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SCHOOL OF THE BUILT ENVIRONMENT

DEPARTMENT OF REAL ESTATE AND CONSTRUCTION MANAGEMENT

AN INVESTIGATION INTO THE EFFECTS OF INFRASTRUCTURE DEVELOPMENT ON LAND USE AND LAND VALUES

(A CASE STUDY OF THE NORTHERN BY-PASS, RUAKA AREA)

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MAY, 2014
DECLARATION

I, Gichuhi David Wang’ang’a, hereby declare that this project is my own original work and has not been presented for a degree in any other university.

Signature ........................................... Date.........................................................

GICHIUHI DAVID WANG’ANG’A

This project paper has been submitted for examination with my approval as a university supervisor.

Signature ........................................... Date.........................................................

MR. MUSELEKU ERASTUS KIITA

Date.........................................................
ACKNOWLEDGEMENTS

I attribute the success of this research to the efforts of several people who assisted at different stages and in different capacities.

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All Glory to GOD.

Thank you and God bless you all.
DEDICATION

To my late grandfather, Mr. David Wang’ang’a Gichuhi

I thank you for your hard work, sweat and dedication which to this day I still benefit and enjoy. You are truly blessed.

To my parents, Mr. and Mrs. Jacob Gichuhi

I cannot thank you much for your sacrifice, unending love and commitment to see me succeed in life. May the Almighty God bless you with a long fulfilling life.

To my brother and sister

We have lived and struggled together. May the Almighty God bless the work of your hands and the desires of your heart.
Abstract

Infrastructure is an important pillar in the development of any Country’s economy. Road is a key infrastructure, since it helps to connect one place to another. Lack of a proper road network leads to reduced economic activities for instance slow movement of goods and services for example that of perishable agricultural goods from one place to another, traffic snarl ups which in turn leads to reduced productivity and also leads to both land and property values to go down.

In this project, the effects of the development of the Northern by pass are discussed, how it contributed both positively and negatively to Ruaka and the surrounding areas, where the former prevails more. Ruaka is a developing town which has been seen to have benefitted more positively due to the development of this road.

This area was chosen due to constrain of time, resources and its proximity to Nairobi’s Central Business District. It also represents many centers’ where infrastructure has developed and caused similar results as to the once experienced by this centre. Secondary data collection included written sources such as newspapers, magazines, the internet, both published and unpublished materials among other materials. Primary data entailed four sets of questionnaires which were administered to local residents, developers, land owners and farmers and the Real Estate Professionals such as agents, valuers and land planners.

The study established that the development of the Northern bypass had a direct impact on the land and property values in the study area. It was further noted that Ruaka had increased its number of properties and opportunities in the field of Real Estate development; hence this led to increased services, increase in population, improved transport system among other findings.

The study further recommended appropriate measures that should be undertaken in order to regulate and control land use change and developments in the study area and its neighbouring estates, which included Preparation of a physical development plan, public involvement in projects approvals, employment of more professionals to ensure proper and professional growth and development of the study area and also the entire County among other recommendations.
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GLOSSARY OF ACRONYMS

1. CBD – Central Business District
2. CDF – Constituency Development Fund
3. ERS – Economic Recovery Strategy
5. HIV/AIDS – Human Immunodeficiency Virus/ Acquired Immune Deficiency Syndrome
6. JICA – Japan International Cooperation Agency
7. NMR – Nairobi Metro Region
8. R.I.C.S – Royal Institute of Chartered Surveyors
9. USAID – United States Agency for International Development
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CHAPTER ONE
INTRODUCTION

1.1 INTRODUCTION

Infrastructure refers to the technical structures that provide a framework for the support of the entire structure of development, which is necessary for the economy to function. The term typically refers to a good transport system such as roads, railway, and proper communication network, good health facilities like functioning medical clinics or hospitals, proper housing, proper sewerage system among other facilities. These facilities are of great importance since they boost and encourage business development. In the last decade we have seen the country’s infrastructure being developed due to a number of reasons such as increase in population in the major cities and towns hence causing pressure on the available infrastructure, a sudden increase in population in the country, growth of the economy, proper utilization of the Constituency Development Fund (CDF) by the honorable Members of National Assembly among other factors.

Poor infrastructure was identified under Economic Recovery Strategy (ERS) as major constraints to doing business. It was repeatedly cited as a necessity to improving the livelihoods of people in consultation held in farming and pastoral districts. Infrastructure is also important in improving our security Vision 2030 (GoK, 2007). Poor leadership which did not take into consideration effective planning of infrastructure for future generations led to the construction of narrow road networks, small sewerage system, inadequate classrooms in schools are but a few challenges faced by the present generation.

The road network is commonly considered a prime index of development. Road transportation can be a marker of economic development of an area as it provides the basic infrastructure for any kind of investment and the harnessing of its economic potential (Lampe, 1983).

A good and effective transportation network ensures that there is reduced time of movement from one place to the other hence boosting the economy by attracting a high number of investors to the region whose investments bring on board increased businesses in the region. This increases the tax to be collected by the government which is part of the growth of the economy.
An increase in the access of areas that were considered previously inaccessible and perceived to be too interior to be accessed easily is also achieved.

‘‘Most people lack information and support to allow them to realize their dream of home ownership and development. The market in Kenya is vibrant with a very high demand compared to the available supply and hence the opportunities are unimaginable. The potential of housing, real estate and property developments despite having made serious strides in a short period are still far from reaching its peak. Up until the huge housing deficit of about 150,000 units per annum has been met, the housing demand will continue and hence the need for property development in not just Kenya but also the region,’’ Mr. Daniel Ojijo, the Executive Chairman of Mentor Holdings (VOLUME VI . ISSUE 32 APRIL – MAY, 2011) – James Waithaka. With over seventy percent of Kenyans between the ages of 18 to 35, the youth, and most of this people relocate to Nairobi to seek for employment opportunities as many more graduate from institutions of higher learning, this demand for housing is above board, therefore, any attempts to counter the growing demand of housing shortage will impact positively to deal with this deficit.

With the improvement of accessibility in the urban area through road development, it is expected that this will provide people living in the urban areas a considerable freedom of choices in their decision on where they will live, work, shop and play. It also enables commercial activities to be optimally located for their production and distribution (Bruton, 1974).

Ruaka is a shopping centre that has recently grown as a result of many factors, key among them is the proximity to the City Centre and also the construction of the Northern-bypass that links Nairobi- Nakuru highway, Kiambu road through Runda, Kahawa West then to Ruiru and joins the Eastern bypass. This by-pass supports the Thika Super highway which is a 50 km road that has been developed over a period of four years and it is in the northeast of Nairobi Metropolitan Region (NMR) and extends from Nairobi Central Business District to Thika District (Currently in Kiambu County). It is an important road since it connects Kenya to Ethiopia.

The Superhighway is one of the busiest roads in Nairobi Metropolitan Region. A study showed that the road carries around 70,000 vehicles per day, the highest in the East African Region (JICA, 2006). Therefore, with the existence of the by-passes it is now seen as a break-through in fighting heavy traffic snarl ups, congestion, high accidents, poor air quality and severe transport
problems. The by-pass has led to better transportation, hence reduced travel time, change in property values and land use, increased access to areas and businesses such as banks among many more other opportunities. In addition it supports several satellite towns such as Kiambu town, Ruiru, Juja, which are key areas of economic developmental areas since they are involved in Manufacturing, Real Estate Developments, and Farming of crops such as Tea, Coffee, and Perishable Farm products such as Milk among many more economic activities.

There have been numerous court injunctions stopping the continuation of further development of the Northern by-pass in several neighborhoods in Kiambu County and also a continuous change of Agricultural use of land to mostly the Residential use in the expansive County of Kiambu. ‘‘Land that was traditionally agricultural is quickly being turned into concrete jungles to house city residents, leading to growth of suburbs. In Kiambu County, tracts of land that had hitherto been under coffee farming are being turned into residential estates, posing a threat to agriculture (food) production’’ (The Standard Newspaper, 2nd August, 2012). The classical economic theory states that when a highway is initially built, large parcels of land that had poor accessibility or none at all are suddenly under priced. The market quickly develops and Real Estate market establishes a new transportation technology. The land value impacts that are experienced can be significant (Giuliano, 1989). Huang (1994) found that virtually every minor land use study came to the conclusion that transportation improvements positively affect the value of nearby land.

1.2 PROBLEM STATEMENT

While road building can improve Gross Domestic Product and facilitate international trade, it also dramatically reduces biodiversity, increases habitat fragmentation, and increases economic costs caused by environmental damage like landslides. Additionally, decreases in scenic quality and tourism following road building can result in further economic loses (USAID, 2003).

Roads pose a particularly challenging problem to those interested in forest conservation in developing nations (Wilkie et al. 2000). This is because in most cases poor planning makes construction of these roads be done without considering the existence of a forest conservation thereby making it passes squarely at the centre and as a result interfere with the ecological existence of the natural resources and the wildlife too.
There are also a number of indirect impacts on human health and safety resulting from road building (USAID, 2003). Unpaved roads generate dust and noise that can negatively affect road construction workers and local communities. Roads increase connections between communities resulting in increased potential; for sexually transmitted diseases such as HIV/AIDS and other communicable diseases such as tuberculosis. Additionally, roads with poor drainage create standing water and increase the risk of water born diseases such as cholera and Malaria. Road improvements increase vehicular speed, which results in increased collisions between both human and animal populations.

Road building can result in a significant loss of productive agricultural lands as they are developed. Research also reveals that roads increase agricultural development in previously isolated areas as migrants pursue economic gain and stability (Mahar 1989; Mahar et al. 1994; Ayres et al. 1991). The process of building is very slow and takes a very long time and as a result in most cases it affects agricultural production either in taking over the land through Compulsory Acquisition or making the products’ delivery to the market very slow.

During the process of road construction, engineering works lead to the diversion of major water supply pipes thus leading to the occasional shortages of the water supply and even stoppage of the entire supply at times. This happens because the pipes are destroyed by the huge bull dozers or were found that they appeared where the original plans did not reflect hence interfering with alternative diversions and even cause unnecessary delays in construction. This too happens to sewerage lines as they too have to be redirected to reduce the harmful harm they can cause such as outbreak of Cholera disease or even Malaria.

Poor roads which have been designed wrongly without consideration of the population size and extent of usage by the users’ lead to too much crowding and eventual very slow movement of cars along that road. This results to poor growth of the economy as it lags behind since efficient movement of people is of uttermost importance in the process of building a strong economy.

In the past few years, the country has witnessed exponential economic growth, employment creation and a rise in the demand for housing. Therefore, developers rush to take full opportunity of the situation and as a result this leads to the government’s slow response to alter several
legislations due to corrupt government officials poor planning is witnessed and as a result intended use of land is changed.

This study therefore seeks to investigate the effects of the development of the Northern by-pass on the change on the use of land and the subsequent change in the value of the land in Ruaka.

1.3 STUDY HYPOTHESIS

The Construction of the Northern by-pass has led to the increase in land values in Ruaka, Kiambu County.

1.4 STUDY OBJECTIVES

Main Objective

The Main Objective of this study is to establish the effect of the development of the Northern by-pass on Ruaka.

Sub-Objectives

The following objectives are the main focus of this study:

1. To establish changes to land use and land values.
2. To identify the effects of this project on land use and land values in Ruaka.
3. To recommend appropriate solutions based on the findings.

1.5 RESEARCH QUESTIONS

1. Is there any change to land use and land values in the study area since construction of the Northern bypass?
2. Did the value of land necessarily go up in Ruaka and the surrounding neighbourhoods?
3. Did all residents living near the Northern by-pass benefit from the construction of this road?
4. What appropriate recommendations would improve Ruaka’s growth potential?
1.6 SIGNIFICANCE OF THE STUDY
The study will be useful to investors intending to make important decisions on where to invest especially after a major road project is undertaken. The study will also bring on board importance of authorities’ competence in the guarding of by-laws of prohibiting change in use of the agricultural to other uses. It will be important to property managers as it will provide them with a clear picture on the trends in the land values especially the property rental market now since the road is fully operational.

1.7 RESEARCH METHODOLOGY
This is a summary of study methodology. More details on the research methodology is outlined in chapter three of this study.

1.7.1 Primary data was collected through:

   a) Carrying out physical inspection and observation to familiarize myself with the study area and its immediate neighborhood.
   b) Administering questionnaires to the relevant respondents, such as real estate professionals, property developers and tenants.
   c) Oral interviews to residents and business owners.

1.7.2 Sampling Procedures
The Northern by-pass serves the Ruaka shopping centre and towns such as Kiambu, Juja and Ruiru. Ruaka shopping centre was chosen because it more nearer to the Nairobi Central business district, than the other towns, it neighbours both the high and low neighborhoods for example Runda, Gigiri, Kiambu and Limuru and it has shown a massive change in development over the other two towns. Owing to the nature of this study, land owners, real estate valuers, property developers and property managers were identified as potential respondents.

The sampling procedure would involve Primary data collection mainly involving observation, oral interviews and the administration of questionnaires, while Secondary would involve the use of published materials from other authors, sampling would then follow.
The sampling frame (for the local land owners, tenants, property agents) consists of a 3-kilometre Northern bypass Road distance from Ruaka Shopping Centre to the junction between Kiambu road and the bypass. The depth from Ruaka Shopping Centre is 3 kilometers, thus the area under the study is approximately 30 square kilometers.

1.7.3 Data analysis

The data to be obtained from the study will be sorted out, analyzed and presented using photographs, maps, simple tables, charts and graphs. This is because the study is quantitative in nature. Key on this study was to show factors that influence agricultural land use conversions and the effect of the construction of the Northern by-pass on the value of Land.

1.7.4 Secondary data is through:

The library research was conducted by reviewing works done under this study. These were through textbooks, daily newspapers, magazines, journals, articles, Acts of Parliament and the internet.

1.7.5 Special Reference to Provisions of Relevant Policies and Laws

The relevant Laws and Bills include:

i. The Constitution of Kenya.

ii. The Nairobi Metro 2030 Strategy.

iii. Land Control Act, Cap 302.

iv. Physical planning Cap 286 of 1996.

v. The Registered land Act, Chapter 300, Laws of Kenya (Repealed in 2012)


vii. The Land Act No. 6 of 2012.

1.8 SCOPE AND JUSTIFICATION OF THE STUDY

The study will cover Ruaka shopping centre which is 15Kms from Nairobi and it has an area of 3.31 sq Kms where it is the case study of the report and it will extend to cover Runda area where the by-pass cuts through, Old Runda and the New Runda where there were challenges in the implementation of this project.
Ruaka was chosen because it enjoys close proximity to the Capital city and it also fits well in representation of other such area in the country. This was due to limited time and resources. The scope is also limited to the objectives of the study.

1.9 ORGANISATION OF THE STUDY
The research is organized into five chapters each having a specific section of the research. Chapter One is an introductory where it contains the problem statement, study objectives, hypothesis, research methodology, scope and significance of the study as well as definition of key terms.

Chapter Two discusses the literature reviewed and the theoretical framework that acts as a basis of the research. It contains various publications done by different authors, different and relevant definitions and institutions governing agricultural land use conversions.

Chapter Three illustrates the case study area and methodology. Here, the characteristics of the study area are provided. The sampling techniques, the sample and methods used in collection and analysis of data are highlighted.

Chapter Four presents the responses and analysis of the different respondents in which the questionnaire were administered as well as the oral interviews conducted. The problems encountered in carrying out the research are also addressed as well as the hypothesis testing.

Chapter Five entails the main findings of the research and conclusions.

1.10 DEFINITION OF KEY TERMS

By-pass – It is a road that avoids or reduces the traffic flow or snarl up without interfering with the limited traffic, in order to reduce congestion and delays on the road.

Infrastructure – It refers mainly to the road structure whose development has brought about change in the property market.

Property – It denotes buildings and structures which are used to bring rental benefit, where commercial or residential.
**Land Value** – The amount of money exchanged between a willing buyer and a willing seller at an arm’s length without undue influence for landed property or bare land.

**Land Use** – The use to which human puts land into.
CHAPTER TWO

LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

2.1 INTRODUCTION

Land includes the soil plus everything below it to the centre of gravity and everything above to the sky, and anything which is permanently fixed to the soil (Syagga, 1994). It is important because it is seen as a source of wealth and as wealth itself because mere ownership of land comes with a lot of advantages to the owner, for example crops, buildings, investment like schools among others. All activities have to occupy some space on land and therefore all the production activities have to take place on certain location or site on land (Kingorah, 1987). Every activity undertaken has to take place on land, and this fact makes it a really important and respectable resource. As a result, these activities bring about changes in land uses, from one use to another hence changes in the prices of land.

In economics, (Abbot, 1987) says land is more than the surface of the earth; it is a natural resource, a commodity, and a primary source of wealth; it is one of the factors of production without which there can be no economic activity.

In addition, (Deanmann, 1972) says that the legal aspect of land is deeper in meaning than just the ownership of it. These rights stretch above and below the physical space and as a result this makes the ownership of land interesting as the owner can exceed above or below depending on the law. Ownership rights also determine the duration of the use of the land since its period lies with the terms of the lease and in this case it may be indefinite period under the freehold interest with is mostly 99 years under the new constitution or for a definite period which is the leasehold depending on the terms of the agreement between the lessor and the lessee.

As a result (Kithaka, 1999) concludes that the legal aspects of land may therefore be regarded as one of the most important concepts of land in that it determines many of the things that can be done or cannot be done upon, below or above the land. However, it is important to note that despite the rights that come with the ownership of land, these rights have to be governed under some by-laws and legislations in other cases. With these aspects in mind, it is expected that the value and usage of a piece of land will vary and be determined by these factors among others.
Various Acts of Parliament define land differently for instance: The valuation for rating act (Cap 266) defines land as; land unit and any improvement thereon, therein or there under. This means that the existence of any material in, on, above or under the land is considered to be on the land surface. Therefore, everything is basically supported on the land surface. Another Act is the Physical planning Act (Cap 286) defines land as; land covered with water and any other things attached to land and any interest or right of easement in, to or over land. Basically, this definition reconfirms that everything is found and anchored on land.

Therefore, in this case land is a resource that is used for development and for the good of man. This is because it is used in the production of crops in the agricultural land, as a growth parameter where infrastructure such as roads, buildings are erected upon and in addition a source of wealth for an individual, where the value of land is high. In conclusion; ownership of a building, minerals below or an apartment on a tall building is regarded as one having special interest on the ownership of the land.

2.1 Characteristics of land

Various characteristics of land influence their different uses and values, these characteristics include the following:

2.1.2 Physical fixity

(Kingoriah, 1987) says that each parcel of land is unique in its location and structure. He further observes that in places where land is in high demand other land cannot be brought from some distance to satisfy the demand. Furthermore, (Dawson, 1984) asserts that land is specific in location and sites are immobile. This factor makes it possible for efficient and effective planning to take place so that the various land uses can be applied effectively. Nevertheless, its ownership can be transferred from one person to another. Therefore, this shows that proper land use planning should be done to cater for future generations as the current needs of the present generation are met. This helps to ensure that the value of improves land positively. In addition, the use of land should be based on best return so as to maximize on the potential value acquired.

2.1.3 Durability
Land cannot be destroyed neither can it be created. This fact makes it possible for investors to invest and bring out the best uses of land to its highest and best use. This way, the various land use investments make the values of land to change and as a result bring about the different infrastructure development on the area (Ricardo). The development of an infrastructure such as a road brings about durability of the usage of land, which in turn brings about the change in value of the land to which the infrastructure seats. More often than not, we find that the durability of land depends on the usage to which the land is put into.

2.1.4 Fixed supply

The physical amount of land cannot be added (Kingoriah, 1984). This is true although this research tends to support the fact that land use can be changed from one to the another and as a result the physical space can be used for another land use, for example clearing of forest land to put up real estate can be said to have increased the supply of land for the other use.

Depending on the supply of land, the value of the land will vary. This is because when the supply is high, the value would be low, for example the land in Turkana and when the supply is low the value would be high, for example land in Runda. This characteristic is important as it factors in the quantum factor hence affecting the value of land in the case of the supply of land being high.

2.1.5 Demand for land

Demand occurs when the supply is low and the need is high (Kingoriah, 1984). The demand for land brings about the change in land values because when the demand for land is high, the value of land is low and vice versa. As a result, once land has been acquired the land use to which is put into varies depending on the owner and the planning regulations. Proper land use ensures that the value of land is maintained and consequently increased. This shows that the use of land has a direct bearing on the value of land.

2.1.6 Soil condition

The soil condition is a very important factor since it directly affects the highest and best use of land. Where the land is used for agricultural purposes, loam soil is the best depending on the type of crop plantation to be grown; hence the value of land is expected to go up since the condition of soil type complements the usage very well as opposed to a different soil type. In the real estate
development, clay is poor in construction as opposed to gravel. This makes the value of the land to change depending on the conditional type of the soil since the foundation in clay soils would be weak. Therefore, good soil condition makes the value of land go up and increases the different uses of land (Mbugua, 2000).

2.2 LAND VALUES

Royal Institute of Chartered Surveyors (R.I.C.S) defines Open Market Value as the best price at which the sale of an interest in a property would have completed unconditionally for cash consideration the date of valuation, assuming: a willing seller; that prior to the date of valuation, there had been a reasonable period (having regard to the nature of the property and the state of the market) for the proper marketing of the interest, for the agreement of the price and terms and for the completion of the sale: that the sale of the market, level of values and other circumstances were, on any earlier assumed date of exchange of contracts, the same as on the date of valuation: that no account is taken of any additional bid by a prospective purchaser with special interest: and that both parties to the transaction had acted knowledgeably, prudently and without compulsion.

Market value of a particular interest in landed property is the amount of which can be obtained for the property at a particular time from persons able and willing to purchase it (Lawrence, 1977). Therefore, this is the estimated amount for which an asset should exchange on the valuation date between a willing buyer and a willing seller in an arm’s length transaction after proper marketing and where the parties each acted knowledgeably, prudently and without any compulsion.

In addition, the Sixth International Valuation Standards (IVS) defines market value as the estimated amount for which a property should exchange on the date of valuation between an educated buyer and a reasonably motivated seller in an arms-length transaction after proper marketing wherein the parties had each acted knowledgeably, prudently, and without undue influence.
Therefore, land value according to this study represents the amount of money for which land or landed properties can be exchanged for between a willing buyer and a willing seller at an arm’s length. This value represents the amount on which land either appreciates or depreciates in value due to effects of development of an infrastructure on a particular area. In this case therefore, the land in Ruaka and Runda, both in Kiambu County experience different changes in their values due to the development of the Northern by-pass that passes adjacent to them. The land value also depends on the land use to which the land is put into hence these too variables depend on each other directly.

Land values have a direct influence on the land rent. Where the land values go up, the land rents are equally expected to follow suit and vice versa. There were several theories of land rent that were formulated and they are as follows:

2.2.1 Theories of land rent

2.2.1.1 Fertility theory

‘‘The most fertile land naturally produces more food than land of poorer quality.’’ As a result it commands a higher rent (Theories of surplus Value, Max 1861-3). Ricardo developed his theory to explain the differential prices paid for land were due to its fertility. He explained that lands with high fertility were expected to have a high land rent value while those with low fertility had low land rents. This he explained that highly fertile land was expected to produce a high number of produce to the owner which he viewed as profits as compared to the low fertile lands.

This factor applies even today since a high fertile area will have high price on rent compared to a low fertile area. The graph below represents the summary of Ricardo’s rent theory.

- The black dot represents a city
- 1 (white) dairy and market gardening
- 2 (green) forest for fuel
- 3 (yellow) grains and field crops
- 4 (red) ranching

Outer dark green represents agriculture is not profitable
Diagram 2.1: Model of Agricultural Land Use: The Thunen Rings


### 2.2.1.2 Accessibility/ Location Theory

Von Thunen (1826) argued that location as the main determinant of the amount of rent paid on land. His argument was mainly on the basis of accessibility. Where he said that land located near a central place had a high rent, this is because of the minimal transportation costs. Consequently, labour that was acquired from near the central place was by far much cheaper than that which was from far.

This theory is also applicable today because land that has good accessibility has a high value than one that has poor accessibility. This factor is brought about by the existence of a good road network, presence of public transport among other factors. The land in Ruaka has increased accessibility due to the construction of the Northern by-pass hence it is expected that the rents paid in Ruaka and Runda are high depending on this theory.

The pie chart below explains Von’s explanation that a person at A will cover a shorter distance, use less effort and few resources in terms of costs to get to the Central Place than a person at B, or C. As a result land in A is of high value than that in B or C. therefore, it is expected that land rents will follow the same pattern in terms of rating from high to low ranges.
2.2.2 Factors influencing land values

Land values are not fixed and therefore they are bound to change depending on a number of factors. Key among them is the forces of demand and supply. This means that when the supply of land is high and the demand is low, then the land values would be low and vice versa. These factors include:

2.2.2.1 Social factors

When the population of a certain area increases it means that the numbers of settlements in that area are bound to increase due to the increase in population. However, increase in population may contribute negatively to land values especially where there is over crowding (Onyango, 1988). If the population is low; it can also have two varying results, which are that the value of land in that area is too high hence low population or the area is unfavorable due to the use of land.

The high population brings about increase in demand for the land since the supply is fixed, therefore the price of land is bound to increase positively. This too can happen that when the population decreases then the supply of land increases since the demand is now seen to be low, and as a result the price of land goes down. Population increase is usually due to movement of people from one area to another, changing family sizes, increase in income, and education levels among other factors.

In addition, some habits or customs or traditions or cultures that people have concerning a certain phenomenon. It can also be said to be a peoples’ behavior or their way of livelihood. For example, Indians dislike the slaughtering of animals since it is unreligious according to them, hence depending on that use land has been put to, the land value according to them will be considered to be unfavorable and hence value of land would be affected (Mbugua, 2000).

Ruaka’s population is expected to increase due to the increase in settlements since houses are being built to counter the growing demand in the neighbouring Nairobi County. These houses cater for small families which majority fall under the small and the middle income brackets. This way, the land values are expected to go up significantly due to these social factors.

2.2.2.2 Planning
Planning is the conscious direction of effort towards the attainment of a rationally desirable goal, and further notes that it is the opposite of improvising. In other words it is the organised foresight plus corrective hindsight.

These are the governments’ regulations governing the usage of land. They are important because they limit the supply of land in some uses thus increasing or securing other uses space for them to thrive. For example planning prevents agricultural land from taken up for residential or commercial uses or any other uses. (Obala, 1990) asserts that planning keeps conflicting land uses apart through devices such as zoning and density control. This means that land set aside for a certain purpose will be exclusively used for the purpose that will be set aside for. This promotes the value as owners will optimally use the pieces of land for the specific purposes to produce maximum profits.

However, (Goodwall, 1966) states that if certain land use were permitted in some places and prohibited in others, in so far as this differed from the existing pattern of land use, there would be an increase in some land values and decrease in other land values. This is because there are certain land uses that are bound to bring more changes in value than others despite them being of equal importance to the society.

Planning includes rent controls, zoning laws, developmental controls, building codes among others.

In Ruaka, land conversion from agricultural usage to residential usage is expected in high numbers since the residential or commercial land usage is of a high value than the agricultural land usage. This leads to conflicting land uses hence the change in the values of land in that area. To the contrary, pieces of land in Runda which were demolished in order to pave way for the construction of the Northern by-pass were expected to reduce in value. Therefore, it was expected that the road would bring different land values of the land depending on the suitability of the situation.

2.2.2.3 Expectation of future conditions affecting prices of land

Speculation (Barlowe, 1958) said that expectations regarding future rates of inflation, mortgage interest rates, crop support programmes, zoning, highway placement, population growth and
other external forces may play a crucial role in determining land value. Depending on which factor, the land value would either go up or go down.

Speculators hoard large tracks of urban land unproductively at relatively low costs to themselves (Keribich, 2000). This brings about scarcity of land hence causing the demand to increase as supply diminishes, thus, the prices shoot up into unimaginable prices, which in many cases is overpriced. When buying speculators are favored due to the quantum factor, and sell the land there after to make profits. This results to the value of land change upwards.

This was expected in Ruaka before the completion of the construction of this road which the land on which would be zoned for development would have a lot of people demand for the same. As a result, speculators who acquired large tracks of land were dimmed to get a handful piece of profit upon the completion of that road. Therefore, expectation of future conditions affected prices of land in Ruaka. However, land zoned to be acquired through compulsory acquisition belonging to people would of course be expected to reduce in value, as in the case of the neighbouring Runda estate.

2.2.2.4 Physical attributes

Some of the physical attributes include soil fertility, climate, shopping centers, education facilities, health facilities, efficient public transport, shape of land are but a few attributes.

In agricultural consideration, areas with fertile soils such as loam soils which hold water are preferred and have high land value than areas with sandy soils which do not hold enough water and hence those areas have low land values. Likewise, in construction (Nkonge, 1995) notes that the quality of soil affects the strength of the foundation of the building therefore it is a determinant of construction costs. Areas with clay soils have difficulty in the initiation of construction as compared to areas composed of gravel.

When a new road is constructed, the area around is likely to experience a rise in land values. This is because it opens new opportunities for investors, residents move in to that area due to convenience among other individuals. Likewise, an area with good drainage system, proper electricity and efficient water supply will have high land values.
Areas adjacent to facilities such as a shopping centre or a school or health facility are bound to fetch more value of the land compared to the areas having less accessibility of such facilities.

### 2.2.2.5 Accessibility

Areas with good accessibility have high land values compared to those with poor accessibility. This is because the latter is faced by traffic snarl ups and poor road transport. As a result, poor accessible areas have low value of land. Where means of communication is good, spread of values is likely to be more uniform than where communication is poor (Thorncroft, 1974).

Areas located near a town and sites next to the main transport routes will enjoy high accessibility, thus it is expected that there land values will be high. (De Chiara, 1929) noted that topography is an important element in determining the acceptability or value of a site. Land which is level is considered better than one which is sloppy, since the latter will command a lower value since it would attract a high cost during construction and hence attract few people making its demand low. Therefore, land value would be low.

In this case, the construction of the Northern by-pass increased accessibility of the area making it enjoy a positive increase in value. This is because the road would shorten the time and distance to get to neighbouring towns such as Kiambu, Ruiru and estates such as Thome and Membley estates among other places. It also facilitated the linkage of Ruaka to Kiambu road through Runda estate.

### 2.2.2.6 Infrastructure services

Poor infrastructure services for example; rough roads, poor drainage may cause the value of an area go down since the people in that area will not be satisfied with the services they get from the infrastructure present. As a result, it is expected that the value would go down and the rental values in that area expected to be low (Mbugua, 2000).

The construction of a new road or a railway is not a guarantee of obvious high land values; this is because if the infrastructure cuts off in a neighborhood it will definitely cause a reduction of the value of land. This is because of the nuisance that the construction of the road or railway comes with. In addition, compulsory acquisition takes place together with the destruction of both formal and informal settlements, these impacts in the destruction of many livelihoods and destruction of
peoples’ lives. This makes the value of land to eventually go down. The Constitution recognizes the powers of eminent domain in section 40. This was partly experience in Runda, where it is expected that the value of land was affected since the road was seen as a source of destruction and nuisance to the residence.

2.2.2.7 Locational factors

Location is by far the most important factor (Jesen, 2005). This is mostly concerned with the accessibility of an area. Poor accessibility brings on difficulty in movement of goods and people and hence reduces business opportunities and eventual poor land value. Areas located in the far interior places, where the people lack transport routes are disadvantaged because investors lack motivation and will to venture into investments in such areas. Speculators of land too are rare in such locations. As a result, the land values are poor since the use of land is limited due to poor accessibility.

In the contrary, land that has good accessibility increases the land uses which promote the value of land. Depending on the use, the value is likely to be up or down. However, in most cases the location factor makes it contributes heavily on the value of land anywhere.

(Hendrikse, 2003) says location, condition and security are relevant value determinants. Location in relation to the proximity of major shopping centers’, public centers’, social amenities among other facilities promote the value of land as opposed to areas that experience insecurity challenges contribute to the poor value of land.

2.2.2.8 Neighborhoods

Neighborhoods vary depending on the state of the use of land, for example in residential usage of land, if a piece of land neighbors a slum, the shanties reduce the value of the land since it does not attract many people who would have had interest on it. On the contrary, if a piece of land neighbors a well planned and developed neighborhoods, its value would automatically raise the value of the piece of land. This is because many people would be interested on it, making it have higher demand hence the high land value (Mbugua, 2000)

If a piece of land is located in a certain land use field, then it is likely to get many bidders willing to buy it in order to put it into that use to which it is to be used for. This way the value will
definitely be improved. Ruaka is an area that has many real estate developments, thus causing people to have a positive anticipation of the value of land to positively increase.

2.3 LAND USE

Land use is the human use of land. Land use involves the management and modification of natural environment or wilderness into built environment such as fields, pastures, and settlements (Gary, 1997). It is how man puts his knowledge and expertise to the different ways of using land. Land use is the spatial aspects of all man’s activities on land and the way in which land surface is adapted or could be adapted to serve human needs (Best, 1981). In other words, it is the way man divides his interest in land concerning the way he uses different parts of the land for different purposes. Stamp (1948) takes land use to mean the use of the earth’s surface in spatial populated areas including the natural vegetation. This means that the population of the people and the natural environment is taken into consideration where the use of land is to be considered.

When tenure rights are certain, they provide incentives to use land in a sustainable manner or invest in resource conservation whether for the individual or group of individuals (Ogolla, Mugabe 1996). Ultimately, time gives the highest incentive for investing; this is because land with a long period will ensure that the owner or tenant uses it to the highest and best use.

In conclusion, land use involves activities which directly benefit man and are related to land. Depending on the use to which land is put into, the value of that land will definitely change. The value of the land may either go up or go down, depending whether the land is put into its highest and best use.

(Museleku, 2013) says that the proper planning, design and management of land use demands a careful balancing of many goals, and the search for desirable land uses, coupled with effective and sustainable management practices, is made more complex by the interactions between the environment, the economy and society. In addition, we see Syagga (1994) categorizes land use in Kenya as follows:

i. Rural land use, which includes farmland, forest and mineral land.

ii. Urban land use, which includes commercial, industrial, residential land.
iii. Special purpose, which includes petrol stations, hotels and restaurants, recreational facilities, halls and places of assembly and institutional properties.

These land uses discussed below directly relate to the case study, Ruaka and to a large extent the Kiambu County as well:

2.3.1 Rural land use

This is land that is used primarily for agricultural activities and is not for any other purpose. It is categorized in three folds, which include:

i. Agricultural land or Farmland

2.3.1.1 Agricultural land

This is land used for agricultural activities: used for planting of crops; grazing land for animals; buildings where it may include store, farm house, milking shade, farmers’ house among other buildings; dams; irrigation schemes, factories.

Agriculture supports over 80% of the population. It employs 70% of the country’s labour force of over 10 million compared to only 3 million employed in the formal sector. It also generates 80% of the export earnings and supplies over 70% of raw materials for the agro-industry. Overall the sector contributes to more than 45% of the government’s revenue (Ogendo and Kosura, 1995)

Agricultural land use is therefore a very important sector in the overall usage of land. It boosts the economy of the country, provides employment to very many people, feeds the country through production of food, it’s a source of raw material for processed goods, almost contributes to half of the country’s revenue collection among many other benefits.

2.3.2 Urban land uses

These are the uses of land that are practiced in urban areas, and they include:

i. Residential land use

ii. Commercial land use
2.3.2.1 Residential land use

This means land which has had a dwelling erected upon it for human habitation. Zoning laws can restrict how many dwelling and the size of land for each dwelling and other criteria and determine how many dwelling units or houses are allowed and so forth.

The quality of the physical environment, determines to a great extent the location of households (Richardson, 1973). The population of that area determines the type of buildings to be constructed and in addition income is also considered, since the level of rent would vary. Design of the buildings is considered together with the size of the families because large ones demand high rental values and vice versa.

Residential land use promotes the development of: shopping centres to serve the neighborhood; churches, schools, day-care facilities, medical clinics among other uses. Depending on the size of the land and population of the people; development can be multiple storey, gated estates, flats in areas with low and medium densities and scarcity of land whereas areas with high density with high land values; apartments, townhouses are developed.

This land use is important because it: generates high revenue to the government; creates a lot of employment opportunities to the sector; promotes starting of businesses such as shops, butchery, medical clinic to serve the community; complements well with the transport land use and the commercial land use.

2.3.2.2 Commercial land use

(Syagga, 1994) contends that location, designs and lettable area affect investment in commercial office property. These factors make commercial office property very expensive. The businesses involved in commercial areas include whole sailing, retailing, office, warehousing, hawking.

Commercial land use accommodates commercial, retail, services and office uses. This land use promotes the land values since commercial land is very high in value. Commercial land has sub-categories which are:
a) Neighbourhood commercial
It serves the needs of the residents and the immediate vicinity adjacent to the neighbourhood. It serves light retail, services and shops among other small needs such as plumbing services, mini-super markets but a few examples.

b) Community commercial
Broad range of retail, services and professional services clustered in areas for instance shopping centers anchored by one or more large retail centres. They serve a wider range of population compared to the neighbourhood commercial centres.

c) Service commercial
Provides a wide range of retail services which includes more intense commercial activities for example those that require large pieces of land, storage, parking, light production or repair of consumer goods and is less compatible with residential land uses due to traffic, noise and other factors.

d) Interchange commercial
Suitable for retail and services uses intended to cater for more highway users. These areas are located on road interchanges and pedestrian foot paths. They serve the people with light retail goods such as mineral water, mobile scratch cards among other goods.

2.3.3 Special purpose
These are land uses that are considered to be peculiar in away; this is because they do not attract a lot of market.

2.3.3.1 Recreational land use
It is considered on the basis of income one has, free time, accessibility in terms of transport among other factors. It is basically used by individuals for leisure activities and emotional melt down. This land is used for activities such as hiking, fishing, swimming to mention but a few.
Such land is usually suitable for hotels, hiking areas, wildlife conservancy, and sports facilities among many more facilities.

This land use complements almost all other land uses and it is mostly goes hand in hand with tourism. This means that this type of land use contributes to the land value differentiation.

2.3.3.2 Transportation land use

Land set aside for the purpose of transportation. This land is mostly used by public service vehicles. It is important because its usage contributes to the accessibility of many different areas and consequently different values arise from this factor of land use.

Land use patterns affect accessibility, people’s ability to reach desired services and activities, which affect mobility, the amount and type of travel activity (Litman, 2003). This land use type, affects the land use development since it improves on the accessibility of areas thus contributing to the increase in value of land due to the development experienced. Urban areas have a diverse transport system compared to the rural areas hence the difference in land values.

2.3.3.3 Public purpose and utility

These are facilities that are built for the public good. They include hospitals, library, government offices, and schools among many more uses. They are favourable with an array of uses that are in agreement with a specific institutional use, for example airport, college, hospitals among other uses.

2.3.4 Factors determining land use patterns

The type of land use pattern to be adapted is determined due to the following factors:

2.3.4.1 Accessibility

Land that is easily accessible is quickly explored by individuals and its usage put to the highest and best use. Accessibility of a certain area improves and fastens the way that land is used and developments quickly take shape and structure.
2.3.4.2 Complementarily

Land usages complement each other, and this fact promotes the land values too. For example, transportation land use complements residential and commercial land uses to the uttermost. This is because many people use public transport to go from home to work and back, hence this factor determines the type of use a certain land would be put into.

2.3.4.3 Institutional factors

Planning regulations control which type of land use would be put into use in a certain land. This means that in commercial land use one cannot invest in agriculture production such as planting of crops and rearing of animals. This factor, therefore puts the specific land uses to be used to that use that has been put into. In addition, private owners associations for example Karengata, controls Karen and a small portion of Langata hence controlling the developments in that area.

2.3.4.4 Geographical factors

Some areas have some geographical features that are favourable to some specific land uses, for example Hell’s gate in Naivasha has steep escarpments thus directly putting that land use to special purpose for which leisure is the most appropriate. At the coast line, developments are mostly for the hotels due to the wide beautiful natural Kenyan coastline. Therefore, this geographical feature would be best used for recreational purpose.

2.4 Policy Framework in Kenya

Some of the relevant policies affecting Land Use in Ruaka area and it neighbourhood such as Runda include: -

1. The Constitution of Kenya

Article 10 of the new Constitution provides for the national values and principles of governance which bind all state organs, State officers, public officers and all persons to include; the rule of law, democracy and participation of the people; good governance, integrity, transparency and accountability and sustainable development, among others. In addition, Article 232 provides for the values and principles of public service including; high standards of professional ethics;
efficient, effective and economic use of resources; responsive, prompt, effective, impartial and equitable provision of services; involvement of the people in the process of policy making; accountability for administrative acts; and transparency and provision to the public of timely, accurate information.

This too expected in Ruaka, that proper Land Use change occurs in an accountable, corrupt free and lawful procedure so as to ensure that future generations benefit from the same resources too.

The Constitution exercises this power in Section 40 and applies to registered land. Subsection 3b provides that no property of any description and no interest in any such property may be acquired compulsorily by the state unless it is going to be used for a public purpose or in the public interest and is carried out in accordance with the Constitution and any Act of Parliament, also provides for:

1. Prompt payment in full, of just compensation to the person; and
2. Allows any person who has an interest in, or right over, that property a right of access to a court of law.

This was expected in the construction of the Northern by-pass that land acquired from the owners would be used by the government for the said use after which compensation would be done.

2. The Nairobi Metro 2030 Strategy

The vision of Nairobi Metro Strategy is to make Nairobi City a world class African metropolis through building a safe, secure and prosperous metropolitan so as to achieve objectives of Kenya Vision 2030. To meet housing demand, the strategy notes, there will be significant land requirements of approximately 49,000 acres, raising to 149,000 acres in year 2030 and this land must be found within the urban growth areas. Therefore, there is no doubt that agricultural land found in the urban fringes will experience a lot of pressure for conversion to residential and other uses. In deed the strategy notes that the extent of the NMR includes purely agricultural areas. Designation as agricultural land will reinforce objectives of protecting the agricultural land base of the region. The strategy undertakes to address the dilemma on whether to allow indiscriminate land subdivisions and change of user or to promote agricultural activities by restricting urban
growth and also address issues of food security. The strategy notes that already urban sprawl has rapidly decimated the rural land uses by encroaching into rich agricultural hinterland in Kiambu, Thika and Kajiado areas and that the large coffee, tea and livestock estates are under serious threat from urbanization (Museleku, 2013). He continues and says that these issues arise due to poor leadership and ineffectiveness in the application of the laws in the Country.

Ruaka also plays an important role, as it plays as the point at which the Northern by-pass starts, thus it is prone to poor planning as a result of the above issues being raised. The Government has not been accountable in its governance of land, which has been occurring under a regime that does not facilitate meaningful public participation hence cases of mismanagement of land resources abound (National Land Policy, 2010)

3. The Land Control Act, Cap 302

It is an Act of Parliament that provides for the controlling of transactions in agricultural land. The land control boards are given powers to grant or refuse permission for dealings in agricultural land such as sale, transfer, lease, mortgage, exchange, partition or other disposal. The land control boards are supposed to consider the following before granting the permission for dealings in agricultural land: they should have regard to the effect which the grant or refusal of consent is likely to have on the economic development of the land concerned or on the maintenance or improvement of standards of good husbandry within the area; act on the principle that consent ought generally to be refused where the person to whom the land is to be disposed of is unlikely to farm the land well or to develop it adequately or is unlikely to be able to use the land profitably for the intended purpose owing to its nature or already has sufficient agricultural land.

4. The Physical Planning Act Chapter 286, Laws of Kenya

An act of Parliament that provides for the preparation and implementation of physical development plans and for connected purposes. Under this Act, the local authorities have powers to prohibit or control the development of land and buildings, subdivision of land and implementation of approved physical development of this area. Consequently, no individual shall carry out development within the area of a local authority without a development authorization granted by the local authority. The development application accompanied by the relevant plans and particulars, should be made to the Clerk of the local authority concerned, and then be
referred to the Director of Physical Planning for his comments. The decision whether or not to grant permission is guided by the relevant regional or local physical development plans, health, amenities and conveniences of the community. Subject to the Director of Physical Planning, the approval may be accepted or denied and accompanied by relevant reasons.

It is important to note that most Local and Regional Authorities do not follow the relevant rules as a result they bring on board many illegal development and hence change the proper practical situation on the ground. Among the affected areas are the land use and land values of that particular area.

5. The Registered land Act, Chapter 300, Laws of Kenya (Repealed in 2012)

Act of Parliament where it gives the land owner the absolute ownership with all rights and privileges, meaning that he or she has the right to deal with the land as he she wishes. This Act may have negative effects on the agricultural land since it forbids the local authorities from preventing subdivision of agricultural land into smaller uneconomic portions or change of user from agricultural to other uses. However, since it has been repealed proper guidelines on how to land should be used and managed have been laid down.

Therefore, improper subdivisions of agricultural land in Ruaka are now under control of this Act.

6. The National Land Commission

The Commission has powers to establish the county land management boards, whose ultimate mandate would be to process applications for allocation of land, change and extension of user, subdivision of public land and renewal of leases subject to the physical planning and survey requirements.

This would bring harmony and sobriety in the land sector especially in Ruaka and the vast Kiambu County. In addition, the preparation of the National Land Policy

7. The Land Act, 2012 Compulsory Acquisition

Compulsory Acquisition is provided under the Land Act, 2012, where the government can acquire private land in order to develop and benefit the general public. It is seen mostly when
land is acquired to facilitate the expansion of a road, or build a school or hospital among other various examples.

2.5 ROAD TRANSPORT

Road transport is the most dominant type of transport that is used by majority of people in Kenya. This is because it has been developed to majority of interior places in Kenya. This fact makes it the most dominant transportation network as opposed to Railway or Air transport which does not cover most of the parts of Nairobi as compared to the Road transport. With an increased population, it is thus expected that many people would travel hence the increase in the number of vehicles in our roads. In addition, public transport is the major method of transport for a majority of people in Kenya. Thus, more public service vehicles are expected to increase with the road improvements that are currently taking place hence increasing the usage of road transport.

Therefore, with this increases deterioration and poor contractor services render many roads impassable and inadequate to serve the general public hence the heavy traffic snarl ups. This fact has made the government measures to reduce traffic congestion through construction of the new roads, construction of by-passes and widening of the present highways such as the Thika Super highway and this is in-line with The Kenya Vision 2030 (GoK, 2007).

This road developments increase accessibility of areas and create new access to areas which were previously inaccessible. This boosts the flexibility of the route choices, once a network has been provided. It promotes speeding of vehicles, the major constrain being the government-imposed speed limit. As a result different land uses take shape and are harnessed to the maximum potential while the land values change.

2.5.1 Effects of Road improvement on Land Use and Land Values

Road development is of uttermost importance to the overall growth of the economy. A transportation improvement may improve accessibility to a particular area, increasing the premium commercial, industrial and residential users are willing to pay for the property (HBS, Inc, 1999). This is because it increases mobility and accessibility of the area of study since it is expected that businesses, property development and overall change in the livelihood of the people would change. This fact is expected to boost the transportation land use to a larger extent
since new public routes are expected to be formed and hence many people access employment opportunity.

Highway development may also deter other types of economic activities relying on remote locations (Perera, 1990). With the development of the Northern by-pass the commercial activities decreased since the construction of the road brought with it over population, caused a burden to the facilities such as sewerage system in the area, increased insecurity, poor developments.

It is expected that land values in that area and in surrounding neighbourhoods would improve dramatically due to the development of the road network. Parcels well served by roads can yield handsome profits (Voith, 1993; Buarnet and Chalermpong, 2001), in addition (Huang, 1994) found that virtually every major land use study came to the conclusion that transportation improvement positively affect the value of the nearby land.

Agricultural land use would be affected negative since agricultural land would be changed to other land uses. This affects the production capacity of the area and eventually hurts the economic life of the farmers who depend on that type of land use. This land use type is converted to commercial and residential land use mostly.

Corruption in the planning of the area among government officials is rampant especially in the conversion of one land use to another. In addition, it is expected that many fraudulent land dealings and continuous coning of interested land buyers is seen. And as a result, this hurts the land values in the area. “There are so many land cases going on around the country, we can’t be always coming out to issue clarifications. The problem with Kenyans is that they make mistakes and expect someone to clarify’’ – Mr. Zablon Mabea, Commissioner of Lands (Daily Nation, Thursday, November 17, 2011) - By Francis Ayieko.

Highway noise is considered generally as the most important of such adverse effects (Palmquist, 1980). These not limited to the dust produced by the road that cause air pollution and the safety hazards of increased traffic especially to children living in that area are cited as the major drawbacks of the development of a road. This effect also cause respiratory ailments and may result to death in severe cases for example in the case of accidents.
As a result, change in the use of one land use to another is expected to come about, this is because people living in this area and investors will be expected to come up with new ideas of influencing the way the area is developing. As a result, some land uses will suffer from negligence of poor government planning regulations and corruption of the government officials, while others would be changed due to uttermost ignorance and greed of individuals. In particular, agricultural land use would be expected to change to other land uses since the population of the area would be anticipated to go up, hence the need for houses. As a result the Land Control Act Cap 302 would be seen whether it would take effective change on the change in Agricultural land use.

The value of land would improve positively in the study area and it neighbourhood due to the increase of population and increased developments and not living behind increase in businesses. This value is also influenced by the improved mobility of the people from one area to another in short period of time.

Land acquisition would be effected to pave way for the development of that road. As a result, many people would suffer from the development of the road and eventual compensation would be perceived not to be adequate compared to the damage they suffered. Therefore, the blame would be directed to the Government and the Judiciary. In addition, as the development of the road would uttermost bring improved in the lives of the people. It would also be expected that other people would be affected negatively by the said development. This is because of the noise and perceived health risks associated with the development. Thus, these people would eventually take action on the developed road (Mbugua, 2000). Land Acquisition and subsequent land compensation settled the aggrieved parties of the claims they had raised. Court cases settled the grievances of the aggrieved parties in totality hence, ensuring that everybody benefited from the said road development.
2.6 CONCEPTUAL FRAMEWORK:

Diagram 2.2: A Simple Diagrammatic Model of Land Use Management Framework

The diagram above represents the effects of road development, where upon the completion of a road network, there is improved transport system which enhances development and boosts of the peoples’ economic activities. This results to the change in population where it goes up due to the effectiveness of the integration of people. Since improvement of the transport system and change in population occurs in a specific location, therefore this results to an increase in the land values and also the land use. This has a direct result in the property market and development of the area.

Source: Kibui (2013)
CHAPTER THREE

CASE STUDY AREA AND RESEARCH METHODOLOGY

3.1 INTRODUCTION

In chapter one, the topic of study was introduced by looking at several aspects ranging from problem statement to definition of key terms. Chapter two dealt with literature review which looked into publications by different authors to the topics related to this research project. It’s now important that some characteristics of the study area and methodology of the study are highlighted to the reader before data analysis in chapter four and recommendations in chapter five.

3.1.1 Geographical Position and Size

The study area, Ruaka is a shopping centre in Kiambu County some 15 Km from Nairobi’s Central Business District. Kiambu County is located in Central Kenya, bordering Murang’a County to the North and North East, Machakos County to the East, Nairobi and Kajiado Counties to the South, Nakuru County to the West and Nyandarua to the North West. The County covers an area of about 2543.4 square kilometers. Historically, the study area was historically a large-scale coffee plantation owned by the white settlers. However, this changed when land ownership changed hands in the 1970’s and 1980’s when African land-buying companies bought the land and sub-divided among their members (Ng’ayu, 2012)

The Northern by-pass links the Nakuru-Nairobi highway to Thika road, stating from Ruaka trading centre along Limuru road all the way to Eastern by-pass which then links Thika super highway to Mombasa road, the Northern by-pass road overpasses Banana road and gets to Kiambu Road just before Rigrdeways. The road passes alongside Windsor hotel and Country club, Marurui slum, Thome estate and behind United States International University and 2 Km thereafter, intersect the Kamiti road at Githurai. There is also a service road of approximately 10Km through Runda and Thome Estates.

3.1.2 Characteristics of Ruaka, Kiambu County
The climate of Ruaka area and the expansive Runda Estate in Kiambu is to a large extent cooler than majority of the places throughout the entire country. The area is 3.31 Sq Kms. The area has two seasons of rainfall, one the long rains from March to May and second during October and November which are the short rains. The average temperature range is from 20.4\(^\circ\) in the upper highlands to 34\(^\circ\) in the low midland. The soils are well-drained, shallow, dark reddish brown though in some places they are imperfectly drained and very deep. Most areas in Central region are coffee and tea growing areas which is supported by an altitude of 1500-1800 Meters above sea level.

The area’s population is approximately 10,175 people, Male being 4,942 representing 48.57%, Female being 5,233 representing 51.42% of the population while the population density in the area is 3,071.23. The total number of households is 3,022. The economic activities carried out in this area are agriculture which is mostly subsistence farming, Real Estate, and varying business for example Retail and Wholesale of goods, Entertainment joints such as restaurants among many more. Source: [http://www.opendata.go.ke/population/2009-census](http://www.opendata.go.ke/population/2009-census)

There is no doubt that Ruaka is a preferred dormitory area to house people working in Nairobi. It is preferably encouraged than most estates since it is not over populated and it is also well served by the recently developed Northern by-pass. Residential developments consist of mainly of gated communities and apartment blocks. It also has good climate free from pollution as it enjoys the rural climate. Most pieces of land are under the 99 years leasehold period. However, we can now see that commercial land is being leased for a period of between 33 years and 99 years.

The most convenient method of transportation is by use of road. The road network is reasonably good. The Nairobi- Nakuru road is connected to the region as there is link to Ruaka through Limuru road and the Northern by-pass creates a link to Kiambu road hence this link is considerably convenient to the study area and to a large extent Kiambu County.

### 3.2 RESEARCH METHODOLOGY

This section describes the procedure and the methodology that were followed in conducting the study. It discusses data collection, sampling methods and procedures, statistical parameters and data analysis that were used.
3.2.1 Data Collection

According to Leedy and Omrod (2001), the nature of data sought dictates the research method. The methods that are used are convenient to the researcher according to the type of data concerned in. According to Kothari (1990), research using a case study is designed as a form of qualitative analysis and involves a careful and complete observation of the social unit which can either be a person, family, an institution, a cultural group or the entire community. The research seeks to obtain information that describes the existing phenomenon by asking individuals about their perceptions, values and attitudes.

Mugenda and Mugenda (1999) define qualitative research as an umbrella term for various types of interpretive modes of inquiry commonly used in the social sciences. It further asserts that many people have been conditioned to think that the quantitative approach is the only legitimate mode of inquiry as it yields numbers, charts, tables and graphs which apparently are more convincing. Interviews schedules and observation checklists are used to yield qualitative data, and intensive interviews will therefore be undertaken by qualitative researchers as they are interested in collecting in-depth data. This study will yield both quantitative and qualitative data.

According to Arleck and Settle (1995), it is seldom necessary to sample more than 10% of the population provided that the resulting sample is not less than 30 and not more than 1,000 units. They recommend a minimum sample of 100 for 1000 population.

3.2.2 Primary Data

It will be obtained through:-

i. **Visual Inspection and Observation**

A reconnaissance visit was done before the research began in an effort to familiarise and look into the area of study. This enabled the researcher to get a general overview of the study area and hence it to a large extent contributed significantly in the problem statement selected. The units of observation included new and upcoming residential developments. This captured the real situation in the ground, which respondents would be hesitant to share freely. More physical inspections and observation were later undertaken in the course of this research. In addition, photographs were taken to capture the actual situation.
ii. Oral Interviews

One on one interviews with key informers would be undertaken. This method is very efficient since its flexibility in allowing clarifications of questions that were asked. The key respondents included the Residents in the area, Real Estate Professionals and Experts for example real estate agents and valuers and a Government Official who is a Land Planner. They gave information on what contributed to the key change in Land Use and Land Values in that region. They also shared meaningful information concerning the effect of the Northern by-pass to lives of people and the area. They also gave opinions on the causes and effects of change on the use of land and value of the same. During the interviews, the researcher asked questions pertinent to the study.

iii. Questionnaire

The research demanded that some qualitative aspects by the Residents, Builders, Real Estate Professionals/ Land Planners were adequately captured by administration of the questionnaires by the researcher.

3.2.3 Sampling Methods and Procedures

Sampling is the process of selecting a sub group of a population to act as a representative of the whole population (Museleku, 2013). This technique was used in this case study. Ruaka and its neighborhood, Runda is quite a large area thus, sampling technique helped due to limited time, personnel and financial resources. This information, once collected was used to base generalized findings.

The sought data in this research included but not limited to:-

1. To establish changes to land use and land values.

2. To identify the effects of this project on land use and land values in Ruaka.

3. To recommend appropriate solutions based on the findings.
3.2.4 Statistical Parameters

i. Population

Mugenda and Mugenda (1999) define a population as an entire group of individual, events or objects having a common observable characteristic. For this research, the population involved in giving the data was the residents, land officials, business owners, and land professionals among other people, who would total to about 10% of the population. In research, it is not always possible to get relevant information from the whole population. A researcher has to define the working population, which according to Rea and Parker (2007) as part of the general population that possess the characteristics that the research aim to study, and therefore fulfils the requirements of the research. Therefore, the working population for this study is the various residents, land professionals and planning officials.

ii. Sampling

(Kumar, 2005) defines sampling as the process of selecting a few individuals (a sample) from a bigger group (the sampling population) to form the basis for establishing or predicting the prevalence of an unknown piece of information, situation or outcome regarding the bigger group. A sample is a set of elements selected in some way from the population. This portion of the population is used to get data since getting information from the whole population would not be easy because of time, resources and financial constraints. The sample population expected would be about 10% of the total population; this is because it is a densely populated area hence any further population more than that would entail having more time and more resources to collect the data which it is currently scarce. In this regard, the use of Google map and reconnaissance visit to the study area was done by the respondent where the following areas fell under the study: Ruaka shopping centre (approximately 100 homes), Runda Mumwe (approximately 100 homes), Runda Mimosa Ridge (approximately 100 homes), Marurui slum (approximately 100 homes) and Cycads Estate (approximately 100 homes) hence ten percent (10%) of homes in each estate were given 50 questionnaires.
Table 3.1: Response Rate of the Questionnaires Administered and Interviews

<table>
<thead>
<tr>
<th>Respondents</th>
<th>Total Number Issued</th>
<th>Response</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land Owners / Farmers</td>
<td>50</td>
<td>37</td>
<td>74</td>
</tr>
<tr>
<td>Real Estate Professionals (Valuers, Agents)</td>
<td>15</td>
<td>9</td>
<td>60</td>
</tr>
<tr>
<td>Land Planners</td>
<td>2</td>
<td>2</td>
<td>100</td>
</tr>
<tr>
<td>Developers</td>
<td>4</td>
<td>3</td>
<td>75</td>
</tr>
<tr>
<td>Residents</td>
<td>12</td>
<td>9</td>
<td>75</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>69</strong></td>
<td><strong>50</strong></td>
<td><strong>72</strong></td>
</tr>
</tbody>
</table>

Source: Field Survey, 2014

Mugenda (1999) stated that; while administering questionnaires, a response rate of 50 percent is adequate for analysis and reporting, 60 percent is a good response while 70 percent is very good. Hence the response rate in this research is very good.

3.2.5 Secondary data is through:

It entails work that has been done by other people. These works have relevance to this topic of study and the entire research. These included information from textbooks, journals, articles, magazines, newspapers, projects, published thesis. The secondary data was sourced from libraries, government departments and the internet.

3.2.6 Data analysis and presentation

The data obtained was used and sorted in different ways; this was through descriptive data presented using photographs, maps, charts, simple tables and graphs. This is because the study was both quantitative and qualitative in nature.

Common challenge encountered was that the researcher got less than 100% collection of the correspondents. This negatively influenced the outcome of the study since collection was less
than expected. This was mainly due to the fact that the numbers of respondents were so busy and could not get time to fill in the questionnaire or grant interviews. Nevertheless, a response rate of 70 per cent and above is a very good response. Therefore, the findings of this study are justified. Another key problem that the researcher encountered was a number of respondents declined to answer some questions as they saw as if their privacy was being infringed, for example the question on the amount of rent that they pay. In other instances the respondents failed to fill in the questionnaire completely. Those who agreed to fill the questionnaires after some persuasion did it by giving stereotyped answers that were too broad. Nonetheless, those respondents that gave honest answers were used to access truthful responses. Lastly, limitation of time and finances posed a great deal of challenge during fieldwork.
CHAPTER FOUR

DATA ANALYSIS AND PRESENTATION

4.1 INTRODUCTION

This chapter basically deals with the analysis and presentation of data collected by the researcher. The study endeavors to investigate the effects of infrastructure development on land use and land values on Ruaka. The findings form the basis of the analysis and presentation to follow and serve as a basis on which conclusion and recommendations were made. Simple descriptive statistics such as tables, graphs and photographs have been used to present, illustrate and present the research findings through classification of raw data into some purposeful and usable categories.

Qualitative data have been presented as narratives. Tables present data in an orderly manner and conserve space while reducing the explanatory literature statements to the minimum hence they were highly preferred. Images present data in a clear and precise manner, therefore photographs were used.

The respondents were asked questions or interviewed on the study topic, specifically about the values of vacant land and rentals. The respondents were also asked questions regarding their opinions on the trend of rental values. The responses on the key objectives were analyzed and presented as follows.

4.2 THE EFFECTS OF THE NORTHERN BY-PASS ON LAND USE CHANGE IN RUAKA

The development of the by-pass definitely led to several changes on land use. Various real estate properties in Ruaka and along the entire by-pass came about. They comprise of urban land uses such as commercial and residential, special purpose such as petrol station, hotels and restaurants and schools and the rural land uses such as farmland. All this uses very well complement the by-pass and hence contribute to the growth of the values of land.

4.2.1 Commercial properties
They are empty land zones for commercial use or an already existing business building. The various types of commercial properties along Ruaka include but not limited to the following:

1. Office buildings

It refers to a multi storied or single blocks intended for office use. They are of several types which include single-tenant properties, skyscrapers and small professional offices buildings. The respondents who were interviewed indicated that they were willing to get offices along the highway but they were limited by the small number of offices and the anticipated high rental values kept them away. Since they are limited in number, the original buildings have been converted to be used as offices.

**Plates 4.1: Ruaka shopping centre’s offices**

![Image of Ruaka shopping centre’s offices](image.png)

**Source: Field Survey, 2014**

2. Residential properties

They were noted to be of different types and took the highest percentage of the whole property market along this area. They include gated community, apartment and high-rise buildings.

i) Gated community

It is a modern type of residential community or housing estate having strictly controlled entrance and exit for pedestrians and automobiles, and often characterized by a closed perimeter wall and fence. Gated communities generally consist of shared amenities. For smaller sized this may be only a park or other common area.
Plates 4.2: Executive Gated Community

Source: Field Survey, 2014

ii) Apartments

Semi-contained housing unit occupying part of a building usually luxurious and exclusively exist in a well planned residential area. Their presence show that the real estate activities have improved tremendously.

Plates 4.3: Apartments

Source: Field Survey, 2014
iii) High-rise buildings

These are buildings that are high in terms of height and usually accommodate a high number of people for example flats. Most respondents see that the construction of high-rise buildings was the way to go. Below is an illustration of how developers and property owners are converting the one storey buildings to high-rise buildings.

Plate 4.4: High-rise buildings taking over from the one storeyed buildings

Source: Field Survey, 2014

3. Shopping Malls

There is no shopping mall which is operational apart from one that is being constructed, which most business people anticipate that it would boost the business potential in that area. It will accommodate a shopping mall, offices and entertainment area all under one roof.
Plates 4.5: A Modern Upcoming Mall

Source: Field Survey, 2014

4.2.2 Special purpose

These are properties that are considered not to attract a lot of value. They were captured during the data collection in the study area and they are as follows.

1. Petrol station

A facility that sells fuel and lubricants for vehicles may have convenient store for shopping such as a supermarket. Its presence indicates an increase in traffic thus an advantage to the residence.

Plates 4.6: Petrol Station with an apartment at its background

Source: Field Survey, 2014
2. Restaurants

Are places of entertainment and income is acquired during free time. It basically used for leisure activities. The entertainment spots along the Northern by-pass are generally built of semi-permanent structures such as wooden materials. They are very well accessible by the by-pass and are relatively able to be accessed by as many people as possible from Ruaka, Runda and Thome Estates. Jeff Angote writes that there is roaring business and there is no shortage of ‘nyama choma’ along the Northern bypass since the road has opened up the area, creating business opportunities for enterprising Kenyans (Daily Nation, Monday, April 7, 2014)

Plates 4.7: Restaurant and Entertainment spot next to the Northern by-pass

Source: Field Survey, 2014

3. Schools

They are many schools and notably Primary private schools. The respondents said that this was the case because Ruaka had developed very fast and within a very short period of time. The families that live here were small in size and had young children. Respondents said that many high schools were found in Banana area as compared to Ruaka area. The researcher was able to establish that there was one University which is St. Pauls University located in Kabuku area after Ndenderu.
4.2.3 Rural land use Change

This is farm land where farming is done. Respondents noted that farm land was converted to commercial land use. This was also seen where concrete jungles were coming up on areas that were passive to be initially used for farming.

Plates 4.9: New buildings competing for fertile agricultural land

Source: Field Survey, 2014
4.3 EFFECTS OF THE NORTHERN BY PASS ON REAL ESTATE VALUES

The real estate values were affected and influenced by the construction of the by-pass. This is seen by the changes in values of land and properties in these areas hence bring a totally different outcome compared period prior to the construction of the road. The various effects of the case study are highlighted below:

4.3.1 Change in Values of Land

The values of land have considerably changed since the construction of the by-pass. The values have taken an upward trend since the demand for land in Ruaka has gone up significantly. The researcher was able to note that most of the land along the highway was underutilized or unutilized prior to the construction of the by-pass. An interview by several estate agents revealed that most land owners were holding their land and waiting for the value to go up before selling it hence being speculators. The land was sold to mostly land buying companies, ‘group chamas’ and organizations since most individuals don’t have the capacity to buy the land individually. An inquiry of other parcels lying further away from the by-pass and the highway revealed that there was a slight value variation the further you go away from the roads. The table below shows the change in land value from 2007 to 2014 both along the highway and interior.

Table 4.1: Prices of different sizes of Land along the road in Ruaka since 2007 to 2014

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>1/8</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>¼</td>
<td>8</td>
<td>10</td>
<td>12</td>
<td>14</td>
<td>15</td>
<td>17.5</td>
<td>18.5</td>
<td>21</td>
</tr>
<tr>
<td>½</td>
<td>14</td>
<td>18</td>
<td>20</td>
<td>26</td>
<td>28</td>
<td>30</td>
<td>32</td>
<td>38</td>
</tr>
<tr>
<td>1</td>
<td>26</td>
<td>34</td>
<td>38</td>
<td>46</td>
<td>52</td>
<td>55</td>
<td>58</td>
<td>70</td>
</tr>
</tbody>
</table>

Source: Field Survey, 2014
Graph 4.1: Prices of different sizes of Land along the road in Ruaka since 2007 to 2014

Table 4.2: Prices of different sizes of Land in the interior since 2007 to 2014

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1/8</td>
<td>2-3</td>
<td>4.5</td>
<td>5.5</td>
<td>6.5</td>
<td>7.5</td>
<td>8.5</td>
<td>9.5</td>
<td>10.5</td>
</tr>
<tr>
<td>1/4</td>
<td>4-6</td>
<td>7.0</td>
<td>8.5</td>
<td>9.5</td>
<td>10.5</td>
<td>14.5</td>
<td>17.5</td>
<td>19</td>
</tr>
<tr>
<td>1/2</td>
<td>10.5</td>
<td>12.5</td>
<td>14</td>
<td>17</td>
<td>19</td>
<td>25</td>
<td>29</td>
<td>34</td>
</tr>
<tr>
<td>1</td>
<td>18</td>
<td>21</td>
<td>25</td>
<td>29</td>
<td>35</td>
<td>45</td>
<td>54</td>
<td>63</td>
</tr>
</tbody>
</table>

Source: Field Survey, 2014
Graph 4.2: Prices of different sizes of Land in the interior since 2007 to 2014

The above information was collected from various estate agents in Ruaka. The period covered values of land before and after the construction of the by-pass. The respondent noted that the rapid growth of in value was noted to have taken place after the commencement of the construction of the by-pass since it was anticipated for the value to go up and after the completion it was clear that the value went up significantly. The rapid increase was due to land speculation, increased accessibility due to the road and increased demand due to the increase in population in the area.

The study revealed that land values have always been in an upward trend due to constant demand of land for investment.

4.3.2 Increase in Business Activities

The researcher was able to note that the number of construction activities had increased tremendously. This data was obtained through observation and interviewing some residents in living in Ruaka area. The respondents noted that the crime level had gone down since most youths had been employed in construction sites.

Many businesses had been started and consequently the unemployment level had gone down. It was noted that most businesses were retail stores. This is important since the circulation of capital in that area was not stagnant. An increase in the number of garbage collection companies was noted but due to the lack of proper documentation, the respondents denied give information on their business potential and number of employees employed.
The respondent noted that there was an increased number of real estate agents, both formal and informal, thus making it possible for the real estate potential to thrive. The researcher was able to establish that developers, estate agents, brokers and property owners were involved in keeping the real estate sector in the area moving. They were involved in land buying and selling of mostly land plus management of properties.

**Plates 4.10: Real Estate Opportunities**

The respondent noted that there was an emergence of built properties for sale. This was observed through the notice boards hanged all over the area. This is a clear indication of the level of potential that the Real Estate sector plays in this area. The estate agents involved in this research, noted that the people involved in the buying of plots were business people and those involved in buying of ready built houses or apartments were mostly ‘group chamas’, big companies buying as a way of investing and a few private individuals.

### 4.3.3 Change in value of Rental residential properties

A variety of different types of rental properties were identified during the period of study. The different dwellings were identified as follow: singles, bedsitters, double rooms, one bedroom, two bedrooms and three bedrooms.

Out of 50 households that were interviewed, 38 of them, which representing 76% said that they do not work in Ruaka, but they work in neighbouring towns such as Kiambu, Limuru, Nairobi and Thika at most. This shows that they commute on daily basis. The Real estate management firms indicated that a continuous increase in demand for residential properties in the study area.
The blocks of flats named as plate 5.1 were noted to be fetching higher rents than a similar block of flats away from the road. This was due to the increased accessibility of this particular block of flats. A particular argument raised by a respondent, noted that it was similar amount of travel cost from Nairobi’s Central District to Buruburu as it was from the same place to Ruaka. But he preferred living in Ruaka since traffic flow is free compared to Buruburu where traffic flow especially in Jogoo road is hectic on a daily basis.

Table 4.3: Rental values of different House types since 2007 to 2014

<table>
<thead>
<tr>
<th>House Type</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single</td>
<td>1,500/=</td>
<td>1,800/=</td>
<td>2,000/=</td>
<td>2,200/=</td>
<td>2,500/=</td>
<td>3,000/=</td>
<td>3,500/=</td>
<td>4,000/=</td>
</tr>
<tr>
<td>Bedsitter</td>
<td>3,000/=</td>
<td>3,500/=</td>
<td>4,000/=</td>
<td>4,500/=</td>
<td>5,000/=</td>
<td>5,500/=</td>
<td>6,000/=</td>
<td>9,000/=</td>
</tr>
<tr>
<td>Double Room</td>
<td>3,000/=</td>
<td>3,500/=</td>
<td>4,000/=</td>
<td>4,500/=</td>
<td>5,000/=</td>
<td>5,500/=</td>
<td>6,000/=</td>
<td>9,000/=</td>
</tr>
<tr>
<td>One Bedroom</td>
<td>5,000/=</td>
<td>5,500/=</td>
<td>6,000/=</td>
<td>6,500/=</td>
<td>7,000/=</td>
<td>7,500/=</td>
<td>8,500/=</td>
<td>13,500/=</td>
</tr>
<tr>
<td>Two Bedrooms</td>
<td>6,000/=</td>
<td>6,500/=</td>
<td>7,000/=</td>
<td>8,000/=</td>
<td>9,000/=</td>
<td>13,000/=</td>
<td>18,000/=</td>
<td>28,000/=</td>
</tr>
<tr>
<td>Three bedrooms</td>
<td>8,000/=</td>
<td>8,500/=</td>
<td>9,000/=</td>
<td>13,000/=</td>
<td>17,000/=</td>
<td>22,000/=</td>
<td>29,000/=</td>
<td>35,000/=</td>
</tr>
</tbody>
</table>

Source: Field Survey, 2014
Graph 4.3: Rental values of different House types since 2007 to 2014

The above information was obtained and compiled from various Real estate agents. It was then noted that the population of the area had increased hence contributing to an increased demand for residential houses. The highway was another contributor since it increased accessibility and reduced the travel period for the residents since traffic snarls. An increase in the value of land was also a major contributor to the increase in rental values, this is because it was expected that the rental values would supplement the cost of land once developed.

The researcher was able to note that developer and land owners preferred to develop one bed roomed to three bed roomed house over single, bedsitter and double room. This was attributed to the increased economic potential of tenants occupying the houses. Another reason was established was due to the taste and preference hence making the demand for rental properties to go up.

4.3.4 Change in Land Use

The researcher found that the by-pass had greatly impacted on the land uses. The domination of agricultural activities had been converted to residential and commercial land uses. A land professional in the area informed the researcher that many land owners had applied for change of user from the Karuri Town Council but they had been denied. An article written had this to say ‘Another county making policies to protect agricultural land was Kiambu. The county suspended change of user approvals in an attempt to safeguard coffee farming. With private developers turning thousands of acres of coffee and tea plantations into up market gated community housing..."
projects, Governor William Kabogo issued a circular to land offices to stop change of user’
(Standard News Paper, Thursday February 13, 2014) – By Mkala Mwaghesha.

**Chart 4.1: Responses on the Prevalence of Owners Willing to Practice Agriculture**

Assumption made is that prominent use was buildings; willingness was to change the bare land ready for development to any other usage.

![Prevalence of Owners Willing to Change their Current Land Use](image)

Source: Field Survey, 2014

**4.3.5 Subdivision and fragmentation of large land parcels**

It was noted that there was continued subdivisions of land in Ruaka area, where Land Owners have been dividing their large land parcels into small fragments and selling them so that they can maximize on their profits. This is because they know selling of smaller fragments is more profitable as compared to the large parcels where it would be sold baring in mind the quantum factor.

Many instances of subdivisions have been made irregularly thus making it difficult for appropriate registration since the mother title still remains registered as a freehold title and as agricultural land users in the Ministry of Lands thereby differing with what is on the ground.

The researcher established that many subdivisions were made by business men and investment groups, aiming at making huge amounts of profits. It was then noticed that a considerable number of land owners have not been applying for Change of User or still when they did so, they did not wait for the change but illegally and corruptly fragmented and subdivided their parcels of land into smaller portions and sold as plots ready for development.
4.3.6 Commercial Properties

Commercial properties more often than not occupy the first row plots of major roads. This is vital since they are strategically located where there is a high mass movement of people. This is important since the businesses are all located close to each other hence making it advantageous for the growth of economic market of that particular area.

The study revealed that there were very few permanent buildings along the by-pass because most of the land was still owned by individual families. These families preferred to lease out their land as opposed to selling it. In particular, the researcher noted that most of the structures built along the by-pass were made of temporary building materials. Hence, they avoided to structures with permanent materials since this would obviously bring a friction between them and the owners of the land upon expiry of their lease and also their capital would not have been regained.

Business properties in this area were mostly retail. An important observation that was noted was the fact that there was only one commercial bank in Ruaka which is the Cooperative Bank and several Equity Bank agents while the rest were located Banana area. An interview by a developer and several land owners revealed that most of the properties were being developed by loans acquired from financial institution such as the bank in that area.

4.4 OTHER EFFECTS OF THE NORTHERN BYPASS ON THE RESEARCH AREA

After assessing the level of existing land values and other properties along the research area, the researcher sought to investigate other effects contributed by the Northern bypass to the research area which included the following:

1) Improved transport system

Many residents interviewed established that the efficiency in the transport system was favourable to them compared to other estates within Nairobi. This is because residents living in Ruaka and working in other towns were likely to get to their places of work in time since it is hard to get traffic jams along any road serving Ruaka. The completion of the by-pass had even made travelling more efficient and cost effective since accessibility was now improved.

A considerable number of residents agreed that the improved transport led to a positive increase in the value of land and also in the increase in the rental values of houses in the study area. The researcher noted that the improved transport led to an increase in the demand for housing hence rentals in that area went up. This has led to more and more developments in that area hence increasing the values of both land and property.

2) Change in population
There was an increase in population in the Ruaka. First and foremost this was due to the construction of the Thika Superhighway; this made many people move to Ruaka so as to avoid the occasional heavy traffic along that road. Although, after the completion of this infrastructure many people moved back to estates along the Thika superhighway, a considerable number of people stayed behind.

Another key reason was because of the increased number of employment opportunities. Employees of different embassies in Gigiri and Muthaiga areas such as the Embassy of the United States of America, Canada and Rwanda among many other Embassies and their respective residents of their ambassadors were established that neighbouring estates such as Runda and Thome served many of their employees and their workers preferred to live in Ruaka due to the convenience to their working areas. Therefore, this has greatly led to an increase in the population of Ruaka. Other additional estates noted to have been benefiting directly from the Ruaka were Ruaka Villa, Red Lion and Fiesta.

The researcher noted that the development of the Northern bypass led to an increase in the change in population study area thus increase in the property values.

3) Proximity

Ruaka is strategically located in a centralized position to be able to conveniently serve towns such as Nairobi, Thika town, Kiambu town, Ruiru town among other important towns. This means that residences living in this area are able to conveniently access these towns efficiently and without any difficulty. This is important since it boosts the business growth of the areas and also reduces over dependence on a single area.

The development of the Northern bypass improved the proximity of the study area with other towns. Apart from increasing the business opportunities, this made it possible for land to be converted from the agricultural to commercial and mostly residential land, which was key for growth of the area and the entire real estate sector. This has made Ruaka become one of Nairobi’s dormitory towns therefore many people working in Nairobi’s Central business district live here due to the propinquity in terms of distance and effort needed to get there.

4) Increased Services Provision

The area has a good supply of water and electricity among other facilities. This commanded and led to the positive increase in terms of the increase in values of the both property and land. This is because many people are expected to be attracted to this area due to the presence of such facilities. An interview with a planner from Karuri town Council revealed that there were plans to construct an efficient sewage system that would serve the area and also cater for the growing population to avoid blockages and bursting in the future. It is important to note that water supply is facilitated either by borehole or from the Karuri water project.
The Northern bypass led to the development of the study area which boosted the service provision. An additional factor is the fact that the location of The Village Market, The Warwick Centre, Thigiri Ridge and The Nazareth Hospital all create an enablement of access of good healthcare, recreational activity and shopping activity at the ease of a person.

5) Improved Neighbourhood Quality

Ruaka is a unique estate since it does not have a slum at its disposal. This is mainly because it caters for all levels of housing such as from the singles to the three bed roomed apartments; hence this fact leads to all levels of people being catered for thus preventing any form of slum emerging.

A few residences also noted that the security in Ruaka in was good compared to most neighborhoods in Nairobi. This was attributed to the fact that the economy in that area supported many unemployed people thus making it possible for them to seek and find employment in construction sites, matrons in schools, messengers and also owners of small businesses. This and many more reasons lead to the youths avoiding engagement in criminal activities.

6) Demolitions

Residents living in the Upmarket Runda estate especially Runda Mimosa Ridge were made to suffer prior to the construction of the northern bypass. This is because despite the government ascertaining that the land on which their houses was not reserved for any road construction as confirmed by department of Survey, Ministry of Lands. Plus the collection of rates by the local authority showing absolute ownership by the residents, in 2010 the government came and marked “X” and the word DEMOLISH on the residents’ properties.

This led to the several court battles and eventual decrease of the value of land and properties in this area. This is because the government claimed a portion of about 20-50 metres in many instances for the construction of the Northern bypass. This definitely led to the reduction of people who would intend to purchase of rent houses in this area.

7) Noise Pollution

The development of the Northern bypass led to an increase in the noise from the cars passing along the road. This obviously led to many residents and property owners especially in The Cycads estates complaining and their properties commanding a lesser growth value than previously anticipated. There was a decrease in the growth of both the rental and property values, since the privacy of the individuals was decreased. Construction of the buffer zone is of great importance but it lacks in this case hence causing a negative effect on the values of both properties and land.
4.5 Hypothesis Testing

There was sufficient evidence to support the hypothesis since it was concluded that the Construction of the Northern bypass led to the increase in the land values in Ruaka.
CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

The main objective of this research was to establish the effect of the development of the Northern by-pass on Ruaka. Evaluation for this was to be done on the basis of the research objectives and questions.

The sub-objectives are to establish changes to land use and land values, to identify the effects of this project on land use and land values in Ruaka and to recommend appropriate solutions based on the findings.

The previous chapter presented the data collected from the field which was then analysed. This chapter presents conclusions for the study together with the recommendations on the basis of the objectives and findings made.

5.2 SUMMARY AND CONCLUSIONS OF FINDINGS

Based on the main objective of the study, the researcher established that the development of the Northern by-pass impacted greatly on the values of land and properties in the study area. The research was also able to ascertain that many owners of parcels of land were applying for change of user despite the ban in order to get the highest and best returns on their land parcels.

During the data collection period the researcher was able to observe that a lot of growth in the Real estate sector was noted along the study area. A lot of residential and commercial properties had been developed ever since the construction of the by-pass was due to commence. This without any doubt had greatly impacted on the increase in the demand for land, thus the investors contributed to the increase in their values.

The rental values too had increased since developers had invested heavily on the residential properties in the study area. These units range from apartments, flats, gated communities to one, two, three bed roomed units. Another key factor that was noted was the fact that this area was preferred since it had efficient accessibility and lacked occasional traffic snarl ups compared to very many estates in Nairobi from example Buruburu estate.

Based on the second question, the values of land did go up in Ruaka and its surrounding neighbourhoods. However, the rate of increase was very different since in some parts of Runda along the by-pass were inconvenienced by the fact that their portion of land was marked for
demolition, there was increased noise on their homes due to the road and portions of their land were compulsorily acquired, thus there growth rate was sluggish.

5.3 RECOMMENDATIONS

Based on the above findings, it is hereby deemed necessary to outline a number of measures that are pertinent to appropriate management framework to regulate the control of land and the developments in the study area. The recommendations are as follows:

1. Make an integrated County Plan

The County should have an integrated County Plan which directs the entire county on the way forward concerning the way land should be administered and used for the next ten or twenty years. This plan should provide broad principles on land and land management. In the event of expansion of the by-pass, the members of the public would have prior information and thus know where to invest or where not to, to prevent cases of compulsory acquisition of their land or developed property.

2. Preparation of Physical Development Plan

The whole County of Kiambu should have an entire development plan with specific or special plan for Ruaka. This is important since it ensures that there is controlled development and guides on the type of developments that should be implemented. In this regard, it is expected that the Physical development plan would have prohibited the fragmentation of land to very small unproductive and uneconomical parcels of land by putting a limit on the least size an individual should have in this area. This also would ensure that development is done on certain areas and other land uses are left to be used as intended.

3. Community involvement in Project approvals

The community includes the residents and the business people in that area. They should be provided with the adequate and meaningful civic education and awareness which will go a long way to ensuring that they understand the land processes and using their pieces of land to highest and best uses. The by-pass evidently brought mixed fortunes on the community, where others benefited wholesomely while others lost their land through compulsory acquisition. In this regard, involvement of the community would lead to all the people benefitting as opposed to a majority of them.

4. The County Government should employ Professionals

The County Government should employ more professionals in order to have a well planned and designed growth of the region. Preferred professionals should be Valuers, Planners, Architects, Quantity Surveyors, Construction Managers and Surveyors. They are important in order to bring
sanity to the land and property market in Kiambu. With professionals in hand, fewer cases would have gone to courts blocking the construction of this road since the citizens would have had prior information on benefits that they would accrue from this development.

5. Good Governance

There is need for public institutions to have well informed decisions which cater for both the current and future national interests. Good governance ensures that the relevant policies, laws, functioning institutions and important public involvement are put in place to direct sustainable land use conversions. The by-pass is definitely a brilliant idea, however due to poor governance, a lot of members of public have genuinely lost money to conmen, who sell land and pose as agents. In this regard, good leadership should come forth and ensure all individuals and firms dealing with property along the study area or the by-pass are registered so as to curb this vice.

6. Provision of social amenities

As the by-pass was being constructed, it was definitely expected that population would increase along the study area. The provision of social amenities would have ensured that the value of property positively go up than was experienced. Continuation and persistence of the growth and maintenance of the values in the study area would be complemented by the presence of amenities in the study area.

5.4 AREAS OF FURTHER RESEARCH

The effects of infrastructure development on land are a very wide topic. In regard to land use and land values, the following issues may form basis for further study.

a) Study on how the Government of Kenya can effectively control land values in the country (Case study Kiambu).

b) Study on how to diversify investment opportunities to prevent the negative effects of land speculators on Real estate markets.

c) The effects of increase in land use regulations and control on change in land use and land values.
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UNIVERSITY OF NAIROBI
SCHOOL OF THE BUILT ENVIRONMENT
DEPARTMENT OF REAL ESTATE AND CONSTRUCTION
MANAGEMENT

QUESTIONNAIRE FOR THE LAND OWNERS/ FARMERS

This questionnaire is in aid of a research being conducted by David Wang’ang’a Gichuhi, a student at The University of Nairobi, Department of Real Estate and Construction Management, as partial requirement for the award of a degree in B.A (Real Estate). The aim is to facilitate investigation into the effects of infrastructure development on the Northern by-pass on change in land use and land value, a case study of Ruaka, Kiambu County.

The information sought here is for academic purposes and will be treated with utmost confidentiality.

Name of Respondent: ……………………………………………………………………………………………

Area of Residence: ………………………………………………………………………………………………

1. Are you a resident
   Permanently □ Temporarily □

2. If permanent, in which way
   Tenant □ Owner occupied □

3. How long have you been a resident in the area? …………………………………………………………


4. What motivated you to own land in the study area?

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5. How far do you live from the Northern by-pass?

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6. Has the development of this road brought any changes to you as a Farmer/ Land owner?

Yes   No

State the reasons for your answer?

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7. With the development of the Northern by-pass, do you think that it has attracted more investors in Real Estate?

Yes   No

Explain the reason for your answer?

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8. Has Agriculture land been affected in any way?

Yes ☐ No ☐

Explain your answer?

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9. Explain in what way has the development of the road affected the standards of the area?

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10. What has been the trend of land values and subdivision of land since the new development of the road in the area?

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Thank you for filling in the questionnaire

Gichuhi D. Wang’ang’a BA (Real Estate)
UNIVERSITY OF NAIROBI
SCHOOL OF THE BUILT ENVIRONMENT
DEPARTMENT OF REAL ESTATE AND CONSTRUCTION MANAGEMENT

QUESTIONNAIRE FOR THE LOCAL RESIDENTS

This questionnaire is in aid of a research being conducted by David Wang’ang’a Gichuhi, a student at The University of Nairobi, Department of Real Estate and Construction Management, as partial requirement for the award of a degree in B.A (Real Estate). The aim is to facilitate investigation into the effects of infrastructure development on the Northern by-pass on change in land use and land value, a case study of Ruaka, Kiambu County.

The information sought here is for academic purposes and will be treated with utmost confidentiality.

Name of Respondent: ………………………………………………………………………………………………………………………

Area of Residence: ………………………………………………………………………………………………………………………

1. Are you a resident

Permanently □ Temporarily □

2. If permanent, in which way

Tenant □ Owner occupied □

3. How long have you been a resident in the area? …………………………………………………………….
4. What motivated you to live in the area? ............................................................................
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5. How far do you live from the Northern by-pass?
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6. Has the development of this road brought any changes in the Real Estate Sector?

Yes [ ] No [ ]

State the reasons for your answer? ...................................................................................
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7. With the development of the Northern by-pass, do you think that it has attracted more investors in Real Estate in your area?

Yes [ ] No [ ]
Explain the reason for your answer?

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8. Has Agricultural land been affected in any way?

Yes [ ] No [ ]

Explain your answer?

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9. Explain in what way has the development of the road affected the living standards in your residence?

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10. Do you do any business in the area?

Yes [ ] No [ ]
If yes, explain your answer?


11. What has been the trend of land values and subdivision of land since the new development of the road in the area?


Thank you for filling in the questionnaire

Gichuhi D. Wang’ang’a BA (Real Estate)
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SCHOOL OF THE BUILT ENVIRONMENT
DEPARTMENT OF REAL ESTATE AND CONSTRUCTION
MANAGEMENT

QUESTIONNAIRE FOR THE REAL ESTATE PROFESSIONALS/ LAND PLANNERS/ VALUERS

This questionnaire is in aid of a research being conducted by David Wang’ang’a Gichuhi, a student at The University of Nairobi, Department of Real Estate and Construction Management, as partial requirement for the award of a degree in B.A (Real Estate). The aim is to facilitate investigation into the effects of infrastructure development on the Northern by-pass on change in land use and land value, a case study of Ruaka, Kiambu County.

The information sought here is for academic purposes and will be treated with utmost confidentiality.

1. Name of Respondent: ………………………………………………………………………………………………………

2. Name of the firm involved in? ……………………………………………………………………………………………

3. Period involved in this Profession? ………………………………………………………………………………………

4. Which part of Real Estate are you concern with?
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5. How often do you deal with properties in the study area and its neighbourhoods?

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6. (a) Are you aware of the current agricultural land conversions in the vast Kiambu area and especially Ruaka and its neighbourhood?

   Yes □       No □

(b) If your answer in 6a above is yes, are you concerned?

   Yes □       No □

   Explain?

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7. How prevalent would you say are the current agricultural land conversions in this part of the Kiambu County?

   Very Prevalent □   Moderate □   Not prevalent □
8. In your opinion, what causes the agricultural land conversions in this area today?

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9. What is the trend in land values in Ruaka over the time period you have practiced?

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10. What is the trend in rental values of properties in Ruaka?

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11. What is the impact of the development of the Northern by-pass on the values of properties in Ruaka town?

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12. What is the trend in land values in Runda?

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13. What is the trend in development of properties in Runda after the development of the road?

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14. What action can you recommend should be taken to control the uncontrolled/unprofessional land use change in Kiambu?

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Thank you for filling in the questionnaire

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SCHOOL OF THE BUILT ENVIRONMENT
DEPARTMENT OF REAL ESTATE AND CONSTRUCTION
MANAGEMENT

QUESTIONNAIRE FOR THE REAL ESTATE DEVELOPERS

This questionnaire is in aid of a research being conducted by David Wang’ang’a Gichuhi, a student at The University of Nairobi, Department of Real Estate and Construction Management, as partial requirement for the award of a degree in B.A (Real Estate). The aim is to facilitate investigation into the effects of infrastructure development on the Northern by-pass on change in land use and land value, a case study of Ruaka, Kiambu County.

The information sought here is for academic purposes and will be treated with utmost confidentiality.

1. Name of Respondent: .................................................................

2. Name of the firm involved in? ....................................................

3. Period involved in this Profession? ..............................................

4. How often do you deal with properties in the study area and its neighbourhoods?
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   ........................................................................................................
   ........................................................................................................
5. (a) Are you aware of the current agricultural land conversions in the vast Kiambu area and especially the area of study and its neighbourhood?

Yes ☐        No ☐

(b) If your answer in 6a above is yes, are you concerned?

Yes ☐        No ☐

Explain?

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6. How prevalent would you say are the current agricultural land conversions in this part of the Kiambu County?

Very Prevalent ☐  Moderate ☐  Not prevalent ☐

7. In your opinion, what causes the agricultural land conversions in this area today?

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8. What is the trend in land values in Ruaka over the time period you have practiced?
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9. What is the trend of development of properties in the study area?
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10. What is the impact of the development of the Northern by-pass on development of properties in the study area?
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11. What is the trend in development of properties in Runda after the development of the road?
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Thank you for filling in the questionnaire

Gichuhi D. Wang’ang’a BA (Real Estate)