

DRAFT SPATIAL PLAN

FOR

MWINGI MUNICIPALITY

Appendix

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SPATIAL DEVELOPMENT FRAMEWORK

1.1 Overview

This chapter outlines how land within the planning area will be used and developed over the next 10 years. The aim of the chapter is to provide a spatial representation of the envisioned growth and development of the area, ensuring that land use is well coordinated and aligned with broader social, economic, and environmental goals. To do this, it begins by establishing a clear vision for the spatial development of the area. This vision aligns with the long-term goals of not only Mwingi Municipality and its residents, but also that of the County Government of Kitui.

The chapter is the culmination of Community Engagement processes that enlisted the participation of various stakeholders that included local residents, Mwingi businesses community, as well as representatives of both the national and county government in the planning process to ensure that the framework reflects the needs and desires of the community

Different types of land-uses are framed in this chapter to structure the solutions to the planning challenges that have been analysed in chapter 4 and to support sustainable development. These include land-uses include residential, commercial, industrial, agricultural, recreational.

The necessary infrastructure development that is required to support growth of the municipality are also identified. These include transportation systems, utilities, community facilities, and services.

Environmental Considerations are also included by incorporating strategies for environmental sustainability, including green spaces, biodiversity conservation, and resilience to climate change. The plan recognises that climate change is a reality that

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is already in Mwingi and thus the need to put in place deliberate strategies to deal with it.

The highlight of the chapter is its presentation of the proposed structure plan in which the plan recommends the zoning Regulations that will help in ensuring that land use policies support the desired spatial development outcomes.

1.2 Structuring elements

The structuring elements refer to the various components and features that will shape the physical and social fabric of urban environments. Together, these elements will contribute to the organisation, functionality, and aesthetic quality of Mwingi Municipality. Here are some key urban structuring elements:

1.2.1 Transportation Network

Transportation network in Mwingi comprises the streets and roads, the transit systems, as well as the informal pedestrian and bicycle infrastructure. The layout of streets, roads, and pathways serves as the fundamental framework for urban movement and connectivity. The hierarchy of streets plays a key role in traffic flow and accessibility. Transportation network in Mwingi municipality is defined by regional roads that connect the municipality to other towns in Kitui County and beyond and internal municipal roads.

The first category consists of *i)* the main A3 Road that connects the municipality to Thika to the Western side and Garissa to the Eastern side, *ii)* C93 Mwingi town - Waita Road through Kyulungwa shopping centre to the Northern side of the municipality, and *iii)* C94 Mwingi – Migwani Road through Nzeluni to the Southern side of the municipality.

These three roads have rendered land located along them to be the most accessible when compared to land located in other interior parts of the municipality. Improved accessibility attracts the provision of public transportation services by *matatus* and motorcycles by enabling mobility along the roads. The result has been to structure a ribbon pattern of development along these roads (**Figure 1-1**).

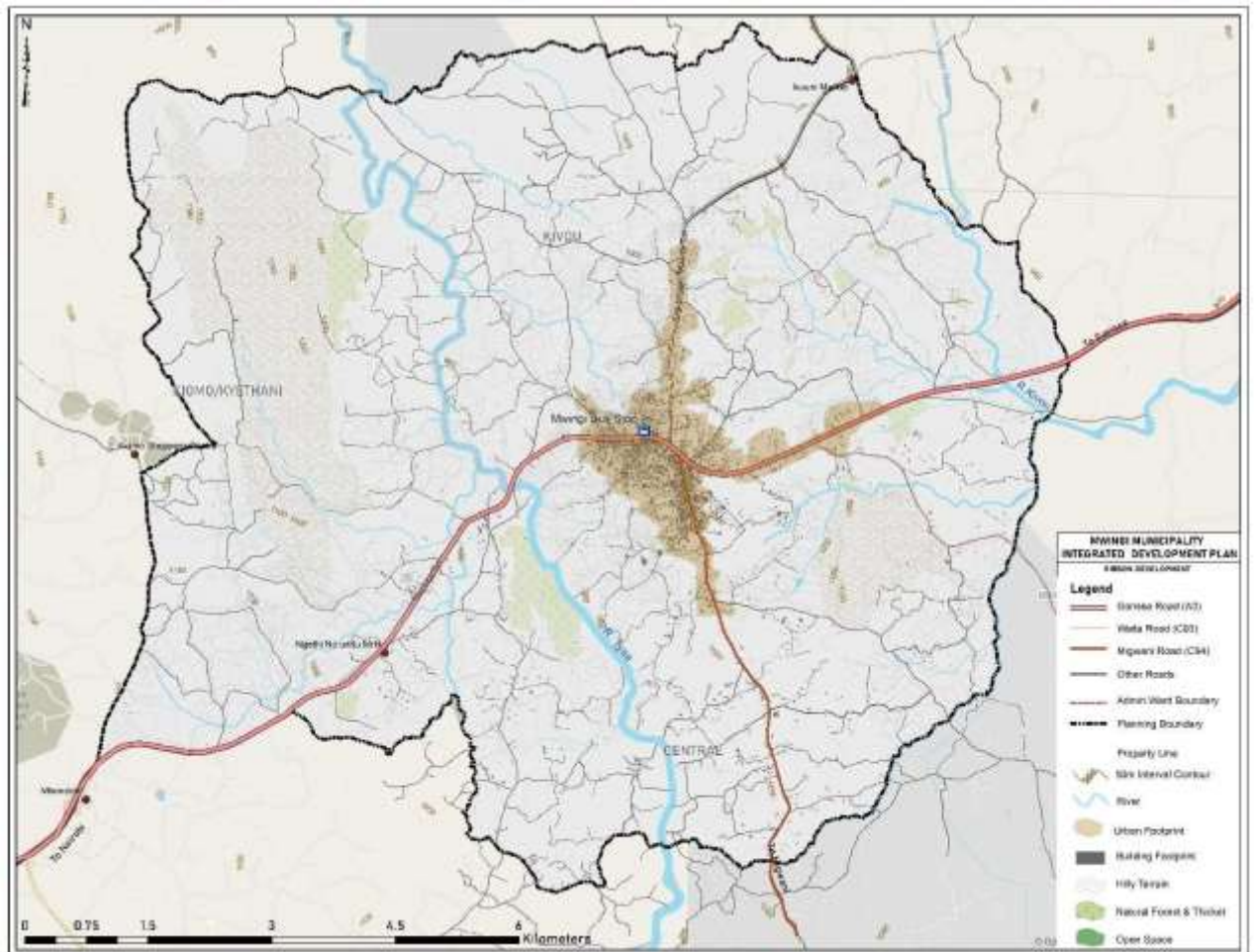


Figure 1-1: Ribbon development along the main transportation corridors

The above pattern of spatial development makes it difficult to provide infrastructure and services as it leads to sub-optimal use of land and space. At the same time, it

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makes land-uses that attract large pedestrian traffic around such highways predisposed to the risks of traffic accidents. While this is the case, efficient transit options can reduce congestion and improve urban sustainability. The challenge to this IUDeP therefore is how to improve strike a trade-off between transportation and landuse in a way that will improve accessibility in areas that do not engender inefficient use of land.

The second category of transport networks in Mwingi Municipality consists of numerous internal roads within the municipality itself. These comprise both formal and informal networks that serve vehicular, pedestrian and bicycle transport. The planned internal roads run parallel to the Mwingi-Migwani Road and serve as the service lane to the plots of land created along the main road. These roads reinforce the ribbon development already established by the existing main roads.

Most roads in the municipality are created through either unapproved land subdivision or partially approved subdivisions that do not meet the minimum development standards. As a result, the municipality is characterised by roads that lack uniform widths and that terminate at dead ends for the most part. This is especially the case in the central part of the municipality. The implications of these roads for this IUDeP is the need to open up these roads and widen them to facilitate efficient movement and accessibility as well as the provision of utility services like water, electricity, drainage and communication networks that all make use of the road reserves.

There is also generally a lack of well-designed walkways, bike lanes, and pedestrianfriendly areas that can encourage non-motorised forms of transportation and enhance the overall walkability of the municipality.

The implications of these internal transport networks for the spatial form of the municipality is that it is characterised by makeshift routes that serve non-motorised modes of transport. These make the municipality to lack a clear spatial character when it comes to its transport network (**Figure 1-2**). The municipality therefore suffers poor transport connectivity, incoherent network, poor network completeness, and poor network integration among other challenges.

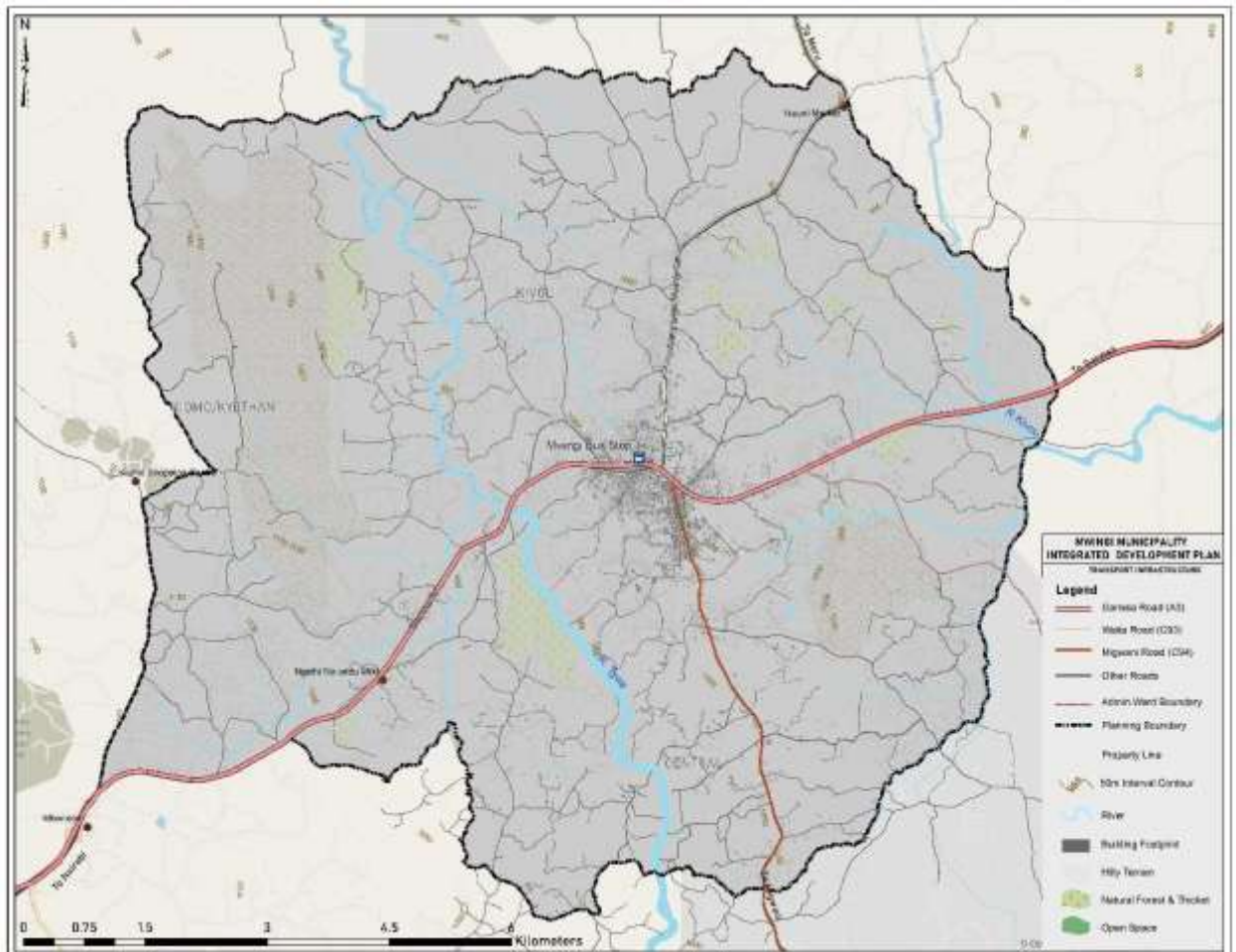


Figure 1.2: The spatial form of Mwingi Municipality lacks a clear network character

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1.2.2 Existing urban nodes

The planning area features several urban nodes that serve as centres for trade, and social services. Key among these are:

- i.) **Ikuuni market:** A market located to the northern part of the planning area along the C93. The central hub for economic activities, with markets, shops, schools, and government offices.
- ii.) **Kalisasi market:** An emerging urban centre that plays an important role in commerce and social services in the south eastern side of the planning area.
- iii.) **Ngethi No Undu market:** An upcoming market to the South Western side of the planning area on A3 Road to Thika Town.
- iv.) **Muliluni upcoming market:** Another upcoming urban centre to the western side of the planning area that serves the surrounding rural areas with various services, including a dispensary.

The above urban nodes support the surrounding communities through infrastructure, education, health services, and commerce. The nodes present the centres that will attract various investment opportunities in the planning area and therefore the centres from which further urbanisation of the planning area will radiate. Considering that these centres are located along the major roads that are responsible for ribbon development, this plan considers that accessibility in the interior parts of the centres should be improved in order to slow down the pace of urban development.

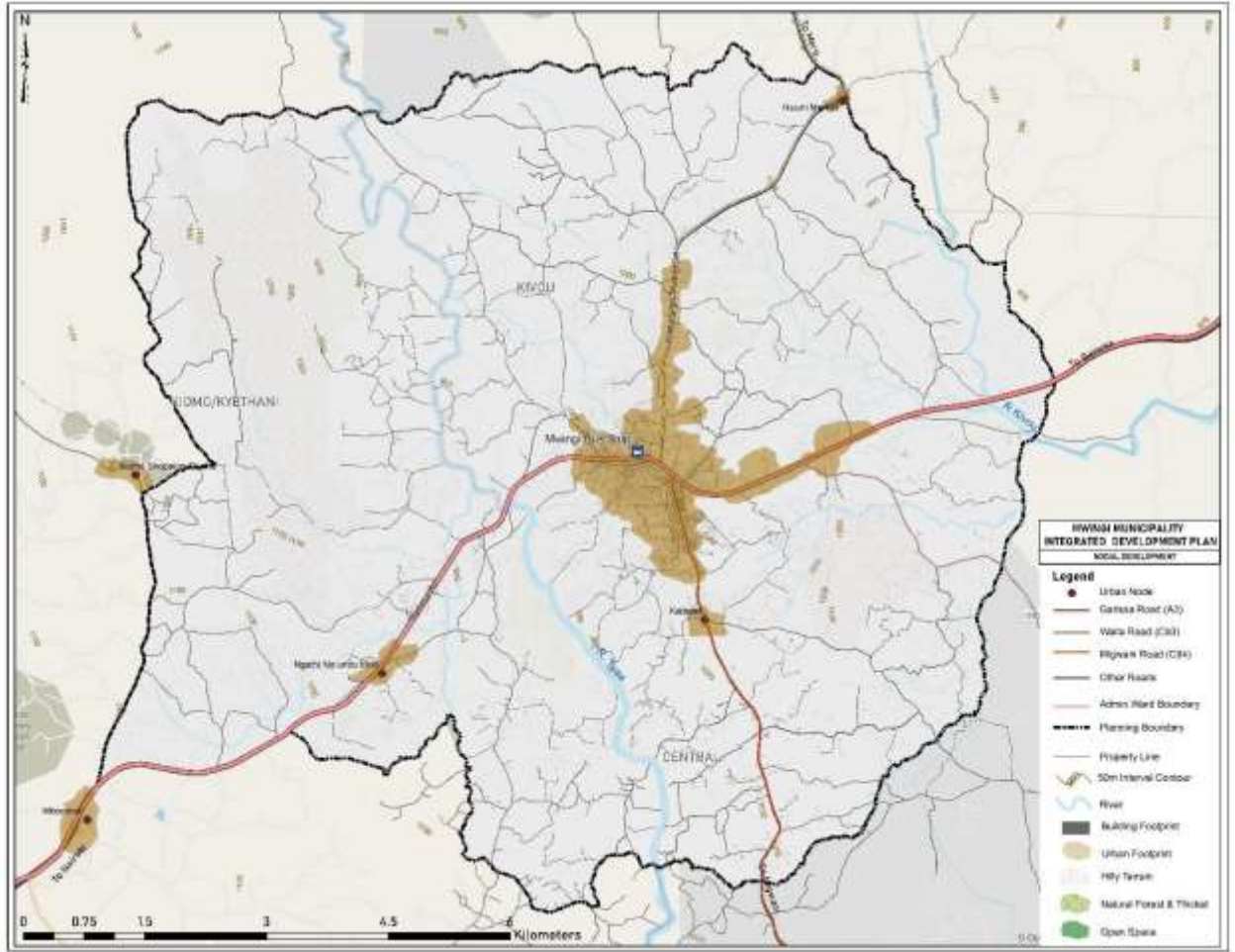


Figure 1.3: The influence of outlying urban nodes in shaping the spatial form of Mwingi Municipality

1.2.3 Natural Features

The spatial form of Mwingi Municipality will also be shaped by a number of natural features. Among these are:

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Topography: Mwingi is characterized by a rolling landscape, with hills and valleys that affect land use patterns, settlement areas, and infrastructure development. The hilly terrain will restrict urban expansion and impact accessibility to the western side of the planning area. This includes the location of utility services like waste management (dump sites) in such areas that have steep slopes into the rivers.

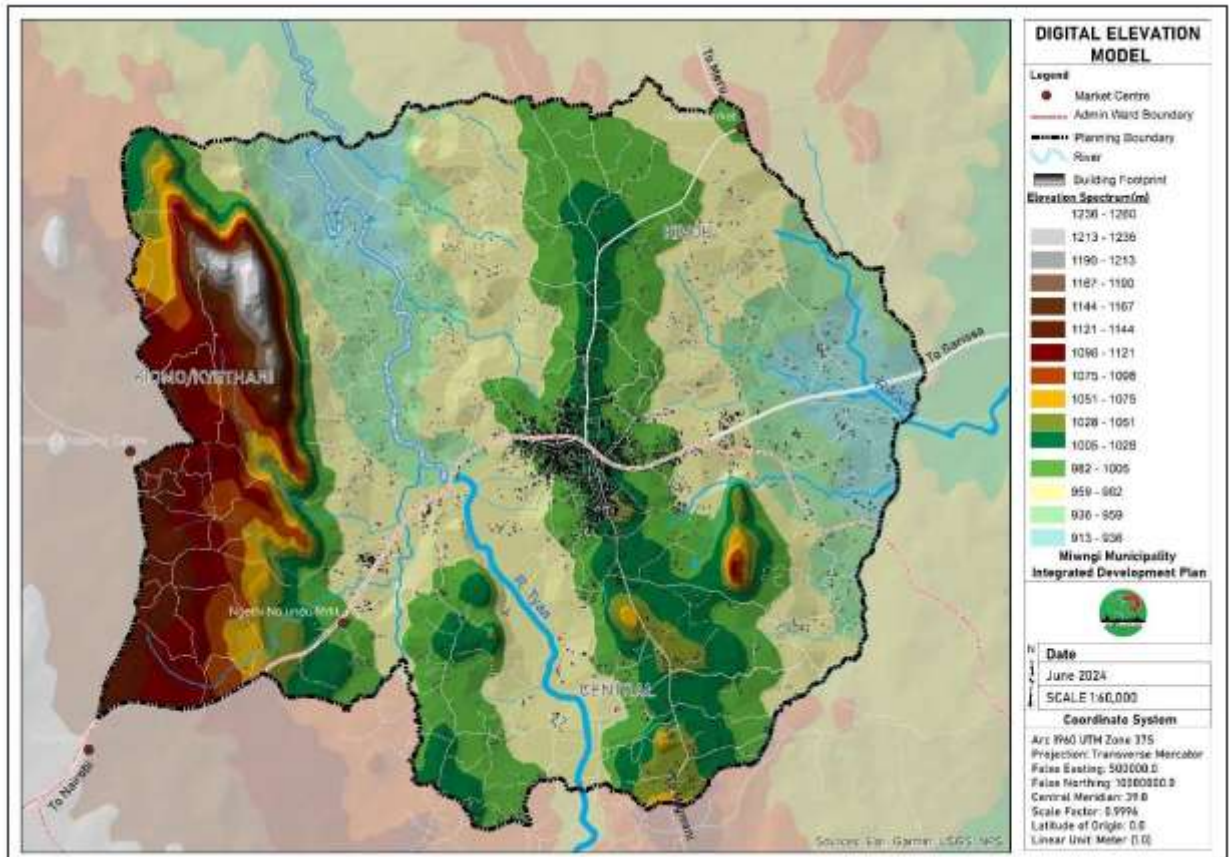
- i.) **River Systems:** The presence of rivers like the Tana River and its tributaries will influence settlement patterns, as communities typically settle near water sources for agriculture, drinking water, and other needs. These rivers also impact irrigation and agricultural practices in the region.
- ii.) **Soil Types:** The types of soils found in Mwingi affect agricultural productivity, which is a critical aspect of the local economy. Fertile soils enable the cultivation of various crops, influencing land use and settlement patterns.
- iii.) **Vegetation and Ecosystems:** The natural vegetation, which includes savannah and wooded areas, will influence land availability for development, agriculture, and conservation areas. Regions with dense vegetation may also limit urban expansion.
- iv.) **Climate:** Mwingi experiences a semi-arid climate, which affects agricultural practices, water availability, and overall settlement patterns. Areas with better rainfall are more likely to be developed for farming and habitation, while drier areas may be less populated. This plan will hence need to develop strategies to restrict this expansion of urban settlement into potential agricultural land.
- v.) **Natural Reserves and Conservation Areas:** Any nearby wildlife reserves or conservation areas can restrict urban development and shape land use practices, prompting a focus on sustainable development.

vi.) **Geological Features:** The geological characteristics of the area can influence construction practices and the types of materials available for building, impacting urban development styles.

vii.) **Wind direction:** Wind in Mwingi is most often from the south from mid-April to mid-October and mostly from the east from mid-October to mid-April. The implication of this wind direction is that activities that produce stench, such as waste handling facilities and slaughter houses should be located to the northwestern side of the municipality.

These features collectively influence how socio-economic activities in Mwingi municipality shall be located in space. These factors therefore affect everything from urban planning to infrastructure to agricultural practices and settlement patterns.

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1.2.4 Land-use and zoning policies

There exists an old plan that has guided the spatial development of Mwingi town over the past 30 or so years. This plan was prepared in the year 1990 to designate various land-use zones, including residential, industrial, educational, recreational, commercial, public land, public utilities, and parking areas. Although it was never approved, it nonetheless gave Mwingi town its extant spatial form. This form designates the administrative zone to the northern part of the old town, commercial zone along the A3 and C94 to Migwani, the residential zone to the north of the A3 as

well as between A3 and C94 to Migwani. There are also spots of greenspaces provided in this plan. An outstanding one is the Musila Gardens.

The spatial form of Mwingi Municipality will continue to be structured by this old plan. In addition, there will also be other zoning requirements that would dictate the location of green infrastructure such as trees, urban forests, and community gardens, which contribute to biodiversity, climate resilience, and the overall liveability of urban areas.

1.2.5 Informal forces

One of the key structuring elements in the context of the developing world is the informal processes. These include activities that are not criminal but nonetheless operating without being sanctioned by the state. They include informal trading, informal housing, street vending, informal food vending, among others. All these informal activities play an important part in sustaining the social fabric of urban settlements in general and Mwingi Municipality in particular. These fabrics include neighbourhoods, community organizations, and informal networks that are crucial for urban vitality and resilience.

Although urbanisation in many Kenyan cities in general and Mwingi Municipality in particular remains informal in nature, urban planners have tended to ignore this informality. The result of this inattention to the informal sector is that the sector remains unsupported even through it is the source of livelihood, municipal infrastructure and services for over 60% of the urban residents in Kenya. At the same time, the informal sector provides housing and other forms of infrastructure and services to over 60% of the urban population. The question that this IUDeP therefore grapples with is how to cater for this urban population.

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Figure 1-4: Urban informality actively structures the spatial form of Mwingi Municipality

Considering the above structuring elements, the spatial form of Mwingi Municipality can thus be described as consisting of the follows:

1. **Urban Core:** This includes the main commercial area that is to be found at the intersection of A3 and C93 and C94. This urban core of Mwingi has the main market, government offices, and a number of commercial establishments that include banks, supermarkets, pharmacies, and restaurants among others. It is the focal point for economic activities in Mwingi Municipality.
2. **Residential Zones:** Surrounding the urban core are the residential areas that can be categorized into three different socio-economic statuses even though they are of mixed typologies. They include the high-income and medium-income neighbourhood that is generally to be found to the eastern side in Kivou area around Thorn Tree Hotel and generally the northern side of the municipality. On the other hand, low- and medium-income residential neighbourhoods are to be found just around the central part of the municipality, on the rows after the commercial establishments along the C94

Road that leads to Migwani. This is the area around Musila Gardens and the Level 4 Hospital on the eastern side and to the southern part of the area defined by A3 and C94. These neighbourhoods have mixed development densities and building typologies, making Mwingi Municipality to lack a definite spatial character when it comes to residential development.

3. **Transportation Networks:** Mwingi Municipality will continue to grow radially from the confluence of C93/C94 and A3 Roads. These three form the major roads that dictate the movement of people and goods from the urban centre to the other parts of the municipality and beyond.
4. **Rural-Urban Interface:** Mwingi is surrounded by agricultural land, with a significant portion of the population engaged in farming. This rural-urban interface is crucial for food supply and economic exchange between the urban centre and surrounding villages. Among the rural parts of the municipality are Kivou to the North and the North Eastern side, Kiomo/ Kyethani to the Western side, the areas around Ngethi No Undu and Kalisasi markets to the Southern side, and along River Kivou to the Eastern side.
5. **Social Services:** The spatial distribution of schools, healthcare facilities, and other social services also plays a role in the town's structure, impacting accessibility for residents. This distribution has resulted in developments around the nodes where services are to be found. Generally, these are areas around health facilities, schools, water kiosks, and markets, religious institutions.
6. **Cultural Sites:** The presence of cultural and historical landmarks contributes to the community's identity and can influence the spatial dynamics of the town.
7. **Economic Activities:** Besides agriculture, local businesses, trade, and informal markets also do shape the economic landscape, affecting land use

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and development trends. These activities have resulted in not only the urban core of Mwingi Municipality but also outlying urban nodes at Kalisasi, Ngethi No Undu, Ithumbi, Ikuuni, and Muliluni. It is expected that, through the process of conurbation, these upcoming urban centres will form one large Mwingi Municipality in future. It is therefore important to plan for how to sustain and link them before that time comes.

The resulting urban form is presented in **Figure 1-5**.

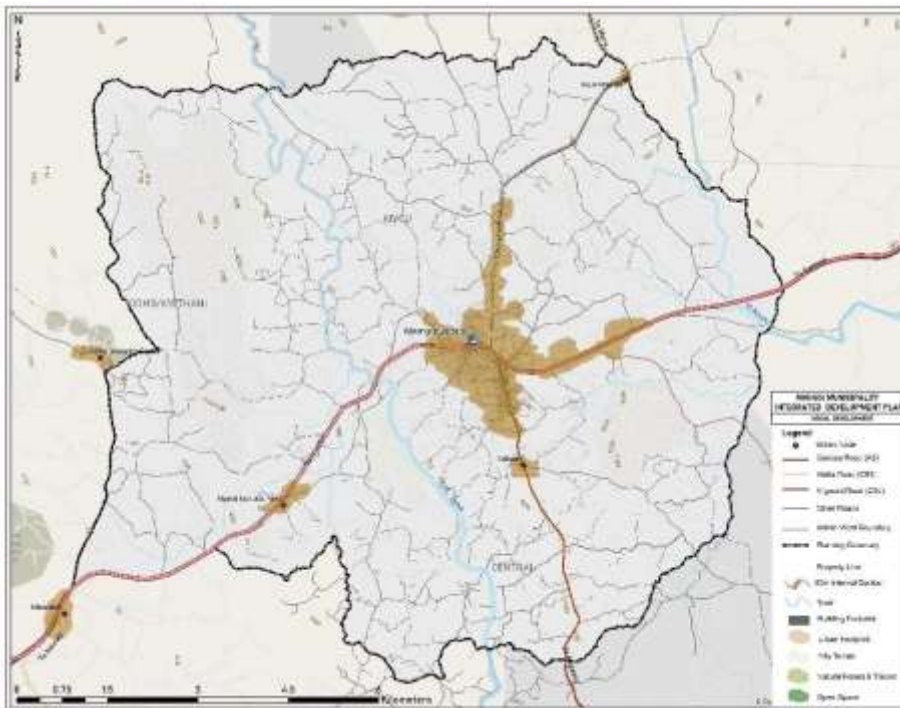


Figure 1-5: The extant urban form of Mwingi Municipality

Considering the extant urban form of Mwingi presented in **Figure 1-5**, its development challenges and potentials, and the governor’s manifesto, which emphasises the important role that urban centres play in terms of service provision

and therefore the need to plan them well, this plan therefore proposes the spatial structure of Mwingi to take the form that is now explained in the next section.

1.3 Proposed Draft for Mwingi Municipality Spatial Plan

1.3.1 General principles and guidelines for various zones

This plan relies on a number of principles and guidelines to come up with the proposed location of various land-uses that will give Mwingi Municipality its spatial form. This spatial form is expected to structure the socio-economic development strategies proposed in Chapter 7 of this plan. Among the planning principles and guidelines are geography, real estate, urban planning, logistics, and marketing. These are explained in the proceeding sections.

1.3.1.1 Geography and Spatial Analysis

Proximity: This principle dictates that a place needs to be close to other important places that either render services that are required for its sustenance or that are mutually interdependent with those that it renders. The principle has been applied in this current plan to give effect to the provisions of Section 3.3.4 of the Physical Planning Handbook that relate to tolerable distances to services such as education, basic health care, and government services among others. It also gives effects to tolerable distances to water and sanitation facilities that are recommended by the WHO's Guidelines for drinking-water quality. Buffer analyses were carried out to identify the areas that did not enjoy proximity to services. On the strength of these analyses, this plan proposes an additional primary school near Ikuuni market and also between Kiomo Shopping Centres and Ngethi No Undu market to cater for the population that currently has to travel longer distances to access education in those areas.

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Accessibility: This principle dictates that activities should be located in a manner that makes it easy to reach them. It is influenced by the interplay between land-uses and transportation networks. On the strength of this principle, this plan proposes the decentralisation of basic education services and other lower level services, such as clinics to the neighbourhoods that are to be found around the emerging markets at Kalisasi, Ngethi No Undu, Ikuuni and others. At the same time, employment opportunities that are based on the local resources can also be decentralised to these emerging urban centres to improve accessibility to employment. In doing this, different parts of the municipality will be enabled to benefit from these services without the need for moving to the urban core and raising motorised traffic, which is not environmentally sustainable.

Site and Situation: Site refers to the physical characteristics of a location, while situation describes its relative location. This guideline has been used in this plan to restrict development from Kiomo/Kyethani and a better part of the western side of the municipality that lies on the steep slopes. This guideline has also been employed to restrict development from riparian areas. In this case, a road is proposed along the existing rivers to act as a buffer that would restrict human activities from encroaching the riparian reserves. The guideline offered by site and situation is buttressed by topography, which refers to the physical features of the land, which can affect usability and settlement patterns.

1.3.1.2 Urban Planning

Zoning Laws: These are municipal regulations that dictate how land can be put to uses such as residential, commercial, and industrial among others. Mwingi Municipality does not have any zoning laws. However, there exists an old unapproved

land Use Plan, which was prepared in the year 1989. Although this plan was never approved, it nonetheless attempted to strategically organise and design urban spaces to optimise land use. Elements of this plan are evident in the extant organisation of the urban core. This current plan proposes to retain the land-use pattern already established by this old plan with a number of improvements.

To begin with, the roads in the urban core have been seriously encroached thus compromising accessibility and circulation in the urban core. These roads will need to be opened up to at least 12m to improve accessibility, circulation and connectivity to various parts of the municipality. In order to further improve circulation, this plan proposes a 20m primary collector ring road that runs parallel to the boundaries of the municipality on the outer side. Another primary collector road of 20m is also proposed to enable connectivity from Kalisasi, - Ngethi No Undu - Ikuuni and other emerging markets that form the middle ring of the municipality. A final ring road is proposed to connect the outer part of the existing urban core. All these roads will cross the A3, C93, and C94, thereby enabling traffic from these major arterials to be distributed to the residential areas and other urban nodes that are already emerging in the municipality. In contrast to the grid-iron road pattern, this proposed ring road minimises junctions thereby enabling faster mobility and its attendant reduction in air and noise pollution that often occur because of traffic snarl-ups. Local access roads will then run radially from the urban core to the edge of the municipality. The Municipal Board of Mwingi will need to formulate by-laws to ensure that public service vehicles and traffic is guided to support this proposed structure.

The western side of the municipality around Kiomo/ Kyethani is proposed to be preserved as a green area to protect the steep slopes in that part. This plan proposes to the development of activities that produce stench, such as waste handling facilities

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and slaughter houses should be located to the north-western side of the municipality. This decision is informed by the predominant westward wind direction, which would then carry any possible stench away from the municipality. The plan also proposes the development of a cemetery in that side, considering the sparse human settlement densities in that part and the possibility of obtaining adequate amount of land there. The western side of the municipality will also be developed as the industrial area of the municipality for the same reasons of wind direction.

Mwingi Municipality does not have a municipal stadium at the moment. This absence of a stadium not presents a loss of sports revenue for the municipality, it also stifles the development of sporting talent. The youth are currently forced to play in the dry riverbeds due to a lack of adequate sporting facilities. Suffice it to mention that the only sporting facility is Musila Gardens, which is not in a good physical state due to a lack of maintenance.

This plan proposes that the current urban core will continue to develop as a commercial zone. However, there will be new commercial nodes in the upcoming markets at

Kalisasi, Ngethi No Undu, Ikuuni and others (**Figure 7-6**). These will serve lower order services and other services that do not require their consumers to travel long distances.

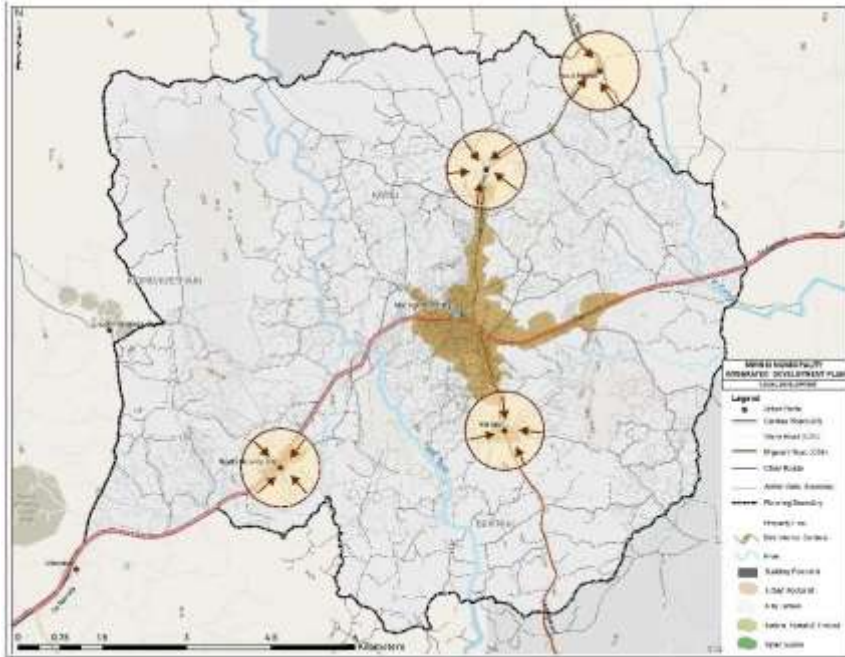


Figure 1-6: Managing urban sprawl through deliberate decentralisation

The areas to the north-eastern (Muthaiga and Mangaloma), eastern (Kwa Muli, Kitinga), south-eastern (Kitinga, Kalisasi), and southern side (Kalisasi) of the municipality are proposed for residential development.

Sustainability and climate change resilience: These guidelines consider the environmental impact and seeks to promote sustainable development and to make the municipality capable of mitigating against the impacts of climate change.

Community Needs: This guideline is anchored in the assessment of population densities, demographics, and community services. It emerged that the municipality needs a cemetery, waste handling facility, stadium, and juvenile prison among other facilities. This plan proposes the development of these facilities at various parts of

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the municipality. **Figure 1-7** now presents the proposed urban form of Mwingi Municipality.

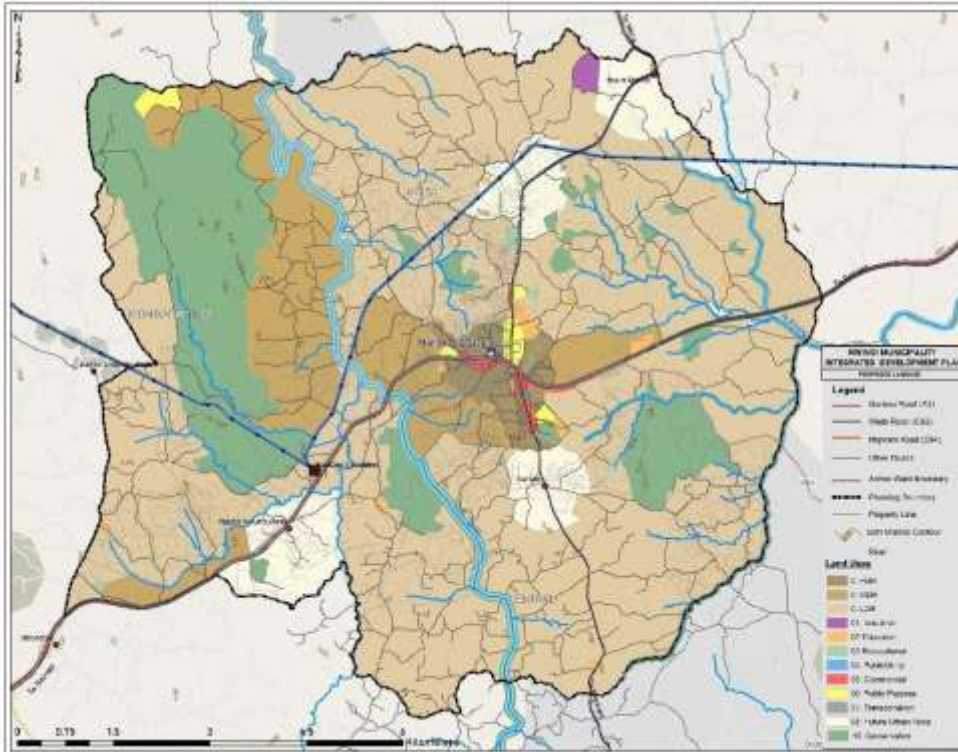


Figure 1-7: The proposed urban form of Mwingi Municipality

Proposed Spatial Plan for Mwingi Municipality

