



MINISTRY OF LANDS, PUBLIC WORKS,
HOUSING, AND URBAN DEVELOPMENT

STATE DEPARTMENT FOR LAND AND PHYSICAL PLANNING

PHYSICAL AND LAND USE PLANNING HANBOOK 2025





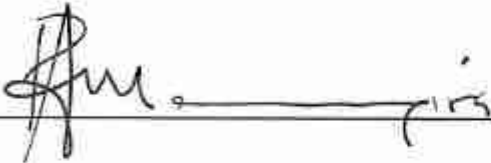
**MINISTRY OF LANDS, PUBLIC WORKS,
HOUSING AND URBAN DEVELOPMENT**
STATE DEPARTMENT FOR LAND AND PHYSICAL PLANNING

PHYSICAL AND LAND USE PLANNING HANDBOOK 2025

CERTIFICATION AND APPROVAL

This is to certify that this physical and land use planning handbook has been prepared as per the requirements of the Physical and Land Use Planning Act No. 13 of 2019, section 90, part (vii) subsection 2(b)

CERTIFIED



National Director of Physical Planning

Date 06.08.2025

APPROVED



Cabinet Secretary for Lands, Public Works, Housing and Urban Development

Date 29th August 2025

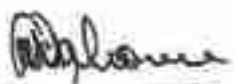
FORWARD

Kenya has undergone rapid socio-economic growth over the past twenty years, leading to uncontrolled land subdivision, urban sprawl, uncoordinated development, and environmental damage, among other concerns. This occurs within the framework of an outdated handbook that does not align with the Constitution of Kenya 2010, the Physical and Land Use Planning Act No. 13 of 2019, Sessional Paper No.1 of 2017 on the National Land Use Policy, and the National Spatial Plan, among others. Therefore, there is a need to review the handbook to include new planning approaches and adapt to changing circumstances such as governance systems, national goals, and emerging sectors like the Blue Economy.

The Constitution under Article 66 (1) provides for the regulation of the use of land, or any interest in or right over land, in the interests of defense, public safety, public order, public morality, public health, or land use planning. To carry out this function, it grants the state the authority under the Fourth Schedule to establish general principles of land use planning. In fulfillment of this mandate, the national government performs functions such as formulating spatial planning policies, strategies, guidelines, and standards. This handbook is therefore a significant achievement by the State Department for Lands and Physical Planning in carrying out its assigned mandate.

The guidelines and standards in this handbook apply to the entire country, both at the National and County levels of government, in the provision of physical and land-use planning services. They will form a basis for enhancing the capacity of counties in the preparation and implementation of physical and land-use development plans and act as a tool for standardizing processes and procedures. The handbook will be reviewed every ten years to reflect the dynamism and emerging trends in physical and land use planning.

I expect that the guidelines and standards in this handbook will be adhered to. Compliance will lead to the realization of aesthetically, dignified, secure, and sustainable urban and rural settlements that will ensure the socio-economic development and prosperity of the people of Kenya.



Hon. Alice Wahome, EGH
Cabinet Secretary,
Ministry of Lands, Public Works, Housing & Urban Development

PREFACE

Land is a fundamental resource upon which social, economic, and environmental development depends. Land allocation and utilization directly shape the optimization and sustainability of this resource. Physical and Land Use Planning provides a framework for balancing competing land use demands, guiding optimal, economical, aesthetic, and orderly development, as well as facilitating equitable access to land resources.

The handbook was developed by the State Department for Lands and Physical Planning as a practical guide to the application of the Constitution of Kenya, 2010, and existing policies and legislation on physical and land use planning. In addition, it addresses the gaps in new planning paradigms such as corridor development, techno and resort cities' development, and sectional development, as well as the incorporation of Disaster Risk Management (DRM) considerations in physical and land-use planning.

Sustainable development depends on the effective coordination of development initiatives in all sectors. The handbook will therefore provide a basis for the coordination and harmonization of sectoral spatial developments by providing guidelines and standards to both the National and County Governments. It will also be critical in addressing disaster risks that are likely to be encountered.

I am confident that this handbook will serve as a valuable reference for institutions and practitioners in the built environment, National and County Governments, academia, professional bodies, Ministries, Departments, and Agencies (MDAs), and the general public.

By sharing a common understanding of standards and guidelines in physical and land use planning provided in the handbook, we will collectively contribute to planned, resilient, and sustainable rural and urban settlements that foster economic growth and the well-being of Kenyans. I therefore appeal to all stakeholders to take up their space in the implementation process.



Hon. General Nixon K. Korir, CBS
Principal Secretary,
State Department for Lands and Physical Planning

ACKNOWLEDGEMENTS

The preparation of the physical and land use planning handbook was a collaborative effort involving various institutions and individuals, among them Ministries, Departments, and Agencies, County Governments, academia, Non-Governmental Organizations, professional bodies, practitioners, and development partners.

Foremost, we extend our appreciation to our Ministry of Lands, Public Works, Housing and Urban Development, and the State Department for Lands and Physical Planning for providing policy guidance and effective oversight. We also acknowledge the support of other Ministries, in particular, the National Treasury and Economic Planning, for their funding support, the Ministry of Defense, and the Ministry of Education for their comprehensive comments.

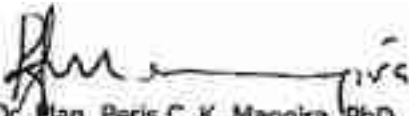
We are grateful to the Council of Governors (CoG) and County Governments for their active participation, whose invaluable and practical insights enriched the handbook. We also recognize the National Land Commission for its valued participation and knowledge sharing in the formulation process.

We also acknowledge specific institutions that played a critical role in the development of the Handbook. Among them, the World Bank for valuable comments on the concept paper, National Disaster Operation Unit (NDOC), Department of Metropolitan Development, State Department of Public Works, Kenya Power and Lighting Company, Kenya Urban Roads Authority, Kenya Maritime Authority, Kenya Civil Aviation Authority, Kenya Airports Authority, Communication Authority of Kenya, National Construction Authority, Kenya Railways, Conservator of Forests, National Environment Management Authority for their technical expertise and active participation in the preparation of the handbook.

Special mention goes to experts in academia and professional bodies. In particular, the University of Nairobi, the Technical University of Kenya, the Kenya Institute of Planners, the Architectural Association of Kenya (Town Planners Chapter), and the Town and Country Planners Association of Kenya for their technical expertise and professional input to the handbook.

Lastly, I sincerely thank all the staff and the planning team in the Directorate of Physical Planning for their professionalism, resilience, and dedication in preparing the handbook within the set timelines. Special appreciation goes to Enosh Momanyi, Augustine Masinde, Dr. Elizabeth Nguah, Gertrude Rapong'o, Grace Katheu, Charles Onditi, Melody Lijoodi, Faith Onyango, Collins Korir, Irene Mugo, Mercy Nturibi, Ephraim Njogu, Stephen Katana, and Zudiah Shamir for facilitating and advancing the initiation and formulation process.

To you and all stakeholders, "Asante Sana". Let us use this Handbook to develop Kenya.



Dr. Alan. Peris C. K. Mangira, PhD, HSC
National Director of Physical Planning

EXECUTIVE SUMMARY

Kenya has been experiencing rapid development in all sectors of the economy including agriculture, health, manufacturing, housing, and environment. The lack of an updated set of Physical and Land Use Planning Guidelines and Standards has significantly contributed to the current disorderly and uncoordinated physical development in various parts of the country, particularly in urban areas. Such development is unsightly, undesirable, costly to the national economy, and therefore unsustainable.

The Constitution of Kenya 2010, National Land Policy, National Land Use Policy and Sectional Properties Act, have recognized planning as a requirement before development. Devolution has presented a paradigm shift in the undertaking of planning functions in the country. Vision 2030 identified different development projects and programmes geared towards transforming the country and prioritized the preparation of the National Spatial Plan to spatially guide the implementation of the projects and programmes. This compounded with emerging concepts such as techno and resort cities, corridor development, and disaster risk management has necessitated the review of the previous handbook. The purpose of the review of the handbook therefore is to align it to the Constitutional, policy and legal requirements and provide standards and guidelines for coordinated development in the country.

The preparation of this handbook adopted a collaborative, multi-disciplinary, multi-sectoral and participatory approach involving all stakeholders drawn from the public, private and non-state actors. Desktop studies and benchmarking were also undertaken to provide the best practices from Ghana, Nigeria, Rwanda, Malaysia, and Singapore among others.

The handbook targets the following users: National Government Ministries, Departments and Agencies, County Governments, Professional practitioners in the built environment and related fields, Academic institutions offering training in the built environment and related fields, Professional bodies in the built environment and related fields, Non-Governmental, Community-based Organizations, Civil Societies and the General public

Some of the key highlights incorporated in this handbook include guidelines and standards on Disaster risk management, groundwater recharge basins, green cities, blue economy, techno cities, smart cities, vehicle charging stations, multi-modal interchanges and corridor development among others. The handbook is organized into six chapters as follows:

- i. **Introduction:** The chapter gives the justification and objectives for preparing the handbook. It also gives the methodology and guiding principles to be adopted in plan preparation and implementation.
- ii. **Policy, Legal and Institutional Context:** This chapter focuses on legal and policy aspects on which the handbook was prepared.
- iii. **Physical and Land Use Planning:** The chapter provides the procedure for plan preparation and implementation and, types and contents of physical and land use development plans.

- iv. **Development control:** This chapter discusses various types of development applications, the requirements and the approval processes.
- v. **Planning standards and guidelines:** This chapter provides sector-specific minimum requirements for planning, development approval, implementation and enforcement.
- vi. **Human resources and requirements:** The chapter highlights the distribution of the physical and land use planning functions between the National Planning Authority, the County Planning Authorities and the National Land Commission. It also outlines the capacity needed for physical and land use planning authorities and firms, in terms of human resource and equipment.

PLANNING TEAM

Officer Name	Officer Name
Dr. Peris Mang'ira, National Director of Physical Planning	Sarah Masaki
Plan. Augustine K. Masinde	Irene Mugo
Dr. Elizabeth Nguah (Team leader)	Melody Lijoodi
Gertrude Rapong'o	Kevin Chesire
Miriam Wambugu	Charles Onditi
Patrick Mutai	Collins Korir
Kennedy Nyatuongi	Mercy Ateka
Veronica Musee	Faith Akinyi
Moses Mugendi	Grace Katheu
David Wanjala	Ephraim Njogu
Sammy Muyeyia	Rose Suyianka
John Kirwa	Nicholas Kerepei
Dominic Irungu	Rose Munene - Intern
Zudiah Shamir	Maureen Njeru - Intern
Mercy Ndung'u	Esther Wanjiku - Intern
Mercy Nturibi	Pierre Maggie - Intern
Susan Kerubo	Danreage Gikunda - Intern
Stephen Katana	Samuel Morara - Intern
Adelaide Ombudo	

TABLE OF CONTENTS

CERTIFICATION AND APPROVAL.....	iii
FORWARD	v
PREFACE	vi
ACKNOWLEDGEMENTS	vii
EXECUTIVE SUMMARY.....	viii
PLANNING TEAM.....	x
TABLE OF CONTENTS.....	xi
LIST OF TABLES.....	xvii
LIST OF FIGURES.....	xviii
DEFINITION OF TERMS	xx
ACRONYMS.....	xxii
1 INTRODUCTION.....	23
1.1 Background	23
1.2 Problem Statement	23
1.3 Scope.....	23
1.4 Purpose.....	23
1.5 Objectives	23
1.6 Principles.....	23
1.7 Methodology.....	24
2 POLICY, LEGAL AND INSTITUTIONAL CONTEXT	25
2.1 Overview.....	25
2.2 Policy Framework.....	25
2.3 Legal framework.....	27
2.4 Institutional framework	29
3 PHYSICAL AND LAND USE DEVELOPMENT PLANS	31
3.1 Overview.....	31
3.2 Types of Plans	31
3.3 Planning Process.....	32
3.4 Presentation of Plans and Maps	35

3.4.1	Scale of the Maps	35
3.4.2	Plan Layout and Paper Size.....	35
3.4.3	Land Use Colors and Codes	36
3.4.4	Legend.....	38
3.4.5	Grids.....	42
3.4.6	Location Plan	42
3.4.7	Coordinate system	42
3.5	Public Participation	42
3.5.1	Criteria for identification and mapping of stakeholders.....	43
3.5.2	Modes of Stakeholder Engagement	44
4	DEVELOPMENT CONTROL.....	45
4.1	Overview	45
4.2	Principles and Objectives of Development Control	45
4.3	Development Control Process	45
4.3.1	Guidelines for approval of Change of User/Extension of User/Extension of Lease	51
4.3.2	Guidelines for Approval of Subdivisions and Amalgamations.....	51
4.3.3	Preparation and approval of Part Development Plans (PDP)	53
4.3.4	Guidelines for Approval of Building Plans	54
4.3.5	Guidelines for Preparation of a Planning Brief	54
4.3.6	Absence of an Approved Development Plan	55
5	PLANNING STANDARDS AND GUIDELINES.....	56
5.1	Agriculture.....	56
5.1.1	Plantation Farming/Estates	57
5.1.2	Horticulture Farming	57
5.1.3	Fish Farming.....	58
5.1.4	Urban and Peri-Urban Agriculture.....	60
5.1.5	Livestock and Ranching	60
5.2	Blue Economy.....	61
5.2.1	Marine Spatial Planning	61
5.2.2	Marine Park Zoning	62
5.2.3	Water resources.....	63
5.2.4	Forests.....	68
5.2.5	Hilly/Slope Areas.....	69

5.2.6	Transboundary Resources	72
5.2.7	Oil and Gas.....	72
5.3	Tourism and Wildlife	72
5.3.1	National parks and game reserves.....	73
5.3.2	Coastal Reserves.....	73
5.3.3	World Heritage Sites	73
5.4	Mining.....	74
5.4.1	Sand harvesting.....	75
5.4.2	Red Soil/murram Harvesting	75
5.4.3	Drilling, Boring, Shafting and Tunnelling	76
5.5	Energy sources	76
5.5.1	Solar Energy	76
5.5.2	Wind Energy.....	76
5.5.3	Nuclear Energy	77
5.5.4	Geothermal Energy	78
5.5.5	Hydro Electric Energy	78
5.5.6	Tidal Energy	78
5.5.7	Ocean Thermal Energy Conversion (OTEC).....	79
5.6	Electricity Supply.....	79
5.6.1	Overhead Cables.....	79
5.6.2	Underground Cables	80
5.6.3	Submarine Cables	81
5.6.4	Electric Power Generating Plants/Sub-Stations	81
5.7	Road Transport.....	82
5.7.1	Road Networks	82
5.7.2	Mass Rapid Transit System	87
5.7.3	Transport Interchanges	89
5.7.4	Bus Termini	91
5.7.5	Parking	91
5.7.6	Non-Motorised Transport (NMT).....	94
5.7.7	Roadside Stations	95
5.7.8	Electric Vehicle Charging Stations.....	97
5.7.9	Corridor Development	97

5.8	Railway Transport	97
5.8.1	Railway Reserve	97
5.8.2	Level Crossing Reserve (Diamond)	98
5.8.3	Standard Gauge Railway (SGR).....	99
5.8.4	Railway Stations	99
5.9	Air Transport	100
5.9.1	Airports.....	101
5.9.2	Airstrips.....	101
5.9.3	Helipads and Heliports.....	102
5.9.4	Advanced Air Mobility	102
5.10	Maritime and Inland Water Transport	102
5.10.1	Marina	103
5.11	Advertisements	103
5.11.1	Billboards	103
5.11.2	Construction site notice	104
5.12	Telecommunication Lines and Cables	105
5.12.1	Overhead Cables.....	105
5.12.2	Underground Cable Ducts.....	107
5.12.3	Communications Masts, Base Stations and Towers	108
5.12.4	Oil and Gas Transmission Pipelines.....	110
5.12.5	Oil pump stations.....	110
5.12.6	Liquefied Petroleum Gas (LPG).....	110
5.13	Water Supply.....	111
5.13.1	Water intake.....	112
5.13.2	Water Distribution and Reticulation Network.....	112
5.13.3	Water treatment plants	112
5.13.4	Water reservoirs	113
5.13.5	Service reservoir/ water tanks.....	114
5.13.6	Public Water Points	114
5.13.7	Boreholes	115
5.13.8	Dams	115
5.13.9	Groundwater recharge basin.....	115
5.14	Sanitation.....	117

5.14.1	Sewerage Treatment Plant	117
5.14.2	Biodigesters.....	117
5.14.3	Public Toilets	118
5.14.4	Stormwater drainage.....	118
5.14.5	Solid Waste	119
5.14.6	Radioactive waste management.....	121
5.14.7	Electronic Waste Management	121
5.15	Educational Institutions	123
5.16	Child Facilities.....	124
5.16.1	Pre-Primary Education.....	125
5.16.2	Primary Schools.....	127
5.16.3	Secondary Schools (Senior secondary)	128
5.16.4	Tertiary Institutions (Universities, Colleges, TVETS, Research Institutions) 130	
5.16.5	Community Centres.....	132
5.17	Sporting Facilities.....	133
5.17.1	Playgrounds.....	133
5.17.2	Skating Rink	133
5.17.3	Stadiums	134
5.17.4	Golf Course	135
5.18	Health Facilities.....	136
5.18.1	Care Facilities for the Elderly.....	137
5.19	Funeral Establishments.....	138
5.19.1	Cemeteries	139
5.19.2	Crematoriums	140
5.19.3	Firefighting facilities	140
5.20	Administrative Offices.....	141
5.21	Law Enforcement Facilities.....	141
5.21.1	Courts	142
5.21.2	Correctional Institutions.....	143
5.21.3	Military barracks, camps, garrisons, training institutions and other installations.....	144
5.22	Religious Institutions	145
5.23	Social Emergency Centers (Rescue Centers and Disaster Management Centers)146	

6	Human Settlements	146
6.1	Urban Settlements	146
6.2	Rural Settlements	148
6.3	Residential.....	148
6.3.1	Mixed Density and Use	153
6.4	Commercial Developments.....	153
6.4.1	Cities, Municipalities and Towns	154
6.4.2	Market Centre and Neighborhood Shopping Centre	154
6.4.3	Local shops	155
6.4.4	Market	155
6.4.5	Shopping Malls	156
6.5	Industries	157
6.5.1	Heavy Industrial Areas	158
6.5.2	Light Industrial Areas	159
6.5.3	Industrial Parks.....	161
6.6	New Paradigms in Urban Development.....	164
6.6.1	Smart Cities and Techno Cities.....	164
6.6.2	Resort Cities Planning.....	165
6.6.3	Sport cities and sports hub	166
6.6.4	One-stop border posts.....	166
6.6.5	Metropolis and Megacities.....	166
6.7	Green Spaces	167
6.7.1	Urban Greening Strategy	169
6.8	Land Use Planning and Disaster Risk Management	171
7	HUMAN RESOURCE AND OFFICE REQUIREMENTS.....	172
7.1	Overview.....	172
7.2	Office Requirements of a Physical and Land Use Planning Authority	172
7.2.1	Human Resource Requirements of Physical and Land Use Authorities	172
7.2.2	Human Resource and Office Requirements for Physical and Land Use Firms	174
	REFERENCES	175
	APPENDIX.....	180

LIST OF TABLES

Table 1:Implementing Institutions	30
Table 2: Percentage of work at various stages in the planning process	34
Table 3: Percentage of Plan Display.....	35
Table 4: Recommended Land Use Colour Codes & Zones.....	36
Table 5: The recommended combination of colours (CMYK).....	37
Table 6: Recommended combination of Colours (RGB)	38
Table 7: Categories of Stakeholders.....	43
Table 8: Processing of development applications	51
Table 9: Buffer for various land uses	56
Table 10: Minimum Land Sizes for Agricultural Land	57
Table 11: Urban agriculture permissible uses	60
Table 12: Agro-Ecological Zones.....	61
Table 13: Development conditions within slope areas	70
Table 14: Buffer zones for the various mining areas	74
Table 15: Safe distances to be maintained in quarry operations.....	75
Table 16: Siting considerations for nuclear energy facility and radioactive waste disposal facility	77
Table 17: Land requirement for hydroelectric plants	78
Table 18: Minimum Setbacks to Fuel and Gas Tanks.....	79
Table 19: Minimum Vertical Clearances from power cables.....	79
Table 20: Horizontal Separation in Co-Shared Power Lines Ducts.....	80
Table 21: Recommended clearance heights.....	80
Table 22: Land Requirements for Electricity Sub-Station	81
Table 23: Access roads widths	85
Table 24: Space Requirements for Vehicles	91
Table 25: Car Parking Requirements Based on Usage	92
Table 26: Bicycle Parking Standards	94
Table 27: Standards of NMT for different categories of roads	94
Table 28: Minimum Vertical Clearance for Overhead Cables	105
Table 29: Minimum Horizontal Clearance for Overhead Cables.....	105
Table 30: Minimum Vertical Clearance from Power Lines.....	106
Table 31: Standards and Guidelines for Communications Masts, Base Stations and Towers .	108
Table 32: Pipeline Setback Requirements	110
Table 33: Land requirements	113
Table 34: Land Requirements for Water Reservoirs.....	114
Table 35: Maximum Number of People per Water Source.....	114
Table 36: Wayleaves for utilities.....	122
Table 37:Minimum Horizontal Right-of-Way for overhead power lines	122
Table 38: Room Requirements for Day-cares.....	125
Table 39: Minimum Plot Areas for Primary Schools	127

Table 40: Standard requirements for primary school facilities	128
Table 41: Minimum Plot Areas for Secondary Schools	129
Table 42: Standard requirements for secondary school facilities	129
Table 43: Land requirements for tertiary institutions	131
Table 44: Minimum Land sizes for community centres	132
Table 45: Land Requirements for Sporting Facilities	134
Table 46: Summary of planning standards for health facilities	137
Table 47: Land requirements and facilities for Funeral Establishments	139
Table 48: Land Requirements for Cemeteries	139
Table 49: Standards and Guidelines for firefighting facilities	140
Table 50: Minimum land requirements for administrative offices.....	141
Table 51: Land requirements for the various levels of stations.....	142
Table 52: Land Sizes for courts	143
Table 53: Land Requirements for correctional institutions.....	143
Table 54: Urban Land Use Allocation	147
Table 55: Standards for Various Housing Densities	149
Table 56: Minimum setbacks and building lines	150
Table 57: Standards and Guidelines for Markets	155
Table 58: Percentage Allocation of Land in an Industrial Area	158
Table 59: Permitted and Prohibited Uses in Heavy Industrial Zone.....	159
Table 60: Standard requirements for the petrol stations.....	160
Table 61: Recommended infrastructure within industrial parks	162
Table 62: Land size requirements and distribution of green spaces.....	167
Table 63: Planning standards for green spaces using the catchment population	168
Table 64: Planning standards for green spaces using circulation space	169
Table 65: Disaster Risk Management	171
Table 66: Human Resource Requirements.....	173
Table 67: Human Resource Requirements.....	173

LIST OF FIGURES

Figure 1: Summary of the planning process	34
Figure 2: An illustration of layout proportioning on an A4 paper size.....	36
Figure 3: Legend Sample: Local Physical and Land Use Development Plan	40
Figure 4: Legend Sample of a Part Development Plan -National Government.....	41
Figure 5: Legend Sample for Part Development Plan - County Government.....	42
Figure 6: Development Control Process.....	46
Figure 7: Support amenities for urban fish landing sites.....	59
Figure 8: Support amenities for rural fish landing sites.....	59
Figure 9: Illustration for Riparian reserve for the Ocean.....	64
Figure 10: An Illustration of a Riparian Reserve for Rivers.....	66
Figure 11: An Illustration of a Riparian Reserve for Rivers.....	66
Figure 12: Illustration of a Quarry Site.....	75
Figure 13: Illustration of a road reserve	83

Figure 14: Hierarchy of Roads	84
Figure 15: Illustration of truncations	86
Figure 16: BRT Model	87
Figure 17: Bus Rapid Transit Illustration	87
Figure 18: Light Rail System	88
Figure 19: Illustration of a section of an interchange crossing	90
Figure 20: Road interchange	90
Figure 21: Types of parking	92
Figure 22: Section of non-motorized transport.....	95
Figure 23: Basic concept of road side station (Michinoeki).....	96
Figure 24: Illustration of diamond visibility	99
Figure 25: Obstacle Limitation Surface (OLS)	101
Figure 26: Illustration of a construction site board	104
Figure 27: Horizontal Separation Distance for Telecommunication and Power Masts	106
Figure 28: Minimum Vertical Clearance from Power lines	107
Figure 29: Clearance between power cables and telecommunication cables	108
Figure 30: Illustration of groundwater recharge.....	116
Figure 31: Illustration of a primary school site layout plan.....	128
Figure 32: Distribution of education facilities in a neighbourhood.....	130
Figure 33: The zones of a stadium.....	135
Figure 34: Illustration of a site layout plan of a care facility.....	138
Figure 35: Illustration of a site layout plan for a police station.....	142
Figure 36: Setbacks for residential developments	150
Figure 37: Illustration of a setback and building height.....	151
Figure 38: Access in Residential Areas	152
Figure 39: Road Hierarchy in Commercial Areas	154
Figure 40: Illustration of acceleration and deceleration lanes.....	161
Figure 41: Characteristics of a smart city	165

DEFINITION OF TERMS

“Aerodrome” is a defined area on land or water (including any buildings, installations and equipment) intended to be used either wholly or in part for the arrival, departure or movement of aircraft.

“Artisanal mining” means traditional and customary mining operations using traditional or customary ways.

“Bio retention” means landscaped depressions or shallow basins used to slow and treat on-site storm-water runoff.

“A buffer zone plan” is a plan for the area surrounding the city, a strategic installation whose integrity it intends to protect.

“Building Lines” means a limit beyond which a house must not extend to a street.

“Bus Rapid Transit” (BRT) is a high-quality bus-based transit system that delivers fast, comfortable, and cost-effective services at the metro level.

“Bus Rapid Transit Corridor” is a section of a road or contiguous roads served by a bus route or multiple bus routes with a minimum length of 3km that has dedicated bus lanes and otherwise meets the BRT basic minimum requirements.

“Carbon sequestration” is the process of capturing and storing atmospheric carbon dioxide.

“Carbon sink” refers to any reservoir, natural or otherwise, that accumulates and stores some carbon-containing chemical compound for an indefinite period and thereby lowers the concentration of carbon dioxide (CO²) in the atmosphere.

“Clear height” is the vertical distance between the lowest edge of the sign and the ground level.

“Corridor development planning” is an approach that supports regional development, aiming at linking regions within the country to its trans-borders majorly through transport corridor planning that spurs economic growth and addresses infrastructure gaps.

“Desalination” is a technique where the excess salts are removed from seawater or grey water converting it into safe portable or usable water.

“Disaster” is a serious disruption of the functioning of a community or a society at any scale due to hazardous events interacting with conditions of exposure, vulnerability and capacity, leading to one or more of the following: human, material, economic and environmental losses and impacts.

“Disaster Risk” is the potential loss of life, injury, or destroyed or damaged assets, which could occur to a system, society or a community in a specific period, determined probabilistically as a function of hazard, exposure, vulnerability and capacity.

“Disaster risk management” is the application of disaster risk reduction policies and strategies to prevent new disaster risk, reduce existing disaster risk and manage residual risk, contributing to the strengthening of resilience and reduction of disaster losses.

“Export Processing Zones (EPZs)” is a customs area where one is allowed to import plant, machinery, equipment and materials for the manufacture of export goods. It is confined to manufacturing establishments.

“Fire tender” is a unit of apparatus used by a fire protection service to transport men, extinguishing agents, and equipment to the scene of a fire.

“Greenfield smart cities” are cities that are built on a greenfield and bring together eco-friendly elements and highly developed infrastructure thus blending both sustainable development and the next level of human habitation.

Kiss-and-ride denotes a facility designed to allow commuters to be dropped off by car and

complete their journey by public transport.

"Marine bioprospecting" means the search for bioactive molecules and compounds from marine sources that have new, unique properties and the potential for commercial applications. Its applications include medicines, food and feed, textiles, cosmetics and the process industry.

"Marine Spatial Planning" A long term process integrating human settlements, economic activities (fishing, aquaculture, shipping, tourism, renewable energy generation, and seabed mining) and infrastructural developments with environmental conservation at the land-sea interface to ensure sustainability and resilience of maritime ecosystems and services

"Park-and-ride" is a system for reducing urban traffic congestion in which drivers leave their cars in car parks on the outskirts of a city and travel to the city centre on public transport.

"Passage width of platforms" is the intermediate distance between departure bays and waiting bays.

"Resort city" is an urban area where tourism or vacationing is the primary component of the local culture and economy.

"Retrofitted smart cities" are existing cities that are developing, upgrading, or furnishing infrastructure with technology.

"Roadside stations" are designated rest areas found along highways to provide restrooms, restaurants, and health facilities for travelers to address fatigue and enhance road safety for both drivers and passengers.

"Service area" is the sum of all areas on all floors of a building used for custodial supplies, janitorial sink rooms, closets and public restrooms.

"A Special Economic Zone" (SEZ) is a designated area in a country that is subject to unique economic regulations that differ from other areas in the same country.

"Techno City" is a well-defined and delineated geographical urban area characterized by advanced technology and or devoted to technological research, development or production.

"Transport interchange" is the place where transfers between different public transport lines or modes occur. Either interchanges can be the physical action of transferring between services or modes as part of the passenger's journey or it can be the physical location that provides access to the public transport system.

"Vegetated swales" are open, shallow channels densely planted with a variety of trees, shrubs, and/or grasses to slow runoff, filter water, and promote infiltration into the ground.

"Water towers" means an elevated geographical area comprising of mountains, hills, and plateaus where the topography, geology, soils and vegetation support reception, retention, infiltration, and percolation of precipitation.

ACRONYMS

4Rs	Reduce, Reuse, Recycle and Recover
BRT	Bus Rapid Transit
BTS	Base Transceiver Station
CAK	Communication Authority of Kenya
CaT DDO	Catastrophe Deferred Drawdown Option
CBD	Central Business District
CIDP	County Integrated Development Plan
CNZ	Cross National Zones
CSP	County Spatial Plan
DRM	Disaster Risk Management
EA	Environmental Audit
EEZ	Exclusive Economic Zones
ESIA	Environmental Impact Assessment
GFA	Gross Floor Area
IEC	International Electro-Technical Commission
ISUDP	Integrated Sustainable Urban Development Plan
KFS	Kenya Forest Service
Kmph	Kilometre per Hour
KRC	Kenya Railway Corporation
KWS	Kenya Wildlife Service
LAPSSET	LAMU Port-South Sudan-Ethiopian-Transport
LCDA	LAPSSET Corridor Development Authority
LH	Lower Highlands
LM	Lower Midlands
LU	Livestock Units
MDAs	Ministries, Departments and Agencies
MPA	Marine Protected Areas
MSP	Marine Spatial Plan
NEMA	National Environmental Management Authority
NMT	Non-Motorised Transport
NSP	National Spatial Plan
PLUPA	Physical and Land Use Planning Act, No.13 of 2019
PPP	Private Public Partnership
SBP	Science-Based Parks
SEA	Strategic Impact Assessment
SEZ	Special Economic Zones
SGR	Standard Gauge Railway
SIA	Social Impact Assessment
TOD	Transit-Oriented Development
UH	Upper Highlands
UM	Upper Midlands

1 INTRODUCTION

1.1 Background

Physical and land use planning is the continuous process of designating, regulating, evaluating, and organizing the present and future use and development of land to achieve the optimum level of land utilization in a sustainable manner. This process has to be guided by a set of rules, regulations and standards based on Article 66 (1) of the Constitution of Kenya 2010, on regulation in 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. This handbook is also geared towards the implementation of the Physical and Land Use Planning Act No.13 of 2019 section 10 and its subsidiary regulations.

1.2 Problem Statement

Kenya has in the last two decades experienced transformation in terms of investment in physical and social infrastructure, rapid urbanization trends, and exploration of minerals, which have led to changes in land use patterns. This transformation needs to be organized to ensure returns in the economy. The new economic frontiers of the blue economy, techno and resort cities, corridor development and mineral exploration require a framework to guide their development. In addition, there is need to take cognizance of the emerging global, regional and local trends such as climate change and the level of disaster preparedness to ensure that developments achieve the expected sustainable outcomes.

The need to review the handbook has been necessitated by the enactment of the Constitution, Physical and Land Use Planning Act 2019, completion of Sessional Paper No. 1 Of 2017 On National Land Use Policy; and other relevant legislations and policies.

1.3 Scope

The handbook will be applicable throughout the Kenyan territory as a tool for decision-making on matters relating to spatial planning, land use management and development. The handbook will be reviewed after every ten years.

1.4 Purpose

The purpose of this handbook is to standardize the physical and land use planning practice throughout the country.

1.5 Objectives

1. To provide guidelines and standards for physical and land use planning practice
2. To provide a reference point for decision-making by the professionals in the built environment
3. To mainstream emerging trends in physical and land use planning

1.6 Principles

The guidelines and standards are anchored on the following principles:

Accessibility: All parcels of land must be provided with adequate access.

Aesthetics: Developments should be organized in a visually appealing manner.

Compatibility: Land use activities should co-exist in harmony.

Convenience: Movement from one place to another should take the shortest time possible.

Conservation: Protection and care of resources should be upheld.

Efficiency: Resources should be used optimally.

Economy: The available resources are to be used sparingly and synergistically.

Equity: There should be fairness in the provision of human basic needs and employment opportunities

Health, Safety and Welfare: All developments should ensure the safety and welfare of the users.

Resilience: All physical and land use development plans must promote the ability of developments to recover and adapt quickly from a disaster with ease

Sustainability: All resources should be utilized without compromising the needs of the future generation

Urban containment: All developments in urban areas should be concentrated within a delineated boundary

1.7 Methodology

The preparation of the handbook was done in a multi-sectoral, multi-disciplinary, consultative and participatory manner through the following stages:

I. Formulation of concept paper

This was done to conceptualize the assignment and give a road map to the preparation of the handbook.

II. Identification of thematic areas and formation of technical working groups

Thematic areas were identified based on sectors namely, agriculture, environment and natural resources, human settlement, economy, industry, tourism, transport, infrastructure, blue economy and energy. These informed the formation of the technical working groups.

III. Desktop literature review and benchmarking

They were done by reviewing various National policies and legislations as well as drawing best practices from other countries namely Ghana, Rwanda, Uganda, South Africa, China, Hong Kong, Japan, Australia, India, and the United States of America.

IV. Work sessions

Brainstorming sessions and group discussions were conducted to gather different views and ideas to inform the preparation of the handbook.

V. Stakeholder engagement

Stakeholder engagements were undertaken at different stages of the handbook preparation. They included among others; NLC, NCA, KCA, KNBS, COG, NEMA, KURA, Public Works, TUK, UoN, KIP, AAK, County Governments, and Chamber of Commerce.

2 POLICY, LEGAL AND INSTITUTIONAL CONTEXT

2.1 Overview

The preparation of the handbook was anchored on the Constitution of Kenya 2010, under Article 66 which mandates the state to regulate the use of land to ensure defense, public safety, public order, public morality, public health or land use planning. In addition, the handbook was guided by legal, policy and institutional frameworks as presented in sections 2.2-2.4

2.2 Policy Framework

The handbook is anchored on the following policies:

Sustainable Development Goals

The SDGs are a shared blueprint to achieve a better and more sustainable future for all by addressing global challenges including poverty, inequality, climate change, environmental degradation, peace and justice. The handbook provides guidelines and standards for the achievement of goals on sustainable cities and communities, climate action, life below water, life on land, clean water and sanitation among others.

Kenya Vision 2030

The Kenya Vision 2030 aims to transform the country into a newly industrializing middle-income country providing a high quality of life to Kenyan citizens by 2030. It is anchored on economic, social and political pillars. Under the current Medium-Term Plan IV (2023-2027), the vision has been stepped down as the Bottom-Up Economic Transformation Agenda (BETA) which focuses on Agriculture; Micro, Small, and Medium Enterprises (MSMEs) Economy; Housing and Settlement; Healthcare; Digital Superhighway and Creative Economy. The Handbook is an enabler in the realization of the programs encompassed in the policy by providing standards and guidelines for physical and land use plan preparation for the projects contained in the vision.

Sessional Paper No. 3 of 2009 on National Land Policy

The Sessional Paper No. 3 of 2009 on National Land Policy identifies the need for the Government to establish development control standards, processes and procedures that are efficient, transparent and accountable. It takes into account International Conventions and national policies relating to the sustainable use of land and the preservation of environmental values. The policy further recognizes that the current planning standards and regulations are outdated hence posing challenges in development control, implementation and enforcement of approved plans, policies and strategies. It also advocates for the need to review planning and development control legislations to harmonize the governance structures, decision-making processes, planning standards and regulations.

Sessional Paper No. 1 of 2017 on National Land Use Policy

The Policy stipulates that in order to promote and ensure productive and sustainable use of land, there is need to develop a set of planning guidelines, policies and standards which shall be observed and enforced by the county governments and other sectoral agencies within the frameworks of approved physical and land use development plans. The objective of the policy is to ensure sustainable urbanization and promote the development of adequate and appropriate shelter, and adequate provision of infrastructure and services in human settlement planning. It mandates the National Director of Physical Planning to prepare and disseminate appropriate physical planning guidelines, manuals and standards including the revision of the Physical Planning Handbook for effective implementation and mainstreaming of policy guidelines,

principles and strategies.

The National Spatial Plan (NSP) 2015-2045

The NSP outlines various development strategies/approaches for spatial growth and development of the country by addressing factors that prevent the country from achieving the intended national goals and objectives. It outlines policy statements for the different thematic areas and provides measures to achieve the provisions of the policy statements.

NSP recommends the development of regulations and standards for infrastructural developments, eco-tourism establishments, standards for open/green space on private development and sustainable forest management among others.

National Policy for Disaster Management in Kenya, 2009

The Policy was established to respond to the increasing cases of desertification and other climate change-related disasters. It provides background information on disaster patterns and profiles in Kenya including existing categories of disasters.

The Policy mandates the Directorate for Special Programs to collaborate with the various Ministerial Development Agencies including the Directorate of Physical Planning to develop appropriate guidelines and standards for Disaster Risk Management. The physical planning handbook mainstreams disaster risk reduction guidelines and standards for effective disaster management throughout the country.

The National Urban Development Policy (NUDP), 2012

The NUDP seeks to create a framework for sustainable development and management of education, health facilities, public open spaces, parks and recreational facilities, including sports amenities. On this basis, the handbook provides guidelines and standards for planning these facilities while mainstreaming disaster risk reduction to ensure urban safety.

Integrated National Transport Policy (INTP), 2024

The Policy provides for the establishment of appropriate land use planning mechanisms that protect long-term transport infrastructure and service needs. It also ensures the development and implementation of local transport plans that are fully integrated with urban and regional land use plans, land use compatibility and secure and/or acquire land for future development. These provisions have informed the formulation of guidelines and standards for integrated transport development.

National Environment Policy, 2013

The Policy forms the basis for integrated planning and sustainable management of natural resources in the country by proposing a broad range of actions for responding to key environmental issues. The Policy promotes the development and implementation of national and international standards, principles and criteria for sustainable environment and natural resource management. In addition, it upholds the integration of environmental concerns in physical and land use planning, and development processes. The handbook has mainstreamed the provisions of this Policy by developing standards and guidelines to enhance the conservation and management of ecosystems and the sustainable use of natural resources.

National Forest Policy, 2020

The Policy provides a framework of standards and guidelines for improved forest governance, resource allocation, land tenure and land use, Disaster Risk Management and Climate Change. The Handbook

provides standards and guidelines for the management and conservation of forests.

Kenya National Adaptation Plan 2015-2030

The Plan provides actions to address the country's vulnerability and resilience to climate change towards the attainment of Vision 2030. It recognizes that climate change is a cross-cutting sustainable development issue with economic, social and environmental impacts. This builds on the premise that all our socio-economic sectors are vulnerable to climate change impacts, although the manifestation of these impacts may vary from one sector to the other. The handbook mainstreams DRM and Climate Change adaptation across all sectors to enhance long-term resilience and adaptive capacity for the country.

Ministry of Health Norms and Standards for Health Service Delivery, 2006

The policy sets out the norms and standards that are established to guide efficient, effective and sustainable delivery of health services. The norms and standards define the health system structure needed to deliver services, the expected service standards for different activities to be delivered at the different levels of the health system, the minimum human resources and infrastructure needed to ensure that the different levels of the system can offer the expected service standards delivery. Preparation of the handbook referred to the norms and standards provided in the policy document.

The National Industrialization Policy 2012-2030

The Policy advocates for making Kenya the most competitive and preferred location for industrial investment in Africa. It focuses on strengthening local production capacity, increasing Foreign Direct Investment in the industrial sector, locally produced industrial components and industries located outside major urban centres among others. The handbook provides for standards and guidelines for industrial developments hence acting as a tool for the realization of the objectives of the Policy.

2.3 Legal framework

The main legal frameworks that guided the preparation of the handbook include:

Constitution of Kenya

Article 66 (1) of the Constitution on the regulation of land use and property mandates the State to regulate the use of land in the interest of defense, public safety, public order, public health and land use planning. Article 191(3) (b) on national legislation provides that for a matter to be dealt with effectively, it requires uniformity across the nation, and the national legislation provides that uniformity by establishing norms and standards or national policies. The standards and guidelines provided in the handbook take into consideration these provisions.

Physical and Land Use Planning Act (PLUPA), 2019

The Physical and Land Use Planning Act, 2019 (PLUPA) is an Act of parliament that provides for the planning, use, regulation and development of land. The preparation of the handbook is aligned to the requirements of Section 10 of the Act which mandates the Cabinet Secretary to issue policy statements, guidelines and circulars on general and specific aspects of physical and land use planning.

Environmental Management and Coordination Act, (1999)

The Act provides for environmental management and coordination matters through environmental impact analysis, environmental audit, environmental restoration and conservation orders. The legislation entitles every Kenyan to the right to a clean environment and tasks the State to protect the environment and ensure sustainable use of land and other natural resources.

The planning handbook provides standards and guidelines for DRM and climate change adaptation to ensure environmental quality and protection of environmentally fragile areas as stipulated in the Act.

County Governments Act, No. 17 of 2012

The Act gives provision for county planning, outlined in part XI of the Act. It underlines the principles of planning, objectives of county planning, types and purposes of plans and public participation. The handbook will be used to implement the provisions of County planning.

The National Construction Authority Act No.41 of 2011

The Act gives various functions to the National Construction Authority including coordinating the construction industry countrywide, and encouraging the standardization and improvement of construction techniques among others. The planning handbook provides standards and guidelines for all the developments to be undertaken in different areas as stipulated in the Act.

Urban Areas and Cities Act, No. 13 (Amendment) of 2019

The Act provides for the classification, governance and management of urban areas and cities. It provides the services necessary for the planning of urban areas. The handbook provides guidelines and standards for the provision of these services within urban areas and cities.

National Land Commission Act, No. 5 of 2012

The Act provides for the management and administration of land per the principles of land policy set out in Article 60 of the Constitution and the national land policy. The guidelines and standards of the handbook will act as a tool to guide the Commission in carrying out their monitoring and oversight responsibilities in physical and land use planning.

Land Act No. 6 of 2012

It provides for the sustainable administration and management of land and land-based resources. It also requires that land be planned, surveyed and serviced while providing guidelines for its development. The handbook provides guidelines and standards for land use planning hence the realization of the provisions of this Act.

Agriculture, Fisheries and Food Authority Act, (2013)

This Act provides the framework within which to make proposals on agriculture promotion and conservation of soils and fertility for sustainable agriculture and optimization of land use. This planning handbook provides guidelines for the utilization, protection, conservation and sustainable use and management of agricultural potential areas.

Water Act (2002)

The Act provides guidelines on plan proposals touching on management, conservation, use and control of water resources, water supply, and sewerage services. The handbook provides guidelines for the location of installations of water infrastructure and catchment population.

Mining Act, No. 12 of 2016

The Act provides for prospecting, mining, processing, refining, treatment, transport and any dealings in minerals and for related purposes. The exploration, exploitation, processing and refinement of minerals happen on land which requires control and regulation. This shall be done through adherence to provided standards and guidelines on exploration, exploitation and processing in the handbook.

The Forest Conservation and Management Act, No. 34 of 2016

This Act gives effect to Article 69 of the Constitution concerning forest resources to provide for the development and sustainable management, including conservation and rational utilization of all forest resources for the socio-economic development of the country and for connected purposes. In compliance with the Act, the handbook provides standards and guidelines to conserve forests and maintain the minimum forest reserve areas at National and County levels and a programme for achievement and maintenance of tree cover of at least ten percent.

Petroleum Act, No. 2 of 2019

This Act provides a framework for the contracting, exploration, development and production of petroleum and the cessation of upstream petroleum operations. Standards and guidelines relating to the development of petroleum infrastructure such as pipelines and storage stations; environment, health and safety, and use of land for petroleum operations as provided in the Act, are mainstreamed in the handbook.

Maritime Zones Act, 2012

This Act provides for the establishment and delimitation of the exclusive economic zone (EEZ) of Kenya and the exploration, exploitation, conservation and management of the resources of the maritime zones. The handbook provides standards and guidelines to ensure that activities around these zones are coordinated and regulated.

2.4 Institutional framework

Implementation of the handbook will require concerted efforts by various institutions which will play different roles as shown in Table 1

Table 1:Implementing Institutions

INSTITUTION	ROLE
Directorate of Physical Planning	Formulating national physical and land use planning policies, regulations, guidelines and standards
	Collaboration with the MDAs and County Governments to coordinate, and consult the preparation, implementation and review of the handbook
	Preparation and implementation of physical and land use development plans
	Capacity building and technical support to County Governments and MDAs in the implementation of the handbook
	Dissemination and sensitization of the handbook to the County Governments, MDAs, Development Partners and the general public
County Governments	Formulating policies, regulations, guidelines and standards specific to the Counties
	Preparation and implementation of County Physical and Land Use Development Plans
	Development control, compliance and enforcement
	Dissemination and sensitization of the handbook to the public
Ministries, Departments and Agencies	Formulating policies, regulations, guidelines and standards specific to the sectors
	Preparation and implementation of sectoral plans
National Land Commission	Oversight, monitoring and evaluation of the implementation of physical and land use development plans prepared by the National and County Governments
	Preparation of oversight, monitoring and evaluation tools for land use planning
Academic institutions	Training, research and dissemination of information
	Offering consultancy services
Professional bodies	Require their members to abide by the guidelines and standards provided in the physical and land use planning handbook
	Corrective measures to ensure adherence to the provisions of the handbook
	Training and Continuous Professional Development
Built environment practitioners	Execution of physical and land use planning consultancy services
	To use the handbook as a reference in preparation of development projects
	As a basis for best practices
Development partners	For compliance of projects to the guidelines and standards in the handbook
	As a basis for partnership, funding and consultancy

Source: Physical planning team; 2025

3 PHYSICAL AND LAND USE DEVELOPMENT PLANS

3.1 Overview

This section highlights the types and contents of plans as stipulated in the Physical and Land Use Planning Act No. 13 of 2019, general processes to be followed during plan preparation, presentation of maps, criteria for identification and mapping of stakeholders and modes of stakeholder engagement during plan preparation.

3.2 Types of Plans

The Physical and Land Use Planning Act No. 13 of 2019 prescribes the preparation of different types of plans. These plans can be categorized into long-term (10-20 years) and short-term (5-10 years).

Long-term plans include:

1. National Physical and Land Use Development Plan (Section 21)
2. Inter-County Physical and Land Use Development Plan (Section 29)
3. County Physical and Land Use Development Plan (Section 36)

Short-term plans are mostly Local Physical and Land Use Development Plans (Section 45), which are categorized into:

- a) An action/renewal/redevelopment plan for comprehensive planning of areas selected for intensive change, which is to commence within a specified period, by improvement, re-development or new development, restoration and re-use of derelict land;
- b) An advisory plan/zoning plan indicating permitted subdivision and use of land specified in such plan;
- c) A subject plan for a detailed treatment of a particular aspect of planning in relation to a part or the whole of a local physical development plan;
- d) Part development plans, indicating precise sites for immediate implementation of specific projects or for alienation purposes. A Part Development Plan is prepared for purposes of land alienation, reservation of public land, regularization of existing county, inter-county and national projects and projects of strategic national importance
- e) Site Plans - A site layout plan shows a detailed layout of the whole site and the relationship of the proposed works with the boundary of the property, nearby roads, and neighboring buildings. The following should be contained in the plan:
 - all existing buildings and structures, open areas, trees and any other structures
 - all the proposed developments within the site
 - the position and size of existing and proposed hard-surfaced areas, such as parking spaces, turning areas, and paths
 - the whole of the boundary of the property, indicating the position and height of all boundary walls and fences
 - any buildings or structures to be demolished
 - all roads/footpaths/public rights of way adjoining the site
 - All existing buildings and structures on the land adjoining the application site-buildings and structures on land adjoining the site must be clearly shown unless the applicant has

demonstrated that these would NOT influence or be affected by the proposed development.

- f) Integrated Urban Development Plans (Section 38 - 41 of the Urban Areas and Cities Act (Amendments) 2019 - Specific to urban areas and they give effect to the development of urban areas, cities and municipalities. Approval of these plans is subject to the provisions of the PLUPA

3.3 Planning Process

The planning process is outlined below.

Step 1: Pre-planning

- Planning needs assessment- Undertake planning needs assessment to identify the issues to be addressed by the plans, type of plans to be prepared, and prepare the budget.
- Reconnaissance - Undertake a visit to the planning area to familiarize with the site
- Scoping - Scan the planning area to determine the major issues and impacts that will be important in decision-making and need to be addressed by the plan. It clarifies the geographic and legal context. This will inform the formation of technical working groups and the identification of key local stakeholders and experts.
- Preparation of the Terms of Reference- Describe the objectives, scope (spatial and broad assignment activities), deliverables, timelines, team composition and qualification.
- Stakeholder mapping- List of all key stakeholders involved in the plan preparation process
- Notice of intention to plan- through a prescribed form as provided under PLUPA

Output: Concept paper and TORs

Step 2: Data Collection

- Delineation of the planning area - Outline the extent of the planning area.
- Preparation of a base map
- Literature review - Secondary data collection
- Primary data collection- Prepare data collection instruments, administer questionnaires and interviews (Key informant interviews and Focused Group Discussions), conduct transect walks and observe the environs.

Output: Base map and survey report (existing situation report)

Step 3: Visioning

- Vision and objective setting - Guide the community in deciding the future they want using break-out groups and vision cards.

Output: Visioning report

Step 4: Draft physical and land use plan preparation

- Data analysis and interpretation

- Formulation of land use models/ scenario building
- Integration and the selection of the preferred model
- Formulate land use proposals - detailed land use plans, zoning regulations,
- Action area plans and strategies

Output: Draft physical and land use development plan

Step 5: Plan validation

- Present the draft plan to the stakeholders for input and adoption

Output: Stakeholder validation report

Step 6: Notification of completion of the plan

- Publish notice of completion of the draft plan in the Gazette, in at least two newspapers of national circulation and through electronic media

Output: Notice of completion of the plan

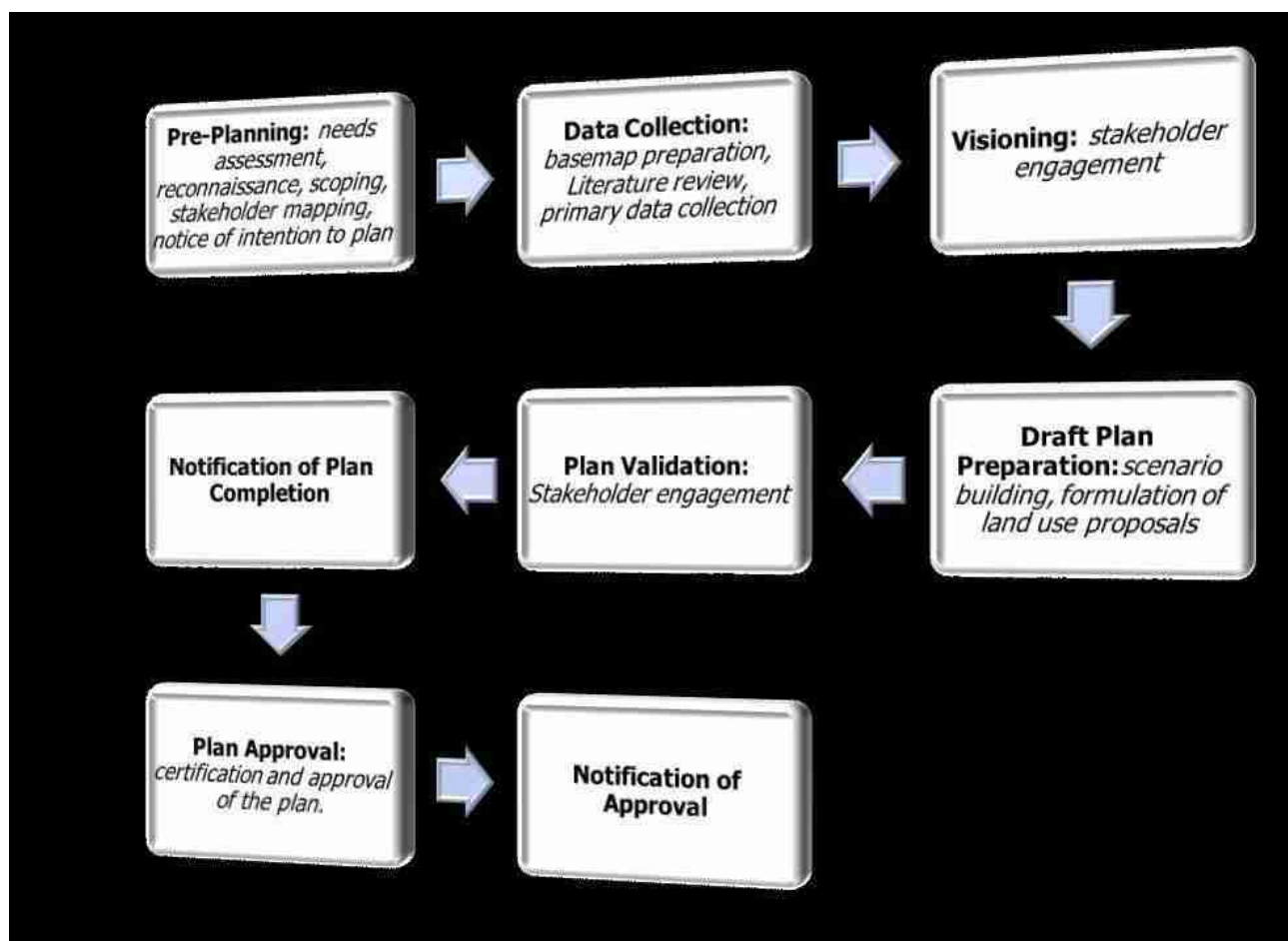
Step 7: Plan approval

- Submit the plan to the relevant planning authorities for certification, adoption and approval where applicable.

Output: Approved physical and land use development plan and Notice of plan approval

A summary of the planning process is provided in Figure 1.

Figure 1:Summary of the planning process



Source: Physical planning team; 2025

The percentage of work done at the various stages of plan preparation can be calculated based on the intensity of the activities (workload analysis) and output under each stage as indicated in Table 2

Table 2: Percentage of work at various stages in the planning process

Planning Process	Overall percentage of work
1. Pre-planning	10
2. Data collection	20
3. Visioning	10
4. Draft plan preparation	35
5. Adoption of the Survey Report	5
6. Validation	5
7. Finalization	10
8. Approval	5
TOTAL	100

Source: Physical planning team; 2025

3.4 Presentation of Plans and Maps

Physical and land use development plans should be GIS-based requiring land use information to be contained in a geodatabase that allows for ease of storage, retrieval, querying and presentation.

3.4.1 Scale of the Maps

National, Inter-County, County and Local context maps: These maps indicate relative contextual location and position of the planning area to match international standards. These are to be on the scale of:

- National context: 1:250,000
- Inter-county and County context: ranges between 1: 100,000 and 1: 50,000;
- Local context is 1: 25,000;

Base Map - the map includes key physiographic and natural features such as rivers, wetlands, lakes, forests and hills, main man-made features such as trunk roads, railway lines, water reticulation facilities, termini, way leaves, and human settlements, urban nodes, contours among others. The maps prepared shall adopt a scale of a multiple of 500. The recommended scale ranges from 1:500; 1:1,000; 1: 2,500; and 1: 5,000. The choice of any of these scales should be guided by the level of detail the plan intends to portray.

Situational Analysis Context maps- to illustrate features and aspects of various thematic areas. The scale depends on the level of detail to be illustrated or presented. The recommended scales range from 1:10,000, and 1: 25,000.

Plan Proposals - These maps indicate the location of various Plan proposals. The scale depends on the level of detail required to be illustrated or presented. The recommended scales range from 1:10,000, and 1: 25,000

Action Plans - These maps indicate areas for detailed action. The scale of the maps depends on the area to be covered and particular aspects to be captured. The recommended scales range from 1:5,000 and 1: 10,000.

PDPs- between 1:2500 and 1:5000

Site plan- 1:2500

3.4.2 Plan Layout and Paper Size

The plan layout may take either a landscape or a portrait orientation, depending on the layout of the region. The plan layout shall have the larger portion of paper displaying plan details (drawing) and the remaining part, shall contain the legend information. Depending on the paper size, the plan layout will be as shown in table 3:

Table 3: Percentage of Plan Display

Paper Size	Map Face (%)	Legend (%)
A0 and A1	80	20
A2 and A3	75	25
A4	70	30

Source: Physical Planning Team; 2023

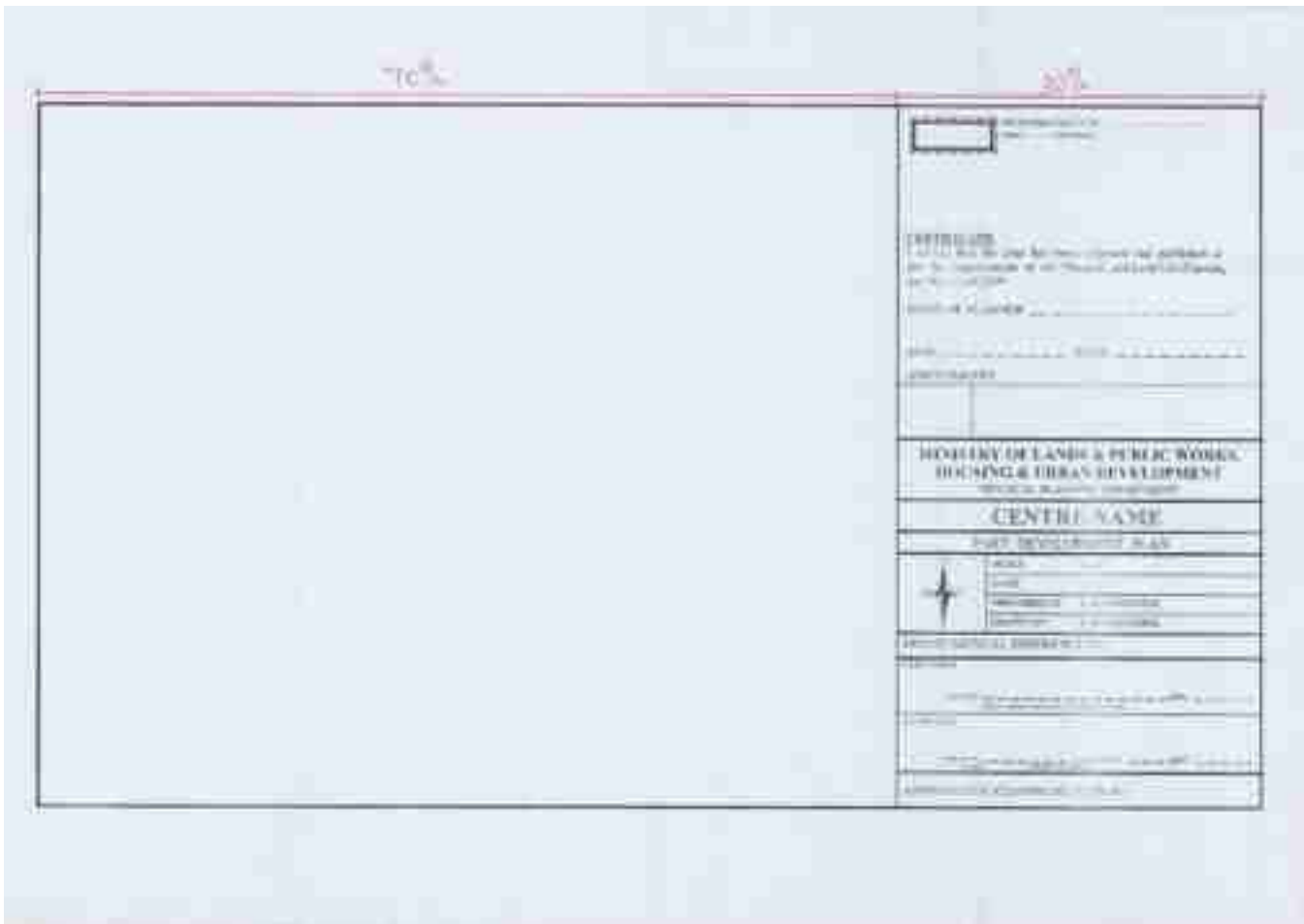


Figure 2: An illustration of layout proportioning on an A4 paper size

Source: Physical Planning Team; 2023

3.4.3 Land Use Colors and Codes

Land uses are classified into 10 broad categories, each requiring planning considerations. These include residential, industrial, education, recreation, conservation, public purpose, commercial, public utilities, transportation and agriculture. Each of these land use categories is assigned a colour code. Sub-codes can be created out of the main planning codes, to distinguish different categories of usage within the same class of land use as shown in table 4.

Table 4: Recommended Land Use Colour Codes & Zones

Cod e	Zone	Zone Reference	Colour	Shade
0	Residential	High Density	Brown	
		Medium Density		
		Low Density		

1	Industrial	Heavy Industrial	Purple	
		Light Industries		
2	Educational		Orange	
3	Recreational		Green	
4	Public Purpose		Yellow	
5	Commercial	Commercial	Red	
		Business Cum Residential		
6	Public Utilities		Blue	
7	Transportation	Roads/Rails/Airports etc.	Grey	
		Bus Park		
8	Conservation			
9.	Agricultural			
10.	Mixed use			The color will be hatched shading, with the dominant land use color taking the most pronounced shade

Source: Physical planning team; 2025

Table 5 indicates how to achieve the colour shades through the combination of proportions (%) of Cyan, Magenta, Yellow, and Black (CMYK).

Table 5: The recommended combination of colours (CMYK)

Code	Zone	Zone Reference	Colour	Cyan	Magenta	Yellow	Black
0	Residential	Low Density	Brown	8	12	20	0
		Medium Density		10	20	30	0
		High Density		20	30	40	0
1	Industrial	Heavy Industrial	Purple	10	50	0	0
		Light Industries		10	25	0	0
2	Educational		Orange	0	20	50	0
3	Recreational		Green	55	30	55	0

Code	Zone	Zone Reference	Colour	Cyan	Magenta	Yellow	Black
4	Public Purpose		Yellow	0	0	35	0
5	Commercial	Commercial	Reddish	0	60	60	0
		Business Cum Residential		0	40	40	0
6	Public Utilities		Blue	80	60	0	0
7	Transportation		Grey	0	0	0	20
	Bus Park				0		30
8	Conservation			20	0	20	0
9	Agriculture		Pale yellow	15	0	25	0

Source: Physical planning team; 2025

Note: Waterbodies can be shown by a lighter shade of blue.

The recommended combination of planning colour is shown in table 6.

Table 6: Recommended combination of Colours (RGB)

Number	Land Use	Red	Green	Blue	Colour
0	Residential	215	194	158	brown
1	Industrial	197	0	255	Purple
2	Educational	255	170	0	Orange
3	Recreation	163	255	115	Green
4	Public purpose	255	255	0	Yellow
5	Commercial	255	0	0	Red
6	Public utilities	0	112	255	Blue
7	Transportation	20% grey or fill #CCCCCC or stroke #ffffff			Grey
8	Conservation	255	255	190	Pale green
9	Agricultural	255	255	230	Pale yellow

Source: Physical planning team; 2025

Note: CYMK is the best colour profile to use when designing for a printed format while RGB colour mode is suitable for screen display.

3.4.4 Legend

Explanation of Symbols used –list in the following order: point features, line features, and area features. The order shall always be, natural features (base elements), and mapped themes.

Land Use Categories –use planning codes and sub-codes e.g., residential may have low, medium and high-density codes.

Details of Preparing and approving Authority- Indicate: the name of the county; the department preparing the plan; the certifying authority; the approving authority at the lower section of the legend for National, Inter-County, County and Local plans. Include: the scale used; true north; date of completion; plan reference number and approval number i.e., County no/Area or town/Planner's registration no/year of preparation/serial Plan no.

Figures 4, 5 and 6 show samples of the legends of different types of plans

TITLE			
<u>CERTIFICATE</u>			
I certify that the plan has been prepared and published as per the requirements of the Physical and Land Use Planning Act No. 13 of 2019			
Name of Registered Physical Planner			
Registration Number			
Signature Date			
AMENDMENTS			
1.			
2.			
ZONE	LAND USE	COLOUR	AREA IN HA
0	Residential		
1	Industrial		
2	Educational		
3	Recreational		
4	Public Purpose		
5	Commercial		
6	Public utility		
7	Transportation		
8	Conservation		
9	Agricultural		
County Government of (Name of county)			
Department of Lands and Physical Planning			
Name of urban area/town/city			
Local Physical & Land Use Development Plan			
		Scale:	
		Date:	
		Prepared By:	
		Drawn By:	
Departmental Reference No.			

CERTIFIED:			
County Director of Physical Planning			
Name.....			
Reg No.....			
Signature..... DATE.....			
RECOMMENDED:			
Signature..... DATE.....			
CECM in charge of Lands and Physical Planning			
APPROVED:			
Hansard NO.			
Signature..... DATE.....			
Clerk to County Assembly			
APPROVED	DEVELOPMENT	PLAN	No.

Figure 3: Legend Sample: Local Physical and Land Use Development Plan

Source: Physical planning team; 2025

Title			
Proposed site + Grids & contours	Proposed site for (approximate size in ha)		
	CERTIFICATE I certify that the plan has been prepared and published as per the requirements of the Physical and Land Use Planning Act No. 13 of 2019 Name of Physical Planner Registration Number Signature Date		
		AMENDMENTS	
	1.		
	2.		
	MINISTRY OF LANDS AND PHYSICAL PLANNING Directorate of Physical Planning		
	Name of urban area/town/city		
	PART DEVELOPMENT PLAN		
			Scale:
			Date:
Prepared By:			
Drawn By:			

	DEPARTMENTAL REFERENCE No.
	CERTIFIED BY SIGNATURE..... Date..... Director General
	APPROVED BY SIGNATURE..... Cabinet Secretary Ministry incharge of Lands and Physical Planning Nairobi Date.....
	APPROVED DEVELOPMENT PLAN No.

Figure 4: Legend Sample of a Part Development Plan -National Government

Source: Physical planning team; 2025

Title		
		Proposed site for..(approx. size in ha)
	CERTIFICATE I certify that the plan has been prepared and published as per the requirements of the Physical and Land Use Planning Act No. 13 of 2019 Name of Physical Planner Registration Number Signature Date	
		AMENDMENTS
	1.	
	2.	
	MINISTRY OF LANDS AND PHYSICAL PLANNING Directorate of Physical Planning COUNTY GOVERNMENT OF	
	Name of urban area/town/city	
	PART DEVELOPMENT PLAN	
		Scale:
		Date:
	Prepared By:	

Proposed site + Grids & contours	Drawn By:
	DEPARTMENTAL REFERENCE No.
	CERTIFIED BY SIGNATURE..... Date..... County Director of Physical Planning
	RECOMMENDED BY SIGNATURE..... Date..... CECM, Lands
	1st APPROVAL BY HANSARD NODate..... County Assembly
	COUNTY PLAN APPROVAL NO.
	CERTIFIED BY SIGNATURE..... Date..... Director General
	APPROVED BY SIGNATURE..... Cabinet Secretary Ministry in charge of Lands and Physical Planning Nairobi Date.....
APPROVED DEVELOPMENT PLAN No.	

Figure 5: Legend Sample for Part Development Plan - County Government

Source: Physical planning team; 2025

3.4.5 Grids

Grid values to be indicated along neat lines and borderline in the form of full grids or ticks. The grid interval is 10% of the grid value, e.g., for a scale of 1:2500, the grid interval is 250.

3.4.6 Location Plan

Provide a location map at the top left corner of the plan showing the planning sites' position in relation to abutting areas. Include location coordinates to enable the use of Google Maps/or any other digital tool used to find locations.

3.4.7 Coordinate system

The standard coordinate system to be used in mapping is the UTM arc 1960

3.5 Public Participation

It's a deliberate and interactive process by which stakeholders are actively involved in the plan-making process to influence decisions and outcomes of the planning process. This is done during the preparation, implementation, monitoring and review stages.

3.5.1 Criteria for identification and mapping of stakeholders

The following criteria should be used to identify and map stakeholders

1. **Influence:** Organizations and individuals that substantially influence preparation and implementation.
2. **Partnership:** Opportunities for building partnership relations between the project developer and a given social group in the framework of the project implementation
3. **Dependency:** Groups significantly affected by the implementation of the provisions of Physical and Land Use Development Plans
4. **Representation:** Individuals representing interests with regard to the provisions of the Physical and Land Use Development Plan, including the representatives of the vulnerable groups
5. **Expressed interest:** Individuals and social groups that express interest in the implementation as they are directly or indirectly affected by related operations.

Categories of stakeholders have been listed in table 7.

Table 7: Categories of Stakeholders

CATEGORY	EXAMPLES
Registered property owners	Individuals, companies and institutions
Inter-Governmental Organizations	World Bank, UN-Habitat, Food Agriculture Organization, European Union
Constitutionally elected leaders	Members of Parliament, Members of County Assembly, Governors, Senators, woman representative
Defined vulnerable groups	Elderly, People abled differently (PAD), women-headed households, low-income groups, unemployed, youth
Service providers	Kenya Power, Water and Sewerage companies, Communication companies transport operators/logistics
State Actors	County Governments, Ministries, Departments and Agencies
Professional bodies	Architectural Association of Kenya, Kenya Institute of Planners, Town & County Planning Association of Kenya, Institution of Surveyors of Kenya
Regulatory boards	Physical Planners Registration Board, Law Society of Kenya, Engineers Board of Kenya, Land Surveyors Board
Individuals with business interests	Small Medium Enterprises, investors, Business community, and community-based organizations
Representatives of the private sector	chambers of commerce, private sector foundation, producer cooperatives, representatives of the informal sector, neighborhood associations
Professions in the Built Environment	Planners, Engineers, Architects, Valuers, Environmentalists, Urban designers, Surveyors
International and Regional agencies	East Africa Community, United Nations, Institute for Transportation and Development Policy, United States Action Aid

CATEGORY	EXAMPLES
	fund
Civil society	Registered faith-based, community-based institutions and Non-Governmental Organizations
Academia	Universities, Kenya Agriculture and Livestock Research Organization (KALRO), Kenya Forest Research Institute, Kenya Marine and Fisheries Research Institute
Local leaders and opinion leaders	Chiefs, village elders, influencers

Source: Physical planning team; 2025

3.5.2 Modes of Stakeholder Engagement

Stakeholder sensitization

Use memos, social media, advertisements, press conferences, talk shows, Gazette notices, Newsletters, displays, posters, exhibitions and brochures to inform the stakeholders.

Stakeholder engagements

Use Focused Group Discussions, town hall meetings, Stakeholder forums (workshops), virtual meetings, public hearings, consultative fora and public fora. The engagement is informed by the type of plan, context, tools and methodology. For projects of strategic national importance, preparation and approval of plans require linkages with the subject institutions through plan circulation and consultative meetings.

4 DEVELOPMENT CONTROL

4.1 Overview

Development control is the process of managing or regulating any works on land and ensuring that operations conform to approved spatial development plans as well as policy guidelines, regulations and standards issued by the planning authorities. The PLUPA, 2019 highlights provisions for Development Control in Part IV and Third Schedule. These sections together with PLUPA Regulations, 2021 provide for the objectives of development control, types of development applications, prescribe authorities involved, processes and procedures, considerations for development applications, penalties and various forms to be used in administering development control and different types of development application.

4.2 Principles and Objectives of Development Control

The principles contained in Chapter 1 apply to development control. The general objectives of development control are to: -

1. Ensure conformity of developments to approved Plans,
2. Enforce actions in case of contraventions against the approved development plan, policy and legal provisions,
3. Ensure orderly and planned building developments, design, construction, operation and maintenance,
4. Promote public safety and health,
5. Protect and conserve the environment and
6. Ensure rational planning decisions.

4.3 Development Control Process

The development control process as practiced is linear in nature and in conformity to an approved development plan of an area. The process is as outlined in Figure 7.

Table 8 indicates the process for the various aspects of development control, their requirements, the approving authority and circulation to the relevant authorities.

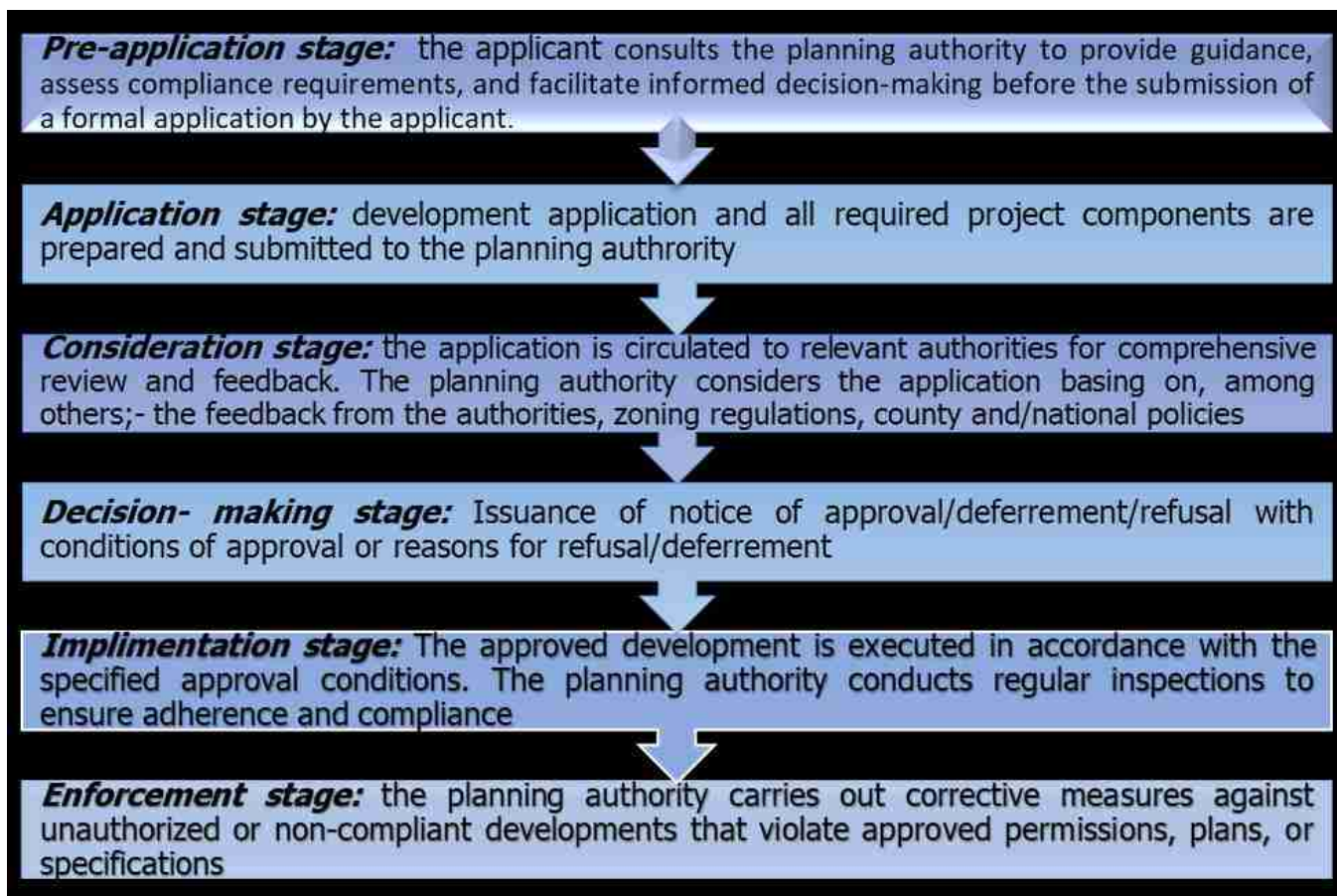


Figure 6: Development Control Process

Source: Physical planning team; 2025

Type of Development	Process	Requirements	Approving Authority	Relevant Authorities & Agencies
Change of Use/Extension of Use/Extension/Renewal of Lease	• Application for development permission • Issuance of submission certificate with a tracking number by the County Director of Physical Planning • Circulation of the application to technical officers of the relevant authorities and agencies for review and comments and submission of the comments within fourteen days • Analysis of the comments received during circulation and submission of the report to the CECM by the county director of physical and land use planning • Decision-making and communication of such decision to the applicant	• Completed application for development permission form. • A certified copy of the Title Deed, Certificate of Lease or any other legal ownership documents. • A current search certificate of the property. • A certified copy of a land rate clearance certificate. • A geo-referenced cadastral map. • A location plan based on an up-to-date survey plan clearly indicating the subject area. • Notice published in at least one newspaper of nationwide circulation • A planning brief prepared by a registered and practicing physical planner. • A caption of an on-site notice inviting comments from the members of the public	The County Executive Committee Member (CECM) in charge of lands and physical planning	• National Environment Management Authority (NEMA) • National /County Departments ○ Environment and disaster management ○ Director of Survey ○ Agriculture, fisheries and livestock ○ Land administration ○ Water and Sewerage ○ Public health ○ Existing Urban management authorities

Sub-Division/ Amalgamation	• development application • Circulation to the relevant authorities for comments • Receipt of comments by relevant authorities • Decision-making on the application	• Completed application for development permission form. • Copies of subdivision scheme plan prepared and signed by a registered planner. • A geo-referenced cadastral map. • Certificate of current official search or any other evidence from the respective Land Registrar • Ownership documents • A planning brief prepared by a registered and practicing physical planner.	Cabinet Secretary / CECM	▪ Relevant National/County Departments ▪ Director of Survey ▪ Agriculture, Fisheries and Livestock ▪ Land Control Board ▪ County Land Administration Officer ▪ Existing urban management authorities
Building plans	• Application of development permission • Registration of the Application • Circulation of the application to the relevant authorities and agencies for comments • Submission of comments by the relevant authorities and agencies • Decision-Making on the application	• Architectural and structural drawings prepared by a Registered Practising architect/Structural Engineer • Electrical engineer's drawings and specifications • Mechanical and plumbing engineer's drawings and specifications • Geotechnical survey report • Land ownership documents	Cabinet Secretary in charge of Planning / CECM	▪ Relevant national and county government Departments ▪ Director of Survey ▪ National Environment Management Authority ▪ National Construction Authority ▪ Existing urban management authorities ▪ KENHA ▪ KURA

Outdoor Advertisements	I. Application for advertisement II. Pre-vetting and issuance of submission certificate III. Circulation of the application to the relevant agencies/authorities for comments IV. Decision-making on the application	For the billboards, beam advertisements, sky signage or wall wrap: • A planning report prepared by a registered physical planner • A geo-referenced plan indicating the location of the site • architectural plans prepared by a registered architect • Structural designs with calculations prepared by a registered structural engineer • Geotechnical survey where applicable prepared by a registered geologist • Ownership documents including a copy of the title deed, certificate of lease or title; • Recommendation to site a billboard on a road reserve from the relevant road authority or agency; • An environmental and social assessment license • Any other supportive document	CECM responsible for Physical and Land Use Planning in the respective County	• Relevant National/County Government Departments • NEMA (National Environment Management Authority) • NCA (National Construction Authority) • KENHA • KURA • KERRA (Kenya Rural Roads Authority) • National Museums of Kenya • Kenya Airports Authority • Kenya Civil Aviation Authority • Communication Authority of Kenya
------------------------	--	---	--	---

Developments around Strategic Installations	i. Submission of the application ii. circulation of the application to the relevant authorities and agencies for comments iii. review of comments received from the relevant authorities/ iv. Decision-making on the development application	▪ Concept note and preliminary plans ▪ Security impact assessment ▪ Safety impact assessment ▪ Landscape & visibility impact assessment	County Executive Committee Member in charge of physical planning	• Cabinet Secretary/CECM Lands • Director General of Physical Planning • NEMA • Relevant County Government Departments
---	---	--	--	---

Table 8: Processing of development applications

Source: Physical Planning Team, 2024

4.3.1 Guidelines for approval of Change of User/Extension of User/Extension of Lease

- Consider the following:
 - approved physical and land use development plan of the area
 - area zoning regulation and compatibility of new use/density to the adjacent developments
 - accessibility, size of road and circulation of traffic
 - current and proposed use of the land
 - implications of the proposed development on infrastructure services and utilities
- Ensure that the subject land has been developed for the intended use prior to the approval of extension/renewal of a lease
- Ensure the special conditions attached to the lease have been fulfilled
- Require an Environmental Impact Assessment for developments that may have a negative impact on the environment
- For extension of lease, consideration should be subject to the overriding interest of the State for public good. Such overriding interest include; the need for improved road network, accessibility or a public facility like a health facility

4.3.2 Guidelines for Approval of Subdivisions and Amalgamations

- Consider:
 - the provisions of the approved physical and land use development plan of the area
 - the area zoning regulation and compatibility of new density to the adjacent developments
 - the implication of proposed densities on infrastructure and utilities
- Provide for adequate truncations: the truncations should be of half the width of the lower hierarchy road.
- The resultant subplots should be of appropriate size and shape and have proper and sufficient access to the street.
 - The minimum size of the resultant subplots in a subdivision should not be less than 0.05 Ha. This however may increase depending on the expected development on the land, approved

physical and land use development plan, zoning regulations and any other applicable policies.

- The sub-plots should be at a right angle with the road
- Plot sizes of 0.05 Ha. should not front roads measuring 18M and above

4.3.2.1 Comprehensive Land Subdivision

A subdivision is considered comprehensive when land is subdivided into more than 19 portions, and there is an expected significant increase in population, development density and traffic flow within the subject parcel and its immediate neighborhoods. The sizes of the resultant subplots may vary based on the intended use.

- Comprehensive schemes need to be subjected to planning, topo-cadastral survey and application of the principles of neighborhood planning
- For the roads, ensure;
 - 15 meters for distributor roads,
 - 12 meters for secondary distributors and;
 - A minimum of 9 meters for an access road leading to a cul-de-sac
 - Cul de sacs not to exceed 60M in length.
 - Breaks of 4-6 meters (footpaths) after every eight plots
 - Encourage T junctions instead of cross and Y junctions
- The layout plan for subdivision or amalgamation schemes should have the following:
 - Plan title
 - Location plan/an inset
 - Scale, date, northing, a georeferenced grid system.
 - Size of the property and the size of the resultant subplots
 - Clear road hierarchy to enhance circulation and accessibility
- Legend set on the right or bottom and contains the following:
 - Property reference
 - Name, signature, physical address and contacts of the owner of the property
 - Licensed planner's registration number, seal and signature
 - Date and scale
 - Approval section by the approving authority
- Suitable and adequate land should be surrendered for public use including open spaces, amenities, recreational facilities and a public purpose relating to the area to be subdivided.

Considerations for surrender of land for public use

The provision of public utilities should be aligned with the projected population needs. These projections will be based on the intended land use, the scope of proposed developments and the zoning regulations. These dynamics will guide the type, scale, and distribution of public facilities

Residential Density: The needs vary across residential zones, with high, medium, and low-density neighborhoods each having distinct utility requirements. The average household size can be used to

project the expected population in different zoning areas to refine demographic projections, based on the permitted plot coverage and plot ratio as provided by the respective zoning regulations of an area. (see example 1)

Commercial & Industrial Land Use: Employee density (the number of workers per hectare) and traffic volume impact (planning for transportation, parking, and community services) should form the basis of determining the expected population (daytime and nighttime)

Existing public purpose and utility infrastructure assessment:

Capacity Analysis: Evaluate the current capacity of existing utilities to determine if they can meet projected future demands

Infrastructure Condition: Assessment of the condition of existing infrastructure, identifying areas requiring upgrades or replacement. This includes evaluating the lifespan of existing assets.

Technological Advancements: Consider the potential for technological improvements that might increase efficiency or reduce the land needed for certain utilities

Zoning Regulations: where the zoning regulations exist, provides for permissible land uses, densities, and required amenities, such will be used as a guide.

4.3.3 Preparation and approval of Part Development Plans (PDP)

- i. A client will submit a request to the relevant planning authority for the preparation of a PDP
- ii. The planning authority seeks concurrence from the National Land Commission and other relevant agencies. NLC issues an authorization letter for the preparation of the PDP
- iii. Preparation of the part development plan and the planning report by the respective Director
- iv. Advertisement in the Kenya Gazette and 2 local dailies (English and Kiswahili) and circulation of the PDP to the relevant authorities
- v. Receive and incorporate comments
- vi. Submission for certification and approval to National Director of Physical Planning and Cabinet Secretary in charge of Physical and Land Use Planning respectively
- vii. Forwarding of approved copies of the PDP to NLC and Director of surveys

Guidelines for approval of PDPs

- Consider:
 - Provisions of an approved physical and land use development plan
 - Area zoning regulation
 - Compatibility with the adjacent developments
 - Accessibility, size of the road and circulation of traffic
 - Current use of the land
- For areas without approved development plans consider the abutting area, existing toposheets and development

4.3.4 Guidelines for Approval of Building Plans

- Ensure:
 - conformity to approved physical and land use development plans and zoning regulations
 - building lines/setbacks and frontages are observed
 - emphasis on green energy by providing for rainwater harvesting facilities, water storage tanks and solar energy
 - provision of landscaping, greening, ample ventilation and natural lighting
- Consider:
 - compatibility and use of the building in relation to the neighborhood.
 - the siting of the building
 - design, shape, facade and aesthetics
 - provision of infrastructure and utilities (access, sewer, electricity, drainage, water)
 - conservation of the environment and cultural heritage
 - health and safety
 - elevations, height and the plinth area of the building
- Observe plot coverage and plot ratio
- Examine the adequacy of accessibility within the plot, parking and loading bays, service area, canopies and projections

4.3.5 Guidelines for Preparation of a Planning Brief

A planning brief shall be required during the submission of change of user, extension of user, extension or renewal of lease, subdivision or amalgamation, site plan and PDPs. It is prepared to describe the nature and scope of the proposed development, compliance with the approved development plan and provide proposals for managing the resultant impacts of the development.

A planning brief shall contain the following:

- i. **Title-** should be precise indicating the development application being made and the land reference number in full. This should be on the front page together with details of the applicant, developer and date of the application.
- ii. **Introduction-** describe the planning brief.
- iii. **Context of the application-** include policy, legal, regulatory, framework, approved development plan provisions, guidelines and standards.
- iv. **Project description-** define the proposed development in nature, scope and character. Describe the required additional services.
- v. **Justification-** explain the basis for the proposal in terms of the potential and opportunity
- vi. **Anticipated impacts on existing infrastructure, urban form and the strategies for their mitigation-** identify all the possible impacts and propose sound strategies on how to manage them including the actors.
- vii. **Conclusion**
- viii. **Recommendations**

- ix. **Attachments/ Annex-** attach the required documents including certified copies of the ownership documents and official search, rates/rents clearance certificate, notices, location plan, scheme plan, circulation correspondences, stakeholders concerns and evidence of their engagement.

4.3.6 Absence of an Approved Development Plan

In cases where approved physical and land use development plans are not in existence or are still undergoing the preparation and approval process, the following factors should form the baseline for decision making:

- The proposed development should adhere to the agroecological zones as provided for in the national spatial plan
- Ensure that the proposed development is compatible with the abutting users
- Ensure that the proposed development has adequate access
- Ensure that there is adequate provision of utilities e.g., water, sewer, solid waste management and other basic utilities
- Ensure that the proposed development does not compromise the aesthetic nature of the area
- Ensure that the proposed development does not obstruct line of sight to public goods e.g., ocean, mountain, forest, lakes among others
- Ensure that the development and all the intended activities promotes environmental protection and conservation.
- Any other applicable principles of planning and development control.

5 PLANNING STANDARDS AND GUIDELINES

This chapter seeks to provide planning standards and guidelines for the various planning themes. These themes include: Agriculture, Blue Economy, Natural resources and Environment, Disaster Risk Management and Physical and Social Infrastructure among others.

5.1 Agriculture

General Standards and Guidelines

- Cultivation on slopes:
 - From 0% to 12% contour farming and soil conservation measures are encouraged.
 - Slopes of 12% to 55%; one is obliged to apply soil conservation measures;
 - Above 55%, land should be used for forests.
- Establish buffers between farms and other land uses to minimize land use conflicts as shown in below.

Table 9: Buffer for various land uses

Land Use/ User	Width of Buffer	Mandatory institution for circulation
Forests	60m buffer for mangrove 20m road for all other forests	KFS
Military/ security installations	There should be a buffer to be determined on a case-to-case basis depending on the use of the security installation.	DOD
Power installations	10-60m depending on the KV	Kenya Power/ Kengen/ KETRACO
Large reservoirs	100m-300m	WRA
Medium reservoirs	50m-100m Limited activities and requires approval	
Small earth dams	50m Prohibit permanent structures and ensure fencing	
Rivers feeding dams	30m	
Airports	Depends on the nature of farming. Not allowed if it attracts birds.	KAA/ KCAA
Major transportation corridors (such as railway lines)	60-120m	KRC/ KENHA
Oil and gas pipelines	60m	KPC

Source: Physical planning team; 2025

- Prepare county physical and land use development plans and designate different agricultural zones including sites for collection centres, agro-based industries and agricultural tourism.
- Delineate urban growth limits to discourage conversion of agricultural land to other land uses and protect grain basket areas as well as other high potential areas.
- Require land suitability analysis to determine the agricultural capability of the areas
- The minimum land size allowable for buying centres and collection points for tea, coffee and sugar is 0.1Ha to accommodate basic facilities such as washrooms and canteens.
- The minimum size of land shall be based on the agro-ecological zone as indicated in table 10:

Table 10: Minimum Land Sizes for Agricultural Land

Agro-ecological zone	Minimum land size (Ha) (commercial)	Minimum land size (Ha) (small scale)
Low potential area	20	5
Medium Potential area	10	2
High potential area	5	0.5

Source: Physical planning team; 2025

- Set aside land 5-10 ha for demonstration farming.
- Plan for eco-villages and resilient urban centres within agricultural areas.
- Designate hilly areas above 55% and those below 55% but with stony areas as conservation areas.
- Designate sites for harvesting and storage of rainwater for agriculture.
- Locate buying centres centrally and away from junctions.
- Designate a minimum of 5 km width for wildlife corridors.

5.1.1 Plantation Farming/Estates

Standards and Guidelines

- Provide:
 - minimum land size of 20ha in high agricultural potential areas.
 - minimum access roads of 20m to the farms and market centres.
 - corridors for livestock and wildlife where necessary.
- Prepare site plans designating residential quarters with amenities such as water and sanitation facilities.
- Designate space for processing plants, machinery parking yards and garages.
- Preserve and ensure access to cultural and public utility sites.

5.1.2 Horticulture Farming

Standards and Guidelines

- Provide a minimum land size of 0.25ha
- Site plans must be prepared for horticulture farms of over 5 ha.
- Designate sites for the disposal and management of agricultural waste.

5.1.3 Fish Farming

Standards and Guidelines

- Designate potential areas for fish farming when preparing the county physical and land use development plans.
- Plan, designate and zone fish caging areas in water bodies
- Prepare site advisory plans for the fishing zones
- Designate sites for fish cooling and processing plants
- Designate sites for the disposal and management of waste
- Detailed guidelines are provided in the Aquaculture Handbook

Fish Landing Sites

They are categorized into two; urban and rural fish landing sites. Urban fish landing sites are located in urban areas and attached to markets. They have a big landing volume of more than 1500 tons per year. Rural fish landing sites are village-type and handle small volumes of less than 1500 tons per year.

Standards and guidelines for fish landing sites

- Provide:
 - minimum land size of 3ha
 - minimum of 12m access roads to the fish landing sites
 - access to basic infrastructure such as electricity, water supply
 - A minimum of 2km to a power substation or any part of the national grid and a minimum of 3km to main water supply channels
- Equip fish landing sites with support amenities such as a poly-functional building inclusive of a boat yard facility, modern fish banda, restaurant buildings, ablution block, stall buildings, fish gear shed and boundary wall.
- Provide facilities such as fish storage facilities, processing sections, ice-making plants, waste management systems, and power generators, among others.

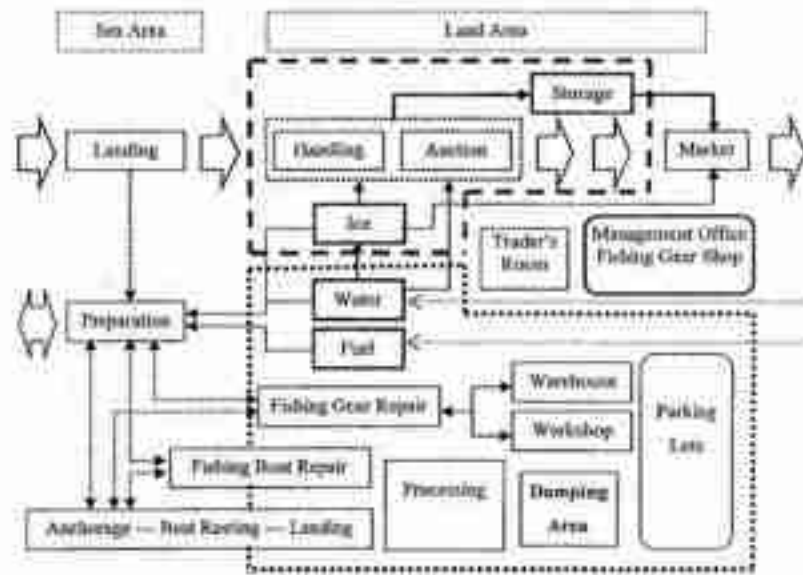


Figure 7: Support amenities for urban fish landing sites

Source: Food and agriculture organization; 2020

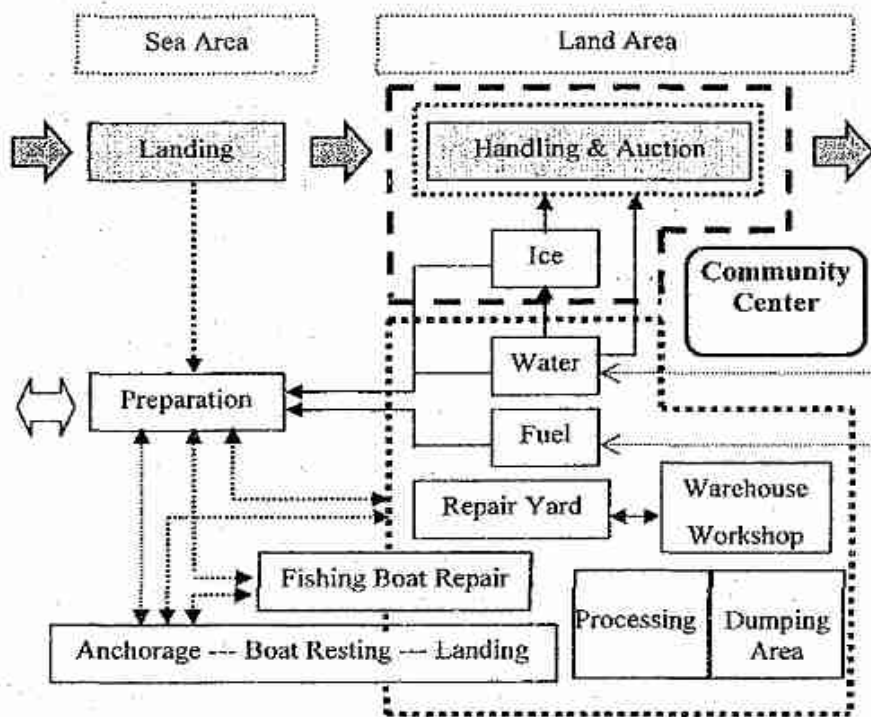


Figure 8: Support amenities for rural fish landing sites

Source: Food and agricultural organization; 2020

5.1.4 Urban and Peri-Urban Agriculture

Standards and Guidelines

- Promote urban agriculture through building designs e.g., flat roof designs and integration of urban agriculture into physical and land use development plans.
- Provide minimum land sizes of 0.05ha for urban agriculture within residential areas and institutions.
- Maintain a maximum height of 0.5m for crops in urban areas
- Prohibit subdivision of land into uneconomic land sizes
- Encourage:
 - sustainable water harvesting and conservation
 - greenhouse technology in peri-urban areas
 - onsite waste management
- Restrict farming activities to enclosed boundaries and away from ecologically fragile areas.
- Allow cottage industries to process the products; processing of indigenous vegetables. chicken processing can be allowed in urban areas while dairy processing in peri-urban
- Cultivated areas must be set back 5 feet from any property line that is within 30 feet of a residential structure on another property.
- Ensure that urban agricultural uses do not adversely affect the livability of adjacent properties and the surrounding neighborhoods in terms of noise, water runoff, pesticide runoff and equipment operation.
- Prohibit agriculture in areas subject to health hazard environments such as solid waste collection points, sewer lines and drainage channels.
- Table 11 indicates the minimum plot sizes for permissible urban agriculture.

Table 11: Urban agriculture permissible uses

Minimum plot size	Land use Activities
0.05 Ha	Vegetable farming including sack gardens
0.1Ha	Chicken rearing, fish farming (aquaponics, raised wooden ponds, tanks and concrete ponds)
0.2Ha	Dairy keeping, Apiculture in peri-urban areas

Source: Physical planning team; 2025

5.1.5 Livestock and Ranching

Standards and Guidelines

- Provide a minimum land size of 50ha in ranching areas
- Observe stocking unit (livestock intensity/density per unit area in hectares) whereas stocking unit is equivalent to a mature zebu cow weighing 300kg or 7 sheep or 7 goats.
- Inventorize, map and register community-grazing areas as per table 12 below.

Table 12: Agro-Ecological Zones

Code	Zone	Stocking (Lu/Ha)	Rate
UH1	Sheep Dairy Zone	0.3	
UH2	Pyrethrum Zone	0.4	
UH3	Wheat/Barley Zone	0.4	
UH4	Ranching/Barley Zone	0.8	
UM2/UM3	Coffee Zone	1.1	
UM4	Upper Sisal Zone	1.2	
LH1	Tea Zone	0.6	
UM1	Coffee Tea Zone	0.8	

Source: Farm Management Handbook

- Provide a minimum of 80m to 100m width tracks for livestock movement from the grazing areas to various watering points.
- Ensure siting of livestock handling facilities such as holding grounds, auction rings cattle dips, pasture conservation, isolation and quarantine areas.
- Set aside areas for common uses when subdividing group ranches e.g., trading centres, dispensaries and schools.
- Provide:
 - Adequate all-weather access roads for livestock holding ground to ensure linkage to markets.
 - Adequate drainage, water and power supply.
 - minimum land size of for livestock holding grounds
- Locate away from residential areas to minimize noise and odour.
- Ensure that the siting, distribution and density of watering points and water pans are equitable.
- Zone out wetlands during the process of subdivision of group ranches to ensure conservation and protection.
- Designate areas for the location of processing facilities such as meat processing plants, slaughterhouses, and tanneries to promote value addition of livestock products.

5.2 Blue Economy

Blue Economy is the sustainable use of oceans, lakes and river resources for economic growth and improved livelihoods while preserving the environment. Blue economy can be realized through marine spatial plans that integrate conservation, sustainable use, oil and mineral wealth extraction, bioprospecting, sustainable energy production and marine transport.

5.2.1 Marine Spatial Planning

Marine Spatial Planning should focus on contributing to the sustainable development of the energy sector at sea, maritime transport, fishing and aquaculture, tourism and the extraction of raw materials, as well as the protection of marine antiquities and the protection, preservation and improvement of the environment, including resilience to the effects of climate change.

The parameters for marine spatial planning include;

- Marine and coastal environment
- Marine and coastal conservation and designated sites
- Oceanographic characteristics and climate

- Coastal land use
- Operative maritime activities
- Socio-economic developments
- Governance

5.2.2 Marine Park Zoning

Zoning in marine parks helps to manage and protect the values of the parks that people enjoy. Each zone has different rules for the activities that are allowed and prohibited as shown below:

Zone Type	Purpose	Allowed Activities	Prohibited Activities
Sanctuary/No-Take Zone	Full protection of ecosystems and species.	Scientific research, non-extractive monitoring.	Fishing, mining, anchoring, tourism.
Habitat Protection Zone	Protect specific habitats (e.g., seagrass, spawning grounds).	Non-destructive tourism (e.g., snorkeling), limited traditional fishing (with permits).	Dredging, industrial activities, large-scale fishing.
Sustainable Use Zone	Balance resource use and conservation.	Regulated fishing, eco-tourism, small-scale aquaculture.	Destructive fishing (e.g., trawling), offshore drilling.
Special Management Zone	Address unique needs (e.g., cultural sites, shipping lanes).	Shipping, cultural/religious practices (e.g., ceremonial fishing).	Activities conflicting with designated purpose (e.g., tourism in sacred areas).
Restoration Zone	Rehabilitate degraded ecosystems (e.g., coral replanting, mangrove planting).	Restoration projects, community-led conservation.	Extractive or disruptive activities.

Standards and Guidelines for Maritime zones

- Prepare the marine and maritime spatial plans to delineate deep sea fishing zones and routes for shipping, underwater infrastructure (submarine communication, power cables, oil and gas pipelines and sensor networks), areas of biodiversity and international boundaries
- Undertake EIA for installations of the fiber optic cables etc
- Ensure cables do not disrupt shipping
- Prohibit shipping in marine protected areas, near naval basis, fisheries zones
- Promote traffic separation by providing dual ways and buffers
- Provide ship waiting stop zones
- Promote green shipping corridors whereby there is zero emissions and satellite surveillance stations for tracking dark ships

Criteria for locating ports

- Access to deep water channels
- Integration to multimodal transport for efficient distribution of goods and services
- Proximity to industrial zones, logistical hubs and markets
- Proximity to major shipping routes and trade corridors to reduce voyage time and fuel cost
- Locate away from ecologically sensitive areas such as mangrove and reeds
- Locate in areas with a minimum depth of 12m-20m
- Site in areas of moderate tidal range <4m to simplify operations and reduce infrastructure complexities
- Prioritize sites protected from storms, waves and currents
- Locate in area with stable sea bed to reduce foundational costs
- Require EIA
- Locate in areas with ample land for expansion

Natural Resources and Environment

General Standards and Guidelines

- Identify and plan for areas containing natural resources for purposes of regulating human activities.
- Prepare action area plans for rehabilitation of areas of depleted resources.
- Require an Environmental Impact Assessment for developments within and around natural resource areas.
- Incorporate best management practices to prevent pollution of natural resources and the environment.
- Protection of riparian reserves, permitted use of wetlands and duties of land owners, users and occupiers which address the regeneration and conservation of these areas is provided in the Environmental Management and Co-ordination (Conservation and Management of Wetlands) Amendment Regulations, 2017
- The guidelines for riparian reserves are provided in the Physical and Land Use (General Development Permission and Development Control) Regulations 2021, Part VII miscellaneous

5.2.3 Water resources

Oceans

Standards and Guidelines for Oceans

- Prepare an inter-county physical and land use development plan for Kenya's coastline.
- Prepare marine spatial plans to guide the distribution of land uses
- Anchor the coastal management plan to the marine spatial plans.
- Identify and map ecologically and environmentally sensitive areas and prohibit development in these areas.
- Map out cultural and heritage sites and facilities and prohibit tourism development and activities that derail local cultures, traditions, and heritage.
- Delineate a riparian reserve of 300m from the highest watermark for oceans.
- Regulate permissible developments within the 300m riparian reserve.
- Provide a buffer zone as illustrated in Figure 9.
- Adopt a radius of 700m buffer zone around all aids to navigation.
- Regulate developments to ensure the required visibility to aid navigation is maintained.

- Designate a minimum of 6m walkway to access the beach.
- Allow only Non Motorised Transport along the 6m walkways
- Beach accesses should be at a maximum interval of 500m.
- Designate routes and trails on the surface or underwater to guide tourists.
- Designate space for permissible activities in the riparian reserve such as trails, games, picnic sites, swimming trails, cycling, conservation, and restoration.
- Designate areas for museums, theatres, markets, stalls, aquariums, public parking, bicycle stands, cycling paths, restaurants, and parks after the riparian reserve.
- Designate sites for renewable technology developments such as solar-powered desalination plants.
- Provide wayleaves for undersea cables and bridges.
- Regulate the heights of all developments crossing a navigable water body e.g., bridges, power lines.
- Ensure that developments do not block public access to the beach.
- Subject all developments in the front row from the sea to environmental impact assessment before approval.
- Prohibit
 - heavy industrial developments within 3km of the beach.
 - sand excavation in the active zone (within a distance of 1km from the low tide)
 - fishing on artesian waters 1km into the sea from the low water mark, to avoid destruction of shallow fauna breeding grounds and marine biodiversity.
 - Any vehicular access to the beach.
 - shore protection facilities that block tidal movement e.g., sea walls unless by allowed specification of the relevant authority.
 - all effluent into the sea
 - all development proposals on sand dunes, mangrove forests, salt marshes and estuaries

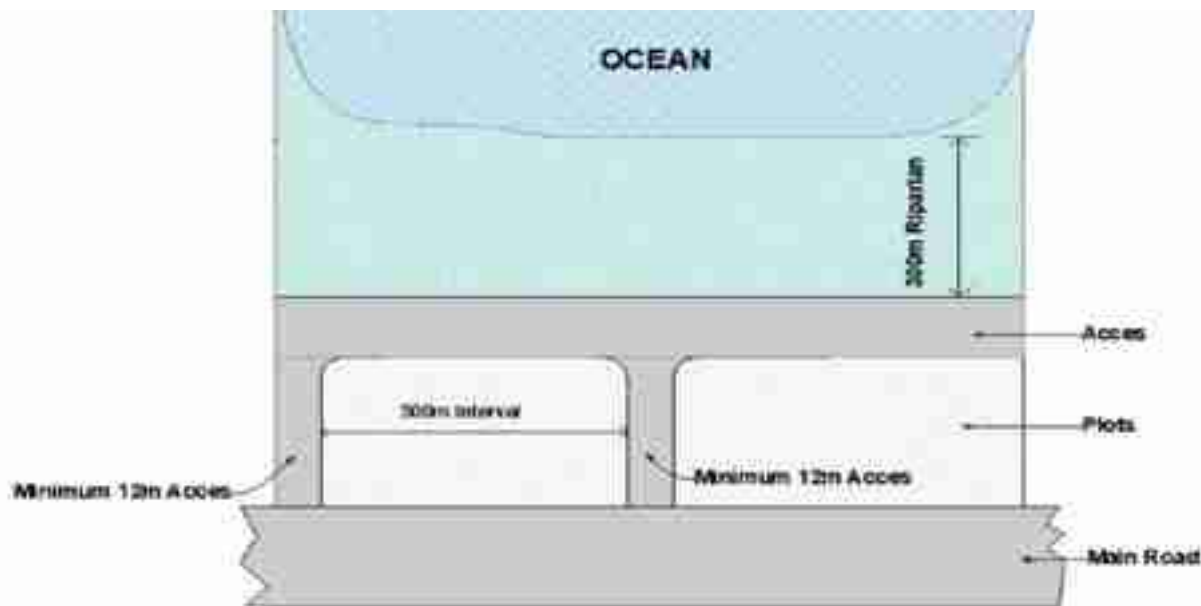


Figure 9: Illustration for Riparian reserve for the Ocean

Source: Physical planning team; 2025

Lakes

Standards and Guidelines

- Maintain a riparian reserve of not less than 100m and not more than 200m as measured from the highest watermark for all lakes.
- Notwithstanding the above, the riparian reserve for Lake Naivasha shall be maintained at a 6210ft contour.
- Provide a 12m road buffer around the lakes.
- Prepare lakefront action area plans.
- Regulate developments to ensure the required visibility to the aid-to-navigation is maintained.
- Prohibit
 - sand excavation in the active zone within a distance of 1km from the low tide
 - Prohibit heavy industrial developments and polluting agricultural activities within 3km of the beach
 - untreated effluent into the lake

Beaches

It is a strip of land located along the shore of a lake or ocean characterized by loose particles, sand and rock. It can be categorized into the biodiversity zone and tourist zone.

Standards and Guidelines

- Identify, map and plan the beaches
- Designate breeding zones including turtle nesting grounds and fish breeding sites Prohibit permanent developments
- Locate designated sites for temporary structures at a 500m interval
- Prohibit sand harvesting
- Provide walkways, public baths and toilets, lifeguard towers
- Ensure that tourist zones such as hotels comply with setbacks
- Mandatory provision of biodegradable facilities
- Provide 3R bins at intervals of 100m

Floating Hotels

- Ensure that stability and safety adhere to the KMA Safety Code
- Designate secure zones for anchoring and mooring
- Ensure zero discharge into the ocean- on board liquid waste treatment systems, and off board discharge of solid waste
- Utilize solar and wind energy
- Prohibit use of antifouling paints and drenching to protect marine life
- Ensure 200m setback from the marine park, breeding grounds
- Locate away from fishing zones
- Require Environmental and social impact assessment

Rivers

Standards and Guidelines

- Maintain a riparian reserve of 30m from the highest watermark, on either side of the river as illustrated in Figures 10 and 11.
- Prepare riverfront action area plans.
- Designate sites for watering troughs and pans at strategic locations to discourage direct access to the rivers by livestock.
- Preserve and maintain the rivers, natural streams and drainage ways within the developed areas by designating them as part of the open space system.
- Prohibit modification/physical developments within the riparian reserve unless they are necessary for flood protection, preservation of water quality, protection of aesthetic and biological resources, hydroelectric power generation, water intake, eco-tourism, research and landing sites for marine vessels.
- Permit users such as recreation and conservation on the riparian

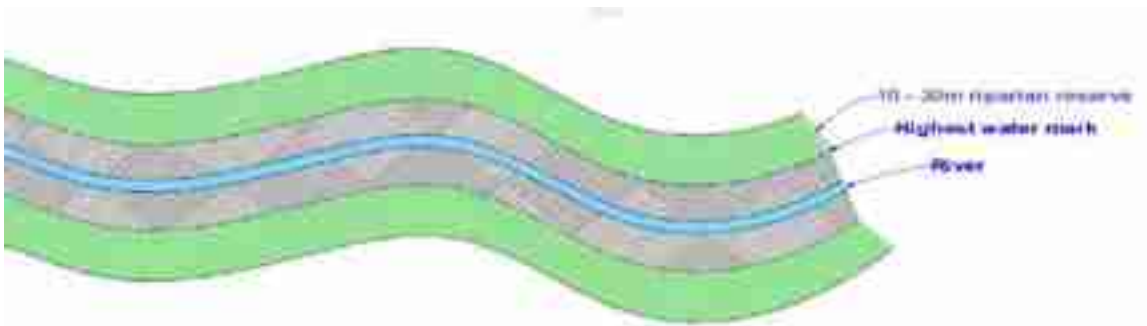


Figure 10: An Illustration of a Riparian Reserve for Rivers

Source: Physical planning team; 2025

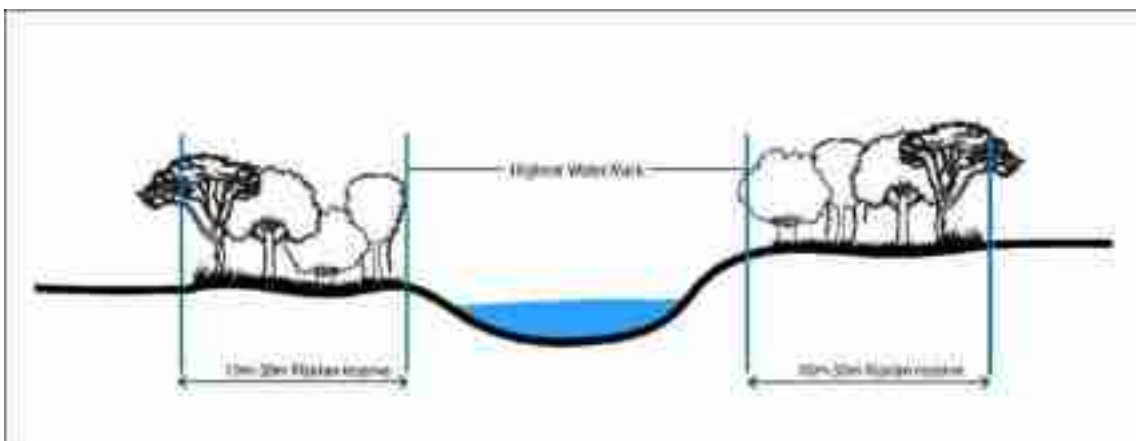


Figure 11: An Illustration of a Riparian Reserve for Rivers

Source: Best management practices for riparian reserves; 2022

Swamps

Standards and Guidelines

- Identify, map, and prepare local physical and land use development plans for swampy areas.
- Maintain a riparian reserve of at least 50m and not more than 70m from the highest watermark, for swamps measuring more than 1 acre.
- Maintain a riparian reserve of at least 20m and not more than 30m from the highest watermark, for swamps measuring less than 1 acre.
- Fish ponds constructed within the swamps shall be constructed on the sloping sides to make use of the gravity flow of water.
- Excavation of fish ponds into a swamp must preserve a favorable ratio of surface area to the perimeter of vegetation. Individual ponds should not exceed a size of 1000 square meters (0.1 hectares), and there should be sufficient uncleared vegetation separating the ponds for use by other activities.
- Prohibit developments in swamps

Springs

Standards and Guidelines

- Delineate spring riparian reserves as conservation zones and undertake easement process where necessary.
- Maintain a riparian reserve of at least 6m from the source of the spring.
- Prepare action plans for maintenance and rehabilitation of springs and drainage ways.
- Prohibit any development within the riparian reserve and maintain the natural vegetation around the spring.

Flood plains

Standards and guidelines

- Identify, map and plan for flood plains
- Prohibit developments including human settlements, overfishing, uncontrolled deforestation, dredging and pollution
- Permissible activities include:

Urban

- General habitat restoration, outdoor plant nurseries, forestry, wildlife sanctuary, bird watching, and related uses
- Ground-level loading areas, parking areas, boat launches and other similar ground-level area uses.
- Lawns, gardens, play areas, and other similar uses in urban areas.
- Picnic grounds, parks, hiking or horseback-riding trails, open space, and other similar public recreational uses.

Rural

- General habitat restoration, pasture, outdoor plant nurseries, forestry, wildlife sanctuary, bird watching, and related uses
- Afforestation and conservation

Water Towers

Standards and Guidelines

- Identify and prepare an integrated plan for water towers.
- Provide a minimum of 60m buffer around the water towers.
- Prohibit developments in these areas except for eco-tourism, research and essential infrastructure.

Ground Water

Standards and Guidelines

- Identify and map areas with hydro-geological groundwater.
- Designate and plan for a managed aquifer recharge system.
- Provide a buffer of 10m wide around the boreholes and wells to protect them from contamination.
- Provide a buffer zone of a planted strip of 50m between the irrigation schemes and groundwater sources.
- Maintain a radius of influence of 800m between one borehole and another to ensure that abstraction rates do not exceed recharge rates.
- Locate heavy industries such as tanneries and other activities likely to cause pollution away from groundwater sources.
- Require an environmental impact assessment prior to development of boreholes.

5.2.4 Forests

A forest is a large area dominated by trees with diverse plant and animal life, playing a key role in climate regulation. Types of forests include montane forests, savannah woodlands, dry forests, coastal forests and mangroves.

Standards and Guidelines

- Identify and delineate forests for conservation
- Zone and protect water catchment areas in hilltops, hillsides, mountains and forests
- Designate firebreaks and access roads.
- Delineate forest boundaries (cutline) and provide 20m road buffer
- Provide 60m buffer for mangrove forests
- Maintain the minimum sizes for gazetted and non-gazetted forests provided in the Forest Conservation and Management Act, No. 34 of 2016.
- Prohibit development in forest areas except for eco-tourism, research, and infrastructural developments such as transport, power and water.
- Encourage at least 10% of land holdings are under trees as per the gazetted "Farm Forestry Rules" of 2009

Biological Diversity

Standards and Guidelines

- Identify, delineate and protect existing key biodiversity areas.
- Prepare development plans for the establishment of botanical gardens in every county headquarters.
- Designate land for gene banks for endemic species.

5.2.5 Hilly/Slope Areas

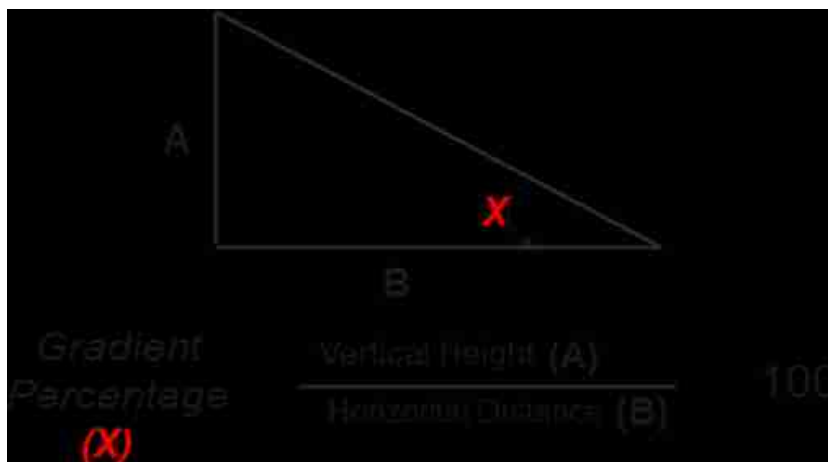
Standards and Guidelines

- Zone water catchment areas in hilltops and hillsides for conservation.
- Provide for a planted buffer between the foothill and the settlement to mitigate disasters such as falling boulders.
- Prohibit any form of cultivation on hilltops and hillsides beyond 55%. The areas should be left for conservation.
- Encourage the planting of trees in the hilly areas.
- Delineate various land uses as per their suitable gradient percentage

Gradient

Gradient is a measure of how steep a slope is. The greater the gradient percent, the steeper a slope is, while the smaller the gradient, the shallower a slope is.

To calculate the gradient of a slope, the following formula and diagram can be used:



Parameters for slope allocation

- **Slope Stability and Risk of Erosion:** As the gradient increases, the risk of erosion and landslides typically increases as well. Steeper slopes require careful analysis of soil stability and may necessitate engineering solutions

- **Soil Composition and Quality:** The type and quality of soil on a slope can greatly affect its usability. Certain soil types are more prone to erosion, while others may not support certain types of construction.
- **Water Drainage and Hydrology:** The gradient affects water runoff and drainage patterns. On steeper slopes, rapid runoff can lead to erosion and may impact downstream water quality.
- **Vegetation and Ecosystem Impact:** Different slopes support varying types of vegetation. Steeper slopes may be home to unique ecosystems and wildlife habitats that need protection. Planning should include strategies to preserve local biodiversity.
- **Land Accessibility:** Steeper gradients can be challenging to access, affecting the feasibility of development. Infrastructure, such as roads and utilities, may require additional investment to accommodate these areas.
- **Construction and Development Costs:** Building on steeper slopes generally incurs higher costs due to the need for specialized construction techniques and materials.
- **Local Climate and Microclimates:** Slope orientation can influence sunlight exposure and wind patterns, creating microclimates that might affect land use decisions, particularly for agriculture and residential planning.

Table 13 indicates the type of development and the development conditions in hilly areas.

Table 13: Development conditions within slope areas

Slope Percentage (%)	Type of development	Development Condition(s)
0-12	1. Residential Optimal: $\leq 10\%$. Example: High Density Development Moderate (with engineering): 10-20%. Example; Low & Medium Density 2. Commercial Optimal: $\leq 5\%$. Example: Business Park and commercial hub	

	Moderate: 5-10%. Examples: Small Retail shops 3. Industrial Optimal: $\leq 5\%$. Example: Heavy & Light Industries, Logistics Moderate (with modifications): 5-10% Example: Loading docks and Logistics 4. Agricultural Intensive Crops: 0–5% Example: Maize, Wheat plantation Pasture: 5–15% Example: Terracing or contour farming 5. Transportation Highways: $\leq 6\%$ Local Roads: $\leq 10\%$ Railways: $\leq 2\%$	
12- 44	Contour farming Controlled development	Implementation of slope-control measures such as contour farming and soil conservation measures are encouraged for cultivation.
44-55	No development except pipelines, tunnels, telecommunication infrastructure and roads	Extensive terracing perennial/permanent crops
Above 55	No development except pipelines, tunnels, telecommunication infrastructure and roads	Forests Eco-tourism-related activities such as mountain climbing and nature trails

Source: Physical planning team; 2025

5.2.6 Transboundary Resources

Standards and Guidelines

- Identify, map, and prepare integrated plans for sustainable use of transboundary resources.
- Provide a buffer zone for the respective resources as provided in this handbook.

5.2.7 Oil and Gas

Standards and Guidelines

- Identify and map out areas with high potential for oil and gas exploitation.
- Prepare an integrated plan for oil and gas areas including planning areas for emergency and rehabilitation, waste disposal and resettlement areas.
- Prepare site layout plans which should include parking lots for petroleum trucks, gas handling and storage facilities.
- Seek development permission for all exploration and exploitation from the relevant national and international bodies.
- Provide a minimum buffer of 2km around the oil and gas exploration areas, which shall be free from settlements. However, tree planting is encouraged to improve air quality.
- Maintain a setback of 500m from the boundary of the exploration block when drilling an oil and gas well.
- Require preparation of Emergency Preparedness and Response Plans.
- Undertake Environmental and Social Impact Assessments for exploration and exploitation to mitigate pollution and environmental degradation.
- Prohibit exploration/exploitation on approved shipping lanes/routes.
- Prohibit exploration of critical terrestrial habitats, cultural heritage areas, conservation areas, game parks and reserves.
- Encourage the use of sustainable technology in oil and gas exploration and exploitation.

5.3 Tourism and Wildlife

Standards and Guidelines

- Map tourism potential areas.
- Identify and map wildlife migratory corridors and dispersal areas.
- Prepare a local physical and land use development plan to link the tourism facilities and the tourist attraction sites.
- Conserve significant views associated with tourist attraction sites.
 - Designate space for ancillary facilities such as hotels and lodges. A minimum hotel density of 100 hotel rooms per hectare is recommended.
- Provide adequate parking in line with section 5.8.5
- Provide for water, electricity, drainage systems, waste disposal, telecommunication and parking space.

- Plan for tourist stopovers that offer minor tourist facilities (restaurants, snack bars, shops and toilets) along tourist circuits at points of tourist interest

5.3.1 National parks and game reserves

Standards and Guidelines

- Provide a minimum land size of 404.7Ha.
- Provide a 5km buffer zone around national parks for potential park extension and wildlife and livestock grazing.
- Locate water points near existing natural pans and river beds

5.3.2 Coastal Reserves

Coastal reserve areas are set aside to be maintained in their natural state for research, education and compatible recreation and enjoyment of natural and scenic beauty.

Standards and Guidelines

- Preserve rare coastal resources including coastal strand vegetation and sand dunes through the establishment of buffer zones around these areas.
- Permit activities that do not degrade the environment such as research, recreation, conservation of wildlife and eco-tourism.
- Designate deltas and estuaries as conservation areas during plan preparation.
- Prohibit developments around coastal resources including coastal strand vegetation, sand dunes and anchialine pools.
- Prohibit the construction of sea walls along the shoreline
- Designate space for search and rescue facilities.
- Protect animal sanctuaries and wildlife breeding grounds from encroachment.
- Provide a buffer of 30metres from the highest water mark for wildlife conservation, grazing and movement in wildlife areas.
- Require ESIA and EA on proposed and ongoing projects for harbour and ports.
- Prohibit:
 - Damaging activities near the shore coral reefs such as dredging and alterations that cause soil erosion and non-point source pollution.
 - Developments that pollute or block the natural water flow or movement in the coastal boundary development zone.
 - Developments that disrupt the marine ecosystem and pollute water quality in the open coast zones.
 - Off-road vehicle uses in ecologically sensitive areas such as sea turtle nesting sites and habitats for benthic organisms

5.3.3 World Heritage Sites

A natural and man-made site, area, or structure recognized as being of outstanding international importance and deserving special protection. The sites are designated by the World Heritage Convention.

The prime objective in planning for World Heritage sites is the preservation of the fabric for beneficial use.

Standards and Guidelines

- Delineate and map site boundaries and setbacks for gazettelement
- Preserve significant vistas associated with archaeological features
- Provide facilities such as sanitation and limited parking

5.4 Mining

Mining is the extraction of valuable geological materials such as precious stones and minerals, from the Earth. The extraction of minerals on the earth's surface, underground or underwater involves dredging, blasting and release of metals from mining sites through acid mine drainage and erosion of waste dumps.

General Standards and Guidelines

- Prepare plans for mines and quarries which shall include emergency services, waste disposal and proposals for site rehabilitation.
- Ensure that change of user is undertaken.
- Maintain buffer zones as in table 14

Table 14: Buffer zones for the various mining areas

Type of mining	Buffer zone
Large scale mining	500m-1km
Artisanal/small scale mining	100m-300m
Forests and protected areas	1km

Source: Research gate,2025

- Provide a minimum of 10 m buffer zone between quarries and riparian reserves as shown in figure 12.
- Require a rehabilitation Plan and geotechnical survey for mining
- Require Change of users, blasting permits, ESIA and periodical environmental audits
- Ensure that the siting of quarries is in harmony with other land uses.
- Rehabilitate disused mines to suitable alternative land uses such as recreation, and forestry among others.
- Provide access roads, water, sanitation facilities, dispensary and staff quarters.
- Prohibit mining activities in ecologically sensitive areas
- Require all quarry faces/cliffs to be securely fenced at least 10 m from the edge of the cliff and at least 1.5m high.
- Prohibit mining of riverbed occurrences within 300m, up & downstream from any bridge, regulator or hydraulic structure.
- Prohibit undercutting and tunneling in mining, quarrying and sand harvesting near built-up areas to avoid damage to property, injury, or loss of life.
- Encourage the erection of barriers to check material rolling down the slope.

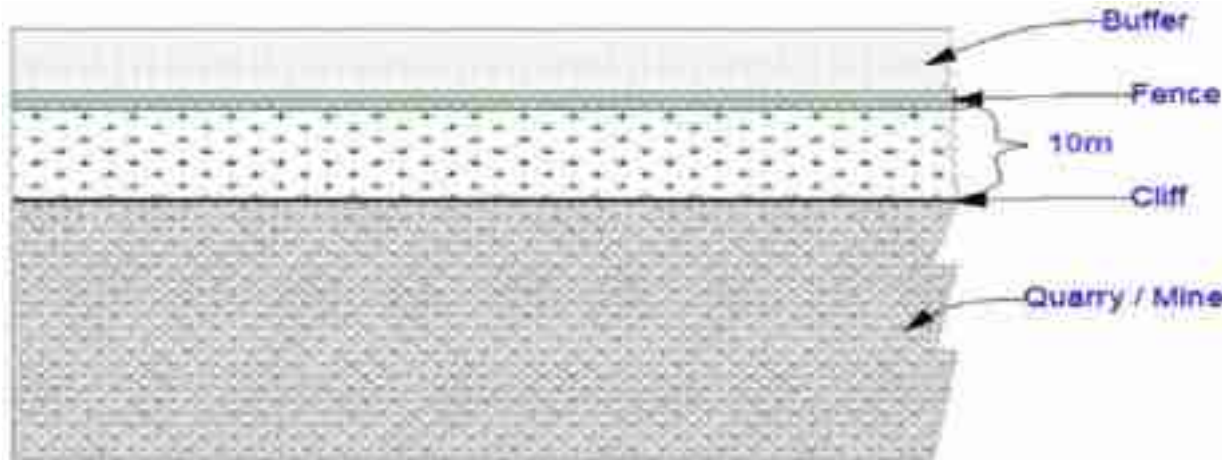


Figure 12: Illustration of a Quarry Site

Source: Physical planning team; 2025

Table 15 shows safe distances to be maintained in quarry operations where blasting is not involved. Where blasting is involved, the concerned relevant authorities shall determine safe distances.

Table 15: Safe distances to be maintained in quarry operations

Land use	Safe distances
Aerodromes/landing ground (15km radius)	To be determined by Kenya Civil Authority and Kenya Airport Authority
Shopping centre, school and hospital	300m - 500m
Individual house/Residential areas	300m - 500m
Road/rail/pipeline reserve	100m
riparian areas	40m - 100m

Source: Physical planning team; 2025

5.4.1 Sand harvesting

Standards and Guidelines

- Identify, map and plan for sand harvesting sites.
- Designate controlled access points for loading
- Prohibit sand harvesting:
 - in an area within 100m of either side of any physical infrastructure including bridges, roads, railway lines, dykes, among others
 - In areas of bio-diversity
 - Beyond 1.8m in depth in lake shores and sea shores

5.4.2 Red Soil/murram Harvesting

Standards and Guidelines

- Undertake an ESIA and EA for large-scale harvesting.

- Prohibit red soil/murram harvesting within road reserves, near dwelling places, and other environmentally sensitive areas.
- Prohibit vertical faces exceeding 2.5m when harvesting red soil. This should be worked in terraces/benches or at a safe angle of slope.
- Divide soil/murram harvesting sites into blocks to ease rehabilitation

5.4.3 Drilling, Boring, Shafting and Tunnelling

Drilling, boring, shafting, and tunneling are all construction methods that involve digging a tube-like passage through the earth.

Standards and Guidelines

- Undertake forward planning to secure land banks for future underground works such as sewer, subways and water conveyance
- Require ESIA, EA and geological reports and studies
- Restore the sites after de-commissioning of tunnels for other appropriate uses such as recreation and tourism.

5.5 Energy sources

Energy sources are either renewable or non-renewable. Non-renewable energy sources include petroleum, natural gas and nuclear energy. Renewable energy sources include solar energy from the sun, geothermal energy from heat inside the earth, wind energy, biomass from plants and hydropower from flowing water.

5.5.1 Solar Energy

Standards and Guidelines

- Provide a minimum land size of 2ha for small-scale solar farms and 4ha for large-scale solar farms
- Provide a minimum access of 15m
- Locate solar farms;
 - on flat or gently sloping terrain for ease of installation and maintenance, and away from obstructions like trees or tall buildings which may cast shadows on the panels.
 - near grid infrastructure for ease of transmission
 - In areas free of mountains, forests, water bodies, buildings, wetlands, floodplains
 - on previously developed and non-agricultural land and away from the 'best and most versatile' agricultural land
- Designate recycling and waste disposal sites within the solar farms
- Prohibit location along wildlife and birds' migratory corridors
- Solar energy shall utilize wayleaves for electricity supply as provided in Table 40
- Require an ESIA and EA.
- Conduct site and soil analysis to ensure the suitability of the land for solar farm development.

5.5.2 Wind Energy

Standards and Guidelines

- Designate and plan sites for the development of wind power generation facilities.
- Designate wayleaves for power line installation connecting to the national grid.
- Locate wind turbines where the annual average wind speed is at least 9 miles per hour (mph)—or 4.0 meters per second (m/s)—for small wind turbines and 13 mph (5.8 m/s) for utility-scale turbines.
- Locate on top of smooth, rounded hills; open plains and water; and mountain gaps that funnel and intensify wind.

- Consider the following when siting a wind power farm:
 - wind potential
 - proximity to energy highways
 - radar interference
 - site accessibility
 - geology, groundworks and excavation
 - ecological interest
 - historic and tourist interest
 - wind shadow
- Locate the wind farms away from flight paths and military aircraft flying areas because of the height of the turbines and electromagnetic fields generated.
- Prohibit location along wildlife and birds' migratory corridors
- Prohibit the location of wind power generation facilities in areas of scenic beauty, national parks, habitats of bird species.

5.5.3 Nuclear Energy Standards and Guidelines

- Identify and map potential nuclear energy sites
- Designate sites for cooling and waste management facilities
- Provide adequate wayleave for the transmission of energy generated
- Require an ESIA and EA.
- Encourage preparation and implementation of appropriate emergency preparedness and response plan.
- Encourage greening to act as buffers.
- Ensure the observance of radiation protection requirements as guided by the Nuclear Regulatory Act, No. 29 of 2019
- Require baseline site survey including radiological conditions prior to the construction and operation of a nuclear facility.
- Prohibit nuclear waste disposal in ecologically fragile areas and flood prone areas
- Provide the siting consideration of nuclear facility as shown in Table 16

Table 16: Siting considerations for nuclear energy facility and radioactive waste disposal facility

Criteria	Desirable Parameters
Distance of population centers (> 10,000 person)	More than 10 km
Distance of large population centers (> 100,000 person)	More than 30 km
Geology and hydrogeology	The hydrogeological characteristics of groundwater, its magnitude and the direction of its flow
Terrain	Reasonably flat up to 20km
Distance from facilities involving storing, handling inflammable, toxic, corrosive material and any mining activities.	More than 5 km.

Compatibility	The potential impact of the plant on the surrounding area, population distribution and environment
Existing infrastructure	Proximity to the main grid, rail, and water to enable transportation of heavy equipment

Source: Physical planning team; 2025

5.5.4 Geothermal Energy

Standards and Guidelines

- Map and designate identified strategic areas suitable for geothermal energy production.
- Identify and map the recharge catchment areas for conservation purposes
- Prohibit residential development within 5km of the geothermal power stations
- Consider the area's topography when selecting a location for the power plant and determining routes for the gathering/injection system.
- Locate power plants near well pads to minimize overall facility costs
- Prepare a site plan considering the following:
 - Power plant excavation requirements and soil characteristics
 - Equipment orientation
 - Utility supply (including access to water)
 - New access roads
 - Existing infrastructure

5.5.5 Hydro Electric Energy

Standards and Guidelines

- Provide safety features like sidewalks, guard rails, fences, locked gates and parapets in the general site plan.
- Provide adequate drainage, a water supply, and lighting in the areas near the power-house.
- Maintain a buffer of 70m as measured from the highest watermark for all dams.
- Maintain a buffer of at least 20m and not more than 100m downstream of the dam, as measured from the toe of the dam.
- Require Environmental and Social Impact Assessments to be carried out
- Prohibit developments within the riparian reserve
- The land requirement for hydroelectric plants is shown in Table 17

Table 17: Land requirement for hydroelectric plants

Type	Land Size
Large dams (with large reservoirs)	10–50 hectares per MW
Run-of-river plants (which don't require large reservoirs)	2–5 hectares per MW.

Source: Finley-Brook, 2014

5.5.6 Tidal Energy

A tidal energy plant is a facility that harnesses the energy from tidal movements in oceans and seas to

generate electricity.

Standards and Guidelines

- Designate and prepare plans for the installation of tidal energy plants
- Locate in areas with differences in water levels of at least 5 meters high to produce electricity
- Set aside a minimum land size of 1ha for tidal stream generators (underwater turbines) and a minimum of 5ha for tidal barrage plants (in dams).

5.5.7 Ocean Thermal Energy Conversion (OTEC)

Standards and Guidelines

- For land-based power plants, locate along the oceanfront on land that is stable and flat enough for a large power facility.
- Set aside a minimum land size of 5ha for the plant

5.6 Electricity Supply

5.6.1 Overhead Cables

Standards and Guidelines

Observe the minimum setbacks to fuel and gas tanks shown in Table 18.

Table 18: Minimum Setbacks to Fuel and Gas Tanks

Voltage Levels	0.4 kV	15 kV	30 kV	132 kV	220 kV	400 kV
Horizontal Clearance from power line conductors to petrol tanks and vents (m)	15	15	1 5	15	15	20

Source: Kenya Power and Lighting Company

Recommended minimum vertical clearances shall be as in Table 19.

Table 19: Minimum Vertical Clearances from power cables

Description of Clearance	Minimum clearance (m) at 400KV	Minimum clearance (m) at 275KV
To ground	7.6	7.0
To normal road surface	8.1	7.4
To road surface of designated '6.1m high load' routes	9.2	8.5
To motorway or other road surface where Sky cradle can be used	10.5	9.8
To motorway road surface where scaffolding is to be used:		
(i) Normal 3 lane motorways	16.3 13.3	15.6 12.6
(ii) Elevated 2-lane motorways		
To any object on which a person may stand including ladders, access platforms, etc.	5.3	4.6
To any object to which access is not required and on	3.1	2.4

which a person cannot stand or lean on a ladder.		
To trees under or adjacent to the line and:	3.1	2.4
(i) Unable to support ladder/climber	5.3	4.6
(ii) Capable of supporting ladder/climber	3.1	2.4
(iii) Trees falling towards line with line conductors hanging vertically only		
To trees in orchards and hop gardens	5.3	4.6
To irrigators, slurry guns and high-pressure hoses	30.0	30.0
To street lighting standards with:	4.0	3.3
(i) Standard in normal upright position	4.0	3.3
(ii) Standard falling towards line with line conductors hanging vertically only	1.9	1.4
(iii) Standard falling towards line		

Source: Kenya Power and Lighting Company

- Encourage installation of new transmission lines along existing power line corridors.
- Prohibit uses and activities that could interfere with a power line operation within the right-of-way including buildings, swimming pools, above-ground fuel tanks, tall signs or billboards, tall trees, obstructions, mounding of soil, burning of material, and excavations among others.

5.6.2 Underground Cables

- Underground cables shall utilize the road reserve space, and where cables traverse private/public property, the necessary approvals should be sought.
- The minimum proximity limits to other facilities in joint-use manholes and vaults shall be as specified in Table 20.

Table 20: Horizontal Separation in Co-Shared Power Lines Ducts

Voltage levels	0.4 kV	15 kV	30 kV	110 kV	220 kV	400 kV
Surface-to-surface clearance (m)	0.15	0.15	0.23	0.3	0.6	0.6

Source: Kenya Power and Lighting Company

- Maintain minimum clearance heights over/under other services as specified in Table 21

Table 21: Recommended clearance heights

S/No	Type of Service	Recommended Clearance Or Depth (M)
1.	Telecommunication cables	2
2.	Telecommunication cables in ducts	0.25
3.	Water pipes	0.5
4.	Oil pipelines	0.5
5.	Fuel storage tanks	1.2

6.	Crossing public roads	1.2
7.	Crossing railway tracks	1.6
8.	Low and medium voltage lines	0.25

Source: Kenya Power and Lighting Company

5.6.3 Submarine Cables

- Prepare a site plan showing coordinates for the entire route and any existing sensitive areas, e.g., coral conservation areas, existing submarine services, and water intake among others.
- Require ESIA and soil surveys to be conducted prior to approval and implementation of the project.
- Ensure development permission is sought from the relevant authorities before the installation of submarine cables.

5.6.4 Electric Power Generating Plants/Sub-Stations

Standards and Guidelines

- Provide adequate land for electricity substations as shown in Table 22

Table 22: Land Requirements for Electricity Sub-Stations

Sub-stations	Land size(ha)
Main receiving sub-station	1.6
Main distribution sub-stations	0.2
Electricity sub-stations	0.05
Single chamber	0.05
Double chamber	0.05

Source: Adopted from Kenya Power and Lighting Company, 2022

- Provide:
 - buffer of 2km for electric power-generating plants
 - power wayleave of 30m on both sides of the National Grid
 - 0.5km buffer between the main receiving sub-stations (275KV) and residential areas, recreational open spaces and public facilities
 - buffer zone of 50m between sub-stations and other land uses
- Reserve a minimum of 5% of the exterior spaces in the main receiving sub-stations for landscaping
- Locate substations central to the distribution area to be served

5.7 Road Transport

Roads in Kenya are classified into National Trunk Roads and County Roads. These roads are classified further as follows:

5.7.1 Road Networks

1. National Trunk Roads

These are divided into primary and secondary national trunk roads.

A. Primary National Trunk Roads

i. Class S Highways

These are roads connecting two or more cities meant to safely carry a large volume of traffic at the highest legal speed of operation. They are provided with a road reserve of **90-120m**.

ii. International Trunk Roads (Class A)

These are roads that form strategic routes and corridors, connecting international boundaries at identified immigration entry and exit points and international terminals such as international air or seaports. The road reserve is **60 -110m**

A minimum road of **40m** should be adopted only when necessary for economic, financial, or environmental resources, or when provision of the desirable width would incur unreasonably high costs because of physical constraints. For dual carriage roads, it may be necessary to increase the road reserve width above the recommended values.

iii. National Trunk Roads (Class B)

These are roads that form important national routes, linking national trading or economic hubs, county headquarters and other nationally important centres to each other and the national capital or Class A roads. The road reserve is **60m -90m**.

A minimum road of **40m** should be adopted only when necessary for economic, financial, or environmental resources, or when provision of the desirable width would incur unreasonably high costs because of physical constraints. For dual carriage roads, it may be necessary to increase the road reserve width above the recommended values.

iv. Urban Major Arterials (Class H)

Urban major arterial highways are meant to carry through traffic and relatively long-distance traffic between widely separated parts of the city or municipality. They provide mobility within an urban area as opposed to access. The road reserve is **60–90m**

v. Minor arterials (Class J)

They carry traffic between different zones of the urban area and include the principal urban bus routes. They include roads within economic zones that are planned by the National Government and roads within State Houses and Lodges and their access roads. They provide mobility as opposed to access. The road reserve is **40-60m**

vi. Urban major collector roads (Class K)

They collect traffic from the local roads and channel it to the major and minor arterial roads. They provide mobility and access, with a road reserve of **25-40m**

B. Secondary National Trunk Roads

i. Primary Roads (Class C)

They link county headquarters or other regionally important centers to Class A or B roads. The road reserve is **40-60m**

ii. Secondary Roads (Class D)

They link constituency headquarters, municipal or town centers and other towns. They collect local traffic from lower-class roads and channel it to the higher-class roads. The road reserve is **25 - 30m**.



Figure 13: Illustration of a road reserve

Source: Physical planning team; 2025

2. County Road Networks

i. Major Feeder Roads (Class E)

They link important constituency centres and channel traffic and to class D roads. The road reserve is **20-25m**

ii. Minor Feeder Roads (Class F)

They link market centres and channel traffic to class E roads. The road reserve is **15-25m**

iii. Urban minor collector roads (Class L)

They collect traffic from the local roads and channel it to the arterial roads. The road reserve is **15-30m**

iv. Local urban access roads (Class M)

They provide access to commercial properties and residential areas and also cater to a high level of pedestrian traffic. The road reserve is **12-15m**

v. Class N

They provide direct access to individual or groups of properties, and residential areas, or to places of specific social or economic activity, including industrial, commercial areas and government institutions. The road reserve is **12-15m**

vi. Class P

They provide direct access to groups of residential properties and other public access not provided by higher-class roads. The road reserve is **9-15m**

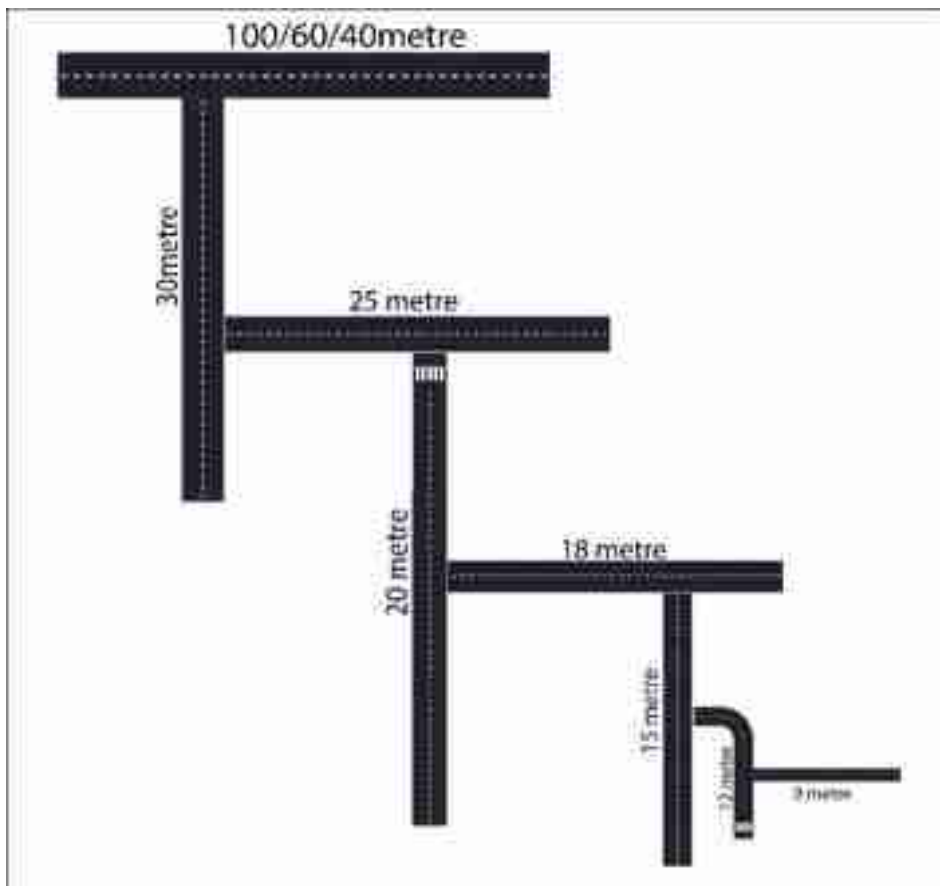


Figure 14: Hierarchy of Roads

Source: Physical planning team; 2025

3. Access Roads (provide illustrations)

These roads give direct access to buildings and land within neighborhoods and localities. The minimum road width is 12m. They include:

- i. Cul-de-sac or Dead-end Streets: meant to eliminate through traffic in a cluster of houses. A dead-end street should be aligned such that it shall give access to not more than 10 residential plots. It should not exceed 60m in length and shall have a turning of at least 15m at the inner end.

- ii. Loop Street or Crescent: a variation of the Cul-de-Sac but eliminates the necessity of dead-end and therefore provides continuous circulation in the residential cluster and ensures easy accessibility to properties without road frontage.
- iii. Service Lane: this is a road parallel to the main access road to buildings provided for parked loading or off-loading of goods. Service lanes should be separated/screened from the main roads.
- iv. Slip roads: a short road on which vehicles join or leave a main road. They allow vehicles to join new roads without stopping. A slip road may remain alongside the main road as an extra lane, or it may merge with the bigger road, narrowing before disappearing completely.

It is recommended that the width of streets or access lanes in a residential area be determined by the number of dwelling units or plots to be served. The minimum street width for a given number of plots is indicated in Table 23

Table 23: Access roads widths

Number of plots	Street widths
1-8	9m
Above 8	12m

Source: Physical planning team; 2025

NOTE: Road reserves shall serve the purpose of establishment of the carriage, the support road furniture, future expansion and carrying out of road maintenance works. A separate provision for wayleaves shall be considered for laying out other physical infrastructure.

Siting of Roads

The following factors should be considered while sitting of roads:

- The topography
- Hydrological characteristics
- Environmental and geotechnical considerations
- Economic viability
- Social characteristics including cultural heritage, archaeological sites, etc
- Existing land uses
- Conformity to the existing road alignments
- Catchment population

General Standards and Guidelines

- Consider safety, functionality and environmental sustainability during planning and designing for roads.
- Designate service lanes, pedestrian walkways, space for signages, street lighting and cycling paths.
- There should be no direct access to properties from Class S, Class A, Class B and Class H roads.
- Provide:
 - slip roads on Class S, Class A, Class B and Class H roads to human settlements.
 - standard wayleaves for electricity supply, stormwater, fibre optic cables and sewer.
 - waste recycling bins on pedestrian walkways.

- Restrict direct access to individual plots from arterial roads.
- Increase road reserve widths of classified roads passing in urban centres to allow for parking, segregation of traffic, street furniture or for controlled accessibility to properties, where necessary.
- Encourage water-harvesting facilities from stormwater drains.
- Control encroachment of human activities along the bypasses and major roads
- Encourage landscaping and tree planting along the roads to enhance aesthetics, and encourage walkability.
- Provide road truncations which shall be half the width of the adjoining road with clear markings as illustrated in Figure 15
- Permitted developments include:
 - i. Public utilities such as water and sewer wayleaves, electricity wayleaves and fibre optic cables.
 - ii. Bus stops and roadside drop off and pick up points.
 - iii. Street furniture, road marking, street landscaping, water points, street toilets, street lighting, waste recycle bins among others.
 - iv. Non-Motorized Transport.
 - v. Advertisements and signage.
 - vi. Parking facilities.
 - vii. Street vending facilities

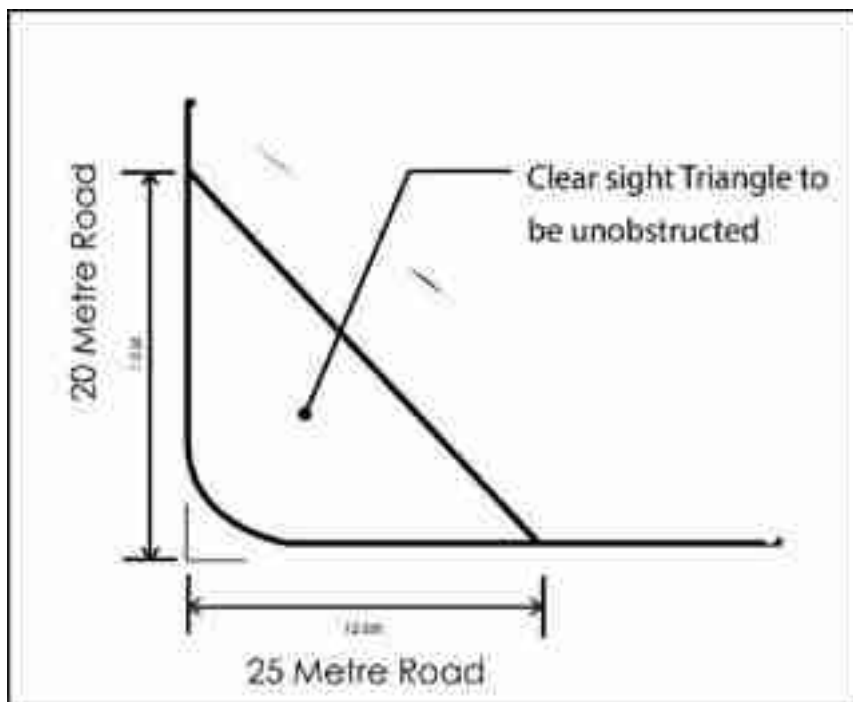


Figure 15: Illustration of truncations

Source: Physical planning team; 2025

5.7.2 Mass Rapid Transit System

1. Bus Rapid Transit

Standards and Guidelines

- Provide a minimum road reserve of 65m for roads that serve the BRT corridor
- Designate areas for pedestrian drop-off and pick-up points
- Figure 16 illustrates a BRT Model

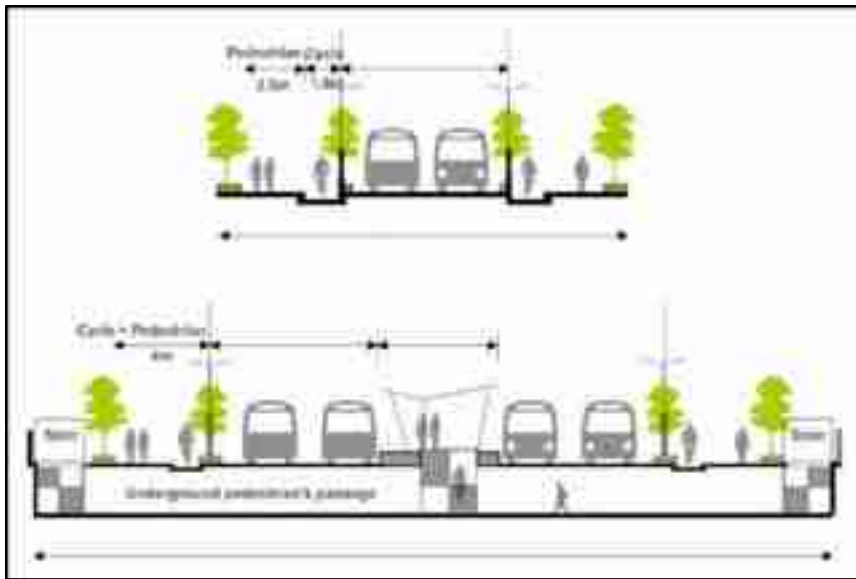


Figure 16: BRT Model

Source: Physical planning team; 2025



Figure 17: Bus Rapid Transit Illustration

Source: Physical planning team; 2025

2. Light-Rail Transit (LRT)

LRT is a system of railways used for medium-capacity local transportation in metropolitan areas.

Standards and guidelines

- Ensure the alignment of LRT integrates well with the existing urban landscape, minimizing disruptions and enhancing connectivity.
- Consider using exclusive right-of-way to improve safety and efficiency, especially in densely populated areas.
- Locate the Light Rail Transit station after every 1.5-3km as shown in Figure 18.
- Provide a minimum land size of 5ha for the maintenance station (an overhaul depot for rolling Stock, signaling, communication, operation control centre and training facilities).

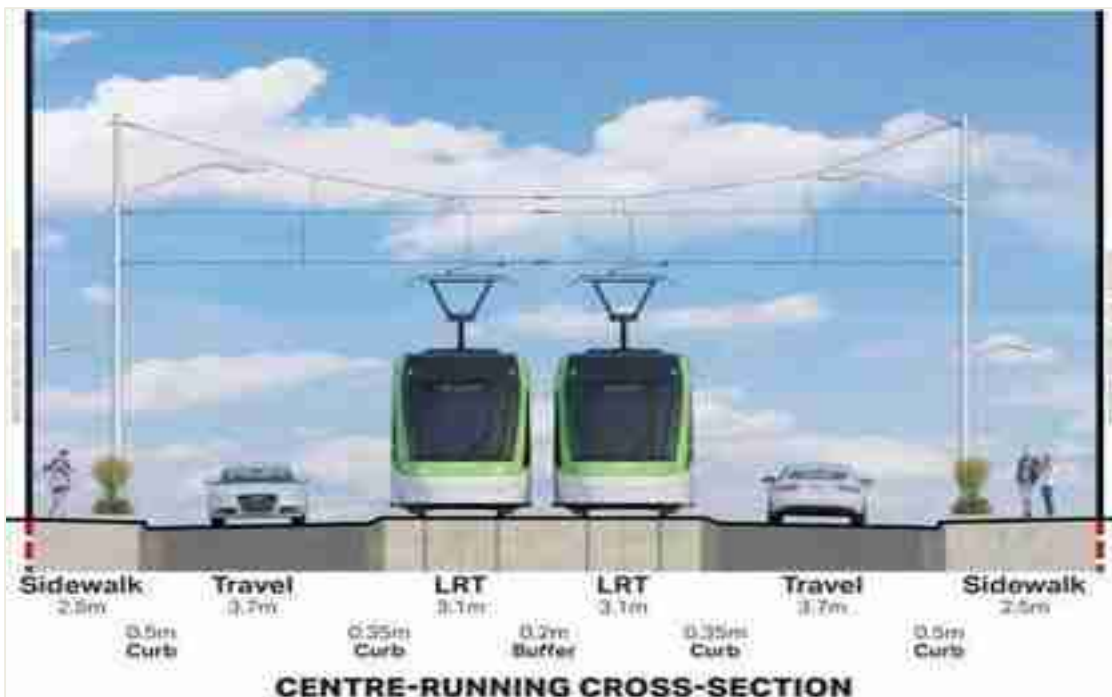


Figure 18: Light Rail System

Source: Physical planning team; 2025

3. High -Rail Transit

HRT is an electric rail-based public transport system, often referred to as "Metro," with high-passenger capacity that generally precludes sharp turning movements.

Guidelines

1. Locate near existing transportation facilities such as airports, railways, bus stops and highways for ease of accessibility and inter-modal integration.
2. Terminal stations (stations at both ends of the corridor) should be close to the city center or downtown area of major cities to enhance ridership potential.
3. Prohibit location within environmentally sensitive areas such as forests, wetlands, water bodies.

5.7.3 Transport Interchanges

1. Inter-modal interchanges

It is a facility that allows commuters and cargo to transfer between different modes of public transport or between two services of the same mode. Commuters can join or leave the public transport system on foot, bicycle, motorcycle or car.

Standards and Guidelines

- Siting considerations include: mobility needs, transport integration, zoning regulations, proximity to urban centers, availability of basic services, development character of the area, and integration of modern technology among others.
- Locate interchanges within major destinations in town or district centers or shopping centers.
- Locate residential areas away from the interchanges.

2. Road interchanges

It is a junction of two or more roads, typically highways or major roads, designed to allow traffic to move between them without interfering with other traffic streams. It often involves overpasses, underpasses, or separate lanes for different movements.

Types of interchanges

Systems/Major Interchanges: These are critical nodes within the main network, connecting high-capacity roads such as those in functional classes A and B, which have full access control. They often link freeways and other major roads and are designed to handle significant traffic volumes with high-speed ramps and free-flowing terminals.

Access/Minor Interchanges: These link individual highways without access control, often connecting lower-capacity roads. They are designed to integrate smaller roads into the broader transportation network. Figures 19 & 20 illustrate examples of interchanges.

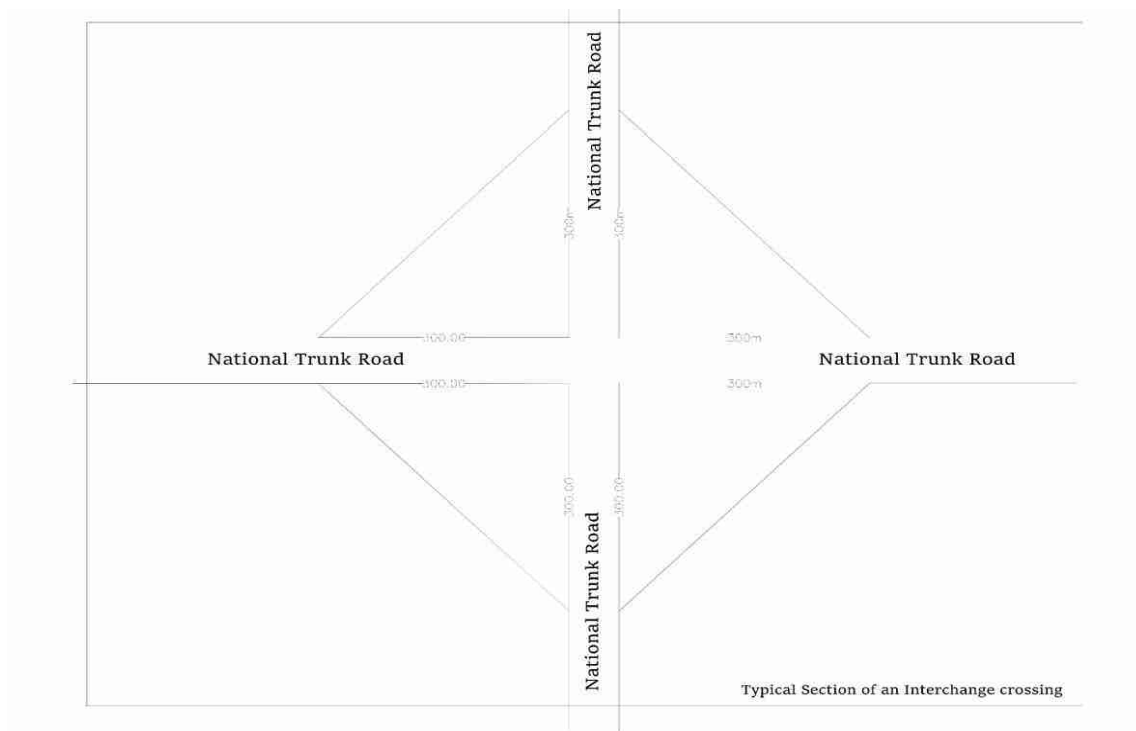


Figure 19: Illustration of a section of an interchange crossing

Source: Physical planning team; 2025

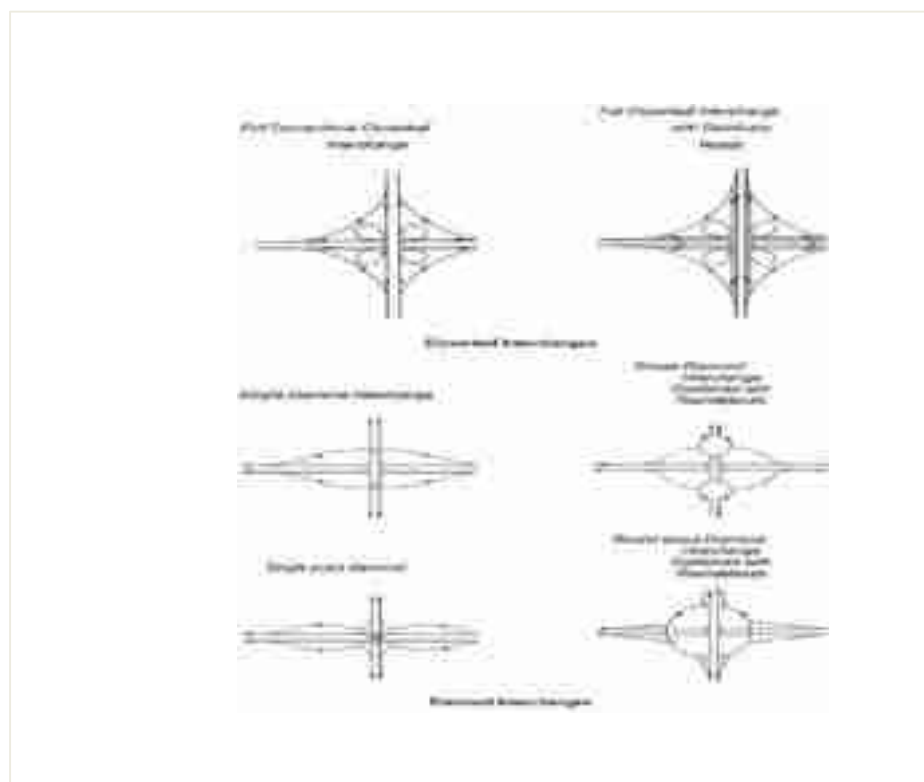


Figure 20: Road interchange

Source: Japan International Cooperation Agency (JICA),2020

5.7.4 Bus Termini

Standards and Guidelines

- Locate outside CBD with intermodal linkage to minimize traffic congestion and pollution.
- Provide adequate space to accommodate facilities such as benches, signages, shelters, waste bins, parking, eateries, health clinics, police booths, and sanitation areas, among others.

5.7.5 Parking

Parking is a space designated for leaving vehicles, bicycles, and motorcycles temporarily. Parking facilities should be provided to manage vehicular traffic and eliminate obstruction to vehicular traffic flow.

Standards and Guidelines

- The siting considerations include drainage, access, safety
- Integrate parking lots with the intermodal interchanges.
- Orient the parking lot layout in relation to the building entrance to ensure that pedestrians walk parallel to vehicular movement rather than crossing parking rows and drive aisles.
- Locate parking close to building entrances, ensure that it is easily identifiable and separate from pedestrian circulation areas.
- Integrate traffic calming techniques into the transportation and site layout to slow and divert traffic thus enhancing safety. These include wide-speed humps, raised crosswalks, and raised intersections.
- Encourage solar street and smart energy-efficient lighting.
- Provide on-plot parking in the central commercial and business zones.
- Provide adequate parking space in residential areas.
- Prohibit on-street parking along the carriageways on national highways.
- Locate parking for trucks that weigh 7 tones outside the CBD.
- Table 24 & 25 provides for parking requirements

Table 24: Space Requirements for Vehicles

	Flush/Parallel Parking	Angle Parking
Cars	5.0-6.5m by 2.5m	5.0-6.5m by 2.5m
Buses	10.0m by 3.3m	10.0m by 3.3m
Trailers and Trucks	30.0m by 4.0m	40.0m by 2.5m at an angle of 30 degrees

Source: Physical planning team; 2025

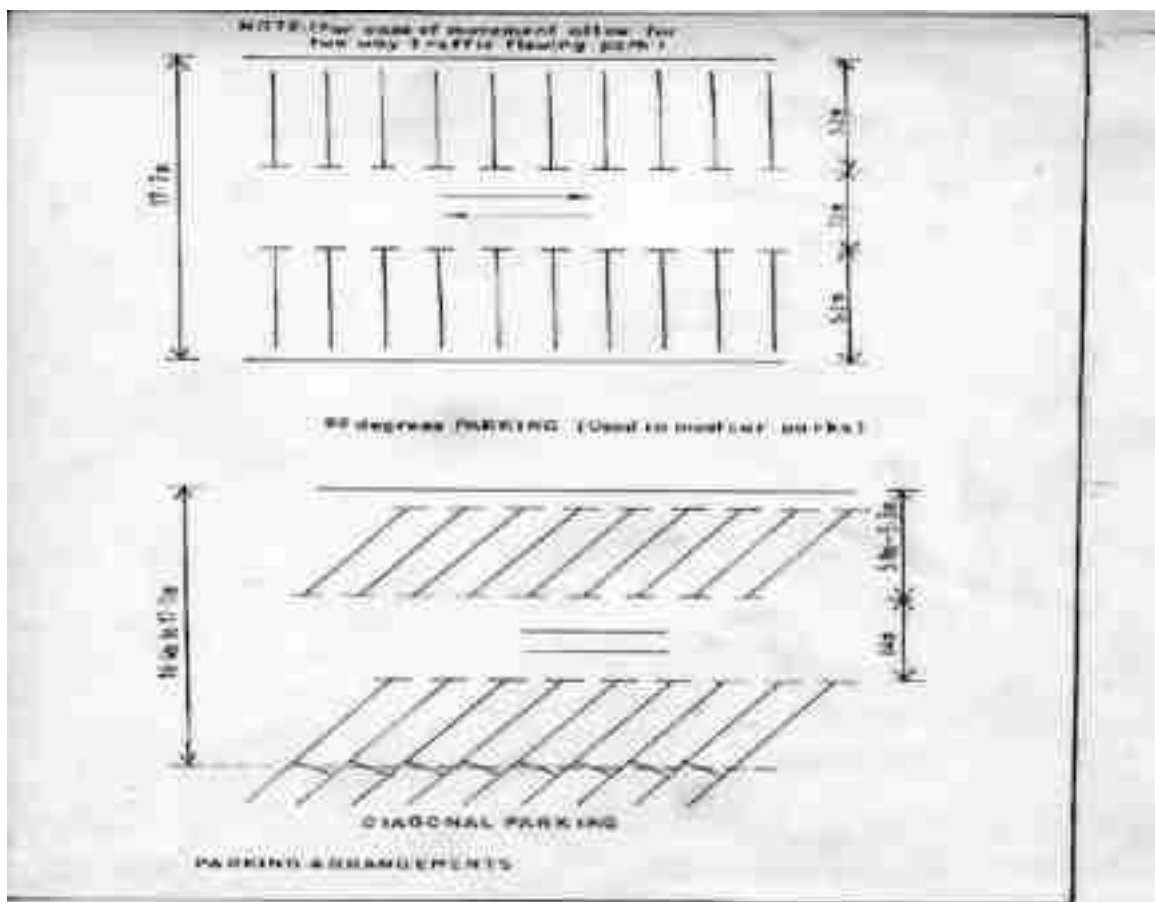


Figure 21: Types of parking

Source: Physical planning team; 2022

Table 25: Car Parking Requirements Based on Usage

Use	Proposed New Minimums	Justification
Residential	Minimum ratio of parking rations per dwelling unit;	1 car park per 2 housing units
	a) Low density- 1:2	
	b) Medium density – 1:2	1 car park per 2 housing units
	c) High density –1:3	1 car park per 3 housing units
	d) Studio/bedsitter= 1:10	1 car park per 10 housing units
	e) One bedroom unit 1: 3	1 car park per 3 housing units
	f) 2 or more-bedroom unit = 1: 2	1 car park per 2 housing units
	NB: 25% of the total required parking is provided for guest parking outside on individual parking spaces.	
Specialized market	1:2	1 parking space for every 2 stalls

Market	a) 10% of the permitted total area	Minimum land size for market=0.1ha Parking space $10\% \times 0.1\text{ha} = 0.01\text{ha}$ 1 car parking space= 21m^2 or 0.002ha Total parking slot for 0.1ha market 5
	b) Roadside stalls = 1:2	1 parking for 2 roadside stalls
Neighborhood Shopping Centers	10% of permitted total areas	
Office Administration	-	1:25
Institutions		
Hotel	1:	1
School		1:1 equivalent to 1%
Mosque/Churches		
Hospital		1:2
Sports field & outdoor and indoor recreational facilities	1: 3 persons anticipated at maximum capacity	1:2
Nursing Home	1: 3	1 parking for 3 beds
Cemeteries & Crematorium	30% of the total area	1 car park =0.0021ha Expected population per function= 150 Expected parking per function= $150/3=50$ car parking Expectation functions at any one time =3 Total car parking at any time: $50 \times 3 = \mathbf{150}$ Total car park space needed= $150 \times 0.0021 = 0.3\text{Ha}$ (30% of the land)
Industries	20% of the total area	1 car park of 21m^2 per 100m^2 of the industrial space

Source: Physical planning team; 2025

Parking Requirements for Persons Living with Disabilities (PLWD)

- Provide a minimum parking lot width of 3m.
- The lots should be located as close as possible to ramps, walkways, entrances, and elevators.

- Reserve at least one parking space or one percent of the parking spaces, whichever is more for persons living with disabilities.

Bicycle parking

Standards and Guidelines

- Designate parking spaces of 2m long and 1m wide for each bicycle.
- Designate bicycle parking with the land uses as shown in Table 26

Table 26: Bicycle Parking Standards

Land Use	Parking Space
Residential	20% of the total parking area.
Industrial	5% of the total parking area
Educational	20% of the total parking area
Recreational	50% of the total parking area
Public purpose	30% of the total parking area
Commercial	10% of the total parking area
Transportation	30% of the total parking area

Source: Physical planning team; 2025

5.7.6 Non-Motorised Transport (NMT)

Non-motorized transport is active transportation which includes walking, cycling, and variants such as Small-Wheeled Transport (skates, skateboards, push scooters and hand carts) and wheelchair travel. NMT facilities are provided within the road reserves.

Cycling Lanes and walkways

Standards and Guidelines

- Provide:
 - minimum of 3m for a combined cycle lane and walkways.
 - minimum of 2m for a separate cyclist lane and skateboards, scooters and bicycles.
 - minimum NMT size as shown in Table 27

Table 27: Standards of NMT for different categories of roads

Type of road	Minimum NMT size	Facilities
Urban Major Arterials (Class H)	5m	Street furniture (benches, security lights) Waste bins Landscaping and ornamental tree lining
Urban Minor Arterials (Class J)		
Local urban access roads (Class M)	2m for a cycle lane 2m for dedicated walkway	

- Figure 22 shows an illustration of NMT

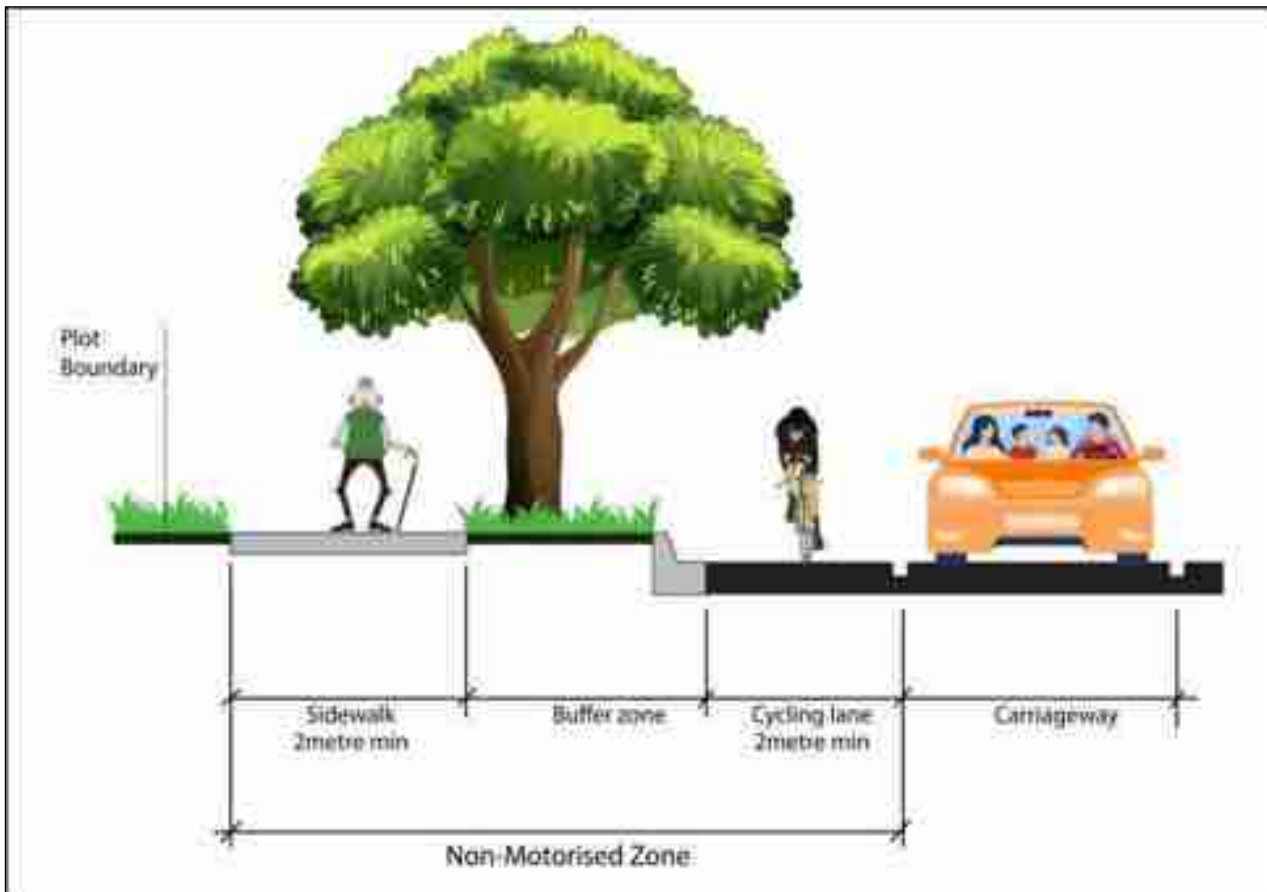


Figure 22: Section of non-motorized transport

Source: Physical planning team; 2025

5.7.7 Roadside Stations

Roadside stations are rest areas situated alongside roads to provide a safe and comfortable environment for vehicle users and promote the local economy.

Categories of roadside stations

1. Large

- Located along class international trunk roads (S) and major highways (A)
- Provide a minimum land size of 4 ha

2. Medium

- Located within the national trunk roads class (B) roads
- Provide a minimum land size of 2.4ha

3. Small

- Located within the urban trunk roads class (H-K) roads
- Provide a minimum land size of 1.2ha

Standards and Guidelines

- Provide a parking space of 10 percent of the total area
- The minimum recommended distance between roadside stations is **200km**.
- Integrate with the electric vehicle charging stations.
- Alternate on both sides of the road to provide adequate resting options for travelers in both directions.
- The minimum facilities required in a roadside station include:
 - ✓ parking space,
 - ✓ garages,
 - ✓ petrol station,
 - ✓ recreational area,
 - ✓ administrative and security offices,
 - ✓ drainage,
 - ✓ signages,
 - ✓ street lighting,
 - ✓ restrooms/hotels,
 - ✓ washrooms,
 - ✓ restaurants, shops/supermarkets,
 - ✓ health clinics
 - ✓ emergency response centre and
 - ✓ bank/bureau office.
 - ✓ Prayer rooms
- The size of these individual facilities shall be provided in line with the standards laid out in this handbook.
- Figure 23 shows an illustration of a roadside station.



Figure 23: Basic concept of road side station (Michinoeki)

Source: Adapted from the Ministry of Land, Infrastructure, Transport and Tourism website, Japan

5.7.8 Electric Vehicle Charging Stations

Standards and Guidelines

- The minimum land size for an electric vehicle charging station is 0.25ha.
- Provide a minimum of 5% of parking space for electric vehicle charging.
- Integrate charging stations within roadside stations, petrol stations and commercial buildings.

5.7.9 Corridor Development

Standards and Guidelines

- Provide a buffer zone of 50km on both sides along the corridor to prevent urban sprawl.
- Prepare a comprehensive strategy to guide developments within the corridor.
- Establish strategic towns within the corridor and encourage compact development. Establish special economic zones and industrial parks.
- Conserve the patterns of livelihoods and settlements.
- Preserve local cultural and historic sites and resources.
- Provide for parking and roadside stations along the corridor.

5.8 Railway Transport

5.8.1 Railway Reserve

A railway reserve is land vested in the Kenya Railway Corporation (KRC) by any written law and land conveyed or otherwise placed at the KRC's disposal is reserved for its use.

Standards and Guidelines

- Provide:
 - minimum reserve of 60.96m (200ft) for a meter gauge railway (MGR)
 - minimum reserve of 30.48m (100ft) on either side of the centre track of the main line of a meter gauge.
 - minimum reserve of 70m for SGR and at least 130m in protected areas.
 - minimum of 91.44 m (300ft) on either side from the center of the main lines in standard station areas.
 - minimum of 12m building lines and setbacks for properties abutting the railway corridor.
 - Private sidings shall be at least 7.5m wide. Sidings in industrial areas shall be 30.48m on either side from the center of the track.
- Regulate human activities along the railway reserves.
- In case of realignment of track, the land shall not be allocated for any other use before due process is followed. The land shall be gazetted and a deed of surrender be issued in line with the NLC Act.
- Railway construction projects shall be based on topographical, geo-technical surveys and ESIA /SEA reports.

- Provide underpass and overpass for pedestrian and bicycle crossings across railway corridors, to connect neighborhoods and key destinations.
- Integrate interchange facilities such as bus stations, parking, airports and ferry slips within railway stations.
- Provide a street between the railway operating corridor and the surrounding area, to provide an active frontage in metropolitan areas.
- Designate a noise buffer for adjacent buildings and the surrounding area
- Subject all development applications abutting railway reserves and operational areas to the prescribed KRC and PLUPA processes.
- Buildings, roads, pipelines, water pipelines, sewage lines, power distribution infrastructure, and telecommunication masts shall be required to seek the approval of Kenya Railways before crossing, abutting, or running along any railway reserve.
- Access to buildings shall not be provided on the side facing the railway reserve.
- No alteration of existing roads passing through railway reserves shall be permissible except with the express authority from KRC.
- Prohibit cultivation on slopes of more than 35% and within 9.14m (30ft) from the center of the track.
- Prohibit explosive or radioactive materials around the railway network.

5.8.2 Level Crossing Reserve (Diamond)

An intersection where a railway line crosses a road or a path

Site selection considerations

- Safety of the road and rail traffic
- Clear sight visibility.
- Land adjoining the railway track should not be above the rail level
- Land adjoining the road not be more than 0.9m (3ft) above the road.
- Railway and road shall cross at right angle (90)
- Level crossing shall not be sited on sharp curves

Diamond visibility

Means a distance of **100m** in each of the four directions along diagonals on intersection of road and railway.

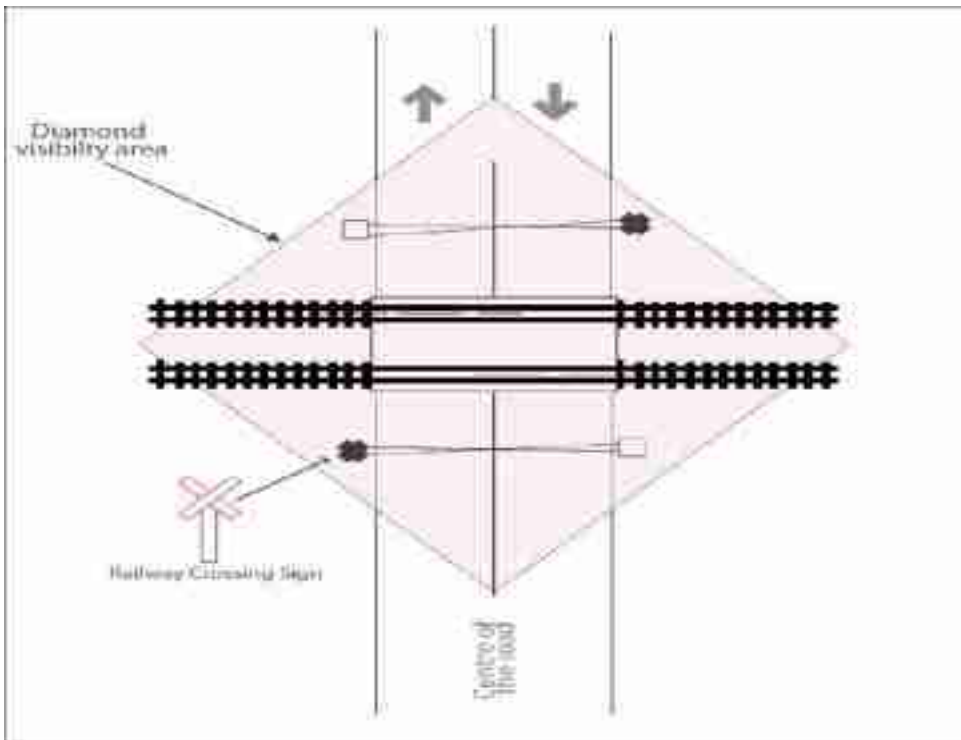


Figure 24: Illustration of diamond visibility

Source: Physical planning team; 2025

5.8.3 Standard Gauge Railway (SGR)

- Provide:
 - crossing access after every 2km for foot traffic and 5 km for vehicular traffic.
 - overpasses in cuttings and where SGR crosses the meter gauge
 - animal corridors in collaboration with relevant authorities (KWS, KFS, and County Governments).

5.8.4 Railway Stations Standards and Guidelines

- Prepare site layout plans for railway stations
- Provide:
 - facilities for persons living with disabilities.
 - adequate space to accommodate facilities such as station furniture, waste recycle bins, sanitary facilities, security, health facilities, and lighting.
 - warning signs and speed restriction boards.
- Locate railway stations within the proximity to other transport terminus to ensure short and seamless transfers
- Locate commuter car parking areas away from main pedestrian entrances to the railway station.
- Refer to the Railway Engineering Manual, Vol I, 1962 during planning and development approval processes.

5.9 Air Transport

General guidelines and standards

- Prohibited developments in the Obstacle Limitation Surface (OLS) include:
 - Quarries
 - Slaughterhouses
 - Hospitals
 - Schools
 - Greenhouses
 - Agricultural activities
 - Dumpsites
- Developers should make formal applications to KCAA for any proposed structure detailing the following;
 - Coordinates in WGS-84 format
 - Proposed height required
 - Purpose/use of the proposed development
 - Proposed plans.
 - Letter of no objection from relevant authorities
- Overhead wires, cables and their supporting towers that are crossing a river, waterway, valley or highway should be marked and lighted if an aeronautical study indicates that they could constitute a hazard to aircraft.
- The siting considerations include:
 - Topography of the aerodrome site and its surroundings.
 - Geological considerations including soil and rock types, presence of fissures, landslides and soil stability
 - Weather particularly wind distribution and the occurrence of localized fogs. The primary runway should be oriented in the direction of the prevailing wind.
 - Type and amount of air traffic to be served, including air traffic control aspects. The number of runways must be sufficient to meet air traffic demands, which consist of the number of aircraft arrivals and departures, and the mixture of aircraft types, to be accommodated during the busiest periods.
 - Aeroplane performance considerations.
 - Environmental considerations, particularly noise
 - Natural obstruction -all runways should be oriented so that approach and departure areas are free of obstacles and, preferably, so that aircraft are not directed over populated areas.
 - Adjacent land use -the orientation and layout should be as far as possible from the particularly sensitive areas such as residential, school, and hospital zones; to avoid the discomfort caused by aircraft noise
 - Future expansion capability

5.9.1 Airports Standards

Prohibit the development of any obstacles within a 15 km radius of the runway strip to protect the Obstacle Limitation Surface (OLS). OLS is the airspace around aerodromes that is to be maintained free from obstacles to permit the intended Air System operations at the aerodromes to be conducted safely as shown in Figure 25 illustrates OLS.

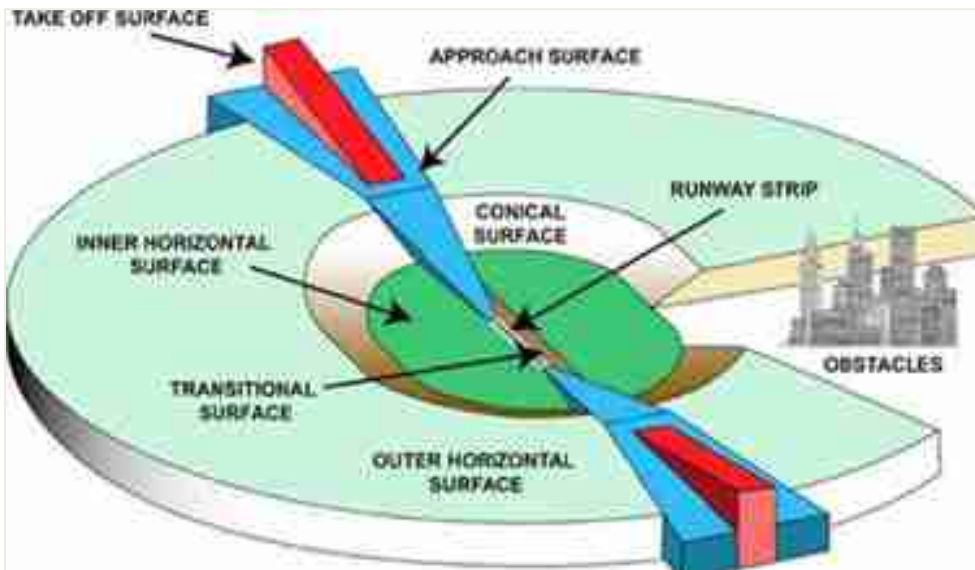


Figure 25: Obstacle Limitation Surface (OLS)

Source: ICAO, Annex 14

Note: KAA has the ultimate responsibility of controlling obstacles on airport property and arranging the removal or lowering of existing obstacles outside the airport boundaries

- Developments that extend above a take-off climb surface within 3000m should be marked and lighted.
- Developments beyond the limits of the OLS, which extend to a height of 150 m or more above ground elevation should be regarded as obstacles unless an aeronautical study indicates that they do not constitute a hazard to aeroplanes.

5.9.2 Airstrips

An airstrip is an area used for landing and take-off of aircraft including buildings and structures.

Site considerations

- The airstrip should be located in a flat terrain to accommodate the physical layout of the landing strip.
- Convenient connection to an existing transport facility.
- Availability of land for expansion to accommodate future needs.
- The soil should be well drained preferably sand soil.
- It should be sited away from the residential areas, schools and hospitals due to noise pollution.
- High-rise buildings and tall trees should be avoided to clear space for landing and take-off.

Minimum land requirement

- Provide an airstrip in every city, and municipality.
- The minimum length of the landing strip should be 3,200 feet.

Note: Land sizes for airports and airstrips are provided by KAA based on the feasibility studies conducted.

5.9.3 Helipads and Heliports

A helipad is a designated landing and take-off area for helicopters, generally smaller, typically used for private or emergency helicopter operations and may be located on rooftops, in parking lots, or on smaller properties.

Heliports are larger than helipads and are designed for commercial or public helicopter operations, often supporting more complex helicopter operations, maintenance, or passenger services.

Standards and guidelines

- Locate
 - On level, well-drained ground with good load-bearing capacity
 - In areas free from dust and debris
- Orient helipads and heliports away from prevailing winds
- Provide
 - minimum distance of 500m between helipads/heliports and residential areas and schools.
 - minimum distance of 750m between two helipads/heliports to avoid airspace conflicts.
 - a landing area twice the length of the largest expected helicopter to use the heliport/helipad.

5.9.4 Advanced Air Mobility

Advanced air mobility focuses on emerging aviation markets for on-demand aviation in urban, suburban, and rural communities. It serves a minimum area of about 80km radius in rural, urban and intraregional areas.

Standards

- Provide a minimum land size of 0.2ha for vertiports
- Prohibit flying heights below 2.5m for drones and air taxis
- Observe a minimum separation distance between vertiports in urban and rural areas respectively as advised by KCAA.

5.10 Maritime and Inland Water Transport

Standards and Guidelines

- Consider the depth of the water and strength of waves and winds in the siting of ports.
- Identify, map and prepare action plans for accident-prone areas
- Permissible activities within the riparian reserve include recreation and conservation.
- Regulate developments to ensure the required visibility to the aid to navigation is maintained.
- Designate land uses with consideration of the existing rail lines, roads, ports, harbors and waterways.
- Designate spaces for emergency response and health facilities.

- Designate spaces for bunkering, waste reception facilities, oily waste reception facilities, sewerage reception and garbage waste.
- Identify and map ecologically and environmentally sensitive areas and prohibit development in these areas.
- In determining the port size, the following factors should be considered:
 - Passenger carriers, vessel sizes and handling equipment
 - Road and rail access
 - Safety and emergency facilities
 - Utilities
 - Parking and loading/unloading spaces
 - Ancillary facilities such as shelters, lighting, security facilities, markings and signage and seating.
 - Routes and destinations
 - Security and administrative facilities
 - Frequency of service
 - Seaports and marine terminals
- Require
 - a bathymetric survey for proposed developments.
 - ESIA and EA for proposed and existing projects respectively
 - comprehensive oil pollution emergency plans and fire control plans

5.10.1 Marina

Marinas are specially designed harbors with moorings and supplies for yachts and small boats. It does not handle large passenger ships or cargo from freighters.

Guidelines

- Prohibit direct road access to the boat launching ramps
- Provide:
 - separate site for fueling dispensing at least 8m away from other activities
 - physical barrier for the bulk fuel storage to stem unauthorized access.
 - fire hydrants for fire protection.
- Locate bulk fuel tanks on the mainland and not on the floating docks
- Locate the bulk fuel tank storage in a well-ventilated structure to prevent the accumulation of gas which could lead to an explosion
- Prohibit fuel spillage into the ocean.
- Conduct ESIA and EA for the construction of Marina

5.11 Advertisements

Standards and Guidelines

5.11.1 Billboards

- Observe a minimum distance of 250m on either side of the road between billboards along classes S, A and B roads and those within 1Km radius of the boundary of a municipality, town, or market centre irrespective of the classification of the road.

- They should not be displayed within 30m of junctions and roundabouts
- Observe a minimum distance of 100m between billboards along urban trunk road corridors and railway corridors
- They should be buttressed from the roadsides to avoid incidences of falling on the carriageway
- Prohibit billboards in residential areas, rooftops or recreational areas.
- Erect within 70m of traffic control lights and not less than 100m from the outer width of a roundabout.
- Prohibit display within 30m of the carriageway on national trunk roads
- Billboards should be buttressed from the roadsides to avoid incidences of falling on the carriageway.
- The maximum height should be 12m with a clear height of 2.1m.
- The maximum area of billboards should be 120m².
- Regulate the number of billboards and roadside advertising screens to reduce obstruction, and negative visual effects and enhance road safety.
- Prohibit placement of billboards on overhead footbridges to enhance pedestrians' security and avoid obstruction to motorists.

NOTE: Billboard advertisements should not be placed on road reserves but on properties adjacent to road reserves

5.11.2 Construction site notice

Ensure the onsite construction notice that is displayed before the commencement of construction measures 1.2m by 0.7m and a height of 1.7m from the ground as illustrated in Figure 26.

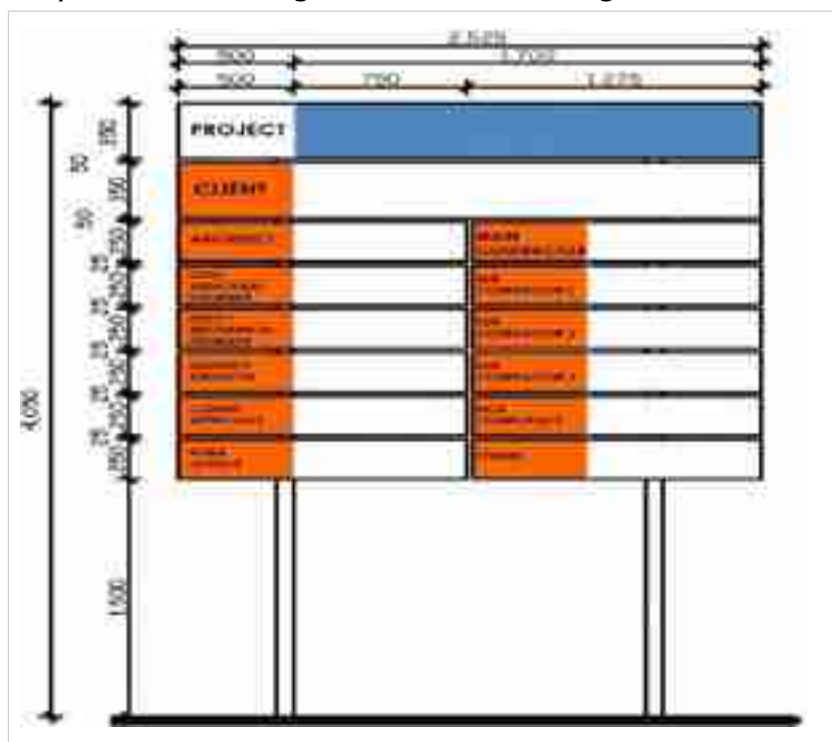


Figure 26: Illustration of a construction site board

Source: The National Building Code, 2022

5.12 Telecommunication Lines and Cables

Telecommunication infrastructure refers to the physical and technical systems enabling the transmission of information across long distances, including technologies like telephone lines, wireless networks, and fibre optic cables.

5.12.1 Overhead Cables Standards and Guidelines

- Ensure a minimum pole span length of 40m - 55m and 60m- 64m for aerial cable routes and drop wire routes respectively.
- Observe the minimum vertical clearances for overhead cables as illustrated in Table 28

Table 28: Minimum Vertical Clearance for Overhead Cables

S/No.	Vertical Clearance	Minimum Height (M)
1.	Railway crossings	6.1
2.	Plantation railways crossings	4.88
3.	Road crossings	4.88
4.	Along-side town road	3.66
5.	Along-side country roads	3.05
6.	Across country	3.05

Source: Physical planning team; 2025

- Observe the minimum horizontal clearances for poles planted close to the railway permanent way, as provided in Table 29.

Table 29: Minimum Horizontal Clearance for Overhead Cables

S/No.	Horizontal Clearance	Minimum Height (M)
1.	Inside stations	2.44m
2.	Outside the station	The pole length+1.83m

Source: Physical planning team; 2025

- Observe a minimum height of 7.32m for poles erected where there is vegetation of any significant height under the pole routes.
- Provide a minimum horizontal separation distance of $1.5h$ where power lines and communications cables run on the same side of the road or street, where h is the height of the telecommunications pole and H is the height of the power pole, whichever is greater. This is illustrated in Figure 27.

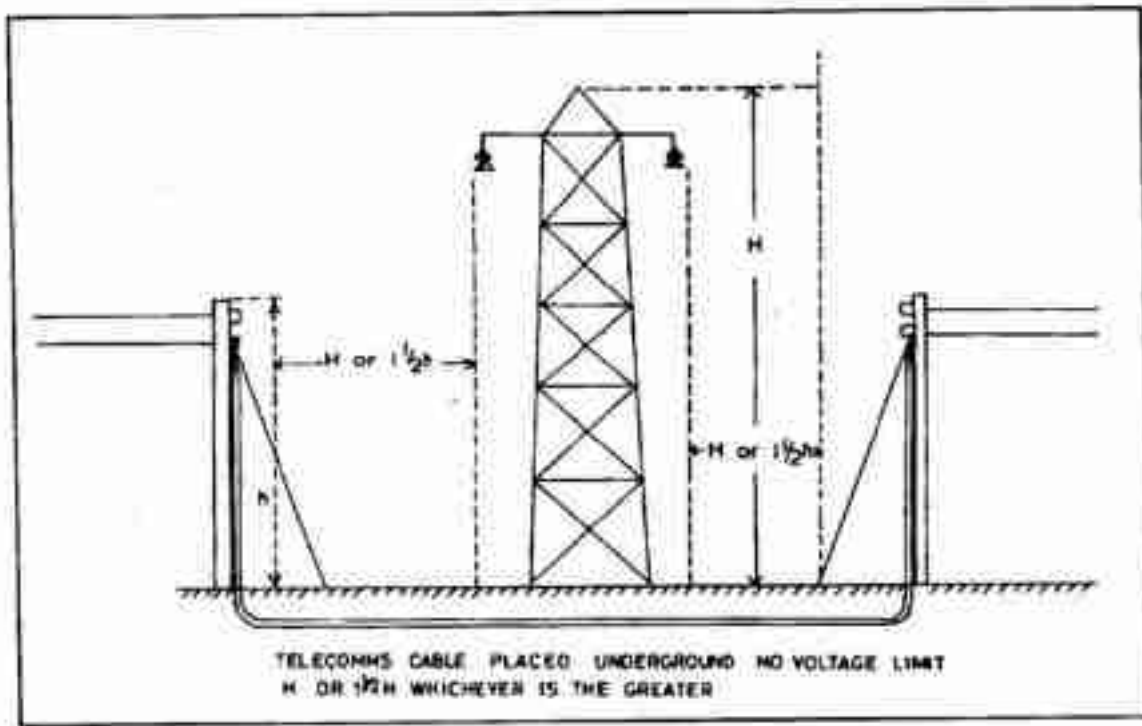


Figure 27: Horizontal Separation Distance for Telecommunication and Power Masts

Source: CCK, 2012

- Observe a vertical clearance of between 0.61m-3.05m, where power wires and communications cables run on the same side depending on the voltage on the power line as illustrated in Table 30 and Figure 28
- Utilize road reserve space for telephone lines and cables

Table 30: Minimum Vertical Clearance from Power Lines

S/No.	Power Voltage	Vertical Clearance (m)
1.	High voltage (HV) exceeding 66 kV	3.05
2.	High voltage (HV) exceeding 11 kV but not more than 66 kV	1.83
3.	High voltage (HV) exceeding 650V but not more than 11kV	1.22
4.	Medium voltage (MV) exceeding 250V but not more than 650V	0.610
5.	Low voltage (LV) not exceeding 250V	0.610

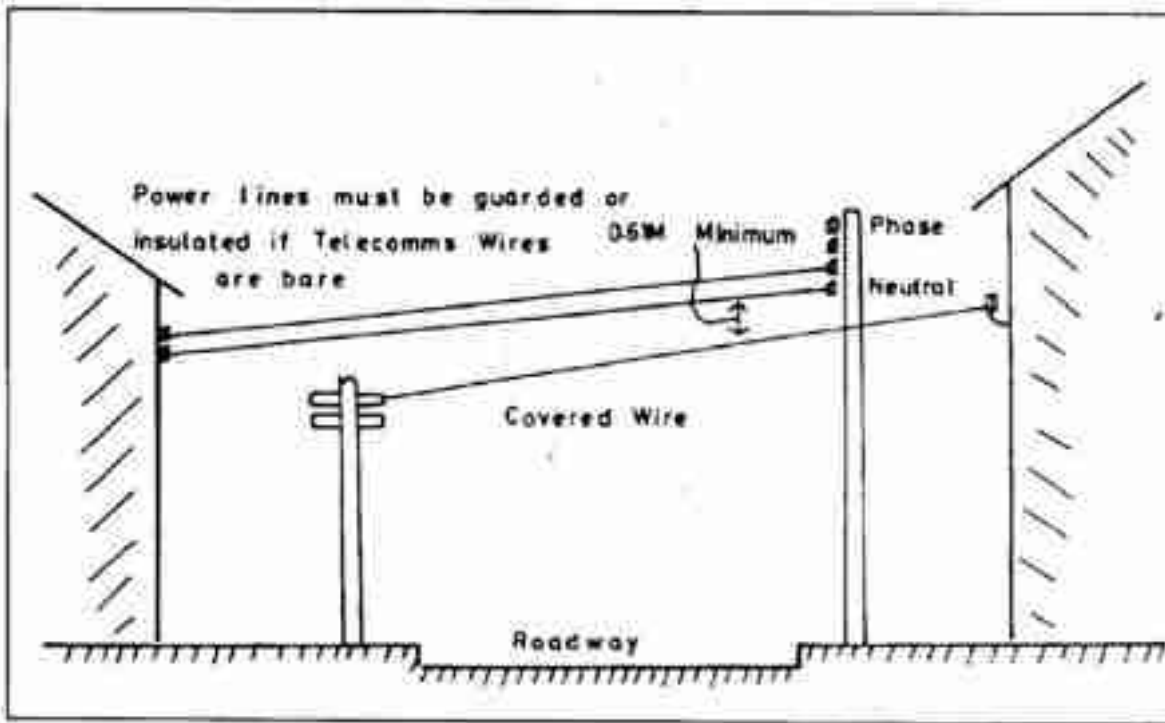


Figure 28: Minimum Vertical Clearance from Power lines

Source: CCK, 2012

5.12.2 Underground Cable Ducts

Standards and Guidelines

- Provide a clearance of between 0.46m to 1.22m between power cables and telecommunication cables when planning a cable run as illustrated in Figure 29.
- Reserve a wayleave one side of the road for underground power cables and the other side for underground telecommunication cables.
- Provide cable chambers at a spacing of not more than 150m unless limited by:
 - Length of conduit that can be rodded
 - Obstructions and change of direction.
- Provide a minimum clearance of 0.025m of ducts and cables laid directly in the ground from water mains, service pipes, sewers, subways and jointing chambers belonging to other utilities.

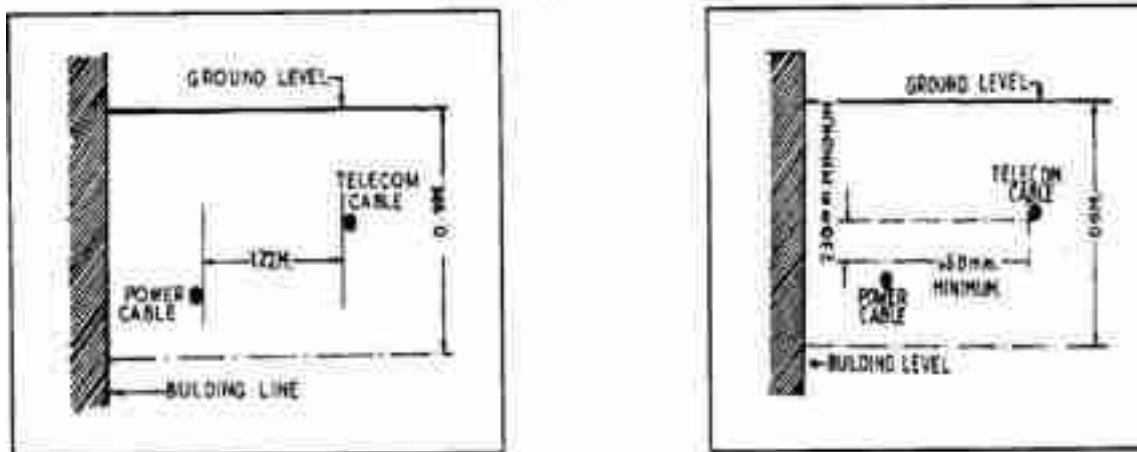


Figure 29: Clearance between power cables and telecommunication cables

Source: Guidelines for Supply Installation and Maintenance of External Communication Infrastructure (CCK, 2012)

5.12.3 Communications Masts, Base Stations and Towers

Telecommunications masts enable wireless communication by facilitating the transmission and reception of signals between mobile devices and the network infrastructure. Base stations are fixed transceivers that are the main communication point for one or more wireless mobile client devices.

Standards and Guidelines

Table 31 provides general standards and guidelines for communications masts, base stations and towers in relation to setbacks, accessory utility buildings, parking, and height among others.

Table 31: Standards and Guidelines for Communications Masts, Base Stations and Towers

Land size	Provide a minimum land size of 0.05 ha for a self-support tower base station.
Setbacks	- Provide a setback for towers at a distance equal to 1.5 times the height of the tower from any residential structure and/or property line. - Encourage the location of towers in existing forested areas with a minimum depth of 30m. The tower may have a 20% reduction in the required setbacks. - In industrial areas, towers may encroach into the rear setback area, provided that the rear property line adjoins another industrially zoned property and the tower does not encroach upon any easements. - Towers should not be located between a principal structure and a public street, with the following exceptions: - In industrial zones - On sites adjacent to public streets on all sides
Accessory utility buildings	- Design utility buildings to blend in with the surrounding environment - Observe the minimum setback requirements of the zones
Parking	- Provide a minimum of one space per user on the facility site. - Provide access by a gated, all-weather gravel or paved driveway.

Visual appearance	● Enhance compatibility with the surrounding natural or built environment by designing structures and equipment that use materials, colours, textures, screening, and landscaping that minimize the visual impact.
Separation	● Observe a minimum separation distance of 2km between new towers and existing masts.
Physical barrier	● The barrier should be a minimum of 3m in height within the curtilage of the site to prevent intrusion.
Height	● Ensure that the maximum height for a telecommunication tower does not exceed 150m. However, towers exceeding 150 m may be approved by CAK and other relevant authorities provided that it: ○ Will not be detrimental to public health, safety or general welfare. ○ Will not harm the neighbourhood. ○ is in conformity with the planning guidelines of the particular area or with any other applicable laws or guidelines ● Prohibit the erection of telecommunications towers above 25m high in residential areas.
Screening	● Locate all towers as well as guys and guy anchors within the buildable area of the property and not within the front, rear, or side building setbacks. ● Ensure that the screening of telecommunications masts and towers conforms to the following: ○ Surround the base of all telecommunications towers with an opaque screen of a minimum of 2.5m height. ○ Use of barbed wire or other security fencing material may be allowed. ○ Screening requirements provided above may be waived if the design of the tower is found to be compatible with the adjacent land uses.
Signage	● Prohibit signs, including commercial advertising, logos, political signs, flyers, flags, or banners, except warning signs, on any part of an antenna or communication tower.
Proximity to Power Lines	● Provide a minimum distance of a tower to a high-voltage electrical power transmission line of 120% of the height of the tower. ● Prohibit construction of towers in proximity to high voltage (11Kv and above) electrical power transmission lines.
Prohibited uses	Prohibit the erection of towers and masts within the following developments: ○ School compounds ○ Clinics, dispensaries, and hospitals ○ Aviation fields ○ Close to high-voltage electrical power lines ○ Flood prone areas ○ Landmark

Source: Physical planning team; 2025

- Other considerations include:
 - Avoid siting towers in or near wetlands, near known bird concentration areas or in habitats of listed as threatened or endangered species or migratory bird routes.
 - Preserve anything of heritage significance (built, cultural and natural);
 - Provide accessibility to fire tenders and fuel tankers

- Apply for approval from KCAA for structures within a 15km radius of aerodromes
- Install tower masts on the highest point for highly populated urban areas and high ground for rural areas
- Require ESIA before approval of development.

5.12.4 Oil and Gas Transmission Pipelines Standards and Guidelines

- Provide a minimum 30m right-of-way for pipeline transmission.
- Crossing of oil pipelines by other infrastructure should be at 90 degrees.
- Maintain a minimum distance of 10m from the edge of the pipeline wayleaves for excavations other than quarrying and encourage rehabilitation of excavated sites.
- Prepare a comprehensive emergency plan for upstream, midstream and downstream stages for pipelines.
- Fit overhead power and telecommunication lines that cross the pipeline with reflector balls.
- Encourage recreational activities and facilities such as linear parks and recreational paths in the vicinity of the pipeline right-of-way.
- Prohibit activities that pose public safety risks, including vehicle parking, planting of deep root trees, above-ground fuel tanks and construction of roads and buildings from pipeline reserves.
- Prohibit structures and uses such as schools, hospitals, and nursing homes and high-density residential near transmission pipelines.
- Ensure pipelines running on the surface of the water bed are anchored
- Observe the following setback requirements from the right of way as illustrated in Table 32

Table 32: Pipeline Setback Requirements

S/No.	User	Minimum Setback (M)
1.	Homes, businesses, and places of public assembly	15
2.	Community recreation areas	7.5
3.	Telephone, fibre optic cables and linear walkways	3

Source: Physical planning team; 2025

5.12.5 Oil pump stations Standards and Guidelines

- Oil pump stations (pipeline) should be at least 2ha
- Locate proposed oil tanks 100m away from any settlements
- Observe a minimum of 100m away from any building or boundary while burying oil tanks.
- Prohibit parking of oil tanks in residential areas
- Require an ESIA and EA.
- Ensure that the minimum length of the vent pipes is 4m above ground level as well as a minimum of 50m away from a loading/discharge point or naked fire.

5.12.6 Liquefied Petroleum Gas (LPG)

Standards and Guidelines

- Locate away from any high-tension pylons or cables at a minimum distance of 15m.
- Prohibit all aerial obstructions at the site minimum distance for such obstructions shall be 10m.

- Require an ESIA and EA.
- Locate 10m away from hazardous areas and sources of ignition e.g. welding, cutting, grinding, use of impact tools, electrical arcs, hot surfaces, and open flames areas.
- Ensure that the plant is fenced at a height of 2m and has entrance and exit ways.
- Ensure that the facility is free from weeds, open drains; depressions, etc., and avoid the use of weed killers, which constitute a fire hazard.

Storage of LPG Tanks;

- Observe a minimum of 0.2ha for commercial liquefied petroleum gas storage
- Design and locate Bulk storage tanks and cylinders in accordance with industry guidelines.
- Observe a safe distance of 15m from the building, boundary, or fixed source of ignition while installing storage tanks at filling plants for both car cylinders and domestic cylinders.
- Observe the following minimum distances between storage tanks:
 - Storage tanks up to 20 tonnes – 5m
 - Storage tanks 20 to 40 tonnes – 7.5m
 - Storage tanks 40 to 60 tonnes – 10m
 - Storage tanks over 60 tonnes – 15m

5.13 Water Supply

A standard water supply system comprises the following elements:

- i. Source of water including water intake
- ii. Treatment works
- iii. Storage facilities
- iv. Distribution/ reticulation network

General Standards and Guidelines

- Provide sites for water intake, water treatment plants, water reservoirs and communal water points.
- Incorporate rain and stormwater harvesting and management in comprehensive layout designs for individual parcels of land or neighborhood development in line with the National Building Code
- Consider the following factors in the design of a distribution system:
 - Population size
 - Distance from water intake
 - Quality of water/pollution levels
 - Source of water and water intake points
 - Analysis of economic activity whether for industrial, domestic, or irrigation to get demand levels.
- Gradient/Gravity flow
- Piping diameter (bigger diameter to carry water for long-distance distribution)
- Ensure that all access and inspection lids in the berm shall be set 50mm above the existing ground level, and for chambers in the carriageway, the lid levels shall be flush with the finished road surface.
- Refer to the water demand manual when projecting water demand for various land uses. Generally, water demand is calculated as follows:

$$\text{Water Demand (m}^3\text{)} = (\text{No. of household members}) \times (\text{water use per house member})$$

Efficiency factor

In Kenya, the water requirement for consumption on average is estimated at; -

- i. human ~ 20lts/ person/day
- ii. large stock ~ 30lts/head/day
- iii. small stock ~ 5lts/head/day

5.13.1 Water intake

Intakes are used to abstract water from various sources such as lakes, rivers, reservoirs, or canals. The intake work for each type of source is designed separately according to its requirements and situations.

Standards and guidelines

- Ensure the structure is easily accessible during floods and does not get flooded.
- Provide a protection belt of a minimum of 50m in width.
- Consider the following when locating a water intake:
 - Ample space
 - proximity to the treatment plant to reduce the cost of conveyance of treated water
 - In the freshwater zone to reduce the load of the treatment work
 - Connectivity to quality infrastructure such as road
 - The upstream side of the settlement
 - shielding of the intake from direct impact from heavy water currents
 - The ability to collect water even when the volume of water in the water source is low depending on the type of structure

5.13.2 Water Distribution and Reticulation Network

- Ensure that large pipes are buried a minimum of 1.2m deep (to leave space for smaller service conduits overhead) while smaller sizes are not less than 1m in open country and streets.
- Provide adequate road reserves and ensure utilization of the existing right of ways for laying water mains.
- Locate service chambers away from roadway and traffic to minimize the traffic management required for chamber entry and allow for future road widening.
- All-access and inspection lids shall be in place always to ensure the safety of road users.
- Ensure that all access and inspection lids in the berm are 50mm above the existing ground level, and for chambers in the carriageway, the lid levels should be flush with the finished road surface.

5.13.3 Water treatment plants

- Provide a minimum buffer of 100m between treatment plants and the residential areas
- Locate:
 - close to the water source where feasible
 - water treatment plants utilizing chlorination at least 300m away from residential areas
 - on a gently sloping and well-drained site
 - on soils that are not highly permeable to avoid rapid infiltration
 - downwind to minimize odour and aerosol problems
- Provide land requirements for water treatment plants as shown in Table 33

Table 33: Land requirements

Catchment Area	Population	Land requirement (includes space for the main treatment processes as well as ancillary facilities and land for future expansion)
Municipality	At least 50,000	At Least 20ha
City	At least 250,000	At least 200ha

Source: Planning team, 2024

5.13.4 Water reservoirs

A reservoir is an artificial lake where water is stored. Most reservoirs are formed by constructing dams across rivers. A reservoir can also be formed from a natural lake whose outlet has been dammed to control the water level.

Recommended Sites

- i. Near perennial rivers or streams which can provide a reliable water source.
- ii. Areas with high groundwater potential
- iii. Depressions or natural basins can be ideal for reservoir construction

Guidelines and Standards

- Carry out detailed geologic, geodetic, and seismic studies for feasibility decisions.
- Provide a minimum of 30m and 50m buffer around reservoirs in urban and rural areas respectively.
- Consider the following factors when siting reservoirs:
 - Projected volumes of water to be stored
 - The water-holding capability of the soil that is, the hills surrounding the reservoir and the bed of the reservoir should be impervious.
 - Availability of good storage capacity with minimum submergence of the adjacent land.
 - Loss of reservoir water- Availability of deep gorge which results in larger capacity with lesser water surface area and, therefore, lesser evaporation loss.
 - The cost of other associated works is less.
 - land use, where land further away from residential, non-intensive agriculture, and economic areas is preferable
 - Where possible, the site should be close to compatible users such as; agricultural land, forestry, communication and large industries with high water demand. Sedimentation- Avoid siting reservoirs downstream of tributaries that bring in excess sediment into the river.
 - Avoid sites with the possibility of landslides into the reservoir.
 - Seismicity- Avoid sites with high seismic activity
 - Avoid sites with mineral deposits in and around the reservoir.
- Encourage a vegetative management program to prevent soil erosion around the reservoir (on the buffer).
- Encourage installation of drains to relieve water pressure and other flood mitigation measures.
- Prohibit settlements along the spillways and downhill of the reservoir.

- Provide land requirements for water reservoirs as shown in Table 34

Table 34: Land Requirements for Water Reservoirs

CAPACITY	LAND REQUIREMENTS	USE	POPULATION	
			Urban	Rural
Less than 1 million m ³	5-20 Ha	• Agricultural irrigation • Small-scale water supply • Recreational purposes (e.g., fishing, boating) • Flood control in small catchment areas	30,000	45,000
More than 1 million m ³	50-1000 Ha	• Municipal water supply • Large-scale agricultural irrigation • Industrial water supply • Hydropower generation • Flood control and management	60,000	90,000
Small community-based reservoirs	1- 10 Ha	• Livestock watering • Domestic water supply • Aquaculture	1000	1400

Source: Planning team, 2024

5.13.5 Service reservoir/ water tanks

Elevated storage tanks are recommended for all water supply utilities. In particular, hospitals, institutions and industrial plants should be provided with separate elevated storage tanks.

The minimum space requirement is 0.1ha.

5.13.6 Public Water Points

- Locate water inaccessible and well-lit areas to ensure the safety of users.
- Maintain a maximum walking distance of 200m between any household to the nearest water point.
- Provide adequate wayleaves for reticulation to the public water points where the water points are situated away from road reserves
- Designate separate water points for livestock.
- The recommended maximum number of people per water source shall be as shown in Table 35

Table 35: Maximum Number of People per Water Source

Number of people	Water flow
250 people per tap	based on a flow of 7.5 litres/minute
500 people per hand pump	based on a flow of 16.6 litres/minute
400 people per single-user open well	based on a flow of 12.5 litres/minute

Source: The sphere handbook; 2018

Note: These guidelines assume that the water point is accessible for approximately eight hours a day only.

5.13.7 Boreholes

- Provide a minimum of 0.05 ha for public boreholes in urban areas.
- borehole to accommodate auxiliary infrastructure such as elevated water tanks, water points and parking space for water bowsers
- Locate boreholes away from the sea shore, and any wetland, stream, river, spring and other abstractions to avoid any reduction in stream or spring flow, or water level in nearby wetlands and other abstractions, and to avoid 'pulling in' seawater into the aquifer.
- Ensure assessment of the geophysical properties of the underlying area is done by hydro-geologists to detect natural hazards or man-made infrastructure (pipelines, cables communication lines, etc.)
- Locate boreholes up the slope and with a minimum distance of 50m from sources of contamination such as septic tanks, slurry pits and poorly drained areas, which receive contaminated run-off.
- Provide a 10m buffer around the borehole.
- Maintain a minimum horizontal separation distance of 800m between one borehole and the other.
- Prohibit storage, mixing, spraying, spillage, burying or dumping anything that could contaminate the borehole.

5.13.8 Dams

- Prepare local physical and land use development plans and integrate management of water catchment area developments around dams.
- Prepare Re-settlement Action Plans for any displaced persons.
- Maintain a buffer of 70m as measured from the highest watermark for all dams.
- Maintain a buffer of at least 20m and not more than 100m downstream of the dam, as measured from the toe of the dam.
- Prohibit developments within the riparian reserve
- Require Environmental and Social Impact Assessments to be carried out

5.13.9 Groundwater recharge basin

A groundwater recharge basin is a man-made or natural basin designed to capture and retain surface water, allowing it to percolate into the ground, replenishing underground aquifers. Figure 30 illustrates a groundwater recharge.

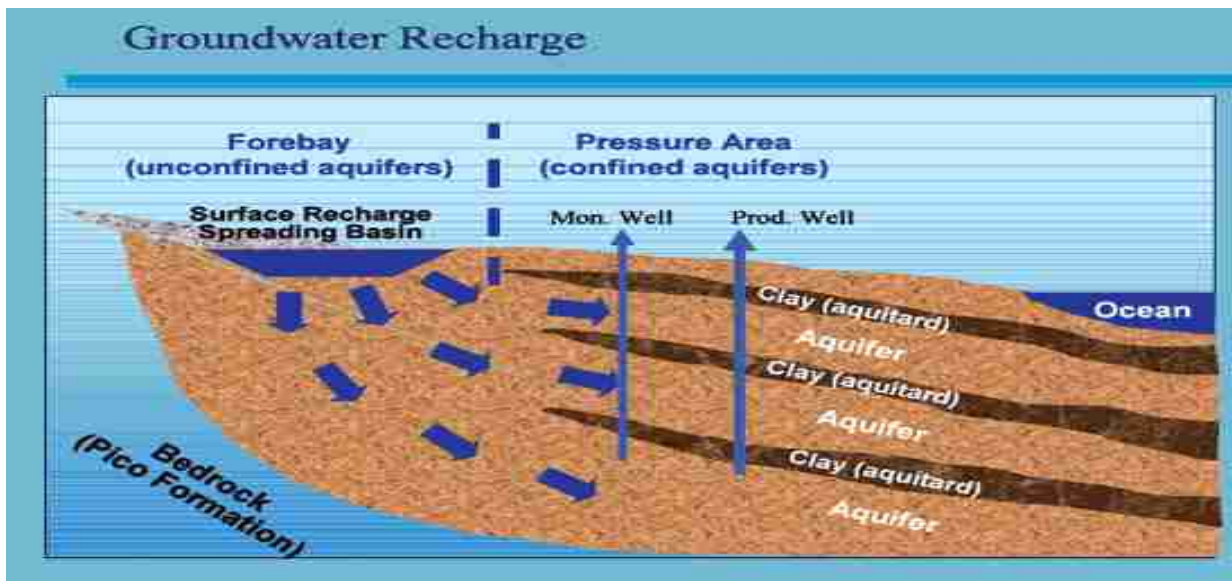


Figure 30: Illustration of groundwater recharge

Source: Johnny, 2013

Standards and Guidelines

- Provide:
 - sites for water recharge basins within cities and municipalities.
 - for a recharge basin in an area of 4.5ha.
 - buffer of 60m around the recharge basins.
- Conduct an Environmental and Social Impact Assessment (ESIA) in accordance with NEMA guidelines to assess potential environmental impacts.
- Obtain necessary permits and approvals from the Water Resource Authority (WRA), particularly if diverting water from natural sources and ensure compliance with county-specific regulations regarding land use, zoning, and construction permits.
- Prioritize sites with permeable soils, such as sandy or loamy soils, that allow for efficient water infiltration.
- Avoid steep or rocky terrain. Identify sites with gentle slopes ranging from 1 to 5% to facilitate efficient water infiltration without causing erosion. The bottom of the basin should be flat to maximize infiltration.
- Ensure the site has a sufficient depth to the groundwater table to prevent contamination. A minimum depth of 3-5 meters to the water table is recommended.
- The site should be compatible with surrounding land uses. Recharge basins should not be located in areas where land use conflicts might arise, such as near industrial sites that could contribute to pollutants.
- Locate the basin near water sources such as rivers, streams, or stormwater drainage systems to minimize conveyance costs and energy use.
- Ensure the selected site has adequate land area for the basin and associated infrastructure, including buffer zones.

- Implement measures to ensure that water entering the basin is free from contaminants. Pre-treatment options may include sedimentation basins, vegetative buffers, or silt traps.
- Develop a maintenance plan that includes regular inspections, sediment removal, vegetation management, and repairs to inlet and overflow structures.

5.14 Sanitation

Sanitation includes the management of wastewater and solid waste. For these to happen, sites for sewage treatment works, collection centres/transfer stations, incinerators, sanitary landfill and recycling plants and sewerage wayleave are required.

Care must be taken to ensure that sewage effluent does not infiltrate groundwater aquifers in a manner that causes pollution of water sources.

5.14.1 Sewerage Treatment Plant

Location

- Provide sewage collection and sewage treatment plants for all settlements with a population of 3,000 or more having an urban layout.
- In settlements where an integrated sewage scheme is not provided provision should be made for septic tanks.
- Discourage the use of septic tanks in any building beyond 4 floors.
- Provide a distance of 3km to 5km between built-up areas and a sewer treatment plant.
- Provide a minimum distance of 300m between a sewer treatment plant and a river or other ecologically sensitive areas.
- Consider the topography when locating the treatment plants. It is preferable that the sewage flow into the site by the natural slope of the drainage.
- Locate the treatment plants far away from the city and the network service.
- Provide a minimum 15m buffer zone between the site and the residential areas. Encourage a tree belt in the buffer zone for protection against blows and environmental purposes.
- Locate the treatment plant downwind of the prevailing wind direction based on the study of wind and climate trends so that foul or distinctive odours are not transmitted to the neighbouring population.
- Locate treatment plants close to infrastructure such as electricity supply and access roads necessary for operation.
- Ensure that the location of the treatment plant does not interfere with the urban plan of the city and its future expansions or infringe on the laws of the protection of agricultural lands.
- Consider future expansion areas needed by the plant for at least 50 years.
- The location of the final discharge point should be adjacent to or close to, the treatment works.
- Consider sites whose soils are not highly permeable soils to avoid contamination of groundwater.

5.14.2 Biodigesters

Bio digesters are used for domestic and commercial wastewater management, as replacements for traditional soak pits, pit latrines and septic tanks that would require frequent emptying.

Guidelines

- Locate on the sloping side of the property to allow the discharge of the sludge and the effluent
- Locate at the rear of the property where it is free from activities
- Provide recycling plants within industrial and commercial establishments

5.14.3 Public Toilets

Public toilets should be provided for users of public places, such as markets, recreational areas, and public transport terminals

Standards and guidelines

- Provide a minimum land size of 0.05 ha for public toilets.
- Maintain a minimum distance of 500m between two public toilets in busy commercial and recreational areas.
- Maintain a minimum distance of 30m from the nearest water body for public toilets not connected to a sewer line.
- Provide:
 - service lane of 6m for exhaustion of public toilet connected to a septic tank
 - minimum of eight toilets per toilet block
 - one toilet/bathroom block for every 100m in informal settlements
 - public toilets in every street in all types of centres.
- Locate at least 3m away from adjoining roads
- Consider the following when siting:
 - Availability of regular water supply
 - Adequate lighting and ventilation
 - Relatively gentle slope

5.14.4 Stormwater drainage

Storm drainage is used to collect and carry rain or surface water to some natural watercourse or body of water to prevent flooding. Storm drainage design must include provisions to adequately control runoff from all public and private streets and the roof, footing, and area drains of residential, multifamily, commercial, or industrial buildings.

- Provide 10% of the land size for stormwater drainage
- Provide minimum wayleaves of 3m for retention/detention (R/D) facilities or a combination of both to maintain surface water discharge rates at or below the existing design storm peak discharge
- Maintain a minimum width of 9m access easement from an existing public road to a R/D facility
- Provide future extension of the drainage system to the entire drainage basin
- Ensure that surface or subsurface drainage, caused or affected by changing the natural grade of the ground or removal of natural ground cover or placement of impervious surfaces, does not flow over adjacent public or private property in a volume or location materially different from that, which existed before development occurred.
- Provide wayleaves for an Approved Point of Discharge (APD) including storm drain, existing open channel, creek, detention, or retention pond.
- Prohibit development on the wayleave, which may restrict flood flows.

- Ensure that all drains in the Central Business District and major commercial centers are covered and designed to meet flow capacity.
- Establish vegetation cover on areas disturbed by or on areas of construction to control and minimize erosion, in accordance with NEMA standards.
- Require preparation of an Erosion Control Plan for all projects that may impact the velocity, volume, or quality of surface water on adjacent properties, or which may impact any permanent natural body of water in accordance with NEMA standards.
- Provide control measures for runoff during all three phases of construction ie prior, during and after construction.
- Provide sites for storage of storm waters and propose measures for water recycling.

5.14.5 Solid Waste

There are four major categories of waste: municipal solid waste, industrial waste, agricultural waste and hazardous waste.

General guidelines and standards

- Ensure garbage collection sites are environmentally friendly and locate them on the leeward side.
- Establish collection centers/transfer stations at strategic areas within a town.
- Equip these stations with colour-coded or labelled waste receptacles to promote waste segregation.
- Encourage modern automated waste collection and management.
- Provide sites for incineration in facilities that meet the requirements in the Third Schedule of the Environmental Management and Coordination (Waste Management) Regulations of 2006.
- Prohibit dumping of waste in open landfills

Waste collection bins

- provide the following minimum distances between bins:
 - 350m in urban areas and low-density residential areas.
 - 200m in medium-density residential areas and;
 - 150m in high-density residential areas
- Ensure the provision of five waste bins for waste separation as follows:
 - i. Household wastebin- (Brown)
 - ii. Plastic wastebin- (yellow)
 - iii. Paper wastebin- (blue)
 - iv. Glass wastebin – (Grey)
 - v. Electronic wastebin- (Red)

Waste collection points

- Designate a minimum land size of 0.1ha within residential, commercial, light industrial, and recreation areas for waste receptacles.
- Designate a minimum land size of 0.1ha within heavy industrial areas for waste receptacles.
- Ensure the provision of four waste receptacles for the separation of waste.
- Provide waste collection points within a maximum walking distance of 500m

Waste transfer stations

Waste transfer stations are facilities where solid waste mainly municipal solid waste is unloaded from collection vehicles and containers for sorting, recycling and reloading into larger, long-distance vehicles for transport to landfills or other permitted solid waste facilities for final disposal.

Guidelines

- Designate a minimum land size of 0.2ha within industrial areas
- Locate at the edge of residential areas
- Ensure the waste is transferred within 2 days.

Waste recycling plants

- Maintain a minimum radius of 25km away from residential areas.
- For standards on recycling plants refer to section 5.33 on standards for industries

Sanitary landfills

They are sites where waste is isolated from the environment until it is safe.

Classification of landfills

Class A:

They pose a high risk to the environment and is characterized by the following features:

- Serves a population of more than 5,000 people
- Holds industrial, commercial and institutional waste
- Leachate contamination is visible on or around the site

Class B:

They pose moderate risk to the environment and is characterized by the following:

- Primary source of waste is residential or incinerator ash from the burning of residential waste
- Leachate contamination is visible on or around the site

Class C:

They pose a low risk to the environment and is characterized by the following features:

- Primary source of waste is residential or incinerator ash from the burning of residential waste
- Leachate contamination is not visible on or around the site

Standards and Guidelines

- Designate a minimum land size of 20ha.
- Integrate the sanitary landfills with recycling plants
- Consider the following when siting a landfill;
 - Ease of vehicle access;
 - Areas not prone to flooding and landslide risk;
 - Proximity to sewer treatment plant for flow and treatment of the leachate
 - Provide a distance of 3-5km between landfills and settlements and cultivated land
 - Provide a distance of 40km between landfills and urban areas.
 - Provide a distance of 15km from the airport.

- Provide a minimum distance of 300m between rivers and landfills
- Provide a minimum distance of 500m between landfills and environmentally fragile areas and restricted areas
- Provide a 100m tree belt as a buffer around the landfill for protection against blows and environmental purposes
- Consider future expansion areas needed by the facility for at least 50 years.
- Ensure that sites are secured and manned to discourage scavenging and exposure to hazardous chemicals.
- Require a plan for decommissioning a landfill.
- Require onsite monitoring of environmental systems to check for groundwater contamination and emission of ground gases.
- Prohibit disposal of household appliances and hazardous wastes

5.14.6 Radioactive waste management

Radioactive waste is a result of many activities, including nuclear medicine, nuclear research, nuclear power generation, rare earth mining, and nuclear weapons reprocessing. Radioactive waste management refers to the safe treatment, storage, and disposal of liquid, solid, and gas discharge from nuclear industry operations to protect people and the environment.

Guidelines

- Provide a land size of 100-400 ha for a radioactive waste management plant.
- Locate in close proximity to the ocean.
- Provide a 10km buffer for greening and securing to keep out people and animals.
- Designate radioactive waste and disposal sites suitably in underground repositories.
- Require ESIA for all establishments that process, use, deal in or handle radioactive materials.
- Encourage material recycling to minimize waste.
- Ensure landfill sites and decommissioned nuclear plants are clearly marked and fenced with warning signs against radioactivity on the site.
- Ensure continued monitoring of disposal sites in decommissioned nuclear plants.
- Ensure no wildlife areas and residential developments are established within a 10km radius of hazardous waste landfill site.

5.14.7 Electronic Waste Management

Electronic waste or **e-waste** describes discarded electrical or electronic devices. E-waste management is a process of collecting e-waste, recovering and recycling material by safe methods, and disposing of e-waste by suitable techniques to reduce its adverse impacts on the environment.

Guidelines

- Maintain a minimum distance of a 5km radius between the e-waste recycling sites and residential developments.
- Electronic waste to be disposed of within the designated bins
- Locate the electronic waste receptacle within the designated land size for the waste collection point as provided in section 5.16.5
- Designate areas for household hazardous waste drop-off stations.
- Designate areas for dismantling, recycling and disposing of electronic waste.

- Ensure that computers and other e-waste are not incinerated, put in landfills, or melted down.
- Prohibit the emission of fumes, gases, and particulate matter into the air, and the discharge of liquid waste into water and drainage systems or on agricultural land during recycling activities.

Wayleaves

A wayleave is a public right of way for construction and maintaining physical infrastructure on the land by authorized persons or bodies.

Guidelines and Standards

- Provide a separate 10m wide wayleave along the roads to accommodate utilities as shown in Table 36
- Existing utilities on the road reserve shall be laid in the parking area and service lanes
- The right of way for water distribution pipes may vary from the provided recommendation based on various factors.

Table 36: Wayleaves for utilities

Utility	Wayleave(m)
Power	3
Distribution water pipes	3
Fibre optic cables	2
Telephone lines and cables	2

Source: Physical planning team; 2025

Wayleaves for overhead electricity cables

The actual right-of-way can vary from the minimum recommendations provided depending on the topography, structure type, span length, and other factors that might be determined by the service provider. Table 37 shows the variation of wayleaves for electricity cables.

Table 37: Minimum Horizontal Right-of-Way for overhead power lines

Voltage Levels	Way Leaves Trace Widths (M)
11kV-33kV	10
66kV:	20
132Kv:	60
220Kv:	60
400Kv:	60
500HVDC	60

Source: Kenya Power and Lighting Company

Note: Wayleaves exceeding the above provisions shall be as demarcated in the Survey maps

5.15 Educational Institutions

Educational institutions include pre-primary schools, Primary schools, junior and senior secondary schools, special schools and tertiary institutions (universities, colleges, and research institutions, Technical and Vocational Education and Training (TVET)).

General guidelines

- Prepare site layout plans for all educational institutions
- Provide: -
 - ten percent tree cover for greening
 - fire assembly points.
 - for separation of traffic
- Reserve land for educational purposes in areas of greatest residential expansion and adjacent to community centres, libraries
- Consider the use of multi-campus schooling arrangements where two or three schools e.g., primary and secondary share sites and facilities.
- The designs should cater to the needs of Persons Living with disabilities.
- In the ASALS area;
 - Provide feeder schools where children walk more than 3 km to reach the nearest primary school.
 - Attach a pre-primary school in every feeder and mobile school.
 - Provide a minimum of one feeder school in every clustered settlement.
 - The minimum enrolment for mobile and feeder schools shall be 10 pupils.
 - The feeders and mobile schools shall be satellite learning centres for regular primary schools.
 - Provide supporting amenities such as water, sanitation, classrooms and play areas in the mobile and feeder schools.
- Permitted uses surrounding education facilities include; Residential developments, corner shops, clinics, other educational facilities, and public open spaces.
- Prohibited uses surrounding the school include large-scale commercial activities, industries, transportation and warehouses, animal rearing, slaughterhouses, crematorium/cemeteries, bars, and offensive billboards.

Siting criteria

- Consider: -
 - the spatial distribution of existing schools
 - availability of suitable and adequate land
 - availability of utilities including water, electricity, internet, incinerator and sewer among others.
 - topographic characteristics such as gentle undulating slope
 - proximity to residential areas and community facilities
 - maintain a minimum distance of 3km from hazardous establishments such as heavy industry, waste sites, and LPG facilities.
 - compatibility with the surrounding land uses
 - accessibility- locate within neighborhoods with easy vehicular and pedestrian access

- Undertake a graphical analysis of demographic data to determine the catchment population and potential demand for enrolment.

5.16 Child Facilities

'Child care' means the temporary care and supervision of a child conducted in a location other than the provider's permanent residence or separate from a provider's living quarters and shall include welfare, protection, supervision, and training of a child

'Child Care Facility' means a designated place in which childcare is offered at any time to more than five children all of whom are less than four years of age and who are not related to the child care provider

Siting Considerations;

- In close proximity to compatible social facilities such as schools, religious facilities, community centres and recreational parks
- Near or within residential areas, employment areas, town centres, business centres, shops
- Accessible via public transport ie buses, railway
- The areas should have non-motorized transport connectivity

Guidelines

- Maximize the use of natural light and sunshine. Ensure proper ventilation and temperature control.
- Proximity to residential neighborhoods, workplaces, or public transport for convenience.
- Adequate parking and drop-off/pick-up areas for parents.
- Separate spaces for infants (0-2 years), toddlers (2-4 years), and older children (4 – 6 years) to ensure safety.
- Compliance with fire safety regulations e.g., fire extinguishers, and emergency exits.
- Childproofing measures e.g., rounded furniture, secured cabinets, and non-slip floors
- Ensure clean water supply and proper sanitation facilities.
- Adequate indoor and outdoor facilities, i.e., Indoor Playrooms, nap areas, dining space, washrooms, storage for toys and supplies, outdoor Secure fencing, age-appropriate playground equipment, and green spaces.
- Proper staffing and capacity i.e. Recommended child-to-caregiver ratio: Infants (0–2 years): 1:3, Toddlers (2–3 years): 1:5, Preschoolers (3–6 years): 1:8.
- Inclusive spaces for children with disabilities.
- The amenities which should be provided include: Entry/reception area, parent/ staff resource rooms, administrative offices, meeting spaces, indoor gross motor room, Kitchen, sick bay area, laundry room, adult bathrooms, storage spaces, changing area and changing area storage and children's sleep area.
- Child care facilities should not be in proximity to heavy or hazardous industry, waste transfer depots or landfill sites, LPG tanks or service stations, odour (and other air pollutant) generating uses and sources and noise generating uses.
- Ensure adherence to local zoning, building codes, and public health regulations; registration with relevant child welfare and education authorities; regular inspections and certifications for safety and hygiene.

Standards

- Minimum size of 0.05 Ha
- Maximum travel distance – 500m
- Catchment population – 5000pp
- Plot development requirements: Plot area – minimum 500m², Plot coverage – maximum 0.3
- Indoor space per child: 3–5 square meters per child, Outdoor play area: At least 7–10 square meters per child.

Table 38: Room Requirements for Day-cares

Age	No. of children and adults in each room	Total number of rooms	Remarks
Non-mobile infants (6 weeks – 1 year)	6 children 2 caregivers	1	▪ Should be adjacent to the mobile infant room. ▪ provide enough room for a distinct sleeping area where cots can be 1meter apart ▪ Adequate space for eating and activity areas.
Mobile infants (1 year – 18 months)	8 children 2 Caregivers	1	Adjacent to other infant room and in same area of building as toddlers
Toddlers (18 months – 2.9 years)	10 children 2 Caregivers	2	-
Preschool (2.9 years – 4 years)	6 children 2 Caregivers	2	Preschool classrooms should be adjacent to each other
Older preschool (4-5 years)	18 children 2 Caregivers	1	In same area of building as preschool classrooms

Source: Physical planning team, 2024

5.16.1 Pre-Primary Education

These are preparatory schools where children between 4-6 years are taught before joining primary schools. A pre-primary school should be attached to a primary school.

Standards and Guidelines

- Provide a minimum land size as shown in Table 37

Table 37: Summary of planning standards for pre-primary school

Land requirements	Space requirements and facilities	Surrounding Permitted uses	Prohibited uses
0.2-0.25 Ha	• Groundfloor+1 for the administration block • Classroom- @ 80m² for 25 children • 1 sanitation facility for every 10 girls including a shower room • 1 sanitation facility for every 20 boys including a urinal and a shower room • Soft play area- 246m² • Swing/seesaw- 28.6m² • Sand pit- 28.6m² • circulation space- 24.60m² • Kitchen- 9.1m² • Office/store- 10.2m² • Parking- 104.92m²	Residential developments Corner Shops Clinic Educational Facilities Public Open Spaces	Large-scale commercial activities, Highly pollutant industries, Transportation Warehouses, Animal rearing, Slaughterhouses, Hospitals, Crematorium/cemeteries, Bars Offensive billboards.

Source: The Planning team; 2024

Note: A minimum of 0.15Ha may be provided in urban informal settlements if it meets basic conditions of safety, play space, sanitation and health

- Provide one pre-primary school for a catchment population of 2500.
- Observe a maximum walking distance of 500m
- Maintain a maximum distance of 1km between two schools.
- Designate area for safe pick-up, drop off and parking
- Locate along major pedestrian routes
- Ensure that all schools have outdoor soft playing areas.
- Encourage integration of pre-primary schools with primary schools for easy transition.
- Prohibit storey buildings for pre-primary school classes.

5.16.2 Primary Schools

They comprise of Grade 1-6 and Grade 7-9 schools (Comprehensive Schools)

Standards and Guidelines

- The catchment population should be 3000 and 5000 in rural and urban areas respectively.
- Observe a minimum size of 3.9ha for a multi-stream high-rise primary school (Grades 1-6 and Grades 7-9) as shown in Table 39.

Table 39: Minimum Plot Areas for Primary Schools

Facilities	Single stream-Day(ha)	Single Stream-Boarding(ha)	Double stream-Day(ha)	Double stream-Boarding(ha)
Classrooms, administration	1.0	1.0	2.9	2.9
Playfields, gardens	1.0	1.0	1.0	1.0
Dormitories	-	0.4	-	0.4
Staff Accommodation	-	0.8	-	0.8
Plot area	2.0	3.2	3.9	5.1

Source: Ministry of Education, 2018

Note: A minimum of 2ha may be provided for private schools that may wish to invest only in junior secondary schools and 0.2ha in urban informal settlements if it meets basic conditions of safety, play space, sanitation and health.

- Maintain a maximum distance of 4km between two schools.
- Observe a maximum walking distance of 2km.
- Maintain a single-storey building for pre-primary facilities within the primary schools
- Provide at least two staircases and a ramp or elevator on all buildings exceeding one storey for access to upper floors
- Maintain a maximum of ground +3 floors for storey buildings
- Provide:
 - adequate spaces in common areas for mobility and air circulation
 - land for future expansion where possible.
 - Double or triple streams.
 - Facilities for safe pick-up, drop off and parking
- Provide amenities such as playgrounds, classroom blocks, offices, libraries, etc.
- Figure 31 gives an illustration of a site layout plan for a primary school.



Figure 31: Illustration of a primary school site layout plan

Source: Physical planning team; 2025

- Observe the standards in Table 40 when planning for secondary school facilities

Table 40: Standard requirements for primary school facilities

Facility	Standard
Classroom (40 pupils)	12m*10m
Floors	Ground+3
Staff housing	0.8ha
Dining halls and dormitories in a storied building for boarding schools	0.4ha for every 200 students
Art and Craft workshops	Single storey
Agricultural demonstration plots	0.4-0.8ha
Sanitation	1 facility for every 10 girls including a shower room. 1 facility for every 20 boys including 2 urinals and a shower room One facility for every additional 30 males and females

5.16.3 Secondary Schools (Senior secondary) Standards and Guidelines

- The catchment population should be 6000 in rural areas and 8000 in urban areas.
- Provide minimum land sizes as shown in Table 41

Table 41: Minimum Plot Areas for Secondary Schools

No. of streams	Area (Ha)	Walking distance.
1	2.0	500m-3km
2	2.5	
3	3.5	

Source: Physical planning team; 2025

Note: A minimum of 2ha may be provided for private schools that may wish to invest only in senior secondary schools and 0.2Ha in urban informal settlements if it meets basic conditions of safety, play space, sanitation and health

- Provide students' dormitories, dining halls, playground, teachers' quarters, laboratories/workshops and places of worship.
- Provide at least two staircases and a ramp or elevator on all buildings exceeding one storey for access to upper floors.
- Maintain a maximum of ground +4 floors for storey buildings
- Integrate with major open spaces whenever possible for disaster management and to encourage the sharing of open spaces and playgrounds with members of the public.
- Maintain a maximum distance of 6km between two schools.
- Observe the standard requirements for secondary school facilities.

Table 42: Standard requirements for secondary school facilities

Facility	Standard
Classroom (40 pupils)	15m × 13m
Floors	Ground+4
Staff housing	1ha
Agricultural demonstration plots	10% of the land size
Sanitation	1 facility for every 10 girls including a shower room. 1 facility for every 20 boys including a urinal and a shower room One facility for every additional 30 males and females

Source: Physical planning team; 2025

- Figure 32 provides a pictorial of the distribution of education facilities in a neighborhood

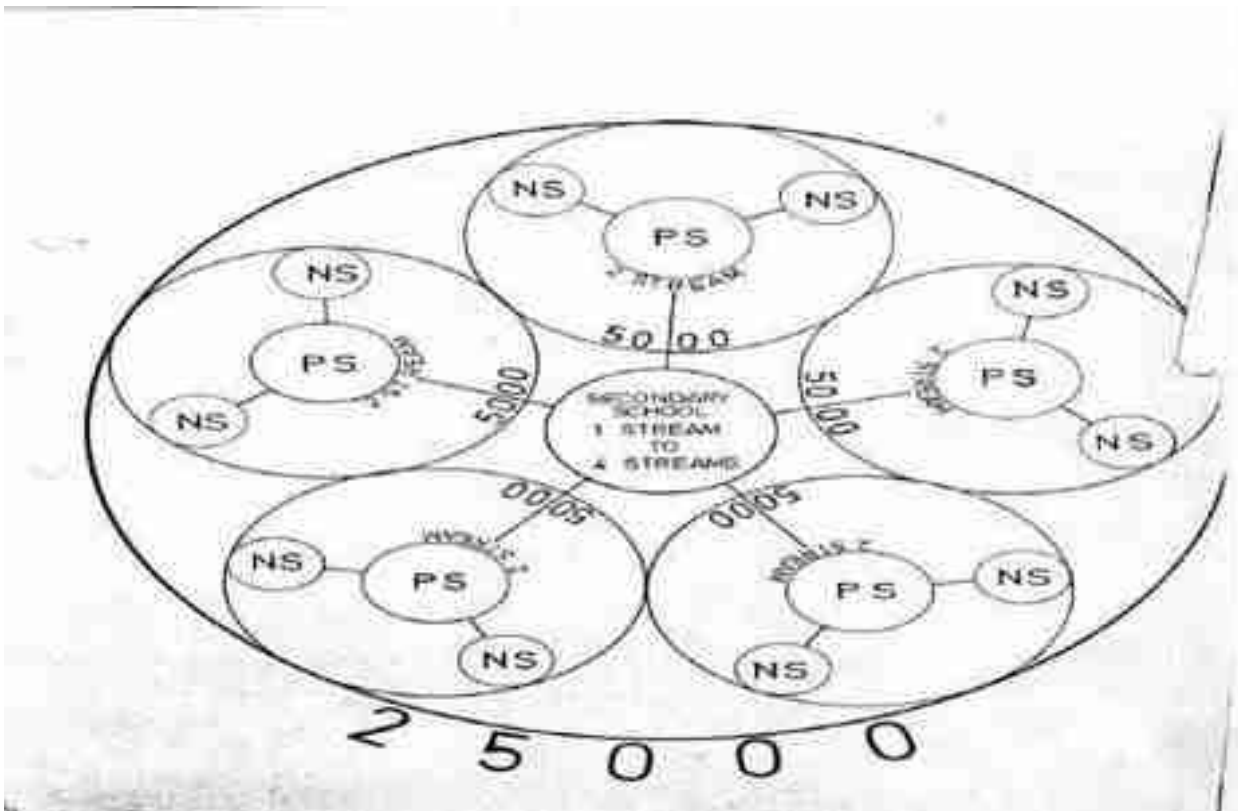


Figure 32: Distribution of education facilities in a neighbourhood

Source: Source: Draft Physical Planning Handbook 2008

5.16.4 Tertiary Institutions (Universities, Colleges, TVETS, Research Institutions)

General Standards and Guidelines

- Locate the institutions
 - in easily accessible areas near community facilities
 - in areas well served by public transport.
 - in areas free of pollution from noise, smoke, odour and dust
 - Away from industrial areas, wetlands or forest reserves
- Provide the following facilities
 - Lecture rooms, auditorium or lecture theatre
 - Student common rooms with indoor recreational facilities and, a student centre with restaurants and shops.
 - Departmental areas, staff offices and seminar rooms, and staff common rooms.
 - Library and ICT centres, laboratories, workshops, research centres
 - Kitchen and dining facilities.
 - Outdoor recreational facilities in the form of games or sports facilities
 - Water supply, sewage treatment plants and drainage system,
 - Students' accommodation, including adequate laundry and storage facilities
 - Health facilities, places of worship

- Locate in proximity to a police station
- Prohibit highly pollutant industries, warehouses, crematoriums, cemeteries, animal husbandry and mining activities.
- In areas with access to physical infrastructure including roads, electricity and water
- Develop workshop buildings with heavy machinery and frequent deliveries as single-storey buildings and separate them from the other buildings.
- Allow vertical developments for optimal utilization of space
- Maintain the minimum land sizes for facilities as provided in Table 43

Table 43: Land requirements for tertiary institutions

S/N o	Facility	Land requirement
1.	Classrooms	224m ²
2.	Tennis court	528m ²
3.	Swimming Pool	500
4.	Gymnasium	1188m ²
5.	Circulation area	5760m ²
6.	Science rooms	843m ²
7.	Agriculture room	281m ²
8.	Home science room	562m ²
9.	Art & Craft	562m ²
10.	Playfields	17,100m ²
11.	Learning resource centre	150
12.	Administration block	200m ²
13.	Multi-purpose Hall	1093m ²
14.	Ablution block	67m ²
15.	Boarding facilities	2 Ha.
16.	Teaching staff quarters	2.5 Ha. (Flats)
17.	Non-teaching staff	0.4 Ha.
18.	Agriculture extension	2ha
19.	Auditorium/ Lecture theatre	1093m ²

Source: Physical planning team, 2024

i. TVETS and Colleges

Standards and Guidelines

- Provide a minimum land size of 10ha.
- Observe a minimum of 2 ha in urban areas where land is scarce.
- A TVETs offering agriculture as a course should provide 5 ha of land for a farm.
- Integrate medical training colleges with National Teaching and Referral hospitals and County referral hospitals

ii. Universities

Standards and Guidelines

- Provide for the establishment of one university per region (Nairobi, Central, Eastern, North Eastern, Coast, Western, Nyanza and Rift Valley)
- Provide a minimum land size of 40ha (main campuses) consisting of the following:
 - 20ha or more to support up to 5,000 students for main campuses.
 - 2ha or more for auxiliary services e.g., pre-primary and primary schools, day-care facilities, and staff quarters.
 - 2ha or more for open spaces and car parking exclusively.
 - 2ha of land set aside for a sewerage plant where there lacks a local authority sewerage system.
 - 5ha or more for outdoor sports for 5,000 students
 - A University offering agriculture as a course should provide 10 ha of land for a farm.
- Provide a minimum of 10ha for satellite campuses.
- Observe a minimum of 2Ha satellite campuses in urban areas where land is scarce.
- Encourage vertical development

5.16.5 Community Centres

They are multi-purpose facilities comprising of social halls, libraries/resource centers, ICT hubs, innovation centres, fitness centres and cultural museums.

Standards and Guidelines

- Maintain a minimum land size provided in table 44

Table 44: Minimum Land sizes for community centres

Facility	Minimum Land Size (Ha)
Social Hall/grounds for public baraza	0.3
Cultural museum	0.3
ICT hubs, innovation centers, library/ resource centre and fitness centre	0.4
Total	1.0

Source: Physical planning team, 2024

- Provide: -
 - one community centre for a catchment population of 20,000.
 - at least one social hall for each market centre and neighborhood
 - facilities such as a restaurant, children's play areas, sanitation blocks, lactation and changing rooms and adequate parking
- Locate: -
 - Central to the catchment population and along main pedestrian routes,
 - In close proximity to existing services such as electricity, water, public transport
 - within 400m walking distance from public transport stops.

- A safe and secure environment, especially for night users (incorporating crime prevention through design principles).
 - near open spaces to allow for related outdoor activities
 - near safe drop off/pick up areas and pedestrian access
- Cluster with other facilities such as shops, schools, childcare centres, community health facilities and public libraries to promote convenient access and create a focal point for community activity.
- Encourage landscaping using screen mounds, hollows, low walls in children's playgrounds, fountains, trees and bushes among others.

5.17 Sporting Facilities

General guidelines

- Prepare a site layout plan.
- Locate: -
 - in a relatively flat and well-drained area.
 - Near educational and social facilities to encourage sharing of the facilities and interlink them with parks and other public spaces.
 - In areas accessible by public transport and non-motorized transport.
 - In a safe and secure environment.
- Provide: -
 - support facilities such as sanitation blocks and eateries, First Aid Kits, Emergency Lighting, Emergency Exits and Fire Extinguishers.
 - Separation of traffic
 - adequate parking facilities and fire assembly points.
 - Provide ancillary services such as water supply, electricity, waste disposal points, car parks, and restaurants among others.
 - sporting facilities using the measurements in Table 43
- The design should cater to the needs of Persons Living with Disabilities

5.17.1 Playgrounds

Standards and Guidelines

- Provide a minimum of 0.5ha per 1,000 persons out of which 0.15ha will be dedicated for children's playground.
- Distribute the sports fields and sports pitches evenly throughout urban residential areas.
- Provide 15m road access to playgrounds

5.17.2 Skating Rink

Standards and Guidelines

- Provide a minimum land size of 0.1ha
- Rink surface to be clear of obstructions
- Land requirements for sporting facilities are provided in Table 45

Table 45: Land Requirements for Sporting Facilities

Facility	Length(m)	Width(m)	Support facilities
Football pitch	Maximum 120m Minimum 90m	Maximum 90m Minimum 45m	sanitation block, eateries, changing rooms
Rugby pitch	Maximum 100m	maximum 70m	sanitation block, eateries, changing rooms
Athletics field	The track should be 400m Have 6- 8 lanes of a standard width of 1.22m. The tracks should be on the outer sides of a football pitch.		sanitation block, eateries, changing rooms
Netball court	30.5	15.5	sanitation block, eateries, changing rooms
Volleyball court	18	9	sanitation block, eateries, changing rooms
Tennis court	24	11	sanitation block, eateries, changing rooms
Handball pitch	20	10	sanitation block, eateries, changing rooms
Badminton	13.4	6.1	sanitation block, eateries, changing rooms
Squash Court	9.7	6.4	sanitation block, eateries, changing rooms
Squash box (ground surface)	64	4.5	
Wall			
Basketball court	26	14	sanitation block, eateries, changing rooms
Board	1.8	1.2	
Swimming pools	50.1 m	21.1 by 8	-Diving Tower to be above the deep end
Olympic size	25.1	Lanes	-Elevation of Tower must not exceed 10m
Short course		Optional	
Diving pool			
Springboard	-3m	-	
ceiling			
Skating rink	60	30	
Children playground	-	-	Slides, bouncing castles, trampoline

Source: Physical planning team; 2025

5.17.3 Stadiums

A stadium is a place for outdoor activities such as sports, concerts, or other events and consists of a field or stage either partly or surrounded by a tiered structure for spectators. When combined with, a yachting marina, indoor games, hard courts, swimming pools, golf, and putting ranges it forms a sports complex.

Standards and Guidelines

- Provide a minimum of 6ha for an international stadium and 3ha for local stadiums.
- Provide 15m road access to the stadiums
- International stadiums should have a minimum capacity of 40,000 persons.

Zoning of a stadium

Model a stadium into five zones to enhance safety as described in figure 33.

- Zone 1- the activity area (the central area where the games take place)
- Zone 2- the spectator terraces.
- Zone 3- the squares surrounding the activity area such as restaurants, accommodation facilities, shops, sporting museum and other social areas.
- Zone 4- the circulation area surrounding the stadium structure and separating it from the perimeter fence.
- Zone 5- The open space outside the perimeter fence and separating it from the car parks.

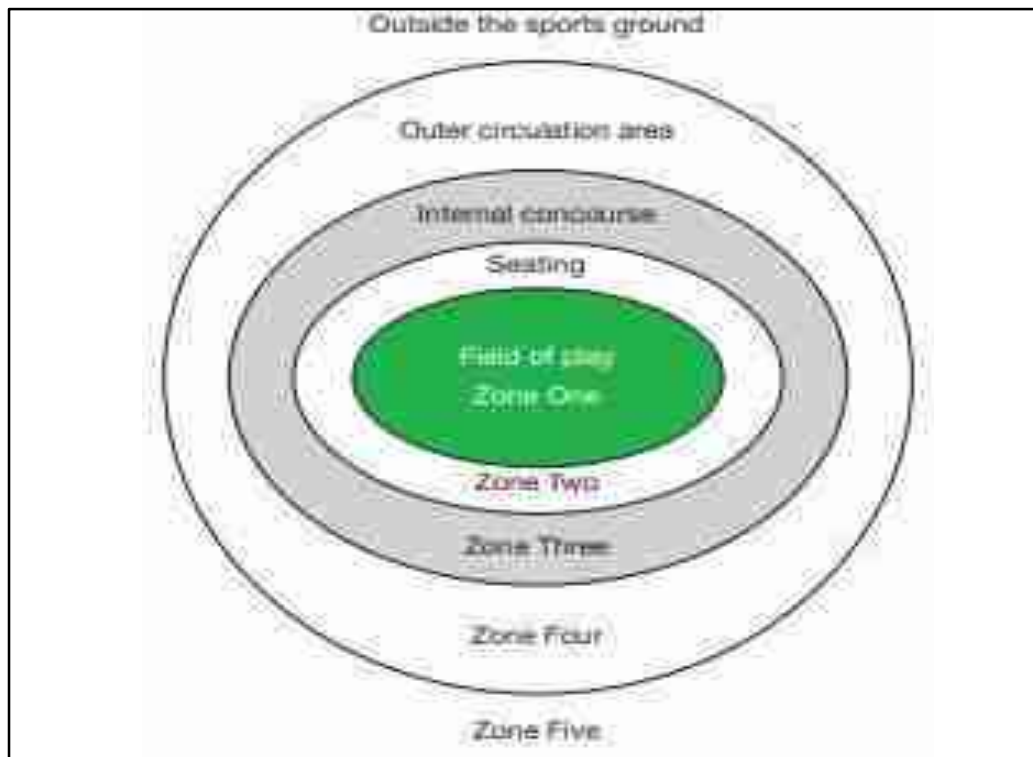


Figure 33: The zones of a stadium

5.17.4 Golf Course Standards and Guidelines

- Prepare a site layout plan identifying areas for restoration, replanting, and enhancement of riparian habitat. Ensure it is surrounded by a forest or light tree cover with natural features such as streams, lakes, and sand; with a maximum tree canopy coverage of 60%.
- The number of 'holes' and their length determines the size of the golf course. For instance, a 9-hole and 18-hole golf course requires minimum land sizes of 12ha and 48.5ha respectively.

- Provide a 9-hole a for a catchment population of at least 100,000.
- Provide an 18-hole a for a catchment population of above 100,000
- Establish golf courses on slopes that are not more than 20%. Portions of the course may be sited in areas with slopes exceeding 20%, provided that those portions require minimal grading.
- Locate clubhouse facilities and other noise-generating uses and facilities away from land users who may be negatively impacted.
- Do not locate golf courses, clubhouse facilities, or parking lots in areas requiring substantial alteration of the existing terrain or vegetation.
- Preserve significant natural features such as rock outcroppings, and natural riparian areas.
- Permit facilities such as clubhouses, lakes including those for non-commercial fishing, parking lots, water wells, and on-site identification signs.

5.18 Health Facilities

Hierarchy of Health Facilities

The Kenyan health system defines six levels of the hierarchy from the lowest to the highest, as follows:

- Level 1-Community health facilities
- Level 2-Dispensaries and clinics
- Level 3- Health centers, maternity and nursing homes
- Level 4-Sub- County hospitals and medium-sized private hospitals
- Level 5-County referral hospitals and large private hospitals
- Level 6- National Teaching and Referral hospitals and large private teaching hospitals

Standards and Guidelines

- Provide minimum land sizes as illustrated in Table 46
- Provide a minimum land size of 0.1 ha for the veterinary clinic.
- Site considerations:
 - Gentle slope
 - Relatively well-drained area to avoid flooding,
 - Availability of public utilities such as water supply, sewer system, electricity, and solid waste management system among others.
- Locate:
 - In areas with adequate access.
 - Away from railroads, freight yards, children's playgrounds, airports, and industrial and disposal plants.
 - in pollution-free areas such as air, noise, water and land pollution
- Prohibit direct access to highways
- The design should cater to the needs of Persons Living with disabilities.

Table 46: Summary of planning standards for health facilities

Facility	Level	Minimum land size	Catchment Population	Distance (radius)	Basic facilities
National Teaching and Referral Hospital	6	20Ha	-	-	Water supply, sewerage system, approved waste disposal system, incinerator electricity, parking, optic fiber, staff accommodation, morgue,
County referral hospital	5	8Ha	-	-	Same as above
Sub-County hospital	4	4Ha	100,000-500,000	8 Km	Water supply, sewerage system, approved waste disposal, incinerator, electricity, parking, optic fiber, canteens.
Health centre	3	3.0 (Rural) 1.0 Ha (Urban) 0.5 Ha (Slums)	25,000 (Rural) 30,000 (Urban)	2 Km	Water supply, sewer system, approved waste disposal, incinerator, electricity, parking, optic fiber.
Dispensary	2	1.0 Ha (Rural) 0.5 Ha (urban) 0.1 Ha (Slums)	10,000 (Rural) 15,000 (Urban)	1Km	Water supply, sewer system, approved waste disposal, incinerator, electricity, optic fiber.
Community health facilities	1	-	5,000		Water supply, sewerage system, approved waste disposal, incinerator, electricity, optic fiber.
Nursing Homes		0.4 Ha			Water supply, sewerage system, approved waste disposal, incinerator, electricity, optic fiber.
Veterinary clinics		0.1 Ha			Water supply, sewerage system, approved waste disposal, incinerator, electricity, optic fiber.

Source: Physical planning team, 2024

5.18.1 Care Facilities for the Elderly

The elderly are senior citizens who are not able to take care of themselves either physically or financially.

Standards and Guidelines

- Provide a minimum land size of 0.5ha.
- Locate:
 - Within a neighborhood, with access to medical facilities.

- [illegible]

Source: Physical planning team; 2025

These are facilities used to prepare the dead for burial or cremation i.e., mortuary or funeral homes.

categories depending on size, facilities, location, population, level and number of health facilities around them.

are independent/ standalone funeral establishments

usually attached to health facilities.

- Maintain a minimum distance of 200m between funeral establishments and health facilities, food establishments such as restaurants, and food processing zones such as abattoirs.

- Maintain a minimum distance of 500m between funeral establishments and schools.
- Ensure compatibility with neighboring land uses.
- Provide adequate utilities such as water, waste disposal, sanitation, electricity and incinerators.
- Locate in an enclosed and safe environment.
- Require Environmental Impact Assessments or Environmental and Social Impact Assessments
- Provide buffer to neighboring land uses such as green belts, roads or high walls above 2.1m
- Ensure accessibility via public transport
- Prohibit direct access through major highways.
- The design should cater for the needs of Persons Living with disabilities.

The land requirements and facilities for the various categories are provided in Table 47

Table 47: Land requirements and facilities for Funeral Establishments

Category I- Funeral Homes (2ha)	Category II- Lower-level funeral homes (1Ha)	Category III- Morgues/mortuary/funeral parlor (0.6 Ha)
Administration Offices Chapels Family room Preparation room Selection room/casket display room Comfort room Garage Parking area Viewing room (optional) Embalming room Business area	Administration Offices Chapels Family room Preparation room Selection room/casket display room Comfort room Garage Parking area Viewing room (optional) Embalming room Business area	Casket display area Business area Storage room Parking area Preparation room Embalming room Chapel (optional)

Source: Physical planning team; 2025

5.19.1 Cemeteries Standards and Guidelines

- Provide a minimum setback of 3m from the right-of-way for plots fronting roads where no above-ground structure may be constructed.
- Ensure a minimum height of 1.5m for a perimeter fence
- Provide a buffer comprising either a 20m vegetated area with trees or a 15m road reserve.
- Locate:
 - on a ground where the water table is not higher than 3-4m below the ground surface
 - away from rocky grounds.
 - away from areas at risk of flooding
 - in areas with firm and non-porous soils
 - away from water sources to avoid contamination
 - away from busy routes where funeral processions would not interfere with traffic.
 - at the periphery of urban areas
- Prohibit direct access through major highways
- Decommissioned cemetery sites shall be available for other uses such as parks, car and lorry parks.
- Provide minimum land requirement based on the catchment population as shown in table 48.

Table 48: Land Requirements for Cemeteries

Catchment population	Minimum Size(ha)
1-5,000	1.0
5000-15000	1.5
Upto 100,000	10

Source: Physical planning team; 2025

5.19.2 Crematoriums Standards and Guidelines

- The minimum land size is 2.0 ha.
- Provide a buffer of 100m from a crematorium (vegetated area with trees) taking into consideration the nature of the wind, topography and the distance between emission points and neighbouring uses.
- Locate:
 - in areas accessible by public transport
 - in a woodland setting, or an area of undulating ground with good natural features
 - in areas with adequate water, electricity and drainage services.
- Consider the direction of the prevailing wind on locating the site
- Allow vertical development for optimal utilization of space
- Ensure compatibility with neighboring land uses
- Prohibit direct access through major highways

5.19.3 Firefighting facilities

They include fire stations and sub-fire stations. Their standards and guidelines have been provided in table 49

Table 49: Standards and Guidelines for firefighting facilities

Fire station	Sub- fire station
Provide a fire station with at least 4 fire engines to serve a population of 100000-200000.	Provide a sub-fire station with at least 2 fire engines to serve a population of between 50,000-100,000
Maintain a minimum land size of 0.825ha with 0.4ha for the structure, 0.4ha for staff accommodation and drills and; 0.25ha for parking and manoeuvring of vehicles.	Maintain a minimum land size of 0.2ha.
Observe a minimum frontage of 47m	Observe a minimum frontage of 35m.
Provide a minimum of 18m access roads	Provide a minimum of 15m access roads
Provide overhead water storage tanks of at least 250,000 litres capacity.	Provide overhead water storage tanks of at least 120,000 litres capacity.
The design should cater for the needs of Persons Living with Disabilities.	The design should cater to the needs of Persons Living with Disabilities.

Source: Physical planning team; 2025

General Guidelines

- Provide:
 - access from a major road
 - site utilities such as electricity, telephone, ambulance and water.
 - A designated road/lane
 - Support facilities such as an alarms communication centre, apparatus room, training room, gym and jogging track, staff quarters, dining area, administration, maintenance, storage and repair

facilities. Provide hydrants at 120m intervals along major town roads which should be located at a minimum distance of 15m from the nearest building

- hydrants at 120m intervals along major town roads which should be located at a minimum distance of 15m from the nearest building
- Designate space for a firefighting institution for training fire marshals among community members to enhance timely response to fire outbreaks.

5.20 Administrative Offices

These include National and County Government offices established to provide public services.

Standards and Guidelines

- Maintain a maximum plot coverage of 75% and 60% for the C.B.D and other areas respectively.
- Provide 1 car park for every 200m² and 50m² of office space in the CBD and in other areas respectively.
- Locate:
 - centrally from most residential zones, preferably within 45 minutes driving time from most homes in large cities and 45 minutes walking time from home in smaller towns
 - in areas with good vehicular access and accessible via public transport
- Provide basic site utilities such as; water, sanitation, electricity, telephone, fibre optic and passenger drop-off points.
- Permitted uses include; - libraries, post offices, police posts, banks, food stalls and restaurants, child care centre, car parks and public open spaces and other services ancillary to government business.
- Maintain minimum land sizes as shown in Table 50

Table 50: Minimum land requirements for administrative offices

Office	Land size(ha)
National	20
County	10
Sub-county	5
Ward/Division	1.0
Location	0.5
Sub location/	0.2
Village	0.1
Town halls	1.2
County halls	1.2

Source: Physical planning team; 2025

5.21 Law Enforcement Facilities

Standards and Guidelines

- Locate:
 - in county headquarters, residential neighborhoods, large commercial/industrial areas or large institutions depending on their functional requirements. if their administrative function is dominant, they may be located in county headquarters but generally, they should be located within residential neighborhoods.
 - in areas easily accessible to the general population.

- Provide a minimum of 3.4m² per person for police cells
- Provide adequate ventilation, lighting, means of rest (chair or bench) and bed in police cells for persons obliged to stay overnight in custody
- Provide designs that cater for the needs of Persons Living with disabilities.
- Permitted uses include; - the chief's offices, retail shops, workshops, places of worship, sports grounds, clubhouses, canteens, accommodation facilities (police lines), education facilities, health facilities, farms, helipads and yards.
- Provide for separation of the various modes of traffic
- Prohibit uses such as conference halls and restricted areas for shooting ranges
- Maintain minimum land sizes as provided in Table 51
- Figure 35 illustrates the site layout plan for a police station

Table 51: Land requirements for the various levels of stations

Type	Land size in ha	Catchment population
Police station	2	10,000-20,000
Police post	0.2	5,000-10,000
Patrol base	0.1	Below 5,000

Source: Physical planning team; 2025

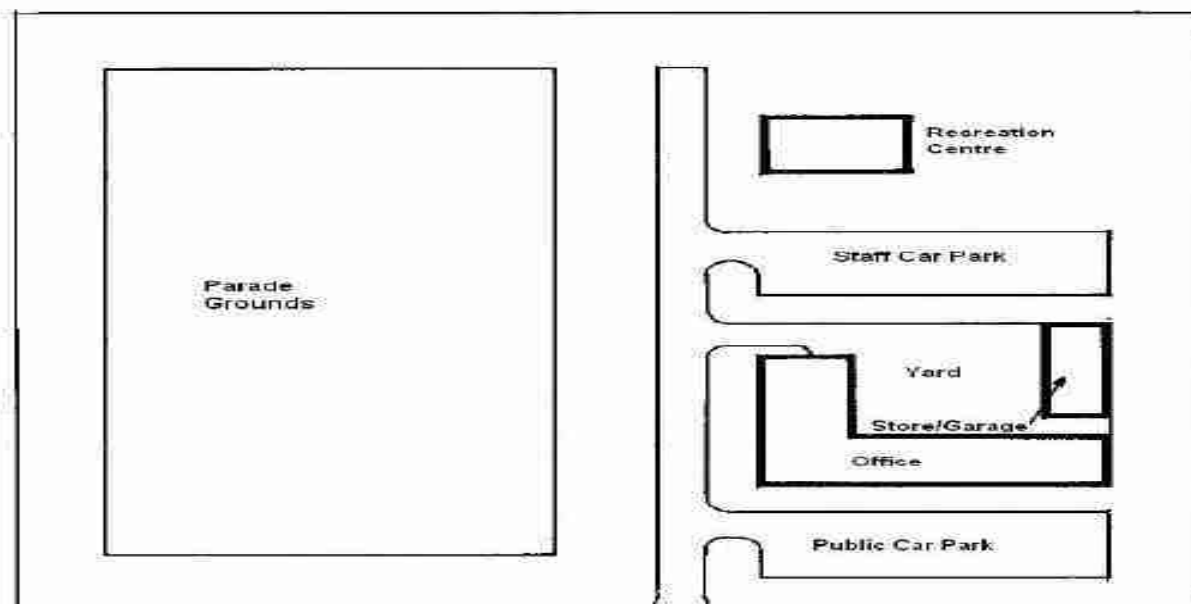


Figure 35: Illustration of a site layout plan for a police station

Source: Physical planning team; 2025

5.21.1 Courts

Standards and Guidelines

- Prepare a site layout plan.
- Locate in a secure and safe environment.

- Maintain minimum land sizes as provided in Table 52

Table 52: Land Sizes for courts

Type	Land size (Ha)	Facilities
Supreme Court, Court of Appeal, High Court	2	▪ Administrative block ▪ Courtroom space for each court sitting ▪ Prisoner holding facilities ▪ Parking
Magistrates court, Kadhi court, tribunal, children's court	1	

Source: Physical planning team; 2025

5.21.2 Correctional Institutions

These include prisons, remand centers and borstals (approved schools) and youth training centers. They are categorized into three, each with different land requirements as provided in table 53.

Table 53: Land Requirements for correctional institutions

Prison category	Minimum land size (Ha)	minimum space requirement per prisoner
Closed (Main security prisons)	16	3.7m ²
Semi-closed (Medium security prisons)	10	
Borstal institutions/youth training centers/remand centers	5	

Standards and Guidelines

- Locate;
 - away from wetlands, flood plains, fragile landscapes, or historic/archaeological sites.
 - in a secure environment
 - in areas with access to a road network, electricity, telephone, fibre optic and potable water and sanitation.
 - in areas well serviced by public transport.
- Ensure compatibility with neighboring land uses. They can co-exist with other government bodies such as the courts and police stations
- Prepare a site layout plan to provide for vehicular traffic access to delivery and collection points, kitchens and workshops, waste collection, maintenance and emergency responses.
- Provide two sanitation facility for every 25 female detainees
- Provide two sanitation facility for every 25 male detainees in cases where urinals are not provided
- Provide three sanitation facility for every 50 male detainees in cases where urinals have been provided
- Provide support facilities such as fire service, surveillance, accommodation, workshops, prison farms, conference halls, education facilities, places of worship, water and sewerage systems, electricity, outdoor areas, sports grounds, health-care facilities, day care centers
- Ensure the design and provision of facilities consider the needs of Persons Living with Disabilities.
- Prohibited uses in surrounding areas include; - major commercial development, educational, warehousing and large markets, transportation and residential other than staff housing.

5.21.3 Military barracks, camps, garrisons, training institutions and other installations

Military land is classified based on locations where the specific military activities take place as follows:

- i. Class A – Physical Garrisons/Bases/Units
- ii. Class B – Training Areas and Reserved Land
- iii. Class C – Temporary Use
- iv. Class D – Special Use Lands/Patrol Bases/Forward Observation Bases
- v. Class E – Off-Camp Accommodation Areas
- vi. Class F – Safeguarding Areas, Buffer Zones, Easements and Wayleaves

Standards and Guidelines

- Factors to be considered while locating military installations include:
 - Proximity to physical infrastructure- the site should have appropriate infrastructure services to support and minimize potential negative impacts on the region during the establishment
 - Socio-economic consideration
 - Regional development considerations
 - Climatology, topography and altitude
 - Environmental and ecological considerations
 - Location of projects of strategic national importance
 - Strategic considerations
- Provide a buffer zone between the military camps and civilian settlements.
- Conduct an Environmental Impact Assessment before the establishment of any military camps and other installations.
- Acquisition of military land should be done in consultation with relevant agencies and local communities.
- Prepare a site layout plan showing support facilities including training areas, base areas, administrative areas, recreation areas, maintenance areas and store depots, ammunition depots, weapon ranges, naval bases, air force bases, telecommunication installations and rifle ranges.

Confidentiality of Military land planning

- Military installations are part of Strategic National Installations and information concerning their planning and development will be restricted and shared on a need-to-know basis.
- Development control by Counties and other statutory bodies will not apply to the planning and development of military installations.
- Where discussion on the planning and development of military installations is necessary outside the Ministry, it will be handled, in confidence, by the CS Defence and CS in charge of Physical Planning and the relevant agency(s).
- Where necessary, all plans touching on, relating to, bordering, involving or in any way affecting the KDF, shall be subjected to conditions set by the National Security Council.
- For confidentiality, all plans prepared by or for the MOD-owned lands and installations shall be exempt from any form of publication.

- All plans having an impact on military lands, including lands required for military operations, such as along the country's borders, will be required to be done under the parameters of special planning areas.
- Military lands will, of necessity, be surrounded by buffer zones which will be co-managed between the military, the counties and other agencies.
- All lands along the Kenyan international borders to provide for an easement of 200m for purposes of military deployment along the border, and regulate type and density of development.
- All Part Development Plans (PDPs) prepared for MOD lands will only be done by the National Director of Physical Planning and in confidence.
- All survey plans prepared for MOD lands will be done by the Director of Surveys.
- No development will be erected within safeguarding areas without MOD approval.
- All Military land shall be gazetted for protection from unauthorized access to protect the installation as well as for the safety of the public.
- The military will be a key stakeholder in the development of national plans and county plans where they have an interest.

Note: Refer to Legal Notice 247 for guidelines on the declaration, application and approval process for such facilities

Environmental Health Issues

MOD in liaison with Physical Planning Departments at the National and County levels shall provide guidelines for:

- Land use and forest cover within the training areas and all its lands.
- Safe disposal of hazardous materials (HazMat) such as Nuclear, Biological and Chemical (NBC).
- Ensuring adequate buffer zones and safety distances.
- Handling and disposal of remains of munitions including regular clean-up of training areas.

5.22 Religious Institutions

Standards and Guidelines

- Observe a minimum land size is 0.2ha
- Prepare a site layout plan for all religious institutions including such facilities that are located within educational institutions
- Locate at the periphery of residential neighborhoods
- Ensure the use of acoustic materials to reduce noise pollution
- Provide for the needs of Persons Living with disabilities
- Provide for open spaces, parking spaces for vehicles, fire assembly points and other related uses.
- Provide for separation of the various modes of traffic
- Locate;
 - away from wetlands, flood plains, fragile landscapes, or historic/archaeological sites.
 - in a secure environment
 - in areas with access to a road network, electricity, telephone, fiber optic and potable water and sanitation
 - in areas well-served by public transport and NMT
- the permitted uses include church houses, social centres, basic schools, playgrounds, open spaces, bookshops and canteens.

5.23 Social Emergency Centers (Rescue Centers and Disaster Management Centers)

- Provide a minimum land size of 2ha
- Provide in all county headquarters and municipalities
- Locate:
 - in a safe and secure environment
 - away from wetlands, flood plains, fragile landscapes, or historic/archaeological sites.
 - In areas with access to a road network, electricity, telephone, fiber optic and potable water and sanitation.
 - in areas accessible by public transport and NMT
 - away from hazardous facilities
- Provide support facilities such as accommodation, water, sanitation, recreational spaces, and electricity.
- Provide an Emergency Operation Center

6 Human Settlements

A human settlement is the totality of the human community - whether city, town or village - with all the social, material, organizational, spiritual, cultural and physical elements that sustain it. They are categorized as urban and rural.

General Standards and Guidelines

- Provide:
 - Designated locations for the establishment of public utilities and social amenities taking into consideration the interrelationships between various land use types.
 - a minimum of 9m access road to every residential plot
 - access to emergency services and public transport within 500m from every plot.
- Encourage;
 - NMT oriented settlements
 - green infrastructure
 - promotion of urban-rural linkages
 - balanced development through the relocation of administrative services from major urban centers and the dispersal of urban centres in remote areas
- Promote adequate and functional open spaces in settlements to enhance circulation, liveability and aesthetics.
- Prohibit settlements and development in protected areas, reserves and way leaves.

6.1 Urban Settlements

Standards and Guidelines

- Provide services in line with the provision of UACA
- Consider the hierarchy of centres in the distribution of functions and services
- Encourage compact developments
- Discourage informal settlement by providing affordable housing and social housing.
- Provide buffer zones between residential and non-compatible land uses such as industries.

- Encourage attractive urban design, landscaping, and tree planting to enhance the aesthetics of urban areas.
- Encourage NMT-oriented settlements
- Prohibit linear/ribbon development along the main roads
- Observe the standards in Table 54 when allocating land uses.

Table 54: Urban Land Use Allocation

S/N o	User	Land Allocation %
1	Commercial	5-10
2	Residential	35-50
3	Industrial	7-10
4	Recreational/Open spaces	4-8
5	Institutional (Education)	3-6
6	Infrastructure	20

Source: Physical planning team; 2025

Upgrading of Informal Settlements

Informal settlements mean unplanned residential areas where a group of housing units have been constructed on land to which the occupants often have no legal claim. Upgrading of these settlements can be done via provision of social and affordable housing.

Affordable housing offers below-market-rate homes to low- and middle-income earners, often through subsidies or incentives for private developers.

Social housing is government or non-profit-owned, deeply subsidized, and reserved for the most vulnerable, with strict income eligibility.

Guidelines

- The design of these upgrading projects shall be guided by specific standards on residential land use
- Access should be planned via local distributors rather than directly from major roads
- Provide for shared communal facilities such as parking, social halls, playgrounds, day care centre, health facility, solid waste collection points
- Provide commercial zones for convenience
- Promote vertical development to maximize on space
- Provide conduits to facilitate utilities and service provision
- Promote use of green energy
- Provide fire hydrants

Urban Renewal/ Regeneration

Urban renewal is the process of upgrading and redeveloping decayed areas in cities.

Guidelines

- Prepare urban renewal and redevelopment plans for decayed urban areas within the context of the whole town and emerging realities.

- Preserve areas/ buildings with historic and natural significance, local characteristics and social networks of the local community including scientific, cultural, technological, archaeological and paleontological buildings
- Provide open spaces and community centres.
- Provide for road widening/redesigning programs to ease and discourage traffic congestion and encourage non-motorized transport.
- Provide for modern high-rise buildings and environmentally friendly designs to save on available space.
- Mainstream use of green energy, water harvesting and waste reduction technologies
- Encourage the use of efficient management systems in redeveloped buildings to enhance efficiency.
- Upgrade existing infrastructure such as water and sanitation

6.2 Rural Settlements

A group of houses in the countryside, which can take the form of a clustered or dispersed settlement, a small hamlet, or a village characterized by a low population density and a focus on agricultural or natural resource-based livelihoods to larger farming communities.

Standards and Guidelines

- Prepare comprehensive plans for public settlement schemes and communal land before settlement to ensure adequate provision of services.
- Plan for nucleated settlements to restrict homesteads to 25% of the total land size of the individual parcel
- Provide
 - an efficient, reliable and effective transport system by ensuring adequate and quality road networks that integrate non-motorized transport
 - secondary, minor and special-purpose roads of 25m, 20m and 20m respectively
 - infrastructure such as social halls with open spaces, community centres, a public cemetery, water, and electricity among others
- Promote compact development to enable the sharing of social amenities and the release of land for agricultural development
- At least 10% of the land for agroforestry
- Create buffer zones between game parks and settlement zones.
- Observe a minimum building line of 3 meters
- Indicate permitted and restricted land subdivision sizes during the preparation of zoning regulations.

6.3 Residential

Categorization of the residential areas should be based on development density and level of services to avoid segregation of people.

General Standards and Guidelines

- Prepare land use development plans for all areas to be used for residential use.
- Segregate residential zones using roads.

- Ensure planned residential plots are rectangular, or close to rectangular, depending on the topography
- Observe the number of floor levels depending on the approved plot ratio of the areas
- Site considerations shall include site layout, topography, open space, location of buildings, and access
- Provide:
 - basic supporting facilities such as corner shops, shopping centre, parking spaces, health facilities, public open spaces, sanitary areas, basic educational facilities, ample supply of water, trunk sewer system, electricity, roads
 - provide for ramps in buildings to enable access to the PWDS
 - Residential developments within rural and sub-urban including unserved areas to be provided with permitted and restricted areas for septic systems.
 - Fire exits, fire extinguishers in buildings and a hydrant within a 90m radius in a densely populated area.
 - Rainwater harvesting tank to supplement conventional water supply
 - Minimum setback lines to ensure the provision of open areas around structures for: visibility and traffic safety, access to and around structures, natural light, ventilation, and space for landscaping
 - At least 10% of the land for greening
- Ensure that all setback areas are open and unobstructed from the ground upward.
- Observe civil aviation requirements for all buildings if the subject site is adjacent to an airstrip or airport.
- Ensure perimeter walls do not exceed 2.1m in height to ensure proper circulation of air and aesthetics.
- Preserve the natural vegetation and topography to enhance attractiveness and compatibility within the neighborhood
- Observe development densities as shown in Table 55

Table 55: Standards for Various Housing Densities

Development density	Typology	Min. plot size (Ha)	Plot coverage	No. of Dwellings	Plot ratios
Low density	Bungalow	0.20	30%	1-4	N/A
	Maisonette				1:2
Medium density	Detached and Semi-detached Bungalow	0.10	50%	5-20	N/A
	Detached and Semi-detached Maisonette				1:3
	Multi-family dwelling				1:4
High density	Multi-storey; Flats/Apartment	0.045	70%	20 and above	1:5-1:8
Mixed density (for comprehensive development)	Multi-storey; Flats/Apartments,	0.045	70%		1:5-1:8
	Detached and Semi-detached Bungalow	0.10	50%		-
	Detached and Semi-detached Maisonette	0.10	50%		1:3
	Multi-family dwelling	0.10	50%		1:4 – 1:6

Source: Physical planning team; 2025

Building lines and Setbacks

A building line means a limit beyond which a house must not extend to a street while a setback means the distance between the building and the property boundary. Setbacks in buildings are important for reasons of privacy, amenity, health and safety. They are illustrated in Table 56, Figures 36 and 37 respectively.

Table 56: Minimum setbacks and building lines

	Low Density(m)	Medium Density(m)	High Density(m)	Allowable Use
Front	6	6	6	Parking and greening
Side	3	2	2	Landscape greening
Rear	6	4	2	Parking and landscape greening

Source: Physical planning team; 2025

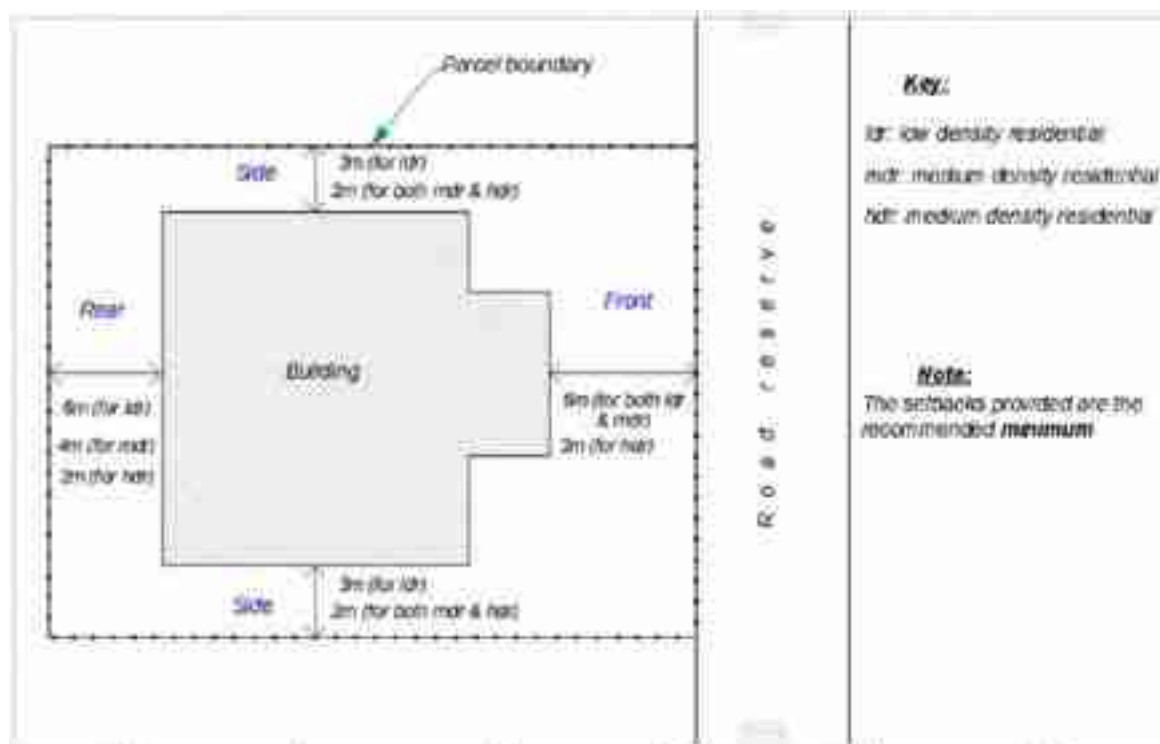
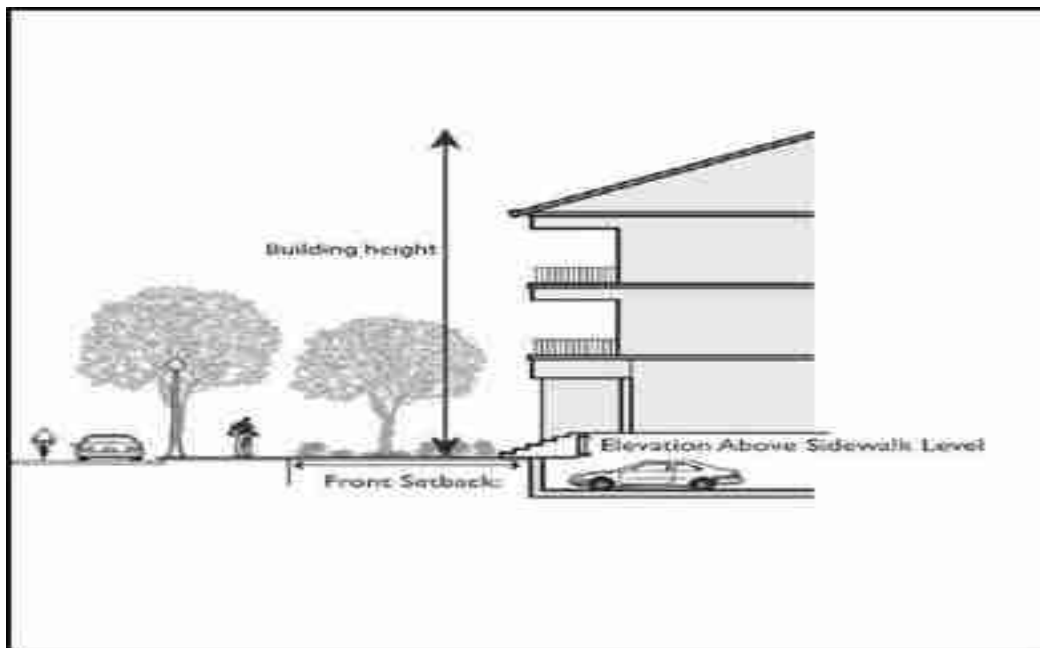


Figure 36: Setbacks for residential developments

Source: Physical Planning team, 2024

- Use of setbacks, frontage, rear and rooftops for purposes of greening.

- The minimum building lines may be determined by the road fronting that plot.



Source: Physical planning team; 2025

Figure 37: Illustration of a setback and building height

Plot access within residential neighborhoods

- Maintain a road hierarchy by providing adequate access and connectivity through 15M major distributor roads, 12M secondary roads and 9M access roads.
- Observe a minimum road size of 9M within high and mixed density.
- Provide NMT lanes on all roads.
- Ensure the length of any cul-de-sac does not exceed 60M
- Discourage cul-de-sacs in slopes of more than 10 degrees to avoid drainage challenges
- Provide breaks of 3m after every 100m in medium, high and mixed density.
- Every plot must have direct vehicular access to a road
- Separate any two adjacent driveways on neighboring plots by at least 1.5m of soft landscaping.
- Figure 38 gives an illustration of access within a residential neighborhood.

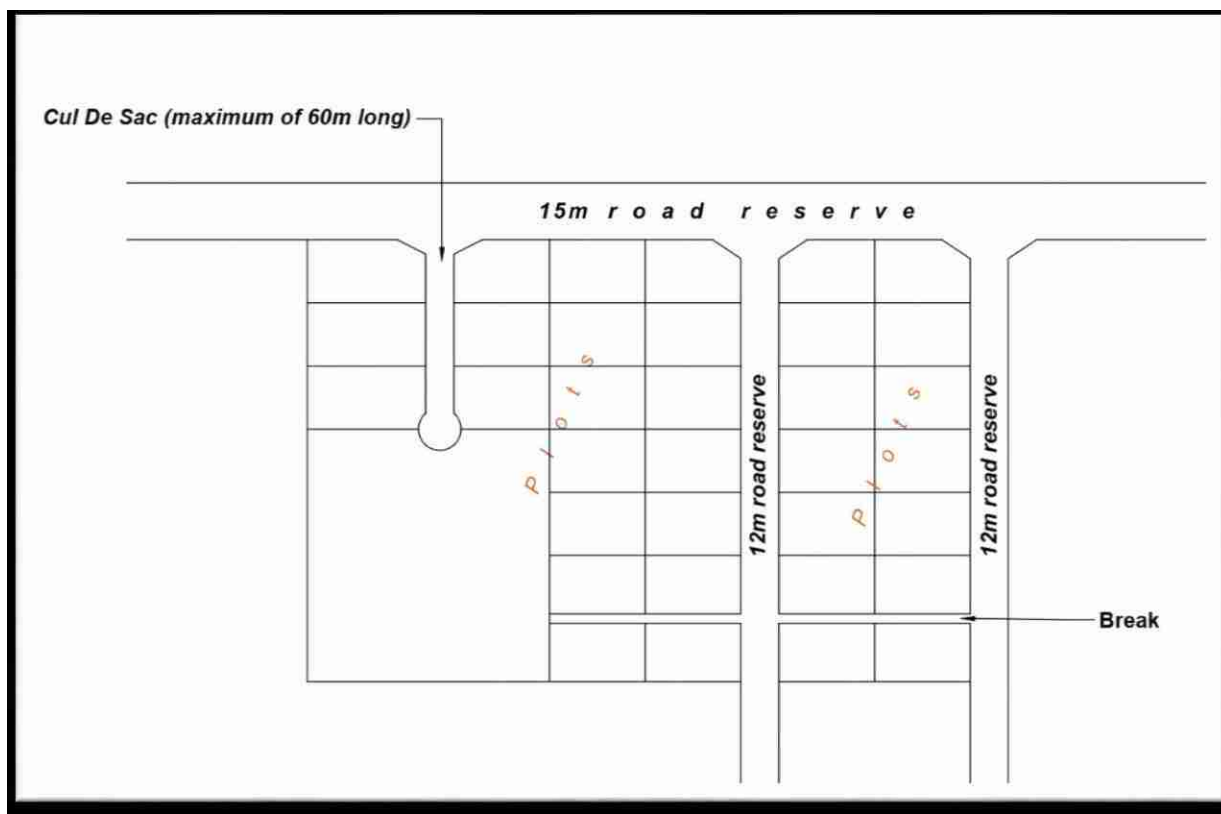


Figure 38: Access in Residential Areas

Source: Physical planning team; 2025

Layout of a Residential Plot

- Orient structures in relation to the sun, and prevailing winds in consideration of the topography of the area
- Ensure that plot layouts respect the physical configuration of the site, and placement of houses follows natural contours.
- Locate service areas including waste segregation and collection points and storage away from public view, through planting hedges.
- Position and design detached developments like servants' quarters and guesthouses in a manner that ensures privacy to the main house occupants.

Utilities

- Provide
 - adequate water supply and drainage channels for surface water runoff,
 - waste segregation containers and collection points equipped with containers within neighborhoods.
 - adequate septic tanks and ventilated improved pit latrines (VIP) in areas not connected to trunk sewer
 - electricity supply and internet in all habitable buildings
- Permit the use of solar and wind systems in residences

6.3.1 Mixed Density and Use

Mixed residential development refers to the planning and construction of neighbourhoods or communities that incorporate a variety of housing types, densities, and land uses within a single area. It encompasses residential development containing tenants of different incomes such as low, middle and high income. Mixed housing aims to reduce social segregation in residential neighbourhoods.

Mixed density and mixed-use developments often overlap in practice, as both concepts aim to create diverse, sustainable, and inclusive communities. Mixed density focuses more on the physical density and types of residential units, while mixed use emphasizes the integration of residential uses with other compatible land uses to support a complete urban lifestyle.

Standards and Guidelines

- Prepare Local Physical Development Plans with standard plot sizes to accommodate low, medium and high-density buildings within blocks.
- Observe flexibility by promoting various housing typologies; single units, semi-detached, row houses, and apartments.
- Promote mixed-use development through;
 - Zoning areas of low, medium, and high residential density in a comprehensive development
 - Allowing for commercial, and educational, uses in a multi-story residential building.
 - Allowing for non-polluting small-scale industrial land use within residential or commercial area

6.4 Commercial Developments

These are spaces designated mainly to conduct business, retail or other non-residential purposes.

General Standards and Guidelines

- Designate 5-10% of the total urban area to commercial use
- Observe a minimum plot size of 0.045Ha
- Observe a maximum plot coverage of 80% to allow for verandas and pedestrian walkways.
- Integrate the commercial developments with open squares at designated places throughout the area, interconnected with walkways to act as recreation and carbon sinks
- Observe a minimum street width of 15m to cater for vehicular and pedestrian traffic and laying out of other infrastructure, such as water, sewer, stormwater drains, electricity, fibre optic cables among others.
- Observe building lines of 6m where roads range between 15-18m wide
- (Note: Minimum distance may vary depending on an areas topography)
- Ensure that all infrastructure facilities and services are laid underground to optimize the use of space
- Provide 18-25m local roads to link the minor distributors
- Prohibit direct access to buildings/plots within the CBD by providing loop streets and service lanes.
- Discourage cul-de-sacs within commercial areas
- Provide a 6m service lane at the rear of all commercial plots
- Provide minimum 3m and 2m wide cycle lanes and pedestrian footpaths respectively
- Provide a minimum of 5% green cover

- Rear yards may be enclosed with walls not exceeding 2.1m in height

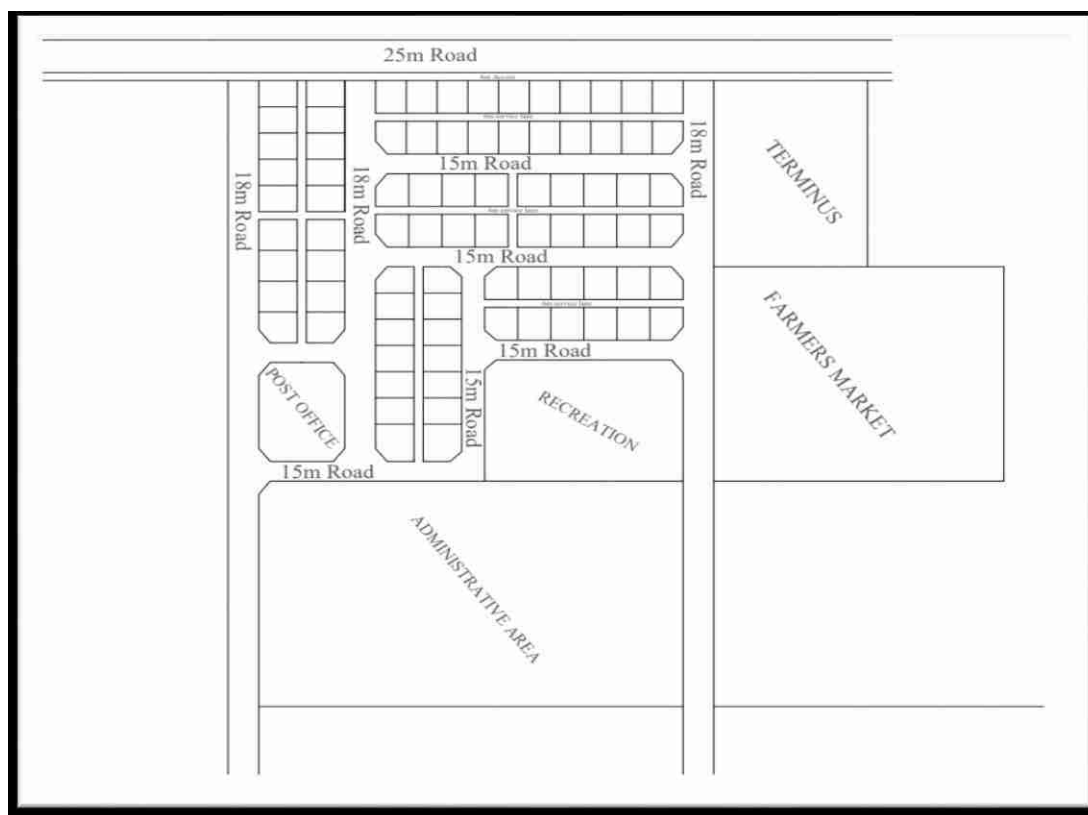


Figure 39: Road Hierarchy in Commercial Areas

Source: Physical planning team; 2025

6.4.1 Cities, Municipalities and Towns

Guidelines

- Locate the tall buildings either at the center or around an open space in the center of the CBD at a plot ratio of 600% which could vary within the CBD depending on the designated blocks. As you proceed from the center the plot ratio can decrease by intervals of 150% from 600% to 450%, 300% and 150% depending on the existing infrastructure and desired townscape.
- Channel all external traffic to a bypass.
- Provide setbacks and building lines based on the size of the fronting road

6.4.2 Market Centre and Neighborhood Shopping Centre

Market centres provide lower-order goods for the surrounding population. These centres are complementary to the major towns and do not undermine the higher-order functions of those towns. A neighbourhood shopping centre satisfies the daily needs and conveniences of the surrounding population. These centres are complementary to the market centers.

Standards and Guidelines

- Catchment population of up to 2,000 persons
- Locate close to other neighbourhood facilities such as health facilities
- Observe a minimum land size of 2.5ha
- Provide;
 - 15m access road and encourage Non-Motorized Transport
 - Vertical separation of vehicles and pedestrians by constructing pedestrian walkways at different levels
 - Minimum land size of 0.2ha for parking
 - Basic facilities including electricity, water, sanitary area and refuse disposal site
 - Open spaces and parks
- Provide a network of strategically located service centres into which basic services are concentrated to ensure the most efficient use of capital resources and services to both the urban and rural population

6.4.3 Local shops

These small retail buildings offer convenience goods and services to nearby households, often operating beyond standard business hours.

Standards and Guidelines

- Catchment population of up to 100 persons
- Observe a minimum plot size of 0.045ha
- Locate along major pedestrian routes
- Ensure it does not obstruct the free flow of vehicular and pedestrian traffic.
- Provide adequate access and other support amenities such as water and electricity.

6.4.4 Market

It is a place where the exchange of goods and services takes place. It can either be open-air or closed and can be regular or periodic.

Table 57 provides the categorization of markets and their respective standards

Table 57: Standards and Guidelines for Markets

Market Category	Characteristics	Standards and guidelines
A- Local	▪ Limited to the local region or area ▪ Targets low-income groups in suburban areas ▪ Usually sell perishable goods for daily use ▪ Hours of operation are limited	▪ Provide a land size of 0.1-0.2 ha ▪ Provide central waste collection points, central water points and ablution blocks ▪ Provide fixed stalls and hard-standing surfaces.

Market Category	Characteristics	Standards and guidelines
B- Open-air market	▪ An outdoor market where local traders sell their merchandise ▪ Operation of the market can be periodic or daily. ▪ They have designated areas for the sale of specific goods	▪ Observe a minimum land size of 0.3 ha ▪ Provide central waste collection points, central water points, ablution blocks and public bathrooms. ▪ Provide adequate pedestrian access ▪ Provide fixed stalls and hard-standing surfaces ▪ Designate common entry/exit points ▪ Designate a fire assembly point
C- Closed markets/ specialised markets	▪ Characterized by permanent stalls and shops in a built structure. E.g Economic stimulus markets ▪ They have designated areas for the sale of specific goods. ▪	▪ Observe a minimum land size of 0.3 ha ▪ For the animal market, identify suitable locations based on the zoning regulations. ▪ Provide adequate parking facilities ▪ Provide central waste collection points, central water points, ablution blocks and public bathrooms. ▪ Provide adequate pedestrian access ▪ Provide fixed stalls and hard-standing surfaces ▪ Designate common entry/exit points ▪ Encourage vertical development ▪ Provide fire assembly points

Source: Physical planning team; 2025

6.4.5 Shopping Malls

A large retail complex containing a variety of stores, restaurants and other business establishments. These may be housed in a series of connected or adjacent buildings or in a single large building.

Standards and Guidelines

- Observe a minimum plot size of 2 ha
- Locate in;
 - areas with a minimum access road of 15m to major roads
 - proximity to public transport
 - Proximity to residential areas.

Site design, access and connectivity

- Promote an integrated theme that ties the entire development as a unified whole.
- Cluster buildings in relation to the interconnecting quality of landscaping, open space and pedestrian areas
- Provide;
 - an acceleration and deceleration lane of a 100m stretch.
 - on-site vehicular and pedestrian circulation routes including accelerating and decelerating lanes
 - clearly delineated crosswalks where pedestrian circulation routes cross vehicular traffic aisles and driveways

- adequate public restrooms, lactation and baby changing rooms and steps and ramps across retaining walls and slopes
- Integrate drive-thru lanes with the overall site layout to provide safe, efficient and integrated vehicular/ pedestrian circulation
- Integrated drop-off zones into the design with attractive paving, adequate separation of vehicles and pedestrians, and convenient location near building entrances.
- Integrate separate freestanding sites (pad developments) in parking lot layouts.
- Locate seats and benches in shaded areas that are close to site facilities but will not otherwise block or cause congestion along circulation routes.
- Designate emergency exits, fire assembly points
- Observe 10 percent greening.
- Ensure compatibility with the surrounding areas in terms of materials, colours and design details.

Parking

- Encourage storeyed parking buildings
- Locate parking close to building entrances, ensure that it is easily identifiable and separate from pedestrian circulation areas.

Traffic Calming

- Integrate traffic calming measures into the transportation and site layout strategy.
- Encourage the use of traffic calming techniques such as wide speed humps, raised crosswalks and raised intersections to enhance safety.

Public Open Spaces

- Locate in proximity to areas of activity, such as primary circulation routes and building entrances.
- Encourage courtyards to provide effective intermediary gathering points and serve as an organizing element for multiple pedestrian circulation routes.

6.5 Industries

Industries are a group of productive enterprises or organizations that produce or supply goods, and services. They are generally classified as primary, secondary, tertiary, and quaternary. Secondary industries produce finished goods or are engaged in construction, consume large quantities of energy and use machinery. For this reason, they are further classified as heavy and light depending on the quantities used.

General Guidelines Standards

- Observe plot coverage of not more than 75%.
- Create suitably sized plots that are functional, and accessible, to accommodate future expansion and enhance the local character
- Observe building lines of between 6-9m
- Observe minimum road reserves as follows:
 - Major Communication routes - 60m
 - Spine roads (Major roads) - 40m

- Collector Roads - 30m
- Access streets - 25m
- Service lanes - 15m
- Ensure the road reserves accommodate the following provisions;
 - Stormwater drainage
 - Conveyance of industrial effluents
 - Water reticulation mains
 - Curb parking
 - Communication cables-fibre optic cables
 - Non-motorized infrastructures (Walk ways, Cycling lanes, Designated footpaths)
- Reserve a minimum of 10% of plot coverage for planting trees.
- Integrate green energy i.e solar energy, wind energy
- Locate industries in close proximity for agglomeration advantages
- Require ESIA and EA for proposed and ongoing industrial developments
- Require health and safety management plan for all industries
- Protect and enhance environmental and landscape features
- Set aside about 5-8% of the total planned urban area for industrial use for the provision of facilities as outlined in Table 58.

Table 58: Percentage Allocation of Land in an Industrial Area

Land use	Allocation (%)
Industrial buildings	55
Green spaces (parks, open spaces, squares etc.)	10
Utilities, services of facilities	20
Roads, parking lots	15

Source: Physical planning team; 2025

6.5.1 Heavy Industrial Areas

Heavy industrial areas are zones designated for the manufacturing of large, heavy items involving complex or numerous processes. They may produce heat waste that can cause pollution and pose a risk to the environment.

Standards and Guidelines

- Recommended land size of 40-60ha for a town with a population of 200,000 and 5,000,000 to provide between 4,000 and 6,000 jobs, based on an average industrial density of 40 workers per acre.
- Bus rapid transit systems and rail systems should be incorporated in industrial areas and integrated with other transportation systems to enhance efficient mobility.
- Provide buffer zones of not less than 500m between the industrial zones and residential areas. For noxious and hazardous industries, the distance should not be less than 1km.
- Provide plot sizes in industrial areas depending on the type of industry to be built, number of personnel, densities and plot coverages.

- Require ESIA and EA assessments for all proposed and ongoing noxious and hazardous industries.
- Consider wind direction in the location of industries to control air pollution.
- Permit and prohibit uses in a heavy industrial zone as provided in Table 59

Table 59: Permitted and Prohibited Uses in Heavy Industrial Zone

Permitted Uses	Prohibited Uses
○ Noxious, offensive or hazardous industry ○ Vehicle repair and transport yard ○ General industries ○ Auxiliary uses to the industry ○ green spaces ○ Emergency services ○ Car Park and lorry parking area ○ Warehousing of not above 50% of the gross floor area	○ Residential development ○ Major commercial centres ○ Hotels ○ Educational facilities ○ Child Care Centres ○ Major Transportation uses ○ Animal husbandry

Source: Physical planning team; 2025

6.5.2 Light Industrial Areas

Light industrial areas are designated zones or estates for manufacturing that use less capital-intensive machinery or production equipment.

Standards and Guidelines

- Distribute these estates throughout residential areas, at approximately one estate per catchment population of 30,000.
- Provide land sizes ranging from 5-10 ha, to cater for 720-1500 workers at a density of 60 workers per acre.
- Locate on the major internal routes of the town with separated access from residential feeder roads.
- Provide buffers such as green spaces and a boundary wall between these zones and major internal roads, shopping and commercial centres, community buildings and schools.
- Provide loading and offloading zones depending on the size and operations of the industries.
- Provide spaces for ancillary uses such as:
 - Residential quarters
 - Operation and logistics Offices
 - Open storage
 - Retailing/exhibition spaces
- Provide a minimum of 1ha for the Juakali zone within the light industrial area.

Jua Kali/Workshop Areas

Jua Kali workshops are areas designated for small-scale traders and artisans under temporary or permanent shelters.

Standards and Guidelines

- Observe a minimum plot size of 0.25ha.
- Provide for sheds with separate entry and exit points.

- Provide common sanitation blocks, power supply, waste collection points and exhibition spaces.
- Provide fire assembly points, fire hydrants and fire extinguishers at strategic locations.
- Locate juakali industries dealing with hazardous and flammable materials 100m away from petrol stations.
- Permitted uses included:
 - Ancillary shop or office to service industry provided it does not exceed 500 m² or 70% of built floor area, whichever is smaller
 - Commercial outlets and markets
 - Recreation areas
 - Emergency service centres
 - Service industry, Service station, Motor trading, Vehicle repair and transport yard
 - Warehousing if not above 50% of the gross floor area
- Prohibited uses include animal husbandry and noxious industries

Petrol Service Stations

Petrol service stations are classified under light industrial use due to the nature of the activity and the risks that they pose to the environment.

They are classified into tier 1, 2, and 3 according to their land size, services offered and storage capacity with tier 1 being the smallest. Tier 4 is reserved for stations that sell Autogas. As per their tier, they can provide certain facilities such as eateries or an office block as shown in table 60.

Table 60: Standard requirements for the petrol stations

Requirement	Tier 1	Tier 2	Tier 3	Tier 4
Dimensions				
Min. land size	0.1ha	0.15ha	0.19ha	0.22ha
Min. entrance/exit	6m	6m	6m	6m
Min. frontage	16m	32m	32m	32m
Auxiliary services				
Car wash/lubrication bay	No	Yes	Yes	Yes
Max. office space	N/A	60m ²	120m ²	60m ²
Max. no of floors	Ground floor	G+1	G+1	G+1
Convenience store	No	Yes	Yes	Yes
Eating facility/banking hall	No	No	Yes	Yes
Additional requirements				
Firefighting system	Yes	Yes	Yes	Yes
Canopy with over 4.5m head clearance	N/A	Yes	Yes	Yes
Washroom facilities	Yes	Yes	Yes	Yes

Source: Adopted from EPRA Kenya Standard 2504:2014

Standards and Guidelines

- Require an ESIA and EA.
- Observe minimum distances of:

- 500m between petrol stations along one side of the road
- 150m for acceleration and deceleration lane
- 15m from the edge of the road to the nearest pump
- Locate at a minimum of 100m from any social facilities such as schools, churches, public libraries, auditoriums, hospitals, clinics, theatres, public playgrounds, etc.
- Provide a buffer of 30m from any residential building for petrol pumps. The buffer zone can be devoted to any non-residential land use.
- Ensure provision of a 3m high perimeter wall on the side or rear boundary of the petrol station.

Petrol filling stations

- The minimum land size for petrol filling stations is 0.1ha.
- Provide a minimum of 10m setbacks from the highways
- Provide 80-100m acceleration and deceleration lanes as shown in Figure 40
- Ensure a minimum distance of 1km between two petrol filling stations is maintained

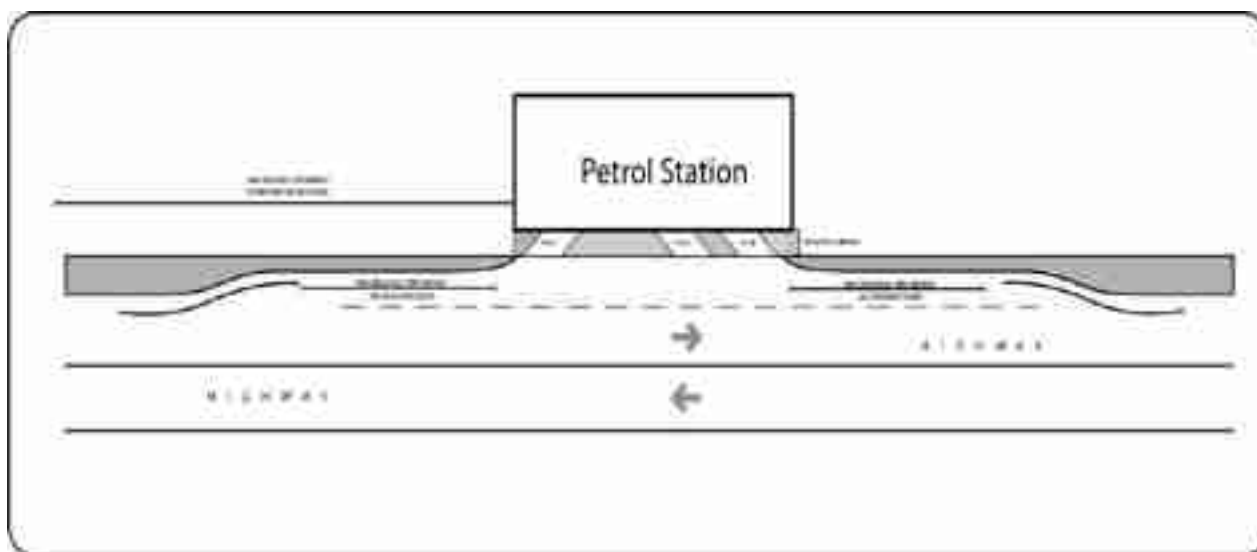


Figure 40: Illustration of acceleration and deceleration lanes

Source: Physical planning team; 2025

6.5.3 Industrial Parks

Industrial parks (IPs) are an agglomeration of both light and heavy industries within a geographical area. They can comprise the EPZs, SEZs and County Aggregation and Industrial Parks (CAIPs)

Standards and Guidelines

- Provide a minimum land size requirement of 30ha for EPZ and 400ha for SEZ.
- Consider the following when siting IPs:
 - Land availability and suitability

- proximity to rail lines, highways, airports, communication networks, dry ports, and/or sea or river ports, service providers and commercial activities
- compatibility to abutting land uses
- availability of raw materials, labour and ready market
- Provide for a diversity of plot sizes depending on the type of industry.
- Allocate special infrastructure zones for certification laboratories, quarantine services, and market intelligence units, where required.
- Allocate logistics zones including loading and unloading yards, parking lots, packaging facilities, transportation hubs, cargo-handling centres, raw material collection and storage depots, goods storage warehouses, etc.
- Provide for utility zones such as solid waste collection centres, power sub-stations, etc.
- Provide residential zones that cover employee housing, guesthouses and hotels.
- Allocate space for green zones such as green belts and buffer zones along the park's boundaries, lawns, parks and water features, internal walkways between zones, etc.
- Provide support infrastructure as recommended in Table 61

Table 61: Recommended infrastructure within industrial parks

Infrastructure	Description
Internal roads	● Arterial and access/distribution roads network, with pedestrian walkways, to provide access to the entire park, as well as to the main highways nearby. ● Bicycle lanes and/or electric light-rail networks, as well as bicycle and/or electric golf-cart sharing systems, to reduce combustion engine-based vehicle dependency for short-distance commuting
Surface drainage	● Drainage on all roadways ● Gravity-based rainwater harvesting and rainwater storage tanks
Water supply	● Sufficient drinking and non-potable water, with separate distribution networks ● Wells, boreholes and reservoirs ● Water pumping station, water treatment plant and smart water metering
Sewerage	● Sewage and effluent collection and storage systems (separate for industrial and household needs) ● Systems for removal of contaminants from wastewater, storm run-off, and domestic sewage, through primary treatment of effluents ● Smart sewage metering
Solid waste management	● Segregation of wastes into different categories and colour-coded bins and containers (industrial hazardous and non-hazardous waste, biodegradable waste, non-biodegradable waste, e-waste, hospital and bio-medical waste, etc.)
Power supply	● Distribution substations at strategic locations, with a network of underground cables or overhead lines ● On-site renewable energy (rooftop solar PV panels or solar farm to serve the park) ● Smart energy metering
Street lighting	● Conventional or solar street lighting ● Smart energy-efficient lighting

Infrastructure	Description
IT connectivity, telecommunication, and ICT-enabled resident services	• High-speed Wi-Fi and internet services • Robust data infrastructure system
Landscaping, public open spaces and green cover or vegetation	• Trees along the boundary and roads • Open spaces of various types - natural, plazas, parks, or recreation areas (international planning norms require at least 10 % green space) • Green buffers between zones • Bio-diversity and planned planting of native flora
Specialized industrial support infrastructure	• Standard factory shells and warehouses with smart, sustainable building design • Public depot warehousing and cold storage facilities • Quality assurance services and quality control laboratory • Truck parking and weighing station • Fuel pumping station • Administrative building, operation centre, exhibition centre and showrooms • Banks, post offices, customs office • research and development, incubation, training, innovation and knowledge hub • Market intelligence centre, one-stop shop, logistics and parking centres
Safety and Security	• Public safety infrastructure, including lighting and CCTV surveillance systems • Emergency response centre (accidents and first aid, fire and chemical hazards, security incidents, natural disasters and crises, etc.) • Healthcare centre, medical facilities • Live air quality monitoring through a smart environment monitoring system • Licence plate monitoring and speed control
A social and commercial centre	• Buildings for shopping and culture (restaurants, supermarkets, sports facilities, etc.) • Environment-friendly apartment complexes • On-site daycare • Auditorium and meeting rooms suitable for educational/training activities, business meetings, conferences, and community meetings • Off-site infrastructure

Source: Physical planning team; 2025

County Aggregation and Industrial Parks (CAIPs)

The County Aggregation and Industrial Parks (CAIPs) are zones for the development of Agro-Industries for purposes of promoting manufacturing and investments established in each of the counties.

Standards and guidelines

- Provide for the establishment of one CAIP per county;
- Provide a minimum land size requirement of 40ha.
- Prepare a detailed master plan that outlines the layout, infrastructure requirements, and zoning regulations for the CAIP.

- Can be located either within a county or two or three counties can come together to create joint CAIPs on their common border.
- Ensure the CAIP is well-connected to major transportation routes (roads, railways)
- Undertake county-specific needs assessment and analysis of the competitive advantage of counties to identify the specific agricultural products, value chains, and market opportunities relevant to the county.
- Provide land for:
 - Essential utilities; water, electricity, communication cables, fibre optic cables, waste management systems.
 - Shared facilities like houses, cold storage, testing laboratories, and training centers to support businesses in the park.
 - Facilities for collecting, sorting, grading, cleaning, packaging, and storing agricultural produce. Include cold storage and facilities where applicable.
- Promote the use of renewable energy sources and energy-efficient technologies.

6.6 New Paradigms in Urban Development

New paradigms in urban development include Techno cities, Smart cities and Resort cities. These new approaches are unique in design, function, efficiency and sustainability. They are a response to the evolving economic, social and environmental needs and as such, they require innovative standards and approaches to their planning and management.

6.6.1 Smart Cities and Techno Cities

A smart city can be defined as a sustainable city where various city services are provided based on city infrastructure constructed by converging and integrating construction technologies, ICT, etc. to enhance its competitiveness and liveability.

A Techno city or Technopolis is a sustainable, world-class technology hub that connects human capital, social capital and ICT infrastructure to address public issues, achieve sustainable development and increase the quality of life of its citizens.

Components of smart cities

A smart city is determined using a set of characteristics including:

- i. an infrastructure based on technology
- ii. environmental protection initiatives
- iii. effective and highly functional public transportation
- iv. progressive physical and land use development plans
- v. people can live and work within the city, using its resources
- vi. collaborative planning and citizen participation.

Figure 41 illustrates various aspects and factors to consider when planning a smart city.

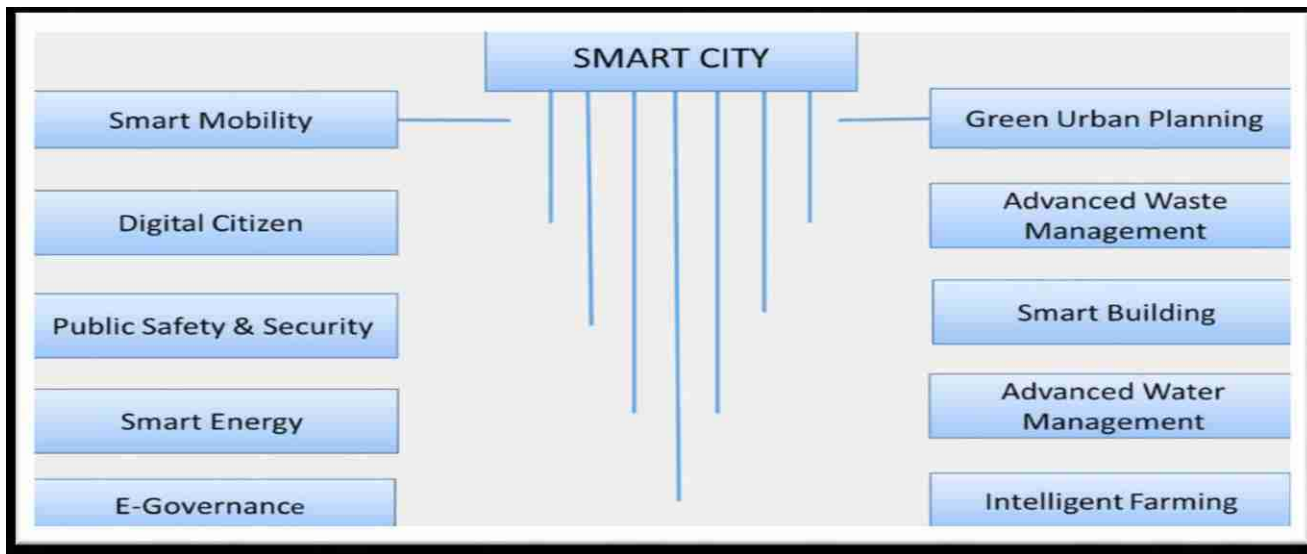


Figure 41: Characteristics of a smart city

Source: Physical planning team; 2025

Standards and Guidelines

- The minimum land size is 1000Ha
- Delineate a minimum of 10km buffer zone plan around the city. The buffer should start from the edge of the smart city.
- Locate in urban growth centers with good transportation and technological infrastructure.
- Integrate green energy principles in building designs.
- Promote mixed land use, containing a range of compatible activities
- Promote infrastructure development and base it around technology
- Encourage the provision of secure and transparent infrastructure
- Ensure self-sufficient cities whose people can live and work within, using its resources.
- Provide robust ICT Infrastructure, power supply, water supply, water treatment plant and water reclamation facility.
- For existing cities, consider city improvement, city renewal and city extension plus a Pan-city initiative when upgrading to Smart Cities.

6.6.2 Resort Cities Planning

A resort city is an urban area where tourism or vacationing is the primary component of local culture and economy.

Standards and Guidelines

- Locate these centres as guided by tourist attractions
- Minimum land size of 500Ha
- Delineate a minimum of 10 km buffer zone plan around the city
- Integrate tourism zones with major communication and transportation networks and economic resources.
- Preserve the ecosystem and the primary attraction

- Cluster and integrate related secondary attractions
- Encourage mixed-use and compact pattern designs
- Plan for the location of basic support services such as electricity substations, water reticulation systems and waste disposal sites.
- Prepare a buffer plan establishing the growth limit of the city and directing urban growth away from environmental assets and rich agricultural land.
- Regulate development in scenic and sensitive landscapes to minimize impact on the surrounding natural environment.
- Discourage developments along major wildlife corridors, environmentally sensitive areas and environmentally fragile ecosystems.

6.6.3 Sport cities and sports hub

A sports city is a planned city that is designed and developed with a focus on sports and physical activity. A sports hub is a site/centre with multiple sporting facilities which allow for a variety of sports to be played.

Guidelines.

- Locate in high altitude areas
- Plan for stadiums, arenas, training facilities, community sports centers, sports medicine clinics and retail stores.
- Plan for hotels, restaurants, and other amenities to cater to sports fans.
- Design public spaces that encourage interaction and celebrate the spirit of sport.
- Provide for traffic segregation along the trunk roads where athletes can train outside the stadiums

6.6.4 One-stop border posts

These are specialized border crossing points that aim to streamline and facilitate trade and movement of goods and people between neighboring countries.

Guidelines

- The size and capacity of an OSBP should be determined by the volume of cross-border traffic it is expected to handle.
- Plan for Parking, logistic and storage facilities
- Provide space for integrated facilities and installation of modern technology to facilitate clearance processes.
- Plan for support facilities such as hotels, residential, commercial, health, educational, recreational, waste management, utilities, security and administration

6.6.5 Metropolis and Megacities

Metropolitan area(s) are urban agglomerations or systems of cities (including urban, peri-urban and surrounding rural areas) that consist of more than one municipality. These surrounding areas are economically and socially linked to the main city through factors like commuting, shared infrastructure, and industries. It's about the urban core and its sphere of influence. Typically has a large population, generally starting around one million people

A megacity is a very large urban centre with a population of more than 10 million people that is often made of two or more urban areas that have grown so much that they are connected.

Guidelines

- Prepare physical, land use development plans for metropolitans and megacities, and integrate with existing Plans.
- Prepare sustainable mobility plans.
- Plan and develop sustainable regional infrastructure projects e.g., roads, water, sanitation markets and collection centres etc. to stimulate sustainable economic productivity and strengthen urban-rural linkages.

6.7 Green Spaces

These are areas or landscapes that are undeveloped (do not have buildings or other built structures) and are partly or completely covered with grass, flowers, trees, shrubs, or other vegetation. They include playgrounds, gardens, parks, forests, natural water bodies, etc. set aside for ecosystem sustainability and recreational and aesthetic purposes.

Standards and Guidelines

- Identify, map and prepare an inventory of all existing green spaces
- Adopt hierarchy in the designation of land for green spaces as follows as shown in Table 62

Table 62: Land size requirements and distribution of green spaces

Area	Minimum land size	Distribution
City	5-10 Ha distributed	Prominent locations in the city, at the urban fringe areas or in proximity to major transport interchanges.
Municipality	5Ha distributed	▪ Prominent locations in within the urban area and at the urban fringe areas ▪ Providing facilities for recreational activities of an urban population.
Town	2Ha	
Market Center	1ha	
Local center/ Neighborhood	0.15ha,	Providing sitting-out areas and children's playgrounds to serve the neighborhood population.

Source: Physical Planning Team, 2024

- Consider age group, population density and income levels when determining the type of green space.
- Prepare detailed site plans for parks to enable sustainable use.
- Provide public access with a minimum of 12m
- Locate close to:
 - neighbourhoods to ensure minimum time spent accessing green spaces.
 - car or bus dropping-off points
 - amenities and facilities such as community centres and social halls, health centres, local shops, police stations, and primary and secondary schools to enhance safety.
- Integrate with other green spaces through walkways, cycling trails and greenways.
- Encourage the planting of trees and other vegetation to enhance the aesthetics and break the monotony of concrete.
- Provide infrastructure for people living with a disability such as ramps and visual aids to access green spaces.

Tables 63 & 64 provide the planning standards for green spaces using the catchment population

Table 63: Planning standards for green spaces using the catchment population

Type of green space	Location	Minimum land size	Catchment population	Distance to green space	Building site coverage	Facilities	Prohibited uses
play ground	- residential areas - ECDE schools	0.15ha	1000	400m	≤5%	- restroom - benches - water points - litter bins - bicycle racks	- car parking & driving - shops - dumping
gardens	- neighbourhoods - major nodal points - secondary roads - central business districts - hospitals - commercial areas - government offices	0.1ha	2000-5000	400m-2km	≤10%	- picnic shelters - benches - restrooms - lighting - litter bins - children recreation furniture	- car parking - kiosks - dumpsites - high-rise buildings
parks	- neighbourhoods - towns - cities - high-density areas - peri-urban/urban fringe areas - conservation areas	0.4ha	no limit	1.2-8km (parks within neighbourhoods) - no limit for large parks within cities and peri-urban areas	○ ≤10% (small parks) ○ ≤20% (large parks)	- benches - restrooms - picnic shelters - fountains - restaurant - litter bins - sculpture and artworks - water sports features & equipment	- kiosks - dumpsites - cultivation - petrol filling stations - residential houses - commercial buildings - high rise buildings - electric power plants
urban nature trails	- neighbourhoods - conservation areas - disused railways & quarries	15-30m wide	no limit		-	- benches - lighting - restrooms - litter bins	no development allowed

Source: Physical planning team; 2025

Table 64: Planning standards for green spaces using circulation space

Type of green space	Location	Circulation space	Building coverage site
Play ground	- Residential areas - ECDE schools	0.5m ²	≤5%
Gardens	- Neighborhoods - Major nodal points, - Secondary roads, - Central business districts - Hospitals - Commercial areas - Government offices	1m ²	≤10%
Parks	- Neighborhoods - Towns - Cities - High-density areas - Peri-urban /urban fringe areas - Natural spaces such as rivers, forests	2m ²	≤10%- small parks ≤20% large parks
Urban Nature trails	- Neighborhoods - Nature Conservation areas such as rivers and forest - Disused railways		-

Source: Physical planning team; 2025

6.7.1 Urban Greening Strategy

Urban greening is the process of landscaping and foresting urban areas to create mutually beneficial relationships between city dwellers and their environments thereby contributing to improved quality of life (Ans Global, 2017). Urban Greenery Strategies include:

- i. **Skyrise greening-** is a strategy aimed at extending greening skywards in the built environment. It refers to both rooftop and vertical greenery.
- ii. **Roof greening-** characterized by planting works on structural slabs with a main focus on the horizontal dimension. Typical examples include roof gardens, and greening on top of noise enclosures.
- iii. **Vertical greening-** refers to greenery on vertical facades/ surfaces. They include planting of climbing and/or weeping plants along the edges of buildings or structures.

General Guidelines

- Identify and designate tree conservation areas, roads and sites with a significant number of champion trees i.e., the largest known trees of a particular species
- Revitalization of dry and old river courses or canals by cleaning the watercourse in conjunction with the greening of the banks to create blue ways bordered by greenways to serve as linear urban parks.
- Strengthen of local knowledge and capability of urban greening
- Protect nature-in-city assets, involving spontaneous natural remnants, champion-caliber tree stock, tree preservation in construction sites, salvaging outstanding trees by transplanting, and timely tree care
- Encourage green walls to bring benefits similar to green roofs, plus the more prominent visual amenity to invigorate the cityscape.

Greening in residential developments

- Maintain a minimum standard of 0.1m² per person of local open space in public housing developments and comprehensive residential developments
- Observe a minimum of 10% green coverage.
- Encourage roof greening designs in high-density residential areas
- Encourage green hedges to increase visual amenity.

Greening in industrial developments

- Ensure provision of green spaces in physical and land use development plans.
- Observe a minimum of 10% plot coverage for landscaping use.
- Maintain a minimum standard of 0.05m² local open space per worker
- Encourage the provision of communal podium gardens and sky gardens with greenery on industrial buildings
- Rehabilitate disused quarries for alternative uses such as nature trails

Greening in commercial developments

- Observe a minimum of 0.02m² local open space per worker for landscaping
- Use setbacks for urban greenery.
- Encourage roof greening in building plans.
- Encourage green hedges to increase visual amenity.

Greening in utilities

- Avoid planting trees or shrubs with penetrating roots within 3m from the center line of any existing or proposed water mains and 3m from the edge of drainage pipes. Clearance distance can be reduced to 1.5m if the size of the water mains affected is below 600mm.
- Avoid planting trees or shrubs within 1.5m around the covers of manholes, and hydrant valves, or within 1m from hydrant outlet.
- Encourage the use of sky-rise greenery, vertical greening and buffer strips to screen off the utility facilities for aesthetics.
- Integrate drainage channels/systems with greenery.

Greening in roads and highways

- Encourage the planting of trees along pavements and road corridors
- Prohibit planting of trees and/or shrubs and other under-story plants that obscure visibility
- Locate planter beds and tree pits away from underground utility services and manholes
- Encourage planting of trees and shrubs after road construction to restore the natural environment
- All uses within all residential and industrial zones adjacent to major roads shall maintain planted tree strips along the roads. The strips shall consist of visual obstructions from the ground to a height of at least 30 feet at maturity; including evergreen trees planted.

Natural Recreational Facilities

These are located near forests, mountains/hills and water bodies

Standards and Guidelines

- Provide a minimum of 12m access roads to the sites
- Provide support amenities like public toilets, parking, waste management, security
- Permitted activities include hiking, jogging, camping, boating, swimming, fishing and biking.

6.8 Land Use Planning and Disaster Risk Management

The manifestation of disasters/risks/hazards on land may be broadly classified under four major categories namely:

- **Environmental:** Floods, drought, landslides, fires, rock falls, earthquakes, tsunamis, heat waves, locust invasions
- **Economic:** political violence, economic recession/inflation, factory/market fires
- **Social:** pandemics/diseases, displacements, resource use conflicts
- **Occurrences on infrastructural facilities and utilities:** accidents, collapse of mines, collapse of buildings, road accidents, fires, oil spillages, technological risks

All disasters occur on land and may lead to loss of life, damage to property and reduction of well-being. Land use planning is the arrangement of activities in space for purposes of efficiency, safety, welfare and sustainability. It is a valuable tool for disaster risk reduction. Disaster risk reduction therefore is a component of the practice of planning and should be mainstreamed. Table 65 shows a summary of disaster risks and how they can be mitigated/ managed.

Table 65: Disaster Risk Management

Disaster Risk	Mitigation
Natural and artificial hazards including earthquakes, storms, volcanic eruptions, and explosions among others	▪ Identify and plan vulnerable, hazard-prone and environmentally sensitive areas. ▪ Encourage periodic risk assessments, monitoring and early warning approaches. ▪ Identify and integrate evacuation sites in plans. ▪ Provide for emergency operation centers within cities ▪ Observe specific zoning restrictions such as setbacks, buffer zones for high-risk areas. ▪ Restrict/limit development in hazard-prone areas. ▪ Integrating developments with disaster-resilient urban design and technology ▪ Provision of acoustic insulation in establishments that produce loud noises
Floods	▪ Preparation of a flood mitigation plans ▪ Provide a system of open spaces within the city or towns to regulate water percolation. ▪ Create artificial floodplains in cities. ▪ Encourage harvesting and reusing stormwater by Installing pipes, reservoirs and other conduits ▪ Encourage use of contemporary drainage technologies such as bio- retention, vegetated swales.
Fires	▪ Provide fire assembly points; with fire hydrants and fire sensors installed at strategic points. ▪ Provide adequate circulation spaces for ease of movement and evacuations ▪ Designate specific smoking zones
Land pollution	▪ Encourage recycling, reusing, and reduction of waste in green spaces ▪ Preparation of a waste management plan
Climate change and degradation of biodiversity features	▪ Provide green spaces and urban forest belts in development plans ▪ Encourage the use of energy-efficient systems and smart waste management systems ▪ Promote NMT through the provision of adequate spaces for NMT facilities ▪ Promote the use of green energy such as solar, biogas, wind ▪ Installation of exhaust air scrubbers to filter the noxious gases ▪ Promote the use of greenbelt for buffer zones

Source: Physical planning team; 2025

7 HUMAN RESOURCE AND OFFICE REQUIREMENTS

7.1 Overview

Human resource and office requirements are key requirements in ensuring that physical and land use planning services are carried out effectively by planning authorities at the national and county levels of government. The chapter provides for the office requirements and human resource requirements for physical and land use planning authorities and firms.

7.2 Office Requirements of a Physical and Land Use Planning Authority

i. Development control unit

Section 20(h) of the Physical and Land Use Planning Act, 2019 provides that the County Director of Physical Planning shall issue development permission and other development control instruments with the approval of the county executive committee member.

ii. Land information system

Section 20(h) mandates the County Director of Physical Planning with the responsibility of maintaining a land information system to guide physical and land use planning.

iii. Funding

Implementation of plans will require appropriate financial resources. A range of funding opportunities exists including National Government Funding Programs, donor funding and public-private partnerships.

iv. Physical Planning Departments

These departments are tasked with the administration and management of physical and land use planning in Kenya.

v. Constant periodic training of staff

Periodic training improves the knowledge and skills of staff therefore enhancing performance.

vi. Electronic Document Management Systems

The digital system seeks to improve service delivery in land administration and management. It facilitates development control by speeding development application processes and providing timely information to decision-makers.

vii. Geographical Information System Laboratory

This will promote the utilization of the Geographical Information System in capturing, storing and displaying spatial data.

viii. Office equipment (computers, stationery, workstations, cabinets)

Office equipment such as computers, stationery, workstations, and cabinets, among others, are vital for increasing the overall functioning speed of an office and its staff members.

7.2.1 Human Resource Requirements of Physical and Land Use Authorities

For the planning authorities at both levels of government to deliver their mandate, the following staffing levels are required, with the recommended planner-to-population ratio being 1: 15,000.

National Physical and Land Use Planning Authority

Human Resource Requirements of a National Physical and Land Use Planning Authority are provided in Table 66

Table 66: Human Resource Requirements

S/Nº.	DESIGNATION
1.	Director General
2.	Director (As per the Divisions)
3.	Deputy Director
4.	Assistant Director
5.	Principal Physical Planner
6.	Senior Physical Planner
7.	Physical Planner
8.	Principal Physical Planning Assistant
9.	Senior Physical Planning Assistant
10.	Physical Planning Assistant

County Physical and Land Use Planning Authority

Table 67 provides the Human Resource Requirements of a County Physical and Land Use Planning Authority.

Table 67: Human Resource Requirements

S/Nº.	DESIGNATION
1.	County Director for Physical and Land Use Planning
2.	Deputy county director of physical and land use planning
3.	Assistant county director in charge of Divisions
4.	Principal Physical Planner
5.	Senior Physical Planners
6.	Physical Planners
7.	Physical Planning Assistants
8.	GIS technicians
9.	Enforcement officers
	Building Inspectors
10.	Development Control officers

NOTE: The aforesaid officers will closely work with technical officers from the County Government departments namely: Architects, Civil and Structural engineers, Enforcement Officers, Public Health Officers, and Environmentalists. The proposed Five (5) Divisions include; Forward Planning, Research & Policy, Development Control, Enforcement and Compliance, Urban Design and Development.

The urban institutions (City, Municipality and Town Committees) will have their planning departments as provided for under the Urban Areas and Cities Act, 2011.

7.2.2 Human Resource and Office Requirements for Physical and Land Use Firms

The Physical and Land Use Planning Act, 2019 introduces the procurement of planning services. For this to actualize planning firms are expected to have the following human resource requirements:

- ❖ Principal Consultant (Registered, Practicing Physical Planner)
- ❖ Physical Planners
- ❖ Assistant Physical Planners
- ❖ GIS Experts
- ❖ Land Surveyors
- ❖ Urban designers
- ❖ Infrastructure Experts
- ❖ Environmentalists
- ❖ Sociologists
- ❖ Accountants
- ❖ Business sourcing team
- ❖ Legal Advisor
- ❖ Support staff (Secretary, messenger, cleaner)
- ❖ Planning Interns

The basic office equipment requirements include;

- ❖ Workstations (desk, chair, computer)
- ❖ File cabinets
- ❖ High-speed internet access
- ❖ Paper shredder, stapler and paper punch
- ❖ Backup drive
- ❖ Laptops and computers
- ❖ Printer or Multipurpose machine
- ❖ Uninterruptible Power Supply (UPS)
- ❖ Telephone and/or VoIP
- ❖ Surge protector
- ❖ Extension cables
- ❖ Relevant computer and GIS software
- ❖ Network Router
- ❖ Adequate storage
- ❖ Survey equipment (RTK, GPS)

REFERENCES

1. Adam Cohen, Susan Shaheen, PhD, and Yolanka Wulff, jd Planning for Advanced Airmobility,
2. Adeniran, A. A. (2020). A management model for human settlements: a case study of Nigeria and South Africa.
3. African Union Commission (2015): Agenda 2063: The Africa we want. Addis Ababa, Ethiopia
4. Ahmadi et al. / OIDA International Journal of Sustainable Development 05: 01 (2012) Reducing Disaster Risk by Managing Land Use, Asian Development Bank
5. Auckland Council Organization: Auckland Transport in Footpath & Walkway Guidelines
6. Bennett, G., & Davies, P. J. (2015). Urban Cemetery Planning and the conflicting role of local and regional interests. NSW 2109, Australia: Macquarte University.
7. BRT Planning Guide, 4th Edition Institute for Transportation and Development Policy
8. BRT standard 2024, Institute for Transportation and Development Policy Africa.itdp.org
9. CBC News. (2017, March 16). Hamilton's LRT in 21 pictures: How the engineers imagine it will look.
10. Communications Commission of Kenya (2007): Draft guidelines for siting of communications infrastructure, towers (masts) and safe of mobile telephones and other wireless terminals, Nairobi
11. Communications Commission of Kenya (2012): Guidelines for supply installation and maintenance of internal communication infrastructure, Nairobi
12. Communications Commission of Kenya (2012): Guidelines for supply installation and maintenance of external communication infrastructure, Nairobi
13. Conservation Practice Standard Groundwater Recharge Basin or Trench (Code 815). (n.d.). eFOTG.
14. Department of Human Settlement Ministry of Works and Human Settlement: Spatial Planning Standards for Bhutan, June 2017
15. Department for Communities and Local Government, London: Gold, 1973; Hill and Alterman, 1977; Churchman et al., 1990; Feitelson, 1995; Chiesura, 2004
16. Dr. Ryan, 2009: Guidelines for the closure of non-containment municipal solid waste landfill sites, Department of Environment and Conservation, Newfoundland & Labrador, Canada
17. Encyclopædia Britannica, Inc. (2024) The Britannica Dictionary
18. Eurobodalla Shire Council (2011) Neighbourhood Centres, Development control plan: www.esc.nsw.gov.au
19. Factors Affecting Site Selection for Waste Water Treatment Systems, 2017
20. Food and Agriculture Organization (2007): Climate Smart Agriculture, Rome
21. Government of Ghana (2011), Manual for the Preparation of Spatial Plans, Accra, Ministry of Environment, Science and Technology, Town and Country Department
22. Government of India, Ministry of Urban Development (2015): Urban and Regional Development Plans Formulation and Implementation (URDPFI) Guidelines
23. Government of Kenya (1978), Human Settlements in Kenya: A Strategy for Urban and Rural Development, Nairobi: Colour Print Ltd
24. Government of Kenya (2002): Water Act, Nairobi, Government Printer
25. Government of Kenya (2007): Kenya Roads Act, Nairobi, Government Printer
26. Government of Kenya (2008): Physical Planning Handbook, unpublished
27. Government of Kenya (2008): The Sessional Paper No.2 on National Livestock Policy, Nairobi, Government Printer
28. Government of Kenya (2009): Agriculture Sector Development Strategy 2010-2020, Nairobi, Government Printer

29. Government of Kenya (2009): Integrated National Transport Policy; Moving a Working Nation, Nairobi, Government Printer
30. Government of Kenya (2009): Kenya National Adaptation Plan 2015-2030, Nairobi, Government Printer
31. Government of Kenya (2009): National Policy for Disaster Management in Kenya, Nairobi, Government Printer
32. Government of Kenya (2009): The Sessional Paper No.3 on the National Land Policy, Nairobi, Government Printer
33. Government of Kenya (2009): Urban Development Policy, Nairobi, Government Printer
34. Government of Kenya (2010): Constitution of Kenya, Nairobi, Government Printer
35. Government of Kenya (2010): Constitution of Kenya, Nairobi, Government Printer
36. Government of Kenya (2010): National Climate Change Response Strategy, Nairobi, Government Printer
37. Government of Kenya (2011): Integrated National Land Use Planning Guidelines; For Sustained Societal Attributes-Infrastructure, Environmental Resources and Public Safety, Nairobi, Government Printer
38. Government of Kenya (2012): County Government Act, Nairobi, Government Printer
39. Government of Kenya (2012): National Land Commission Act, Nairobi, Government Printer
40. Government of Kenya (2013): National Environment Policy, Nairobi, Government Printer
41. Government of Kenya (2014): Forest Policy, Nairobi, Government Printer
42. Government of Kenya (2015): National Spatial Plan 2015-2045, Nairobi, Government printers
43. Government of Kenya (2016): Land Act (Amendment), Nairobi, Government Printer
44. Government of Kenya (2017): The Sessional Paper No.1 on the National Land Use Policy, Nairobi, Government Printer
45. Government of Kenya (2018): County Spatial Planning Guidelines; Towards Sustainable Development and County Effectiveness, Nairobi, Government Printer
46. Government of Kenya (2019): Physical and Land Use Planning Act, Nairobi, Government Printer
47. Government of Kenya (2019): Urban Areas and Cities (Amendment) Act, Nairobi, Government Printer
48. Government of Kenya (2020): Sectional Properties Act, Nairobi, Government Printer
49. Government of Kenya (2021): The Disaster Risk Management Bill, unpublished
50. Government of Kenya, (2010): Ministry of Finance and Vision 2030, Kenya Vision 2030, Nairobi, Government Printer
51. Government of Kenya, Ministry of Transport (2010): Integrated National Transport Policy; Moving a Working Nation, Nairobi, Government Printer
52. Government of Kenya: The Big Four Agenda.
53. Government of Kenya. (2024). Draft Physical Planning Handbook (5th ed.) Ministry of Lands, Public Works, Housing and Urban Development
54. Government of Kenya. (2013). Sessional paper No. 21. Civil Aviation (Aerodrome) Act.
55. GoK. (2018). The Civil Aviation Act; Legal Notice no. 97. Nairobi: GoK.
56. Hart District Council (1991): Illuminated Advertisements Supplementary Planning Guidance, Hampshire
57. Global Delivery Initiative. (2021, June). Delivery note: Ethiopia light rail. Global Delivery Initiative
58. Hong Kong Planning Standards and Guidelines on Recreation, open space and greening, State of Victoria, Department of Transport, Planning and Local Infrastructure: Spring Street, Melbourne 3000, July 2013
59. https://www.kenha.co.ke/index.php?option=com_content&view=article&id=37
60. <https://world-nuclear.org/information-library/nuclear-fuel-cycle/nuclear-wastes/radioactive-waste-management.aspx>

61. <https://www.igi-global.com/dictionary/waste-management-east-african-community/8956>)
62. <https://www.igi-global.com/dictionary/waste-management-east-african-community/8956>)
63. <https://www.usa-shade.com/blog/water-treatment-facility-design-guide>.
64. Institute of Lighting Professionals (2014): The Brightness of Illuminated Advertisements, United Kingdom
65. (ITDP), I. f. (2017). The BRT Standard 2016. ITDP.
66. Institute of Transportation Engineers (2016): Transportation Planning Handbook, United States of America
67. International Civil Aviation Organization (2002): Airport Planning Manual. Part 2. Land Use and Environmental Control
68. IPCC, (2012): Summary for Policymakers in Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation. A Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change. Cambridge University Press, Cambridge, UK, and New York, NY, USA
69. ITDP India. (2013). Footpath Design: A Guide to Creating Footpaths that are Safe, Comfortable and Easy to Use
70. John, G., Sheard, R., & Vickery, B. (2007). Stadia: A design and development guide. Jordan Hill, Oxford: Architectural Press.
71. Johnny (2013) Estimation of Natural Ground Water Recharge-<https://civildigital.com/estimation-of-natural-ground-water-recharge/>
72. Junaid Ahmad (2010) Criteria for Nuclear Power Plant Site Selection, Atomic Minerals Directorate for Exploration & Research, Hyderabad
73. J. Kusek & R. Ris (2004): A Handbook for Development Practitioners, Ten Steps for A result-based Monitoring and Evaluation System, Washington DC
74. Kenya Alliance of Resident Associations (2020): Urban Streets and Road Design Manual for Non-Motorized Transport, Nairobi, Kenya
75. Kenya Water Resources Authority. "About Us." Accessed August 16, 2024.
76. Kenya Nuclear Regulatory Authority; Draft Regulations: <http://knra.co.ke/nra-draft-regulations-jan-2022>
77. Kern, L. (2007). Reshaping the boundaries of public and private life: Gender, condominium development, and the neo-liberalization of urban living. Urban Geography, 28(7), 657-681.
78. Ministry of Agriculture (2006): Farm Management Handbook of Kenya, Government Printers, Nairobi
79. Ministry of Agriculture, Livestock, fisheries and Cooperatives (2021): Aquaculture Handbook; A practical guide to aquaculture value chain in Kenya, Nairobi
80. Ministry of Education (2008): Safety Standards Manual for Schools in Kenya; Schools as Safe Zones, Nairobi
81. Ministry of Agriculture (2018) - Water Harvesting in Practice: Towards Building Resilient Livelihoods in Semi-Arid Zones
82. Ministry of Roads and Transport. (August, 2023). Kenya Road Design Manual (Vol. Volume 1 – Geometric Design).
83. Ministry of Water and Sanitation. (2021). The Water Resource Regulations. The Republic of Kenya.
84. Mofokeng, M. (2020). From housing to sustainable human settlements: a case study of Buffalo City Metropolitan Municipality (Doctoral dissertation, Nelson Mandela Metropolitan University).
85. Mucemi Gacheru (2018): Overview of Railway City

86. National Land Commission. (2018). Urban Land Use Planning: Monitoring and Oversight Guidelines [E-book]
87. National Institute of Urban Affairs. (n.d.). Modern trams. SmartNet. <https://smartnet.niua.org/sites/default/files/resources/Modern%20Trams.pdf>
88. National Environmental and Management Authority. (2011). Integrated National Land Use Guidelines.
89. Planning Policy Guidance 17: Planning for open space, sport and recreation: https://www.ealing.gov.uk/download/downloads/id/4029/nat19ppg17_planning_for_open_space_sport_and_recreation_2002.pdf
90. Railway Engineering Manual, Vol I, 1962.
91. Republic of Ghana, Ministry of Environment Science and Technology. Town and Country Planning Department Zoning Guidelines and Planning Standards. November, 2011.
92. Republic of Kenya (2016): Lamu Port-South Sudan-Ethiopian-Transport (LAPSSET) Project Available in <https://www.lapsset.go.ke/>
93. Republic of Kenya (2017): The Nairobi City County Outdoor Advertising and signage control and regulation bill
94. Republic of Kenya (2018): Bungoma Local Urban Development Plan
95. Republic of Kenya (2008), Draft Physical Planning Hand book (unpublished)
96. Republic of Kenya (2019) Energy Act, Government Printers, Nairobi
97. Republic of Kenya (2009): Merchant Shipping Act, Government printers, Nairobi
98. Republic of Kenya (2014): Merchant shipping (Cooperation with search and rescue services) Regulations, Government Printers, Nairobi
99. Republic of Kenya. (2018). Military Land Use Policy. Nairobi, Kenya: Government Printer
100. Republic of Kenya (1984): Petroleum (Exploration and Production Act), Government Printers, Nairobi
101. Republic of Kenya (2015), National Spatial Plan, 2015-2045, Government printers, Nairobi
102. Republic of Kenya (2019) Physical and land use Planning Act, Government Printers, Nairobi
103. Republic of Kenya (2021). Registration Guidelines for Basic Education Institutions
104. Republic of Kenya(2006). Norms and Standards for Health Service
105. Republic of Phillipines. (1999). Implementing Rules and regulations to govern in processing of applications for locational clearance of funeral establishments. Phillipines: Housing and land use regulatory board
106. Republic of Rwanda Rwanda National Land Use Planning Guidelines, 2017
107. Republic of South Africa (2017): National Framework for Marine Spatial Planning in South Africa
108. Republic of Uganda, Ministry of Lands, Housing and Urban Development. National Physical Planning Standards and Guidelines, 2011
109. Road Safety Design Guidelines for Bus Rapid Transit in Indian Cities with consideration for local accessibility and traffic capacity Draft version – October 2012
110. Rochford District Council (2010): Parking Standards Design and Good Practice
111. Rosen, G., & Walks, A. (2013). Rising cities: Condominium development and the private transformation of the metropolis. *Geoforum*, 49, 160-172.
112. Roy, S., & Maji, A. (2019). Optimization of high-speed railway station location selection based on accessibility and environmental impact
113. Rwanda Water Resource Board Strategic Plan (2021-2030)
114. S.Logeswaran (2014): Design Standards for Planning a Bus Terminus, Kalasalingam University, Krishnankil, Virudhunagar-626126

115. Somaliland Project Report No L-13 (2009), Land Use Planning Guidelines
116. Station and Support Facility Design Guidelines; User Guide a Supplement to the Regional Transit way Guidelines metropolitan council available in <https://metro council.org/Transportation/Publications-And-Guidelines/Station-and-Support-Facility-Design-Guidelines-Use.aspx>
117. Strategic Environmental and Social Assessment Report (SESA) for the Kenya's Nuclear Power Programme, 2023
118. Sturt, R., Lynch, P., Burns, R., Clark, S., Horton, B., Derkowski, P., ... & Wilson, N. (2022). Aerodynamic Assessment and Mitigation–Design Considerations for High-Speed Rail (No. DOT/FRA/ORD-22/28). United States. Department of Transportation. Federal Railroad Administration.
119. Szabó, D. (2016). The Criteria of Site Selection for Farmers' Markets. *Deturope*, 8, 3: 185-201
120. Telecommunications Planning Guidelines, Jamaica
121. The City of Houston. (2012, April 11). The City of Houston code of ordinances.
122. UK Parliament (2024) Planning for Solar Farms, House of Commons Briefing
123. United Nations (2015): Sustainable Development Goals
124. United Nations (2020): The New Urban Agenda, Nairobi, Kenya
125. United Nations: Sendai Framework for Disaster Risk Reduction (2015-2030), Tokyo, Japan
126. United Nations Industrial Development Organization (UNIDO) (2019) International Guidelines for Industrial Parks
127. United Nations (2016): Report of the open-ended intergovernmental expert working group on indicators and terminology relating to disaster risk reduction
128. USA (2004): Transmission Pipelines and Land Use. A Risk-Informed Approach, Transportation Research Board of the National Academies, Special Report
129. United States Environmental Protection Agency: www.epa.gov
130. User, S. (2017, November 13). How are Roads Categorized? Kenya Rural Roads Authority.
131. User, S. (2021): Kenya National Highways Authority.
132. Victoria Transport Policy Institute 2018: Non-Motorized Transportation Planning, identifying Ways to Improve Pedestrian and Bicycle Transport
133. Water Harvesting in Practice: Towards Building Resilient Livelihoods in Semi-Arid Zones Field Practitioners Guide No. 2; Off-stream watering points for cattle: Protecting riparian ecosystems and improving water quality
134. Qasim, S. R. (2017). Wastewater treatment plants: planning, design, and operation. Routledge.
135. IMO Resolution A. 1069(28), International Maritime Organization Guidelines, Guidelines for Port Planning
136. Safety of Life at Sea (SOLAS) Convention
137. Catalina F. S, Charles Ehlaea; Marine Spatial Planning; https://www.researchgate.net/profile/charles-ehler/publication/327755634_marine_spatial_planning

APPENDIX

Components of Blue Economy

Category	Subcategory	Related Industries/Sector
Harvesting and trade of marine living resources:	Seafood harvesting	Primary fish production
		Secondary fisheries and related industries (e.g., processing, net and gear making, ice production and supply, boat construction and maintenance, manufacturing of fish-processing equipment, packaging, marketing and distribution)
		Trade of seafood products
		Trade of non-edible seafood products
		Aquaculture
	Usage of marine living resources for pharmaceuticals and chemicals	Marine biotechnology and bioprospecting
	Harvesting of marine flora for none food purposes	Use for construction materials e.g. fencing
Extraction and use of marine non-living resources	Extraction of minerals	Seabed mining and shoreline sand harvesting
	Extraction of energy sources	Oil and gas
	Freshwater generation	Desalination
Use of renewable non-exhaustible natural forces	Generation of offshore renewable energy	Renewables including: Offshore, wind, tidal, wave and ocean thermal energy conversion
Commerce around the oceans	Transport and trade	Shipping and ship building, maritime transport, ports and related services
	Coastal development	Coastal urbanization
	Tourism and recreation	Seaside leisure tourism, dive tourism, maritime archaeology, surfing, cruises, ecotourism, recreational fishing operations, marine parks, historical and cultural sites
Ecosystem services and resilience	Blue Carbon	Carbon sinking through mangrove forests
	Coastal Protection	Restoration of the coastal belt
	Biodiversity	Protection of marine species and their habitats through Marine Protected Areas (MPAs).

Source: Physical planning team; 2025

