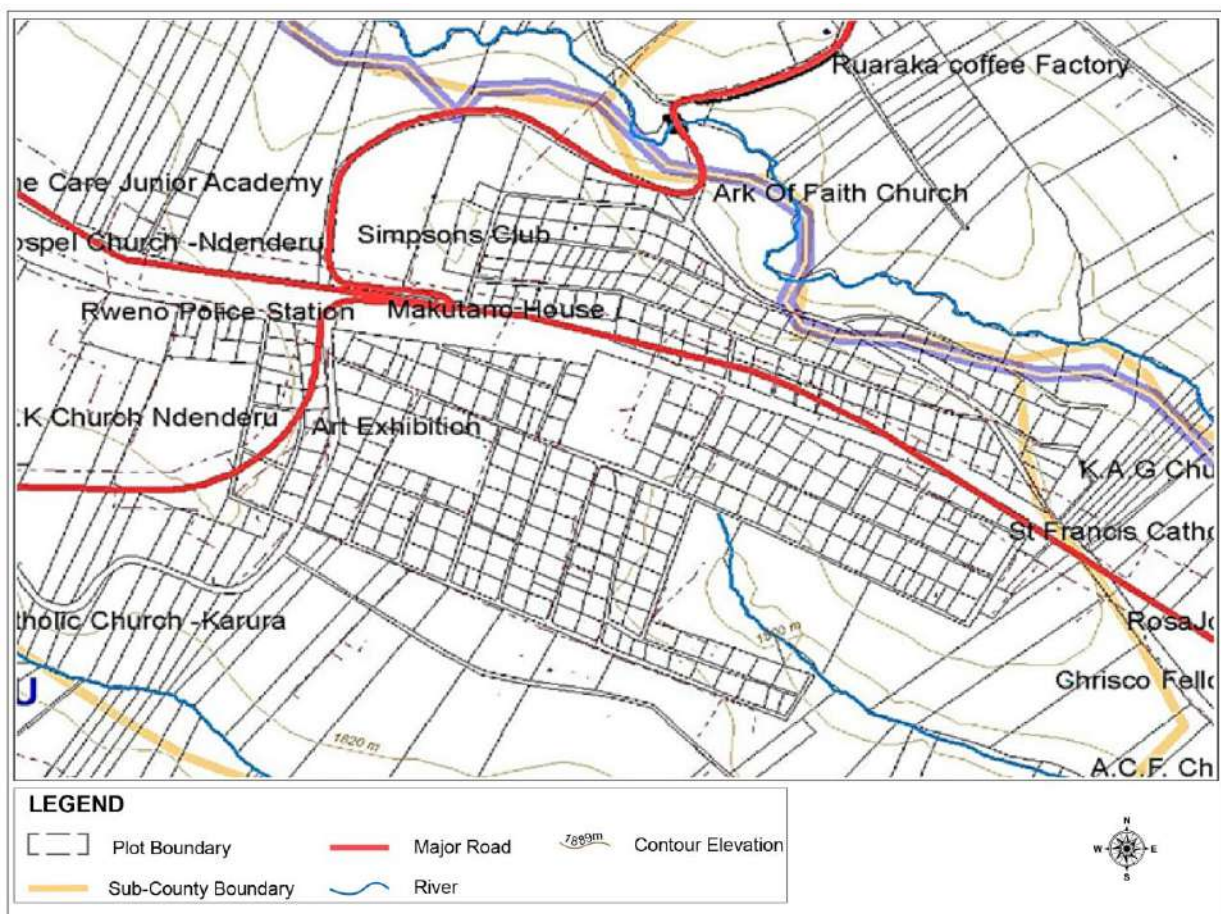


Figure 7-5: Existing Layout of Ndenderu

Source: County records

7.2.6 URBAN CORRIDORS

The planning area's linear spines define its urban growth corridors. These spines include Banana-Raini Road, Limuru Road and Kihara-Gachie-Karura Road. The first two roads have the advantage of being scenic corridors as their higher elevation affords panoramic views of the surrounding areas. There are also tree-lined segments along these roads which give the planning area a unique natural environmental quality. These assets are, however, being threatened by uncontrolled urban sprawl and largely unregulated developments.

7.3 Rural-Urban Linkages

Generally, urban centres are well served with infrastructure, better job opportunities, improved housing and life is perceived to be better compared to rural areas. Kiambaa is no different.

These urban centres such as I Banana, Ndenderu, Ruaka, Gachie and Mucatha are supposed to serve the rural hinterland. The relationship should be symbiotic with these centres serving as commercial areas and the hinterland as agricultural areas. Other cross-interactions between the areas include the exchange of human capital, economic transactions, social amenities and services, amongst others.

However, in the case of Kiambaa, there is an uneven balance of this, where the pull factors to urban centres far outweigh the push factors. Some of the pull factors include better employment opportunities, improved housing, better purchasing power, etc. The effect of this uneven balance is the increased population in these centres leading to sprawl and degradation of existing infrastructure.

7.4 Urban Form and Morphology

The urban growth in Kiambaa Urban Area is defined by five urban nodes, namely; (Karuri, Ruaka, Muchatha, Ndenderu and Gachie. Over the years, the growth of these urban centres has been concentrated within their centre's residential developments which have formed linear patterns along major roads. Apart from the CBDs which have a character of formal planning, most of these other areas lack a defined urban form and design characterised by amorphous growth, lacking streetscapes, clear urban edges, and districts.

7.5 Urban Structure

The planning area is structured linearly in a northwest-southeast direction. This structure is defined by the direction of four rivers running along the same direction, which drain the upper regions of the Aberdare range. Two major roads – Limuru Road and Banana-Raini Road – accentuate the structure of the planning area in pincer shape fashion. These roads intersect at Ruaka where they are joined by the Northern by-pass Road forming a fast-urbanising growth triangle.

A third road, the Kihara-Gachie-Karura Road, complements the above major roads and provides access to the southeast part of the planning area. A fourth parallel road traverses the northeast portion of the planning area and traverses the sub-locations of Gathanga and Karuri. These parallel roads are linked by two windings roads that cut across the slopes of the ridges. These are Banana Hill Road, which links Gachie to Limuru Road and Gitaru Road-Banana Ndenderu Link Road, which links Ndenderu and Karuri Towns.

The north-eastern, north-western, and south-western portions of the planning area are still mostly rural due to access and terrain conditions. Significant vegetation and agricultural areas along with scenic views may be found in these areas. These are evident along Red Hill Road where urban developments are constrained by steep terrain.

Tree-lined skylines may be observed along the upper portions of Limuru Road and along and Gitaru Road-Banana Ndenderu Link Road, which affords scenic hillside views. These natural environmental characteristics give a predominantly urban ambience to the central, south-western, and north-western portions of the planning area.

7.6 Delineation of Urban Edge

The urban cores of each of the five urban centres are defined by transportation systems.

- **Karuri** is a convergence of Banana-Raini road and Banana-Posta road. The extents of the urban area are limited by Kaski river to the north, Ruiruaka to the south, and road adjoining St. Marks Church. The town is experiencing sprawl along Banana-Raini and Banana-Posta roads. Other areas the town is expanding into is along Kanunga-Karuri road and towards Ndenderu-Banana link road.
- **Ruaka** has a linear structure defined by Limuru Road to the west with residential development extending to Ndenderu. Other limits are defined by Red Hill road to the south and Kigwaru to the west. Since the town is a border town with Nairobi County, there is limited sprawl to the east.
- **Muchatha** is characterised by corridor development along Banana-Raini road. On either side of the road, the urban limit is about 500 metres. Most of the development is residential with commercial activities along the spine.
- **Gachie** is radial pattern development mainly along Kihara-Gachie-Karura road. To the south, the urban edge extends to Kinanda road, to the north is Karura river, and to the east, it borders Nairobi. The centre is predominantly residential with a commercial strip along Kihara-Gachie-Karura Road.
- **Ndenderu** is defined by a rectilinear structure mainly along Limuru road and Ndenderu-Wangige-Gitaru road (Western Bypass). To the north, the urban limit is defined by Rui-ruaka and Karura River to the south. The developments are about 500 metres off Limuru road.

7.7 Housing

7.7.1 INTRODUCTION

Major infrastructure developments such as the Northern bypass and Ruaka-Limuru road are ushering growth and development of the area. Population increase has created a surge in demand for housing. Largescale mixed-use developments such as Two Rivers, and residential developments such as the Cytonns, Alma and Taraji Heights, amongst others, are continuously adding quality housing to the locality, and consequently increasing rental value. The area is also undergoing increased commercial activity. However,

this rapid development is happening in the context of inadequate physical infrastructure such as sewer, and there is increased traffic congestion due to population pressure. Rental apartments and single dwellings are scattered in the countryside.

7.7.2 BUILDING MATERIALS & CONSTRUCTION SUB-SECTOR

At 80%, galvanised iron sheets are the dominant material used as the roof of houses in Kiambaa Urban Area. Another 16% who live in storied apartments have slab/concrete as their roof. The remaining few have tiles as their roof material.

For walls, about 34.3% have used galvanised iron sheets. Another 58.5% live in stone-walled houses while 3.4% live in houses made of timber walls.

For floors, 90.7% live in houses with floors made of concrete, cement, terrazzo, or tiles. Only 5.6% live in houses with earthen floors.

Developers have to incur transport costs to have these materials delivered to their construction sites. Timber and iron sheets can be sourced from local hardware shops while the rest are sourced from neighbouring sub-counties or counties. Table 7-1 below shows where these materials are sourced from.

Table 7-1: Sources of Selected Building Materials

Material	Source	Remarks
Quarry Stones	Mainly from Juja and Ruiru Sub-counties of Kiambu.	Sourced from 15-20 kilometres away.
Sand	Machakos and Narok Counties.	30-45 kilometres away.
Timber	Within the Sub-County and from rest of Kiambu County.	Available largely within the County although hardwood is imported from Meru, Uganda, and DRC Congo.
Steel	Industrial Area, Nairobi.	Available through local hardware shops.
Galvanised Iron Sheet	Local hardware shops.	Available locally.

Source: Discussions with key informants, 2018

7.7.3 HOUSING TENURE AND TYPOLOGY

Overview of housing in Kiambaa

Due to proximity of Kiambaa Urban Area to the city of Nairobi coupled with good road network, Kiambaa has become a preferred residential area for workers in Nairobi and its environs seeking accommodation at reasonable rents in places such as Ruaka, Gachie, Banana, Karuri and Ndenderu.

To meet this demand there has been a rapid conversion of agricultural land into residential developments. Most developers are not indigenous owners but individual investors or companies.

Housing Tenure

According to the 2019 population census report, 69.1 % of the residents have rented houses while 30.8 % were reported to own homes giving a total tenure of 80,332 as shown in Table 7-2 below.

Table 7-2: Distribution of Houses by Tenure

Tenure Status (Conventional Households)						Total
Owned		Rented/Provided		Not Stated		
Number	%	Number	%	Number	%	
24,745	30.8	55,535	69.1	36	0	80,332

Source: KNBS 2019

The census further revealed that out of 24,745 who were reported to own houses, 86% were reported to have constructed their homes. The latter are mainly the people living in the rural areas of the Sub-County. Out of this, 11.7% were reported to have inherited while only 2.7% had purchased as shown in Table 7-3 below. This shows that the main mode of home ownership is by self-construction.

Table 7-3: Distribution of Owned Households by Mode of Acquisition

Owned	Mode of Acquisition					
	Purchased		Constructed		Inherited	
	Number	%	Number	%	Number	%
24,745	680	2.7	21,287	86	2,778	11.2

Source: KNBS 2019

Distribution of Housing by Providers

As is the norm in Kenya, individuals are the main providers of housing. In Kiambaa, this accounts for 93.4 % with the National and County Government contributing 0.3 and 0.4% respectively, and Faith-Based Organisation (FBO) contributing 0.3% as shown in Table 7-4.

Table 7-4: Distribution of Rented/ Provided Households

Govt.		County Govt.		Parastatal		Private Company		Individual		FBO		Total
No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
187	0.3	225	0.4	120	0.2	2942	11.2	51,889	93.4	172	0.3	55,535

Source: Kenya Housing and Population Census 2019

Until recently when the Government came up with Agenda 4 with affordable housing being one of the pillars, there has been minimal investment in public and social housing which has been due to:

- Low budgetary allocation on housing by both National and County Governments;
- Inadequate public land in Kiambaa which is evident in the Kiambu County housing strategy where Kiambaa was left out⁵ due to lack of public land;
- Poor management of existing public housing due to lack of capacity, pilferage and regular maintenance;
- High-cost housing construction; and
- High demand to meet the medium-income housing demand with little investment in low-cost housing.

The consequences of low government investment in housing are:

- Shortage of affordable low-cost housing especially for low-income earners;
- Poor planning evident in narrow roads and lack of water supply such as in areas such as in Ruaka, Muchatha, Ndenderu, and Gachie, amongst others; and
- Low-quality housing which fails to meet planning standards.

7.7.4 HOUSING STOCK AND PROJECTIONS

Housing is an important aspect of urban planning as it takes a significant portion of the Sub-County's total land area. Currently, there are 80,332 households in Kiambaa Urban Area. Holding all factors constant, the population is set to increase steadily. The population projection for the year 2030 is estimated to be at 416,534. With an average household of 2.9, there will be about 143,633 households.

Table 7-4: Housing Stock and Projections into 2030

Items	2019	2024	2030
Projected Population	236,400	318,899	416,534
No. of Households	80,332	109,965	143,633

Source: Consultant's projection based on 2019 Population and Housing Census Report Vol. II

⁵ Kiambu Housing Strategy

7.8 Key Challenges

The key challenges with regard to human settlements are given in the table below.

Table 7-5: Key Challenges on Human Settlements

Sector	Key Highlights	Opportunities
Urban Form, Structure, and Morphology	<ul style="list-style-type: none"> • Settlement developments tend to occur along corridors; and • Lack of defined urban designs. 	<ul style="list-style-type: none"> • Integrate TOD model to improve planning and development proposals; and • Integrate urban design principles while undertaking projects.
Urban Limit and Edge	The urban limits of the towns are mainly defined by existing roads and natural features like rivers.	Use the existing structuring elements in defining the urban edge.
Urban-Rural Linkage	The urban nodes are physically connected to the hinterlands and peri-urban areas by existing roads and functionally by being service areas where the latter obtain their low and high order goods.	Existing road connections.
Human Settlements	Human settlements are intensive in nodes and along the road corridors.	Availability of land away from the roads which present an opportunity for densification.
Existing Centres and Nodes	The Sub-County has several existing centres/nodes which are evenly distributed.	These centres can be exploited as centres/poles of growth of the whole Sub-County.
Housing	<ul style="list-style-type: none"> • 70% of residents live in rented housing; • The government has contributed to only less than 1%; and • Inadequate public land 	<p>The Government can create a conducive environment where the private sector can invest in the sector and increase the housing stock.</p> <p>Promote public-private partnership (PPP) under Agenda 4's housing provision.</p>

Source: VisionRI

8 PHYSICAL INFRASTRUCTURE

8.1 Overview

This chapter analyses the availability and adequacy of the physical infrastructure in the Sub-County. It covers infrastructure used in road mobility, the transmission of water, and infrastructure used to handle/manage waste and stormwater.

8.2 Transportation

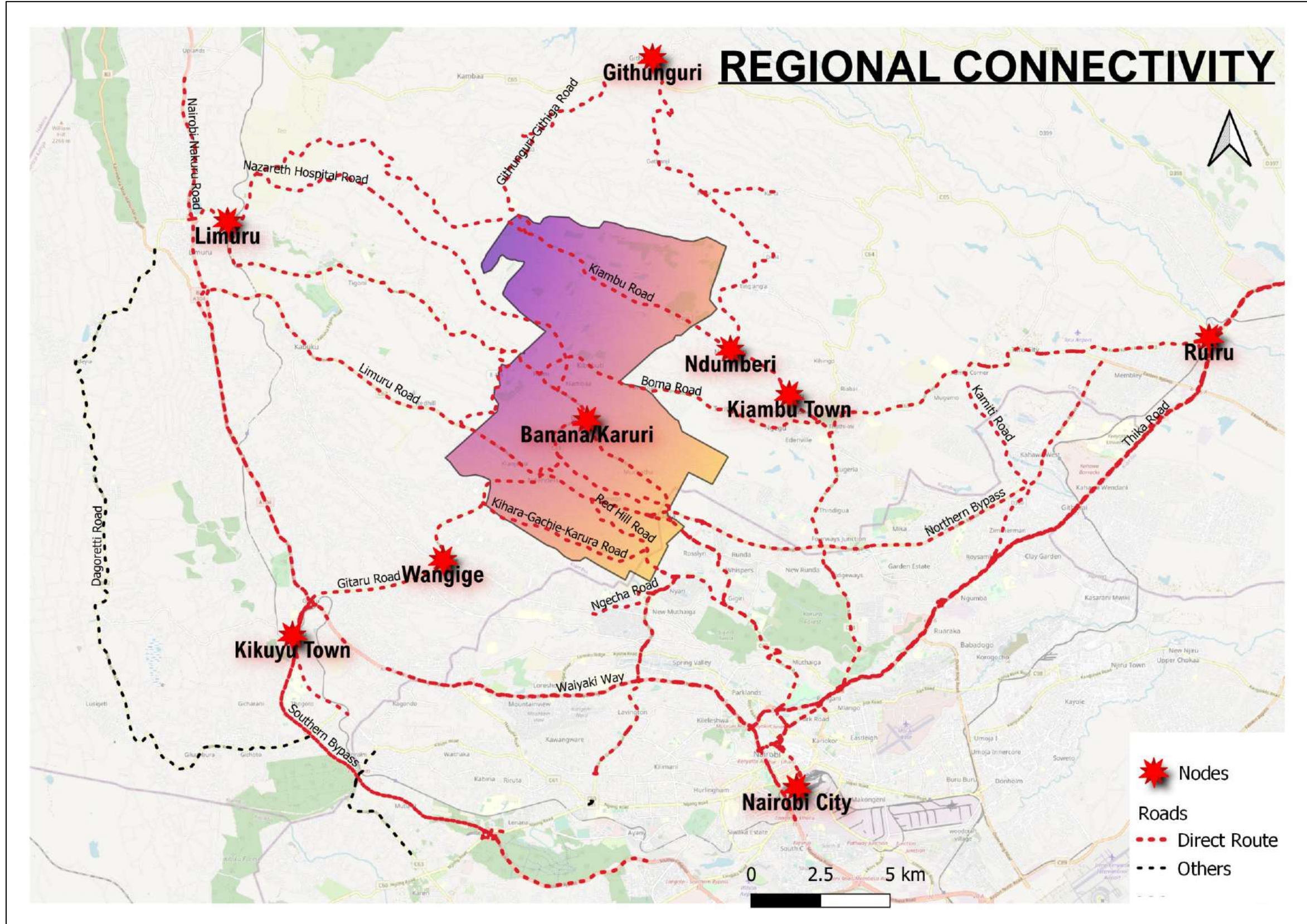
The only mode of transportation as per the field study is via road. However, road transport has taken various forms ranging from walking, cycling and vehicular.

8.2.1 REGIONAL CONNECTIVITY

Kiambaa Urban Area enjoys good network connectivity to other neighbouring towns and counties. The Sub-County is directly linked to Nairobi County, and Kabete, Kikuyu, Limuru, Kiambu, Githunguri Sub-Counties.

At the international level, the Sub-County is well connected to Jomo Kenyatta International Airport (JKIA) via the Northern Bypass Road which connects to the Eastern Bypass Road that is a direct route to the airport. Once complete, the Nairobi Expressway will have a major positive impact since it will link the Sub-County and the airport via Red Hill-Waiyaki Way link road.

The Northern By-Pass Road and Redhill-Waiyaki Way link road links the Sub-County to international roads such as Nairobi-Nakuru Highway (A104) and Thika Super Highway also known as the Great North Road (A2) which are the gateway to other major towns and cities in Kenya and Africa at large. Map 8-1 shows the regional connectivity to neighbouring sub-counties and towns.



Map 8-1: Regional Connectivity in Kiambaa Urban Area

Prepared by: VisionRI & Urban Lines Consultants Ltd.

8.2.2 INTERCONNECTIVITY AND TRIP GENERATION

The Sub-County is a convergence of routes within Kiambu County such as Kiambu, Githunguri, Limuru, Ruaka and Nairobi. These are the main sources of external traffic. Many trips within the town originate from key areas such as Karuri, Muchatha, Ruaka, Gachie, and Ndenderu.

Local roads like Limuru road, Boma road, Kiambu road, and Ruaka-Banana-Raini road allow smooth local circulation within the Sub-County and have accelerated urban growth.

8.2.3 MODAL SPLIT

The pie chart below is representative of the modal split trend in Kiambaa Urban Area. According to the International Development Studies (2016), the modal split for Kiambaa was as follows: walking 37%, matatu 36%, motorcycle 17%, cycle 7%, car 2%, and 1% others (the private car that operates as public transport).

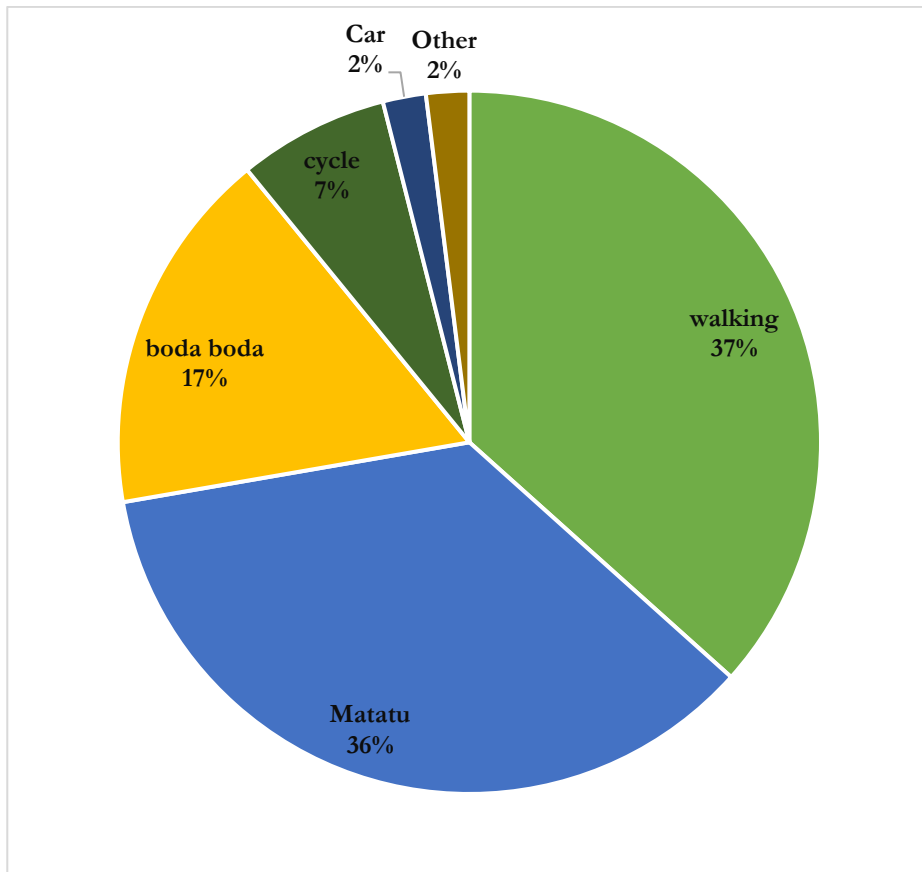


Figure 8-1: Transport Modal Split

Source: Field Survey

Kiambaa Urban Area is well connected to Nairobi city through Limuru road and Banana-Raini road. It is directly linked to the city of Nairobi to the east and Ruiru town at the north by the Northern By-pass Road. It is also linked to Limuru town at the west by two major roads, namely; Limuru Road and Banana-Hill Raini Road. The road is the only mode of transport in Kiambaa Urban Area.

Although road conditions are poor, Kiambaa Urban Area is well connected to neighbouring towns such as Limuru (Limuru road and Raini-Tigoni-Limuru Road), Kikuyu Karuri-Ndenderu road and Ndenderu-Gitaru road), Kiambu road (via Banana Raini road), and Ruiru (via Northern Bypass).

Kiambaa Urban Area is at the crossroads to Kiambu, Limuru, Nairobi, and Kikuyu which makes it one of the highly accessible sub-counties in the NMR. The main roads providing inter-and intra-connectivity in Kiambaa Urban Area are listed in Table 8-1.

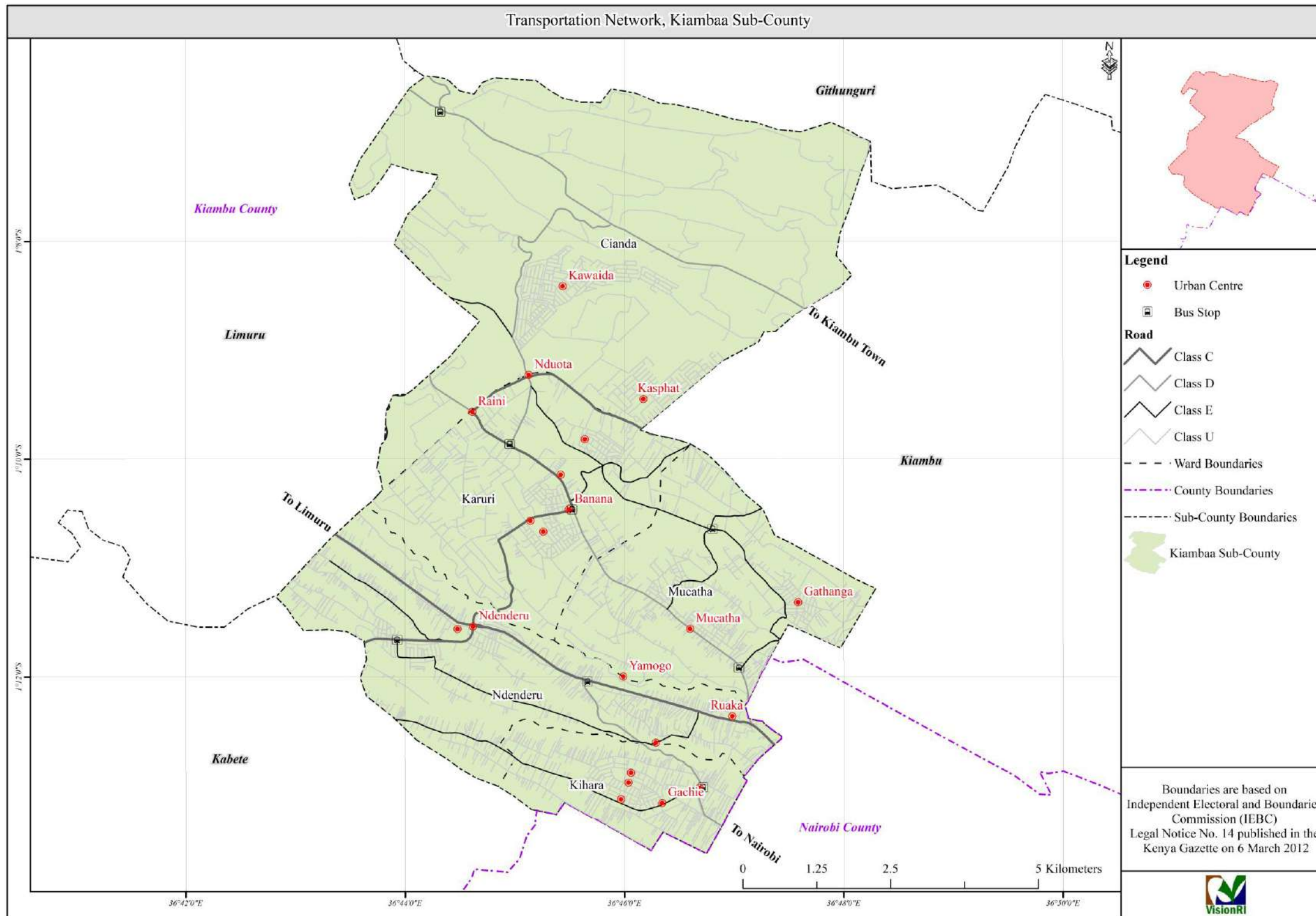
Table 8-1: Main Roads in Kiambaa Urban Area

Road name	Link	Length within the planning area (km)	Surface type	Condition	Average Daily Trip volumes (both directions)	
					NMT	MT
Banana-Raini Road (D407)	Ruaka to Kiambu through Karuri and Raini.	30	Paved	Fair to the poor (presence of many potholes)	5,141	6,122
Kigwaru-Gathanga Road	Kigwaru (along Banana Raini road) to Gathanga shopping Centre.	4	Paved	Good	-	-
Muchatha-Gathanga Road (E1519)	Muchatha to Gathanga shopping Centre and finally connects to Kiambu road.	4	Gravel	Poor	-	-
Mombasa Road	Mombasa bus stop to the Police Station.	2	Gravel	Fair to poor (poorest during rainy seasons)	-	-
Karuri-Kiamba-Kanunga Road	Karuri to Kanunga through Kiambaa.	6	Paved	Very poor (bitumen is completely worn out)	2,838	4,736
Four Road-Gathanga Road	Kiambaa to Gathanga.	3	The road is being upgraded to gravel standards	Ranges from fair to poor	-	-
Kiambaa Shopping Centre Road	Kiambaa to Banana-Raini Road.	5	Gravel	Fair to bad (during rainy seasons)	-	-
Rudi Mashambani/ Nazarene Hospital Road	Raini to Nazarene hospital road.	5	Paved	Good	-	-
Police Station Road	Karuri-Ndenderu	3	Paved	Good	-	-

Road name	Link	Length within the planning area (km)	Surface type	Condition	Average Daily Trip volumes (both directions)	
					NMT	MT
	road to the Police Station.					
Karuri-Ndenderu Road	Karuri to Ndenderu.	10	Paved	Good	7355	11,035
Muthurwa-Njoro Road	Muthurwa to Njiku.	4	Paved	Poor-bitumen is completely worn out.	-	-
Njoro-Muchatha Road	Njoro to Muchatha then Ruaka.	6	Gravel	Fair	-	-
Ndenderu-Gitaru Road (C63)	Ndenderu to Gitaru through Wangige.	10	Paved	Fair	-	-
Karura-Wangunyu Road	Karura-Wangunyu-Gachie.	15	Gravel	Poor	-	-
Karura Kanyugu-Kihara Road (E425)	Karura Kanyungu-Kihara-Gachie.	25	Paved	Fair	-	-
Kihara Hospital Road	E425-Kihara Hospital-E425(loop)	2.5	Paved	Fair (has potholes)	-	-
Gachie-Gacharage Road	Gachie to Limuru road (at Gacharage).	7	Paved	Fair	-	-
Redhill Road	Gigiri to Gachie.	5	Paved	Fair (has potholes)	-	-
Ruaka River Road (E1517)	Gacharage road to Limuru road.	3	Gravel	Fair to poor (especially during the rainy season)	-	-
Limuru Road	Nairobi-Ruaka-Ndenderu-A104.	15	Paved	Fair (has potholes in some areas)	5,060	9,933
Northern Bypass	Ruaka to Eastern Bypass.	5	Paved	Good	-	-

Source: Kiambu County Road Department

Note: NMT = Non-Motorised Transport; MT = Motorised Transport.



Map 8-2: Map Showing Transport Network in Kiambaa Urban Area

Prepared by: VisionRI & Urban Lines Consultants Ltd.

8.2.4 MEANS OF TRANSPORT

The preferred means of transport is mainly determined by the distance to be travelled, cost, availability of means and load, etc. The major means of transport in the Sub-County are outlined below:

- i. **Non-Motorised Transport:** As indicated above, 42% of trips in Kiambaa Urban Area are made by walking and cycling. However, with the high percentage of people using NMT, the Sub-County lacks facilities for them. During the field survey and according to data obtained from the County Government, the only notable road with this provision is a section along Banana-Post Office Road covering an approximate distance of only 850m as shown in Figure 8-4 below. The lack of NMT facilities has resulted to pedestrians walking on the carriageway conflicting with moving vehicles.

Additionally, there are few safe pedestrian crossings in Kiambaa Urban Area exposing pedestrians to high risks of accidents to especially school-going children. Also, the roads lack cycle tracks which put cyclists in the area to risk when cycling on the roads. During the field survey, it was observed that there were no designated cycle parking areas in urban centres.



Figure 8-2: Pedestrian Walking on Footpath in Kiambaa(Karuri) Town (Left Above). Pedestrians Crossing the Road Without Designated Pedestrian Crossings (Right Above). Cyclist Using the Carriageway Due to Lack of Dedicated Cycle Tracks in Karuri Town (Left Below). Heavy Encroachment of Footpaths By Vendors (right below).

Source: Field Survey

ii. Motorised Transport

- **Public Transport:** After walking, public transport is the second most commonly used mode in Kiambaa Urban Area. Public transport is largely provided by privately-owned minibuses and matatus. Within Kiambaa Urban Area, the National Transport Safety Authority (NTSA) has registered nine Matatu Savings and Credit Cooperative Organisations (SACCOs) with approximately 920 vehicles, with the majority being 14-seaters. The matatus ply routes within Kiambu County to towns like Limuru, Ruiru, Ruaka, and Kiambu as well as the neighbouring county of Nairobi.

Kiambaa Urban Area has one main bus park located in Karuri town with a capacity of 25 matatus. The bus park becomes congested especially in peak hours and lacks adequate facilities such as public toilets, customer information, and waste bins. Other urban centres within Kiambaa Urban Area such as Gachie and Ruaka lack dedicate bus parks and hence matatus are forced to operate on the roadside causing obstructions to traffic flow.

The matatus are demand-driven which can be seen in their competition for customers. At the bus park, matatus only depart when all seats are occupied. This causes inconveniences to the majority of passengers using public transport. On the hand, fares are not regulated and often increase during peak hours.

Figure 8-3: Karuri Town Bus Park



Source: Field Survey

- **Motorcycle transport commonly known as boda-bodas** provide door-to-door services without intermediate stops. This mode of transport has become popular due to last-mile connectivity and ability to transport passengers and goods even where the motor vehicle cannot go due to poor road conditions. They serve short trips within town centres and improve last-mile connectivity to public transport and paratransit. According to the County Government of Kiambu, approximately 500 boda-bodas are operating in Kiambaa Urban Area. The number could increase due to the high demand of passengers as well as a high unemployment rate in the country with many youths being involved in boda transport. Motorcycle boda-bodas operate from ‘stands’ which are strategically located within the urban centres, residential areas and trading centres. They also provide passengers services along main and minor roads which are dotted with boda-boda shades and picking points. The stands/shades are manned by informal stage managers. The operators typically pay a stage fee ranging from Kshs. 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.

Boda-bodas are organised in SACCOs but unlike matatus, they are not regulated by NTSA. The prices are not fixed and are dependent on the distance covered and operator.

This sub-sector is slowly adapting technology and there are now Uber boda-bodas, Safe Boda and Bolt which have become popular due to safety and adherence to traffic regulations.

Figure 8-4: Boda-Boda Shed in Karuri Town



Source: Field Survey

- **Taxis:** Taxis provide door-to-door services without intermediate stops. They serve short trips within town centres and improve last-mile connectivity to public transport. The taxi operators have adopted modern technology of taxi services such as Uber, Little Cab and Taxify. They are mainly registered and regulated in SACCOs under the County Government.

Some of the planning challenges facing the transport sector in Kiambaa include the following:

- Inadequate bus/matatus parks in the urban areas contributing to vehicle picking and dropping passengers in undesignated areas. This will require the provision of space and construction of bus/matatu parks; and
- Boda-bodas are unregulated and they rarely observe traffic rules, enhancing causing traffic conflicts in urban areas and also on the main roads. This also resulted in many roads accidents associated with poor driving habits.

8.2.5 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 ownership.⁶ Considering that Kiambu County is a dormitory for Nairobi city, it may be assumed that the trend in Kiambu is similar to Nairobi County. Using the modal split of as representative of the typical trends in towns across Kiambu County together with population and car growth forecasts, a simple modal share projection as per the modal split may be developed as indicated below.

Table 8-2: Transport Mode Shares Under Three Scenarios

Mode	2016	2030: Status Quo	2030: Sustainable
Walk	37%	30%	40%
Cycle	7%	6%	10%
Public transport (matatus + city bus + BRT)	36%	33%	40%
Motorcycle	17%	23%	5%
Private car	2%	7%	3%
Other/probox taxi	1%	<1%	2%
Total	100%	100%	100%

Source: VisionRI

⁶ JICA 2014, Integrated urban development masterplan for Nairobi City County
<https://www.jica.go.jp/english/news/field/2015/c8h0vm0000966zqy-att/c8h0vm0000966zvu.pdf>

Under the sustainable mode scenario, it is assumed that the proposed bus rapid transit (BRT) in Nairobi, as well as investments 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.

8.2.6 PARKING

Parking in Kiambaa Urban Area is largely unregulated. Most streets in its various towns lack any physical definition of spaces for different street uses, such as pedestrian movement, vending and parking. Since parking rules are not defined, enforcement is arbitrary, and many vehicles elude parking fees. Parking management has centred on raising revenues for the local authority while keeping fees low in an attempt to make the town centre attractive for visitors. Less attention has been paid to the potential role of parking in managing travel demand.

Currently, the County Government charges Kshs30 and 50 per day for on-street parking in Karuri and Ruaka, respectively. These charges are far too low to have a sizable impact on commuter behaviour. Consequently, the town centres experience localised shortages with some of the most visible parking facilities being full despite the overall availability of parking space.



Figure 8-5: Cars Parked on Footpaths Obstructing Pedestrian Movement

Source: Field Survey

Some of the parking challenges in the planning area are:

- a) **Unregulated and Haphazard Parking:** Most streets lack the physical definition of spaces for different street uses, such as pedestrian movement, vending and parking. Since parking rules are

not defined, enforcement is arbitrary resulting in haphazard parking and frequent encroachment of pedestrian spaces leading to congestion.

- b) **Poor Parking Management:** Parking management is centred on raising revenue while keeping fees low in an attempt to make the town centre attractive to visitors. Survey shows a concentration of parking demand in the urban areas leading to congestion and illegal parking.

The major impacts of parking on pedestrian space stem from illegal or informal parking. However, lack of enforcement often exacerbates the problem. Parking attendants are charged with ensuring drivers follow parking regulations on public streets and parked vehicles have paid the necessary parking fees. However, most focus on collecting parking fees and fail to clamp down on bad parking behaviour.

- c) **Lacking Customer Information:** Another challenge is a lack of customer information on available parking. A driver can keep going around the town in search of available parking spaces. At peak periods especially in the evening, incidences of double parking are very common. This further reduces the carriageway which causes congestion and pedestrian-vehicle conflicts. There is no designated public off-street parking.

- d) **Lack of Observance of Planning Guidelines:** Other challenges include developers not observing building lines and encroaching into road reserves. They have also failed to provide parking spaces with most buildings relying on on-street parking which is not adequate.

To address these challenges, there is a need for effective parking management which 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 leverage to manage the use of personal motor vehicles and ensure that personal motor vehicle users compensate the town for the use of valuable land on which they park their vehicles.

8.3 Water Supply and Distribution

8.3.1 WATER SOURCES

The residents of Kiambaa rely on different sources of water. According to the 2019 Household Population Census Report, water is being provided by the Karuri Water and Sanitation Company (KAWSCO) and Nairobi Water and Sewerage Company (NWSC) accounting for 49.2% which include piped water into a dwelling and at the plot level. The other main sources water at the household level was reported to be underground water (41% of households) which include boreholes, shallow well and springs. Other sources include dams, rainwater, and bottled water.

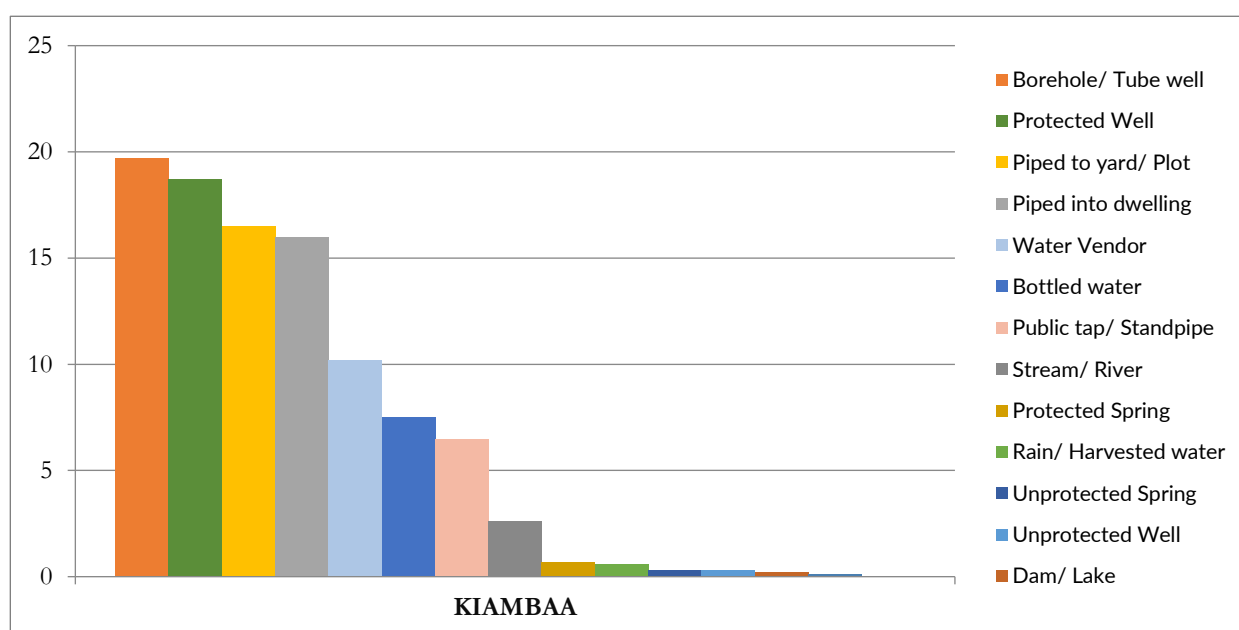


Figure 8-6: Sources of Water

Source: 2019 Population Census

However, Kiambaa is far from achieving universal coverage in terms of piped water supply with an average of 49.8%. The below shows the KAWSCO's coverage in the five wards.

Table 8-3: Water Supply Coverage in Kiambaa Urban Area

Wards	Water coverage
Kihara	58%
Karuri	64%
Ndenderu	58%
Muchatha	37%
Cianda	32%
Average Coverage	49.8%

Source: Karuri Water and Sanitation Company 2020

KAWSCO currently sources its water from 14 boreholes scattered across Kiambaa Urban Area as well as from Ite Dam.

Table 8-4: Water Sources in Kiambaa Urban Area

Wards	No. of water sources	Description of water sources
Karuri	6	<ul style="list-style-type: none"> • Mombasa borehole with a yield of 18 m³/hr.; • Karuri borehole (20m³/hr.); • Raini (42m³/hr.); • Nairobi water; and • Ite dam (25m³/hr.).
Cianda	3	<ul style="list-style-type: none"> • Broomhill (8m³/hr.); • Milimani (4m³/hr.); and • Kawaida pry borehole (12m³/hr.).
Muchatha	4	<ul style="list-style-type: none"> • Gathanga (10m³/hr.); • Cannon (8m³/hr.); • Gait Huma (8m³/hr.); and • Nairobi water offtakes at Waguthu and Muchatha.
Ndenderu	5	<ul style="list-style-type: none"> • Gacharage (15m³/hr.); • Kianjogu (4m³/hr.); • Ndenderu dispensary (25m³/hr.); • Wagunyu (4m³/hr.); and • Nairobi water off take at Ruaka.
Kihara	1	<ul style="list-style-type: none"> • Nairobi Water Offtake at Gachie.

Source: KAWSCO

8.3.2 DEMAND AND VOLUMES PRODUCED

Currently, KAWSCO has 10,139 connections with only 6,960 connections of them being active. This means that 3,179 connections (31%) do not get water regularly or the taps are permanently dry.

The combined production from NWSC and KAWSCO is 3,100m³/day, with NWSC contributing 1,400m³/day and KAWSCO boreholes 1,700m³/day. This is against a demand of 18,000 m³/day. This means there is a deficit of 14,900m³/day (82.8%) resulting in water rationing. Figure 8-7 below shows a graphic analysis of piped water connection where only 40.8 % has a household level water connection.

8.3.3 PROJECTED DEMAND

The projected demand by the year 2030 is 32,000 m³/day. The water demand is calculated based on the total population projection of 416,534 people by 2030, schools and other institution demands. However, it does not include water for irrigation.

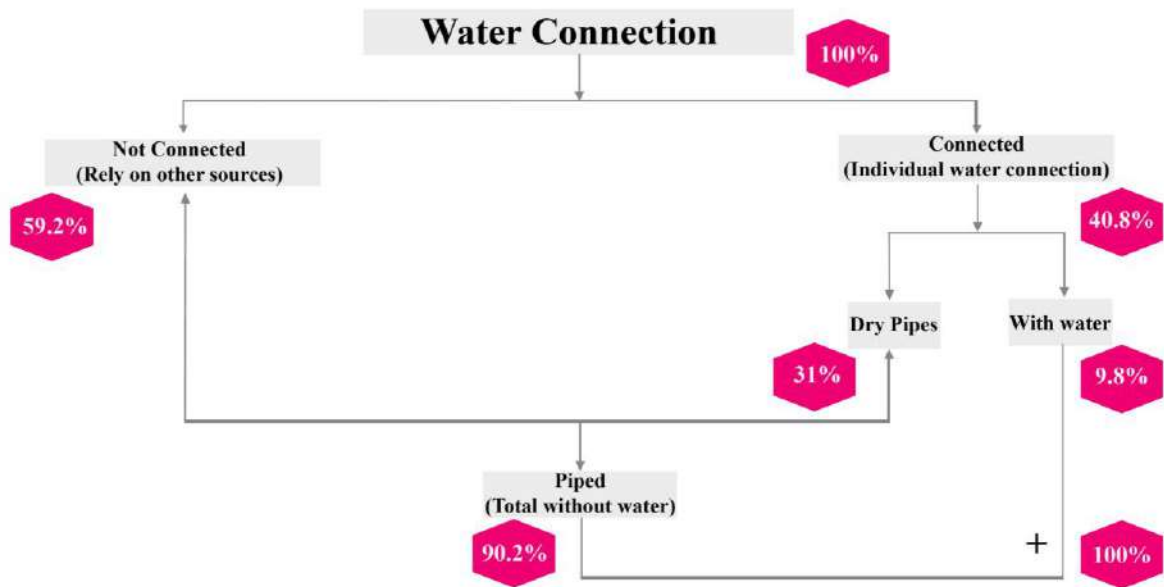


Figure 8-7: Water Sources

Source: VisionRI

8.4 Waste Management

8.4.1 SOLID WASTE MANAGEMENT

Solid waste management includes all the necessary operations to remove solid wastes from the source of generation to the disposal site and activities at the dumpsite to ensure environmental safety. Basically, it covers the management of generation, storage, collection, transport, and disposal of waste. The main sources of solid waste in Kiambaa Urban Area include:

- a) **Household waste:** This consists of wastes that are generated by households 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 is shops, retail stores, banks, service stations, entertainment centres, offices, restaurants, and hotels. The waste comprises of packaging materials, office supplies, food waste, glass, plastics, metal, rubber, used oil, and e-waste, amongst others.
- c) **Municipal waste:** This category includes waste from public open spaces such as ash, dirt and leaves and mainly are collected from street sweeping. Street waste may also comprise both 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, plastics and when the institutions involve residents. Most of the wastes are similar to those of households. The waste from hospital constitutes of infectious and hazardous materials and is managed by incineration within the medical facility.
- e) **Industrial waste:** They come from processing and non-processing industries. Industrial waste constitutes of by-products of manufacturing wastes, construction, and demolition wastes. The composition of industrial wastes is site-specific and depends on the raw resources and products which provide the base for a given industrial activity.
- f) **Agricultural waste:** This is waste from animals and crop remains. This waste is mostly generated in the farms during harvesting, at retail outlets, open markets, and household level.

The Kiambaa Urban Area administration, typical to other sub-counties, is struggling to manage their waste. According to data from the Kiambu County Environment Department, the daily waste generated at Kiambaa Urban Area is 125,292 kgs.

Currently, the Department of Environment only manages to collect 6.9% of the total waste generated in the area. This is due to minimal waste management infrastructure against an increasing population. The Sub-County has only one skip loader and one dump truck against the recommended four and three, respectively. This explains why a majority of households (41.9%) still use informal methods of waste disposal like burning which eventually results in air pollution. The figure below shows the methods of waste collection/disposal with the private collection being the most common method accounting for 29.5%, followed by the burning of waste in the open accounting for 26.4%.

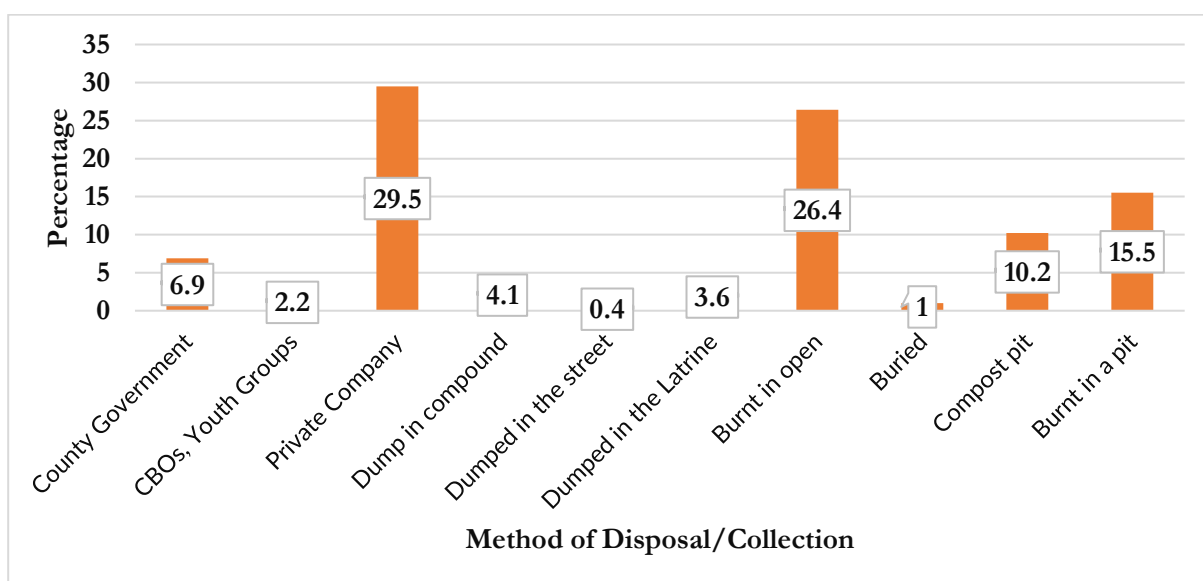


Figure 8-8: Waste Collection

Source: 2019 Kenya Population and Housing Census

To complement the efforts of the Sub-County administration, there are seven private companies that have been licensed by the County Government to assist in waste collection. So far, these companies are only able to collect waste from 29.5% of total households in Kiambaa Urban Area. There is still a need to encourage more players in this sector as it plays a key role in the economy particularly in providing employment opportunities, and in promoting public health.

Table 8-5: Licenced Private Waste Collection Companies

Company/Youth Group	
i.	Clean Bins Collection
ii.	Ruaka Sanitary
iii.	Zoa Collectors
iv.	Shins with Sky Blue
v.	Taka Taka solutions
vi.	Sir Neat Solutions
vii.	Ruaka Sanitary Work LTD
viii.	Quartz Agencies

Source: Department of Environment, 2020

To effectively manage waste within the Sub-County and County at large, the County Government is finalising plans to construct a modern landfill within the Makongeni area in Thika town that will serve the entire County. Waste segregation, recycling and reuse are part of the programme to reduce the volume of collection and/or maximise the life span of the proposed landfill. The Kiambu County Government and NEMA will also provide environmental education to the people on the importance of solid waste segregation, recycling and reuse and health impacts.

These efforts will eventually help household members in the highly populated locations of Kiambaa Urban Area which generate a considerable amount of solid wastes.

The County Government's Department of Water, Environment, Energy and Natural Resources conducted a baseline survey that revealed that some factories had not been paying waste tipping charges and consequently, the County had been losing a substantial amount of revenue. To address this, the Department initiated a regulatory mechanism whereby, before the issuance of a single business permit, industries and factories must provide:

- A copy of a valid license to transport waste for the current year, issued by the County Government;
- A copy of the logbook of the licensed waste transporting vehicle; and

- Invoices/receipts issued by the licensed waste transporter, as tracing documents on waste.

Other efforts towards proper waste management in the Sub-County are through the assistance of Kenya Urban Support Programme (KUSP) which plans to construct one waste transfer station and acquire 20 skips, two skip loaders, and one backhoe.



Figure 8-9: Waste Disposed on One of the Illegal Dumpsites

Source: Field Survey, 2018

In addition, the Sub-County needs to come up with interventions to address challenges in solid waste management through the following measures:

- Encourage proper waste management techniques;
- Increase the waste collection services to cover the entire Sub-County; and
- Provide waste receptacles and transfer stations in strategic locations.

8.4.2 LIQUID WASTE MANAGEMENT

As per the 2019 census, only 2.6% of households are connected to the sewer while a majority of 58.6% use pit latrines.

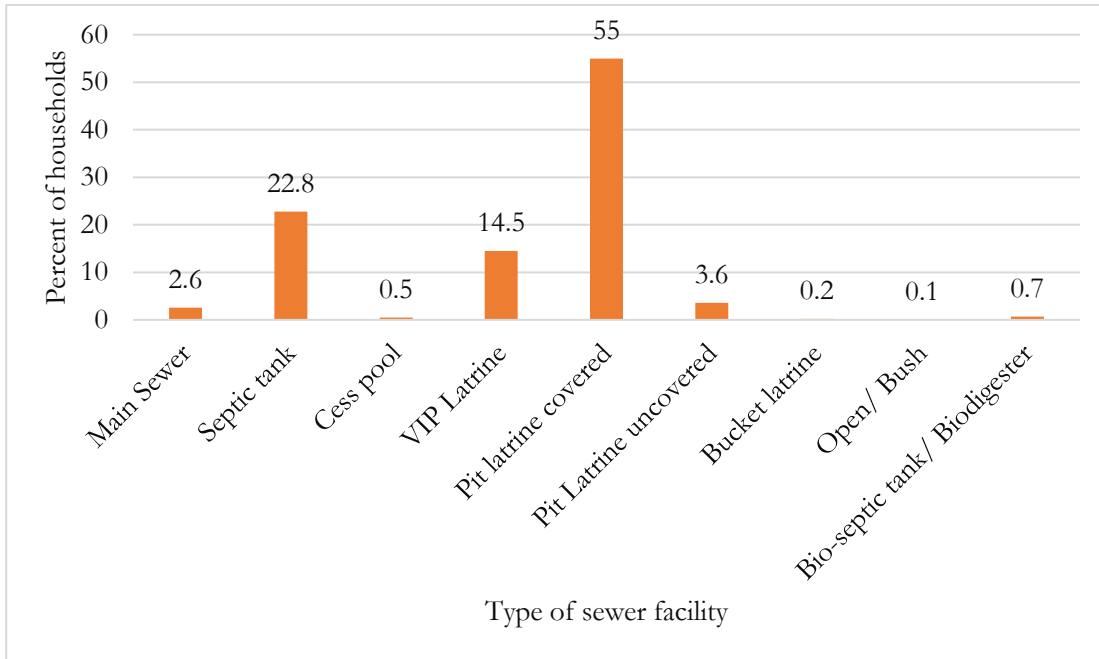


Figure 8-10: Type of Sewer Facility

Source: KNBS

Some of the challenges associated with poor liquid waste management include:

- Possible contamination of groundwater which may affect the shallow wells and springs which provide sources of water to some households;
- Surface run-off contaminating rivers and water bodies which support flora and fauna;
- Poor disposal of greywater provides suitable grounds for mosquito breeding and other vermin; and
- Soil, water, and air pollution which leads to unhealthy environment contributing to air and water-borne diseases.

Sewer Reticulation

The Athi Water Works Development Agencies (AWWDA) in collaboration with Kiambu Water Company is in the process of installing sewer lines to serve parts of Ndenderu, Ruaka town and Muchatha. This will be complemented by the ongoing construction of Kiambu-Ruaka Sewer & Water Project set to be complete in 2022. The project details include:

- Construction of approximately 21.388 km of trunk sewer diameter 450 mm along Ruaka river from Ndenderu to Thika road Nairobi Water Company sewer;
- The utility company has constructed sewer extensions of approximately 18.8 km of lateral sewers diameter 300 mm, i.e., 15.4 km in Ruaka and Muchatha, and 3.4 km in Kanda Komu; and

- Current connections at plot level are approximately 1,000 connections.

During the survey some of the challenges mentioned that face sewer connection:

- High cost of truck sewer construction and as a result the county relies on Athi Water Services Board to provide this facility; and
- High cost of plot-level connection and increase in water tariffs discourages houses to connect. This calls for the need to review tariffs and modality of payment.

As per WHO, it is estimated that one person produces between 0.6 to 1.1 litres per day, hence by 2030, Kiambaa will be generating between 249,920.4 - 458,187.4 litres per day. This calls for more efforts to intensify sewer connections and safe grey water disposal to address some of the above challenges. This will support development densification in Kiambaa as proposed in most of the residential areas in this Plan.

8.5 Storm Water Management

In urban areas, stormwater management is a challenge due to developments happening in unserved areas hence increasing surface run-off after rains.

In the planning area, stormwater drainage is only found in the urban areas of Karuri, Ruaka, Muchatha, Gachie and Ndenderu. The systems are, however, inadequate as evidenced by ponding along roadsides and on-road pavements, amongst others. Most of the other areas lack drainage systems.

Figure 8-11: A Stormwater Drain in Gachie Urban Centre



Source: Field Survey

The main challenges facing drainage systems include lack of maintenance, dumping of solid waste in the drainage channels causing the blockage, and lack of planned wayleaves during subdivisions. The latter results in situations where stormwater cannot be re-channelled and are notable in Gachie at the junction of Redhill and Gachie-Kihara Road.

8.6 Energy Infrastructure

Sources of Energy

According to KNBS' Census Report 2019, the main source of cooking energy is gas (liquified petroleum gas) in 62.8% of the 80,316 households in the area. The main source of lighting is electricity.

Other sources of cooking energy used in the area include paraffin, charcoal, and firewood. The uptake of renewable sources of energy like biogas and solar is still low as can be seen from the figure below.

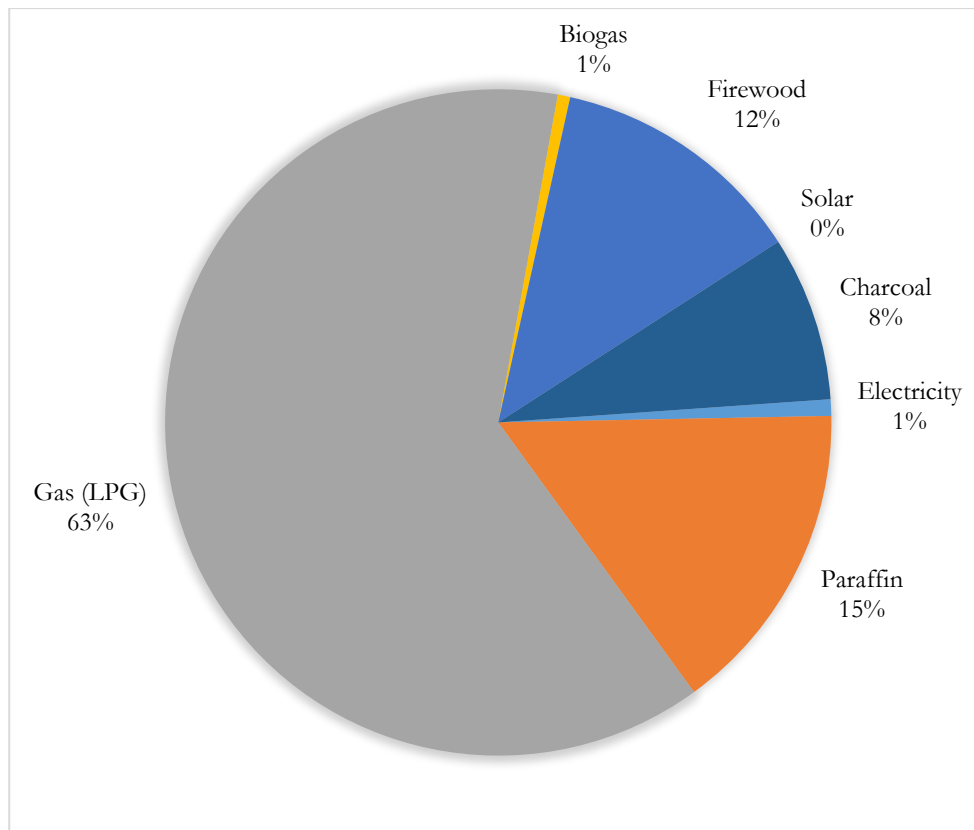


Figure 8-12: Percentage Distribution of Conventional Households by Main Type of Cooking Fuel

Source: 2019 Kenya Population and Housing Census

For lighting, other sources of energy include paraffin lamps and candles. Likewise, the uptake of renewable sources like solar and biogas is still low as seen in the figure below.

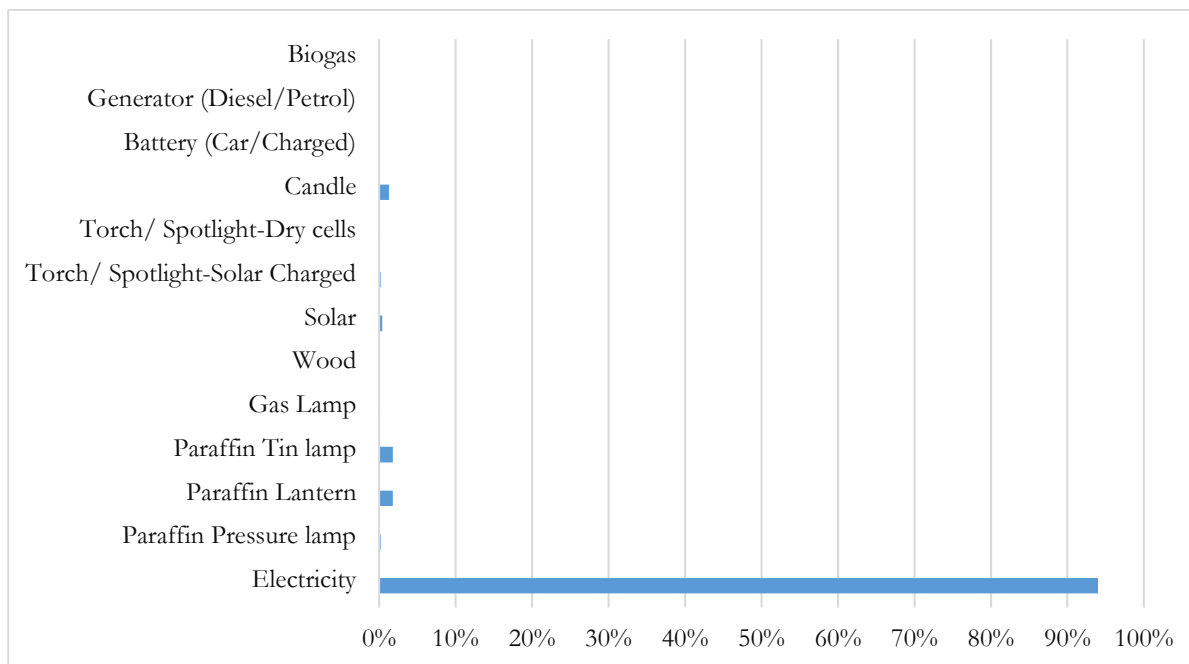


Figure 8-13: Percentage Distribution of Conventional Households by Main Type of Lighting Fuel

Source: 2019 Kenya Population and Housing Census

Electricity, Reticulation and Street Lighting

The Sub-County enjoys connection to the national electric grid and most households have electricity. 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 Kiambaa is 65% and this number is expected to rise to 100 per cent by the year 2022 through the national government last mile programme. This programme also includes connecting schools and public facilities and institutions.

There are three power sub-stations located along the C63 (Limuru Road) Road at Ndenderu, Gachie and Banana. Due to the anticipated increase in power demand, there will be needed to upgrade and/or add more sub-stations in areas like Ruaka, Kawaida and Kasphat. Programmes being carried out by the Directorate of Public Works and Utility Services involves the installation of flood masts in markets and areas with population mobility and street lighting to improve safety.

8.7 Information and Communications Technology (ICT)

Information and Communications Technology (ICT) is the way information is disseminated and accessed through the internet, information-education-communication (IEC) materials, and use of mobile phones, computers, and business process outsourcing. It is an important sector in the development of the Sub-County. At present, most cyber cafés are based in towns and urban centres like Karuri

, Ruaka, Ndenderu and Gachie where demand is high. There is a need to spread them out, hence enhance ICT coverage. The Sub-County also has existing ICT training institutes.

The main mobile networks in the area are Safaricom, Airtel, and Telkom. The signal reception for all the networks is excellent in the entire planning area. Internet is widely used as evidenced by the presence of several cyber cafes, several computer colleges, and wi-fi in public service vehicles. There is an on-going installation of optic fibre cable in the Sub-County.

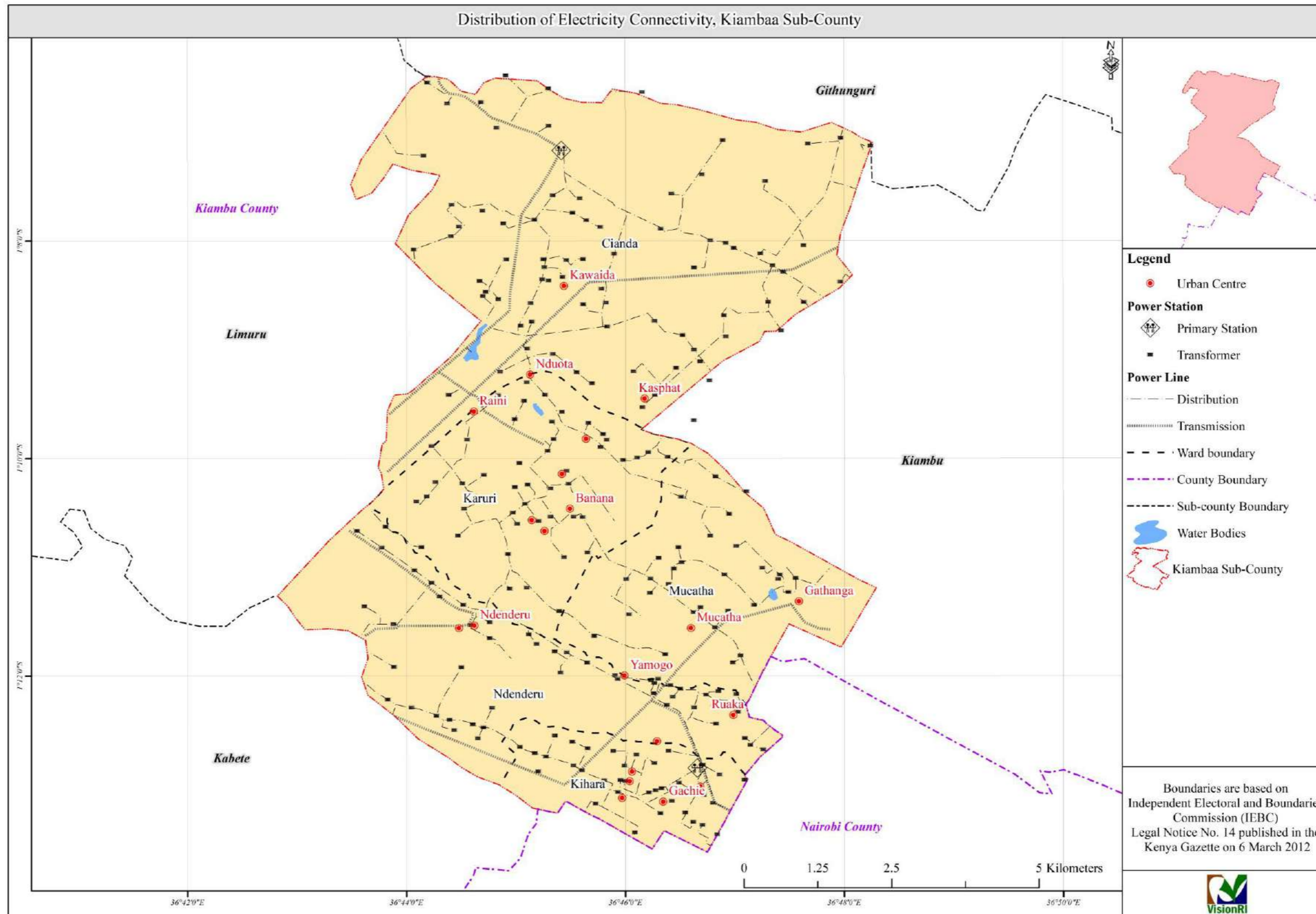
8.8 Key Planning Issues

The key planning issues on physical infrastructure are given in the table below.

Table 8-6: Key planning issues on physical infrastructure

Sector	Key Highlights	Opportunities
Transport	<ul style="list-style-type: none"> The Sub-County is well endowed with good road connectivity; and Pedestrian-friendly walkways and infrastructure are lacking on many roads. 	<ul style="list-style-type: none"> Ease of movement of people and goods; and Investment opportunities.
Water	<ul style="list-style-type: none"> Half of the population do not have household connections; Use of shallow wells which might lead to water contamination due to congestion and close proximity to pit latrines; and Need to double water production by 2030 to meet the demand. 	<ul style="list-style-type: none"> The Sub-County is endowed with water resources-rivers and groundwater; Awareness of safe water use; Existence of a water company; and Expand infrastructure for potable water supply.
Waste Management	<ul style="list-style-type: none"> Low coverage of solid waste collection (35% of households); Low awareness of safe waste disposal methods; Inadequate waste collection equipment; and Lack of waste transfer stations. 	<ul style="list-style-type: none"> An existing pool of private waste collectors to assist in waste collection.
Storm Water Management	<ul style="list-style-type: none"> Inadequate stormwater drainage infrastructure; Poor maintenance; and Lack of wayleaves in some areas. 	<ul style="list-style-type: none"> The gently sloping topography is easy to drain once the necessary infrastructure is in place; Regular removal of solid waste from the drains; and Enforcement of wayleaves during subdivision.
Energy	<p>The area enjoys connection to the national grid; and Need to upgrade sub-stations due to the anticipated and enhanced development.</p>	<ul style="list-style-type: none"> Opportunity for businesses to grow and capitalise on the availability of energy supply; and KPL to carry out a detailed study for power demand.
ICT	<p>Presence of major ICT providers.</p>	<ul style="list-style-type: none"> Easy way of communication; E-business opportunities; and Internet-based innovations.

Source: VisionRI



Map 8-3: Distribution of Electricity Connectivity

Source: Kenya Power Company

9 SOCIAL INFRASTRUCTURE

9.1 Overview

This chapter discusses the social infrastructure in the Sub-County. These include education, health, and other social facilities and amenities.

9.2 Education Facilities

Access to affordable, accessible, and high-quality education can play a significant role in the development of children and positively influence school-readiness, future educational attainment, economic participation, and health. Universal, high-quality education and care not only benefit the whole population but can also particularly benefit children from the most disadvantaged backgrounds. Kiambu County has a teacher-pupil/student ratio of 1:40 for early childhood development (ECD) centres, 1:38 for primary schools, and 1:25 for secondary schools. Kiambaa Urban Area has a well-distributed network of ECDs, as well as primary and secondary schools. In addition, the Sub-County has two Vocational Education Training Centres, and three adult education centres. From the 2019 census, 47% of Kiambu County's population has attained a secondary school level of education and above. Only 4.4% lack formal education (KNBS 2019). The County is renowned for education performance in national examinations.

9.2.1 EARLY CHILDHOOD DEVELOPMENT EDUCATION (ECDE) FACILITIES

ECDE centres are for 2-6-year-olds. There are 109 ECDE centres in Kiambaa Urban Area of which 26 are public and 83 are private. This is a clear indication of significant private sector investment in the education sector.

As per the Physical Planning Handbook (2007), one ECD facility should serve a catchment population of 2,500. The child should also not walk more than 500 metres to access such a facility. Currently, Kiambaa Urban Area has a population of 236,400. For this population alone, there should be 94 ECDE facilities. As it is, this does not indicate a deficit. However, in terms of location, there are areas which are underserved especially in Cianda Ward, albeit the area is largely on large-scale farming. The map below shows these areas and the distribution of these facilities. By the end of the planning period in 2030, the area is projected to have a population of 416,534. To serve this population, a total of 167 ECDE centres will be required. This means that 58 additional ECDE centres should be provided during the planning period.

9.2.2 PRIMARY SCHOOL FACILITIES

In 2019, there were 24 public primary schools in the Sub-County with a total enrolment of 16,065 pupils. On the other hand, there were 51 private primary schools. A primary school should serve a catchment population of 4,000 and within a 2-kilometre radius. As per the 2019 population statistics, the Sub-County would have required 59 schools but as seen above, there was a total of 75 surpassing the requirement.

However, private schools are normally market-driven and may not be financially accessible to poor households. Secondly, some of the schools draw their pupils outside Kiambaa Urban Area hence not serving the local population.

By the end of the planning period in 2030, the Sub-County is projected to have a population of 416,534. To serve this population, a total of 104 primary schools will be required. This indicates that 29 primary schools should be provided during the planning period.

Private schools may increase in number and continue to service a specific market.

9.2.3 SECONDARY SCHOOLS

There are 19 secondary schools in the planning area which include Kiambaa, Senior Chief Koinange, Kanunga, Muthurwa, Thimbigwa, Karuri, Gacharage, Kihara, Wangunyo, Ndenderu, St. Joseph Gathanja, Mwongoiya, Karura, Gachie, Cianda and Kibathi.

At the 2019 population level of 234,600, the planning area required 29 secondary schools (at a ratio of 1:8,000). It is projected that at the end of the planning period, the population of the Sub-County will reach 416,534. The number of secondary schools required will, therefore, be 52 leading to a deficit of 36.

9.2.4 VOCATIONAL CENTRES

The Sub-County has two vocational centres, namely; Ndenderu and Sacred Heart Domestic Science Training Centre.

9.2.5 ADULT EDUCATION CENTRES

There are three full-time adult education centres in the Sub-County. These have an enrolment of 26 male and 44 female learners. This number is low in reference to the 2019 census that indicated that 4.4% (9,649) of the total population above the school-going age of three years have never been to a learning institution. As enrolment per centre is low, the provision of literacy classes in all public primary schools by the end of the planning period should bring the service closer to learners. By the end of the planning period, the required number of centres should increase to 71.

9.2.6 SUMMARY OF PROJECTIONS AND NEEDS

The Physical Planning Handbook (2007) outlines the required education standards for the country. These standards are critical in the projection of needed educational facilities. The Handbook provides for one nursery school for a population of 2,500 and should cover an area of 0.25 ha., one primary school for a population of 4,000 covering an area of 3.25 ha., and one secondary school for a population of 8,000 covering an area of 6.9 ha. Based on the standards provided, the projected number of required public educational facilities are given in Table 9-1.

Table 9-1: Public Educational Facilities Projections

Educational Facility	Year	2019		2030
Nursery School	Population	236,400		416,534
	Number of facilities	Available	109	-
		Required	94	167
		Deficit	0	58
Primary Schools	Population	236,400		416,534
	Number of facilities	Available	75	-
		Required	59	104
		Deficit	0	29
Secondary Schools	Population	236,400		416,534
	Number of facilities	Available	16	
		Required		
		Deficit		
Adult educational centres	Population	236,400		416,534
	Number of facilities	Available	3	
		Required		
		Deficit		

Source: VisionRI

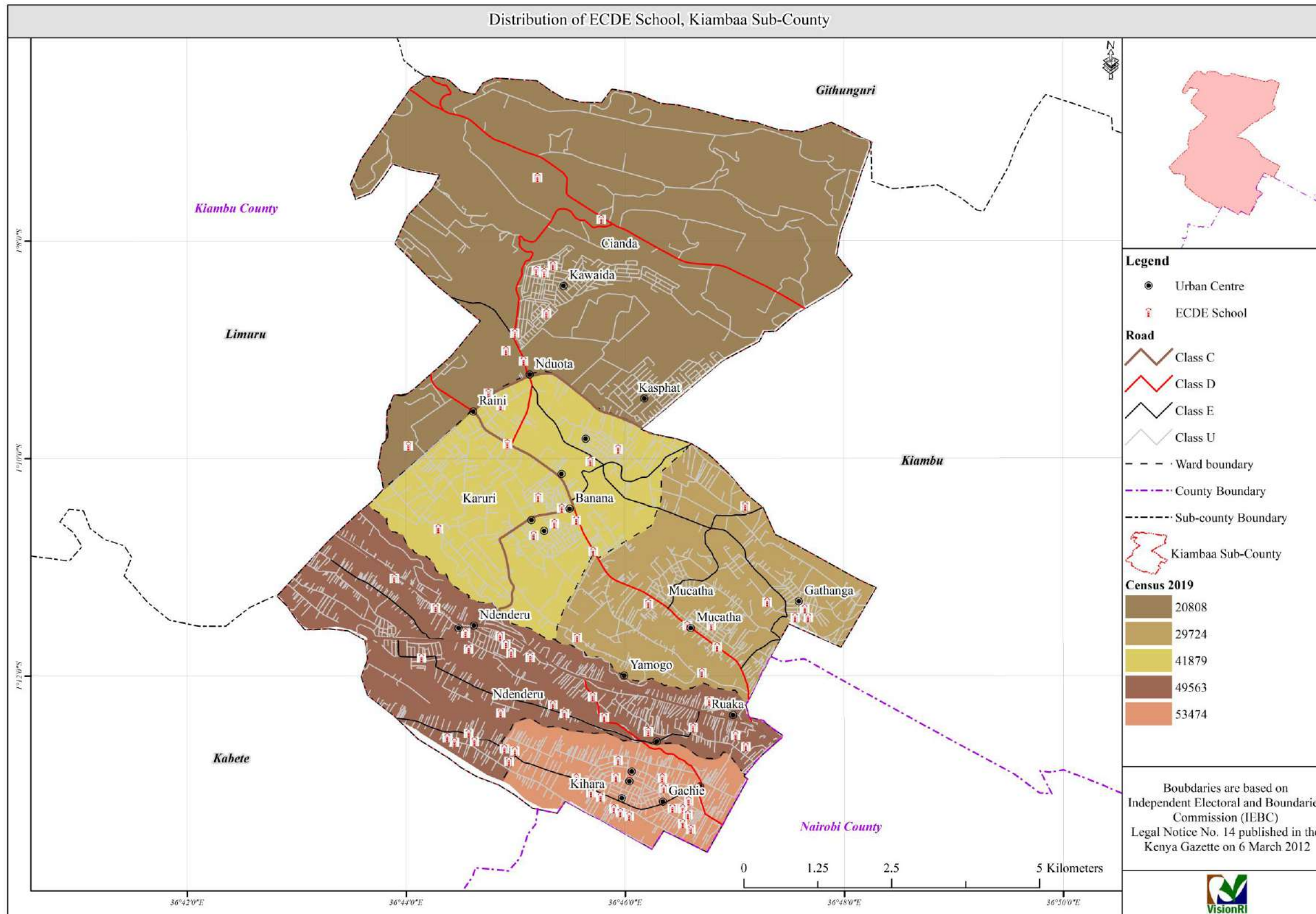
9.3 Health Facilities

9.3.1 AVAILABLE FACILITIES

The Fourth Schedule, Part 2 of the Constitution, mandates the County Government to provide health care services. The facilities include public hospitals, ambulance services, and promotion of primary health care, licensing and control of undertakings that sell food to the public, veterinary services (which excludes regulation of the profession), cemeteries, funeral parlours and crematoria. These services are well provided for in Kiambaa Urban Area, through the County Department of Health Services.

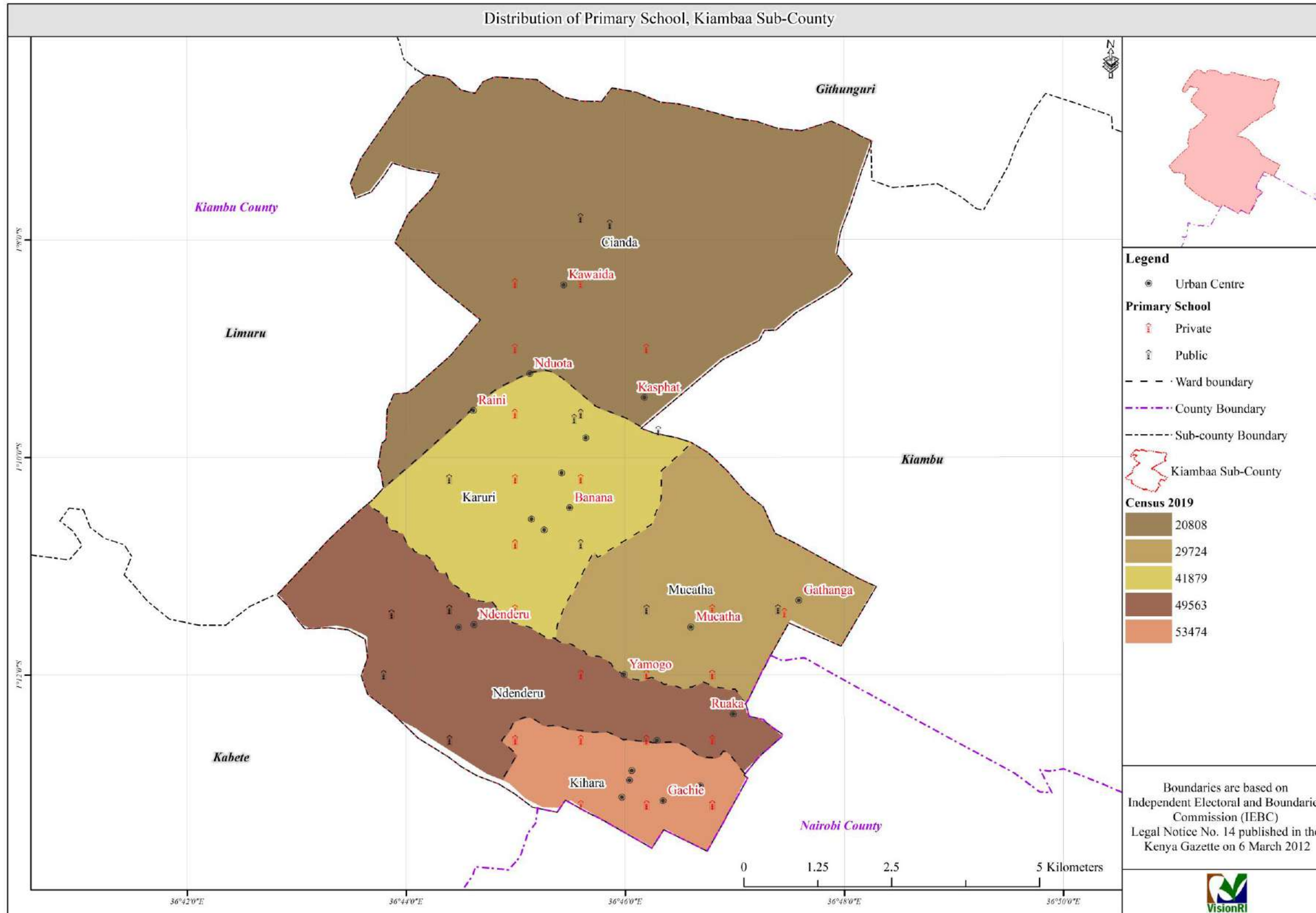
Health care facilities within the Sub-County comprises of dispensaries, private clinics, health centres and nursing homes. Kihara Level 4 and Karuri Level 4 Hospitals are the major health care facilities managed by the County Government.

Kiambaa Urban Area has eight medical clinics, four dispensaries, three health centres, one Level 4 (sub-district) hospital), and seven medical centres. This brings the total number of health facilities in the Sub-County to 23. These facilities are staffed with nurses, clinical officers, pharmaceutical technologists, drivers, public health officers, medical technologists, and nutritionists, amongst others. The Health Services Department ensures that services are of quality and accessible to every resident. However, there is a need to rehabilitate and upgrade most of the public health care facilities in the Sub-County.



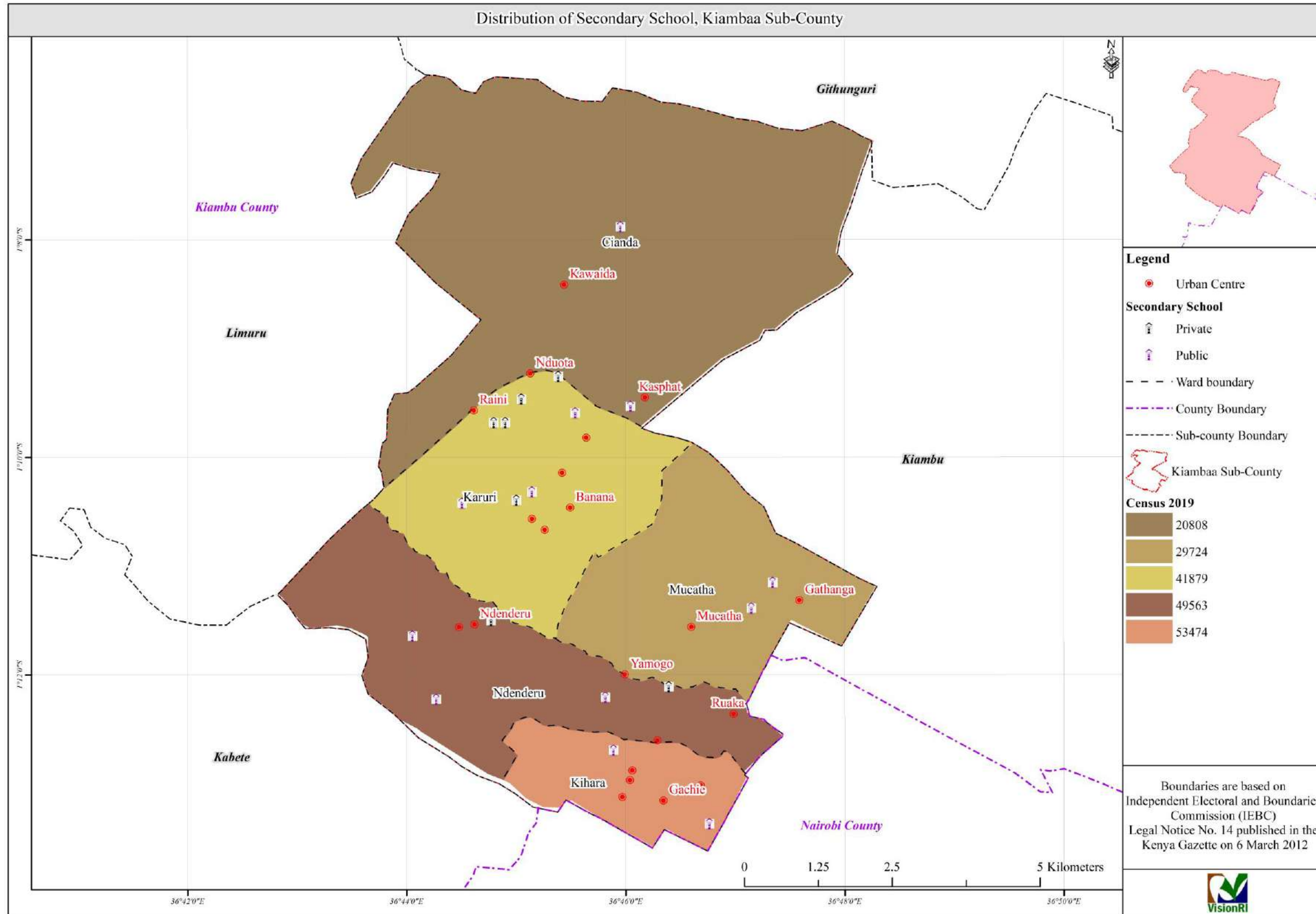
Map 9-1: Distribution of ECDs in Kiambaa Urban Area

Prepared by: VisionRI and Urban Lines Consultants Ltd.



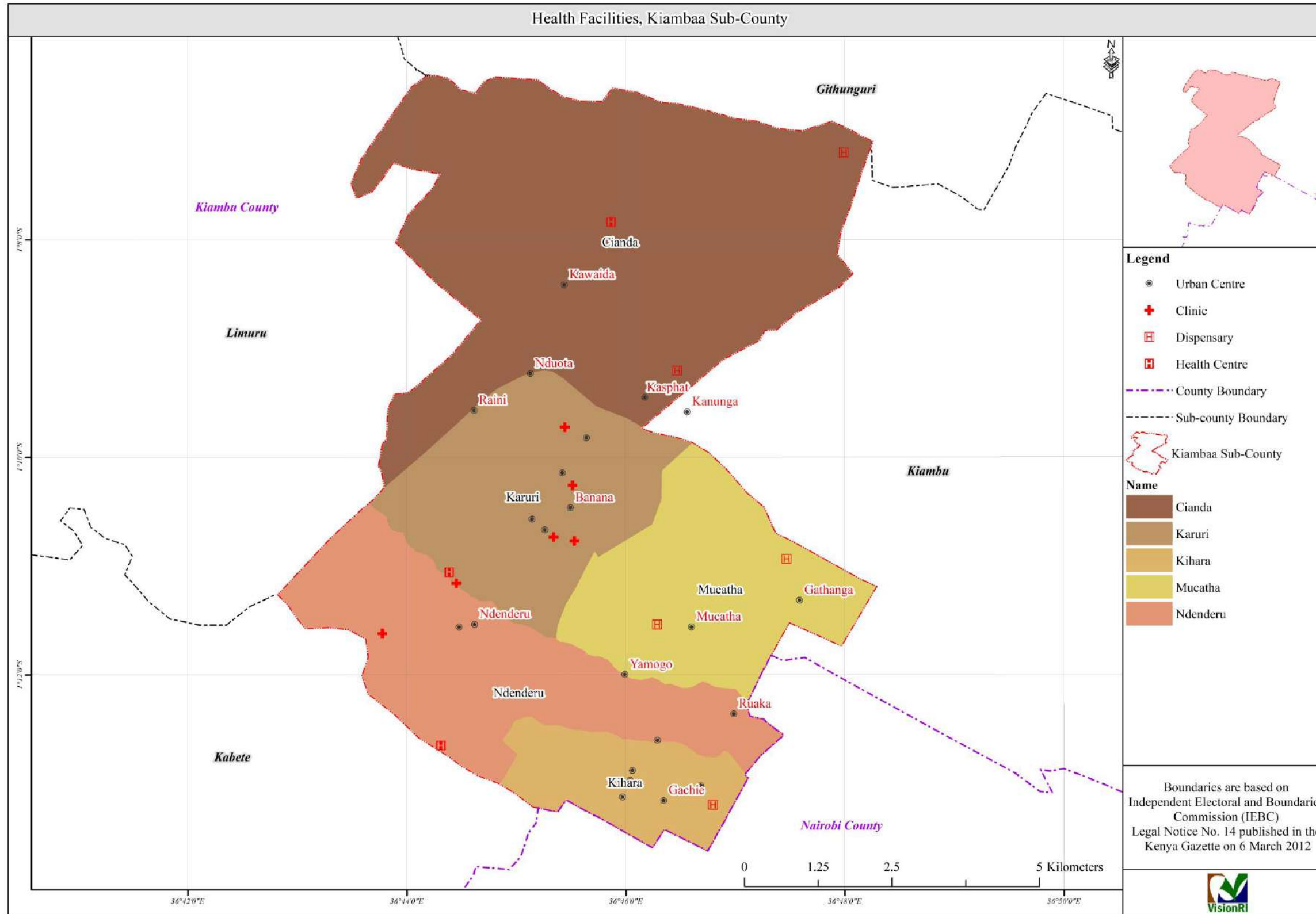
Map 9-2: Primary Schools in Kiambaa Urban Area

Prepared by: VisionRI & Urban Lines Consultants Ltd



Map 9-3: Secondary Schools in Kiambaa Urban Area

Prepared by: VisionRI & Urban Lines Consultants Ltd



Map 9-4: Health facilities in Kiambaa Urban Area

Source: VisionRI

9.3.2 HIERARCHY OF HEALTH FACILITIES

Kiambaa Urban Area has Levels 2, 3 and 4 facilities and is thus compliant to the Kenya Health Policy 2014-2030 which requires this hierarchy in order to facilitate referrals within a district or Sub-County. The same policy requires that residents travel no more than five kilometres to reach a health facility.

Table 9-2: Summary of Health Facilities in Kiambaa Urban Area

S. No.	Facility	Level
1.	Cianda Dispensary	II (Public)
2.	Kasphat Dispensary	II (Public)
3.	Muchatha Dispensary	II (Public)
4.	Ndenderu Dispensary	II (Public)
5.	Gathanga Health Centre	III (Public)
6.	Karuri level 4 Hospital	IV (Public)
7.	Kihara level 4 Hospital	IV (Public)
8.	AAR Ruaka	Private
9.	Adonai Medical Services	Private
10.	Aga Khan Ruaka	Private
11.	Banana Hill Medical Centre	Private
12.	Catmag Medical Centre	Private
13.	Faith Medical Centre	Private
14.	Gachie Medical Centre	Private
15.	Garden Park Medical Centre	Private
16.	Getrude Hospital	Private
17.	Guardian Healthcare Dental Clinic	Private
18.	Kariki Medical Clinic	Private
19.	Ruaka Medical Clinic	Private
20.	St. Francis Health Clinic	Private
21.	St. Peters Medical Clinic	Private
22.	Sun View Maternity & Nursing Home	Private
23.	White Pine Medical Clinic	Private

Source: Kiambu County Department of Health

9.3.3 DOCTOR: PATIENT RATIO

The World Health Organisation (WHO) recommends one doctor for every 1,000 patients. According to Kiambu County's CIDP 2013-2017, this ratio stands at one doctor to 17,000 patients for the whole County. The planning area has no documented doctor to patient ratio but going by the ones for Kiambu County, there is a need for Kiambaa Urban Area to invest in more doctors.

9.3.4 PROJECTIONS AND NEEDS

There are inadequate health facilities in Kiambaa Urban Area. According to the Physical Planning Handbook (2007), one hospital should serve at most 5,000 people. Depending on the level of health service, it is necessary to reserve adequate land for future expansion as well as for public cemeteries. The health facilities should be within the reach of people to reduce the number of deaths during emergencies.

Table 9-3: Projection of Number of Health Facilities

Year	Existing no.	2019	2024	2030
Population		234,600	318,899	416,534
Number of hospitals	23	47	63	91
Facility deficit		24	40	68
Land needed in hectares		47.8	80.6	135.3
	Recommended standards include: <ul style="list-style-type: none"> • 5000 people = one hospital; and • Sub-health centre to have a minimum of two hectares. 			

Source: VisionRI

9.4 Social Facilities & Amenities

9.4.1 URBAN SAFETY - POLICE STATIONS/POSTS/BASES, COURTS, PRISONS, AND CHIEFS' CAMPS

The police play a major role in our society as they help in maintaining public order and safety by enforcing law and order.

Kiambaa Urban Area hosts the Karuri police station supported by six other patrol bases, all under the National Police Service. The introduction of Neighbourhood Watch Community Policing (Nyumba Kumi Initiative) has strengthened the police and residents' partnership, hence curbing crime in the urban area. Moreover, private security firms provide an additional response to security emergencies with companies like BM Security Firm, G4S, and KK Security Services outsourced by private companies and residents.

In order to improve the level of security in the Sub-County, Kiambu County CIDP 2013-2017 proposes the employment of more police personnel to increase the police-to-citizen ratio, construction of child protection units in every police station, and establishment of rehabilitation centres in all sub-counties within the County.

Table 9-4: Kiambaa Urban Area Security Priority Projects

Project	Ward	Purpose	Description	Cost
Police post and police residence	Muchatha	Enhance security	Construction of police post and residence	50,000,000
Surveillance motorcycles for police	Muchatha	Ease surveillance	Purchase of 8 surveillance motorcycles for police	400,000
Police patrol cars	(to service all wards)	Ease surveillance	Purchase of 5 surveillance vehicles	10,000,000
Cianda police station	Cianda	Enhance security	Construction of police station	10,000,000

Source: County Government of Kiambu

The Physical Planning Handbook (2007) stipulates that a police post should cover a minimum of 0.1 ha and three ha, for a police station in a township. There should be a police-to-citizen ratio of 1:450 as per the United Nations (Africa Check, 2017). Similarly, the United Nations provides for one police post for a population of 4,500 people. The Sub-County has one police station and six police posts. Currently, there is a deficit of 43 police posts, which is projected to increase over time as shown in the security facility projection table below.

Table 9-5: Security Facility Projections

Year	Existing no.	2019	2024	2030
Population		234,600	318,899	416,534
Number of police stations	1	No standard		
Facility deficit				
Number of police posts	6	52	70	101
Facility deficit		46	64	95
Land needed for the police station in ha				
Land needed for a police post in ha		4.6	6.4	9.5
	Recommended standards include: <ul style="list-style-type: none"> • 1 police post: 4500 people; • 1 police post: 0.1 ha; • 1 police station: 3 ha; and • 1 police officer: 450 citizens. 			

Source: VisionRI

9.4.2 COMMUNITY AMENITIES

Sports and recreation facilities are critical in urban areas, especially because people have limited spaces in their compounds and require space to walk and jog away from congested homes. There is no major stadium in the Sub-County.

Kiambaa Urban Area has conference facilities provided by hotels such as Mayweather Suites, Limuru Road Express Hotel, and Sahara West Park, amongst others. The Sub-County's residents enjoy proximity to Two-Rivers Mall and Village Market for fun and leisure.

Muchatha Stadium provides a venue for sporting activities such as football, athletics, tournaments, cycling and martial arts for the residents' and schools' sports activities.

There are no public parks in any of the urban centres in the Sub-County. There are, however, playgrounds that are accommodated within the public schools. In the projection of the land used for recreational facilities, standards from the United Nations state that 1.5 hectares of open space are required for every 5,000 people. This presents a need for more public recreation facilities within the Sub-County.



Figure 9-1: Karuri Primary in Banana

Source: Field Survey

9.4.3 RELIGIOUS FACILITIES

Kiambaa Urban Area has a rich religious foundation evidenced by the presence of religious centres such as churches and mosques. The Sub-County is predominantly Christian with numerous religious centres including the Central Kenya Headquarters of the Seventh-day Adventist Church at Karura, the Catholic

Church Complex at Nazareth near Banana Hill, and several Presbyterian and Anglican establishments. According to the Physical Planning Handbook (2007), a minimum of 0.1 hectares is proposed for religious purposes. The existing situation has shown that most religious facilities within the planning area do not meet this standard.

9.4.4 FIRE STATIONS

The Fourth Schedule, Part 2 of the Constitution stipulates that the County Government should provide firefighting and disaster management services to its residents. In December 2013, the County Emergency Fund Act was enacted. The purpose of the fund is to enable payments to be made in respect of urgent and unforeseen disasters 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.

There is one fire station located in the Sub-County that is well staffed with ten employees.

The Kiambu County Directorate of Public Works and Utilities has put in place measures for emergency fires and accidents in the fire and rescue section. There are also plans underway to build capacity within the County to ensure timely fire response. The KUSP has proposed the construction and equipping of the Karuri fire station and procurement of a 5,000 litres capacity fire engine.

The Physical Planning Handbook (2007) provides that there is a need for accessibility to a major road network for high-risk areas. The Handbook specifies a minimum land requirement of 0.4 hectares to include a fire station, staff accommodation, and drilling area. A small fire station would require one fire engine and at least 30 staff members to cover a population of between 50,000 to 100,000 people depending on the degree of fire risk. The Sub-County has a deficit of one fire station which is projected to increase over time as shown in the projections in the table below.

Table 9-6: Projections and Needs of Fire-Fighting Stations

Year	Existing no.	2019	2024	2030
Population		234,600	318,899	416,534
Number of fire stations	1	2	3	5
Facility deficit		1	2	4
Land needed in hectares		0.4	0.8	1.6
	Recommended standards include: <ul style="list-style-type: none"> 50,000-100,000 people: 1 fire station 1 fire station: 1 fire engine, 30 staff members 			

Source: VisionRI

In addition to the above, there is a need to provide fire hydrants at strategic places in urban areas. Further, buildings should be annually inspected and issued with fire safety certificates.

9.4.5 CEMETERY AND CREMATORIUMS

As urbanisation increases, so does the need for cemeteries and common burial grounds. The Kiambu County Department of Health Services indicated that there are eight cemeteries and burial grounds in Kiambaa Urban Area. Several churches have also set aside spaces in their compounds for the burial of their faithful. However, most people bury their dead in their ancestral lands in or outside the Sub-County.

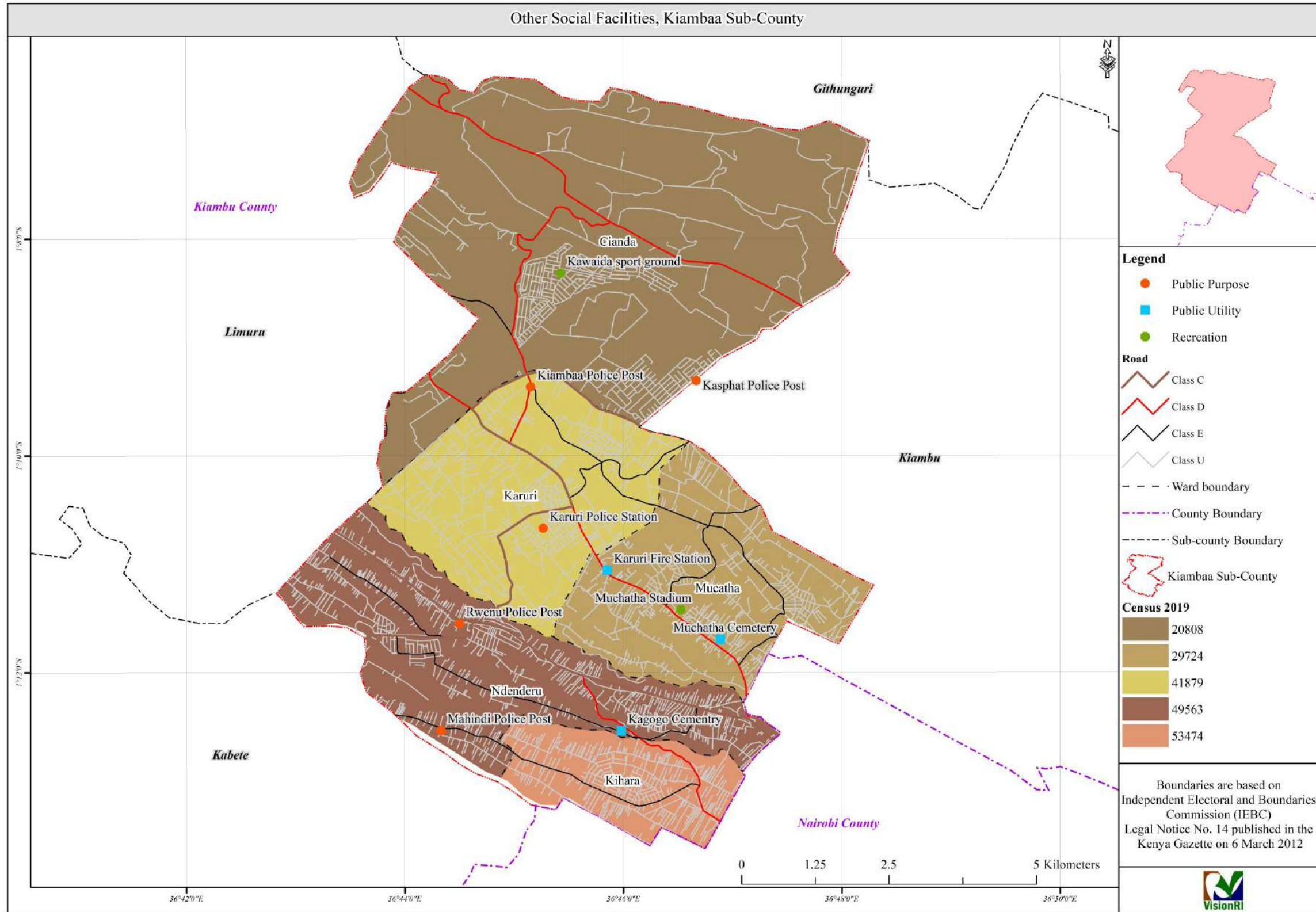
9.5 Key Planning Issues

The key planning issues with regard to social infrastructure are given in the table below.

Table 9-7: Key Planning Issues on Social Infrastructure

Sector	Key Highlights	Opportunities
Education	<ul style="list-style-type: none"> The private sector is a major player in education in the Sub-County; and The Sub-County has only two vocational centres and no university. 	The County needs to encourage more private investments in the sector.
Health	Kiambaa Urban Area has several health facilities.	Due to good road connectivity, the residents also enjoy health care services from neighbouring sub-counties in Kiambu County and Nairobi.
Other facilities	<ul style="list-style-type: none"> Other areas do not have social facilities; and Land that had in the past been set aside for public land has been encroached by private developers. 	Engage the community and NLC to identify public lands that have been illegally occupied.

Source: VisionRI



Map 9-5: Other Social Facilities in Kiambaa Urban Area

Prepared by: VisionRI & Urban Lines Consultants Ltd.

10 ECONOMIC ANALYSIS

10.1 Overview

As per 2019 census, the working population stood at 106,360. Out of this, only 5,000 were in the formal while the rest were in the informal sector. This makes the informal sector the backbone of the economy of Kiambaa Urban Area. Key informal sector activities include farming and services as well as transportation, manufacturing, and construction.

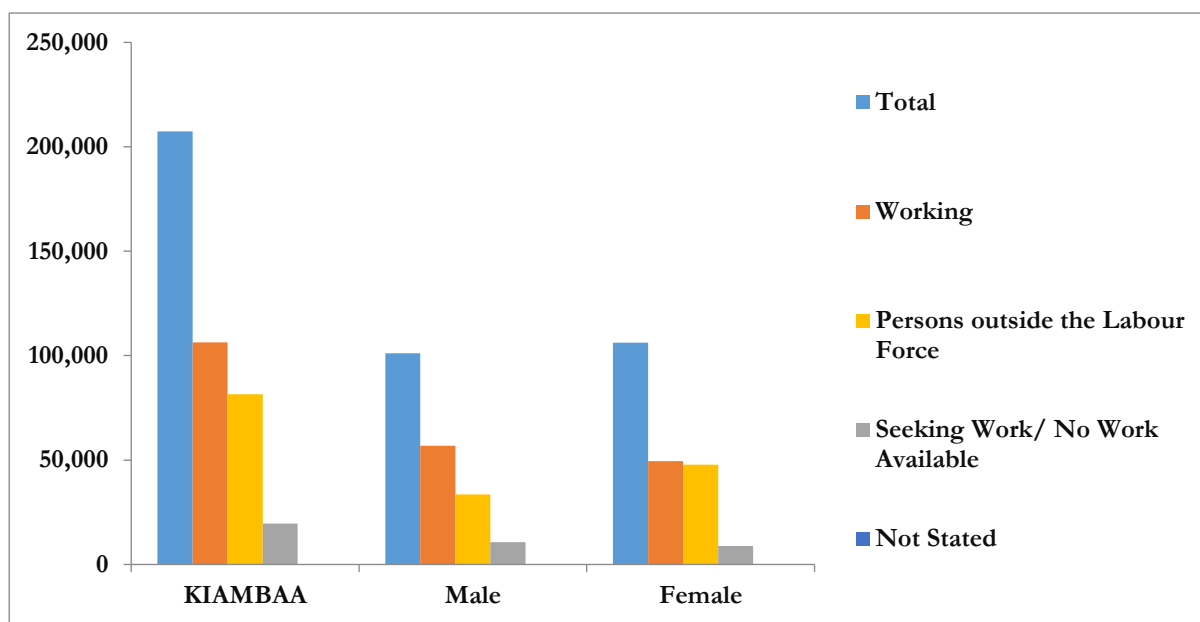


Figure 10-1: Persons in the Labour Force

Source: 2019 Kenya Population and Housing Census

10.2 Agriculture

10.2.1 TYPES OF AGRICULTURAL ACTIVITIES

Agriculture is an important economic activity due to the availability of fertile land, the occurrence of frequent rains and the presence of boreholes. Out of a total of 80,332 households, only 32,907 practice different forms of agriculture ranging from crop production, livestock production, and fishing. The total land under agriculture is 5,813 hectares. The figure below shows the distribution of these.

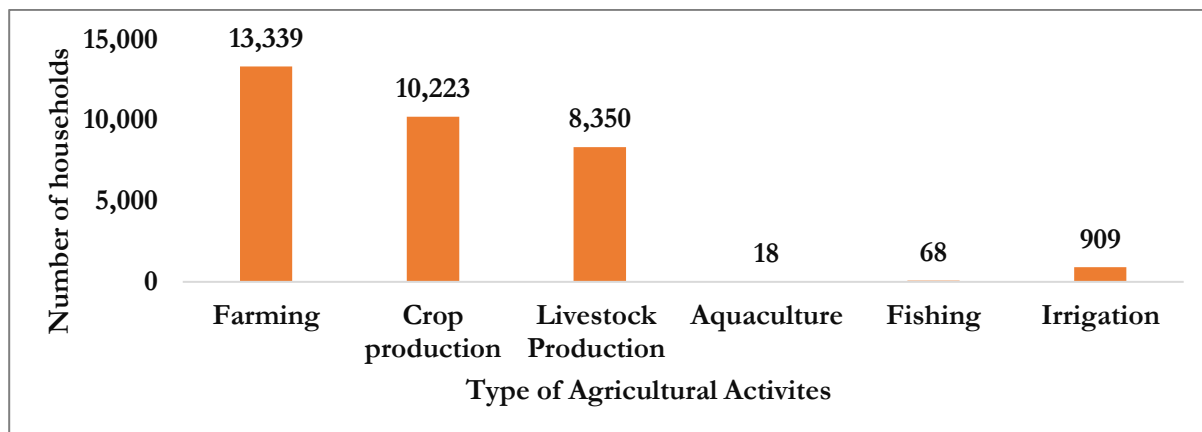


Figure 10-2: Number of Households Practicing Agriculture

Source: Kenya Population and Housing Census 2019

The major crops grown are maize, potatoes, beans, bananas, cabbages, and tomatoes. Other crops are cassava, sweet potatoes, onions, sugarcane, and kales. They are mainly grown for commercial purposes and subsistence use.

In addition, there are large-scale coffee and tea farms which forms almost 50% of the Sub-County's land area. These farms are mostly found in Cianda ward.

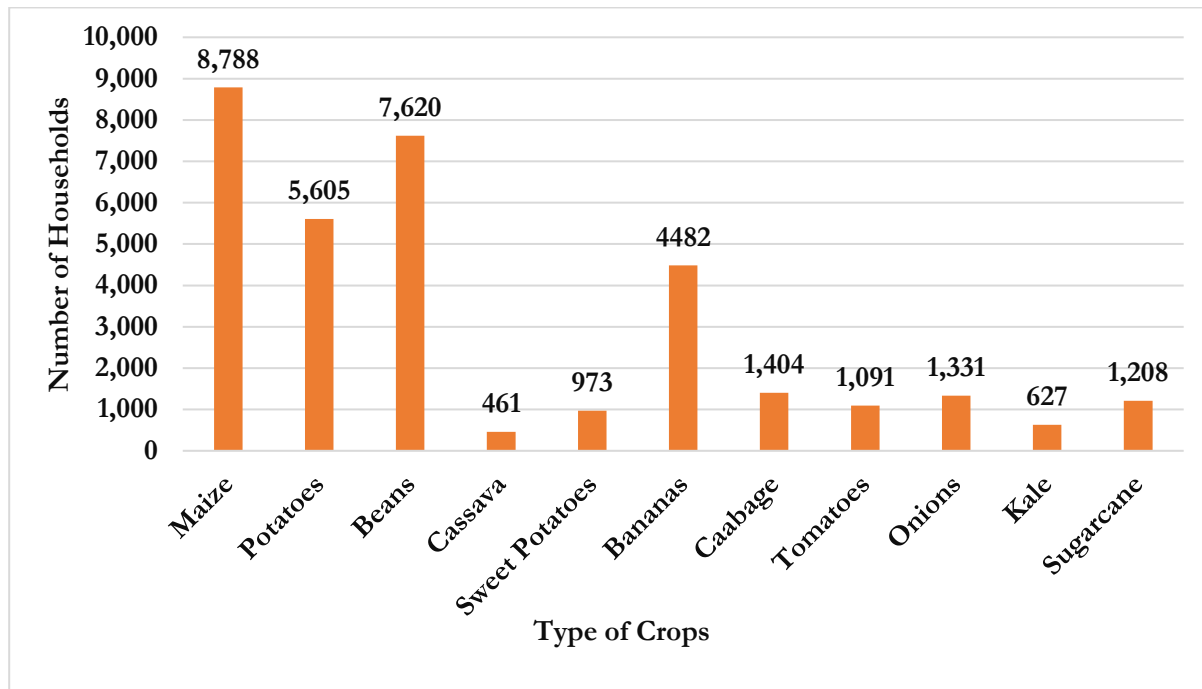


Figure 10-3: Number of Households Practicing Crop Farming

Source: Kenya Housing Population Census 2019

On the other hand, major livestock activities include the rearing of dairy cattle, pigs, dairy goats, rabbits, and poultry farming.

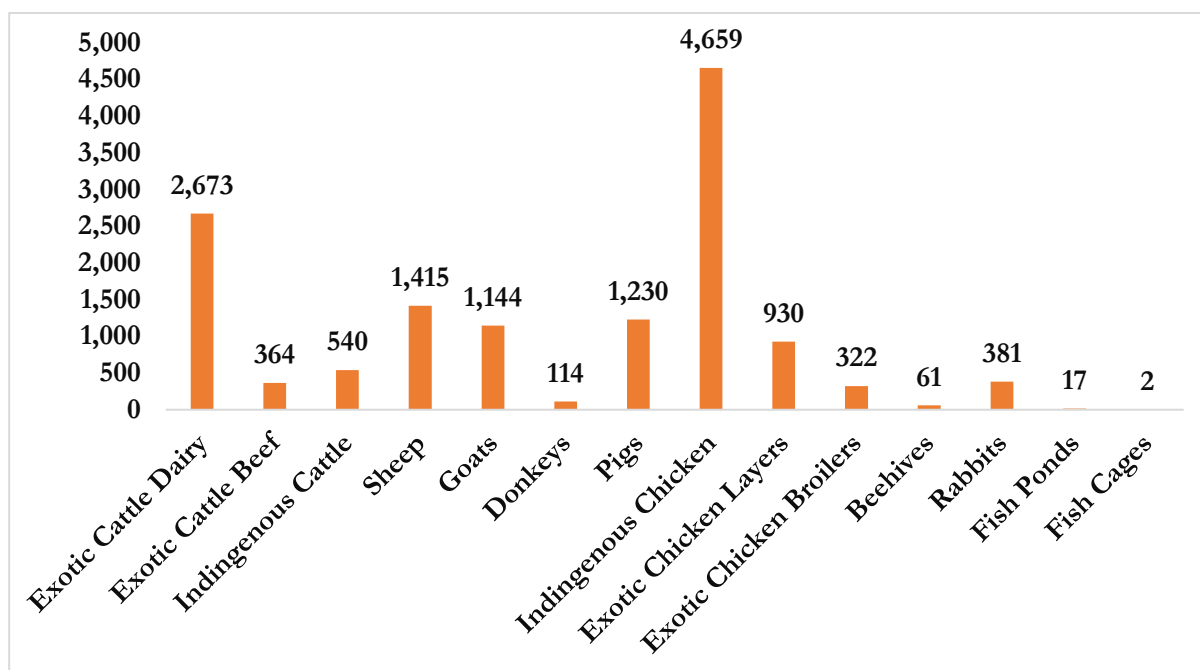


Figure 10-4: Types of Livestock Reared

Source: Kenya Housing Population Census 2019

10.2.2 FOOD SECURITY

In low and middle-income countries such as Kenya, the demand for food is driven by rapid population growth and high-income elasticity. The NMR’s demand for staple and non-staple foods is expected to rise in the coming decades due to the huge influx of people, businesses, and services from the rest of the country and abroad. In addition, the demand for processed, packaged and value-added food may also rise as incomes in the metropolitan region increase. Kiambaa Urban Area can exploit this opportunity to cover a substantial portion of this market for food with strategic growth in its production of agricultural products.

10.3 Commerce

Commerce has taken different forms in Kiambaa Urban Area ranging from banking to small and medium enterprises such as cereal products, clothes, and barbershops. The retail business in the form of supermarkets is also prominent in the Sub-County. All these activities, directly and indirectly, provide sources of livelihood to many residents in and outside the Sub-County.

10.3.1 FINANCIAL INSTITUTIONS

Kiambaa Urban Area boasts of a good network of commercial banks and SACCOs, making it a financial hub. These banks include Equity Bank, Co-operative Bank, KCB, Family Bank, Kenya Women Finance Trust, and a network of non-banking financial institutions (NBFIS). The banks facilitate economic development and the

creation of jobs through the provision of reliable and affordable credit. SACCOs, albeit at a smaller scale, offer credit at below market-rates thereby increasing credit flows to support local businesses, especially small- and medium-sized enterprises (SMEs).

10.4 Industry

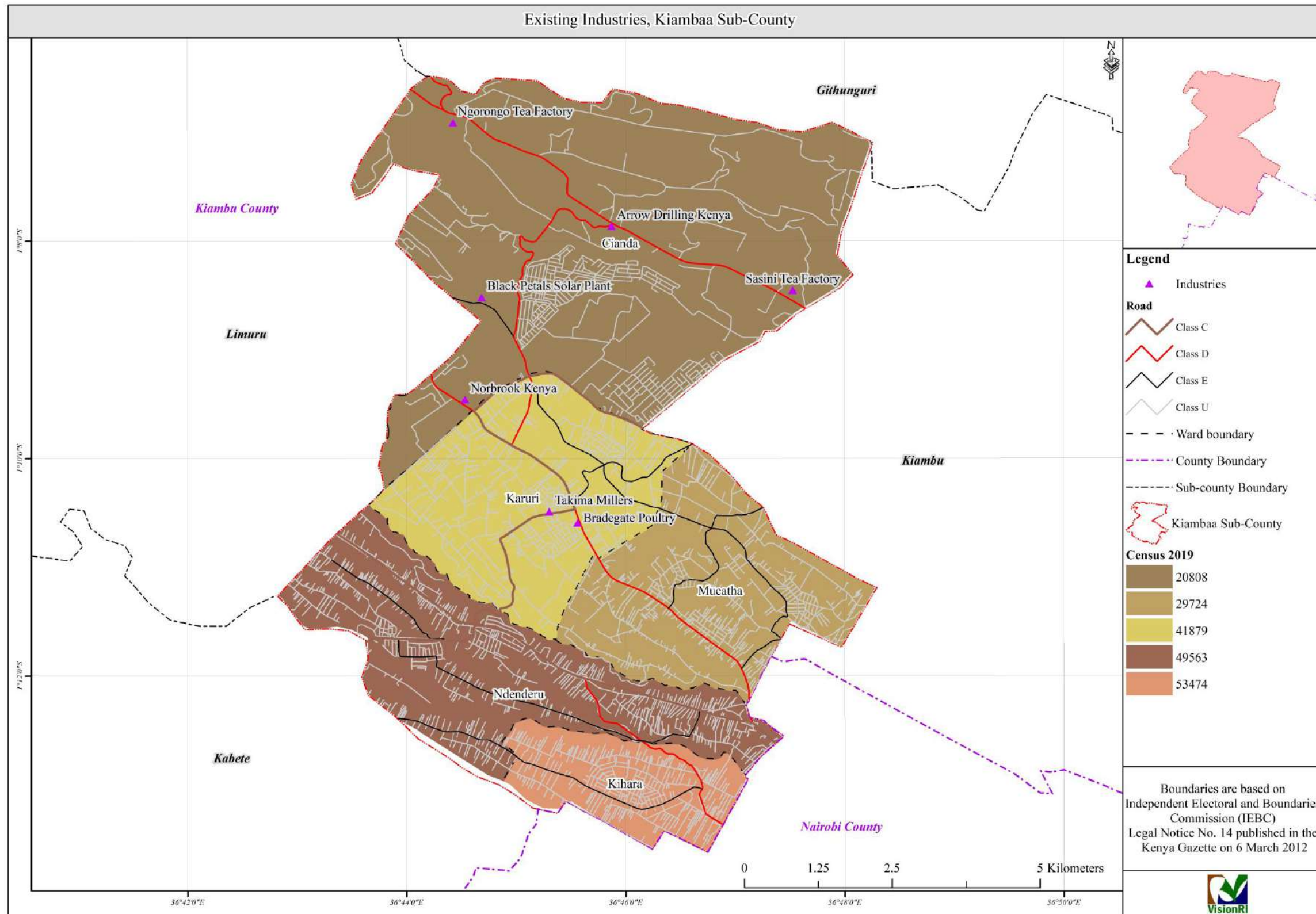
The industries in Kiambaa Urban Area only occupy 0.24% of the total land area. Most of these industries are agro-based. The conventional light industries include coffee milling factories, tea processing factories, milk processing plants and flower collection plants. Other non-conventional light factories include furniture and shoemaking, electronics, clothes making, home appliances repairing, *jua kali* and flour milling, amongst others.

There are no heavy industries in Kiambaa Urban Area. Map 10-1 shows the existing industries in the planning area.

10.5 Tourism and Hospitality

Kiambaa Urban Area is part of the Kiambu Highlands and is the closest high-quality environmental/landscape zone to the capital city. This fact can be leveraged upon by the Sub-County to develop itself as an eco-tourism and leisure hub, apart from the focus on agricultural activities. The following factors and comparative advantages currently enjoyed by Kiambaa Urban Area could support its development into an eco-tourism hub:

- **Natural beauty:** Kiambaa Urban Area is scenic thus can encourage tourists to visit for leisure purposes.
- **Current situation:** Kiambaa Urban Area already has a tourism industry in place which is currently in its infantile stage. There are some hotels and lodges as well as a country club which would be supportive in the Sub-County's growth as a hub for leisure.



Map 10-1: Location of Industries in Kiambaa Urban Area

Prepared by: VisionRI & Urban Lines Consultants Ltd.

- Kiambaa Urban Area is only about 20 km from the capital city. This proximity would be another contributing factor in the development of the tourism and hospitality sector.
- **Large plantations:** The presence of large coffee and tea plantations can be leveraged upon. Tourists often wish to visit such areas for leisure, and these can be developed into weekend getaways, attracting the residents of the NMR as well as other parts of the country.
- **Waterfalls:** Kiambaa Urban Area boasts of two waterfalls namely; Cianda and Kihururu waterfalls.

In terms of art and culture, the town has Banana Hill and Red Hill Art Galleries which are major attractions to art lovers.

10.6 Other Economic Activities

- **Real Estate:** Kiambaa Urban Area is a major residential hub in the NMR. With improved transport, many people working in Nairobi have opted to live in the Sub-County. Having enough land/space for the expansion of residential apartments, real estate is expected to boom in the coming years, creating an opportunity for the Sub-County to position itself as a preferred residential hub in the NMR.
- **Transportation:** The Sub-County has a thriving transport sector that significantly contributes to job creation. There are several matatu SACCOs operating within the Sub-County. On the other hand, paratransit transport has tremendously increased. This is evidenced by the more than 1,000 registered motorbikes which are used in the transportation of people and small goods from one part of the Sub-County to another. The taxi business has also increased as a result of cab-hailing applications like Uber, Taxify, and Little Cabs, amongst others. Lorries, in turn, are hired for transportation of heavy commodities.

10.7 Key Planning Issues

The key planning issues in the economic sector are given in the table below.

Table 10-1: Key Planning Issues in the Economic Sector

Sector	Key Highlights	Opportunities
Agriculture	<ul style="list-style-type: none"> • Agriculture continues to face the threat of urbanisation as more conversion of land is undertaken; and • Prices of cash crops are no longer competitive thus discouraging farming. 	<ul style="list-style-type: none"> • Rich soils that are good for agriculture; • Hot and wet weather; and • Ready market for farm produce in the NMR.
Commerce	<ul style="list-style-type: none"> • Commerce has taken different forms but mostly involve services. 	<ul style="list-style-type: none"> • Proximity to Nairobi and NMR; and • Developments in the ICT sector.

Industry	<ul style="list-style-type: none"> • There are no heavy industries; and • The few industries that are present are mainly agro-based. 	<ul style="list-style-type: none"> • Good road connectivity to neighbouring towns like Limuru, Nairobi, and Kiambu.
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Source: VisionRI

11 GOVERNANCE AND STAKEHOLDERS PARTICIPATION

11.1 Governance

The County Government’s administrative structure comprises of the County Assembly, and County Executive Committee headed by the Governor and Deputy Governor. The respective County Service Boards, together with their administrations, spearhead development projects at the Sub-County, ward, and village levels. Kiambaa Urban Area consists of five wards, namely; Cianda, Ndenderu, Muchatha, Kihara and Karuri.

11.2 Institutional Framework/Administrative Structure

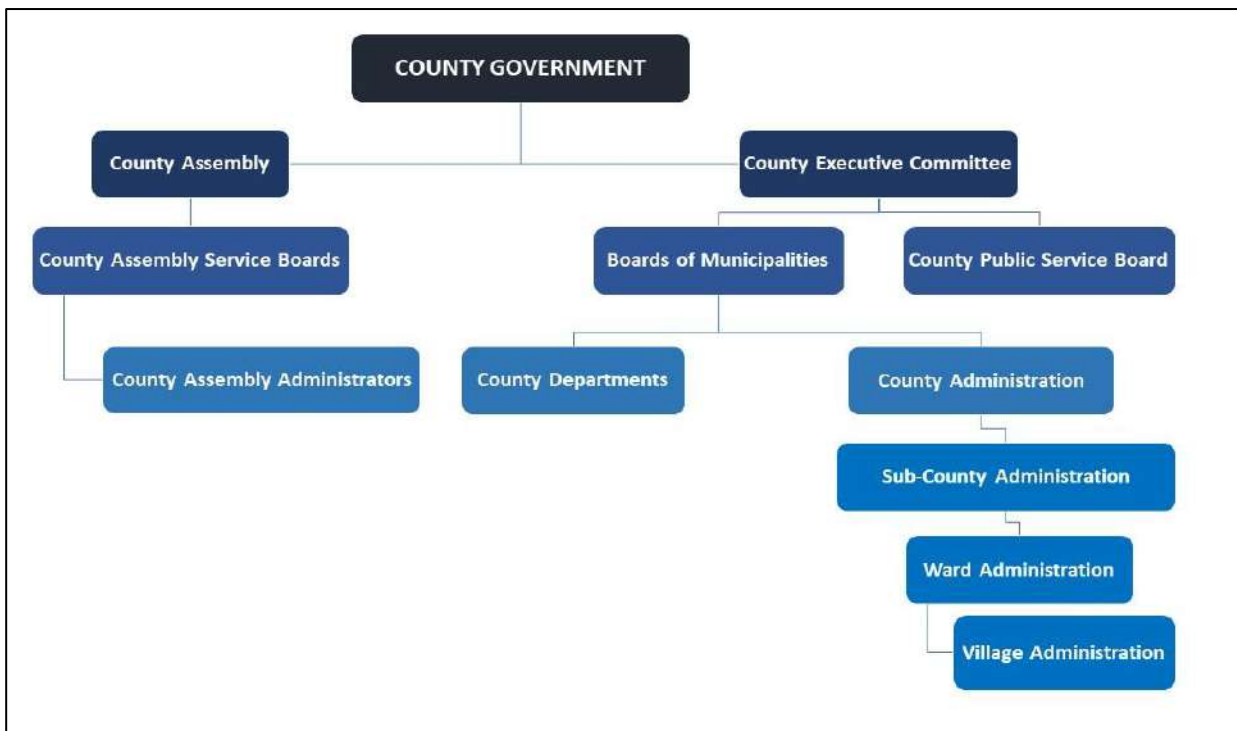


Figure 11-1: County Government Administrative Structure

Source: VisionRI

The Sub-County’s development projects are deliberated and agreed upon by all stakeholders which include government, organisations and residents before implementation. Stakeholder participation in county development ensures inclusivity, transparency, and accountability.

The Kiambaa Urban Area Public Service Board comprises of various departments, namely:

- Health services;
- Finance, economic planning, and ICT;
- Agriculture, crop production, irrigation, and marketing;
- Education, youth, sports, gender, and social services;
- Livestock and fisheries;
- Trade, tourism, co-operative and enterprise development;
- Roads, transport, public works, and utilities;
- Environment energy and natural resources;
- Housing, physical planning and urban development; and
- Public service and communication.

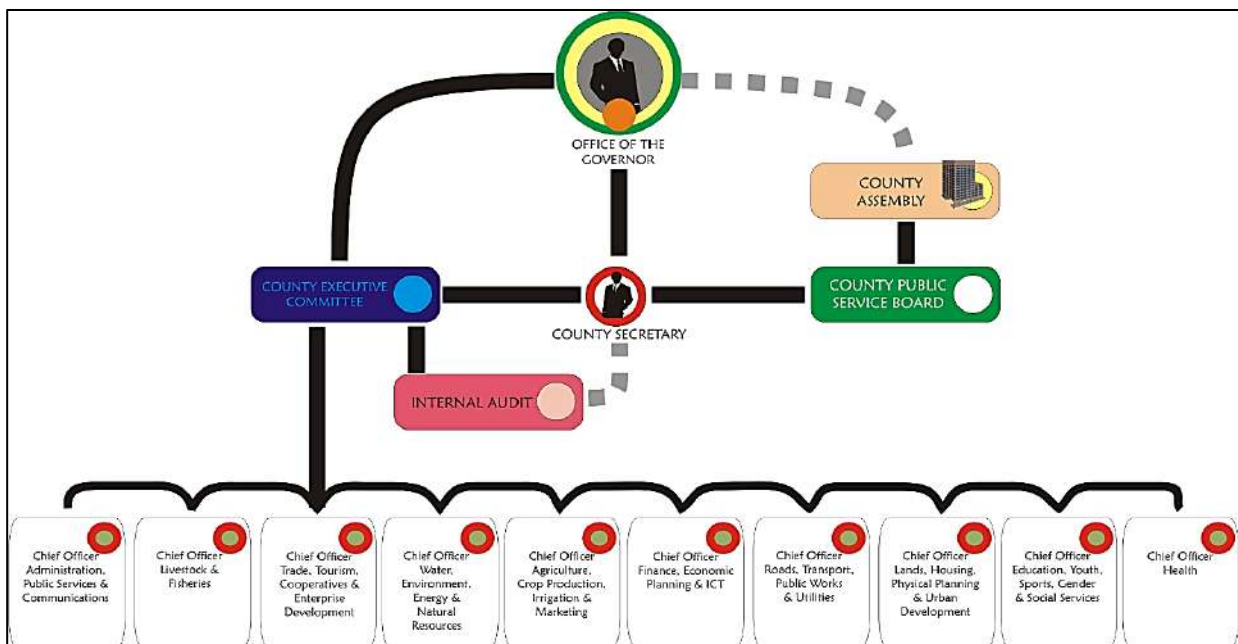


Figure 11-2: Kiambu County Government Organisation Structure

Source: Kiambu County Integrated Development Plan, 2018-2022

11.3 Legislations and Enforcement Mechanisms

The Constitution of Kenya (2010) distributes planning functions across two-tiers of government; national and county governments with provisions for coordination across the two levels. Planning roles and responsibilities at both the national and county governments are governed by the Constitution under Chapter 5: Land and Environment, particularly Article 66. 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 County Governments Act 2012 prescribes the powers, functions, and responsibilities of county governments for the delivery of services and associated purposes.

The Kiambu County Integrated Development Plan (CIDP) 2018-2022 describes the goals and objectives, implementation plan, strategies, and impacts, monitoring and evaluation procedures for the county. The CIDP in association with the County Governments Act 2012 ensures that the County Government plans and implements urban development projects and programmes in the county. All projects, programmes and county budgetary cycles are affixed to the CIDP.

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.

11.4 Mechanisms of Participation

The County Governments Act 2012 Section 115 prescribes the following mechanisms of public participation:

- ICT-based platforms;
- Townhall meetings;
- Budget preparation and validation fora;
- Notice boards: announcing jobs, appointments, procurement, awards, and other important announcements of public interest;
- Development project sites;
- Avenues for the participation of peoples' representatives including but not limited to members of the national assembly and senate; and
- Establishment of citizen fora at the county and decentralised units.

In respect to the above mechanisms, the County planning authority invites the public to review the plan through planning clinics within the Sub-County's wards and villages, facilitated by their representatives. The participants are given an opportunity to comment on the proposed county developments and programmes. Comments are noted and considered by the County planning authority. Development applications, for example, change of land use, are subject to notifications through print media and on-site advertisements. Anyone with objections is invited to avail their comments to the County planning authority.

There are also meetings with Sub-county associations in the following categories:

- Neighbourhood;
- Professional health, built and urban environments, economic and finance, etc.;
- Sectoral-industries, business communities, agriculture, health, hospitality, etc.;
- Education and research institutions;
- Non-government organisations (NGO), community-based organisations (CBO), and-religious centres; and

- Use of communication technology through County websites, television and radio channels, social media, and daily newspapers.

11.5 Resource Capacity (Human and Technical)

The Kiambu County staff complement is given in the following table.

Table 11-1: Human Resource at Kiambu County

Office/Department	In post
Office of the Governor	33
Office of the County Secretary	6
County Public Service Board	18
County Assembly	313
Department of Administration and Public Service	279
Department of Agriculture, Livestock and Fisheries	605
Department of Roads, Transport, Public Works, and Utilities	133
Department of Water, Energy, Environment and Natural Resources	198
Department of Finance and Economic Planning	541
Department of Youth Affairs, Sports, Gender and Communication	12
Department of Education, ICT, Culture and Social Services	1358
Department of Housing, Lands and Physical Planning	31
Department of Trade, Tourism, Industrialization and Cooperative Development	47
Department of Health	1794
Total	5368

Source: County Government of Kiambu Joint Assessment and Rationalisation Report 2015

11.6 Stakeholders Profiling

The following table presents the Sub-County's key stakeholders in relation to this ISUDP.

Table 11-2: Key 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-government organisations
Ward Administrator	Community-based organisations

MCA's	Religious institutions
Area Chiefs	Transport sector
Deputy County Commissioner	Farmers
Sub-County departments	Traditional & cultural centres
Local Community	Minority and marginalised groups
Professionals from the private sector	Youth
Business community	Women

Source: VisionRI

11.6.1 STAKEHOLDERS CONCERNS

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

During the various stakeholders' workshops some of the concerns and projects which they raised are summarised in the table below:

Table 11-3: Stakeholders Priority Projects

Sector	Goal	Proposed Projects
Environment	To ensure there is a clean environment in the entire Sub-County.	<ul style="list-style-type: none"> • Provide bio-digesters in places where septic tanks and sewer lines are not adequately provided; • Provide clean and safe drinking water to the residents; and • Planting of trees in the entire Sub-County.
Local Economy	To provide a safe and secure environment, and enabling economic infrastructure for business undertakings	<ul style="list-style-type: none"> • Allocate land for new agro-industrial areas in Raini and Kawaida; and • Construction of modern markets in the major centres within the Sub-county.
Education	To improve education quality and equip youth with technical skills.	<ul style="list-style-type: none"> • Improve the infrastructure in the existing schools; • Enhance human resources to deliver quality education; and • Construct more schools and technical training colleges in the area.
Health	To provide quality essential health services.	<ul style="list-style-type: none"> • Construct Level III facilities in every ward; and • Construct a teaching and referral hospital in Kiambaa Urban Area.

Sector	Goal	Proposed Projects
Housing	To provide quality and affordable housing.	<ul style="list-style-type: none"> • Construction of affordable and quality houses.
Water Supply	To ensure there is adequate, reliable and clean water supply in the entire Sub-County.	<ul style="list-style-type: none"> • Construction of a reservoir for storm and rainwater to cushion against water shortage; • Put up a dam in the area for irrigation; • Educate the community on water storage; and • Ensure there is piped water in all households within the Sub-County.
Parks & social halls	To provide adequate public parks and playgrounds.	<ul style="list-style-type: none"> • Construct modern stadiums and public parks; and • Build at least one community hall in all wards.
Transport	To provide quality, affordable and safe transport infrastructure and transport services which will ensure there is seamless connectivity within the Sub-County.	<ul style="list-style-type: none"> • Maintenance of all roads; • Construct matatus/bus termini in Karuri, Ruaka, and Muchatha; • Construct boda-boda sheds in strategic locations; • Provide lighting along roads; • Provide all roads with good drainage system; and • Provide urban areas with good NMT facilities.
Energy	Access to affordable, reliable, and clean energy for all residents.	<ul style="list-style-type: none"> • Connect all households, businesses, and markets with electricity for promotion of a 24-hour economy; • Carry out maintenance work on power lines; • Erect high fly masts in security risk spots in the Sub-County; • Construct additional power sub-stations; and • Provide streetlights on all major roads and other security risk hotspots.
ICT	Ensure there is proper network coverage, which is reliable, fast and affordable to all Kiambaa residents.	<ul style="list-style-type: none"> • Construct ICT centres in every ward and liaise with the service provider for connectivity; • Provide Wi-Fi connections in public institutions and places; • Establish an ICT village in every urban area/ward; • Provide fast systems/speed systems for use i.e., 4G Network; and • Connect homes/institutions by fibre optics.

Source: VisionRI

11.6.2 INCLUSIVITY (GENDER AND MINORITIES AND PERSONS LIVING WITH DISABILITIES)

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

- Protection of marginalised and minority groups from discrimination and treatment of distinction of any kind, including language, religion, culture, national or social origin, sex, caste, birth, descent, or another status;
- 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;
- 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;
- Special measures of affirmative action for marginalised and minority groups to ensure their enjoyment of equal rights with the rest of the population;
- Respect and promotion of the identity and characteristics of minorities;
- Promotion of diversity and intercultural education; and
- Promotion of effective participation of marginalised and minority groups in public and political life.

11.7 Key Planning Issues

The key planning issues on Governance and Stakeholders Participation are given in the table below.

Table 11-4: Key planning issues on Governance and Stakeholders Participation

Sector	Key Highlights	Opportunities
County Government	The municipal boards have been established but their effect is yet to be felt.	Strengthen the municipal board.
	Presence of County departments in the Sub-County.	Integrate planning and development processes.
National Government	Presence of government agencies in the Sub-County.	Leverage support in the implementation of projects.
Private sector and non-state actors	Vibrant private sector in commerce, agriculture, transport, education, and health sectors.	Leverage and integrate their programmes in plan implementation.

Source: VisionRI

12 SYNTHESIS OF EMERGING ISSUES

12.1 Overview

This chapter provides an initial identification of the key challenges facing the Sub-County that should be addressed by the ISUDP as well as its potentials that could serve as platforms of growth. These challenges and potentials are then synthesised to identify the Sub-County's cross-cutting strengths and opportunities that may be capitalised upon to sustain its development over the planning period. The Sub-County's weaknesses and possible threats to its sustainable development are likewise identified.

12.1.1 PLANNING CONTEXT

- **Location:** Kiambaa Urban Area is strategically located within Kiambu County and the NMR. The Sub-County is traversed by such as Limuru and Kiambu roads and the Northern and North-Western Bypasses. By these, the Sub-County is an ideal location for investments due to ease in movement and connectivity with key urban centres.
- **Legal Framework:** There is also a pool of existing legal and policy framework to enable the implementation of this Plan. These laws also allow institutional growth, good governance, and citizen participation.

12.1.2 PHYSIOGRAPHIC CHARACTERISTICS

- **Topography and soils:** Kiambaa Urban Area is characterised by undulating topography which minimises the risk of flooding. The Sub-County has a network of rivers which increases the potential of water reliant activities like agriculture. The deep and fertile soils coupled with the favourable climate is an advantage to the agriculture sector, but they need to be protected from human settlements.

12.1.3 ENVIRONMENT

Encroachment of rivers and their riparian reserves are amongst the major environmental challenges that the Sub-County faces. Other environmental threats include pollution of rivers and wetlands due to increasing human activities coupled with inadequate conservation and pollution control measures.

12.1.4 POPULATION

- **Population growth, structure, and demography:** Kiambaa Urban Area is experiencing high population growth due to its location within NMR and proximity to Nairobi. The 2019 population has grown by 55.6% from the 2009 population leading to a population density of 2,819 persons per square kilometre.

The population structure indicates that the youth far outnumber the elderly indicating a need for an increase in facilities that the youths directly rely on like schools, playgrounds, hospitals, and adequate housing. There is also a need to create employment opportunities. The youthful population can easily be absorbed into the workforce as the Sub-County enjoys high literacy levels. In addition, the youth will provide a ready market for goods and services.

12.1.5 LAND USE ANALYSIS

The Sub-County continues to witness high rates of conversion of agricultural lands to urban developments such as residential and commercial uses. Most of these developments may be observed in the ribbon pattern of urban developments along Ruaka-Limuru road, Banana-Raini road and Kihara-Gachie-Karura road. This may be attributed to the increased demand for housing. This has led to an increase in land prices which is, in turn, encouraging the subdivision and conversion of land without due consideration to planning and development standards. The subdivision of land into narrow strip parcels and small plots presents an economic threat to land use. There are also few public spaces for recreation and other services, hence the need to enforce planning standards when subdivisions are being carried out.

12.1.6 HUMAN SETTLEMENTS AND HOUSING

Human settlements in the Sub-County are mainly along major road corridors and clustered settlements within specific nodes namely, Karuri, Ruaka, Muchatha, Ndenderu, Gachie and Kawaida. The urban limits for these nodes are not well defined due to urban sprawl into peri-urban areas. To control these, the urban edges need to be defined through appropriate planning and development control.

About 70% of the population in the Sub-County live in rented housing. The housing sector is private-led with private individuals contributing 99% of the housing stock in the area. The relevant authorities can encourage this by creating a conducive environment for more and continued investments in this sector.

12.1.7 PHYSICAL INFRASTRUCTURE

In terms of regional connectivity, the Sub-County is well connected with good roads making it attractive for investments in real estate. However, the feeder roads in the Sub-County's interior areas are in fair to poor condition hence encouraging development to concentrate along transportation corridors.

About half of the households in the Sub-County do not have piped water and are forced to rely on other sources such as shallow wells that may not be safe due to contamination by pit latrines. In addition, waste collection is still low at 35%. Residents are forced to rely on unsafe methods of waste disposal.

The Sub-County enjoys almost 90% connection to the national grid in terms of energy. There is still low adoption of green sources of energy like solar and biomass. Major ICT companies provide their services in the Sub-County thus increasing opportunities for businesses and innovations.

12.1.8 SOCIAL INFRASTRUCTURE

The Sub-County is endowed with good coverage of education facilities for both primary and secondary school levels. Private sector investment stands at 60% of both ECDEs and primary schools. Notably, these are market-driven and may not be accessible to all segments of the population, especially the poor households. Thus, there is a need to provide and improve public facilities within the Sub-County. It is important to note that the Sub-County has only two vocational institutions forcing students to seek training in the neighbouring sub-counties or counties. The Sub-County has only one stadium in Muchatha hence the need to provide more recreational facilities.

12.1.9 ECONOMIC ANALYSIS

The agriculture sector continues to face threats from urbanisation as more conversion of land is undertaken to respond to the demands of a thriving real estate sector. Coupled with uncompetitive prices for farm produce, more farmers are being discouraged from investing in the sector. This is despite the area having fertile soils and a favourable climate.

Other key emerging economic sectors include trade and commerce, transport, light industries mainly in 'jua kali' sub-sector. The area has few agro-based industries in the tea and dairy sector.

12.1.10 GOVERNANCE

The Kiambu County Government has a well-defined governance structure with 10 departments responsible for implementing its functions. Lands, housing, physical planning, municipal administration, and urban development is in charge of planning functions in the County. Planning functions at Sub-County are carried out by a Sub-County Planner.

There is a Municipal Board which will play a critical role in the implementation of this Plan.

However, there is a need to enhance public participation to create more awareness on planning and development matters. This will ensure this ISUDP will be owned by the beneficiaries who are the residents of the area.

12.2 Strengths, Weaknesses, Opportunities and Threats Analysis

The synthesis of the plan was also informed by Strengths-Weaknesses-Opportunities-Threats (SWOT) analysis that engaged different stakeholders as presented below.

12.2.1 PROBLEM TREE ANALYSIS

Land use planning is an essential tool for the regulation of land activities in both urban and rural areas. Land use planning regulations are earmarked to, amongst others, reduce emissions from transportation systems, lessen the average commuting time, promote cultural flowering in new public spaces, and lessen crime in urban areas. It also leads to increased agricultural production in rural areas leading to an improved rural economy. Kiambaa Urban Area is faced with ineffective land use planning due to poor stakeholder

involvement and participation, inadequate resources, and low prioritisation of land use planning by the relevant stakeholders.

Poor stakeholder involvement is indicated by poor citizen participation, the inadequate flow of information regarding development and planning, and with weak planning institutions and policies. Poor service delivery in Kiambaa Urban Area is manifested by the high unemployment rate, increased crime levels in neighbourhoods of Gachie, Muchatha, Karuri/Banana and Kawaida, delayed public development projects, and lack of political and community goodwill.

Ineffective land use planning in Kiambaa Urban Area may be attributed to lack of adequate resources manifested in lack of funds, inadequate qualified physical planners, and limited application of modern technology in undertaking planning and development control processes. The result of this can be translated as the weak implementation of existing policies and strategies, which further manifest into uncontrolled development and reduced agricultural land in Ruaka, Kihara and Gachie; loss of natural cover and encroachment on riparian areas; and contamination of water sources such as Riara and Ruaka rivers.

There is low prioritisation of physical planning and development control in the Sub-County if compared to other sectors and development initiatives. The indicator is the inadequate budgetary allocation by the County Government to the Department of Planning, lack of proper planning regulations and laws, and the existence and use of outdated planning mechanisms, tools, and technology.

The result is irregular and unsustainable development pattern in both rural and urban areas of the Sub-County demonstrated through urban sprawl and increasing unregulated land subdivisions with plot sizes being as small as 40 m by 80 m in the development hotspots of Ruaka, Karuri, Ndenderu, Gachie and Kihara. There is evident pressure on existing social and physical infrastructural facilities in Kawaida and Karuri, and land-use conflicts where incompatible land uses like clubs and bars are located adjacent to residential land uses.

On the other hand, tangled decisions on public spaces have sometimes caused dissatisfaction amongst residents such as in the case of land meant for a shopping centre in Kawaida that was converted into a playground. The problem tree in the figure below is a summary of the above analysis of land use planning in Kiambaa Urban Area.

12.3 Opportunities

Kiambaa Urban Area is endowed with both natural and man-made resources that can be used to enhance its potential and thereby improve the quality of life of its residents. This is apparent from the vibrant agro-industrial base of the Sub-County in the form of small and medium enterprises. Availability of spaces for expansion, transportation services, established services such as the banking industry, major nearby investments such as the Two Rivers Mall, proposed infrastructural development plans (e.g., the bypass connecting Gachie and Waiyaki Way), proximity to the City of Nairobi as a market for agro-products, eco-tourism potential, are key elements that should be harnessed for this purpose.

The existing private land tenure system provides a huge potential for the development of the towns and urban centres such as Ruaka, Karuri, Gachie, Ndenderu and Muchatha since private tenure is flexible in providing access through the market and/or public acquisition. This implies that future development of public utilities will largely be undertaken on land acquired from private individuals and institutions. The County Government will need to develop effective mechanisms for the acquisition of land for the future development of public utilities.

In terms of transportation, Kiambaa Urban Area is generally well-connected by roads to Nairobi, Naivasha, Nakuru, Ruiru and Thika and there are many public transport operators, including motorcyclists. Dedicated budgets for the provision and maintenance of transport facilities by the County Government of Kiambu is a boost and a potential to improve the transport system. Close proximity to Nairobi and other towns and location at the crossroads ensures better connectivity to economic opportunities within the Sub-County. The circumferential and radial road network can be used to distribute traffic off the four main roads and improve traffic circulation. Existing by-laws to make off-street parking a condition for development approval to relieve congestion on streets also ensures that law and order is enhanced in the Sub-County.

12.4 Challenges/Gaps

The economy of the planning area is primarily driven by agriculture. Despite the high agricultural productivity of the area, farmers still get low returns from their products due to the increased number of middlemen who offer low prices against prevailing market prices. The result is poverty and poor living conditions in the Sub-County. Poor agricultural practices in such as farming along sloping terrain pose a challenge on proper management of soils and have a long-term effect on the planning area. Un-regulated developments on sloping lands pose risks of soil erosion, landslides, and downslope flooding.

Bureaucratic issues in accessing construction permits and approval within the Sub-County is a major constraint to development. The process is very long and time-consuming. Further, the approval fee for the construction of apartments is considered high by the stakeholders.

Many forms of crime and violence are reported in Karuri/Banana area. Crimes associated with vehicle stealing are common. Besides flaws in the administrative and police system, this is also linked to inadequate streetlights and floodlights in the towns.

Inadequate physical and social facilities are evident in the high-density areas of the Sub-County, particularly in the urban centres of Karuri, Gachie, Ruaka, Muchatha and Ndenderu. Inadequate water supply, narrow roads, absence of wayleaves and insufficient parking spaces, inadequate bus parks and lack of NMT facilities especially within the Karuri CBD, have accelerated the transport challenges in the planning area. Public transport operators lack space to park their vehicles within the CBD since the existing bus park has a small capacity of only 25 vehicles.

Roadside parking has resulted in congestion of the roads and road user conflict between motorists and pedestrians. Poor utilisation of wayleaves meant for in placing of public utility lines such as water line, electric poles and communication facilities have led to poor access to these facilities.

The increase in the number of urban residents without approved planning schemes has significantly resulted in increased sub-division of land and incongruous developments in urban centres within Kiambaa Urban Area.

In addition, the increased siting of major residential estates and industrial plants in the Sub-County has led to challenges of unrepressed land ownership transfers occasioning the unprecedented land demand and therefore upsetting land values. High land values affect not only individual land investors but invariably the cost of acquisition of land for the development of public utilities. Thus, other than developing appropriate mechanisms for land acquisition, the County Government may need to develop appropriate models for keeping land reserves for the future development of urban infrastructural facilities.

Figure 12-3 shows a constraints map for Kiambaa Urban Area.

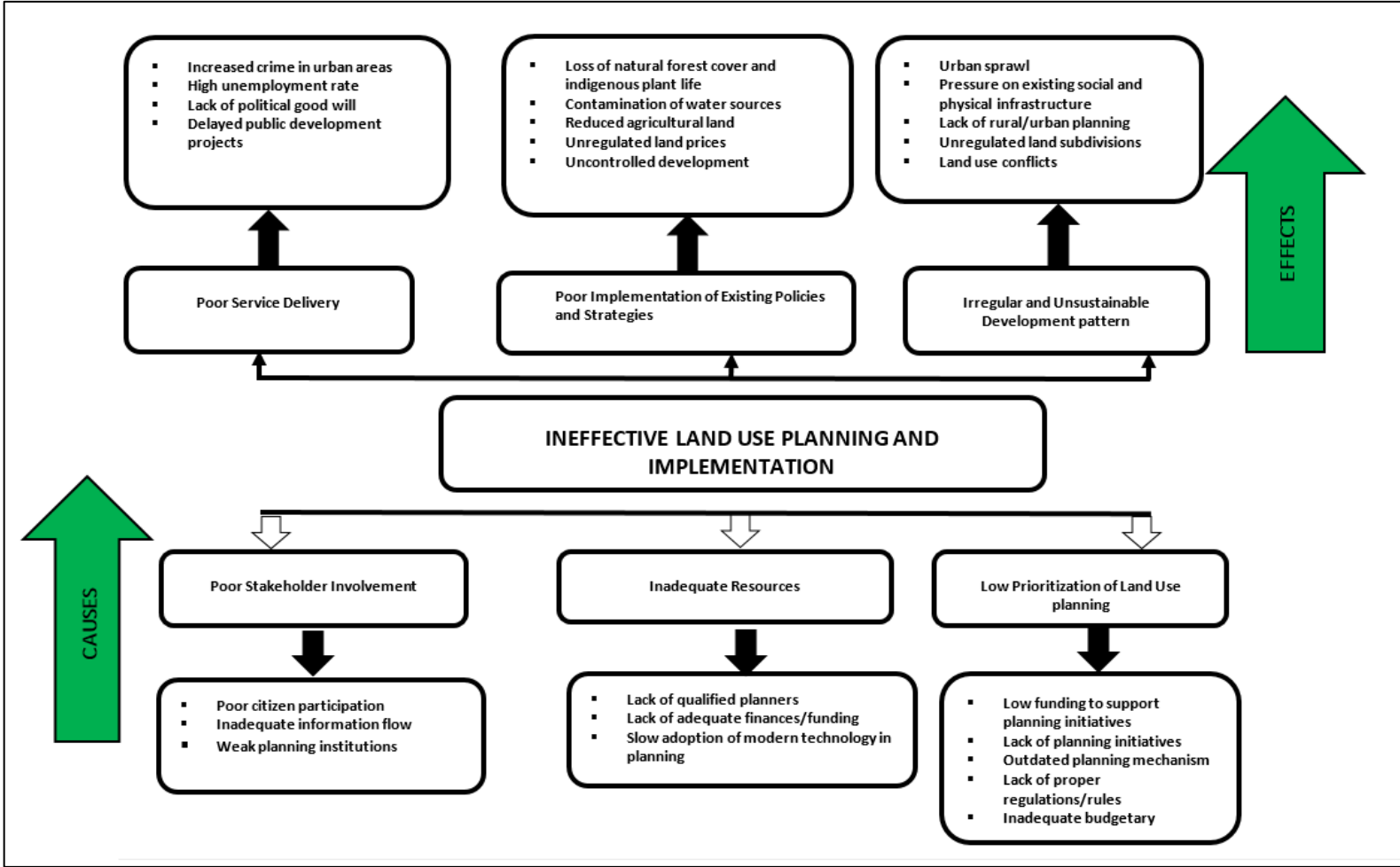


Figure 12-1: A Problem Tree Analysis of Land Use Planning in Kiambaa Urban Area

Source: VisionRI

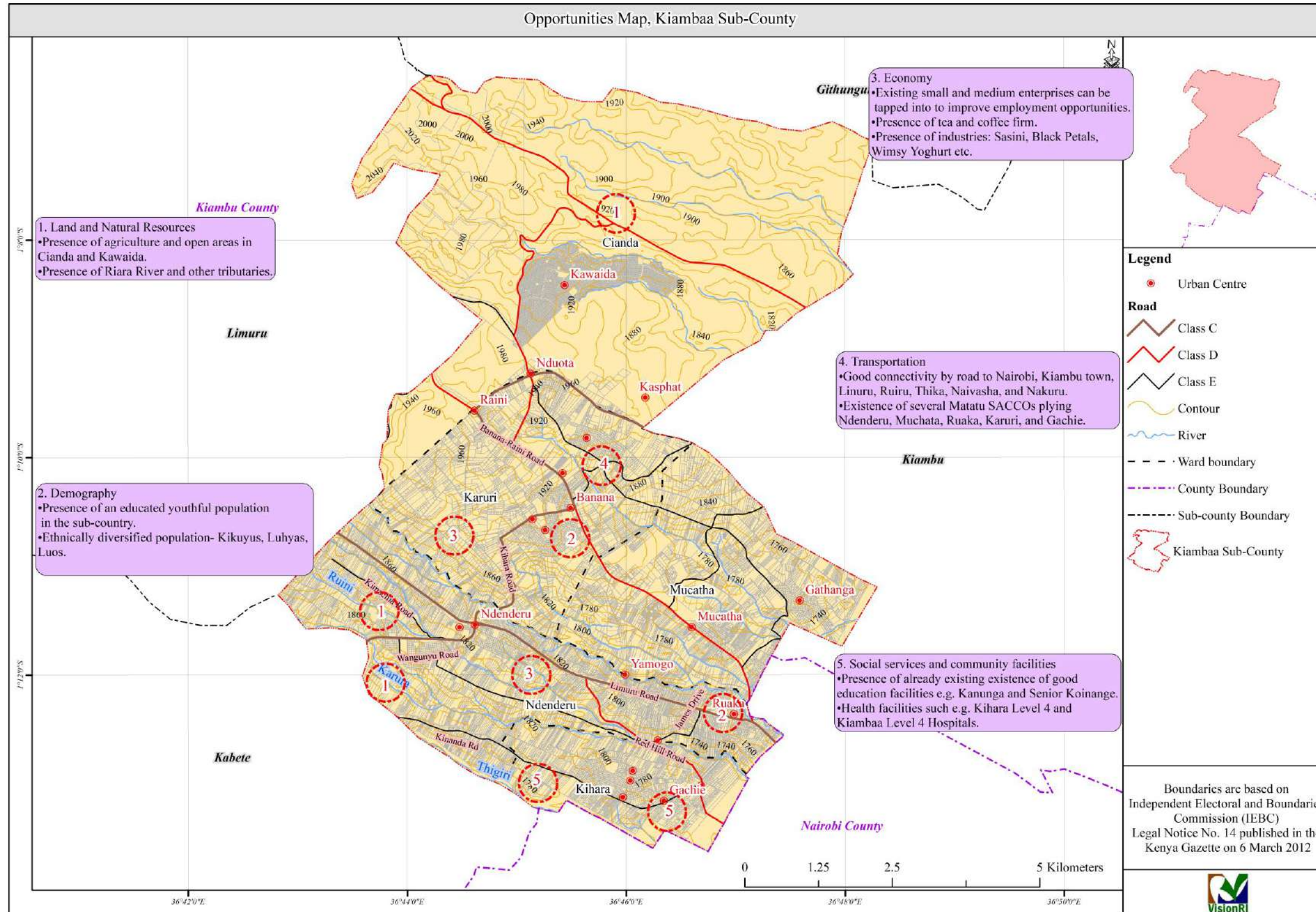


Figure 12-2: Opportunities Map

Source: VisionRI

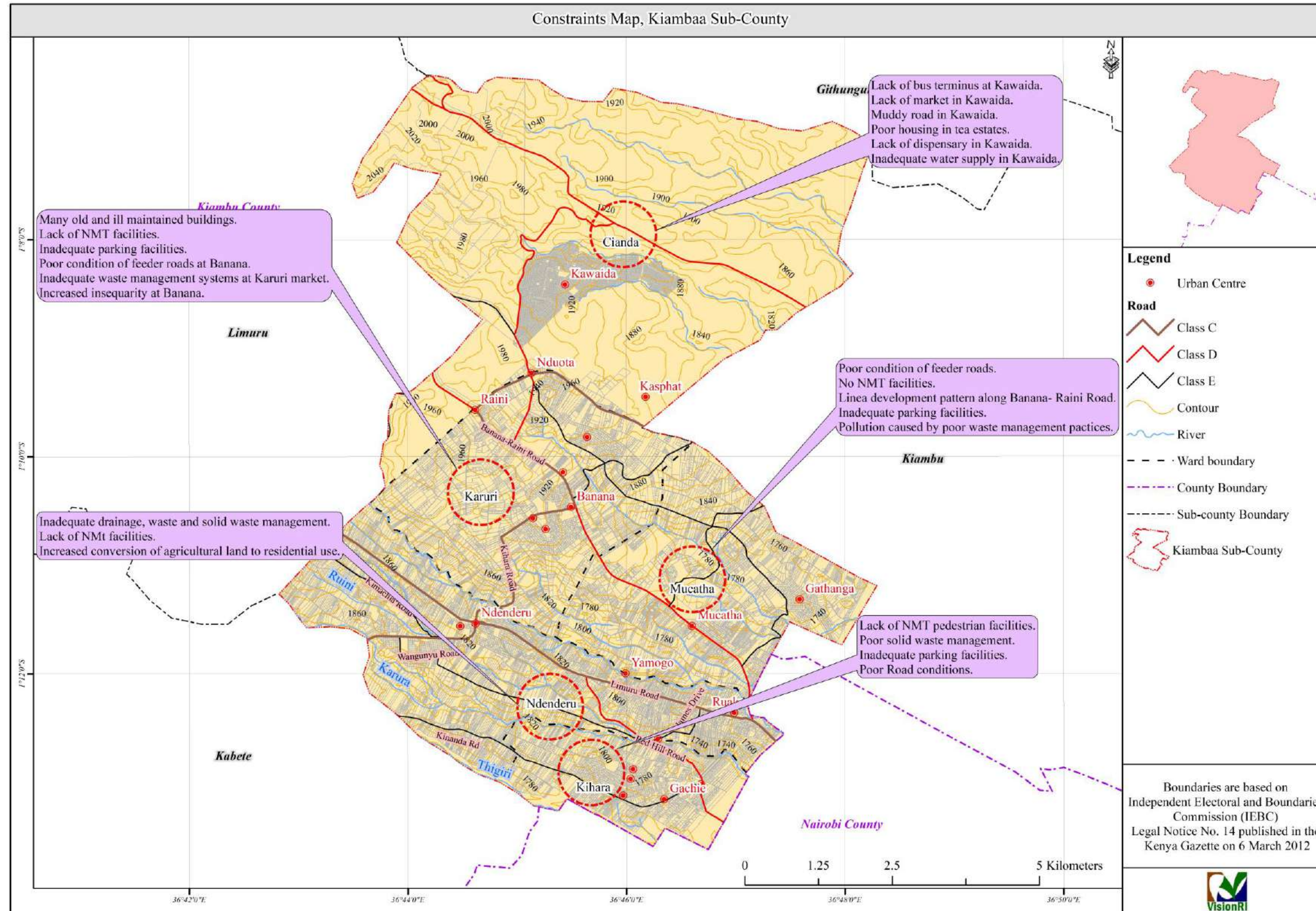


Figure 12-3: Constraints Map of Kiambaa Urban Area

Source: VisionRI



REPUBLIC OF KENYA



COUNTY GOVERNMENT OF KIAMBU

PART III

PLAN FORMULATION

13 SCENARIO BUILDING AND CONCEPTUAL FRAMEWORK

13.1 Overview

This chapter presents the physical development model that responds to the development vision and goals for the Sub-County. This model takes cognisance of the prevailing development character and trends in the Sub-County as well as its structuring elements. The preferred development model was selected out of three alternatives through stakeholders' workshop and discussions.

13.2 Strategic Development Directions

Strategic development in the context of the planning area refers to management activities that are used in Kiambaa Urban Area to set priorities, focus energy and resources, strengthen operations, and ensure that all stakeholders are working toward common goals.

13.2.1 SIGNIFICANCE OF KIAMBAA URBAN AREA IN METROPOLITAN REGION

Kiambaa Urban Area plays hosts to Ruaka which is an upcoming economic and residential hub. This hub has witnessed tremendous growth which can be traced to its proximity to Nairobi, UN headquarters, and the domino effects of Two Rivers Mall which is currently the largest mall in East Africa and just a stone's throw away from the town. These factors have attracted many investors and residents to the Sub-County growing its population tenfold. This has, without doubt, contributed to Karuri's function and reputation as an all-important dormitory zone for the Metropolitan region.

On the other hand, the role of the Sub-County as a food basket cannot be ignored. However, this important aspect continues to be endangered by the thriving real estate sector and declining agricultural returns.

13.2.2 URBAN GROWTH NODES

Nodes are zones of intensified human activities with significant levels and tangible trends of development. According to Regulation 1315/2013 of the European Union, an urban node is an area where transport infrastructure such as ports including passenger terminals, airports, railway stations, logistic platforms and freight terminals located in and around an urban area, is connected with other parts of that infrastructure and with the infrastructure for regional and local traffic. Growth nodes have great potential as the main hub for connecting the regions to the core/principal towns and they determine the direction of growth of a region.

In Kiambaa Urban Area, the major growth nodes are Ruaka, Gachie, Ndenderu, and Karuri/Banana due to their strategic locations, centrality and economic capacity and potential. In terms of land-use, these nodes are mainly residential in nature with central zones being commercial. Banana, also known as Karuri, is the largest commercial and administrative node within the area hosting Kiambaa Urban Area headquarter offices. It has major public facilities and infrastructure offering services to the residents.

Other mixed-use and commercial zones include Ruaka, Gachie, Muchatha and Ndenderu which are predominantly residential. Considering that they are centres of attraction to people, the nodes should be properly planned to enhance the quality of life amongst the residents of the Sub-County.

13.2.3 PROTECT ENVIRONMENTALLY SENSITIVE AREAS

Environmentally sensitive areas are those which need special protection because of their landscape, wildlife, or historical value. They include rivers, forests, and rocks. In Kiambaa Urban Area, rivers are the main environmentally sensitive areas and are prone to encroachment and pollution. This ISUDP, therefore, seeks to ensure that all rivers are buffered according to existing legal provisions to enable their conservation.

13.2.4 ENHANCE THE COMPARATIVE ADVANTAGE OF ECOLOGICAL ZONES

Ecological zones are defined as large bio-geographical units of land and water that are characterised by their distinct species and communities. The major eco-zones in Kiambaa Urban Area may be divided into smaller eco-regions which share similar natural communities, climate, meteorological factors, topography, elevation, soil types, edaphic factors, and/or other physical characteristics. For example, high lying areas of Cianda support tea plantation while the beautiful greenery and scenery promote ecological tourism. These areas should be protected and valued through enriched use of the land and promotion of tourism activities on the beautiful sceneries.

13.2.5 TRANSIT-ORIENTED DEVELOPMENT (TOD)

Ndenderu town, located at the junction of Limuru Kikuyu/Gitaru road, and Banana/Karuri town situated at the junction of Banana-Raini and Kanunga-Karuri roads are appropriate cases for applying TOD in the Sub-County. Developments within these intersections should be intensified to improve accessibility and convenience of the users. The TOD model will lead to guided densification and development control around key mass transit stations such as Ndenderu, Karuri/Banana, Gachie, Ruaka and Muchatha thus enhancing the economic and social viability of businesses and commercial activities in the Sub-County.

13.2.6 DECENTRALISED PLANNING

Decentralised planning is a type of planning based on devolution of functions and resources to the lower levels of society and at the same time ensure that the decision-making process is distributed to grass-root levels to facilitate easier access to public goods and services. Decentralised planning in Kiambaa Urban Area would mean devolution of more resources ranging from human, financial and technical resources to enhance administration, implementation, and improved planning to the ward/village levels. Zoning plans, action plans, resource area plans, renewal/redevelopment plans, and infrastructure plans are types of plans relevant to interpret, articulate and guide this process. According to the Constitution of Kenya (2010), devolution of services is a right to all citizens and refer to the distribution of services from the national government to counties, wards, and villages. This strategy is, therefore, consistent with the Constitution and should be the hallmark for all development initiatives in Kiambaa Urban Area.

13.2.7 COMPATIBLE MIXED-USE DEVELOPMENT

Mixed-use development is characterised as pedestrian-friendly development that blends two or more land uses such as residential, commercial, cultural, institutional, and/or industrial uses. Compatibility ensures that development is orderly and harmonious. Mixed-use is one of the ten principles of Smart Growth, a planning strategy that seeks to foster community design and development that serves the economy, community, public health, and environment. Kiambaa Urban Area should embrace a compatible mixed-use development strategy that facilitates design and development that will guarantee an enhanced economy, community well-being, public health, and a dignified physical environment.

13.2.8 CONTROL OF URBAN SPRAWL

Urban sprawl or suburban growth describes the expansion of human populations away from central urban areas into low-density, mono-functional, and usually car-dependent communities, in a process called suburbanisation. Controlled urban sprawl ensures that development, particularly along major roads, and highways are orderly and regulated. Kiambaa Urban Area currently is witnessing ribbon development along its major roads. Future un-controlled development can ruin the ambience of the Sub-County. In order to curb such development, the proposal is that a peripheral green belt is maintained wherever possible unless land conversion is warranted under special circumstances.

13.2.9 CONSERVATION OF AGRICULTURAL LAND

According to the Food and Agricultural Organisation (FAO), conservation of agricultural land is a concept for resource-saving agricultural production that strives to achieve acceptable profits together with high and sustained production levels while concurrently conserving the environment (FAO 2007). Agriculture is the main economic activity within Kiambaa Urban Area, and this means that development is closely linked to the agricultural sector. It is, therefore, important for the existing tea and coffee farms in Kiambaa Urban Area to be preserved and conserved to boost more sustained development, while at the same time supporting subsistence/small scale agricultural activities.

13.2.10 QUALITY LIVING

Quality living is the general well-being of individuals and societies, outlining negative and positive features of life. It observes life satisfaction, including aspects such as physical health, family, education, employment, wealth, safety, and security to freedom, religious beliefs, and the environment. The planning of Kiambaa Urban Area will take into account not only the physical layout and architecture of housing blocks but also how schools, shops, medical facilities, parks, places of worship, and offices are within easy access. Designated residential areas will be well-served by proposed public transport and road networks. There will be more ground level open spaces and parks, and community spaces at intermediate levels to facilitate community bonding.

13.3 Alternative Development Models

13.3.1 NIL SCENARIO: MAINTAINING THE STATUS QUO

This scenario looks at what will happen in the next 10 years if planning intervention is not carried out based on the projections. It projects the situation of the Sub-County by maintaining the status quo, that is, without proposing new planning interventions. In this case, no appropriate action is taken to address the current development challenges and those which could predictably take place in the future. It is a strategic planning tool for mapping situations currently and projecting them into the future. Therefore, without intervention the various scenarios in Kiambaa Urban Area will include:

- **Intensive subdivision of land:** One of the main problems facing development planning in Kiambaa Urban Area is uncontrolled intensive subdivision and conversion of land from agriculture to urban uses. Un-regulated land transfers have resulted in a reduction in the size of land owned by the households. Without intervention, this will not only lead to the disinheritance of landowners but also reduced agricultural land and, therefore, to low productivity. Additionally, this will lead to increased food insecurity, poverty, and crime.
- **Encroachment of the riparian reserves:** The interfaces between land and the rivers in Kiambaa Urban Area have been encroached by farmlands in rural areas and buildings within urban centres. The continued un-befitting practices will result in pollution and contamination of the rivers which if unchecked, will result to excessive erosion of the river banks which reduces the potential of the cultivated land nearby; risk to public safety as property and settlers around are susceptible to flood damages; reduction of open spaces and aesthetics, therefore, loss of the scenic functions; erosion which may cause toxic substances to be carried into the rivers thus reducing the water quality; and increase in infiltration resulting to reduction in water quantity.
- **Dispersed human settlement patterns:** Dispersed form of human settlements is evident within the rural zones of Kiambaa Urban Area where residents erect housing without adherence to planning guidelines. This practice and resultant human settlement patterns have limited the socio-economic development of the area as follows:
 - Limited access to key infrastructural services as majority of the residents have to walk long distances to access the markets, children walking over 1 km to access both primary and secondary schools, and inconvenience especially to the elderly and sick while accessing medical care;
 - Increased household costs as they spend more on transporting their agricultural goods to the markets and on accessing other services;
 - Local businesses and enterprises increased costs of purchasing and transporting products which limit economic growth;
 - Depletion of natural resources;
 - Increased manifestation of poor waste management and environmental pollution; and

- Unequitable distribution of social amenities.

The social amenities in Kiambaa Urban Area are unequally distributed where the main urban centres of Karuri/Banana, Ruaka, Gachie, and Ndenderu are well served. The 26 public primary and 16 public secondary schools in the Sub-County are unevenly distributed. Most of these are located in Ruaka and Karuri towns, which limits accessibility by the pupils from other areas as they have to walk for more than a kilometre. There is only one police station located in Karuri and six patrol bases distributed in other areas. Kihara and Karuri hospitals are the only Level IV hospitals in the Sub-County.

Advantages of Nil Scenario:

- The Nil Scenario is of great advantage to developers as it saves on both cost and resources since no action is taken to change the existing situation. As a result, no resources are needed in relocation, compensation, and development;
- It is an easy model to come up with as it involves no critical action but a representation of what exists without any adjustment;
- The actual site can be easily mapped out using the design as it involves the representation of features that exists with no alteration; and
- These designs can be of benefit to rural areas by reinforcing the policy of maintaining the local rural character that is included in many comprehensive land use plans.

Disadvantages of Nil Scenario

- Un-supervised subdivision and conversion of agricultural land for residential purposes will continue to intensify;
- Coffee and tea plantations are already threatened though the coffee areas are under more threat than tea affecting the volume of foreign exchange;
- Encroachment of Riara and Ruaka rivers and their tributaries may intensify;
- Traffic congestion and increase of pollution due to the increasing number of vehicles including parking in undesignated zones;
- Un-equitable distribution of infrastructure and social amenities thus affecting the people's quality of life; and
- In the event that the existing challenges are left unattended, over time their negative impacts on the surrounding environment will intensify and lead to further deterioration of the situation.

13.3.2 ALTERNATIVE 1: COMPACT LINEAR MODEL

This model attempts to concentrate development along major development corridors in a linear manner such as transport corridor and river systems. The model emphasises the main transportation route as the backbone of the proposed urban layout. All other functions are arranged along that axis with defined width and indefinite length, intersected at certain intervals by secondary perpendicular streets.

The layout consists of large blocks with residential buildings surrounded by vegetation with commercial and public structures situated at intersections. In respect to Kiambaa Urban Area, this form of development is proposed along the major transport routes (Ruaka to Karuri to Raini, Ruaka to Ndenderu, Raini to Kanunga, Karuri to Kanunga). However, there is a need to restrict intensive land uses in areas close/next to the riparian reserves in order to conserve/preserve these natural features. Other areas to restrict development include Cianda ward to be reserved for agriculture.

The rationale for this is justified by the following considerations:

- Concentrated mixed land use development (borrowed from TOD model developed by Don Arturo and applied by George Collins in Madrid);
- Designation of green belt buffer along rivers;
- Designation of entry and exit points;
- Back access to developments;
- Zone of commercial activities, park and social facilities and services; and
- Conservation of agricultural zone within Cianda ward.

Advantages:

- Provision of an effective transport system;
- Protection of agricultural land;
- Protection of water catchment areas, plant, and animal life;
- Easier access to social services; and
- Economical and easier to implement.

Disadvantages:

- Likely to lead to congestion along the transport corridor; and
- Potential for pollution and safety concerns.

13.3.3 ALTERNATIVE 2: MULTI-NODAL TRANSIT-ORIENTED DEVELOPMENT (TOD)

This model attempts to intensify development in centres linked by the multiplicity of transport routes. It maximises the amount of residential, business and leisure space within walking distance of public transport. It aims at increasing public transport ridership, reducing the use of private cars, and promoting sustainable urban development. It is structured based on the following components:

- Intensified land use within a radius of 400 m to 800 m around transit node;
- Improving connectivity through upgrading existing roads (incorporating NMT);
- Develop and enforce guidelines to control development;
- Designates hierarchy of nodes based on the allocation of functions (Karuri-commercial and administrative); and
- Promotes mixed-use development.

Advantages:

- Ensure more compact developments, and encourage people to live and work in such zones;
- Reduces urban sprawl;
- Preserve precious open spaces since development takes place within the 800-metre distance;
- Preserve environmentally sensitive areas but reserve for recreation and greenery;
- Preserve agricultural land and reduces development pressure on them;
- Reduced costs of infrastructure provision; and
- Reduces traffic congestion since most movements are non-motorised due to easy access to services.

Disadvantages:

- Potential urban sprawl due to increased land values within the transit-oriented nodes;
- Promotes primacy hence reducing benefits of decentralisation;
- Perceived inflated prices of land and housing; and
- Potential for pollution and safety concerns.

13.3.4 EVALUATION OF ALTERNATIVE MODELS

The proposed models were evaluated through stakeholder's participation in order to obtain the preferred model of development for Kiambaa Urban Area. The evaluation of the models was done through the Goals Achievement Matrix Method. The two models that were evaluated in the development of Kiambaa ISUDP are the Compact Linear Model and Multi-Nodal Transport Oriented Model. Based on the development vision of this ISUDP, the following goals were used in the evaluation of the proposed models:

- To promote the local economy through the provision of environmentally sustainable infrastructure for the promotion of investment and entrepreneurship;
- To provide, efficient and reliable connectivity to all areas through a better road system;
- To ensure delivery of quality, sustainable, accessible, and affordable social services, and infrastructure;
- To put in place a sound environmental management system for sustainable development; and
- To promote public participation to ensure proper policy implementation and zero tolerance to corruption.

Table 13-1 shows the rating scale applied in the evaluation of the models.

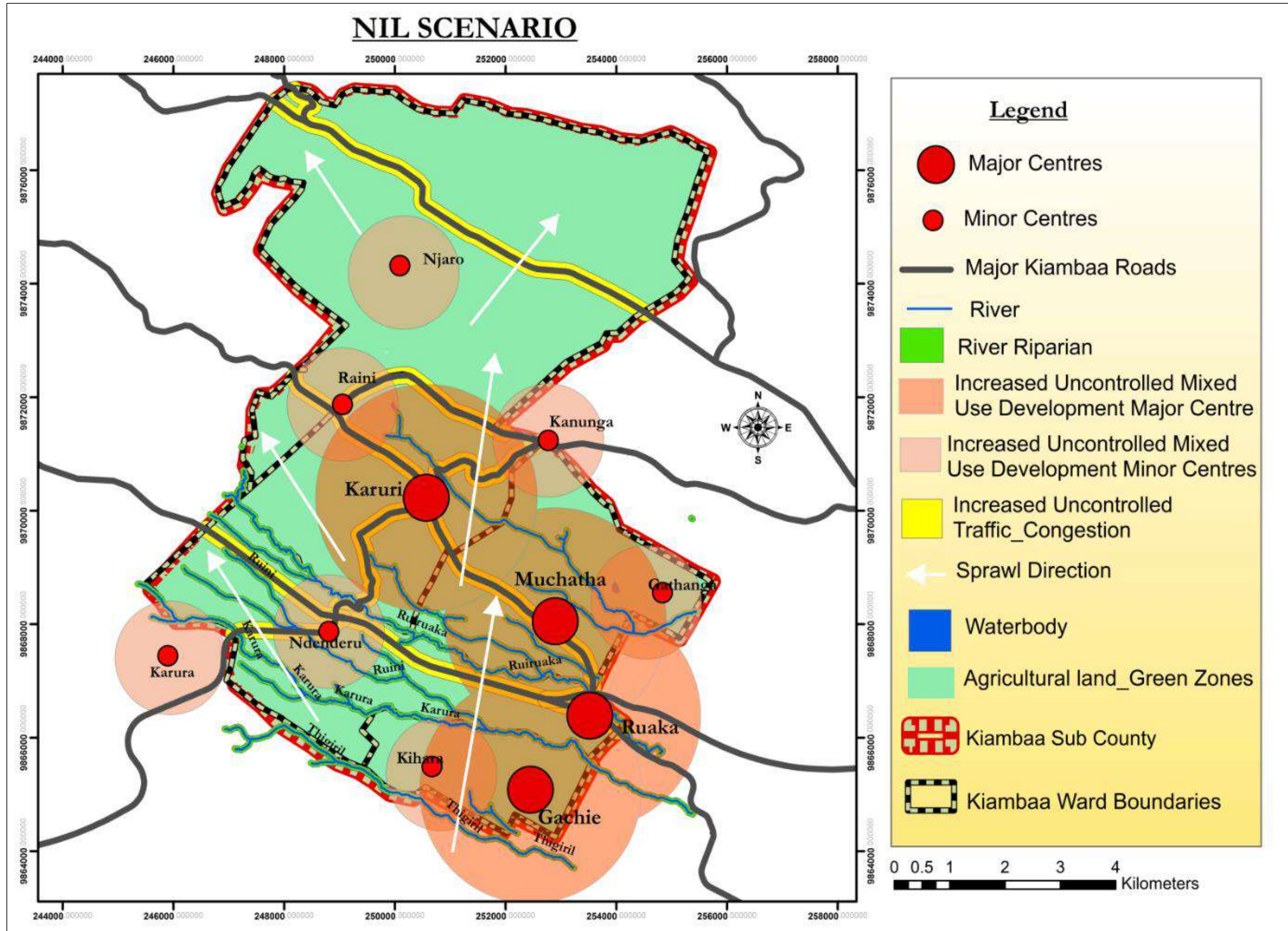


Figure 13-1: Nil Scenario in Kiambaa Urban Area

Prepared by; VisionRI & Urban Lines Consultants Ltd.

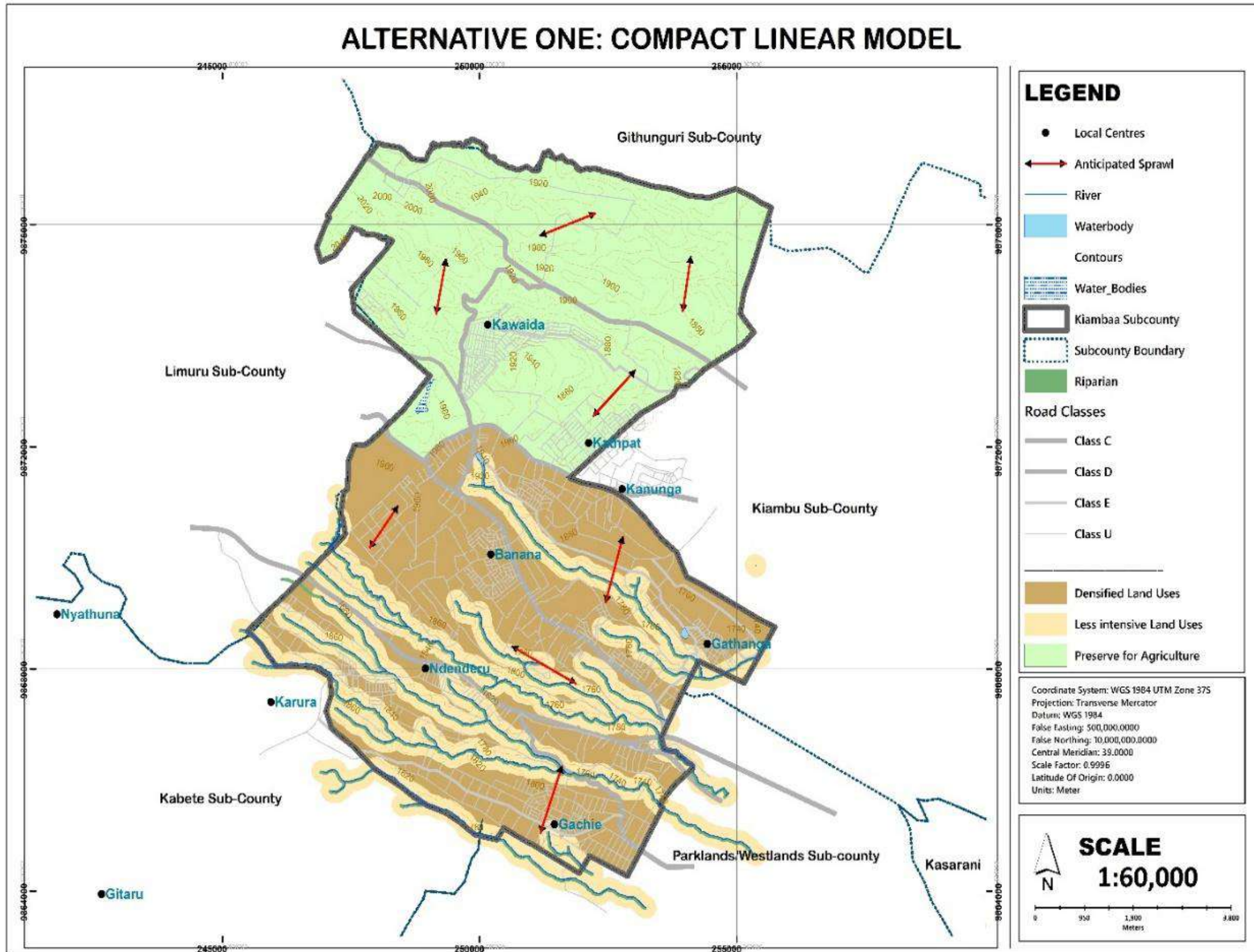


Figure 13-2: Compact Linear Model

Prepared by: VisionRI & Urban Lines Consultants Ltd.

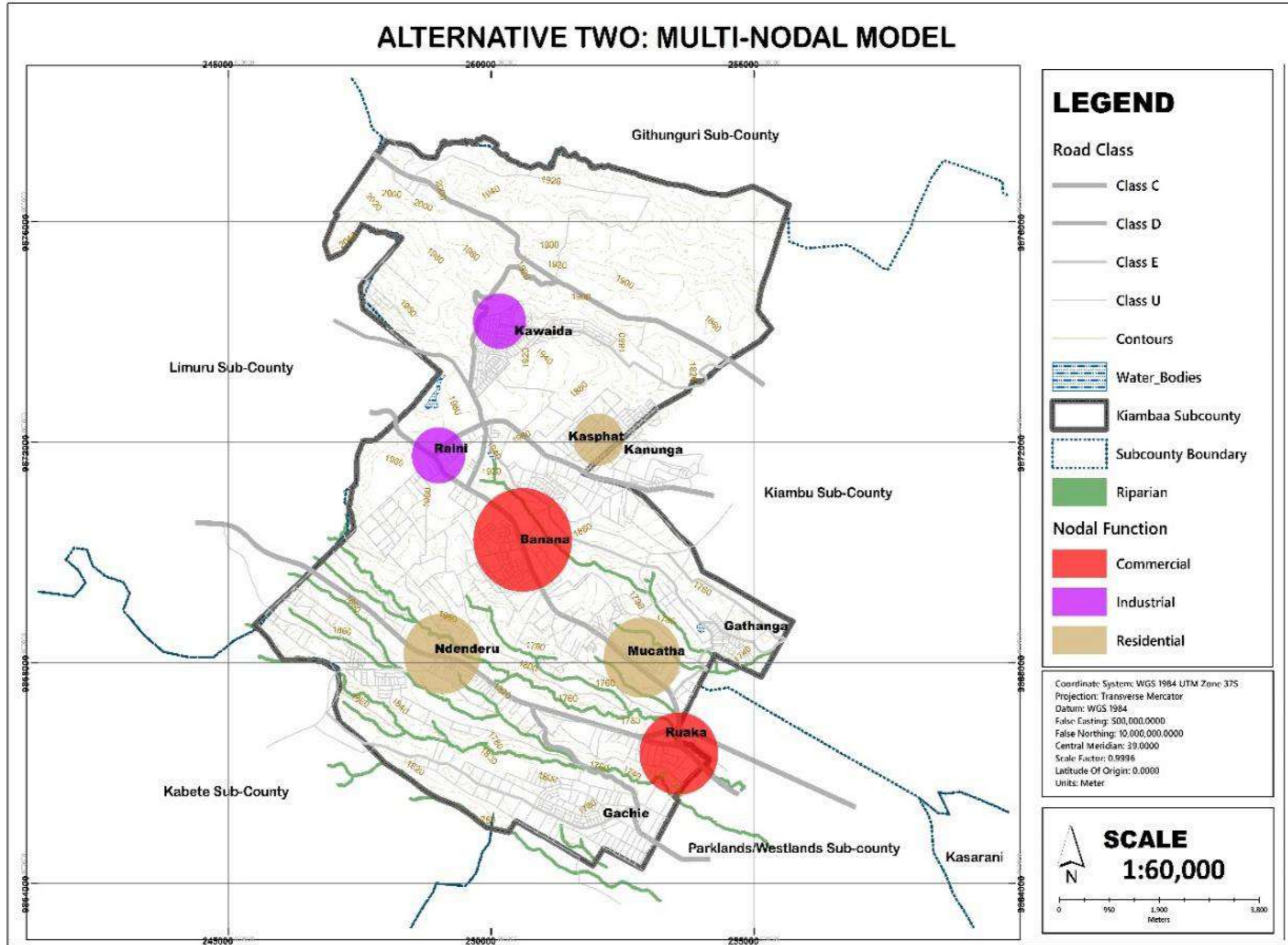


Figure 13-3: Multi-Nodal TOD Model

Prepared by: VisionRI & Urban Lines Consultants Ltd.

Table 13-1: Alternative model Rating Scale

No	Scale	Points
1	Alternative contributes greatly to the fulfilment of the goal	3
2	Alternative contributes moderately to the fulfilment of the goal	2
3	Alternative contributes slightly to the fulfilment of the goal	1
4	Alternative does not contribute to the fulfilment of the goal	0
5	Alternative slightly inconsistent with the goal	-1
6	Alternative moderately inconsistent with the goal	-2
7	Alternative greatly contradicts the goal	-3

Source: VisionRI

The Goals Achievement Matrix below indicates the goals evaluated against the models and results and rank of the evaluation.

Table 13-2: Goals Achievement Matrix

S. No.	Goals	Assigned weight	Models			
			Compact Linear	Sub-Total	Multi-nodal TOD	Sub-Total
1	To put in place a sound environmental management system for sustainable development.	0.20	1	0.2	2.6	0.52
2	To ensure delivery of quality, sustainable, accessible, and affordable social services, and infrastructure.	0.20	1.6	0.32	1.2	0.24
3	To promote the local economy through the provision of environmentally sustainable infrastructure for the promotion of investment and entrepreneurship.	0.20	0.8	0.16	3	0.6
4	To provide, efficient & reliable connectivity to all areas through a better road system.	0.20	1.2	0.24	2.8	0.56
5	To promote public participation to ensure proper policy implementation and zero tolerance to corruption.	0.20	0.2	0.04	0.4	0.08
	Total Score	1.00		0.96		2
	Rank			2		1

Based on this evaluation, the above Multi-Nodal Transport Development is the stakeholders' preferred model of development for Kiambaa Urban Area. This model has used in the formulation of the land use plan and development strategies in this Plan.

14 PHYSICAL DEVELOPMENT PLAN

14.1 Land Use Plan

The land is a fundamental factor of consideration in the practice of urban and regional planning. This is because social and economic activities are located in space. Kiambaa Urban Area is experiencing high growth to accommodate the people, their activities and related infrastructure. This Plan, therefore, has made efforts to ensure equitable distribution of facilities within land without interference with the ecological balance. The principal considerations for determining the spatial structure of an area are to meet the demand of the future needs in terms of efficient transportation networks, social and infrastructural services, housing, commerce, green character, and protection of environmentally sensitive areas.

The proposed land use structure is expected to provide a balance in the physical, social, and economic character of the towns in Kiambaa Urban Area by enhancing it to attract more people in developed high-density areas. This will act as counter magnets for pulling away the undesirable growth zones from the agricultural areas under coffee and tea plantations; protect the environmentally fragile areas such as watersheds and rivers, and reduce land subdivision amongst the poor and economically underprivileged in search of high gains of land transfers.

The spatial structure of the Sub-County is intended to achieve harmony with the coherent interrelationship between various activities under the proposed uses. The land use structure is tied up intrinsically to an efficient transport system which is also proposed to be improved to cope with the future demands of development.

The following sections present a long-term development framework for Kiambaa Urban Area by indicating a broad land-use plan and classifications, land-use policies, land use budget and development control regulations.

14.1.1 INTEGRATED LAND USE PLAN

Based on the proposals of different planning sectors, the table below shows the existing and proposed land uses. It also illustrates that there is no change in the Sub-County's boundary limits. The table provides a land-use budget which is a land optimising model that is used to determine future land requirements of a given population and their activities. It involves the determination of how much is required to accommodate anticipated future change and allocating land to particular uses.

Land budgeting is a crucial link between population projections, land use projections and the amount of land designated for future development. Map 14-1 below shows the detailed proposed land use plan for 2020-2030 and Table 14-1 shows the existing and proposed land uses with the planning period. The major anticipated land use changes include residential from 25.43 % to 40%. Other major land changes are witnessed in the reclamation of riparian reserves. Agriculture on the other hand was reduced from 64% to 40%.

Map 14-1: Proposed Land Use Plan for Kiambaa Urban Area

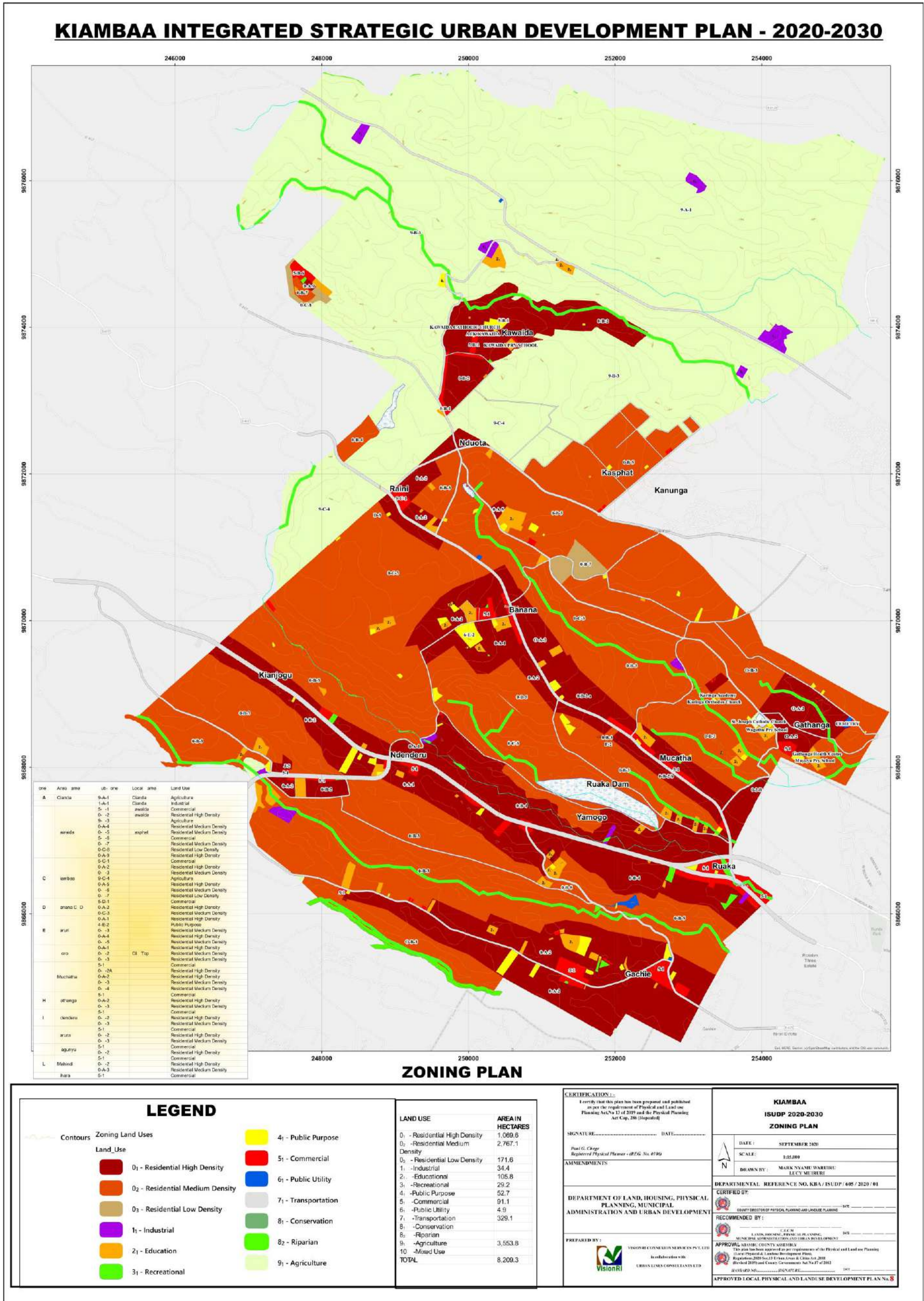


Table 14-1: Existing and Proposed Land Use (2020-2030)

Kiambaa Land Use Distribution					
Code	User	Existing		Proposed	
		Area in Hectares (Ha)	Percentages (%)	Area in Hectares (Ha)	Percentages (%)
0	Residential				
	Residential - High	550.5	6.62%	1220.1	14.66%
	Residential - Medium	459.19	5.52%	2775.1	33.35%
	Residential - Low	1106.29	13.29%	32.3	0.39%
1	Industrial	19.1	0.23%	34.4	0.41%
2	Educational	91.94	1.10%	105.4	1.27%
3	Recreational	4.8	0.06%	29.2	0.35%
4	Public Purpose	60.96	0.73%	52.7	0.63%
5	Commercial	245.96	2.96%	91.1	1.09%
6	Public Utility	4.73	0.06%	4.9	0.06%
7	Transportation	391.69	4.45%	751.4	8.31%
8	Conservation Areas				
	Riparian	0	0.00%	124.2	1.49%
	Water bodies	9.22	0.11%	9.22	0.11%
9	Agriculture	5,380.00	64.65%	3521.5	42.33%
	Total	8,321.47	100%	8,321.47	100%

Source: Study Team

14.2 Land Use Zoning

The basic purpose and function of zoning is to delineate residential, commercial, industrial, recreational, agricultural; transport, public purpose, and public utility land uses in the Sub-County. Zoning is done to control the physical development of the land and the types of uses that each individual space shall be put to use and thereby ensuring proper planning of Kiambaa Urban Area to achieve the desired built urban environment.

14.2.1 DETAILED LAND USE ZONING

- i. **Residential Land Use:** Residential land was adopted as the basic unit for projecting and budgeting future land requirement. The proposed residential land use covers approximately

3,431.76 ha representing approximately 40% of the entire proposed developable area in Kiambaa Urban Area. This takes into consideration the current residential land use of 2,115.98 ha and an additional 1,315.78 ha to cater for the future housing demands. The plan earmarks areas for different: high, medium, and low-density housing areas in responding to various housing needs of diverse socio-economic groups. The housing distribution by income shall thus be 15% for the economically weak; 40% for low income; 35% for middle income; and 10% for high income. The existing and proposed residential densities are described as below:

- **High-Density Residential:**

- **Existing areas:** Kihara, Gachie, Ruaka, Ndenderu and Wangunyu. The population of these areas is generally high; and
- **Proposed areas:** The proposed high-density residential areas are Kihara and Gachie in Kihara, Ruaka and Wangunyu in Ndenderu ward. The existing population density of Kihara ward is 13,658 persons per square kilometre.

- **Medium Density Residential:**

- **Existing areas:** Cianda, Kawaida, Njiku, Karuri/Banana, and Karura; and
- **Proposed areas:** The existing medium-density areas with medium density areas in new residential areas are Ndenderu, Muchatha and Karuri/Banana.

- **Low-Density Residential:**

- **Existing areas:** Some of the existing low-density areas are Cianda, Njiku, Karuri/Banana and Karura; and
- **Proposed areas:** No new areas are proposed for low-density housing.

ii. **Industrial Land Use:** Current industrial area in Kiambaa Urban Area is 0.23% of the total developed area. This plan proposes to increase the total percentage to 0.33%, which should primarily agro-based industries. The three types of industries namely, light, medium and heavy industries are proposed in the Sub-County.

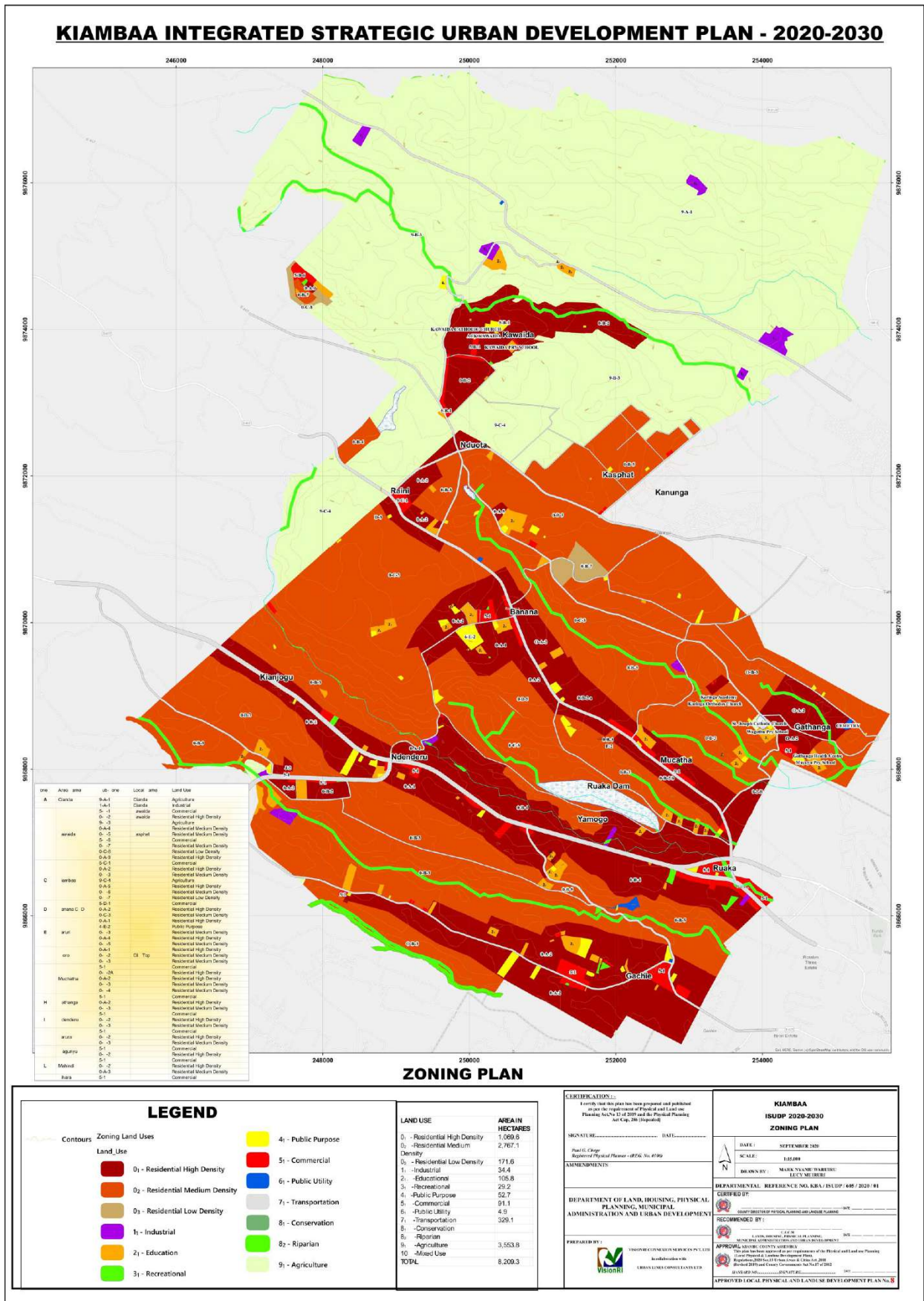
- **Light industry:** These are industries such as furniture and shoemaking, electronics, clothes making, home appliances repairing, *jua kali* and flour milling, amongst others. Light industries have been proposed in Muchatha, Karuri/Banana, Ndenderu and Kawaida areas. The ISUDP also proposes some light industrial activities such as wood and metal workshops, dry cleaners, and printing, amongst others, within residential areas. The minimum plot-size proposed under light industries is 0.05ha.
- **Medium-sized industry:** A few medium-sized industries exist within the Sub-County. These are coffee milling factories, tea processing factories, milk processing plants and flower collection plants. The proposed medium industries include biogas processing, animal feeds manufacturing plants, dairy cooling plants and leather processing. The minimum plot-size proposed for the medium-size industry is 2 ha.

- **Heavy industries:** Kiambaa Urban Area lacks heavy industries. The minimum plot size for heavy industry is 10 ha.
- iii. **Commercial Land Use:** The existing commercial area is 2.96% of the total suitable areas within the County. In order to control and contain the sprawl, commercial land use has been allocated 1.09%. The commercial centres will also be densified in order to fully utilize the allocated land. Commercial land use will take the form of corner shops, cluster level shopping areas, neighbourhood shopping and service centres, sub-sectoral commercial centres, CBDs, wholesale markets amongst others. These new commercial areas are distributed all over the Kiambaa as illustrated in the proposed land use plan.
- iv. **Educational Land Use:** With a projected population of 416,534 by the year 2030, an addition of 187 education facilities will be required. These new facilities include 58 ECDE centres, 32 primary schools, 36 secondary schools, 3 youth polytechnics and 2 special schools required by 2030. Currently, education occupies a land area of 91.94 hectares. An additional 20 ha has been set aside for more educational facilities to accommodate the projected population. To fully meet the demand, the existing schools will also be densified to be able to accommodate more students. The location of existing and proposed educational facilities is shown in the proposed land use plan.
- v. **Public Purpose Land Use:** Public purpose facilities include facilities for healthcare, security, religious institutions, libraries, post offices, cemeteries/burial grounds, and government offices. The current suitable land public purpose is 1.4% and is expected to rise to 1.5% by the year 2030. Development of land for public purposes is generally expected to be intertwined within the residential and commercial developments. The location of the existing and proposed area under public purposes is illustrated in the proposed land use plan.
- vi. **Public Utility/Amenity Use:** Land under public utilities will slightly increase from 0.06% to 0.13% due to newly proposed facilities such as sewer treatment plants (1) and fire stations (3). This increase provides adequate land for infrastructure and services for the current and future generations of Kiambaa Urban Area. The location of existing and proposed public utility facilities in the proposed land use plan.
- vii. **Transportation Use:** The major mode of transport within Kiambaa is road transport. According to this plan, new roads require to open up new roads in order to access the locations in the interior and expansion of existing roads to accommodate the rapid growth. There is a need to provide alternative means of transport such as commuter rail within the planning area. This plan also provides for new parking areas, bus and Matatu terminals, and commuter rail stations, amongst others. The total area occupied by transportation will thus increase from the current 4.45% to 9.03% by the year 2030.
- viii. **Recreational Land Use:** Recreational areas are a tangible reflection of the quality of life in an area. They provide an identity for residents and are a major factor in the perception of the

quality of life in a given urban area. Recreation spaces determine how liveability of an area. Recreational facilities account for 0.06% of the planning area. For sufficient provision of recreational facilities by the year 2030, this plan has provided 25 more hectares for this bringing the total percentage to 0.35%. Some of the facilities proposed include playgrounds, greens/parks, sports facilities like stadiums and amusement parks amongst others as shown in the proposed land use plan.

- ix. **Agriculture Use Plan:** Agriculture plays a very critical role in the economy of rural Kiambaa Urban Area. Urban agriculture acts as a supplementary source of livelihood of food and fuel for many households in an urban area. The agricultural potential that exists within the Sub-County should be exploited to the benefits of the residents. This plan, therefore, reserves 41.50% for agricultural areas.

Map 14-2: Proposed Zoning Plan



Map 14-3: Proposed Zoning Plan

Designated land use (CODE)	Area Name	Sub-Zone	Permitted Land Use	Minimum Land/Plot Size	Ground Coverage		PLOT RATIO		SETBACKS			BUILDING HEIGHT/ NO. OF FLOORS	ROAD SIZE (METRES)	Special conditions/ Notes
					S	U	S	U	FRONT	SIDE	REAR			
AGRICULTURAL-9	Cianda	9-A-1	Agriculture	0.4 Ha									15	Promote large scale farming and value addition Minimum subdivision of 0.4Ha
Agricultural, Residential & Commercial 10	Kawaida	5- B-1	Commercial Permitted: Modern markets; multi-storey developments; shopping complexes; office buildings; showrooms; retail & wholesale shops; hotels; eateries; professional offices; hostels; transport yards; public facilities; parking silos	0.045 Ha	75	60	3	2.4	6	1.2	2.4	G+4	12	Double volume in heights 1 parking lot per 100sm Additional parking in basement or top floor Shall create space for recreational amenities e.g. kids playing area
		0-B-2	Residential High Density	0.045 Ha	65	50	2.6	2.0	3	1.2	2.4	G+4	9	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.
		9- B-3	Agriculture	0.2 Ha	-	-	-	-	-	-	-	-	-	15

														Minimum subdivision of 0.1Ha One Single-Dwelling only per plot. Typology: Maisonettes & Bungalows; townhouses One (1) DSQ shall be allowed. Not more than 15% GC of ground floor plinth of the main house. Attic house shall not be more than 30% of the typical floor plan Provide for min 10% greenery/tree cover. Provide 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 Designated refuse collection points Provide for parking -2 private vehicles 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
		0-A-4	Residential Medium Density	0.045 Ha	50	40	1.0	0.8	4.5	1.2	2.4	G+1	9	
		0-B-5 KASPA HT	Residential Medium Density	0.045 Ha	50	40	1.0	0.8	4.5	1.2	2.4	G+1	9	One Single-Dwelling only per plot. Typology: Maisonettes & Bungalows; townhouses One (1) DSQ shall be allowed. Not more than 15% GC of ground floor plinth of the main house. Attic house shall not be more than 30% of the typical floor plan Provide for min 10% greenery/tree cover. Provide 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 Designated refuse collection points Provide for parking -2 private vehicles 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
		5-B-6	Commercial Permitted: Modern markets; multi-storey developments; shopping complexes; office buildings; showrooms; retail &	0.045 Ha	75	60	3	2.4	6	1.2	2.4	G+2	12	Double volume in heights 1 parking lot per 100sm Additional parking in basement or top floor Shall create space for recreational amenities e.g. kids playing area

			wholesale shops; hotels; eateries; professional offices; hostels; transport yards; public facilities; parking silos											
		0-B-7	Residential Medium Density	0.045 Ha	50	40	1.0	0.8	4.5	1.2	2.4	G+1	9	<p>One Single-Dwelling only per plot.</p> <p>Typology: Maisonettes & Bungalows; townhouses</p> <p>One (1) DSQ shall be allowed. Not more than 15% GC of ground floor plinth of the main house.</p> <p>Attic house shall not be more than 30% of the typical floor plan</p> <p>Provide for min 10% greenery/tree cover. Provide at least one fruit tree</p> <p>Provide for alternative green energy use e.g. solar, wind power</p> <p>Provide for recycling of wastewater through adoption of new technology</p> <p>Designated refuse collection points</p> <p>Provide for parking -2 private vehicles</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>
		0-C-8	Residential Low Density	0.1 Ha	40	40	0.4	0.4	6	1.2	2.4	G ONLY	12	<p>One Single-Dwelling only per plot.</p> <p>Typology: Maisonettes & Bungalows</p> <p>One DSQ shall be allowed. Not more than 15% GC of ground floor plinth of the main house.</p> <p>Provide for min 10% greenery/tree cover At least one fruit tree</p> <p>Provide for alternative green energy use e.g. solar, wind power</p> <p>Provide for recycling of wastewater through adoption of new technology</p> <p>Provide for parking -2 private vehicles</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>
		0-A-9	Residential High Density	0.045 Ha	65	50	2.6	2.0	4.5	1.2	2.4	G+4	9	<p>Single-room developments not permitted</p> <p>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</p>

		9-C-4	Agriculture	0.2 Ha	-	-	-	-				15	Minimum subdivision 0.1Ha	
		0-A-5	Residential High Density	0.045 Ha	65	50	2.6	2	3	1.2	2.4	G+4	9	<p>Single-room developments not permitted</p> <p>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</p> <p>A service lane of 6m to be provided/surrendered for plots fronting 18m road and above.</p> <p>Pent house shall not be more than 30% of the typical floor plan</p> <p>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.</p>
		0-B-6	Residential Medium Density	0.045 Ha	50	40	1.0	0.8	4.5	1.2	2.4	G+1	9	<p>One Single-Dwelling only per plot.</p> <p>Typology: Maisonettes & Bungalows; townhouses</p> <p>One (1) DSQ shall be allowed. Not more than 15% GC of ground floor plinth of the main house.</p> <p>Attic house shall not be more than 30% of the typical floor plan</p> <p>Provide for min 10% greenery/tree cover. Provide at least one fruit tree</p> <p>Provide for alternative green energy use e.g. solar, wind power</p> <p>Provide for recycling of wastewater through adoption of new technology</p> <p>Designated refuse collection points</p> <p>Provide for parking -2 private vehicles</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>
		0-B-7	Residential Low Density	0.1 Ha	30	30	0.3	0.3	6	1.2	2.4	G ONLY	12	<p>One Single-Dwelling only per plot.</p> <p>Typology: Maisonettes & Bungalows</p> <p>One DSQ shall be allowed. Not more than 15% GC of ground floor plinth of the main house.</p> <p>Provide for min 10% greenery/tree cover At least one fruit tree</p> <p>Provide for alternative green energy use e.g. solar, wind power</p> <p>Provide for recycling of wastewater through adoption of new technology</p> <p>Provide for parking -2 private vehicles</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>
Commercial and Residential- 5	Banana CBD	5-D-1	Commercial Permitted: Modern markets; multi-storey developments; shopping complexes;	0.045 Ha	75	60	3	2.4	6	1.2	2.4	G+4	12	<p>Double volume in heights</p> <p>1 parking lot per 100sm</p> <p>Additional parking in basement or top floor</p> <p>Shall create space for recreational amenities e.g. kids playing area</p>

			office buildings; showrooms; retail & wholesale shops; hotels; eateries; professional offices; hostels; transport yards; public facilities; parking silos											
		0-A-2	Residential High Density	0.045 Ha	65	50	2.6	2	3	1.2	2.4	G+7	9	<p>Single-room developments not permitted</p> <p>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</p> <p>A service lane of 6m to be provided/surrendered for plots fronting 18m road and above.</p> <p>Pent house shall not be more than 30% of the typical floor plan</p> <p>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.</p>
		0-C-3	Residential Medium Density	0.1 Ha	60	50	1.2	1	4.5	1.2	2.4	G+1	9	<p>One Single-Dwelling only per plot.</p> <p>Typology: Maisonettes & Bungalows; townhouses</p> <p>One (1) DSQ shall be allowed. Not more than 15% GC of ground floor plinth of the main house.</p> <p>Attic house shall not be more than 30% of the typical floor plan</p> <p>Provide for min 10% greenery/tree cover. Provide at least one fruit tree</p> <p>Provide for alternative green energy use e.g. solar, wind power</p> <p>Provide for recycling of wastewater through adoption of new technology</p> <p>Designated refuse collection points</p> <p>Provide for parking -2 private vehicles</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>
Residential and public purpose- O&4	Karuri	0-A-1	Residential High Density	0.045 Ha	65	50	2.6	2.0	3	1.2	2.4	G+7	9	<p>Single-room developments not permitted</p> <p>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</p> <p>A service lane of 6m to be provided/surrendered for plots fronting 18m road and above.</p> <p>Pent house shall not be more than 30% of the typical floor plan</p> <p>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.</p> <p>Provide Geo-tech surveys for G+3</p>

	4-E-2	Public Purpose												
	0-B-3	Residential Medium Density	0.1 Ha	60	50	1.2	1	4.5	1.2	2.4	G+1	9	<p>One Single-Dwelling only per plot.</p> <p>Typology: Maisonettes & Bungalows; townhouses</p> <p>One (1) DSQ shall be allowed. Not more than 15% GC of ground floor plinth of the main house.</p> <p>Attic house shall not be more than 30% of the typical floor plan</p> <p>Provide for min 10% greenery/tree cover. Provide at least one fruit tree</p> <p>Provide for alternative green energy use e.g. solar, wind power</p> <p>Provide for recycling of wastewater through adoption of new technology</p> <p>Designated refuse collection points</p> <p>Provide for parking -2 private vehicles</p>	
	0-A-4	Residential High Density	0.045 Ha	65	50	2.6	2	3	1.2	2.4	G+4	9	<p>Single-room developments not permitted</p> <p>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</p> <p>A service lane of 6m to be provided/surrendered for plots fronting 18m road and above.</p> <p>Pent house shall not be more than 30% of the typical floor plan</p> <p>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.</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>	
	0-B-5	Residential Medium Density	0.1 Ha	60	50	1.2	1	6	1.2	2.4	G+1	9	<p>One Single-Dwelling only per plot.</p> <p>Typology: Maisonettes & Bungalows; townhouses</p> <p>One (1) DSQ shall be allowed. Not more than 15% GC of ground floor plinth of the main house.</p> <p>Attic house shall not be more than 30% of the typical floor plan</p> <p>Provide for min 10% greenery/tree cover. Provide at least one fruit tree</p> <p>Provide for alternative green energy use e.g. solar, wind power</p> <p>Provide for recycling of wastewater through adoption of new technology</p> <p>Designated refuse collection points</p> <p>Provide for parking -2 private vehicles</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>	

Residential-0	Njoro	0-A-1	Residential High Density	0.045 Ha	65	50	2.6	2	3	1.2	2.4	G+4	9	<p>Single-room developments not permitted</p> <p>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</p> <p>A service lane of 6m to be provided/surrendered for plots fronting 18m road and above.</p> <p>Pent house shall not be more than 30% of the typical floor plan</p> <p>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.</p>
		0-B-2	Medium	0.045	50	40	1.0	0.8	4.5	1.2	2.4	G+1	9	<p>One Single-Dwelling only per plot.</p> <p>Typology: Maisonettes & Bungalows; townhouses</p> <p>One (1) DSQ shall be allowed. Not more than 15% GC of ground floor plinth of the main house.</p> <p>Attic house shall not be more than 30% of the typical floor plan</p> <p>Provide for min 10% greenery/tree cover. Provide at least one fruit tree</p> <p>Provide for alternative green energy use e.g. solar, wind power</p> <p>Provide for recycling of wastewater through adoption of new technology</p> <p>Designated refuse collection points</p> <p>Provide for parking -2 private vehicles</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>
		0-B-3	Residential Medium Density	0.1 Ha	40	40	0.8	0.8	6	1.2	2.4	G+1	9	<p>One Single-Dwelling only per plot.</p> <p>Typology: Maisonettes & Bungalows; townhouses</p> <p>One (1) DSQ shall be allowed. Not more than 15% GC of ground floor plinth of the main house.</p> <p>Attic house shall not be more than 30% of the typical floor plan</p> <p>Provide for min 10% greenery/tree cover. Provide at least one fruit tree</p> <p>Provide for alternative green energy use e.g. solar, wind power</p> <p>Provide for recycling of wastewater through adoption of new technology</p> <p>Designated refuse collection points</p> <p>Provide for parking -2 private vehicles</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>
	Muchatha	5-1	Commercial	0.045 Ha	75	60	3	2.4	6	1.2	2.4	G+4	12	<p>Double volume in heights</p>

Commercial and Residential- 5		Permitted: Modern markets; multi-storey developments; shopping complexes; office buildings; showrooms; retail & wholesale shops; hotels; eateries; professional offices; hostels; transport yards; public facilities; parking silos											1 parking lot per 100sm Additional parking in basement or top floor Shall create space for recreational amenities e.g. kids playing area
	O-B-2a	Residential High Density	0.045 Ha	65	50	4.2	3.5	3	1.2	2.4	G+7	9	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.
	O-A-2b	Residential High Density	0.045Ha	65	50	1.3	1.0	3	1.2	2.4	G+1	9	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.
	O-B-3	Residential Medium Density	0.1 Ha	50	40	1.0	0.8	6	1.2	2.4	G+1	9	One Single-Dwelling only per plot. Typology: Maisonettes & Bungalows; townhouses One (1) DSQ shall be allowed. Not more than 15% GC of ground floor plinth of the main house. Attic house shall not be more than 30% of the typical floor plan Provide for min 10% greenery/tree cover. Provide 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

															<p>Designated refuse collection points</p> <p>Provide for parking -2 private vehicles</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>One Single-Dwelling only per plot.</p> <p>Typology: Maisonettes & Bungalows; townhouses</p> <p>One (1) DSQ shall be allowed. Not more than 15% GC of ground floor plinth of the main house.</p> <p>Attic house shall not be more than 30% of the typical floor plan</p> <p>Provide for min 10% greenery/tree cover. Provide at least one fruit tree</p> <p>Provide for alternative green energy use e.g. solar, wind power</p> <p>Provide for recycling of wastewater through adoption of new technology</p> <p>Designated refuse collection points</p> <p>Provide for parking -2 private vehicles</p>
		0-B-4	Medium density	0.1 Ha	40	40	0.8	0.8	6	1.2	2.4	G+1	9	<p>One Single-Dwelling only per plot.</p> <p>Typology: Maisonettes & Bungalows; townhouses</p> <p>One (1) DSQ shall be allowed. Not more than 15% GC of ground floor plinth of the main house.</p> <p>Attic house shall not be more than 30% of the typical floor plan</p> <p>Provide for min 10% greenery/tree cover. Provide at least one fruit tree</p> <p>Provide for alternative green energy use e.g. solar, wind power</p> <p>Provide for recycling of wastewater through adoption of new technology</p> <p>Designated refuse collection points</p> <p>Provide for parking -2 private vehicles</p>	
BCR and Residential- 9	Gathanga	5-1	Commercial /BCR Highrise apartments; studios; bedsitters; Hostels; event gardens; Parks; residential hotels; commercial; offices; public facilities	0.045 Ha	75	60	3	2.4	9	1.2	2.4	G+4	12	<p>Floor occupancy ratio of commercial: Residential at 40:60%</p> <p>Commercial to occupy lower level floors</p> <p>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.</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>	
		0-A-2	Residential High Density	0.045 Ha	65	50	2.6	2.0	3	1.2	2.4	G+4	9	<p>Single-room developments not permitted</p> <p>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</p> <p>A service lane of 6m to be provided/surrendered for plots fronting 18m road and above.</p> <p>Pent house shall not be more than 30% of the typical floor plan</p> <p>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.</p>	
		0-B-3	Residential Medium Density	0.1 Ha	50	40	1.0	0.8	6	1.2	2.4	G+1	9	<p>One Single-Dwelling only per plot.</p> <p>Typology: Maisonettes & Bungalows; townhouses</p>	

														<p>One (1) DSQ shall be allowed. Not more than 15% GC of ground floor plinth of the main house.</p> <p>Attic house shall not be more than 30% of the typical floor plan</p> <p>Provide for min 10% greenery/tree cover. Provide at least one fruit tree</p> <p>Provide for alternative green energy use e.g. solar, wind power</p> <p>Provide for recycling of wastewater through adoption of new technology</p> <p>Designated refuse collection points</p> <p>Provide for parking -2 private vehicles</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>
Commercial and Residential- 5	Ndenderu	5-1	<p>Commercial</p> <p>Permitted: Modern markets; multi-storey developments; shopping complexes; office buildings; showrooms; retail & wholesale shops; hotels; eateries; professional offices; hostels; transport yards; public facilities; parking silos</p>	0.045 Ha	75	60	3	2.4	6	1.2	2.4	G+4	12	<p>Double volume in heights</p> <p>1 parking lot per 100sm</p> <p>Additional parking in basement or top floor</p> <p>Shall create space for recreational amenities e.g. kids playing area</p>
		0-A-2	Residential High Density	0.045 Ha	65	50	4.2	3.5	3	1.2	2.4	G+7	9	<p>Single-room developments not permitted</p> <p>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</p> <p>A service lane of 6m to be provided/surrendered for plots fronting 18m road and above.</p> <p>Pent house shall not be more than 30% of the typical floor plan</p> <p>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.</p>
		0-B-3	Residential Medium Density	0.1 Ha	50	40	1.0	0.8	6	1.2	2.4	G+1	9	<p>One Single-Dwelling only per plot.</p> <p>Typology: Maisonettes & Bungalows; townhouses</p> <p>One (1) DSQ shall be allowed. Not more than 15% GC of ground floor plinth of the main house.</p>

														<p>Provide for recycling of wastewater through adoption of new technology</p> <p>Designated refuse collection points</p> <p>Provide for parking -2 private vehicles</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>
Commercial and Residential- 5	Wagunyu	5-1	<p>Commercial Permitted: Modern markets; multi-storey developments; shopping complexes; office buildings; showrooms; retail & wholesale shops; hotels; eateries; professional offices; hostels; transport yards; public facilities; parking silos</p>	0.045 Ha	75	60	1.5	1.2	6	1.2	2.4	G+2	12	<p>Double volume in heights</p> <p>1 parking lot per 100sm</p> <p>Additional parking in basement or top floor</p> <p>Shall create space for recreational amenities e.g. kids playing area</p>
		0-B-2	Residential High Density	0.045 Ha	65	50	2.6	2	3	1.2	2.4	G+4	9	<p>Single-room developments not permitted</p> <p>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</p> <p>A service lane of 6m to be provided/surrendered for plots fronting 18m road and above.</p> <p>Pent house shall not be more than 30% of the typical floor plan</p> <p>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.</p>
Commercial and Residential- 5	Mahindi	5-1	<p>Commercial Permitted: Modern markets; multi-storey developments; shopping complexes; office buildings; showrooms; retail & wholesale shops; hotels; eateries; professional offices;</p>	0.045 Ha	75	60	3	2.4	6	1.2	2.4	G+4	12	<p>Double volume in heights</p> <p>1 parking lot per 100sm</p> <p>Additional parking in basement or top floor</p> <p>Shall create space for recreational amenities e.g. kids playing area</p>

			hostels; transport yards; public facilities; parking silos											
		0-B-2	Residential High Density	0.045 Ha	65	50	2.6	2.0	3	1.2	2.4	G+4		<p>Single-room developments not permitted</p> <p>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</p> <p>A service lane of 6m to be provided/surrendered for plots fronting 18m road and above.</p> <p>Pent house shall not be more than 30% of the typical floor plan</p> <p>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.</p> <p>One Single-Dwelling only per plot.</p>
		0-A-3	Residential Medium Density	0.045 Ha	50	40	1.0	0.8	4.5	1.2	2.4	G+1	9	<p>Typology: Maisonettes & Bungalows; townhouses</p> <p>One (1) DSQ shall be allowed. Not more than 15% GC of ground floor plinth of the main house.</p> <p>Attic house shall not be more than 30% of the typical floor plan</p> <p>Provide for min 10% greenery/tree cover. Provide at least one fruit tree</p> <p>Provide for alternative green energy use e.g. solar, wind power</p> <p>Provide for recycling of wastewater through adoption of new technology</p> <p>Designated refuse collection points</p> <p>Provide for parking -2 private vehicles</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>
Commercial and Residential- 5	Kihara	5-1	Commercial Permitted: Modern markets; multi- storey developments; shopping complexes; office buildings; showrooms; retail & wholesale shops; hotels; eateries; professional offices; hostels; transport	0.045 Ha	75	60	3	2.4	9	1.2	2.4	G+4	12	<p>Double volume in heights</p> <p>1 parking lot per 100sm</p> <p>Additional parking in basement or top floor</p> <p>Shall create space for recreational amenities e.g. kids playing area</p>

			yards; public facilities; parking silos											
		0-A-2	Residential High Density	0.045 Ha	65	50	4.2	3.5	3	1.2	2.4	G+7	9	<p>Single-room developments not permitted</p> <p>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</p> <p>A service lane of 6m to be provided/surrendered for plots fronting 18m road and above.</p> <p>Pent house shall not be more than 30% of the typical floor plan</p> <p>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.</p> <p>One Single-Dwelling only per plot.</p>
		0-B-3	Residential Medium Density	0.1 Ha	50	40	1.0	0.8	6	1.2	2.4	G+1	9	<p>Typology: Maisonettes & Bungalows; townhouses</p> <p>One (1) DSQ shall be allowed. Not more than 15% GC of ground floor plinth of the main house.</p> <p>Attic house shall not be more than 30% of the typical floor plan</p> <p>Provide for min 10% greenery/tree cover. Provide at least one fruit tree</p> <p>Provide for alternative green energy use e.g. solar, wind power</p> <p>Provide for recycling of wastewater through adoption of new technology</p> <p>Designated refuse collection points</p> <p>Provide for parking -2 private vehicles</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>
Commercial Residential- 5	Ruaka	5-1	<p>Commercial</p> <p>Permitted: Modern markets; multi-storey developments; shopping complexes; office buildings; showrooms; retail & wholesale shops; hotels; eateries; professional offices; hostels; transport yards; public</p>	0.045 Ha	75	60	5.25	4.2	9	1.2	2.4	G+7	12	<p>Double volume in heights</p> <p>1 parking lot per 100sm</p> <p>Additional parking in basement or top floor</p> <p>Shall create space for recreational amenities e.g. kids playing area</p>

		facilities; parking silos											
		Commercial Permitted: Modern markets; multi-storey developments; shopping complexes; office buildings; showrooms; retail & wholesale shops; hotels; eateries; professional offices; hostels; transport yards; public facilities; parking silos	0.045 Ha	75	60	5.25	4.2	9	1.2	2.4	G+7	12	Double volume in heights 1 parking lot per 100sm Additional parking in basement or top floor Shall create space for recreational amenities e.g. kids playing area
		Residential High Density	0.045Ha	65	50	4.2	3.5	3	1.2	2.4	G+7	9	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.
		Residential High Density	0.045 Ha	65	50	4.2	3.5	3	1.2	2.4	G+7	9	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. 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 One Single-Dwelling only per plot.
		Residential Medium Density	0.045 Ha	50	40	1.0	0.8	4.5	1.2	2.4	G+1	9	Typology: Maisonettes & Bungalows; townhouses One (1) DSQ shall be allowed. Not more than 15% GC of ground floor plinth of the main house.

														<p>Attic house shall not be more than 30% of the typical floor plan</p> <p>Provide for min 10% greenery/tree cover. Provide at least one fruit tree</p> <p>Provide for alternative green energy use e.g. solar, wind power</p> <p>Provide for recycling of wastewater through adoption of new technology</p> <p>Designated refuse collection points</p> <p>Provide for parking -2 private vehicles</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>
Commercial and Residential- 5	Gachie	5-1	<p>Permitted: Modern markets; multi-storey developments; shopping complexes; office buildings; showrooms; retail & wholesale shops; hotels; eateries; professional offices; hostels; transport yards; public facilities; parking silos</p>	0.045 Ha	75	60	3	2.4	9	1.2	2.4	G+4	12	<p>Double volume in heights</p> <p>1 parking lot per 100sm</p> <p>Additional parking in basement or top floor</p> <p>Shall create space for recreational amenities e.g. kids playing area</p>
		0-A-2	Residential High Density	0.045 Ha	65	50	4.2	3.5	3	1.2	2.4	G+7	9	<p>Single-room developments not permitted</p> <p>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</p> <p>A service lane of 6m to be provided/surrendered for plots fronting 18m road and above.</p> <p>Pent house shall not be more than 30% of the typical floor plan</p> <p>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.</p>
		0-B-3	Residential Medium Density	0.045 Ha	50	40	1.0	0.8	4.5	1.2	2.4	G+1	9	<p>One Single-Dwelling only per plot.</p> <p>Typology: Maisonettes & Bungalows; townhouses</p> <p>One (1) DSQ shall be allowed. Not more than 15% GC of ground floor plinth of the main house.</p> <p>Attic house shall not be more than 30% of the typical floor plan</p> <p>Provide for min 10% greenery/tree cover. Provide at least one fruit tree</p>

			Beverage; Coffee roaster; Honey processing													
	Heavy Industrial (3)															
	Go-Downs		Permitted: Heavy processing; manufacturing; quarrying; vehicle assembly plant; power generation;	4	35	30										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 No outdoor storage
	Industrial Parks	1 ₁	Existing Industrial Park (Jua Kali)	0.2	50	40										
		1 ₂	Proposed Industrial Park	hazardous substances; slaughterhouses; oil & natural gas processing; technological engineering	2							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, clinic and recreational facility). • Provide mothers daycare. 	
EDUCATIONAL (2)	Institutional															
	Daycare (Below 3 years)		Single	0.1	50	40										
	Pre-Primary (Playground; PP1; PP2; Nursery; Kindergarten)		Single	0.1	40	30										
			Double	0.2	40	50								G+1		
			Triple	0.4	40	30										
	Primary School		Single	0.8	40	30										
			Double	1.6	40	30										
			Triple	2.4	40	30										
	Junior Secondary School (JSS)		Single	0.4	40	30										
			Double	0.8	40	30										
			Triple	1.6	40	30										
	Senior Secondary School		Single	0.8	40	30										
			Double	1.6	40	30										
			Triple	2.4	40	30										
			Quadruple	3.0	40	30										
	Youth Polytechnic/TVETS			0.3	40	30										
	College			2	40	30										
	University			20	40	30										
RECREATIONAL (3)	Recreational															
	Stadium			2	30	20	0.3	0.3	9	6	6	18	9	G+3	Allow only buildings supporting recreational use	
	Playground			0.2	20	10	0.1	0.1	9	6	6	9	6	G+1	Add variety & activity by allowing mini shops & coffee cafeterias	
	Recreational Garden			0.4	20	10	0.2	0.2	9	6	6	12	6	G+3	Provide for centralized parking area	
	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	Provide ancillary services e.g. water, sanitation, lighting
PUBLIC PURPOSE (4)	1. Health Facilities														
	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	
	Religious Institutions/Church			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				
	Library			0.1	50	40	0.5	0.5	6	2.5	4.5				
	Home for the Elderly			0.2	40	30	0.5	0.5	9	6	6				
	Funeral Homes/crematorium			0.2	30	20	0.5	0.5	9	6	6				
	Social Hall			0.1	40	30	1.5	1.5	9	6	6				
	Cemetery			1	20	10	0.1	0.1	9	6	6				
	Children's Home			0.2	50	40	2.0	2.0	9	6	6				
	Innovation Hub			0.045	60	50	2.0	2.0	9	6	6				
	Abattoirs			1	40	30	1.5	1.5	9	6	6				
	Slaughter slab			0.2	40	30	0.8	0.8	9	6	6				
	Administration Offices			0.4	60	50			9	6	6				
COMMERCIAL (5)	Commercial Business Districts (CBD) /Urban Cores														
	Kawaida Core Kiambaa center	Permitted: Modern markets; multi-	Shopping mall	0.8	60	50			9	6	6	15	9	G+4	Double volume in heights 1 parking lot per 100sm

Banana CBD Muchatha Ruaka Gathanga Ndenderu Karura Wagunyu Mahindi Kihara Ruaka Gachie All existing local market centres (allotments)	storey developments; shopping complexes; office buildings; showrooms; retail & wholesale shops; hotels; eateries; professional offices; hostels; transport yards; public facilities; parking silos	Supermarket	0.4	60	50			9	3	3	12	9	G+2	Additional parking in basement or top floor Shall create space for recreational amenities e.g. kids playing area		
		Mini mart	0.1	70	60			6	2.4	1.2	12	6	G+2	Double volume in heights 1 parking lot per 100sm		
		Retail shop/dukawalla	0.045	70	60			4.5	2.4	1.2	12	3	G+1	1 parking lot per 100sm		
		Offices/Banks/ICT	0.045	70	60			4.5	2.4	1.2	12	3				
		Hotels	0.2	70	60			4.5	2.4	1.2	12	6				
		Public facilities	0.1	70	60			4.5	2.4	1.2	12	3				
		Serviced apartments	0.045	70	60			4.5	2.4	1.2	12	3				
		Light industry/showrooms	0.045	80	60			4.5	2.4	1.2	12	3				
		Open air markets	0.2	40	30			3	2.4	1.2	12	3				
PUBLIC UTILITIES																
(6)	Power Sub-Station		0.1	20	10	0.4	0.4	9	6	6						
	Data Centres		0.2	60	50	3	3	9	6	6						
	BTS Communication masts		0.045	80	60			9	6	6						
	Waste Transfer Stations		0.4	30	20	0.3	0.3	12	6	6						
	Waste Treatment Plant		0.1	20	10	0.2	0.2	12	6	6						
	Water Towers		0.1	30	20	1.5	1.5	12	6	6						
	Water Hydrants		0.045	50	40	1	1	12	6	6						
TRANSPORTATION																
(7)	Weighbridge		0.2	20	10											
	Parking Silo		0.2	80	60											
	Bus Parks/Stage		1.6	30	20											
	Boda-Boda sheds		0.045	60	50											
	BRT Stations		1.6	30	20											
	Parking lot for bicycles		0.045	60	50											
	Railway Station		1.6	30	20											
	Parking Yard for trucks		1.2	30	20											
AGRICULTURAL																
(9)	Large Scale	A-1,	All coffee farms; tea farms; avocado farms; range lands;	Permitted: All agricultural uses; farm houses; storage for produce; animal pens; forestry;	0.2	10	5			9	6	6	15	9	G+1	Farm houses & housing for workers allowed at max 5% of land size Value addition e.g. agro-processing industries permitted

				urban agriculture; housing for workers; low density residential developments; water pans, dams Conditional: Public														Controlled transition to low density residential development with commensurate public utilities evenly distributed Minimum subdivision of large scale tea and coffee farms is 1 acre.
	Small Scale	B-3 & C-4	All land within the sub-county that can support horticulture & early maturing crops e.g. maize, beans grown at peasant scale	facilities; shopping zones;	0.045					3	2.4	3	9	3	G+1			This applies mostly to urban agriculture for horticulture

Prepared by: VisionRI & Urban Lines Consultants Ltd.

Table 14-2: Kiambaa Subcounty Zoning Guidelines

*For plots below 0.021Ha, the plot coverage & plot ratio shall be 50% and Ground plus two (G+2) max, respectively.

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.

All single dwellings to provide 20% of the ground coverage as green area.

Promote urban agriculture along the slopes

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

Source: VisionRI

14.2.1 Development Control Ordinances

In essence, zoning is the creation of zones within which permitted and specialised uses are then established and clearly defined. Basically, it seeks to control the physical development of land by defining the intended character of an area by creating harmonic zones knitted up by compatible land uses. The planning authority may from time to time amend/revise these by considering overall land use.

To efficiently carry out this mandate, the approving authority herein being the County's Planning Department shall consult the relevant agency or department, where and if it appears that the development is likely to: adversely affect any land in the area; create or attract traffic which may result in a material increase in the volume of traffic entering or leaving the main road or using a level crossing over a river; adversely affect adjacent riparian areas, or adversely affect the environment and adversely affect adjacent water resources.

As a rule, the key planning zones are residential, commercial, industrial, educational, open space, recreational areas, transportation, agricultural, heritage conservation, and public uses.

- a) **Residential Use Zone:** The residential use zone can be subdivided into either low, medium, or high density. The activities allowed in residential zones include:

- Residences – bungalows, multi-family dwellings (multi-storey flats/apartments), row housing, detached, semi-detached, and residential-cum-work;
- Hostels, rental houses, old age homes, community halls, police posts, and guesthouses (not exceeding 200 square metres in floor area);
- Daycare centres and kindergartens;
- Corner shops, small shopping centres, and health facilities (dispensaries, nursing home, etc.); and
- Educational buildings, religious premises, library, gymnasium, park, technical training centres, exhibition and art galleries, clubs, banks/automated teller machines, matatu stops/boda-boda stands (not exceeding 100 sq. M in floor area), post offices, hostels of non-commercial nature.

The activities prohibited in the residential zone include:

- Heavy, large, and extensive industries: noxious and hazardous industries;
- Warehousing, storage go-downs of perishables, hazardous and inflammable goods;
- Workshops for motor vehicles - matatu/boda-boda/buses, amongst others;
- Slaughterhouses, hospitals treating contagious diseases (e.g., tuberculosis);
- Wholesale market, sewage treatment plant/disposal works, and water treatment plant;
- Solid waste dump, outdoor games stadium, indoor games hall, and shooting range;
- Courts, sports training centre, reformatory (prisons) and garrisons (barracks); and
- Commercial use zone: commercial use zone includes (retail shopping zone), general business and commercial, sub-CBDs, wholesale shops, warehousing and regulated markets.

b) Commercial Zone: The activities allowed in commercial zones include:

- Assembly halls, colleges, reading rooms, higher educational technology and research institutions, petrol filling stations, automobile showrooms, service stations and automobile workshops with permission of parking vehicles occupying a site area not exceeding 200 sq.m.;
- Commercial and business uses including all shops, stores, markets and uses connected with the display and sale of merchandise, either wholesale or retail excluding explosive obnoxious products and other materials likely to cause health hazards not exceeding an area of 1000 sq.m.;
- Business offices, banks and other commercial and financial institutions occupying a floor area not exceeding 1000 sq.m.;
- Warehouses, repositories, and other uses connecting with storage or wholesale trade occupying a floor area not exceeding 1000 sq. but excluding storage of explosive or products, which are either obnoxious or likely to cause health hazards; and

- Manufacturing and service establishments and commercial uses using electric motors not exceeding 20 horsepower (hp) and/or employing not more than 20 workers excluding those that are obnoxious or hazardous nature by reason or odour, effluent, dust smoke, gas, vibration, noise etc. or otherwise likely to cause danger or nuisance to public health or amenity.

The uses permitted under the special sanction of the Sub-County/restricted uses include:

- All commercial and business uses including all shops, stores, storages, markets, shopping centres and uses connected with the display and sale of merchandise, either wholesale or retail but excluding explosives, obnoxious products and other materials likely to cause health hazards without limitation of floor area;
- Government offices, business offices and other financial institutions without limitations of floor area;
- Warehouses and other uses connected with storage or wholesale trade, but excluding storage of products which are either obnoxious or likely to cause health hazards;
- Commercial and entertainment centres, sports stadium, recreation complexes, research experimental or testing laboratories not involving danger of fire explosive or health hazards;
- Organized parking lots, multi-storey parking, bus terminal and depot, transport terminals, motor garage and workshops, educational, technical and research institutions;
- Garment industries irrespective of the number of persons employed where authority is satisfied with its non-objectionable nature based on its performance characteristics;
- Hotels, lodges, cold storage, food courts, informal market, and informal retail shopping;
- Weekly markets on identified locations, service, and repair centres, building materials markets, old and new car showrooms; and
- Convention centres, trade centres, market centre, travel agencies, and agro-tourist centres.

All uses not specifically mentioned above are prohibited in this zone.

c) **Industrial Zone:** The activities allowed in the industrial zone include:

- All uses permissible in the commercial use zone with the special sanction of the authority except residential uses;
- Residential buildings for security and other essential staff required to be maintained in the premises; and
- All industries using electrical power utilising machinery not exceeding 100 hp or with employees not exceeding 100 number but excluding all industries of obnoxious and hazardous nature by reasons or odour, effluent, dust, smoke, gas, vibration, etc. or otherwise likely to cause danger or nuisance to public health or amenity.

The uses permitted under the special sanction of the Sub-County/restricted uses include:

- Storage of petroleum, timber, explosive, and inflammable and dangerous materials; and
- All industries up to 200 hp. Where sufficient precautions have been taken to the satisfaction of the authority to eliminate noxious or dangerous effluents.

All uses not specifically permitted as mentioned above shall be prohibited.

d) **Open Space and Recreational Zone:** The activities allowed in open space and recreational zone include:

- All public and semi-public, parks and open spaces, parks and playgrounds, zoological and botanical gardens, nurseries, waterfront development, museums, and memorials; and
- Installation of electric motors not exceeding 5 hp May be permitted for pumping water for gardening purposes.

The activities/uses permitted under special sanction by the authority:

- Transportation terminals, restaurants, motels, auditoriums and open-air theatres, exhibition, circus, fairs and festival ground, and public utilities;
- Incidental residential uses for essential staff required to be maintained in the area;
- All activities incidental to recreational use as may be decided by the authority;
- Installations that may be necessary for the uses mentioned above;
- All agricultural uses outside the municipal area;
- Burial and/or burning grounds or crematorium;
- Gymnasium, police post, water sports training centre and swimming pool; and
- Spot zoning for a specific activity and high commercial corridor development along the major transportation routes.

The activities/uses prohibited:

- All uses not specifically permitted as mentioned above shall be prohibited;
- For the buildings/structure ancillary to the above uses can be permitted not more than the 2 % of the total area; and
- Transportation zone: the activities/uses allowed in transportation zone include - roads, goods shed terminals, bus stops, bus depot, bus terminals, truck terminals, airport, airstrip, helipad, port and shipping, ferry stations, jetties, fishing port, cruise landing port, yards, warehouses, storage, container freight stations, petrol filling and service station.

The activities permitted under special sanction by the authority include:

- All related uses incidental to the development of the roads and other transport modes including essential housing; and

- Hotels, exhibition ground, and convention centre inter alia.

All uses not specifically permitted as mentioned above shall be prohibited.

e) **Agricultural Zone:** The activities allowed in the agricultural zone include:

- All agriculture uses;
- Farmhouse and building for agricultural activities;
- Dairy and cattle farms, and fish farms;
- Poultry farms and stud farms;
- Forestry;
- Storing and drying of fertilisers incidental to the agricultural activities; and
- Petrol pumps.

The uses permitted under the special sanction of the Sub-County/restricted uses include:

- Parks and playground, camping sites and other recreational uses;
- Sewage farms and garbage dumps, burial grounds; and
- Utility services may be permitted without spoiling the natural features.

All uses not specifically permitted as mentioned above shall be prohibited.

14.3 Action Area Plans

These are area-specific interventions that provide focused proposals based on prioritised problem areas and objectives. These have been accompanied by urban design interventions for illustrative purposes and are prepared within the overall framework of the Land Use Plan and Zoning Plan The list of Action Area Plans is presented in the table below.

Table 14-3: Proposed Sites for Action Area Plans

Subject	Action area plan
CBD	Karuri/Banana town
By-pass corridor	Northern By-Pass

Source: VisionRI

14.3.1 ACTION AREA 1: KARURI CBD

The objectives for the Karuri/Banana Town CBD include: -

- To provide a sustainable densification strategy;
- To provide adequate motorised and non-motorised facilities;
- To provide strategies for crime reduction;

- To improve storm and sewer road drainage systems;
- To provides quality a fire and rescue services; and
- To improve waste management.

Proposed Interventions: The following measures shall be implemented to address the planning issues in Karuri/Banana Town CBD:

- Provide vehicle parking facilities and bus/matatu bus parks;
- Establishment of another police station and transfer of more police officers;
- Rehabilitation of the road network system in terms of quality and size. Banana Raini Road, Ndenderu Karuri/Banana Link and Banana Posta Road;
- Presence of wayleaves, pedestrian sidewalks, and pavements;
- Revitalisation of storm and sewer drainage systems; and
- Garbage collection and strategic location of the solid waste disposal system.

The road sections below detail proposed NMT infrastructure along Banana Raini Road and Banana Posta Road. A road widening of Banana Raini Road to 25m is proposed to provide ease of access to facilities within the area such as Karuri market, schools and hospitals (for which the majority of the population rely on non-motorised transport) in a safer and more cost-effective way.

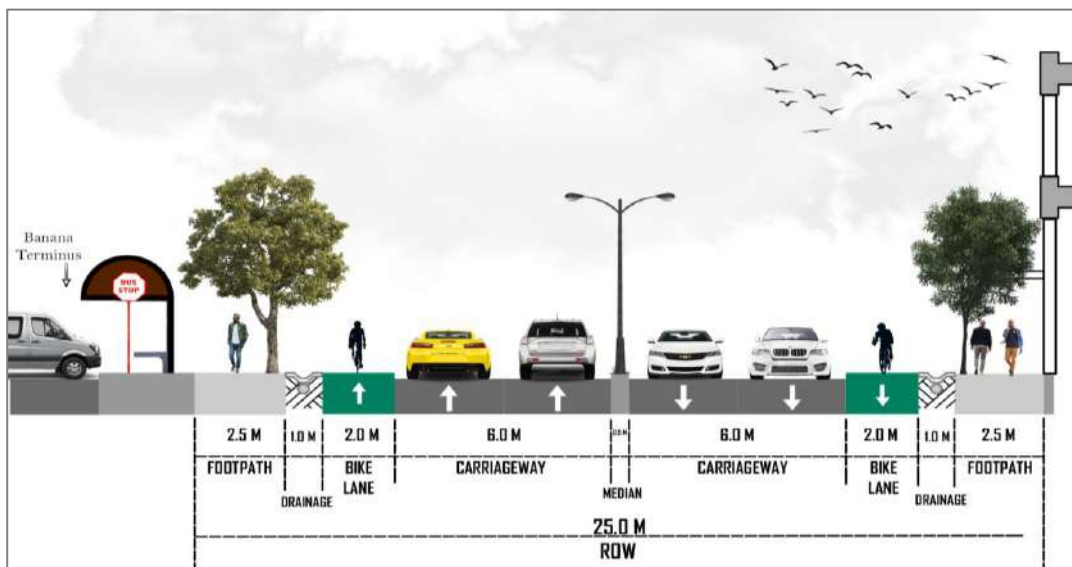


Figure 14-1: Road Cross Section of Banana-Raini Road at Banana Terminus

Source: VisionRI

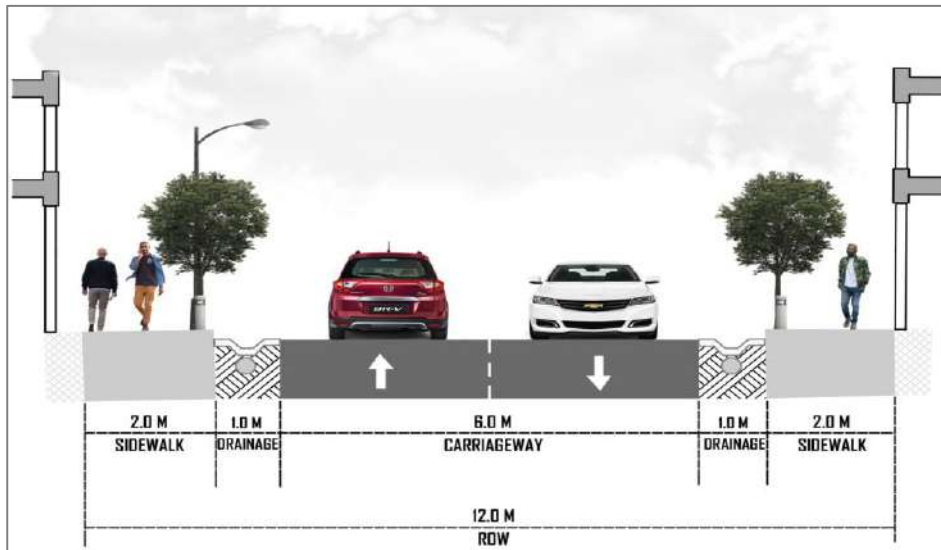


Figure 14-2: Road Cross Section of Banana-Posta Road

Source: VisionRI

14.3.2 ACTION AREA 2: BY-PASS CORRIDOR

The 5 km long segment of the Northern By-Pass within Kiambaa Urban Area connects to Limuru Road at Ruaka. Ruaka forms the helm for a fast-urbanising linear growth that resembles a triangle with the presence of the Northern-By-Pass, Limuru Road and Banana-Raini Road. The objectives of the Action Plan include:

- To provide a strategy to prevent encroachment of the Northern By-Pass by informal traders and hawkers; and
- To provide a strategy for revitalisation of the Northern By-Pass.

Proposed Interventions

- Implementation of a buffer policy to control growth and development; and
- Upgrading of supporting facilities such as signboards, streetlights, pedestrian raised crossings, pedestrian bridge, and pedestrian walkway pavements thus revitalisation.

KARURI CBD CORE ACTION AREA



LEGEND

Buildings	Cycle Lane
Open Spaces	Tree
Road	Storm-water Drainage
Pedestrian Sidewalk	Street Lights

SCALE

N

0 25 50 100 Meters

Coordinate System: WGS 1984 Web Mercator Auxiliary Sphere
 Projection: Mercator Auxiliary Sphere
 Datum: WGS 1984
 False Easting: 0.0000
 False Northing: 0.0000
 Central Meridian: 0.0000
 Standard Parallel 1: 0.0000
 Auxiliary Sphere Type: 0.0000
 Units: Meter

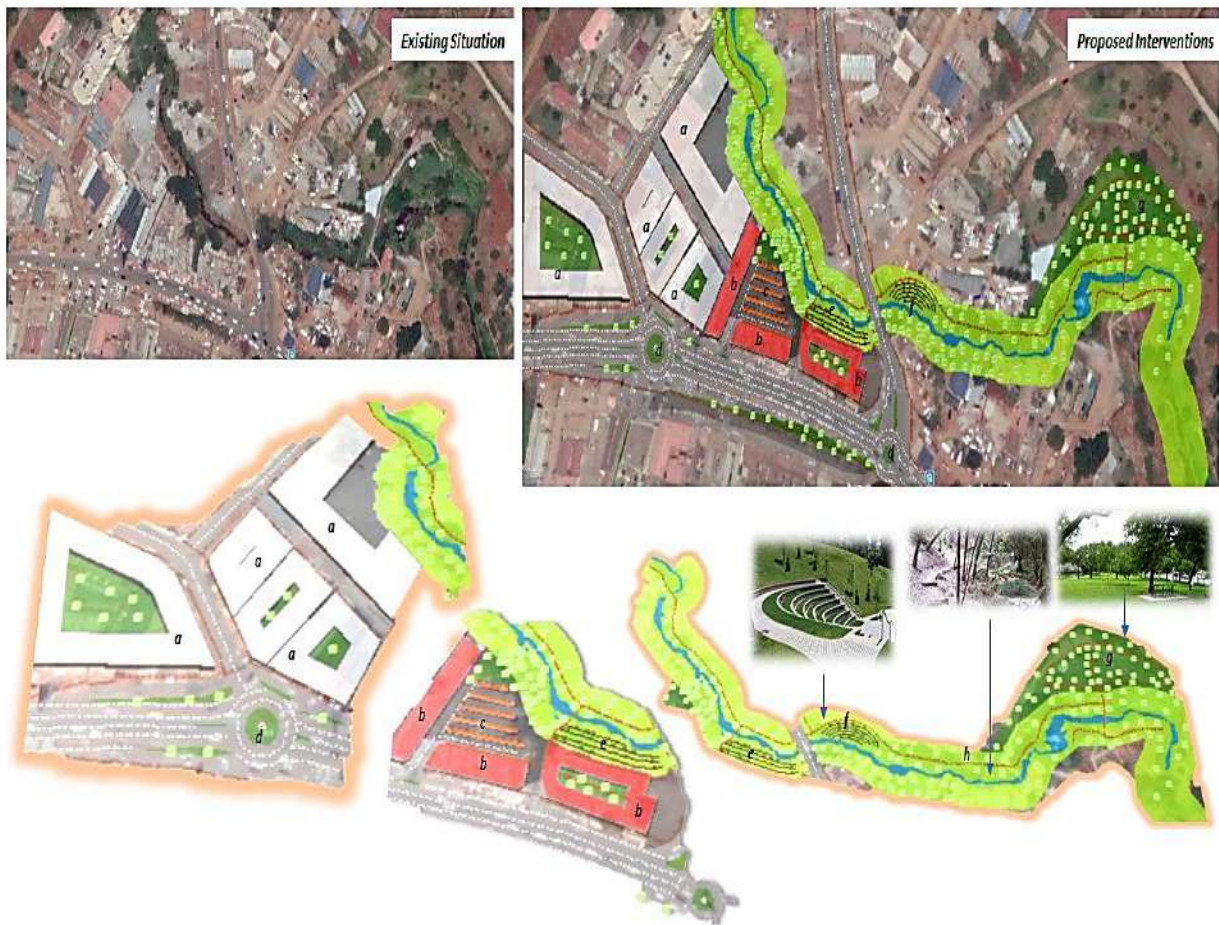
PREPARED BY

VisionRI

Map 14-4: Karuri CBD plan

Prepared by: VisionRI & Urban Lines Consultants Ltd.

Figure 14-3: By-Pass Corridor Plan



Ruaka Town and Ruiruaka River Design Strategies

- a. Defining Ruaka Commercial District hub
- b. Redevelopment of Ruaka Fruit and non-food market to 3 levels.

- c. Proposed bus park with boarding platforms and canopy
- d. Junction Treatment to ease traffic along Limuru road
- e. Table Terraced landscape with seating areas

- f. Riverfront Amphitheatre
- g. Ruiruaka Recreational Park
- h. Nature trails along River Ruiruaka

Source: VisionRI

15 SECTORAL MEASURES

15.1 Residential Development Strategy

With the high rate of urbanisation, there has been an increase in construction of residential development within the planning area. However, in some of the urban areas, peri-urban areas, and villages the housing situation lacks basic essential infrastructures such as water, sewerage systems and adequate solid waste management system among other basic facilities.

Goal: To provide quality and affordable housing with all the necessary amenities to the residents.

Objectives:

- Construction of affordable and quality houses;
- Encouraging public-private partnership;
- Create an enabling environment for the private sector on housing provision; and
- To ensure all residential developments meet planning standards.

Strategies: In order to trigger growth in the residential development sector, the following strategies need to be put in place:

- i. Provision of infrastructural facilities to support residential development. This can be achieved through by providing pedestrian-friendly infrastructure in residential and commercial districts.
- ii. Provision of affordable housing schemes:
 - Through offering incentives to developers; and
 - Encouraging mixed-use developments in residential areas.
- iii. Enforcement of building approval conditions during construction.

15.2 Transportation Strategies

Goal: To provide quality, affordable and safe transport infrastructure and transport services which will ensure there is seamless connectivity within the Sub-County.

Objectives:

- To ensure roads are well-maintained;
- To provide road furniture along the entire road network;
- To provide adequate capacity terminals for buses and matatus;
- To provide convenient and well-lit bus-stops and lay-bys along all transport routes;
- To provide well-maintained drainage system along the roads; and
- To provide and integrate NMT with other transport systems.

Strategies:

- Provision of transit-oriented development centred on important transit hubs like bus terminals by creating compact, walkable, pedestrian-oriented, mixed-use communities;
- Increasing 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, active transport (NMT; dedicated walking and bike lanes), and mass transit;
- Establishing road reserves complete with NMT, pedestrian pathways and appropriate stormwater drains;
- Establishing 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 train station at Karuri;
- Establishing 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, roundabout, signalised intersections, grade separation and protected lanes;
- All season maintenance of roads;
- Improving signage on all roads;
- Providing wayfinding information at convenient points in the urban areas;
- Promoting sustainable land uses along transport corridors;
- Discourage direct access of plots onto main arterial, sub-arterial and collector roads;
- Developing a Comprehensive transportation mobility plan for the entire Sub-County;
- Construct missing link roads in Kiambaa especially across the ridges;
- 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 guidelines on all roads to reduce encroachment and to ensure subdivisions are providing adequate road reserves, permitting nothing below 9 meters;
- Upgrading roads in Kiambaa 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

- Streetlighting key Sub-County roads and in all urban centres.

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. Roads are functionally classified into:

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

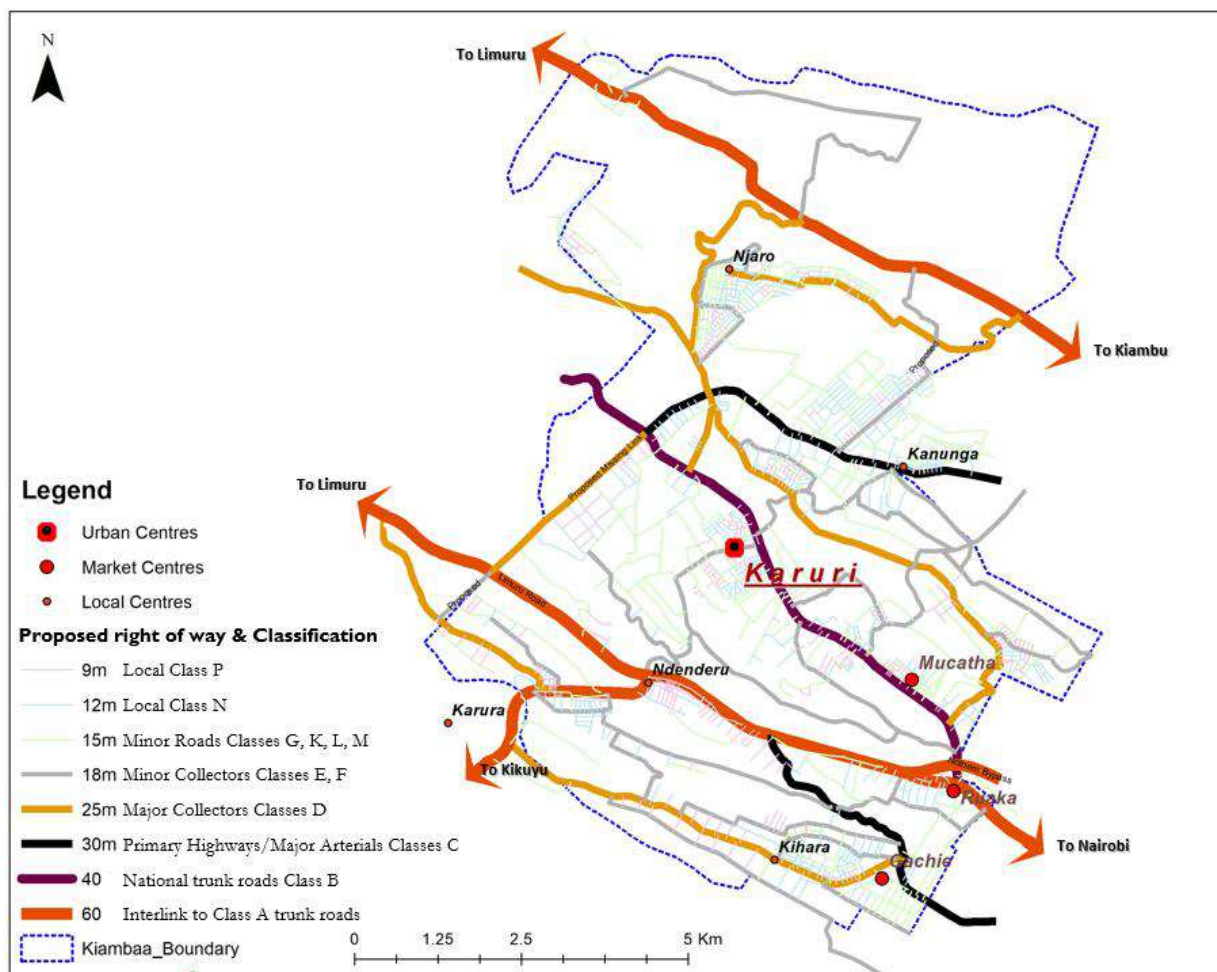


Figure 15-1: Proposed Right of Way and Classification

Source: VisionRI

- **Provide non-motorised transport:** Based on both the current and projected modal split, the majority of Kiambaa Urban Area's 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.

In order to achieve a walkable urban area in Kiambaa Urban Area, complete street designs need to be articulated. Complete street designs ensure that all streets have dedicated spaces for NMT 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. 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, and flowers/landscaping should be provided. The County Government needs to put strict measures to ensure that parking, as well as street vending, are prohibited in pedestrian facilities.

- **Public Transport:** Being the second most common mode of transport in Kiambaa Urban Area, public transport has to be improved in order to meet the needs of the current commuters as well as projected growth. The Karuri bus park needs to be expanded in order to accommodate the volume of matatus. In other urban areas like Ruaka and Gachie, the land needs to be acquired to build modern bus parks in order to reduce operations of public utility vehicles along the road shoulders. Some of the key facilities that may be incorporated in new bus parks are public toilets to include those for persons with disabilities and baby changing stations, ample passengers' sitting areas with shelters, luggage storage facilities, and customer information booths. Bus stops with shelters should also be provided at various intervals as needed.
- **Boda-boda:** Boda-bodas play key roles for last-mile connectivity especially in areas where public transport is not readily available. The following are ways in which the boda-boda sector may be improved:
 - Mandatory requirement for all boda-boda operators to join a registered SACCO for easier regulation;
 - County Government should provide dedicated stands/stops for the operators;
 - Mandate all boda-boda operators to take advantage of the technologies in boda-boda operators e.g., Safe boda, Uber boda-boda, etc. to avoid overcrowding in urban centres; and
 - Regular training and inspection for compliance.
- **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 levers to manage the use of personal

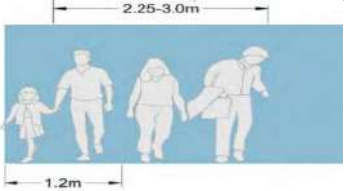

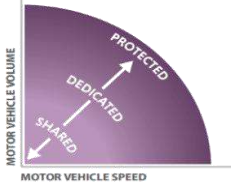
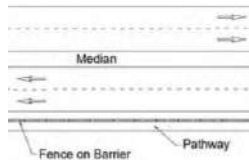
motor vehicles and ensure that personal motor vehicle users compensate the County for the use of valuable land on which they park their vehicles. Kiambu County needs to define parking areas in order to prevent encroachment of parking into other areas including footpaths.


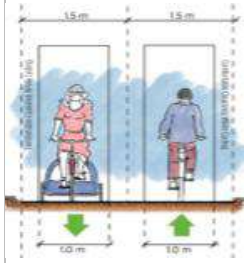
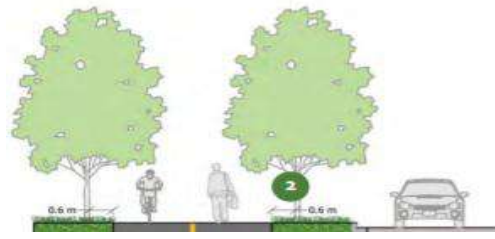
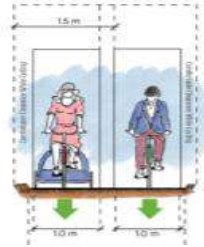

For a parking system to succeed, users need clarity on where they can and cannot park. This requires a physical definition of spaces for parking and protection of pedestrian spaces from encroachment through physical barriers such as bollards and strict enforcement. Secondly, customer information is key 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. This increases revenue generation by the County Government. Higher parking fees encourage people to use sustainable modes of transport including walking, cycling and public transport. Finally, enforcement is the key to ensuring that parking rules and regulation are maintained, and offenders are penalised.

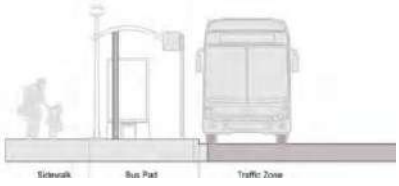
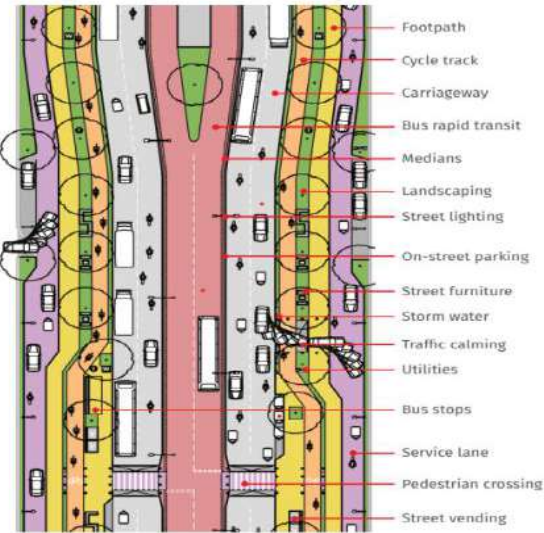
Table 15-1: Transport Implementation Guidelines: Designing safe and accessible roads for everyone

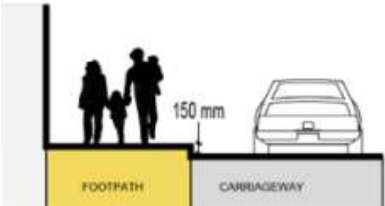
Parameter	Primary/Highway/ Arterial Roads (Classes A, S, B, C)	Major/Secondary/Collector Roads (Classes C, D, E, J)	Tertiary/Minor Roads Classes E, F, G, K, L, M)	Local/Access Roads (Class N, and P)
Design Speed	60-110kph	60-80kph	≤ 50kph	<30kph
Width of Traffic Lane	3.75m	3.5m	3.25m	3m
Shoulder Width	2.5m -3m	1.5m-2.5m	1m	0.5m
Width of Parking Lane	none	2.5m	2.5m	-
Streetlight requirements and spacing	Based 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. 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 glass) decorative paving materials may be used to enhance the visual aesthetic; permeable			


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>pavement (permeable pavement can include permeable concrete or porous unit pavers). The pavement should be raised 150mm from the road.</p> <p>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 meters, 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, public washrooms/restrooms.</p>		<p>Basic (0.6m to 2.0m) Enhanced (3.0m to 5.0m)</p>	
<p>Cycling Facilities</p> 	<p>Protected Bicycle Lanes</p> <p>Bicycle pathways/highways</p> 	<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 - 2.0m	1.5m - 2.0m
Bicycle and pedestrian accessible shoulders for urban areas	-	-	1.5 - 1.8m	1.5 - 1.8m
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.			

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)
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 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 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.			
Public Mass Transport	<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, 			

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>comfortable stations with passenger information and development of an intelligent transportation system for the Sub-County;</p> <ul style="list-style-type: none"> • Bus routes will be located not more than a 1km from an urban area and 2.5km 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, and 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;</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>			

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)
	Be kept clear of any obstructions that would prevent safe movement of buses.			
Travel demand strategy	<p>Increasing public transport modal shares, additional demand management interventions need to be implemented i.e.:</p> <p>Congestion pricing - mobility management strategy to reduce traffic congestion; and</p> <p>Restricted parking supply or imposing restriction of vehicles.</p>			
Pollution reduction and mitigation	<p>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</p> <p>Streets to be lined with trees to enhance sequestration of pollutants.</p>			
<p>Pedestrian facilities, people walking and using mobility devices</p> 	<p>General design guidance:</p> <p>Preferred 2m-3m;</p> <p>Physical separation from other road users;</p> <p>Firm, smooth, and even surfaces;</p> <p>The pedestrian-through-zone should be straight and unobstructed;</p> <p>Enough pedestrian crossing opportunities;</p> <p>Short distances between destinations;</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)
	<p>Continuous and direct routes between destinations that reflect pedestrian desire lines;</p> <p>Buildings that are oriented towards the road, creating an engaging environment;</p> <p>Diverse land uses that create a varied and interesting walking experience;</p> <p>Wayfinding that makes it easy to navigate between destinations;</p> <p>Street trees and other vegetation;</p> <p>Weather protection elements to provide refuge from the rain;</p> <p>Adequate lighting for safety, security, and visibility;</p> <p>Enough benches and rest areas;</p> <p>Pedestrian amenities including landscaping, water fountains, washrooms, garbage and recycling receptacles, public art, and street furniture; and</p> <p>Well-maintained pedestrian facilities in all seasons.</p>			
<p>Maintenance</p>	<p>Follows the road classification guidelines and related legislations; and</p> <p>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</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)
	Loading bays along roads may be provided in rural areas.			

Source: VisionRI

15.3 Environmental Protection Strategies

Due to increased human activity, the environment has continued to degrade with the sensitive areas like wetlands, rivers and forests being severely affected. This has led to a decline in biodiversity with some flora and fauna facing depletion. Therefore, there is a need to promote conservation measures that will protect the environment in Kiambaa Urban Area.

Goal: Promote sustainable development in order to protect and sustain a clean environment.

Objectives:

- To ensure all households have an appropriate solid and liquid waste disposal systems by 2030;
- To provide bio-digesters in places where septic tanks and sewer lines are not adequately provided;
- To provide clean and safe drinking water to the community;
- To create awareness on available environmental resources and arising issues;
- To fast-track total inclusiveness in environmental issues;
- To plant trees and have at least two days tree planting days;
- To initiate and involve the community when adapting by-laws on the environment;
- To have a clean environment; and
- Funding and equipping the stakeholders for the continuity of environment maintenance/management.

Strategies: This Plan proposes the following strategic measures:

- Carry out an environmental impact assessment (EIA) and social and environmental assessment (SEA) for any major development that may have an impact on the environment;
- Mapping and gazetting of all riparian reserves, historical sites, and wildlife areas;
- Promote environmental conservation through promoting agroforestry, and greening in urban areas;
- Discourage conversion of tea and coffee plantations into residential areas;
- Protect water catchment areas from human encroachment and pollution; and
- Promote eco-tourism to promote conservation and livelihoods.

15.4 Disaster Management Strategies

Goal: Ensure there is an effective and efficient disaster response management system that can cater to every corner of the sub-county.

Objectives:

- i. To ensure that institutions and activities for disaster risk management are coordinated, focused to foster participatory partnerships between the County government and local stakeholders.

- ii. To promote linkages between disaster risk management and sustainable development for the reduction of vulnerability to hazards and disasters.
- iii. To mobilise resources, including the establishment of specific funds for disaster risk reduction strategies and programmes.
- iv. To promote mass sensitisation and awareness creation on disaster management and climate change for the general public.

Strategies: The following are some of the strategies that can be put in place to manage disasters in Kiambaa Urban Area.

- i. **To mitigate floods around Banana Hill and along Limuru road, the following strategies need to be implemented:**
 - Regular maintenance of drains;
 - Construction of storm drainage systems of the quality standard; and
 - Development control within the urban carriageway to ensure that storm drains are not obstructed causing undue losses and destruction.
- ii. **To curb fires the following strategies are proposed:**
 - Carry out a Sub-County disaster analysis survey;
 - Formulation of a disaster risk reduction (DRR) plan;
 - Establishment of firefighting departments/unit in the Sub-County;
 - Setting up a fund to procure more fire-fighting equipment; and
 - Every manufacturing and public institutions to have first aid and fire extinguishers services.
- iii. **To mitigate collapsing of buildings, the following proposals are put forward by this ISUDP:**
 - Ensuring adherence to the building code;
 - Regular inspection of buildings under construction and those that have lasted longer than 50 years;
 - Build capacity on building technology and materials across the sector stakeholders; and
 - Public awareness of building and construction.
- iv. **Landslides albeit rare in the planning area often up with disastrous results hence the need to mitigate them. To achieve this, the County and other relevant actors need to:**
 - Develop an inventory of the stability conditions of each slope in order to develop customised management systems;
 - Identification of high-risk landslide locations or landslide-prone areas, which need special attention especially during excavations and at quarries;

- Establish and use early warning systems for detecting landslides owing to heavy precipitation;
 - Use of technology to help observe precipitation thresholds in order to identify common symptoms of landslide initiation;
 - Development of slope stabilisation measures, culvert improvements and landslide mitigation measures; and
 - Impart technical capacity in officials in order to improve road construction and landscaping methods.
- v. **To mitigate road accidents in the planning area, the following need to be put in place:**
- Enforce traffic rules and regulations;
 - Construction of footbridges where necessary;
 - Repair and maintenance of poor roads/potholes;
 - Put up bumps to avoid more accidents; and
 - Install traffic signs on the road especially 'blackspots'.

15.5 Social Facilities Strategies

Social facilities are fundamental in the wellbeing of residents of a town or a neighbourhood in order to deal with challenges like inadequate and poorly distributed social facilities, the following strategies should be undertaken.

Goal: Delivery of quality, sustainable, accessible, and affordable social services, and infrastructure.

Objectives:

- To improve existing educational facilities/schools;
- To empower the human resource to deliver quality education;
- To construct Level III health facilities in every ward;
- To construct a teaching and referral hospital in Kiambaa Urban Area;
- To bring the community together in order to enhance harmony and unity;
- To construct modern stadiums and public parks;
- To provide accessible and affordable recreational parks;
- To have a community hall in every ward; and
- To rehabilitate tourist attraction sites in order to generate extra income for the Sub-County.

Strategies:

- Redesigning and upgrading of recreational areas and open spaces to improve aesthetic appeal in the light of social interaction and engagement;

- Enforcement of surrender/setting aside areas for social facilities during sub-division of land in accordance with planning standards;
- Promote densification in the development of social infrastructure like in schools;
- Encourage the role of the private sector in the provision of education, health, recreational facilities to supplement the public sector;
- Reclaim grabbed/encroached land that had been set aside for public facilities in collaboration with NLC;
- Allocation of security infrastructure, i.e., police stations for law and order and mitigate crime-prone areas and increase the involvement of law enforcement agencies in the fight against crime;
- Promoting education by availing educational infrastructure that will assist in technical capacity and knowledge development. In addition, raise literacy levels;
- Mapping of existing health facilities and orphanages in order to know the shortages and provide more of the same to ensure good health, wellbeing, and reduced inequalities; and
- Provision of other social services i.e., cemeteries since urbanisation increases so do the need for cemeteries and common burial grounds.

15.6 Physical Infrastructure Strategies

15.6.1 ENERGY

With the increasing population in Kiambaa Urban Area, there will be defiantly an increase in energy demand. This calls for proper strategies to ensure that the environment is not compromised by increased air pollution from the various sources of energy.

Goal: Provide affordable reliable and clean energy to all residents of Kiambaa-Sub County.

Objectives:

- To carry out maintenance work on power lines;
- To connect all households, businesses, and markets with electricity for promotion of a 24-hour economy;
- To erect high fly masts in security risk spots;
- To maintain all lines to ensure power reliability; and
- Construct of additional sub-station in areas with existing high populations.

Strategies:

- Provide loan facilities to low-income earners;
- Promote street lighting for security in all urban centres; and
- Promote alternative sources of energy such as solar.

15.6.2 ICT

Technology advancement is taking root in the entire country. Kiamba should not be left behind and it is on this note that the Plan proposes the following strategies.

Goal: Ensure there is proper network coverage, which is reliable, fast and affordable to all Kiambaa residents.

Objectives:

- To construct ICT centres in every ward and Wi-Fi connections in public institutions and places;
- To provide fast systems/speed systems for use i.e., 4G Network;
- To provide speed and easy access to ICT systems; and
- To consult with reliable technology especially ICT providers.

Strategies:

- Enhance the knowledge of residents through ICT;
- Establish ICT services to the upcoming generation;
- Construct an ICT village in every urban area/ward; and
- The County to work in harmony with the various internet service providers.

15.6.3 WATER

Water is a basic commodity and as such, it should be given a priority when it comes to the planning of programmes and projects. With the increasing population leading to an increase in water demand, alternative water sources should be considered as brought out in this Plan.

Goal: Ensure there is adequate, reliable, and clean water supply in the entire Sub-County.

Objective:

- To have a reservoir for storm and rainwater to cushion against water shortage;
- Provide public education on water management; and
- Put up a dam in the area for irrigation.

Strategies:

- Ensure that legislation is in place to protect the people from unclean water;
- Ensure water is easily available for drinking/irrigation and other utilities;
- Educate the community on water storage; and
- Create awareness on water use.

15.6.4 SOLID AND LIQUID WASTE MANAGEMENT

To attain a clean environment, solid and liquid waste should be managed properly. With the current situation in the Sub-County where solid waste is poorly managed, the strategies below will help address this issue.

Goal: To have a clean sustainable method for solid and liquid waste disposal within the Sub-County.

Objectives:

- Extension of sewer connection in the on-going project so as to cover 100% of the planning area;
- Ensure constant collection and disposal of solid waste by the County Government or the private partners; and
- Equip the already existing companies with the best technology to deal with waste.

Strategies:

- Increase waste transfer stations in the various urban centres;
- Coverage of waste transfer stations;
- Create awareness on safe waste disposal methods;
- Enhance waste collection and disposal mechanism; and
- Set rules and regulations to help guide in solid waste management.

15.7 Economic and Investment Strategies

In order to achieve the overall vision of the Sub-County which to see it grow as a vibrant commercial hub, the following strategies need to be put in place.

Goal: To make Kiambaa Urban Area an agricultural and industrial hub characterised by a modern market and favourable economic policies.

Objectives

- To develop an agro-based economy;
- Facilitate the growth of economic activities; and
- To improve leadership and government.

Strategies:

- i. Create an investment policy to cater to both internal and external investments. This can be achieved through:
 - Giving of business incentives i.e., tax abatements, labour support and granting subsidies to ensure motivation in increased economic productivity; and
 - Adopt and improve sectoral policies and employment capacity at the evolving structure of the trade policy.
- ii. Attract investments and develop a network of commercial, transport and other services:
 - Reduce economic disparities that cause social and political discontent and political instability;
 - Increasing economic growth by promoting exports from agro-industries; and
 - Establishing an entry-level guideline for small and medium economic enterprises.

- iii. Organising existing informal markets in a planned manner and integrating them with housing, commercial, institutional, and industrial areas; and
- iv. Improving economic efficiency through the provision of technology, better management, and capital.

15.8 Revenue Enhancement Strategy

This Plan proposes several strategic measures to enhance and stabilize revenue collection at both the County and Sub-County level. These measures will help the County run sustainably.

Goal: To enhance the Sub-County's financial and revenue capacity.

Objectives:

- To increase revenue collection by exploring innovative revenue generation;
- To enhance the financial management system; and
- To sensitise the public on the importance of revenue and taxation compliance.

Strategies: Below are some of the strategies that the County can implement to increase revenue collection:

- **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 (USSD⁷). 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 application through the bank or their respective agents. The Physical Planning Department has also embraced automation through the introduction of electronic development application through Kiambu-e dam. This has resulted in an increase in the number of development application done within the County. However, there is a need to expand this to other departments, for example, health. This will increase efficiency and minimise losses.
- **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 that the County can effect include a waiver on penalties imposed on land rate defaulters to encourage them to pay up, and discounts to those who comply before a specified period.

⁷ USSD is a real time mobile phone communication protocol that makes it possible for users to communicate with the mobile network computer/server.

- **Enforcement:** The County can enhance revenue collection by ensuring compliance. According to Kiambu County's Budget Review and Outlook Paper 2018, lack of compliance in building plan approval and land rate payments were identified as major reasons for underperformance in revenue generation. To remedy this, the County can do the following: conducting regular and random checks; impose penalties on defaulters; increase the human and capital capacity for enforcement and outsource enforcement to the private sector.
- **Create awareness to the public:** A good number of the members of the public are not properly sensitised on matters of revenue within the County. Some are not aware of their financial obligations to the County. There is thus a need to create awareness on the need to honour their financial obligations regularly and in time. Some of the ways the County can achieve this are: adopting an electronic system e.g., SMS to notify people on impending charges; 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.
- **Royalty payments:** These are monies that counties get whenever the national government, or a permitted party exploits natural resources found within the respective county. Normally these are percentages of the net revenues collected upon sale of these resources.
- **Better fiscal management:** This calls for prudent measures to manage the 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: analysing 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; ensuring transparency and tight spending controls; avoiding unnecessary wastage on expenditure; regular and consistent auditing of financial records; reduce the handling of money by officers by encouraging online payment, and encourage compliance by those living or working in the counties to fulfil their financial obligations regularly and in time.
- **Introduction of development levy:** These are fees, which 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 collected can then be channelled to servicing upcoming developments and upgrading of the existing physical infrastructure including roads, sewer trunks, drainage channels and extension of water services.
- **Other sources:** Other sources include introducing charges on the use of County parks, and tourist sites. The funds collected can then be channelled to maintaining these facilities.

16 INTEGRATION OF STRATEGIC ENVIRONMENTAL AND SOCIAL ASSESSMENT

The preparation of this Plan was done concurrently with a Strategic Environmental and Social Assessment (SESA). The purpose of SESA is to integrate environmental and social considerations into policies, plans, and programmes. It involves an evaluation of the environmental and social concerns of a proposed policy, plan, or programme 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. Section 57A of Environment Management and Coordination Act (EMCA) (amendments) 2015, all policies, plans, and programmes for implementation shall subject to Strategic Environmental Assessment.

In this light, this Plan has included a SESA on the potential impacts from the strategies, formulate alternatives, and develop mitigation strategies. 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.

Therefore, SESA will strive to integrate social and environmental considerations into the development process leading to more sustainability of the Plan's expected outcomes.

The table below summarises the key environmental and social impacts, their sources potential mitigation based on the various activities in course of implementation of this Plan.

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

No.	Impacts	Sources of Impact	Suggested Mitigation Measures	Interventions
1.	Impacts on air quality (emissions expected at construction sites)	Industrial uses, chemicals, mineral extractives, improper waste management, automobiles, construction sites, etc.	<ul style="list-style-type: none"> • SESA has indicated that the Environmental and Social Management Plan (ESMP) has provided adequate mitigation measures; and • The Plan should ensure maintenance and enhancement of green zones to sequester carbon from emissions. Furthermore, the Plan can develop an air quality policy that binds developments within the planning area (such as the industrial sector) to control pollution and adhere to air quality regulations. 	<ul style="list-style-type: none"> • Continuous monitoring has been identified in the implementation plan; and • Preparation of Environmental and Social Impact Assessment (ESIA) to be carried out on specific projects.
2	Noise and vibrations impact on activity sites	Excavators, mixers, and delivery trucks.	<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 	<ul style="list-style-type: none"> • The Plan recommends the integration of Environmental Impact Assessment to be part of plan approval change of use approval to ensure compliance; and • There is a need for the County to do continuous monitoring to ensure compliance.

No.	Impacts	Sources of Impact	Suggested Mitigation Measures	Interventions
			<ul style="list-style-type: none"> 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. 	
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"> County to promote green and renewable energy; Building plans to be approved subject to compliance to 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 will 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, 	<ul style="list-style-type: none"> It is considered that these impacts can be mitigated and should be adequately addressed in ESMPs developed. Impact on soils and geology is expected to be moderate. 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 revegetation to reduce soil erosion; The Plan has identified steep slopes, fragile areas as unsuitable for development activities. Care should also be taken in mining in such areas; and

No.	Impacts	Sources of Impact	Suggested Mitigation Measures	Interventions
		<p>solvents, curing compounds, adhesives, acids, soil stabilisers 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.</p>		<ul style="list-style-type: none"> • Mining companies to submit compliance certificates to the County.
5.	Impact on water resources	<ul style="list-style-type: none"> • The development is likely to lead to increased demand on water resources; • 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 ISUDPs need to be established in the project/site-specific ESMPs to ensure the conservation of water resources; and • Management of construction wastewater, spill control mechanisms, and treatment of effluent will be required to ensure the protection of water resources. 	<ul style="list-style-type: none"> • These proposals have been integrated into the water resource and supply strategies.
6	Solid waste generation	<ul style="list-style-type: none"> • All proposed developments and land uses will generate a substantial amount of solid 	<ul style="list-style-type: none"> • Adequate waste management measures are required since dumping/careless disposal both on-site and off-site may cause 	<ul style="list-style-type: none"> • Solid waste management strategies have been incorporated into the Plan.

No.	Impacts	Sources of Impact	Suggested Mitigation Measures	Interventions
		<p>and liquid waste. During 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.</p>	<p>environmental pollution, interfere with aesthetics and lead to the creation of breeding grounds for vermin.</p>	
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 	<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; and. • The Plan should also ensure the protection of the riparian environment and 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	Interventions
		<p>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</p> <ul style="list-style-type: none"> • Environmental degradation on change of land use from agricultural land to a built environment was identified as a concern by the stakeholders. 		

No.	Impacts	Sources of Impact	Suggested Mitigation Measures	Interventions
8.	Impacts on fauna	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.	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 Plan has recommended preservation of areas ecosystems, this impact will be moderate.	<ul style="list-style-type: none"> • Collaboration between the County Government, KWS, KFS in management of areas with flora and fauna.
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 ISUDP has identified the need to engage with the business operators to increase their participation in the local economic activities.

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 Introduction

This chapter presents the plan implementation framework as defined within the County Governments Act 2012. The planning approach under devolved governance provides counties with the statutory duty with a considerably widened scope running through both plan-making and implementation. It establishes structures and networks that influence implementation and investment strategies. The section presents the role of the County Planning Unit, implementation framework, institutional and human capacity. This chapter also presents the implementation matrix which includes the capital investment plan both quick-win projects and priority sectoral projects.

17.2 Role of the County Planning Unit (CPU)

The County Planning Unit (CPU) as provided in the County Government Act, 2012, Clause 105 has the strategic role and duty of integrating and coordinating all County sectors and provide a degree of certainty and consistency across the entire planning and implementation cycles. However, this unit is rarely functional in most Counties. For the successful implementation of this Plan, this unit needs to be strengthened to play this useful role.

The CPU is headed by the County Director of Physical and Land Use Planning. This is to enable all sectors to be informed by the spatial framework as reflected in the Plan. The role of the CPU will include coordinating the implementation and monitoring of the Plan. The CPU shall likewise link this Plan implementation with the policies, programmes and projects espoused in the County Spatial Plan and related County sectoral plans.

In carrying out their role, the CPU will use the Results-Based Management (RBM) system, in order to ensure the timely delivery of the programmes and projects. The CPU will ensure that the proposed programme and project execution cycles are broken into 5-year County Integrated Development Plans (CIDPs) and further cascaded into Annual Action Plans that feed into individual performance targets and deliverables.

17.2.1 PLAN IMPLEMENTATION AT THE DECENTRALISED UNITS

Under Part VI Section 48 of the County Government Act, 2012 on Decentralised Units. No.13 of 2011, each County Government shall be decentralised to the urban areas and cities (City or Sub-County) within the County established in accordance with the Urban Areas and Cities Act, 2011; sub-counties equivalent to the Constituencies and Wards within the county established under Article 89 of the Constitution of Kenya and Section 26; as well as villages as outlined in this Act. The objective of this is to transfer sovereign authority for decision-making, resource allocation and management to quasi-autonomous units.

The Executive and Legislative arms of the County Government have complementary roles in executing the recommendations in the County Plans. Some functions handled by the National Government are translated

into the county planning and implementation framework through the County Inter-Governmental Forum provided for in Section 54 of the County Governments Act, which is 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. The implementation mechanisms should be sufficiently flexible to adapt to rapid change without adverse impacts.

17.3 Priority Programmes Framework

17.3.1 CORE PILLARS OF FRAMEWORK

The County Governments Act 105(1), through the designated implementing planning authority 105(2), should set into motion the translation of 'abstract concepts' to 'real development' through an implementation plan with clear outcomes, provisions for monitoring and evaluation and clear reporting mechanisms. The figure below illustrates the core pillar and the three branches that make up this fundamental plan implementation framework:

- The core pillar is the internal governance mechanism through capacity building that ensures better inter-and intra-sector engagement so that public, private and third sector service providers can work together for optimum solutions;
- Premised to the core pillar are three branches defining the aligned programmes that address the different needs of different people and places informed by the Plan; and
- Each branch has specific projects and services that ensure public investment is made at the relevant places and services where most needed.

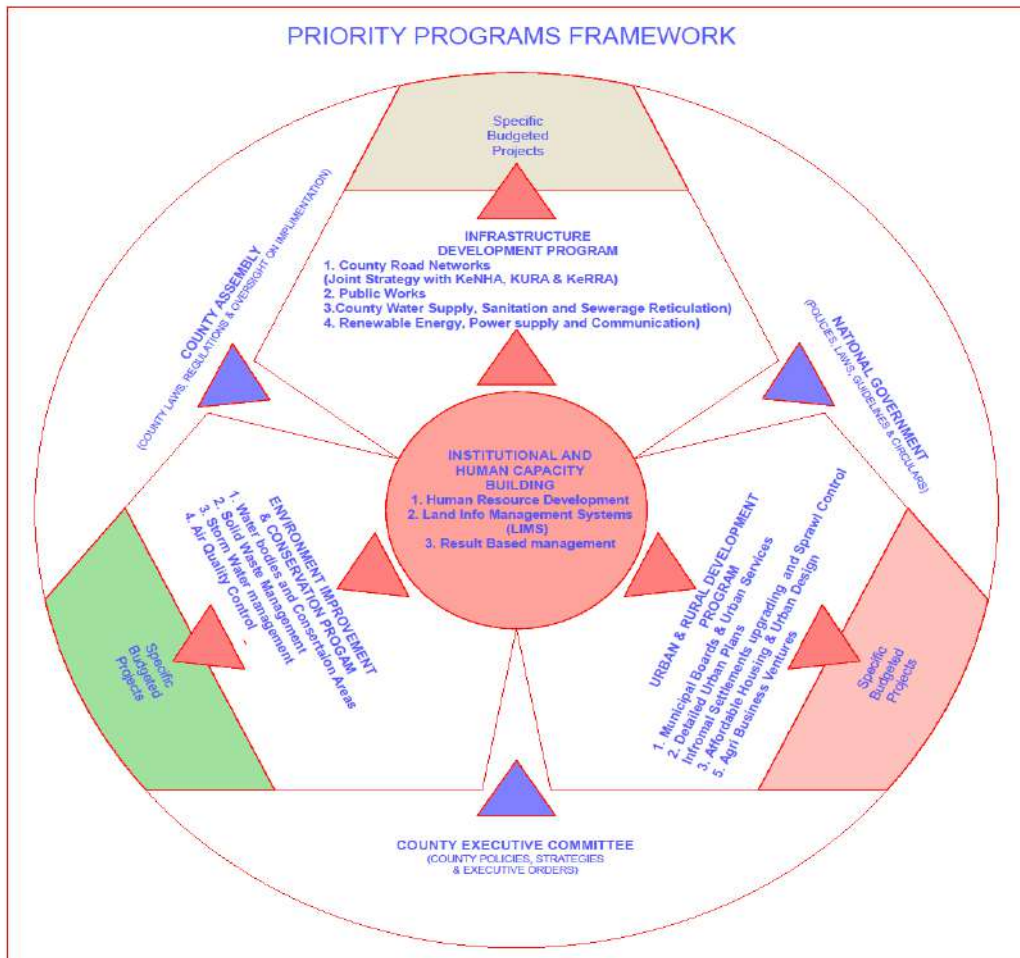


Figure 17-1: Priority Programmes & Projects Framework

Source: Urban Planning for City Leaders Handbook

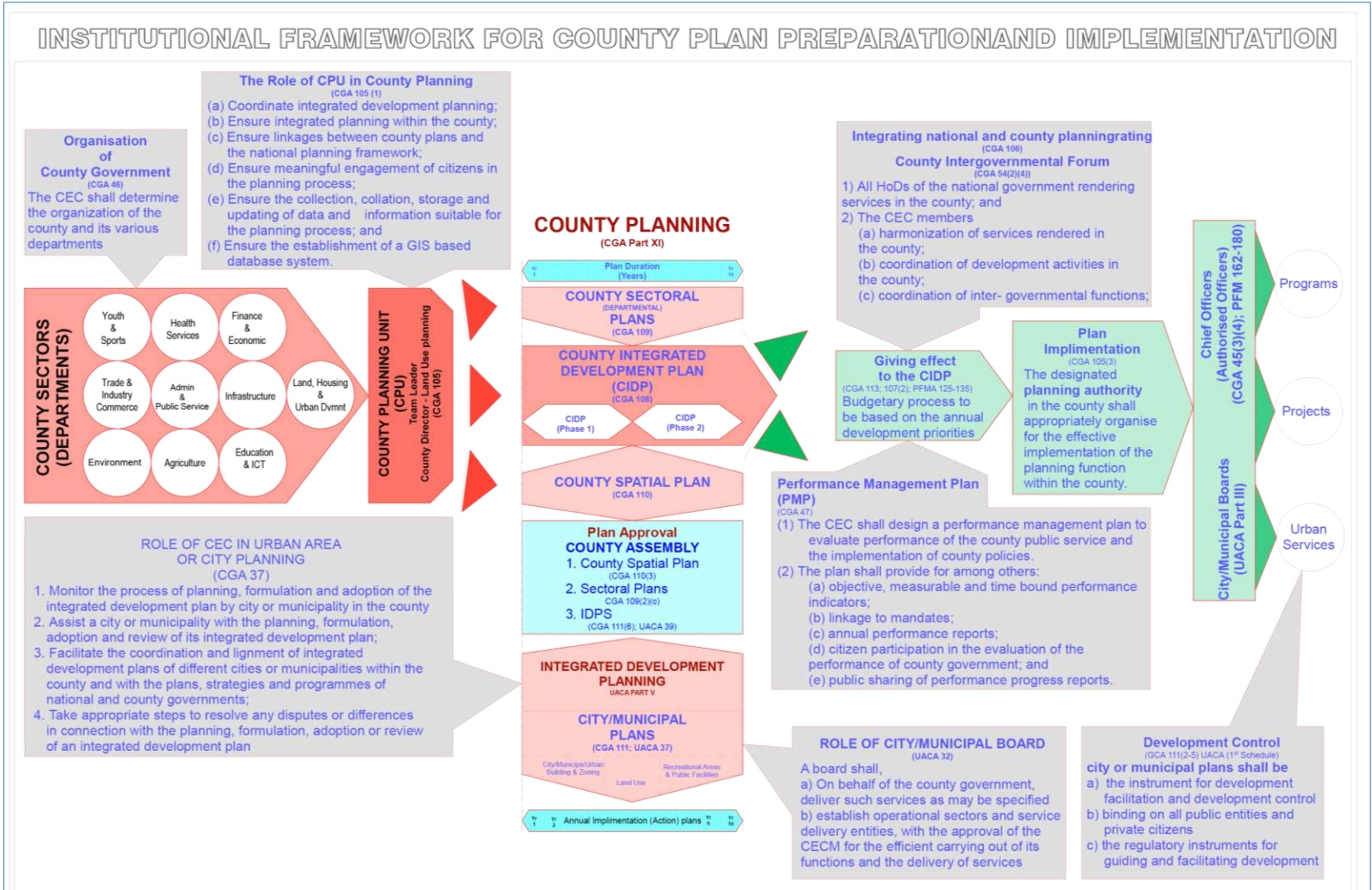


Figure 17-2: Framework for Plan Preparation and Implementation

Source: Urban Planning for City Leaders Handbook

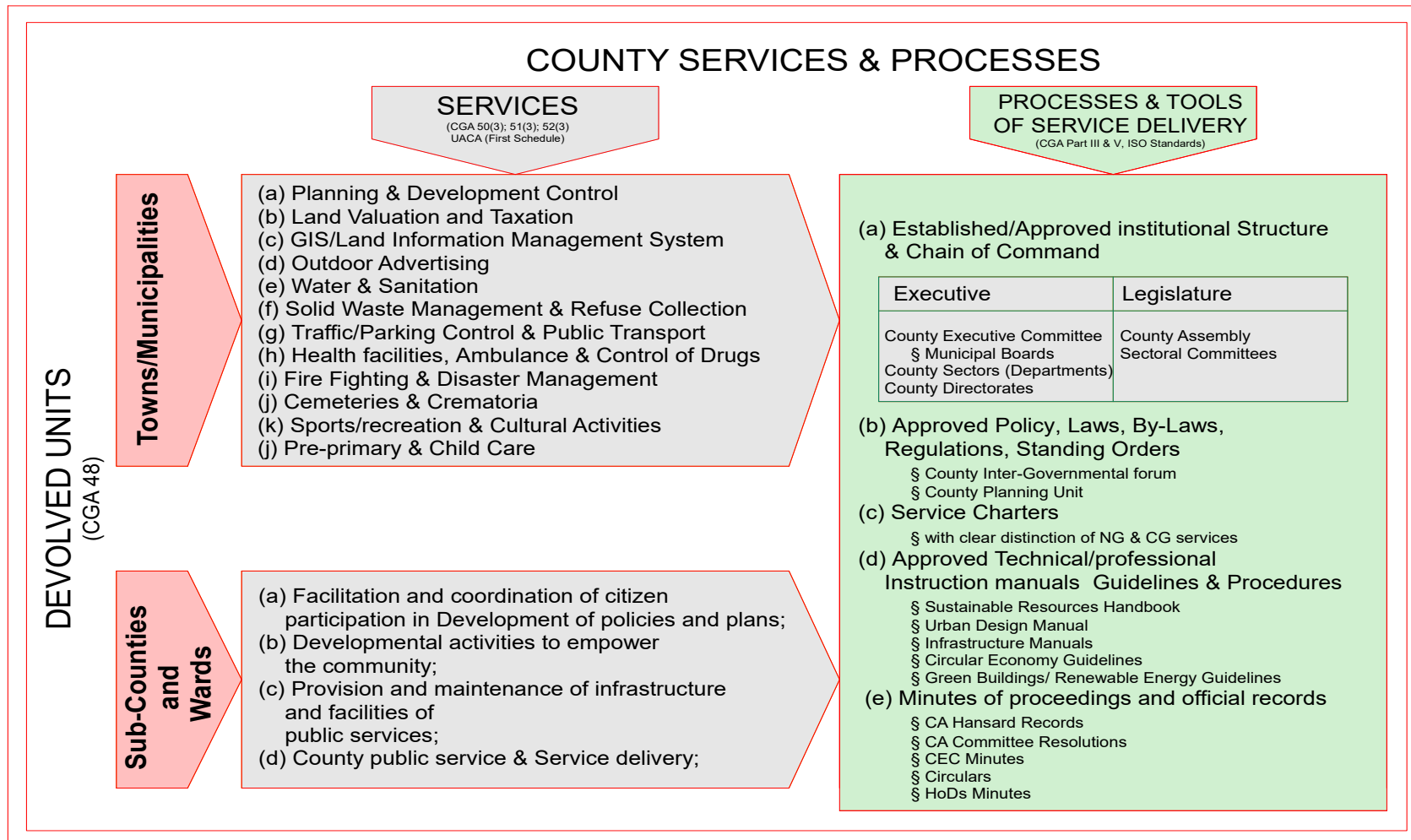


Figure 17-3: County Services & Processes

Source: Urban Planning for City Leaders Handbook

17.3.2 INSTITUTIONAL AND HUMAN RESOURCE CAPACITY BUILDING

This will require structuring under the RBM guidelines, recruiting, training and retaining professionals in all technical and managerial skills capable of setting up and running ICT systems, including a land information management system, exercise a clear chain of command and reporting methods and active stakeholder engagement, partnerships and feedback.

17.3.3 HUMAN RESOURCE FRAMEWORK

The County from the Joint Capacity Assessment and Rationalisation Report of 2015 came up with a human resource framework for its Legislative and Executive arms. The Executive comprises ten ministers who are in charge of various County departments.

The organogram below shows the proposed organisational structure both at the macrostructure and the departmental structure.

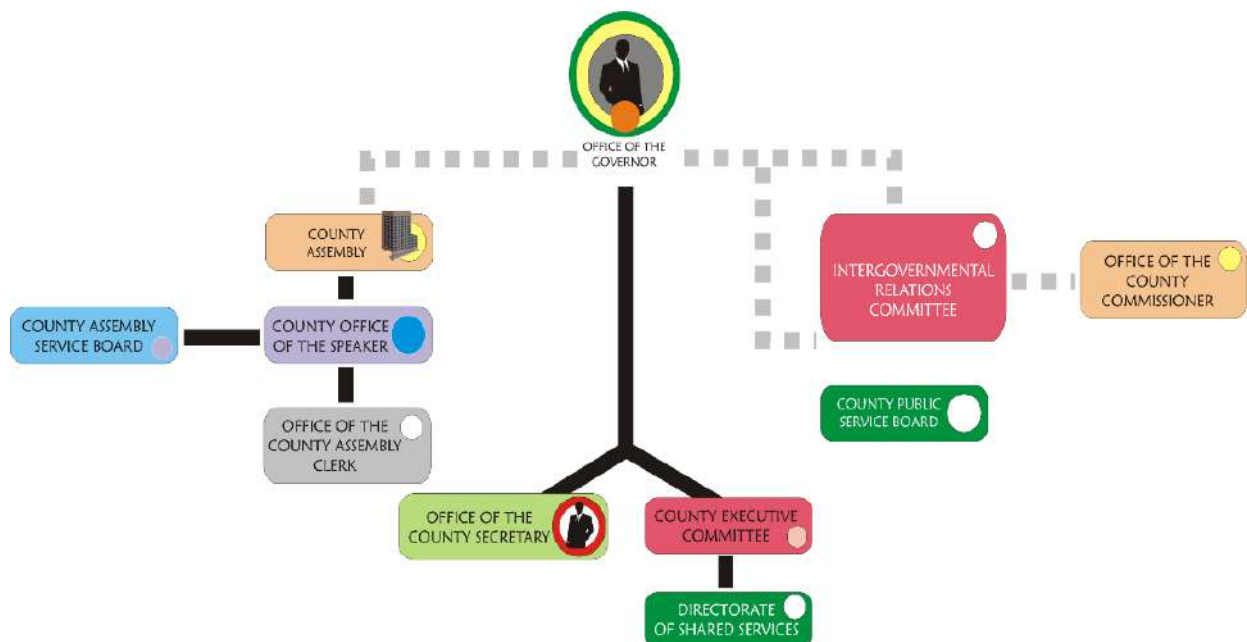


Figure 17-4: Human Resource Framework for Kiambu County's Housing lands and physical planning Ministry

Source: Kiambu County Joint Capacity Assessment and Rationalisation Report of 2015

The Report also proposed the optimal staffing level which will ensure that no department is understaffed. The table below outlines the staffing proposed for the Department of Planning. The department should, however, work closely with other departments such as the Environment Department.

Table 17-1: Existing Human Resources and Proposed Levels

Resource categories	Results of the analysis	County proposed an optimal staffing level
County Executive Member		
Physical planning		
Chief officer	0.6	1
Director	2.5	3
Planners	18.6	19
Development control officer	4.7	5
Enforcement officer	12.3	12
Secretary	14	14
Driver	14	14
Support staff	30	30
Planning clerks	24	24
Accountant	3	3
Procurement officer	3	3
Stores personnel	3	3
Subtotal	129.7	131

Source: Kiambu County Joint Capacity Assessment and Rationalization Report of 2015

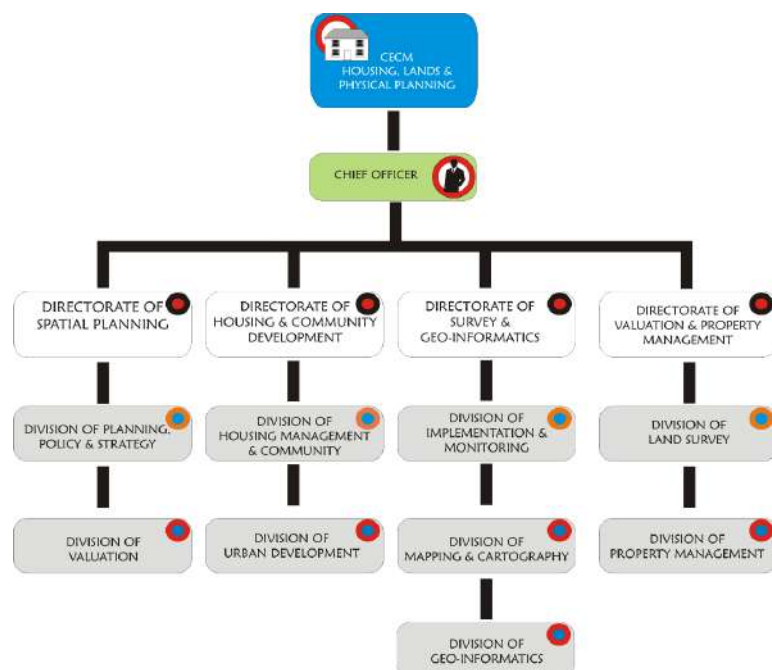


Figure 17-5: Human Resource Framework for Kiambu County’s Housing Lands and Physical Planning Ministry

Source: Kiambu County Joint Capacity Assessment and Rationalisation Report of 2015

17.3.4 PUBLIC/COMMUNITY PARTICIPATION FRAMEWORK

This framework is underpinned by Part VIII on Citizen Participation of the County Governments Act No.17 of 2012 and, The Kiambu County Citizen Petition and Participation No. 9 of 2016. The two Acts generally highlight the principles of the citizens' participation in the counties.

17.4 Capital Investment plan

This section presents the quick win projects and the sectoral projects as summarised below.

17.4.1 QUICK WIN PROJECTS

Table 17-2: Upgrading Karuri CBD

Components	Cost (Kshs)	Lead agency
1. Expansion and re-organisation of the Banana town bus park.	20,000,000	CGK
2. Pedestrianisation of selected streets in the town.	15,000,000	CGK
3. Installation of waste receptacles in Karuri.	3,000,000	CGK
4. Establishment of NMT facilities including pedestrian walks and bike lanes.	50,000,000	CGK
5. Redesign and construct selected streets as one-way streets.	60,000,000	CGK

Source: VisionRI

Table 17-3: Upgrading of Ruaka CBD

Components	Cost (Kshs)	Lead agency
1. Mapping, rehabilitation, and greening of Rui-ruaka riparian reserve	15,000,000	CGK, NEMA
2. Provision of road signage	3,000,000	CGK, KURA
3. Provision of streetlights	10,000,000	CGK
4. Provision of NMT facilities - walkways and a footbridge	50,000,000	CGK
5. Construction of a bus park	30,000,000	CGK
6. Construction of market	100,000,000	CGK

Source: VisionRI

Table 17-4: Other Selected Quick Win Projects in Kawaida, Ndenderu, Muchatha, and Gachie

Components	Cost (Kshs)	Lead agency
1. Construct a bus park in Kawaida	20,000,000	CGK
2. Construction of market in Kawaida	10,000,000	CGK
3. Provision of NMT facilities in Gachie, Muchatha, Ndenderu	50,000,000	CGK
4. Provision of solid waste transfer stations in Banana, Karuri, Ruaka, Gachie, Kawaida, Cianda, Ndenderu, Kihara	10,000,000 per station = total (80,000,000)	CGK

Source: VisionRI

17.4.2 SECTORAL PROJECTS

This section presents specific sectoral projects as presented in Table 17.5 below.

Table 17-5: Sectoral Projects

Sector/Goal(s)	Programs	Projects	Duration	Estimated Cost	Actors
Natural Resources & Environment <ul style="list-style-type: none"> • Sustainable use and management of natural and environmental resources; and • Climate change adaptation and negative environmental impacts mitigation. 	Optimisation of natural and artificial water sources.	Rainwater harvesting in schools, homes, and dispensaries (water tanks).	1-2 years	20,000,000	CGK Community, Private sector NGOs, CBOs
	Promotion of renewable energy.	Biogas, solar etc.	1-2 years	50,000,000	CGK Households Private sector
	Education awareness on waste management.	Workshops, radio, and print media.	1 year	10,000,000	CGK NGOs, CBOs, Community,
	Conservation programme on the development of natural features.	Establishment of tree nurseries and tree planting in Kiambaa Urban Area Wards.	1-2 years	5,000,000	CGK Community, CBOs, NGOs
	Preservation of open spaces, agricultural areas, and landscaped recreational areas.	Designation of agricultural land buffer in Cianda tea and coffee plantations. Designation of riparian buffer on River Ruini, RuiRuaka, Karura and Thigiril.	1-2 years	10,000,000	CGK National Government, NEMA, Farmers,
Social Infrastructure <ul style="list-style-type: none"> • Accessible and affordable social services and infrastructure; and • Foster cultural relations and 	Establishment of social halls and furnishing the halls.	Construct and equip 3 social halls in the Sub-County.	Year 3	30,000,000	CGK Community, Development Partners
	Rehabilitation of sports ground.	Rehabilitate the stadium in Muchatha. Upgrading of Kawaida playground to become a public stadium.	Year 3	30,000,000	CGK, Community, CBOs, NGOs,

Sector/Goal(s)	Programs	Projects	Duration	Estimated Cost	Actors
conducive social environment.	Construction of police station and police residence.	Police station and police residence in Muchatha and Police station and police residence in Muchatha and Cianda.	Year 2	50,000,000	NG CGK, Financial Institutions
	Installation of streetlights.	Installation of street lights in Kawaida, Ruaka Ndenderu road, Ndutas, Gatono, Nazareth and Cianda junction, Muchatha primary, Karuri, Bishop road, Muchatha trading centre, Gathanga trading centre, Power Kiuna road, Mugacha, Jakai, Kihara Hospital, Kawaida Milimani, Kawaida Njoro, Kirihiya Kaspat and Kaspat main road.	Continuous	100,000,000	CGK Kenya Power and Lighting Company (KPLC)
	Construction of village polytechnics and equipping the polytechnics.	3 vocational training centres.	2-3	300,000,000	NG, CGK Development Partners,
	Construction of a library.	1 library Karuri Community Library).	3	50,000,000	CGK Development Partners
	Construction of children's home.	Children's home establishment in Kiambaa.	2	20,000,000	CGK CBOs, NGOs,
	Densification of schools.	Increase the number of classrooms in the existing schools.	2,3,4 and 5	100,000,000	CGK NG-CDF
	Construction of a fire station and a disaster rescue centre.	Fire station and disaster rescue centre in Karur).	1	30,000,000	CGK.
	Upgrading and expansion of health facilities.	<ul style="list-style-type: none"> Provision of a dispensary in Kawaida, equipping the existing health facilities; 	2, 3	250,000,000	CGK

Sector/Goal(s)	Programs	Projects	Duration	Estimated Cost	Actors
		<ul style="list-style-type: none"> Construct and fully equip labs; and Constructing a modern maternity wing in Karuri, Ruaka, Raini, Ndenderu and Muchatha. 			
	Construction of ICT facility.	Establishment and equipping of an ICT centre in Karuri, Cianda, Kihara, Muchatha, Ndenderu Wards.	3-4	50,000,000	CGK
	Water accessibility.	Installation of piped water connection in households in all Kiambaa Wards.	5	300,000,000	KAWSCO, CGK Athi Water
	Provision of cemeteries as burial grounds.	Addition of two cemeteries. One in Kihara Ward and the other in Cianda Ward.	3	20,000,000	CGK
Local Economy <ul style="list-style-type: none"> Promote the local economy through the provision of environmentally sustainable infrastructure; Attract investment from other parts of the counties and abroad; and Reduce economic disparities. 	Provision of new industrial and commercial areas.	<ul style="list-style-type: none"> Allocate land for new agro-industrial areas in Raini and Kawaida; Allocate land for new commercial areas in Kiambaa); 	3	200,000,000	CGK, NLC Private sector
	Initiation of an Investment Strategy.	<ul style="list-style-type: none"> Create a conducive environment for trade and investment; Develop the Business Information Centre; Youth Enterprise Development Fund; Provide entrepreneurial training to youth; and Encourage mixed development. Give incentives to investors in Export Processing Zone & Special 	2-3	30,000,000	NG CGK

Sector/Goal(s)	Programs	Projects	Duration	Estimated Cost	Actors
		Economic Zone. Tax-free incentives to SMEs.			
	Investment in attraction sites and rehabilitation of Mau Mau Caves.	<ul style="list-style-type: none"> Provision of the paved footpath to the waterfall; Construction of a viewing pavilion at Kihururu waterfall attraction site in Gathanga in Cianda; and Pave foot path to Mau Mau caves in Cianda. 	4-5	10,000,000	CGK
	Fishponds construction and construction of a modern fish market.	<ul style="list-style-type: none"> Construct ponds and train residence on how to rear fish in Muchatha; and Fish market in Muchatha equipped with adequate cooling facilities. 	5		CGK
	<i>Jua Kali</i> sheds construction.	<ul style="list-style-type: none"> Construction of <i>Jua Kali</i> sheds in Kawaida and Karuri; and 	5	10,000,000	CGK,
	Increment in dairy processing branches and construction of cooling plants.	<ul style="list-style-type: none"> Establishment of a milk cooling and processing plant in Cianda and Kawaida wards. 	2-5	500,000,000	CGK NG Private sector
Urban and Rural Development <ul style="list-style-type: none"> Promote urban and rural land development in the local economy; and To promote coordinated institutional approaches to 	Provision of water for irrigation and use.	<ul style="list-style-type: none"> Purchase hydro pump for Njiku for local Members; Water Reticulation for Irrigation in Karuri Ward; and Water harvesting by use of gutters in all households. 	3-5	50,000,000	KAWSCO, CGK NGOs, CBOs
	Establishment of agro-tourism sites.	Establish tourist visits in coffee and tea plantation sites.	3-5	15,000,000	CGK Kenya Tourism Board,
	Upgrade of the road for connectivity in coffee and tea sites and trading centres.	Tarmac roads in Kawaida and Cianda, the ring road around the trading	3-5	30,000,000	CGK

Sector/Goal(s)	Programs	Projects	Duration	Estimated Cost	Actors
rural and urban development.		centre, and Ndenderu trading centre Ring Road.			
	Establishment of SMEs.	Establish tailored training Institutes for SMEs and SMEs oriented financial institutions in all Kiambaa Wards.	2-4	30,000,000	CGK, NG CBOs, NGOs
Urban Design <ul style="list-style-type: none"> • Provide an urban design and management context that will cater for Kiambaa(Karuri)'s growth and development; and • Contribute towards creating an urban environment that entices people to want to live, work, play, visit and invest here. 	Design of gateway in combination with raised pedestrian crossings.	Design of gateway in combination with raised pedestrian crossings on arrival and departure along Limuru Road and Banana- Raini Road.	3	50,000,0000	CGK NG KURA KeRRA KeNHA
	Beautification programme.	Greening along the streetscape on major roads Limuru Road, Banana-Raini Road, Karuri-Kiambaa- Kanunga Road, Kiambu Road and Banana-Kanunga Road, Karuri- Ndenderu Road and in existing the landscapes with the inclusion of riparian reserves.	2-3	30,000,000	CGK KURA KeRRA KeNHA
	Lane narrowing	<ul style="list-style-type: none"> • Minimise vehicle travel lane width to prioritise pedestrians; and • Provide sidewalks on both sides of the street on major roads in Kiambaa: Limuru, Banana-Raini, Karuri-Ndenderu Road Banana-Kanunga and Kiambu Road. 	2-3	60,000,000	CGK KURA KeRRA KeNHA
	Advertisement	Integrating advertisement billboards and signboards in Kiambaa strategically in line with the urban form and landscape for blending and aesthetic appeal.	Continuous	-	CGK

Sector/Goal(s)	Programs	Projects	Duration	Estimated Cost	Actors
	Built urban environment regeneration	Renovation of buildings with paintings and providing appropriate width for buildings and land use function within Kiambaa Wards.	Continuous	-	CGK
	Open spaces regeneration.	Proving street furniture such as public benches and beautifying existing recreational spaces with trees and flowers within Kiambaa Wards.	1-5	50,000,000	CGK
Multi-Modal Transportation Strategies <ul style="list-style-type: none"> • Develop sustainable urban environments; • Provide, efficient and reliable connectivity to all areas; and • Practice and encourage joint planning in transportation planning. 	Construction of boda-boda sheds.	Boda-boda sheds in Kawaida, Ruaka, Karura, Kihara, Ndenderu and Muchatha thus increasing the number of operators.	2	20,000,000	CGK
	Development of various activities like housing, schools, commercial and public places around the nodes.	Intensified land use within a radius of 400m to 800m around transit nodes of Ruaka, Karuri, Gachie, Raini, Kanunga and Muchatha.	2-5	500,000,000	CGK Government of Kenya (GOK) MTIHUD
	Introduction of buffer to prevent encroachment of open space, agricultural land, and riparian reserve.	About 1500-1800m Ruaka, Kiambaa(Karuri), Gachie, Raini, Kanunga and Muchatha extent. Minimum of 6m and a maximum of 30 m on rivers as buffers for growth and development.	2-5		CGK GOK NEMA
Housing <ul style="list-style-type: none"> • Guarantee delivery of quality, sustainable, 	Mixed re-densification of housing.	Replacement of detached and semi-detached permanent and temporary houses in Karuri, Gachie, Muchatha, Kawaida, Kanunga and Ndenderu.	1-5	-	CGK NG

Sector/Goal(s)	Programs	Projects	Duration	Estimated Cost	Actors
<p>accessible, and affordable housing, and</p> <ul style="list-style-type: none"> Ensure shelter for all people in Kiambaa Urban Area. 	Upgrading of houses and increase of supporting social amenities.	Housing re-development and increase in excess of roads, health, education, storm and sewer drainage and security services in (Karuri, Gachie, Muchatha, Kawaida, Kanunga and Ndenderu.	1-5	-	CGK
	Production of housing for high and medium densities.	Creation of adequate housing stock in Karuri, Gachie, Muchatha, Kawaida, Kihara and Ndenderu.	Continuous	-	CGK
	Provision of affordable social services for housing.	Electricity supply, water supply, street lighting and better road connectors to households in all Kiambaa Wards.	Continuous	500,000,000	CGK KPLC KAWSCO Athi Water Services Board
	Maintenance of boreholes, construction of boreholes and construction of water tanks.	Household water connection in the planning area.	1-5	100,000,000	CGK KAWSCO Athi Water
	Provision stormwater drainage system.	Construction of concrete stormwater drains in Karuri, Gachie, Muchatha, Kihara, Kanunga, Ndenderu and Kawaida.	Continuous	100,000,000	CGK KURA
	Construction of sewerage plant and sewer lines.	Sewerage system in Kihara, Cianda, Karuri, Muchatha and Ndenderu Wards.	3-8	1 billion	CGK Athi Water Services Board

Source: VisionRI

18 MONITORING, EVALUATION AND REPORTING

18.1 Procedure for Monitoring and Evaluation

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 an inter-agency/departmental coordination to ensure inclusiveness, which reflects the multispectral framework of the Plan.

The Constitution of Kenya (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; and
- 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 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 County⁸.

It 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 correctly and efficiently.

On the matters of physical and land use planning, the CoK (2010) requires the Department of Physical Planning and the National Land Commission (NLC) 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 Plan.⁹

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,

⁸ Kenya's County Integrated Monitoring and Evaluation System (CIMES 2016)

⁹ Government of Kenya, 2016:254

approving, implementing and reviewing Urban Land Use Plans and the National Land Commission as a monitoring and oversight agency over land-use planning.”¹⁰

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 practice of preparing, implementing, and reviewing urban land use plans in the country.

18.2 Existing M&E Situation

The M&E system in urban land use planning recognises the present challenges 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 and 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.

18.3 Suggested M&E Proposals

The following table presents the physical planning indicators and their means of verification.

¹⁰ Republic of Kenya (2016), Urban Land Use Planning: Monitoring and Oversight Guidelines - National Land Commission

Table 18-1: Physical Planning Indicators and Means of Verification

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 and National Spatial Plan.
	Compliance with relevant legislation.
	Compliance with relevant policies.
	Compliance with NLC guidelines.
	Compliance with other national agenda.
Physical Planning process	% of entities using the ISUDP.
	% of applications in compliance with the plan.
	% of planning areas defined as problem areas.
	Number of reviews of the ISUDP.
	Number 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.
	Number of committees constituted as per the legal requirements.
Community participation	Level of resident consultation on physical and land use planning issues.
	Number of neighbourhood associations engaged in planning issues.
	Number 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	Number of Departments/Units reporting well functional M&E.
	Number of annual physical planning needs assessments carried out.
	Number of staff trained and applying M&E tools.
	Availability of M&E tools.
Resource Mobilization	Number of partners/agencies supporting ISUDP implementation.
	Revenue generated by physical planning activities.

Source: VisionRI

The implementation of programmes and projects shall be monitored and reviewed annually. This shall be done through annual accomplishment reports to be submitted by concerned County Government Departments to the CPU. The list of programmes and projects shall be updated annually and amended along with the full review of the ISUDP.

18.4 Institutionalization of the M&E

As described in Chapter 9, the role of M&E will be anchored within the CPU whose core mandate is stipulated in Clause 105 of the County Government Act is to integrate and coordinate all the County sectors in planning and implementation of the various plans.

The County Director of Physical/Land Use Planning who is a member of the CPU will ensure that the ideals of this ISUDP are integrated across County's planning process.

19 RECOMMENDATIONS AND CONCLUSIONS

19.1 Improve Urban Management

Kiambaa Urban Area has undergone a tremendous transition from a rural settlement to a major residential neighbourhood mainly serving the rapidly growing population of Nairobi seeking accommodation outside the City. The growth of major urban areas like Ruaka, Karuri-Banana, Gachie, Ndenderu and Muchatha is attributed to the availability of affordable residential housing for people living within NMR. The Sub-County has been elevated into a municipality in accordance with the provisions of the Urban Areas and Cities Act.

The population of Kiambaa Urban Area stood at 234,600¹¹ as per the 2019 census. This represents a growth of 55.6% from the 2009 population of 145,053. This growth is mainly driven by rapid urbanisation and increase in human settlements in Ruaka, Gachie, Ndenderu, Karuri and Muchatha, amongst other areas.

If left unchecked, this growth may lead to the continuation of uncontrolled conversion of previous agricultural lands into urban areas. To address this challenge, there is a need to strengthen the planning functions of the Municipal Board with regard to urban growth management.

The essence of transforming urban areas into towns, municipalities and cities is important in enhancing urban management and service provision. Kiambaa has reached this threshold and therefore, a holistic and sustainable transitional model of developing and operationalising the planning area into an effective municipality is necessary.

This ISUDP recommends the delineation of the municipal and town boundaries in accordance with the provisions of the Urban Areas and Cities Act. This calls for the establishment of an urban hierarchy of a municipality, towns, and market centres in the Sub-County. The establishment of such a hierarchy will ensure that urbanisation is guided, and urban limits of the various nodes/urban centres are clearly defined. It will also enable Kiambaa Urban Area to tackle urbanisation challenges, leverage its strategic opportunities, and strengthen effective service delivery and management.

19.2 Improved Integrated Transportation System

- i. **Provide Non-motorised transport;** Enhance and expand active transportation, aided mobility, walking, and cycling.

Based on both the current and projected modal split, the majority of the Kiambaa residents will be walking. Since the infrastructure provision need does not match the need, there is 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.

¹¹ 2019 Kenya Population and Housing Census – Volume 1.

In order to achieve a walkable urban area in Kiambaa, 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, and provision of shades, street furniture and landscaping to enhance attractiveness and comfort of pedestrians and cyclists. Facilities may also be provided for street vendors so that they may not lose their livelihood. 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 need to put strict measures to ensure that parking and vending are prohibited on pedestrian facilities.

ii. Public transport; Build a comprehensive regional rapid transit/bus network.

Being the second most common mode of transport in Kiambaa, public transport needs major improvement in order to meet the need of the current commuters as well as the projected growth. The Karuri bus terminal needs to be expanded in order to accommodate the volume of matatus. In other urban areas within the Sub-County such as Ruaka, Gachie, Kawaida, land need to be acquired to build terminal facilities in order to reduce the current menace of operating along the road shoulders and other undesignated areas. Some of the key facilities that need to be incorporated in the new terminals include toilets for persons with disabilities and with baby changing stations, ample passengers sitting area with shelter, luggage storage facilities, customer information on the route and fare. Bus stops or lay-bys must have shelters provided at appropriate intervals and on need basis.

iii. Boda boda: Boda bodas play a key role for last-mile connectivity especially in areas where public transport is not readily available. The following are ways in which the boda boda sector may be improved in Karuri: 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 the operators, 3) Mandate all boda-boda operators to take advantage of the technologies in boda boda operators e.g. Safe Bodas, Uber boda boda, etc. to avoid overcrowding in urban centres, regular training of safety and business development.

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. Kiambu County needs to define parking areas both on-street and off the street 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 a physical definition of spaces for parking, protection of pedestrian spaces from encroachment through physical barriers such as bollards, signages 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 County Government can identify land for off-street parking with parking charges on a weekly or monthly basis. This will increase revenue generation by the County 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 regulation are maintained, and offenders are penalised.

19.3 Neighbourhood Governance for Plan Mitigation and Adaptation

In order to promote and sustain community engagement and empowerment, it is recommended that the benefits of this ISUDP be cascaded to the neighbourhood level. This may be achieved through awareness creation through identification and utilisation of effective communication systems and modes on the importance of land use planning and management at all levels. Such a focus will create more resilient neighbourhood as they are enabled to deliver forms of services and resources.

This is in furtherance to the County Governments 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 prepared on clearly delineated sub-zones derived from this ISUDP 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 ISUDP or any other statutory governance action.

19.4 County Affordable Housing Strategy

Kiambaa Urban Area is a dormitory of Nairobi City. However, affordable housing is a complex challenge not only to those seeking accommodations in the area but also to local residents who are being displaced by the booming real estate sector which is mainly targeting the middle-income group. This calls for public policy that will ensure that land use planning and investments in physical infrastructure attract investment in affordable housing. The Kiambu County Affordable Housing Strategy has the potential to improve the efficiency and priority and equity of housing markets.

19.5 Infrastructure Master Plans

- **Wayleaves/Easement Master Plan, and Storm Water and Flood Management Strategy:** Pursuant to the provisions in the Physical and Land Use Planning Act (PLUPA) Third Schedule Section 12, there is a need to develop a master plan for wayleaves and easements for bulk infrastructure such as telecommunications, electrical power supply, water and sewerage networks, fibre optics and ICT base transmission stations. The wayleave and easement masterplan should 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.

- **Transportation Master Plan:** Urban development in Kiambaa Urban Area is largely influenced by transportation networks with corridor development being the major feature. The construction of trunk infrastructure has influenced rapid urban growth such as along Limuru road, Nairobi-Gachie road, Northern By-pass, and Western By-pass, amongst others. The development of a comprehensive transportation master plan including a Ring Road Circuit, BRT and commuter rail transport that integrates urban, peri-urban and rural roads, and incorporates traffic management systems will enable the Sub-County to come up with clear and localised travel demand management system.

19.6 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 should plan for these developments in the food supply chain. The County Government should 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 pillars of the 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 fertiliser 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 Kiambaa Urban Area, 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 planned and well supported to ensure this sector is able to thrive.

19.7 Plan Coordination

There is a need to have cohesive coordination within the National, NMR and Kiambu County planning frameworks specifically the County Spatial Plan, CIDP, ISUDPs, IDePs and other sectoral plans and initiatives. This will improve matching similar development models along and across inter-county boundaries and regions.

19.8 Capacity Building and Institutional Coordination

At the heart of building multi-level networks is the County Planning Unit (CPU) which has to be rejuvenated and given the necessary merit and structure to ease their delivery especially on matters related to land administration and management. This will facilitate the CPU's coordination with implementing agencies/entities at all levels to ensure the effective implementation of this ISUDP. 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 Governments Act (Section 54(2)) for smooth information flow and feedback across National and County Government departments and agencies.

Pursuant to the provisions of the Performance Management Plan (PMP) in the County Governments Act Section 47, it is necessary to conduct continuous monitoring, evaluation, and performance appraisal of interventions. These activities shall be done in relation to identifying and strengthening the workings of each intervention process and system. An unremitting M&E framework provides a consistent forecast of failure and emerging opportunities.

19.9 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 ISUDP's timeframe. This includes integrating intra- and inter-regional learning to help in scaling best practices across all NMR municipalities for effective monitoring and evaluation.

REFERENCES

- Bernstein, J. (2004): Toolkit for Social Assessment and Public Participation in Municipal Solid Waste Management. Urban Environment Thematic Group, the World Bank, Washington, D.C Press.
- Buchholz, R. A. (1998). Principles of Environmental Management: The Greening of Business (No Ed. 2). Prentice-Hall Inc.
- Charlie Pye-Smith (2012) "Saving the Plains: ILRI Research Team Wins Sustainability Science Award for Its Pastoral Research in Masai land", Available At [Http://Www.ilri.org/Ilrinews/Index.Php/Archives/Tag/Kitengela](http://www.ilri.org/ilrinews/index.php/archives/tag/kitengela), Accessed 27th April 2015.
- De Kimpe, C.R., & Morel, J. L. (2000). Urban Soil Management: A Growing Concern. *Soil Science*, 165(1), 31-40.
- Elzen M. G. J., J. G. J. Olivier, N. Höhne, and G. Janssens-Maenhout (2013). Countries' Contributions to Climate Change: Effect of Accounting for All Greenhouse Gases, Recent Trends, Basic Needs and Technological Progress. *Climatic Change* 121, 397 – 412
- Iyer, Anjana (2001): Community Participation in Waste Management: Experiences of a Pilot Project in Bangalore, India. Urban Waste Expertise Program, the Netherlands. September.
- Kamau, E.C. (2005). Environmental Law and Self-Management by Industries in Kenya. *Journal of Environmental Law*, 17(2). 229-224 Kenya.
- Kamau, J.M., & Sakwa, G. L. (2012). Environmental Impact Assessment Report: Construction of Sewerage System for Ruiru Sub-County (No. E2920 V2rev).
- Kwonyike, A.C, (2004): Towards an Alternative Strategy for Domestic Solid Waste Management in Kabarnet Sub-County. M.Phil Thesis, Moi University Nairobi.
- Mashie, D (2006). Isk/Kla Seminar-Kenya Draft National Land Policy. Keynote Presentation at Nairobi Safari Club on 24th October 2006.
- Rogger H (1985), African Projects: Impacts in the Environment: The Social and Environmental Impact of Projects at the Local Level: A Case Study of Five Man-Made Lakes in Eastern Africa, Elci, Nairobi.
- Syrjanen, R. (2006). Mavoko Urban Sector Profile. Nairobi: Un-Habitat.
- Tchobanoglous, G., Theisen, H., & Virgil, S. (1993). Integrated Solid Waste Management: Engineering Principles and Management Issues. Mc Gaw-Hill, Inc.
- Unchs/Habitat (1987): Shelter, Infrastructure and Services for the Poor in Developing Countries: Some Policy Options. Nairobi.
- United Nations Environment Programme (UNEP) and Acts (2001), Making of Framework Environmental Law in Kenya, Acts Press, Nairobi, 2001.

UNHABITAT (2000): Water and Sanitation Programme. United Nations Millennium Summit, Millennium Development Goals

UNHABITAT (2004): State of the World Cities 2004/105. UNHABITAT Report, Nairobi.

Un-Habitat (2008). The State of African Cities 2008. A Framework for Addressing Urban Challenges in Africa, UN-Habitat, Nairobi.

UNHABITAT (2013): Urban Planning for City Leaders, Second Edition. Un Habitat, Central Office.

United Nations Economic Commission for Europe (1996). Land Administration Guidelines with Specific Reference to Countries in Transition. Geneva

Wasonga, D. (2006). Proceedings of the National Museums of Kenya First Scientific Conference (Nmk-Sc): Science for Heritage Conservation: Our Heritage Our Wealth: Held On 15th-17th November 2006, At the Kenya Institute of Education (Kie), Nairobi. Nairobi, Kenya: National Museums of Kenya.

World Health Organization (Who); 2003. Guidelines for Drinking Water 3rd Edition.

World Health Organization (Who, 1993) Guidelines for Drinking Water Quality. Second Edition. Volume 3.

Surveillance and Control of Community Water Supplies. Who Geneva.

Government Documents

County Government of Kiambu (2013). County Integrated Development Plan 2013-2017

Government of Kenya (2010). Constitution of Kenya, Government Printer, Nairobi.

Government of Kenya (2007). Kenya's Vision 2030. Government Printers, Nairobi.

Government of Kenya Republic of Kenya, Thika District Development Plan, 2002-2008, Government Printer, Nairobi.

The Republic of Kenya, Thika District Poverty Reduction Strategy Paper Consultation Report for the Period 2001-2004. Government Printer, Nairobi.

Government of Kenya (1999). Environmental Management and Co-ordination Act, 1999. Government Printer, Nairobi.

Government of Kenya (2000): Thika District Development Plan. Government Printer, Nairobi.

Government of Kenya (2009): The 2009 Kenya Population and Housing Census "Counting Our People for The Implementation of Vision 2030" August 2010, Volume Ic. Government Printer, Nairobi.

Government of Kenya (2010): National Climate Change Response Strategy, Executive Brief. Government Printer, Nairobi.

Government of Kenya. Public Health Act, Chapter 242, Laws of Kenya. Government Printer, Nairobi.

Government of Kenya, Nairobi. 18. The Republic of Kenya, EMCA (Waste Management) Regulations, 2006. Government Printer, Nairobi.

Government of Kenya. Kenya Gazette Supplement Acts, Building Code 2000. Government Printer, Nairobi.

Kenya Gazette Supplement Acts 2000, Environmental Management and Coordination Act Number 8 of 1999. Government Printer, Nairobi.

Kenya Gazette Supplement Number 56. Environmental Impact Assessment and Audit Regulations 2003. Government Printer, Nairobi.

Government Printer, Nairobi. Government of Kenya NEMA Regulations (2006). Water Quality Regulations, 2006 Government Printer, Nairobi.

Government of Kenya (1972). Laws of Kenya: The Factories and Other Places of Work Act, Cap 514. Government Printer, Nairobi.

Government of Kenya (2004), State of Environment Report, NEMA, and Nairobi. The Republic of Kenya, Forest Act (2005), Government Printer, Nairobi.

Government of Kenya: Kenya Gazette Supplement Acts Penal Code Act (Cap.63). Government Printer, Nairobi.

Government of Kenya: Kenya Gazette Supplement Acts Physical and Land Use Planning Act, 2019 Government Printer, Nairobi.

Government of Kenya: Kenya National Bureau of Statistics (1999), Kenya Demographic and Health Survey 1993, CBS, Government Printer, Nairobi.

Government of Kenya: Kenya National Bureau of Statistics (2004), Demographic and Health Survey 2003, CBS, Nairobi.

Government of Kenya: Kenya National Bureau of Statistics (2007), Basic Report on Well Being in Kenya, Government Printer, Nairobi.

Government of Kenya National Bureau of Statistics (2009), Demographic and Health Survey 2008/9, CBS, Government Printer, Nairobi.

Government of Kenya Ministry of Lands. Physical Planning Handbook (2007), Department of Physical Planning

Government of Kenya Ministry of Lands and Settlements, Physical Planning Department (1978). Humans Settlements in Kenya. A Strategy for Urban and Rural Development. Government Printer, Nairobi.

Government of Kenya Ministry of Lands, Kenya (2007) Revised Draft National Land Policy. National Land Policy Secretariat, Ardhi House, Government Printer, Nairobi.

Government of Kenya Ministry of Metropolitan Development (2011) Development of a Spatial Planning The concept for Nairobi Metropolitan Region of Kenya, Government of Kenya Ministry of Metropolitan Development Government Printer, Nairobi.

Government of Kenya, Ministry of Nairobi Metropolitan Development (2008), Nairobi Metro 2030, Nairobi.

Government of Kenya Ministry of National Planning and Vision 2030 (2008), Kenya Vision 2030, District Development Plan (2004-2008). Government Printer, Nairobi

Government of Kenya (1989) Revised Edition. The Registered Land Act Cap 300 of Laws of Kenya. Government Printer, Nairobi.

Government of Kenya (2019). Physical and Land Use Management Act, 2019, Laws of Kenya. Government Printer, Nairobi.

Government of Kenya (June 2004) Report of the Commission of Inquiry into the Illegal/Irregular Allocation of Public Land Annexes Volumes I and II. Government Printer, Nairobi.

Government of Kenya, National Water Master Plan: 1980, Government Printer, Nairobi

Government of Kenya, Water Act (2002), Government Printer, Nairobi.

Government of Kenya, Water Supply Design Manual (2005), Government Printer, Nairobi.

Appendices 1.1: Notice of Intention to Plan

DAILY NATION
Wednesday October 28, 2015
43

ACTED VACANCY ANNOUNCEMENTS

ACTED is looking for experienced self-starters with professional qualifications in the following areas:

A RANGE OF POSITIONS IN THE LAND MANAGEMENT DIVISION

Under the authority of the County Director, the following specific duties will include:

- Project Quality Management and Reporting
- Review, preparation and implementation of project work management
- Submittal System
- Act as a Reviewer/Checker at the District office regularly updated with appropriate and relevant technical and related resources
- Provide information to other internal stakeholders through the internet and the regional office
- Professional Development and External Relations and Career Strategy
- Develop and deliver a comprehensive and coherent knowledge strategy for the organization
- Act as a point of contact for all donor communication, including the organization of and hosting of donor visits in the field
- Operational Coordination
- Ensure continuation of all activities, including human resources, ongoing needs for change in technical skills, updating project results and regional field offices, and documenting publications/learning/ACTED in the media
- Supervised Profile
- Master level education in International Relations, Development Studies, Urbanization and/or a related field
- Minimum level education or post graduate Diploma in Development Studies
- At least 10 years of experience in the Humanitarian Field, Disaster Relief, Project Development, management and monitoring systems, preferably in NGOs as required

5 POSITIONS AVAILABLE

Under the authority of the County Director, the following specific duties will include:

- In coordination with County Director and BODCO Regional Managers, design and implement BODCO assessment strategy and methodology within the region
- Coordinate and ensure timely data collection, review and, in partnership with BODCO, meet, reporting of datasets, ensure final of collected data are processed
- Supporting the development/revision of assessment / programme strategies, reports or case studies
- In coordination with BODCO Regional Managers, regional representation of BODCO with donors, partners and the wider Aid Community through donors and external working groups

Supervised Profile

- Excellent academic qualifications, including a Master degree in International Relations or related discipline
- Excellent analytical skills of qualitative, quantitative and geographical data
- At least 5 years of relevant working experience in humanitarian settings

Application Procedure

Qualified persons are invited to submit their applications accompanied by detailed curriculum vitae to hr@acted.org and received on or before 5:00PM on 07 Nov 2015. Please note that only the shortlisted candidates will be contacted. ACTED is an Equal Opportunity Employer.

Kenya Power

CLARIFICATION AND EXTENSION OF TENDER CLOSING DATE

Kenya Power wishes to inform firms participating in the tender below, that clarification and extension of the tender closing date has been deemed necessary, calling for addendum 1 to the tender.

TENDER NO.	DESCRIPTION OF GOODS	PREVIOUS CLOSING DATE	NEW CLOSING DATE
KPL/BA-3/PT/VICT/75-18	Supply, installation and Commissioning of 220/48 VDC Battery Systems	29.10.2015	05.11.2015 at 10.30 a.m.

Tender Security should therefore be valid from the new closing date shown above.

Addendum 1 detailing the requirements of the above tender may be obtained from Kenya Power's E-Procurement Portal available on Kenya Power's website (www.kplc.co.ke) from Wednesday 28th October, 2015.

Prospective bidders should register for E-Procurement to enable them access the Kenya Power portal under "New Supplier Registration" found under the "Tenders" Tab.

All other terms and conditions of the tender remain the same.

**GENERAL MANAGER
SUPPLY CHAIN**

www.kplc.co.ke

GIMCO LIMITED
Estimates, Valuations & Managing Agents
Real Estate Development Consultants

PROPERTY FOR SALE - BY WAY OF BID-

Under the instructions from our principals, the following property situated in Nairobi is on sale by way of Bid by the Agent listed above:

L. E. NO. 7533/2 NAIROBI UNIT 5, BEING PART OF THE DEVELOPMENT "THE PARK OFF TREE LANE" IN THE KAREN AREA OF NAIROBI

A prime residential property sitting on approximately 0.78 acres comprising of a six bedroom executive mansion with staff quarters in a gated community within the prestigious development, "The Park off Tree Lane" in the leafy Karen suburb.

Bid packs are available from the above listed agent in both soft or hard copies at a non-refundable fee of Kshs. 2,000 payable in Banker's Cheque.

The pack shall contain a description of the property, legal documentation and format of bidding.

The bids must be addressed to:
GIMCO LIMITED
GIMCO CENTRE,
07 KIAMBERE ROAD, UPPER HILL
NAIROBI

The deadline for the receipt of bids shall be at 11.00 Hrs on 12/11/2015.

The vendor does not warrant any particulars and reserves the right to accept or reject any bid and shall not be called upon to assign any reason therefor.

Viewing is strictly by appointment through the offices of the agent.

REPUBLIC OF KENYA

MINISTRY OF LAND, HOUSING AND URBAN DEVELOPMENT
DIRECTORATE OF URBAN AND METROPOLITAN DEVELOPMENT
PROJECT NAME: NAIROBI METROPOLITAN SERVICES IMPROVEMENT PROGRAMME (NMSIP)
CREDIT No: IDA 19228-KZ

PUBLIC NOTICE

KIAMBU COUNTY GOVERNMENT

Commencement of preparation of Integrated Strategic Urban Development Plans for Kiambu, Uthmaniyah, and Nairobi. This Transport corridor (1) km, abaker

Contract No: MOLA/UD/DOH/DEH/MSIP/TA-192813-2015

Pursuant to articles 4, 10 (2), 46, 66, 67, 184, 186 and the first and fourth schedules of the Constitution of Kenya, 2010, the National Land Commission Act, County Government Act, Urban Areas and Cities Act, Physical Planning Regulations Act and other enabling legislations.

Notice is hereby given that the Kiambu County Government has commenced the preparation of Integrated Strategic Urban Development Plans (ISUDPs) for 5 (5) towns in 1 cluster, Jua Kali, Nairobi North, Nairobi Central and Nairobi South.

The ISUDP planning area shall comprise the existing boundaries of the towns and municipalities and to the extent as defined by the county spatial plan while the planning area for the transport corridor shall be a kilometer on either side of the transport corridor.

The purpose of the ISUDP is to provide a framework for detailed development policies and proposals for towns, indicate action areas for immediate development or redevelopment and provide a coordinated basis upon which various implementing agencies can develop their individual programs for work for which they have executive responsibility for example housing, transportation, water supply, electricity supply, sewerage development among others. The plan preparation process is expected to be completed in April 2016.

It is a constitutional and statutory requirement that stakeholders and members of the general public participate in the plan preparation process. Any person or institution that wishes to participate in or has comments on the planning project can reach or may forward any such comments to the County Director of Physical Planning at the address below.

**COUNTY SECRETARY
KIAMBU COUNTY GOVERNMENT**
P.O. Box 1344 - 20000 KIAMBU
Tel: +254 81 888168
Mobile: +254 799 392 388

REPUBLIC OF KENYA

MINISTRY OF LAND, HOUSING AND URBAN DEVELOPMENT
DIRECTORATE OF URBAN AND METROPOLITAN SERVICES IMPROVEMENT PROGRAMME (NMSIP)
CREDIT No: IDA 19228-KZ

PUBLIC NOTICE

COUNTY GOVERNMENT OF MACHAKOS

Commencement of preparation of Integrated Strategic Urban Development Plans for Machakos, Tala-Kangaria and Nairobi-Nakuru. Transport corridor (1) km, abaker

Contract No: MOLA/UD/DOH/DEH/MSIP/TA-192813-2015

Pursuant to articles 4, 10 (2), 46, 66, 67, 184, 186 and the first and fourth schedules of the Constitution of Kenya, 2010, the National Land Commission Act, County Government Act, Urban Areas and Cities Act, Physical Planning Regulations Act and other enabling legislations.

Notice is hereby given that the Machakos County Government has commenced the preparation of Integrated Strategic Urban Development Plans (ISUDPs) for 3 (3) towns in 1 cluster, Machakos, Machakos Transport Corridor and Tala-Kangaria.

The ISUDP planning area shall comprise the existing boundaries of the towns and municipalities in addition to the extent of urbanizing area while the planning area for the transport corridor shall be a kilometer on either side of the transport corridor.

The purpose of the ISUDP is to provide a framework for detailed development policies and proposals for towns, indicate action areas for immediate development or redevelopment and provide a coordinated basis upon which various implementing agencies can develop their individual programs for work for which they have executive responsibility for example housing, transportation, water supply, electricity supply, sewerage development among others. The plan preparation process is expected to be completed in April 2016.

It is a constitutional and statutory requirement that stakeholders and members of the general public participate in the plan preparation process. Any person or institution that wishes to participate in or has comments on the planning project can reach or may forward any such comments to the County Director of Physical Planning at the address below.

**COUNTY SECRETARY
MACHAKOS COUNTY GOVERNMENT**
P.O. Box 361 - 90118 MACHAKOS

REPUBLIC OF KENYA

MINISTRY OF LAND, HOUSING AND URBAN DEVELOPMENT
DIRECTORATE OF URBAN AND METROPOLITAN SERVICES IMPROVEMENT PROGRAMME (NMSIP)
CREDIT No: IDA 19228-KZ

NOTICE OF INTENTION TO PLAN

MURANG'A COUNTY GOVERNMENT

COMMENCEMENT OF PREPARATION OF INTEGRATED STRATEGIC COUNTY SPATIAL PLAN FOR MURANG'A, MURANG'A, MURANG'A AND INTEGRATED STRATEGIC URBAN DEVELOPMENT PLANS FOR MURANG'A, MURANG'A, KANGARU, KANGARU AND THIKA-KANGARU, GARISSA TRANSPORT CORRIDOR (1 KM EITHER SIDE)

Contract No: MOLA/UD/DOH/DEH/MSIP/TA-192813-2015

Pursuant to articles 4, 10 (2), 46, 66, 67, 184, 186 and the first and fourth schedules of the Constitution of Kenya, 2010, the National Land Commission Act, Urban Areas and Cities Act, Physical Planning Regulations Act and other enabling legislations.

Notice is hereby given that the Murang'a County Government has commenced the preparation of Integrated Strategic Urban Development Plans (ISUDPs) for 3 (3) towns in 1 cluster, Murang'a, Murang'a Transport Corridor and Thika-Kangaru Transport Corridor.

The ISUDP planning area shall comprise the existing boundaries of the towns and municipalities in addition to the extent of urbanizing area while the planning area for the transport corridor shall be a kilometer on either side of the transport corridor.

The purpose of the ISUDP is to provide a framework for detailed development policies and proposals for towns, indicate action areas for immediate development or redevelopment and provide a coordinated basis upon which various implementing agencies can develop their individual programs for work for which they have executive responsibility for example housing, transportation, water supply, electricity supply, sewerage development among others. The plan preparation process is expected to be completed in October 2016.

It is a constitutional and statutory requirement that stakeholders and members of the general public participate in the plan preparation process. Any person or institution that wishes to participate in or has comments on the planning project can reach or may forward any such comments to the County Director of Physical Planning at the address below.

**COUNTY SECRETARY
MURANG'A COUNTY GOVERNMENT**
P.O. Box 13, 60000 MURANG'A
TELEPHONE: 066-203071
Email: info@murangakc.go.ke

REPUBLIC OF KENYA

MINISTRY OF LAND, HOUSING AND URBAN DEVELOPMENT
DIRECTORATE OF URBAN AND METROPOLITAN SERVICES IMPROVEMENT PROGRAMME (NMSIP)
CREDIT No: IDA 19228-KZ

PUBLIC NOTICE

KIAMBU COUNTY GOVERNMENT

Commencement of preparation of Integrated Strategic Urban Development Plans for Kiambu, Uthmaniyah, and Nairobi. This Transport corridor (1) km, abaker

Contract No: MOLA/UD/DOH/DEH/MSIP/TA-192813-2015

Pursuant to articles 4, 10 (2), 46, 66, 67, 184, 186 and the first and fourth schedules of the Constitution of Kenya, 2010, the National Land Commission Act, County Government Act, Urban Areas and Cities Act, Physical Planning Regulations Act and other enabling legislations.

Notice is hereby given that the Kiambu County Government has commenced the preparation of Integrated Strategic Urban Development Plans (ISUDPs) for 5 (5) towns in 1 cluster, Jua Kali, Nairobi North, Nairobi Central and Nairobi South.

The ISUDP planning area shall comprise the existing boundaries of the towns and municipalities and to the extent as defined by the county spatial plan while the planning area for the transport corridor shall be a kilometer on either side of the transport corridor.

The purpose of the ISUDP is to provide a framework for detailed development policies and proposals for towns, indicate action areas for immediate development or redevelopment and provide a coordinated basis upon which various implementing agencies can develop their individual programs for work for which they have executive responsibility for example housing, transportation, water supply, electricity supply, sewerage development among others. The plan preparation process is expected to be completed in April 2016.

It is a constitutional and statutory requirement that stakeholders and members of the general public participate in the plan preparation process. Any person or institution that wishes to participate in or has comments on the planning project can reach or may forward any such comments to the County Director of Physical Planning at the address below.

**COUNTY SECRETARY
KIAMBU COUNTY GOVERNMENT**
P.O. Box 1344 - 20000 KIAMBU
Tel: +254 81 888168
Mobile: +254 799 392 388

REPUBLIC OF KENYA

MINISTRY OF LAND, HOUSING AND URBAN DEVELOPMENT
DIRECTORATE OF URBAN AND METROPOLITAN SERVICES IMPROVEMENT PROGRAMME (NMSIP)
CREDIT No: IDA 19228-KZ

PUBLIC NOTICE

KIAMBU COUNTY GOVERNMENT

Commencement of preparation of Integrated Strategic Urban Development Plans for Kiambu, Uthmaniyah, and Nairobi. This Transport corridor (1) km, abaker

Contract No: MOLA/UD/DOH/DEH/MSIP/TA-192813-2015

Pursuant to articles 4, 10 (2), 46, 66, 67, 184, 186 and the first and fourth schedules of the Constitution of Kenya, 2010, the National Land Commission Act, County Government Act, Urban Areas and Cities Act, Physical Planning Regulations Act and other enabling legislations.

Notice is hereby given that the Kiambu County Government has commenced the preparation of Integrated Strategic Urban Development Plans (ISUDPs) for 5 (5) towns in 1 cluster, Jua Kali, Nairobi North, Nairobi Central and Nairobi South.

The ISUDP planning area shall comprise the existing boundaries of the towns and municipalities and to the extent as defined by the county spatial plan while the planning area for the transport corridor shall be a kilometer on either side of the transport corridor.

The purpose of the ISUDP is to provide a framework for detailed development policies and proposals for towns, indicate action areas for immediate development or redevelopment and provide a coordinated basis upon which various implementing agencies can develop their individual programs for work for which they have executive responsibility for example housing, transportation, water supply, electricity supply, sewerage development among others. The plan preparation process is expected to be completed in April 2016.

It is a constitutional and statutory requirement that stakeholders and members of the general public participate in the plan preparation process. Any person or institution that wishes to participate in or has comments on the planning project can reach or may forward any such comments to the County Director of Physical Planning at the address below.

**COUNTY SECRETARY
KIAMBU COUNTY GOVERNMENT**
P.O. Box 1344 - 20000 KIAMBU
Tel: +254 81 888168
Mobile: +254 799 392 388

REPUBLIC OF KENYA

MINISTRY OF LAND, HOUSING AND URBAN DEVELOPMENT
DIRECTORATE OF URBAN AND METROPOLITAN SERVICES IMPROVEMENT PROGRAMME (NMSIP)
CREDIT No: IDA 19228-KZ

PUBLIC NOTICE

COUNTY GOVERNMENT OF KAJIADO

Commencement of preparation of Integrated Strategic Urban Development Plans for Kajado, Ongata-Rong and Kiambu.

Contract No: MOLA/UD/DOH/DEH/MSIP/TA-192813-2015

Pursuant to articles 4, 10 (2), 46, 66, 67, 184, 186 and the first and fourth schedules of the Constitution of Kenya, 2010, the National Land Commission Act, County Government Act, Urban Areas and Cities Act, Physical Planning Regulations Act and other enabling legislations.

Notice is hereby given that the Kajado County Government has commenced the preparation of Integrated Strategic Urban Development Plans (ISUDPs) for 3 (3) towns in 1 cluster, Ngingo, Ongata Rong and Kariakoo.

The ISUDP planning area shall comprise the existing boundaries of the towns and municipalities in addition to the extent of urbanizing area while the planning area for the transport corridor shall be a kilometer on either side of the transport corridor.

The purpose of the ISUDP is to provide a framework for detailed development policies and proposals for towns, indicate action areas for immediate development or redevelopment and provide a coordinated basis upon which various implementing agencies can develop their individual programs for work for which they have executive responsibility for example housing, transportation, water supply, electricity supply, sewerage development among others. The plan preparation process is expected to be completed in October 2016.

It is a constitutional and statutory requirement that stakeholders and members of the general public participate in the plan preparation process. Any person or institution that wishes to participate in or has comments on the planning project can reach or may forward any such comments to the County Director of Physical Planning at the address below.

**COUNTY SECRETARY
KAJADO COUNTY GOVERNMENT**
P.O. Box 11 - 01108 KAJADO

KIGUMO BENDERA HIGH SCHOOL
P.O. BOX 56-10200 KIGUMU (TEL: 011-421181) Email: kbschool@yahoo.com

INVITATION TO TENDER - YEAR 2016

Tenders are invited for the supply and delivery of the following items as at 1st January, 2016 to 31st December, 2016.

- K.B.H.5010016 - Lab equipment & chemicals
- K.B.H.5020016 - Staff & students uniforms
- K.B.H.5030016 - Games equipment & uniforms
- K.B.H.5040016 - Stationery
- K.B.H.5050016 - Supply of cartidges and toners
- K.B.H.5060016 - Turbines & binding
- K.B.H.5070016 - Power transformers
- K.B.H.5080016 - Baking flour and ingredients
- K.B.H.5090016 - Fresh Meat
- K.B.H.5100016 - Fresh Halls (bananas, mangoes, etc)
- K.B.H.5110016 - Firewood (20)
- K.B.H.5120016 - Cabbages & onions
- K.B.H.5130016 - Dry food & cereals (maize and beans)
- K.B.H.5140016 - Manufactured food (sugar, salt, tea, tea leaves)
- K.B.H.5150016 - Insurance (comprehensive) cover for school vehicles
- K.B.H.5160016 - Insurance cover (students, staff and school property)
- K.B.H.5170016 - Electrical appliances
- K.B.H.5180016 - Detergents & disinfectants
- K.B.H.5190016 - Maize flour
- K.B.H.5200016 - Exercise books
- K.B.H.5210016 - Supply of fire fighting equipment & servicing
- K.B.H.5220016 - Supply of new double decker beds
- K.B.H.5230016 - Provision of security services
- K.B.H.5240016 - A complete set of tender documents may be obtained from the Accounts Office from 1.00pm per item code.

Monday-Friday during working hours upon payment of a non-refundable fee of Kshs. 1,000 per item code.


Questions should include cost of delivery and V.A.T.

Completed tenders in plain sealed envelopes marked "Tender No. _____" should reach the undersigned on or before 14th November, 2015 at 9.00 a.m. Tenders will be opened the same day in the school library. Interested tenderers or their representatives are welcome to attend.


The school reserves the right to accept or reject any tender either in whole or in part and it is not bound to give reason for the same.

Chairman - Procurement Committee, Kigumo Bendera High School,
P.O. BOX 56-10200, 50200

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. NTT/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/153/2020/01 – *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.

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/JFC EHS Guidelines NEMA Guidelines/ requirements. Use recommended PPE. Conduct Risk Assessment before removal of ACMs. Notify the authority by filling in the notification form.