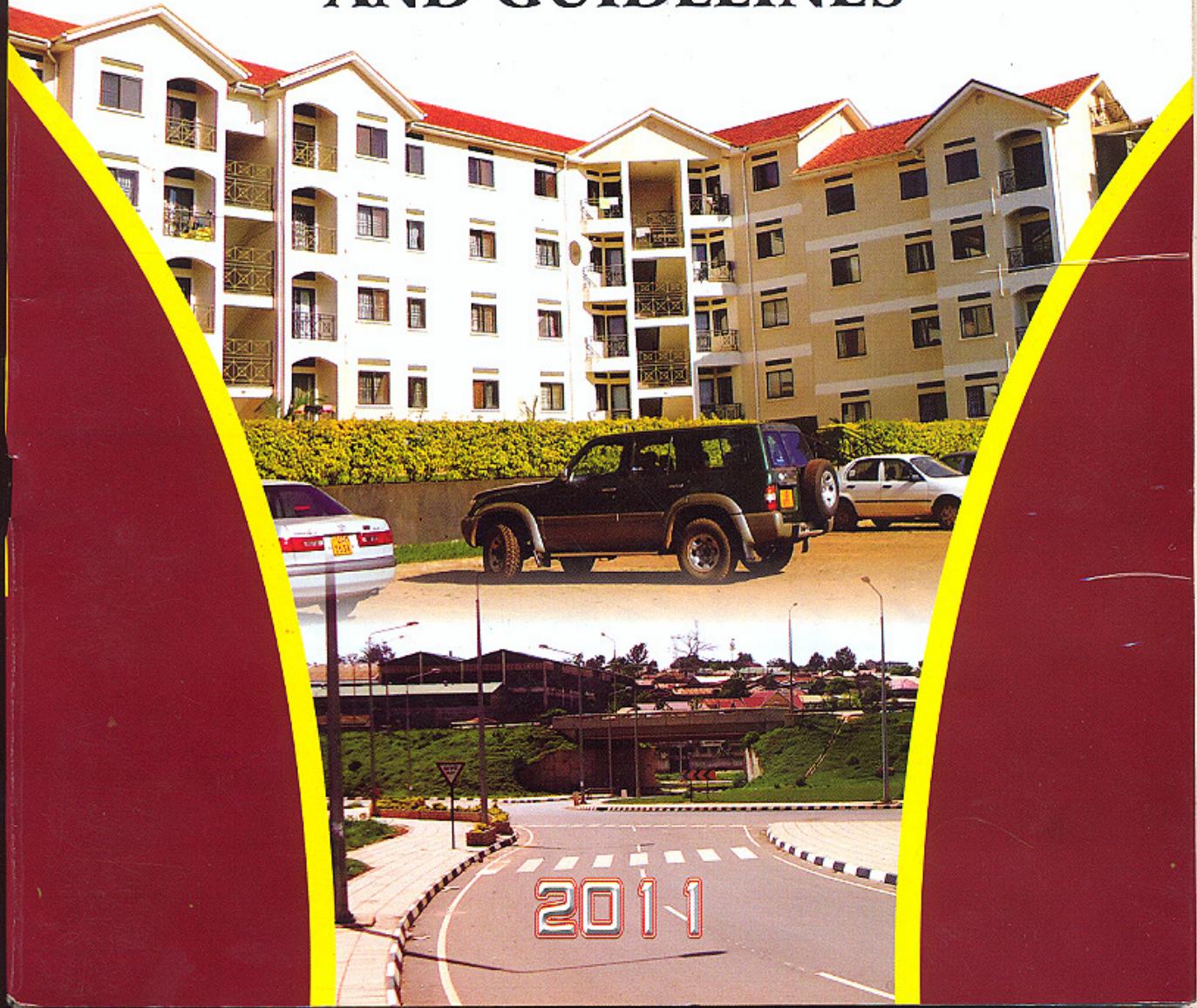




THE REPUBLIC OF UGANDA

MINISTRY OF LANDS, HOUSING AND URBAN DEVELOPMENT

**NATIONAL PHYSICAL
PLANNING STANDARDS
AND GUIDELINES**





MINISTRY OF LANDS, HOUSING AND URBAN DEVELOPMENT

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2011

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LIST OF ABBREVIATIONS/ACRONYMS USED

BRL	Building Restriction Line
CPP	Commissioner for Physical Planning
FFS	Fuel Filling Stations
GR	Growth Rate
KIBP	Kampala Industrial Business Park
LPG	Liquefied Petroleum Gas
MLHUD	Ministry of Lands, Housing and Urban Development
NEMA	National Environmental Management Authority
NPDP	National Physical Development Plan
NPPB	National Physical Planning Board
PPD	Physical Planning Department
UIA	Uganda Investment Authority
UNRA	Uganda National Roads Authority

FOREWORD

Uganda has undergone fast socio-economic transformation since the eighties. This, however, has come with socioeconomic, physical and environmental challenges that require concerted efforts at regulating land use and development in general to achieve sustainable development. Whereas the policy and law relating to land use and physical planning respectively have been reviewed and new ones are now operational (the National Land Use Policy and the Physical Planning Act, 2010), there is still need for standards and guidelines on the management of the physical planning and development process.

The Physical Planning Guidelines and Standards in this document are therefore intended to guide the preparation and implementation of physical development plans, with the basic aim of ensuring orderly, coordinated and efficient development.

Uganda has hitherto lacked a coherent set of Physical Planning guidelines and Standards, which has significantly contributed to the current disorderly and uncoordinated physical development in various parts of the country, particularly in urban areas. Such development is costly to the national economy, unsightly, unsustainable, and therefore undesirable. It is characterized by conflicts in the use of land arising from incompatibility of land uses or development activities that are normally located in close proximity.

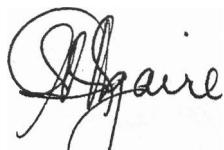
The Ministry has thus found it necessary to consolidate existing standards relating to social, economic and physical infrastructure provision from various sectors into one document for ease of implementation and enforcement. And although guidelines have been developed for the implementation of the Physical Planning Act 2010, this document and handbook also includes guidelines on specific development processes and application of the standards.

It will be noted that circumstances in the country have changed tremendously over the years. It is therefore imperative that Planning Standards too are revised to reflect the current realities. For example, while it was fashionable, acceptable and practical to design huge residential plots of more than an acre in the high income residential neighborhoods of our old towns, today this would be viewed as absolutely uneconomical, unrealistic and grossly extravagant. Such plots are only feasible in high income suburban neighborhoods where the use of high value land ought to be carefully rationalized.

The process of developing the Standards & Guidelines involved comparative studies of other countries with conditions similar to Uganda, including East African countries as well as emerging economies of Asia and South Africa. The Ministry was assisted by a consultant in this task.

I am confident that these standards and guidelines will go a long way to ease the work of all institutions and practitioners in the country involved in physical planning and plan implementation. I therefore appeal to all authorities, planners, architects, surveyors, engineers, valuers, individual developers and other stake holders concerned to co-operate in the implementation process.

Finally, I would like to express our sincere gratitude as a Ministry and in particular the Directorate of Physical Planning and Urban Development to all institutions and individuals who contributed in one way or another to the successful formulation of these Physical Planning Standards and Guidelines.



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DEFINITION OF TERMS USED

Term	Definition
Aerodrome	A defined area on land or water (including any buildings, installations and equipments) used or intended to be used, either wholly or in part, for the arrival, departure and surface movement of aircrafts.
Agriculture	All farming activities including cultivation, agro-forestry, bee keeping, livestock management and aquaculture
Airfield	Area prepared for the accommodation (including any buildings, installations, and equipment), of landing and takeoff of aircraft
Apron	A defined area, on an airfield, intended to accommodate aircraft for the purposes of loading or unloading passengers or cargo, refuelling, parking or maintenance
Aviation Facility	Combination of land, airspace, pavements and buildings which are needed to support an aviation movement or action. An aviation facility can be an airfield, heliport, or helipad. The aviation facility includes “airside” and “landside” facilities.
Beach	An accumulation of sand or gravel found at the land ward margin of a lake; the lower limits approximating to the position of the highest and lowest tidal water levels.
Beneficial Use	a use of the environment or any element or segment of the environment that is conducive to public health, welfare or safety and which requires protection from the effects of wastes, discharges, emissions and deposits
Building	Any structure, whether temporary or permanent, having a roof and intended for the shelter, housing, or enclosure of persons, animals or materials.
Building Coverage	The land area covered by all buildings and structures on a plot, expressed as a percentage of the plot area.
Building Height	The vertical distance from the average finished ground level of the exterior walls of the building or structure to the highest point of dome, flat or mansard roofs or to the mean level between the ridge and the eaves for gable, hip, gambrel, salt box, shed or A-frame roofs.
Building Line	a line drawn across a plot such that no building or permanent structure, except a boundary wall or fence of approved design enclosing the plot, may be within the area contained between that line and the regular line of the street on which the plot has frontage;
Building Restriction (BRL) Line	a line which identifies suitable building area locations on airports
Central Reserve	Forest an area declared to be a central forest reserve under section 6 of the National Forestry and Tree Planting Act, August 2003
Community	an assemblage of human beings living in a defined geographical area and identified by common history, common culture or common residence in an area
Conservation	Looking after and managing a resource so that the resource maintains its ability to fulfil its functions and provide goods and services for present and future generation

Term	Definition
Corner plot	A plot abutting on, and at the intersection of, two or more streets
Development	Any construction, placement of material, erection of any nature grading to improved or unimproved site
Domestic Waste	Waste generated from residences
Drainage of Wetlands	The removal or exclusion of water from a wetland by pumping, excavation of channels, planting in a wetland fast growing non wetland trees or plants, abstraction of water from a river entering a wetland, channelling, reclamation and drainage itself
Dwelling	A building or portion thereof which is designed or used as living quarters for one family and which contains equipment and related facilities for living, sleeping, cooking, and eating and with facilities for sanitation.
Effluent	waste water or other fluid of domestic agricultural trade or industrial origin, treated or untreated and discharged directly or indirectly into the aquatic environment
Environment	the physical factors of the surroundings of human beings, including land, water, atmosphere, climate, sound, odour, taste, the biological factors of animals and plants and the social factor of aesthetics and includes both the natural and the built environment
Environmental Impact Assessment	a systematic examination conducted to determine whether or not a project will have any adverse impact on the environment
Forest	an area of land containing a vegetation association that is predominantly composed of trees of any size, and includes (a) a forest classified under this Act; (b) a natural forest, woodland or plantation; (c) the forest produce in a forest; and (d) the forest ecosystem;
Forest Reserve	an area declared to be a central or local forest reserve under the National Forestry and Tree Planting Act, August 2003
Frontage	The required length of the front plotline measured at the street right-of-way line. Where the front plotline is an arc, required frontage may be measured along the required front yard setback line.
Floor Area Ratio	Area covered by the development.
Hazardous Substance	any chemical, waste, gas, medicine, drug, plant, animal or micro-organism which is injurious to human health or the environment
Hazardous Waste	any waste which has been determined by the authority to be a hazardous waste or to belong to any other category of waste provided for in section 53 of The National Environmental Management Act CAP 153
Heliport	A defines area on a structure intended to be used wholly or in part for the arrival, departure and surface movement of helicopters
Hilly Area	An area with a natural elevation of land of local area and well defined outline higher than a rise and lower than a mountain
Kilometre	A metric measurement of length. 1 kilometre equals 0.62 Miles and 1,000 metres
Lake	A body of fresh or salt water of considerable size, completely surrounded by land, or a natural body or pool of water
Lake Shore	The land not more than 100 metres adjacent to or bordering a lake

Term	Definition
Landscape	The surface of the earth and the land forms of a region in the aggregate as produced or modified by geological force and man
Soft Landscaping	The enhancement of the appearance of land, especially around buildings, by altering its contours and planting trees, shrubs, and flowers
Local Community	Households and persons living in a defined geographical area and identified by common history, common culture or common residence, and may include all the residents of a village in a particular area
Local Government	a local council established under section 4(2), (3), (4) and (5) of the Local Governments Act, Cap 243
Medium Slope	Land having a slope of between 3% and 15%
Meter	A metric measurement of length. 1 meter equals to 1.09 yards or 100 centimetres.
Mountainous Area	an area with a steep elevation with a restricted summit area projecting 1,000 feet or more above the surrounding land
NEMA	the Authority established by the National Environment Act, CAP 153
Natural Resource	Refers to land, air, water vegetation, fish, wildlife, rivers and streams, wilderness, natural beauty, scenery and open space
Noise	Any undesirable sound that is intrinsically objectionable or that can cause adverse effects on human health or the environment
Permanent Materials	Refers to durable wall and roof materials that can maintain stability for more than 3 years. They don't require regular replacement.
Plot	A Piece or parcel of land occupied or capable of being occupied by one principal building and any structures or uses accessory thereto, including such yards as are required by these Regulations.
Plot access	entry or approach to the plot
Plot coverage	Area of the plot that is covered by a development.
Plot size	the dimensions or extent, of a piece of land in terms of how large or small it is
Pollution	any direct or indirect alteration of the physical, thermal, chemical, biological or radioactive properties of any part of the environment by discharging, emitting or depositing wastes so as to affect any beneficial use adversely, to cause a condition which is hazardous or potentially hazardous to public health, safety or we! Fare, or to animals, birds, wildlife, fish or aquatic life, or to plants or to cause a contravention of any condition, limitation or restriction which is subject to a licence under this Act
River	a body of natural surface stream of water of considerable volume permanently or seasonally flowing in a defined channel
River Bank	the rising ground, not more than 100 m long, bordering or adjacent to a river in the form of rock, mud gravel or sand and in cases of flood plains includes the point where the water surface touches the land, that land not being the bed of the river;
Road reserve	Area on either side of the road set aside for future expansion
Runway	A defined rectangular area prepared for the landing and take-off of aircrafts.
Setbacks	Rear distance from a plot boundary to a proposed development

Term	Definition
Soil	earth, sand, rock, shale's, minerals, vegetation, and the soil flora and fauna in the soil and derivatives thereof such as dust
Soil Erosion	a general process whereby soil particles are worn away or removed by natural agencies, including weathering, solution, corrosion and transportation
Steep Slope	having a slope of 15 % and above
Street	Any right of way which is used and maintained for public travel and which is either a public street or a proposed public street as shown on a plan duly approved by the relevant planning authority in accordance with the Town and Country Planning Act.
Structure	Anything constructed, erected, or assembled that requires a location on or within the ground, or attachment to something having a location on the ground and has any dimensions.
Sustainable Development	Development that meets the needs of the present generation without compromising the rights of future generations
Sustainable Use	present use which does not compromise the right to use the same resource by future generations
Sustainable Utilisation	the practice of human utilisation which ensures the greatest benefit to present generations while maintaining its potential to meet the needs and aspirations of future generations
Temporary structure	Dwelling units built with non-durable wall and roof materials that cannot maintain stability for more than 3 years. They require regular replacement. All housing units thatched with untreated natural fibres are classified as temporary irrespective of wall and floor materials.
Trade	Any trade, business or undertaking whether originally carried on at fixed premises or at varying places which results in the discharge of waste and includes any activity prescribed to be a trade, business or similar undertakings
Tree belt	Stretch along roads planted with trees
Visibility splay	Open stretches along road junctions
Waste	any matter prescribed to be waste and any matter, whether liquid, solid, gaseous or radioactive, which is discharged, emitted or deposited in the environment in such volume, composition or manner as to cause an alteration of the environment
Water	drinking water, river, stream, watercourse, reservoir, well, dam, canal, channel, lake, swamp, open drain or underground water
Wetland	Area permanently or seasonally flooded by water where plants and animals have become adapted; and include swamps, mambos, areas of march, peatland, mountain bogs, banks of rivers, vegetation, areas of impeded drainage, or blackish salt
Wise Use	sustainable use of wetlands, mountainous and hilly areas in away compatible with the maintenance of the natural properties of the ecosystem

CHAPTER 1: INTRODUCTION AND BACKGROUND

1.1 INTRODUCTION

Physical Planning refers to the active process of organizing the structure and function of places to ensure an orderly and effective development process. It is the deliberate determination of spatial patterns with an aim to achieving the optimum level of land utilization while maintaining a high degree of aesthetic quality (beauty of places) in a sustainable way.

All spatial development activities, including industrial development, social and physical infrastructure, agriculture, conservation, and housing, are rooted on land. These activities often have different, sometimes competing demands. It is therefore imperative that an overall framework that manages these development activities is in place. Physical Planning provides this much needed framework.

1.2 Purpose of the National Physical Planning Standards Handbook

The National Physical Planning Standards (NPPS) is a Government manual of criteria for determining the scale, location and site requirements of various land uses and facilities. The planning standards affect the allocation of scarce land and financial resources. They should therefore, be applied with a degree of flexibility. Trade-offs may be necessary so that the community at large could benefit most from the development.

The NPPS is applicable in four aspects:

- a) **Forward Planning** - it provides an equitable basis for allocating scarce land resources and locational guidelines for various types of land uses and facilities.
- b) **Development Control** - it provides guidance on the scale, intensity and site requirements of developments as well as the supporting facilities required.
- c) **Plan Implementation** - it provides a yardstick to measure the sufficiency of land for various uses and adequacy of facilities to serve a planning area.
- d) **Raising Quality of Life** - it provides guidelines on environmental planning and conservation of our natural landscape, habitats, cultural heritage and townscape.

Planning standards or guidelines for territorial or unique uses and facilities, such as airports, museums, universities etc need specialised requirements which can be local or international.

Attention has been given to the consensus of the various stakeholders involved in approving, monitoring and enforcing development control.

1.3. AIMS AND OBJECTIVES OF PHYSICAL PLANNING

The overall aim of Physical Planning is to achieve orderly, coordinated, efficient and environmentally sound social and economic development, and to secure the proper use of land.

1.3.1. The broad objectives of physical planning are:

- (a) Equitable and balanced spatial distribution of development.
- (b) Orderly, efficient and coordinated spatial socio-economic development.
- (c) To facilitate equitable distribution of services.
- (d) Integration of the functions of rural and urban settlements; and
- (e) The optimum use of land for agriculture, forestry, industry, human settlements, infrastructure and other competing land uses.

1.3.2. The Major strategic measures related to these objectives are the preparation and implementation of:

- (a) National physical development plans;
- (b) Regional Physical development plan;
- (c) District physical development plans;
- (d) Local physical development plans; and
- (e) Other actions directed towards facilitating physical development and controlling land use.

1.4. TYPES OF PHYSICAL DEVELOPMENT PLANS

1.4.1. National Physical Development Plan

A National Physical Development Plan deals with spatial aspects of a nation's social and economic development and consists of such background studies, reports, plans, maps and other material containing information, the purpose of which is:

- a) To provide a framework for the co-ordination and implementation of programmes and projects of national development nature.
- b) To assist with the development of an ordered hierarchy of urban and rural centres so as to contribute to a balanced pattern of development and optimal use of resources and facilities.
- c) To provide guidelines for the development of services and facilities to desirable feasible standards; and
- d) To provide guidelines for the preparation of regional, district, urban & special area physical development plans.

CHAPTER 2: RESIDENTIAL STANDARDS

The standards set out below refer to all types of residential developments categorised as below:

- (a) Low density - detached
- (b) Medium density - detached, terraced, or multi - storey flats
- (c) High density semi - detached
- (d) High density - detached

2.1 STATUTORY CONTROL

All residential developments are subject to physical planning regulations. In urban areas, the local authority should have building by - laws which govern the design and construction of permanent buildings.

2.2 PLOT SIZE AND SHAPE

The permissible ranges of plot sizes are given in table 1 and illustrated in figure 1.1. The minimum plot size should be taken as a guideline for designing residential layouts to make best use of urban land and infrastructure. There are no recommended plot sizes for housing estates. Proposals for these housing types will be assessed on their individual merits.

In order to minimize infrastructure costs per plot, all plots **should be rectangular** in shape with the frontage shorter than the depth of the plot. In certain circumstances, the depth should be about twice the frontage width.

2.3 BUILDING LINES

Buildings must be set back from plot boundaries for reasons of privacy, amenity, health and safety. The walls of the building must be on or behind the specified building lines detailed in table 1 subject to all other standards being met.

In high density areas, one of the side building lines of the plot may be reduced to 1 m, provided there are no main windows on that side. The plot is then 1 m + house width +3 m and the houses will be 4 m apart. This arrangement will only be acceptable where all the houses in the street are to be built by one developer.

2.4 PLOT COVERAGE

This refers to maximum percentage (%) that a building or buildings on a residential plot may cover. The permitted plot coverage in residential areas varies according to the residential zones as indicated in table 1.

2.5 PLOT ACCESS

Every plot must have direct vehicular access to a road. Section 28 of the Public Health (Buildings) Rules SI No. 281 states that “A building shall not be erected on any plot which has no proper and sufficient access to a road or road reserve, such road or road reserve not being a sanitary lane or passage”. Permission for house development will not normally be granted until the access road has been provided. In low and medium density residential developments, a private driveway leading to the house should be 3 m wide. There should be sufficient turning space at the end of the drive to enable cars turn and leave the plot in forward gear. The corner radii at the junction of the driveway and the access road should be 3 m. **Where the driveway crosses a storm water drain it is necessary to construct a culvert to the satisfaction of the road authority.**

Plot accesses for corner plots should be at the extreme end of the plot away from the corner. Where there are sharp corners, plots should be accessed through a smaller connector road.

2.6 DESIGN/MATERIALS

- (a) All residential developments must be built of permanent materials or any other materials whose performance has been approved by the relevant authority
- (b) All roofs must be permanent and preferably non - reflective. In low and medium density areas high quality roofing materials are recommended, though this standard may be relaxed in smaller urban centres.

Residential Plot Layout and Building Design

The design for residential developments also takes into account the following:

- (a) Orientation of the house should be carefully considered in relation to the sun and prevailing winds. Living rooms and canopies should preferably face the main garden. Windows of living rooms must not over look neighbouring houses or gardens.
- (b) The plot layouts should respect the physical configuration of the site, and placement of houses should generally follow natural contours.
- (c) Two or more storey developments are acceptable but care must be taken with siting, orientation and design to protect the privacy of people in adjoining plots.
- (d) Service areas of houses, e.g. dustbins, wood and other storage areas, drying areas, etc., should be screened from public view. This can be achieved by planting hedges or walls.

- (e) Any detached developments such as servant quarters and guesthouses must be positioned and designed to ensure privacy to the occupants of the main house and the quarters. Windows of servant's quarters must not face onto adjoining plots.
- (f) All future extensions to the existing developments must match in terms of design, materials and external finish.

2.7 CAR PARKING

A car parking area must be provided on low and medium density residential plots. The surfaces of such parking areas must be adequately drained to the nearby drainage channel or soak-away pit or as advised by the relevant local authorities. On low density plots there must be minimum parking space for two cars while on medium density plots, one car parking space is sufficient. It is not essential to have car parking space on high density residential plots but where possible, public car parks within the neighbourhood should be provided.

2.8 ACCESS TO UTILITIES

2.8.1. Water.

All residential plots must be served by piped water supply, or any other suitable supply, to the approval of the appropriate water authority.

2.8.2. Surface Water Drainage

Surface water run-off from buildings and hard surfaces must drain into the nearby drainage channel or soak - away pit to the approval of the local authority.

2.8.3. Sanitation

In urban areas all permanent developments must have water-borne toilet facilities drained to a septic tank and soak pit within the plot, connected to a sewage lagoon or connected to a central sewer line system, to the approval of the local authority. Septic tanks must be positioned so that they are accessible for emptying by a cesspool emptier. Details of sewerage lagoons are provided in Appendix 1.

2.8.4. Solid Waste Disposal

Any refuse must be stored in proper containers for collection.

2.8.5. Power Supply

Permitted sources of power in urban areas include electricity from the national grid, solar, generators and wind. Electricity will be supplied to all permanent developments in urban areas by the approved entity. Generators, solar and wind systems will be permitted in residences subject to conditions set by the local planning authority and in consultation with the responsible electricity regulatory body or its authorised agent.

2.9 BOUNDARY FENCING

Plots may be enclosed by hedges, wire fences and perimeter walls. The following restrictions apply:

- (a) Where a metal grill is to be used, fences or solid walls must not exceed 1.2 meters in height and a metal grill shouldn't exceed 2 meters.
- (b) Where no metal grill is to be used, wall fences should be 2.7 m or equal to the wall plate height of the development or whichever is appropriate.
- (c) In high density residential areas, solid walls must not exceed 1.5 m supplemented by a metal grill of not more than 2 m high.
- (d) Wire fences must be of chain link or barbed wire supplemented by planting where possible.
- (e) Along the road boundaries, fences or walls must be set back 1 m inside the plot to leave space for infrastructure such as water supply.
- (f) Other materials such as papyrus reeds, grass shall be permitted subject to local authority approval.

2.10 LANDSCAPING

The appearance of a residence can be greatly improved by exemplary landscaping. It also helps make the housing area look more attractive. The site plan should indicate an outline of landscaping as of the planning application. Existing mature trees should be retained wherever possible and where none exists, planting should be encouraged.

2.11 ANCILLARY USES

2.11.1. Swimming Pools

Private swimming pools are permitted. They should be positioned within the building lines, and be fenced for safety reasons. The drainage system must be to the approval of the local authority.

2.11.2. Guest Wing

Guest wings should not be located more than 10 m from the main house connected through a walkway. They should comprise of not more than two bedrooms plus bathrooms.

2.11.3. Temporary Structures

Small structures such as poultry runs, poultry house, charcoal store, dog kennel are permitted; provided they are well screened from the road and located at the rear of the plot.

2.11.4. Business premises

It is not permitted to use a residential building or plot for any business purpose.

Table 1: Site Standards for Residential Development

	Low Density	Medium Density	High Density Detached	High Density Semi-Detached
Plot Area (Sq. M)	1,000 - 2,000	600 - 1,000	300 - 600	200 - 300
Minimum Plot Width (m)	25 m	20 m	12 m	12 m
Minimum Plot Length (m)	40 m	30 m	25 m	25 m
Maximum Plot coverage	20%	40%	40%	50%
Minimum Building Lines (m)				
(a). Front	8 m	6 m	3 m	3 m
(b). Side	3 m	2 m	2 m	2 m
(c). Rear	12 m	8 m	2 m	2 m
(d). Servants Quarters	3 m	3 m	-	-
Building Materials	Permanent	Permanent	Permanent	Permanent
Roofing Finish	Cooler blocks or tiles	Cooler blocks or tiles	Permanent non-reflective	Permanent non-reflective
Water Supply	Piped to house & Servant quarter.	Piped to house & Servant quarter.	Piped to house	Piped to house
Sanitation	Sewer or septic tank	Sewer or septic tank	Sewer or septic tank	Sewer or septic tank
Onsite Parking Spaces (Minimum)	2	1	-	-
Design of Vehicular Access (Minimum)	3 m width	3 m width	-	-
Corner Radii	3 m	3 m	-	-
Parameters for Vertical Buildings (Units)	2	3	8	8

Note: Developers who would express interest in purchasing bigger plots than those provided for by the standards are encouraged to consider plot amalgamation to meet their interests.

Figure 1.1: Residential Standards

Low Density Detached		Medium Density Detached	
Min. 25 m		Minimum 20 m	
40 M	<p>Front building line 8 m</p> <p>Main House floor area 200 - 1,000 sq. m</p> <p>Rear building line 3 m</p> <p>Side building line 3 m</p> <p>Servant's quarters permitted in this area (3 m building lines)</p>	<p>Front building line 6 m</p> <p>Main House floor area 200 - 1,000 sq. m</p> <p>Rear building line</p> <p>Side building line 2 m</p> <p>2 m</p> <p>Servant's quarters permitted in this area (3 m building lines)</p>	Minimum 30 m
12 m			PLOT AREA 600 - 1,000 sq. m
PLOT AREA 1,000 - 2,000 sq. m		PLOT AREA 1,000 - 2,000 sq. m	

High Density Detached		High Density Semi Detached	
Minimum 12 m		Minimum 12 m	
Minimum 25 M	<p>Front building line 3 m</p> <p>Main House floor area 45 - 100 sq. m</p> <p>Rear building line 2 m</p> <p>Side building line 2 m</p> <p>3 m</p>	<p>Front building line 3 m</p> <p>Main House floor area 45 - 100 Sq. m</p> <p>Rear building line</p> <p>Side building line 2 m</p> <p>2 m</p>	Minimum 25 m
3 m			PLOT AREA 200 - 300 sq. m
PLOT AREA 300 - 600 sq. m		PLOT AREA 200 - 300 sq. m	

CHAPTER 3: STANDARDS FOR COMMERCIAL AREAS

3.0 CATEGORIES OF COMMERCIAL ACTIVITIES

The types of developments permitted in commercial areas are as follows:

Type of Development	Definition
Shops	Premises for the sale of goods to the public
Wholesale shops	Premises for the sale of goods to retailers, but excluding warehouses and distribution depots
Markets	Premises for sale of consumable goods including farm produce to the public
Services	Restaurants, banks, post offices, etc.
Offices	Premises for conducting official business
Service industry	Maize mills, wood/furniture workshops, garages, etc
Accommodation	Hotels, Motels, rest-houses, lodges and guest-houses, hostels, etc.
Entertainment	Bars, night-clubs, cinemas, etc.
Places of worship	Churches, mosques, etc.
Public services	Clinics, police stations, etc.
Sports facilities	Football fields, playgrounds, etc.
Community facilities	Community halls, etc.
Other facilities	Petrol stations, garages, etc.

Uses other than those listed above will not normally be permitted in commercial areas. Detailed information on planning and design of public services, including markets and post offices, is contained in chapter 7. .

In all planned commercial areas there are blocks of standard-sized plots reserved for shops, services, offices and wholesalers. Service industry can be noisy and dirty; so these uses are confined to separate blocks of standard plots designated for this purpose. All other facilities require special plots, and care must be taken in siting them to avoid conflicts, e.g. bars and night-clubs should not be next to churches.

In the major commercial centres, a higher standard of development will be required and it may not be appropriate to confine development to standard commercial plots. Developers are advised to consult the respective Area Planning Officer as it is likely that special standards and conditions will be imposed in addition to the requirements set out in this document. For instance, on certain main shopping streets development of at least two-storey proportions will be required.

3.1 STATUTORY CONTROLS

All commercial buildings must comply with the provisions of the Public Health Act CAP 281. Hotels and rest-houses must conform to the standards set out in the Hotels and Tourism Act. Commercial activities may need a license from the Local Authority. Further information on statutory controls and advice may be obtained from the

respective Local Physical Planning Offices, Town Clerks, and Chief Administrative Officers.

3.2 PLOT SIZE AND SHAPE

A standard commercial plot should be 15m wide and 30m long and 7.5m wide and 30 m long as the minimum, to accommodate one minimum standard building of 7.5m wide. The depth of 30 m is designed to accommodate a structure of between 10 and 18 m long plus a front canopy and rear space for septic tank and soak pit.

3.3 BUILDING LINES

This refers to a line drawn across a plot such that no permanent structures are developed there. Building lines are specified to control the positioning of buildings on the plot. This is for reasons of health, safety, maintenance and amenity.

3.3.1. Front

The main front wall of a commercial building on a standard commercial plot should have a frontage of 2m. This frontage space is for a covered walkway or Canopy of 2m depth which then come right to the plot boundary. In the absence of a Canopy this frontage space must be paved.

3.3.2. Side

Retail and service industry frontage should be continuous. The buildings will be provided with walkways at certain points for accessibility. These walkways can also be used by the emergency vehicles in case of need. It is not essential for buildings on adjoining plots to have party walls but they must be close enough together to give the appearance of a continuous building frontage. Narrow gaps between buildings should preferably be closed by a front wall to prevent accumulation of rubbish, etc at the front. Canopies should be physically linked so that customers can proceed along the canopies from one shop to the next without having to go out or to the highway. Any forms of physical separations between canopies creating an impression of “fencing off” shall not be permissible.

3.3.3. Rear

A rear building line of 5m must be observed on standard commercial plots to leave sufficient space for septic tanks, soak pit, storage, car parking and any rear servicing. Elsewhere on non-standard commercial plots, the minimum rear building line is 3 m providing that all other conditions on development are met.

3.4 PLOT COVERAGE

Buildings may cover up to three quarters (75%) of the plot area subject to all other standards being met.

3.5 PLOT RATIO

This is the density of development in commercial areas. It is the ratio of total plot area to the total floor space of all buildings on the plot.

3.6. PLOT ACCESS

All commercial plots must have direct access by road for vehicles and public walkways for pedestrians. These can be to the front or rear, depending on the location and layout of the commercial area.

3.7 DESIGN/MATERIALS

Retail, office and service industry developments should normally have a canopy along the front for the convenience of customers. Along the main shopping streets of the major centres development must be at least two storeys.

Commercial buildings must be constructed of permanent materials. Good quality, well - pointed facing bricks are preferable to plaster or render as they are cheaper and easier to maintain in urban areas. The roofing materials must be non-reflective and in major centres, roofs must be of high quality finish such as tiles or cooler blocks.

Shop fronts should normally incorporate a fascia for the display of the name and type of premises in accordance with the advertisement standards and guidelines contained in Chapter 6.

3.8 CAR PARKING/SERVICE AREA

In general, all developments should have adequate on - site parking space for traffic that is likely to be generated; including employees, customers and visitors. This requirement may be waived if there is sufficient parking space available on - street or in nearby public off - street car parks.

It is also necessary to provide on - site space for parking and manoeuvring of service and delivery vehicles, preferably located at the rear of the premises. In certain circumstances, such as small shops and service industry on standard commercial plots with no rear access, it may be acceptable for the premises to be serviced from the public streets or car park, across the footway. The requirements in Chapter 4 should be met.

3.9 ACCESS TO UTILITIES

3.9.1. Water

All commercial plots must be served by piped water supply, or any other suitable supply, to the approval of the appropriate water authority.

3.9.2. Surface Water Drainage

Surface water run-off from buildings and hard surfaces must drain into the nearby drainage channel or soak - away pit to the approval of the local authority.

3.9.3. Sanitation

In urban areas all commercial developments must have water-borne toilet facilities drained to a septic tank and soak pit within the plot, connected to a sewage lagoon or connected to a central sewer line system, to the approval of the local authority. Septic

tanks must be positioned so that they are accessible for emptying by a cesspool emptier. Details of sewerage lagoons are provided in Appendix 1.

3.8.4. Solid Waste Disposal

Any refuse must be stored in proper containers for collection, to the approval of a local authority.

3.8.5. Power Supply

As for residential standards.

3.9 BOUNDARY FENCING

The rear yards on standard commercial plots may be enclosed by a fence or wall not exceeding 2m in height. Delivery and service vehicles must be able to get access. On the larger, non-standard plots any fences or walls along the road frontage must be set back 0.5m inside the plot and be screened by a hedge or other landscaping.

3.10 LANDSCAPING

Landscape is not necessary on standard commercial plots. Landscaping is required for development on the larger plots and a landscape plan must form part of the physical planning application.

3.11 SPECIAL REQUIREMENTS

Social facilities, markets and garages will be expected to locate within commercial areas on sites designated for these particular purposes. Generally these non - retail uses should be sited on secondary streets in the commercial area. Some examples are given below:

3.11.1. Markets

Most commercial areas have a site zoned for a market, and markets will only be permitted on such designated plots. Market sites must contain provisions for customer parking (if there is no public car park), servicing and deliveries. Markets must be provided with adequate piped water supply, sanitation facilities, drainage, and waste disposal, as well as covered and hygienic stalls, all to the approval of the local authority. Site and layout standards are set out in Chapter 7.

3.11.2. Offices

Offices will not normally be permitted at ground floor level on main shopping streets in the major commercial centres.

3.11.3. Wholesale

Wholesale premises will not be permitted on main shopping streets in the centres. They may occupy shop plots on secondary shopping streets provided that the premises have the appearance of a shop and comply with all other commercial standards.

3.11.4. Service Industry

Small workshops and services will be permitted only on plots designated for such purposes. Warehouses should be located in industrial areas.

3.11.5. Hotels/Restaurants/Bars

Restaurants are permitted on plots designated for shops. Hotels, motels, rest houses and bars must be located only on plots designated for such purposes and they must have on-site car parking, servicing areas, etc, to the approval of the local authority.

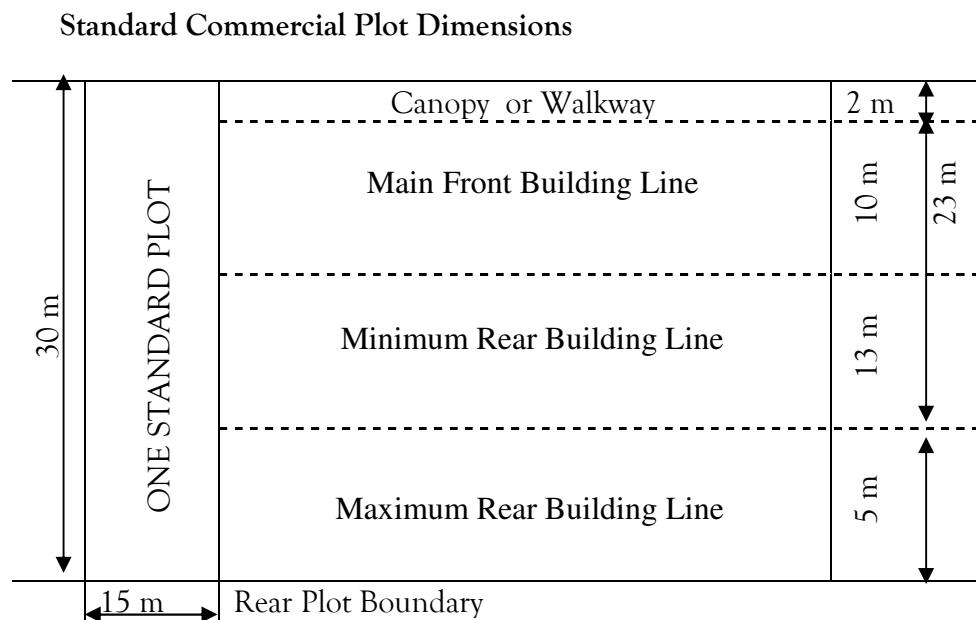
3.11.6. Social/Community Uses

Social and community uses: churches etc; will be permitted only on plots designated for such purposes.

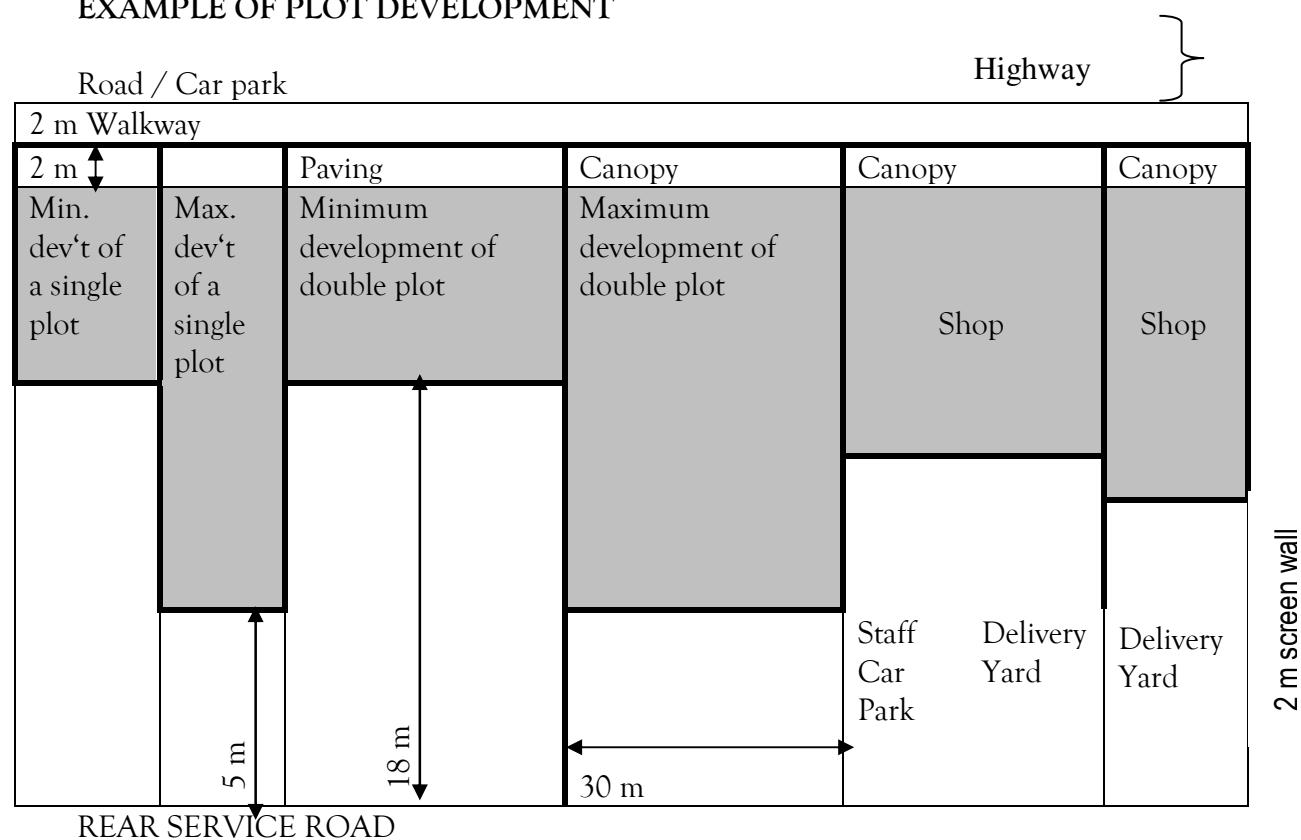
3.11.7. Residential

Residential uses will only be permitted above ground floor level.

Figure 1.2 Commercial Area Standards



EXAMPLE OF PLOT DEVELOPMENT



CHAPTER 4: STANDARDS FOR VEHICLE PARKING, ROADS, FOOTWAYS AND CYCLE – WAYS

4.1 VEHICLE PARKING REQUIREMENTS

4.1.1 On – Street Parking

It is a common practice to park vehicles on the street. This is sometimes acceptable if the street is wide enough and lightly-trafficked. Elsewhere, on-street parking should be discouraged because it reduces the traffic flow and is a cause of accidents.

Where on-street parking can be permitted, it will usually take the form of parking parallel to the kerb. The space needed for parking a car parallel to the kerb is 6.1m by 2m. Parking at an angle to the kerb is often more convenient but there is a greater likelihood of accidents so it should only be used where the pedestrian and vehicular traffic is very light. In order to encourage the best use of the space, it is advisable that on-street parking spaces should be marked by the responsible local authority as per their master plans on the carriage-way in colour specified by the local authority or district engineer.

Guidelines for on-street parking

The following guidelines for on street parking are recommended to promote safe and efficient transport system with the different user activities.

- a) The priority for on-street parking should be the availability of safe, convenient and appropriate parking that supports the primary activities in the street resulting from the desired land uses for each area within the local authority Physical Development Plan.
- b) Priority should be accorded to on-street parking space by ensuring sufficient space for public transport to encourage large numbers of visitors to the city to use public transport.
- c) On-street parking should be time limited to provide “turnover” of parked vehicles and to encourage visitors to the city by equitably sharing the available on-street parking space.
- d) “Time limit” parking should be available at a cost that reflects the convenience of on-street parking as comparable to off-street parking charges and encourage greater use of long stay off-street parking.
- e) There is need to cater for special parking needs of residents, their visitors and people with disabilities through schemes specifically designed for these groups of people.
- f) On-street stopping and parking controls should be simple and easily understood by the general public.

4.1.2 Off- Street Parking

Public parking spaces should be provided in urban areas within residential areas, industrial zones, commercial zones, and social facilities, recreation and sports areas. In the Central Business District, commercial and business zones, multi-storey car parking should be considered as a long term prospect. In residential areas, where on-street parking is not practical, public car parks should be provided.

The principle objective is to ensure that adequate off-street parking is provided to discourage parking on-street and hence maintain existing levels of service and safety. The recommended levels of parking provision for each land use are generally based on surveys and research by the Authority and represent the levels of parking required to meet the peak parking accumulations observed. Where a proposed development is expected to have strong seasonal characteristics, an assessment of the impact of these is desirable. Consideration of such factors as modal split and car occupancy might also be desirable.

Generally, all new developments must have adequate on-site parking space for the traffic that is likely to be generated by the development including space for cars for the workers, customers, business callers, etc. This requirement can sometimes be waived if there is sufficient parking space available on-street or in nearby public off-street car parks. The standards set out below are a guide to the amount of parking space needed for different types of development. Where new developments incorporate more than one activity, e.g. a large office attached to a warehouse, the parking requirements of both uses must be assessed separately and then added together.

However, while the number of employees at a development often can be used to provide a good explanation of traffic and parking behaviour, this number is not always accurately known at the time a development application is lodged. Also, specific uses might change with time. In the case of factories, for example, traffic and parking behaviour can vary substantially with different types of factories of the same size. In summary, the parking provisions recommended below are based, wherever possible, on physical characteristics of the proposed development, particularly the gross floor area.

(a) Residential

A minimum of two parking spaces on a low density plot and one space on a medium density plot. It is desirable to provide parking spaces on high density plots, but it is not mandatory.

(b) Housing Estates Parking Requirements

The following residential estates parking standards are proposed;

Dwelling Units	No. Of Parking Spaces Required
Dwellings with 5+ bedrooms	3 per unit
Dwellings with up to 4 bedrooms	2 per unit
Flats with 2+ bedrooms	2 per unit
Flats with 1 bedroom only	2 per unit
Visitor parking provision	1 space per 5 units
Medium Density Residential flat building	1 space for each unit plus 1 for each 5 x 2 bedroom unit plus 1 for each 2 x 3 bedroom units

(c) Shops, Supermarkets, Wholesale Shops, Offices and Banks

One Parking space in commercial centres is best provided collectively, in form of off-street public car parks. If there are public car parks nearby or there is a definite

intention to provide them, it may be possible to waive the requirements for on-site parking space.

Activity	Proposed Parking Spaces
Banks	1 space per 25sq.m of gross floor area plus 5 stacking spaces per drive-up window
Commercial Premises	1 space per 40 square metres gross floor area
Shopping centre	4.4 spaces per 100 square metres of gross leasable floor area (i.e. 1 space per 23 square metres)
Motor showroom	0.75 spaces per 100sq. m site area plus 6 spaces per service bay
Car tyre retail outlet	3 spaces per 100 sq. m Gross Floor Area (GFA)
Roadside stall	4 spaces minimum
Drive in liquor store	Sufficient to avoid queuing onto public road
Drive in take-away	12 spaces per 100sq. m GFA plus 1 pace per 5 seats
Markets	2.5 spaces per stall (customers only)
Bulky goods retail stores	1 space per 40sq.m of GFA and/or comparisons should be drawn with similar developments
Video Stores	6.1 spaces per 100sq.m GFA

(d) Industrial areas

For every 100 sq.m of gross floor space, provide two parking spaces plus 1 parking space for every 2 employees of the largest work shift. For Business parks, 0.5 spaces per 100sq.m of total GFA or 1.8 spaces per 100sq.m gross leasable office/showroom area plus 1.2 spaces per 100sq.m of gross leasable factory/warehouse area (where information on components development is available). More information provided in chapter 5.

For fuel service stations and convenience stores, a minimum of 6 spaces per service bay plus 5 spaces per 100sq.m of gross floor area for the convenience store. If there is a restaurant at the station, then 15 spaces per 100sq.m or 1 space per 3 seats will be sufficient.

(e) Warehouses

One parking space per 30sq.m of gross floor space plus 1 space for every 2 employees on the largest work shift.

(f) Hotels and Motels

One parking space for every two bedrooms and one parking space for every three managerial staff are adequate. If there are bars or restaurants open to non-residents, or the hotel is used for functions (dances, conferences, weddings, etc ,) the spaces required for these should be assessed separately and added on.

(g) Bars

One parking space per 15sq.m of gross public floor space is required.

(h) Restaurants, Cafes, Cinemas, Theatres, Religious Facilities and Assembly Halls

Minimum parking of 1 car parking space for every 10 worshippers should be allocated and maximum shall depend on size of the facility to be provided.

For drive-in take-away food outlets of developments with no on-site seating: 12 spaces per 100sq.m GFA will be sufficient while for developments with on-site seating: 12 spaces per 100sq.m GFA or 1 space per 5 seats (internal and external), or 1 space per 2 seats (internal only) will suffice.

Developments with on-site seating and drive through facilities: 1 space per 2 seats (internal), or 1 space per 3 seats (internal and external) plus queuing area for 5 to 12 cars will be sufficient.

Restaurants will require 15 spaces per 100sq.m GFA, or 1 space per 3 seats, whichever is greater.

Other facilities such as stadiums, assembly halls, theatres and places of public worship, no specific standards of providing spaces but will be determined on merit considering: hours of operation, availability of car parking, employee numbers and ancillary activities.

(i) Licensed Clubs, Dance Halls and Discotheques

One parking space per 20sq.m of gross public floor space¹

(j) Doctors Surgeries, Clinics and Health Centres

Two parking spaces per consulting room plus one parking space for every 4 staff members and 3 additional parking spaces (9m x 3m) for ambulances for polyclinics will be sufficient.

Hospitals require 1 car parking space for every 3 to 12 beds. 2-5 parking spaces should be allocated for people with disabilities in the visitors parking yard.

Hospitals with Accident and Emergency departments require 8 additional parking spaces (9m x 3m) for ambulances while hospitals without Accident and Emergency Departments, 3 additional parking spaces (9m x 3m) for ambulances will be adequate. For Child care centers, 1 space for every 4 children in attendance will be adequate.

(k) Recreation and Tourist Facilities

Sports and playing fields facilities, one parking space for every four players and one parking space for every thirty spectators will suffice.

Other recreation facilities include:

Squash Courts	3 spaces per court
Tennis Court	3 spaces per court
Bowling Alley	3 spaces per alley
Bowling Green	30 spaces for first green 15 spaces for each additional green
Gymnasium	7.5 spaces per 100 sq. m GFA (desirable) 4.5 spaces per 100 sq. m for the GFA (minimum)
Tourist Facilities	1 space per caravan and others to satisfy peak demand

¹ Public floor space is the area where the Public Circulate.

Off Street Parking Guidelines and Standards

- a) Depending on the land use type, parking for delivery/services vehicles, courier vehicles, should also be provided. For mixed developments the number of car parking spaces should be calculated on the basis of each separate use e.g. shops with housing above would be calculated on the basis of the number of dwellings and gross floor area. Calculations should be rounded up to the nearest whole number e.g. if the calculation determines that 2.3 spaces are required then 3 spaces would be required.
- b) Off street parking should be designed, constructed and maintained to provide safe, convenient vehicle parking and pedestrian movement to and from parked vehicles.
- c) Design and construction of all required and or provided parking stalls, access aisles, driveways, paving, curbing, wheel stops, drainage and marking shall be in accordance with the local authority and the ministry responsible for transport.
- d) Standard stalls measure 5.4m in Length and 2.5m in Width. Access aisles between rows of stalls should have a minimum width, free of any obstructions, as indicated in table 2

Table 2: Minimum width of Access Aisles

Angle of parking	Width of aisle (m): 1 way traffic double loaded	Width of aisle (m): 2-way traffic double loaded	Width of aisle (m): one-way traffic single loaded
90	7	7.0	7.0
60	3.5	5.8	3.8
45	2.8	5.6	3.3
Parallel	3.04	6.09	3.04

e) **Landscaping**

All off street parking facilities and parking lots should be landscaped in accordance with the local authority byelaws or be screened within or behind buildings or be sited at the side. This leaves the front of the building open to view from the street, and gives pedestrians direct and safe access to the main entrance. Large unbroken expanse of tarmac is unattractive. It is recommended instead that, all car parks be subdivided into sections which are small in relation to the total size of the parking area. The landscaping should include lawn, shrubs, hedges, trees, or other acceptable materials that may be used as visual amenities. However, care must be taken on the choice of species, construction of planting box, etc; to avoid cracking the car park surface through root action. Trees that tend to easily succumb to winds, drop heavy leaves (like certain types of palm trees), or branches should also be avoided. In cases where meaningful plant material exists on a site prior to its development, such landscape material may be used if approved by the planning authority of the local authority.

e) **Width, location and slope of driveways**

Driveways leading to parking areas should have no less than 3.04m of paved width. For any parking area providing 10 or more parking stalls, a one-way driveway should have no less than 3.04m of paved width and a two-way drive should have no less than 6.09sm of paved width. All provided off street parking facilities should be paved properly with an approved material or as per the existing building byelaws.

Entrance and exit driveways leading to parking areas should be located to provide maximum length of waiting vehicles. Combined entrance and exit should be located at or near the middle of the block.

f) **Vertical clearances**

All provided off street parking facilities should have a minimum vertical clearance of 2.1m. Where such facility is to be used by buses and or trucks, the minimum vertical clearance should be 4.5m. Vertical clearance should be clearly marked on overhead structures having less than 4.8m.

g) **Entrance vehicular control devices**

Parking tickets and other vehicular entrance control devices that require a vehicle to stop prior to entering the parking facility, should be located as to provide a minimum approach driveway of 6.09m in length between the base of the building line and the ticket dispenser. Additional driveway should be provided where waiting vehicles would otherwise infringe on any public street, alley or sidewalk.

- h) Drainage should be provided to all off street parking facilities so as not to cause any nuisance or damage to adjacent property as per the Building Rules and Regulations under the Public Health Act.
- i) Adequate lighting should be provided if the required or provided off street parking facilities are to be used at night. All lighting should be designed and arranged so as to prevent glare and excessive light on adjacent property.
- j) Each parking should be painted or marked with white or cream double lines between spaces. Signs or arrows marked by a permanent, durable, contrasting material should be used to indicate the directions of traffic movement.

4.1.2 Guidelines for the Physically Handicapped Parking Stalls

- a) All such stalls reserved for the physically handicapped drivers should be clearly marked and designated with appropriate signage.
- b) Stalls should be located as close as possible to ramps, walkways, entrances, and elevators.
- c) Where feasible, such stalls should be located so that the physically handicapped drivers are not compelled to walk or wheel across main traffic lanes and or behind parked cars to reach ramps, walkways, entrances and elevators.
- d) Such parking spaces shall be located as close as possible to the nearest accessible ramp, walkway, and building entrance on an accessible route so that physically handicapped persons shall not be compelled to wheel or walk behind parked cars to reach the nearest accessible ramp, walkway, and building entrance.
- e) Such parking space shall be not less than 2.4m wide with a crosshatched, painted access aisle not less than 2.4m wide if it is a van-accessible handicapped parking space, or no less than 3 m wide with an adjacent crosshatched, painted access aisle no less than 1.5m wide if a handicapped parking space.
- f) All handicapped accessible parking spaces shall be clearly designated with signs situated approximately 1.5m high

- g) Such parking shall display the international symbols/ signs of access with words "***Handicapped Parking***" and "***No Trespassing***." Accessible spaces for vans shall also bear the words "***Van-Accessible***."
- h) The following minimum parking spaces in table 3 are recommended for the physically handicapped drivers to be applied to all public parking areas.

Table 3 : Recommended parking spaces for the physically handicapped drivers

Total No. of Parking spaces in lot	Minimum No. of handicapped parking spaces
≥ 25	1
26 – 50	2
51 – 75	3
76 – 100	4
101 – 150	5
151 – 200	+6
201 – 300	7
301 – 400	8
401 – 500	9
501 – 1,000	2% of total parking spaces
1,000 plus	20 spaces + 1 for every 100 spaces over 1,000

4.1.3. Guidelines for Bicycle Parking

To be able to provide ample parking space for bicycles, there is need to understand the basic bicycle dimensions. The dimensions are Length: 1.7m – 1.9m; Width: 0.65m; Height: 1.25m – 1.5m. Therefore, to offer comfortable parking, the parking space should be 2m long and 0.45m wide with a side clearance of 0.75m. Bicycle parking is provided in form of double rows with overlapping front wheels and Staggered, Herringbone Formation with Access in the middle (Figure 1.3). Cycle stands must give steady support, even when loading the bike. Locking the bike should be possible using any acceptable system, securing the front wheel and the frame to the stand. Generally installation design should be clear and user friendly: close to the destination, easy to find and approach. However, for long term parking, lighting, and roofing should be considered with supervision.

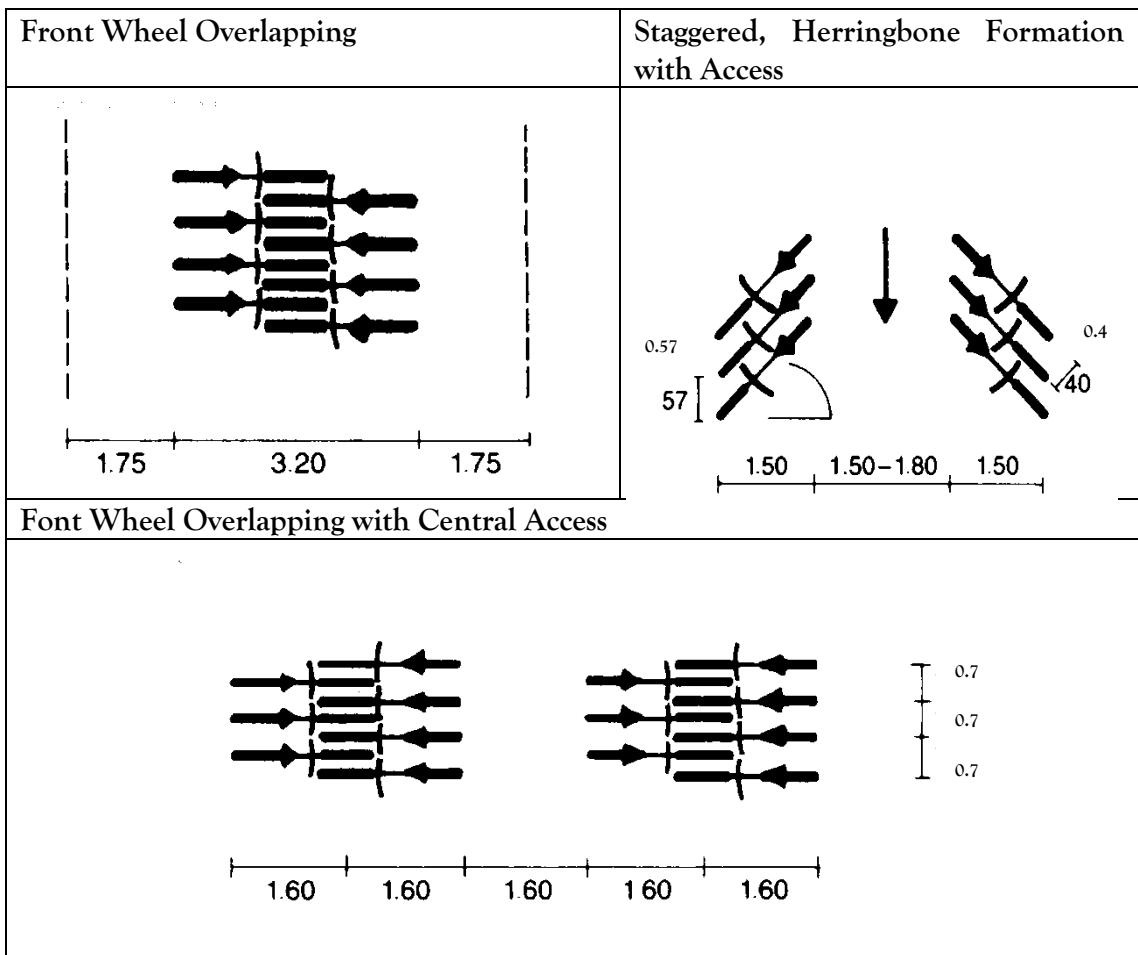
Table 4: Recommended Bicycle Parking Guidelines

User Activity	Parking Space
Apartments	1 per 30 sq. M total living area
Visitors to Apartments	1 per 200 sq. M total living area
Student residential halls	1 per bed
Secondary schools	0.7 per Student
Colleges for further education	0.5 per student place
Libraries	1 per 40 sq. M
Places of work	0.3 per employee

User Activity	Parking Space
Shopping centre	1 per 80 sq. M sales area
Local restaurants	1 per 7 seats
Sports Arena, Halls, Swimming Pools	0.5 per clothes locker
Other gathering places	1 per 7 visitor places

Source: Ernst and Peter Neufert – Architects Data 3rd Edition

Figure 1.3 : Bicycle Parking Types



NB: The above dimensions are in Metres

4.2 SERVICE AREAS

In addition to car parking, it is necessary to provide space on-site for the parking and manoeuvring of service and delivery vehicles. Service areas should be located at the side or rear of the premises wherever possible. In a few cases, such as small shops, it may be acceptable for the premises to be serviced from the public street, across the footway. In general however, there should be sufficient space for service vehicles to manoeuvre with ease, and stop for loading and offloading without causing inconvenience to other site users. Where access to the site is off a public road, it will normally be a requirement that vehicles should be able to enter and leave the site in forward gear. The space requirement for service vehicles varies greatly with the size and

nature of the business operation so it is not possible to indicate standards of provision. Advice is to be sought from Local Planning Offices and/or the Directorate of Physical Planning & Urban Development.

4.3 ROAD STANDARDS

4.3.1 Road Classification

According to UNRA, roads in Uganda are classified into 5 classes according to their major function in the road networks. These are:-

a) **International Trunk Roads**

These roads link international important centers and provide connection between the national road system and those of neighbouring countries. These are carriageway roads (each with 2 or more lanes, with a hard shoulder, separated by a central reservation) with no obstructions, designed for high speed traffic. Major function is to provide mobility.

Directional signs should be positioned at least 1 km before an exit for connecting roads and 2 km before intersections.

Building restrictions (i.e. requirements for special planning permission) apply to the construction or major alterations of structures 40-100m from the edge of the motorway and banning the construction of high buildings within 40m of motorways. **They range between 40 metres in urban areas and 60 metres in rural areas.**

b) **National Trunk Roads**

These link provincial capitals, main centers of population and nationally important centers. Their major function is to provide mobility.

c) **Primary Distributor Roads**

These roads link provincially important centers to each other or to higher class roads (urban/rural centers) and provide linkage between districts, local centers and development areas with higher class roads. Major function is to provide both mobility and access.

d) **Secondary Distributor Roads**

These roads link locally important centers to each other, to more important centers, or to higher class roads (rural/market centers) and linkage between locally important traffic generators and their rural hinterland. Major function is to provide both mobility and access.

e) **Access Roads**

These roads link to minor centers (market/local center) and all other motorable roads i.e. distribute the traffic within districts. Major function is to provide access to land adjacent to the secondary road system. They are further classified into major and minor local distributors depending on the volume of traffic generated within the area they serve. A large traditional housing area within excess of 900 houses (or 600 houses in

the case of low density, high car-owning areas) may need a major distributor, together with one or more minor distributors.

Minor Access Roads – link individual plots (houses, offices, shops, industrial premises etc.) with the distributor roads. Access roads in housing areas and shopping centres are termed as streets and are further classified into primary and secondary streets. All streets in housing areas must be designed for consistent slow speeds in the interest of road safety. As high a proportion of the houses as possible should be on secondary streets. A secondary street in a traditional housing area may serve up to 60 houses (30 in low density areas) and will normally take the form of a cul-de-sac (max. length 150m) or loop road (max. length 500m) carrying only access traffic. Primary streets in traditional housing areas may serve up to 120 houses (60 in low density areas). Minor access roads in shopping centres are sometimes known as service roads.

Roads of the highest classes, (a) and (b), have as their major function to provide mobility and have longer trip lengths. They are required to provide a high level of service with a high design speed. The roads of Classes (c) and (d) serve a dual function in accommodating shorter trips and feeding the higher classes or road. For these roads an intermediate design speed and level of service is required. Roads in Class (e) have short trip length and their primary function is to provide access to different user activities and individual plots. Design speeds and level of service for these roads may be low.

The different geometry design specifications recommended by UNRA are indicated in table 5.4.

Guidelines for Naming Roads in Urban Areas

- a) **Terrace** refers to a street set on hill: a street constructed along a piece of raised or sloping ground.
- b) **Avenue** refers to a wide street or road in a town or urban centre.
- c) **Street** refers to a public road in town: a public road, especially in a town or city, usually lined with buildings.
- d) **Rise** refers to the road that goes in an upward slope or gradient.
- e) **Close** refers to street closed at one end: a road with no exit at one end, often in a residential area (similar to a cul-de-sac).

4.3.2. Road Dimensions

The road space necessary for the free movement of vehicles comprises of vehicle size, side and head clearance, an extra allowance for the oncoming traffic, space for verges, drainage gutters and hard shoulders. The safe side clearance is dependent on the speed of that road for instance ≥ 1.25 m for roads with ≥ 70 km/hr; ≥ 0.75 m for roads with a speed limit of ≥ 50 km/hr.

4.3.3 Road Reserves

Road reserve widths by class of road are given in table 5. These are general guidelines only and in some circumstances it may be necessary to deviate from them. It is often the case that a road has not been designed in detail at the time that layout planning is to commence. If there is some doubt about the precise centre line of the road, perhaps because of possible topographic or other constraints, it will be prudent to opt for a wider reserve. On the other hand, where a new road is to pass through an existing built-up area, a much reduced reserve may be necessary in order to minimize land and property acquisition costs.

4.3.4 Junction Spacing and Plot Access

It is desirable to limit the number of junctions and access points on the more important distributor roads in the interest of safety and maintaining a smooth flow of traffic. Table 5 indicates what is permissible.

4.3.5 Visibility Splay at Junctions

The purpose of visibility splays is to allow a driver entering a junction from a minor road to have unobstructed visibility to the left and right along the major road, for a distance appropriate to the major road traffic speed. This enables the driver to judge safely when s/he may turn into or cross the major road.

4.3.6 Tree Belts

The provision of tree belts improves the appearance of the road and can make a useful contribution to meeting the urban area's fuel wood requirements (tree belts should be a minimum of 10 m wide). See table 5 for guidance on which roads should have tree belts. In all cases the provision of a single line of trees adjacent to the footway is strongly recommended to provide shade for pedestrians.

4.3.7 Access to Premises: Road Widths and Corner Radii

Access roads into premises, houses, car parks, etc; must be designed so that vehicles can enter or leave the site without causing undue delay or hazard to traffic on the major road. The dimensions depend very much on the volume of lorry traffic that is likely to use the access, because these vehicles require much wider road widths and corner radii than cars and pick-ups. Apart from very minor roads, the junction layout should enable turning vehicles - especially long vehicles to negotiate the junction without running into other traffic lanes. The narrower the major road, the more necessary it is to have wider corner radii. Table 5: Urban Road Standards

Class of Road	Minimum Reserve Width (metres)	Minimum Junction Spacing	Individual Plot Access	Tree belt
Trunk Roads (Arterial/Freeways including Town By – passes)	60	500 m	Not permitted	Desirable
Primary Distributor	40	200 m	Not permitted	Desirable
Secondary Distributor	30	100 m	Not permitted	Desirable
Tertiary (Local Distributor)	18	-	Permitted	Desirable
Access Roads				
(a) Industrial street/road	25	-	Permitted	Desirable

Class of Road	Minimum Reserve Width (metres)	Minimum Junction Spacing	Individual Plot Access	Tree belt
(b). Primary Residential Street	15	-	Permitted	Desirable
(c). Secondary Residential Street	08	-	Permitted	Desirable
(d). Primary shopping street (Heavy commercial)	20	-	Permitted	-
(e). Secondary Shopping Street (Average commercial)	15	-	Permitted	-
(f). Service Lanes	5	-	Permitted	-

4.3.7 Walkways and Footpaths

Walkways are adjacent to roads and are included in the road reserve; footpaths follow routes that are separate from roads.

Walking is by far the most common means of travel in Uganda's towns. Consideration must be given to the needs of pedestrians in the planning of all developments. In busier areas such as shopping centres the needs of pedestrians will usually take priority over those of other road users. There is also an important safety aspect: where adequate footways exist the pedestrian is less likely to walk on the carriageway and the risk of accidents is consequently much reduced.

In planning for pedestrian access, it is necessary to judge which route(s) pedestrians will take to reach the development. Pedestrians will in general take the shortest route possible. The location of bus stops and convenient road crossing points will also have strong influence on the routes taken. Pedestrian links can be designed to follow the access road into a development but it is often preferable from a point of view of safety and convenience if a separate footpath is provided. Where the proposed development affects a well-established pedestrian route, it will be necessary to provide a convenient alternative route.

Recommended walkway and footpath widths are given in table 5.6.

Table 6: Walkway and Footpath Widths

Function	Width (m)
Shopping streets	2 - 4
Primary footways/footpaths (3 persons wide)	2
Secondary footways/footpaths (2 persons wide)	1.2
Access paths (e.g. to a house) (one person wide)	1

4.3.8 Cycling Facilities

The provision of cycle ways can only be justified in certain situations. The standard widths for cycle ways are 2.5 m (two-way) and 1.8 m (one way). Where space is restricted, it may be permissible to provide a combined cycle way/footway with an overall width of 3 m. The cycle way section (1.6 m wide) must be divided from the footway by an unbroken white line and be marked at intervals with the cycle symbol. Simple cycle stands should be provided at convenient points in shopping areas, and at schools, hospitals, and other locations expected to attract many cyclists.

CHAPTER 5: STANDARDS FOR INDUSTRIAL AREAS

5.0 DEFINITION

Industry is defined as general manufacturing, processing, assembling, handling, storing of products and materials. Industrial activity can be classified into light, general, heavy and special uses depending on scale, noise, effluents, odours, appearance, nature of materials, etc. Separate areas may be zoned for these different types of industry. Small scale enterprises such as crafts, maize mills, tailoring workshops, carpentry, bicycle and shoe repairs, tinsmiths, etc., are generally regarded as service industries which can be located in commercial areas (Chapter 3). Industrial development will only be permitted in areas zoned for such purposes.

5.1 STATUTORY CONTROLS

Apart from the Public Health Act and other laws, industrial buildings and installations must conform to the standards set out in the Factories Act, and all industrial development proposals must be referred to relevant approving organs, including NEMA, Uganda Investment Authority and Ministry of Gender, Labour and Social Development. Industrial activities may have to be licensed by the responsible local government and institutions. Further information on statutory controls for specific industrial developments may be obtained from the respective Local Governments, Uganda Investment Authority (UIA), etc.

5.2 CLASSIFICATION OF INDUSTRIAL ZONES

The purpose of these zones is to provide for a variety of industrial operations, but to restrict or prohibit those activities which have characteristics likely to produce serious adverse effects within or beyond the limits of the Park. They are classified as follows:

5.2.1. Light Industrial Parks

The Light Industrial Zone is intended to provide for low-intensity industrial uses in zones adjacent to other uses that are prone to industrial pollution. This section regulates small and medium size plots of between 5,000 sq. M and 10,000 sq. M for uses with restricted hazardous activities.

Permitted Principal Uses

- a) Processing of non-hazardous materials
- b) Offices serving main processing activity
- c) Open storage <10% Plot surface grade 1, < 30% grade 2, < 40% for grade 3
- d) Manufacturing, processing, packaging, or assembling of components or goods
- e) Light truck and freight terminals and warehouses
- f) Timber yards
- g) Automobile sales and service facility (show rooms)

Principal Uses allowed by Special Permit

1. Contractor's yards / equipment storage with adequate visual screening.
2. Saw mill.
3. Veterinary hospital, or commercial stable on a plot of at least three acres, provided that no animals shall be kept in any buildings or enclosures within 45 sq. M of any

property line; and the use shall not create any odours, noise or other impacts that would constitute a common-law nuisance with respect to any other property.

4. Expansion of a non-conforming use.

5.2.2. Heavy industrial

The heavy industrial zone is intended to provide for heavy processing activities of industrial goods, with a possibility of direct railway siding and sharing a marshalling yard facility for block train manoeuvres. This section regulates large-sized plots of not less than 10,000 sq. M.

Permitted Principal Uses

- a) Manufacturing and processing
- b) Storage up to 40% of plot surface
- c) Offices serving main processing activity
- d) Truck parking 1 lot per 600 sq. M

Uses allowed by Special Permit

- a) Business and Commercial up to less than 10% of built space
- b) Stacking/ Storage beyond 40% of plot surface

Table 7: Summary of Industrial Area and Dimension Requirements

Category	Average Plot Coverage (%)	Floor Area Ratio (FAR)	Skyline (M)	Building Line (M)	Setbacks (M)	Plot Size	Front Setbacks (M)	Side Setbacks (M)	Rear Setbacks (M)	Impervious Coverage (Paving)
Light	60	0.70	Open	5	3	≥1.0 Acre (4,000 sq. M) to 2.47 Acres (10,000 sq. M)				
Medium	30	0.35	Open	10	5		10	3 - 5	10	50%
Heavy	25	0.3	Open	10	5	≥ 10,000 sq. m	10	10	10	50%

5.4 BUILDING LINES

These are the minimum distances a building must be set away from the boundaries of a plot for reasons of health, safety, maintenance and amenity.

5.4.1. Front

The front elevation of any building should generally be a minimum of 10 m back from the front boundary of the plot in all categories of industrial developments. This is to allow sufficient space for landscaping.

5.4.2. Side and rear

A minimum side building line of 3-5 m must be observed to allow sufficient space for maintenance of buildings, access to septic tanks or other utilities, and to avoid possible

nuisance to adjoining plots in light and medium scale industrial developments. For heavy industries, a side setback of 10 m is recommended.
Across all industrial zones, rear setbacks of 10 m are recommended.

5.5 PLOT COVERAGE

Buildings may cover up to 60% for the light industrial zones, 30% for the medium scale industrial zones while 25% will be sufficient if heavy industrial zones. This is to allow for landscaping, car parking and servicing yards, subject to all other standards being met.

5.6 PLOT ACCESS

Every industrial plot must have direct vehicular access and frontage on to an industrial service road. It is also desirable to provide a separate pedestrian access and cycle lanes.

5.7 DESIGN/MATERIALS

There are no general restrictions on the design of industrial buildings but local authorities should be consulted on the required materials as per the available Building Bye-laws and Regulations in consultation with the Public Health Act CAP 281.

Industrial buildings must be constructed of permanent materials. Good quality and well-pointed facing bricks are preferable to plaster or render, which are more expensive to maintain. Metal frames and non-reflective sheet metal cladding can also be used to good effect but again maintenance should be carefully considered. Roofing materials must also be permanent and preferably non-reflective.

5.8 PARKING/ SERVICE AREAS

Sufficient parking spaces shall be provided to accommodate motor and other vehicles of all occupants, employees, and persons normally visiting any building or premises at any one time. All present and future vehicular parking, including trucks, trailers, employee and visitor parking shall be provided in designated parking areas and shall comply with all the provisions applicable in the industrial park zoning regulations. They should be designed using the standard specified in chapter 4

Parking space should generally be located to the rear or side of the premises but, if some has to be in front of the building, it should be screened off the road by a landscaped strip.

In addition to car parking it is necessary to provide on-site space for parking and manoeuvring of service and delivery vehicles. Service areas should be located at the side or rear of the premises. They should be hard - surfaced and clearly laid out. Vehicles must be able to enter and leave the site in forward gear.

Generally a maximum of two vehicular access points will be permitted for each site. The design of the access, corner radii and culverts must be to the satisfaction of the Uganda National Roads Authority (UNRA).

Any entrance gate must be set back sufficiently inside the site to allow the largest vehicle visiting the premises to park completely off the road while waiting for the gate to be opened.

5.9 LOADING AND OFF-LOADING AREAS

Loading and off-loading space shall be provided as follows on any premises used for retail or wholesale trade, manufacturing, hotels, hospitals, laundry, dry cleaning establishments or other buildings where large amounts of goods are received or shipped:

- a) Loading space shall be not less than 3 metres wide, 7.5 metres long and 4.2 metres high.
- b) Every building or block of buildings containing more than 1,500 sq.m floor area shall have at least one loading space.
- c) Every building or block of buildings containing more than 6,000 sq.m floor area shall have one loading space for each 6,000 sq.m or fraction thereof.

No such loading space shall be located closer than 15 metres to any other lot in any residential zone, unless wholly within a completely enclosed building or unless enclosed on all sides by a wall or opaque fence not less than 1.8 meters high.

Such loading space, manoeuvring space and all vehicles using the loading space shall be contained within the plot.

5.10. PUBLIC UTILITIES

5.10.1. Water

There should be a separate piped water supply to each plot, or other suitable supply, to the approval of the appropriate water authority.

5.10.2. Surface Water Drainage

All development shall make proper provisions to control storm water run-off based on the best management practices and all control measures and facilities shall be maintained in effective condition.

5.10.3. Sanitation

Every premise must have water-borne toilet facilities drained to a septic tank and soak pit within the plot, or to a sewer; to the approval of the local authority. Septic tanks must be positioned so that they are accessible for emptying by tanker.

5.10.4. Waste Disposal

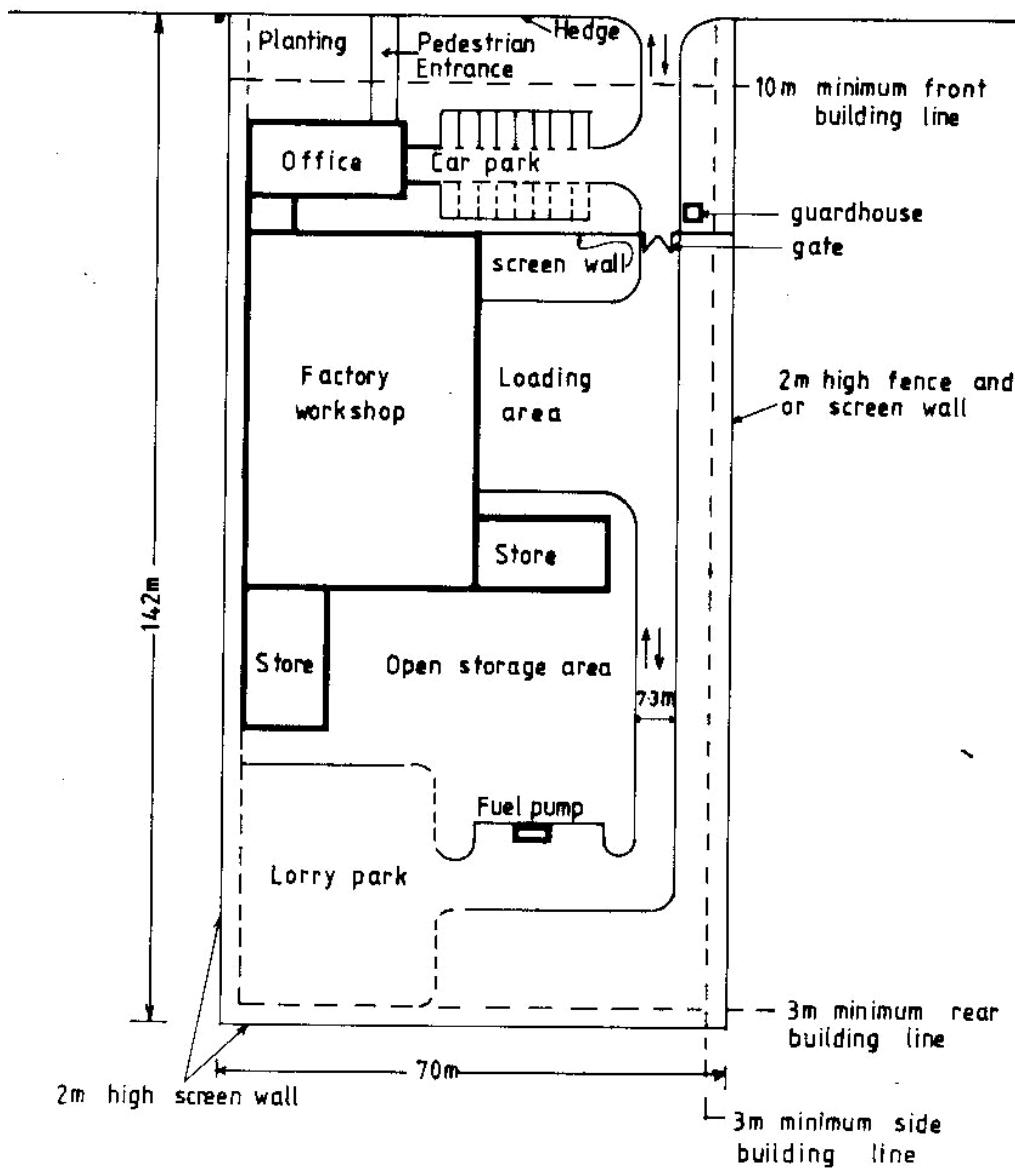
All facilities for the storage of refuse, garbage and recycling materials shall be located closer to the building served than to any adjoining property, to make the facilities as inconspicuous as possible and where they shall be easily accessible for service vehicles. Any refuse must be stored in proper containers for collection to the approval of the local authority. Hazardous wastes will require special treatment.

5.10.5. Power Supply

Electricity will normally be supplied to all permanent premises by the electricity power distribution company, or by private generator. Any other power or fuel needs such as petrol, oil, coal, wood, etc. will also be acceptable in industrial areas subject to the approval of the relevant authorities. Private vehicle fuel installations may be permitted subject to the requirements of the relevant petroleum law and to the fuel being for essential private use only and not for sale to the public.

EXAMPLE OF POSSIBLE INDUSTRIAL STANDARD PLOT LAYOUT

Figure 1.4: Industrial Estate/Service Road



- Plot Size 1.0 Ha

- Scale 1:1000

5.10. BOUNDARY FENCING

Industrial plots will normally be enclosed by means of boundary walls, fences or hedges for both security and screening purposes. These will usually be restricted to 1.8 m in height and shall not obstruct a street sight line. Any necessary walls along the front road boundary should be of decorative brickwork to form an attractive frontage or be screened by a hedge or other landscaping materials to the approval of the local authority.

5.11 LANDSCAPING

The front of any industrial plot must be landscaped for amenity reasons. Landscaping shall apply whenever any proposed building/structure or development activity requires

the submission of a Site Plan application or a Special Permit application. All portions of the property that are not required for buildings, structures, parking, driveways, or sidewalks shall be suitably landscaped with monuments, ground cover, trees and evergreen shrubs. Planted areas adjacent to the building shall be at a minimum of 1.8 m from the building. Loading bays shall also be screened with any combination of walls, berms, and or landscaping.

5.12 ANCILLARY USES

5.12.1. Residential

No residential or sleeping accommodation will be permitted on industrial plots. The only exception is in large complexes where caretakers' accommodation will be allowed and should preferably be designed as part of the office building.

5.12.2. Offices

Offices will only be permitted on industrial plots where they are ancillary to the main industrial use. Where permitted, offices should occupy less than 30 percent of the Gross Floor Area.

5.12.3. Guard-house

A guard's shelter or gatehouse may be permitted at the entrance to the plot and any such structure must be of permanent materials to match the boundary wall or main building.

5.12.4. Open storage

Where materials or any products have to be stored in the open, such areas must be located to the rear of buildings and be well screened so as not to be visible from the road.

5.12.5. Retailing

Retail outlets will not be permitted on industrial plots except where they are ancillary to the main industrial uses.

CHAPTER 6: STANDARDS FOR ADVERTISEMENTS

6.0 DEFINITION

“Advertisement” means any word, letter, model, sign, placard, board, notice, poster, device or representation, whether illuminated or not, employed wholly or in part for the purposes of advertisement, announcement or direction (excluding any such thing employed wholly as a traffic sign or a railway signal). It includes any hoarding or similar structure used for the display of advertisements.

6.1 STATUTORY CONTROLS

Permission is required for all advertisements throughout Uganda. There is a special form of applications for permission to display any advertisement. In the Planning Areas, the application should be submitted to the local authority. Normally only temporary (one - year) consents are given to enable the authorities to review the situation. Approvals are subject to the signs being maintained in a clean, tidy and safe condition.

These controls do not apply to an advertisement inside a building or on a vehicle.

6.2 SIZES OF BILLBOARDS AND SIGN POSTS

The various categories of signs and bill boards and their sizes are as below:

- a) Super signs ranges from 36 sq. m to 72 sq. m.
- b) Large signs range from 18 sq. m to less than 36 sq. m.
- c) Small signs range from 6 sq. m to less than 18 sq. m.
- d) Very small signs range from 1 sq. m to less than 6 sq. m.

6.3. LOCATION

Any sign/billboard shall:

- a) Be designed and erected or constructed so as not to be detrimental to or have negative aesthetic impact on the road structures and the road environment;
- b) Have a neat appearance and shall consist of durable materials;
- c) Not be erected on faces of fills or cuts or within 2.0 m from toe of till or edge of cut or edge of the drain;
- d) Not be located in curves, islands junctions, roundabouts; and
- e) Be located away from each other at a distance of at least 2.0 km for the super signs/billboards; and
- f) Not be less than 1.0 sq.m and more than 72 sq.m when erected in the road reserve.
- g) No signs/billboards shall be erected in the road reserve without the permission of the Ministry of Works and Transport or District Local Government or Local Authority including temporary signs/billboards, banners and those hanged on arches across roads.

- h) Signs/billboards aimed at directing and locating social services and facilities such as schools, health facilities, markets, administrative centres, etc; shall have a high priority over signs/billboards for promotion of products and services.
- i) All signs/billboards shall be maintained in good repair and safe condition according to the highest standards by the owner at no cost to the Ministry or District Local Government or Local Authority.

6.4 ROAD SAFETY

For purposes of emphasis, advertisement signs must not obstruct visibility at a bend, junction or other hazard: - interfere with road- users' view of traffic signs, distract road- users' attention at hazardous sites.

6.5 AMENITY

Advertisement signs will not be allowed where they will detract the pleasantness/attractiveness of an area. The advertisement should conform to the scale and character of a particular area where it is located.

6.6 MATERIALS

- a) Advertisement signs should be made of durable and easily cleaned materials. Plastic, wood, metal and concrete are acceptable. All materials used for advertising should be approved by the District or Urban Local Government, taking into account the visual, environmental, technical and legal implications.
- b) All signposts and bill boards design and erection should be supervised by a registered professional engineer.

6.7 COLOUR

Colours should be chosen to ensure ease of reading by day-light and artificial light. White lettering on a dark background or vice-versa is recommended.

6.8 DESIGN

Lettering should generally be not less than 50 mm high to ensure ease of reading from a reasonable distance, but should not be more than 300 mm high to prevent the sign being visually intrusive or a distraction.

Composite signs advertising several premises/products are much preferred as this helps to avoid sign clutter. Such composite signs should not exceed 4 m in height and the lettering should comply with these guidelines.

Fixed signs or lettering on buildings should generally be on the front elevation, at or just above ground floor height and below eaves level. They should be of the same general size, level and design as neighbouring signs.

Advertisements can sometimes be used to good effect in brightening up plain structures or hiding unsightly development such as scrap-yards, rubbish dumps, etc.

Illuminated signs will not normally be permitted unless it can be clearly shown that road users will not be distracted and that the sign will be well maintained. Where illumination is required it may be preferable to direct light on to a non - illuminated sign for ease of maintenance.

Signs which project from a building or structure will not normally be permitted for amenity and safety reasons.

6.10 FLOOD LIGHTING

Lighting on buildings, at entrance gates and within plots is generally acceptable but such lights must only shine into that plot and not into neighbouring plots or highways.

The illumination of a structure or building for visual effect and prominence is only acceptable in limited circumstances where the building is of particular importance and merit. In such a case, permission should be granted by the Local Government.

6.10 CONTENT

- a) **No signs/billboards shall:**
 - Be in conflict with any law.
 - Be a danger to any person or property.
 - Be detrimental to the amenity of the environment on the account of size, shape, colour, texture and intensity of illumination materials or any other reason,
 - Unreasonably obscure, partially or wholly any sign/billboard owned by another advertiser previously erected and legally displayed and
 - Be objectionable, indecent or suggestive of indecency or prejudicial to public morals in its content.

6.11 OTHER REQUIREMENTS

Any sign/billboard shall:

- a) Bare the name or branding and address of the owner;
- b) Be designed in conformity with engineering standards, and specifications of structures and materials;
- c) Be constructed perpendicular to the centreline of the road;
- d) Be erected for purposes of road reserve maintenance, with a minimum clearance above ground level of 3.0 m for super signs/billboards, 2 m for large signs and 1.2 m for small signs. The overall height of the sign above ground level shall not exceed 15 m;
- e) Be rigidly and securely attached, supported or anchored in a safe manner so that unwanted movement in any direction is prevented;
- f) Be capable of effectively securing, supporting and maintaining its mass in addition to any force to which it may be subjected, including the wind pressure;

- g) Have all exposed metal work or otherwise treated to prevent corrosion and decay in case of timber structures;
- h) Be constructed to prevent the entry of water into and the accumulation of water or moisture on any part of its supporting frame work, brackets or other members;
- i) Be constructed or in the case of removing it, cause no damage to any property, tree, public services/installations or road. No parts of any damaged or removed sign shall remain in the road reserve;
- j) Be constructed to allow adequate clearance from ground level to permit free movement of pedestrians;
- k) Be designed (in case of structural elements and foundations) and constructed under the supervision of certified registered Engineer. Proof of the design having been done by a certified/registered Engineer shall be required;
- l) Be maintained in good repair and safe condition according to the highest standards as regards to quality of structures, boards and signs/billboards by the owner; and
- m) Be removed by the owner at no cost to the public if the space on which the sign is erected is required for other purposes. A notice of 90 days shall be given to the owner.
- n) Approval of erection and display of sign/billboards shall be granted for a definite period of time. Depending on the size of the sign/billboard, its location and materials used the Ministry or District Local Government or Urban Authority will grant approval for a limited period of time ranging from 1 - 5 years. Upon the expiry of the lease, the owner of the sign/billboard may reapply or remove the sign/billboard at his/her cost.

CHAPTER 7: STANDARDS FOR SOCIAL SERVICES, UTILITIES AND GOVERNMENT FACILITIES

7.1 GENERAL

The utilities and social services considered in this document refer to those facilities normally provided by the Government or local authorities for the benefit of the general public. These include: primary and secondary schools, health care facilities, administrative offices, courts, post offices and telephone exchanges, produce markets, sports fields, and police stations.

Most social services are best located in commercial centres. With the exception of post offices and produce markets, they should be sited away from the main shopping streets. It is also advisable to keep them away from industrial areas and entertainment facilities. Schools should not be sited in commercial centres but in convenient locations within the residential areas they are to serve.

7.1.1 Plot Size and Shape

Recommended plot sizes are given in the different chapters of this document. They are sufficient to accommodate the standard range of facilities without overcrowding and with some allowance for expansion. Larger plots may be necessary where there are site problems, such as steep slopes, bad drainage, etc. Plots will normally be rectangular in shape with the narrow side fronting a public road as this helps make efficient use of infrastructure such as roads, water mains, etc.

7.1.2 Building lines

Buildings must be set back from plot boundaries for reasons of privacy, amenity, health and safety. The external walls of the building must be on or behind the building line, subject to all other standards being met. In general, the front building line will set back 8 m from the front boundary. The side and rear building lines will be 3 m inside the plot boundaries.

7.1.3 Plot Access

Every development must have direct vehicular access and cycle access onto a public road. Provision should also be made for pedestrian footpaths and cycle lanes.

7.1.4 Design/Materials

All social service buildings must be constructed of permanent materials. Roofing materials must also be permanent and non-reflective. In certain areas a high-quality roof finish such as tiles or cooler blocks may be required.

7.1.5 Access for the Physically Challenged

The design of social services buildings must take into account the needs of the disabled, particularly those with a mobility handicap. The ramp should mainly be used for access in addition to other facilities such as lifts wherever available.

7.1.6 Car Parking/ Service Areas

Adequate on-site car parking spaces must be provided for both staff and visitors in accordance with the standards set out in chapter 4. Access must be provided for service and delivery vehicles and there must be sufficient space to enable such vehicles enter and leave the site in forward gear. Service yards should normally be hidden behind the buildings, for amenity reasons. All car parks and service yards should be hard surfaced and clearly marked.

7.1.7 Utilities

Water

There should be a separate piped water supply for each user activity, or other suitable supply - to the approval of the local authority.

Surface Water Drainage

Surface water run-off from buildings and hard surfaces must be properly drained to the approval of the local authority.

Sanitation

Every premise must have water-borne toilet facilities drained to a septic tank and soak pit within the plot, connected to a sewer lagoon or to a central sewerage system, to the approval of the local authority. Septic tanks must be positioned so that they are accessible for emptying by tankers. Details of sewerage lagoons and septic tanks are provided in Appendix 1.

Waste Disposal

Any refuse must be sorted and stored in proper containers for collection and appropriate disposal by the respective Local Authority, to the approval of the local authority. Hazardous wastes will require special treatment.

Power Supply

Electricity will be supplied to all permanent premises by the relevant electricity distribution companies, by private generator, solar system or any other approved system, to the approval of the local authority.

According to the Uganda Electricity Transmission Company Limited (UETCL) the recommended way-leave corridors (in Meters) are presented in table 8.1:

Table 8: Way leave corridors for electricity

Item	Recommendation in Metres
Way-leaves corridor (Meters)	66 KV - 20 m 132 KV - 30 m 220 KV - 40 m 440 KV - 80 m
Minimum vertical distance below the transmission lines	66 KV - 8.0 m 132 KV - 8.5 m 220 KV - 9.5 m 440 KV - 10 m

Guidelines for locating a sub station

- a) Substations should be located at least 200 m away from telephone exchange, broadcasting or radio communication installation; 6 m from any adjacent building or development for safety measures in case of fire to be used for fighting equipments.
- b) Main receiving substation requires a minimum of 5% of the exterior spaces that are reserved for landscape and require buffer zones of approximately 50 m between the substation and other land uses.

7.1.8 Boundary Fencing

Boundary fences must not exceed 1.2 m high with a metal grill not exceeding 2 m in height. A fence or wall along a road boundary should be set back 0.5 m inside the plot so that a hedge or other landscaping can be planted to screen the developments.

7.1.9 Landscaping

Landscaping shall be done to enhance amenity of the site and provide shade, privacy, and screening.

7.11 Staff housing

Staff housing should be located in nearby residential areas. Sites for social services developments should be chosen with this in mind. Exceptions are made for caretakers, security officers and essential staff who have to be nearby in case of emergencies. In case members of staff are to be accommodated on site, then a zoning plan must be submitted indicating the segregation by infrastructure services.

7.2 STANDARDS RELEVANT TO SPECIFIC SOCIAL SERVICES

7.2.1 Education

a) Pre-primary schools

These include Day Care Centres, Kindergarten and Nursery schools. Day care centers are where infants are accorded the basic child care; Kindergartens/ Nursery schools are establishments of preparatory schooling where children are taught prior to joining primary school education. These will normally be integrated into residential

neighbourhoods or within existing primary schools or can be incorporated in existing religious institutions.

In urban areas, walking distance will depend on the spatial distribution while in rural areas a minimum distance of 1.5km is recommended. Existing and proposed primary schools should be encouraged to incorporate day care centres/kindergarten and nursery schools where possible.

Guidelines

In urban areas standards will be affected by the scarcity of land and the high values. Therefore, developers should take advantage of vertical developments. The minimum plot area requirement for nursery schools is 2,000 sq m.

Locational requirements

- Site must have access roads.
- Avoid busy roads.
- They should not be located near incompatible land uses such as bars, cinemas.
- In high and medium income areas, parking facilities should be provided to manage vehicular traffic and eliminate obstruction to vehicular traffic flows.

Space requirements for Day care centers and Kindergartens

The facility should accommodate in addition to classroom, sanitation and administration block, space for restrooms and play areas.

Space requirements for Nursery schools

In addition to the basic infrastructure such as administration, classrooms, restrooms and sanitation facilities all nursery schools should have outdoor soft playing areas.

b) Primary schools.

Recommended plot areas for primary schools are given in table 9. These are sufficient to accommodate school facilities, playing fields and demonstration gardens for single stream day and boarding primary schools only.

For playing fields, schools may utilise nearby facilities where these are available and can be safely accessed. In such cases authorities have to avail documented evidence of access from the owner.

Vertical developments should be encouraged in urban areas to save on space provided that classrooms shall not be beyond the 3rd level from the ground. Sanitation: 1 toilet stance for every 40 students is sufficient.

Location Guidelines

- i) They should be located within residential neighbourhoods and easily accessed by road
- ii) In case pupils are dropped and picked by cars or public transport, facilities for safe collection and parking should be available.
- iii) It is also important that applications for educational institutions include details of all relevant information to facilitate the responsible Urban Authorities determine the required acreage. It is also required that after land for educational facilities has been allocated, site layout plans and other drawings be submitted to relevant authorities for guidance, approval, monitoring and evaluation to avoid haphazard developments.

- iv) All educational institutions should be integrated with major open spaces whenever possible to encourage the sharing of open spaces and play grounds with members of the public.
- v) Must not be in industrial area, wetland or forest reserve.

Urban primary schools should normally be designed for double or triple streams to make efficient use of resources. A typical layout for a double-stream day primary school is shown in Figure 1.5.

On the above minimum areas provided for primary schools, an addition of 0.4 - 0.8 ha is required for agricultural demonstration plots (school gardens) where applicable. It should be noted that, all schools expand even if a school will start as a single stream initially; it should be allocated a minimum of 4.7 ha to cater for future expansion. In case members of teaching staff are to be accommodated on site, an additional land of 0.8 ha should be allocated for staff housing. The houses should be flats whenever appropriate to economise on space.

If it is a boarding school, then 0.4 ha should be added on to cater for every 200 students in terms of dining halls together with dormitories in a storied building.

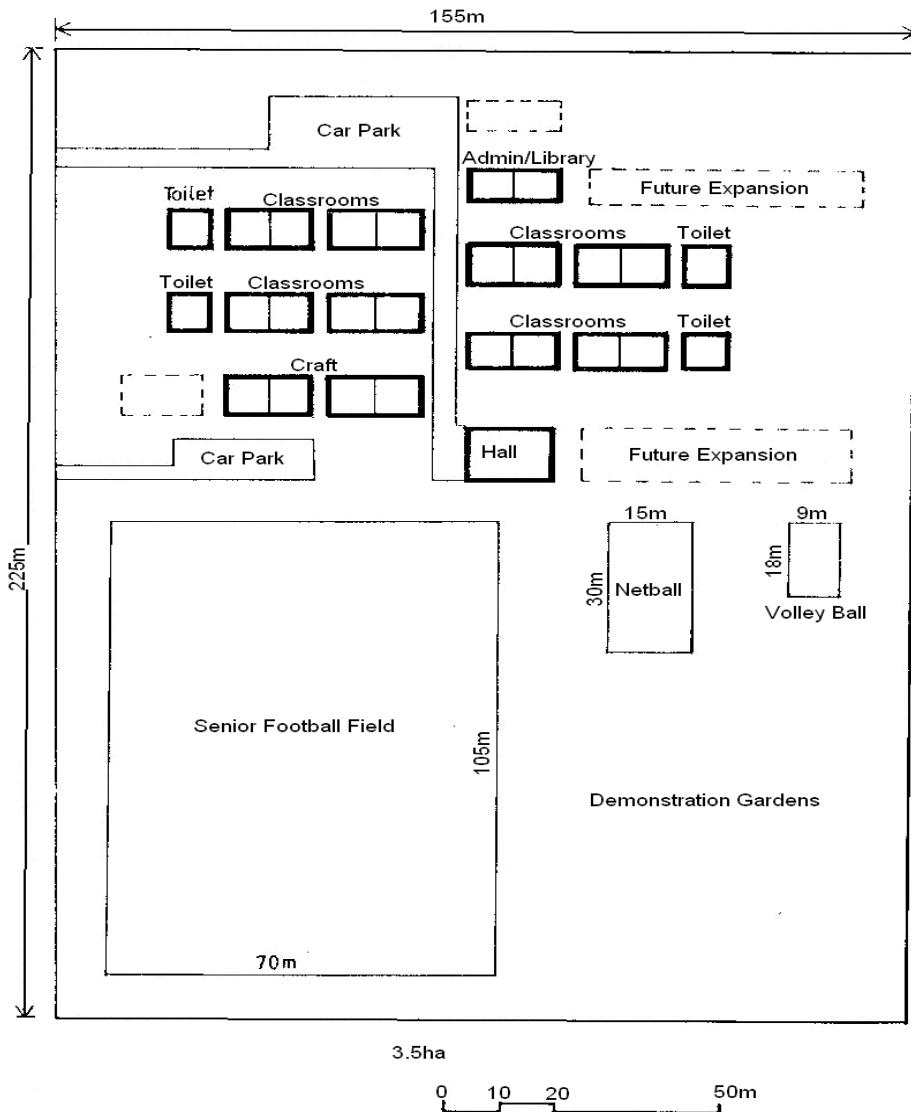
Walking distances for rural schools should be 0.5 - 3 km while for urban areas, it should be between 0.5 - 2 km. However in urban areas, the location of education services depends on the catchment population, availability of land for development and the preference of consumers than distance travelled.

It is difficult to devise standards of provision which apply in all situations but in general a single-stream primary school is warranted if there are 2,000 people living in a rural area and 4,000 people for urban areas.

Table 9 Plot Area Requirements for primary schools

Facilities	Single-stream (Day)	Single-stream (Boarding)	Double- stream (Day)	Double-stream (Boarding)
Classrooms, hall, administration, etc.	1.0 ha	1.0 ha	2.0 ha	2.0 ha
Playing fields, gardens	1.5 ha	1.5 ha	1.5 ha	1.5 ha
Dormitories	–	0.4 ha		0.4 ha
Staff Accommodation	–	0.8 ha		0.8 ha
Total plot area	2.5 ha	3.7 ha	3.5 ha	4.7 ha

Figure 1.5: Double Stream Day Primary School



c) Secondary schools

Recommended plot areas for day and boarding secondary schools are for a single stream mixed secondary school with Senior 1 - 6, 3.5 ha for double stream mixed secondary school while 4.5 ha is sufficient for triple stream mixed secondary school. This includes space for a senior football field encircled by running track, plus basketball, volleyball, netball pitches and demonstration gardens.

At schools where teaching of agriculture courses is to be provided, an additional land estimated at 10% of the above minimum space requirements should be set aside. Where schools by virtue of their geographical siting (are unable to meet these requirements - the stipulated minimum space requirements) sharing of sports facilities should be encouraged so long as such sharing does not adversely affect the required area and the net benefits derived by each of the sharing schools.

In case members of teaching and subordinate staff have to be accommodated at the site, then additional land of 1ha should be allocated for staff housing. Vertical developments should be encouraged to save on space.

If it is a boarding school, then 0.4 ha should be added for every 200 students to cater for dining halls together with the dormitories preferably in storied buildings. Since all schools expand, even if a school starts as a single school, it should be accorded the minimum area of 6.0 ha so as to forestall the problem of land shortage in case there is need for expansion. Each school should therefore be developed on a three stream capacity.

A typical layout for an urban day secondary school is shown in Figure 1.6. It is recommended that new secondary schools in large urban areas be for day pupils only. In general there needs to be a secondary school for every 50,000 people.

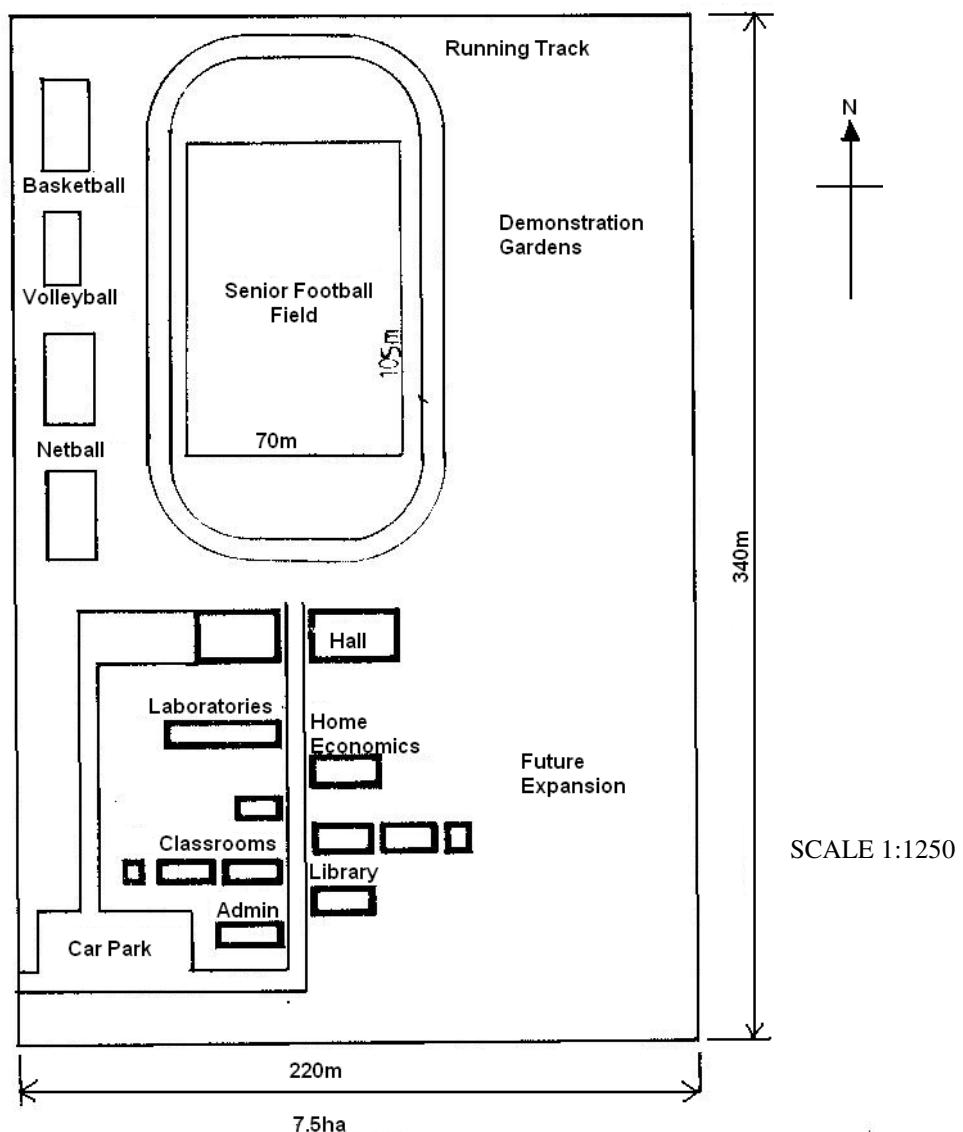
School buildings in urban centres should preferably adopt the vertical concept of buildings most especially the boarding schools to reserve land for future expansion and save space. If there is a playground nearby and there is proof of access from the owner to the school authorities, then another one is not necessary.

In urban areas, a minimum walking distance of 1.5 km is recommended though factors such as catchment population, consumer preference and availability of land influence travel patterns.

Location Guidelines

- i) (As for primary schools).

Figure 1.6: Urban Day Secondary School



d) Tertiary Institutions

These include colleges and Universities. Their establishments, standardisation, accreditation and supervision rules are contained in the relevant laws and regulations. Minimum land area required for colleges is 4 - 6 ha.

Guidelines for establishing Colleges

- i) Type of college determined by the regional and local factors.
- ii) Should be well served by public transport.
- iii) Should be free of pollution from noise, smoke, odour and dust.
- iv) Area for workshop buildings with heavy machinery and frequent deliveries should be located separately usually in single storey buildings.
- v) Must not be in industrial area, wetland or forest reserve.
- vi) Must have access to road network, physical infrastructure and quiet environment that promotes learning environment.

Guidelines for University Institutions

The land size for a University should be at least 50 ha comprising of the following:

- a) 20 ha to support up to 500 students.
- b) 10 ha for the main campus.
- c) 2 ha for auxiliary services e.g. nursery school, staff quarters (teaching and non-teaching staff).
- d) 2 ha for open spaces and car parking exclusively.
- e) 2 ha for land set aside for sewerage plant (if there is no central sewerage system).
- f) 5 ha for outdoor sports for 500 students.
- g) 10 ha for farm land for a university offering agriculture as a course.
- h) Every university should provide the following minimum physical facilities to accommodate its activities:-
 - i) Lecture rooms.
 - ii) Departmental areas, staff offices, and seminar rooms.
 - iii) Central administration areas.
 - iv) Library.
 - v) Auditorium/Lecture Theatre.
 - vi) Staff common rooms.
 - vii) Students' common rooms with indoor recreational facilities.
 - viii) Outdoor recreational facilities in front of games or sports facilities.
 - ix) Drainage systems, proper sanitation and water supply.
 - x) Dispensary or preferably a hospital.
- i) Every residential university, shall in addition to the above, provide:
 - i) Kitchen and dining facilities.
 - ii) Students' accommodation including adequate laundry and storage facilities.
- j) A university offering Urban and Regional Planning shall have adequate studio space for every year of study and the university shall have a model making workshop.
- k) A master plan should be prepared in accordance with these standards and all applicable laws and regulations to ensure that all facilities and proposed developments are functionally related and compatible and all administrative buildings, lecture rooms and other facilities are in close proximity to one another.

7.2.2 Health Facilities

These standards cover the most commonly provided health care facilities. The recommended plot areas are given in table 10. The basic site area will accommodate the essential medical and ancillary buildings plus car parking, service areas, landscaping, etc. Standards of provision vary but in general, there should be a health centre for every 10,000 people and an under - fives clinic for every 2,000 people.

Guidelines

- a) Planning for health facilities in urban areas should take into consideration the high land values and scarcity. It is therefore recommended that, developments in urban areas take advantage of vertical extension to save on land.
- b) Accessibility of 5 km walking distance should be applied to areas that are hard to reach (especially the rural areas).

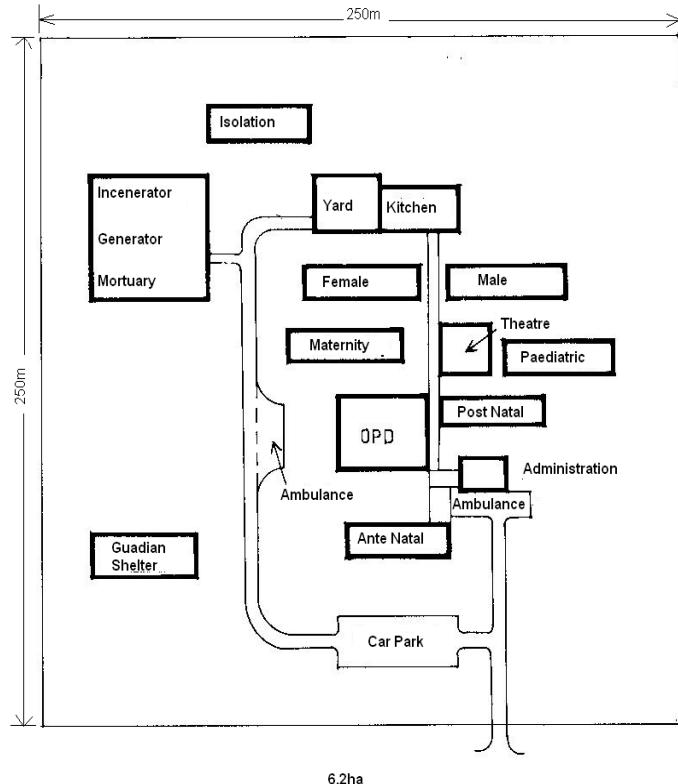
- c) Area selected must be able to accommodate the various minimum functions of the health facility as per the Ministry of Health provisions (standards and guidelines) except where local circumstances require otherwise.
- d) Developments in the rural areas should take advantage of the large expanses on land available where possible.
- e) Under 5 year's clinics and HC I shall be accommodated in commercial, institutional and residential developments/structures. They should be located at the edge of the commercial centre. However, they should have no direct access from the main road.
- f) Hospitals should be located along main road but should not have direct access from the main road. While Rural Health Centres be located on the edge of commercial centre for convenience and ease of accessibility - due to the access roads that converge within the commercial areas.

Table 10: Plot Area Requirements for Health Facilities

Type	Basic site area (ha)	Area for additional facilities	Catchment Population
National Referral Hospital	≥ 6	Varies according to space available	27 million
Regional Referral Hospital	≥ 6	Varies according to space available	2 million
District hospital	4 – 6	5.0 ha - oxidation ponds, etc. 10.0 ha - staff housing	0.5 million
Health Centre IV	2 – 3	0.5 ha food store, guardian shelter, etc.	0.1 million
Health Centre III	1 – 2	1.5ha-Demonstration gardens, guardian shelter, etc 1.2 ha - staff housing	20,000
Health Centre II	1 – 2	1.5ha-Demonstration gardens, guardian shelter, etc 1.2 ha - staff housing	5,000
Health Centre I	≤ 1	—	Ward/LC 1
Under – fives clinics	0.15	—	

Typical layouts for district hospitals and urban health centres are shown in figure 7.4.

Figure 1.7: District Hospital



7.2.3 District Administration and Local Government

These standards cover the main offices of the district administration or local government. Normally these will be located in the main town of each district. Besides the administrative offices, there may be a requirement for stores, workshop and garages and these can be combined on the same plot or be located elsewhere on sites suitable for light industry.

Table 11: Plot Area Requirements for District/Local Administration

Type	Basic site area	Area for additional facilities
District Administration	5 ha	1 ha - stores/workshop
County/Sub-County	2 ha	1 ha - stores/workshop
Municipal Council	1.5 ha
Town Councils	1 ha

These facilities shall be well landscaped with adequate greenery around them.

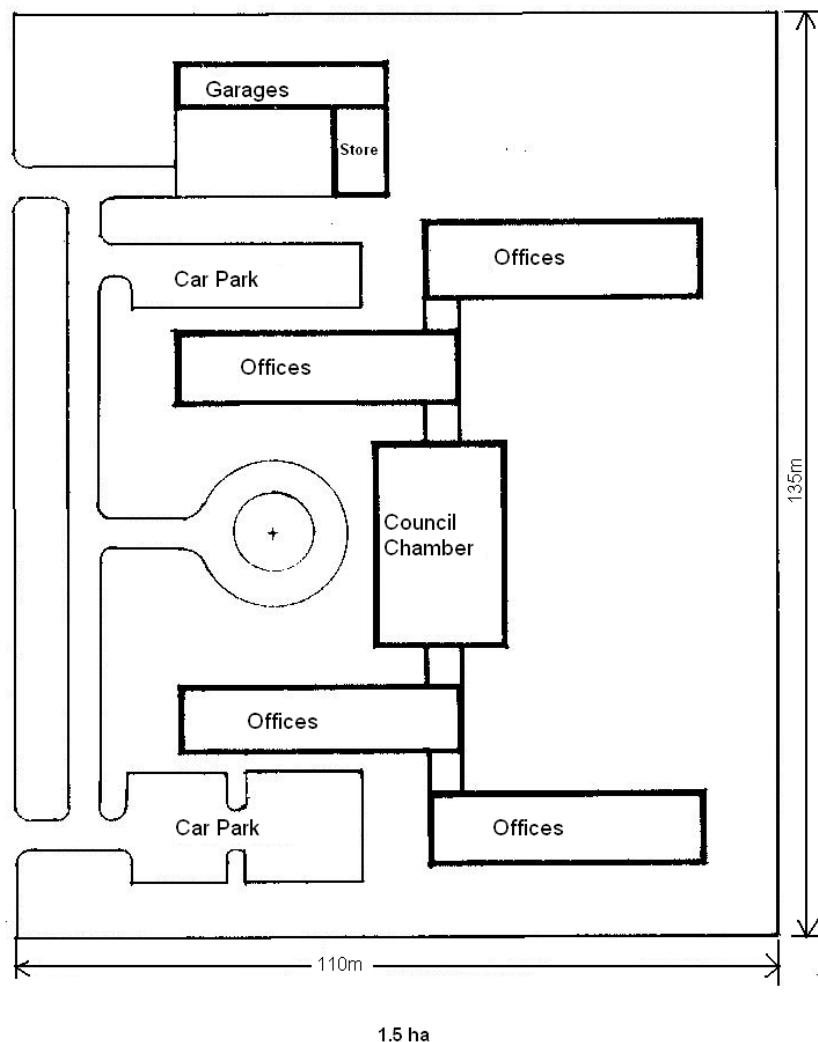
A typical layout for local government offices is shown in Figure 1.8.

7.2.4 Judiciary Facilities

These are town centre activities and their location depends on their level of service. Recommended plot areas for traditional courts and magistrates courts are 0.5 ha for Magistrates court; 1 ha for the High court & 1 ha for the Supreme court. The recommended area will accommodate the courthouse, toilets and parking space. Where these facilities are to be constructed on part of government/public land hosting other

government facilities, the space requirements may be considerably lower considering the possibility of sharing parking space and greenery.

Figure 1.8: Local Government Offices



7.2.5 Markets

Markets are usually the main focus in commercial centres and should be located accordingly. They should be close to public transport services. The market must have its own car park and service/delivery yard. The selling area should be enclosed by a wall or fence. There should also be lock-up shops for butchers, fishmongers, etc., and stalls for the sale of fresh fruit and vegetables.

The market should also provide facilities for craftsmen. A wood-fuel yard is also needed either within the market fence or adjacent to it. Public toilets must be provided. Recommended plot areas are given in table 12.

Table 12: Plot Area Requirements for Markets

Type	Market area	Car park/ service yard area	Total plot area
Town centre	1.0 ha	0.3 ha	1.3 ha
Neighbourhood centre	0.8 ha	0.2 ha	1.0 ha
Local centre/ trading centre	0.4 ha	0.1 ha	0.5 ha

7.2.6 Sanitary Landfills

Guidelines for locating a landfill site

- i) Located away from; Airports (at least 2 - 5 km & outside of the approach and take off zones), populated areas (200 m away), Wetlands, national parks and areas with precious flora and fauna, Seismic Impact Zones, Flood Prone Zones, ground and surface water sources and historical, religious and other important cultural sites or heritages.
- ii) Sufficient consultations must be carried out to avoid conflicts with the neighbouring community members.
- iii) Sufficient cover material should be available nearby.
- iv) Existing site utilities such as underground pipes or conduits (for sewage, storm water, etc.) must be avoided unless their relocation is feasible.
- v) Areas must be easily accessible by delivery vehicles.
- vi) EIA must be carried out.

Table 13: Selection criteria for selection of landfill sites

Condensation of information	Steps and criteria	Reduction of area
PHASE 1 Exclusion Criteria (Examples)	1. Exclusive Areas (Negative Mapping) <ul style="list-style-type: none"> a) Drinking water protection area b) High flood areas c) Unstable ground area d) Extreme morphology e) Swallow/sink holes f) Closer than 300 m to populated areas g) National parks, monuments, forests, heritage etc h) Close to airports 	Total area Approx. 70% of the total area
PHASE 2 Evaluation Criteria (Examples)	2. Selection of Potentially Suitable Areas (Positive Mapping) <ul style="list-style-type: none"> a) Traffic b) Availability of land c) Land use d) Meteorological aspects e) Geo-technology f) Investment budget 	5 Sites
PHASE 3	3. Site Investigation (Examples) <ul style="list-style-type: none"> a) Subsurface exploration b) Cost-Benefit-Analysis c) Environmental Impact Assessment 	2 – 3 Sites
PHASE 4	4. Final Decision	1 Site

7.2.7 Recreation Facilities

Recreation areas can be public or private. Areas of recreation may include areas of scenic beauty; areas of cultural or historical importance; unique physiographic features; parks, forests or water masses, play fields, stadia, green spaces, zoos, snake parks, museum and amusement parks, discotheques, cinemas and conservation areas.

There is need for recreation facilities both in urban and rural areas due to:

- a) Need for relaxation/economic activities
- b) Income generation/ economic activities
- c) Social interactions
- d) Tourist attractions
- e) Set as carbon sinks/breathers
- f) Preservation of socio-cultural and or religious values
- g) Environmental conservation areas - forests, trees, flower planting, etc.
- h) Competing users due to population pressure hence overcrowding in informal settlements

Recommended plot areas for the most commonly provided sports and play facilities are given in Table 14. Such facilities are normally located adjacent to commercial centres and near other community facilities. The recommended plot area will accommodate the playing area and enough space for spectators. With some facilities such as a senior football pitch, there may be a need for additional land for a car park.

Table 14: Plot Area Requirements for Recreation Facilities

	Sports and Play Facilities	Pitch size (m)	Proposed Plot area
a)	Maximum size soccer field with cricket and athletic track	95 x 180 m	0.17 - 0.74 ha
b)	Junior football field	45 x 90	0.8 - 1.2 Ha
c)	Medium size practice soccer/hockey field for dual use	90 x 100 m	0.9 ha
d)	Senior football field	70 m x 105 m	1.5 Ha
e)	Netball court	18 x 33 m	0.2 Ha
f)	Basketball court	18 x 28	0.2 - 0.5 Ha
g)	Volleyball court	9 x 18	0.2 - 0.4 Ha
h)	Tennis court	22 x 24 m	0.2 - 0.3 Ha
i)	Swimming pool	20 x 25 m	0.1 ha
j)	Children's playground	Vary	≤ 0.15 Ha

Other Recreation Facilities

a) Golf Courses

Golf courses are best situated in undulating terrain with gentle gradients. They should be surrounded by forest or light tree cover with natural features such as streams, lakes, sand, etc). The size of the golf course depends on the number of 'holes' and their length (i.e. the distance from tee to hole).

For a 9 hole course, an area of 5 - 10 ha is required with a population of 100,000 people within less than 30 minutes drive while for an 18 hole course, an area of 55 ha - 60 ha is sufficient.

b) **Neighbourhood Recreation Parks**

A successful park should provide a variety of park types and recreation opportunities throughout the community to encourage recreation participation from as many residents as possible. The ideal park system shall provide an array of park sites with amenities and facilities appropriate to unique landscape of the planning area.

Site selection, park design and development should support the function and purpose of each park type to ensure that diverse recreation opportunities are provided and community recreation needs are met. This will provide a more efficient park system and minimize the potential for conflicts between different interest groups.

Neighbourhood parks provide close-to-home recreation opportunities primarily for non-supervised and non-organized recreation activities. Facilities found in neighbourhood parks include: - children's playgrounds, picnic areas, trails, tennis or basketball courts and sports practice fields. Typical users come from within a radius of 2 km and travel by foot or bicycles and visit for short time periods.

The optimum size is 1.2 to 2.8 ha, but these parks may be larger if significant natural resource land is incorporated. The site should have at least 60 m of street frontage with on street parking. Larger sites shall reserve area for off street parking. Active and noise producing facilities, such as basketball courts, should be located at least 30 m from nearby homes or property zoned for residential use. They are often located next to elementary schools.

c) **Community Parks**

These provide primarily active and structured recreation opportunities on sites designed to serve several neighbourhoods. Typical developments may include sports fields, trail systems, group picnic areas, and are designed primarily as a "drive-to" park rather than a "walk-to" park.

Typical users come from within a distance of 1.5 km to 3 km, travel by vehicle, bus, foot or cycle and visit the park for at least 1-3 hours. Site range from 8 to 30 ha in size, depending on the spatial requirements of the facilities provided and the amount of land dedicated to natural resource protection.

The site should be visible from adjoining streets and have a minimum of 120 m of street frontage. Parking requirements should be based upon the facilities provided at the site. Generally, 50 off-street spaces per ball field are required, plus 5 spaces per acre of active use areas. **Citywide Parks**

They offer the most diverse and/or unique recreation opportunities in the park system. They are designed to serve the entire jurisdiction with features that are also intended to attract visitors to the city, generating substantial economic benefit. Citywide parks also

are typically supported by nearby food services, lodging and other services necessary to accommodate extended use of the park by out-of-town guests.

Because of the diverse and unique offerings, citywide parks typically contain more open space and support facilities. Users come from throughout the city, arriving by vehicles, bus, bicycles or foot and visit the park for 2 - 4 hours or more. The site size will generally exceed 20 ha and should be sufficient to accommodate the park's unique features and/or amenities. Parking requirements should be based upon the facilities provided at the site. Generally, 50 off-street spaces per ball field are required, plus 5 spaces per acre of active use areas.

d) **Urban Open Space**

Urban open space may include smaller plazas that provide social gathering space, landscaped open space in high-density or commercial areas, beautification areas such as landscaped street islands or medians, downtown performance space, and public art and fountains. Typical users of urban open space may come from the city or beyond (depending on site location); arrive by bus, bicycle or on foot; and may visit the park for 1 hour to more than 3 hours.

Site Selection and Development Guidelines

- i) Size will depend upon the nature of the park and the types of facilities provided.
- ii) Site should front a public street and be within or adjacent to a business district or neighbourhood commercial area.
- iii) On-street parking should be provided.

7.2.8. Police stations

The locations of police stations depend on their functional requirements. They may be located in district centres, residential neighbourhoods, large commercial and business centres, industrial areas and large institutions. Space requirements should take into account residential, remand facilities, administrative facilities at different levels, parking and open spaces for recreation and future expansion. Recommended plot for police stations are given in table 15. The plot areas will accommodate the office buildings, vehicle yard, car park, recreation centre and full-sized parade ground. Police stations are best located in or adjacent to commercial centres. This will be difficult to achieve in the case of the smaller stations in urban areas unless the plot area is reduced by omitting or combining some of the facilities.

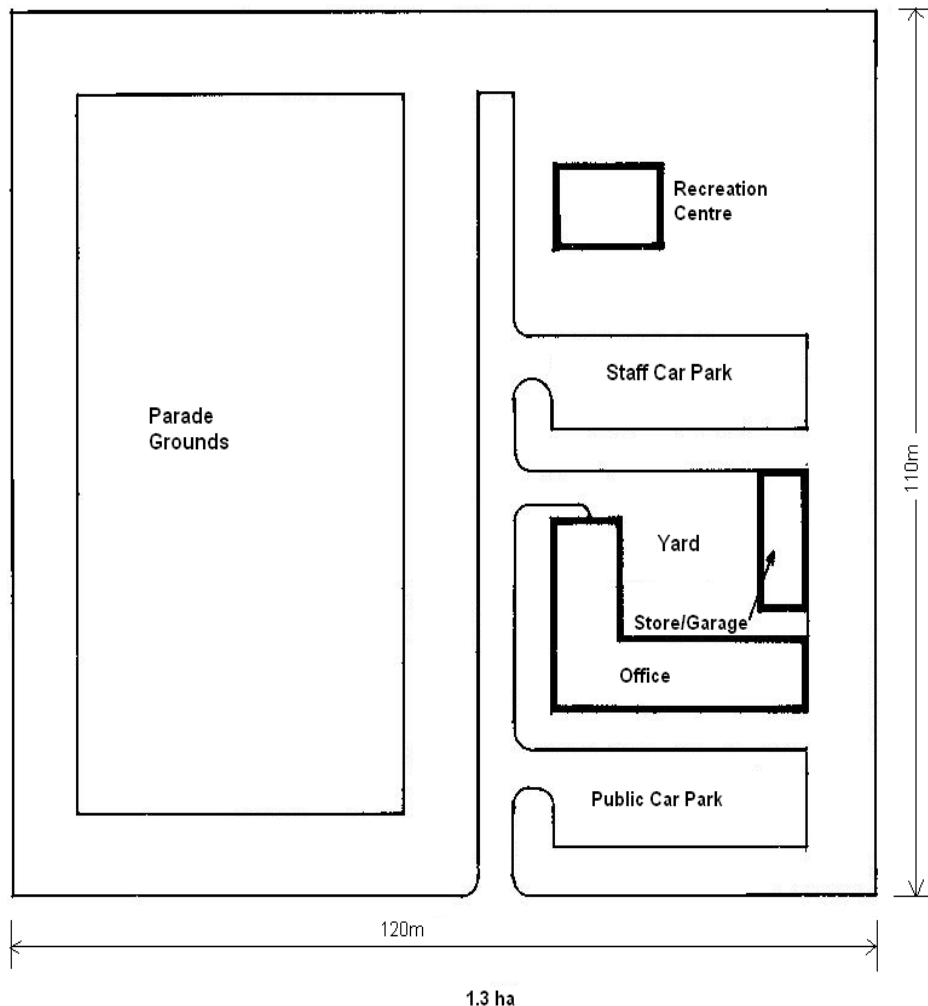
Table 15: Plot Area Requirements for Police Stations

Institutional Facilities	Land Area Required
Regional Police Station	1 ha
District Police Station	0.6 ha
Other Police Station	0.4 ha
Police Post	≤ 0.2 ha

For police barracks, accommodation is dependent on the available land ranging from 0.2 ha - 1.7 ha as an addition to the institutional facilities

A typical layout for a typical police station is shown in Figure 1.9

Figure 1.9: Typical Police Station



7.2.9. Prisons/Rehabilitation Homes

Prisons are big land consumers and therefore not suited for location in urban areas. They should be located on the urban fringes particularly in areas where urban expansion would not be unnecessarily curtailed.

A minimum of 16 ha should be reserved for Prisons/Rehabilitation Centres while a minimum of 2 ha is sufficient for juvenile homes.

7.2.10. Post Offices

No specific site allocation is required since the facility can be provided in a composite building.

- a) In urban areas, post offices should be provided so that large concentrations of population have access to facilities within 0.8 km from where they live or work.
- b) In rural areas, a distance of 3.2 km should be assumed.
- c) In general, post offices should serve a population of not less than 30,000 persons.

- d) Adequate on-site parking should be provided to the approval of the local authority.

7.2.11. Public Library

The site for the library should be chosen to give a maximum of quiet environment and should be conveniently situated in relation to the population to be served. Good light and ample surrounding air space are essential and consequently sites congested by surrounding buildings should be avoided where possible. A minimum of 0.4 ha is adequate for this facility with basic facilities such as parking.

7.2.12. Fire Stations

The following standards and guidelines are recommended for the facility:

- a) Standard District Fire Stations require an area of 0.3 – 0.5 ha with a minimum frontage of 47 m and should be easily accessed from the main roads.
- b) Municipal and other smaller Fire Stations require a minimum land area of 0.2 ha with a minimum frontage of 35 m and accessed through the main road.
- c) Additional minimum area of 0.4 ha is required for staff accommodation and drilling area.
- d) A small fire station would require a minimum of 30 staff members to cover a population of 50,000 - 100,000 depending on the degree of fire risk.

7.2.13. Religious Facilities/Institutions

They include Churches, Mosques and Temples. It is important to recognise that there is no standard plot size and area required is influenced by nature and scale of development. Although they are essentially places of worship, they also comprise of premises for other socio-cultural facilities such as schools and dispensaries. Hence when planning for them, provision must be given for their possible future expansion. Due to increased use of church compounds during weekdays as educational or health facilities, it is important to locate them in residential neighbourhoods.

It is important to note that, exclusive churches need to be provided at the fringes of the central business district while a mosque and a temple may be located within the central business district to cater for the business community. The selected sites must be large enough to accommodate the institution, parking requirements of the worshippers, public convenience and housing for the clergy where possible.

Main issues to consider include:

- a) Scale of development i.e. its importance in the hierarchy of faith.
- b) Location i.e. is it easily accessible by walking.
- c) Capacity to develop vertically.
- d) A minimum of 1,000 (25 x 40 m) - 2,000 sq. m (40 x 50 m) space provision is adequate for such facilities.

7.3. AIRPORTS, AIRFIELDS AND AERODROMES

Many factors affect the orientation, siting and number of runways including the usability factors determined by wind distribution, alignment of the runway to facilitate the provision of approaches conforming to the approach surface specifications of the Civil Aviation Authority.

The compatibility of an airport with its surroundings is made possible by proper planning of the airport, control of pollution generating sources and land use planning of the area surrounding the airport. The aim is to provide the best possible conditions for needs of the airport, community in the surrounding areas and ecology of the environment.

Airport planning must be recognised as an integral part of the area wide comprehensive planning programmes. The location, size and configuration of the airport need to be coordinated with patterns of residential, industrial, commercial, agricultural and other land uses of the area, taking into account the effects of the airport on the people, flora, fauna, the atmosphere, water courses and other facets of the environment.

Basic Requirements for the Location of Airports or Airstrips

- a) Bird strikes: Land use planning around the airport to ensure no dumping sites that attract birds.
- b) Flying objects: Ensure no quarrying or charcoal burning in airport vicinity.
- c) Availability of ample flat land.
- d) Developments in the vicinity should be controlled.
- e) Location away from town (isolated).
- f) Feasibility should be done to ensure stability of the rock / soils under.
- g) Usability factor determined by wind distribution.
- h) The alignment of the runway should facilitate the provision of approaches conforming to the approach surface specifications.
- i) For a new airport location, particular attention should be given to areas over which aeroplanes will be required to fly when following instruments approach and missed approach procedures, so as to ensure that obstacles in these areas or other factors will not restrict the operation of the aeroplanes for which the runway is intended.
- j) The number and orientation of runways at an airport should be such that the usability factors of the aerodrome is not less than 95% for the aeroplanes that the aerodrome is intended to serve.

Need for Land Use Planning

There is need to control land use in the vicinity of airports in order to ensure that possible height hazards or obstructions to flights into or out of the airports are

minimised. Experiences on non-conforming purposes or land uses have indicated the need for control. Such uses include:

- a) Uses which may cause electrical interference with radio communications and navigational aids.
- b) Lights which might confuse pilots in the clear interpretation of aeronautical lights.
- c) Smoke which reduces visibility.

Land use in the vicinity of airports provides for:

- a) Airport needs such as obstacle limitation areas and future airport development.
- b) Ensures minimal interference to the environment and the public; for example by locating residential areas away from zones subject to excessive noise or other pollution by preserving parklands.

Considerations in Airport Planning

A number of considerations need to be taken when planning for airports. They include:

- a) **Atmospheric Pollution:** Emissions from aircrafts and ground vehicle engines, incinerators, terminal buildings, and other sources contributing to air pollution in the vicinity of airports.
- b) **Flora and Fauna:** Utilisation of land for airports purposes inevitably creates disturbances for flora and fauna. Airports development works frequently entails clearing and cutting of trees and other vegetation; changes in the topography of the area and interference with the watershed patterns. The airports destroy the natural habitat and feeding grounds of wildlife and may eradicate or deplete certain flora important to the ecological balance of the area. Another important consideration is the prevalence and habits of birds in the area and the associated risk of aircrafts bird strikes. Bird hazards at proposed new airports can be minimised by careful selection of the site to avoid established bird migration routes and areas naturally attractive to birds and by using the land surrounding the airports for land uses that will not attract concentration of birds to the area.
- c) **Soil Erosion:** As a result of vegetation clearing and interference with the watershed patterns, land on airports or within the vicinity may be vulnerable to soil erosion by the natural elements and to a limited degree by aircraft jet blasts. This can only be prevented by replanting. In arid areas, it may be necessary to take artificial erosion protection measures such as facing of escarpments, paving of taxiways flanks and lining of drains.
- d) **Streams, Lakes and the Sea:** Contaminants may enter streams or water ways from airport drainage systems and eventually run into lakes or the sea. These contaminants originate from ground vehicles and airport washing, terminal services, aircraft servicing, pavement cleaning and airport maintenance and construction works. Particular consideration should be given to possible water pollution during the construction phase. Activities such as vegetation clearing cause an increase in the amount of soil

carried into streams. Pest control which involves the use of sprays introduces long life toxic chemicals into the water system. Fuel spillage from equipments and chemicals employed in building and pavement construction works can also contribute to upset of the hydrological balance of waterways in the sea. Changes to the natural drainage patterns of an area may occur due to construction of an airport. This may in turn overtax certain streams and give rise to flooding and certain streams may dry up due to the diversion of the flow.

- e) **Noise:** The intensity and nature of aircraft engine noise is quite variable depending on the engine type and the nature of operation being undertaken. Noise nuisance associated with airports is also closely related to frequency of aircraft operations and their diurnal distribution: for example noise at night is more of a nuisance than the noise during the day time. High levels of noise are most undesirable. Noise is a particular health hazard to employees who because of their work are subjected to long durations of intense aircraft noise. Strict precautionary measures are necessary for these people such as mandatory usage of acoustic protective devices. The repercussions of the excessive airport noise in residential areas are primarily of a social and behavioural nature. Table 8.9 indicates the types of uses which may be allowed in the vicinity of airports. Trees may be planted to screen certain areas from airport noise. Good protection against ground run up noise might be expected from judiciously planted trees. When proposing trees to be planted for the development of a sound insulating forest, consideration should be given to species that:
 - i) Are suitable for the climatic conditions of the airport site.
 - ii) Have effective sound insulation properties for instance do not shed off their leaves or grow rapidly and densely.
 - iii) Do not generate bird hazards.
 - iv) Are easy to cater for after their growth for example healthy and not readily affected by blight or noxious insects.
- f) **Environmental Impact Assessment (EIA):** Detailed study of the impacts of the airport development on the environment is an essential part of the assessment of any major project. Social - ecological impacts should be investigated fully before work is undertaken or in the case of the new airport, when the site is being selected. Environmental impact studies depending on the nature of the project, take into account the following:
 - i) Compatibility with the community including health, transport and social implications
 - ii) Influence on ecology including effects of pollution preservation of flora and fauna.
 - iii) Means of overcoming any problems.

Table 16: Typical compatible land uses around airports

Examples of compatible land uses	Zones		
	A	B	C
Agriculture, Crop Farming			
Industrial, Machinery Workshop			
Commercial			
Warehousing and Shipping			
Office and Banking			
Residential: Low Density Housing			
Public facilities (Schools)			

Note:

- i) The length of the bar indicates where land uses might be permitted without restriction in relation to aircraft noise exposure only; and excluding other planning considerations with respect to certain uses. For example housing, commercial or other developments might be allowed in a zone of higher restrictions when other planning considerations indicate a need and where suitable building techniques, sound insulations can reduce the aircraft noise exposure to acceptable levels.
- ii) In special cases of activities dependent on speech communication, such as schools or require more stringent standards for example certain hospitals activities, additional restrictions may be required to take account of absolute noise levels as well as building constructions. The zones will require to be defined against noise exposure scale and in their application will need to take account of local and national needs.

7.4 OTHER TRANSPORT & CONVEYANCE INFRASTRUCTURE

7.4.1 Railway Line

- a) 60 m way leave i.e. 30 m on either side
- b) Possible permitted location areas for sub stations include:
 - i). areas of high population concentrations;
 - ii). factories, warehousing
 - iii). areas of high production
 - iv). industrial sites
 - v). mining areas

7.4.2 Bus and Taxi Parks

- a) Generally, stations should be located 1.6 km apart. Circumstances might require closer locations such as near town centres, industrial parks and airports.
- b) Pedestrian access to bus stops/stations should be maximized, lighting, covered walkways and shelters should be provided. Station and shelter design shall be coordinated with the local authority.
- c) Each station should be in close proximity to other modes of travel such as railway stations and any other existing mass public transport system.

7.4.3 Guidelines for Bus/Taxi Parking Bays along roads

- a) There is need to ensure that bus and taxi parks are accessible to the elderly and the physically challenged.
- b) There is need for the responsible authority to designate areas for parking bays along roads.
- c) There is need to provide shelters on the designated bus/taxi parking bays along the roads.
- d) Each bus stop location shall be marked with a rectangular blue sign atop a tall curb side pole accompanied by a display of schedules for each bus route serving the stop as well as restricted parking signs where applicable.
- e) Most buses are 2.5 m to 3.5 m high. The minimum vertical clearance for buses should be no less than 3.6 m, with 4.4 m as the desirable clearance.

7.4.4 Petroleum Pipelines

- a) 30 m way leave i.e. 15 m from either side
- b) No parking for vehicles
- c) No tree planting
- d) No access along pipe lines

7.4 Fuel Filling Stations

Table 17: Summary of area requirements; Zoning and Location guidelines for Fuel Filling Stations

Item	Standards and Guidelines
general site dimensions of new stations	Minimum size : 750 sq. metres. minimum frontage : 25 m minimum width of access : 6 m
site dimensions of stations with container vehicles patronage	minimum frontage : 40 m minimum width of access : 8.5 m
siting on Expressways	at least 2 km from any intersection preferably form part of a service area
siting on Trunk Roads, Primary Distributor Roads and Rural Roads	minimum sight distance of 100 m minimum interval of 3 km
siting on other roads lower in the hierarchy	minimum sight distance of 50 m minimum interval of 100 m if located on different sides of the road minimum interval of 300 m if located on the same side of the road
waiting spaces	1 vehicle space adjacent to each metered filling point minimum of 4 waiting spaces between the entrance and the filling points additional 4 spaces for each service bay if general lubrication and servicing facilities are available 1 additional space between each air-pumping point
Other requirements and facilities at FFSs.	1. All FFS to provide separate WCs for males and females and ensure their indiscriminate access by all travellers and motorists, and also keep them in good working and hygienic condition. FFSs on highways shall provide not less than two toilets for either sex.

Item	Standards and Guidelines
	<p>2. FFSs on highways shall provide at least three bins for separated waste accessible by all travellers and motorists.</p> <p>3. FFSs on highways should preferably be situated at or include a service centre for emergency shopping, refreshments, restaurant, souvenir shops, etc.</p> <p>4. All FFSs on highways shall provide parking space for not less than two buses & 5 other vehicles at any one given time available to motorists for short periods of up to 20 minutes.</p>
environmental and fire safety considerations	preferably be located in relatively open areas avoidance of noise and air disturbances covering of facilities for car washing, petrol filling and maintenance activities, as well as car servicing and lubrication bays provision of adequate petrol & oil intercepting facilities provision of proper drainage facilities proper storage and disposal of chemical wastes compliance with fire safety requirements provision of fire hydrant within 100 m
general separation distances of Liquefied Petroleum Gas (LPG) filling station/facilities	high-rise residential/education/hospital : 55 m commercial/recreational/industrial : 15 m low density residential/incidental dwelling : 50 m
FFS within buildings	FFS (without LPG filling facilities) may be accommodated on ground floors of car parks, industrial or commercial buildings subject to : <ul style="list-style-type: none"> • station completely separated from other parts of building by enclosures with fire resistance period of 4 hours • site open for ventilation on one of the longest sides or two adjoining sides; • adequate headroom and ventilation; • floor area above to be used for occupancy with low fire/life risk; • openings and windows on three levels directly above should be bricked up; • Quantitative Risk Assessment and necessary planning Approval.

7.5 COMMUNICATION MASTS

- a. The operator shall provide to the Local Authority a statement for each site indicating its location, the type of mast, the height of the antenna and the frequency & modulation characteristics. Applications shall be accompanied by information relating to proper access to the base station including driveways on property & right of ways.
- b. Site area of the base station shall be a minimum of 225 square metres for self support towers. The foremost part of each mast/tower shall be a minimum distance of 5 metres from the physical barrier around the mast.
- c. Operators to consider the use of materials, colours & design that would minimise obtrusiveness. In urban areas, preference shall be for towers to be located on existing buildings.
- d. Maximum height of self support towers/masts in urban areas shall not exceed 45 metres.
- e. Any change to an existing base station which increases its height and/or base, shall be subject to the normal planning process as if it were a new development.

Security & Safety

- f. Readily identifiable signage, informing the public as to who are the operators of the site & their emergency numbers shall be posted at a conspicuous position at the site.
- g. All towers over 30 metres shall be painted & treated as stipulated by Civil Aviation Authority (CAA).
- h. All applications proposed to be located within a 3 km radius of airports, aerodromes, similar facilities & flight paths shall be referred to CAA for consultation before determination.

Mast Sharing

- i. Where practicable, the planning authority shall require that the operator/applicant demonstrate that all reasonable steps have been taken;
 - i. To investigate mast sharing before seeking to erect new ones
 - ii. To pursue the possibility of cooperating with another operator to erect new mast for joint usage.
- j. Planning authorities shall be required to maintain a register of all applications for telecommunication masts/tower site. This shall be made available to operators to allow them to consider the possibilities of mast sharing when planning the development of telecommunication networks.

The planning authority shall ensure that apparatus no longer required for telecommunication purposes are removed as soon as reasonably practicable from the land or building on which it is located and the land restored to its previous condition.

CHAPTER 8: MISCELLANEOUS STANDARDS

8.1 GUIDELINES FOR CEMETERIES

- a) These should be located away from environmental sensitive and commercial areas. If near wetland, an EIA should be conducted and should have a buffer distance of 200-300 m.
- b) In rural areas where land is available, cemeteries and morgues should be included in the area for hospitals. While in urban areas where land is scarce, the responsible local authority should acquire land for the same purpose outside or at the periphery of the urban area in question.
- c) Suitability of soils should be the main consideration. Firm and non-porous soils are recommended for grave yards.
- d) Should be located near residential areas preferably away from busy routes where funeral processions would not disturb normal traffic.

8.2 VEHICLE REPAIR WORKSHOPS/ GARAGES

This includes mechanical work, welding, paint spraying and selling of tyres and automotive parts.

Minimum Site Size

- Small establishments of ≤ 100 sq. m to 200 sq. m
- Large establishments range from 729 sq. m. (27 m x 27 m) for high rise purposely designed buildings - 972 sq. m
- For lorry repair workshops, a minimum space of 1,575 sq. m. per floor (35 m x 45 m) - 3,150 sq. m to achieve efficiency.

Location Guidelines

- should be located away from residential areas or sensitive uses
- in urban area and new towns, they should be accommodated on the periphery of industrial areas, either in purpose-designed buildings or on the lower floors of industrial buildings
- additional safety and fire prevention equipments are necessity; in rural areas, they should be provided for in low rise buildings of 1 - 2 storeys; maximum plot ratio of 0.5; provided with water supply and proper sewage disposal system and adequate paving and drainage to minimise land contamination and drainage problems as well as fenced to reduce visual impacts of unsightly developments.

8.3 ABATTOIRS

The following guidelines should be observed in the development of an abattoir.

- a) Location and site.
- i) Minimum site area of 1800 sq. m

- ii) Distance from urban development i.e. should not be located close to residential developments, education institutions, religious institutions, public and commercial buildings
- iii) Accessibility i.e. the site must be accessed by road
- iv) The site must have adequate water supply
- v) Effluent disposal i.e. the site should be free draining and not subject to water logging and flooding
- vi) Solid waste disposal: there should be sufficient space available for waste management by either incineration or disposal in a pit. Pit is recommended for small abattoirs and should not extend below the normal water table.

b) Design Requirements

- i) Slaughter hall/floor
- ii) Large area: should be large enough to hold the expected daily number of animals for slaughter
- iii) Soak-away pit for drainage
- iv) Fencing should be provided
- v) Amenities and office areas

8.4 URBAN AGRICULTURE

Urban Agriculture is defined as the agricultural practice within urban areas, market centres and peri-urban areas that includes; crop cultivation, horticulture, aquaculture, tree planting, livestock rearing and poultry keeping.

Benefits of urban agriculture

- a) Management of solid and liquid wastes
- b) Provision of food supplements and generation of incomes and employment
- c) Cleaning of the environment through recycling
- d) Use of land not easily developed for any other purpose e.g. land under electricity lines and land liable to flooding
- e) Reduction/reservation of energy used to acquire food elsewhere by producing it within urban areas
- f) Compensation of agricultural land lost through urbanization
- g) Provision of fuel wood, fodder, fruits, timber from urban forestry
- h) Provision of carbon sink, greening of towns and aesthetics
- i) Controls urban sprawl in the peri-urban areas

Planning Standards and Guidelines for Urban Agriculture

To promote urban agriculture in a regulated manner and avoid nuisances, the following are suggested:

- a) In residential areas, 5% of total area may be reserved for urban agriculture
- b) Buffer zones may be used as greening zones
- c) Agriculture be practiced in the backyard of the plot
- d) Practiced on minimum land sizes of not less than 500 sq. m
- e) Should be practiced in single holdings and restricted number and species of animals per land holding

- f) Should establish an adequate waste management system
- g) Should be restricted within enclosed boundaries
- h) Should not be practiced in ecologically fragile areas e.g. riparian areas, sewerage lines or ponds, cemeteries, dumping sites, slaughter houses and or seek approval from the local authority
- i) Where the plan takes more of urban characteristics, then urban standards should apply

8.5 ENVIRONMENTAL MANAGEMENT

8.5.1. Recommended Buffer Distances

Lake shores	- 200 m
Major River banks	- 100 m
Forests	- 100 m, or the use of physical barriers such as a road is recommended.
Minor rivers	- 30 m
Swamps	- minimum 50 m depending on function

Detailed information can be accessed from NEMA and National Forestry Authority (NFA).

8.5.2. Regulated Activities in Gazetted Wetlands

The following activities are recommended but guideline regulations on the operational should be accessed from NEMA:

Brick making, Recreational activities such as sport fishing, maintenance of green spaces, Cultivation, Drainage, Commercial exploitation of wetland resources, Sewage nitration; Fishing using fish gear and weirs, fish farming and other aquaculture; Construction of transport and communication facilities such as roads, railways, telephone lines; Burning; Any exploitative activity which is of a commercial or trade nature, such as harvesting of papyrus reeds for commercial purposes.

Buffer zones for wetlands should consider soil type (colour, Composition); vegetation type; depth of water table; topographical features/contour levels; existing and agreed or recognised customary boundaries that favour the wetland.

8.5.3. Projects that require the preparation of Environment Impact Assessment (EIA) to be conducted before implementation

- i) Urban developments such as townships, industrial estates, shopping centres, and complexes.
- ii) Transportation including the major roads, railway lines, airports, airfields, pipelines, and water transport.
- iii) Dams, rivers, and water resource - storage dams, barrages, weirs, river diversions, water transfers, flood control schemes, drilling purposes of utilising ground water resources including geothermal.
- iv) Aerial spraying.
- v) Mining - including quarrying and open cast.

- vi) Forestry related activities.
- vii) Agriculture.
- viii) Processing and manufacturing industries.
- ix) Electrical infrastructure.
- x) Waste disposal activities.
- xi) Natural conservation areas.
- xii) Any other activity which will result in a material change in the character of an area, with the surroundings, a structure of a scale not in conformity with its surroundings and major changes in land use.

CHAPTER 9: STANDARDS FOR PLAN SCALES, NOTATION AND GRAPHICS

9.0 Definition

A physical development plan drawing is a plan showing geographical (spatial) distribution and pattern of the various proposed land use activities. For a physical development plan drawing to be meaningful, the presentation involves illustrations of bearing, scale, hatching, colouring and/or use of symbols. The main aim is to facilitate ease of plan interpretation and understanding and enhance the quality of technical drawing.

9.1 North Bearing

The north bearing of a plan drawing or map is indicated in two ways (a) by grid lines and (b) by indicating a North Point on the drawing in a strategic place which is easily visible. Usually this is near the key and scale or some other suitable space. The design of a north point should be standard and of simple type. This must always be indicated in order to make a plan or map meaningful.

9.2 Scales of Plans

Different types and levels of plans require different scales. The higher the hierarchy or level of the plan, the smaller the scale and less detailed the plan e.g. National Physical Development Plan. The lower the hierarchy or level of the plan, the larger the scale and more detailed the plan drawing, e.g. urban civic plan. The following are standard scales of physical development plans in Uganda.

Table 18: Types and Hierarchy of Plan

S/N	Plan	Scale
(a).	National Physical Development Plan	1:250,000 to 1:3,000,000
(b).	Regional Physical Development Plan	1:50,000 to 1:500,000
(c).	Special Physical Development Plan/ Subject Plan	1: 5,000 – 1: 250,000
(d).	District Physical Development Plan	1:50,000 to 1: 200,000
(e).	Urban Structure Plan	1:5,000 to 1:50,000
(f).	Urban Detailed Plans	1:1,000 to 5,000
(g).	Urban Action Plan	1:500 to 1:5,000

In designing physical plan drawings under consideration, it is advisable to consider size of printing paper that is available and storage facilities. It is recommended to avoid very big sizes of plan drawings because they are costly and difficult to store. The maximum size of the margin in which a plan appears or is drawn should be 1,050 mm in length and 700 mm in width. Otherwise the width - length ratio should be 1:1.5. The smallest size should be an A4 size.

9.3 Colours of Plans

The colours indicated below are recommended to be used for all types of physical development plans and particularly local plans. Sub classes of the same land use type use different shades of the same colour. For example; high density residential uses the darkest shade of the same colour. In addition, abbreviations and / or symbols are used together with the colours to differentiate land uses having the same colour on the plan, but are different in nature.

Table 19: Colours

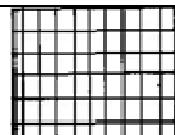
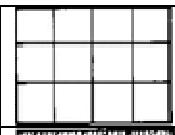
Land use	Colour	Pantone No.
Low density Residential	Lighter Brown	109
Medium density Residential	Medium brown	130
High density Residential	Dark Brown	151
Light industry	Light purple	245
Heavy industry	Dark purple	246
Commercial	Blue	185
Civic Areas	Red	492
Institutional	Yellow	493
Utilities/ transport	Grey/ Black	Cool Gray 3
Reservoirs/lakes/rivers	Blue	299
Open space	Light green	382
Agriculture	Mid green	376
Forestry	Dark green	370
Cemeteries	Grey	

Some uses would take any colour depending on which land use they are located e.g. offices in commercial areas would be indicated as commercial use.

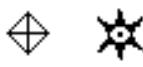
9.4 Hatching of plans

In accordance with physical planning in Uganda, hatching of plans or maps is standardized to reflect the various major land uses proposed in the plans. North-south and East-west directions should be the orientation of hatching. This may be supplemented by diagonal or slanting lines if absolutely necessary, e.g. if North-south and East-west lines prove inadequate to cover all features to be shown in a plan.

Table 20: Hatching Patterns and Symbols

	High Density Permanent 3 sq. mm pt 0,25		Low Density 7 sq. mm pt 0,25
	Medium Density 5 sq. mm pt 0,25		Unplanned Area

	Commercial Area 2 mm apart vertical lines pt 0,25		Secondary Road Black bar 1.0 mm thick in the centre or road
	Industry Diagonal lines 2 mm apart at 45° pt 0,25		District Road/District Distributors 1.0 mm Road Casing with no infill pt 0.25
	Government/Institution (horizontal parallels 2 mm apart. pt 0,25)		Estate Road/Access Road 1.0 mm pecked road casing 5.0 mm long, pt 0.25
	Landscape/Tree Belt Flower signs shed all over with dots. pt 0,35		
	Agriculture 5,0 mm lines 5,0 mm parallel and 4,0 mm gap pt 0,35		Zebra Crossing/Pedestrian Crossing
	Afforestation Flower signs shed all over without dots		Railway Line One line and 2.0 mm hyphens 5.0 mm apart pt 0.5
	Open Space 5 mm lines shed evenly 5 mm apart pt 0.25		Bridge, Culvert
	Swamp/Marsh		Power Line One line and Vs at 5.0 mm apart pt 0,25 [Vs 1 mm high]
	Cemetery		Telephone Line
	Planning Area Boundary hyphen with one dot 1.0		Dam across a road
	International Boundary hyphen with two dots 0.7		Contour Thin line pt 0.81
	Regional Boundary hyphen with dots 0.5		Depression
	District Boundary Hyphen with three dots pt 0.35		Cliff or Escarpment
	Local Authority Boundary Hyphens pt 0.25		
	Main Road/Primary Distributor Black bar in centre of the road reserve 2.0 mm thick		

	Quarry		School
	Wooded Area		Primary School
	Mountain/Hill or valley depending on contour values ascending or descending order.		Secondary School
	River/Stream (solid line with distributor)		Training College
	Golf Course		Police
	Historic site or point of interest; Navigation light		Fire Station, Police Station
	Permanent Building		
	Hotel		
	Motel/Inn		
	Rest House		
	Restaurant/Refreshments		
	Church		
	Mosque		
	Hospital		
	First Aid/Health Centre		
	Health Centre		

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