

THE URBAN BLOCK AS A TOOL FOR URBAN DESIGN

The Case of Parklands, Nairobi

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DECLARATION

This research project is my original work and has not been presented for a degree in any other university.

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DEDICATION

I dedicate this work to my parents Tabitha and Alex Njagi for encouraging me to get an education. They have given me the drive and discipline to tackle every task with determination.

ACKNOWLEDGEMENT

I acknowledge with gratitude the invaluable advice and assistance given to me by various persons during the entire duration of my study.

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ABSTRACT

The urban block is the link between city user's everyday lives and the urban space. This study calls for this urban component to be treated as an essential element of the city when new urban plans and models are developed.

The aim of this study was to investigate how evolution of the urban block has influenced design of urban spaces, in order to develop principles that could be adopted for Parklands, Nairobi where the urban block is rapidly changing. Examples of urban projects where the urban block was a key element of design were evaluated, drawn from the traditional city to the post-modernist city.

Desk research was used to study urban blocks outside Nairobi and as an introductory strategy to form basis for analysing the Parklands urban blocks in context. Typo-morphological approach was taken to understand the physical and spatial structures in different urban blocks in Parklands guided by a case study protocol. In order to analyse the process of transformation, urban blocks that could be paradigms of subsequent historical periods were selected.

The study revealed that rapid urbanization and policy change directed the new urban form in Parklands and therefore urban blocks were constantly changing either to accommodate commercial function or higher residential densities. Buildings and the related open spaces are seen as complimentary units of space by the users and therefore changes in individual blocks translate to changes in the urban fabric whether guided by design or not. This study therefore makes a case for the adoption of the urban block as an intermediary level of planning and design and using it to achieve desired urban form.

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LIST OF ACRONYMS

CBD	Central Business District
CCN	County Council of Nairobi
JICA	Japanese International Cooperation Agency
NOMA-SEARCH	Norwegian Masters- Southern and Eastern Africa Research Cooperation for Habitat
UNDESA	United Nations Department of Economics and Social Affairs
UNEP	United Nations Environmental Program
UNEP/ GRID	United Nations Environmental Program Global Resource Information Database
UN Habitat	United Nations Human Settlements Programme
UON	University of Nairobi
USA	United States of America
ETH	Swiss Federal Institute of Technology (Eidgenossische Technische Hochschule)

1.0 CHAPTER ONE: INTRODUCTION

Through most of history, human population has lived a rural lifestyle dependent on agriculture and hunting for survival. In 1900, only 14% of the world's population lived in urban areas, at the time only twelve (12) cities had a population exceeding one (1) million inhabitants. In 1950, 30% of the world population resided in urban centres (United Nations, 2008).

By the year 2008, the world's population was evenly split between urban and rural areas, with Africa's urbanization rate ranging from 22.7% in East African region to 57.3% in the South African region. Since then, the world has continued to experience unprecedented growth in urban areas especially in the developing countries and it is projected that by the year 2030, 59.7% of the world's population will be urban (United Nations Department of Economics and Social Affairs (UNDESA), 2010).

Nairobi, the capital city of Kenya is the subject of this study. Its urban population growth rate increased from 5.2 % in 1948 (first National Population Census) to 32.4 % in 2009 (latest National Population Census) i.e. the population grew from less than a million to over three (3) million inhabitants within this period (Pravettoni, 2011)

In 2009, the city had an estimated 3.1 million inhabitants (Kenya Bureau of Statistics, 2009).

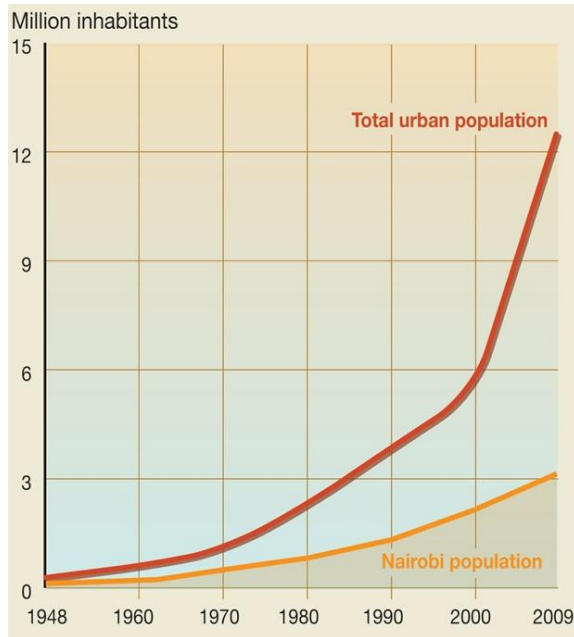


Figure 1:1 urban population trends, Kenya and Nairobi (years 1948-2009).

Source: Riccardo- UNEP/GRID 2010

Beyond 2009, the urban population of Nairobi is projected to grow as shown in

Table 1:1

Table 1:1 Projected urban population of Nairobi.

Year	2010	2020	2025
	3,363,000	4,881,000	5,871,000

Source: UNDESA 2010

The urban tissue of Nairobi is experiencing various changes due to increased urbanisation. The capacity of the city to adapt to the demographic, economic and cultural changes lies in its ability for modification, extension and redevelopment of the existing built form (UN-Habitat, 2006).

Urban tissue is created by the dialectical relationship between streets and the built up space (Krier, 1994). Hence the design of the built up spaces and their

evolution to accommodate the various needs of urbanization becomes an important point of departure for this study.

Transformation of the urban block is occasioned by rapid urbanization and policy changes. The City Council of Nairobi has extensively applied zoning techniques in response to the increasing urbanization. This has allowed for introduction of mixed functions in previously mono-functional zones as well as increment in densities through adjustment of plot coverage and height restrictions (City Council of Nairobi, 2011). This has in itself caused changes to the urban block as a typological entity.

1.1 Problem Statement

Parklands is one of the urban districts in Nairobi where the urban tissue has significantly changed over the years. This change has been heightened by the revision of the City Authority's zoning regulations from time to time (Hodson, 1990).

Located 5 km away from the Central Business District (CBD) of Nairobi, the neighbourhood dates back to the colonial times when the British segregated residential areas in Nairobi into neighbourhoods for whites, Asians and blacks, and Parklands was one of the areas reserved for Asians (Hirst, 1994). Although it was desegregated after independence in 1963, the area is still home to a large number of Asians and it is also one of the high- income, low-density residential neighbourhoods in the city (Muraya, 2004).

Owing to its proximity to the CBD, Parklands has experienced immense development pressure due to the rising demand for housing and commercial

premises in the city. This has led to the revision of zoning regulations to allow for mixed use function as well as densification (City Council of Nairobi, 2011).

Consequently, a scan through the neighbourhood revealed that its urban fabric is constantly changing with the original bungalows and maisonettes diminishing in favour of high rise apartments and mixed-use blocks.



Figure 1:2 typological changes in the Built Form of Parklands

Source: author

Subsequent changes in development patterns have led to the emergence of blocks of mixed urban character in an area that was largely homogeneous. The revision of zoning regulations for Parklands has given private developers the green light to re-develop their properties into high-rise blocks of commercial, mixed-use or rental apartments.

The changes of the urban block in Parklands are haphazard and are implemented without following a coherent strategy. The result is uncoordinated mix of form and function, high-rise and low-rise blocks are interspersed in the plot structure at the discretion of the developer. This has jeopardized the legibility of the neighbourhood.

Over time the rampant changes in the neighbourhood could destroy the tranquillity and liveable environment of Parklands, and there will be hardly any place anyone can live and be sure that it shall still stand a residential area.

While acknowledging the role of mixed use spaces in creating vibrant urban environments, there are also negative socio-economic impacts being felt at the individual block which include loss of privacy in residential spaces due to invasion by upcoming blocks, rising insecurity as residential streets are turned public, and strain on existing infrastructure.

1.2 Research Questions

This research seeks to unearth the Parklands Urban Blocks as a point of intervention to guide the urban redevelopment process. To do this, the research shall answer the following questions:-

- i. How has the evolution of the urban block impacted on design outcomes of urban space?
- ii. How has the block in Parklands changed over time and how has this influenced its urban character?
- iii. What principles of the urban block could inform design of suitable blocks for Parklands and similar contexts?

1.3 Objectives of the Study

The study is set out to investigate how transformation of the urban block has influenced design of urban spaces. It is therefore initiated with the following objectives:-

- i. To analyse evolution of the Urban Block and its influence in design outcomes of urban spaces in other parts of the world so as to give insight into the Nairobi case.
- ii. To review the urban block in Parklands and the resultant urban spaces.
- iii. To establish principles that can be used to inform design of urban blocks not only in Parklands but also in other areas of similar context.

In terms of focus, objective (ii) is the core of the study, objective (i) sets the background for it while objective (iii) is its off-shoot in terms of recommendations.

1.4 Justification of the Study

Increased demand for commercial activities has triggered the phenomenon of invasion and succession in planned residential estates close to Nairobi CBD where residential properties are converted into restaurants, offices and shopping plazas (Kyalo, 2012).

The demand for space for commercial development in Parklands has surpassed the supply delivered by planning agencies through a designated commercial centre. As a corollary to that conversion of residential land use into various types of commercial activity has sprung up. Developing a strategy for permitting conversion of land use will advance organisational efficiency hence a coherent spatial structure of the urban district. It will also give chance for optimum development hence realising value for investments.

The findings of this study will therefore inform planners, policy makers and urban designers on possible urban interventions not only for Parklands but

also other similar contexts. Secondly, the study will inform the business community and the residents on the changing dynamics of Parklands.

1.5 Scope and Limitations of the Study

The empirical aspect of the study is geographically limited to Parklands, a residential neighbourhood located approximately 5 km North-west of Nairobi Central Business District.

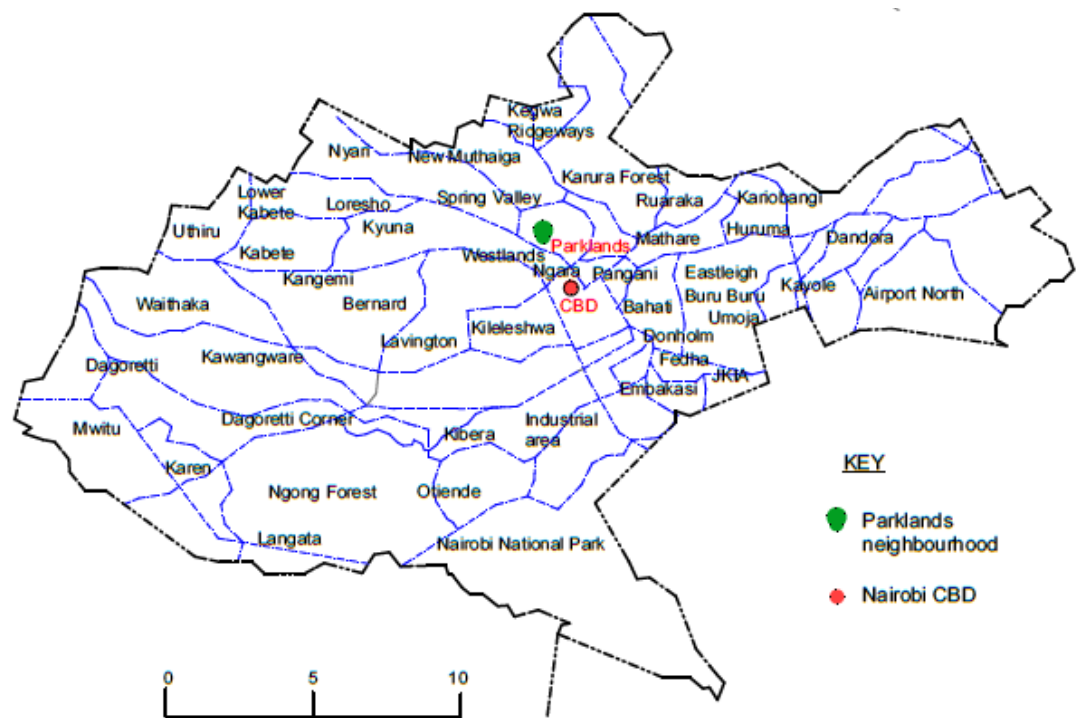


Figure 1: 3 Location of Parklands neighbourhood in relation to Nairobi CBD

Source: Available from: <http://www.all-about-nairobi.com>. Accessed: 14th April, 2014.

Parklands has been a residential neighbourhood since the colonial days, first for the European civil servants and then for the Asians. When racial segregation was abolished after independence, Parklands remained a residential neighbourhood for the high-income group. It was therefore characterized by low density, low-rise residential houses.

In the last decade, the morphological character of Parklands has been altered by the emergence of high-rise blocks in sharp contrast to the traditional houses. These developments are not limited to particular zones of Parklands but appear to be scattered throughout the neighbourhood.

This research was carried out within a specified period and with limited resources. To overcome these constraints a manageable and representative site was chosen. The region bound by Kusi Lane, Fourth Parklands Avenue, Limuru Road and Second Parklands Avenue was selected for the study. This was on the basis of depicting massive change in the built form and containing a variety of urban functions which include commercial, residential, learning institutions, hospitals, and recreation grounds.

Other constraints were lack of documented information on the study area which necessitated making inferences to studies conducted in similar contexts and making frequent visits to the study area to collect information first-hand. Another challenge was antagonism and denial of access to some properties on suspicion of being a land broker.

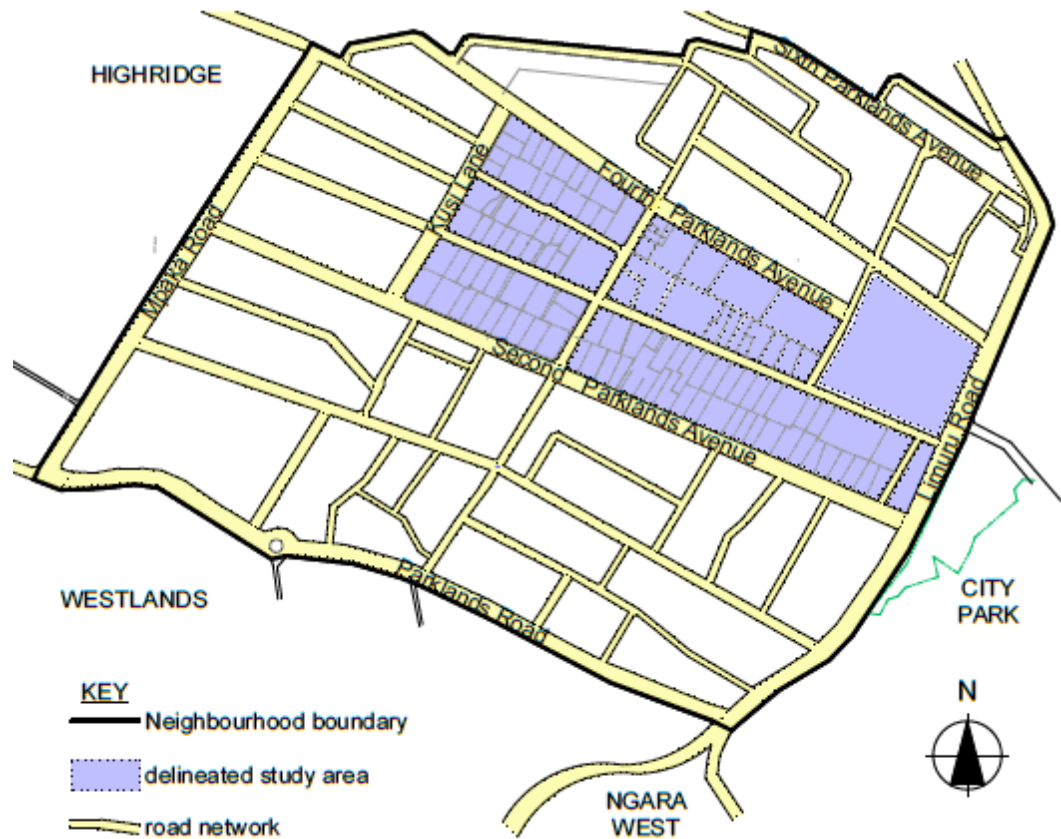


Figure 1:4 Delineated study area within Parklands neighbourhood

Source: adapted from (Moss, 1999)

1.6 Structure of the Report

This study is organized into six chapters. Chapter One introduces the subject of the study, the problem statement, assumptions, objectives, scope and limitations and builds a case for the research by explaining the usefulness of conducting the proposed investigations.

Chapter Two dwells on the literature reviewed and it introduces the conceptual background of the research. The review took the following approach: first the definition of the urban block by various authors, then a historical analysis of the urban block through various eras of city evolution and urban design and

lastly its application in the local context. The main purpose was to form a bench mark against which field work analysis would be conducted.

Chapter Three deals with the research methodology. It presents the methods used in carrying out the research from inception to conclusion. This chapter explains the research design and sampling design adopted as well as the research tools used for data collection, data analysis and presentation.

Chapter Four expounds on study area. It forms a theoretical basis of the study and gathers what different authors have studied about Parklands.

Chapter Five focuses on research findings, data analysis and presentation. This chapter interprets and explains the findings with regard to the study objectives.

Chapter six gives the conclusions and recommendations of the study. Areas that need further research are identified in this chapter.

2.0 CHAPTER TWO: LITERATURE REVIEW

2.1.0 Definition of Urban Block

Urban fabric is characterized by streets, urban blocks, squares and public places, where both the street and the block can be used as tools for urban design (Krier, 1984).

Where the street is used as a tool for urban design, the street pattern forms the basis for all the other elements. The morphology of the buildings and their orientation is dictated by the street pattern and the street pattern is typologically identifiable e.g. grid pattern or radial pattern (Krier, 1984).

Where the urban block is the tool for urban design, the pattern of streets and squares become the result of positioning of the blocks. In this case the blocks are typologically identifiable i.e. towers, perimeter blocks, and linear blocks (Krier, 1984).

Krier, (1994) defined the Urban Block as that part of an urban area that is isolated from the neighbouring parts of the territory by streets; a typological element that can generate urban space but one that can also remain undefined and result from the order of an urban pattern of streets and squares. According to this text, a block may consist of a single building or several buildings grouped together.

As part of the urban continuum, an urban block is that singular element that is spatially and functionally optimized to support different circumstances of everyday life (Krier, 1994). Geographically, the urban block is the smallest

area of land surrounded all round by a planned network of roads and streets (Frey, 1999).

Panerai, Castex & Depaule (2004) defined an urban block as that urban element surrounded by streets and defined by an edge and an interior where the edge is directly connected with the street and is understood as the public realm and the interior is a private zone. He argued that for an Urban Block to be successful, it must contain public and private space and define patterns of use of both spaces (Panerai, Castex, & Depaule, 2004, p. 162).

Towers, (2005) described the urban block in two ways, as an elementary grouping of buildings located on a piece of land which is defined by a network of streets so that they act as a single unit and as a single building that takes on board a variety of spaces and functions that would otherwise have been the result of juxtaposition of different buildings (Towers, 2005, p. 50).

As a single building, the Urban Block can take on different forms which means creating different urban spaces altogether. By his own analysis, Towers explains that same amount of floor space could be built on the same site as fifteen storey tower block, five storey linear blocks or three storey perimeter block (Towers, 2005, p. 51).

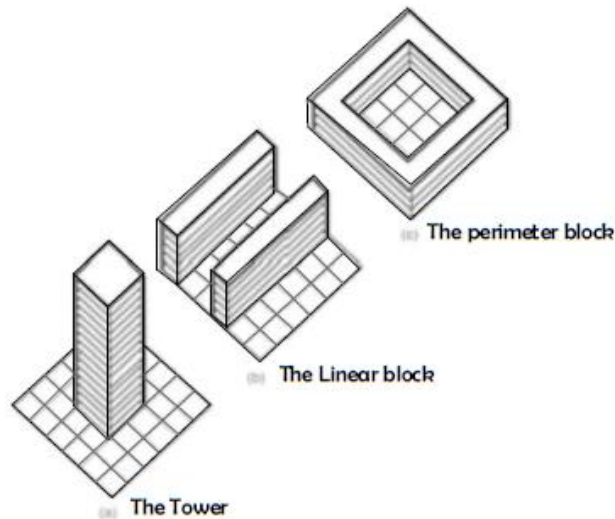


Figure 2:1 an illustration of how same amount of floor space could be built in different forms. Source: Towers, 2005 pg.51

Ildefons Cerda used the Urban Block as the basis for projecting a new town in the development of Barcelona Extension in the nineteenth century (Scheurer, 2007). The concept alluded to the spaces of the urban net traditionally known as '*manzanas*' or blocks which were defined by the intersection of different streets that marked their limits. The grid pattern of the streets was not Cerda's intervention but was adopted as it was considered efficient for structuring Urban Blocks and giving cohesion to a city (Scheurer, 2007).

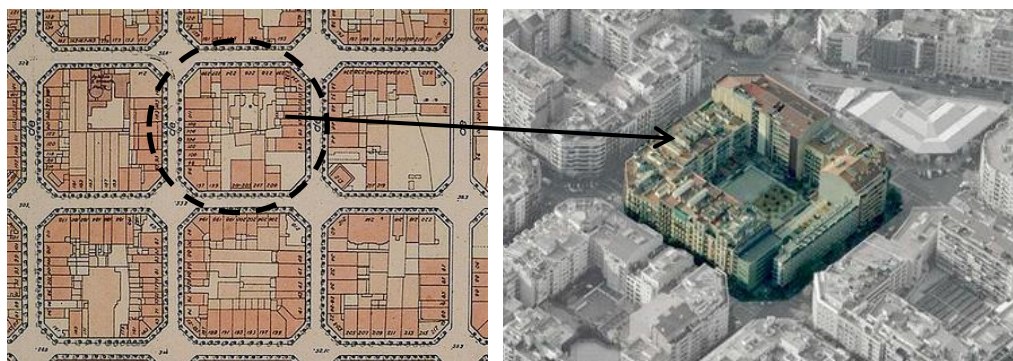


Figure 2:2 the concept of the '*manzanas*' or Urban blocks as applied in the Barcelona Extension
Source: Scheurer (2007)

Quoting Komossa (2010) ‘The urban block is the place where the private and public domain of the city meet, and forms the intermediary between both’.

For purposes of this study the urban block is adopted as the space for buildings within the street pattern of the urban district. This space is further organised into a plot structure. A plot also called lot is a unit of subdivision of the urban block, a distinct parcel of land on which an individual building is built.

2.2.0 Evolution of the Urban Block

2.2.1 The Block in the Traditional City

In the traditional city (before industrial revolution), the basic element of the urban fabric was the building either as a single block or a group of inter-related blocks. Most buildings were not divided into distinct functions but contained a diversity of uses. People lived in buildings that were places of work as well as domestic life and made and sold things from their homes as a means of livelihood. The common block typology during this period was the perimeter block which would be two- or three-storeys high. The houses would be huddled close together to form courts which would then serve as collective spaces for the inhabitants of the block. Ablution facilities would be located here and they would be shared as well (Towers, 2005). Within the houses parts were identified depending on circumstances of everyday life, there was no differentiation in terms of functions (Krier, 1994).

The blocks would be built such that each dwelling would have a facade linked with the street or a public space. The edge directly connected with the street was subdivided into small units on the ground floor that allowed densification

while the interior of the block was divided into larger plots which could be used for workshops and industrial establishments, offices, garages and other public facilities. These elements would be distributed in similar positions in the block structures of various blocks so that in every block there would be mixed functions of living quarters, work places and public facilities (Panerai, Castex, & Depaule, 2004).

The street was not only used for distribution and orientation but also as a space for economic and social exchange, thus there was an explicit relationship between the block and the street.

2.2.2 The Block in the Industrial City

The intentional shaping of cities to serve the sacred, defensive, political, and economic goals of societies is as old as the city itself. However, the roots of contemporary urban design may be traced to the Industrial Revolution (between late 18th century and early 19th century), when people sought ways to deal with the unhealthy and chaotic living conditions of the industrial city. Since then, the block as a singular element has undergone various transformations through different periods of urban design informed by the changing social and economic requirements of the city (Towers, 2005).

This was a period in which fundamental changes occurred in agriculture, textile and metal manufacture, transportation, economic policies and the social structure in England. It involved transition from a heavy reliance on agricultural production to a reliance on manufacture of goods in the context of a factory system (Krier, 1984). In the urban structure, the advent of industrialisation introduced separation of functions. Mixed use patterns were

progressively abandoned in favour of separation of manufacturing and residential functions in single function buildings-hence homogeneous districts were created (Krier, 1994).

The perimeter block was still dominant, social segregation happened both vertically and horizontally depending on the position within the street hierarchy. There was decreasing status as one moved from the street to the internal courtyards. Elements within the block such as staircases and security guards were used to introduce impermeability between spaces of different social occupancy. Further, there was differentiation of buildings on the same plot and even the individual buildings would be divided into various parts differentiated in terms of functions i.e. sleeping spaces, cooking spaces. The multiplicity of buildings made it possible to create a variety of spaces in terms of shape and sizes. However, treatment of external facades and floor heights would be uniform making them appear as a single unit. This was motivated by the industrial period mimicking the mass production of identical products from factories (Panerai, Castex, & Depaule, 2004).

Each building was carefully laid out perpendicular to the street, and each had its own access hence the block had numerous entrances at the ground floor. The street was not only for access purposes, but was also a public space for social exchange (Krier, 1994). The streets were made wider than those in the traditional city, for reasons of public health and traffic engineering. Hierarchy of space was created by road network and the facilities it distributed which included town halls, offices, schools, hospitals and markets. Thus, the street

network supported an ideology of separation of functions (Panerai, Castex, & Depaule, 2004).

2.2.3 The Block in the Post-Industrial and Modernist City

In the post-industrial city (20th century), the block was once again re-invented to accommodate mixed functions. Changing methods of production, property ownership, and emphasis on hygienic living are generally accepted as the reasons for typical mutations of the urban block during this period. The main challenge for urban designers was to deal with the unhealthy and chaotic living conditions of the industrial city (Krier, 1994). Three schools of thought emerged to solve the problems of the industrial city: the utopian vision for ideal communities, development of minimum standards for housing and sanitation and focus on improvement of transportation and services as a way of making cities more efficient (Gordon, 2006).

By early 20th century, several directions in urban design had been established. Ebenezer Howard initiated the garden city model. The Garden City ideal sought to raise the standards of health and comfort by providing a living environment that combined the best elements of town and country life (Panerai, Castex, & Depaule, 2004). Howard identified three key values underpinning the Garden City ideal: beauty of country lifestyle, access to commerce and trade, opportunities associated with town lifestyle (Howard, 1965). Similar to the block in the traditional city, the basic element of the garden city was the close (Kornwolf & Baillie, 1972). Like a re-interpretation of the perimeter block, the close consisted of several houses arranged to enclose an open space. However, the close opened up to the street on one edge, it had various typologies ranging from the tightly enclosed and unified

type to the one arranged around a cul-de sac (Panerai, Castex, & Depaule, 2004).

Formalists of the nineteenth century treated urban spaces as aesthetic arrangements of building masses, facades, and street spaces. The "City Beautiful" movement which was rooted in Renaissance and Baroque urbanism looked at the city as a network of formal streets and spaces, marked by striking monuments. A third major direction was the "Parks Movement", pioneered by Frederick Law Olmsted which focused on ways of introducing and integrating natural systems into the city at the metropolitan scale (Gordon, 2006).

Modernism refers to a period between the late 19th century and early 20th century characterized by development of modern industrial societies and rapid growth of cities. The term encompasses changes in form of art, architecture, religious faith and social organisations in alignment to the new economic, social and political conditions of an emerging fully industrialized city (Curtis, 1996).

Modernist architects who included Tony Garnier, Le Corbusier and Walter Gropius introduced another model of the Urban Block. They looked at the city in terms of efficiency and function and tried to provide access to light, air, and space using new techniques of construction and transportation (Gordon, 2006). Le Corbusier advocated for radical re-thinking of urban design which proposed high-rise towers in a park like setting with industry carefully sited away from other uses. However, the blocks were still mixed use with shops, schools, and residential functions happening in the same block (Curtis, 1996).

Just like the garden city, the modern movement rejected the traditional perimeter block with deep plans and dark interior courts. They advocated for housing types that would provide more light and air and which would release more of the ground as open space. The tower block was considered favourable and more so because of the need to accommodate high densities resulting from increased urbanisation (Towers, 2005).

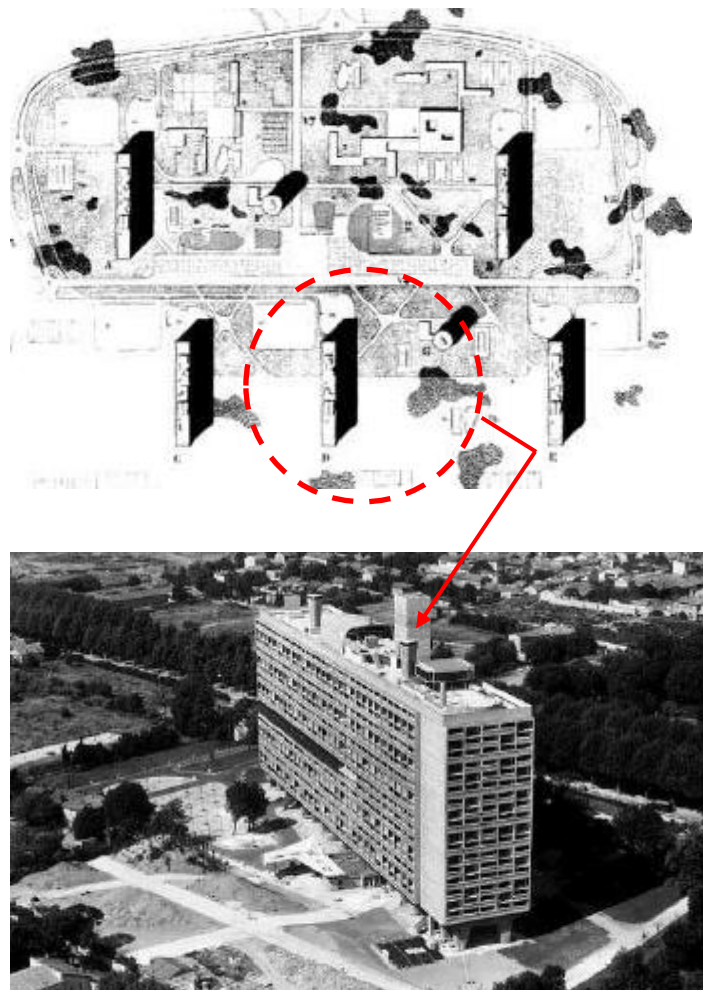


Figure 2:3 Towers in a park setting executed at Roe Hampton, London

Source: Panerai, Castex & Depaule (2004) pg.122

Walter Gropius investigated linear blocks, he proposed that an optimum Urban Block is formed by two parallel buildings defining a collective space between them. The block so formed was open on both sides but there existed a

difference between the front which was the public realm and the back which was a private space (Gordon, 2006). Use of the collective space was largely inhibited due to lack of enclosure. Lacking individual expression it remained an ambiguous space in which private and social activities co-existed all in a very guarded manner. It lacked the freedom and flexibility desired of a private space (Panerai, Castex, & Depaule, 2004).

The block in the garden city (close) and the modernist city (vertical block) opened up to the street marking the disappearance of the highly private interior associated with the urban block in the traditional and the industrial city. The close was a square courtyard enclosed by buildings on three sides. The buildings would be connected or detached with a wall between the houses to ensure continuity of the facade on the courtyard thus creating distinction between the back and front spaces. A cul-de sac from the main street defined transition into a semi-private space that belonged to the residents of the close. Further hierarchy would be defined by the transition from the cul-de sac to the plot where the building is situated, from a semi-private space to private space. Thus the close, just like the block, maintained a constant of private space and public space and a differentiation in attitudes towards the two spaces (Panerai, Castex, & Depaule, 2004).

The modernist city however saw the onset of the vertical urban block, a high density block that did not take into account any specific siting constraints but conceived each building as a separate entity, a complete break from the traditional city and the garden city where each building was an element of the urban tissue. The function of the street as a place for exchange vanished with the buildings opening up to a space with no explicit ownership (Curtis, 1996).

This urban block brought on board various functions that would previously be attained by juxtaposition of different buildings. Different apartment configurations enabled social mix and communal spaces which included gardens, kindergartens, shops, hotels and medical facilities would be distributed through the interior of the building so that a single block would be spatially and functionally optimized (Jencks, 2000).

With the vertical urban block came the rejection of the street as a system of distribution and the internal corridors took up this role. The facade system incorporated deep balconies which became the private gardens and parapet walling was done to seclude this space from the exterior. Therefore corridors and balconies provided a differentiation between the public and private space (Jencks, 2000). This block underwent modification with future blocks being simplified by the elimination of kindergartens, shopping gallery, and double volume spaces due to economic constraints. Subsequently, the design of the facade was reduced to the pattern of floor slabs and walls (Panerai, Castex, & Depaule, 2004).

The interweaving of the two scales i.e. the building and the dwelling made possible by the rigid concrete grid made this block one of the most enduring urban forms. The vertical block marked a new phase where urban problems that had previously been addressed at the level of the urban tissue were now addressed at the level of architecture. The internal corridor did not play the intended role of the street as a place of gathering, constrained by its size and poor lighting it became an obligatory passing point. The block was a negation of the city in the sense that it did not give any reference to continuity,

restricted modification and at the same time the differentiated status of spaces in functional terms disappeared (Panerai, Castex, & Depaule, 2004).

2.2.4 The Block in the Post-Modernist city

After Second World War (1945), cities started reconstruction and aimed to create better living conditions through clearance and building of new towns. A system of streets and urban blocks was largely used in the reconstruction of the new towns with their planning based on two concepts, the superblock and the neighbourhood unit (Panerai, Castex, & Depaule, 2004). A neighbourhood unit is a small-scale residential unit in which the normal daily community needs are supplied and which forms the building blocks for the larger urban tissue (Gallion, 1985).

With its origin in the garden city, the neighbourhood unit was a unit based on a population of between 5000-9000 people. Just like its predecessors, it would be separated from adjoining neighbourhoods by arterial roads. It consisted of both public and private spaces with communal facilities located at one corner, at a point of maximum accessibility (Gallion, 1985). The concept has continued to be applied albeit with variations especially by the New Urbanists (Panerai, Castex, & Depaule, 2004).

The superblock borrowed heavily from the modernist urban block. However, the motor vehicle was an important factor in the design of the urban tissue at the time. Its layout set out to completely separate pedestrians from motor vehicles by excluding all through movement from the block and surrounding it with a wide reservation accommodating arterial roads with limited number of access roads into the superblock. The layout of houses within the block

resembled the close of the garden city but with two public fronts; one facing the car access cul-de sac and the other facing a park with a pedestrian access route (Panerai, Castex, & Depaule, 2004). Another striking feature of the superblock is the abandonment of the lot as the controlling factor in design (Stein, 1950).

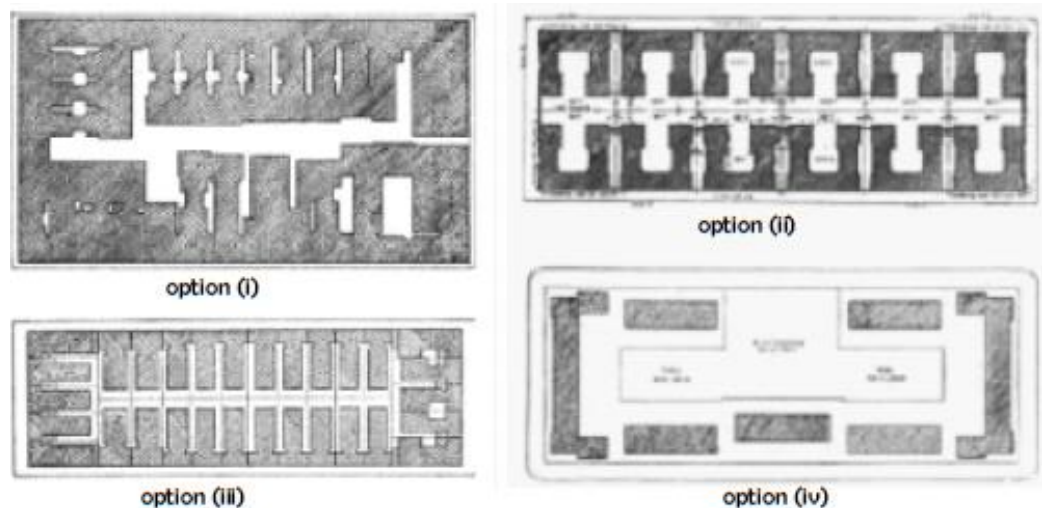


Figure 2:4 Alternative ways of developing the superblock.

Source: Stein (1950)

In the 20th century, revisions of modern architecture and urbanism emerged that recognized the city's multidimensional quality and rejected the dogmatic and exclusive modernist concepts. Recognition of architectural heritage and its interpretation within the urbanistic frame became an important paradigm in urban design. Post-modern contextualism can be seen in the New Urbanism of the twentieth century which attempted to replicate and codify urban patterns of the nineteenth and early twentieth century (Krieger, 2004). New Urbanism influenced the design of the block, the street and the building as follows:- it advocated for creation of common spaces which could serve a variety of uses, the accommodation of the car while maintaining pedestrian space and safety

achieved not by exclusion but by providing surveillance (USA.Congress for New Urbanism, 2000).

The new urbanist concept included the implementation of a code that specified details such as plot sizes, setbacks and landscape regulation of different parts of the urban district (USA.Congress for New Urbanism, 2000).



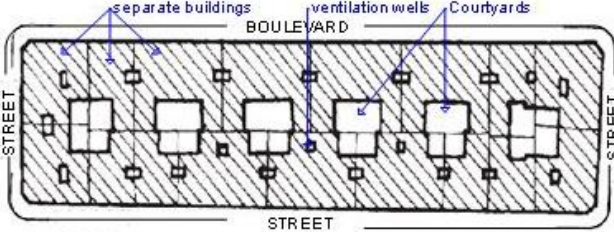


Towards the end of the twentieth century, fragmentation and dissolution of urban environments became rampant caused mainly by the development of mega project such as shopping malls especially in residential contexts. These mega projects often ignored site specific contextualism. To counter this, urban ecology became a universal discipline in the design of cities (Krieger, 2004).

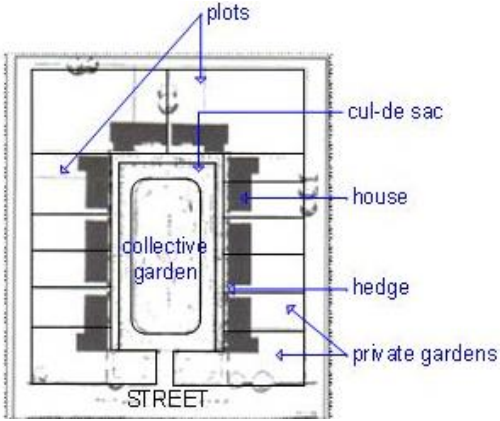
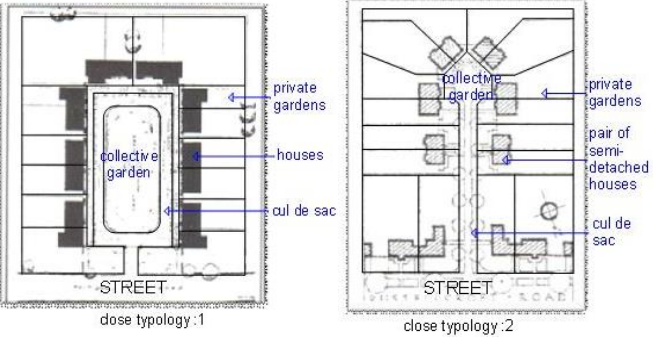


The Urban Village Forum was launched in the United Kingdom in 1993 aimed at improving urban design through policy intervention. It proposed the use of the Urban Village in designing new urban environments. The urban village would be characterised by a diverse architecture to support a variety of uses and it would be made sustainable through appropriate density and choice of tenures. The urban village was intended to be small enough to facilitate inhabitants familiarity with each other yet big enough to make provision of commercial and social facilities feasible (Towers, 2005). The proposed size for an optimum urban village was forty (40) hectares, with a population of approximately 5,000 people (Fawcet, 2000).

2.3.0 Examples of Prominent Urban Blocks in the evolution of cities

Table 2.1 discusses examples of Urban Blocks in the Industrial City, Post Industrial and Modernist City and the urban attributes distinguishing each.

Table 2:1 Examples of urban blocks in the evolution of cities

	DESCRIPTION	PERIOD	IMAGES	URBAN ATTRIBUTES
1.	<p>Haussmannien Block</p> <p>A mixed-use urban block used in restructuring the city of Paris in 1853-1882 by Baron Haussmann.</p> <p>The restructuring aimed to improve sanitation, living conditions, transport and infrastructure, qualities that had been compromised by the rampant growth of the city. (Krier, 1994)</p>	Industrial city	 <p>Star-shaped network of streets and blocks. Source: (Papayanis, 2004)</p>  <p>The block consisted of several buildings continuously joined. Source: (Papayanis, 2004)</p>  <p>The Haussmannien block in plan. Adopted from: (Panerai, Castex, & Depaule, 2004)</p>  <p>Wide streets/ boulevards in-between the Haussmannien blocks. Source: (Papayanis, 2004)</p>	<ul style="list-style-type: none"> • Hierarchical grids were super-imposed into a star shaped network of streets which resulted in plots of various shapes and sizes. (Krier, 1994) • Multiple buildings joined into a single block with uniform design of facades and floor heights. (Sutcliffe, 1993) • Multiplicity of buildings creates variety in terms of shapes and sizes. Blocks contain small retail shops, high end shops, offices or modest workshops depending on location on street hierarchy hence creating specialized urban districts. (Panerai, Castex, & Depaule, 2004) • The block was a multi-functional unit with shops and public spaces on the ground floor, high-income residential on first floor, middle-income on intermediate floors and low-income residential on uppermost floor. (Sutcliffe, 1993) • Private courtyards were located at the interior of the block. (Sutcliffe, 1993) • In blocks where workshops were accommodated, lighting was done through the courtyards so that on the street edge the real function remained masked. (Panerai, Castex, & Depaule, 2004) • Every building had its access on the street. Streets were wide and monumental with commercial activity located only at the end of the blocks. • Streets were similar. The block was weakly articulated so that it could be harmoniously fitted into existing urban fabric. (Panerai, Castex, & Depaule, 2004) • There emerged single function isolated blocks principally for public facilities such as courts, civil buildings, markets
2.	<p>Welwyn Garden city</p> <p>It was the 2nd garden city to be implemented in England.</p> <p>It was designed and built in the years 1919-1924 by Architect Louis Soissons in collaboration with Ebenezer</p>	Post-industrial	 <p>A residential close. Source: (Howard, 1965)</p>	<ul style="list-style-type: none"> • The edges were defined by wide boulevards lined up with trees, the entrance marked by a row of trees, followed by a public square and then the commercial centre. (Howard, 1965) • A zoning scheme was applied creating four zones: the commercial followed by industrial and two residential zones in the periphery, with no overlaps. (Howard, 1965)

<p>Howard who developed in theory the garden city as an urbanization process.</p> <p>The garden city was necessitated by increased urbanization; hence need to create urban environments for living. (Howard, 1965)</p>		 <p>The close in plan. Adopted from: (Panerai, Castex, & Depaule, 2004)</p>  <p>Two typologies of the close used in Welwyn. Adopted from: (Panerai, Castex, & Depaule, 2004)</p>	<ul style="list-style-type: none"> • Adopted the close as an urban block and used it to develop residential neighbourhoods. • Design of the close followed the following guidelines: social mix, density of eight (8) dwellings per acre, streets 13.2m wide, houses 16.5m apart with gardens in between. (Panerai, Castex, & Depaule, 2004) • Plots were separated with hedges or fences and not walls and collective gardens were made accessible to all. (Panerai, Castex, & Depaule, 2004) • Two typologies of the close were adopted. One had the collective garden fully enclosed by surrounding houses with private gardens at the back of the houses. Strong differentiation of collective and private space. • In the other, collective garden was defined by semi-detached houses hence the private gardens at the back of the houses and the collective garden were connected. This typology was predisposed to transformation; later on extensions were constructed in the gaps. (Panerai, Castex, & Depaule, 2004) • Hierarchy of space in the close is created via the cul-de sac marking transition from the street to the collective garden and then to the houses and the private gardens. • The close formalized privatization of space, the street was reduced to the technical role of access. (Panerai, Castex, & Depaule, 2004) • The garden city movement provided transition from a system where public space was preferred to one where private space was favoured.
<p>3. Unite d'habitation</p> <p>Unite d'habitation translated to mean housing unit is a modernist design principle developed by Le Corbusier for residential housing.</p> <p>It proposed a vertical block which accommodated all the activities of the garden city in a tower arrangement.</p> <p>The first project under this principle was implemented in Marseille, France between 1947 and 1952.</p>	<p>Modernist city</p>	 <p>12 storeys unite d'habitation block in Marseille, France. Source: (Jencks, 2000)</p>  <p>Deep balconies in the unite d'habitation play the role of private gardens. Source: (Jencks, 2000)</p>	<ul style="list-style-type: none"> • A 12-storey block raised off the ground on pilotis. The pilotis served two functions: to free the space on the ground for collective use and to reduce relationship between the block and the person on the street into mere contemplation. (Panerai, Castex, & Depaule, 2004) • A single block hosting multiple functions: residential with communal garden, running track, gym and kindergarten on the roof terrace. Shops, hotels and medical facilities distributed through the block. (Jencks, 2000) • Decreased differentiation of backs and fronts. Internal corridor at the centre of the block plays role of distribution (street), the back of the block is the facade facing the street which has to be articulated, collective open space is externally placed under the pilotis. (Panerai, Castex, & Depaule, 2004) • Balconies on the facade of the block replacing the private gardens in the garden city model.

Source: Author

2.4.0 The Block in Local Context (Nairobi)

The city of Nairobi emerged out of a process of commercial and colonial invasion, land alienation and exclusion. Kenya was declared a British colony in 1895 and the British government assumed control. In 1919 after First World War the British governor established the Nairobi Municipal Council to cater for the needs of the Europeans who controlled the city's affairs, the emerging town restricted African urbanization. African hut settlements which were not formally designed sprung up outside the municipality boundaries. These huts contained four to eight rooms which the families would live in and rent out others (Hake, 1977).

In 1920, planned settlements began to emerge owned by the Asians and the Europeans. Indian businessmen adopted a block typology which consisted of single storey buildings with shops at the front and at the rear, living quarters for the family and for leasing out. The Europeans on the other hand built bungalows surrounded by large gardens (Morgan & Halliman, 1967). The town authorities planned and developed the first African location, the building type consisted of latrines and communal ablutions while roads and plots were laid out for the construction of temporary structures (Nevanlinna, 1996). Roads were laid out to define lots referred to as 'stands' which were arranged in blocks to define territories for different ethnic groups (Hake, 1977).

The first municipality housing estate in Nairobi was the carrier corps settlement built in 1929. It consisted of dormitory blocks each containing six (6) rooms and a communal kitchen with ablution facilities located outside and shared amongst the blocks (Shihembetsa, 1991). The city of Nairobi continued to grow with varied urban forms in different sections of the city. In 1948, a

master plan was drawn to guide the development. The master plan upheld the neighbourhood unit as the appropriate urban block to create urban spaces that responded to the social needs of rural Africans moving into the city (Nevanlinna, 1996, White, Silberman, & Anderson, 1948). This concept was popular in developing the city estates in 1950-1970 as documented in the following studies (Makachia, 2010, ETH Studio Basel, 2008, Hake, 1977, Nevanlinna, 1996). The neighbourhoods were to be self-contained with social, commercial and physical amenities within reach. Thus they proposed apartment buildings to accommodate approximately 5000 people, a surrounding green area with social amenities, churches, nursery schools, shops and a community centre.

The neighbourhood concept was largely restricted to African neighbourhoods as the other races were accommodated in privately developed areas (Emig & Ismail, 1980). Various scholars have documented the urban transformations that have occurred in these planned estates over time: Anyamba, (2006) looked at the morphological transformations in Jamhuri and Buru Buru estates occurring by default or due to lack of clear policies, Makachia, (2010) analysed the transformations at the unit level and focussed on the change in function, form, magnitude, ground coverage, heights and technology , while Kyalo, (2012) looked at the morphological transformations in an inner city residential estate (Ngara West) due to development pressures. Diangá & Hayangah, (2011) explored transformations in planned site and service schemes in Nairobi and the implication on planning and housing delivery within the city while Ochieng, (2001) analysed transformations of Komarock,

housing estate caused by the construction of new extensions, focussing his study on the new built forms and their influence on the original forms.

Huchzermeyer, (2011) documented how the residential landscape of Nairobi began to change in the 1980s with high-rise blocks taking dominance. Quoting Shihembetsa, (1989) the official incorporation of rental units into the site and service schemes of the 1970s formed the basis for the development of high-rise blocks in Nairobi. The plots which were predominantly 7mx21m allowed construction of two rows of rooms with a corridor in the middle, a unit that was subsequently duplicated vertically into multi-storey blocks. Recognizing the potential for rental investment, private developers bought plots and developed rental units of up to seven storeys and beyond in the 1980s (Huchzermeyer, 2007). This phenomenon is still prevalent in residential areas of Nairobi in the twenty first century (Huchzermeyer, 2011).

2.5.0 Summary of Literature Review

An urban block is that part of an urban area that is cut out by a network of streets and it provides space for buildings. As a singular element, it can be used to generate desired urban space where the pattern and character of streets, squares and open spaces become the result of the design interventions at this level.

Panerai, Castex & Depaule (2004) observed that an urban block has both public and private spaces defined by an edge and an interior. The edge must be connected to the street.

An urban block can be optimized to perform a variety of urban functions by juxtapositioning buildings of different functions in the same urban block. Moreover, single buildings can be designed to have variety of spaces and form to take on different urban functions (Towers, 2005).

The urban block has progressively changed over the years to respond to demands of urbanization. Before industrial revolution the urban block was basic, without differentiation in terms of functions. Space would be adapted for certain functions during the day (e.g. commercial) and different function at night -domestic (Towers, 2005).

The industrial revolution occasioned new challenges on the cities and the urban block was adapted to create order and healthy living conditions amidst the pressure of urbanization (Krier, 1984). Responses to industrialisation introduced separation of functions in urban blocks and the creation of homogeneous districts. Differentiation of space in terms of functions was introduced and architectural elements were used to create spatial hierarchy (Panerai, Castex, & Depaule, 2004). At the greater scale, hierarchy of space was created by street network, grand streets were used to distribute community facilities such as town halls, schools, churches and markets.

Gordon, (2006) attributes the changes witnessed in the urban block of the modernist (post-industrial) city to the changing methods of production, property ownership and living standards. Notable during this era is the return of the mixed-use urban blocks and the development of the tower blocks to accommodate high densities resulting from increased urbanization (Curtis, 1996).

The chronological study of the urban block established that certain attributes of the block mutated to adapt to the changing situation of the city. Such attributes include: the way it relates to the street network, the way public and private space is defined, ability to take on a variety of urban functions, the form of the buildings, and the placement of the buildings relative to each other.

In Nairobi, settlements were planned on the basis of alienation and exclusion. Roads and urban blocks were laid out to define territories for different racial groups and their development was dictated by the social significance of the group. Over time, the urban block in Nairobi mutated to respond to the dynamism of the city from a colonial town to a metropolitan city status. (Shihembetsa, 1991, Nevanlinna, 1996, Huchzermeyer, 2011).

2.6.0 Conceptual Framework

Smyth, (2004) describes a conceptual framework as a set of broad ideas and principles taken from relevant fields of enquiry and used to structure a subsequent presentation. Following Smyth, (2004) a conceptual framework was developed to explain key concepts of the study and the presumed relationships among them. These were derived from the study of the Urban Block and its evolution.

From the literature reviewed, evolution of the urban block was characterized by changes in the following aspects of the urban block:-

- Form and type of buildings
- Block and street relationship

- Functions of the block / Patterns of use
- Definition of the private and public space within the block
- Placement and orientation with regard to street network

Kropf, (2005) notes that the primary concern of urban design is urban form. The urban form can be interpreted at different scales-at the level of individual building, plot series, street, urban block and urban district. Kropf, (2005) further argues that the long term success of design depends on understanding the patterns of form at different levels and establishing relationships between them so that the levels are interdependent.

Similarly, Larkham (2005) while noting that form is a major constituent of urban character argues that understanding form at various scales of an urban space-individual buildings, plots, streets, and urban blocks helps to understand development process of the urban area and to appraise what is successful and what is not. Moreover it provides design cues for future forms.

Marzot (2005) while quoting Rossi (1966) explained building type as a constant archetypal configuration which persists through space and time as a design tool. The concept of building type is influenced by the constant process of transformation of existing buildings influenced by social, economic and technical statuses (Marzot, 2005). There is therefore a close relationship between urban form and building typology, a statement simultaneously confirmed by the development of the traditional and the modern city (Krier 1994, Panerai, Castex & Depaule 2004 and Gordon 2006).

The interface between the urban block and the street not only plays the functional role of access but also acts as the link between the block and the rest of the urban space. Further, the dialectical relationship between the street and the built plots creates an urban tissue capable of modification, extension and substitution of buildings. This creates the capacity of the city to adapt to the social, economic and cultural changes that mark its evolution (Panerai, Castex, & Depaule, 2004).

On the other hand, placement of the block in relation to the street network determines the front facades and back facades of the block. These facades are the defining elements for the perception of an urban block (Panerai, Castex, & Depaule, 2004).

Hierarchy is one strategy of analyzing space and its relationships. Spatial hierarchy within an urban block describes transition from public to private spaces and the space defining elements architectural or otherwise. Hierarchy is important in legibility of an urban space (Komossa, 2010).

The chronological study of evolution of the urban block has shown that change within urban features such as buildings, plot patterns and street networks was a reaction to changing functions of the city (Krier 1994, Panerai, Castex & Depaule 2004 and Gordon 2006). Larkham (2005) also noted that changes in urban functions triggers change in the urban fabric including alteration to complete replacement of buildings, sub-division and amalgamation of plots, changes in street frontages and street widths.

Hillier and Stutz (2005) explained that social and economic forces shape space over time. A study of the self-organising systems of a city i.e. the way people

move, stop and interact helps project long-term effects of design and planning decisions and therefore allow designers and planners to work with social economic processes rather than against them. This is applicable at different urban scales including the urban block.

These concepts formed the basis for analysing the urban blocks of Parklands, Nairobi. The interrogation of individual buildings in terms of age was a deliberate attempt to understand transition of the built forms and the urban blocks in general at different stages of the city's development.

2.6.1 Operational Definition of the Urban Block

The urban block is the space from the edge of one street to the other and occupied by buildings. In the figure below A and B are urban blocks, A contains several buildings while B contains a single building.

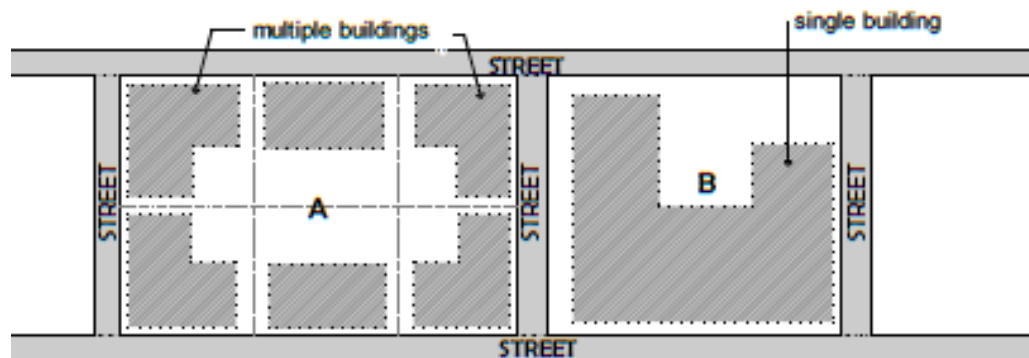


Figure 2:5 Operational definition of urban block

Source: author

3.0 CHAPTER THREE: RESEARCH METHODOLOGY

This chapter focuses on research design and methods that were applied, their procedures and rationale. The methods were based on a conceptual framework that had been derived from the preceding chapter which reviewed the existing literature and established the theoretical grounding for the research.

Qualitative research design was adopted to enable the researcher build an understanding of the research topic and provide comprehension of the research problem. The main research strategy used was descriptive case study, which adopted an interpretive approach to data, making it possible to study the urban blocks in their context and to bring subjective meanings into the study.

Data gathering techniques used included direct observation and documentary analysis of archival materials.

3.1.0 Research design

Research design is a plan of action indicating specific steps that link the study's research questions to the research findings and ultimately to its conclusions. Its purpose is to guide the researcher to collect relevant data that addresses the study objectives and to develop a strategy for analysing the results so as to respond to the original research questions (Yin, 2003).

The research design adopted in this study is Qualitative design. The research questions developed in chapter one of the study were used to select relevant strategies to conduct the research. This entailed specifying the type of data needed to answer each research question, the source of the data and the tools

and techniques of obtaining the same. Figure 3:1 explains the Research Design adopted for the study.

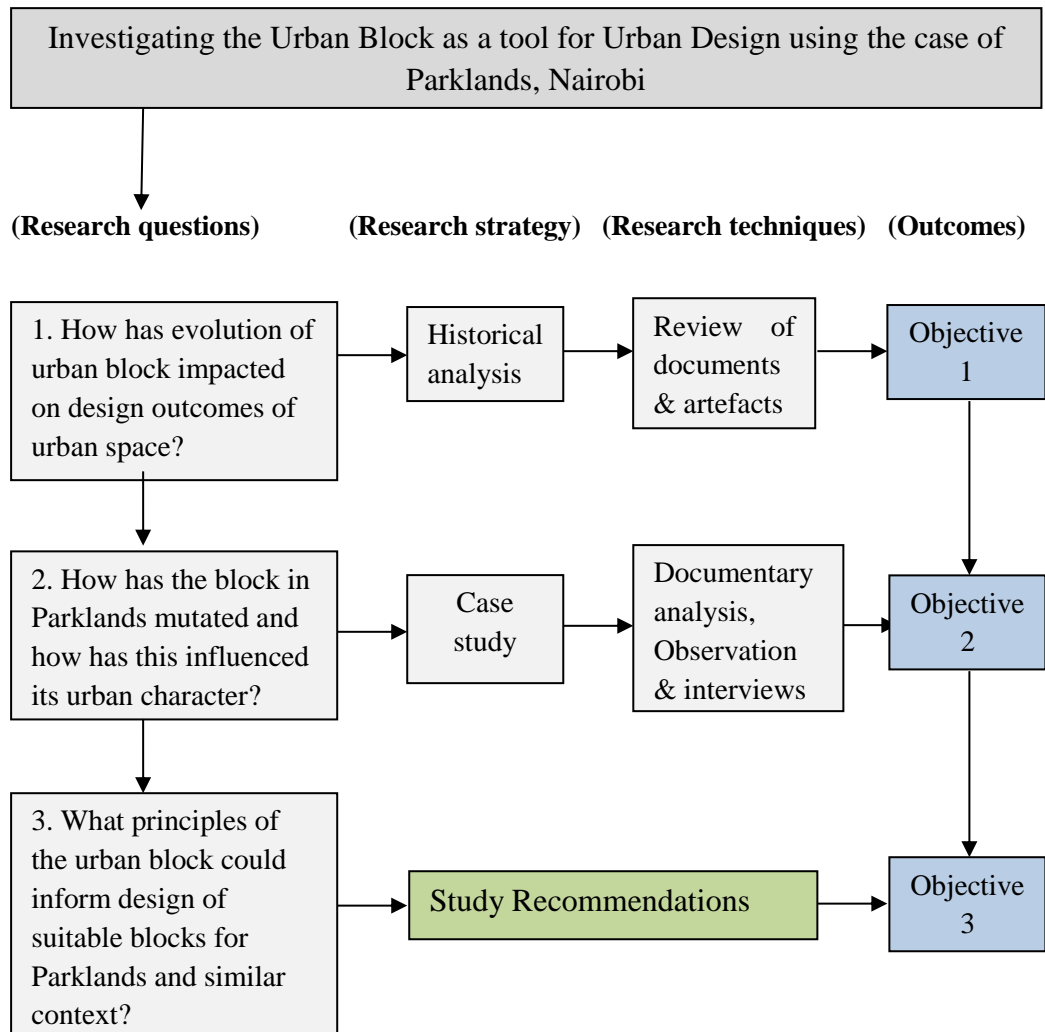


Figure 3:1 Research Design

Source: Author's construct

3.2.0 Research Strategies

To be able to gather relevant data, the researcher utilized both historical analysis (literature review) and descriptive case study as the main research strategies. Historical analysis was used to study evolution of the urban block as an introductory strategy for establishing a background against which substantive study of the contemporary urban block was set.

A case study is an empirical inquiry that investigates a phenomenon within its real life context especially when the boundaries between the phenomenon and the context are not clearly evident (Yin, 2003). It was adopted for the study of the urban block in Parklands because the research is taking place in real-world situation where the researcher has no control over the behaviour of events.

According to Yin, (2003, p. 15) the case study strategy uses a set of pre specified procedures in its investigations. In this study a case study protocol was adopted to act as a guide in conducting the research. It outlined the research objectives, variables to be accessed, data requirements, the sources and the methods to be exploited.

3.2.1 Case study protocol

Table 3.1 presents the case study protocol formulated for this study.

Table 3:1 The Case Study Protocol

Research Objective	Variables assessed	Data requirements	Data Sources	Method
Objective 1 To analyse evolution of the urban block and its influence in design outcomes of urban spaces in other parts of the world so as to give insight into the Nairobi case	Formulation of variables for the field study		Books Journal articles Online archival records Official records and publications Reports from previous studies	Historical analysis
Objective 2 To review the urban block in Parklands and the resultant urban spaces	Age of the buildings Form and building types Block /street interface Function	Historical development of the built forms Type of building, no. of storeys, relationships between the elements Edge defining elements and use patterns uses of urban space e.g. Residential, commercial,	Reports from previous research, key informants Field work	Documentary analysis, interviews Direct observation Direct observation Direct observation & Interviewing the

	Hierarchy Placement & orientation Patterns of use	institutional and others Space transition Arrangement of built form and articulation of fronts and backs relationships of buildings one to another and to other urban elements What activities take place in a given space at various times of the day		users Direct observation Direct observation & interviews Direct observation Direct observation
Objective 3 To establish principles that can be used to inform design of urban blocks not only in Parklands but also in other areas of similar context	Recommendations of the Study			

Source: Author's construct

3.3.0 Sampling and Sample Size

Sampling is the process of gathering objects of study from a population such that the selected group contains elements representative of the characteristics found in the entire group. The technique used for this study is purposive sampling technique. In this method, the researcher purposely targets objects believed to be reliable for the study (Kombo & Tromp, 2006).

The section of Parklands defined by Second Parklands Avenue, Fourth Parklands Avenue, Limuru Road and Kusi Lane was selected for the study because it had notably the largest concentration of upcoming urban blocks. Interviews with long term residents of Parklands revealed that this region has seen the most changes because it was also the first to be developed, a factor they attributed to the early development of its streets. This was corroborated by (Hart, 2006).

For evaluation purposes the urban blocks in the study area were mapped out and further classified into three categories guided by the Physical Planning Handbook (2008):-

- Residential –those consisting of buildings designed or adapted for human habitation.
- Commercial- those consisting of buildings constructed for business/trade.
- Institutional –those consisting of buildings used for purposes of education, health facilities, art galleries, places of worship, administrative centres and club premises.



Figure 3:2 Sampling Design

Source: Author

3.4.0 Research Tools

The research employed different research tools in order to collect the most accurate and relevant data. In this regard, researcher administered questions (Appendix I) and observation checklist (Appendix II) were used. These two tools were used because they made it possible to get the views of the residents, property owners and at the same time observe the phenomenon in context. An observation list was developed to guide the researcher to collect relevant data as anticipated in the case study protocol.

3.5.0 Data Collection Methods

The data collection methods used in this study included analysis of secondary data from written sources including books, journals, online publications and

reports from previous studies, direct observation and interviews. Sketches and photographs were the main tools for recording. Specific techniques were used at different stages of the work, the application of each technique being determined by the research objective.

In a case study, documentary analysis is used to augment and corroborate evidence by providing information gathered through formal studies or evaluations conducted on the same site or same topic of study (Yin, 2003). The first objective of this study was to identify how the urban block had been used to shape urban environments in other parts of the world so as to give insight into the Nairobi case. This was achieved through a documentary analysis of urban blocks in the historical and contemporary cities.

The second objective was to review the urban block in Parklands. Documentary analysis was used to understand the urban block in Parklands prior to the transformations hence forming basis for the case study. Direct observation was used guided by an observation checklist to obtain information on the building types, arrangement of the built form, plot structure and urban functions, characteristics of the urban block which influenced the overall urban fabric. Interviews were particularly useful in sourcing data specific to the study objectives and fill the gaps where it was not possible to gather evidence by observation. Such data included the age of the buildings and choice of investment.

The third objective required formulation of principles to inform design of urban blocks not only in Parklands but also in similar context; this was achieved in the recommendations of the study.

3.6.0 Data Analysis and Presentation

Data analysis is the process in which raw data is ordered and organized so that useful information can be drawn from it suggesting conclusions and supporting decision making (Kombo & Tromp, 2006). In qualitative research, conclusions are not based on statistical facts but are derived from identified patterns and uncovered concepts.

The data collected was analysed according to the key concepts of the urban block developed in the conceptual framework (2.6.0) in order to find out how various aspects of different urban blocks in Parklands compared to those studied under the literature review. The analysis then informed the conclusion and recommendations of the study.

4.0 CHAPTER FOUR: STUDY AREA

This chapter looks at the urban history of Parklands and the processes that have informed changes in the urban block. Parklands like other early settlements in Nairobi was established as a result of colonialism. Subsequent planning interventions have continued to alter its urban structure and the built form has continued to evolve to adapt to the requirements of the modern day city.

Parklands is distinctively a residential district lying approximately five (5) km to the North of Nairobi CBD. It is bound by Parklands Road to the south, Limuru Road to the east, Mpaka Road to the west and Sigiria Forest to the north. Its urban fabric is characterized by the traditional bungalows and maisonettes interspersed by more recent high-rise flats, shopping malls and office blocks. The significance of Parklands as an urban district is therefore multi-faceted.

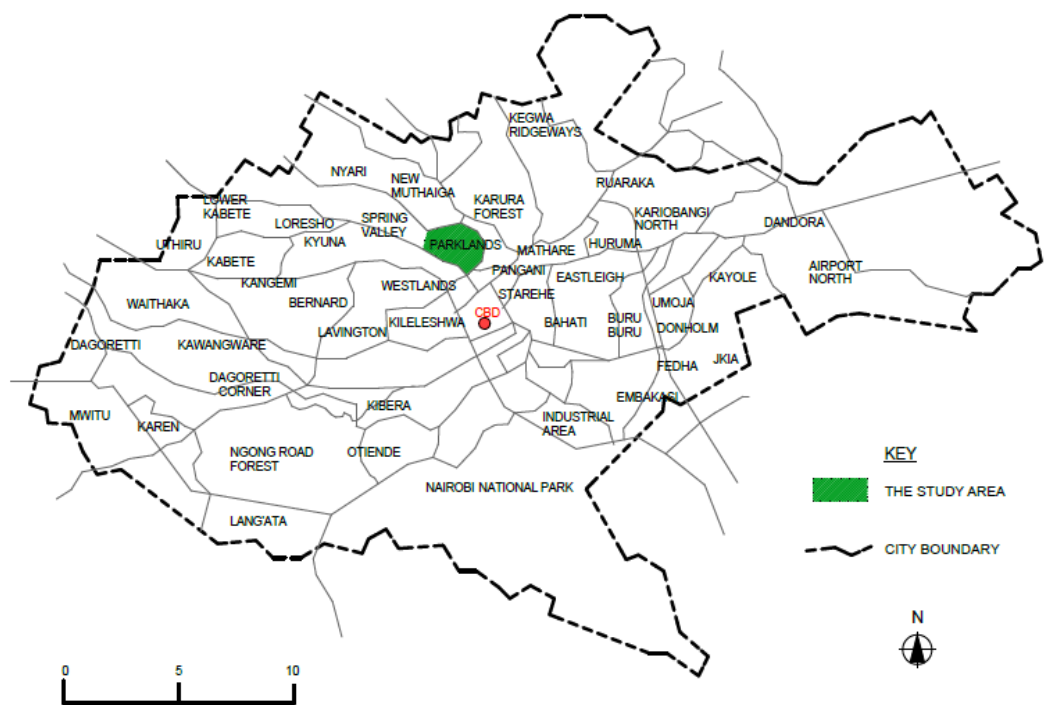


Figure 4:1 Location of the study area in the larger Nairobi

Source: Moss, R. (1999)

Historical Development and Planning of Parklands

Parklands started in 1906 as a housing zone for government workers. Between 1906-1926 it developed without following any urban planning principles, there was plot by plot development as plots were subdivided and slowly covered with buildings (Morgan,W. & Halliman,D. 1967).

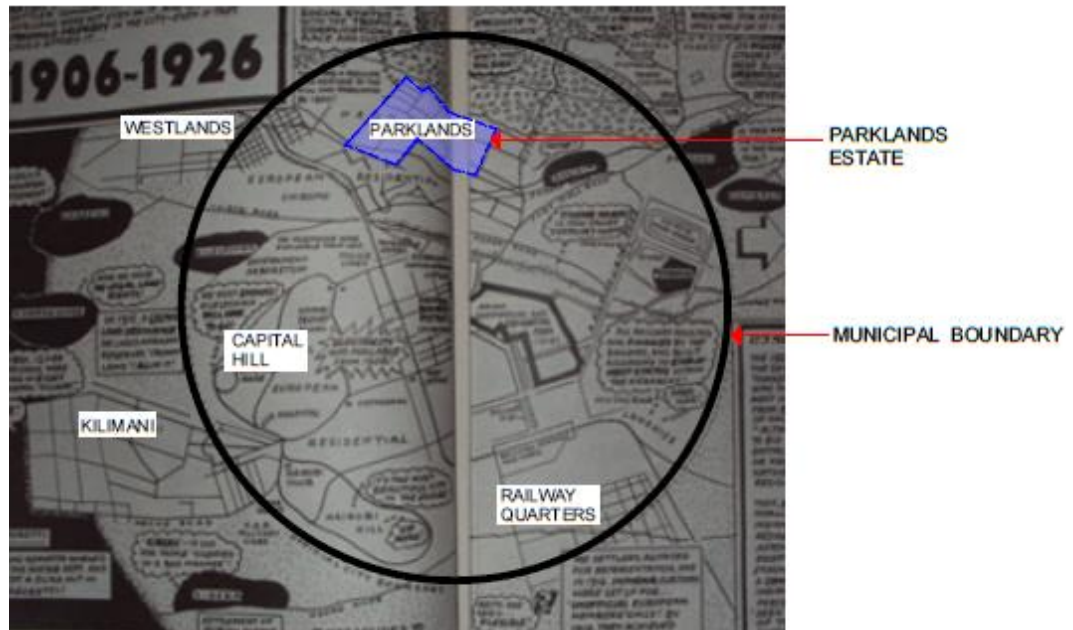


Figure 4:2 Parklands in the Nairobi layout circa 1926

Source: Adapted from Hirst, T. (1994)

In 1927 Nairobi got its first zoning plan (for a settler capital) which separated commercial and residential areas hence the onset of zoning. The plan rejected renovation of the Asian quarters on the basis of high cost implications, instead it affirmed Parklands neighbourhood and opened it up for the occupation of high income Asians. By this time 90% of the total area belonged to Europeans while 10% belonged to Asians (Hirst,T. 1994). Residential densities specified for this district were a maximum of one or two houses per acre (Emig & Ismail, 1980).

Between 1927-1946 the plots in Parklands were subdivided into half-acre plots and density specifications changed to one house per half-acre. This happened because of the following reasons: - First there was an increase of wealthy Asians who could afford to compete with the Europeans hence the need to segregate them by creating a zone for them. Second, Command Paper 1922 of 1923 had abolished segregation in residential areas based on race. Third the European land owners in Parklands could now sub-divide their plots, sell them to the Asians and use the money to buy plots in more exclusive zones. Gradually Parklands became an exclusively Asian zone (Emig & Ismail, 1980).

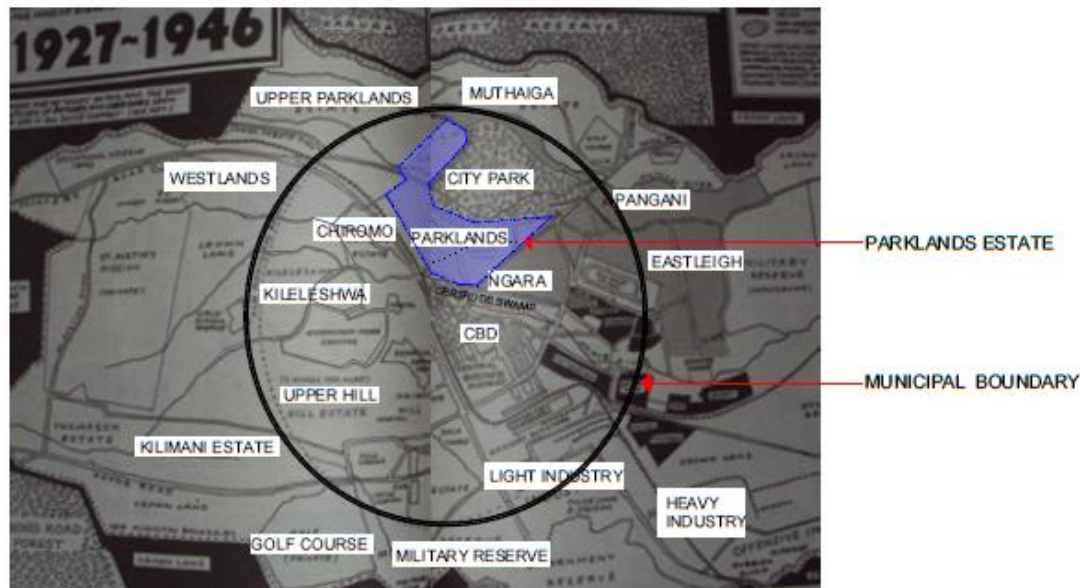


Figure 4:3 Parklands in the Nairobi layout circa 1946

Source: Adapted from Hirst, T. (1994)

Between 1930 and 1940 Nairobi became a service centre for a rural and urban European population in Kenya. The town had superior infrastructure designed to support the growing plantation economy. During the Second World War, Nairobi served as strategic headquarters of the British forces in East Africa. The influx of the Europeans prompted sub division of farmlands and estates in

upper Nairobi areas. The war also caused more Africans to move into the city and this made Government and the municipal council recognize the need for a physical plan for the town to deal with the increased densities (Morgan & Halliman, 1967).

The first Master Plan for Nairobi dubbed the Master Plan for a Colonial Capital was done in 1948 outlining the physical planning guidelines for Nairobi. Parklands remained a high income residential zone sited on low density and well served with road networks. The Master plan was made flexible to allow for revision, amendment and refinement by the planners in the process of implementation (White, Silberman, & Anderson, 1948).

In 1950 when Nairobi was granted the royal charter to become a city, among the changes implemented was the introduction of higher residential densities in areas occupied by Asians such as Parklands. This led to the flight of Europeans from Parklands in preference for the low density areas designated for them. Parklands thus became an exclusively Asian zone (Hirst & Lamba, 1994).

In 1973, the Metropolitan Growth Strategy was prepared to guide developments in the city up to the year 2000. It provided for decentralization of investments from the Central Business District to secondary commercial zones and residential neighbourhoods. This was the basis for development of High-ridge commercial centre to serve Parklands residential district (City Council of Nairobi, 1973).

After 1973, Nairobi has not had a comprehensive development plan; instead it has adopted piecemeal review of policies as development pressure demands. Consequently a zoning plan for the entire city was devised through which

development would be controlled. A total of 20 zones were created with Parklands falling under zone three together with City Park estate and Westlands estate (Nairobi, 2011).

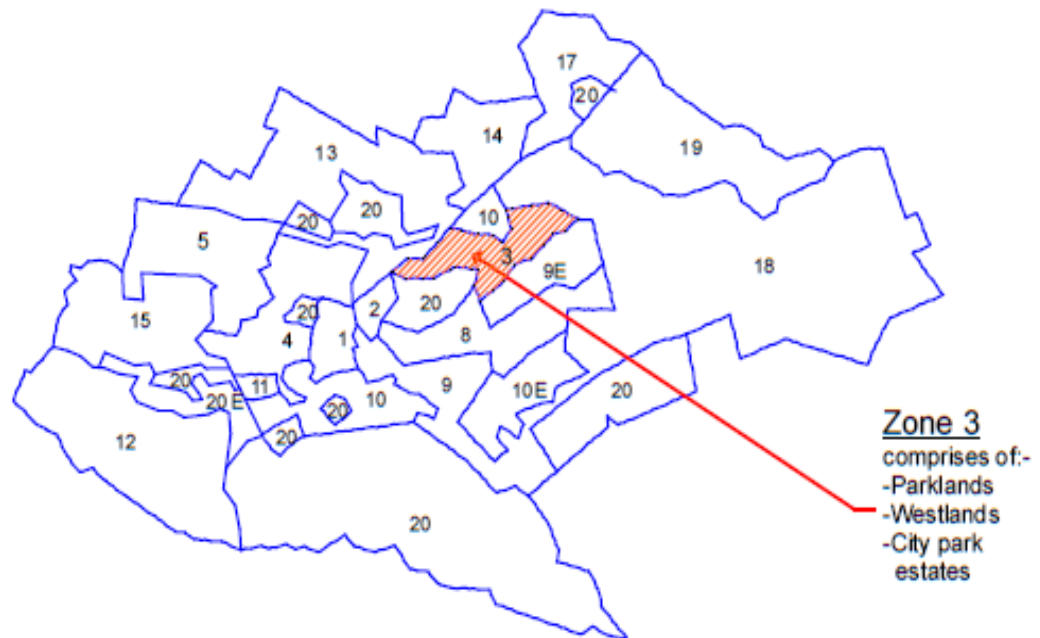


Figure 4:4 Zone 3 in the Nairobi zoning scheme

Source: City Council of Nairobi, (2013)

A policy review undertaken by the city council of Nairobi in 1987 allowed development of high-rise commercial and residential apartments in Parklands and at the same time allowed subdivision of plots to a minimum of 0.05 ha.

Table 4:1 Zoning regulations for Parklands, 1987

zone	Areas covered		Ground Coverage (%)	Plot Ratio (%)	development allowed	Minimum area (Ha)
3	parklands	commercial	50	100	Commercial/ residential high-rise	0.05
		Residential	35	75		

Source: City Council of Nairobi, 2004

The last zoning review regarding Parklands was carried out in 2004 and resulted in subdividing zone three into four sub-zones with prescribed ground coverage (GC), plot ratio (PR) and minimum plot size for each sub-zone.

Table 4:2 Revised zoning policy for Parklands, 2004

Sub-zone	Areas covered	Ground Coverage (%)	Plot Ratio	development allowed	Minimum area (Ha)	Policy issues
3A	Parklands Highridge centre	50	2.0	Mixed use commercial & residential	0.2	Road widening
3B	Parklands Road, First Avenue, Shivachi road	35	1.0	Flats	0.2	Maximum four floors
3C	Remaining parts of Parklands	35	1.5	Flats	0.2	Maximum two floors
3D	Deep Sea	-	-	Open space/ recreation	16.8	Informal settlement to be reclaimed

Source: City Council of Nairobi, 2006

This planning was largely guided by what was happening, however development went beyond the revised regulation and incidents of high-rise buildings going beyond four floors, and land use mixture in residential areas began to emerge.

In 2011, the City Council of Nairobi commissioned a study of land use and policy plan for zone three, four and five. The study proposed the following revisions to the zoning policy of Parklands, however the revisions had not been authorized by the time of this study.

Table 4:3 Proposed Revisions to Zoning Ordinances for Parklands

Sub-zone	Areas covered	Ground Coverage (%)	Plot Ratio	development allowed	Minimum area (Ha)
3A	Highridge centre, Third & Fourth Avenue, Kusi Lane	50	2.5	commercial /mixed use	0.1
3B	Parklands Road, First Avenue, Shivachi Road, Limuru Road	35	2.0	Flats	0.2
		35	1.0	Single dwelling	0.05
3C	Remaining parts of Parklands	35	2.0	mixed use	0.1
3D	Deep Sea	-	-	Public purpose	-

Source: City Council of Nairobi, (2013)

4.1.0 Evolution of the Built Form in Parklands

The Parklands district of Nairobi was originally a residential zone for the Europeans in the early twentieth century. The preferred typology of housing for the white settlers was British cottages and country houses (Hake, 1997).

The 1927 Plan for a settler capital allowed Asians to inhabit Parklands. The Asians chose to build their houses in art deco and modern styles which were conspicuously different from the British cottages. Between the years 1930-1950 there was an influx of Asians into the district and so were the changes to its urban character (Hart, 2006). The Asians chose the Art Deco style for two reasons: First, it was the up to date style at the time (Craig, 2004), second, they desired to be different from the white settler community (Hart, 2006).

Art Deco refers to a style of the late 1920s and 1930s that sought its appeal in colour, highly styled facades and zigzag profiles. The style was extensively used in Miami Beach (USA) and Napier (New Zealand) where it was characterized by colour, ornamental motifs, curved corners and a rejection of

utilitarian for the visual, expressive and purely decorative (Craig, 2004). Similar traits can be observed in the houses of Parklands (Hart, 2006).

The style was inspired by the new forms of transportation machines in the 1930s-planes, trains, ships and automobiles. The streamlining was first applied to buildings that served these transportation machines i.e. terminal buildings, marinas, gas stations, and roadside buildings but later extended to hotels and residential buildings (Craig, 2004).






In the 1970s the High-ridge commercial centre located at the heart of the neighbourhood emerged following the 1973 Metropolitan Growth Strategy that encouraged decentralization of commercial centres from the CBD. Multi-storey buildings of two to three storeys were built for commercial use.






In the late 1980s multi-storey residential blocks started coming up. A review of planning policy by the town planning committee in 1987 ratified this (City Council of Nairobi, 1987). Although the review allowed for apartments of up to four storeys, subsequent developments surpassed this. Since then the art deco houses have been on the decline and high-rise blocks of commercial, residential and office use dot the urban landscape of Parklands.

4.1.1 Summary of Evolution of Built Forms in Parklands

A summary of how the built form of Parklands has evolved over the period between 1906 and 2013 is presented in Table 4.4 below.

Table 4:4 Examples of Built Forms in Parklands between 1906-2013

Period	Occupation	Predominant urban form	Remarks
1906-1930	European	 <p data-bbox="722 593 1050 689">Bungalow in the European quarters. Source: (White T. , 1947)</p>	<p data-bbox="1074 365 1409 667">Zone exclusively European. Style adopted was the British cottages and Bungalows. Density at one house per acre.</p>
1940-1970	Asian	 <p data-bbox="722 967 1002 1001">HN Shah house (1945)</p>  <p data-bbox="722 1305 986 1339">Moolraj house (1947)</p>  <p data-bbox="722 1574 954 1608">Jetha house (1949)</p>  <p data-bbox="722 1910 1002 1944">MP Shah house (1951)</p> <p data-bbox="722 1977 970 2011">Source: (Hart, 2006)</p>	<p data-bbox="1074 701 1409 1003">Europeans fled Parklands as more Asians settled in. Plots sub-division was allowed to half-acre per house.</p> <p data-bbox="1074 1037 1409 1272">Single family houses (maisonettes) in art deco and modern styles were popular.</p>

1970-1980	Distinctively Asian	 <p>Commercial block in the High-ridge centre.</p>  <p>Residential block Source: Fieldwork 2013</p>	<p>Advent of a Commercial typology (up to four storeys) in the designated commercial centre.</p> <p>Even in the design of residential houses, art deco style was progressively dropped and the utilitarian modern style adopted.</p>
1990-present	Asian and African	 <p>mixed-use block -3rd Avenue</p>  <p>shopping mall- 4th Avenue</p>  <p>Office block-4th Avenue Source: Field work 2013</p>	<p>Asian dominance is still there in both commercial and residential premises.</p> <p>Significant infiltration by the Africans especially with availability of rental houses and policy review to allow purchase of apartments.</p> <p>Notable decline of low rise houses in favour of high-rise developments.</p>

Source: Author

4.2.0 The Concept of the Urban Block in Parklands

Parklands district is planned in a grid iron pattern. Six streets named from First Avenue to Sixth Avenue run through the district in an East-West direction and other streets in a North-South direction to form a grid. The spaces so defined by the street network can be read as urban blocks; however they have not been reference points for any urban design interventions.

The blocks are further divided into plots; each of the plots is connected to the street from one end. Recent development has caused amalgamation of plots for redevelopment, demonstrating that with the present planning of Parklands it is possible to have blocks of varying sizes accommodating various functions e.g. large blocks for public facilities, commercial developments and small blocks for residential development. Each plot has access to the street making them suitable for multiple urban functions.

Making inferences from the use of urban block as the basis for development of Barcelona Expansion (Scheurer, 2007), the grid pattern of streets offers a good platform for the adoption of the urban block as a point of urban design intervention in Parklands.

5.0 RESEARCH FINDINGS

This study set out to investigate how evolution of the urban block has influenced design of urban spaces with a view to establishing design principles that could be adopted not only for Parklands but also other similar contexts. Though the first objective was achieved through desk study (review of literature), field study was desired to achieve the other two. This chapter therefore presents data collected through fieldwork, and its analysis.

The fieldwork was started off by categorizing urban blocks in Parklands and selecting samples to be analysed. The sampling design has been discussed in the Research Methodology.

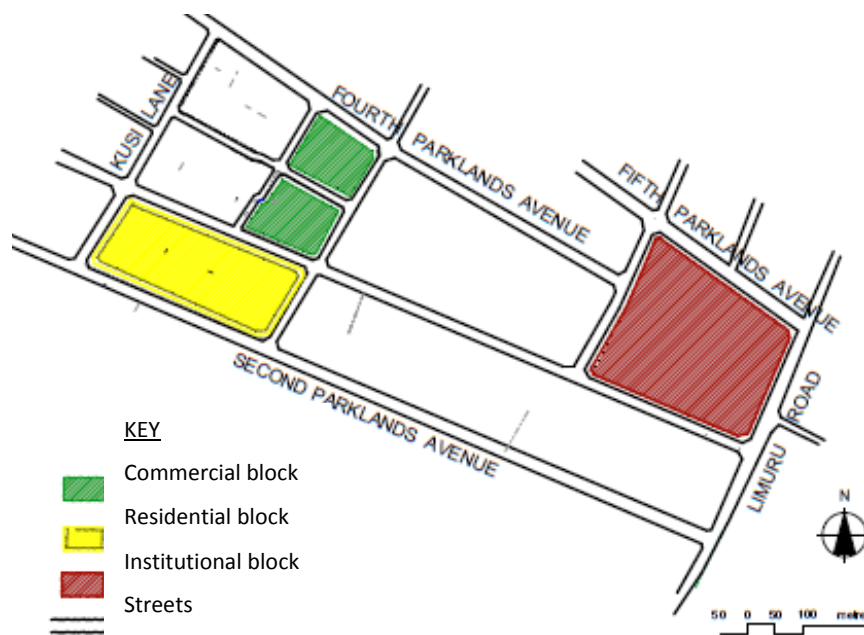


Figure 5:1 Samples selected for study

Source: Fieldwork 2013

5.1.0 The Residential Urban Block

This is the dominant block between Second Parklands Avenue and Third Parklands Avenue. For purposes of this study, the block defined by Kusi Lane,

Second Parklands Avenue, Masari Road and Third Parklands Avenue was analysed.



Figure 5:2 Residential block reviewed

Source: Fieldwork 2013

5.1.1 Form and buildings typology

In the residential block three major typologies were noted:-

- Typology 1-low-rise houses in individual plots
- Typology 2-low-rise houses grouped together into horizontal blocks
- Typology 3-high-rise apartment blocks.

The low-rise houses (maisonettes and bungalows) represent the older typology built in 1940-1970, the grouping of multiple houses around a cul-de-sac (similar to the close in the garden city) was introduced in the 1980s and the high-rise apartment blocks in the 1990s to the present.



Figure 5:3 Building typologies in the residential block

Source: Fieldwork 2013

For typology (1), the house of Mr. P.S Shah on Third Parklands Avenue was studied. The house is a five-bedroom maisonette, and of single family occupancy. Built in 1970 it sits on a half-acre plot, with a built up area of approximately 370m² it incorporates an expansive garden to the front and a private yard at the back.

For typology (2), the Lion Court Apartments located on Masari Road was studied. Constructed in the late 1988, this is a grouping of eleven distinct family houses (maisonettes) arranged around a cul-de-sac in a single plot.

To understand the high-rise typology a group of apartments at the end of the block were studied together. The apartments, five to six storeys high were constructed between 1990 to the present. The plot structure was disrupted as plots were amalgamated to allow larger developments.



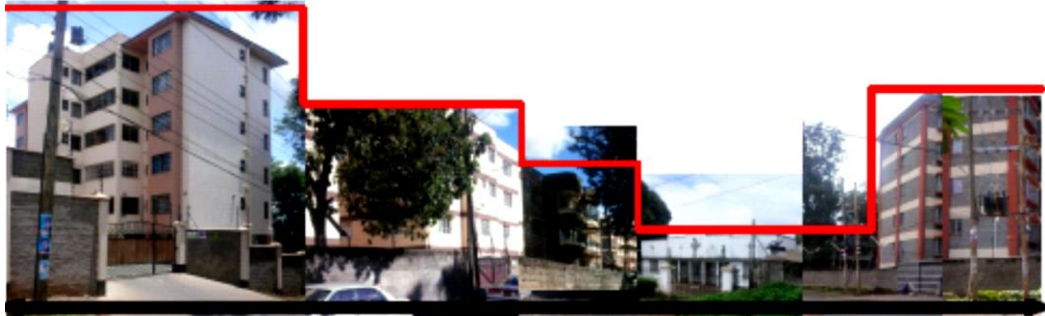
Figure 5:4 Buildings studied in the residential block.

Source: Field work 2013

Besides the urban tissue, the skyline is also altered as the tall buildings almost joined to each other begin to define a three dimensional space.



View of the apartment blocks from Second Parklands Avenue



View of the apartment blocks from Kusi Lane

Figure 5:5 Changing skylines in the Residential block

Source: Field work 2013

5.1.2 Relationship of urban block to the street

The plots are set back two to three metres off the street to allow for pedestrian walkways on either side of the street. The walkways are devoid of street furniture, poorly maintained with pavements chipping off, clear indication of lack of ownership. While the street structure has remained the same, definition of plot boundaries has undergone transformations over the years. Originally the edge of the plot adjoining the street would be marked by a boundary wall of masonry construction made relatively low so as to allow visual connectivity with the street. However, for security reasons modifications were made including planting of thick hedges and erecting electric fences, this has weakened the relationship of the street and the activities of the block.



Figure 5:6 Treatments of plot edges (Mr. Shah's house and Lion Court apartments)

Source: Field work 2013

In the newer apartment blocks the plots are enclosed by high masonry walls of up to two metres. This has created a weak relationship between the inside of the block and the street. Consequently proliferation of informal activity was noted especially on the section of Kusi Lane flanked by the high-rise apartments. Some of the informal activities included food kiosks, fruits and vegetable peddling, maize roasting, wines and spirits kiosks, and food outlets.



Figure 5:7 Treatment of the plot boundary in the apartment blocks

Source: Field work 2013

However, plots where use of the space beyond the boundary wall was defined remained free from informality. For example some developers located a visitors car park in this space, those in strategic locations would negotiate with the city council to develop parking for the council and they would in turn be allowed higher densities on the inside of the plots.

5.1.3 Placement and orientation

The bungalows and maisonettes are set back inside the plots to allow a heavily landscaped buffer from the street (public realm) and to create a continuous green corridor along the street edge. As noted during the study these front gardens are rarely used, most residents preferred to use the extensive balconies that characterized the architectural style of the buildings (art deco).

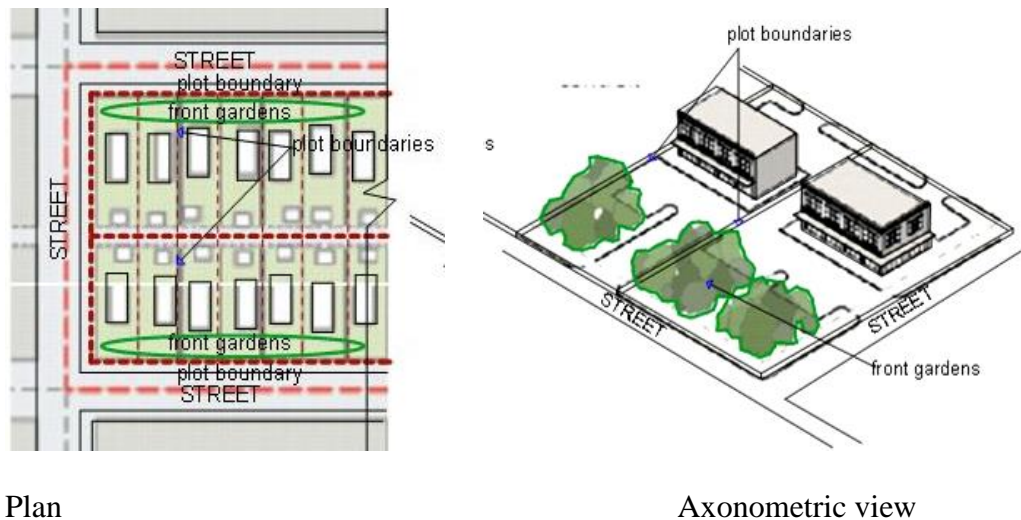


Figure 5:8 Sketch showing placement of Mr. Shah's house in the urban block

Source: Field work 2013

Where multiple houses are grouped together in one plot, the front garden is substituted with a common open space which is used for collective activities such as garbage collection, children's play area and car park.

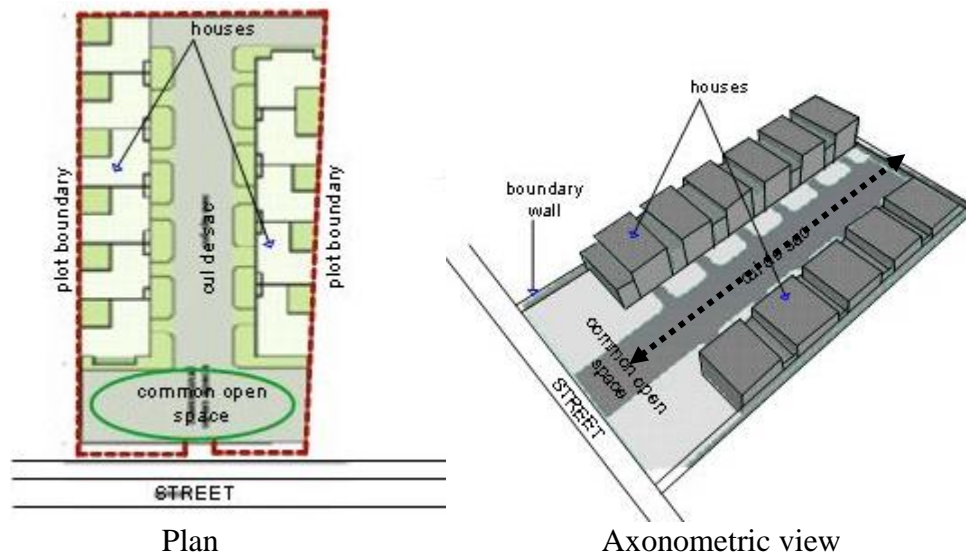


Figure 5:9 Sketch showing placement of Lion Court apartments in the plot

Source: Field work 2013

In the lion court apartments, the fronts of the houses are joined into a continuous facade. The domestic quarters though a complete unit itself is accessed from inside the house, and it is not identifiable from the facade of the houses. At the back of the plot are the private gardens which are used for activities such as washing and drying.

In the high-rise blocks, placement of buildings on site is such that it maximises use of the plot. This can be explained by the high cost of acquiring land in the neighbourhood. Public space becomes less differentiated and is assigned to the un-built spaces arising from development control measures (building line). This space is utilized as a car park, in most cases the car parks permit a maximum of two bays of onsite parking with a single drive isle between them signifying a reduction of open spaces and increased plot coverage.

Plot sizes are maintained at half an acre in some cases while in others plots are amalgamated to accommodate a group of flats in one compound. Permeability

is therefore reduced creating long stretches of external space which is not connected with the buildings. Consequently, residents' ability for control and surveillance of the street is lost.

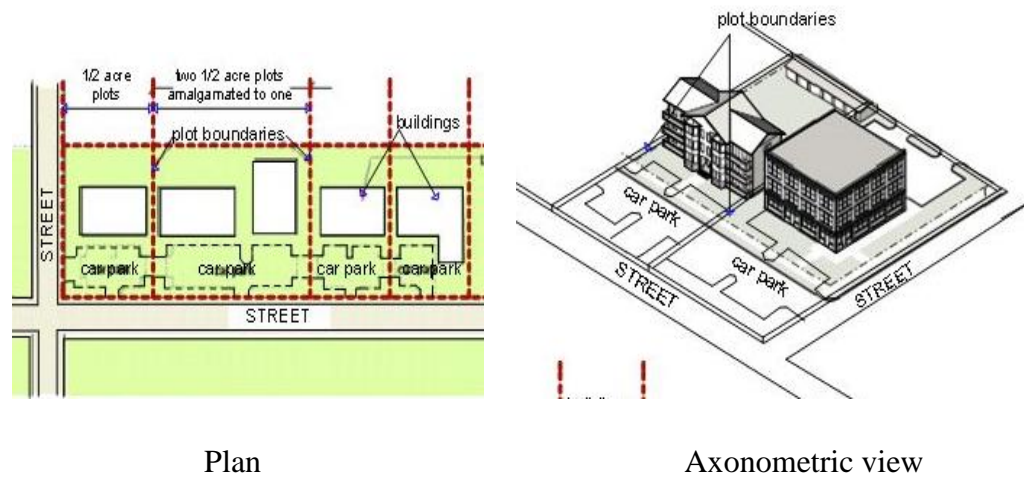


Figure 5:10 Sketch showing placement of apartments in the block

Source: Field work 2013

5.1.4 Definition of private and public space

Various architectural elements have been used to define spatial hierarchy in the residential blocks. In the house of Mr. Shah (single family residential) open gardens, pavements and balconies have been used. The front garden measuring approximately twenty metres in length creates transition from the street as well as providing privacy to the residence.

Large balconies on the first floor form the semi-private space, visually they are a continuation of the gardens albeit at a different height. This is the space utilised for non-private outdoor activities. The deep balconies and verandas also serve the function of defining the entrance porch marking transition to the most private spaces which is the house and the yard to the back of the house.

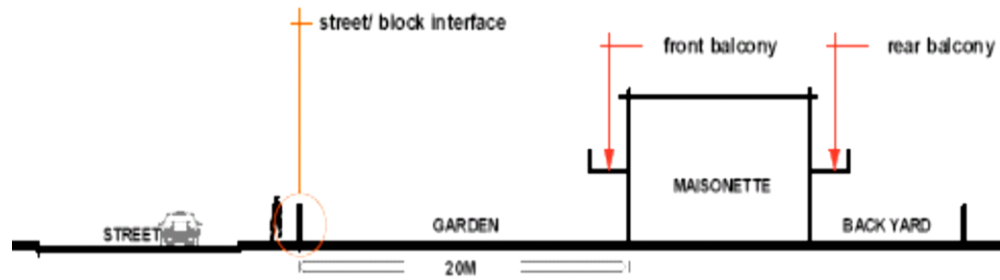
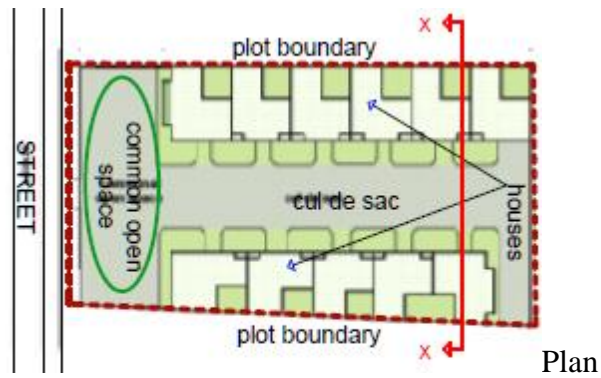


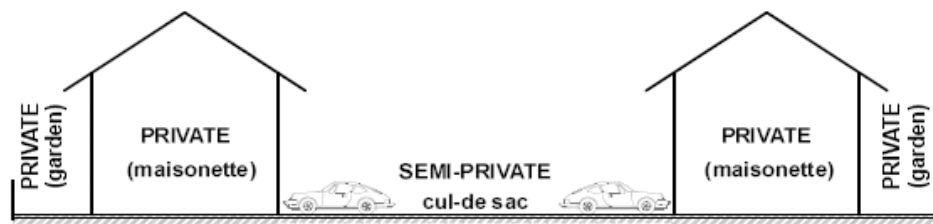
Figure 5:11 Section through the plot showing hierarchy of public and private spaces (Mr. Shah's house)

Source: Field work 2013

In the Lion Court Apartments, a cul-de-sac defines spatial hierarchy. The main street leads to an open square (semi-private) which is then reduced into a cul-de-sac defining transition into a less public space and into individual houses. Private gardens are located at the back and accessed from individual houses.



View into the unit



Cross section through the unit

Figure 5:12 Hierarchy in the Lion Court Apartments.

Source: Field work 2013

In the high-rise apartments the sequence of Street-Edge-Open space -Building is maintained but with decreased communal spaces and re-organized into a vertical block. The corridor becomes an internal street from where individual dwellings are accessed. Private gardens are substituted for private balconies which are accessed from within the dwellings.

The communal car park located at the front, together with the vertical and horizontal circulation spine located inside the building form collective spaces.

The dwellings and private balconies located at the back and accessed from inside the apartments form the private space. The internal corridor plays the role of distribution played by the street and the cul-de-sac in the previous typologies.

5.1.5 Patterns of use

In terms of occupation, the residential developments in Parklands can be grouped into three categories namely, single family houses, multiple unit houses/maisonettes, and high-density apartments. According to property market experts, there is currently a strong demand for land for re-development of high density apartments (Ayieko, 2004). In contrast, the market for stand-alone single family dwellings has been on the decline.

The Sectional Properties Act, enacted in 1987 through parliamentary legislation introduced subdivision of buildings into units owned by individual proprietors. This has enabled social mix by allowing more Africans to own homes in Parklands, a zone that was previously exclusively Asian and availability of rental options have made it accessible to people of different social classes.

5.2.0 The Commercial Urban Block

The commercial block in Parklands consists of shopping malls, small scale retail outlets, offices, and mixed-use developments incorporating shopping, office and residential functions all in one building. Contrary to the residential blocks the commercial block is characterized by high-rise buildings of between four and eight storeys.

The major commercial block in Parklands is located between Arya Girls School off Masari Road, Third Parklands Avenue, Fourth Parklands Avenue and Kusi Lane. This is where Nakumatt Highridge, Diamond Shopping Mall, Sky Mall and other major commercial outlets are located.

For purposes of this study two blocks were analysed:-

- Block 1- defined by Third Parklands Avenue, Masari Road, Mutati Road and flanked by an access lane on the end.
- Block 2- defined by Mutati Road, Masari Road, Fourth Parklands and an access Lane on the other end.



Figure 5:13 The Commercial Block under study

Source: Field work 2013

5.2.1 Form and buildings typology

There are two major typologies in this block, the mixed use typology with shops on the ground floor and residential apartments on upper floors and a purely commercial typology with shops and office space distributed within the floors.

Block (1) consists of six separate buildings developed at different times and by different proprietors but due to their continuous placement, they can easily be read as one block. All the six buildings are of the same typology, with shops on the ground floor and residential apartments on the upper floors. They range between four and six storeys.

Going by the definition of Towers, (2005) of the Urban Block as a single building that takes on board variety of spaces and functions that would otherwise have been achieved through juxtaposition of different buildings or that of Krier, (1994) as a part of the urban continuum that is optimized spatially and functionally to support different circumstances of everyday life, some of the individual buildings would then qualify for study as urban blocks.

Amani plaza, a five-storey mixed use perimeter block off Third Parklands Avenue is such a block. Constructed in 1991, the block sits on one-acre plot resulting from amalgamation of two plots. The ground floor is entirely commercial with two restaurants, a beauty salon, a hard ware shop and an optical shop, part of the first floor contains offices including doctors clinic while the rest of the upper floors are residential consisting of forty eight apartments.



Figure 5:14 Amani Plaza and its location on site

Source: Field work 2013

Block (2) consists of three multi-storey buildings and single story stalls arranged so as to define an open square in the middle, with the stalls opening into it. The buildings range from three storeys (built in the 1980s) to twelve storeys (built in 1990s). Their typology is similar i.e. small retail shops on the ground floor, larger shops and office space on upper floors. The stalls support small scale businesses such as food kiosks, beauty shops, and artefacts stores. The open square is used for circulation, car park, and informal trading activity.

5.2.2 Relationship of the block to the street

In contrast to the residential block, the edge of the commercial block is defined by a permeable fence that allows visual connectivity to the street. Thus a commercial block adapts a theme of openness rather than enclosure.

The frontage of the commercial buildings in Block (1) is a public space used for circulation and parking. This block lacks elaborate walkways as developers have shifted plot boundaries towards the street rendering the walkways unusable due to their narrow width. Other sections of the walkways are obstructed by vehicles that are parked on them.

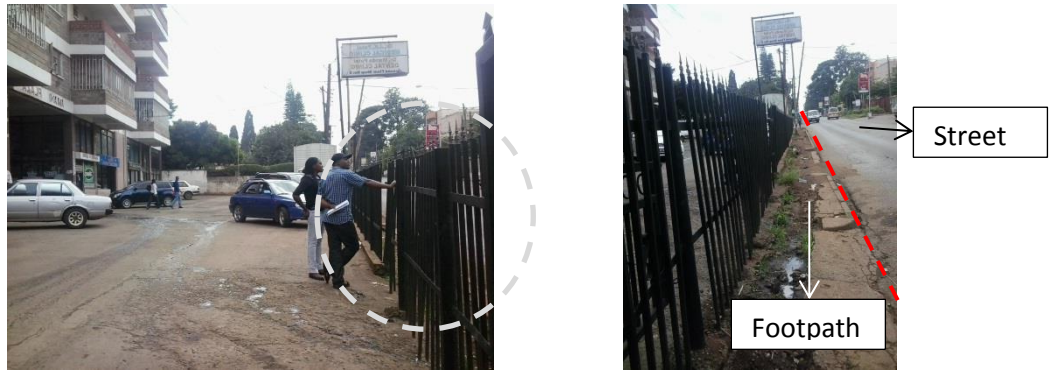


Figure 5:15 Treatment of the edges of the Commercial block on Third Avenue

Source: Field work 2013

The same concept of visual connectivity is adapted on the edge of Block (2) along Mutati Road and Masari Road. However, along Fourth Parklands Avenue the block is introverted towards the central open square so that the boundary is defined by a solid wall.



Figure 5:16 Treatment of the edges of the commercial block along Mutati, Masari Road and Fourth Avenue respectively.

Source: Field work 2013

To achieve accessibility by car while at the same time allowing people to walk within the blocks, design elements such as bollards and kerbs have been used to control vehicular movement.

5.2.3 Placement and orientation

The plots have been amalgamated to accommodate large commercial developments. The positioning of buildings on individual plots is such that they join to form one facade hence abandoning the plot as the controlling factor in design (Stein, 1950).

However, unlike the Haussmannien block, individual buildings vary in size, form and architectural language. The unique facade treatment and level differences makes it possible to identify individual buildings.

Buildings are sited such that their frontage permits on-site parking. This parking serves as transition space from the street. The buildings are recessed on the lower level to create ‘a street’ within the block. This internal street is intended to promote walkability which is desired for the commercial activity on the ground floor to thrive. The upper facade is characterised by balconies overlooking the street, the upper floors are residential.



Figure 5:17 View of the commercial block from Masari Road

Source: Field work 2013

Amani plaza's placement on site makes it accessible from Third Parklands Avenue for commercial and residential purposes and from a lane off Mutati Road for residential purpose only. The traditional elements of the block i.e. the street, common space, the house, private garden, are re-organized into a vertical urban block. Access to dwellings comes to the centre in the form of a system of staircases and corridors. The effect is that the block is re-oriented so that individual apartments have their entrances facing the collective courtyard, in abstract the apartment becomes a separate house with a front garden. The front veranda is made wide enough (1.5 metres), it solves the problem of narrow streets. Private balconies are provided at the back of each apartment.

Between Mutati Road, Masari Road and Fourth Parklands Avenue, individual buildings are arranged so as to define an open square in the middle. This block is purely commercial with a mixture of large shops, small scale shops, and office spaces. The open square is used for circulation, car park, and has the stalls and ground floor shops opening into it making it a very vibrant open space. The block has two major access points, one off Mutati Road and the other off Fourth Parklands Avenue.

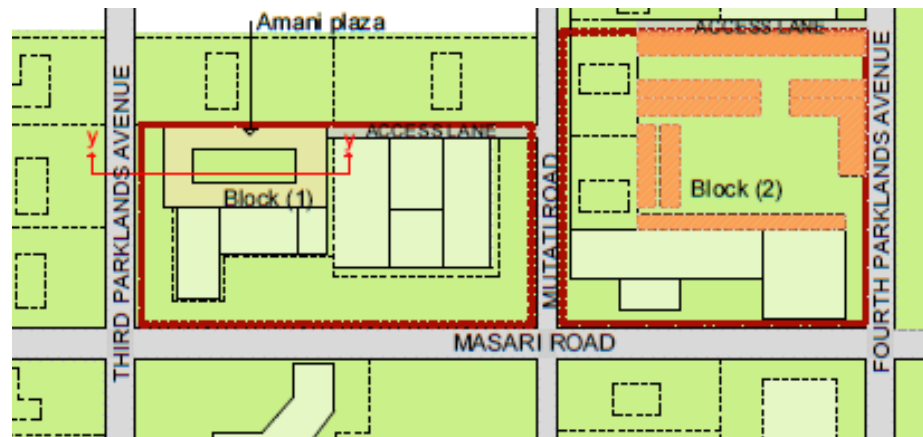


Figure 5:18 Views into the open square of the commercial block

Source: Field work 2013

5.2.4 Definition of private and public space

Various architectural elements have been used to define hierarchy of public and private spaces within this block. A gate separates the public front and the more private back. The gate opens into a courtyard, the enclosure creates a collective garden away from the busy front.



Placement of Amani Plaza in the Urban Block

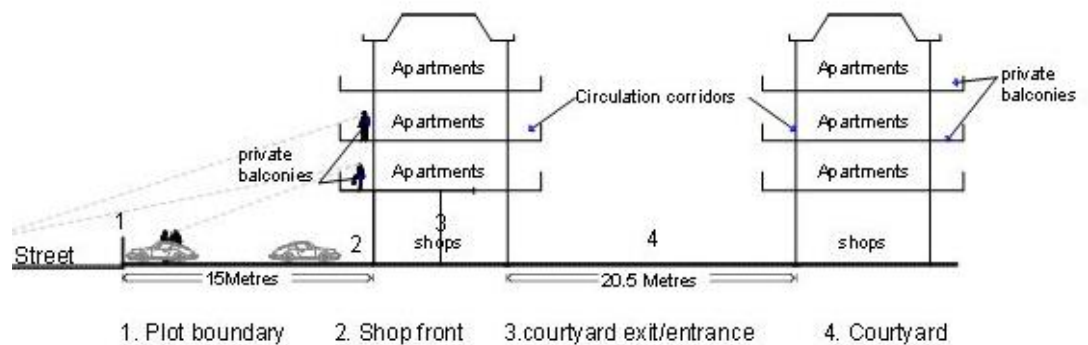


Figure 5:19 Placement and cross section through Amani Plaza (y-y)

Source: Field work 2013

The courtyard is largely a residential space. It serves as a car park for the residents, children play area and socializing space. The balconies on the facades of the block serve the traditional role of the back gardens. They are accessed from inside the apartments and are used for private activity.



Figure 5:20 View into the courtyard, Amani Plaza, field work 2013



Figure 5:21 Deep balconies on the facade of Amani Plaza

Source: Field work 2013

5.2.5 Patterns of use

The commercial block in Parklands depicts variety of form and use. The buildings are designed to create spatial variety on the ground floor so that it can be adapted for a diversified commercial use.

The upper floors are spatially designed to support either residential function or office use. Due to the multiplicity of functions, the block attracted different people at different times of the day. This created vibrancy around the block.

Residents interviewed felt that this boosted security for their houses and it was also convenient for their shopping.

5.3.0 The Institutional Block

This block consists of buildings used for purposes of education, health care, places of worship, civic institutions, and art exhibition galleries. Some of the institutions are located within the residential blocks while others are distinct urban blocks. For this report, the Aga Khan University Hospital was analysed.

The Aga Khan University Hospital is a distinct urban block situated between Third Parklands Avenue, Mtama Road, Fifth Parklands Avenue and Limuru Road. The block consists of a grouping of several buildings serving various functions of the institution: - there is the Aga Khan University, Aga Khan Hospital and the Aga Khan Sports Complex. It defines the edge of Parklands neighbourhood along Limuru Road.



Figure 5:22 Aga Khan University Hospital layout and location on site

Source: Field work 2013

5.3.1 Form and buildings typology

The Aga Khan complex consists of several buildings built between the years 1958-2005, it started as a hospital in 1958 and upgraded to a tertiary level teaching hospital. The buildings are built in the modern style and range from two storeys in older buildings to eight storeys in the newer buildings. In terms of typology, the older blocks and the newer blocks remained the same.



Figure 5:23 various buildings in the Aga Khan University Hospital, Nairobi

Source: Field work 2013

5.3.2 Relationship of the block to the street

The edges of the block are defined by high masonry walls forming not only a physical border but also detaching the activities of the block from the public space i.e. the street. This block is characterised by low permeability with entry points only located along Third Parklands Avenue and Mtama Road.



Figure 5:24 Treatment of the edge of the block on Third and Fourth Parklands Avenue respectively.

Source: Field work 2013

The street has provision of footpaths all-round the block, separated from vehicular traffic by use of bollards. Due to the low permeability, opportunistic activities can be found at street corners.

Since the block is not interrelated with streetscape, the outside appears as monotonous space that is desolate and with low activity level. Informal activities such as bicycle repairs, charcoal peddling and utility kiosks were noted in this space.



Figure 5:25 Examples of informal activities noted on street corners

Source: Field work 2013

5.3.3 Placement and orientation

The block is surrounded by four motor able streets but for ease of control it is only accessible from two: Mtama Road and Third Parklands Avenue, with Third Parklands Avenue being the major access for the hospital and the university while the Sports complex is accessed from Mtama Road. Unlike commercial and residential blocks, the institutional block supports limited transformations. For purposes of planning therefore, the institutional block can be used to form physical barrier and edges that remain unchanged hence maintaining the external character of a neighbourhood.

5.3.4 Definition of private and public space

Although institutions are public spaces they have private functions to them. In this block, hierarchy is defined by distance from the street with the most public facilities i.e. doctors' consultancy and examination rooms, lecture theatres, wards being nearer the street and the private ones i.e. staff recreation and physical fitness centre in the middle of the block, further from the street.

5.3.5 Patterns of use

The core function of the institution is giving health services as well as a tertiary institution of learning. However, it also contains supplementary facilities such as sports facilities, restaurants, physical fitness centre, and administrative offices. This diversity maintained the block vibrant even on weekends when the sports centre was largely used.

5.4.0 Summary of Findings

The first planned settlements of Parklands emerged in 1920. In comparison with other cities of the world, the global trend was such that cities were facing

challenges of the industrial city which included congestion and pollution. The Garden city movement became popular at the time for introducing and integrating natural systems into the city. Motivated by the garden city model, European settlers defined urban blocks comprising of bungalows surrounded by large gardens (one house per acre).

By 1947, Parklands was largely an Asian settlement. Further streets were developed and plots subdivided while maintaining the grid pattern. The Asian community seeking an identity chose the art deco style of modernism for their buildings. The style characterized by colour and highly styled facades was motivated by global trends at the time.

In the 1980s, high-rise blocks began to emerge as a reaction to increased densities due to urbanization. While this is a common attribute of the post-modern cities, Parklands did not only intensify but it also experienced commercialization of private properties.

The study has shown that transformation of Parklands neighbourhood occurred within the urban blocks while the street network remained unchanged. Most change occurred at the building level involving re-development, with minimal change at the plot level through amalgamations.

The mutation of Parklands urban blocks has had various impacts on the urban landscape. Besides the preference for high density vertical blocks at the expense of stand-alone bungalows and maisonettes, high boundary walls were adopted in the residential blocks cutting them off from the street activity. The development process which targeted individual plots resulted in haphazard relationships between plots, and loss of privacy.

The advent of office blocks and shopping malls has also significantly altered the urban form in terms of the skyline and creating concentration nodes.

The three major categories of Urban Blocks noted in Parklands i.e. the residential, commercial and institutional blocks were analysed according to a set of parameters developed in the conceptual framework of the study.

The results for this analysis are summarized in Table 5:1 below.

Table 5:1 Summary of Findings

PARAMETER	FINDINGS
1. The Residential Urban Block	
Form and buildings typology	<ul style="list-style-type: none"> ▪ Bungalows and maisonettes interspersed with high-rise residential flats (up to six storeys). ▪ The trend is towards the high-rise blocks with the low-rise houses being demolished for redevelopment
Age of buildings	1940-to present
Relationship of the block to the street	<ul style="list-style-type: none"> ▪ Varies from plot to plot: low boundary walls in the older typologies, in some plots these have been modified by erecting electric fences and live hedges. ▪ In the redeveloped plots there is deliberate effort to keep off the street, physically and visually. High boundary walls (approximately 1800mm) have been used.

Function	Residential function
Definition of private and public space	<ul style="list-style-type: none"> ▪ Defined by the sequence of Street-Edge-Open space-Building. Variants of the open space include gardens, driveways and collective car parks.
Siting/ placement of buildings within the plot structure	<ul style="list-style-type: none"> ▪ Older typology-uniform size plots, similarity in building placement, with front gardens ▪ Redeveloped plots- Front gardens substituted with car parks, no uniformity in siting.
2. The Commercial Urban Block	
Form and buildings typology	<ul style="list-style-type: none"> ▪ High-rise blocks of between four and ten storeys. ▪ Single storey stalls of temporary construction.
Age of buildings	1970-to present
Block and Street relationship	<ul style="list-style-type: none"> ▪ Blocks open up to the street, maintaining as much openness as possible or even allowing commercial activity to flow into the street. ▪ Edges are defined by elements that allow easy access and connectivity such as bollards or steel fences
Function	<ul style="list-style-type: none"> ▪ Older blocks focussed on commercial functions including: retail, hotel and restaurants, beauty clinics, and private health clinics ▪ Newer blocks incorporated residential function ▪ The trend is now shifting towards retail and rental offices.

Definition of private and public space	<ul style="list-style-type: none"> ▪ Determined by function- Shops on ground floor with direct access to the street, Office and residential functions on upper floors. ▪ Incorporation of access lanes and courtyards in design especially of mixed use blocks with functions that require separation.
Siting/ placement of buildings within the plot structure	<ul style="list-style-type: none"> ▪ Dissolution of the plot structure to accommodate large scale projects e.g. shopping malls. ▪ Building placement is done to maximise use of available space, hence buildings abut into each other.
3. The Institutional Block	
Form and buildings typology	<ul style="list-style-type: none"> ▪ Multi-storey buildings; two to four storeys for buildings built in 1960-1970s. Up to eight storeys for newer buildings built in the 21st century. ▪ Morphological change is due to addition of buildings within the block rather than redevelopment.
Age of buildings	1960-to present
Block and Street relationship	<ul style="list-style-type: none"> ▪ Low permeability due to expansive lengths of the block. ▪ High boundary walls marked the edges of the blocks detaching the activities of the block from the street.

Function	<ul style="list-style-type: none"> ▪ Education, social and religious services, and political administration
Definition of private and public space	<ul style="list-style-type: none"> ▪ Dictated by distances from the street. Facilities that serve the public are located next to the street while the more private ones are located at the core of the block.
Siting/ placement of buildings within the plot structure	<ul style="list-style-type: none"> ▪ Several buildings are juxta-positioned so as to support complementary functions. ▪ Siting is independent of the plot structure.

Source: Field work 2013

6.0.0 CONCLUSIONS AND RECOMMENDATIONS

6.1.0 Conclusions

The urban block can be used as a typological element, to generate urban form or it can result from the design of street pattern. In both cases, it is a fundamental element of the physical structure of urban space and provides a point of intervention in resolving urban design problems.

The first objective of this study was to analyse evolution of the urban block and its influence on urban design outcomes so as to give insight into the Parklands case. The study established that the urban block was first used to organize urban space in the industrial city during the 19th century. It was used to achieve social hierarchy and to order separate functions within an urban space. To do this, the urban block would consist of multiple buildings each supporting a different facet of human life e.g. shops, offices, workshops, schools and other public facilities on the ground floor while the upper floors were residential. In addition the urban block in the industrial city introduced a mechanism of separating public and private space by use of a courtyard, which by virtue of its enclosure was a private space away from the street.

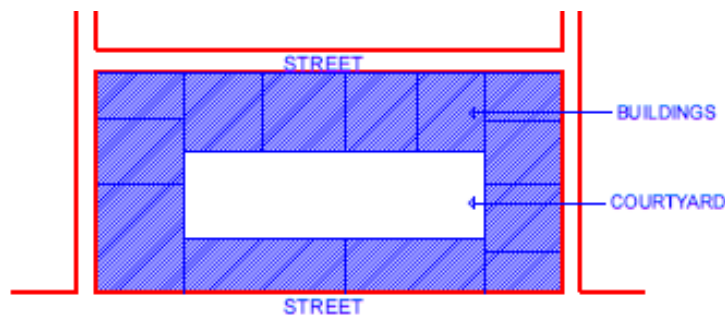


Figure 6: 1 layout of the urban block in the industrial city.

Source: Author

The disposition of spaces across the block would look like this:-

Street	Building	Courtyard	Courtyard	Building	Street
Public	Private		Private		public

In the post-industrial city of the 20th Century the urban block was used to integrate natural systems into the city in form of gardens as well as improving access to air and light. Like the urban block in the industrial city, it consisted of several buildings arranged around an open space but the open space in this case was opened up to create collective gardens. This block therefore introduced the concept of collective urban spaces shared amongst specified groups.

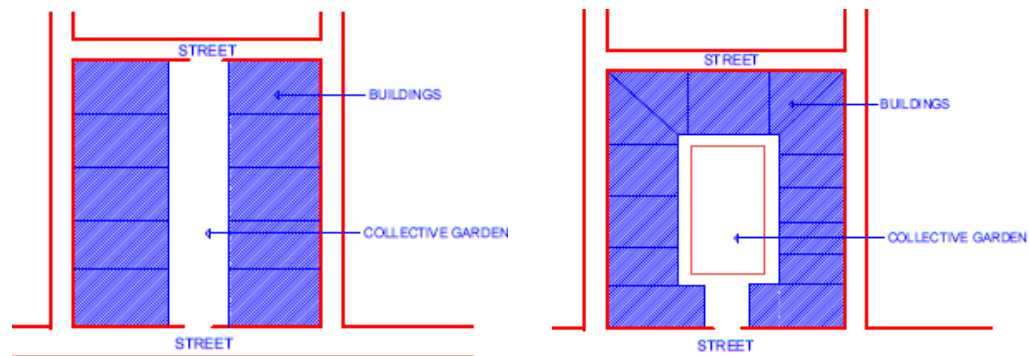


Figure 6:2 Layout of the urban block with collective garden in the middle

Source: Author

The disposition of spaces across the block would look like this:-

Street	Building	Garden	Building	Street
Public	Private	Collective	Private	Public

Another typology of this block had the garden as a private space but introduced the lane as a collective space. It formed a back to back arrangement of two

rows of buildings framing small gardens in the middle connected by a common passage.

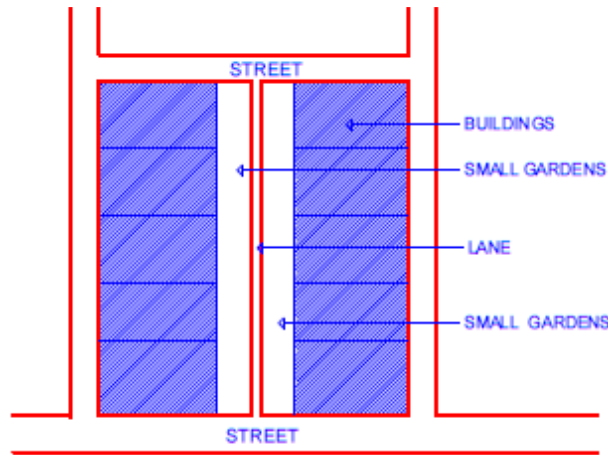


Figure 6:3 Layout of the urban block with a collective lane in the middle

Source: Author

Disposition of spaces across this block was as follows:-

Street	Building	Small garden	Lane	Small garden	Building	Street
Public	Private		Collective	Private		Public

Progressive development of the urban block saw its ends opened up further to allow for maximum sunlight. The rows of buildings became autonomous as the lanes were transformed to public streets.

Street	Building	Small garden	Lane	Building	Small garden	Street
Public	Private		Public	Private		Public

In the mid twentieth century, many cities underwent reconstruction after the Second World War. The urban block during this period was highly standardized so that the result was layered buildings of similar spatial design

and more or less uniform facades. To accommodate the masses, tall buildings were given preference over low lying houses hence the advent of the vertical urban block. In this urban block small private gardens were suppressed in favour of private balconies while public space became less defined and occupied the whole of the un-built terrain. The vertical block marked a new phase where urban problems that had previously been addressed at the level of the urban tissue were now addressed at the level of architecture.

Towards the end of the twentieth century, a process of conscious experimentation led to a combination of buildings and roads organized following abstract logic. The contemporary urban block was configured to accommodate the car. This has had an impact on the urban tissue from the size and arrangement of the streets defining the blocks to the semi-private area next to the dwellings. Car parking had been introduced into this space which in the previous cases was used for private or semi-private function linked to the housing needs.

The second objective was to review the urban block in Parklands with a focus on its transformation and the resultant urban spaces. The urban structure of Parklands is such that the street network defines blocks consisting of several plots. Redevelopment is dictated by plot ownership and guided by the prevailing zoning regulations. Consequently, buildings of different urban character and form are interspersed in the landscape while the street structure remains unaltered.

The study also found out that certain sections were developing in uniform patterns creating blocks of similar character within larger blocks. The

residential block in particular had concentration of high-rise apartments in sections bordering the commercial centre and major streets. The development of high-rise apartments in an area that was distinctively low-rise caused infringement of privacy compelling home owners to relocate and sell their plots for redevelopment. That way the vertical block continued to take preference over the low-lying houses.

The trend towards decentralised shopping which began in the 1980's saw the advent of a commercial centre in Parklands. Policy change allowing for change of use has seen business enterprises and offices being constructed here. The commercial urban block in parklands is characterized by office buildings/blocks, retail premises as well as singular blocks that take on board a variety of functions including commercial, residential and office functions.

The commercial block is high-rise, going up to ten storeys. It seeks to maximize on the plot hence limited open spaces. The result is a high density zone which contrasts sharply to the overall residential character of Parklands. Residential properties located near major streets or adjacent to the traditional commercial centre were therefore diminishing in preference for the commercial blocks.

The institutional blocks in Parklands exhibited formal stability with neither the typology nor the function changing. The only transformation noted within this block was the progressive addition of new buildings to the already existing composition. The new buildings adopted the design language of the older buildings varying only in height, where the new buildings had more storeys motivated by the need to maximise space.

The study found out that the dialectic relationship between the street and the urban block had an impact on the overall urban tissue. Where buildings were introverted towards the centre of the block or the edges were defined by high solid walls, the streets were reduced to merely traffic corridors and desolate spaces where informality thrived. On the other hand, where blocks opened up to the street, they presented opportunities to design the streets into vibrant public spaces.

The type and typology of buildings contained in an urban block determines the overall character of the block. Based on the development control system adopted in an urban area, the fabric dictates the type of buildings constructed while in others the building types have a dominant influence on the fabric. The situation in Parklands is described by the latter.

The study also established that an urban block should have both private and public spaces. Human beings live both public and private lives and therefore successful urban blocks must reflect this fundamental of separating private space from public space in the way it is laid out (spatial hierarchy). It is this separation that gives an urban block a back and a front which are not only used differently but also articulated differently.

The ability of an urban block to support more than one function depended on the robustness of its indoor and outdoor spaces. The study found out that robustness could be enhanced through internal re-organisation of individual buildings e.g. varying building depths, height, access points, shape and size of the rooms. It could also be achieved through strategic positioning of private

space vis a vis the public space, design of outdoor spaces and designing the edges of the block to suit desired functions.

The third objective was to establish principles that can be used to inform design of urban blocks not only in Parklands but also in other areas of similar context. This objective was addressed through the recommendations of the study.

6.2.0 Recommendation

As it has been deduced from this study, urban form is a major constituent of urban character. It is the recommendation of this study therefore that character appraisal is incorporated in development control policies. Traditionally, Parklands and the city of Nairobi in general has adopted zoning to regulate development through determination of densities and prescribing uses for specific areas. These regulations are broad and they target the larger district. At the scale of the urban block, re-development is haphazard. This study therefore recommends adoption of the urban block as an intermediary level of planning and design and using it to generate the desired urban form.

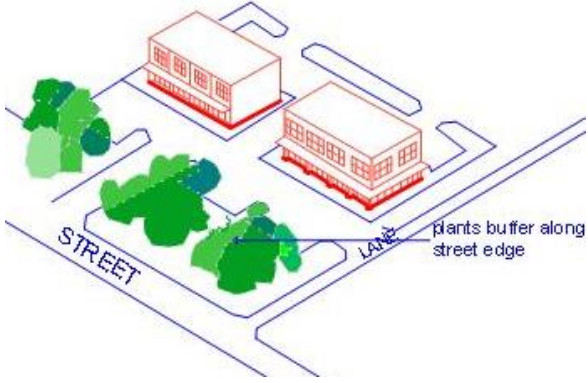
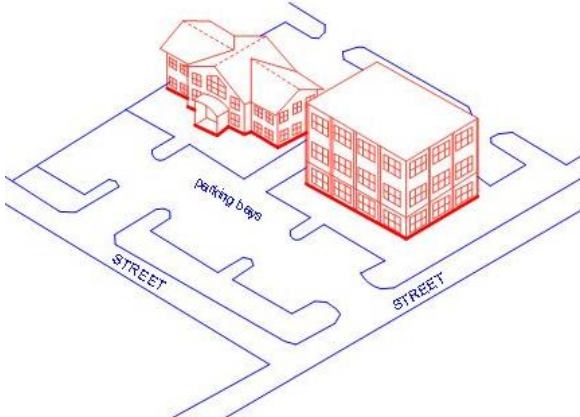
The street structure of Parklands is laid out in an orthogonal grid. This offers great flexibility and makes it possible to apply the urban block as a unit of urban intervention. The large blocks can be downsized to increase permeability, cut distances and increase architectural diversity and a street hierarchy introduced to distribute internal and external traffic flows.

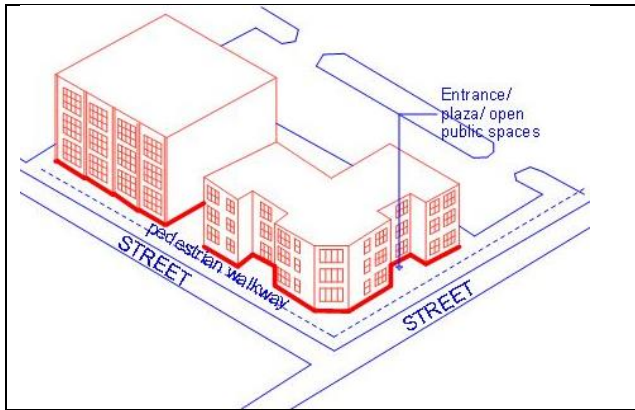
The design of urban blocks should be guided by the following principles:-

6.2.1 Relationship of the Block and the Street

Various treatments of the street/ block interface can be adopted to produce different results as shown in the table below.

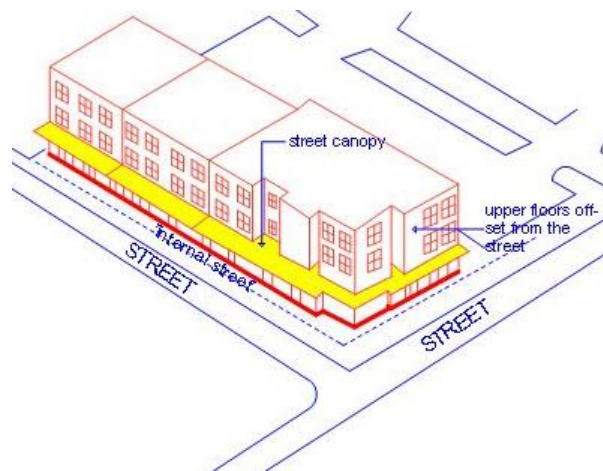
Table 6:1 Types of urban frontages

Type of urban frontage	Description and application
<p data-bbox="375 607 603 640">i) garden frontage</p>  <p>The diagram shows a street labeled 'STREET' and a lane labeled 'LANE'. Two buildings are shown set back from the street. A green area with trees and bushes is located between the buildings and the street, labeled 'Plants buffer along street edge'.</p>	<p data-bbox="1010 607 1407 837">This frontage creates a buffer between the street and the development in form of a green corridor along the street edge.</p> <p data-bbox="1010 875 1407 1039">It is recommended where privacy is desired, especially in residential properties.</p>
<p data-bbox="375 1137 635 1171">ii) car park frontage</p>  <p>The diagram shows a street labeled 'STREET' and another street labeled 'STREET'. A building is shown with a parking area labeled 'parking bays' directly adjacent to the street.</p>	<p data-bbox="1010 1099 1407 1397">This frontage is suitable for areas where access to buildings by automobiles is desired while at the same time maintaining some level of walkability.</p> <p data-bbox="1010 1435 1407 1666">A maximum of two parking bays with a single drive aisle is provided between the development and the street.</p>
<p data-bbox="375 1742 715 1776">iii) urban general frontage</p>	<p data-bbox="1010 1704 1407 2002">This frontage is suitable developments that need to locate close to the street. The building abuts the street via a sidewalk, plaza, and square etc.</p>



It is especially good for commercial urban blocks.

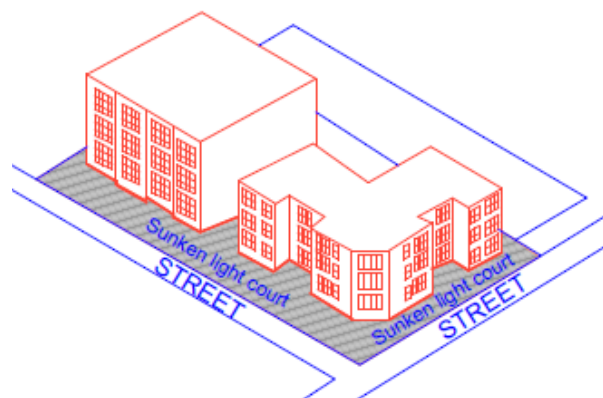
iv) shop front frontage



Shop fronts are facades placed at or close to the building line with the idea of creating an internal street environment which is purely pedestrian.

This frontage is ideal for retail developments. It can be achieved by recessing the ground floor of a building or by building a cantilevered roof above the internal street.

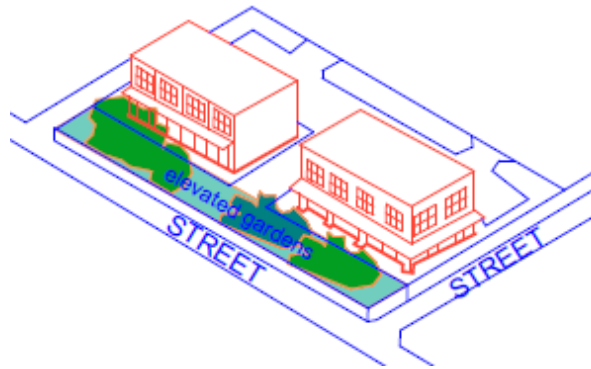
v) light court frontage



Light courts are frontages where-in the facade is set back from the building line by a sunken light court. This frontage is suitable for buffering residential houses from urban sidewalks thus protecting them from public encroachment.

The light court is also suitable for creation of outdoor cafes.

vi) door yard frontage



Dooryards are elevated gardens or terraces that are set back from the building line. This frontage can effectively buffer residential quarters from the sidewalk thus protecting them from public encroachment.

It is also suitable for restaurants and cafes when designed such that the eye level of the seated person matches that of the standing passer-by.

Source: Author

6.2.2 Form and Building Typologies

The three-dimensional quality of an urban space is enhanced by the arrangement of built forms at various scales of the urban space i.e. series of plots, blocks or even districts.

The mass of buildings should be appropriate to their location within the plan. Allied to the varying street widths, the massing of buildings should be specified to ensure appropriate height and width of streets and squares for optimal enclosure.

The design of the built form should take into consideration these three components: - base, middle and top.

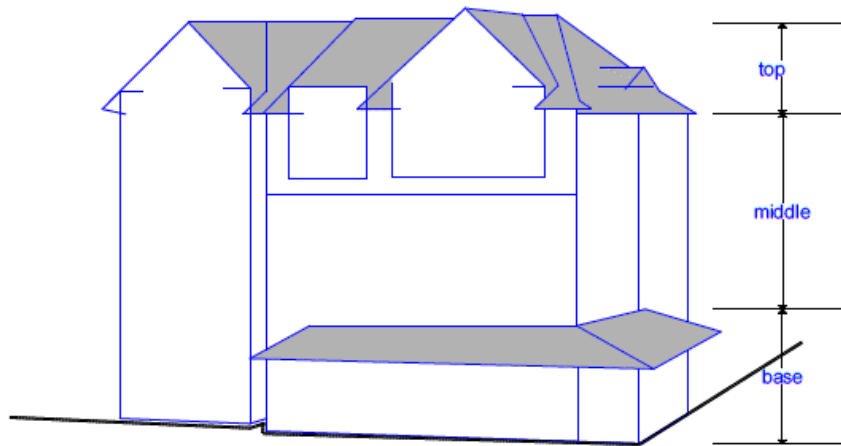


Figure 6:4 Components of the built form

Source: Author

- The Base should contribute to the quality of the public realm. This is enhanced by having active frontages. In the commercial block, this component should be designed to accommodate a range of uses over time.
- The middle, in addition to determination of maximum building heights, ensures that the form of development has minimal shadowing, upholds privacy and that a pedestrian scaled development is created. It also promotes legibility through adoption of architectural features and a material typology that is visually cohesive.
- The Top should integrate the base and the middle to provide a visually coherent building. It should be articulated to contribute positively to the skyline.

6.2.3 Placement and Orientation

Random re-development causes loss of privacy where low lying houses are engulfed by tall structures coming up in adjacent plots. This can be corrected by arranging buildings within an urban block according to their relative height, both individually and compositionally.

In addition to the zoning by-laws, implementing height and massing guidelines specific to the urban blocks would enhance the physical character of the neighbourhood while at the same time enabling re-investment and intensification.

6.2.4 Differentiation of private and public space

Urban activities have both public and private elements to how they work; therefore successful urban blocks must reflect this fundamental concept of separating private and public space. An urban block should have a front and a back where the front is in the public realm and the back is private.

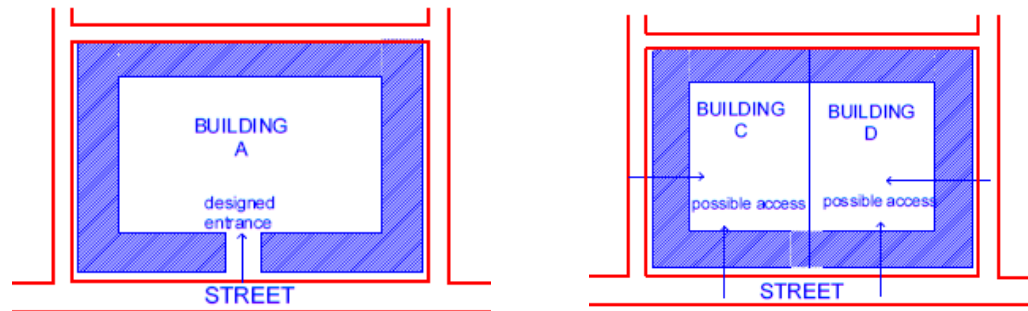
While the design of the front is what constitutes the perceived image of the block, the design of the back is equally important. It should allow the user a degree of flexibility and allow them to stamp their own tastes and values without compromising the aesthetics of the block.

Design of urban space is therefore based on hierarchical movement from macro to micro, from public space to private space. The two scales of urban space are therefore necessary for harmony of the urban landscape. Increased urbanization creates loss of open space, this can be mitigated at the urban block level by creating collective gardens as a substitute to private gardens and by providing open spaces in the form of high level terraces and roof gardens.

6.2.5 Functionality

The ability of an urban block to be adopted for a variety of urban functions is a factor of design. At the urban block level the ability of the plot structure to allow subdivision or amalgamation would promote diversity by supporting a

diversity of urban functions. At the level of individual buildings, variety is achieved through internal reorganisation of the building heights, room size and shape and positioning of access points.



Building in the present

possible changes in the future

Fig.6:5 Illustration of how variety can be created in a building

Source: Author

6.3.0 Areas of Further Research

This research reviewed the urban block in Parklands, with a focus on the resultant urban spaces. It established that the origin of Parklands as a European settlement and later a residential neighbourhood for the Asian community influenced how the urban block transformed over the years.

It would be appropriate to carry out a similar study in other parts of the city that were traditionally African zones such as the Swahili settlements to find out how the development patterns compare. It was not possible to expand the scope of this study due to limitations of time. This study therefore recommends further research on the application of urban blocks in other parts of the city.

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8.0.0 APPENDICES

8.1 APPENDIX I: INTERVIEWER'S CHECKLIST

SECTION A: PROPERTY OWNERS

1. Which year was the development established?
2. What informed your choice of urban function and building typology?
3. If it is a re-development, what were the original building typology/
urban function?
4. Are you satisfied with your current property or are you making plans
for re-development?
5. What is your take on the changes occurring in the urban landscape i.e.
plot sub-division, commercialization of residential property, increase in
density and building levels?
6. Are you facing pressure from other developers to sell off your property
for re-development?
7. How would you compare the neighbourhood now to what it was when
you first settled in?

SECTION B: RESIDENTS

1. How long have you resided in Parklands and this block in particular?
2. What do you like/ dislike about the block?
3. What are the property characteristics?
 - Ownership.....
 - Tenancy.....
4. What is your opinion on the provision of the following amenities:-

- Educational Facilities.....
 - Public Transport.....
 - Health Facilities.....
 - Shopping Facilities.....
 - Recreational Facilities.....
5. What is your take on the changes occurring in the urban landscape i.e. plot sub-division, commercialization of residential property, increase in density and building levels?

SECTION C: POLICY MAKERS-CITY COUNTY COUNCIL OF NAIROBI
CITY PLANNING AND ARCHITECTURE DEPARTMENT

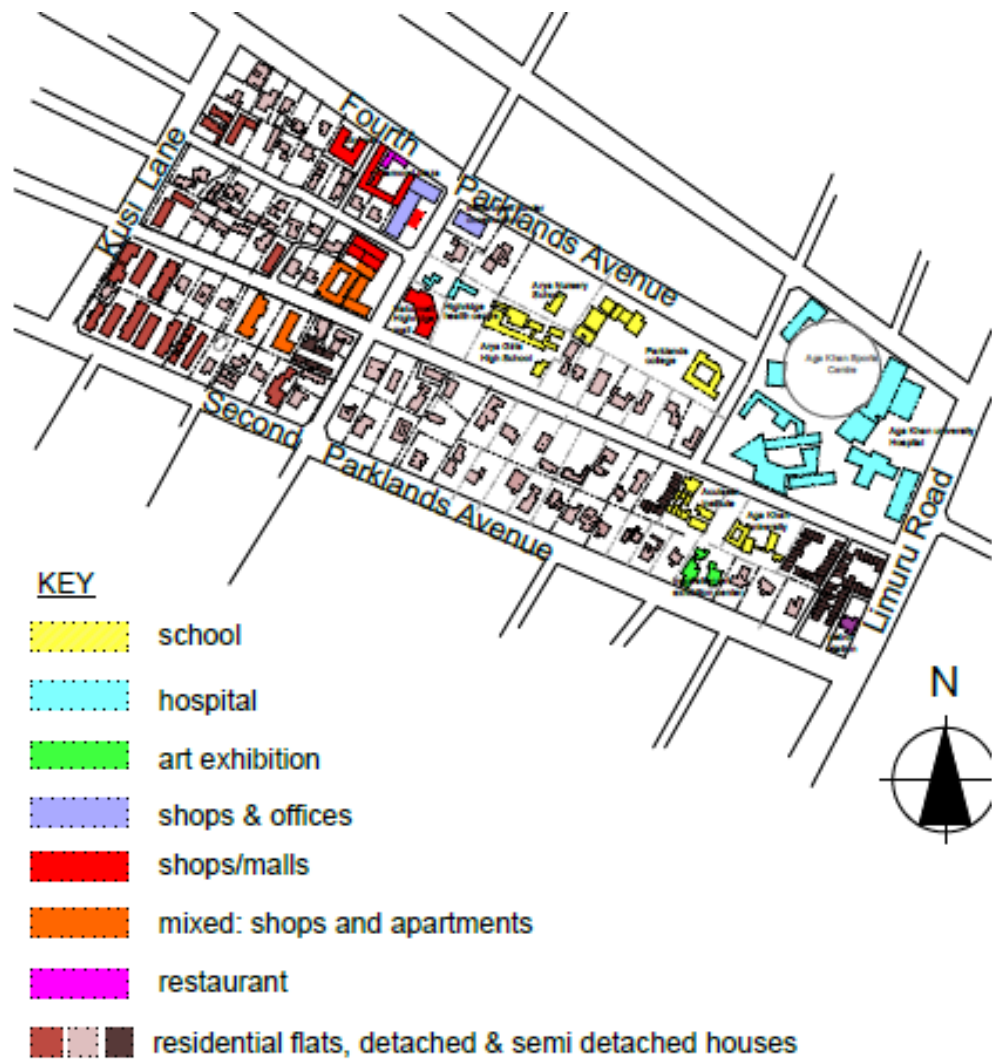
1. How is land use pattern determined?
2. What is the current policy guiding development in Parklands?
3. What is the future of Parklands in terms of urban use?

8.2 APPENDIX II: FIELDWORK OBSERVATION CHECKLIST

Urban block category:

	URBAN DESIGN PARAMETERS	OBSERVATIONS
1.	Form <ul style="list-style-type: none"> ▪ Building typologies ▪ Number of storeys 	
2.	Shared spaces <ul style="list-style-type: none"> ▪ Courtyards ▪ Squares and gardens ▪ Driveways and car parks 	
3.	Private spaces <ul style="list-style-type: none"> ▪ Houses ▪ Terraces and balconies ▪ backyards 	
3.	Block/ Street interface <ul style="list-style-type: none"> ▪ Access and permeability ▪ Forecourts and light courts ▪ Galleries, verandas and canopies ▪ Walkways and pavements ▪ Gardens and car parks 	
4.	Functions <ul style="list-style-type: none"> ▪ Residential ▪ Commercial ▪ Institutional ▪ others 	
5.	Hierarchy <ul style="list-style-type: none"> ▪ transition spaces 	
6.	Placement <ul style="list-style-type: none"> ▪ building orientation in relation to the street, other buildings ▪ interface of the new and the existing buildings 	
7.	Use patterns <ul style="list-style-type: none"> ▪ spaces used for more than one urban functions 	
8.	Others:-	

8.3 APPENDIX III: BLOCK COMPOSITION IN THE STUDY AREA



Source: Fieldwork 2014