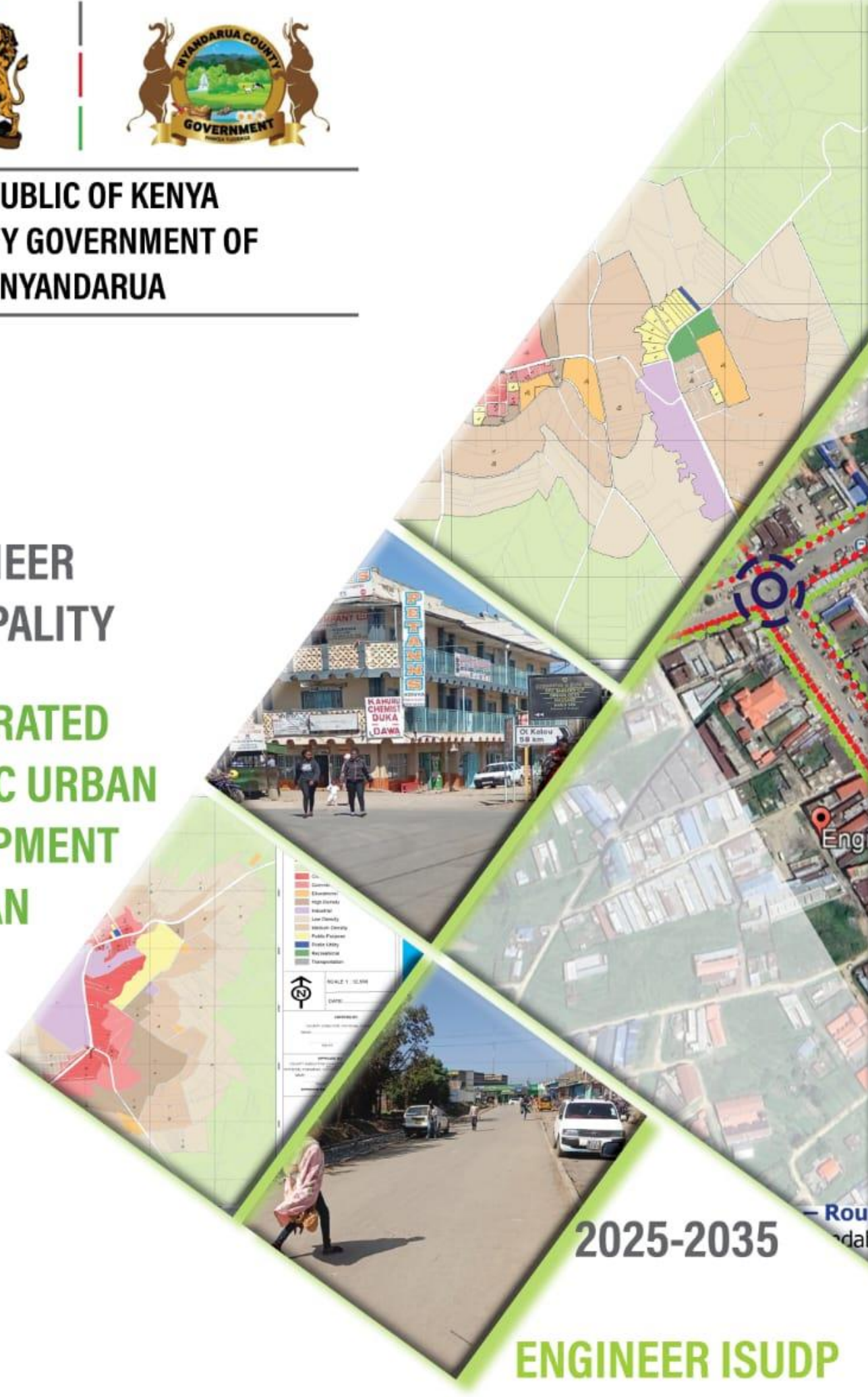
REPUBLIC OF KENYA
COUNTY GOVERNMENT OF
NYANDARUA

ENGINEER MUNICIPALITY

INTERGRATED STRATEGIC URBAN DEVELOPMENT PLAN



2025-2035

ENGINEER ISUDP

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PLAN APPROVAL

CERTIFIED

This Plan has been prepared, publicized and circulated as per the requirements of the Physical and Land Use Planning Act, 2019 and other relevant statutes.

Signature …… Date …….

County Director of Physical Planning

ADOPTED

Signature …… Date …….

Municipal Board of Engineer

RECOMMENDED

Signature …… Date …….

County Executive Committee Member for Land, Physical Planning, Housing and Urban Development

Foreword

The Integrated Strategic Urban Development Plan (ISUDP 2024-2034) for Engineer Municipality represents a significant milestone in our journey towards a more sustainable and prosperous community. Guided by our core values of transparency, integrity, social inclusion, equity, sustainability, and accountability, this plan sets out a comprehensive framework for the growth and development of our municipality over the coming years. It is closely aligned with the County Integrated Development Plan (CIDP) 2023-2027, Kenya's Fourth Medium Term Plan, and the Bottom-Up Economic Transformation Agenda among other national and international policy documents.

This plan is the result of a collaborative and inclusive process involving extensive consultation and engagement with stakeholders across the community. It reflects the diverse perspectives, concerns, and aspirations of residents, businesses, and local leaders, ensuring that the development of Engineer Municipality is responsive to the needs of all its citizens. Through careful research, analysis, and planning, we have identified priority areas for investment and development, including infrastructure, services, and social programs, all aimed at enhancing the quality of life for our community.

At its heart, this ISUDP is about creating a future where Engineer Municipality is not only functional but also a place where all residents can thrive. We are committed to improving infrastructure, enhancing public services, and fostering economic opportunities, while also safeguarding the natural environment and promoting sustainability. Our vision is to build a resilient, inclusive, and vibrant community that offers equal opportunities for all, regardless of background or circumstances.

Innovation and creativity are central to this plan. By embracing new ideas and technologies, we aim to transform Engineer Municipality into a hub of progress and opportunity, where entrepreneurship flourishes and residents can enjoy a higher standard of living. We also recognize the importance of preserving our environment and natural resources, ensuring that future generations will inherit a municipality that is healthy, sustainable, and filled with opportunity.

TABITHA WAMBUI

CHAIRPERSON –ENGINEER MUNICIPAL BOARD

Acknowledgement

I would like to extend my deepest appreciation to all those who contributed to the preparation of the Integrated Strategic Urban Development Plan (ISUDP) for Engineer Municipality, 2024-2034. This comprehensive plan, which outlines a clear roadmap for the development and sustainability of our municipality, is a testament to the dedication, collaboration, and shared vision of many individuals and organizations.

I extend my profound thanks to the Engineer Municipal Board, whose invaluable insights, counsel, and direction helped shape the ISUDP into a responsive and future-oriented document. Special mention to Engineer Municipal Board Members led by the Chairperson; Tabitha Wambui, Vice Chairperson; Samuel Kimani, Julie Gachiku, Martin Mwangi, and David Kinyanjui. Their dedication to ensuring that the plan aligns with the needs and aspirations of the residents of Engineer Municipality is greatly appreciated.

Special mention goes to County Directors Physical Planning and Survey & Mapping Directorates Rachel Mugo and Samuel Kamau who collaboratively spearheaded the team from the Department of Lands, Physical Planning, and Urban Development in preparation of this particular document. I would like to specifically appreciate the unrelentless efforts by the County Physical Planning Officers namely Eunice Kamau, Arnold Misach, Job Mang'ara, Benson Thuku, Philip Wachira, Catherine Maina, Samson Mwaura, Solomon Githinji, Ann Gatere, Zebidah Wanjiku, Donatus Karuiru, and Jesse Ngatia.

I also recognize the efforts of Surveyors; Henry Ngaruiya, Oscar Muiruri, Peter Ndirangu, Joe Wanyoike and Francis Manene for their invaluable input. It's also noteworthy the efforts of the Economist; Daniel Waweru and Engineer Municipality Accountant; Ruth Wangui for their contribution and guidance throughout the development of the plan. Special appreciation to the drivers; Joseph Mucira, Josiah Kimotho, Dedan Kimathi, and Paul Chege who offered dedicated services in ferrying officers during data collection among other key activities. Finally, I would like to express my gratitude to all the stakeholders and residents whose input, knowledge, feedback and active engagement significantly enriched the ISUDP.

NJOKI GATUHI
MANAGER –ENGINEER MUNICIPALITY

Acronyms and Abbreviations

AP	Administration Police
CBD	Central Business District
CBD	Central Business District
CBD	Central Business District
CIMES	County Integrated Monitoring and Evaluation System
EAC	East Africa Community
ECDE	Early Childhood Development Education
GIS	Geographic Information System
ICT	Information and Communication Technology
IDeP	Integrated Development Plan
KM	Kilometer
Ksh	Kenyan Shillings
M&E	Monitoring and Evaluation
MSME	Micro, Small, and Medium Enterprise
MTEF	Medium-Term Expenditure Framework
NIMES	National Integrated Monitoring and Evaluation System
NMT	Non-Motorized Transport
PPP	Public-Private Partnership
PSV	Public Service Vehicle
SACCOs	Savings and Credit Cooperative Organizations
SDGs	Sustainable Development Goals
TV	Television
UN	United Nations
VTC	Vocational Training Centre

Executive Summary

The Engineer Municipality Integrated Strategic Urban Development Plan (ISUDP) provides a comprehensive framework to guide sustainable urban growth, socio-economic development, and spatial organization of Engineer Municipality over the plan period. The Plan has been prepared in line with the Constitution of Kenya (2010), the County Governments Act (2012), the Urban Areas and Cities Act (2011), the Physical and Land Use Planning Act (2019), and other relevant national and county policies. It seeks to address emerging urban challenges while harnessing the municipality's development potential in a coordinated, inclusive, and sustainable manner.

The Plan is structured into three main parts. Part One outlines the planning context, rationale, vision, objectives, and methodological approach. It situates Engineer Municipality within the national, county, regional, and local development frameworks, while providing a historical overview of the municipality and previous planning efforts. This section establishes the legal and policy foundation guiding the preparation and implementation of the ISUDP.

Part Two presents a detailed situational analysis covering the physical, environmental, socio-economic, and institutional characteristics of the municipality. The analysis examines the municipality's physiography, natural resources, population dynamics, economic activities, infrastructure provision, social services, housing conditions, land use patterns, governance structures, municipal revenue, and human resource capacity. Key challenges identified include rapid population growth, pressure on infrastructure and social services, unplanned settlements, land administration constraints, environmental degradation, inadequate revenue generation, and institutional capacity gaps. These findings form the evidence base upon which development proposals and strategies are formulated.

Part Three articulates the Plan proposals and implementation mechanisms. It introduces a development concept and spatial structure plan aimed at strengthening Engineer Municipality's urban core, improving connectivity, promoting compact and efficient land use, and enhancing the overall urban character. Sector-specific development strategies are proposed for local economic development, transportation, trunk infrastructure, social infrastructure, housing, environmental management, revenue enhancement, and institutional development.

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PART ONE: INTRODUCTION & PLANNING CONTEXT

CHAPTER ONE- INTRODUCTION

1 PLAN PREPARATION BACKGROUND

1.1 Plan Rationale

The Integrated Strategic Urban Development Plan is a planning approach that involves cities or urban areas and their residents in finding the best solutions to the recurring challenges to achieve good long-term development. It also gives an overall framework for development, which aims to coordinate the work of locals and other spheres of government in a coherent plan to improve the quality of life for the people living in an area.

Urbanization is a strong and potentially positive force in development throughout the world today. However, the accelerating rate of urbanization in Kenya has often overtaken the capacity of national and county governments in dealing with urban development challenges. These challenges and needs include housing, infrastructure services, social and community facilities, local economic development and environmental improvements and protection. One of the major problems and challenges facing Kenya is the unsustainable urban growth and deterioration of urban environment. Urban centers are experiencing rapid growth and development that is unplanned, uncoordinated and uncontrolled.

In light of the above and the need for diagnosing the main planning issues in Engineer Municipality, the County Government of Nyandarua and the municipality Board embarked on the preparation of Integrated Strategic Urban Development Plan to guide development of the Municipality and its environs for a period of 10 years as provided for in the Physical and Land Use Planning Act (PLUPA, 2019), County Governments Act, 2012 and the Urban Areas and Cities Act. Some of the planning challenges Engineer Municipality faces include: inadequate public land for the provision of public facilities, urban sprawl and inadequate urban development control, poor and narrow access roads, limited social amenities -recreation, schools, bus parks, poor solid waste and storm water management, absence of sewerage system, informality in urban activities i.e. hawking, parking, kiosks, housing development, traffic management, inadequate public facilities and utilities among others.

The Integrated Strategic Urban Development Plan for Engineer Municipality identifies priority programs that support well-planned urban growth and development and working environment that attract investments and enhanced revenue collection. The Integrated Strategic Urban Development Plan will also lead to the full exploitation of opportunities for economic

expansion, industrial development, and strengthening of rural-urban linkages. The plan is also expected to guide development in the peri-urban areas, support urban form and quality of life – accessibility to services, mix of functions, integrated social strata and promote vibrant community organizations.

1.2 Purpose of the ISUDP

The purpose of the Integrated Strategic Urban Development Plan is to:

i. Define a Vision for future growth and development of the Municipality for 10 years. The Vision as set was informed by the aspirations of the local communities.

ii. Provide an overall integrated physical and land use framework for the Municipality's urban growth. An integrated physical and land use framework prepared to fulfil the current and future requirements

iii. Provide a basis for coordinated programming of projects and budget, thereby serving as a downstream management tool. A realistic implementation plan is to be prepared for all identified projects along with capital investment plan.

1.3 Vision of The Plan

Stakeholders during the visioning workshop envisioned Engineer Municipality as a well-governed, economically vibrant, socially inclusive, and a livable municipality.

1.4 Objectives of the Plan'

i. Facilitate Infrastructure Development.

Establish a framework for the provision of physical and social infrastructure to meet the needs of the current and projected population over the 10-year plan period and beyond.

ii. Analyze Demographic Dynamics

Evaluate demographic trends from the past decade and forecast changes over the planning period, considering their implications on economic growth, social welfare, and governance.

iii. Address Environmental Concerns

Identify key environmental challenges affecting the planning area and propose actionable strategies for their mitigation and management.

v. Unlock Development Potential

Pinpoint opportunities for economic, social, and spatial development within the planning area to maximize growth.

vi. Guide Development and Investments

Provide a solid foundation for regulating development and guiding investment decisions in line with sustainable growth principles.

vii. Optimize Land Use

Designate adequate and well-structured spaces for various land uses, ensuring functionality, convenience, and adaptability to accommodate future expansion.

viii. Enhance Safety and Security

Promote measures that improve safety and security across the planning area for residents and businesses.

ix. Encourage Innovative Urban Design

Incorporate creative and forward-thinking urban and civic design to enhance the aesthetic and functional character of the municipality.

x. Safeguard Cultural Heritage

Protect and preserve sites of cultural and historical significance to maintain the municipality's identity and legacy.

xi. Develop Implementation and Monitoring Frameworks

Create actionable implementation plans coupled with robust monitoring and evaluation systems to ensure the plan's effective execution and adaptability.

1.5 Justification of the Plan

The preparation of Engineer Municipality ISUDP is happening at a time when the Municipality is experiencing rapid growth due to its elevation into a municipality. Hence the need to come up with planning framework which will provide planning and development guidance in meeting the current and future needs of the people, and the functions of the Municipality.

The Municipality's planning and management functions are being carried without a current Plan to guide sustainable development. Lack of an updated framework to guide development

has led to inadequate infrastructure provision with regard to water supply, sanitation, solid waste management and storm water drainage; inadequate housing and social amenities; urban poverty and unemployment; presence of unplanned residential neighborhoods and uncontrolled subdivision and land use conversion, land tenure insecurity and double allocation and grabbing of public land. Other challenges facing Engineer Municipality include low economic growth in trade, commerce and industry, low revenue collection leading to inadequate service delivery.

The legal provision for the preparation of Engineer Municipality ISUDP is provided by the Constitution of Kenya 2010, Physical and Land Use Planning Act 2019, the County Governments Act 2012, Urban Ares and Cities Act 2011. In addition to these legal provisions this plan will identify priority programmes that will drive Engineer Municipality into a well-planned municipality that will take advantage of being a commercial, transportation and manufacturing hub, considering its rich agricultural hinterland hence strengthening rural-urban linkages. The plan will also provide strategies on how to improve municipal revenue generation, enhance governance and administrative systems, leading to better delivery of services and citizenry engagement.

The proposed plan will take in cognizance the existing development trends, structuring elements, and the aspiration of the stakeholders to define the next path of growth of the Municipality. The plan will come up with a legal and policy institutionalization framework that will guide the plan implementation, optimal utilization of land, equitable provision of physical and social infrastructure and amenities to meet the current and future needs of the town within the planning horizon. To enhance the form and character of the town, the plan will incorporate innovative urban design concepts that will give the town unique identity. This plan is therefore seeking to make Engineer a Municipality whose development is based on balanced social, economic, and environmental considerations.

1.6 Approach and Methodology

The preparation of Engineer Municipality employed the following approaches:

i. Integrated Approach

Consequent to the eclectic nature of municipality planning, the planning team formed a consortium of professionals to tackle each sector. This involved a well-coordinated and interdisciplinary approach where members of the team and project stakeholders had to consult

on a regular basis. The physical, social and economic facets of development were treated with due consideration of their interdependence.

ii. Innovative Approach

Throughout the preparation of the ISUDP, the planning team applied the latest tools and techniques in data collection, recording, analysis and presentation. These included both equipment and software, which were selected based on their effectiveness and efficiency in the plan making.

iii. Sustainable Approach

Since population size and urbanization are steadily rising whereas resources are being constantly depleted, the plan had to factor in the needs of both present and future generations. The plan has therefore proposed feasible implementation mechanisms primarily based on local resources. The Plan was formulated based on the existing and projected institutional capacity to span the proposed 20-year period. Monitoring and evaluation structures shall also be put in place to mitigate any negative impacts that may arise during and after plan implementation.

iv. Flexible Approach

The planning process was adaptable to allow for modifications and revisions whenever necessary to avoid rigidity resultant to traditional planning approaches. This was necessary given the dynamic nature of development. The planning process was subjected to constant review due to the need for continuity, adaptability and the inaccuracy in projecting and forecasting.

Preparation of Engineer ISUDP went through the process outlined in figure 1 below.

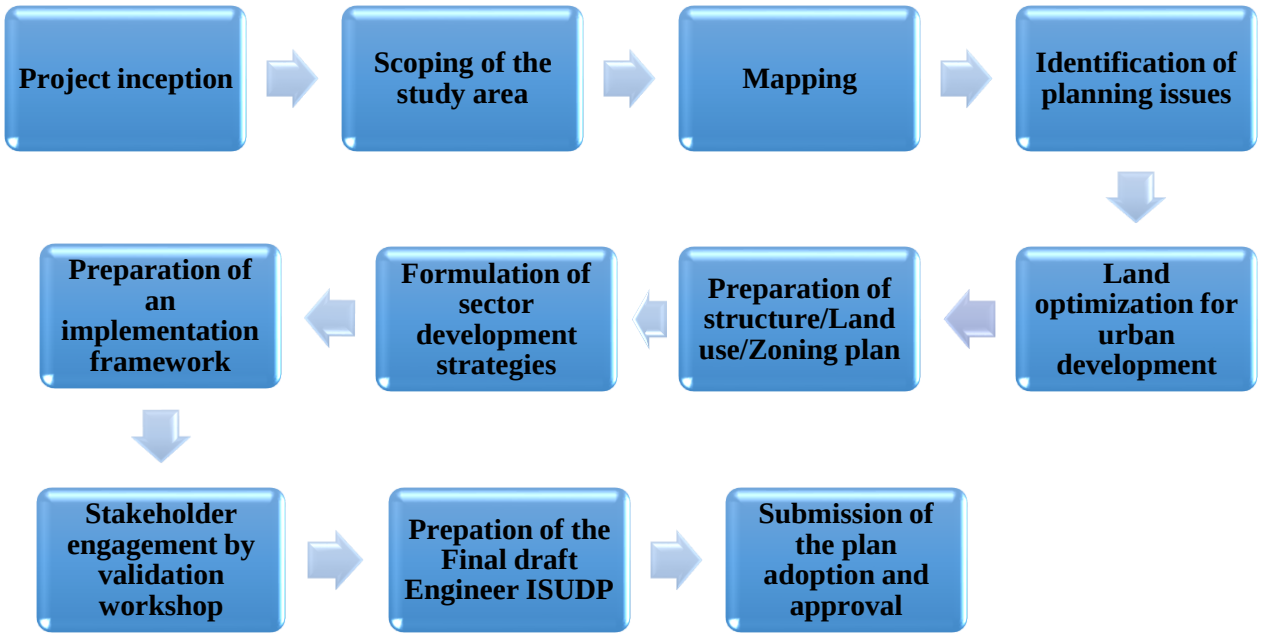


Figure 1; Engineer ISUDP Planning Process Design

The step by step and activities that were undertaken are as shown in table 1.

Table 1; Key steps and activities undertaken in the planning process.

Step	Key Activity undertaken	Output /outcome
Project Inception	The planning team: • Published a Notice of Intention to plan; • Conducted Start-up meetings; • Identified of stakeholders; • Developed mode of Operation/Action Plan; • Conducted an appraisal of project area/reconnaissance; • Conducted a Launch and preliminary Visioning.	• Proper understanding of the assignment. • Modalities of interaction and consultation.

Scoping of context	The planning team; • Conducted an Urban Study that comprised: ❖ Desktop Study ❖ Key Informant interviews ❖ Stakeholder consultations/FGDs ❖ Observation (including photography) ❖ Administration of questionnaires and instruments. ❖ Made Stakeholder consultations; ❖ Visioning;	• Understanding of the development condition of the area including the history of the area, challenges and opportunities in transportation, housing, economy, land, infrastructure, and utility services, environment, leadership, and governance. • The study and mapping also ensured maximum understanding of the context of the study area through discussions with the locals. • Finally, planning issues were summarized in a synthesis process to properly articulate the issues and to create a strong foundation of making plan
Mapping	The team also: • Acquired high resolution satellite image for the planning area; • Acquired digital topographical maps; • Prepared thematic maps; • Digitization and compiling of the digital information. • Preparation of a digital cadastral layer using RIMs and Survey Plans • Created a GIS data base.	
Identification of planning issues	The team: • Analyzed the baseline information; • Sector consultations; • Validation of situational analysis findings and the planning issues identified;	

	• Realigning /reaffirming the preliminary vision established at the launch of the project. • Incorporating stakeholder's concerns and comments.	proposals and development options and strategies.
Land optimization for Urban Development	The planning team: • Projected Land requirements based on population needs; • Undertook Land suitability analysis that entailed; ❖ Slope analysis; ❖ Threshold analysis; • Scenario built by developing various possible development options; • Selected the preferred spatial structure that was developed as the structure plan.	Draft Land Use Plan
Preparation of Land use /Zoning plan	• The team prepared a zoning/Land use Plan	Zoning Map and zoning regulations that were supposed to guide development of Engineer to achieve the vision of the people.
Formulation of Land Use and Land Management Policies.	• The team formulated Land use and Land Management Policies /Guidelines based on the zoning/ land use plan that was prepared.	
Formulation of sector	The team: • Formulated sector development strategies;	

development strategies	• Identified strategic actions and measures to be taken in order to implement the plan; • Identified programs and projects to be implemented to realize the strategies.	Draft Engineer ISUDP
Implementation Framework	• The planning team formulated sector implementation strategies and timeframe for the identified programs and projects.	
Stakeholder engagement (Validation Workshop for the Draft Engineer LPDP)	The planning team: • Presented the Draft Engineer ISUDP to the municipal Board members and stakeholders. • Collected comments from the stakeholders.	
Preparation of the Final Draft Engineer LPDP	• Incorporated the comments as raised by the stakeholders into the final plan;	Final Draft Engineer ISUDP
Submission of the Plan for the purposes of approval and adoption.	• Submitting the Final Plan to the office of the County Executive Member in charge of Lands, Physical Planning, Housing and Urban Development upon adoption by the Municipal board • Submission of the Final Engineer ISUDP to the county executive so as to follow the legal process for approval.	Final Engineer ISUDP

1.7 PLANNING CONTEXT

1.7.1 Overview

This chapter reviews the planning framework for Engineer Municipality. It highlights its geographical context, the history of its planning and development, and the methodology used to prepare the plan. The process is detailed from initiation to the approval stage.

1.7.2 Engineer Municipality at the National Context

Engineer is an agricultural municipality in Central Kenya region situated along Aberdare Forest. The Municipality is approximately 30 km from Naivasha Town, 100 km from Nairobi City and 80 km from Nakuru City. Other major urban centres proximate to the municipality include Thika, Ol'kalou, Nyahururu and Limuru.

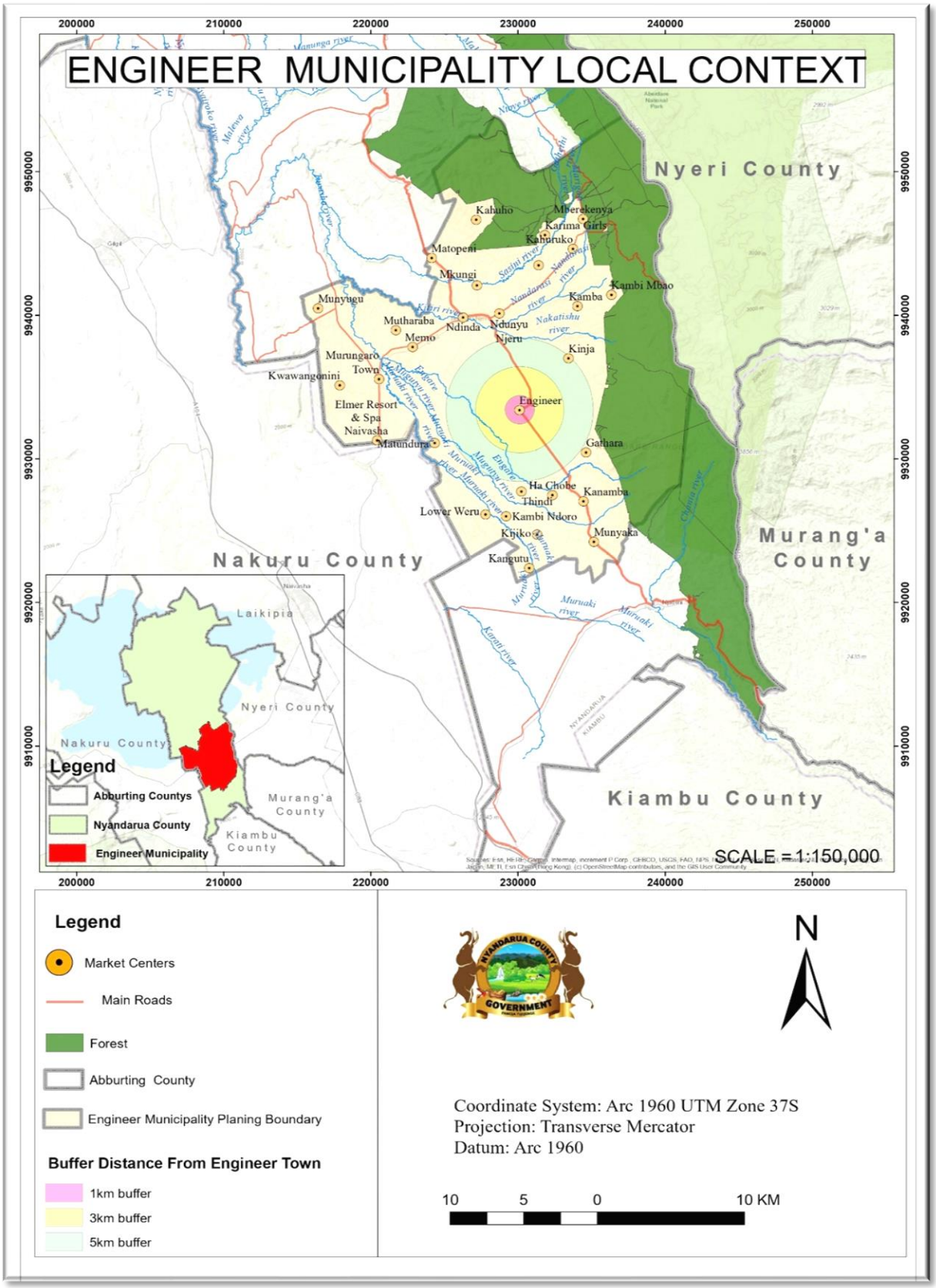
1.7.3 Engineer Municipality at the County and Regional Context

Engineer is the fastest growing urban center in Nyandarua County due to its proximity to major urban areas in the country. Additionally, its strategic location along a major transportation and economic corridor has propelled its expansion. The municipality is located in Kinangop Sub- County and spans four wards namely Murungaru, North Kinangop, Engineer and Gathara. Urban nodes in the municipality include Engineer town, Ndunyu njeru, Murungaru and Munyaka.

1.7.4 Engineer Municipality at the Local Context

Locally, Engineer Municipality is situated within Kinangop constituency/sub-county, one of the five constituencies/sub-counties in Nyandarua County. It encompasses key urban nodes such as Ndunyu Njeru, Murungaru, Weru and Munyaka. The municipality covers an approximate area of 531.10 km², with natural features such as the Aberdare Forest defining its boundaries.

Strategically located about 10 km west of the Aberdare Ranges, approximately 80 km east of Nakuru City, and around 100 km from Nairobi, the capital city, Engineer serves as a vital hub for the region. It is home to key facilities such as the Engineer Level IV Hospital, and several hospitality establishments, including Kinangop Lodge, Engineer Resort, and Aberdare Gardens. As an emerging urban center, it also hosts various county and national government offices, making it a critical administrative and economic node within Nyandarua County.

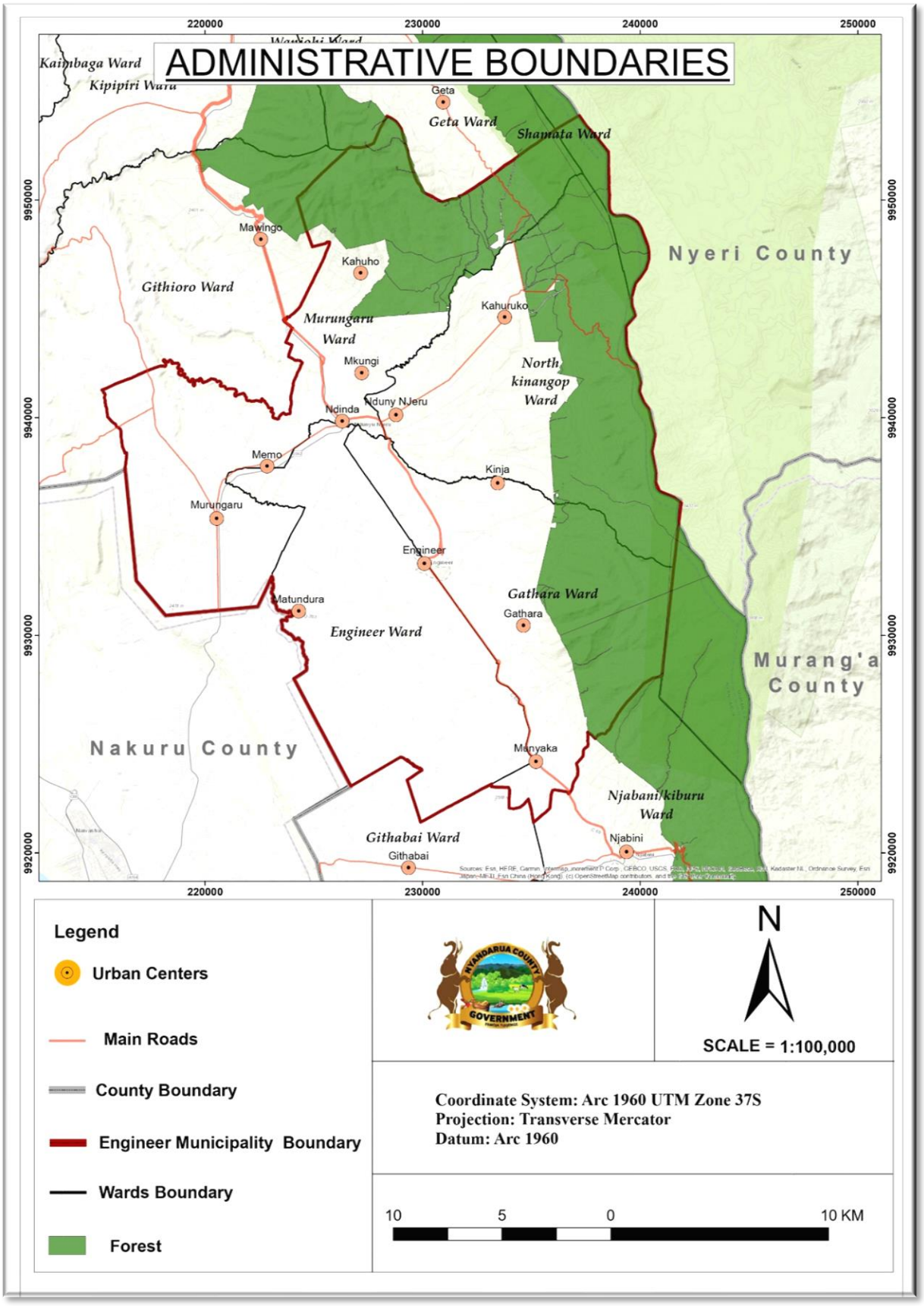


Map 1: National and Regional Context. Source: Planning team, 2025

Table 2; Administrative Boundaries Covered by the Municipality

Ward	**Area (km^2)**
Engineer	119
Gathara	110
Murungaru	165
North Kinangop	129
Total Area	**523**

Source: Kenya Data



Map 2; Administrative boundaries map

1.7.5 Historical Context of the Municipality and Previous Planning Efforts

The history of Engineer Municipality is deeply rooted in its strategic location, agricultural significance, and colonial-era developments. Initially home to the Maasai community, the area's name is attributed to British engineers who developed critical infrastructure during the colonial period. Its fertile soils and favorable climate attracted settlers, and in 1903, Sir Charles Elliot, then commissioner for white settlers, identified it as ideal for European settlement. By 1911, the Maasai were relocated, and European settlers acquired the land, transforming it into a hub for mixed commercial farming. This success drove the establishment of infrastructure such as roads, water systems, and the Sasumua Dam, which supported agriculture and trade.

After independence, the land was subdivided and redistributed through government settlement schemes, enabling African families to take ownership. Over time, Engineer Municipality evolved into a center for agriculture, trade, and governance. Between 2001 and 2021, its urban footprint expanded nearly ninefold, driven by a robust national economy in the early 2000s, increased land development, and population growth. The 2010 Constitution further accelerated this transformation by introducing devolution, which allocated more resources to counties. These funds boosted infrastructure, public services, and private investments, enhancing the municipality's development.

Today, Engineer Municipality combines its rich historical legacy with modern advancements. Strategically located near the Aberdare Ranges and connected to key urban centers like Nakuru and Nairobi, it serves as a vibrant hub for agriculture, commerce, and administration. Key landmarks include the Engineer Level IV Hospital, Sasumua Dam, and various hospitality establishments. The municipality continues to drive progress within Nyandarua County, balancing its historical roots with its role as a dynamic urban center.

1.7.6 The 1964 Engineer Approved Development Plan

The currently approved development plan for Engineer Municipality was formulated in 1964. Since then, planning has been carried out in a fragmented manner, involving amendments to Market Centers' Part Development Plans (PDPs), subdivisions, and changes or extensions of land use. These ad hoc processes have led to land use conflicts, hindering effective planning and development management. The outdated plan now falls short of addressing current needs

and only covers a small area of 7.36 km², compared to the municipality's total area of 364.7 km², highlighting the urgent need for a comprehensive and updated planning framework

CHAPTER TWO: LEGAL AND POLICY GUIDE

The following were the key guiding Acts and Policies in preparing the Plan for Engineer Municipality.

2.1 Constitutional context

The Constitution of Kenya 2010 guarantees fundamental rights and freedoms for the citizens. This Plan shall promote the realization of the Constitutional provisions particularly with respect to the following:

Chapter 4

- Article 43 (1) pertaining to economic and social rights which include the right to clean and healthy environment, adequate and decent housing and to reasonable standards of sanitation, right to education
- Article 42 (1) states that every person has a right to a clean and healthy environment.

Chapter 5

- Article 60**.** (1) Land in Kenya shall be held, used and managed in a manner that is equitable, efficient, productive and sustainable, and in accordance with the land policy principles.
- Article 66 (1) Gives the state the power to regulate the use of any land or any interest in or right over any land in the interest of defense, public safety, public order, public morality, public health or land use planning
- Article 69 provides for the management and protection of the environment.

The Integrated Strategic Urban Development Plan for Engineer Municipality was fully anchored within the confines of the Constitution.

2.2 The County Governments Act, 2012

Gives effect to the objects and principles of devolution as set out in Articles 174 and 175 of the Constitution of Kenya. It provides for;

- Public participation in the conduct of the activities of the county assembly as required under Article 196 of the Constitution.

- Seeks to ensure that the community and cultural diversity of a county is reflected in its county assembly and county executive committee as contemplated in Article 197 of the Constitution.
- Mechanisms to protect minorities within counties according to Article 197 of the Constitution.
- The powers, privileges and immunities of county assemblies, their committees and members under Article 196 of the Constitution.

This Act establishes the detailed framework for implementing the provisions of Chapter 11 of the Constitution with regard to the management of counties. Part XI of the Act concerns county planning with a view to establishing a framework for investment by the county. Section 104 establishes the nature and role of a county development plan:

- A county government shall plan for the county and no public funds shall be appropriated outside a planning framework developed by the county executive committee and approved by the county assembly.
- The county planning framework shall integrate economic, physical, social, environmental and spatial planning.
- The county government shall designate county departments, cities and urban areas, sub-counties and Wards as planning authorities of the county.
- To promote public participation, non-state actors shall be incorporated in the planning processes by all authorities.
- County plans shall be binding on all sub-county units for developmental activities within a County

2.3 Urban Areas and Cities Act, 2011

This Act of Parliament gives effect to Article 184 of the Constitution; to provide for the, classification, governance and management of urban areas and cities; to provide for the criteria of establishing urban areas, to provide for the principle of governance and participation of residents and for connected purposes. The Act lays down the principles of governance and management of urban areas including:

- Institutionalized active participation by its residents in the management of the urban area and city affairs;
- Efficient and effective service delivery

Urban Areas and Cities (Amendment) Act, 2019 guides the classification of areas as urban areas or cities based on population.

- Market Center – at least 2,000
- Town- at least 10,000
- Municipality-at least 50,000
- City-at least 250,000

This classification on population places Engineer in the Municipality category. The Act thus provides for its governance and management ensuring participation of the residents in the governance of the municipality. In order for any urban area to be so classified, it must first have an integrated urban development plan. This ISUDP therefore fulfills the requirement for Engineer to be classified as a municipality.

Among other provisions such as public participation, the Act requires every city or municipality to "operate within the framework of integrated development planning" which shall:

a) Give effect to the development of urban areas and cities as required by this Act and any other written law;

b) Strive to achieve the objects of devolved government as set out in Article 174 of the Constitution;

c) Contribute to the protection and promotion of the fundamental rights and freedoms contained in Chapter Four of the Constitution and the progressive realization of the socio-economic rights;

d) Be the basis for—

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

e) Nurture and promote development of informal commercial activities in an orderly and sustainable manner;

f) Provide a framework for regulated urban agriculture; and

g) Be the basis for development control.

2.4 Physical and Land Use Planning Act, 2019

The Act sets standards and provides a process of preparation of Local Physical Development Plans and the matters to be dealt with in such plans. The plan preparation process herein is as per the advisory of this Act. It forms the main legal framework, which guides the process, content, and the approval of both long term and short-term plans, which include Area Action and Subject Plans. It provides for matters to be dealt with in an urban area plan, which include-

a) Population growth, projection, distribution and movement.

b) Land potential including distribution of agricultural land potential, their values, population and land imbalance and other natural resource endowment.

c) Employment, income, characteristics of employment, income distribution, the labour force and potential of the informal sector.

d) Human settlements including distribution of existing services, growth and pattern of urbanization, cause of primary and rural urban migration.

2.5 Other Legal References

1. The Land Act No 6 of 2012. The Act provides for equitable access to land, security of land rights, sustainable and productive management of land resource, transparent and cost-effective administration of land, conservation and protection of ecologically sensitive areas, elimination of gender discrimination in law, customs and practices related to land and property in land.

2. Environmental Management and Coordination Act, EMCA (2015). Under section 9(2) (c) and (d) NEMA, in consultation with lead agencies, is tasked with the function of establishing and reviewing land use guidelines and examining land use patterns to determine their impact on the quality and quantity of natural resources.

3. The Land Registration Act No.3 of 2012. The Act revises, consolidate and rationalize the registration of Title to land, give effect to the principles and objects of devolved Government in land registration and related purposes, compulsory land acquisition.

4. Agriculture, Fisheries and Food Authority Act No. 13 of 2013. It provides for promotion of best practices in, and regulate, the production, processing, marketing, grading, storage, collection, transportation and warehousing of agricultural and aquatic products excluding livestock products as may be provided for under the Crops Act, and the Fisheries Act.

5. Public Health Act (Cap 242). The Act states that the duty of every health authority is to take all lawful, necessary and reasonably practicable measures for preventing the occurrence or dealing with any outbreak or prevalence of any infectious, communicable or preventable disease, to safeguard and promote the public health and to exercise the powers and perform the duties in respect of the public health conferred or imposed on it by this Act or by any other law.

6. The Survey Act (Cap 299). It was established to make provisions in relation to surveys, land subdivisions, conversions, geographical names and the licensing of land surveyors, and for connected purposes.

7. Intergovernmental Relations Act, No. 2 of 2012. The Act provides a framework for consultation and co-operation between the national and County Governments; and among County Governments.

8. Public Finance Management Act, 2012 The objectives of this Act are to ensure that; -

a. Public finances are managed at both the national and the county levels of government in accordance with the principles set out in the Constitution.

b. Public officers who are given responsibility for managing the finances are accountable to the public for the management of those finances through Parliament and County Assemblies.

2.6 Policy References

1. Sessional Paper No. 10 of 2012: Vision 2030. Vision 2030 aims to transform Kenya into a newly industrializing, middle-income country providing a high-quality life to its citizens by the year 2030. It is based on three pillars, which are economic, social and political.

2. Sustainable Development Goals (SDGs). The Sustainable Development Goals (SDGs) are a universal set of goals, targets and indicators that UN member states will be expected to use to frame their agendas and political policies over the next 15 years. The SDGs follow and expand on the millennium development goals (MDGs), which were agreed by governments in 2001 and expired in 2015. The Plan for Engineer Municipality is in accord with SDG number 11 that has the objective of making cities and human settlements, inclusive, safe, resilient, and sustainable.

3. National Spatial Plan. The Plan was prepared within the framework of the Constitution. It seeks to achieve promises Kenyans furnished themselves under the new Constitution like the right to economy; the need for balanced development across the country, the right to a clean and healthy environment and the right to property among others. It also lays a foundation on which Article 66, on regulation of land uses.

4. National Housing Policy for Kenya, 2004. The National Housing policy is intended to arrest the deteriorating housing conditions and solve the problem of inadequate housing due to population explosion, rapid urbanization, widespread poverty and escalating costs of providing housing, which has manifested in poor housing, overcrowding, proliferation of slum and informal settlements among others.

5. The National Land Policy, 2009. It was established under Sessional Paper No 3 of 2009 to guide Kenya towards efficient, equitable and sustainable use of land. This was to be achieved by addressing issues such as; deterioration of land quality, squatting and landlessness, urban squalor, tenure conflict and insecurity

6. Urban Development Policy. The policy objectives include:

a) Ensuring the legal personality of cities to recognize cities as legitimate and legally empowered entities with independent organizational and self-administration status. The policy will for the first time, provide clear criteria of classifying municipality and of bestowing city and metropolitan status to urban centers and regions.

b) Ensuring planned, inclusive and sustainable urban development that implies the recognition of urban centers as entities that strive to harmonize physical planning with economic development planning and are sensitive to stakeholders' participation and environment.

c) Ensuring plan-based administration of urban land under various land tenure arrangements and systems thereby recognizing urban centers as entities that strive towards achieving effective urban land management and administration.

7. Enhancing sustained improvement in the quality and coverage of infrastructure facilities along with government's key role, cities should strive to maximize the participation and contribution of the private sector and the community sector in infrastructure provision

a) Ensuring a sustained improvement in the quality and coverage of service provision through a partnership framework that acknowledges the key roles of all key actors.

b) Facilitating production and access to decent and affordable housing for all and eradicating slums

c) Alleviating urban poverty through employment generation by maximizing local economic development (LED) and adopting pro-growth policies and strategies.

d) Ensuring sustainable environmental management, which entails the recognition of cities as entities that strive to work towards the reduction of poverty and promotion of a sustainable urban environment.

e) Ensuring the promotion of an effective financial management system.

f) Ensuring effective rural-urban and urban-urban linkages thereby promoting of the development of urban centers as loci for enhancing sustainable development with linkages to their rural counterparts

g) Ensuring the creation of effective coordination mechanisms for the roles and mandates of different actors in urban development

8. The Integrated National Transport Policy of 2009. The policy advocates for development and maintenance of an integrated and coordinated transport system to;

a) Foster national and regional economic integration and trade facilitation.

b) Integrate transport and land use planning and management systems.

c) Enhance investment in the transport system.

d) Incorporate environmental protection and resource conservation issues in transport sector activities.

This Plan articulates the provisions and objectives of these laws and policies with the aim of developing an integrated, balanced and environmentally sound Engineer Municipality in which all institutions and sectors efficiently play their roles.

PART TWO; SITUATIONAL ANALYSIS

3. CHAPTER THREE: BASEMAP, PHYSIOGRAPHY, ENVIRONMENT AND NATURAL RESOURCES.

3.1 Overview.

This chapter describes the municipality's physiographic characteristics such as topography, soil and rock types, climate and their implication on the planning area. The chapter further analyses the environment and natural resources including threats posed to these resources. At the end, the chapter analyses the potentials that may be harnessed for the good of the municipality and county at large.

3.2 Basemap

The base map is an important component during any planning process as it is the basis upon which planning decisions are made. The base map was prepared in a GIS environment and its analysis spread out within the geographic extents of the defined structuring elements.

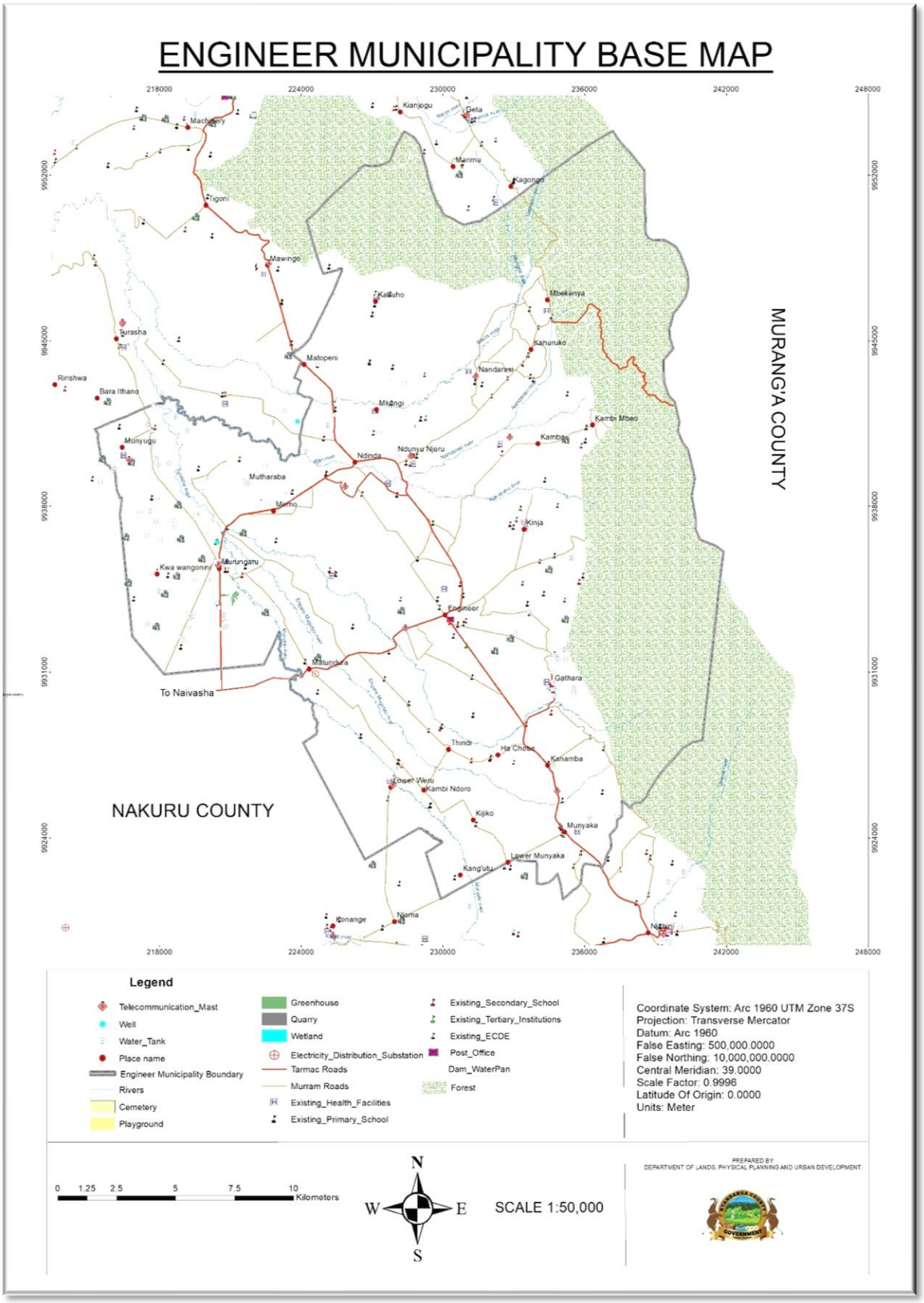
These key structuring elements include but not limited to topographic features, transportation networks, water bodies, key physical and social facilities, major landmarks, and political and administrative boundaries.

The base map contains the following spatial data:

i. Rivers & waterways, dams

ii. Land use & economic activities: Tree cover and commercial centres

iii. Infrastructure and utilities: road network, water reticulation, power station, boreholes, and other stations.



Map 3; Base Map

3.3 Physiography, Environment and Natural Resources

3.3.1 Topography, Geology, Soils, and Climate

The topography of Engineer municipality is both flat and undulating in different areas with altitude ranging between 1931m and 2872m above sea level. This an undulating topography is favorable for undertaking physical development, agriculture, and tourism activities. It is also endowed with deep and fertile soils coupled with a favorable climate which is an advantage to the agriculture sector of the municipality and county.

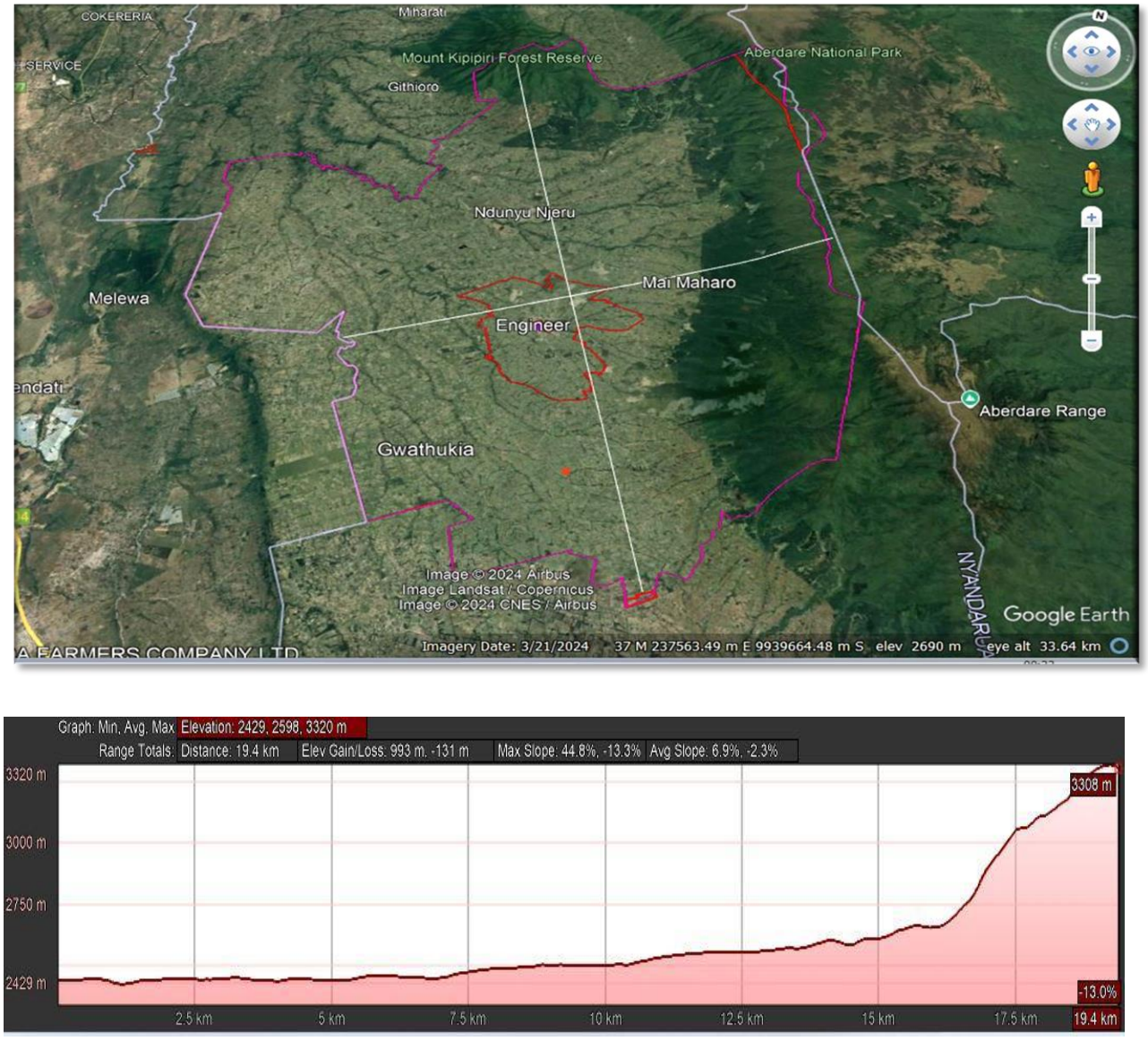
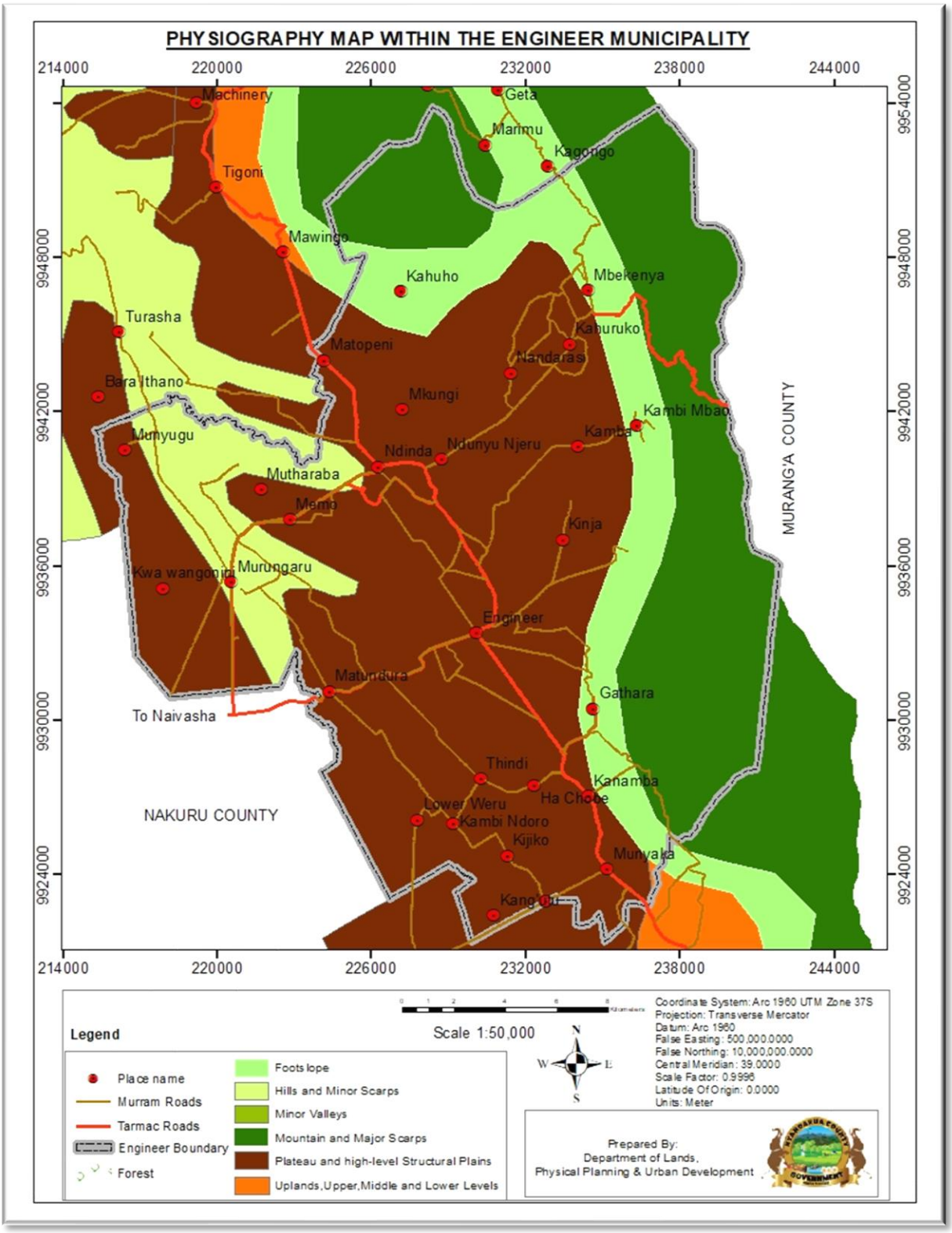
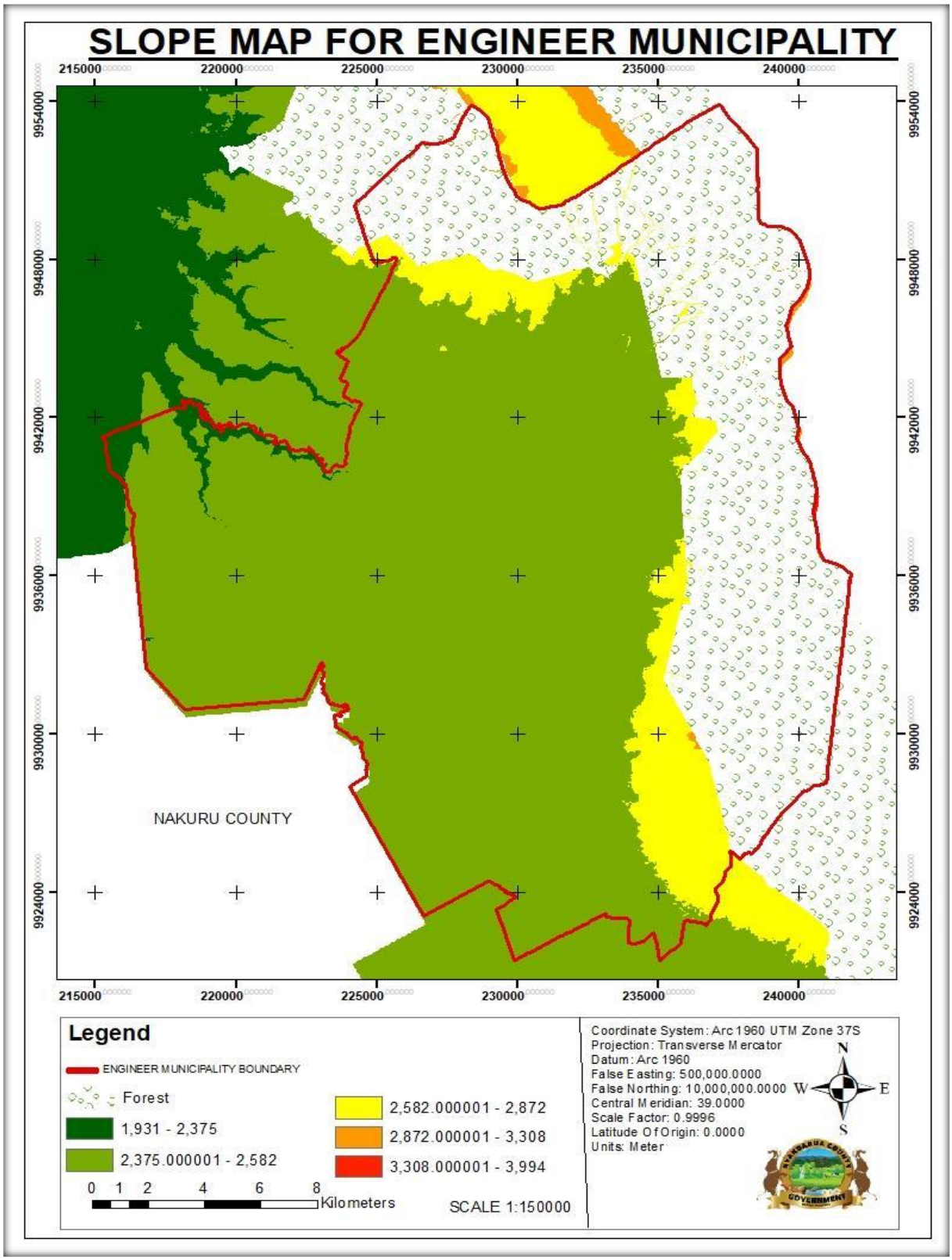


Figure 2; Cross sectional Model,



Map 4; Physiography Map.



Map 5; Slope map

3.3.2 Environment and Natural Resources

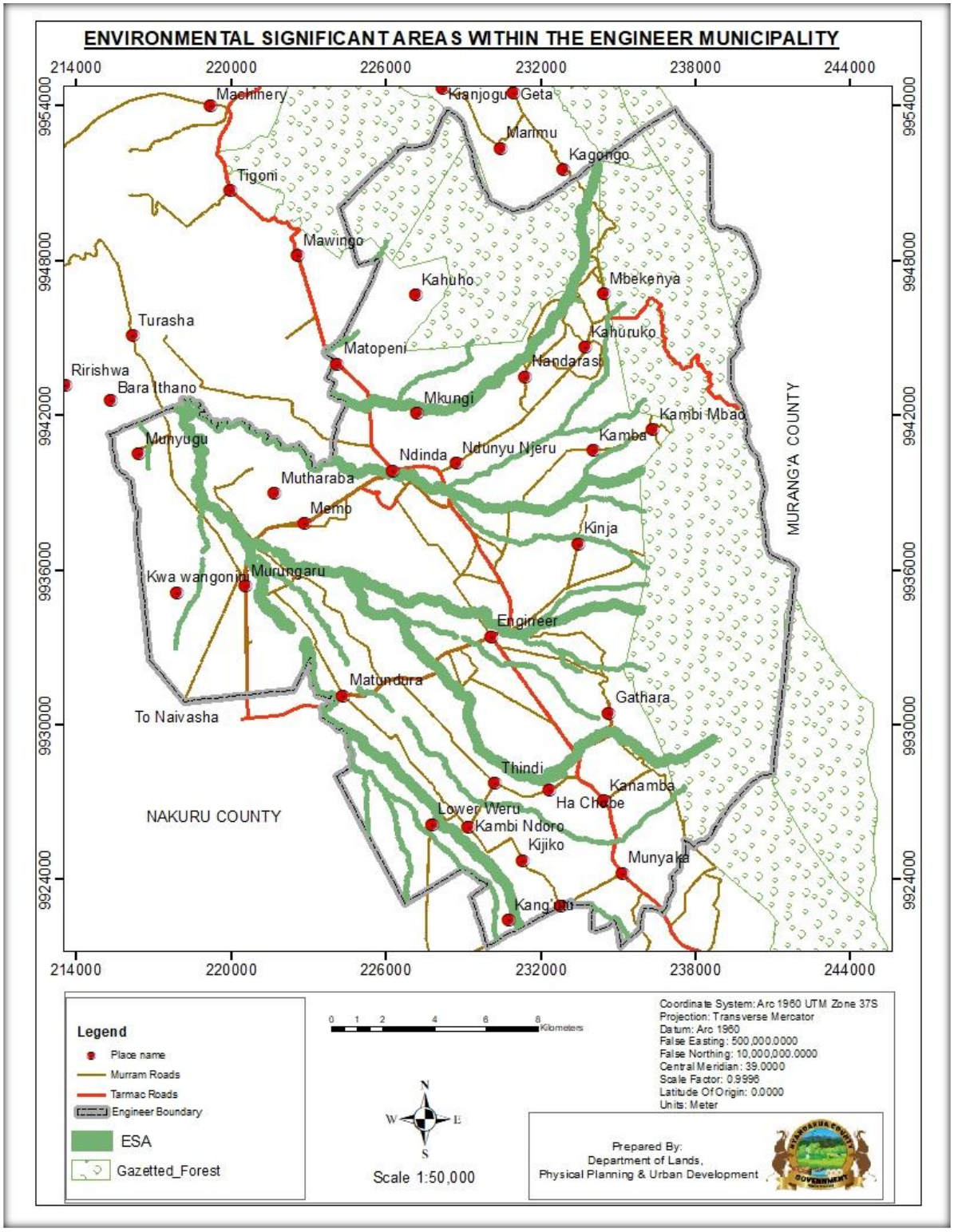
Environmentally significant areas provide essential goods, services and life support systems that are important for the well-being of human existence and survival. The functions are classified into two broad categories; Ecosystem and supporting services. Ecosystem services offered by the features are grouped into three categories which include; Provision services which are direct Products derived from the Ecosystem, Regulation services which are benefits emanating from regulating ecosystem processes and Cultural services which are non-material benefits obtained from ecosystems including aesthetic, spiritual and psychological benefits. On the other hand, support services encompass the necessary services for the production of all other ecosystem services. Table 3 illustrates both the ecological and supporting services the features provide in Engineer Municipality

Table 3; ESA functions

Environmentally Sensitive areas	Ecosystem			Supporting Services
	Provision services	**Regulation services**	**Cultural services**	
Forests	• Timber • Wood fuel • Food supply	• Flood control • Air purification • Erosion regulation • Water purification	• Tourism • Recreational • Cultural heritage • Spiritual and religious • Educational	• Nutrient cycling • Soil formation • Habitat • Oxygen production • Primary production
Rivers	• Freshwater • Food supply	• Flood control • Cooling		• Irrigation • Soil formation • Habitat • Primary production

Aberdare National Park	• Freshwater • Food supply	• Flood control • Cooling		• Habitat
Wetlands	• Freshwater			• Photosynthesis

The spatial distribution of ESAs in Engineer Municipality is as shown in map 6.



Map 6; Environmental Significant Areas

Source; Planning Team 2025

3.4 Summary of Planning issues

Table 4; Summary of Summary of Planning issues

Sub-Sector	Planning Issue	Opportunity
Topography	Low lying areas are prone to flooding during heavy rain.	The gentle sloping areas favor human settlement, infrastructural development and utility provision. Areas with undulating topographies can be used for outdoor activities like ziplining.
Climate	The low temperatures within the planning area leads to night frost that affects crops. There is inadequate amount of rainfall in some parts of Engineer municipality such as Weru and Matundura to support agriculture	· New hybrid crops which are drought and frost resistant. · Heavy rainfall during the rainy season during the month of April, May & November. The existing water pan can be expanded to store more water which can be used for irrigation during dry seasons.
Geology and soil	Uncontrolled mining Soil erosion	· Stable geology for urban development · Fertile soil that is good for agriculture
Vegetation	Most of the natural vegetation has been cleared leading to environmental hazards such as environmental degradation	· The vegetation cover plays a role in maintaining the ecological and social value of the planning area. It presents a potential for eco-tourism and recreation.

4. CHAPTER FOUR: POPULATION AND DEMOGRAPHY

4.1 Overview

Population is a key parameter that informs and guides allocation, distribution and sharing of resources to ensure equity. Besides broadly discussing population and demographic characteristics, this chapter will also query, inform, and justify allocation of resources within the municipality. This is apprised by critical analysis of population and demographic characteristics such as size, density, structure, distribution, marital status, migration rates, causative factors, and trends among others.

From the population projections based on previous census reports and trend analysis, Engineer Municipality's population is anticipated to grow from 93,870 persons to 131,418, by the year 2034. This population will require additional allocation of resources such as schools, health facilities, and other support amenities. The details of the analysis are outlined below.

4.2 Population Size and Distribution

According to the 2019 Kenya Population and Housing Census, Engineer Municipality which covers the Locations of North Kinangop, Murungaru, Engineer and Kitiri had an estimated population of 93,870 people with 46,157 and 47,713 males and females respectively.

The table below shows the population per location, gender, and sub-location.

Table 5; Population Distribution

Location	Location Population	Sub-location	Total	Male	Female	Household	Density (Persons/ SqKm)
ENGINEER	34,671	ENGINEER	8,304	3,927	4,376	2,685	795
		GATHARA	7,856	3,899	3,957	1,978	334
		KAHURU	8,094	4,028	4,066	2,083	202
		WERU	10,417	5,121	5,296	2,824	215
	16,536	HIANYU	7,013	3,427	3,586	2,047	326

MURUNGARU		KAMBATA	3,343	1,627	1,716	892	174
		OLMAGOGO	6,180	3,133	3,047	1,558	193
KITIRI (Gathaara)	17,363	KINJA	4,916	2,417	2,499	1,349	313
		KITIRI	5,375	2,747	2,628	1,312	227
		RAITHA	7,072	3,358	3,717	2,215	505
NORTH KINANGOP	25,300	KIAMBARIKI	6,294	3,156	3,138	1,609	367
		MEKARO	2,830	1,392	1,438	694	515
		MKUNGI	8,888	4,339	4,548	2,298	290
		NANDARASI	7,288	3,586	3,701	2,278	627
TOTAL	**93,870**		**93,870**	**46,157**	**47,713**	**25,822**	**363.07**

4.2.1 Population Projection

The growth rate of Nyandarua County is 2% per annum against a national rate of 2.2% per annum. For the planning area, the population growth rate is 4.1% per annum reflective of an urban area *(World Bank urban growth estimates).* Therefore, based on the analysis, the population of the municipality is projected to 131,418 by the end of the plan period as illustrated in the table 5-3 below.

In light of this, there is need to properly plan for this rapidly growing population, not only through provision of water, housing, educational, health facilities and roads among others, but also creating of job opportunities for the betterment of every resident.

Table 6; Population Projections for Engineer Municipality

Census Location	2019 Census	2025 Projection	2030 Projection	2035 Projection
Engineer	34,671	44,124	53,942	65,936
Murungaru	16,536	21,044	25,727	31,455
Kitiri/Gathara	17,363	22,097	27,014	33,019
North Kinangop	25,300	32,198	39,362	48,151
Total	**93,870**	**119,462**	**146,044**	**178,561**

Source: Projected based on Kenya Population Housing Census 1999, 2009 and 2019

4.3 Population Structure

Engineer Municipality has an expansive population structure, with a broad base of young and growing people and a narrow top of old and ageing people, indicating higher fertility rates, low life expectancy, or emigration to other towns and counties in search of employment once people reached the age of majority. Kinangop population structure is shown in the pyramid below.

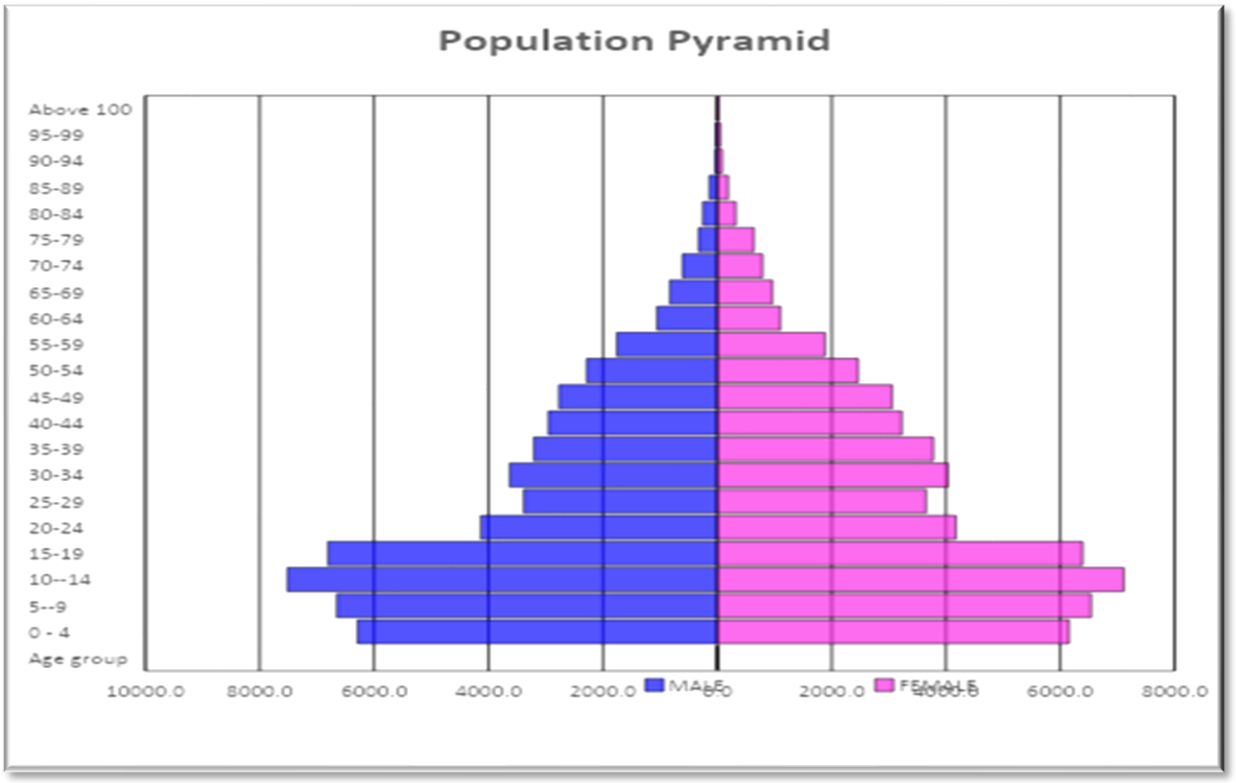


Figure 3; Engineer Municipality Population Structure. Source: KNPHC, 2019

From the pyramid above, the age cohort of 0–24 years accounts for 55.46% of the population, showing high fertility rates in the municipality. To meet the needs of this population, adequate education, health and recreational facilities, food security for this young population, housing, and adequate job opportunities as this population transitions into the working population are required.

The working population, mainly 25–69 years old, accounts for 41.36% of the population. As a working population, this group requires stable employment opportunities, well-developed transportation systems, affordable health care, affordable housing options, access to financial services, and social interaction spaces as they raise their families and prepare for retirement.

On the other hand, despite being a minority, the elderly (70+) require quality healthcare, age-friendly infrastructure and housing options, safety, home care services, and social support and protection. Therefore, this plan will propose programmes and projects that will cater to all the age cohorts in the municipality to not only ensure specific needs are met but also ensure socio-economic inclusion for all.

4.4 Population Density and Distribution

Using the 2019 census as shown in the table below, the municipality has a low population density, with an average of 363 people per square kilometer. The chart below indicates the population density in the sublocations

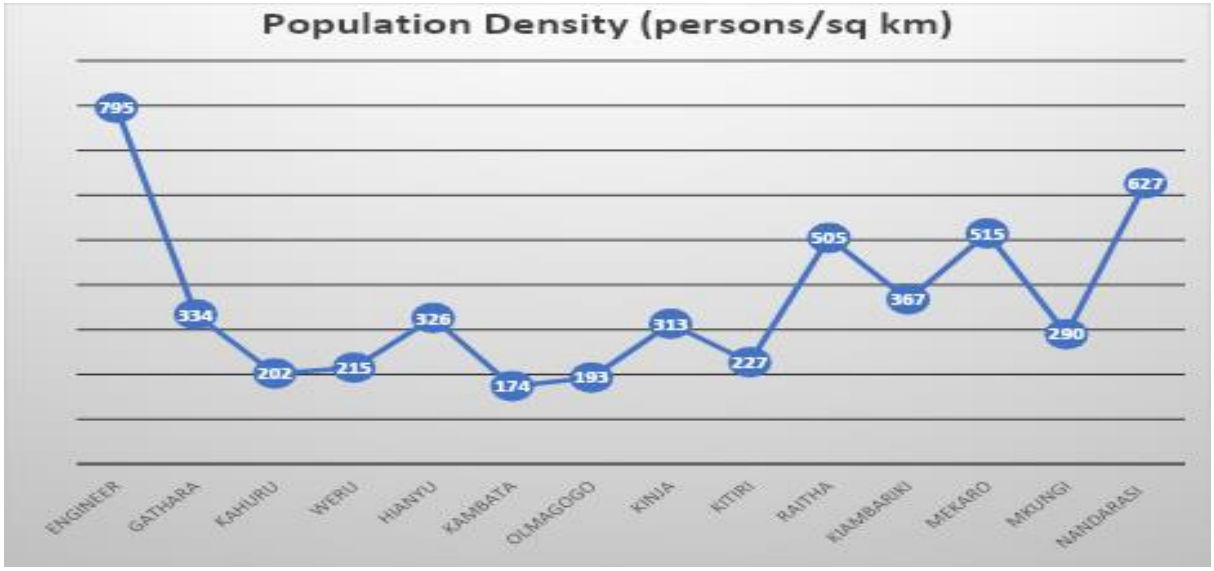


Figure 4: Population Density in Sub-Locations

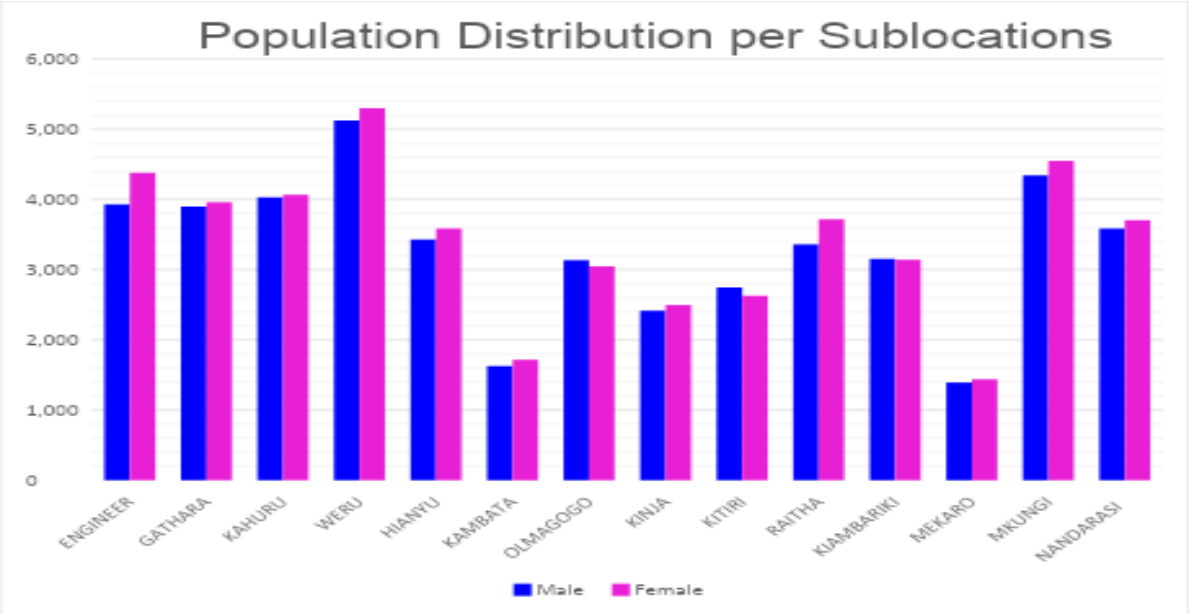
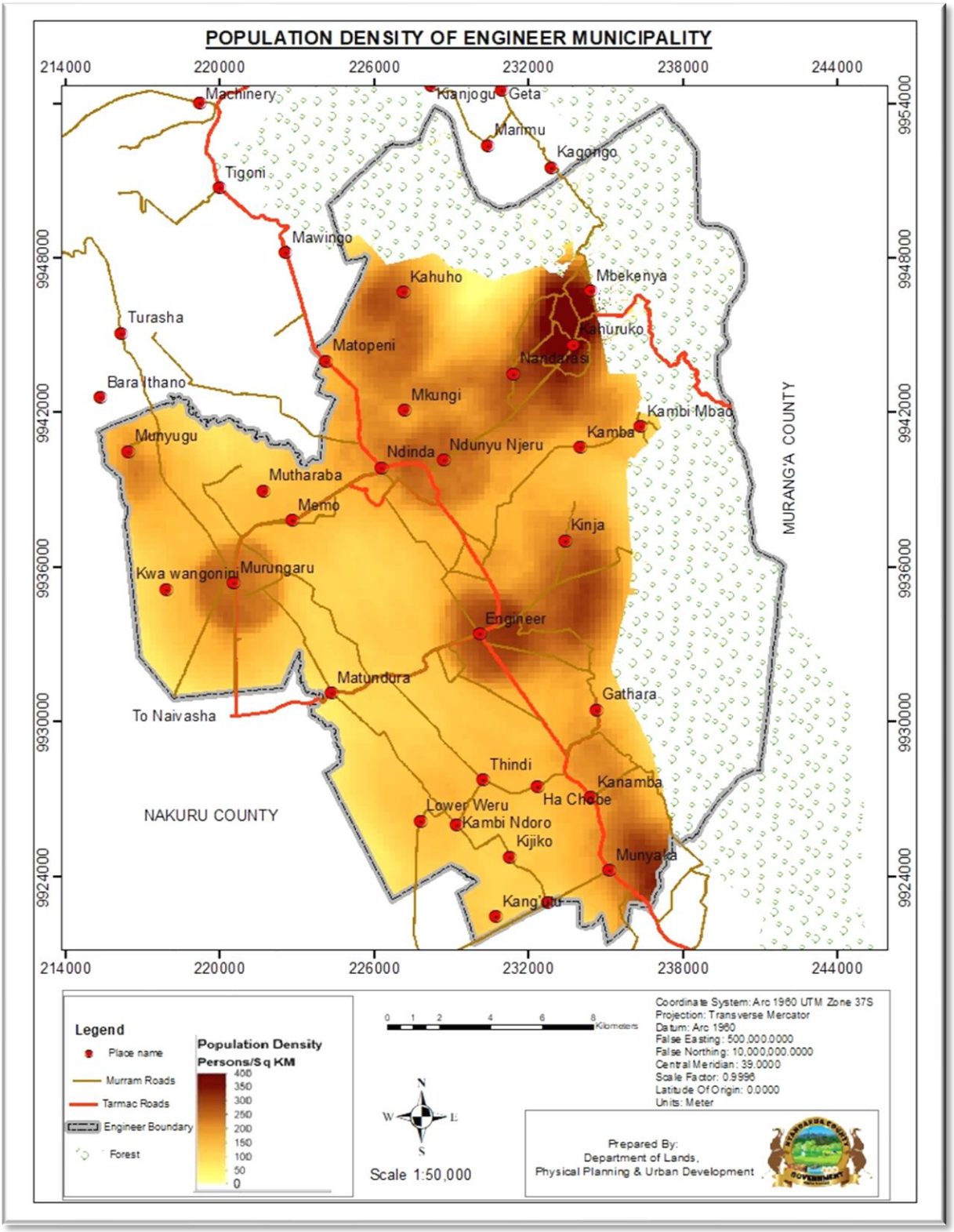


Figure 5; Gender Population Distribution per sub-location

The population distribution of the municipality is primarily determined by land suitability in terms of topography, fertility, and intended use. For example, in Mekaro and Kambata, where the terrain is rugged and water is scarce, the population is dispersed. Such sparse settlements result in poor land utilization, limited social interactions, reduced economic opportunities, and increased costs of servicing and maintaining infrastructure such as water lines, sewer networks, and other essential services, resulting in a lack of vibrancy in these areas.

On the other hand, established urban and market centers have dense and clustered settlements with reasonable social facilities and improved infrastructure located nearby. Therefore, there's need for compact development is required for a sustainable municipality to reduce infrastructure costs and extend related support.

Households looking for commercial and residential premises prefer centers. In contrast, households looking for farming land prefer to settle outside the urban fringes where the land has yet to be fragmented into smaller lots. All these factors are evident in Engineer as settlements is dispersed and land sizes increase as you move further away from the established urban and market centers.



Map 7; Population Density Map. Source: Planning team, 2025

4.5 Demographic Characteristics

4.5.1 Average Household Size

As per the 2019 census, there were a total of 25,822 households in the municipality with an average household size of 5 members.

4.5.2 Marital Status

As per the data collected from the field survey, it was observed that 66% of respondents were married with only 34% being either single, widowed or separated. Therefore, it can be deduced that the family unit is still upheld and cherished within this area. Families play a major role in the continuation of generations, socialization in societies and the economic benefits of pooling assets, living in the same household, and sharing of household labor.

While it observed that Engineer is a patriarchal society with men being the household heads, the growth of single families and female-led households cannot be overlooked. This can be attributed to hard economic times, divorce, and separation and, personal choice, with which the society seems to have become more accommodative. The chart below shows the distribution of marital status via gender.

4.5.3 Migration and Immigration

4.5.3.1 Immigration questionnaire

People move from one place to another for various reasons. From the field data, out of a sample of 500, 51% of respondents reported moving into Engineer from other areas. Twenty five percent (25%) in search of work, 15.3% for marriage and 8.84% due to availability of agricultural land. Another 6.25% were brought on by other reasons, such as school and the lower cost of living, as shown in the figure below.

Figure 3:

Figure 6; Reasons for Immigration

4.5.4 Emigration

On the other hand, only 36% of the respondents reported some of their family members had moved out of the municipality. Of the 36%, 67% moved in search of work, 26% marriage, 5% education and 2% in search of land elsewhere.

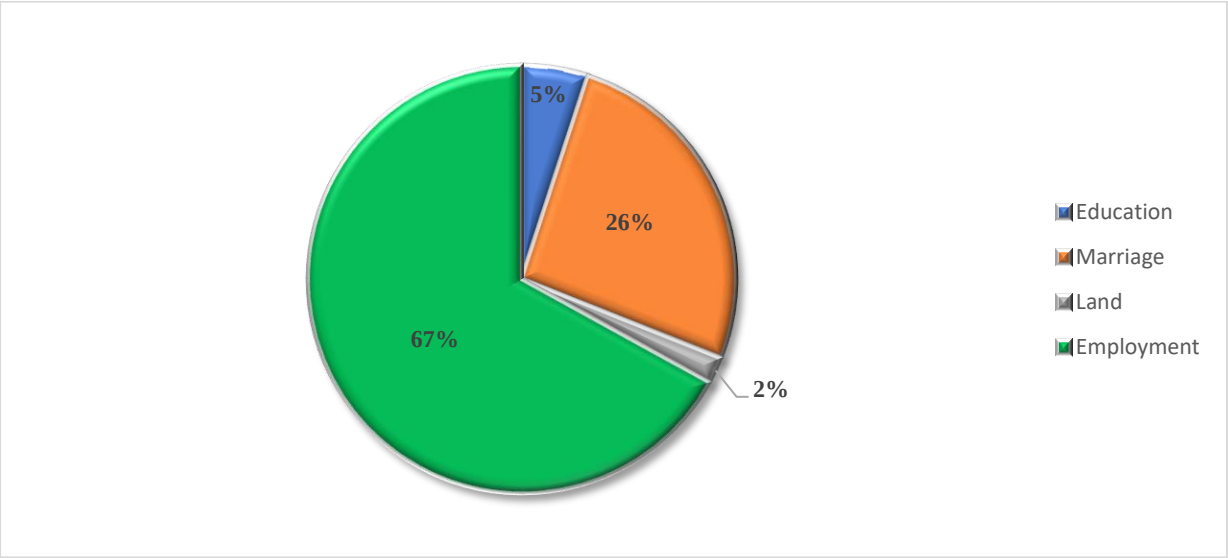


Figure 7; Reasons for Migration from the planning area

4.6 Socio-Economic Analysis

Within the planning area, only 39% are employed and earn an average monthly salary of 10,000 Kenyan shillings. From the chart below most are self-employed while the rest are in the civil service, casual labor, and in the private sector. The self-employed are mainly in the agricultural sector and other small business within the market centers near where they reside.

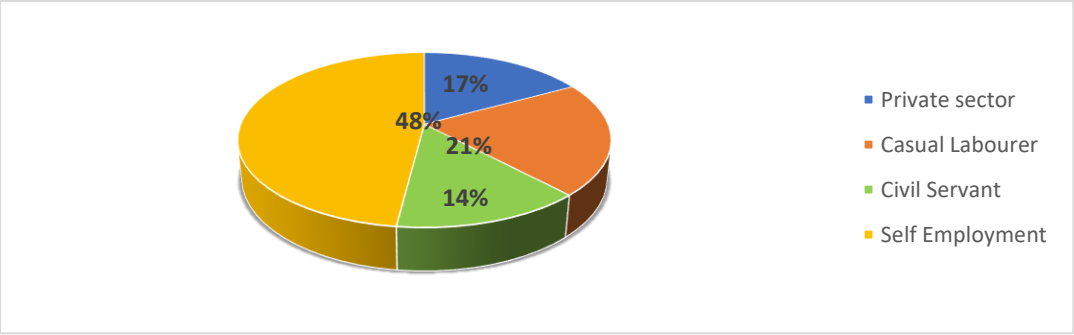


Figure 8; Employment sector

However, on a negative note the number of unemployed persons per household is very high within the municipality. This was attributed to mainly lack of jobs within and outside the municipality. The 61% who are not employed engage in subsistence agriculture within their piece of land.

From the survey, 51% of the respondents save a portion of their monthly earnings with most of the people interviewed saving less than ksh.10,000 per month. A sizable sample of the residents save through cooperatives/Saccos (35%) and Personal bank savings account (35%). 16% of the respondents mentioned that they save through community savings groups while 12% utilize mobile phone saving services. Only a small percentage (3%) save using informal means. The survey also noted that those who save using financial institutions are likely the same people who can access loan facilities. The main lending facilities in Engineer are the Cooperatives/Saccos.

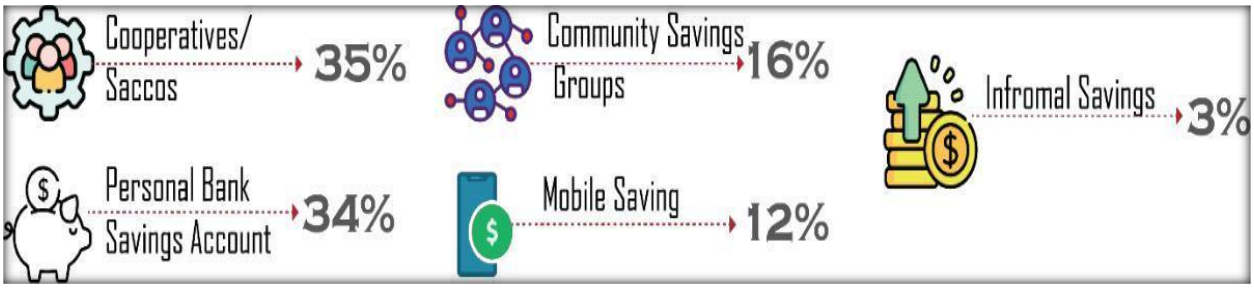


Figure 9; Means of Savings by residents within the planning area

4.7 Key Planning Issues

Key planning issues in population are provided in the table below.

Table 7; Key Planning Issues

Sub-Sector	Planning issue	Opportunities
Population	• The municipality has an expansive population structure pointing to a more youthful population. This calls for an increase in facilities that attend to this population such as schools,	• The municipality has a youthful population which translates into the availability of quality manpower to support economic growth. Increase population provides

	hospitals and recreational areas. This is also necessitated by the anticipated population growth. Population is projected to grow to 131,418	ready markets for local business and investments
Demography	• High unemployment rates among the youths leading to high dependency ratios. • It was noted that 51% of the sampled population reported moving into the municipality in search of jobs, marriage and land.	Promotes increased investment, market for produce, labour force Gender empowerment programmes
	• Growth of single and female led households pointing to a dip in marriages rates.	• Investment to support women and vulnerable groups. • Mainstreaming gender issues in municipal development programmes.
	• 49% of the respondents do not have a savings culture.	• Availability of banks, SACCOs and community saving groups provide options for saving culture.

5. CHAPTER FIVE - ECONOMIC ANALYSIS

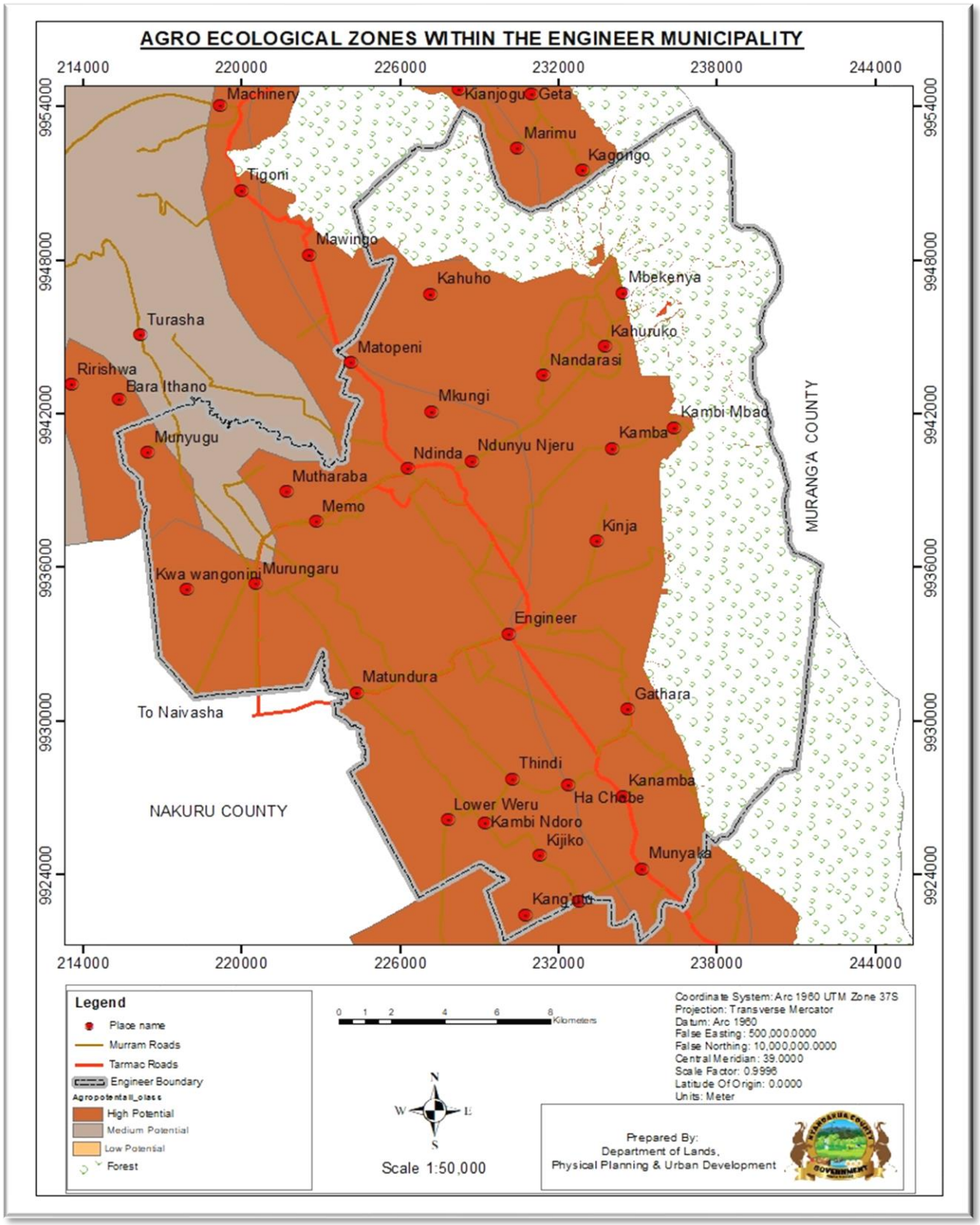
5.1 Overview

This chapter outlines the economic activities in the municipality, highlighting agriculture as the primary sector with crop farming and livestock rearing being the main activities. It discusses value addition through industries, slaughterhouses, and cooperatives that enhance agricultural products. The chapter also describes the importance of local markets in fostering trade and commerce, as well as the role of quarrying in the economy despite its environmental impacts. Additionally, it covers the hospitality and tourism sector, emphasizing the various facilities and attractions that draw visitors and contribute to economic growth.

Economic analysis is important for development planning as it provides important indicators upon which the rate and level of growth and development of a region can be assessed. Economic performance influences living standards of people and indicates how well people are able to utilize their natural and human resources. For spatial planning to be sustainable, it must respond to the existing economic realities and other economic activities in a sustainable manner. The main economic drivers for Engineer include trade and commerce, transport, industrial activities, agriculture and tourism.

5.2 Crop Farming

Engineer municipality has extensive land which is mostly rural whereby agriculture is the most predominant economic activity. Farmers engage in the cultivation of Irish potatoes, cabbages, French beans, spinach, kales, peas, due to the fertile soils and favorable climate in the municipality.



Map 8; Agricultural Potential in the Municipality

5.3 Livestock Farming

Livestock farming is also a major economic activity within Engineer Municipality. The main livestock being reared include cattle, sheep, goats and poultry. Dairy farming is the dominant activity in the livestock subsector.

Table 8; Mutton production

Year	Population	Mutton Output (Kgs)	Mutton Value (Ksh)
2022	61,310	12,900	7,740,000
2023	64,150	9,876	6,913,200

Table 9; Poultry Production

Year	Poultry Population
2022	45,500
2023	52,325

Table 10; Fish Production

Year	Fish population	Fish meat output	Value (ksh)
2022	5000	579	202,650
2023	4750	352	123,200

Table 11; Engineer Municipality Abattoirs/Slaughterhouse

Name	Location	Status	Approx. number of cattle slaughtered per month
Engineer	Engineer town	Operational	45
Ng'othi	Kwa Ng'othi	Operational	15
Ndunyu	Ndunyu Njeru	Operational	35
Murungaru	Murungaru town	Operational	15
Matundura	Matundura Centre	Operational	3
Weru	Weru town	Operational	3

Njoga	Chobe	Operational	4
Gathara	Gathara centre	Operational	4

Source: County Department of Agriculture, Livestock & Fisheries

5.4 Trade and Commerce

Trade and Commerce is a major player to the economic growth of an urban area through creation of formal and informal employment and generation of revenue to the government. It involves existing markets, wholesale and retail traders, financial institutions like banks, SACCOs and mobile money agents and other small-scale enterprises like hardware, agro vets, pharmaceuticals and liquor stores.

The distribution pattern of commercial activities within the municipality follows nucleated and linear growth patterns. There is a high concentration of commercial activities within the urban core, while the town takes a linear growth pattern along the major transport corridors such as Olkalou-Engineer-Naivasha Road and Olkalou-Engineer- Njabini Road.

5.4.1 Markets

There are three formal markets in Engineer Municipality which include; the existing Engineer market, within the CBD. The market has scheduled market days on Wednesdays and Saturday where buyers and sellers congregate for trading on retail basis. The other markets are Murungaru open air market and Ndunyu Njeru market. Major goods traded in these markets include potatoes, cabbages and tomatoes among other agricultural produce, second-hand clothes and household items. There also exists Engineer Livestock market which is yet to be operationalized. There are also informal markets that lie along the transportation corridors (roads) in all urban areas within the municipality. The traders sell household items such as clothing, kitchenware, beddings and agricultural produce.

Figure 10; Informal traders along Engineer-Njabini Road

Figure 11; Engineer Market within the CBD

5.4.2 Banks and Financial Institutions

Engineer Municipality hosts financial institutions, microfinance institutions, Small and Micro Enterprise Programs (SMEP) and Savings and Credit Co- Operative Societies (which provide credits and financial literacy to the residents. Further, there are various banking agents and mobile money agents across the town.

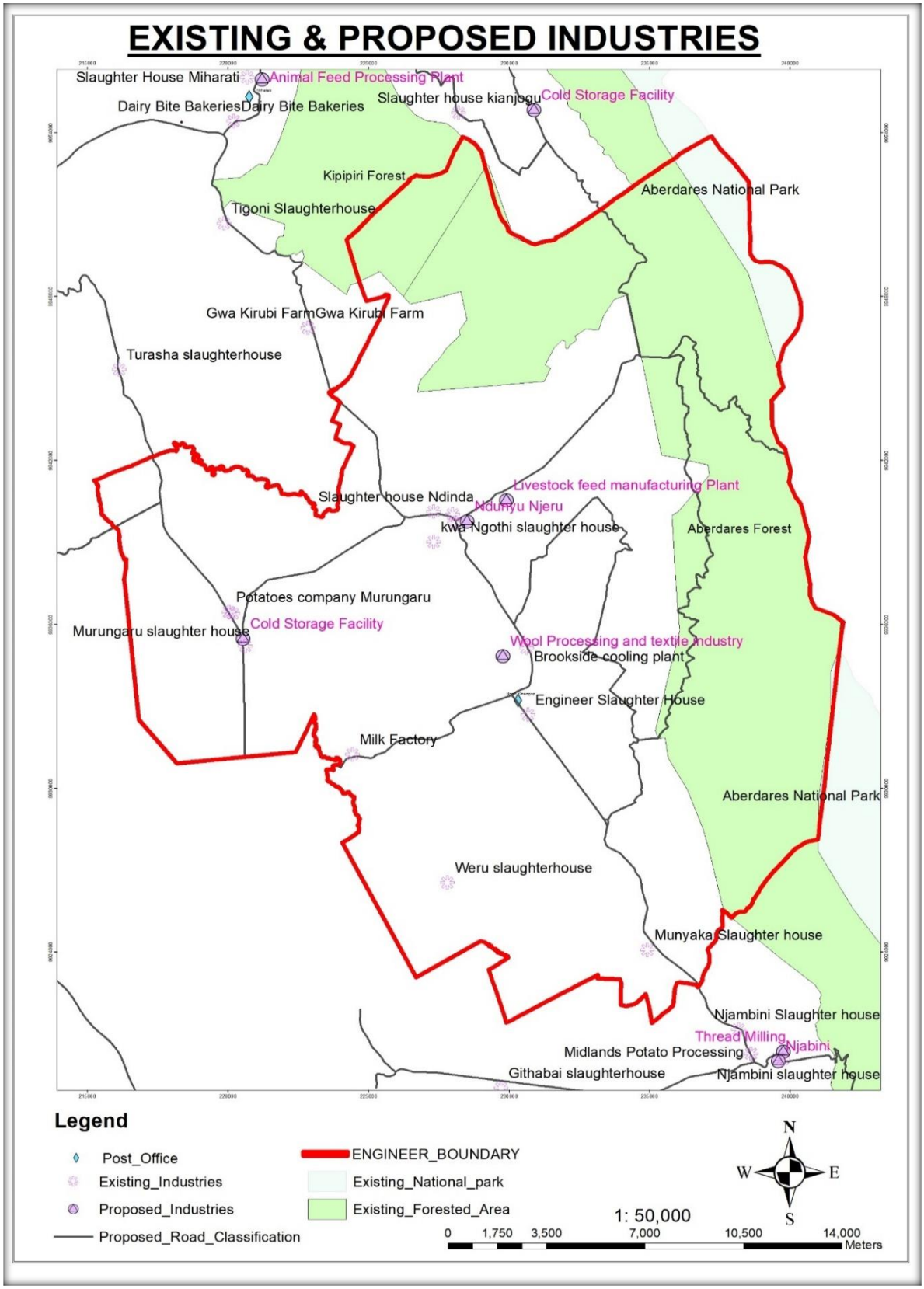
5.4.3 Industries

Industries significantly contribute to the economic growth of a town by offering job opportunities, enhancing the value of agricultural products, and generating government revenue through licensing fees and taxes. The primary industrial activities in Engineer consist

of agro-processing, quarrying, and informal Jua Kali sectors. Engineer Municipality has not fully harnessed the potential of value-addition industries, despite its high levels of productivity. There are more than 30 cooperative societies, most of which are poorly managed, resulting in their closures.

Table 8; industries in Engineer Municipality

S/No	Name of Industry	Location
1.	CIDC	Ndunyu Njeru
2.	Crips Industry	Engineer
3.	Wool IndustryJ	Engineer



Map 9; Industry Distribution Map. Source; Planning Team, 2025

5.4.4 Jua kali Industry

Jua kali industries in the municipality deal mostly in design and fabrication of metal, wood, and apparel, value addition of animal products such as wool, hides and skins and cottage industry (beads, artefacts, interior decorations). The residents also engage in other industrial activities that include saw-milling, blacksmithing, car-washing and garages.

5.4.5 Tourism and Hospitality

Tourism in Engineer is defined by the hotels, restaurants and the recreational areas. The notable hotels within the Municipality include Golden ark hotel located at Kwa-Shofe area, Provers eco camp, the bubble lodge, Musan Garden, Urban hotel, Dive in hotel located in Ndunyu Njeru, Elmer resort and spa located along Murungaru-Kirima highway There are several tourist attraction sites including Aberdare National Park and Forest Range (Elephant hill, Rumeria hills,12 apostles,7 ponds, Kinangop plateau, Mt Kinangop, MauMau caves and Plovers Eco camp and museum.

Figure 12; Tourism sites

5.5 Summary of Planning issues

Table 9; Summary of Summary of Planning issues

Sector	Challenges	Opportunities	Proposals
Crop Farming	• Climate change • Pests and diseases • Water scarcity • Unpredictable crop prices • Rising costs of farm inputs such as certified seeds, fertilizers and pesticides • Lack of access to modern farming technologies • Lack of access to storage facilities like cold storage and national cereal board • Inaccessible roads during rainy seasons	• Fertile soils • Availability of technology and research • Labor availability • Access to financial services	• Adopt high-yield crop varieties • Invest in agricultural research • Provide farmers with knowledge about modern techniques • Construction of storage facilities in Engineer town • Provide subsidized farm inputs • Employment of more extension officers • Construction of modern markets at Engineer, Ndunyu Njeru & Murungaru
Livestock	• Competition with food crops for land • Low productivity • Little technical know-how on production systems	• Extensive land in the peri urban areas suitable for livestock rearing	• Explore agritourism and educational opportunities such as workshops or

	• Minimal value addition of livestock products • Diminishing land sizes • Vagaries of weather • Decrease in purchasing power resulting in less demand for beef • Mainly beef is imported from other neighboring counties and a few culls from the dairy herd		educational programs • Provision of incentives to investors to establish industries that process primary products
	• Low availability of slaughter stock locally • Low beef uptake • Very few beef butcheries		• Open a local livestock market at Ndunyu Njeru • Sensitize masses on beef as an alternative to mutton • Proper facilitation for the veterinary officer to carry out effective disease surveillance and control to minimize use of antibiotics and other drugs on cattle • Construct modern

			slaughter houses at Murungaru and Engineer town
Tourist attraction sites	• Underdeveloped infrastructure hindering access to the sites • Proper marketing not done • Lack of support infrastructure • Reluctance by hotels to join the Nyandarua county tourism association. • Lack of proper training to the workers. • Harsh weather conditions • Slow uptake to technology.	• Attraction sites such as Kinyahwe, Muti wa Kenyatta, Aberdare ranges	• Creating awareness on local tourism • Proper marketing • Improve access roads linking the attraction sites • Explore zip lining activities
Jua kali	• Lack of policy guidelines • Segregation of jua kali industries • Industrialization is not fully devolved • Lack of trainings to the cooperatives	• Youthful population • Affordable housing Programme • Consumption of locally produced goods	• Certification of jua kali artisans • Construction of jua kali shed in market centers

6. CHAPTER SIX: PHYSICAL INFRASTRUCTURE, ENERGY & ICT

6.1 OVERVIEW

This chapter examines the status, distribution, capacity, and performance of physical infrastructure systems within Engineer Municipality, with particular focus on transportation, water supply, storm water drainage, solid waste management, energy, and Information and Communication Technology (ICT). It assesses the adequacy of existing infrastructure in meeting current demand and projected growth, while identifying key gaps, constraints, and emerging challenges arising from urban expansion and population increase. The chapter highlights how infrastructure deficiencies affect mobility, service delivery, environmental sustainability, and overall urban functionality within the municipality. The findings provide a critical basis for informing infrastructure investment priorities, sectoral strategies, and implementation proposals outlined in subsequent chapters of the Plan.

6.2 TRANSPORTATION

6.2.1 Regional Connectivity

Engineer municipality is well connected to other major Urban centers within and beyond the County boundaries by the Njabini-Olkalou (C69) road, Engineer- Naivasha (D393) Road Ndinda-Murungaru-Naivasha (D392) Road and the Upcoming Ndunyu Njeru –Ihithe(D89J1) Road which runs across the Municipality Boundary. The aforementioned roads links with major trunks roads that networks the municipality with counties of Nairobi, Nakuru, Kiambu, Nyeri and Laikipia. This connectivity bestows the municipality with a great potential to grow with these roads being a key driver to economic development. These roads are listed in table below.

Table 10; Major trunk roads in Engineer Municipality

S/No	Road Name	Road Class	Road Number	Length (KM)	Standard
1	Njabini - Olkalou	C	C69	115	Bitumen
2	Murungaru - Ndinda	D	D392	8	Bitumen
3	Naivasha-Kirima-Engineer	D	D393	22	Bitumen
4	Ndunyu Njeru – Geta - Captain	D	D389	36	Bitumen
5	Langalanga - Murungaru	D	D391	27	Bitumen

6.2.2 Inter-connectivity and Intra-connectivity

Within the municipality there are other lower hierarchy roads which have recently been improved to bitumen standard while others are graveled to motor able standards. There are about 30 classified roads belonging to road classes E, L and R as tabulated below.

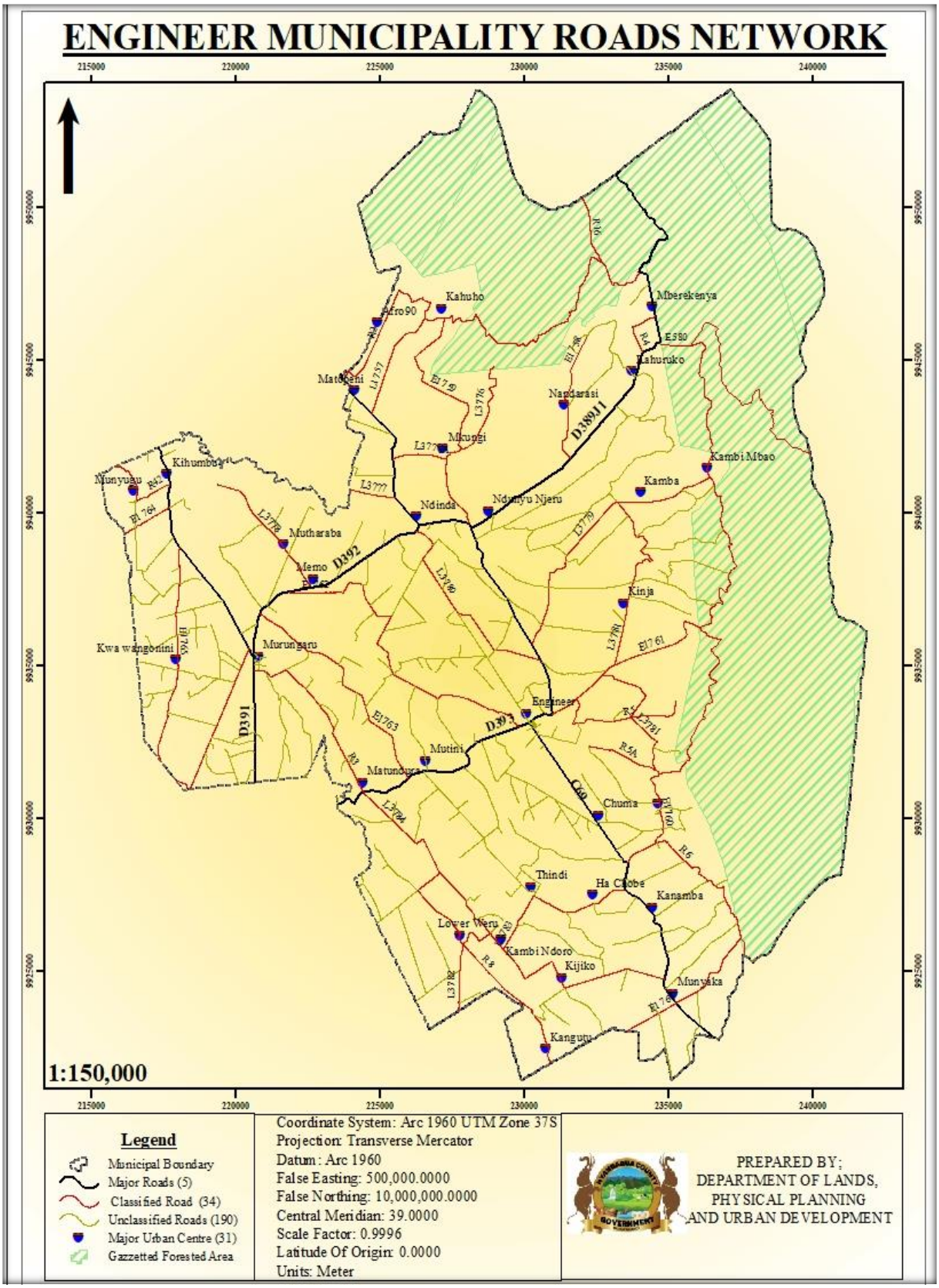
Also, there are about 190 unclassified roads commonly referred to as county roads under that crisscross the municipal boundaries which are crucial in serving the people living in the hinterland of the municipality as shown in the map below.

Table 11; Inter and Intra-Roads in Engineer Municipality

S/No.	Road Name	Road Class	Road Number	Length (KM)	Surface Condition
1	Nandarasi - Kahuruko	E	E1758	4	Gravel
2	Kanamba Gathara- Kambi Mbao	E	E1760	24	Gravel
3	Engineer - Kinja - Urumwe	E	E1761	7	Gravel
4	Mutharaba - Engineer	E	E1762	12	Gravel
5	Langalanga- Muyungu	E	E1764	18	Gravel
6	Koinange - Kagoya ECD	E	E1766	10	Gravel
7	Koinange - Kagoya ECD	E	E1766	3	Gravel
8	Kahuruko - Ihithe	E	E580	54	Gravel
9	Matopeni -Mberekenya	L	L1757	16	Gravel
10	Mkungi - Kahuho Road	L	L3776	4	Gravel
11	Matopeni - Ndunyu Njeru	L	L3776A	2	Gravel
12	Turasha - Ndinda	L	L3777	12	Gravel
13	Raitha - Kambi Mbao	L	L3779	9	Gravel
14	Ndinda – Engineer	L	L3780	7	Gravel
15	Githabai - Kambi Ndoro	L	L3782	7	Tarmacked
16	Kambi Ndoro - Ha Chobe	L	L3783	6	Tarmacked
17	Murungaru -Munyaka	L	L3784	14	Gravel
18	Matopeni – Kahuho	R	R2	6	Gravel
19	Kahuruko – Mberekenya	R	R4	2	Gravel
20	Munyungu -Kihumbu	R	R42	10	Gravel

21	Engineer - Mutamaiyu ECD	R	R5	3	Gravel
22	Gathara – Engineer	R	R5A	3	Gravel
23	Engineer - Mutamaiyu ECD	R	R5	2	Gravel
24	Kahuho _Mkugi	E	E1759	9	Gravel
25	Murungaru – Matundura	E	E1763	8	Gravel
26	Gatamaiyu – Murungaru	E	E1765	14	Gravel
27	Kihumbu – Mutharaba	L	L3778	5	Gravel
28	Geta – Mekaro	R	R16	5	Gravel
29	Murungaru -Munyaka	R	R3	6	Gravel
30	Kanamba – Hopewell	R	R6	11	Gravel

The municipality is well connected with an intrinsic web of unclassified roads comprising of about 190 connecting roads. Kwa DC-Police Road, Tulaga-Kwa Lee Junction and Nyayo ward-Karoroha river have been recently upgraded to bitumen standard while the majority have gravel surface condition upon which the municipality and the county at large carryout periodic maintenance to ease transportation challenges.



Map 10; Engineer Municipality Roads network

Most of these roads are of earthen standard and thus tend to be impassable during wet weather conditions posing a major transport challenges for the residents. However continuous efforts are always carried out to facilitate easement of persons and goods through regular maintenance activities carried out by the County Government through its machinery program.

Figure 13; Improved Access Roads within Engineer Town;

Figure 14; Status of Access Road connecting major town to the hinterland.

6.2.3 Modal Split

Mobility is a vital function within an area as it facilitates the movement of people and goods within a reasonable amount of time and with ease The main mode of transport is via road, with the main means being Pedestrian, vehicles, and Motor Cycles commonly referred to as the *boda-boda*. It is of importance to note that the municipality has neither railway network coverage nor air transport infrastructure thus eliminating rail and air as modes of transport. As per the field survey, walking (52.9%) and the use of *boda-boda* (36.8%) make up the most common modes of transport, mainly because of their flexibility and last-mile connectivity within hard- to-reach areas.

Other modes used in the municipality include PSV *matatus* and private vehicles for trips to other centers and out-of-town trips. Notably, there is low use of bicycles, 4%, which is most likely explained by the undulating terrain in some areas and the rugged road surfaces of the feeder and internal roads. For Commuting purposes, most of the residents prefer to use public 14- & 7-seater *matatus* or private vehicles mainly the *sientas'* and *Proboxes'*. For last-mile connectivity in hard-to-reach areas, commuters use paratransit means like *boda-bodas*, bicycles, or walking.

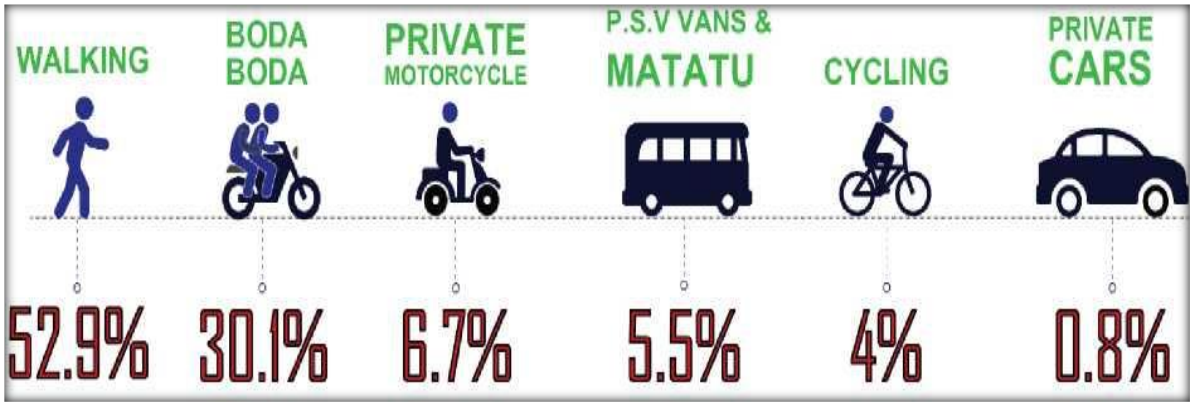


Figure 15; Modal split distribution within the Municipality, Source Field Survey

6.3 Transportation Facilities

6.3.1 Non-Motorized Transport (NMT)

NMT facilities within the planning area are inadequate since they have only been provided in Engineer town as shown in the image below. Where walkways exist, they tend to be Encroached or otherwise Misused as either Parking Passenger drop Off Point or Otherwise used as Roadside Selling Points. On positive note, the municipality has put effort and there is on-going works of providing more sidewalks within the town.

Figure 16; The Limited Walkways Being Used as Parking and Drop Off Points and Roadside selling Stations

The town also lacks defined crossing points which puts pedestrians at risk when crossing some of the busy roads for instance the Njabini Olkalou Road and Engineer-Naivasha Road Junction where a zebra Crossing Should Be Marked out as shown on Image Below.

Figure 17; A Junction within Engineer town with no Designated crossing point

6.3.2 Public Transport

There is one main bus terminus in Engineer town while another one exists in Murungaru and Ndunyu-Njeru townships. This is the main origin or transit destination for journeys along the major routes. Due to lack of termini in other centers, public vehicles load and offload passengers on the road shoulders as shown in the Photo below.

Figure 18; Existing Engineer Matatu Terminal Facilities

From the information obtained from the Matatu Sacco's coordinator, there are a number of main Matatu Sacco's namely; TKN, KT sacco, ENNUT, ENNUS,Tulaga, Satima, GMT2 Mataara NNUS among others. The matatus belonging to these Sacco's have spaces designated for each Sacco. At any given moment, there are approximately 20 Matatus at the stage.

This implies that there are always approximately 90 matatus packed somewhere within the town vicinity impending on NMTs and Parking Lots. The designated bus parks thus inadequately serve all the matatus since they were originally designated as parking lot creating the need for expansion to accommodate the ever-upsurging number of matatu. Always approximately 90 matatus packed somewhere within the town but not in the town vicinity impending on NMTs and Parking Lots.

6.3.3 Motor Cycles (Boda-boda)

Boda-boda riders provide transport services mostly within the municipality. They act as major mode of transport mainly in transportation of Farm produces from the interior farmlands to the towns due to the poor conditions of the feeder roads within the Municipality. The numbers have increased but without a designated picking and dropping points as they are about 10 registered *Boda-boda* Sacco's. The *Boda-boda* riders park haphazardly; along the streets, pavements, next to the shops and inside the terminus. This brings disorder within the various town which ends up risking the lives of other road users and those who work in the municipality. Plans have been made to have designate parking and picking spaces for the *Boda-boda* riders inform of construction of *Boda-boda* shades in each and every town centers within the Municipality in order to create orderliness. In addition, mandatory and enforced training for the riders would curb the disorder caused by the *Boda-boda* riders.

6.3.4 Lorry Transport

The Trucks predominantly provide essential services of transporting farm produce mainly Potatoes Cabbages and *Sukuma wiki* while others transport construction materials such as sand, metals, iron sheets, stones among others to the town. There are approximately 100 vehicles that offer the service of transport. By transporting these materials, the track drivers not only earn a living but also generate income for the municipality through payment of cess. The payment of cess per trip varies by type of vehicle as follows;

Table 12; Cess Payments on Transport of Building Material

Vehicle Type	Amount of cess paid per trip
Lorry - 2-3 axles	Ksh. 600-1,200
Canter - 2 axles	Ksh. 450
Pickup	Ksh. 300

Despite offering a critical service, the over 100 trucks do not have a designated parking space. The tracks are packed along the road. Specifically, the tracks are packed along Engineer-Naivasha Road, Njabini- Olkalou Road while others use designated Parking areas as their Loading zones.

6.3.5 Summary of Planning issues

Table 13; Summary of Summary of Planning issues

Sector	Planning Issues	Recommendations
Transportation	• Lack of bus parks in some of the major towns • Inadequate bus park within the engineer township • Lack of crucial NMTs within the major towns • Lack of Designated parking or loading areas for lorries and trucks	• Provision of bus parks associated facilities across all the major town centres. • Expansion and modernization of the main terminus at Engineer town. • Provision of NMT facilities such as walkways, zebra crossing spots among others. • Designation of spacing parking spots and waiting bays for trucks and lorries within the major town centres

6.4 WATER SUPPLY

6.4.1 Overview

Water availability is essential for economic growth as different economic sectors such as industries, agriculture, commerce, and households largely depend on it. The Constitution also provides for the provision of adequate, clean, and safe water for all. Moreover, the recently adopted Sustainable Development Goals (SDGs) under goal number six, aim to ensure water and sanitation access. This section looks into issues of water accessibility and supply within Engineer municipality.

6.4.2 Sources of water

Engineer municipality has a substantial water resource due to its proximity to the Aberdare Water Tower (103,315 Ha). It is endowed with both surface and underground water sources, which include;

- There are several Permanent rivers such as Mkungi, Kitiri, Githima, kinja, turasha and karoroha
- Dams/water pans such as Kanyugi and Kahoro which supply water to Engineer town and its environs.
- Rainfall, which is experienced in two seasons. Long rains start in March and end in May with a maximum rainfall of 1500 mm. The short rains are received between September and December and have a minimum rainfall of 700 mm.
- 15 boreholes with an annual production capacity of 209M^3.

6.4.3 Water Service Providers

The main water service providers in the Municipality are the Community Based Organizations (Self-Help Groups)

The various water projects in the municipality are championed by Self-Help Groups (SHGs). These projects mainly source water from existing dams/pans, boreholes and springs. The SGHs are managed by committees, who are members of the community elected by the members to spearhead the projects and oversee the implementation of the same. Some SHGs have employed some staff who run the day-to-day affairs of the projects in terms of management and operation. These staff facilitate the collection of water tariffs, repairs and installation and advise the community accordingly through the committee.

The management of these groups faces a leadership crisis. Some of these wrangles are political where individual projects are politicized. This has led to the stalling of some projects like Kamrembo water project at Munyaka. The projects also face challenges of acquiring adequate funds to regularly maintain and maximize operations. To ensure smooth operations of these water providers the county government can partner with the groups by providing funding and capacity building.

The county government can also encourage self-groups to work under the management of the existing water companies to enhance efficiency of operations and management. However, there are also numerous small-scale rural water service providers'- self-help groups. Some of the active service providers are;

- Muhonia – Turasha Water Project
- Engineer Town
- 3M
- Mwihoko
- Raitha Kahuru
- Muruaki
- Kikanamuku
- Gatamaiyu
- Kinja serving
- Githai serving
- Umoja-Githae
- Tulaga ngwataniro water Project
- Njabini ngwataniro water Project

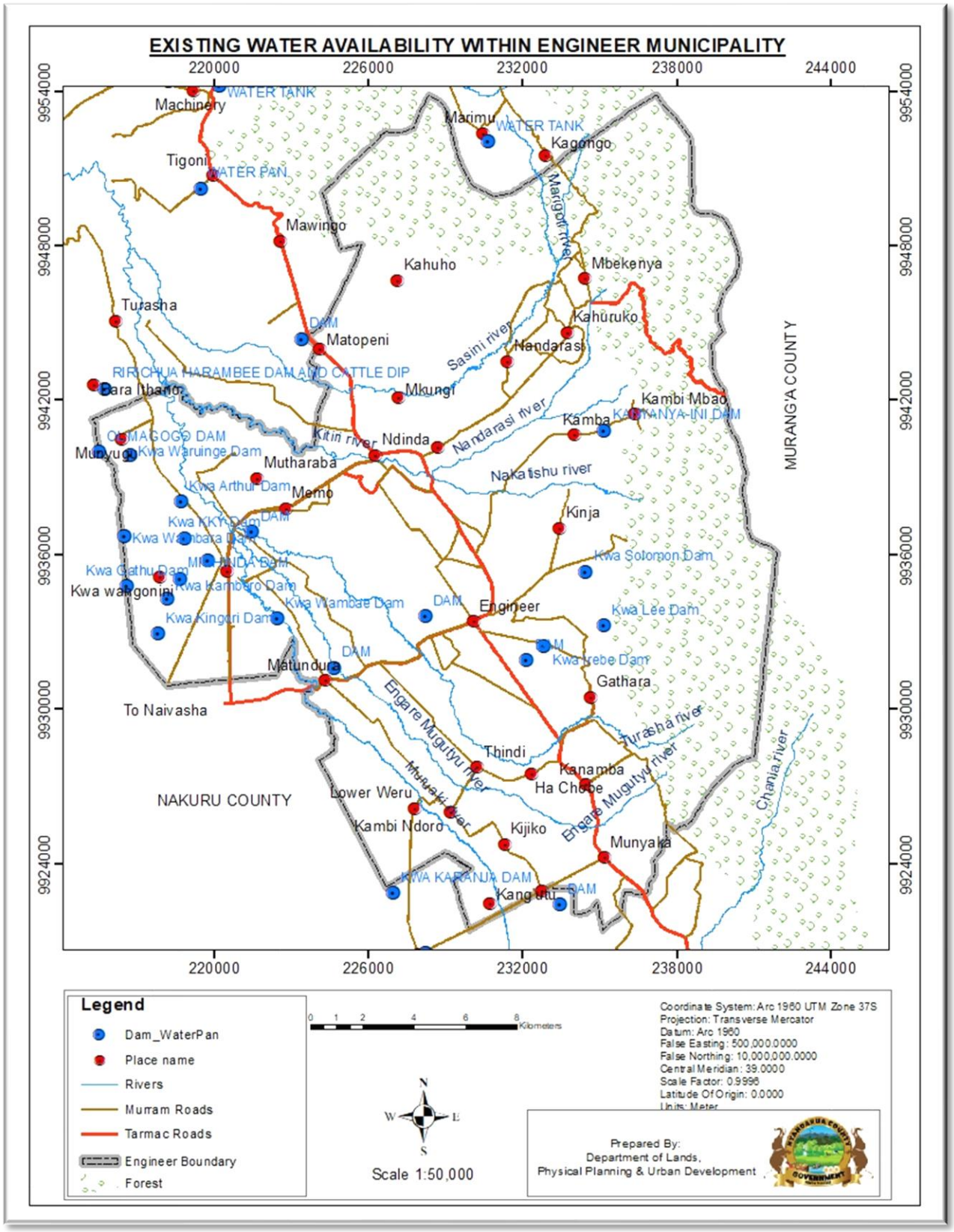
6.4.4 Water Accessibility

Residents in Engineer municipality have access to piped water, boreholes, shallow wells, rivers, dams and rainwater. However, access to clean and safe drinking water is a persistent problem. The problem cuts across the municipality.

Majority of the residents rely on piped water serviced by the community-based programmes. In some parts of the municipality, they rely on rivers, boreholes and rainwater. Rainwater harvesting remains low. This is especially due to inadequate harvesting facilities and poor structure designs that do not have provisions for rain water harvesting.

Accessibility of water was also established based on the average distance to the nearest water source/point. It was established that the average distance to the nearest water source is

approximately 460 metres, which is average as compared with the recommended 500 metres. However, access to piped water remains insufficient within the sub county with only about 29.0% of households having access to piped water. Some residents have to travel to a distance of up to 1.5KMs, during the dry season.



Map 11; Water Supply Sources in Engineer Municipality

6.4.5 Current Water Demand

The identified urban areas in Nyandarua County need an adequate supply of water. According to WHO, the average water demand per capita is 100 litres per day. Based on the current population, the projected water demand in both urban and rural areas is estimated to be 10,325,700 litres per day. The demand was arrived at based on the urban areas current and projected population.

6.4.6 Summary of Planning issues

Table 14; Summary of Planning issues

Opportunities	Constraints	Recommendations
• The permanent rivers provide opportunities for adequate supply of piped water • Aberdare's ranges act as a water catchment area • The dams and water pans are important for stormwater collection and storage • High ground water potential • A water service providing company	• Lack of an integrated water-supply plan for the municipality. • Dilapidated infrastructure. • Lack of water treatment facilities in water supply systems. • Inadequate funding for upgrading, rehabilitation and expansion of water services. • Siltation in the dams • Lack of appropriate policy	• Investment in the Integrated water reticulation system • Repair and maintenance of dilapidated water infrastructure • Awareness trainings need to be carried out in the communities on the need for the water projects, community-based organizations to consider working under the management of the water companies to solve the challenge of management problems • Installations of water meters at strategic positions to help deal with the issue of non-revenue water.

		• The need for water service providers to treat the water making it fit for the domestic use. • Adoption of the various community-based water projects by the county government for funding and maintenance. • Formulation of Kinawasco

6.4.7 Storm Water Drainage

Proper storm water drainage channels are concentrated mainly along the main roads. Beyond the main roads, storm water drainage channels are almost non-existent. In many residential areas where the channels are not defined, storm water is forced to create natural channels during heavy rains, and also in some parts the water stagnates along the drains.

These become gullies contributing to soil erosion overtime and creating swamps on the water-logged areas. This is evident in Engineer, Murungaru and Ndunyu Njeru among others. Where provided for, the facilities are not well managed. In Engineer and Ndunyu Njeru town, the storm water channels are clogged with litter leading to blockages during heavy rains.

Flooding constitutes a major climatic risk within the municipality, particularly during the rainy seasons when increased rainfall leads to elevated river discharge and surface runoff. Areas located in close proximity to the Karoroha River are especially vulnerable to recurrent flooding due to their low-lying topography, inadequate drainage infrastructure, and encroachment on natural floodplains. These flood events frequently result in damage to residential and commercial properties, destruction of public infrastructure such as roads, bridges, and drainage systems, disruption of economic activities, and displacement of affected populations. In addition, flooding contributes to water contamination, increased incidence of waterborne diseases, soil erosion, and degradation of riparian ecosystems, thereby posing long-term risks to public health, environmental sustainability, and socio-economic development within the municipality.

Figure 19; Status of Storm Water Drainage;

6.4.8 Solid Waste Management

Engineer municipality being largely rural, 70% of the respondents' resort to burning to manage solid waste at home. Another 20% dump within the neighborhood. Only 30% of the respondents rely on waste collection services by the county mainly within the urban centres.

According the CIDP 2021, the solid waste management function in the Engineer town and the market centres was managed by the County Public Health Department. This includes collection and street sweeping, the collected waste used to be transported to Olkalou dumping site.

Currently, solid waste generated in the townships within the municipality is disposed of at temporary open collection and dumping site. Due to inadequate management and lack of proper containment measures, the sites present significant environmental, public health, and safety risks. Periodic accumulation and overflow of uncollected waste obstruct drainage systems, access roads, and nearby commercial premises, resulting in surface water contamination, increased vector breeding, deterioration of sanitary conditions, and disruption of socio-economic activities.

To enhance waste management services, plans are in place to purchase suitable land for a dumping site. However, for effective solid waste management, the municipality needs an integrated solid waste management system which promote waste reduction, recycling and

reuses to reduce the amount of waste collected whilst protecting the environment and promoting resource recovery.

Figure 20; Waste Management Status in the Municipality. (picture 1 – blocked access road and a drainage channel)

Figure 21; Purchased garbage skippers to be placed at various market centres

6.4.9 Summary of Planning Issues

Table 15; Summary of Planning Issues

Sector	Planning Issues	Opportunities
Solid waste management	• Waste dumping in open spaces and road reserves due to behaviour and lack of designated collection sites • Lack of modern solid waste disposal sites	• Adoption of 3Rs; (Reduce, Reuse and Recycle). • Adoption of best practices on waste to energy, wealth creation, fertilizer among other uses

6.5 ENERGY AND ICT

6.5.1 Energy Source for Cooking

According to the field survey, the source of energy for cooking within the planning area is firewood accounting for (76.6%), LPG (15.96%) and any other including charcoal and kerosene (7.44%). The planning area largely characterized by rural traits, energy from biomass mainly wood fuel is the most dominant as shown in the figure below represented by firewood and charcoal.

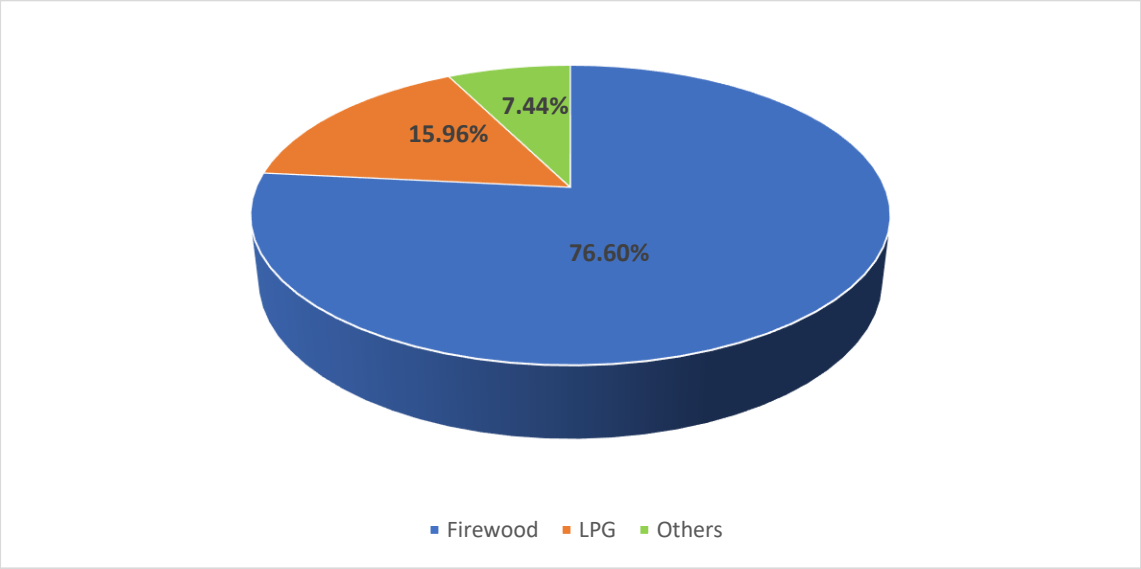
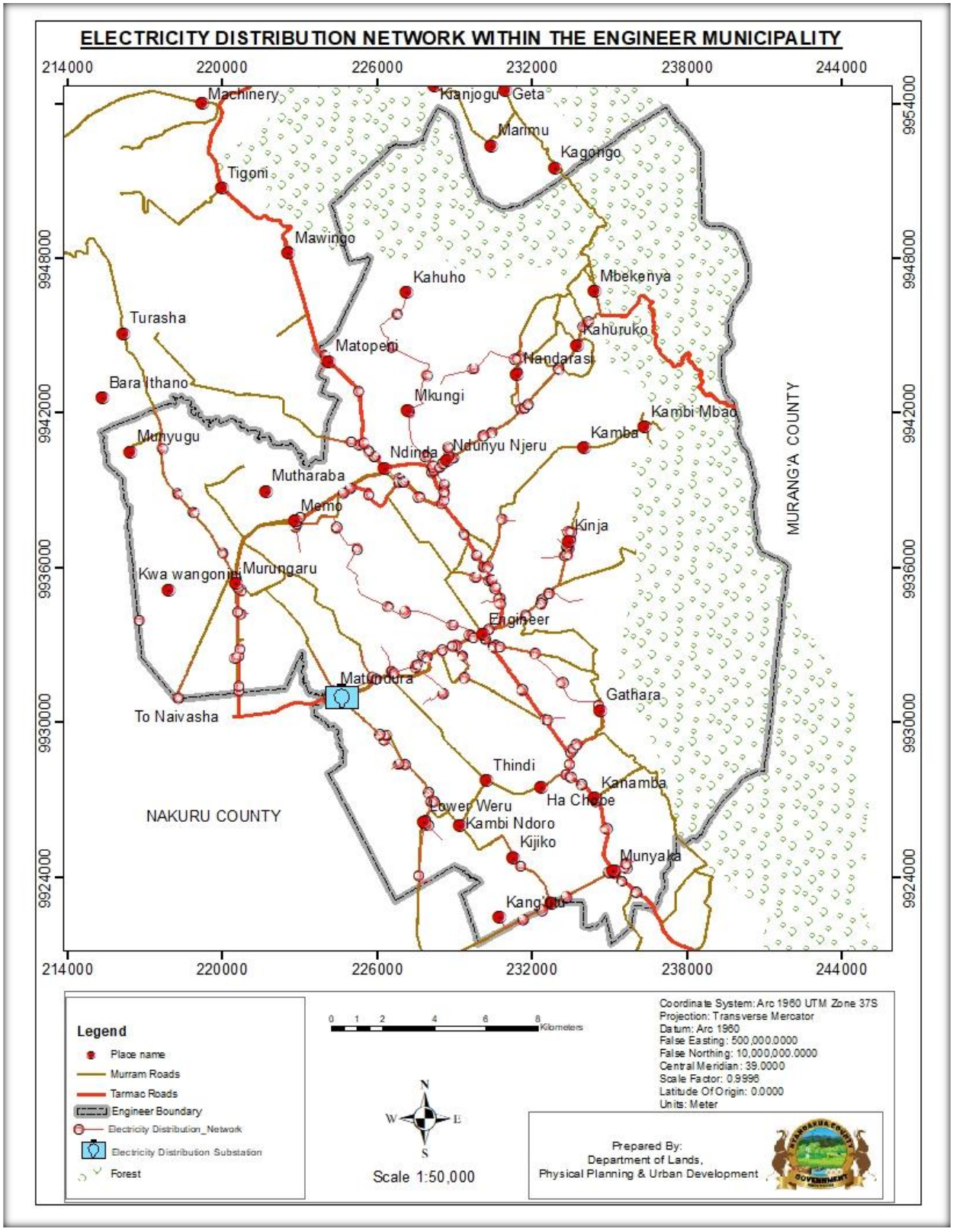


Figure 22; Energy Source for Cooking

6.5.2 Energy Source for Lighting

A large sample size of the residents is 70% households that are not connected to electricity. The aforementioned statistics do not have a significant difference from what was established through spatial analysis where it was identified that 24.25% of the structures were more than 500m from the power lines. Additionally, from the household survey, 20% and 10% rely on solar and paraffin respectively for lighting.



Map 12; Electricity Distribution Network

6.5.3 Information, Communication and Technology

Engineer Municipality is well served by ICT infrastructures such as mobile phone service providers including, Safaricom, Airtel and Telkom. This has increased access to services like mobile money transfer, e-commerce, e banking and internet services. This has created business and employment opportunities in cybercafés, Mpesa shops and other related services. Other ICT infrastructure in the Municipality is Postal service**.** Kenya Postal Service has a functioning Post Office in Engineer Town. However, the facility is facing stiff competition from other means of communication such as mobile phones, internet, and courier services. There exists fiber-optic cable network is available leading to improvement of business activities, communication and information sharing.

6.5.4 Summary of Planning issues

Table 16; Summary of Planning issues

SECTOR	PLANNING ISSUES	OPPORTUNITY	PROPOSAL
Energy	• Lack of wayleaves for power lines • Power lines traversing private properties • High cost of LPG • Insufficient funding • Stealing of transformers	• Availability of a power sub-station • Availability of KPLC regional office	• MOU Between KPLC, National government, County government and Road agencies to relocate power lines to road reserves • Survey all spaces meant for wayleaves • Utilization of the available offices like KPLC, EPRA, REREC to

			enhance electricity distribution and other sources of energy. • Install Internet of Things (IoT)i.e. fleet tracking, soil sensors, sensor monitoring machine, predictive maintenance machines, Light and smart security cameras.
Information Communication Technology	• Poor network coverage and penetration • Low distribution of fibre optic cables • Low exploitation of the internet due to lack of awareness • Lack adequate ICT Centers/facilities	• Availability of land to establish ICT hubs • Availability of ICT centre to train ICT skills	• Increase number of network boosters and location in high vantage points • Increase distribution of fiber optic cable to cover larger part of municipality

	• Low distribution of electricity • Lack of adequate fund to purchase ICT equipment		• Create awareness on the need to embrace ICT • Designate land for Innovation hubs and incubation centres • Increase electricity connection to cover large part of municipality • Establishment of WIFI hotspots at public places e.g. bus park, market to support the local business and youth.

7 CHAPTER SEVEN - SOCIAL INFRASTRUCTURE

7.0. Chapter Overview

This chapter presents an assessment of social infrastructure in Engineer Municipality, focusing on education facilities, health services, and other key community amenities that support residents' well-being. It reviews the current distribution, capacity, and condition of ECDE centres, primary schools, junior secondary schools, secondary schools, and tertiary institutions, highlighting enrolment levels, teacher–student ratios, infrastructure gaps, and projected demand up to the plan period.

The chapter further examines the status of health facilities across different tiers, outlining service capacity, staffing levels, disease prevalence, accessibility challenges, and future facility requirements. In addition, it addresses other essential social infrastructure such as cemeteries, recreational spaces, police stations, and religious institutions, identifying key planning issues and opportunities for improvement. Overall, the chapter provides a foundation for strategic interventions aimed at enhancing equitable access, quality of services, and sustainable social development within the municipality.

7.1 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.

Engineer Municipality is served with all categories of educational facilities from Early Childhood Development Education (ECDE) facilities to tertiary institutions. The table below shows different level of education in the Municipality.

Table 17; Number of Educational Institutions

	Pre-School (ECDE)	Primary Schools	Junior Secondary	Secondary Schools	Tertiary Institutions	Adult Education	Universities
Number of Facilities	55	47	46	28	2	0	0

There are 55 ECDEs in Engineer Municipality. The ECDEs are fairly distributed across the municipality. Most ECDEs are hosted in primary schools, however, there are also standalone facilities. There are 47 public primary schools and 46 Junior Secondary Schools which are attached to the Primary Schools. In addition, there are 28 number of secondary schools in Engineer Municipality but are not evenly distributed. There are also two Tertiary Institutions in Engineer Municipality; Kenya Medical Training College (KMTC and Kinangop Polytechnic.

7.1.1 Capacity of Existing learning Institutions

7.1.1.1. Early Childhood Development Education. (ECDEs)

The table below only shows the number of teachers who are permanently employed. It's notable that there are teachers employed on contracts and also BOM teachers in some of the ECDEs.

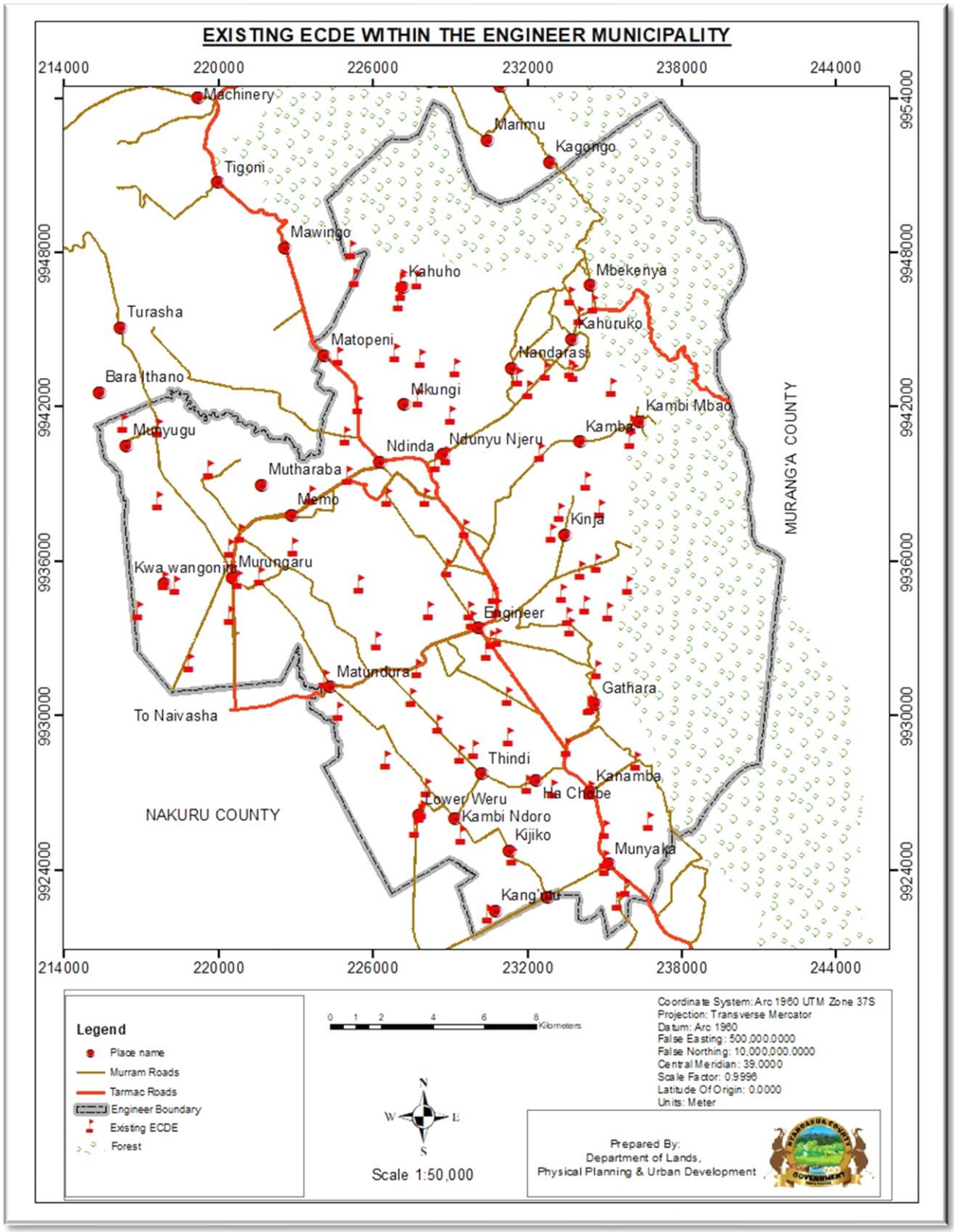
"Attached" means that the school is part of an existing institution

Table 18; Capacity for existing ECDE schools in Engineer Municipality

S/No.	Name	Location / Ward	No. of Pupils	No. of teachers	Teacher Pupil Ratio	Parent School	Ownership
1.	Kihumbu	Murungaru	56	1	56	Attached	Public
2.	Kamabata		112	2	56	Attached	Public
3.	Kiambaa		70	2	35	Attached	Public
4.	Mekaro		96	2	48	Attached	Public
5.	Kahuria		148	2	74	Attached	Public
6.	Kirarua		124	2	62	Attached	Public
7.	Gacharage		86	2	43	Attached	Public
8.	Kahuho		47	1	47	Attached	Public
9.	Mwiruti Pry		78	2	39	Attached	Public
10.	Mugumoini		70	2	35	Attached	Public
11.	Kimuri		136	2	68	Attached	Public
12.	Ndaracaini		90	2	45	Attached	Public
13.	Kiria	North Kinangop	96	2	48	Attached	Public
14.	Kirima		76	1	76	Attached	Private
15.	Kambaa		116	2	58	Attached	Public
16.	Kawamaitha		128	3	64	Attached	Private
17.	Muhuti pry		104	2	52	Attached	Public
18.	Kiandege		90	2	45	Standalone	Private

19.	Aderdare		104	2	52	Attached	Public
20.	Kitogo		128	2	64	Attached	Public
21.	Ndunyu Njeru		270	4	68	Attached	Public
22.	Gitite ECDE		60	1	60	Standalone	Public
23.	Kanyugi	Engineer	186	3	61	Attached	Private
24.	Kang'utu		41	2	21	Attached	Public
25.	Kamunyaka		64	2	32	Attached	Public
26.	Kahuru		46	2	23	Attached	Public
27.	Manyatta ECD		76	2	38	Standalone	Public
28.	Kijiko		94	2	47	Attached	Public
29.	Munyaka		148	2	74	Attached	Public
30.	Muthomi		150	2	75	Attached	Public
31.	Matundura		72	1	72	Attached	Public
32.	Rugongo		124	2	62	Attached	Public
33.	Centre		139	2	70	Attached	Public
34.	Faru		40	1	41	Attached	Public
35.	Kitiri	Gathaara	90	2	45	Attached	Public
36.	Kinja		86	1	86	Attached	Public
37.	Mwihoko		140	2	70	Attached	Public
38.	Mutamaiyu ECDE		28	1	28	Standalone	Public
39.	Mweteithia		124	2	62	Attached	Public

40.	Kianguyo ECDE		42	1	42		Public
41.	Gathara ECDE		100	2	50	Standalone	Public
42.	Githunguri ECDE		90	2	45	Standalone	Public
43.	Kinamba		221	2	111	Attached	Public
44.	Kariahu		86	2	43	Attached	Public
45.	Kiahuho		46	1	46	Attached	Public
46.	Mutamaiyu B		70	1	70	Attached	Public
47.	Mutamaiyu C		78	1	78	Attached	Public
48.	Raitha		90	2	45	Attached	Public
49.	Urumwe		80	1	80	Attached	Public
50.	Grace A		110	2	55	Attached	Public
51.	Grace B		56	1	56	Attached	Public
52.	Kambaa		76	1	76	Attached	Public
53.	Karoroha		114	2	57	Attached	Public
54.	Nyakiambi		62	2	31	Attached	Public
55.	Nyandarua School for the Deaf		60	2	30	Attached	Public



Map 13; Distribution of ECDE Facilities

7.1.1.2 Primary Schools

The table below shows the pupil-teacher ratio for various schools within the planning area. According to the Ministry of Education in Kenya, the recommended pupil-teacher ratio stands at 50:1 for public primary schools. From the table below, most schools are within the recommended ratios. It is notable that the enrolment rates in most of the primary schools is low due to preference for private schools and the sparse populations within some of the settlements where these schools are located.

The table below shows the existing capacity in the primary schools as at 2024 within the municipality.

Table 19; Primary Schools in Engineer Municipality

S/No.	Name	Zone	No. of Pupils	No. of teachers	Teacher Pupil Ratio	Ownership
1.	Centre	Engineer	173	8	22	Public
2.	Faru		118	9	13	Public
3.	Gathaara		203	9	23	Public
4.	Gitite		80	6	13	Public
5.	Grace		204	9	23	Public
6.	Jomo Kenyatta		130	10	13	Public
7.	Kahuru		433	12	36	Public
8.	Kanyugi		353	14	25	Public
9.	Karoroha		171	9	19	Public
10.	Kinja P.C. E. A		147	8	18	Public
11.	Matundura		230	10	23	Public
12.	Mbirithi		165	9	18	Public
13.	Muruaki		153	9	17	Public
14.	Mutamaiyu		246	11	22	Public
15.	Mwihoko		311	11	28	Public
16.	Mwiteithia		670	27	25	Public

17.	Nyandarua School for the Blind		269	9	30	Public
18.	Rugongo		269	8	34	Public
19.	Hianyu	Murungaru	148	9	16	Public
20.	Kambata		165	9	18	Public
21.	Kihumbu		152	11	14	Public
22.	Kimuri		219	10	22	Public
23.	Kirathimo		120	8	15	Public
24.	Mugumoini		105	8	13	Public
25.	Murungaru		444	24	19	Public
26.	Mwihoti		166	10	17	Public
27.	Mwiruti		181	9	20	Public
28.	Ndaracaini		245	10	25	Public
29.	Aberdare	Nndunyu Njeru	234	9	26	Public
30.	Gacharage		136	9	15	Public
31.	Kahuho		169	8	21	Public
32.	Kahuria		143	9	16	Public
33.	Kamirangi		97	9	11	Public
34.	Kawamaitha		242	11	22	Public
35.	Kiambaa		222	11	20	Public
36.	Kiambariki		363	15	24	Public
37.	Kiandege		90	8	11	Public
38.	Kirarua		274	8	31	Public
39.	Kiria		121	10	12	Public
40.	Kitiri		199	8	25	Public
41.	Kitogo		207	7	30	Public
42.	Mekaro		153	7	22	Public
43.	Mkungi		313	10	31	Public
44.	Muhuti		193	10	19	Public
45.	Nandarasi		26	3	9	Public

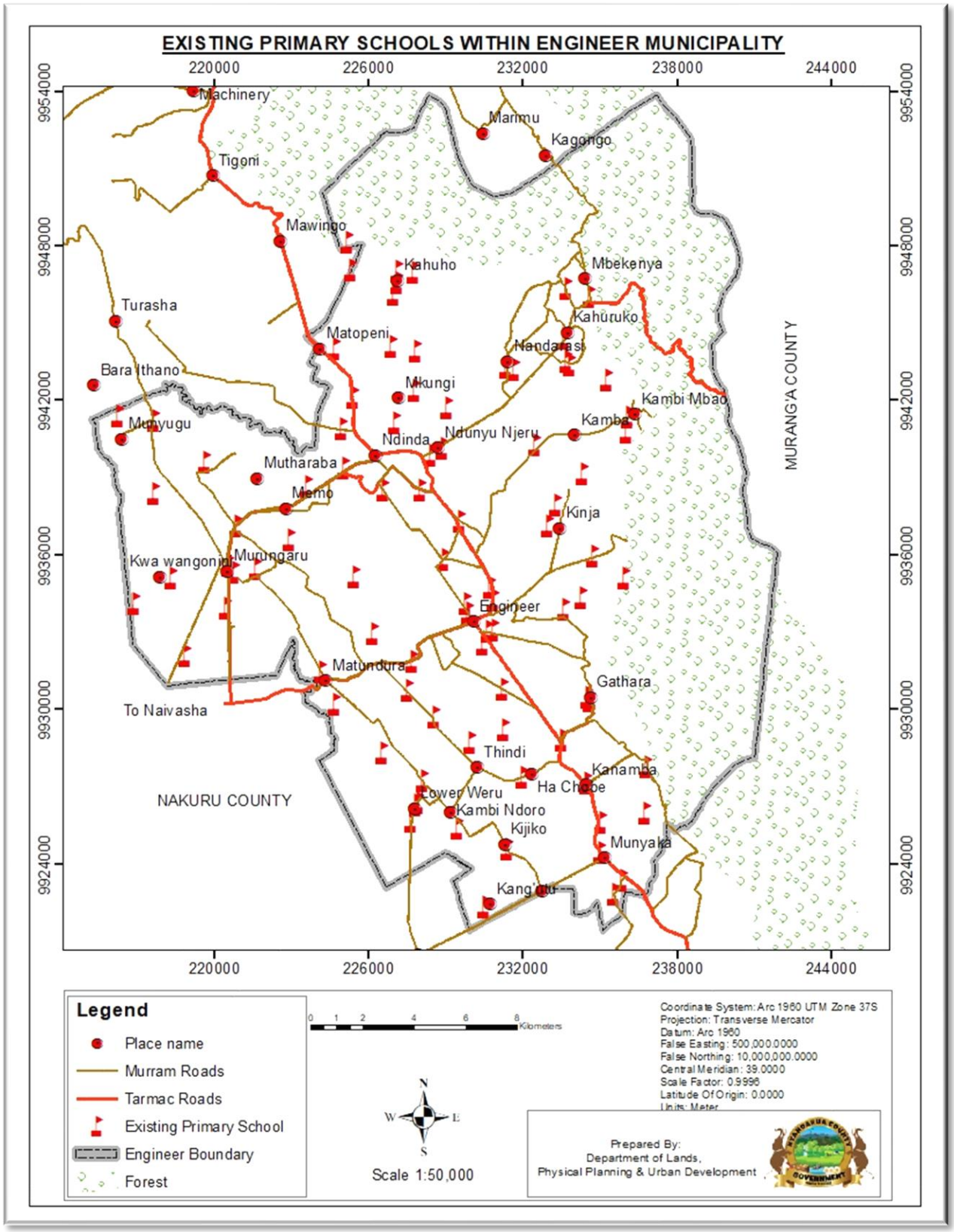
46.	Ndunyu Njeru		630	21	30	Public
47.	Raitha		231	9	26	Public

7.1.1.2 Junior Secondary Schools

Table 20; Junior Secondary Schools in Engineer Municipality

S/No.	Name	Zone	No. of Pupils	No. of teachers	Teacher Pupil Ratio	Ownership
1.	Centre	Engineer	63	5	13	Public
2.	Faru		48	4	12	Public
3.	Gathaara		91	5	18	Public
4.	Gitite		28	3	9	Public
5.	Grace		97	5	19	Public
6.	Jomo Kenyatta		65	5	13	Public
7.	Kahuru		165	6	28	Public
8.	Kanyugi		148	8	19	Public
9.	Karoroha		101	5	20	Public
10.	Kinja P.C. E. A		47	5	9	Public
11.	Matundura		87	5	17	Public
12.	Mbirithi		82	5	16	Public
13.	Muruaki		71	5	14	Public
14.	Mutamaiyu		81	5	16	Public
15.	Mwihoko		119	6	20	Public
16.	Mwiteithia		229	7	33	Public
17.	Nyandarua School for the Blind		34	5	7	Public
18.	Rugongo		96	3	32	Public
19.	Hianyu	Murungaru	61	5	12	Public
20.	Kambata		63	5	13	Public
21.	Kihumbu		70	5	14	Public
22.	Kimuri		96	5	19	Public

23.	Kirathimo		65	5	13	Public
24.	Mugumoini		49	5	10	Public
25.	Murungaru		184	11	17	Public
26.	Mwihoti		77	5	15	Public
27.	Mwiruti		75	5	15	Public
28.	Ndaracaini		88	5	18	Public
29.	Aberdare	Ndunyu Njeru	75	9	8	Public
30.	Gacharage		25	3	8	Public
31.	Kahuho		95	8	12	Public
32.	Kahuria		48	6	8	Public
33.	Kamirangi		32	5	6	Public
34.	Kawamaitha		130	6	22	Public
35.	Kiambaa		80	4	20	Public
36.	Kiambariki		126	6	21	Public
37.	Kiandege		48	4	12	Public
38.	Kirarua		119	5	24	Public
39.	Kiria		58	4	15	Public
40.	Kitiri		69	3	23	Public
41.	Kitogo		62	6	10	Public
42.	Mekaro		72	4	18	Public
43.	Mkungi		108	6	18	Public
44.	Muhuti		90	3	30	Public
45.	Ndunyu Njeru		229	6	38	Public
46.	Raitha		105	5	21	Public



Map 14; Primary schools in Engineer Municipality

7.1.1.3 Secondary Schools

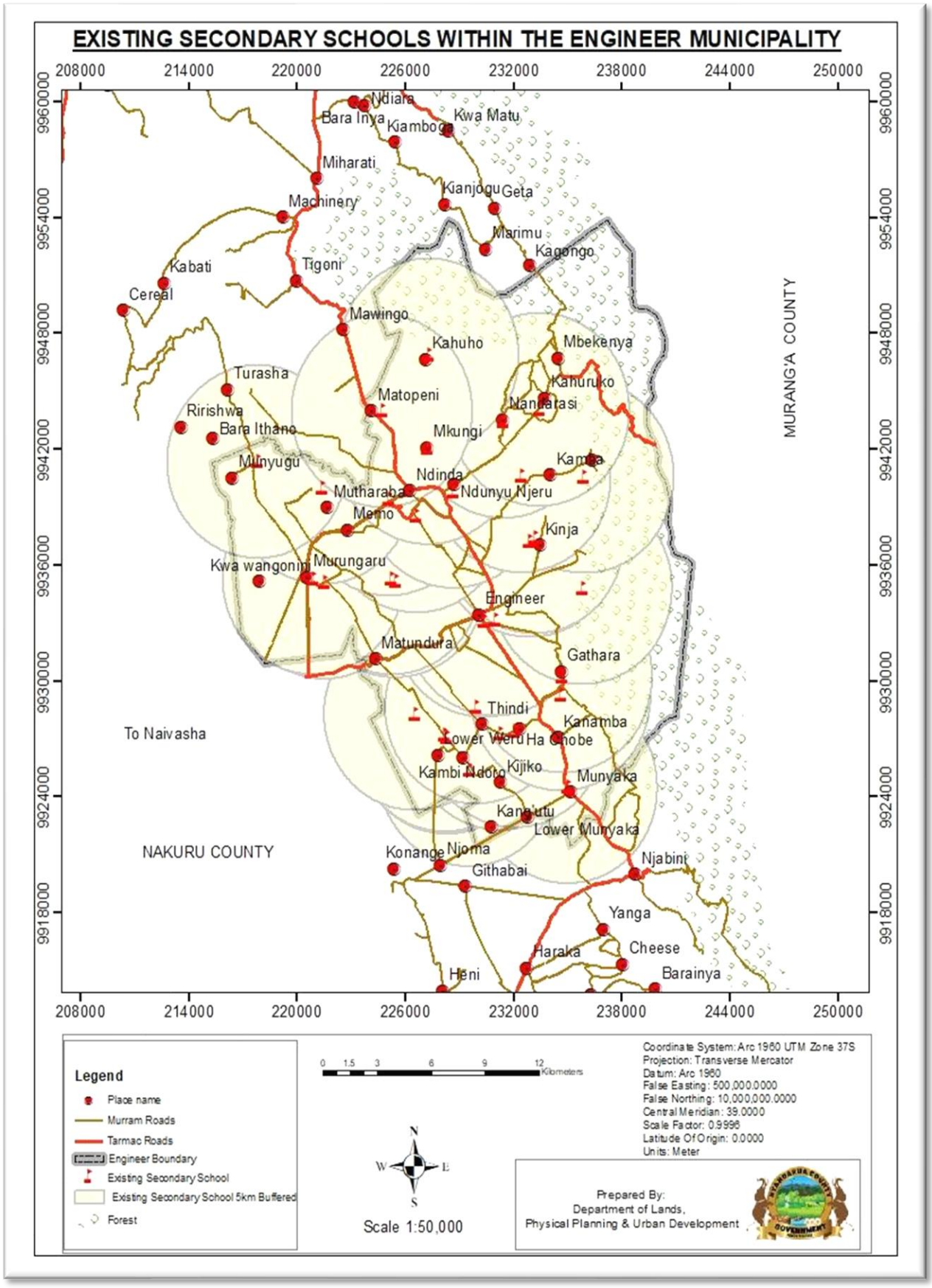
On the other hand, the Ministry of Education recommends 45:1 student-teacher ratio for public secondary schools. From the table below, all the schools have achieved this due to low enrolment of students in the schools.

Table 21; Capacity for existing Secondary schools in Engineer Municipality

S/No.	Name	Zone	No. of Students	No. of teachers	Teacher Student Ratio	Ownership
1.	Gathaara	Engineer	421	19	22	Public
2.	Kahuru		95	9	11	Public
3.	Magomano		1197	55	22	Public
4.	Muruaki		336	19	18	Public
5.	Mutamaiyu		258	15	17	Public
6.	Mutiini		170	9	19	Public
7.	Mwiteithia		580	28	21	Public
8.	Rugongo		346	18	19	Public
9.	St. Michael Faru		34	9	4	Public
10.	Thindi Highstar		78	9	9	Public
11.	Kambata	Murungaru	133	9	15	Public
12.	Kihumbu		233	19	12	Public
13.	Kimuri		474	27	18	Public
14.	Murungaru		540	28	19	Public
15.	Mwihoti		154	9	17	Public
16.	Aberdare Ranges	Ndunyu Njeru	291	19	15	Public
17.	Karima Girls		1917	82	23	Public
18.	Kiambariki		511	29	18	Public
19.	Kinja		210	9	23	Public
20.	Kirarwa		408	17	24	Public

21.	Kiria		45	9	5	Public
22.	Kitogo		162	19	9	Public
23.	Mekaro		201	15	13	Public
24.	Mwendandu		720	30	24	Public
25.	Nandarasi		347	19	18	Public
26.	Ndunyu Njeru		722	32	23	Public
27.	Raitha		202	15	14	Public
28.	St. Joseph Mukungi		337	19	18	Public

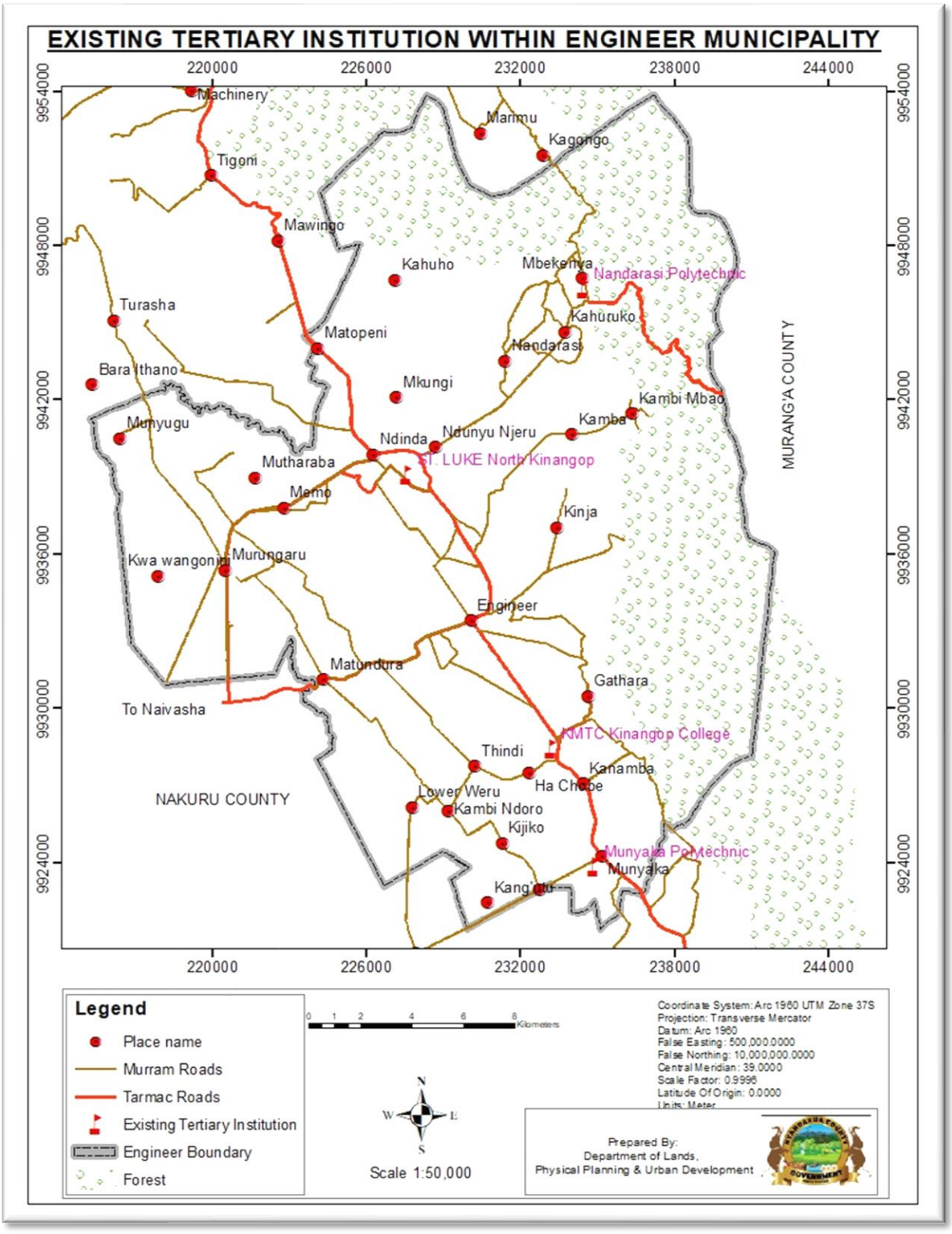
Source: Nyandarua South Sub-County Director of Education, 2025



Map 15; Existing Secondary Schools in Engineer Municipality

7.1.1.4 TERTIARY INSTITUTIONS

There are five Tertiary Institutions in Engineer Municipality namely; Kinangop KMTC, St. luke nursing home, nandarasi polytechnic, Munyaka polytechnic and Kinangop Polytechnic.



Map 16;Tertiary Institutions in Engineer Municipality;

7.1.2 Projected Demand of Education Facilities

As the population is projected to increase, so is the demand for provision of educational services. The Physical Planning Handbook 2007 prescribes the population standards for provision of the education facilities.

ECDEs: The municipality currently has a deficit of ECDEs. The deficit is projected to increase with 20 facilities by the end of the plan period. The handbook recommends an ECDE facility with a maximum capacity of 120 children for a catchment population of 1:1250. With some ECDE facilities in the planning area covering greater distances than the ideal distance of 500m, there is a demonstrated need for more equitable distribution to serve underserved areas while seeking to meet the demand.

Primary Schools: Currently, there are 10,313 pupils in primary school facilities for 486 teachers, resulting in a student-to-teacher ratio of 21:1 versus the Ministry of Education's recommended 50:1 ratio. While this may indicate adequate provision, it may also indicate under-enrolment by potential pupils. There is a current deficit of 10 facilities based on the handbook recommendation of a single-stream facility with a capacity of 320 pupils for a catchment population of 1:1200. If no new facilities are built during the plan period, the deficit is expected to total 57 facilities. The recommended walking distance is 500 metres.

Junior secondary schools: Currently, there are 4,051 pupils in Junior Secondary school facilities for 250 teachers, resulting in a student-to-teacher ratio of 16:1 versus the Ministry of Education's recommended 50:1 ratio. This indicates under-enrolment by potential pupils

Secondary schools: Currently, there are 11,122 students and 596 teachers in 28 secondary schools, translating to a 19:1 student-teacher ratio, which albeit within the Ministry of Education's recommended 45:1 student-teacher ratio, could point to under-enrolment by the students. The handbook recommends a secondary school with a capacity of 160 students for a catchment population of 2700. Currently, there is a deficit of 12 schools. This is projected to increase to 40 facilities by the end of the plan period.

Tertiary: There is a need for equitable distribution of Tertiary facilities hence need for more facilities to achieve this. Furthermore, there is a demand and need for the operationalization of non-operational facilities in the Municipality which include; Nandarasi Polytechnic, Munyaka Polytechnic and Nyandarua Teachers College.

To improve access to the educational institutions, other interventions include construction of more classrooms, offering bus services to the children, improving the road conditions and

opening up of some new roads to ease accessibility and providing transport. The table below shows the projected future demand for educational facilities.

Table 22; Projection of Education Facilities

Category	Current provision (2025)	Projected Demand (2030)	Projected Demand (2035)
ECDE	55	61	66
Primary	47	52	56
Junior Secondary	46	51	55
Secondary	28	31	34
Tertiary	2	2	3

Source: Projected using the Physical Planning Handbook, 2007

7.1.3 Key Planning Issues

Table 23; Key Planning Issues

	Key Planning Issues	Opportunity
Education Facilities	• Low enrolment numbers in primary and secondary schools. • Poor access roads to educational facilities that are located away from the main roads. • Inadequate educational facilities in Engineer Ward • Inadequate ECDE Teachers	• Availability of land to build more schools in underserved areas • Employment of more ECDE teachers

7.2 Health Facilities

Health infrastructure is fundamental to the attainment of a healthy population. A reliable healthcare system is built on the principle of affordability and accessibility. Within the municipality, health services are offered in three tiers namely: community, primary health care facilities i.e., dispensaries and health centres and hospitals. In total, Engineer Municipality has 1 District Hospital, 6 Health centre,14 dispensaries, and 41 community units (level 1) Apart from these government health facilities, there are several private and faith-based health facilities that also offer health services such as north Kinangop catholic mission hospital.

Health being a devolved function, the County Government is in charge of the public facilities. It is mainly involved in provision of land and construction of health facilities, provision of utility services such as water, electricity and waste collection services.

Below is the list of dispensaries, hospitals and health centres in the municipality

Table 24; List of Medical Facilities in Engineer Municipality

ENGINEER MUNICIPALITY HEALTH FACILITIES AND THEIR CLASSIFICATION															
	WARD NAME		NAME OF THE FACILITY	CATEGORY	NO. DOCTORS	NO. NURSES	NO. CLINICAL OFFICERS	NO. PHARMACISTS	BED CAPACITY	OWNERSHIP DOCUMENTS	PUBLIC / PRIVATE	PLANNED /SURVEYED	ACREAGE (HA)	MARTENITY	OTHER COMMENTS
1	*MURUNGARU WARD*	*1*	*MIKARO DISPENSARY*	2	0	1	0	0	0	GOK	PUBLIC.	MIKARO DP	1.02	N/A	
		2	*MURUNGARU HEALTH CENTRE*	3	0	9	1	0	4	GOK	PUBLIC.	NYA/C1146/99/01	0.61	Available	New maternity block need renovation/equipment
		3	*MKUNGI DISPENSARY*	2	0	2	0	0	0	GOK	PUBLIC.	NYA/MKUNGI/1727 (SHEET 2)	0.63	N/A	
2	NYAKIO WARD	*1*	*RWANYAMBO DISPENSARY*	2	0	2	0	0	0	GOK	PUBLIC	NYA/SOUTH KINANGOP/6971 (SHEET 5)	0.13	N/A	
		2	*HARAKA DISPENSARY*	2	0	2	0	0	0	GOK	PUBLIC			N/A	

		3	*KARANGATHA HEALTH CENTRE*	3	0	6	0	1	4	GOK	PUBLIC	NYA/NJABINI/1160 (SHEET 5)	2.74	Available	
3	ENGINEER WARD	*1*	*KAHURU DISPENSARY*	2	0	1	0	0	0	GOK	PUBLIC			N/A	
		2	*WERU HEALTH CENTRE*	3	0	7	1	0	1	GOK	PUBLIC	WERU SHEET 134/1/17/5	0.88	Available	requires a maternity block
4	GATHARA WARD	*1*	*MUNYAKA DISPENSARY*	2	0	2	0	0	0	GOK	PUBLIC	NYA/TULAGA/466 (SHEET 5)	0.63	N/A	
		2	*GATHARA DISPENSARY*	2	0	2	0	0	0	GOK	PUBLIC	TULAGA DP	0.3	N/A	
		3	*ENGINEER HOSPITAL*	4	13	47	14	5	85	GOK	PUBLIC	NYA/KITIRI/507 (SHEET 5)	3.44	Available	
		4	*MUTARAKWA DISPENSARY*	2	0	2	0	0	0	GOK	PUBLIC	NYA/KITIRI / 402 (SHEET 6)		Available	maternity block available which require upgrading of the facility to be a health centre.
5		*1*	*NDUNYU NJERU*	2	0	1	0	0	0	GOK	PUBLIC	NYA/C930/2005/01	0.18	N/A	

	NORTH KINANGOP WARD		*DISPENSARY*												
		2	*KITOGO DISPENSARY*	2	0	2	0	0	0	GOK	PUBLIC	NYA/KITIRI /3612 (SHEET 2)	0.45	N/A	
		3	*NANDARASI DISPENSARY*	2	0	2	0	0	0	GOK	PUBLIC	NYA/NANDARASI/241 (SHEET3)	0.55	N/A	
		4	*KWA MBEKENYA DISPENSARY*	2	0	1	0	0	0	GOK	PUBLIC			N/A	
6	GITHABAI WARD	*1*	*HENI HEALTH CENTRE*	3	0	6	0	0	10	GOK	PUBLIC	NYA/C1132/15/01	1.45	Available	only 2 available beds Requires renovation
		2	*KOINANGE DISPENSARY*	2	0	2	0	0	0	GOK	PUBLIC	NYA/C929/2009/01	0.25	N/A	
		3	*GITHABAI DISPENSARY*	2	0	1	0	0	0	GOK	PUBLIC	NYA/C50/90/05	0.3	N/A	

Source; County Department of Medical & Health Services

7.2.1 Morbidity

The five most common diseases in order of prevalence are as follows;

Table 25; Morbidity

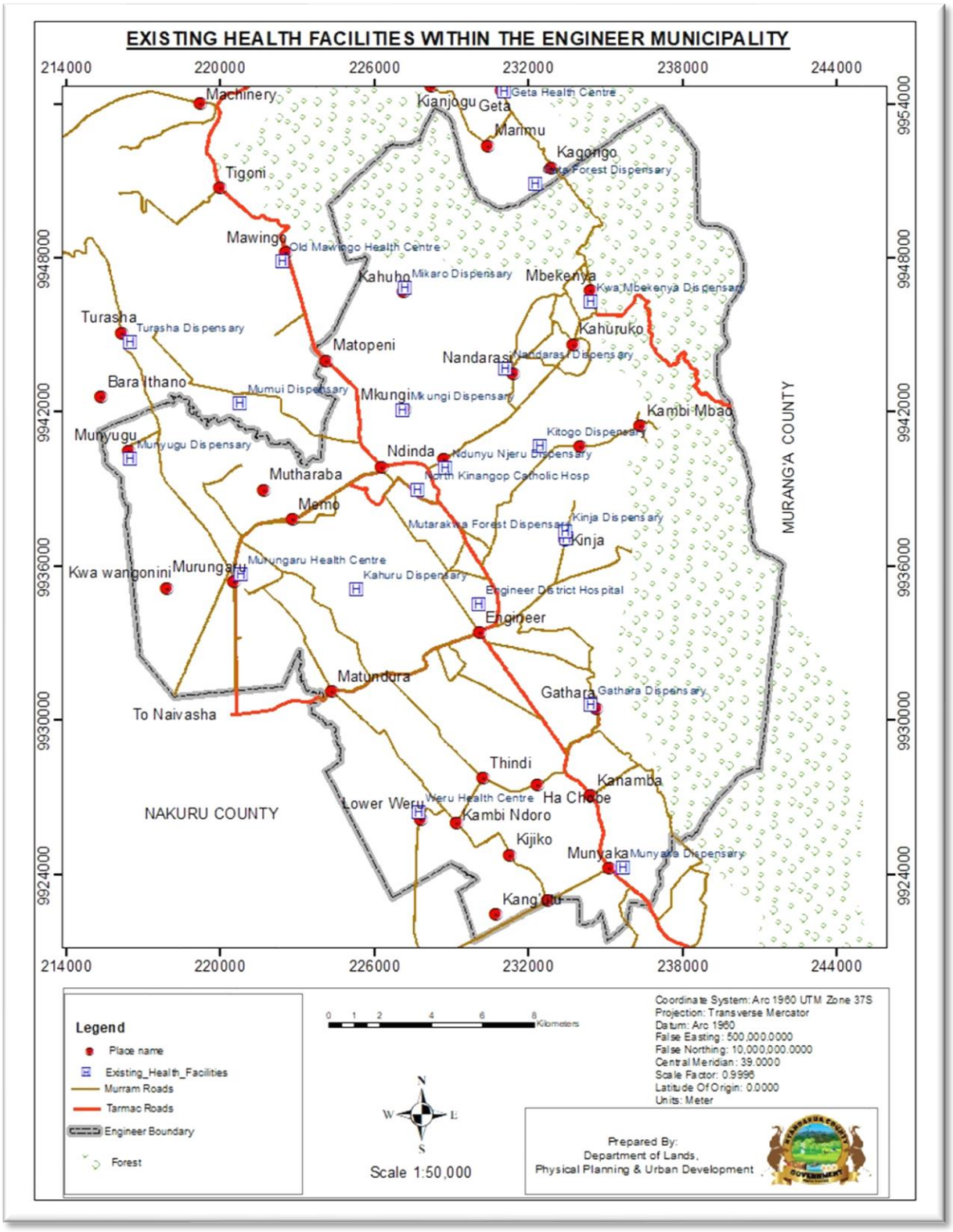
S/ No	Under 5yrs	S/ No	Over 5yrs
1	Diseases of Respiratory System	1	Diseases of Respiratory System
2	Diseases of the skin	2	Hypertension
3	Diarrhea & vomiting	3	Arthritis, Joint pains
4	Tonsillitis	4	other injuries
5	Pneumonia	5	UTI (Urinary Tract Infection)
6	Amoebiasis	6	Diabetes

Source: County department of health services

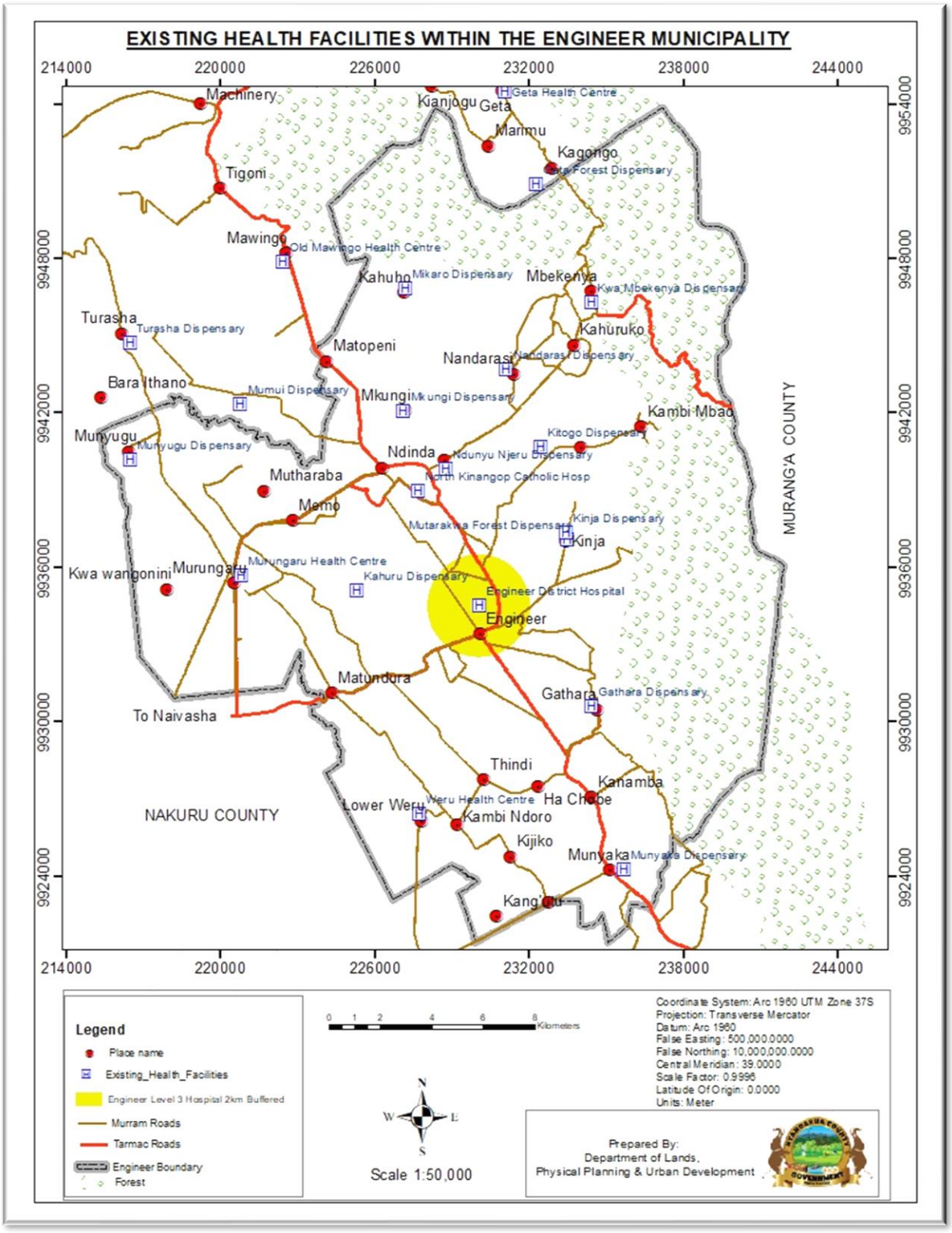
The health seeking behavior within the municipality is commendable. This is however limited by distance seeing that most of the people travel more than 5km to access a health facility.

7.2.2 Distribution of health facilities

The map below depicts the location of health-care facilities within the municipality. It only takes 15 minutes to walk to the health facility where there are good roads. It takes 30 minutes when the roads are partially good, and 1 hour when the roads are poor, posing a challenge when there is a medical emergency.



Map 17; Distribution of Health Facilities in Engineer Municipality;



Map 18; Distributive Gap Analysis of Health Facilities

7.2.3 Projected Demand of Health Facilities

Engineer ward with a projected population of 38,941 by the end of plan period will require level 3 facility within proximity. On the other hand, North Kinangop ward has a population of 26,070 people and currently has 6 dispensaries that should each serve a catchment population of 5000 people. Since the projected population for 2033 is 37,428 people, an upgrade to level 3 with a catchment population of 10,000 people is required.

Table 26; Health facility projection

Facilities	No. of Facilities (2024)	Required Facilities (2029)	Projection 2034
Hospitals	1	2	3
Health Centre	6	10	15
Dispensaries	14	20	25

7.2.4 Key Planning Issues

Table 27; Key Planning Issues

Sub-sector	Planning Issues	Opportunities
Health facilities	• Inadequate drugs • Poor accessibility • Inadequate health facilities • Long queue at health facilities • Land Tenure • Inadequate specialized service providers e.g., ENT, ophthalmology, psychiatry, dental, oncology, surgical etc. • Insufficient funding for procurement of health products. • Inefficiencies in the procurement logistics occasioning stock outs. • Lack of cold storage	• Expansion and upgrading of existing facilities • Improved road and utility infrastructures • Public private partnerships • Increased investment in specialized health care services

7.2.5 Other Social Infrastructure

Engineer Municipality is committed to improving the quality of life for its residents by providing essential social infrastructure. This report focuses on key services that directly impact the well-being of the community: cemeteries, playgrounds, and police stations. Each of these sectors plays a vital role in supporting the daily lives of the people, ensuring that the municipality remains a place where families can thrive in a safe and respectful environment

7.2.4.1 Cemeteries

Cemeteries are sacred spaces that serve as a final resting place for community members. The Engineer Municipality oversees several cemeteries, including those in Ndunyu Njeru, Murungaru, Weru, and Gathara/Tulaga. These cemeteries are managed to ensure that residents have dignified and accessible burial spaces. However, the Ndunyu Njeru Cemetery is facing significant challenges that need urgent attention.

Ndunyu Njeru Cemetery is currently situated on a plot that has become problematic for several reasons. This land, which was originally designated as a dumpsite, is no longer suitable for use as a cemetery due to contamination and environmental concerns. The situation is further complicated by bee rearing activities taking place nearby, which pose additional risks to visitors who come to mourn their loved ones. The combination of environmental hazards—such as waste from the dumpsite—and the potential danger posed by the bee colonies creates an unsafe and undignified atmosphere for families who wish to visit the cemetery.

It is recommended that the municipality acquire appropriate land for the relocation of the Ndunyu Njeru Cemetery. The new location should be carefully selected to ensure it is far from areas of environmental risk, such as dumpsites and bee-rearing activities, and is large enough to accommodate future burials. Furthermore, the municipality should ensure that the land is easily accessible to residents, with adequate infrastructure such as roads, signage, and safety measures to ensure a dignified experience for visitors.

The municipality should also remediate the current site to mitigate environmental hazards and restore the land for potential future use. This might involve engaging environmental experts to assess and clean up the area, removing the contamination from the former dumpsite, and ensuring that any activities like bee rearing are moved to a safer distance

7.2.4.2 Recreational spaces

The municipality also prioritizes the creation of recreational spaces, and this is clearly reflected in its provision of 20 well-maintained playgrounds across different neighborhoods. These

playgrounds serve as essential spaces for children to play, learn, and socialize, while also offering families areas to gather and interact

Each playground is equipped with modern, safe play equipment designed to suit children of all ages. The municipality ensures these spaces are regularly maintained and upgraded to meet safety standards, with soft ground coverings, secure fencing, and proper lighting for safety during evening visits. The strategic location of these playgrounds ensures that no matter where a family lives, there is a nearby park for children to enjoy outdoor activities, promoting physical health and well-being.

Beyond play, these spaces foster a sense of community. They act as social hubs where children make friends, parents meet and interact, and neighbors build relationships. The municipality's continued investment in these playgrounds demonstrates a long-term commitment to providing quality spaces for families to thrive.

7.2.4.3 Police Stations

Public safety is an essential service that the municipality takes seriously, and police stations play a crucial role in ensuring the security of the residents. The municipality operates several police stations and posts throughout the region, including in Kinangop, Ndunyu Njeru, Weru, Murungaru, and several patrol bases. These stations work tirelessly to maintain order and enforce the law, helping to reduce crime and provide a sense of security for the community.

The Kinangop Police Station is the largest in terms of staffing, with 33 officers. This reflects the higher population density and the increased need for law enforcement in the area. In contrast, smaller posts like Weru and Kamba Patrol Base have fewer officers (3 to 4 officers), which can sometimes limit their ability to respond effectively to emergencies.

Table 28; Police Stations

S/No	Name	No of Police Officers
1.	Kinangop Police Station	33
2.	Weru Police Post	3
3.	Kamba Patrol base	4
4.	Ndunyu Njeru police station	15
5.	Mikaro Police post	4
6.	Matopeni Patrol base	4
7.	Murungaro police post	15

8.	North Kinangop sub-county HQ	6

Given the varying staffing levels across the stations, it is recommended that the municipality undertake a redistribution of officers to ensure that all areas, especially those with fewer officers, are adequately staffed. This could involve transferring additional officers to smaller posts such as Weru and Kamba Patrol Base, which would help improve the overall law enforcement presence and response times in these areas. Furthermore, the North Kinangop Sub-County HQ would benefit from additional administrative and logistical support to better coordinate the efforts of law enforcement across the municipality.

community policing initiatives should be expanded to strengthen relationships between the police and the community. This approach builds trust and encourages residents to work with law enforcement to prevent crime and address safety concerns

Cemetery, upgrading police staffing, and maintaining playgrounds—the municipality will ensure that Engineer remains a safe, vibrant, and sustainable place for its residents to live, work, and thrive

7.2.5 Religious Institutions

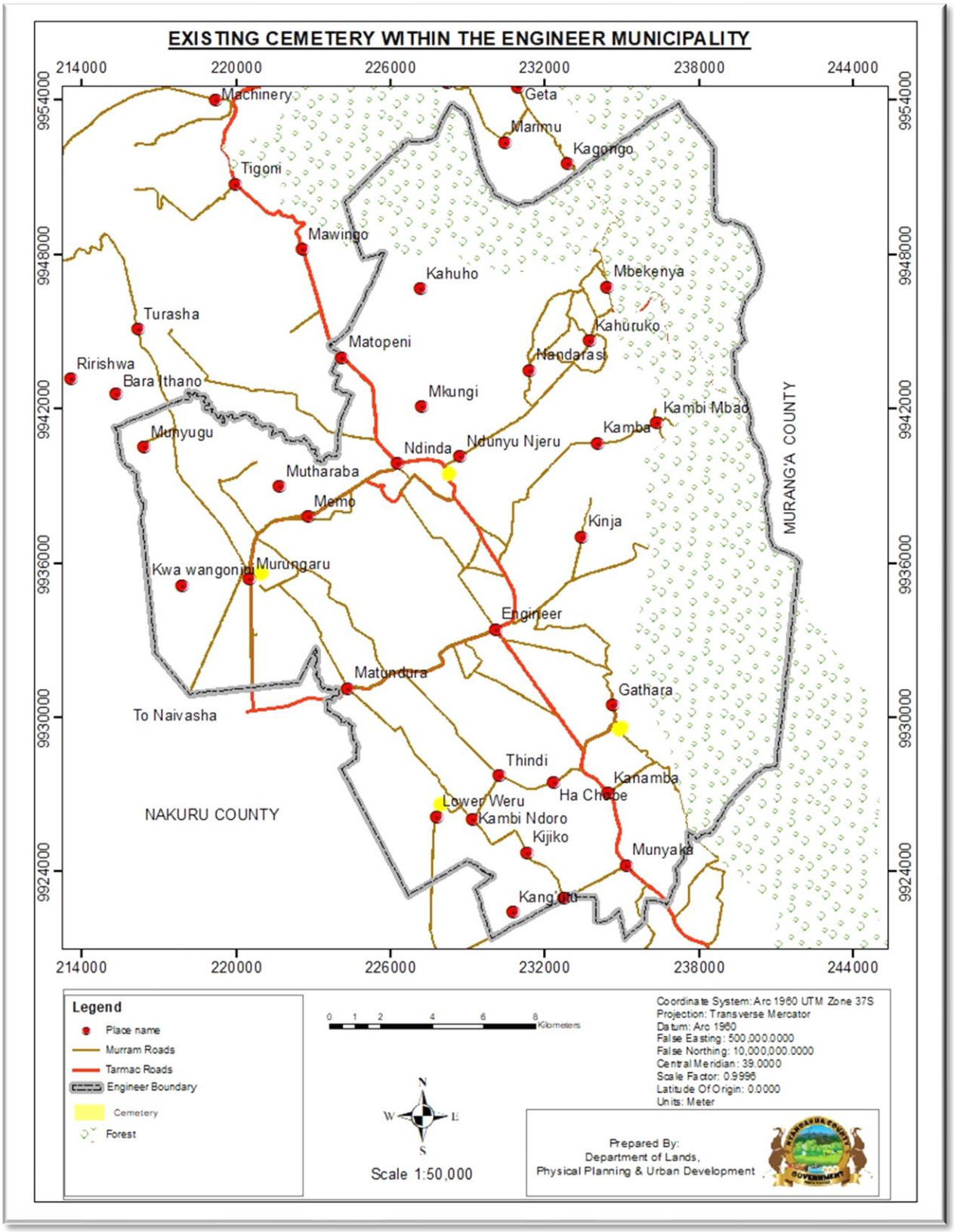
Over 90% of the municipal population are Christians. Churches of various denominations and mainstream churches are spread over the municipality. they are mainly distributed in urban areas and play a key role in assembling people for a common purpose of worship. Other than Christianity, there is a Mosque at Engineer Town. this is used by a negligible population of the Muslim community.

7.2.6 Challenges and Planning for the Future

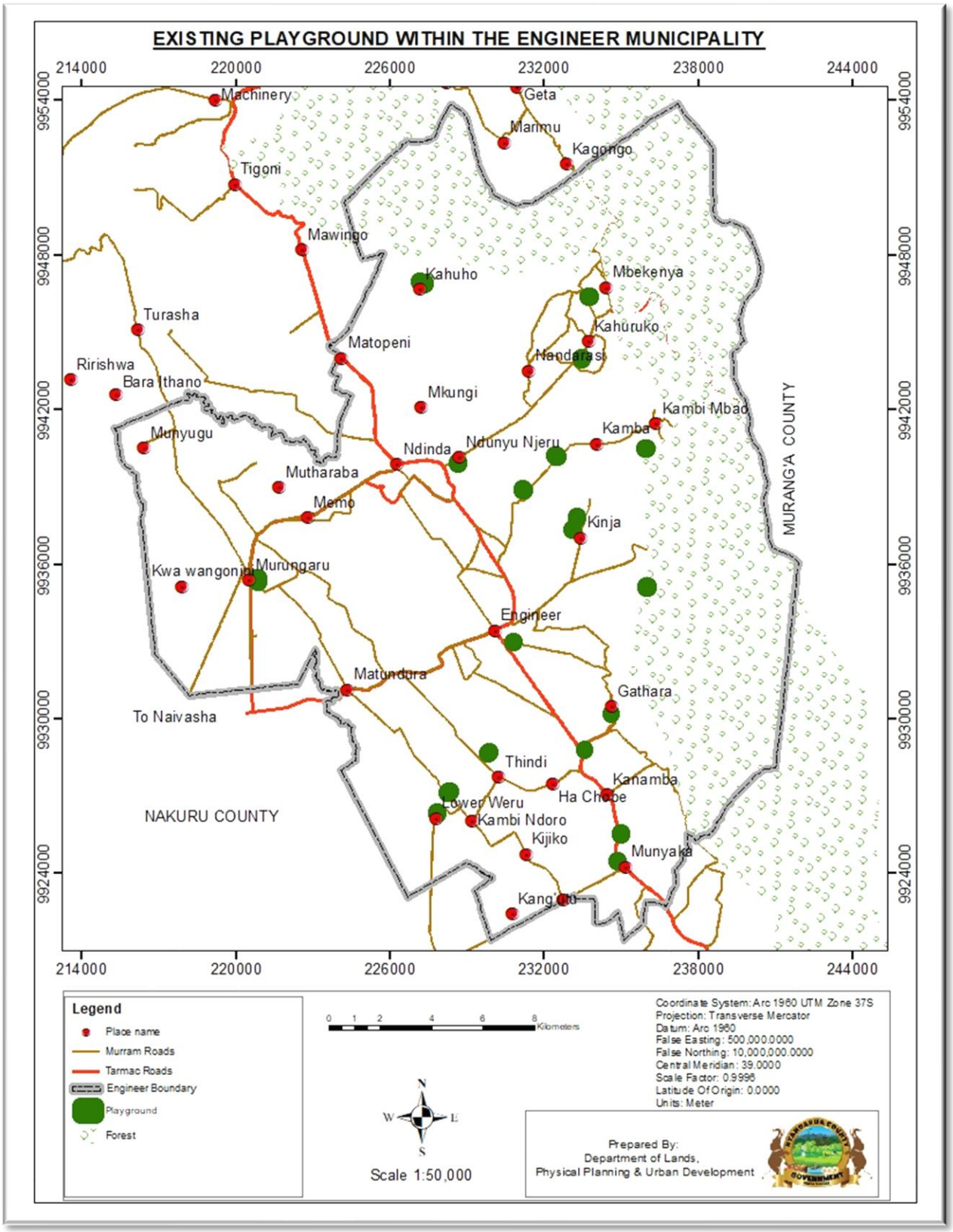
The Engineer Municipality faces some pressing challenges, particularly regarding the Ndunyu Njeru Cemetery, which is situated on a problematic dumpsite plot and surrounded by bee rearing activities. These issues compromise the safety and dignity of the space, and immediate action is required to secure land for a new cemetery site that is free from environmental hazards.

The municipality's commitment to providing safe recreational spaces and ensuring public safety through its police stations remains a top priority. By redistributing police resources, investing in community policing, and continuously improving recreational facilities, the municipality is building a strong foundation for the future well-being of its residents.

Strategic planning, community involvement, and continued investment in infrastructure are key to addressing the current challenges. By taking proactive steps—such as relocating the Ndunyu Njeru.



Map 19; Distribution of Cemeteries in Engineer Municipality



Map 20; Distribution of Open Spaces in Engineer Municipality

7.2.7 Key Planning Issues

Table 29; Key Planning Issues

Sub- Sector	Key Planning Issues	Opportunity
Other Social Infrastructure	• Cemeteries, bee keeping and dumpsite are on the same piece of land.	• Clearly designate separate zones for each use to minimize conflict. • Consider moving one or more of these activities to suitable location to prevent conflicts.
	• Understaffing in police stations • Need for establishing community and police good relation ship	• Implement shift based or temporary redeployment plan for high demand periods and religion • Establish task force for specific issues. • Host town hall meeting, open houses or community forums to listen to public demand

8. CHAPTER EIGHT - HOUSING AND HUMAN SETTLEMENT

8.1 Overview

Housing is considered a crucial pillar in realizing Kenya's long-term development goals. The goal to achieving adequate and affordable housing has been so elusive. The Kenyan landscape is characterized by tremendous growth over the last few years, buoyed by the burgeoning population, expanding middle class, rapid urbanization, and heavy investment in infrastructure. The rate of urbanization is accelerating nationally and regionally, despite slow economic growth and a shortage of available land. Only a small percentage of individuals can afford to own a home, so rental housing is commonplace. According to the 2019 population census, 21% of those living in the urban areas in Kenya own their homes, while 78% rent their housing units (KNBS, 2019).

The low-income households form the bulk majority of the Kenyan population, about 53% by the end of 2020, and the situation is no different in Engineer Municipality. Despite the annual demand for housing units in Kenya accumulating to excess of a quarter million annually, the government has only been able to supply just about 40,000 units annually which has contributed to the growing housing problem in the country. This has led to the government designating affordable housing as a key government policy geared towards addressing the problem through Bottom-Up Agenda- Affordable Housing Programme.

This chapter therefore discusses in detail the housing situation in the Municipality particularly the housing typologies, condition of the shelters, amenities within the shelter and access to such shelters in terms of affordability, so as to inform housing delivery interventions.

8.2 Patterns and Trends of Human Settlements

The municipality is characterized by a dense CBD/urban core, immediate Sub-urban zone with both planned and ad-hoc sprawling development as well as an immediate rural hinterland where most of the agricultural and quarrying activities are practiced. This type of patterns is seen to be replicated across all the commercial nodes within the Municipality.

Figure 23; Urban Forms and pattern in Engineer Municipality

8.3 Housing Typologies

Housing typologies in the municipality vary depending on a number of factor key among them location and ownership. Flats and apartments represent just 7.4% of the housing stock and are primarily located in the main centers such as Engineer, Ndunyu Njeru, and Murungaru, mainly as rental options. Semi-permanent homes make up the majority, comprising 55.3% of the housing in the municipality. Bungalows and row houses account for 18.1% and 16.1%, respectively, and are distributed throughout the municipality. In contrast, mansionettes only represent 3.1%. Additional housing typologies include mud structures, houses made from corrugated iron, and wooden houses, which are predominantly found in the peri-urban and rural sections of the municipality.

Figure 24; Housing Typologies in the Municipality

8.3.1 Building Materials

Based on the 2019 Kenya Population and Housing Census, it was found that in the Nyandarua South sub-county, from which the municipality originates, 50.3% of households have earthen floors, whereas 37.4% utilize concrete. Regarding wall construction, 24.5% of structures are made with stone and cement, while 16.8% are built with timber.

This observation was also supported by the findings from the field survey. The primary materials for flooring consist of 43.6% concrete, 23.6% earth, and 2.2% timber. For wall materials, 23.5% of constructions use stone and cement, 19.3% rely on corrugated iron sheets, 24.4% use wood, and 7.5% employ mud. 99% homes used corrugated iron sheets for roofing.

Its notable that Engineer Municipality has a mix of both urban and rural character since most houses being constructed continue to utilize semipermanent materials with the majority of stone houses being located in urban areas of the municipality.

8.4 Housing Demand and Supply

As at 2019, Engineer municipality had a total of 25,822 households from the then estimated population of 93,870 with an average household size of 5 for Nyandarua County. The demand for housing in the municipality is influenced by increased population as a result of devolution and immigration and its new attained status of being a municipality. As is the norm in Kenya,

private individuals are the main providers of housing due to minimal investment in the sector by government agencies. Engineer Municipality is however a beneficiary of affordable housing Programme under the Bottom- Up Agenda where approximately No. 200 units are currently under construction.

8.5 Housing Stock and Projections

The population projections undertaken reveal that Engineer Municipality is a fast-growing urban area. With a mean household size of 5, the projected housing stock would be a total of approximately 33,468. This translates to about 7,000 additional households by the end of the plan period. These expected dynamics catalyzed by the expected population rise would significantly impact on the spatial framework of the Municipality.

In line with this reality, the County Government has set aside 2.8 hectare of land in which it is seeking partnership with National Housing Corporation to develop. Also, it has invited mortgage and financial institutions to facilitate realization of affordable housing especially in the municipality.

However, the County should also embark on carrying out regular Housing Surveys to assess the housing needs according to the social and low-income housing cadres. This will entail an assessment of socio-economic household characteristics that relate to effective demand such as household income, disposable income, interest rates on mortgages, tenure security status, etc. The information will help determine the demand for housing of various types, prices, rents and affordability, and the data will feed into the economic model for the Affordable Housing Programme and assist in decision-making. This strategy will involve expanding the housing stock within the Municipality, by improving the quality of existing housing as well as providing options for both rental and home ownership.

8.6 Semi-formal Settlements

The general settlement of Engineer is characterized by a strong node of activity. Engineer town which is Located East of Aberdare ranges, is connected by road to Njabini, Naivasha and Ol'kalou. Most of the settlements in the Municipality, depict informality characteristics such as inadequate basic physical and social infrastructure services. Insecurity of tenure especially in urban towns (Gathara, Matopeni, Memo, Weru), inhibits proper planned development, and utility service provision such as water, sewerage, roads and storm water drainage.

The minor urban growth centres (Ndinda, Murungaru and Ndunyu Njeru) define the secondary settlement in Engineer. These mainly have linear growth pattern that capitalized on existing infrastructure especially roads. Most of these centres are expanding laterally forming a high-density residential neighbourhood in the area. The residential settlement in Ndinda, Murungaru and Ndunyu Njeru observes a grid pattern of development. Note the dukawallas serves as residential houses with single rooms built behind the shops. Most of these provide housing to the workers in the nearby large farms, flower/horticulture farms and quarry workers.

All the data above was obtained from questionnaires filled by residents of the municipality during a reconnaissance exercise conducted by the committee during the preparation of this document.

8.7 Key Planning Issues

Table 30; Key Planning Issues

Sub-sector	Planning issue	Opportunity
Informal settlements	• Mushrooming of informal settlements without basic social and physical infrastructural services. • Lack of security of tenure especially within the urban and trading centres • High level of unemployment hence high rate of crime and violence within the settlements.	• Existence of slum upgrading programmes that can be used to upgrade the settlements
Affordable Housing	• Social dynamics such as accessibility and equity, social amenities, security, health and comfort, housing quality • Economic dynamics such as rate of unemployment, housing prices, rental costs, interest rates on mortgages, construction costs, maintenance costs • Environmental dynamics such as energy-efficient buildings, proper waste management and disposal systems	• Participatory affordable and sustainable housing delivery programmes • Objective(supply-side) and subjective(demand-side) housing subsidy programs • Public infrastructure such as roads, water supply and treatment, sewerage, public green

		spaces improvement to bolster access and spur investment in housing.

9. CHAPTER NINE - LAND ANALYSIS

9.1 Overview

This Chapter outlines the current state of land, covering tenure systems, land use and cover, and factors driving changes in land matters within the Municipality. The aim is to realize the land's potential as a resource and a production factor. Additionally, it emphasizes the necessity of developing supportive policies and regulation ns for key economic sectors like agriculture, tourism, industrialization, and infrastructure development.

9.2 Land Tenure

According to Article 61 of the Constitution of Kenya (2010) and the National Land Policy (2009), there are three categories of land tenure in Kenya: private land held by individuals either under a freehold tenure system o leasehold system, public land managed by the Government or State agencies, and community land owned by a community based on ethnicity, culture, or similar interests. Leasehold land has specific ownership conditions based on the lease period, while freehold and community lands offer exclusive ownership rights.

Most of the freehold land is located in the peri-urban and rural areas of the municipality, while leasehold land is primarily found in Engineer Township and market centres.

9.3 Land Use

Currently, majority of the land within the municipality is used for agriculture, primarily because the area is largely rural. However, as the town expands, there is a need for effective land use planning to accommodate other urban functions and supporting infrastructure, while ensuring that the agricultural sector is not adversely affected.

9.3.1 Existing Land Use

An analysis of the current organization of land use in Engineer Municipality depicts generally mixed development. This arises largely from lack of a well-defined zoning policy. This has led to mixed developments in the entire area. Proper land use Planning and land use zoning plays a major role in creation of cohesive neighborhoods. There are presently two major existing Land uses in namely: Agricultural and Conservation. Generally, all land use types are found in the municipality although there are some discernible patterns that emerge depending on the various land use types.

9.3.2 Residential Land Use

Residential land use in Engineer is concentrated mostly within the satellite towns and their periphery. Most of the residential land uses are on freehold tenure system. The areas are not planned and therefore they are not well serviced with all infrastructure services and amenities. These plots cannot be easily accessed and therefore there is no proper reticulation system. Most of the developments have taken form without proper planning regulation and standards.

9.3.3 Commercial Land Use

The commercial activities are located mostly along the roads and especially along the Njabini-Olkalou road and within the town centers. This is evident with the existence shops, markets, financial institutions, hotels, bars, lodges and guest houses within the CBD. Informal business activities are also common with evidence of water vending, hawking, Mitumba market.

9.3.4 Industrial Land Use

There are existing industrial land use majorly agro-processing industries mainly milk processing. Other industrial activities include metal fabrication, wool processing and lumbering. There is still room for the expansion of industries in Engineer, due to the fact that the area is strategically situated in an agricultural productive.

9.3.5 Educational Amenities

Educational facilities are generally spread in the planning area and are mixed with other developments. The educational facilities found include pre-primary, primary, secondary and post-secondary training facilities. There are a number of other private commercial training institutions that offer diverse courses such as driving, business, computer and other skills.

9.3.6 Public Purposes

There are various public purpose plots in the planning area. These include land occupied by various public agencies such as chiefs' offices, Subcounty Offices, Health Facilities, municipal offices, Police station, and other Government HODs.

9.3.7 Public Utilities

Engineer lacks land under the traditional public utilities such as waste disposal and cemetery plots. This is also partly explained by the absence of and encroachment of existing public land.

9.3.8 Recreational Areas

There is limited land for recreational facilities in Engineer. This is partly explained by lack of public land since most of Engineer is developed on private land. The major recreational area

is the playfield in the CBD. There are Foot Ball Grounds in both secondary and primary schools. Most of the other recreational areas are informal and consists of children playing grounds that exist on private plots.

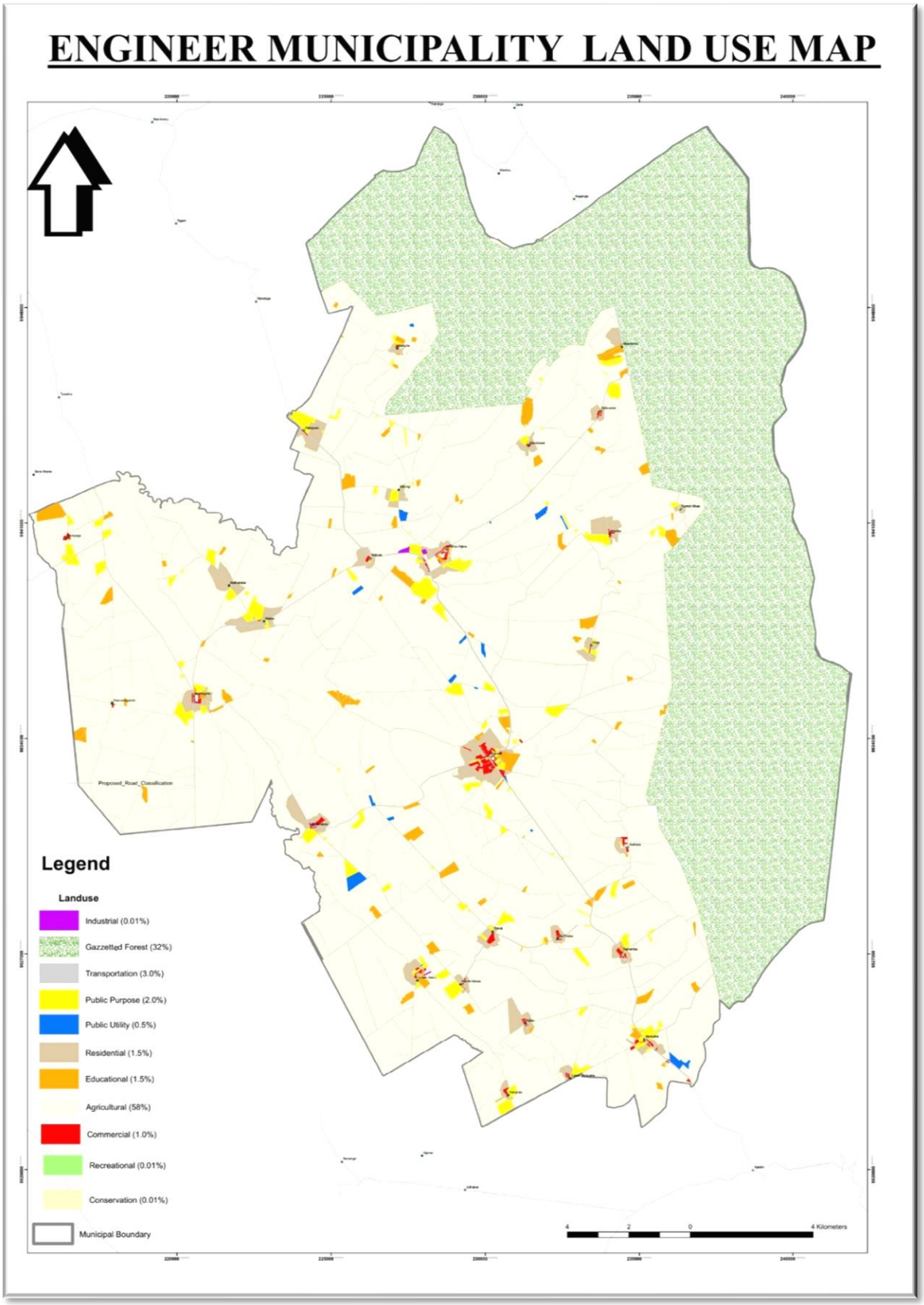
9.3.9 Transportation

Land under transportation land use mainly includes that occupied by roads. Most of the internal roads are not well designed and many of them are narrow with some upto 4 meters. There is need to formulate a comprehensive transportation policy for the town that will seek to avail more land for an efficient transportation network.

9.3.10 Agricultural Land

Large areas within the planning area are still under agriculture. Large areas are under farming activities although there is threat from urban expansion. There is cultivation of potatoes, peas, cabbage, French beans and carrots. Livestock rearing is also highly practiced with dairy farming, goat keeping and even apiculture. The major source of livelihood is farming and dairy keeping that residents strongly feel that the long-term plan strategies must include the establishment of agroprocessing industries such as milk processing and potato.

S/no.	Land Use	Existing Area (KM^2)
0	Residential	7.965
1.	Industrial	0.0531
2.	Educational	7.965
3.	Recreational	0.0531
4.	Public purpose	10.62
5.	Commercial	5.31
6.	Public utility	2.655
7.	Transportation	15.93
8.	Conservation	169.92
9.	Agriculture	307.98



Map 21; Land Use Map

9.4 Land Administration and Management

Accessibility to land and related services is crucial for economic productivity. Effective land administration and management involve accurately documenting land users to ensure land rights, promoting tenure security, guiding land transactions, resolving land disputes, and managing land-related finances.

Significant reforms have transformed the land administration process in the past decade, following the promulgation of the 2010 Constitution of Kenya, the adoption of the National Land Policy in 2009, and the Land Act of 2012. These reforms aim to repair and coordinate the previously fractured system. Land administration is a multidisciplinary process involving professionals from various fields, including physical planners, surveyors, land valuers, land administrators, lawyers, architects, and engineers. Therefore, coordination and continued reforms are necessary to streamline land use and management operations.

At the national level, Article 67 of the Constitution and Section 231 of the National Land Policy provide for the establishment of the National Land Commission. This commission is responsible for managing public land on behalf of the national and county governments, ensuring equitable and sustainable land administration and management.

9.5 County-Level Land Administration

At the county level, land administration is carried out by agencies and institutions from both the national and county governments. The National Land Commission (NLC) has decentralized its services by establishing County Coordination Offices in Nyandarua County, as stipulated in Sections 4(2) and 16(5) of the NLC Act, 2012 (amended 2016). These offices represent the Commission at the county level, especially following the dissolution of the County Land Management Boards (CLMB) due to the repeal of section 18 of the NLC Act in 2016. The NLC County Coordination Office is responsible for:

- Enhancing the secure storage, access, and retrieval of land records.
- Ensuring access to and use of land for socio-economic development.
- Building capacity to improve efficiency and transparency in county service delivery.
- Participating in development control activities.
- Developing and implementing revenue generation mechanisms.

The County's Department of Lands, Physical Planning, Housing and Urban Development is responsible for processing and approving development applications, delineating land for

development to public institutions and individuals, setting aside land for public use, generating and collating revenue, documenting public land, and maintaining and updating land records.

Below is a list of the actors at both national and county levels mandated to manage land issues in the country.

Table 31; Agencies Mandated to Handle Land Issues in Kenya

Level of Government	Agency/Directorate	Level
National Government	National Land Commission	• Management of public land on behalf of the national and county governments • Oversight and monitoring of land use planning across the country • Alienation of public land
	Director-General of Physical Planning	• Advising the government on strategic physical and land use planning matters • Formulating policies, guidelines, and standards • Providing capacity building and technical support to county planning staff
	Director of Survey	• Establishing and maintaining a national geodetic control network to support other surveys and research • Producing and maintaining plans of property boundaries to aid land registration • Producing and continuously updating national topographical basic maps • Maintaining national and international boundaries • Preparing and publishing the National Atlas of Kenya as documentation of national heritage and to promote the nation's identity

	Director of Land Administration	• Establishing and overseeing land control boards. • Processing and endorsing development applications, including granting consents for charges, leases, or transfers. • Processing ownership documents like titles or grants for public and community properties. • Allocating land for public use and maintaining custody of land records. • Documenting public land and preserving delicate ecosystems such as wetlands and water catchment areas to support conservation efforts.
	Land Registrar	• Registers land titles, and leases
	Land Control Board	• Issue approvals for transactions such as the sale, subdivision, or transfer of agricultural land (freehold land) based on ownership and family-related considerations. • Authorize transactions such as the sale, transfer, or mortgage of shares in private companies or cooperative societies that possess agricultural land.
County Government	County Executive Committee Member of Lands and Physical Planning	• Facilitating the integration of county physical and land use planning functions with sectoral planning processes across various levels. • Developing and implementing policies and strategies for effective land use management.
	County Director of Land Use and Physical Planning	• Providing advice to the county government on matters of physical and land use planning that affect the county. • Developing policies, guidelines, and standards for county physical and land use planning. • Preparing comprehensive physical and land use development plans for the county and

		local areas. • Contributing to the creation of inter-county physical and land use development plans. • Conducting research on county-level physical and land use planning issues. • Recommending the establishment of planning units as necessary to enhance planning efforts. • Maintaining a land information system to support informed physical and land use planning decisions. • Communicating the county government's decisions regarding development applications. • Granting development permissions and issuing development control instruments as stipulated by this Act, subject to the approval of the county executive committee member.
	County Director of Survey	• Conduct surveys to identify and document public land. • Establish a Geographic Information System (GIS) and Land Information System (LIS) database for efficient spatial data management. • Ensure effective land and property management to support accurate land documentation and optimize land taxation processes.
	Registered Physical Planners	• Review and process development applications submitted to the county. • Provide the county with recommendations on innovations and advancements in the land and planning sector.
	Land Surveyors	• Confirming land boundaries for accuracy and compliance.

		• Placing beacons for approved subdivision and amalgamation schemes. • Amending the cadastre to reflect updated land subdivisions or amalgamations. • Preparing deed plans for land documentation and registration.

9.6 Land Challenges in Engineer Municipality

In Engineer Municipality, irregular allocation of public land and inconsistent development planning are significant challenges. These issues hinder effective surveying and titling, leading to land use conflicts, weak development controls, and limited availability of public land for essential facilities.

A recent land audit revealed disputes over ownership and widespread encroachment on land reserved for public utilities, with questionable documents such as allotment letters and forged title deeds being common. Contributing factors include the proliferation of multiple Part Development Plans (PDPs), double land allocations, misuse of authority by officials, and the absence of an updated master plan.

These challenges have slowed municipal development and complicated the approval of development applications due to ownership uncertainties. Additionally, they have resulted in revenue losses and insufficient provision of public amenities.

9.7 Land Availability and Suitability

A significant portion of the municipality is suitable for development, primarily especially the eastern side where the terrain is relatively gentle. This makes it more feasible for urban development and infrastructure projects. Conversely, the remaining of the area is unsuitable for development due to its hilly terrain in the western part, which poses challenges and higher costs for constructing infrastructure.

9.8 Land Subdivision Patterns

The municipality has instances of both fixed and general surveyed boundaries. Fixed boundaries are common within the town centers where plots have been subdivided to smaller portions of 1/8 acre plots. These lots are mainly for residential and commercial uses.

On the other hand, general boundaries are common in rural areas of the municipality where people still own large tracts of land and are mostly used for agricultural use. During the survey,

it was noted that these general boundary parcels are prone to boundary disputes since the boundaries are not accurate.

9.9 Land Value and Markets

The rapid urbanization of Engineer Municipality, driven by improved infrastructure and increasing migration, has significantly raised land values, now ranging from 2.5 million to 10 million per acre. This growth, while boosting economic opportunities, has created challenges such as unplanned land subdivisions, the conversion of agricultural land into residential and commercial zones, and mounting pressure on existing amenities. The influx of people has also led to rising unemployment and social issues, underscoring the need for better urban planning. To ensure sustainable growth, the municipality must implement comprehensive zoning regulations, expand infrastructure to meet rising demands, and engage stakeholders in preserving agricultural spaces while promoting affordable housing.

9.10 Key Planning Issues

Table 32; Key Planning Issues

Sector	Planning Issues	Opportunities
Physical planning	• Uncoordinated Planning Activities	• Establish a centralized land use coordination office within the municipality to oversee and integrate all subdivisions and land allocations, ensuring they align with municipal plans and zoning regulations.
	• Absence of an Up-to-Date Physical and Land Use Development Plan	• Develop and adopt a new physical and land use development plan using digital tools like GIS for accurate mapping and long-term sustainability, with provisions for regular updates.

	• Land Use Conflicts	• Enforce zoning laws that designate specific areas for agriculture and real estate development, ensuring that farming zones are preserved to support food security.
	• Predominance of freehold land ownership in Engineer Municipality poses planning challenges	• Freehold ownership grants landowners' significant autonomy over land use, which can lead to fragmented and uncoordinated development.
Land Administration and Management	• Analogue land processing systems causing delays and loss of documents, revenue. • Lack of an integrated Land Information Management System (LIMS) leading to duplication and uncoordinated land management. • Outdated and low coverage of the existing valuation roll leading to loss of revenue and malpractices. • Inadequate human resource capacity to effectively handle land management and administration.	• Digitization of land administration and management processes. • Adoption of electronic systems for development application, land registration, and valuation. • Utilization of planning as a tool to guide and promote development.

	• Weak link between land control board and development control. • Double allocation and grabbing of public land; 400 plots with disputed ownership and 1,526 encroaching on public land. • Uncoordinated planning activities within the municipality caused by informal subdivisions and land allocations. • Absence of an up-to-date physical and land use development plan. • Non-implementation of the existing development plan. • Land use conflict between farming/food security and real estate development.	

10. CHAPTER TEN: MUNICIPAL ADMINISTRATION AND INSTITUTIONAL FRAMEWORK

10.1. GOVERNANCE

10.1.1 Institutional Framework

Engineer Municipal Board is the top most in the institution framework. The municipality has established committees to support the board within existing guidelines (Urban Areas and Cities Act 2011) as shown below.

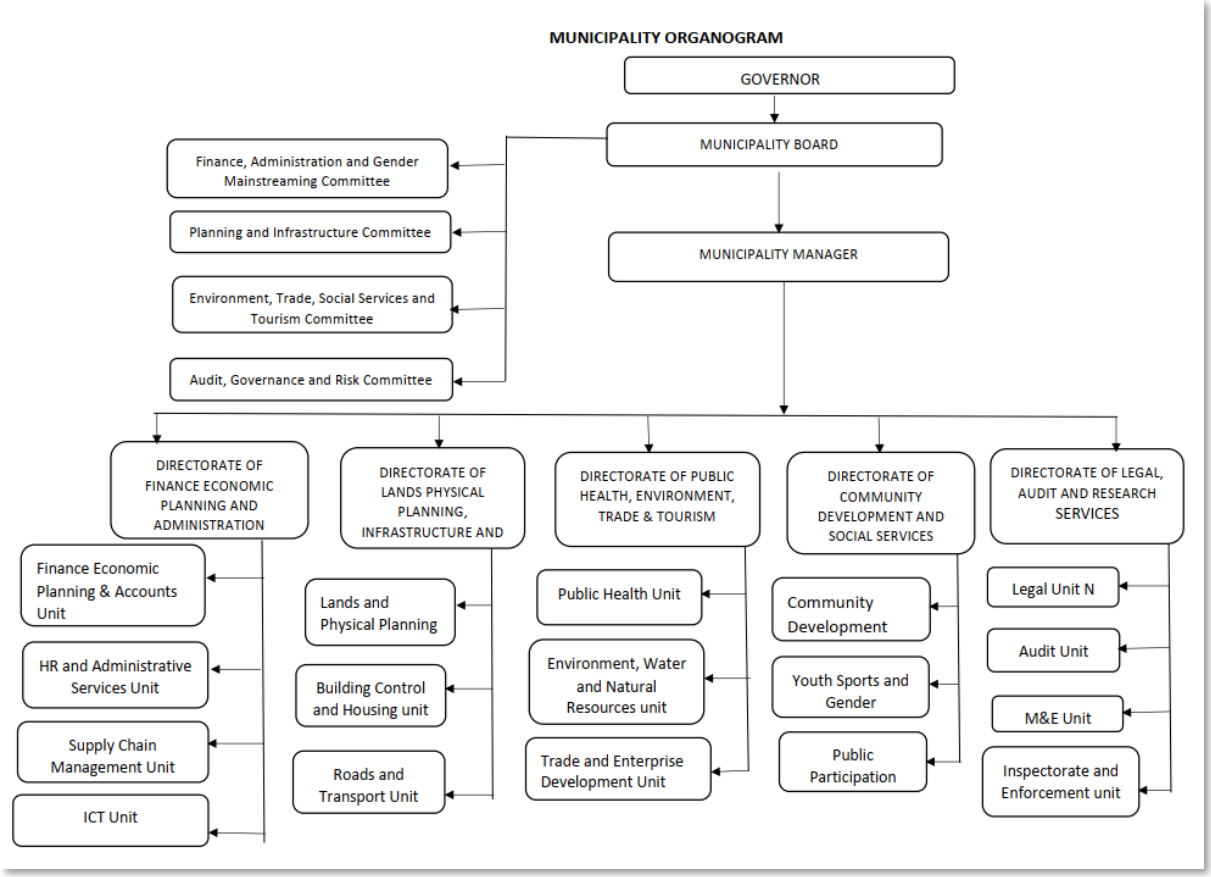


Figure 25; Municipal Governance Structure

Source: County Department of Human Resource Management.

The executive arm is led by a Municipal Manager who supervises the administrative and technical staff and is tasked with implementing the decisions of the board through the various directorates as shown below:

10.1.2 Staff Establishment, Skills Set and Competence Development

To ensure the successful implementation of Engineer Municipality's ISUDP, it's imperative to have optimal staffing equipped with the right skills and competencies. The municipality's staff establishment, as outlined in Table 6.1, provides a framework for this endeavor. Achieving optimal staffing involves aligning staff positions with the plan's requirements, assessing existing skill sets, addressing skill gaps, and ensuring staff possess the necessary competencies. By focusing on these aspects, Engineer Municipality can enhance its capacity to execute the ISUD Plan effectively.

Table 33; Staff Establishment

S/NO	Position	Proposed	Optimal Staffing levels	In-post	Variance	Job group
1.	Municipal Manager	1	1	1	0	Q
2.	Municipal Accountant	2	2	2	0	P
3.	Municipal Economist	1	1	1	0	N
4.	Physical planner	2	1	1	1	N
5.	Land Surveyor	1	1	1	0	K
6.	Clerk of Works	2	2	0	2	K
7.	Municipal Environment Manager	1	1	1	0	N
8.	Enforcement Officer in Charge	1	1	0	1	K
9.	Enforcement Officers	10	10	0	10	H
10.	Administrative officer	1	1	0	1	K
11.	Procurement Officer	1	1	1	0	K
13.	Street Sweepers	15	15	0	15	D
15.	Secretaries	1	1	0	2	J
16.	Drivers	2	2	0	2	E
18.	Community Development officer	1	1	0	1	M

19	Social officer	1	1	1	0	K
19.	Internal auditor	1	1	1	1	K
20.	Clerical Officers	1	1	0	3	H
21.	Project Manager	1	1	0	1	K
22.	Revenue Officer	1	1	0	1	K
23.	Revenue clerks	5	5	0	5	H
24.	Architecture	1	1	0	1	K
25.	Civil Engineer	1	1	0	1	N
26.	Quantity Surveyor	1	1	0	1	K
27.	Public health officer	1	1	0	2	K
28	Human Resource Officer	1	1	1	0	K
	Total	**57**	**56**	**11**	**51**	

Source: County Department of Human Resource Management.

Engineer Municipality has recognized significant staffing shortfalls by comparing the required staff establishment with the current staff in post. To address this and ensure optimal service delivery, a detailed analysis of staff skills and competencies was conducted, as outlined in Table 27. This analysis identifies existing skills and any gaps, informing targeted human resource development efforts. By addressing these gaps through training or recruitment, the municipality aims to enhance its workforce's capabilities and improve overall service delivery effectiveness.

Table 34; Skills Set and Competence Development

Cadre	Skills set	Skills Gap	Competence Development
S-T	• Public policy research and implementation • Finance management and resource mobilization • Conflict resolution • Strategic planning	• Leadership, teamwork and supervisory skills • Financial management	• Strategic leadership and development • Finance management and resource mobilization

	• Leadership, teamwork and supervisory knowledge • Capacity development • Analytical and reporting skills	• Strategic management	
P-R	• Public policy research and implementation • Conflict resolution • Strategic planning • Leadership, teamwork and supervisory knowledge • Capacity development • Analytical and reporting skills	• Leadership, teamwork and supervisory skills • Strategic planning • Negotiation	• Strategic leadership and development • Conflict resolution and alternative dispute resolution
K-N	• Data collection, compilation, and documentation • Computational, Analytical and report preparation skills • Teamwork coordination and interpersonal skills • Project planning and organizational skills • Supervisory skills • Relevant technical ICT skills	• Relevant computational skills • Project planning and management • Leadership • Relevant technical ICT skills	• Senior management course • Relevant computational course/training • Technical based ICT course/training • Project planning and management
H-J	• Data collection, compilation, and documentation • Computational, Analytical and reporting skills • Relevant technical ICT skills	• Relevant computational skills • Relevant technical ICT skills	• Relevant computational course/training • Relevant technical based ICT course/training

	• Organizational skills • Teamwork and interpersonal skills		
A-G	• Strategic management skills • Problem-solving skills • Interpersonal skills • Organizational skills • Analytical skills • Presentation skills • Computing skills • Negotiation skills	• Technical skills • Public relation • Office administration skills • Interpersonal skills	• Public relation and communication • Innovation and creativity in public service • Office administration management

Source: Scheme of Work and Engineer Municipality integrated Strategic urban Plan Preparation Team

10.1.3 Leadership

The implementation of the strategic plan will be spearheaded by the Engineer Municipal Board, which will oversee decision-making and policy directions within the municipality to ensure alignment with broader development agendas. The municipal manager will be tasked with executing these decisions across various directorates, ensuring efficient resource allocation, continuous progress monitoring, and timely resolution of any issues that arise. Collaboration with departments and stakeholders will continue to foster transparency, accountability, and innovation throughout the process. Clear communication, detailed work plans, and performance metrics will remain integral to ensuring that individual roles align effectively with strategic objectives.

10.1.4 Systems and Procedures

Engineer Municipality will align its operations with various laws and policies including the UACA 2011 (Urban Areas and Cities Act), County Integrated Development Plan CIDP 3, Municipal Charter, Constitution of Kenya, Public Procurement and Disposal Act 2019, Public Finance Management Act, County Government Act, and various other pertinent policies and circulars. These frameworks will serve as the cornerstone for the municipality's commitment to adopting and exceeding quality standards while embracing digitalization.

The municipality will spearhead initiatives to demonstrate its unwavering dedication to quality standards by implementing cutting-edge quality management systems, such as ISO 9001.

Through these systems, Engineer Municipality will ensure that its services consistently meet and surpass established benchmarks, fostering a culture of continuous improvement and excellence.

Simultaneously, Engineer Municipality will embark on a comprehensive digitalization journey, leveraging innovative technologies to streamline processes, enhance service delivery, and promote transparency and accountability. E-governance platforms will empower citizens by providing convenient access to information and services, while administrative processes will be digitized to optimize efficiency and resource utilization.

By embracing digital innovation and upholding stringent quality standards, Engineer Municipality will not only meet the evolving needs of its constituents but also position itself as a trailblazer in modern governance practices. Through regular monitoring, evaluation, and stakeholder engagement, the municipality will remain agile and responsive to emerging challenges and opportunities, ensuring sustained progress and prosperity for its community in the future.

10.1.5 Risk Management Framework

In the pursuit of realizing strategic plans, various risks can emerge, potentially impeding progress and threatening organizational objectives. Table 28 outlines various risks, suggested actions for mitigation, monitoring and reporting.

Table 35; Risk Management Framework

S/No.	Risks	Risk Likelihood (L/M/H)	Severity (L/M/H)	Overall Risk Level (L/M/H)	Mitigation Measure(s)	Monitoring Actions	Reporting Actions
1	**Budget Constraints**	Financial	High	High	• Implement cost-saving measures • Seek alternative funding sources • Prioritize strategic initiatives	• Regular review of budget allocations and expenditures • Monitor revenue streams and expense • Adjust budget as needed	• Include financial updates in regular reports • Alert management of any significant budget deviations
2	**Regulatory Changes**	Legal/Regulatory	Medium	Medium	• Stay informed of legislative updates • Engage with regulatory bodies • Conduct impact assessments of	• Regularly monitor legislative developments • Assess potential impact on strategic plan objectives	• Provide summaries of regulatory changes and potential impacts • Recommend adjustments to

					proposed changes	• Update relevant policies and procedures	strategic plan as needed
3	**Political Instability**	Political	Low	High	• Foster positive relationships with stakeholders • Stay neutral and apolitical in operations • Develop contingency plans for political unrest	Monitor political developments locally and nationally- Assess potential impact on operations and objectives - Activate contingency plans if necessary	Provide updates on political landscape and potential risks- Report on contingency plan implementation and effectiveness
4	**Technological Disruption**	Operational/Technological	Medium	High	• Invest in technology upgrades • Enhance cybersecurity measures • Provide staff training on new technologies	• Monitor emerging technologies and trends- Conduct regular cybersecurity assessments- Evaluate staff proficiency in	• Highlight technological advancements and potential risks- Report on cybersecurity posture and training outcomes

						new technologies	
5	**Talent Attrition**	Human Resources	Medium	Medium	• Implement employee retention strategies • Provide career development opportunities • Enhance workplace culture and engagement	• Track employee turnover rates and reasons- Conduct exit interviews to gather feedback- Assess workforce skills and needs	• Report on employee turnover trends and retention efforts- Recommend adjustments to HR strategies as needed

11. CHAPTER ELEVEN: MUNICIPAL REVENUE

11.1 Overview

This chapter explores the various current municipal revenue streams and their projection in the next 10 years. It also delves into the human resource requirements vis a vis the current deployment status.

11.2 Municipal Revenue

Currently, the major municipal revenue sources include Engineer Hospital, business permits/licenses, land and plot rates, county funding, and capital financing. Other sources of revenue include, and agricultural among other cess fees. It is noteworthy that the municipality is yet to be delegated the role of collecting revenues within its jurisdiction by the Nyandarua County Government. Consequently, the daily running's of the municipality are therefore funded by the county while the devolvement process continues. The table below captures the revenue projection by source for Engineer Municipality in the next 10years.

Table 36; Revenue Projection

Revenue Streams	2024/25 (Ksh)	2025/26 (Ksh)	2026/27 (Ksh)	2027/28 (Ksh)	2028/29 (Ksh)	2029/30 (Ksh)	2030/31 (Ksh)	2031/32 (Ksh)	2032/33 (Ksh)	2033/34 (Ksh)	Total Ksh.
Business Permits	11,000,000	12,100,000	13,310,000	14,641,000	16,105,100	17,715,610	19,487,171	21,435,888	23,579,477	25,937,425	**175,311,671**
Land/Plot Rates	5,854,305	6,439,736	7,083,709	7,792,080	8,571,288	9,428,417	10,371,258	11,408,384	12,549,223	13,804,145	**93,302,545**
Agricultural Cess	6,980,202	7,678,222	8,446,044	9,290,649	10,219,714	11,241,685	12,365,854	13,602,439	14,962,683	16,458,951	**111,246,443**
Others Streams	14,552,299	16,007,529	17,608,282	19,369,110	21,306,021	23,436,623	25,780,285	28,358,314	31,194,145	34,313,560	**231,926,168**
County Funding	30,000,000	40,000,000	45,000,000	50,000,000	50,000,000	50,000,000	50,000,000	50,000,000	50,000,000	50,000,000	**465,000,000**
Capital Financing	939,233,433	934,356,471	860,944,231	77,749,801	16,003,047	20,000,000	25,000,000	25,000,000	25,000,000	25,000,000	**2,948,286,983**
Total	**1,051,788,078**	**1,065,166,581**	**1,005,835,351**	**237,630,034**	**186,871,303**	**202,955,081**	**221,250,589**	**235,875,648**	**251,963,213**	**269,659,534**	**4,728,995,413**

PART THREE; PLAN PROPOSALS

12. CHAPTER TWELVE- DEVELOPMENT CONCEPT

12.1. Overview

The development concept of the planning area has been developed out of an in- depth interpretation of the site using its structuring elements leading to delimitation of the site into conceptual and analytical zones. The structuring elements of the area are factors or features which play pivotal role in shaping the nature, form and direction of urban development and growth. Conceptual and analytical zones comprise of the division of the area into parts in accordance with characterization and functionality.

12.2. Structuring Elements

The main factors that have contributed to the current pattern of development within the municipality include: classified roads, ownership of land (freehold tenure), natural features (forests) and physiographic factors such as topography (relatively flat terrain).

12.2.1. Classified Roads

The Njabini-Olkalou (B20), Mawingu- Ol'loliondo-Kagaa-Captain-Wanjohi-Geta-Ndinda-Kirima-(C167) Naivasha (C482) and have contributed to the development of the municipality. The development is taking place along these roads, as they are the only highly accessible corridors. Most of the other roads are narrow earth roads that are inaccessible during wet seasons.

The future growth of the municipality is also expected to be greatly influenced by the same corridors. Considerable linear developments are expected in all the three roads duplicating similar issues of overcrowding if no deliberate planning interventions are put in place. Such growth has the potential to create chaos along these roads and creation of potential transportation bottlenecks. Linear growth also leads to disparities in the provision of safe and efficient services.

This also promotes a linear development of the municipality thus preventing a compact and efficient agglomeration of key urban functions. These roads run through the municipality and act as the spinal cord onto which various urban functions are hooked. This growth presents the following possibilities:

1) Gives the municipality its structure, dictating the nature and direction of urban development

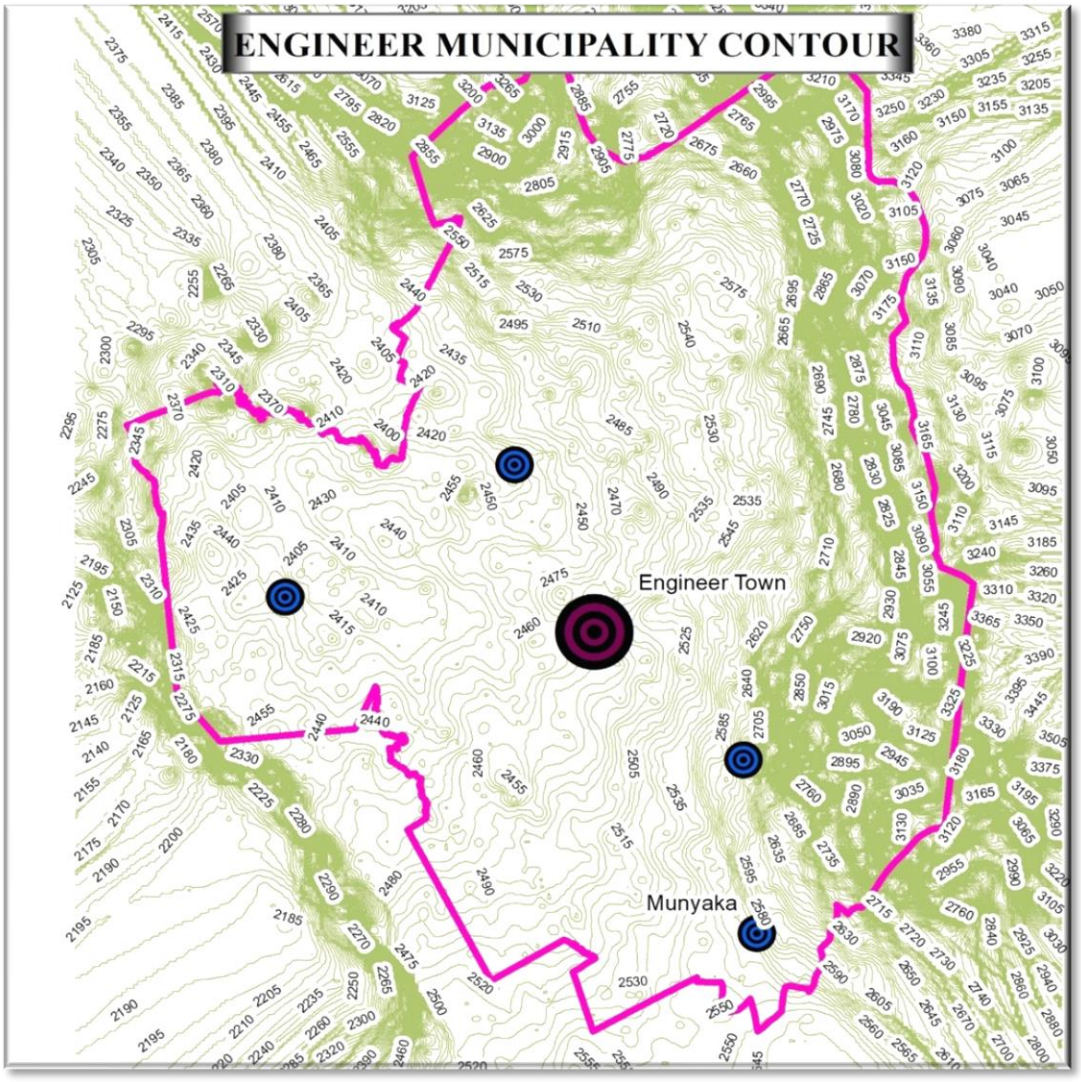
2) While facilitating the flow of vehicular through traffic, it acts as a means for disseminating local traffic to various points, thus providing access to key urban functions.

3) Acts as an organizer, dictating the location of key urban functions and separating incompatible ones.

4) Acts as a means through which the municipality is connected to its local and national regions

12.2.2. Physiographic Features

Majority of the urban development is located in gently sloping areas while those with steep slopes are avoided. The steep slopes cover the forested and hilly areas that are not suitable for urban development.

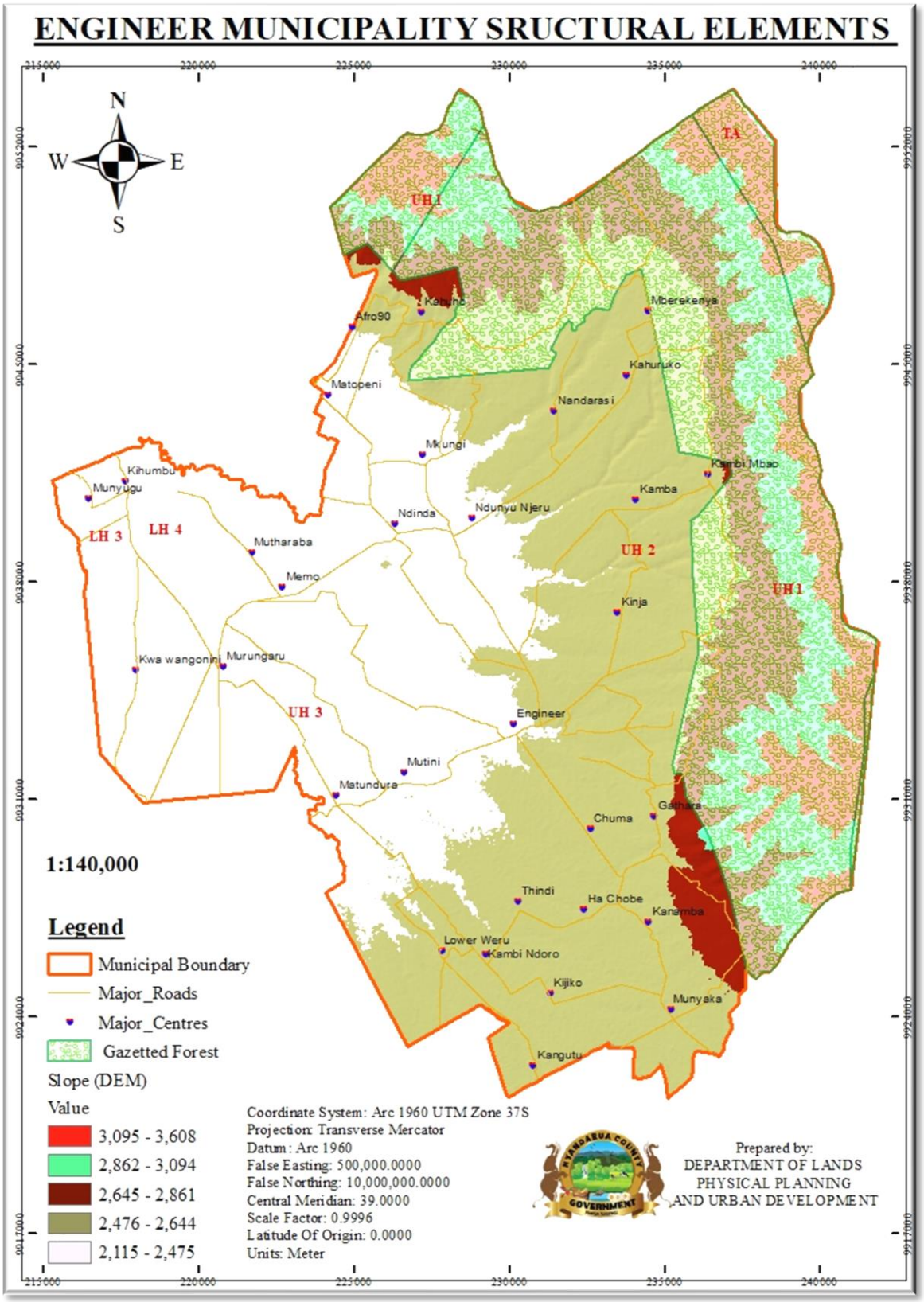


Map 22; Physiographic Features

12.2.3. Land Ownership

Need for current and future land for development of public amenities in Engineer municipality is very limited because huge chunks of land are owned privately who are reluctant to release it for provision of more public amenities. Most of it is currently underutilized. If a considerable size of land is released for public use, it will provide an opportunity for more public amenities.

Land availability is an imperative determinant for plan proposals and allocation of facilities in any municipality. Suitable areas for the various land uses are identified based on the specific need, land availability, land features and capability of sustaining dense urban growth among other factors.



Map 23; Engineer Municipality Structuring Elements

12.3. Conceptual Analysis of the Planning Area

From the analysis of the existing situation and for the purposes of development planning, the Planning Area can be organized into the following:

12.3.1. Core urban area elements

Administrative, Financial, Industrial, Transportation, Educational, Recreational, Residential, Commercial

12.3.2. Emerging Nodes elements

They include Murungaru, Ndunyu Njeru, Munyaka, Weru and Gathara. Major elements of emerging nodes include: Transportation, Commercial, Residential, Educational, Industrial

12.3.3. Agricultural Areas elements

Agricultural land currently takes 58% of the total planning area. Most people in the municipality depend on agriculture as their main economic activity. The agricultural potential that exists within the peri-urban areas of the planning area must be exploited to the benefit of the residents.

12.3.4. Conservation (Ecologically Fragile) Area

Conservation area spans a total of 176 km^2. Conservation area includes the Aberdare Forest and rivers traversing the municipality.

12.4. Current Municipality's Urban Character

The development in the municipality is centre in the urban areas located along major roads. Urban development occurs in both linear and outward form. This development poses a huge threat to the agricultural land that is incrementally shrinking due to land sub-division. The current development pattern for the municipality is conceptually illustrated in figure below

12.4.1. Current Development Scenario

1. Shrinking agricultural land -Rapid land sub-division leading to land fragmentation.
2. Difficulty in service provision due to urban sprawl -Costly in-service provision
3. Skewed development and growth of the urban area -Uncoordinated development outside a planning framework
4. Sprouting of urban nodes with undefined roles and functions- Emerging of new urban areas that lack services
5. Undefined urban growth limits. Unsustainable urban growth

12.5. Modeling Urban Development in Engineer Municipality

Preparation of Integrated Strategic Urban Development Plans for urban areas in Engineer Municipal is informed by both planning philosophy and modern planning principles as follows:

12.5.1. Planning Philosophy- Green, dense and fair urban human settlements

Sustainability is at the heart of any planning intervention. Urban human settlements in Engineer Municipality are relatively young and small in size. This provides opportunity to planning intervention that is aimed at promoting *dense, green,* and *fair* urban areas.

Dense Urban Areas: A compact urban form is preferred since this form reduces dependence on motorized transport. Motorized transport is associated with urban environmental pollution and climate change. Additionally, compact development will improve access to services due to reduction in distance of travel.

Green Urban Areas- the concept of green cities or eco-cities is the in-thing in modern day planning. Planning intervention in Engineer Municipal aims to transform urban areas into green urban areas through promotion of green infrastructure, promotion of green energy use and solar-powered urban and peri-urban agriculture, promotion of rain water harvesting technology, conservation of ecologically fragile sections of urban settlements, urban retrofitting, and conservation of both natural and cultural heritage, among others.

Fair Urban Areas- Promotion of fair urban areas is consistent with modern day planning principles. This involves integrating needs of both the rich and the vulnerable and marginalized groups in urban areas. Both the vulnerable and marginalized groups are normally socially and economically excluded through insensitive planning. Fairness in this case also involves promotion of spatial equity in access to urban infrastructure and services. It is the poor and marginalized groups that are mostly disadvantaged when it comes to access to infrastructure and services but this plan corrects such anomaly through proactive interventions.

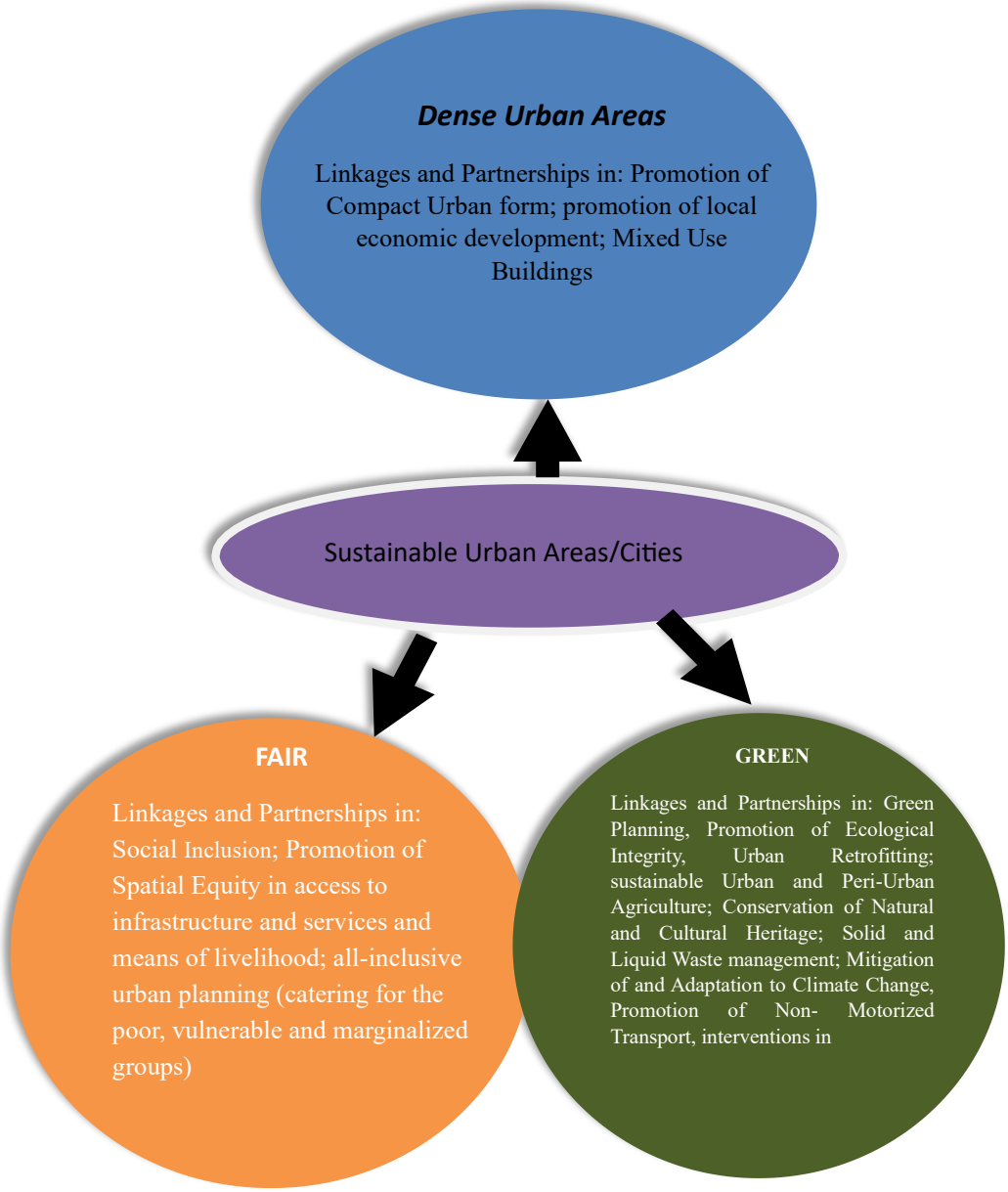


Figure 26; Planning Philosophy

12.5.2. Modern Planning Principles

Preparation of the Integrated Strategic Urban Development Plans (ISUDP) for Engineer Municipal was informed by the following planning principles:

- Promote sustainable urban development
- Achieve integrated planning
- Integration between plans and budgets
- Planning with partners and stakeholders
- Promote market responsiveness
- Equity and Inclusivity
- Ensure access to land
- Be pro-poor and inclusive
- Recognize cultural diversity
- Climate change responsive planning

12.5.2.1. Development Scenario 1: Urban centers as growth poles/ Urbanization scenario

The concept of growth poles developed by Perroux, Boudeville and Lasuén in the 1950s. The concept is based on the hypothetical expectation that urban growth poles will polarise a larger region, through the growth diffusion generated by single large firms or an important economic sector localized in the urban growth pole. In engineer Municipality this model would apply whereby investments would be directed and focused in these urban nodes. The expectation is the growth will diffuse to the adjacent hinterland.

There exist three tiers of urban centres in Engineer Municipality. These tiers are based on the level of services currently being offered within these urban centres against the provisions in the Urban areas and Cities Act, 2011. This scenario proposes that these investments will be directed to these urban centres so that they can adequately serve the larger municipality hinterland.

The centres are interlinked functionally with each centre assigned certain functions to support each other along their hierarchy. The higher-level urban centres support higher level services and hence the hinterland can access these services there. The lower-level urban centres are many and distributed within the hinterland supports the basic services as espoused in the diagram below This model also provides that where a catchment population reaches a certain threshold a new urban pole will be established.

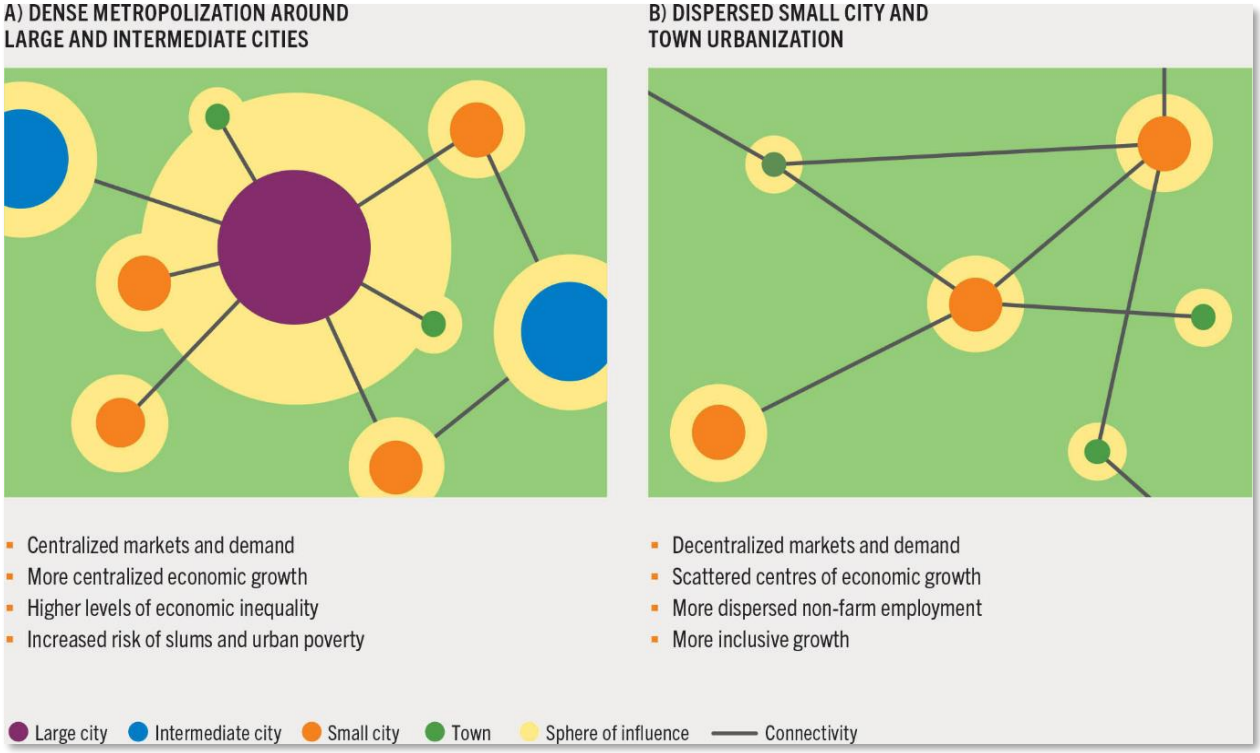


Figure 27; Development Scenario 1: Urban centers as growth poles/ Urbanization scenario

12.5.2.2. Scenario 2: Land Optimization Model

Land optimization, or land use optimization scenario will involve adjusting the composition and distribution of land use types to improve land use efficiency and promote sustainable land uses. These approach aims at achieving optimal ecological, economic and social benefits.

This scenario is based on the theory of comparative advantage, which involves balancing multiple land use objectives, such as economic growth, ecological protection, and social benefits. The goal is to maximize net benefits across all outcomes. This scenario is informed by the existing land use activities. The diagram below espouses what land optimization entails

In Engineer municipality this scenario involves balancing the existing land uses activity with the sole objective of generating the optimum outcomes from the scarce land resources. The structuring elements of the municipality are the slopes, ecologically sensitive areas, gazetted forest existing land uses in the municipality involves agricultural, tourism.

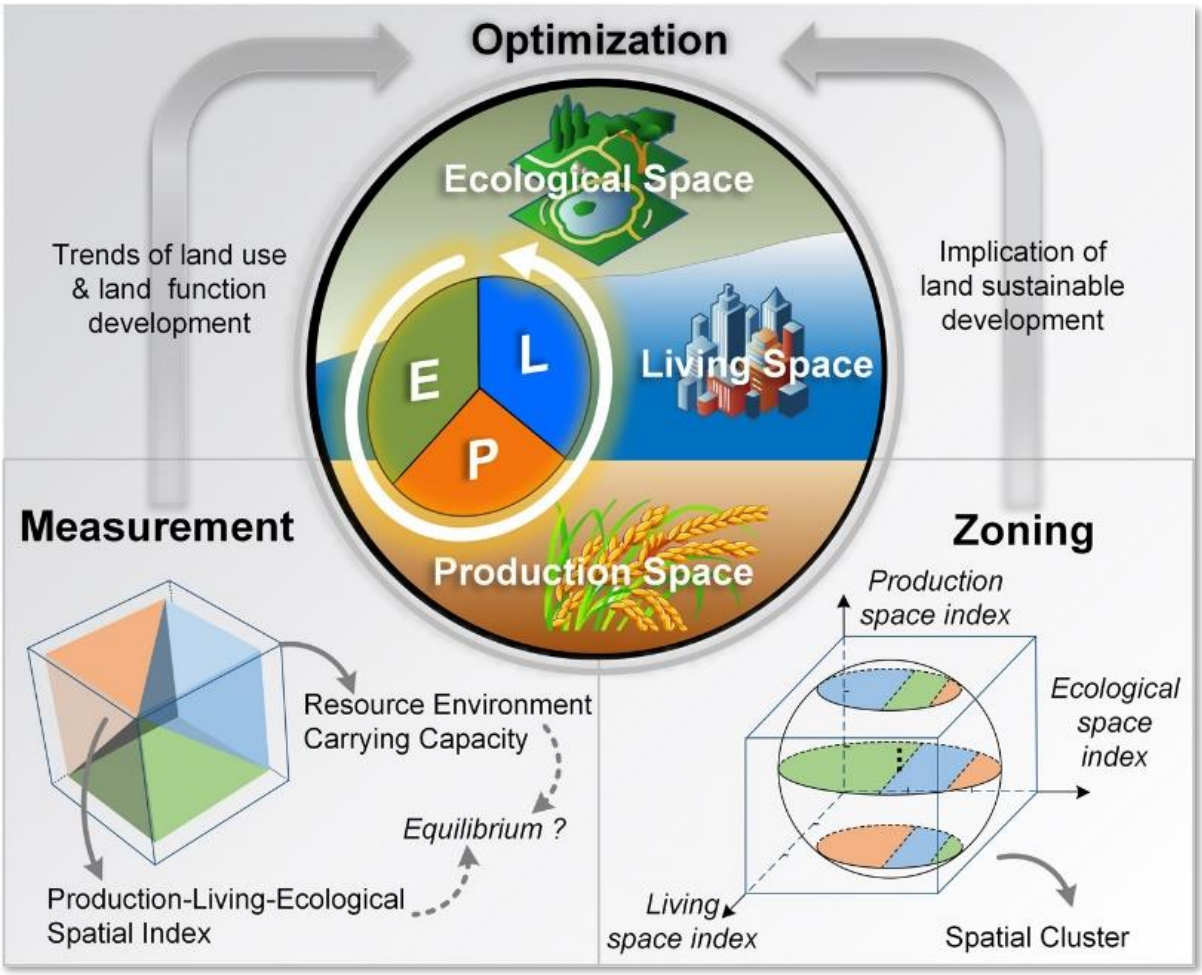


Figure 28; Land Optimization Model

12.5.2.3. Scenario 3: No intervention model

This scenario envisages a situation where the development is allowed to follow its current use trajectories. A zero-intervention scenario in a land use model is a model that assumes no policy intervention and instead extrapolates from historical trends to predict the probable trajectory of land use. In Engineer Municipality development is currently occurring along the main transportation corridors.

This model is not sustainable in the long run. If this model is sustained urban activities will shift from their designated areas to taking place along the transport corridors. Clearing of vegetation cover will continue occurring paving way for human settlements.

12.5.2.4. Scenario 4: Integrated model [preferred model]

This integrated approach incorporates all development sectors, serving as a hybrid framework and foundation for effective development control guidelines. The model ensures:

- **Alleviated Infrastructure Strain**: Reduces pressure on infrastructure in Engineer Municipality by promoting other nodes to secondary and tertiary status.
- **Boosted Investments and Economic Activities**: Encourages increased investments, job creation, and trade opportunities across Engineer and its commercial nodes.
- **Reduced Dependency on Engineer CBD**: Lessens reliance on Engineer's central business district (CBD) for trade, commerce, and infrastructure, ensuring equitable service provision across the municipality.
- **Environmental Sustainability**: Promotes sustainable conservation practices and responsible exploitation of natural resources.
- **Improved Accessibility and Connectivity**: Enhances ward-wide access and connectivity through an interlinked network of nodes.
- **Equitable Service Distribution**: Facilitates improved access to services and facilities throughout the planning area.
- **Broad Economic Benefits**: Ensures trickle-down benefits to secondary and tertiary nodes, spurring growth and development.
- **Orderly Urban Growth**: Promotes controlled, organized urban development aligned with planning goals.
- **Advantages of the Integrated Model**
- **Reduced Infrastructure Strain**: Eases the burden on Engineer Municipality's resources by enhancing service provision across planned secondary and tertiary nodes.
- **Decentralized Development**: Decreases reliance on Engineer CBD by establishing a hierarchy of secondary, tertiary, and local centers.
- **Decreased Traffic Congestion**: Mitigates congestion on major transport corridors and within the CBD.
- **Prevention of Land Fragmentation**: Minimizes subdivision of land into uneconomical parcel sizes.
- **Enhanced Regional Connectivity**: Improves intra- and inter-regional access through better infrastructure and facilities in secondary nodes.
- **Economic Growth**: Expands opportunities for revenue generation, wealth creation, and economic diversification.

- **Accessible Services**: Broadens access to public services and facilities across the municipality.
- **Controlled Urbanization**: Promotes orderly urban expansion while maintaining sustainability.
- **Environmental Conservation**: Ensures protection and responsible management of natural resources.

12.5.2.5 Disadvantages of the Integrated Model

Development Control Requirements: Demands strict enforcement of development control measures to achieve the intended outcomes.

High Implementation Costs: Requires significant financial resources for successful execution.

The Integrated Model is the most suitable approach for Engineer Municipality as it promotes sustainable development both within urban areas and across the region. This model supports socio-economic growth, environmental conservation, and balanced resource distribution. With effective policies, it positions urban areas as engines for rural and regional development, ensuring orderly growth and enhanced connectivity within the municipality.

13. CHAPTER THIRTEEN- THE STRUCTURE PLAN

13.1. Overview

The ISUDP presents the long-term development framework for Engineer Municipality. It indicates broad land use classifications, transportation corridors in relation to land uses, location of utilities and services. The plan in total shows the form, shape, urban development limits, trends and pattern in developments that Engineer Municipality will take. The potential for Engineer to expand/grow is considerable. Its favourable location relative to Central, Rift Valley and Nairobi region circuit suggests that it is likely to continue to grow, probably faster than in the recent past.

Its formal upgrading to municipality status will further propel its growth due to the effort by the board to accelerate infrastructure provision.

Among the main areas that the ISUDP will address include but not limited to the following;

13.2. Infrastructure Availability and Cost

Roads, electricity and water supplies in Engineer are relatively good, so they are not likely to be a disincentive for investment. There are, however, serious concerns about solid waste collection and treatment, firefighting and lack of sewers. However, these deficiencies are shared by most municipalities in Kenya, and so are not likely to place the municipality at a disadvantage over other municipalities. Lastly, the municipality is experiencing growth without a proper planning framework. This plan will highlight the areas of intervention in order to improve the quality of life of residents in the municipality.

13.2.1. Land – Price and Availability

There are few opportunities to obtain land in the municipality itself, and pressure on land is likely to become an increasingly serious problem. Engineer Municipality is today grappling with issues of public land availability while huge chunks of land within the municipality are owned privately. Availability and price are closely connected. One of the objectives of the ISUDP will be to make serviced land available for development in the quantities required. This can be an important factor in attracting certain types of development. Although Engineer Municipality has not fully attracted major industries especially agro-based industries due to lack of adequate space, infrastructure among others, many light industries, service industries and warehousing firms might be attracted to the municipality even with the current minimal space that is available. On land availability, there is also the issue of densification. Within the CBD, there is a considerable amount of under-utilized and low-density development. As the

economy strengthens, land values will increase, and landowners will have the incentive to redevelop (or sell to someone else who will redevelop) their land. This creates a compact urban form where provision of infrastructure and services becomes easier and cheaper. It also prevents urban sprawl and protects the rich agricultural hinterland, which is a vital economic base.

13.3. Population Growth and Needs

Population growth is not directly related to growth in demand for land. There are several factors, of which the most important are:

- How much land within the existing built-up area is unused?
- Will densities increase or reduce in future?
- Are any corrections required to the existing land use pattern, which will affect land requirements?

One of the failures of past planning has been not to expand urban boundaries in advance of population growth. This has resulted in unplanned and haphazard growth outside the boundaries, which not only presents difficulties in subsequent servicing, but also prevents orderly planning of the urban area. It is therefore important to expand boundaries in advance of projected urban growth and thereby enable provision for essential infrastructure in an orderly fashion.

As the County Government continues to hold talks with residents holding large land parcels within the municipality for development, it is also quite in order to extend the existing urban boundaries to create room for more land, as the negotiations may take years or even decades to be achieved. This means therefore that; these parcels of land could remain unutilized for a long time and thus hamper the municipality's growth and the future population needs. It also means high cost of land acquisition from private individuals.

On the eastern side, the municipality boarders Aberdare Forest which plays a significant ecological function of supply of water, food as well as providing opportunities for recreational development.

13.4. Structure Plan's Spatial Development Framework

The Structure Plan for this ISUDP sets out strategic planning policies and forms the basis for detailed policies in local plans. From the stakeholders' expectations and vision, the structure plan is anticipated to decongest Engineer Municipality CBD. The stakeholders envisioned

Engineer Municipality as a commercial and industrial hub. To achieve this, 'Commerce and Industrialization Development Model' will guide Engineer Municipality's development.

To achieve the above, the municipality's growth will be developed around the main activity centers i.e. Strong Centre and Growth Nodes that will act as Commercial and Industrial hubs interlinked by an efficient transport network (corridors).

Core Urban Node–This will be the main/primary economic anchors of the municipality. It will serve as the main commercial and industrial destination points. The plan proposes one strong center i.e. the enhanced Engineer Municipality Core Urban Area.

Growth Nodes – these will be enhanced commercial nodes/growth centers at selected existing market centers along activity corridors based on their strategic location and comparative advantage. The plan proposes Ndunyu Njeru, Murungaru, Munyaka and Gathara as Growth Centers, which will take a densification approach

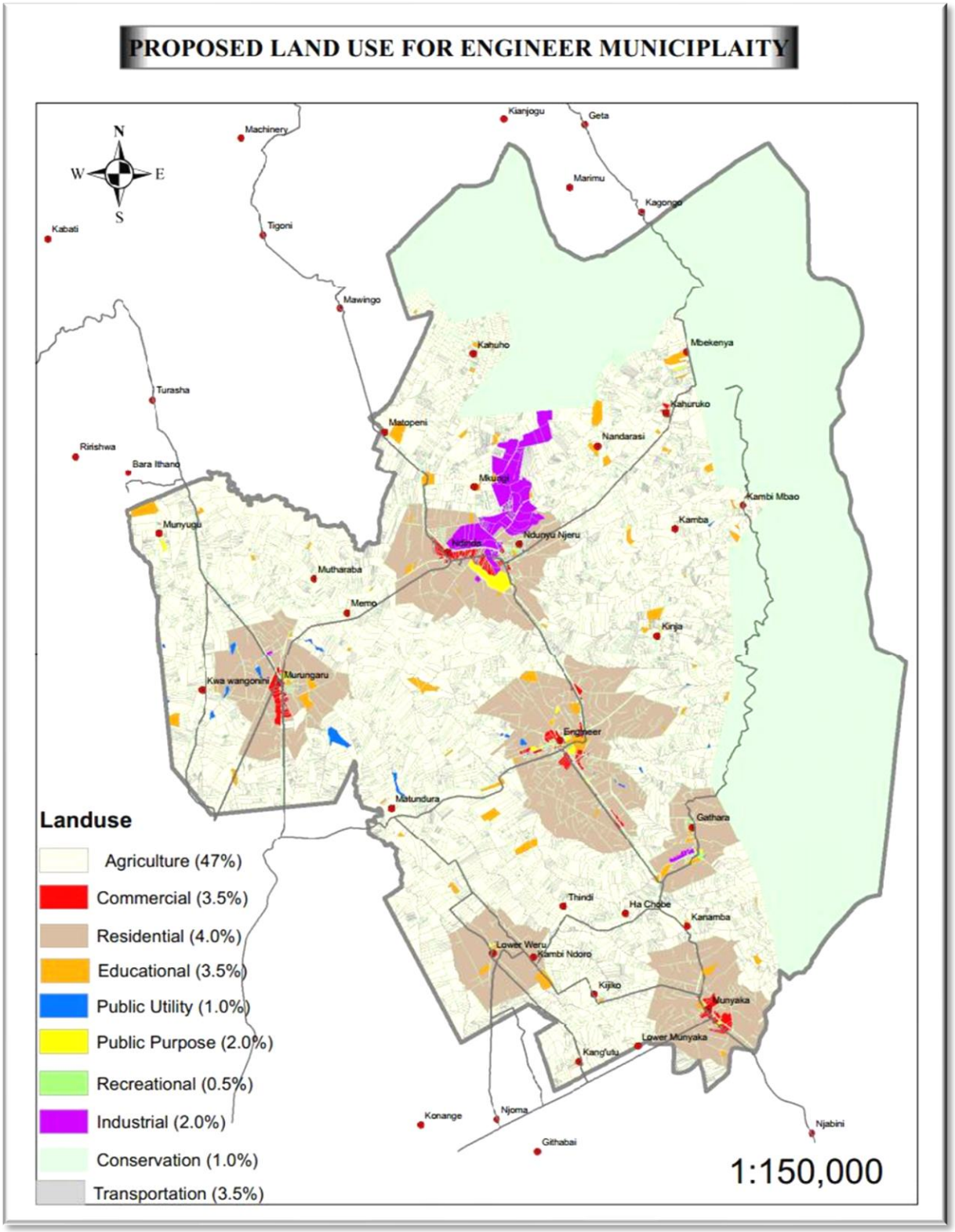
Activity Corridors – these will be the transport networks and their accompanying activities linking strong centers and growth nodes.

Support Centers – these are existing smaller centers along the activity corridors, which will mostly serve to compliment the proposed growth nodes. They will also seek to promote urban agriculture. They include Kanamba, Chobe and Thindi. Although the plan does not propose immediate planning intervention. development in these support centres should be well controlled.

Table 37; Proposed land use budget

S/no.	Land Use	Existing Area (KM^2)	Proposed Area (KM^2)
0	Residential	7.965	21. 24
1.	Industrial	0.0531	10.62
2.	Educational	7.965	18.5855
3.	Recreational	0.0531	2.655
4.	Public purpose	10.62	10.62
5.	Commercial	5.31	18.5855
6.	Public utility	2.655	5.31
7.	Transportation	15.93	18.5855
8.	Conservation	169.92	169.92
9.	Agriculture	307.98	249.57

Proposed Structure plan



Map 24; Proposed Structure plan

13.5. ZONING REGULATIONS AND PLANNING STANDARDS

13.5.1.. Introduction

These Zoning Regulations and Planning Standards are prepared to operationalize the spatial development framework outlined in the Engineer Municipality Integrated Strategic Urban Development Plan (ISUDP) 2024–2034. They provide a comprehensive regulatory framework for land use, development control, and sustainable urban growth, fully aligned with the plan's vision of a well-governed, economically vibrant, socially inclusive, and livable municipality.

The regulations are grounded in the following key legal, policy, and planning instruments:

- The Physical and Land Use Planning Act, 2019 (PLUPA), which mandates zoning for orderly development (Sections 45 and 56).
- The Urban Areas and Cities Act, 2011 (as amended), which requires integrated urban plans incorporating zoning for municipalities.
- The County Governments Act, 2012, which empowers counties to prepare and enforce local physical development plans.
- The National Physical and Land Use Planning Handbook, 2025, which provides model standards for plot ratios, ground coverage, setbacks, parking, and densities.
- The Engineer ISUDP Proposals, which incorporate the structure plan elements (including a strengthened core CBD and designated growth nodes at Murungaru, Ndunyu Njeru, Munyaka, Gathara, and Weru), the land use budget (Table 36), and facility norms (Tables 45–50).
- Borrowed best practices from recent Kenyan Integrated Strategic Urban Development Plans (e.g., Kilifi 2024, Lodwar 2011–2030, Narok 2014, Ruiru 2021) and national guidelines (e.g., development permission procedures under Legal Notice 239/2021).

The zoning framework is guided by the following core principles:

- Sustainability: Promotion of a compact, green, and fair urban form consistent with the ISUDP planning philosophy.
- Inclusivity: Ensuring equity in access to services, provision of pro-poor housing options, and incorporation of designs compliant with the needs of persons with disabilities (PWD).
- Resilience: Integration of climate adaptation measures (such as riparian buffers and stormwater management systems) and disaster risk reduction strategies.
- Economic Vitality: Encouragement of mixed-use development and value-addition activities, particularly in agro-industrial zones.
- Enforcement: Mandatory approval of all developments by the County Physical Planning Department, with non-compliance subject to penalties under Section 90 of the Physical and Land Use Planning Act, 2019.

These regulations apply to the entire 531.10 km² planning area of Engineer Municipality. Urban growth is to be contained within clearly defined boundaries as illustrated in the Proposed Structure Plan (Map 20). Annual reviews of the zoning framework will be conducted in alignment with the County Integrated Development Plan (CIDP) monitoring cycle to ensure continued relevance and effectiveness.

13.5.2. General Development Standards

The following standards apply across all zones unless otherwise specified in the zone-specific regulations. They are intended to ensure consistency in urban form, environmental performance, accessibility, and service provision.

All developments must provide a minimum of 5–10 percent green cover on-site (increased to 10–20 percent in institutional and conservation zones). Rainwater harvesting is mandatory for all new buildings. Non-motorized transport infrastructure (minimum 2-metre pedestrian walkways and 2–3-metre combined walkway/cycle lanes on classified roads) must be incorporated. Parking must comply with the ratios set out in the zone tables, with at least 20 percent of spaces allocated to bicycles in commercial, institutional, and high-density residential areas. Universal design features (ramps, tactile paving, accessible toilets) are required for public and commercial buildings.

Setbacks follow a graduated scale: 1.2–3 metres front for roads under 18 metres wide and 9–12 metres for wider roads; side and rear setbacks range from 1.5 to 9 metres depending on zone and use. Underground laying of utilities (water, sewer, power, fibre optic) is encouraged in all urban zones. Environmental and Social Impact Assessments are mandatory for developments exceeding 0.5 hectares or located in sensitive areas.

13.5.3. Subdivision

Subdivision of land in Engineer Municipality shall be strictly controlled to promote orderly development, efficient infrastructure provision, equitable access to services, and prevention of urban sprawl. All subdivision proposals must comply with the zoning district standards, the Physical and Land Use Planning Act, 2019, and the relevant county development control regulations.

The minimum permissible plot size varies by zoning district and intended use. In high-density residential zones (R3), the minimum plot size shall be 0.045 hectares to support compact, affordable urban housing while ensuring adequate space for basic services and circulation. In other residential zones (R1 and R2), medium- and low-density areas, larger minimum plot sizes apply as specified in the zone-specific regulations to maintain character and prevent over-densification.

Comprehensive subdivision schemes, those creating more than 10 plots or significantly increasing population density, traffic load, or demand for public amenities, shall require preparation of a detailed subdivision scheme, topo-cadastral surveying, and adherence to neighborhood planning principles. Such schemes must provide a minimum access road width of 9 metres for internal access roads to ensure safe vehicular movement, emergency access, and utility installation. Higher-order roads (distributors or collectors) shall conform to the proposed road hierarchy in the Structure Plan, with appropriate truncations at intersections (half the width of the lower hierarchy road).

Applicants for subdivision approval shall surrender 10 percent of the total land area at no cost to the County Government for public purposes. This surrendered land shall be dedicated to roads (excluding reserves already accounted for), open spaces, parks, recreational facilities, community amenities, or other public utilities directly related to the development area. The exact location and extent of surrendered land shall be determined through consultation with the County Physical Planning Department, considering projected population, infrastructure capacity, traffic impact, and zoning compatibility.

Cul-de-sacs shall not be permitted in commercial zones (C1 – CBD) or mixed-use zones (MU) to avoid congestion, improve circulation, and support efficient public transport and non-motorized access. In residential zones, cul-de-sacs may be allowed only where topography or site constraints justify them, and their maximum length shall not exceed 90 metres to ensure safety and serviceability.

13.5.4. Environmental Controls

All developments in Engineer Municipality must incorporate measures to protect the natural environment, mitigate climate risks, and promote resource efficiency, in line with the plan's sustainability and resilience principles.

An Environmental and Social Impact Assessment (ESIA) shall be mandatory for any development exceeding 0.5 hectares in size or located in ecologically sensitive zones (including riparian areas, steep slopes, floodplains, or proximity to the Aberdare Forest). The ESIA must be submitted as part of the development application and approved by the relevant authority (NEMA or delegated entity) before any works commence.

No development shall be permitted on land with slopes exceeding 55 percent, within designated floodplains, or within 30 metres of riverbanks (riparian reserves along rivers Kitiri, Turasha, Muruaki, and others). These restrictions protect against soil erosion, landslides, flooding, and degradation of water resources. Additional buffers of 60 metres shall apply adjacent to declared forest areas.

Solid waste management shall follow the principles of Reduce, Reuse, and Recycle (3Rs). Developers and property owners are required to implement source separation, provide adequate on-site storage, and connect to approved collection systems. In market centres and high-activity nodes, the County Government shall establish designated transfer stations to facilitate efficient waste handling and recycling. Illegal dumping shall attract enforcement action under relevant environmental laws and county by-laws.

These subdivision and environmental controls ensure that land development in Engineer Municipality contributes to a compact, resilient, and inclusive urban form while safeguarding natural assets for future generations. All proposals shall be evaluated against these requirements during the development permission process.

13.5.5. Zone-Specific Regulations

1. ENGINEER TOWN (Municipal Headquarters)

Table 38; Engineer Zone-Specific Regulations

Land Use	Zone No.	Permitted User	Min. Subdivision (Ha)	Min. Frontage (m)	GC % (S)	GC % (U)	PR (S)	PR (U)	Special Conditions
Residential High Density	0_1	Apartments & Hostels	0.045	12	50	40	1.5	1.0	3Bd–1 parking; 2Bd–0.5; 1Bd–0.25
Residential Medium Density	0_2	Bungalow, Townhouse, Maisonette	0.045	12	25	25	0.75	0.75	No apartments
Residential Low Density	0_3	Bungalow, Townhouse, Maisonette	0.1	12	20	20	0.5	0.5	Ample greenery; No livestock; No apartments
Commercial (CBD)	5_1	Supermarket, Mall, Commercial & Allied Uses	0.4	18	75	60	5.0	3.5	Parking within plot
Commercial	5_2	Retail Shops, Showrooms	0.045	15	75	50	3.0	2.0	On-site parking mandatory
Hotels/Offices	5_3	Hotels, Banks, ICT	0.1–0.2	18	75	50	5.0	3.5	Mechanised waste disposal in unsewered areas
Light Industrial	1_1	Storage, Agro-processing	0.1	15	70	70	—	—	Non-pollutant; 1 parking/6–10 workers; NEMA compliance
Industrial	1_3	Processing, Assembly	1.0	18	70	70	—	—	EIA required
Public Facilities	4_7	Schools, Health, Administration	0.1+	15	40	35	1.5	1.5	As per approved master plans
Petrol Filling Station	PFS	Fuel Station	0.1	18	25	25	1.0	1.0	EPRA & NEMA approval

2. NDUNYU NJERU

Table 39; Ndunyu Njeru Zone-Specific Regulations

Land Use	Zone No.	Permitted User	Min. Subdivision (Ha)	Min. Frontage (m)	GC % (S)	GC % (U)	PR (S)	PR (U)	Special Conditions
Residential High Density	0_1	Apartments & Hostels	0.045	12	50	40	1.5	1.0	Parking provision required
Residential Medium Density	0_2	Bungalow, Townhouse	0.045	12	25	25	0.75	0.75	No apartments
Residential Low Density	0_3	Bungalow	0.1	12	20	20	0.5	0.5	No livestock
Commercial	5_2	Retail Shops	0.045	15	75	50	3.0	2.0	On-site parking
Agro-Industrial	1_3	Agro-processing	1.0	18	70	70	—	—	Non-pollutant only; NEMA compliance
Conservation	8	Riparian & Environmental Protection	—	—	—	—	—	—	Riparian reserve protection

3. MUNYAKA

Table 40; Munyaka Zone-Specific Regulations

Land Use	Zone No.	Permitted User	Min. Subdivision (Ha)	Min. Frontage (m)	GC % (S)	GC % (U)	PR (S)	PR (U)	Special Conditions
Residential Medium Density	0_2	Bungalow, Townhouse	0.045	12	25	25	0.75	0.75	No apartments
Residential Low Density	0_3	Bungalow	0.1	12	20	20	0.5	0.5	No livestock
Commercial	5_2	Retail Shops	0.045	15	75	50	3.0	2.0	Parking within plot
Agricultural	9	Horticulture, Mixed Farming	—	—	—	—	—	—	Subject to County agricultural policy

4. MURUNGARU

Table 41; Murungaru Zone-Specific Regulations

Land Use	Zone No.	Permitted User	Min. Subdivision (Ha)	Min. Frontage (m)	GC % (S)	GC % (U)	PR (S)	PR (U)	Special Conditions
Residential High Density	0_1	Apartments & Hostels	0.045	12	50	40	1.5	1.0	Parking provision required
Residential Medium Density	0_2	Bungalow, Townhouse	0.045	12	25	25	0.75	0.75	No apartments
Commercial	5_2	Retail Shops	0.045	15	75	50	3.0	2.0	On-site parking
Light Industrial	1_1	Storage, Agro-processing	0.1	15	70	70	—	—	Non-pollutant; NEMA compliance

5. WERU

Table 42;Weru Zone-Specific Regulations

Land Use	Zone No.	Permitted User	Min. Subdivision (Ha)	Min. Frontage (m)	GC % (S)	GC % (U)	PR (S)	PR (U)	Special Conditions
Residential Medium Density	0_2	Bungalow, Townhouse	0.045	12	25	25	0.75	0.75	No apartments
Residential Low Density	0_3	Bungalow	0.1	12	20	20	0.5	0.5	No livestock
Commercial	5_2	Retail Shops	0.045	15	75	50	3.0	2.0	Parking required
Institutional	2	Schools, TVET	2.0	18	As per Master Plan	As per Master Plan	—	—	Approved institutional master plan required
Conservation	8	Quarry Rehabilitation	—	—	—	—	—	—	As per NEMA guidelines

6. GATHARA

Table 43; Gathara Zone-Specific Regulations

Land Use	Zone No.	Permitted User	Min. Subdivision (Ha)	Min. Frontage (m)	GC % (S)	GC % (U)	PR (S)	PR (U)	Special Conditions
Residential Medium Density	0_2	Bungalow, Townhouse	0.045	12	25	25	0.75	0.75	No apartments
Residential Low Density	0_3	Bungalow	0.1	12	20	20	0.5	0.5	No livestock
Commercial	5_2	Retail Shops	0.045	15	75	50	3.0	2.0	On-site parking
Agro-Industrial	1_3	Agro-processing	1.0	18	70	70	—	—	Non-pollutant industries only
Agricultural	9	Horticulture	—	—	—	—	—	—	Subject to County policy

13.5.6. Development Control Procedures

All development applications in Engineer Municipality must be submitted to the Municipal Physical Planning Unit using the prescribed forms. Each application must include a brief project description, proof of land ownership or lease, a geo-referenced site plan, architectural drawings, and, where applicable, an Environmental and Social Impact Assessment report.

Public participation is mandatory for major developments: a 14-day public notice period must be observed, and comments from affected residents and stakeholders must be considered. The Municipal Physical Planning Unit shall determine applications within 30–60 days, issuing approvals with or without conditions. Applicants may appeal decisions to the National Environment Tribunal or other relevant bodies as provided by law.

Enforcement is the responsibility of the Municipal Enforcement Unit, supported by the County Physical Planning Directorate. Violations attract stop orders, demolition notices, and penalties in accordance with the Physical and Land Use Planning Act, 2019. Regular site inspections and a GIS-based development monitoring system will be maintained to ensure compliance.

13.5.7.Implementation and Enforcement

Implementation of these zoning regulations will be phased, commencing with quick-win activities such as the preparation of detailed zoning plans for the ten priority urban centres within the first two years. Full operationalization of the framework is targeted by 2030, aligned with the mid-term review of the ISUDP.

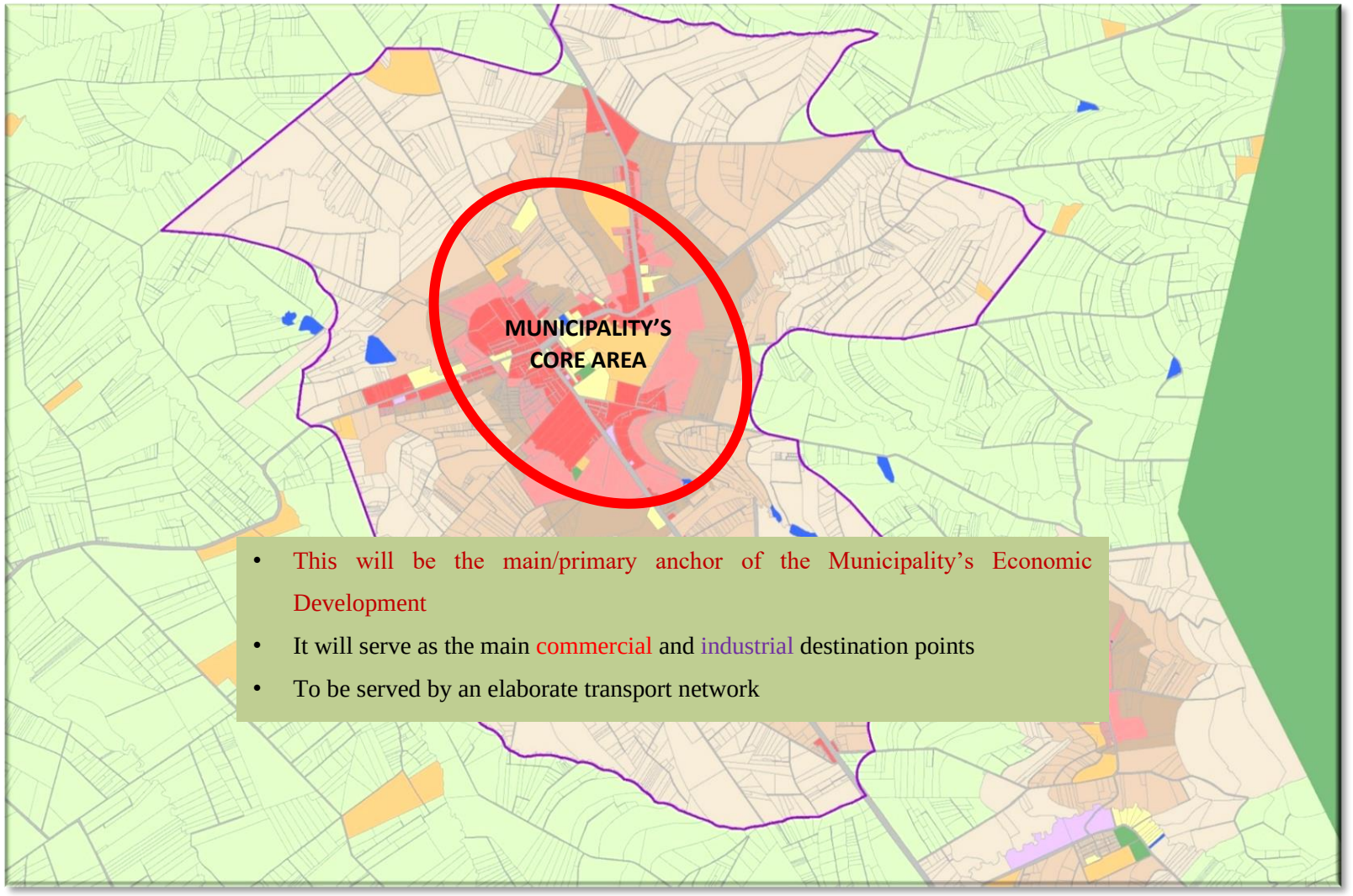
The Municipal Board will gazette supporting by-laws covering parking management, waste disposal, non-motorized transport priority, signage control, and development application fees. A dedicated Development Control Committee, comprising representatives from physical planning, public works, environment, and the Municipal Manager's office, will review complex applications and monitor compliance.

Capacity building will include training of staff in GIS, development control procedures, and enforcement techniques. Incentives such as expedited approval processes and partial fee waivers will be offered for green buildings, affordable housing projects, and developments that exceed minimum green cover or NMT standards.

Periodic review of the zoning regulations will occur every five years, synchronized with the County Integrated Development Plan cycle and the ISUDP monitoring and evaluation framework (Chapter 16). Annual compliance audits and public reporting will ensure transparency and continuous improvement.

These standards ensure Engineer Municipality's transformation into a sustainable hub, balancing growth with its agricultural heritage. For detailed maps and applications, consult the County Director of Physical Planning.

Proposed Strong Center (Enhanced Engineer Municipality Core Area)

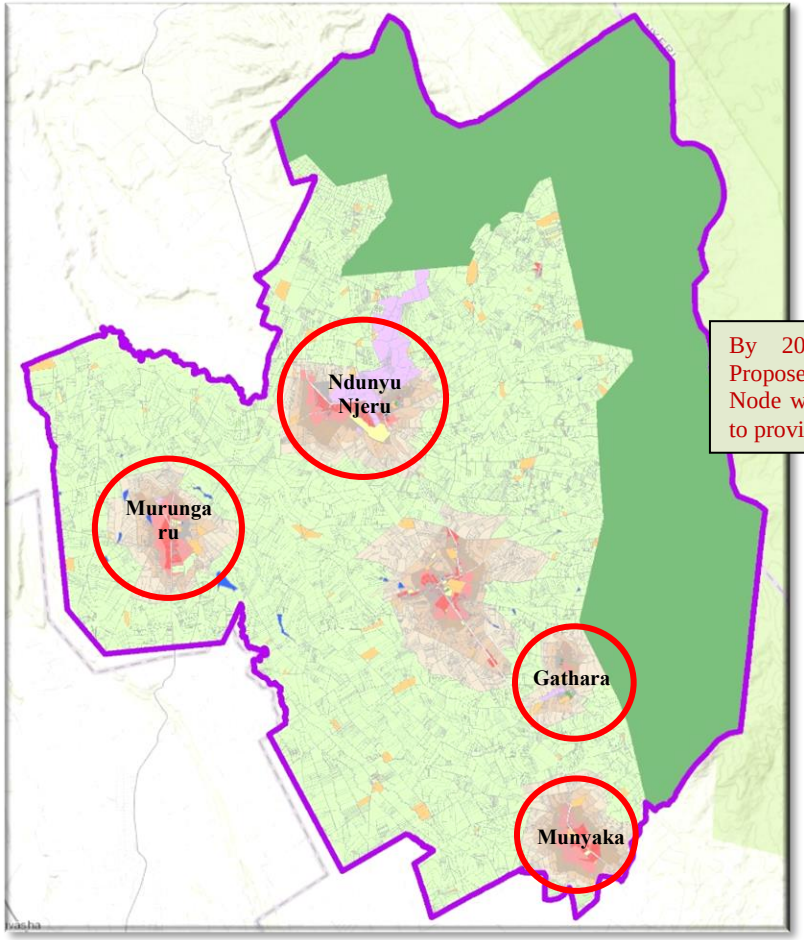


Map 25; Proposed Strong Center (Enhanced Engineer Municipality Core Area)

13.6. Proposed Growth Nodes

- These will be enhanced growth centers at selected existing market centers i.e. Murungaru, Munyaka, Gathara and Ndunyu Njeru based on their strategic location and comparative advantage
- They will majorly provide commercial, educational and residential functions. Ndunyu Njeru and Murungaru will also play a major industrial function due to their potential
- Every node to have piped water, sewer connection, proper tarmacked roads and be able to provide all the facilities as provided below

7.1. Proposed Growth Nodes (Urban nodes)



Map 26; Proposed Growth Nodes

By 2035, Each Proposed Growth Node will be able to provide:

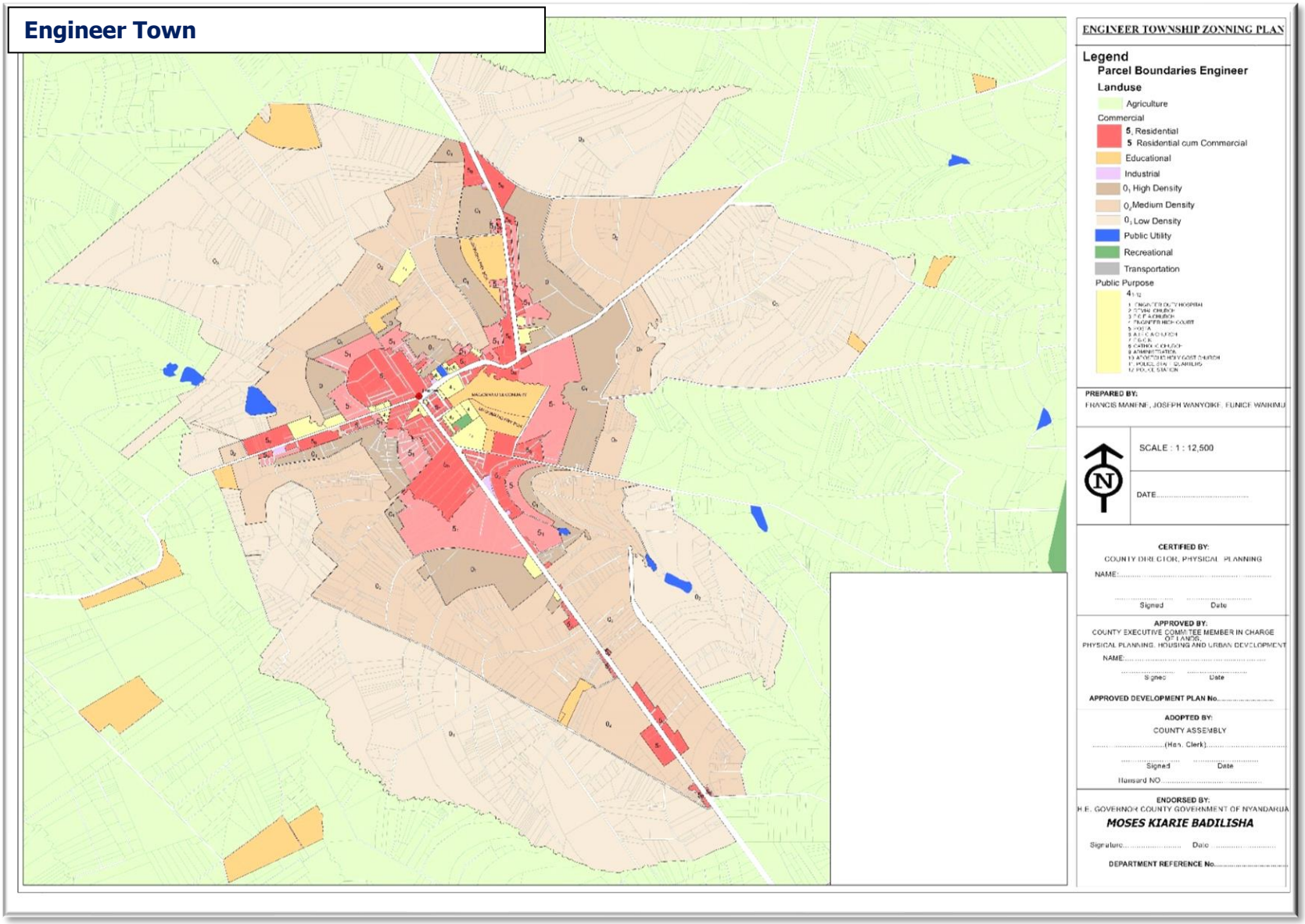
- A Sub-CBD/ Intermediate center (1)
- A Community/ cultural center (library/ resource center, social hall, VCT center, Amphitheatre/Cultural dance center) (1)
- 1 Administration block
- Police station/Police Post
- Youth polytechnic (1)
- Level 3/ Health center (1)
- Main receiving electricity sub-station (1)
- Main distribution electricity sub-station (1)
- A modern open and closed market
- Juakali Sheds
- Vocational Training Institute (2)
- Old age home
- Rehabilitation Center
- Waste management facilities
- Bus station and terminal (1)
- Fire sub-station (1)

13.7. PROPOSED ACTION AREA PLANS

13.7.1. Engineer Town

Engineer Town requires significant infrastructure improvements to support its growing population and economic activities. Key interventions include upgrading the internal road network and enhancing the main highway to improve accessibility and reduce traffic congestion. Proper drainage systems and a robust solid waste management plan are essential to mitigate pollution and prevent flooding. The installation of streetlights and floodlights would enhance security and facilitate nighttime activities. Additionally, old estates are proposed for renewal and redevelopment, establishing recreational facilities, such as parks and community spaces which would improve the quality of life for residents.

Engineer Town

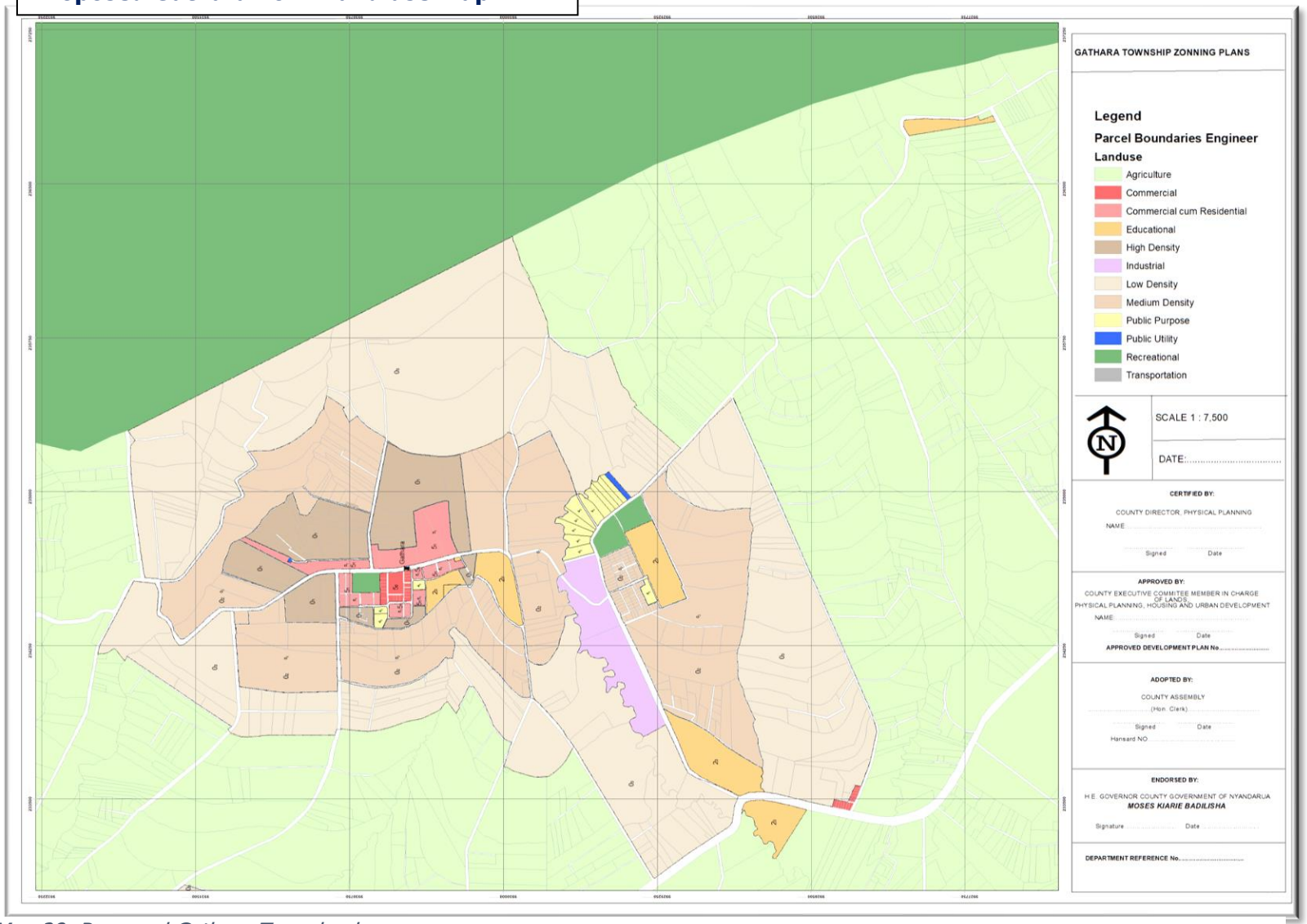


Map 27: Engineer Town land use map

13.7.2. Gathara

Gathara's scattered development pattern calls for organized urban planning and zoning regulations to guide its growth. Paving and upgrading feeder roads are necessary to ensure reliable year-round accessibility. The open drainage channels require improvement and regular maintenance to prevent flooding and pollution. Street lighting should be installed to enhance security and encourage evening activities. These interventions would help Gathaara transition into a more structured and functional urban center

Proposed Gathara Town land use map

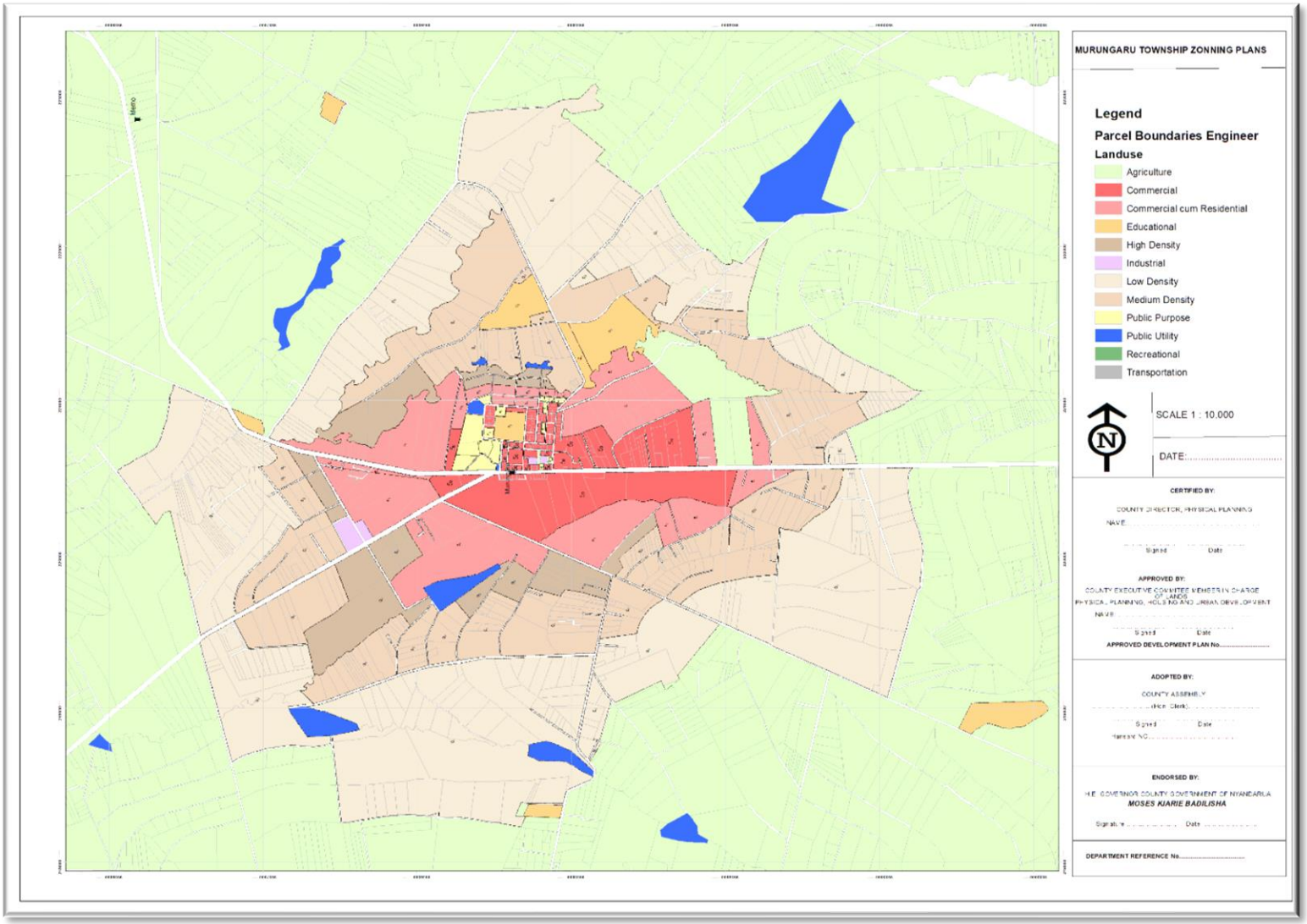


Map 28; Proposed Gathara Town land use map

13.7.3. Murungaru

Murungaru scattered development pattern calls for organized urban planning and zoning regulations to guide its growth. Paving and upgrading feeder roads are necessary to ensure reliable year-round accessibility. The open drainage channels require improvement and regular maintenance to prevent flooding and pollution. Street lighting should be installed to enhance security and encourage evening activities. These interventions would help Murungaru transition into a more structured and functional urban center.

Proposed Murungaru Town land use map

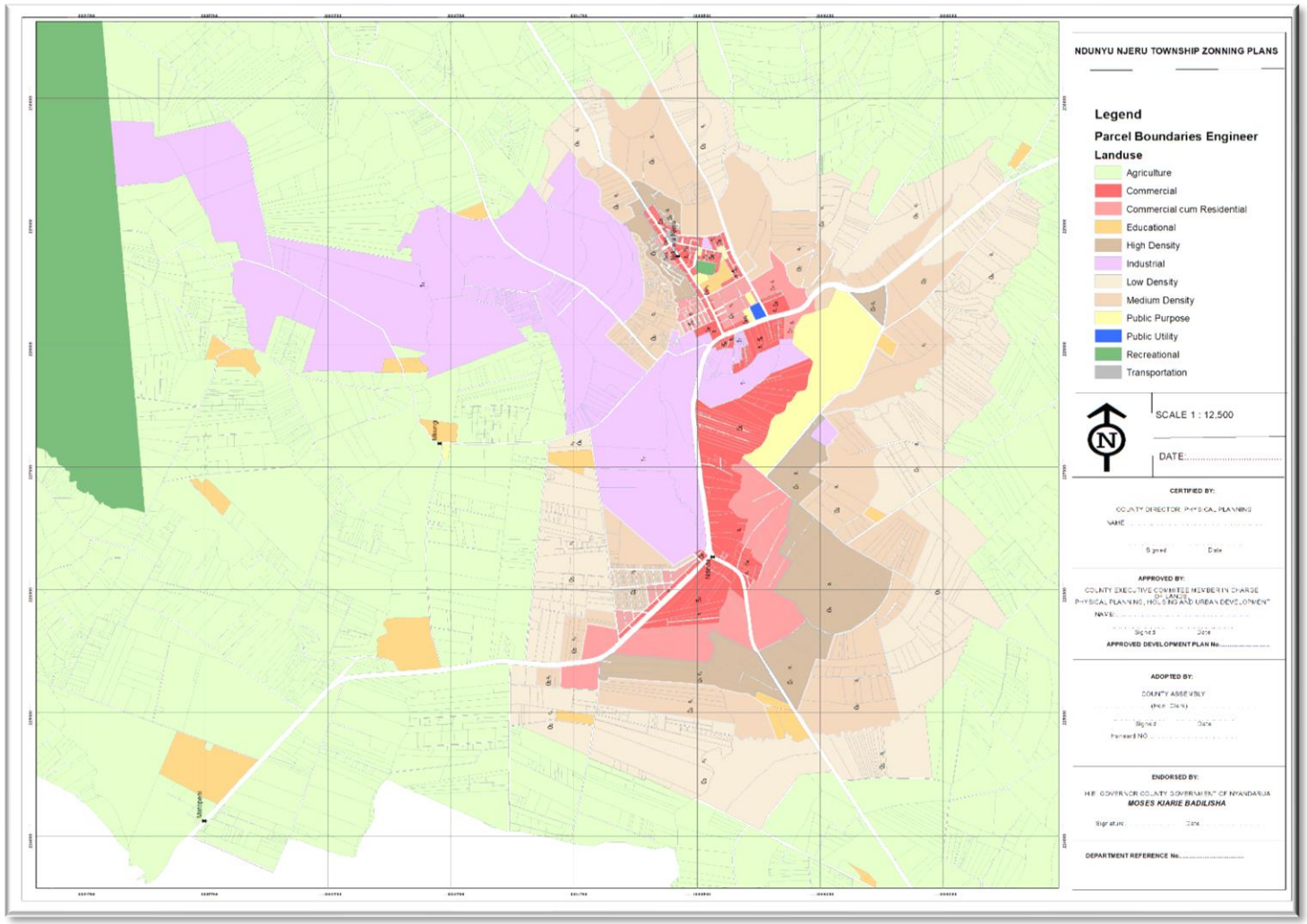


Map 29; Proposed Murungaru Town land use map

13.7.4. Ndunyu Njeru

Ndunyu Njeru faces several challenges that require urgent attention to facilitate its development. Upgrading feeder roads and introducing non-motorized transport (NMT) infrastructure, including sidewalks and cycling paths, would significantly enhance connectivity and safety. A formal solid waste management system is necessary to address sanitation issues, while recreational spaces and a cemetery would cater to the community's social and cultural needs. Furthermore, installing streetlights would enhance safety and promote activities after dark, improving the town's overall functionality.

Proposed Ndunyu Njeru town land use map

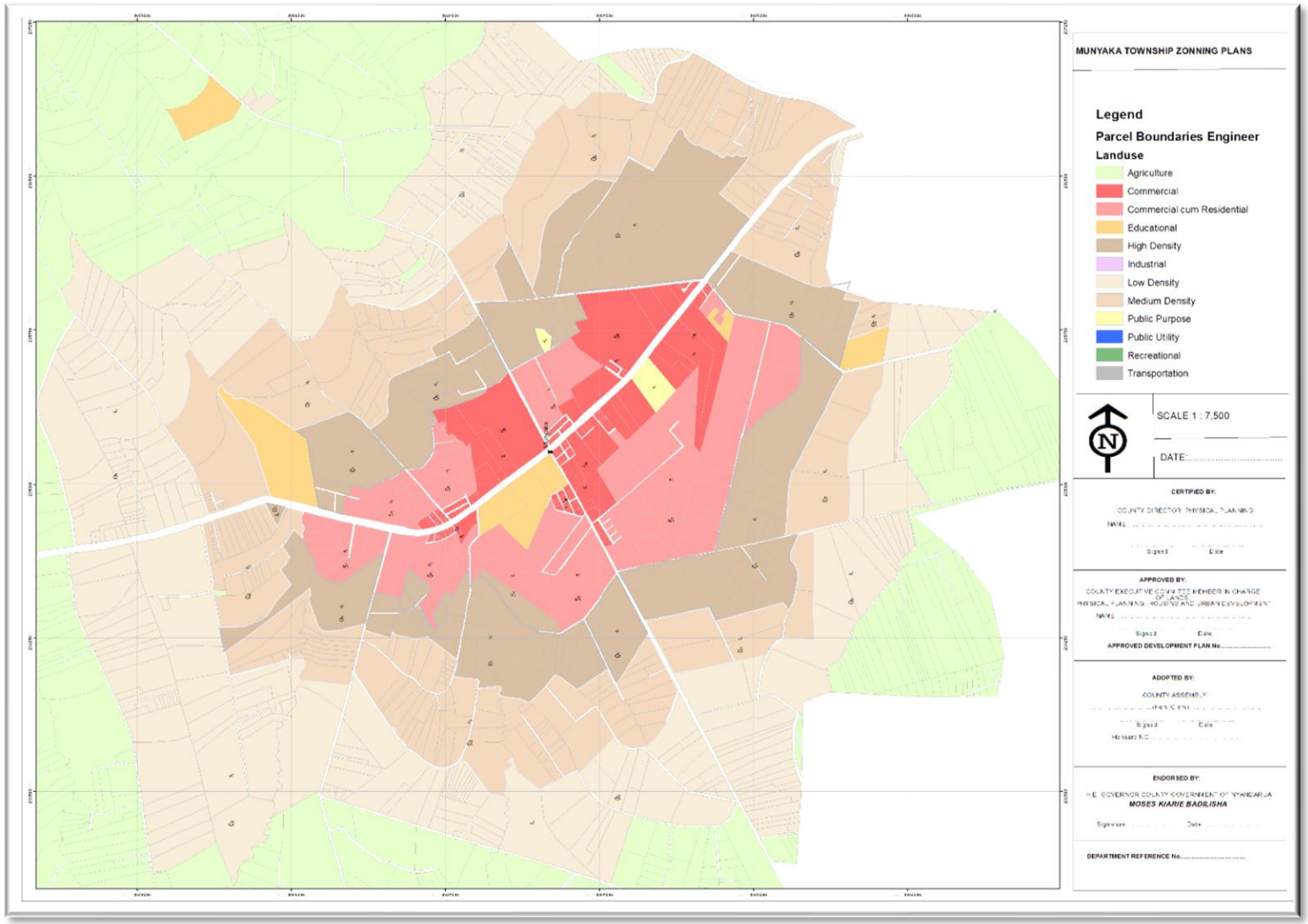


Map 30; Proposed Ndunyu Njeru town land use map

13.7.5. Munyaka

Munyaka requires targeted efforts to address its underdeveloped infrastructure. Road conditions need improvement, and public transport routes should be established to enhance connectivity. The installation of streetlights would boost nighttime security and accessibility. Adequate drainage systems and solid waste disposal mechanisms are essential for sanitation. Urban planning is needed to reduce scattered development and improve the town's aesthetic appeal. These interventions would position Munyaka for more organized and sustainable growth.

Proposed Munyaka Town land use map



Map 31; Proposed Munyaka Town land use map

13.7.6. Weru Town

Weru Town faces several challenges that require urgent attention to facilitate its development. Upgrading feeder roads and introducing non-motorized transport (NMT) infrastructure, including sidewalks and cycling paths, would significantly enhance connectivity and safety. A formal solid waste management system is necessary to address sanitation issues, while recreational spaces and a cemetery would cater to the community's social and cultural needs. Furthermore, installing streetlights would enhance safety and promote activities after dark, improving the town's overall functionality.

Proposed Weru Town land use map

Map 32; Proposed Weru Town land use map

PROPOSED KINYAHWE MASTER PLAN

1. Court (Big Beige Building – Kinyahwe Court)
Main institutional building. Centrally placed, larger footprint, formal layout. Acts as the anchor of the site.

2. Proposed White Structure
New development. Likely for restaurant use. Positioned prominently for visibility and access.

3. Proposed Round Structure
Circular building. Designed as a museum/exhibition space. Landmark feature with symbolic presence.

4. Internal Access Roads
Organized grid layout. Connect all buildings. Ensure controlled vehicle movement.

5. Main Entrance Spine
Primary entry road leading into the site. Creates a strong arrival experience.

6. Parking Areas
Located near buildings. Rectangular paved sections for organized vehicle parking.

7. Pedestrian Trails
Curved walking paths, especially in the lower landscaped section. Promote recreation and circulation.

8. Landscaped Park Area
Green open space with looping paths. Designed for relaxation and public gathering.

9. Tree Buffer (Perimeter Planting)
Trees line the boundary and roads. Provide shade, security screening, and environmental protection.

10. Green Open Spaces
Grass lawns around buildings. Improve aesthetics and create breathing space between structures.

PROPOSED ENGINEER RECREATIONAL PARK

1. Perimeter Tree Belt
Continuous rows of trees along the boundary. Provide shade, wind protection, privacy, and environmental buffering from surrounding areas.

2. Main Circular Pavilion (Central Structure)
Large round building at the center. Serves as a multipurpose recreational or exhibition space. Acts as the visual focal point of the park.

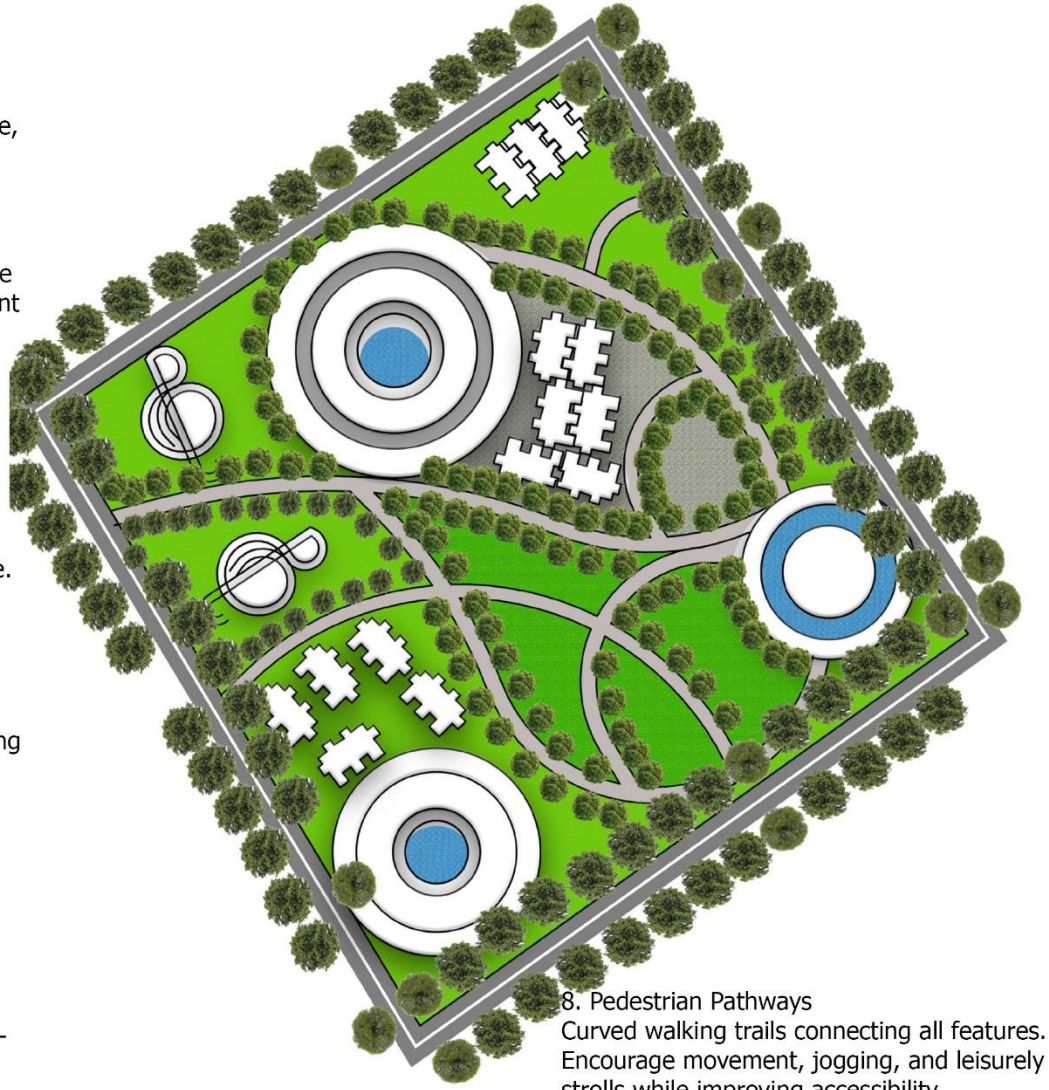
3. Secondary Circular Pavilion (Lower Section)
Medium-sized round structure with a central open space. Suitable for small gatherings, relaxation, or café use.

4. Blue Circular Water Feature (Right Side)
Decorative water element. Enhances aesthetics, creates a cooling effect, and provides a calm recreational atmosphere.

5. Small Themed Circular Features (Left Side)
Two artistic circular elements, possibly for play areas, seating pods, or outdoor activity zones. Add design character and interaction points.

6. Clustered White Structures (Right Upper Section)
Small modular buildings. Can serve as kiosks, craft shops, studios, or support facilities such as washrooms.

7. Additional White Structures (Lower Left Section)
Grouped units that may function as small cottages, retail spaces, or activity rooms. Positioned within green surroundings for integration with nature.



8. Pedestrian Pathways
Curved walking trails connecting all features. Encourage movement, jogging, and leisurely strolls while improving accessibility.

PROPOSED NON-MOTORIZED TRANSPORT

Red Lines – Pedestrian Walkways
Clearly defined pedestrian paths designed to enhance safety, comfort, and accessibility for trians from motorized traffic, reducing accidents and improving walkability. They support daily activities such as shopping, accessing services, and social interaction, while also encouraging healthier lifestyles through walking.

Green Lines – Cycling Lanes
Dedicated bicycle lanes provided along the main roads of Engineer Town. They create a safe and continuous corridor for cyclists, physically guiding movement within the urban center.
The lanes encourage the use of bicycles as an alternative mode of transport, reduce congestion, and promote environmentally friendly mobility. Their alignment along key streets improves accessibility to commercial and public areas

Blue Circle – Roundabout
A proposed roundabout at the main junction to regulate traffic flow. It improves road safety by slowing down vehicles and minimizing conflict points compared to a traditional intersection. The roundabout enhances smooth circulation for vehicles while integrating pedestrian and cycling movements around the junction.

14. CHAPTER FOURTEEN- SECTOR DEVELOPMENT STRATEGIES

14.1. Overview

The purpose of this chapter is to provide for strategies and their specific measures/actions creating a framework for implementation for specific sector. This is in addition to the overall structure plan and the action area plans for the specific nodes.

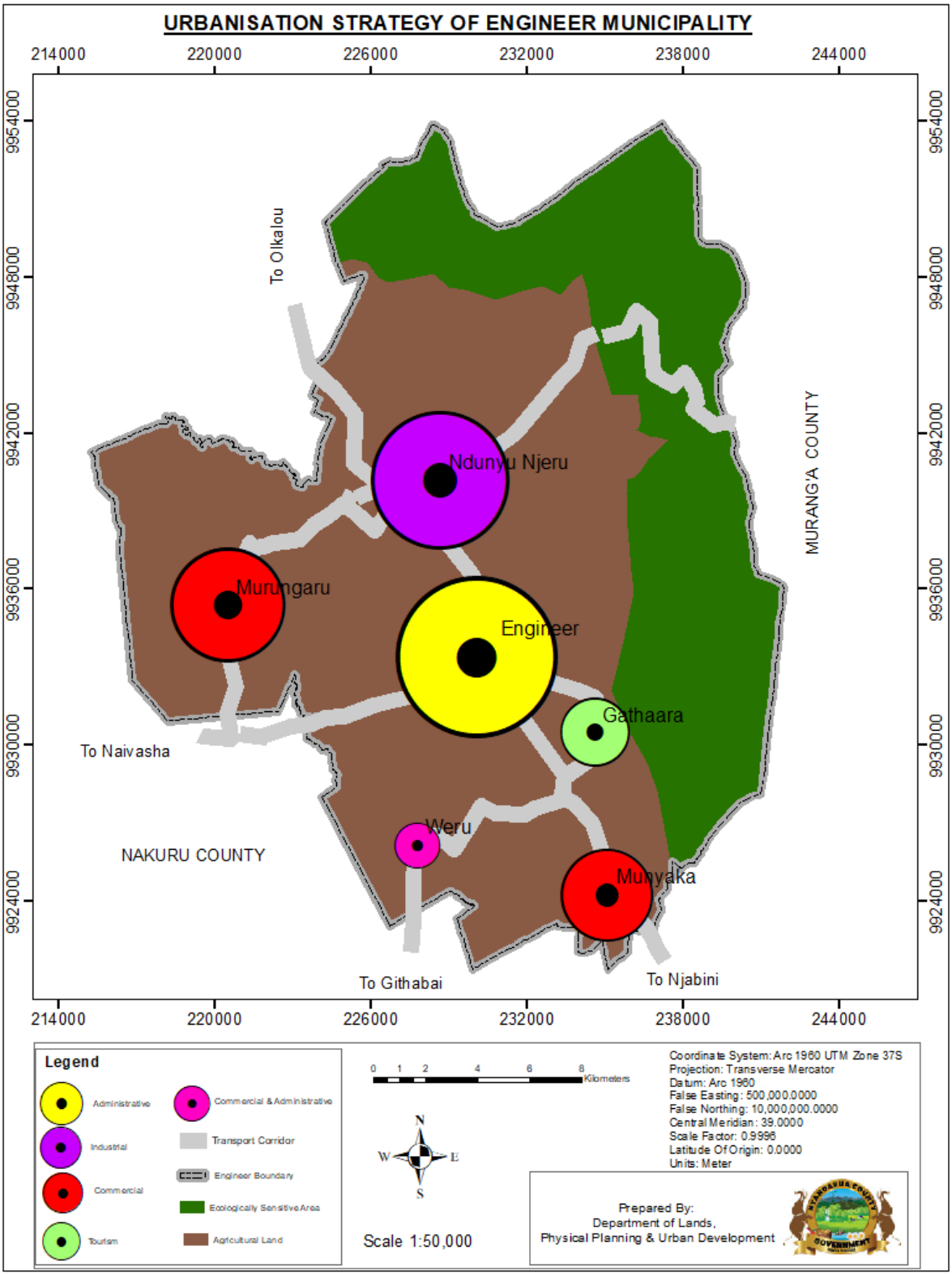
14.2. Urbanization Strategy

To realize the sustainable urbanization in Engineer Municipality the functions assigned to the Nodes as in Table 43 below will be promoted. The assigned functions were informed by the existing character of the nodes. Provision of critical infrastructure within Engineer Town will be undertaken to realize its function as a core administrative hub. Promotion of Gathara Tourism potential will further facilitate the exploitation of tourism resources of the Municipality. Upgrading of roads within Weru town and provision of critical infrastructure to unlock Weru as an administrative hub to support Engineer CBD. Provision of industrial based infrastructure will unlock the industrial potential within Ndunyu Njeru town whilst extending the towns extents to encompass Dinda. Its notable that most industries within the Municipality are located in Ndunyu njeru. Provision of infrastructure in Munyaka will support the commercial function assigned to the node. Sustainable urbanisation will further be realized through the strict enforcement of the zoning guidelines as outlined in section 13.5 above

Table 44; Engineer Municipality Centers and Earmarked Functions

Centre	Earmarked Function
Engineer	Municipal HQ & Administrative Hub
	Commercial & Financial Hub
	Residential (High, Medium & Low Density)
	Light & Agro-Industrial Centre
	Transportation & Service Hub
Gathara	Tourism & Recreation
	Gateway Agro-processing Centre
	Horticultural Production
	Residential (Medium & Low Density)
	Local Commercial Centre
	Rural Market Hub
Munyaka	Agricultural Production Centre
	Residential (Medium & Low Density)
	Local Trading Centre
	Livestock & Dairy Support Services
	Rural Growth Centre
Weru	Residential Growth Centre
	Local Commercial Centre
	Education & Institutional Support
	Agro-processing & Storage
	Market & Service Centre
Murungaru	Mixed Residential Centre
	Small & Medium Scale Industrial Centre
	Commercial Node
	Agro-processing & Storage
	Upgrade to Town Status
Ndunyu Njeru	Heavy Industrial
	Tourism & Recreation Gateway

	Residential Centre
	Agro-processing & Horticulture
	Commercial & Market Hub



Map 33; Urbanization strategy

14.3. Local Economic Development (investment) Strategy

The objective of the local economic development strategy for Engineer municipality is to unlock the local economy and place it in tandem with the economic pillar of Kenya vision 2030. This economic development strategy provides a framework for a collaborative partnership approach, which will seek to improve the municipality's regional and county competitiveness and the acceleration of economic growth, job creation and poverty reduction.

Table 45;Local Economic Development (investment) Strategy

Strategy	Projects	Area (To be Implemented)	Actors
Promote Development of Viable Nodes / Strategic Growth Centers	• Improve infrastructure (water, sewer, street lighting) • Identify strategic economic activities • Promote PPPs in investment & infrastructure • Incentivize employment, trade, education & medical services	Engineer CBD, Ndunyu Njeru, Murungaru, Munyaka, Gathara, Weru & supportive centers	County Government (Directorate of Physical Planning), Municipal Board, National Govt., Utility Providers, Private Sector, Investors

Improve Business Environment	• Establish structured public-private dialogue • Reduce business registration time • Simplify licensing & taxation processes • Improve coordination of MSE activities • Promote innovation & creativity • Information dissemination systems	Municipality-wide	County Govt., National Govt., Private Sector, KRA, National Govt., MSE Associations, Training Institutions, Private Sector
Invest in ICT	• Land acquisition & construction of ICT/Innovation Park (0.5 Ha) • Connect nodes to TEAMS fiber optic cable • Establish Business Development/Biashara Centre	Engineer Town Major Urban Nodes Engineer CBD	County Govt., Private Sector, ICT Authority, Telecom Companies, Private Sector
Provide Adequate Markets	• Develop multi-storey business complex • Develop satellite markets • Establish livestock market	Engineer Town Murungaru, Ndunyu Njeru, Munyaka, Gathara Kamaguta / Ndinda / Ndunyu Njeru	County Govt., Private Sector Livestock Dept., Community
Development of Retail Trade / Stalls / Exhibitions	• Construct 500 semi-formal business premises	Municipality-wide Engineer CBD Designated Site	County Govt., Private Sector, Investors, Physical Planning Directorate.

	• Develop business centres near bus park • Develop light industrial park • Prepare redevelopment plans	CBD & Commercial Areas	
Improve Business Skills & Entrepreneurial Training	• Develop incubation centre • Equip vocational centres • Increase business-related colleges	Municipality-wide	County Govt., TVET Institutions, CUE, Private Sector
Tourism Promotion	• Develop modern sports complex • Develop riverine nature trails • Develop eco-lodges & 3-star hotel • Develop arboretum facilities • Integrated Cultural Centre • Promote zip lining, hiking • Beautification & pedestrian walkways • Promote conference tourism & hotel upgrades	Ndinda Riparian reserves Forest areas & Kinyahwe Aberdare Forest Kinyahwe Museum Forest blocks Engineer CBD Municipality-wide	County Govt., Sports Ministry Community, NEMA, Private Investors, KFS, National Museums of Kenya, Private Sector, Community, Tourism Regulatory Authority
Develop Industrial & Aggregation Park	• Prepare Master Plan for industrial zone • Provide infrastructure (roads, power, water, sewer) • Establish investor partnerships	Ndunyu Njeru, Murungaru Industrial Park Sites Industrial Zones	County Govt., Physical Planning Directorat., National Govt., Utilities. Private Investors

Promote Industrial Development	• Develop agro-based industry zone • Provide requisite infrastructure • Improve road connectivity • Establish partnerships with ADC • Construct wool industry • Construct potato & perishables warehouse • Construct modern slaughter houses • Increase access to business financing	Ndunyu Njeru Industrial Park Designated industrial sites Municipality & Hinterland Kienjero, Kamrembo Municipality Engineer, Kamaguta, Murungaru Municipality-wide	County Govt., Investors, KeRRA, Agricultural Development Corporation, Private Investors, Private Sector, Livestock Dept.
Support Formation, Retention & Expansion of Businesses	• Maintain revolving loan funds • Support industrial park development • Assist in land permitting & regulatory processes • Provide business planning assistance • Targeted youth economic support programs	Municipality-wide Murungaru Ndunyu Njeru Municipality-wide Municipality-wide Municipality-wide	County Govt., Financial Institutions, Investors, Business Development Centers, Youth Enterprise Fund

14.4. Transportation Strategies

The transportation strategy purpose is to create an effective and efficient transport system in Engineer municipality as an important prerequisite in facilitating local internal circulation within the municipality, between the municipality and its immediate and wider hinterland as well as promoting trade, economic growth, enhancing connectivity and accessibility. The theme is integrating the Urban Transport Network

Table 46; Transportation Strategies

Strategy	Projects / Key Interventions	Area (To be Implemented)	Lead & Key Actors
Promote Land Use and Transport Integration to Form an Efficient Urban Network	• Acquire land and construct Regional & County Bus Terminus for inter-county matatus • Construct Local Bus Terminal (within municipality routes) • Develop two bus parks (regional & local routes) • Provide traffic segregation & NMT facilities • Install street furniture & street lighting on all roads • Provide designated motorcycle picking/dropping points • Domesticate on-site parking (minimum 1/3 of generated	Engineer CBD; Major Urban Nodes	County Government (Transport, Lands & Urban Development); Municipal Board; National Transport & Safety Authority (NTSA); Private Developers

	parking demand per development)		
Enhance Traffic Management within the Municipality (NMT-Focused)	• Integrate NMT in all land use & transport planning • Provide walking lanes on major roads • Install traffic calming measures & pedestrian crossings (signalized crossings, signage, lighting) • Develop pedestrian-only access streets within CBD • Tree planting along walkways for shading & environmental enhancement	Engineer CBD; Major Roads; Access Roads; Urban Nodes	County Government (Transport & Physical Planning); Kenya Urban Roads Authority (KURA); Kenya National Highways Authority (where applicable); NEMA
Improve Regional and National Connectivity	• Upgrade to dual carriageway standards (40m road reserve in high-density areas; 60m in low-density areas) • Expand and upgrade missing links to bitumen standards	Olkalou–Engineer–Njabini Road; Engineer–Naivasha Road; Municipal Hinterland	County Government; Kenya Rural Roads Authority; Kenya Urban Roads Authority; Kenya National Highways Authority; National Government
Develop Missing Links and Strengthen Internal Circulation	• Identify and upgrade local access roads to bitumen standards • Integrate transport corridors with proposed growth nodes	Municipality-wide; Growth Nodes (Ndunyu Njeru, Murungaru, Munyaka, Gathara)	County Government (Transport & Planning); Municipal Board; Contractors

	• Provide coordinated road hierarchy (arterial, collector, local streets)		

14.5. Trunk Infrastructure Strategies

The purpose of the strategy is to improve quality of life by providing adequate water and proper sanitation, energy and ICT infrastructure.

Table 47; Trunk Infrastructure Strategies

Strategy	Projects / Key Interventions	Area (To Be Implemented)	Lead & Key Actors
Improve Water Supply and Coverage	• Expansion of intake • Extend piped water to entire planning area • Protect existing reservoirs • Drill boreholes (deep & shallow decentralized schemes) • Enforce rainwater harvesting building code (commercial & rental)	High groundwater potential areas (Ndunyu Njeru, Engineer) Municipality-wide; Growth Nodes;	County Govt. (Water Dept.); Nyandarua Water and Sanitation Company; Water Resources Authority; Developers
Construct Sewer Reticulation System	• Develop sewer network covering CBD & urban nodes	Engineer CBD; Murungaru;	County Govt. (Water & Sanitation); Nyandarua Water and Sanitation Company; NEMA

	• Acquire 26Ha & construct sewer treatment plant • Acquire 5Ha & construct mini treatment plant (Engineer Town) • Enforce on-site sanitation standards for new developments • Develop GIS-based sewer mapping system	Industrial Zone - Ndunyu Njeru; Urban Nodes	
Develop Storm Water Drainage System	• Conduct drainage feasibility study • Construct open/covered paved drains (1–3m wayleaves) • Develop stormwater outfalls to rivers • Promote rainwater harvesting to reduce runoff	Municipality-wide; Major Roads; Built-up Areas	County Govt. (Public Works); NEMA; Water Resources Authority
Improve Electricity Coverage & Promote Renewable Energy	• Promote biogas & solar energy systems • Repair faulty security lights • Install street lighting in roads & public spaces	Municipality-wide; Major Roads; Public Facilities	Kenya Power and Lighting Company; County Govt.; Private Sector; Rural Electrification & Renewable Energy Corp.

	• Explore waste-to-energy options • Promote green building technologies		
Improve ICT & Communication Infrastructure	• Develop ICT & Innovation Park at municipal land • Connect municipality to TEAMS fiber backbone • Equip municipal institutions with modern ICT tools	Engineer Municipal Offices; Urban Nodes	County Govt. (ICT); ICT Authority; Telecom Providers; Private Investors
Improve Solid Waste Management	• Acquire and develop sanitary landfill (≥10Ha) • Explore waste-to-energy generation	Murungaru	County Govt. (Environment); NEMA; Private Waste Operators

14.6. Social Infrastructure Strategies

The purpose of this strategy is to improve access to health care and educational facilities geographically, socially and economically, upgrade all the dilapidated social facilities and provide them with requisite infrastructure and improve Engineer Municipality's community well-being.

Table 48; Social Infrastructure Strategies

Strategy	Projects / Key Interventions	Area (To Be Implemented)	Lead & Key Actors
Enhance Access to Health Care Facilities	• Establish health centre in each growth node • Establish dispensary per neighbourhood (10,000 catchment) • Utilize decentralized funding (CDF) to rehabilitate facilities	Engineer; Ndunyu Njeru; Murungaru; Munyaka; Gathara; Neighbourhoods	County Govt. (Health); National Govt.; CDF Committees
Redevelop and Upgrade Existing Hospitals	• Upgrade Engineer Level 4 Hospital to Level 5 • Reserve land for expansion of all health facilities	Engineer Level 4 Hospital; Municipality-wide	County Govt.; Ministry of Health
Improve Quality of Health Care	• Achieve WHO doctor-patient ratio (1:600) • Maintain bed occupancy ≤100% • Supply affordable medicine • Install incinerators in hospitals • Implement PMTCT services in all health centres	Municipality-wide	County Govt.; Ministry of Health; WHO; Development Partners

Improve Sanitation & Prevent Diseases	• Enforce public health by-laws • Promote improved household sanitation • Ensure safe toilet siting vis-à-vis water sources • Expand potable water supply	Municipality-wide	County Govt. (Public Health); Nyandarua Water and Sanitation Company; Community
Enhance Access to Educational Facilities	• Upgrade North Kinangop Polytechnic to National Polytechnic • Integrate nursery & primary schools (500m catchment; 3,500 population) • Promote vertical school development • Provide special institutions in major primary schools	North Kinangop; Municipality-wide	County Govt. (Education); Ministry of Education; TVET Authority
Improve Quality of Education	• Inspect & register all schools • Achieve teacher-pupil ratio (1:40) • PTA-supported staffing • Enforce education development standards	Municipality-wide	Ministry of Education; County Govt.; School Boards; PTA
Provide Adequate Community Facilities	• Acquire 3.5Ha & develop Integrated Community Centre • Construct modern multi-storey public library	Engineer CBD; Growth Nodes; Ndunyu Njeru; Murungaru; Kinyahwe; Weru	County Govt.; Municipal Board; Kenya Forest Service; Community; Private Sector

	• Develop satellite libraries at growth nodes • Expand public cemeteries (4.5Ha each) in Ndunyu Njeru, Murungaru, Weru, Kinyahwe • Develop urban park (adjacent to modern market) • Redevelop forest blocks as arboretums • Acquire 6Ha & construct modern stadium • Develop riverfront nature trails • Construct multi-storey social hall		

14.7. Housing Strategies

Housing development is strategically an important social-economic investment to Engineer Municipality residents. Adequate availability of quality and affordable shelter also reduces proliferation of slums and informal settlements as well as prevent social unrest occasioned by depravity and frustrations of people living in poor housing settlements. The overall objective of the Engineer Municipality housing strategy is to bridge the gap between demand and supply, improve shelter condition, prevent emergence of informal settlements provide quality housing, improve competitiveness of the municipality and densification of residential zones to prevent urban sprawl. The state department of Housing and Urban development is currently constructing 200 units of Affordable housing in Engineer municipality.

Table 49; Housing Strategies

Strategy	Projects / Key Interventions	Area (To Be Implemented)	Lead & Key Actors
Promote Land Use Planning for Housing Supply	• Identify & zone land for comprehensive housing • Land banking & repossession of illegally acquired land • Prepare detailed Physical Development Plans • Provide serviced plots (water, sewer, roads, electricity) • Mainstream livable neighbourhood concepts • Prevent squatter formation through anticipatory planning	Municipality-wide; Hinterland Growth Areas	County Govt. (Lands & Physical Planning); National Land Commission; Private Developers

Densification of Existing Residential Neighbourhoods	• Re-zone for medium/high density • Promote affordable housing technologies (stabilized blocks, green materials) • PPP frameworks for low-income housing • Enforce development control standards • Adopt Integrated Neighbourhood Planning (mixed-use proximity model)	Engineer CBD; Existing Residential Estates; Growth Nodes	County Govt.; Affordable Housing Developers; Housing Cooperatives
Improve Infrastructure & Services in Residential Areas	• Upgrade access roads to motorable standards • Extend water & sewer networks • Improve storm water drainage • Enhance solid waste collection & transfer stations • Install street lighting	All Residential Neighbourhoods	County Govt.; Nyandarua Water and Sanitation Company; Kenya Power and Lighting Company
Create Supportive County Enabling Framework	• Prepare infrastructure action plans • Facilitate private & cooperative sector participation • Promote participatory housing planning	Municipality-wide	County Govt.; Parastatals; NGOs; Private Sector

Establish Legal & Regulatory Framework	• Develop County Housing Policy • Develop County Land & Land Use Policies • Adopt zoning regulations under ISUDP	Municipality-wide	County Govt.; County Assembly
Promote Housing Finance Development	• Encourage housing cooperatives • Promote FDI in housing sector • Develop policies to accelerate capital flow into housing	Municipality-wide	County Govt.; Financial Institutions; Investors
Construction of Affordable Housing Units	•	Municipality-wide	County Government, National Government, PPPs

14.8. Environmental Protection, Conservation and Disaster Management Strategy

Purpose of the strategy is to minimize impacts of human and natural activities on the environment, improve the aesthetic value of urban places, create a variety of recreation spaces, conserve hilltops, wetlands, and riverine, and restrict human activities on disaster prone areas, climate change mitigation, improve water and sanitation

Table 50; Environmental Protection, Conservation and Disaster Management Strategy

Strategy	Projects / Key Interventions	Area (To Be Implemented)	Lead & Key Actors
Improve Solid Waste Management	• Develop sanitary landfill • Establish transfer stations & install sorted skips • Promote waste separation & recycling • Privatize waste collection • Enforce anti-dumping by-laws • Use NEMA-licensed compactors	Municipality-wide; Market Areas	County Govt. (Environment); NEMA; Private Waste Operators; Community Groups
Conserve Ecologically Sensitive Areas	• Protect forests & revoke illegal subdivisions • Provide 10–30m riparian reserves • Promote tree planting & community conservation	Aberdare Forest; River Kitiri; River Turasha; River Muruaki; Riparian Zones	Kenya Forest Service; NEMA; County Govt.; Community

	• Prepare Environmental Management Plans		
Enhance Landscaping & Urban Greening	• Develop urban parks (market & municipal offices) • Develop and beautify Engineer roundabout • Promote indigenous tree planting • Regulate tree cutting	Engineer CBD; Public Spaces	County Govt.; Community; Kenya Forest Service
Enhance Liquid Waste Management	• Expand sewer coverage in high-activity zones	Urban Areas; Industrial Zones	County Govt.; Nyandarua Water and Sanitation Company
Reduce Air Pollution	• Promote NMT infrastructure • Control open burning • Improve dust control (paving & vegetation) • Promote LPG & electricity use	Municipality-wide	County Govt.; NEMA
Enhance Urban Aesthetics	• Regulate billboards & signage • Remove illegal structures • Promote beautification	CBD & Major Roads	County Govt.
Reduce Noise Pollution	• Enforce Noise Regulations 2009	Municipality-wide	NEMA; County Govt.

	• Require noise-proofing in entertainment facilities • Review setbacks from major roads		
Strengthen Disaster Preparedness	• Establish Disaster Management Unit • Develop by-laws • Provide firefighting stations in growth nodes • Enforce building fire safety compliance	Municipality-wide; Growth Nodes	County Govt.; National Disaster Agencies
Promote Stakeholder Participation	• Strengthen community environmental structures • Promote PPPs • Environmental awareness campaigns	Municipality-wide	County Govt.; NGOs; Community
Enhance Climate Change Mitigation & Adaptation	• Diversify water sources & storage (dams, groundwater) • Increase vegetation cover • Promote green building design • Promote clean energy • Plan green infrastructure	Municipality-wide	County Govt.; NEMA; Kenya Forest Service

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14.9. Revenue Enhancement Strategy

Table 51; Revenue Enhancement Strategy

Strategy	Projects / Key Interventions	Area	Lead & Key Actors
Increase Reliance on Local Revenue	• Expand property tax base • Increase user charges (markets, parking)	Municipality-wide	County Treasury
Systems Computerization	• Adopt LAIFOMS & IFMIS • Implement full accounting modules	Municipality-wide	County Treasury; ICT Dept.
Review Property Tax System	• Adopt development-based rating system	Municipality-wide	County Govt.; Valuation Dept.
Integrate Tax Registers with GIS	• Link land & business registers with GIS • Continuous update of parcel data	Municipality-wide	County Treasury; Physical Planning & Survey Depts.
Cost Recovery for User Charges	• Periodic fee reviews • Strengthen supervision & anti-corruption controls • Enforce penalties for revenue leakages	Municipality-wide	County Govt.
Mobilize Grants & Donor Funds	• Align funding proposals to ISUDP priorities	Municipality-wide	County Govt.; Development Partners
Privatization & Service Contracting	• Contract services (water, waste, markets, housing, slaughterhouses)	Municipality-wide	County Govt.; Private Sector

14.10. Institutional Development and Capacity Building Strategy

This refers to the promotion and enhancing of the legal institutions that shall facilitate the preparation, implementation and financing of Engineer Municipality ISUDP including measures to provide proper and adequate community participation mechanisms. The strategy seeks to provide a stable environment for the operations of all institutions of the municipality for proper implementation and monitoring of this plan. It will also help to achieve transparency and accountability in governance and economic management of the municipality.

Table 52; Institutional Development and Capacity Building Strategy

Strategy	Projects / Key Interventions	Area	Lead & Key Actors
Establish Municipal Governance Structures	• Establish Municipal Directorate (Planning) • Operationalize Municipal Board & Manager (per Urban Areas and Cities Act) • Establish municipal departments (waste, drainage, markets, water)	Engineer Municipality	County Govt.; Municipal Board
Promote Good Governance Principles	• Institutionalize participatory planning mechanisms • Enhance transparency & accountability systems	Municipality-wide	County Govt.; Residents; Civil Society
Strengthen Human & Technical Capacity	• Recruit planners, surveyors, GIS officers • Digitize registries • Procure office equipment & vehicles • Strengthen Enforcement Department	Municipality-wide	County Govt.; County Public Service Board
Improve Financial & Administrative Efficiency	• Address funding delays • Enhance inter-departmental coordination • Staff training on emerging urban management issues	Municipality-wide	County Govt.

15. CHAPTER FIFTEEN - PLAN IMPLEMENTATION FRAMEWORK

15.1. Overview

This chapter provides a platform to ensure that all the proposals are implemented in the manner proposed and within the period indicated in the strategies. It also proposes the prioritization of projects and provides ways and means for easing of funds. The overall implementation of the integrated urban development plan will be absorbed by the identified existing institutions, which will require strong leadership and coordination.

A timeframe for each action has been given indicating the expected implementation time, i.e., immediate, continuous, short term, medium term or long term. It identifies the relevant institutions that are crucial to the implementation of the various action programmes.

15.2. Strategic Projects

Strategic projects are transformative projects that have higher multiplier effects (forward and backward linkages) and have the highest potential to kick-start the economy of Engineer Municipality. These projects are categorized into facilitative, productive and perceptive. Facilitative projects are those projects/programmes that enable the productive sector to operate effectively and efficiently. Productive projects are those that produce goods and services directly and lead to generation of employment and income. Perceptive projects are those that improve the image and beauty of the municipality, have the potential to attract investors and give the municipality unique identity.

15.2.1. Facilitative Projects

Water and Sewer Infrastructure

- Formulation of Kinangop Water and Sanitation Company (KINAWASCO)
- Kinawasco to construct sewer and water reticulation system to cover the urban centres in the municipality.

Transport

- Upgrade the current bus park to a modern one
- Tarmac urban roads within growth and emerging growth centers

Electricity

- Kenya Power North Kinangop region to improve the Main Ring Circuit around Municipality to increase electricity reliability.

15.2.2. Productive Projects

Manufacturing

- Develop the proposed Special Economic Zone (SEZ) at Ndunyu Njeru and Murungaru

Commerce

- Develop a multi-storey business complex next to the main bus park through donor funding or PPP
- Completion of the to a multi storey modern market through
- Municipal Board and the County Government to acquire land and develop a modern open-air market and a business centre. Relocate road sellers to this newly acquired space.
- Development of Business Incubation Centres at the civic zone
- Develop the proposed commercial zones into office spaces, business centres, wholesale and retail markets, shopping areas, hotels and conferencing facilities among other commercial uses

Tourism

- Upgrade Kinyahwe into a museum and an Integrated Community/Cultural Centre
- Develop the existing forest blocks for eco-tourism (arboretums, nature parks)
- Develop the proposed urban parks on the land next to the modern market
- Develop hotel and conference facilities in within the municipality

15.2.3. Perceptive Projects

Relocation of the county offices to a single civic area

- County Government and the Municipality to design, develop, and move all the county offices into one location. This will create a compact civic centre and release the rest of the land for greening and other uses.

Green spaces

- Initiate river rejuvenation along the main rivers with a nature trail;
- Relocate dumpsite to the proposed site at Murungaru

15.3. Quick Wins

Projects enumerated below as quick wins are those projects that will be achieved immediately preferably within a period of 100 days. These projects have high visibility and serve the purpose of rallying support for subsequent planning activities. They also require low funding:

- Motorbikes management. This will be implemented by the County Government, *Bodaboda* operators and the traffic police
- Formation of Community forum to ensure and monitor provisions of the Integrated Strategic Urban Development Plan
- County Government to provide waste skips at the main markets and all the proposed growth nodes
- Waste sorting and recycling
- Youth, CBOs and NGOs to participate in tree nurseries programmes and activities on riverine areas
- Establish a system of scrutinizing development applications for approval, supervision and enforcement of development

15.4. Capacity Building

These are projects to be undertaken immediately and continuously for purposes of enhancing the ability to implement projects during planning period. They include:

- Training of municipal staff in the use of GIS and implementation of the plan for effective decision making,
- Establishment of spatial planning directorate at the municipal level,
- Equipping of the municipal board and service departments

15.5. Implementation Framework.

Table in Annexture 2

NB: Undertake community sensitization about the implementation of the plan and projects in every phase.

15.6. Implementation Matrix

Table 53; Implementation Matrix

Strategies	Projects	Actors
Securing environment quality	Solid waste management in Engineer town, Murungaru & Ndunyu Njeru	Engineer municipality Private Collectors
	Train & support youth groups to establish small scale waste management enterprises	Engineer municipality County Government
	Carry out safety assessment & certification of buildings	Engineer municipality
	Provide 7 solid waste receptacles [2 Engineer and 5 in other market centres]	Engineer municipality
	Purchase 2 refuse trucks	Engineer municipality
	Acquisition and Construct of solid waste disposal site	Engineer municipality
	Tree planting & beautification	Engineer municipality Communities

Spurring economic growth	Construction of Modern Markets at Engineer, Ndunyu Njeru, Murungaru,	Engineer Municipality County Government
	Establishment of a livestock market at Ndunyu Njeru	Department of Agricultuere, Livestock & Fisheries Engineer municipality
	Provision of standard kiosks	Department of Trade & Industrialization Engineer municipality
	Redesign, improve access and construct market sheds in Weru, Moset, Mikaro	Engineer municipality
Promoting industrialization	Renovation of Kienjero Wool industry at Murungaru	Department of Trade & Industrialization Engineer municipality
	Construct potato & perishables warehouse for direct storage receipting system	Department of Trade & Industrialization Engineer municipality
	Improve roads & drainage to make the markets accessible during rainy season	Department of roads Engineer municipality
	Construct modern slaughter house in Murungaru, Engineer Town	Department of Trade & Industrialization Engineer municipality
Developing tourism potential	Kinyahwe Cultural centre & 3-star hotel thru' PPP model	Department of Tourism Department of Trade & Industrialization Engineer municipality
	Acquisition of land and Construction of standard stadium in Ndinda town	Department of Youth & Sports Engineer municipality
Optimizing use of land and natural resources	Preparation of zoning plans for urban areas within the municipality (10 centres)	Engineer municipality
	Establishment of GIS Lab & training	
	Enforcement of development control	

Providing appropriate infrastructure	Construction of 24,000m Sq. parking lots in Engineer town, Murungaru, Ndunyu Njeru & Munyaka	Engineer municipality
	Solar Street lights in Engineer town, Murungaru, Ndunyu Njeru & Munyaka & floodlights in 13 market centres	
	Construction of a municipal administrative block	
	Acquisition & Construction of bus park (Engineer town, Murungaru) & Improvement of Ndunyu Njeru bus park	
	Local & Long-distance lorry park at Engineer town	
	Construction of boda-boda sheds in 8 market centres	
	Construction of 5km storm water drainage in Engineer Town, Murungaru, Ndunyu Njeru, Matopeni, Munyaka	
	Construction of modern public toilets in Engineer Town, Ndinda, Ndunyu Njeru, Munyaka, Matopeni, Murungaru	
	Construct NMT in Engineer Town, Murungaru, Ndunyu Njeru (signature street)	
	Completion of Moset, Mbekenya, munyugu(murungaru) Dispensaries	
	Expand water reticulation in unserved areas of Engineeer town & Ndunyu Njeru town targeting 2,500 households annually @ Ksh 5,000 each (Desilt kinja dam and tap Kenya pencil, Ngurunga)	Department of water Engineer municipality
	Drill 5 boreholes in peri urban areas at Ksh 2.5m each (weru, olmagogo and murungaru)	
	Acquisition and Construction of sewer treatment plant & network expansion	

	Acquisition and Development of a modern municipal cemetery in Engineer town, Murungaru & Ndunyu njeru (In all wards)	Engineer municipality
	Construct 3 social halls/library with ICT services (Tech Hubs)	
	Purchase and equip one (1) mobile clinic.	
	Construct fire station, fire-fighting truck & fire hydrants)	
	Purchase of an ambulance	
	Carry out safety assessment & certification of buildings	
Integrating transport network	Upgrading of 5km roads to bitumen standards in Engineer town	Engineer municipality Department of roads Department of Lands
	Construction of appr. 1.8 km walkway & provide street furniture from town to Kanyugi primary and	
	Construction of appr 1.7 km walkway & provide street furniture from town to Karoroha primary	
	Construction of appr 1.8 Km walkway & provide street furniture from town to proposed municipal offices and affordable housing	
	Acquisition of an access road serving the Engineer Hospital Morgue	
	Construction of 2km road and walkway & provide street furniture from Engineer town to Nyayo Ward Hospital to Karoroha Primary	
	To construct 2 km road each to gravel standards in Murungaru, Ndunyu Njeru, Gathara, Munyaka & their environs at Ksh 5m/km	
	Upgrade to gravel standards, 10km of existing road network in peri-urban areas to gravel standards at Ksh 2m/km	
	Upgrading of 5km roads to bitumen standards in Engineer town	
	Expansion of Kahuru-Kirathimo Road	

Enhancing good governance and strengthening institutional capacity	Job analysis and skills assessment	Engineer municipality
	Capacity building training for board members and staff	
	Formulation of municipality by-laws	

15.7. Coordination Framework

At policy and institutional levels, the coordination focuses on facilitating:

- The understanding and implementation of strategies and measures by the government and non-government institutions;
- Dialogue between all partners and the government to create conditions that favour the adoption of the plan.

At an operational level, coordination is mainly concerned with improving efficiency of actions through:

- Information exchange;
- Facilitating administrative procedures as much as possible;
- Ensuring the financing of critical activities, directing resources to priority areas and avoiding overlapping activities.

To enhance good coordination, it is recommended that:

- People in the planning area to begin reinforcing the immediate and personal initiatives of this plan
- The quick wins and immediate interventions be cleared to pave way for the short term and medium-term strategies that will ultimately prepare a way for the long-term objectives

15.8. Community Participation Framework

The main aim is to improve the effectiveness and validity of implementation processes and to increase the acceptability of plan proposals and decisions. This will fully involve the community in investment choices and management decisions.

- Formation of community based environmental management committees

- Community members to set up community police areas in all the residential neighborhoods. Community members to form phone tree communication mechanisms.
- The donor community through registered NGOs and CBOs to develop riverine and riparian reserves as nature trails

16. CHAPTER SIXTEEN MONITORING & EVALUATION FRAMEWORK

16.1 Overview

This chapter outlines the approaches that the municipality will employ to monitor, evaluate, and review the progress in implementation of the plan. The process of monitoring, evaluation, and reporting will encompass the continuous and systematic gathering and analysis of data using indicators, targets, and feedback mechanisms. Annex X contains an implementation matrix that outlines clear outcomes, key performance indicators, and targets for the ten-year duration plan.

16.2. Monitoring Framework

The municipality will establish a Monitoring and Evaluation committee tasked with receiving, analyzing, summarizing, and consolidating reports. These reports will then be forwarded to the municipal board in a timely manner, adhering to specific timelines. Each directorate will be responsible for drafting Annual Work Plans (AWPs) based on the activities outlined in this Plan and the available resources. These Work Plans will be accompanied by individual officers' work plans, which will cascade down to all officers. These individual work plans will serve as monitoring tools for the implementation process. The municipal manager will oversee the preparation of detailed quarterly reports on the progress of implementation, highlighting the contributions of individual officers as well as aggregated municipal progress indicators.

16.3. Performance Standards

The monitoring and evaluation (M&E) activities of the municipality will be integrated with the county's performance management system, responsible for strategic planning, work planning, target-setting, performance tracking, and reporting. Data on targets and indicators will be collected from administrative data collected by the municipality, as well as other county departments and agencies. Analysis will be conducted to ascertain whether the resources allocated to investment programs outlined in this plan are yielding the desired outcomes, impacts, and benefits for the municipality residents.

16.4. Evaluation Framework

The evaluation of this plan will be performed in the midterm and end term to assess the extent to which the plan is meeting its implementation objectives and timelines. The details will be captured in the outcome performance matrix.

16.4.1. Mid-Term Evaluation

The mid-term evaluation will assess the extent to which the plan is meeting its implementation objectives and timelines. A midterm evaluation will be done in the year 2030 and reports produced for necessary corrective action.

16.4.2. End-Term Evaluation

At the end of the Plan period in year 2035, an end term evaluation will be undertaken to take stock of the progress and the status in terms of achievements of the plan targets for future improvement. The following thematic issues will be reviewed;

- **Effectiveness (Impact):** The extent to which the implementation of ISUD programs met the set-out objectives and strategies in achieving the expected outcomes
- **Lessons Learnt**: Documentation of the lessons learnt for future decision making
- **Feedback**: Disseminate lessons learnt, best practices, achievements, and challenges faced that inform the preparation of the next plan.

16.4.3. Ad Hoc Evaluation

If there is notable and unexplained absolute fluctuation in performance, particularly in a critical performance area, regardless of whether positive or negative, an ad hoc evaluation may be initiated. The findings of the ad hoc analysis will guide decisions regarding interventions in that specific area.

16.4.4. Reporting Framework and Feedback Mechanism

The reporting mechanism to be adopted for this ISUD plan will be as follows:

1. Directorates will submit reports on a monthly, quarterly and annual basis to the municipal M&E Committee. The reports will contain information on the performance of the directorates, explain any significant variation in expected performance, discuss challenges and issues encountered, lessons learnt and recommendations.

2. The M&E Committee will analyze, summarize and consolidate the reports.

3. The M&E report will be submitted to the municipal board for further action.

4. The municipality will translate data and information according to the target audience and utilize various communication channels e.g. radio, T.V, websites, e-bulletins, newsletters, booklets, etc. to pass the information to the stakeholders.

Reporting the progress of implementation of the ISUD Plan will be done on a quarterly and annual basis.

The reporting templates to be employed are provided in Tables below;

Table 54; Quarterly Progress Reporting Template

Expected Output	**Output Indicator**	**Achievement of the year….**			**Cumulative to date (Years)**			**Remarks**	**Corrective Intervention**
		Target (A)	**Actual (B)**	**Variance (C-B)**	**Target (D)**	**Actual (E)**	**Variance (E-D)**		

Table 55; Annual Progress Reporting Template

Expected Output	Output Indicator	Annual target (A)	Quarter for year…..			Cumulative to date			Remarks	Corrective Intervention
			Target (B)	Actual (C)	Variance (C-B)	Target (E)	Actual (F)	Variance (F-E)		

Table 56; Evaluation Reporting Template

Key Result Area	Outcome	Outcome Indicator	Baseline		Target	
			Value	Year	Mid-term Period	End-term Period
KRA 1						
KRA 2						
KRA 3						
KRA 4						

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