THE STUDY OF CONFLICTS IN THE SPACE USE ALONG RONALD NGALA STREET IN NAIROBI CBD

BY

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DECLARATION

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

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This planning research project has been submitted for examination with my approval as the University supervisor.

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Signed……………………………… Date………………………………………………
DEDICATION

I dedicate this work to God, to my family and all who tirelessly contributed to the completion of this planning research project. Special mention is to my Mum who constantly provided for my spiritual and emotional support throughout my education and to my brothers; John, Nicholas and Paul who believed in me and offered me the opportunity to reflect into my life over and over again.
ACKNOWLEDGEMENTS

The research journey that has culminated in this Research Project has been one of my most challenging experiences. For guiding me through this profound learning experience, I would like to thank Mr. Maleche, my supervisor, for simultaneously pushing me and supporting me. His dedication to his students is unparalleled and I greatly appreciate the time he put into giving me feedback, both on the content and on the process. My research and writing abilities have vastly benefited from his input.

To my creator, I am so grateful for granting me the ability to carry out this research.

For project ‘buddies’; I would like to thank Peter Naibei and Samuel Gituara, for being my friend and helping me clarify my thoughts and ideas whenever I was in a project muddle, and Olale Philip for constantly reassuring me that ‘that’s how research is’ whenever I felt I was doing things all wrong.

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Lastly, to my family who are so wonderful, especially my mother, I am terribly fortunate to have your unquestioning support in my life.
ABSTRACT

Competition for space among development activities and functions is a normal characteristic of urban development all over the world. This normally leads to functional conflicts and interests in the process of urban development. Such a competition in space use is most well manifested along major streets in cities. If not resolved it can lead to serious impairment or constraints to traffic flow and therefore, the problem of limited accessibility to various functions.

This Research Project is a contribution to the growing discourse on contemporary challenges of urban land use planning as regards the use of space along urban streets. It begins with giving us an insight into the concept of the conflicts in space use along the street and discusses it within the context of land use planning within the City of Nairobi.

Space conflicts in urban areas are common phenomena in cities and towns all over the world. In Kenya especially Nairobi, the situation has been growing with the increase in land use activities. In the Nairobi CBD particularly along and within the street, this condition has been largely manifested with increase in road users and functional space activities along such streets. The study area of this research project, Ronald Ngala Street is one area within the CBD experiencing many conflicts both regarding land use and among road users which further emanates from how the street is used by these different road users.

With regards to the above mentioned situations, the study set out to study these conflicts in space use along this important and functional street within the CBD.

Space use conflicts in Nairobi CBD are part of critical challenges experienced in the urban land use planning. These conflicts call for urgent remedies which will ensure proper land use management and utilization along and within the streets in the CBD. This formed the entry point of this study, and the issues that were examined were; current functional use activities along Ronald Ngala Street; conflicts in the space use, their causes, and effects along the street; existing efforts to deal with the identified conflicts, guiding policies, space requirements, standards and regulations; planning implications and intervention measures for future planning and improvement of space allocation and use along the street.

According to the data findings, the identified causes of conflicts in space use in the study area include; numerous hawking activities along the street; relatively high population concentration and scarcity of space for operation by different space users; space standards
and requirements of different land uses along the street. The identified effects of these conflicts according to the study findings included; traffic congestion along the street, encroachment into the pavements, sidewalks and walkways by street users especially hawkers and motorists; relocation and displacement of some street activities; environmental degradation; and running battles between street hawkers and city askaris. The conflicts identified and emanating from the study were as follows; land use related conflicts; lack of adequate support infrastructure; hawking related conflicts; environmental conflicts; insecurity; conflicts arising from operation of motorists along the street.

These findings were followed by necessary short and long term measures which included; relocation of hawkers; policy enforcement by the NCC on the use of the street by buses and matatus along the street; development of street furniture along the street; improvement and upgrading of Infrastructure and Service Facilities; improved space allocation and utilization along Ronald Ngala Street; improvement of the street support facilities; provision of parking space and provision of proper storm water drainage system.

The study concluded that even with all the policies and strategies in place, without proper enforcement methods, ways of evaluating and monitoring the way forward, the city will continue to face same challenges it is facing now. The study further observed that, the same spaces along the street if properly allocated and utilized, could increase the functionality and operationalization of the street and the outcome of the study could be borrowed and applied in other streets within the CBD.
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<table>
<thead>
<tr>
<th>Acronym</th>
<th>Full Form</th>
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<tr>
<td>CBD</td>
<td>Central Business District</td>
</tr>
<tr>
<td>NCC</td>
<td>Nairobi City County</td>
</tr>
<tr>
<td>EMCA</td>
<td>Environmental Management and Coordination Act</td>
</tr>
<tr>
<td>GIS</td>
<td>Geographic Information System</td>
</tr>
<tr>
<td>GPS</td>
<td>Global Positioning System</td>
</tr>
<tr>
<td>KENHA</td>
<td>Kenya National Highway Authority</td>
</tr>
<tr>
<td>KeRRA</td>
<td>Kenya Rural Roads Authority</td>
</tr>
<tr>
<td>KNBS</td>
<td>Kenya National Bureau of Statistics</td>
</tr>
<tr>
<td>KURA</td>
<td>Kenya Urban Roads Authority</td>
</tr>
<tr>
<td>NEMA</td>
<td>National Environmental Management Authority</td>
</tr>
<tr>
<td>PPD</td>
<td>Physical Planning Department</td>
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<td>SPSS</td>
<td>Statistical Package for Social Sciences</td>
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CHAPTER ONE

INTRODUCTION

1.1 Overview

Urbanization is a process which involves the spatial distribution of people and their concomitant economic and social activities have been and still remain an interesting and absorbing field of academic inquiry to social scientists. It has been noted to raise peculiar problems ranging from physical, social, economic to political, in a country (Mutegi D, 1998).

In Africa and other developing countries, the process of urbanization has created many problems. These include poor housing, family breakdowns, hopelessness, crime, and maladjustment, lack of recreational facilities and unemployment, underdevelopment, competition in space use in urban centres to mention but a few (Oloo, 1969; 14, 25). Competition for space among development activities and functions is a normal characteristic of urban development all over the world. This normally leads to functional conflicts and interests in the process of urban development. Such a competition in space use is most well manifested along major streets in cities. If not resolved it can lead to serious impairment or constraints in traffic flow and therefore, the problem of limited accessibility to various functions.

This kind of competition leads to conflicts in the occupation, ownership and use of that space. Conflicts in operation arise from the process of utilization of the space and those conflicts have their effects on the functions and operations of the various land use activities. Operational conflicts between activities along streets are considered to be the main factor behind the traffic congestion and limited accessibility to various activities along the streets in many cities of the world today. This has far-reaching negative effects on the functional operation of the street as a whole.

In Nairobi, space competition and traffic congestion along streets in the Central Business District is commonly evident. Many streets encounter this growing problem of space competition by various functional activities that are carried out along the streets. This problem results from rapidly increasing population of the city and the crowding of motorized and Non-Motorized traffic onto the streets. The number of pedestrians, buses, mini-buses, matatus and bodaboda along these streets is normally overwhelming during rush hours.

For Ronald Ngala Street, the study area, the huge number of pedestrians and vehicles is common on a daily basis. These together with other competing modes of transport pose a
lot of challenges to the mobility within and along this street. Transport along Ronald Ngala Street can be divided into two major categories: motorized transport and non-motorized transport. The motorized transport along this street is comprised of buses, minibuses, 14-seater matatus, lorries, cars and motorcyclists (bodabodas) and tuk-tuks. The main public transport services in Ronald Ngala Street is by mini-buses, 14-seater matatus, tuk-tuk and other private bus operators especially those to Githurai and Kahawa West. The public transport system along this street is totally inadequate to meet the rising demand due to increasing population of Nairobi Eastland neighbourhoods and its hinterland that fall under Kiambu County and other regions of the country. This is evident from the common heavy congestions and long delays in the public transport system, at Ronald Ngala matatu stage. This stage, opposite Ronald Ngala Post Office, is usually ever-congested with vehicles, pedestrians and hawkers. The situation along Ronald Ngala Street is characterized by competition in space use which leads to conflicts due to the fact that some space uses are incompatible. Space requirements for each use or activity is also another important factor to consider along this street. There are standards that are accepted by the city county and should be applied to all users of this street. There are also the objective requirements applied by planners worldwide. These are the general standards and requirements for specific use of space.

Map 1; Map showing the location of study area

Source; Author, 2014
1.2 Statement of the Problem

Ronald Ngala Street is located to the south-east part of the Nairobi CBD. It is a one kilometer stretch from its intersection with Moi Avenue and the Race Course road at the OTC point. It cuts through Tom Mboya Street and River road. This street neighbours the Bus Station and is characterized by retail shops, supermarkets and various other businesses such as restaurants, training institutions, public offices such as post office, and hawking/street vending. It also has high vehicular and pedestrian traffic. The street absorbs pedestrians and vehicles from various streets such as River road, Tom Mboya, Moi Avenue, Kirinyaga road and Mfangano Street. Ronald Ngala Street is a link to its neighbourhoods and acts as the central point where journeys begin to destinations all around Nairobi’s Eastland estates and outside Nairobi into Kiambu County and other regions in Kenya. This street is a major distributor street in the CBD and it is very important since it channels huge traffic in and out of the CBD. Many pedestrians use Ronald Ngala Street while going and coming from work due to its proximity to the Bus Station.
Station, Muthurwa market and Muthurwa bus terminus and Machakos Bus Station which hosts buses to various parts of the city and regions in Kenya.

Ronald Ngala Street has been used and contested from traffic; vehicles and non-motorized transport, street vendors, social and religious functional space and economic space. This has resulted into conflicts as forms of disagreement over different perspectives of the right to use the street space often produces tension between various groups.

The invasion of this street by street vendors and other functional activities which compete for the use of the space along this street has always led to conflicts experienced. The nature of street vending along this street is in itself a physical and social problem. It requires reasonable display space/area which is rarely available. The invasion of the Ronald Ngala street by hawkers means occupying such space as building frontages, the street itself and the pavements and any open undeveloped land/space. With the invasion or en masse movement of the hawkers along this street, a number of associated problems have arisen. The street vendors along Ronald Ngala Street do operate next to shops and buildings frontages with their products obstructing access to these shops and buildings along the street. Some of the hawkers are usually on the street carriage way and pavement, and they impede vehicular and pedestrians’ movements and sprawl along this street increasing risks of accidents. Pollution in relation to noise and litter (garbage) arising from hawkers operations along this street do prove to be very uncomfortable, and causes the problem of poor hygiene and sanitation.

Ronald Ngala street, also being centrally located in part of the CBD with a high concentration of land use activities, experiences pressure from arrival of more vehicles, cyclists, handcarts, wheelchairs etc which in turn results to attracting pedestrians on the walkways. The increase of pedestrians have simultaneously attracted the informal commercial activities entrepreneurs like newspapers and magazine vendors, fruits and vegetables vendors, florists, maize roasters cigarette and sweets vendors, shoe shine boys, book and other stationery vendors, clothes vendors etc. these activities have invaded the pedestrian walkways and pavements, street itself and other open spaces available.

There are also public institutions such as post office, primary school next to the post office and Hindu Temple which suffer from the loud noises of vehicles hooting. Sometimes school going children along the street are faced with problems such as street’s large crowds, the danger of having to cross the busy Ronald Ngala street as they get in and out of school, the risk they could face in case there are riots along this street and they have to go home, and the fear they get when they see policemen holding guns along the street in times of chaos and insecurity.

Moreover, some of the current space occupations along Ronald Ngala Street are not compatible with one another and some land uses overlap with each other in their
operational activities. The implications of the existence of all these problems is the effects such as traffic congestion, operational conflicts, limitation of accessibility, environmental effects and costs on the use of this street. In a situation where there is no organized and planned space occupation and utilization you find therefore, inefficiencies and ineffectiveness experienced in the process of development activities. This could also lead to a number of costs, limitations and other negative effects along the street. In the study area, we need to study, describe and explain how these problems are manifested within the Ronald Ngala street setting and emphasize the need for planned approach for space allocation and utilization among the different activities represented in order to bring about operational efficiency and effectiveness. There is also the need for effective management strategies to sustain that efficiency.

1.3 Research purpose

This study therefore, aims at gaining in depth understanding of the nature of the development competition for space use along Ronald Ngala Street, the causal factors behind this, effects of these competitions on the operational situation on the street, and finally the study wishes to examine possibilities of how to resolve and reorganize space utilization along this street with the view to establish a more efficient development system in space use.

1.4 Research Questions

The research is guided by the following questions:

1. What are the current functional use activities along Ronald Ngala Street?
2. What are the conflicts in the space use, their causes, and effects along the street?
3. What are the existing efforts to deal with these conflicts; guiding policies, space requirements, standards and regulations?
4. What are the planning implications and intervention measures for future planning and improvement of space allocation and use along the street?

1.5 Research Objectives

The main objectives of this research are:

1. To find out the current functional use activities along Ronald Ngala Street.
2. To identify the conflicts in the space use, their causes, and effects along the street.
3. To find out the existing efforts to deal with these conflicts; guiding policies, space requirements, standards and regulations.
4. To identify the planning implications and intervention measures for future planning and improvement of space allocation and use along the street.
1.6 Assumptions of the study

In carrying out this research, the main assumptions are:

1. Without proper planning interventions, the state of Ronald Ngala Street will keep deteriorating due to increasing competition in the use of space among different development actors and actions on the street leading to unacceptable levels of congestion, delay in travels, conflicts and the general deterioration of the street as a transport channel within the CBD.

2. An appropriate planning and design policy strategy would enable optimal and more efficient utilisation of Ronald Ngala Street as an urban space.

1.7 Justification

This study will contribute to bridging the knowledge gap in search for the understanding of the relationship between conflicts in space use along a street, their causal factors and effects, and finally how to apply urban planning principles so as to bring efficiency and effectiveness in the use of the street. Urban transport planning has not yet fully addressed the issues surrounding the use of streets so as to effectively accommodate all space users. Functional activities continue to invade the streets and this calls for proper space use planning of all these activities within the street.

It will also be useful to policy makers since they will be able to formulate policies that will enhance smooth operation of different types of functional activities along Ronald Ngala Street. The space users along this street, such as, pedestrians, motorists, business owners both formal and informal, will also benefit from this study because they can use the study to petition the government to implement effective street management measures. these will ultimately stimulate the government’s thinking on the need to act so as to improve the quality of service delivery to the city’s pedestrians, business people and other users. Finally, the road users such as the pedestrians and other modes of NMT will benefit from better services once the recommendations of the study are implemented. The County Government may realize more improved revenue generation from the proper allocation and utilization of the street space.

1.8 Scope

The study focused on examining Ronald Ngala Street with special emphasis to the current occupational and functional activities such as hawking, walking, formal businesses along the street.

Spatially, this research covers the whole one kilometer stretch of the street from the intersection of Moi Avenue and Ronald Ngala Street to the intersection of the latter to Race Course road. The study is going to focus on both on street activities and activities within the street carriage way, and their influence on the functionality of the study area. Majorly, the study is interested in the operations within Ronald Ngala Matatu stage and the
street as a whole. The research shall make use of both primary and secondary information about the study area. The information will range from the types of activities and their occupation of space, factors hindering effective and efficient use of the street, their causes and effects, and finally how the street use can be improved. The activities to be examined include hawking, transport along the street, walkability of the street, businesses, and other onstreet activities such as parking.

The actors who will be consulted in this study are; city county government, business groups, shopkeepers, shop owners, operators of petrol station, officials within both public and private institutions along the street, hawkers, transport agencies and operators, key informant people from the city management section, and the pedestrians and other users of NMT.

*Map 3; Map showing the location of the study area*

Source; Author, 2014

1.9 Organization of Study

This planning research project is organized into six chapters as follows:-

**Chapter 1: Introduction**

This chapter focuses on the introduction to the study, the statement of the problem, research purpose, questions, objectives, assumptions, justification, and scope of the study and research methodology.

**Chapter 2: Literature Review**

This chapter reviews various literature related to the study topic. This defines key concepts and global dialogues towards the same, the plans, the regulatory framework in terms of
policy directions, legal regulations and selected case studies. It finally identifies a conceptual framework of the guiding principles and lessons derived from the reviewed literature and case studies and how this can be applied to the present study.

**Chapter 3: Background to the study area**

The chapter examines the existing situation of the development activities along the Ronald Ngala Street and the background to the conflicts in the occupation of space by different development actors and activities.

**Chapter 4: Findings and Analysis**

It details the results obtained from field survey and data analysis concerning the nature of competition for space along the street as identified in accordance with the study objectives.

**Chapter 5: Planning and Policy Implications of the Findings**

This chapter briefly summarizes the emerging issues of chapter 2, 3 and 4 which tackle literature review, the study area background to the study area and data analysis and findings, and proceeds to provide a discussion of all these findings and issues in relation to cause, effect, administrative and planning policy implications on space occupation and use and its changes over time along the Ronald Ngala Street.

**Chapter 6: Conclusion and Recommendations**

It provides a summary of findings, emerging issues, recommendations, conclusions and scope for further research.

1.10 The Research methodology

The people targeted in this research study included the following:-

- Both formal and informal business people (including businesses that are within buildings such as people working in the supermarkets, retail shops, restaurants, and stalls located along Ronald Ngala Street).
- Those people involved in the NMT (such as pedestrians, handcart pushers, and those using wheelchairs).
- The Matatu operators in the study area (these are drivers and conductors).
- The passengers along the street.
- The key informants in the transport sector such as the SACCOs managing PSVs operating along the street, key institutions involved in the functionality of the street.
• The policy makers and implementers such as the City County of Nairobi (City Planning Department and Development Control Department, Urban Design Section managers).

1.10.1. Types of Data Needed and Data Sources

The data required in this research will be guided by objectives of the research as outlined below:-

1.10.1.1 To find out the current functional use activities along Ronald Ngala Street.

Data required here included; categories of space users along the street; vehicles parking spaces that are provided along the street; formal businesses within buildings along the street (supermarkets, retail shops, stalls, restaurants, among others); informal businesses along the street such as clothe hawking, shoe hawking, tubers and maize roasting, stationary hawking, grocery hawking, utensils hawking and eggs, smokies, and sausages hawking, other informal businesses such as shoes shining and repair will also be taken into considerations; open spaces along the street; matatu and buses operations along the street; pedestrians’ activities along the street; provision of amenities along the street; different land uses adjacent to the street and their relationship to each other (petrol station, public institutions, matatu stage and religious activities); different services and activities organization within the street;

Data needs for current space occupation along the street included; space occupied by each category of functional street activity such as space required by hawkers spreading their wares on the street pavements, space acquisition and allocation procedures among space users along the street.

Sources of data for the above functional use activities included; records of Nairobi City County on the study area, records from the space users who have used the street for quite a long time, researcher’s own observation on the functional use activities and amenities provision, secondary sources especially relevant literature related to street conflicts, development of the street, past plans on the organization of activities within study area, and the use of actual topographical and cadastral maps. Pedestrians and business people will also provide certain information such as daily activities within the study area.

1.10.1.2 To identify the conflicts in the space use, their causes, and effects along the street.

The data required for this study included total population (for vehicles, passengers, and pedestrians), population of road users within street at different times (pedestrians, vehicles, business people, and passengers), current space occupation, basic space requirements for each functional use activity along the street, standards allowed by the Nairobi City County currently, objective standards allowed generally in the world, comparison of the standards
applied by NCC and the generally accepted objectives regarding street use, compatibility of land uses along the street, where conflicts arise from in the study area, factors which explain the existence of conflicts within the study area.

The information above was obtained from records of the NCC, records from the space users about the challenges faced along the street (formal business people, transport SACCOs, matatu operators, hawkers, and those using NMT), previous researches on the study topic, books and researcher’s own observation about the conflicts within the study topic.

1.10.1.3 To find out the existing efforts to deal with these conflicts; guiding policies, space requirements, standards and regulations.

Data required here included; past plans on the study area, guiding policies on the development and functionality of the street, space requirements for different space use activity, standards applied by the NCC on the use of the street, generally accepted standards and guidelines for the use of street, regulations that relate to street development and use.

The data sources included; secondary sources such as Acts of Parliament, national policies, Kenyan Constitution 2010, and Physical Planning Handbook, the county government by-laws, and borrowing from the international standards.

1.10.1.4 To identify the planning implications and intervention measures for future planning and improvement of space allocation and use along the street.

The data to guide planning interventions to improve the existing situation included legal and policy goals in the street design and functionality, institutional framework for street facilities, street for all policies that can be adopted, street planning standards and models of effective street use (including case studies in planning street in the world). There also be need of data on the applicable land use form and possible scenarios and options leading to better space allocation which leads to efficiency in operationalization of the street.

The data sources included; analysis of findings from the field survey, secondary sources such as (literature on policies and legal framework) Constitution of Kenya 2010, Acts of Parliament, national policies and the Physical Planning Handbook. Other sources will include legal and policy goals in the street design and functionality, institutional framework for street facilities, street for all policies that can be adopted, street planning standards and models of effective street use (including case studies in planning street in the world), the applicable land use form and possible scenarios and options which can lead to better space allocation which leads to efficiency in operationalization of the street.
1.10.2 Data Collection Methods

The following were the data collection methods:

1.10.2.1 Primary data collection methods

1.10.2.1.1 Written questionnaires

These were presented to the respondents and were answered in written form. Questionnaires were used for collection of data from the various subjects of this research project, data on journeys being made along the street, perception of street users of existing land uses along the street, value of mobility and informal economic activities as well as institutions involved in the management and control of public spaces among other data shall be acquired using this method. The questionnaires were structured into open ended and closed ended questions. The questions were preliminaries section (the respondent’s name, age, sex, and the kind of work they do), the second section was the main questions pertaining the study area and its use. They were administered along the street, targeting pedestrians, operators of formal businesses, hawkers, and Matatu operators. It was designed to obtain responses to meet the specific objectives of the study set out in 1.5. The researcher used two assistants to assist to administer the questionnaires. The respondents were required to provide information relating to their own experiences regarding the use of space/Ronald Ngala Street.

A pilot test of two formal businesses, one hawker, one pedestrian and one Matatu operator was conducted on lower side of the Street close to Race Course road by the researcher. This necessitated minimal changes to the instrument. A training session was held with two instrument administrators whereby the questionnaire was read and areas that are vague clarified. Each administrator was assigned different section of the streets so as to avoid confusion and duplication of respondents. The exercise took a total of three days. The administration of the instrument was by personal interviews. Though some respondents were readily available others were not wish to participate in the survey.

1.10.2.1.2 Observation

This involved the systematic selection, watching and recording of behavior and characteristic of subjects (living beings), their objects or phenomena that are of relevance to the study. It was used to record all the observable variables required in this study area, aspects such as land uses, pedestrian movements, hawking activities, modal splits, traffic conditions at various times and at different points of the street. Observation method was also used to ascertain existing land use activities along the residential street, physical condition of the street, existing utilities and other infrastructure, location of informal economic activities, journeys being made along the street as well as observable implications of locating informal economic activities along mobility channels. The observations were categorized into two:
i. **The biophysical environment;** This entailed carrying out site inventories to establish baseline information on the natural features as well as the built physical facilities.

ii. **Participant observation;** This entailed studying the behavior of relevant subjects in order to derive substantial information about the inquiry. Man-environment interactions will be at the centre of this approach.

### 1.10.2.1.3 Oral interviews

Part of the data was collected through oral questioning of respondents, either individually or as a group. Answers to questions posed were recorded in written form. The key informants in the operation of the study area were interviewed and they included; leaders such as MCAs, the traffic police within the study area, the NCC department of City Planning, matatu and buses SACCOs among others. The interviews were accompanied with interview schedule which included questions including those relating to land use patterns within the study area, street network designs, and conflicts experienced in the study area.

### 1.10.2.1.4 Measurement taking

This was applied to determine the length and width of the street at different points within the study area as well as the length, height and width of informal economic activities structures along the street. Other methods of data collection that was used in the field study included sketching of existing built form along the street as well as of the spatial layout of street within the study area; field checklists was used to take an inventory of existing land use activities and utilities along the street as well as measurement of the size of the residential street.

### 1.10.2.1.5 Note taking

This method of data collection was used to input information from interviews conducted along the street or within the study area as well as describe various aspects of study such as condition of roads or types and categories of informal economic activities along the street. Counts of the number of vehicles and pedestrians traversing a given street as well as of the number of existing informal economic activities along the street was made.

### 1.10.2.1.6 Focus Group Discussion

Guidance was given to key informants for discussion about the issues of interest such as space allocation criteria in the study area, standards and guidelines required, conflicts experienced and the factors will trigger conflicts in the study area. This assisted in gathering various stakeholder perceptions and values. Those who were engaged in FGD were NCC officers who deal with designing and management of urban streets. The data
required were; conflicts experienced by street users and efforts made towards solving these problems.

1.10.2.1.7 Mapping, Photography and sketching

This was essential in marking out the spatial distribution of land uses, location of functional use activities, location of open spaces within study area, flow of traffic; both vehicular and human. Mapping was mainly involve generation of a base map for the study area that shall be used in the field study, it will also involve mapping out of street open spaces as well as the various mobility channels within the neighborhood. All these were taken to enable the analysis of the situation of the character of Ronald Ngala Street. Photographs were taken to illustrate the exact conditions (conflict points) so as to know clearly what happens on the ground. The picture were on the traffic conditions, pedestrian movements, land uses within the study area and those adjacent to the study area and the street design character. Sketches were also drawn for the activities within open spaces, hawking activities along the street, street orientation, building forms and setbacks, building lines, space requirements among users of the street such as hawkers who spread their wares on the street pavements.

1.10.2.2 Methods of Secondary data Collection

Secondary data or desk top research was conducted through review of plans, reports, already done research studies about the street, textbooks relevant to the study topic, regulations and standards. The study made use of existing and available information, including raw and unpublished data. This information will help to enhance the understanding of the study area, the existing situations, what can be emulated from other sites where street planning has been effectively done, and to generally know the functionality of a street as an urban space.

1.10.2.2.1 Quantitative data collection methods

The main tool for quantitative data collection was structured pedestrian, business, passengers, and motorists questionnaires. Observation method was also used to determine, identify and get first hand data on the condition of the street in comparison to what has been provided in terms of social amenities, and conditions of traffic flow within the study area. These three categories of questionnaires were administered on different days targeting specific group of street users along Ronald Ngala Street.

1.10.2.2.2 Qualitative data collection methods

The qualitative data collection was through the interview schedules and structured questionnaire. Open-ended questions and interview schedules with the matatu SACCOs,
street officials from the NCC, and Focus Group Discussions were used during the field study. Key informants were noted early enough to give ample time for preparation on both sides. Each instrument was administered on different days.

### 1.10.3 Sampling techniques and sample size

Mugenda, 2003 defines sampling as the process of selecting a representative number of individuals for a study in such a way that the individuals selected represent a larger group from which they were selected. He further explains that in any research the sample should not be too large or too small, that is, it should be optimal in order to fulfil the required reliability, efficiency, flexibility and representativeness.

Different classes of respondents were sampled through different methods. Respondents for both business and transport questionnaires were picked by random stratified sampling. This is because Ronald Ngala Street is heterogeneous in terms of space users. Random sampling was then used to further select the sample size from each of the stratum from the different distinct characteristics of the respondents’ population.

From the population flow surveys conducted within the research study area for vehicle and pedestrian population at different periods of the day, the daily flow population along the Ronald Ngala street is estimated at 9,860, with pedestrians forming the larger percentage of the flow population at 9,434 people. Also, from field survey, a total of approximately 120 informal economic activities were found to be located on both sides of the street.

#### 1.10.3.1 Sampling Frame

In this research project, both probability and non-probability sampling procedures were used in the collection of data in the field, specifically, simple random probability were used in the administration of household and business questionnaires while convenience sampling techniques shall be used in the administration of interview schedules to street users.

In the administration of both the household and business questionnaires, the sample size was generated using the following formulae:

\[
n = \frac{Z^2pqN}{e^2(N-1)+Z^2pq}
\]

Where;

- \( N \) = population size
- \( n \) – Sample size
Z – Confidence level, a 95% confidence level whose standard score is 1.96 is usually used. Estimated attribute of the study problem in the planning area, this is estimated at 98% of total population

\[
p = 1 - q
\]

\[e\] – Tolerable margin of error usually put at 5%.

Therefore \( n = 30 \), hence, a total of 30 questionnaires shall be administered to 30 business people (15 formal and 15 informal).

For pedestrian, passenger, public transport operators and drivers questionnaires, owing to the results of the count, a correction being applied on the value of \( n \) as indicated below gives a sample size of 28, hence, a total of 28 pedestrian, public transport operators, private drivers and passenger questionnaires (7 passengers, 7 private drivers, 7 public transport operators and 7 pedestrians) shall be administered along the street where the survey was undertaken. **Final sample size = \( n = 28 \)**

For interview schedules, there will be 3 key informant interviews which will be administered to local leaders, NCC officers and traffic police.

**Table 1; Distribution of respondents and their sizes**

<table>
<thead>
<tr>
<th>Respondents</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formal business</td>
<td>15</td>
</tr>
<tr>
<td>Informal business</td>
<td>15</td>
</tr>
<tr>
<td>Pedestrians</td>
<td>7</td>
</tr>
<tr>
<td>Public transport operators</td>
<td>7</td>
</tr>
<tr>
<td>Private drivers</td>
<td>7</td>
</tr>
<tr>
<td>Passengers</td>
<td>7</td>
</tr>
<tr>
<td>Key informant interview</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>61</strong></td>
</tr>
</tbody>
</table>

*Source: Author, 2014*

**1.10.4 Data analysis methods**

In analyzing the data collected, the Statistical Package for Social Scientists (SPSS) computer software package was used to analyze quantitative data from the questionnaires.
The questionnaires were coded and categorized. They were also edited to ensure that there was accuracy and consistency in interpretation. This process entailed sorting of data, where the completed data collection instruments were arranged in an orderly manner to facilitate easier processing and analysis. Quality control checks were done to check for completeness, clarity, and consistency in answers. Data will be processed using SPSS which involved data entry, verification, validation and running the output.

The data was then summarized and presented in table form showing the frequencies and percentages. Percentages were used to simplify the numbers and facilitate interpretation and comparison. Charts and graphs will also be used to show different trends in the use of the street. Diagrams were also used in depicting and describing the variables in the study. There were also audio visual analysis (pictures, video clips to ascertain the extent of the problem and generate options for solutions);

Mapping as a method of data analysis was used in the interpretation of spatial data so as to show distribution of mobility channels within the study area, types of informal economic activities along the various streets in the study area as well as the spatial relationships existing between these activities and other land use activities. Mapping was mainly done using GIS. Other methods of analysis to be used for this research project include sketching and use of photographs.

1.10.5 Data presentation methods

Data presentation techniques that was employed in this regard include; maps, plans, graphs, charts, reports, photographs, tables and illustrations. Continuous data(those which have decimals and fractions e.g. distances of 8.9km) will be presented using line graphs and descriptions while categorical data such as months and gender among others will be presented using pie charts, bar graphs and others.

The culmination of this study was the presentation of a research project report with findings and recommendations for examination. Spatial data that shall include location of the study area, spatial layout of streets of the study area as well as distribution of land uses along the various streets in the street neighborhood shall be presented through use of maps and sketches. Data on informal economic activities which included time of operation of informal economic activities, incomes from informal economic activities, perception of street users of informal economic activities, types of informal economic activities and other land uses along the street as well as the journeys generated by various types of land uses along the street shall be presented through use of bar graphs, tables, pie charts as well as through use of photographs. Photographs were also used to present the land use character of residential streets within the study area.
1.10.6 Main Limitations of the study

There was limited time to carry out this research due to magnitude and extent of research objectives. The time for which the study is expected to be complete was not met due to the delays such as more time taken in the preparation of data collection instruments, review of desktop information, actual data collection and analysis of the data collected. There was also inadequate personnel due to lack of enough funds for remuneration of the personnel. Adequate time should be provided for in-depth study to be concluded. Adequate resources and personnel are also required for an in-depth analysis of the study area.
<table>
<thead>
<tr>
<th>Objective</th>
<th>Data Needed</th>
<th>Data Source</th>
<th>Data Collection Method</th>
<th>Data analysis Method</th>
<th>Expected Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>To find out the current functional use activities along Ronald Ngala Street.</td>
<td>categories of space users along the street; vehicles parking spaces; formal businesses within buildings along the street (supermarkets, retail shops, stalls, restaurants, among others); informal businesses along the street such as clothe hawking, shoe hawking, tubers and maize roasting, stationery hawking, grocery hawking, utensils hawking and eggs, smokies, and sausages hawking, other informal businesses such as shoes shining; open spaces along the street; matatu and buses operations along the street; pedestrians’ activities along the street; provision of amenities along the street; different land uses adjacent to the street and their relationship to each other (petrol station, public institutions, matatu stage and religious activities); different services and activities organization within e street; space</td>
<td>Field survey Maps Aerial images ; records of Nairobi City County on the study area, records from the space users who have used the street for quite a long time, researcher’s own observation on the functional use activities and amenities provision, secondary sources especially relevant literature related to street conflicts, development of the street, past plans on the organization of activities within study area, and the use of actual topographical and cadastral maps.</td>
<td>Observation Photography Oral interviews Questionnaires</td>
<td>Spatial analysis through(Arch GIS tools e.g for finding distance and area of land uses) SPSS Illustrative data analysis for qualitative data Ms Excel</td>
<td>Maps photographs Report writing, Descriptive texts</td>
</tr>
</tbody>
</table>
occupied by each category of functional street activity such as space required by hawkers spreading their wares on the street pavements, space acquisition and allocation procedures among space users along the street

Pedestrians and business people

To identify the conflicts in the space use, their causes, and effects along the street.

total population (for vehicles, passengers, and pedestrians), population of road users within street at different times (pedestrians, vehicles, business people, and passengers), current space occupation, basic space requirements for each functional use activity along the street, standards allowed by the Nairobi City County currently, objective standards allowed generally in the world, compatibility of land uses along the street, where conflicts arise from in the study area, factors which explain the existence of conflicts within the study area.

Field survey Observation Aerial photographs Maps site analysis Transport agencies Pedestrians Hawkers Previous researches on the study topic, and books on the study topic.

Interviews observation Questionnaires

Reports MS EXCEL Spatial analysis using GIS tools Statistical computation using SPSS Quantitative analysis

Photographs Sketches Report writing situational map Descriptive texts

To find out the existing efforts to deal with past plans on the study area, guiding policies on the development and functionality of the street, space requirements for different space use

Observation photographs Maps Acts of Parliament, Questionnaires interviews Transect walks across SPSS MS EXCEL Maps Photographs

Report Situational maps Photographs
these conflicts; guiding policies, space requirements, standards and regulations. activity, standards applied by the NCC on the use of the street, generally accepted standards and guidelines for the use of street, regulations that relate to street development and use. national policies, Kenyan Constitution 2010, and Physical Planning Handbook. street Observations Descriptive texts

To identify the planning implications and intervention measures for future planning and improvement of space allocation and use along the street. Possible alternative solutions, scenarios and options Applicable land use form Case studies Models for effective and efficient street management Street planning standards Legal and policy goals in the transportation sector Institutional framework for street facilities Field survey findings Secondary sources(literature on policies and legal framework) Street for all policies that can be adopted, street planning standards and models of effective street use (including case studies in planning street in the world). Applicable land use form and possible scenarios and options Synthesis of the field survey findings Literature review(plans, policy reports, research reports) Descriptive analysis Spatial analysis(Arch GIS tools) The final report writing Maps

*Source: Author, 2014*
CHAPTER TWO

LITERATURE REVIEW

2.0 Overview

This chapter seeks to offer a comprehensive and advanced understanding of the subject matter of the research. It defines the various concepts of the study, digesting what has been done by other scholars in the same field of study and builds on the same and also identifies the theoretical and legislative framework that the research is anchored on. This therefore provides the broad context of the study and sets the existing scholarly and historical context of the research.

2.1 Understanding Space

In response to the limitations of urban ecology and Marxian theory, a growing number of contemporary theorists view urban space as a medium of social relations and a material product (e.g. the “built environment”) that can affect social relations (Lefebvre, 1991; Gottdiener, 1994, 1993; Gotham, 1998; Milligan, 1998; Friedland & Boden, 1994; Liggett & Perry, 1995; Wright, 1997; 2000; Zukin, 1991). In this critical literature on cities and urban life, social relations exist to the extent that they possess a spatial component: they project themselves into space, becoming inscribed there, and in the process producing that space itself (Gottdiener, 1994; Swearingen & Orellan-Rojas, 2000; Wright, 2000; Gotham, 2000, 1999, 1998). According to Gottdiener (1985, p. 123), “Space cannot be reduced merely to a location or to the social relations of property ownership – it represents a multiplicity of socio-material concerns. Space is a physical location, a piece of real estate, and simultaneously an existential freedom and a mental expression. Space is both the geographical site of action and the social possibility for engaging in action (Gotham K. F., Shefner J. & Brumley K. 2001).”

To begin with is the construct of “trialectic of spatiality” (Soja 1999; Lefebvre 1999). This is a theoretical construct that proposes three levels of understanding and experiencing space as a dialectic triad. It proposes the following realms of space; conceived space, perceived space and lived space. Conceived space, or representation of space, is the
dominant mode of understanding space and involves the ordering of abstract knowledge and values into signs and codes that are both implicit and explicit. This is the primary mode of operation for planners since they view space as a system and are involved in ordering expert knowledge (Stout, 2008).

Perceived space, or spatial practice, refers to the mediated experiences of space which are coherent and empirically measurable. This involves the interpretation of the signs and codes, accurately or otherwise. The other realm, lived space, or spaces of interpretation, refers to one that is directly produced and experienced as images and symbols formed by everyday life of users (Soja 1999; Lefebvre 1999). Lived spaces emerge as a result of people using space to perform the necessities and frivolity of daily life.

The place where all these realms interact is the common day to day space that we live in. Therein are contained the political economies and the need to plan and organize space but also the different groups with their different interests and imaginations. When all these meet in a common space contestation seems to occur and further increases with capitalistic development.

All the above distinct categorization of space would be very useful in our study area (Ronald Ngala Street) but narrowing down to the specifics of the abstract space, another dimension of space comes in. There is no clear distinction of the space for containing or occupation or accommodating specific functional uses activities especially in urban areas (operational space) in the above explanation. This may form another important realm of space as may be our major point of reference in this research project.

Space competition ranges from material battles, such as struggle of the evicted due to urban redevelopment, to symbolic ones such as the naming of a street or a building. In most cases, spatial contestations contain both aspects in their nature, although capitalist development tends to highlight the material one (Jung, 2011).
2.2 Factors that Influence Conflicts in Space Use

2.2.1 Public interest

In the recent past, it has been difficult to identify common traits in a singular civic sense. Social forces such as globalization, polarization, and fragmentation, have made any singular identity more of an inspiration than a reality. In reality, there are multiple publics, conflicting and divergent (Healey1993), competing for scarce resources and left to their own devices to create their place. These publics, or discourse communities, have their own goals, ways of understanding, and means of furthering their aims (Healy 1993, Swales1990). The need for planners to define a singular public interest can reinforce and create conflict between the interests of various publics or discourse communities.

2.2.2 Public space

Not only are people becoming more private, but also there is a general consensus that public space is increasingly privatized and exclusionary in regulatory and physical terms (Mitchell 2003; Soja 1996; Davis 1990). This is partly a response to increased concern for order and security in the public realm. Following severe disinvestment in cities, especially central cities, the urban environments worldwide have witnessed and continue to be impacted by physical, economic and social deterioration. Private property owners have abandoned buildings leaving them to deteriorate. Concepts, such as the broken windows thesis, placed significant blame on the quality of public spaces proclaiming that an apparent lack of order invited and bred crime (Kelling 1982).

It is a natural reaction for cities and planners to exhibit concern for these marginalized and deteriorated areas and the condition of the public space. There have been a myriad of responses and trends to combat the condition of the public spaces that inform our perception of communities.

2.2.3 Everyday public space

It is from these basic ideas on the philosophy of everyday life that recent ideas of everyday public space and loose space have become part of the lexicon in theories of urban design and that offer new territory for understanding their democratic and participatory aspects.
Everyday public space includes spaces that have been appropriated for temporary uses and have “multiple and shifting meanings rather than clarity of function.” Everyday spaces represent a bottom-up approach to re-configuring urban space that lies outside the professions of planning and design where users are able to redefine the function a space should accommodate. Most importantly they are distinct from the “normative public spaces, which produce the existing ideology, these spaces help to overturn the status quo” (Crawford 1999, 28).

Generally, loose space is similar to everyday space. It is made up of the publicly accessible spaces in the city and those that offer a freedom of choice as well as physical elements that a user can appropriate and re-configure. Loose space is predicated on group and individual activities (Franck and Stevens 2007, 2). Loose space can be planned open space or leftover spaces that are usually publicly owned but void of any determined or exercised function. Loose space affords opportunities and new possibilities to occur. It is the “indeterminacy of loose space, along with free access, [that] opens the space to other possibilities: to activities not anticipated, to activities that have no other place, to activities that benefit from a relative lack of control and economic constraints” (Franck and Stevens 2007, 17). With this looseness comes a mixture of people with diverse interest, backgrounds and intentions. This diversity “nurthes particularity in the urban public realm, sustaining local practices and allowing the identity of a place and culture to flourish” (Franck and Stevens 2007, 21).

The ability to afford new meaning, intrinsic to the daily life of users, enables urban space, public or private, to address the complexity of contemporary urban condition. It is the reflection of values and beliefs in all there diversity and conflict that offers the potential for lived, every day and loose space to engender stronger cultural and social significance in a place and to provide for more democratic and participatory places.

2.3 Conflicts in Space use along a street
As captured by Moughtin, C and Mertens, M (2003), streets form one of the main components of the public realm of the built form apart from boulevards, squares and public parks. This is due to the fact that the street not only forms a means of access to or through
locations but also acts as an arena for social expression. The street as a public place supports a plethora of human functions forming a place of interconnection between the social, economic and cultural as well as environmental aspects of human activity. For example, the street along an urban area forms a thoroughfare and a means of circulation for vehicles and pedestrians facilitating movement; the street hosts an array of shops in which people move in and put to acquire commodities and services; the street also hosts aesthetically impelling aspects such as landscaping, monuments and statues that guide movement patterns of people along it as well as appeal to their senses. The interaction of these street functionalities defines the street as a public place since, access to all the activities it hosts is not limited but is easily available for the public.

As discussed in the earlier section on ‘Understanding Space’, we realize that the ways in which people perceive and use streets as an urban space differ according to their values, ideologies, opportunities and interests. These values contest the norms and rules set by the planners, urban designers, architects and surveyors. The multiplicity of publics with different interests in the street has caused scramble for temporary space, and extreme environmental degradation. Demonstrations and violent clashes have been witnessed between the space users and the Nairobi City County and also the street vendors and the County askaris along most streets of Nairobi.

2.4 The street as an urban space

According to Rob Krier (1979), the term ‘urban space’ simply means the external space in town. It is seen as the open unobstructed space for movement in the open air, with public, semi-public and private zones. Still, Habib F. (2012) argues that an urban space is a public realm with mostly open or half-open and sometimes closed physical characteristics which covers people’s activities and social interactions through communication with physical signs and symbols which finally convey the meaning of that space and thus can shape individual experiences and lead to group memories.

The urban space can be categorized into the following:

- Public space—one which is accessible to everybody regardless of gender, ethnicity, age, religious or socio-economic level (Young 1990). This includes the street, parks, squares and forests.
Here, the study is more concerned with the broad aspect of public space which is also referred to as the ‘public realm’ or ‘public sphere’. Basically, there are four types of public spaces which could be found in urban areas, these are:

i. Streets (all hierarchy of streets, avenue, boulevard and promenade)
ii. Squares and plazas

iii. Parks (linear park, Town Park, pocket park, playing field and playing ground)

iv. Waterfronts (Riverfront, seafront, river and canal) (Tsong, 2011).

2.5 Urbanization and Urban Transport

Urban transport operates as a system of various components. A transport system is defined as consisting of fixed facilities, flow entities and control systems that together permit people and goods to efficiently overcome the friction of geographical space in order to participate in a timely manner, in desired social or economic activities (Papacostas, 1993 in Aligula et al, 2005). Fixed facilities include on-street systems (e.g. buses, trucks e.t.c), mixed on-street off-street systems (Metro rails e.t.c) and non-motorized transport systems (facilities for pedestrians). Flow entities include vehicles and container units among other things; while control units consist of traffic management systems and vehicle control mechanisms.

Urban transport system is also viewed as the system that provides for movement of people and commodities within an urban area and also links the city to its environs (Aligula et al, 2005). This system is a basic component of an urban area’s social, economic and physical structure (Meyer et al, 1984 in Kasuku, 2001). When well developed, it increases commercial and labour market efficiency, increases access to amenities and makes changes in the scale and form of urban agglomeration possible, all without undue adverse effects on the environment (Aligula et al, 2005).

2.5.1 Characteristics of Urban Transport

Aligula, 2005, points out that urban transport is not a purely private good. Secondly, it is not a final consumption good but is rather applied by people and firms to satisfy a need at their destinations. Thirdly, urban transport is a market facilitator. It also generates major non-economic impacts such as accidents and pollution.

Moreover, urban transport system is composed of four units whose characteristics differ from those of rural transportation systems. These include the travel way, vehicles, terminal facilities and policy/legal or regulatory component. The travel way refers to the channel s, paths and routes of travel. It is also defined as the location in space along which the passengers and goods flow. In urban areas, the travel ways are of different levels ranging from access streets, to secondary distributors, to primary distributors and to major urban roads or urban highway in an ascending order. They are a major structural element of urban space and built environment. The roads, in most cases take an average of 20% to 30% of the urban space.
The vehicles in urban areas are of different types, broadly categorized under land vehicles (buses, cars, and bicycles among others), air vehicles (aeroplanes and jets) and water vehicles (e.g. ships and tramps). In most cities, the road vehicles are the dominant and are categorized into vehicles drawn by animals e.g. carts drawn by donkeys; vehicles propelled by people e.g. pedal rickshaws; vehicle propelled by electric motors i.e. those drawing power from battery; vehicles propelled by internal combustion engines e.g buses; and self-propelled vehicles i.e. pedestrians.

Terminal facilities are the points along the transport system at which passengers and goods enter and leave the transport system and also include points along the travel way where the passengers and goods can change the mode or vehicle. In urban areas, they include bus-stops, bus stations, air-ports, locomotive shades, railway stations and yards.

Additionally, urban transport demand is highly qualitative and differentiated (Aligula et al, 2005). The differentiation is by time of the day, day of the week, journey purposes, speed and frequency among others. A transport service without attributes matching this differentiated demand may thus not be useful and so continuous study and evaluation of the system at short intervals is necessary if effective planning for the efficiency, safety and cost effectiveness of travel is to be undertaken.

2.6 Urbanization: Its Relationship with Transportation

Urbanization refers to the process of migrating from rural to urban areas and engaging in non-agricultural activities. It is significantly responsible for the ever increasing population in urban areas.

As the number of people increase in cities, the demand for urban transport also increases. This is basically explained by the increased types of movements, categorized by Rodrigue, 2010, as pendular (obligatory movements between residence and work locations), professional (work-based movements e.g meetings and customer services), personal (voluntary movements –shopping and recreation), touristic (movement in cities with historical and recreational features) and distributional (movements concerned with freight to satisfy consumption and manufacturing requirements).

All these movements are ignited by the need to satisfy the economic and social needs of the urban population. It then follows that realizing the economic and social desires of the urban dwellers is facilitated by a well-functioning urban transportation system. Thus a good transport system helps to maximize economic efficiency of any city while an inferior system retards economic progress. This is especially true for journey-to-work period, which represents the most important economic reason to travel (Podoski, 1982 in Obiero, 1992).
The process of urbanization also influences physical developments in cities. It necessitates residential, commercial and recreational developments. These activity spaces must be inter-linked by good transportation networks because they operate in a synergistic manner. Thus, the higher the rate of urbanization process, the more the need for better transport facilities.

Increased urbanization rates also increases the chances of high levels of car ownership in cities. Car ownership trends on the other hand play a great role in enhancing traffic generation in various parts of a city. More often than not, many cars on the urban roads, especially in the developing world, are greatly to blame for the traffic congestions common therein.

Apart from car ownership, urbanization rates experienced in any urban area also determine the need for public transport. This is based on the premise that a majority of urban dwellers depend on public transport, which is favoured on the ground that it helps to reduce traffic congestion and environmental degradation among other things.

2.7 Land use-Transport Interaction

There is a complex relationship between transport and land use which involves three entities:

- **Transport system**: Considers the whole array of transport requirements/infrastructure that is supporting urban mobility both for passengers and freight. It generally expresses the level of accessibility, which has different economic value.

- **Spatial Interactions**: This looks at the nature, extent, origins and destinations of urban movements of passengers and freight. They take into account the attributes of transport system and the land use factors generating and attracting movements.

- **Land use**: Considers the level of spatial accumulations of activities and their associated levels of mobility requirements. Each land use has its own specific mobility requirements and therefore transportation is a factor of activity location, which in turn is associated with specific land use. Land use commonly has demographic and economic attributes.

It is important that any transport analysis (whether theoretical or practical) aids in the realization of equilibrium between land use (activity systems) and transport system within a context of economic, social and environmental consciousness and this can be achieved when there is an equilibrium between demand and supply of urban transport.

2.8 The Concept of Traffic

2.8.1 Meaning and Composition
Traffic can be defined as the movement of pedestrians and goods along a route. It is suggested that the word ‘traffic’ was derived from Arabic tafriq "distribution." This means “people and vehicles coming and going." Traffic on roads may consist of pedestrians, ridden or herded animals, vehicles, streetcars and other conveyances, either singly or together, while using the public way for purposes of travel. On Ronald Ngala Street particularly, the traffic is composed of pedestrians, handcarts, private cars, three wheelers, 14-seater matatus, buses and bicycles.

Traffic is formally organized in many jurisdictions, with marked lanes, junctions, intersections, interchanges, traffic signals, or signs. Traffic is often classified by type: heavy motor vehicle (e.g., car, truck); other vehicle (e.g. bicycle); and pedestrian. Different classes may share speed limits and easement, or may be segregated.

2.8.2 Factors of Traffic Generation

Traffic generated at any one particular time and place will be always directly linked with the travel patterns or trips generated from human activities therein. Therefore factors of trip generation and those of traffic generation are more or less the same. The main factors affecting personal trip production include income, vehicle ownership, household structure and family size. In addition factors like value of land, residential density and accessibility are also considered for modeling at zonal levels. The personal trip attraction, on the other hand, is influenced by factors such as roofed space available for industrial, commercial and other services. At the zonal level zonal employment and accessibility are also used. In trip generation modeling in addition to personal trips, freight trips are also of interest. Although the latter comprises about 20 percent of trips, their contribution to the congestion is significant. Freight trips are influenced by number of employees, number of sales and the space covered by commercial firms.

2.8.3 Traffic Congestion

In the 21st century, the biggest problem in the transport sector has been the imbalance between the amount of traffic and capacity of the route, leading to congestion. Traffic congestion is not a new phenomenon. Roman history records that the streets of Rome were clogged with traffic, such that at least one emperor was forced to issue a proclamation threatening the death penalty to those whose chariots and carts blocked the way (Slinn et al, 2005). Traffic congestion means there are more people trying to use a given transportation facility during a specific period of time than the facility can handle with what are considered to be acceptable levels of delay or inconvenience. Traffic congestions are caused by a number of factors. Some of these factors are related to the land-use transport interactions of an area, others are due to traffic management shortfalls, others are related to the modal composition of traffic (especially low capacity vehicles) while others still are linked to the road use behaviour as well as road design and capacity issues.
To some people, congestion is not a problem. It is considered to be one result of economic prosperity and one that people will have to learn to live with. Others argue, however, that the consequences of congestion are much more serious to a community.

One major impact of traffic congestions is retarded economic growth. People tend to spend so much otherwise productive time on the roads and eventually remain with limited time to engage in their economic activities. Other consequences affect the most immediate residents to the roads. For instance when faced with congested conditions, many drivers quickly look for ways to bypass the bottleneck. These often include making their way through residential neighborhoods on streets not designed to handle through traffic. Such bypass traffic often becomes a nuisance to residents of such neighbourhoods in various ways.

Congested road conditions can also have a detrimental effect on the environment, in particular air quality. This is particularly due to increased concentration of exhaust fumes from the motor vehicles. Congestion also impedes social productivity majorly because it greatly reduces access to locations of recreation, education and health among others. This in turn devalues the quality of life a great deal.

2.8.4 Approaches to Avoiding Congestion

One approach advocated for by the Institute of Transportation Engineers (ITE) is ‘Growth management.’ This can be defined as the use of public policy to regulate the location, geographic pattern, density, quality and rate of growth of development. By knowing the trip generation characteristics of various land uses and then exercising control over those uses one can theoretically limit the trip generation of a particular area to any given level. This level would be consistent with the capacity of the existing infrastructure and the level of service desired. A comprehensive growth management strategy can include not only transportation actions, but also actions dealing with housing, economic development, open space, and community infrastructure.

Another approach is the adoption of Land Use Policies for Improved Transit Access. This action establishes a land use policy which promotes transit use in order to reduce and or mitigate congestion and other consequences of burgeoning travel demand. Such policies encourage construction of public transportation facilities and are formalized in zoning/planning regulations and procedures.

A third approach is Site Design Criteria that Increase Transit Usage. Site design criteria can mitigate traffic congestion by incorporating transit access. Local officials should insist that basic site design analysis be conducted for each proposed development that tests alternative site plans for public transportation accessibility. Pro-transit site design criteria for new housing and office developments for instance would include:
- Placing office buildings in close proximity to the street, resulting in easy pedestrian access rather than being separated by parking.
- Minimizing walking distances between homes and transit routes.
- Minimizing block lengths in business districts.
- Sidewalks on at least one side of each street.

A fourth approach is the adoption of Transit-Oriented Parking Management Strategies. Such would include:

- Coordination with zoning, planning and public works authorities whenever a proposed action or development that includes parking will affect traffic volumes:
- Pricing - Elimination of free parking will discourage solo driving. Tax exemptions should be sought for all employees-auto commuters and transit users alike.
- Fringe parking - Promote park-and-ride lots.
- Parking reduction legislation to create ridesharing incentives.
- Transit marketing to counter negative perceptions.

A fifth approach is Road Pricing. By charging motorists a ‘price’ that represents the cost they create by using a particular road, individual drivers will react to this cost by accepting it, adopting another mode of transportation, going another route, or foregoing the trip. This way, traffic volumes would be controlled on various corridors.

The other approach is the introduction of Auto Restricted Zones. An auto restricted zone (ARZ), in its broadest sense, refers to any land area where vehicular travel is regulated, controlled or restricted in some manner. A variety of techniques have been used to accomplish this, including physical barriers to auto access, parking controls, exclusive use lanes, and turn prohibitions.

Negotiated Demand Management Agreements is also another approach of avoiding congestion. It can be accomplished by Local governments giving mandate to the private sector to be involved in traffic mitigation as a condition of individual development approval.

2.9 Non-Motorised Transport in Nairobi

NMT in Nairobi includes walking, cycling for both personal transport and for goods transportation, and the use of wheelchairs, hand-carts and push-carts. According to a household travel survey by Aligula et al. [2004]17, only 7.3% of the Nairobi population depends on private motor-vehicle whereas 47.7% are dependent on walking. These
findings are also supported by JICA [2006, ibid], which shows that out of 4.82 million trips per day made in Nairobi in 2004, 2.32 million trips/day were made by either walking or cycling. This represents 48.2% of all daily trips. An overwhelming majority of the NMT trips [22.7 million] are made by walking [47.1%] while cycling contributes 55 thousand trips or 1.1% of all NMT trips.

2.9.1 Barriers to the preservation and growth of NMT as a transportation mode in Nairobi

NMT usage in Nairobi is generally affected by insufficient facilities such as designated lanes, safe crossings and incoherence of the NMT network. Though there is an increasing trend towards integration of NMT infrastructure in the urban networks, a lot more needs to be done to get to a satisfactory level of safe, secure and efficient NMT network. Other barriers to use of NMTs can be summarized as follows:

- Conflict with motor traffic: According to Police statistics, on average pedestrians accounted for more than 70% fatalities during the period 2000-2008. This is attributed to absence of safe pedestrian facilities and a driving culture that is not geared towards observing the safety of other non-driving road users.

- Conflict with other utilities: Utility service lines for water supply, sewerage, storm drains, telephone/internet, and power cables are a disruption to the NMT facilities. NMT facilities are often dug-up for installation or maintenance and rarely restored to initial condition.

- Encroachment by business activities: Heavily pedestrianised facilities are attractive locations for informal business activities such as food vendors, grocers, second hand cloth dealers etc. Other encroachments include advertising bill boards and garbage dumps.

2.10 Place of Informal Economic Activities in the Urban Economy

Some of the biggest challenges facing urban centres in Kenya today are how to tackle the issues of unemployment, through the provision of viable areas for self-employment opportunities as well as improving the quality, standard of living and infrastructure. The urban spaces are not designed to empower people or provide vibrant places where opportunities for small entrepreneurs and informal activities (hawkers) can trade and manufacture at viable locations.

Most urban centres in Kenya are faced with the challenge of trying to deal with hawkers (street vendors) within their Central Business District (CBD). In most of the cases hawkers have not been allocated space to operate from. Though ignored by planners and harassed by the Local Authority enforcement officers, the hawkers within urban centres, have tended to acquire and control space informally. The situation in the CBD of Nairobi has reached crisis stage. According to Mitullah, W. (2003), ‘’ in Kenya, street vending falls
within the Small and Micro Enterprises (SME) which provides employment and income to about 70% of Kenya’s population, especially in urban areas. In the year 2002 alone, the SME sector employed about 5,086,400 people up from 4,624,400 in 2001.” This increase accounted for 74.2% of national employment.

Informal economic activities take different forms in terms of location, commodities sold as well as display of commodities. Most informal economic activity traders locate themselves at locations with heavy motor and pedestrian traffic while others walk from place to place selling their commodities; informal economic activity traders deal in a variety of commodities that include fresh and processed foodstuffs, clothes, shoes, electrical appliances, plastic household items, charcoal among other commodities, others offer services such as dry-cleaning, hair shaving, shoe cleaning e.t.c; most of the informal economic activity traders especially along the residential street construct temporary shades with stands to display their commodities while others use tables, wheel barrows, hand carts, racks and bicycle seats to display their commodities. Other traders display their commodities over a mat on the ground while others carry them on their heads or in their hands.

These activities however have over the years faced hostility especially from urban local authorities as a result of their informal nature. As observed by Mitullah, W. (2003)” street trade has in the past been viewed as an underground activity that undermines the healthy functioning of the formal economy…” Apart from licensing, taxation, sanitation and working conditions, one of the major issues that has been the source of hostility between informal economic activities operators and urban local authorities has been the site of operation. The location of informal economic activities is core to the success of the business as it affects the profit margins of traders by determining access to customers. Informal economic activity traders locate themselves and operate at sites with heavy human and motor traffic so that they can be easily seen by customers. In the city of Nairobi, the street forms one of the major locations both within the residential neighborhoods as well as in the CBD. Through her case study of informal economic activities in Kenya, Mitullah, W. (2003) observes that, ‘’ there are informal methods used in locating and operating within a particular site. A few traders consult the owners of neighbouring yard, others negotiate with acquaintances, others, are allocated space by the local authorities, while some share with friends and colleagues.’’

The use of outdated and restrictive land use and public space policies and by-laws by local authorities has predisposed informal economic trade as causing cities to be dirty, illegal and a cause of traffic obstruction. As such, most informal economic activity operator have lacked properly planned sites for trading which has seen most of them opt for the street as it presents a viable location for their activities. Narrowing down to the study area (Ronald Ngala Street), informal economic activities are very numerous and take different forms ranging from food items to non-food items. All these informal economic activities claim
space for their operation differently along this street. Some operate formally while others are operated informally without following the required procedure of space allocation and occupation from the city county.

2.10.1 History and Nature of Informal Economic Activities

The informal economy is a global phenomenon; hence it possesses a historic marker in the cities, towns and villages of most if not all countries of the world. Most people in the world, especially within the urban areas earn their living through trading in a variety of goods along the streets, sidewalks or other public spaces. A study conducted by the International Labor Office reveals that economic policies formulated in the 1950s and the 1960s assumed that with the right policy measures, the poor traditional sector (informal economic sector) would be absorbed into the modern economy and disappear, however, due to persistent unemployment in developing countries such as Kenya, worldwide concern grew that necessitated actions to curb expansion of the informal sector. The ILO conducted the first of a series of multi-disciplinary ‘employment missions’ in 1972 in Kenya, revealing that, ‘’ the traditional sector had not just persisted but expanded to include profitable and efficient enterprises as well as marginal activities. The informal economic sector therefore has always been viewed as a response by most urban dwellers to curb rising unemployment in most cities of the developing nations. Mutegi, D. (1998) observes that, ’’ one of the main causes of urbanization process as unemployment leading to rural-urban drift.’’ Mochache, M.H. (1990) asserts that, ‘’ the migrant population from rural areas to towns moves in anticipation of jobs which in most cases are not available.’’ ‘’ Those unable to secure urban sector unemployment do not return to the rural areas but remain to ‘swell’ the unemployment problem.’’ Mutegi, D. (1998). Mutegi further observes that informal economic activities have evolved in the city of Nairobi to fill the gap of employment creation, he notes that in the city of Nairobi, these activities were originally to be found in squatter settlements and at the periphery of towns, but, they are now located and operated within the town, within the low income residential areas as well as in the industrial areas.

According to Brown, A. (2006),’’ ‘informal economy’ was first used to conceptualise the informal, unregulated economic activities of the urban unemployed.’’ Hence, it is true to assert that the informal economy is an umbrella under which a plethora of informal trade activities are defined. According to the ILO (2002), ’’ Home-based workers and street vendors are two of the largest subgroups of the informal workforce; with home based workers the more numerous but street vendors the more visible of the two.’’ Brown further observes that, ’’ the term ‘street vendors’ (or street traders or petty traders) is more specific and refers to those who sell goods on the street.’’

As per the ILO (2002),’’ street vendors are often viewed as a nuisance or obstruction to other commerce and the free flow of traffic. Nevertheless, street vending may be the only
option for many poor people. Therefore, the right to vend within reasonable limits or constraints should be considered a basic economic right.’’ This is reasonably justifiable especially with the continued influx of people into urban areas, diminishing or limited opportunities within the formal employment sector as well as the potential that street trade presents as a measure to sustain economic livelihoods within low income residential areas. As such, planning should endeavor towards a policy of inclusion of street vending in the planning and design of public spaces such as the commercial street.

As observed by ILO (2002), ‘’The streets of cities, towns and villages in most developing countries and in many developed countries are lined by barbers, cobblers, garbage collectors, waste recyclers and vendors of vegetables, fruits, meat, fish, snack-foods and a myriad of non-perishable items...’’

The street has therefore grown to be not only a major urban built form element but also an integral spatial component in the location and accommodation of street vendors, this is especially so since other locations are usually not favourable for street vendors within the residential areas, as observed by Mutegi, D. (1998), ‘’Where street vendors operate next to shops or building frontages, for example, their products will be found obstructing access to such premises. If on the streets or pavements they impede vehicular and pedestrian movement respectively and sprawl along the streets increasing risk of accidents.’’

‘’The nature of street vending is in itself a physical and social problem. It requires reasonable display space which is rarely available...’’ (Mutegi, 1998). The street as a public space usually forms an appropriate and promising entry and access point for street vendors to urban spaces since it is a public right of way and it allows them the right to use it as part of the public populace, it provides ready market for their commodities and services since it acts as a mobility channel and for residential areas, not many options in terms of public spaces exist since most of the land is usually under building construction and housing. In his study of planning for informal economic activities in the city of Nairobi CBD, Mutegi shows through his research findings that 48.3% prefer vending in the streets with the second category (15.0%) preferring vending in open spaces. Therefore, the street has been and shall continue to be an important position of location within the urban spatial fabric for street vendors.

This has always been evident along Ronald Ngala Street within Nairobi CBD with most of street vending spreading and occupying a better part of the city. Ronald Ngala Street hosts numerous vending activities that range from food to non-food items. The operations of these activities reach their climax during the peak hours when the street users’ population is extremely greater.
2.11 Policy, Legal and Institutional Framework

2.11.1 Policy documents

2.11.1.1 Kenya Vision 2030

The Kenya Vision 2030 provides for wholesale and retail trade. It aims at raising earnings of the wholesale and retail trade by giving the large informal sector opportunities to transform itself into a part of the formal sector that is efficient, multi-tiered, diversified in product range and innovative. However, the vision does not provide for informal activities such as hawking which is common in many urban centres.

The vision also aspires for a country firmly interconnected through a network of roads, railways, ports, airports, waterways and telecommunications. It envisages that by 2030, it will become impossible to refer to any region of the country as remote and so the focus would be on investing in the nation’s infrastructure. Again, this national policy is only concerned with investing in road networks but with little emphasis on how the networks will be made adequately functional as to be able to ensure effective flow of traffic. It further does not disaggregate urban and non-urban transport issues and the corresponding underlying problem issues and so cannot propose appropriate policy directions.


Some of the major provisions in these plans in relation to the urban street are as follows;

- Strengthen paved roads and upgrade/maintain unpaved roads. This can relate to the maintenance of street carriage way within urban areas.
- Employ labour-intensive methods in road construction and maintenance.
- Provision of fly-overs, tunnels, grids and by-passes in Nairobi, Mombasa and Kisumu.

However, it is very unfortunate that even at the national policy level, there has been a superficial view of transport problems irrespective of their persistence in urban areas especially at Ronald Ngala Street in Nairobi.

2.11.1.3 Draft National Urban Development Policy (2012)

This policy advances that there are many challenges in urban transportation in Kenya: high costs for both passengers and freight; poor safety and security standards; limited integration; long waiting hours; and unexploited regional potential of the transport system. The other issues in the policy include weak public and private institutions; inappropriate modal split; high road maintenance costs; environmental degradation from pollution; lack
of an urban transport policy; poor transportation planning leading to inefficiency; inadequate enforcement of legislation; and, a dilapidated, slow and inefficient railway system that is also out-dated. It also has provision for walking and cycling which have not been addressed for quite long time.

It is further stated that to address these challenges, National and County governments will:

- Develop a transport system that more efficiently supports the economic development of urban areas and is interconnected with the rest of the country and neighbouring countries;
- Provide, acquire, set aside, and protect land reserves for transportation facilities;
- Ensure that all urban areas and cities prepare and implement an appropriate transportation strategy with emphasis on mass transport, pedestrian and cycling modes;
- Ensure safe, affordable, efficient, comfortable, reliable, inter-connected and sustainable transport systems in urban areas and cities;
- Ensure that the urban transport system is properly integrated with land use planning and development;
- Ensure that the user-pays-principle will be applied wherever feasible;
- Establish a comprehensive transportation management information system for all transportation modes;
- Enforce emission testing in all transport modes;
- Set standards and guidelines for decommissioning of vehicles, marine vessels, aircraft and trains; and,
- Harmonise the roles and mandates of all transportation agencies in the urban sector.


This policy states that the road transport sector’s main aim is to provide an integrated, efficient, reliable and sustainable road transport infrastructure that meets national and regional passenger and freight transport goals and supports the government’s socio-economic development strategies to promote accessibility to services and the safe movement of people and goods, while being environmentally and economically sustainable.
2.11.2 Institutional Framework for Road Transport in Kenya

The institutions in charge of road transport in Kenya include:

i) The Ministry of Roads

The ministry has the general responsibility of provision and maintenance of roads infrastructure, with the help of Kenya National Highway Authority, Kenya Rural Roads Authority and Kenya Urban Roads Authority.

ii) The Ministry of Transport

The ministry provides policies and regulations governing the entire transport sector.

iii) The Road Transport Department.

It ensures that only authorized persons who meet the stipulated requirements in the traffic act use the road system. Other roles played by the department include:

- Licensing of drivers
- Furnishing the domestic tax department with number of vehicles.
- Registration of motor vehicles
- Licensing of motor vehicle

iv) Transport Licensing Board (TLB)

It deals with licensing of both public and private vehicles that have complied with the set regulation.

v) Kenya Roads Board

It oversees the road network in Kenya and thereby coordinate its development, rehabilitation and maintenance and to be the principal adviser to the Government on all matters related thereto.

vi) The Traffic police

Helps in the management of flow of traffic and in controlling violation of traffic rules.

vii) The Local Authorities

They have Engineering departments, under which there are the Transport sections. The section does traffic counts and traffic management within the area of jurisdiction of a particular local authority. Furthermore, the section undertakes the installation of traffic
signs, street lighting and road marking. It also runs the public transport system within its area of jurisdiction.

In the local authorities, there is also the Inspectorate department which controls traffic rule violation together with the traffic police. The physical planning departments in the local authorities undertake development control and this encompasses all land uses including transportation.

The local authorities have also the overall responsibility to plan, legislate and regulate and control all development activities within the local authority area. With the new system of governance, the county has been mandated to legislate on the developmental aspects within the county.

viii) Matatu Welfare Association and Matatu Owners Association

They play an important role in lobbying for the well-being of the vehicle owners and operators within the country by influencing policies of transportation because they are always in the forefront to ensure that implementation of any policy augers well with them.

2.11.3 Legal Framework

2.11.3.1 The Constitution of Kenya (2010)

The constitution points out that all Kenyans, including persons with any disability are entitled to reasonable access to all places, public transport and information. It is therefore necessary that any impediment to this entitlement (e.g. traffic jams) must be adequately controlled or mitigated.

2.11.3.2 Trade Licensing Act (1967)

Street vending fall under wholesale and retail trade items of 1967 Trade Licensing Act. This Act was originally passed to enable orderly transfer of gainful activities from non-citizens to Kenyans. The other two goals of the Act seem to have lost its key aim of support for Kenyan business initiatives and raising revenue. There has been a concentration on misplaced control, by LAs which largely results in ‘rent seeking.’ The Licensing Act has therefore been bottleneck to small-scale business operators, with most of them not adhering to it.

2.11.3.3 Public Health Act

The health requirements are key in controlling hawking, especially those handling cooked food along the roads and streets. The Public Health Act Cap 242 states that no person shall cause to exist on any land or premise owned or occupied by him/her, any nuisance or other conditions dangerous to health. Trade premises not kept clean, having offensive smells or giving rise to smells or effluvia which are dangerous to health are deemed as nuisance.
2.11.3.4 Traffic (Amendment) Act (2012)

This seeks among other things, to enhance the penalties for various traffic offences in order to deter commission of those offences and consequently minimize loss of lives on Kenyan roads through accidents. A number of the traffic offences are directly linked to traffic congestion and so punishing the offenders in such respects may also help to manage traffic congestions.

2.11.3.5 Physical Planning Act (1996)

The legislation postulates that any physical development plan prepared with reference to any public land or private land should serve the purpose of improving the land and providing for the proper physical development of such land, and securing suitable provision for transportation, public purposes, utilities and services, commercial, industrial, residential and recreational areas, including parks, open spaces and reserves and also the making of suitable provision for the use of land for building or other purposes.

2.11.3.6 Local Government Act (Cap 265)

This legislation originally mandated the Local Authorities to undertake matters of plan implementation and development control. They have also been playing the role of providing social services and facilities within their areas of jurisdiction. With the introduction of the devolved government system and thus the formulation of the Devolved Government Act (2011) however, the mandates of plan formulation, plan implementation and development control have been shifted to the Boards of Cities and Towns with the County Executive Committees undertaking the oversight role.

2.11.3.7 Urban Areas and Cities Act (2011)

This is an Act to provide for the classification, governance and management of urban areas and cities; to provide for the criteria of establishing urban areas, to provide for the principle of governance and participation of residents and for connected purposes. The Act establishes Boards of Cities and Municipalities to undertake the provision of social services among other things.

2.11.3.8 Environmental Management and Coordination Act (EMCA, 1999)

The Act, in its second schedule, identifies a number of projects for which Environmental Impact Assessment has to be done before their undertakings. Some of these projects are of the transportation category including construction of;

- All major roads;
- All roads in scenic, wooded or mountainous areas and wetlands;
- Railway lines;
- Airports and airfields;
- Oil and gas pipelines;
- Water transport

Of requirement also is constant monitoring of emission from the motorized traffic since the exhaust gases are hazardous to life.

2.11.3.9 Kenya Roads Act (2007)

This is an Act of Parliament providing for the establishment of the Kenya National Highways Authority, the Kenya Urban Roads Authority and the Kenya Rural Roads Authority and providing for the powers and functions of the authorities and for connected purposes. The authorities are mandated to perform responsibilities, which are collectively aimed at ensuring a good road network throughout the country.

2.12 Case Study: Transforming Street Space Case for “The Porch” street: USA

Background of the Porch Street

The Porch street opened in November 2011, replacing what was previously an underutilized parking lane and plain sidewalk outside of the 30th Street SEPTA rapid transit, tram, trolley, bus and Amtrak Station, which is among the busiest street in the country with about 51,000 daily pedestrians. The large number of mass transit riders, pedestrians, and office workers near The Porch created high demand for public space in West Philadelphia. The Porch is within 1,200 feet of over 16,000 workers, including 4,300 federal employees across the street.

![Fig 3: “The Porch” street, USA](Source: University City District, 2011.)
The project of transforming Porch Street was initiated by University City District, a non-profit created by area stakeholders to promote the district, and realized through collaboration between the public and private sector. The Porch street is now an approximately 28,000 square feet plaza with movable tables, chairs, and umbrellas, and is hosts music performances, a weekly farmers’ market, and cultural events that draw neighborhood workers, residents, students, and visitors to the space.

**Rightsizing that led to the transformation of the street having:**

- **50' by 565' sidewalk installed** with flexible seating and lanes for pedestrians to walk. Replaced 32 parking spaces in two parking lanes, along with a circulating lane, and a narrow sidewalk with forlorn planters. There are numerous other surface parking lots and a nine-story, 2,100 spot parking garage nearby.
- **Seating for up to 250 people**, umbrellas, 68 planters, and 38 trees were added.
- **The street is programmed** daily with events, which has included miniature golf, concerts, a farmers’ market, public art, yoga, food trucks, and a beer garden.
- “The Porch” was named through a public contest.

*Fig 4: Transforming Street Space Case for “The Porch” street: USA after the Redesign.*

Source: University City District, 2011 (http://www.pps.org/reference/the-porch-transforming-)
Outcomes: *The Porch is a successful public street with:*

1. **Approximately 1,000 people lingered at The Porch daily** on nice summer days in 2012.
2. As many as 120 people use the porch at the height of day, far more than could have been served by 32 parking spots, with the highest number of users on Farmers’ Market days.
3. **Many more people walk along it**, with about 600 pedestrians traversing the length of The Porch hourly during the morning rush and 700 hourly during the evening rush. Many more pass on the porches periphery. Many times more pedestrians travel through The Porch than other nearby streets, and reflects the importance of the space for transit commuters.
4. 95% of surveyed users said that they were more likely to spend time in the street as a result of the new design.
5. **The Porch provides much desired seating.** Of the nearly 25,000 visitors counted lingering in the plaza between April 2 and October 1, 2012, 80% were sitting.
6. **The Porch serves the vast majority of the area’s populace – workers, shoppers, and mass transit users.** Over 93% of these users arrive by train, bus, trolley, bike or foot, indicating that the overwhelming area use and demand for space is not by vehicular traffic. Over 85% of surveyed users stated that they were using The Porch on their way to or from mass transit, or on a lunch or other break.
7. **The Porch functions as an inclusive place.** Surveys showed that users of The Porch are highly diverse by age, income, travel mode, gender, and education.
8. **The Porch supports local businesses.** On one day in September, 2012, more than half of the 44 surveyed users eating lunch in the plaza had purchased their lunch from local food trucks. On another day, 79% of lunchtime eaters purchased their meal from the nearby businesses on 30th Street. There is also a seasonal farmers’ market in the space.
9. Area vehicular operations function similarly to how they did previous to the street redesign. There are about nine acres of surface parking within a quarter mile of the site. The remaining drop-off lane between the Porch and 30th Street Station, Little Market Street, remains underutilized with only about 75 vehicles using it per daytime hour, compared to about 24,000 daily vehicles on 30th Street and Market Street. This indicates that the change hasn’t displaced inordinate traffic to the Little Market Street, and that there is adequate drop-off space, supporting the notion that the previous parking lane was superfluous to the area’s functioning for vehicles.

**Fig 5: After the redesigning of the Porch Street.**
2.13 The Conceptual Framework

2.13.1 Emerging issues

- Role of Urban Space-Urban life, social relations exist to the extent that they possess a spatial component: they project themselves into space, becoming inscribed there, and in the process producing that space itself.

- Sustainable Space organization by recognizing all dimension of space and integrating them together into a whole holistic view e.g. public spaces, urban spaces and especially where there is no clear distinction of the space for containing or occupation or accommodating specific functional uses activities especially in urban areas (operational space).

- Reduction of space conflicts by promoting a sustainable space use especially matters to do with Public interest, Public spaces and conflicts in Space use along a street. Hence there is need for planners to define address the diversity of urban space concept so as to avoid conflict between the interests of various publics or discourse communities.

- Role of street spaces- The street spaces not only forms a means of access to or through locations but also acts as an arena for social expression. The street as a public place supports a plethora of human functions forming a place of interconnection between the social, economic and cultural as well as environmental aspects of human activity.
✓ Land use-Transport Interaction where each land use has its own specific mobility requirements and therefore transportation is a factor of activity location, which in turn is associated with specific land use.

✓ Urbanization- The process of urbanization also influences physical developments in cities. It necessitates residential, commercial and recreational developments. These activity spaces must be inter-linked by good transportation networks because they operate in a synergistic manner. Thus, the higher the rate of urbanization process, the more the need for better transport facilities.

✓ Empowerment from the policy, legal and institutional framework such as the vision 2030, Integrated Kenya National Transport Draft Policy, the respective Ministries, The Constitution of Kenya (2010) that all advocate for good transport system so do the laws. Most of them however have not recognized the need for integrated land use-transport planning.

2.13.2 The Conceptual Framework
This framework is based on the analysis of Ronald Ngala Street in terms of conflicts in space use along the street and how these conflicts affect functionality of the street.

The understanding of concept space is very important in this whole exercise and also allows one to analyze the conflicts that develop and manifest themselves within the urban space such as street.

Space may be understood as medium of social relations and a material product that can affect social relations. It is both the geographical site of action and the social possibility for engaging in action.

Space may be categorized into perceived, conceived and lived depending on the context under study. There are a number of factors that influence conflicts in space use. The factors are; public interest; public space; and everyday public space. Street is seen as arena for social expression and also provides access to or through locations. Street as an external space in town is a public realm covering peoples’ activities and social interactions. Through these interactions competition emerge from space identity conflicts brought about by entitlement issues brought foremost by the legal and planning environment. Most space users along the street (hawkers and NMT) are not recognized by physical planning as land users requiring due regard in planning efforts.
The study also seeks to understand how through improved space allocation and utilization along the street, it can address the unsustainable challenges of the street. This can be achieved by proper urban planning and addressing the issues of conflicts in space use along the street with respect to its ineffective environment. The main aim of the study is to see ways of improving the conditions of the street for it to meet both current and future demands in terms of its functionality.

From the literature reviewed, certain principles and concepts for designing of sustainable urban street emerged. The principles included: proper integration of transportation with other land uses along the street, walkability by street users, connectivity within and without the street, mixed land use to accommodate most compatible land uses along the street and urban design. The concepts on the other hand included: urbanization and its relationship with transportation, land use-transport interactions, concept of traffic, and place of informal economic activities in the urban economy, well designed and built forms. Moreover, important lessons were deduced from the case studies reviewed. These included: incorporation of a participatory planning approach in any development process, incorporation of a mixed land use structure in current developments as well as segregating vehicular traffic from pedestrian traffic to ensure a safer environment for the street users and easier circulation around the street neighbourhood.

Incorporation of the above principles, concepts and lessons from the case studies in the re-designing of Ronald Ngala Street can help in ensuring its functionality.

Present day planning should build on what exists and suggest small but strategic and well placed interventions that would contribute towards a more varied, balanced and vibrant built environment (Kimathi, 2004).
CONFLICTS IN SPACE USE ALONG A STREET

Understanding Space

Factors that Influence Conflicts in Space Use

Street as an Urban Space

Principles of Proper Street Design

Land use-Transport Interactions

Urbanization and Urban Transport

The Concept of Traffic

Policy and Legal Framework

Characteristics of Urban Transport

Non-Motorized Transport in Nairobi

Urbanization: Its Relationship with Transport

Lessons from Case Studies

Place of Informal Economic Activities in the Urban Economy

Consequences of Space Competition

Principles of Proper Street Design

Source; Author, 2014
CHAPTER THREE:  

BACKGROUND OF THE STUDY AREA

3.0 Overview
This chapter places the study area in its historical and geographical context by outlining its brief historical background and positioning the area in the globe. Furthermore, this chapter aims to give more details that are pertinent to understanding the issues faced in the study area.

3.1 Physical Location

3.1.1 National Context
The study area is found in Kenya at its capital city, Nairobi which lies on is located at 1°16’ Latitude South and 36°48’ Longitude East. The city occupies a total area of 684 sq. km fully covered by land. Sits 1660m above sea level,

3.1.2 Regional Context
The study area, at its regional context, is located in Nairobi County. It is located within the central Business District of Nairobi in Starehe Sub County.

3.1.3 Local Context
The study area, at its local context, is located on the eastern side of the Nairobi CBD. It connects to Race Course road to the Eastern and Moi Avenue, to the western of the CBD. Ronald Ngala Street it is bound between Moi Avenue, race course road, river road and Lithuli Avenue.
3.2 History of Urban Planning in Nairobi.

3.2.1 The Origin of Nairobi

The city of Nairobi, like other major towns in Kenya owes its birth to the construction of the Ugandan Railway (K.Akumu, 2002). It was founded in 1899, when the railhead reached Nairobi on its way to the present day Kisumu. It was set up to be a supply depot, and by 1922, the number of settlers had risen to 9 000. Nairobi at this point had already become grown and flourished in terms of commerce and development (Situma 1992: 167). It became a commercial and business hub for the British East Africa protectorate. There was development of settlements which consisted of the railway buildings and separate
areas for the Europeans and Asians. There was no particular provision for settlement for Africans.

In 1907 Nairobi became the capital of the country. The boundary of the urban center was defined. In 1950, it became a city with a population of about 80,000 settlers. After independence in 1963, the boundaries of the city were enlarged from an area of 90 square kilometers to an area of 690 square kilometers including Nairobi’s peri-urban settlements and certain other important feature such as the Game Park, Embakasi Airport and a large ranching area in the east. This boundary extension was aimed at giving the city adequate reserve land for future expansion. The demarcation of the boundaries was influenced by pre-independence political considerations, and as a result the entire city area does not constitute a cohesive planning unit.

Map 5: The Railway Town

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**3.2.2 1948- Master for a Colonial Capital**

Functionalism being the key principle, Nairobi was classified into zones: Kenya centre, official buildings, business and commerce, industry, railway, residential, official housing, open space, and also in forest reserve and park zones. The main spatial structure of the plan
was to establish neighbourhoods units for the working class, segregation for purpose of surveillance and dominance.

The master plan aimed at making Nairobi more attractive for industrial investment. As a capital for Kenya and east Africa, it became the centre for tertiary and quaternary industries.

This plan was not fully utilized since the capital required for the implementation was never allocated. This resulted in the marginalization of the African urban majority and propagation of informal urbanization in the town’s periphery.

Map 6: 1948 Master Plan for Colonial

Source: Nairobi Atlas, 2011

3.2.3 1993 Nairobi City Convention on Actions towards A better Nairobi

This is the closest the city authorities managed to come in terms of addressing the urban questions of Nairobi. There were efforts by the Nairobi Central Business District Association to streamline the management of the cities affairs.
3.2.4 Nairobi Today - A City without a Master Plan

The city of Nairobi has been using a master plan that was developed in 1973 and set to expire in 2003. This has had an implication in the nature of development that has taken place in the city since most of it is unguided. As a result the current status of development in the city is worrying.

The city of Nairobi is faced with problems such as inadequate housing, unemployment, inadequate service provision and urban sprawl. This is due to the expansion of the city in terms of population and size. This has driven the city residents especially the urban poor to indulge in self-help efforts and community initiatives as a means of providing livelihood and employment in their neighborhoods.

Recently, however the County Government of Nairobi is in the process of preparing a new master plan that will guide the planning and development. The plan preparation process is however not complete.
3.3 Physical Characteristics

3.3.1 Topography
Nairobi County has its topography falling from the edge of rift valley in the west at an elevation of 2300m to 1500m to the east of the city Centre with it being 1700m (Morgan, 1967). The study area is located on a gently sloping ground thus most of the infrastructure facilities and services can be easily maintained.

3.3.2 Geological and Soil Characteristics
Ronald Ngala Street being in Nairobi county has the same geology and soil characteristics as the whole of Nairobi which is predominantly underlain by the Nairobi phonolites of middle Pliocene rocks and extensively quarried for use as concrete, road stone and railway ballast. They are found about 2-3 ft below the ground (Muraguri, 2008). The area falls under the upper Athi basin where the Athi plains phonolite have weathered into black cotton soil of up to 3 ft in depth with secondary Kunkar formation at the junction with the parent rock (Muragiri, 2008). Within the study area, soils are generally black cotton with a depth of about 2-3 ft.

3.4 Climatic Conditions
The climate is generally a temperate tropical climate, with cool evenings and mornings and becomes cold during the rainy seasons. The long rains in Nairobi fall between April and June, while the short rains are experienced between November and early December. The average daily temperatures range from 29oC in the dry seasons to 24oC during the rest of the year.

3.4.1 Rainfall
The area receives an average rainfall of 925mm of rainfall per year or 77mm per month. The driest month is July when an average of 19mm of rainfall occurs across three days while the wettest month is in April when an average of 206mm of rainfall occurs across 15 days (Meteorological Department, 2012). This may be affected though with the unprecedented rainfall patterns due to the climate change.
3.4.2 Wind patterns
The wind generally blows from the North East and to a lesser degree to the South East (monsoon winds). The winds are high in January, February and March and they coincide with a period of higher potential evaporation. The strongest winds occur during the dry season just prior to the long rains with speeds of 20-25 miles per hour especially from mid-morning to early afternoon. At other times this ranges from 10-15 miles per hour.

3.4.3 Temperature
The overall temperatures are moderate and are spread over four seasons. Mid-December through to March there are mainly sunny and warm by day and cool at night conditions. April and May experience lower day temperatures and they constitute the principle rainy season. The months of June through to September are mainly dry but often cloudy and cool while October through to the start of December experience long sunny periods with warm days and cool nights.

The average temperature is 17.7 °C (64 °F) with temperature ranging between 3.5-4°C. The highest monthly average high temperature is 26°C (79°F) in February and the lowest monthly average low temperature is 10°C (50°F) in July, August and September (Meteorological Department, 2012).

3.4.4 Humidity
The average annual relative humidity in the study area is 72.8% while the average monthly relative humidity range is from 64% in October to 79% in July.
3.4.5 Sun shine and solar radiation
Nairobi experiences a total of about 2500 hours of bright sunshine per annum, which is equivalent to an annual mean of approximately 6.65 hours of sunshine per day. July and August are characterized by cloudiness and during these months the average daily sunshine in Nairobi is 4 hours. There is about 30% more sunshine in the afternoon than in the morning and it follows that westerly exposures receive more isolation than easterly ones. Chart 2 below presents the average monthly hours of sunshine in Nairobi.

Chart 2: Average Monthly Hours of Sunshine

[Chart showing the average monthly hours of sunshine in Nairobi]


3.5 Existing land uses within the Study area
The land use structure of Ronald Ngala Street, being a very important commercial street and commuter zone within the CBD is dominated by commercial and transportation use. This has a very high implication especially on the provision of commercial and transportation services/facilities as is the case, the need for improved space allocation and utilization is highly necessary, absence of which results in the existence of the current deteriorating situation along the street (influx street vendors, chaotic transport system, and uncoordinated street activities).

3.5.1 Commercial Use
The commercial component of the areas adjacent the project site is the most predominant character of space use. This is such that all the activities around commercial use, and transportation. The commercial use has manifested itself in four ways here:

- High rise commercial development (five floors)
- Medium rise commercial development (two and three)
- Low rise commercial development
• Mixed use commercial development; and

• Vending activities

The commercial activities have continued to intensify in the project area to the extent that they spill over into the street/road reserves. Beside generating so much traffic and channeling it into Ronald Ngala Street, they are also reducing the road space and so compounding the difficulty of traffic flow both on Ronald Ngala Street and the feeder streets like Moi Avenue, Tom Mboya Street, Munyu Road and Mfangano Street.

3.5.2 Housing
Most of the housing units within and around the site are for commercial use. Commercial use is predominantly exhibited on the ground floors of the buildings along the project site.

3.5.3 Infrastructure Services
Ronald Ngala Street suffers shortage of infrastructural services such as water and sanitation, surface drainage and transport facilities. The area also lacks public sanitary facilities. The street surface condition on the other hand is dilapidated and has numerous potholes. There is no grade separation for different types of traffics along the study area.

3.5.4 Transportation/Movement systems
The main transport route which is a collector street (Ronald Ngala) connects to Moi Avenue and Race Course Road which are also main transport channels within the neighbourhood. Ronald Ngala Street also cuts through Tom Mboya Street, Mfangano street, Munyu Road and River Road which are important transport channels into and outside the project site. The project site is particularly bound by Tom Mboya Street and Munyu Road.

3.6 Past and Current Efforts at Accommodating Pedestrians, Cyclists and Streets Vendors
The difficult situation facing pedestrians, cyclists and street vendors along Ronald Ngala Street is partly a result of the failure of governmental transport and urban policies and programmes as identified in this study. Streets are the lifeblood of our communities and the foundation of our urban economies. They make up more than 80 percent of all public space Nairobi city and have the potential to foster business activity, serve as a front yard for residents, and provide a safe place for people to get around, whether on foot, bicycle, car, or transit. The vitality of urban life demands a design approach sensitive to the multifaceted role streets play in our cities.
Map 8: Existing land uses within the Study area

Source: Author, 2014
Most traders along Ronald Ngala Street locate themselves at strategic points with heavy human traffic, while others walk from one place to the other. They locate themselves along near shopping centres or at corners where they can be seen by pedestrians and motorists. Traders settle in streets spontaneously without any official allocation. This framework is of great relevance and can be used effectively when analyzing and planning for the entire transport system, or specific aspects of it, such as pedestrian and cyclist access as well provision of space for street vendors.

While NCC view vending sites as temporary, the vendors view them as permanent. It is this perception of street trading as temporary that makes them not see the need to provide vendors with proper market facilities. Most street traders have no tenure for the sites they use, and hence the temporary nature of the structures and display tools they use. The numbers that have tenure are negligible as compared to the total numbers that are engaged in street vending activities.

3.6.1 Responsibilities for street planning, design, management and operation
According to the interviews conducted during field study, many agencies are involved in some aspect of the non-commercial operation of the street, ranging from local authority traffic engineers and planners, environmental services and building control, to the police and private crime prevention agencies, as well as those responsible for providing and maintaining street furniture and street utilities. Together these influence the planning, design, management and operation of the street. Management of this street need to be properly looked at so as to bring cohesion in the entire operation of the street.

6.6.2 Planning, legislation and design issues
Discussions with businesses, local citizens and street agencies revealed a number of concerns and confusions about how streets are planned, managed and operated. Some of the key points raised are summarized below.

1. Suitability of planning regulations
There were concerns and acknowledged dilemmas by the NCC officials about how detailed and strict planning regulations on the streets should be, and how much they are actually adhered to. Although planning regulations can require that a certain proportion of buildings should be type A1 retail, this does not specify the kinds of retail provision that are required, so they cannot prevent a centre being overrun by a particular type of business (for example, mobile phone shops). On the other hand, in some locations, planners face a dilemma between allowing the opening of a unit for a non-complying use, or keeping the building empty. The end results are the
conditions that are currently experienced along the study area, where functional use activities are not properly organized along the street.
In addition, the local authority cannot influence what displays businesses put on their forecourts.
This can be a particular problem, both visually and because goods displayed on forecourts significantly reduce the size of the footway and consequently how easily pedestrians can move through the area.

2. **Proposed design standards by JICA**
According to the study done by JICA (2006), there are various proposals which should guide the design of non-motorised transport facilities in Nairobi. The study proposed that there should be 3m wide walkways, 2m wide cycle tracks for streets within urban centres. This can be applied to study area where these facilities are important.

The width of a sidewalk or walkway depends primarily on the number of pedestrians who are expected to use the sidewalk at a given time as assessed through pedestrian traffic surveys. A sidewalk width of 1.5m is needed for two adult pedestrians to comfortably pass or walk side-by-side. Sidewalks on Ronald Ngala Street, for example, are less than 1m width and are inadequate, unsafe and inconvenient for pedestrians during peak hours.

| Table 3; Minimum design width specifications for urban sidewalks/walkways |
|-----------------------------------|-----------------|
| Local or collector streets        | 1.5 m           |
| Arterial or major streets         | 1.8 to 2.4 m    |
| CBD areas                         | 2.4 to 3.7 m*   |
| Along parks, schools, and other major pedestrian generators | (2.4 to 3.0 m ) |

Source: JICA, 2006

Notes *2.4-m minimum in commercial areas with a planter strip (landscaped buffer),
3.7-m minimum in commercial areas with no planter strip/green belt.

According to JICA and NCC sidewalks, walkways, cycle lanes and cycle ways should be continuous and should be part of a transport system that provides access to goods, services, transit, and homes. Well-designed walking environments are enhanced by urban design elements and street furniture, such as benches, bus shelters, trash bins, and water fountains and public toilets.
Even where existing traffic volumes may not justify installation of walkways and cycle ways, it is good practice to secure/reserve the right of way for future installation.

It is recommended that if roadways are to be widened, additional space must be acquired rather than narrowing sidewalks and cycle lanes to accommodate a wider roadway.

- Continuous sidewalks and walkways should be placed along both sides of roads and streets in urban and suburban areas.
- Sidewalks/walkways should connect to side streets and adjacent buildings.
- Accessible crossings should be provided across median (pedestrian refuge) islands
- There should be provisions for wheel chair users by providing an appropriate riding surface and absolute minimum width of 0.9m at any point where there are obstructions.
Map 9; Land uses along Ronald Ngala Street

LAND USES ALONG RONALD NGALA STREET NAIROBI CBD

Legend
- recreation
- education
- industrial
- residential
- public utility
- public purpose
- transportation
- commercial
- boundary

Source: Author, 2014
3.7 Emerging Issues

a) Strategic location- The study area is located on gently sloping ground thus most of the infrastructure facilities and services can be easily maintained.

b) Existence of various land uses indicate has an implication where by the proposed developments must controlled; so as to allow optimal and sustainable productivity of the area; and adequate provisions of connectivity networks and support facilities.

c) Topographical and vegetation variations are aesthetically advantageous. Mechanisms to make such scenes as hills and forests accessible for tourism purposes ought to place.

d) Expansion of the town extension which is aimed at giving the city adequate reserve land for future expansion. The expansion of the town is influenced by development of various land uses including transport and utility services and the need of the entire city area to not constitute a cohesive planning unit.

e) Efforts of accommodating Pedestrians, Cyclists and Streets Vendors where the vitality of urban life demands a design approach sensitive to the multi-faceted role streets play in our cities. The NCC has designated the back streets and the alleys for the hawking operations. However, later the street vendors re organized the spaces that they were earlier designated ad moved to the street lanes which the illegally acquired the vending areas. This has been the major conflict since most street traders have no tenure for the sites they use, and hence the temporary nature of the structures and display tools they use.
CHAPTER FOUR:

DATA FINDINGS AND ANALYSIS

4.0 Overview
This chapter presents the data findings as collected and analyzed. This analysis has been done in tandem with the research objectives which include the following:

✓ To find out the current functional use activities along Ronald Ngala Street.

✓ To identify the conflicts in the space use, their causes, and effects along the street.

✓ To find out the existing efforts to deal with these conflicts; guiding policies, space requirements, standards and regulations.

✓ To identify the planning implications and intervention measures for future planning and improvement of space allocation and use along the street.

This analysis is geared towards understanding the nature of competition for space, herein referred to as conflicts in space use, and establishing the causes and effects of the same in the Ronald Ngala street with the aim of proposing approaches and strategies that would resolve the problem in the study area.

The study had three basic variables; the first is the measurement of the space, the second was the type of activity or business and the third was the adequacy of the space occupied by each of the activity. All the information was obtained after administering questionnaires to the street space users such as hawkers, pedestrians, matatu operators, and formal business operators along Ronald Ngala Street. Also the additional information with regards to the ‘planning process’ designating the lanes and alleys for the uses of hawkers was obtained from NCC officers, especially the department of Social Services and Housing which has the mandate of providing and maintaining markets. The other information about the situational analysis was obtained from field observation, measurement and photography.

Other NCC departments where information was sort were the Forward Planning, Business Licensing, Development Control and Enforcement Departments. Information from these
sources was obtained through interviews, extractions from records and focus group discussions.

4.1 Characteristics of study subjects

Over thirty-five percent of the street vendors along Ronald Ngala Street belonged to the age category of 25-30 years. Seventy percent of the vendors were female while 30% were male; slightly over half of the vendors (58.5%) were married. Fifty six percent of the vendors interviewed had primary education and 36% had secondary education. Those who had tertiary education formed 5% of the respondents as shown in chart below. It was therefore observed that majority of the street vendors along this street were youthful and literate.

*Chart 3: Level of education*

![Chart 3: Level of education](image)

Source: Author, 2014

According to the study, most of the users of Ronald Ngala Street do not reside around this study area. They stay far from this place in areas such as Eastlands and areas within Kiambu County. Most of these street users come from the low income residential areas within Nairobi.

Most of the people doing business along Ronald Ngala Street, especially those who are employed earn less than Kshs 5000 monthly as shown in the chart below. Those who earn above Kshs 35,000 form the smallest category of the business people along this street according to response from the interviews with the business people. This shows the disparity in income for those who do business along the street. Most of the hawkers in the
study area fall under the lowest earning category where they get little as their income. This further reveals that most business people in the study area come from low income areas within Nairobi such as the slums.

*Chart 4: level of income of the businesses of Ronald Ngala Street*

4.2 Current functional use activities along Ronald Ngala Street

4.2.1 Trading/Business

Business along Ronald Ngala Street according to what was observed during field study can be divided into two broad categories:

✓ Formal business- food and non-food

✓ Informal business- food and non-food

Most of the formal businesses along the street take place within the buildings (exhibition halls and stalls) while few like petrol station are found outside. The informal business along this street as observed during field study were located at different points along the street.
The study revealed that the composition of formal and informal business activities along the street are 34% and 64% respectively, especially during the evening hours from 6pm to around 8.30pm.

This shows that in terms of business activities along the street, informal businesses are operated mostly.

The study revealed that most of the business activities along Ronald Ngala Street especially the informal business activities are located in the pavements of the building within the study area. The businesses located within the shops and exhibition halls are formal businesses.

### 4.2.1.1 Formal business

According to the study, there are formal business activities taking place along the street. The commodities sold here are electronics, clothes, and shoes within the stalls along the street. The street is characterized by a number of shops, stalls, supermarkets, restaurants, hotels and chicken-inns. The supermarkets along this street deal in an array of items such as foodstuffs, utensils, and other household items and services. These are registered businesses and are licensed every year by the Nairobi City County.
Formal business activities along this street were categorized into two clusters;

- **Those dealing in food items**
  Formal businesses dealing in food items in the study area as observed during field study are; hotels, restaurants/bars, chicken-inns and supermarkets. All these are located on the ground floors of the buildings along the street. The supermarkets along the street are Naivas, Ukwala, Tuskys and Nakumatt which deal in variety of food items from raw, processed and ready-made. The hotels along the street are Milano, Gloria and Alfa which are all located on the upper floors of the buildings along the street. The customers who frequent these business premises are pedestrians and motorists using the street.

- **those selling non-food items.**
  The formal businesses dealing in non-food items in the study area as observed during field study are; supermarkets, shops/stalls, exhibition halls and petrol station (Oilibya). All these are registered businesses and operate formally along this street. Most of these businesses are located on the gorund floors for easy access by the customers who are the pedestrians and motorists.
  These formal businesses contribute in the income generation among most street users since they offer employment to many people. Most of these formal businesses face a number of
challenges in their daily operations. These conflicts/ constraints arise from uneffective space occupation and utilisation. Accessibility into these premises is sometimes hindered by the huge number of pedestrians moving along their frontages. The hawkers also spread their wares on the pavement of these formal business premises blocking pedestrian movement and also reducing accessibility into these business premises. As shown in the graph below, most formal businesses within the study area were attracted into the site by the huge customer supply along the street.

Source: Author, 2014

4.2.1.1 Street Vending
Street vending is a common phenomenon along Ronald Ngala Street. According to field study, street vending can also be divided into two as is the case in formal business. These sub-category are; food and non-food hawking activities along the street. Some of these businesses are registered by CNN and pay taxes and other levies on regular basis as shown in the chart below. Most of these informal businesses pay taxes less than Kshs 4,500 per year as shown in the chart.

*Chart 7: Type of taxes of the businesses of Ronald Ngala Street*

Source: Author, 2014
These informal businesses generate income to the operators hence ensuring daily livelihood to the vendors along the street. The businesses offer employment to the operators some of whom completely depend on these business for their livelihood.

During the research, 44.6% of the respondents dealing in hawking activities were fruits and vegetable sellers. This included hawkers who traded in agricultural products for example onions, peas, cabbages, sukuma wiki, arrow-roots, potatoes, maize, French beans, etc and fruits such as bananas, oranges, lemons, pineapples, apples, watermelons and passion fruits.

**Plate 1; Fruits and vegetable vendors along Ronald Ngala Street**

Hawkers selling clothes (new and second hand) constituted 26.4% of hawking sample size while those selling shoes (new and second hand) constituted 14.8%. the hawkers dealing in books and bags constituted 5.2% while those selling sausages/smokies and roasted maize constituted 10% of the hawking respondents.

According to this study, the registration of the informal business activities stands at 20% for registered businesses and 80% for the unregistered businesses. This shows that most of the informal business activities along the street are not registered by the NCC; hence their operations are not recognised by the authority.
The demand for the commodities sold by the hawkers such as food items is high during peak hours when various people using Ronald Ngala Street come from their working places. They pick the items from the hawkers who locate their businesses at points which are easily seen and accessed by their customers. They spread their wares on the pavements which are used by pedestrians as their movement channels. This blocks the movement among the pedestrians and results into human traffic along the street during peak hours. The hawkers along the street according to interviews conducted obtain their merchandise from Gikomba, Muthurwa and Wakulima markets which are not very far from the study area. This saves the hawkers expenses such as transport costs.

Plate 2; Street vendors spreading their out their wares along the street.

According to the study, the main customers for street vendors are; 86.4% for pedestrians; 9.1% for passengers; and 4.5% for motorists.

Pedestrians form the largest percentage of the customers because most of the hawking takes place on the pavements and building frontages which are used by pedestrians as sidewalks and walkways.

The hawkers along the street can further be subdivided into two categories according to what was observed within the study area. These are:

- **Stationed Vending.** This refers to the hawkers who operate at fixed points everyday without moving with their wares. They are mostly newspaper/magazine

![Pie Chart: Main customers for street vendors](chart_9.png)

Source; Field Survey, 2014

Chart 9: Main customers for street vendors

- Pedestrians: 86%
- Passengers: 9%
- Motorists: 6%

Pedestrians form the largest percentage of the customers because most of the hawking takes place on the pavements and building frontages which are used by pedestrians as sidewalks and walkways.
vendors and books vendors. Books vending usually take place around the intersection of Ronald Ngala Street and Race Course road close to Simary Guest house frontage as shown in plate 2. According to information obtained from City Planning Department, there are only two authorized newspaper/magazine vendors along Ronald Ngala Street. They are located on each side of the street; one in front of Family bank and the other on the other side of the street next to Naivas supermarket.

**Mobile Vending.** This refers to the hawkers who keep on moving with their wares from one place to another along the street especially close to the matatu stages along the street. They are usually not stationary in terms of space of operation along the street. According to the study, these hawkers usually spread their wares ranging from foodstuffs such as grocery; vegetables (tomatoes, onions, cabbages, sukuma wiki among others), root tubers such as potatoes, yams, carrots, and casavas; smokies/sausages, boiled eggs, roasted maize, and green grams. They also sell fruits such as mangoes, oranges, bananas, pears, and grapes. All these items are usually spread on the pavements and shop frontages, these block the pedestrian walkways/sidewalks and vehicular carriage way. These usually have negative impacts on the movement and accessibility of the street by both people and vehicles. These are the hawkers who are operating their businesses without registration from NCC hence harassed by the city askaris.

**Plate 3; Hawkers spreading books on the street pavements close to the intersection of Ronald Ngala Street and Race Course Road.**

Hawkers on the pavement and sidewalk of the street selling books. They spread out these books on the street pavements, close to the intersection of Ronald Ngala street and Race Course road where long buses and matatus to Eastlands (Kariobangi, Huruma, Eastleigh, Mathare, and Dandora). This space on the pavement is also used by pedestrians and passengers waiting to board the PSVs to various destinations.

*Source: Field Survey, 2014*
4.2.2 Transportation

The study revealed that there are both non-motorized and motorised forms of transport along Ronald Ngala Street. Motorised transport as observed during field study comprised of both public and private transport means. Public transport along Ronald Ngala Street can be further sub-divided into:

**Public Service Vehicles.** Ronald Ngala Street hosts Ronald Ngala matatu stage which serves PSVs to Nairobi eastlands ad its neighbourhoods such as Kiambu and Ruiru. Long buses to Githurai 44 and 45, and Kahawa West do align themselves along the street close to Nakumatt Ronald Ngala as they await the passengers who use the street pavements. These buses to Githurai and Kahawa West as observed in the field produced loud noise from their hootings. Up the street close to the intersection with Tom Mboya Street there are buses (Double M) to Buru Buru estate. Along the street down to the intersection with Munyu Road there are matatus to Huruma (early in the morning), Thika and KU. Long buses to Dandora are found down the street opposite Oilibya and close to River Road. Matatus and mini-buses to Huruma and Kariobangi are also found at this point. On the other side of the street in front of Tusker House there are mini-buses to Umoja estate. The stage next to Tusker House hosts matatus to Thika and Makongeni.

*Plate 4; Buses and Matatus along Ronald Ngala Street*

Long buses to Githurai, Kahawa West, Thika, Kariobangi, Huruma, Mathare, and Dandora. These buses always park almost across the street carriage way blocking the vehicular movement along the street.

*Source: Author, 2014*
Plate 5; showing buses on both sides of the street

Bodabodas and tuktuks. The bodabodas and tuktuks also use Ronald Ngala Street as public means of transport, transporting people and freight into, and out of the street. Most of the tuktuks using the study area as observed in the field come from areas such as River Road, Muthurua and Gikomba. There is no special provision for these means of transport along the street (no designated points where they can be accessed). They normally use the street carriage way or sometimes squeeze into the pavements along the street.

There are also private means of transport along the street, where private cars use the street since the street provides linkage with other areas within the CBD. Since the study area is two-way traffic on the upper side between Munyu Road and Moi Avenue, the street carriage capacity is usually high especially during peak hours. Lorries supplying the formal businesses such as supermarkets with the commodities also use Ronald Ngala Street especially during off-peak hours (very early in the morning and at night).

Plate 6 Motorist using the same lane as the other means of transport

Motorist using the same lane as the other means of transport (cars, buses, nissans) along Ronald Ngala Street. There is no separation of traffic along this street. No provision for motorists and this causes a lot of accidents along the street.
Non-Motorized Transport along Ronald Ngala Street

NMT transport along the study area is basically comprised of pedestrians, handcarts, wheelchairs and bicycles. As observed during data collection, pedestrians formed the bulk of the NMT mode followed by the handcarts, then bicycles and then the wheelchairs. The pedestrians along the street use pavements/sidewalks which are inadequately provided for and congested by hawkers spreading their wares at different points along the pavements hindering movement and accessibility into the formal business premises along the street.

*Plate 7; Pedestrians walking along the pavements of Ronald Ngala Street*

The handcarts particularly were of different kinds including the mkokotenis, wheelbarrows (used by those who sold sugarcane) and ice cream vendors’ carts. NMT traffic had to scramble for the ever crowded carriage way of the pedestrian walks.

The study revealed that 49% of the respondents along the study area used non-motorized transport, including walking and cycling, only 9% of the respondents used private transport (mainly private cars) and 42% used public transport vehicles.

*Plate 8; Handcart pusher on the street carriage way.*

Source: Author, 2014

Handcart pusher on the street carriage way. There is no provision for the handcarts along this street and this causes...
4.2.3 Religious activities
The study also identified that Ronald Ngala Street is also used by preachers in conducting crusades especially during weekends. The space commonly used by preachers is the open space in front of the enclosed stage next to Tusker House form Munyu Road.

4.2.4 Schooling
The study identified schools and training institutions along Ronald Ngala Street. There are three primary schools along the street namely; CGHU primary, Cutchi Gujarati Hindu Union primary and SSD primary schools next to Posta. There are also two secondary schools next to the post office namely; CGHU Mixe secondary and SSD Mixed Day Boy schools. There is one college along the street; NIBS college within Posta building.

4.2.5 Recreational/Leisure activities
There are bars and restaurants along Ronald Ngala Street which are used by the city residents as leisure points especially during the weekends (Milano and Alfa bar and restaurants).

4.2.6 Petrol station and parking Space
The study identified one petrol station (Oilibya) down at the intersection of Ronald Ngala Street and Race Course road. This petrol station serves both streets. There is also a parking space along Ronald Ngala street in front of Posta and behind bus station next to Tusker House.

Plate 9: parking spaces along Ronald Ngala Street

Source: Author, 2014

4.2.7 Pedestrians’ activities along Ronald Ngala Street
Browsers. Browsers along the street have an interest in what that particular mixed-use street has to offer, commercially and culturally: they are the ‘window shoppers’, and the tourists or visitors admiring the street scene as they walk along.
Socializers. Socializers are there to meet others, to be seen and to converse with others. They tend to stand in groups or walk slowly along the footway, taking up considerable width and may often be oblivious to the needs of other footway users.

Observers. These are usually more solitary people, who in the main observe other people on the street and their activities. They may be seated on a bench, enjoying outdoor facilities offered by a café or public house, or leaning against a wall.

Waiters. These people arrange to meet others at an agreed landmark location along the street; others wait around on the street for friends to complete other tasks, such as shopping or visiting public toilets.

Resters. These people sit down in order to rest and recuperate. They include disproportionate numbers of older people, and those with young children or with heavy shopping bags.

Queuers. Many people queue on the street, to use a cash machine or a telephone, to wait for a shop to open, to gain entry to a club, or to buy something from a street vendor. They may also be queuing for a bus or taxi, or waiting to cross the road.

Workers. From fruit and vegetables to food stuffs, street hawkers are part of a vibrant mixed use environment. Some workers operate seasonally (for example, ice-cream sellers) or at night (smokies and sausages vendors). In addition, there are other people giving out leaflets, soliciting contributions for charities, or just begging. There are also various illegal street activities, such as soliciting for prostitution, or selling black market DVDs/CDs and cigarettes.

Entertainers. Ronald Ngala Street attracts street entertainers, ranging from musicians to jugglers and mime artists.

Customers. Street workers and entertainers along this street depend on customers. Transport also has its street customers.

Inhabiters. Finally, there are some people who are forced to reside on this street for lack of anywhere else to go during the day, or live at night. They may be living in bed-and-breakfast accommodation, or have nowhere to live at all. Shop doorways are appropriated as makeshift beds at night, while street drinkers inhabit particular spaces during the day.

Daily and Timely Differences in Traffic Volumes on Ronald Ngala Street.
The study revealed that there were different traffic volumes at different times of the day and on different days of the week. Much of the congestion along the street took place in the mornings and evenings (between 6am-8.30am and 5.00pm-8.00pm respectively) during the week days, when people went to and came from work places. It was found out that the congestion was less during the weekends. However, 50% of the vehicle operators pointed
out that traffic jams had become a daily phenomenon, and there was no difference between the weekends and the week days.

The conflicts in the space use, their causes, and effects along the street

According to the field study most of the conflicts arise among different categories of street users within the study area. These are:

- Hawking related conflicts
- Open space conflicts
- Pedestrian related conflicts
- Vehicular related conflicts
- Parking related conflicts
- Learning institutions related conflicts

✓ Hawking related conflicts

The hawkers are one of the originators of conflicts within Ronald Ngala Street due to their daily operations within the site. The conflicts arising from the hawking activities as observed from the field would be classified into;

- Conflicts among hawkers (32.9%). The hawkers along Ronald Ngala Street usually scramble for the limited spaces along the street to spread their wares. This is very common among mobile hawkers who normally do not have designated space allocated for their operations. They move from one location to another since they are sometimes harassed by city askaris. This usually results into some hawkers overlapping into other hawkers spaces, which triggers conflicts among hawkers themselves. The end results of these are common fights among hawkers. The major cause of these conflicts among hawkers is lack of designated sites for hawkers operation along the street. There are no markings made for hawkers’ operation by the NCC. Hawkers are not provided for along the street in terms of site of operation. NCC through its Department of Social Services and Housing has not designated back lanes and alleys along Ronald Ngala Street for the use by the hawkers as ideal areas for them to conduct their business activities.
Conflicts between hawkers and formal business premises (28.6%). It was observed from the field that hawkers spread their wares on the building frontages (shops, exhibition halls, supermarkets etc) blocking access into these formal businesses within the buildings along the street. They clump themselves on these spaces making movement and accessibility difficult. The major causes of these conflicts are lack of official sites for hawkers operation and enforcement by NCC.

The hawking activities also trigger conflicts with vehicles (21.4%). Most of the times as observed from the field hawkers use the carriage way selling their commodities to the passengers and pedestrians. Sometimes they spread their wares which sometimes overlap into the carriage way. This common scenario at the junction with River Road and opposite SDD primary and secondary schools. These cause conflicts with the vehicles which sometimes cause accidents along the street.

Hawkers also conflict with pedestrians (17.1%) by spreading their wares on the pavements which are also the sidewalks and walkways used by pedestrians. This blocks or reduces the movement of the pedestrians along the street. It was observed that pedestrians squeeze themselves through the congested sidewalks and sometimes bumping into the hawkers’ commodities spread on the sidewalks.

Source; Field Survey, 2014

According to the study as shown in this chart, space acquisition by hawkers along Ronald Ngala Street majorly does not follow any criteria (85.2%). The hawkers spread their wares along building frontages which are also the pavements with the aim of targeting the pedestrians and passengers. This interferes with both vehicular and pedestrian movement since the hawking activities encroach into sidewalks and pavements, and even the carriage way.
Most of these conflicts generated by the hawking activities (70%) are not solved peacefully by the involved parties while 30% of the conflicts are resolved by NCC askaris, traffic police and watchmen within the study area.

Source; field Survey, 2014

Kenneth Kimathi (2004) showed that spatial dimensions of spaces the hawkers were using as per the different activities along the back lanes and alleys as given by NCC requirement were one metre interval. Nowadays, especially along Ronald Ngala Street, hawkers have modified the spaces to meet their spatial requirements as per the type of the activities they are undertaking along the street. This means that they are currently operating from spaces larger than the 1.0×1.0 metres designated by the city county. This forms one of the causes of conflicts in space use among hawkers along this street. Other cause of conflicts between hawkers and the city authority are shown in the chart below:

Chart 12: Cause of confrontation of hawkers with the NCC

According to the study, the major cause of confrontation of hawkers with the NCC is use of undesignated spaces (58%) along the street. This arises due to the fact that most hawkers’ especially mobile hawkers have not been allocated official spaces for their operations along the street. Some of them are harassed because they operate without license.
Open space conflicts

The study identified that there are also some conflicts that arise from the use of the open spaces along the study area. Street users such as preachers, business promoters (GOTV, mobile service providers, and mobile phone promoters) sometimes scramble for these spaces along the street. They erect their display tents in these open spaces blocking other users from using such open spaces along the street. These conflicts are mostly experienced within open spaces close to Tusker House (in front of the stage behind bus station) and down the street at the junction with River Road (next to SDD primary and secondary schools).

Pedestrian related conflicts

It was also observed from the field that there were conflicts that were triggered by the pedestrian activities along the street. Pedestrians are not properly provided for along the study area and sometimes use the carriage way and the road medians. This leads to numerous accidents along the street. It also reduces traffic flow along the street since motorists have to push their way through the crowded carriage way (vehicles, pedestrians, handcarts). There are also few designated crossing points (zebra crossing) for pedestrians along the study area. This results into pedestrians crossing anywhere along the street, sometimes leading to accidents.

Vehicular related conflicts

The field study revealed that some conflicts arise from the vehicles using Ronald Ngala Street. During peak hours vehicles are usually many along the street. with the current width of the carriage way and increasing number of vehicles within the study area, the street’s holding capacity is overwhelmed causing vehicles to sometimes collide with one another along the street. Vehicles sometimes swerved out of the carriage way into the sidewalks causing accidents due to careless driving. Long buses to Githurai, Kahawa West and Dandora cause huge congestion along the street, especially around post office and River Road.

Parking related conflicts

It was also observed that there are few parking lots along Ronald Ngala Street. the available spaces are misused by those who park. The condition of the parking space in front of post office is poor since there are many potholes within this parking space.

Learning institutions related conflicts

There are three primary schools, two secondary schools and one college neighbouring post office. Learning in these institutions is affected by noises from hooting buses and matatus
and other street users. School going children are faced with problem of crossing the busy street when coming to school and going home.

Other conflicts experienced along the study area according to the field study are;

![Chart 13: Conflicts within the area](image)

Source: Field Survey, 2014

### Health risks

The study revealed that there are a number of health risks facing the street users in the study area. In addition to the congestion that hawkers cause along Ronald Ngala Street, there are also health concerns to selling food within the study area. Vegetables and fruits are displayed on pavements between Mfangano street and River Road especially close to Nakumatt Ronald Ngala which fronts matatu stage. This exposes these foodstuffs to dust and engine fumes along this street. The hawkers using these spaces leave paper wrappings and garbage from vegetables all over the street, making the street unclean.

Motor vehicle emissions especially from the long buses and matatus have health effects which may be exhibited with short term exposure among street users, including wheezing, coughing, shortness of breath phlegm and sore throats as well as irritation of existing respiratory conditions such as asthma.

### Environmental pollution

Environmental pollution such as waste water disposal, storm water drainage, litters and wrapping papers, waste from foodstuffs and vegetables are evident close to the junction of the street with River Road where many vehicles and people.
• **Obstruction of traffic**

Hawkers along Ronald Ngala street as seen in the photos taken from the field, spread their wares on the sidewalks forcing pedestrians to use carriage. This creates traffic snarls along the street.

• **Space tenureship**

Space allocation and tenureship along Ronald Ngala street is another challenge experienced along the street. There is no proper laid down procedure for allocation of space of operation especially for hawking activities along this street. hawkers end up using undesignated spaces to spread their wares. The result of this is congestion arising from blockage of sidewalks by the hawkers.

**Operational challenges faced by street users within the study area**

Some of the challenges faced by street traders along Ronald Ngala Street according to the study are congestion (18%) within the street. This congestion makes accessibility of the business sites difficult. Obstruction (18%) is also another challenge faced by the traders, without forgetting the fact that most street hawkers have no permanent place to operate their businesses within the study area. The formal businesses operating within the stalls in the buildings face the challenge of small stalls which cannot accommodate their activities effectively. Theft is also another challenge that street users face within the study area. Some of the hawkers are also harassed by NCC officials on a daily basis due to lack of license for conducting business along the street.

**Chart 14: Operational challenges faced by street users within the study area**

![Chart](chart.png)

*Source: Field Survey, 2014*
Safety of the street for pedestrians is another challenge within Ronald Ngala Street due to pedestrian congestions that arise from hawking activities blocking the pedestrian walkways and sidewalks. The street safety for pedestrians is largely average meaning at times the safety deteriorates especially when people are many along the street and also at night hours. Pedestrian facilities such as walkways/sidewalks, zebra crossings and precincts are also not adequately provided for along Ronald Ngala Street.
According to the traffic count made on the busier Ronald Ngala Street, which is very intensively used during the course of a day, it was found that the street accommodates approximately 5,000 to 8,000 vehicles per day, and the sidewalks around 50,000 pedestrians per day. At the busy Ronald Ngala-River road junction, around which are clustered the larger shops and the matatu stage, combined vehicle flows can exceed 10,000 vehicles per day through the junction, and pedestrian flows in the vicinity are around 60,000 people per day – resulting in an extremely intensive node of conflict and activity.

When this activity is looked at in more detail, we find that, as well as being a major commercial street, the street forms an important commuter zone where buses and matatus to different areas within and outside Nairobi are found.

**Satisfaction with access to the area**

Street users were asked for their views about access to the street when they use buses/matatus and in relation to levels of car-parking provision within the study area. There was very little customer satisfaction with bus provision along the street, with between 74% and 76% of respondents identifying this as a concern; clearly, the study perceived the street to be very inaccessible by bus and pedestrians during rush-hours. The proportions expressing dissatisfaction with car parking are greater, at between 57% and 60%. Moreover, businesses along the street affirmed that their customers have problems with car parking, with figures ranging from 71% to 86% of businesses expressing dissatisfaction.

This greater concern about customer car-parking provision among businesses probably reflects the greater expenditure per trip by car-borne customers.

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Cyclists who use this street also face a number of challenges as revealed by the study. Some of them face the challenge of being knocked by many vehicles that are usually found along the street. There are no provisions for cyclists along Ronald Ngala Street. This hinders their operations along this street.

**Chart 15: Safety to cyclists**

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average</td>
<td>33.31%</td>
</tr>
<tr>
<td>Unsafe</td>
<td>66.69%</td>
</tr>
</tbody>
</table>

*Source: Field Survey, 2014*
Conflicts with through traffic

Illegal parking and loading

Illegal parking and loading along Ronald Ngala Street always blocks the traffic lane and considerably reduce traffic capacity.

Along the street, space is usually provided on the carriageway for vehicles to bypass to the left of a right-turning traffic queue, by preventing kerbside parking and loading in the vicinity. When vehicles do park illegally in such locations, traffic can back up on the main road and a queue develops quite quickly. These do take a considerable time to clear even after the offending vehicle has moved on.

However, illegal parking does not always delay moving traffic. On the lower side of Ronald Ngala Street, for example, there is no provision for kerbside parking and loading, and cars and vans frequently park illegally, partly on the footway, for periods ranging from a few minutes to more than an hour. The local traders have asked that some legal parking be provided along this section of street.

Traffic delays caused by buses and matatus

While buses and matatus play a significant role in providing a sustainable and socially inclusive method of travel to the street from further afield, in some situations buses and matatus were observed to significantly delay link traffic flows.

Traders along the street reported that traffic delays were caused by buses and matatus waiting at certain matatu stages for passengers to board and alight like at the junction of Munyu Road with Ronald Ngala Street; this affected not only general traffic movement, but also other buses.

The field study revealed that occasionally, while one bus is using the matatu stage, a queue of more buses develops behind. This clogs up the street carriageway and causes further delay for all vehicles. During the period of observation, there were three occasions with multiple buses and matatus at the stage especially in front of Nakumatt Ronald Ngala.

Safety and security

Traffic accidents

Traffic accidents do represent a significant problem on the street, due to the high concentrations of vehicles and pedestrians carrying out a broad range of manoeuvres and activities in close proximity. Analysis in the study area found concentrations of accidents at major street junctions, with secondary peaks in some cases close to matatu stages – where people attempt to cross the street informally, to access or alight from a bus. There was also some evidence of small clusters of accidents around night-time activities.
There was a major cluster of vehicle–vehicle and vehicle–pedestrian accidents around the Junction of Ronald Ngala Street and Race Course road, and smaller clusters at several of the other road junctions along the street. In addition, there is large cluster of vehicle–pedestrian accidents that occur away from the formal crossing points, in the vicinity of the matatu stages. Pedestrians crossing at these points away from the formal crossings seem to be at more risk of an accident.

**Street intimidation and street crime**

**Problems on the street**

The street-user surveys asked respondents whether they thought that ‘personal safety on foot at night’ was a major problem on the street and surrounding area. Businesses were asked a similar question, as to whether they thought that this had an effect on reducing the attractiveness of the street to their customers.

Respondents to the on-street survey were then asked more specifically about whether they personally felt pressured or threatened by other people on the street, either at night or during the day. Overall, 53% of street users along the street reported feeling some sort of threat/pressure.

Those respondents who reported feeling threatened or pressured were then asked what the cause of their concern was.

Common concerns were observed, the main way these threats/pressures were expressed was as ‘youth on the streets hanging around’. In addition, the main threat/pressure was ‘drunks/drug addicts’, as previously noted.

The second most stated threats were more generic, for example, ‘general feeling of unease at night’ and ‘street crime/fear of crime’. Interestingly, there were no significant differences between genders concerning the nature of the threats on the street.

**4.4 The existing efforts to deal with these conflicts; guiding policies, space requirements, standards and regulations**

In this objective regarding the efforts to deal with the above conflicts, guiding policies, space requirements, standards and regulations, it should be noted that the allocation of space to the hawkers within the Nairobi CBD started in 2003 and the overriding strategy by the government through NCC was to try and help bring sanity into the whole spectrum of the urban commercial business activities in the city with reference to hawkers and the formal businesses. According to Kenneth Kimathi (2004), hawkers were driven by the market and customers and also by the existing difficult economic conditions, which had made many people jobless in the city. At that time, the present government (NARC) had been elected in December 2002, and majority of its supporters in urban areas were informal traders who had been harassed by the previous government officials.
The major challenge that faced the NARC government (Kimathi, 2004) was how to restore economic growth, generate employment opportunities to absorb the large numbers of the unemployed, particularly the youth, and reduce poverty levels. The overwhelming support given to the new government by the informal traders was resounding indication that they needed radical changes that would make urban spaces and attractive place to live and a place to feel at home and do business. After a number of meetings with the hawkers, the Minister of Local Government directed the NCC to come up with a solution to the crisis the city was facing with regards to the harassment of hawkers and provide them with trading spaces.

It was from this premise that NCC decided to register all the persons or hawkers who wanted to hawk within CBD, registering approximately 6000 people. For the NCC, their aim was to provide as many spaces in the back lanes after registering 6000 hawkers who wanted to be accommodated and provided with ‘ideal’ trading space within CBD. The local authority marked hawking sites, and introduced a ‘Nairobi Central Business District Street Vendor’s Permit’. It was mandatory for each hawker who wanted to operate in the designated areas within the CBD to register and was supposed also to pay Ksh 130 in order to obtain permit. The hawkers would then be allocated a trading space after balloting with regards to the activity or type of goods and the area designated for hawkers trading in those particular goods.

4.4.1 Access to Markets and Market Relations

The market for street vendors especially in Ronald Ngala Street is largely the pedestrians who pass by on their own businesses. In a few cases, especially when street vendors have done business in one spot for a long time, customer relations develop thereby expanding the market beyond the pedestrians. Overall, the high transport costs and low profits prohibit street traders from accessing better markets in most of the research and case studies. The market relations are mutual, except in cases where there is intense competition among street vendors. Poor location of business, low purchasing power among customers and unreliability of customers who take goods on credit also affects the market. In addition, low levels of professionalism due to low technical education among vendors and low access to modern information communication technologies on productivity information hinders their performance in business marketing.

4.4.2 Business Development Services

Street vendors require a number of services, which include financial and non-financial services. The non-financial services include: Business Development Services [BDS], storage facilities, sanitary services, water, and electricity. Whereas the financial services are minimal, the non-financial services are hardly provided to street traders. A few Micro Financial Institutions focus on informal economy activities. However, their interest rates are high some charging more than 20 per cent. In view of the above, the main sources of
finance for traders are cooperatives, Rotating Savings Credit Associations [ROSCAs], relatives and friends. These sources provide low amounts of finances that are not adequate for expanding the businesses. In addition, the associations are plagued by governance problems, including leadership and mismanagement.

4.4.3 Institutional framework

Efficient institutional and legal framework is important for ensuring the smooth operations of business. Inappropriate regulations raise the cost of business entry, growth and distort markets. The NCC is the main institutional framework for informal activities including street trade along streets which has generally been hostile in most parts of Nairobi. The policies, by-laws, regulations, registration, licensing, organizing, relations with government and other partners.

4.4.4 Policies and Regulations.

These are tools for setting standards in the provision of public goods and services. Policies protect consumers, investors and the general public, while by-laws set controls that ensure that urban areas are safe and clean. In the area of street vending, by-laws set standards in the provision of public goods and services provided by the street vendors and the expected manner of operations. They also enable the Local Authorities to collect revenue for payment of services such as refuse collection and management of vending sites.

From the research, majority of street vendors in Ronald Ngala Street indicated that the policies were inappropriate, while only a few indicated that they were appropriate. The reasons for thinking that policies are inappropriate, include: expensive daily charges, poor and insecure working locations, inappropriate hours of business, poor locations for business, constant harassment, confiscation and loss of goods by NCC officials and poor e

The research also show that, although the NCC officials collect revenue from vendors, street vendors along Ronald Ngala, hardly participate in important issues such as planning and management of urban development. There is poor communication between the NCC and street vendors and their associations. There is hardly any dialogue, and relationships are largely determined by favoritism, nepotism and corrupt practices. Thus, the vendors have no influence on any policies developed for managing their operations, while the urban authorities hardly provide services nor are they accountable to vendors. This has affected potential joint action and impaired relationships between vendors and urban authorities. This is partly due to a lack of joint action by the different weak vendors associations.

Their weakness has partly contributed to the imposition of decisions by NCC on their operations. In order for street vendors and their associations to influence policy, they need to be organized with well-established effective channels of communication with NCC.
4.4.5 Registration and Licensing

In Nairobi licensing of street traders is a major problem and has contributed to the confrontation between street traders along Ronald Ngala Street and NCC officials. Few street vendors have a license to trade. The prevailing situation is that many vendors are trading without any license. The NCC officials charge daily fees, while others fear that this would attract more street vendors in the streets. The process of obtaining a license is cumbersome from the research, and mostly the NCC issue very few vending licenses and generally have a negative attitude towards vending. In Ronald Ngala Street, those who get a license have to either pay a bribe or are well connected to urban authorities or influential personalities.

Obtaining a license does not give street vendors full trading rights. Vendors have to observe other trading requirements, for example, trading in approved or designated areas, and observing health requirements. While this is appropriate, a majority of street traders are not aware of the details of the health requirement. This results in their licenses being confiscated for not observing health requirements.

4.4.6 Infrastructure and service provision

The Research shows that most street vendors along Ronald Ngala Street operate in places that lack infrastructure and services such as access roads, water, electricity, refuse collection, sanitary and storage facilities. In few trading sites refuse collection is done, but water and sanitation, electricity, storage and day care facilities are lacking. The NCC use the fact that the traders are not licensed, as a justification for not providing services. However, in many of the street vendors are charged daily fees, which is cumulatively more expensive than the cost of an annual license. Since the street vendors either lack or have weak associations, they are not able to lobby for service provision and fair fees.

4.4.7 Conflict Management.

In Nairobi where street vendors’ relocation was done in Nairobi City Council, the authorities did not use associations of street vendors. They selected individuals located in different sites where vendors operate to form a `listening and order based team’ as opposed to a negotiation team. Although relocation has been done outside the CBD, the process encountered a number of problems, which affected the outcome. The relocation process involved a lot of fight and constant placement of NCC enforcement officers in formers street vendor’s sites of operation aimed at ensuring that they do not continue trading. From the research it shows lack of dialogue and adequate negotiation, an aspect that can be attributed to the failure to use established associations and leaders who the vendors identify with. An appropriate approach for dealing with street vendors has to be based on street vendors associations. In cases where associations either do not exist or are weak, the authorities in collaboration with other stakeholders have to take the deliberate option of nurturing associations.
4.4.8 The way forward

This synthesis shows that street vending along Ronald Ngala Street is an important as a source of income and employment in all the case studies. Vending provides an opportunity that minimizes the impact of social exclusion for many urban residents. From the research, despite the important role of street vending, the activity is less understood, less recognized, and unaccounted for in National economic statistics. This has resulted in lack of enabling policies, regulations and organization of the sector.

The street traders work in hostile environment without basic infrastructure and services, but full of harassment, including beating and confiscation of goods by urban authorities. They face both market and investment problems. Overcrowding, dwindling sales due to poor location and low purchasing power among customers are some of the market problems. Investment problems include: lack of capital, secure site of operation, corruption, heavy taxation and confiscation of goods by urban authorities among others.

There is need for NCC to address policies, regulations and organization of street vending. We can learn from South Africa Case which it provides a lesson on what constitutional and policy response can do to informal economic activities. The policy environment of South Africa is comparatively supportive of street trade. The policies, as the country, are in transition and give every stakeholder a chance to make contribution to economic development.

In order to ensure formulation of relevant policies and laws governing street trade, NCC must be committed to change. In collaboration with other development partners, they must strengthen street vendors associations to enable them lobby for vendors’ interests in the context of economic reforms taking place along Ronald Ngala Street.
4.5 Emerging Issues

a) Conflict of space (Hawking related, open space, Pedestrian, Vehicular related and [parking related conflicts) that calls for redesigning of various land uses within the study area to accommodate then sustainably.

b) Risks of space conflicts such as safety, health risks and environmental pollution that calls for immediate planning intervention of the area.

c) Policies and by laws intervention is necessary in the study area so as to reduce space conflicts within the study area especially allocation of space to the hawkers within the Nairobi CBD and the overriding strategy is to try and help bring sanity into the whole spectrum of the urban commercial business activities in the city with reference to hawkers and the formal businesses.

d) Rehabilitation and street planning, design, management and operation to suit the set standards- It is important that road safety issues are examined within a systems framework that takes into account and gives equal footing to the road, the road user, the vehicle and the overall environment. This framework is of great relevance and can be used effectively when analyzing and planning for the entire transport system, or specific aspects of it, such as pedestrian and cyclist access as well provision of space for street vendors.

e) Suitability of planning regulations- This calls for Rehabilitation and redesigning of transport infrastructure to suit the set standards especially on the NMT and MT transport. There were concerns and acknowledged dilemmas by the NCC officials about how detailed and strict planning regulations on the streets should be, and how much they are actually adhered to.
CHAPTER FIVE:

PLANNING AND POLICY IMPLICATIONS OF THE FINDINGS

5.1 Overview

The purpose of this project was to study the conflicts in space use along Ronald Ngala Street and to analyze the factors that contribute to conflicts in space use along the street and their consequences, with the view to propose appropriate intervention measures to this problem. It thus sought to critically examine into the nature of problems that led to the persistent conflicts in space use irrespective of past efforts to curb the situation. Chapter four has clearly provided a detailed discussion of the findings which have sought to respond to the first three objectives of the study i.e. to find out the current functional use activities along Ronald Ngala Street, to identify the conflicts in the space use, their causes, and effects along the street, to find out the existing efforts to deal with these conflicts; guiding policies, space requirements, standards and regulations.

This chapter therefore offers a synthesis of the major emerging issues and problems identified in the earlier chapters (2, 3 and 4), with critical consideration on chapter 4 under study findings and analysis the problems are examined in relation to their causes and effects as well as their planning implications.

Further, in this chapter, there is a discussion of the recommendations that are deemed fit to respond adequately to the identified problems.

5.2 Summary of the emerging issues from Chapter 2

a) Role of Urban Space-Urban life, social relations exist to the extent that they possess a spatial component: they project themselves into space, becoming inscribed there, and in the process producing that space itself.

b) Sustainable Space organization by recognizing all dimension of space and integrating them together into a whole holistic view e.g. public spaces, urban spaces and especially where there is no clear distinction of the space for containing or occupation or accommodating specific functional uses activities especially in urban areas (operational space).

c) Reduction of space conflicts by promoting a sustainable space use especially matters to do with Public interest, Public spaces and conflicts in Space use along a street. Hence there is need for planners to define address the diversity of urban space concept so as to avoid conflict between the interests of various publics or discourse communities.

d) Role of street spaces- The street spaces not only forms a means of access to or through locations but also acts as an arena for social expression. The street as a public place supports a plethora of human functions forming a place of interconnection between the social, economic and cultural as well as environmental aspects of human activity.
e) Land use-Transport Interaction where each land use has its own specific mobility requirements and therefore transportation is a factor of activity location, which in turn is associated with specific land use.

f) Urbanization- The process of urbanization also influences physical developments in cities. It necessitates residential, commercial and recreational developments. These activity spaces must be inter-linked by good transportation networks because they operate in a synergistic manner. Thus, the higher the rate of urbanization process, the more the need for better transport facilities.

g) Empowerment from the policy, legal and institutional framework such as the vision 2030, Integrated Kenya National Transport Draft Policy, the respective Ministries, The Constitution of Kenya (2010) that all advocate for good transport system so do the laws. Most of them however have not recognized the need for integrated land use-transport planning.

5.3 Summary of the emerging issues from Chapter 3

a) Strategic location- The study area is located on gently sloping ground thus most of the infrastructure facilities and services can be easily maintained.

b) Existence of various land uses indicate has an implication where by the proposed developments must controlled; so as to allow optimal and sustainable productivity of the area; and adequate provisions of connectivity networks and support facilities.

c) Topographical and vegetation variations are aesthetically advantageous Mechanisms to make such scenes as hills and forests accessible for tourism purposes ought to place.

d) Expansion of the town extension which is aimed at giving the city adequate reserve land for future expansion. The expansion of the town is influenced by development of various land uses including transport and utility services and the need of the entire city area to not constitute a cohesive planning unit.

e) Efforts of accommodating Pedestrians, Cyclists and Streets Vendors where the vitality of urban life demands a design approach sensitive to the multi-faceted role streets play in our cities. The NCC has designated the back streets and the alleys for the hawking operations. However, later the street vendors re organized the spaces that they were earlier designated ad moved to the street lanes which the illegally acquired the vending areas. This has been the major conflict since most street traders have no tenure for the sites they use, and hence the temporary nature of the structures and display tools they use.

5.4 Summary of the emerging issues from Chapter 4

a) Conflict of space (Hawking related, open space, Pedestrian, Vehicular related and parking related conflicts) that calls for redesigning of various land uses within the study area to accommodate then sustainably.
b) Risks of space conflicts such as safety, health risks and environmental pollution that calls for immediate planning intervention of the area.

c) Policies and by laws intervention is necessary in the study area so as to reduce space conflicts within the study area especially allocation of space to the hawkers within the Nairobi CBD and the overriding strategy is to try and help bring sanity into the whole spectrum of the urban commercial business activities in the city with reference to hawkers and the formal businesses.

d) Rehabilitation and street planning, design, management and operation to suit the set standards- It is important that road safety issues are examined within a systems framework that takes into account and gives equal footing to the road, the road user, the vehicle and the overall environment. This framework is of great relevance and can be used effectively when analyzing and planning for the entire transport system, or specific aspects of it, such as pedestrian and cyclist access as well provision of space for street vendors.

e) Suitability of planning regulations- This calls for Rehabilitation and redesigning of transport infrastructure to suit the set standards especially on the NMT and MT transport. There were concerns and acknowledged dilemmas by the NCC officials about how detailed and strict planning regulations on the streets should be, and how much they are actually adhered to.

5.5 Causes and Effects of Issues Identified in Chapters 2, 3 and 4

5.5.1 Land use related Conflicts

The land uses along Ronald Ngala Street competing for the space include public purpose such as primary and secondary schools (CGHU Mixed Secondary and Primary Schools, Cutchi Gujarati Hindu Union Primary school), which are next to the Ronald Ngala Post Office, colleges (NIBS) and post office, commercial activities and developments such as hawking, exhibition halls; transportation land use such as matatu stages, street carriage way, pedestrian walkways and sidewalks and public utilities such as sewerage, storm water drainage, water supply, and electricity lines. Essentially, the space along this street is one of the highly competed for areas in the Nairobi CBD with most businesses fronting the street extending into the street space (street pavements), and hawkers taking advantage of the high street pedestrians population by spreading out their wares on the pavements/sidewalks/walkways. All these lead to crowding of activities and traffic along the street. This brings about inefficiency of operation along the street, and also conflicts in operation among space users. Congestion together with these conflicting land uses have negative implications on the performance of this street.

Ronald Ngala Street is very significant street within the CBD because of its numerous benefits it presents (it is an essential commuter zone and commercial center). This calls for
proper reorganization of the functional use activities along the street so as to enhance its performance

5.2.2 Lack of Adequate Support Infrastructure

The existing support infrastructural facilities along Ronald Ngala Street especially street furniture such as benches, traffic barriers, bollards, streetlamps, traffic lights, traffic signs, bus stops, taxi stands, and waste receptacles are inadequately provided for. Most of these facilities have been destroyed by the unfriendly on-street activities such careless driving, careless pedestrian movement and activities and failure of maintenance on the side of the NCC. This poses great challenge to the users of the street on daily basis and forms a basis for planning intervention so as to elevate the standards of these facilities.

5.2.3 Hawking related Conflicts

According to the study most of the conflicts arise among the hawkers themselves. They usually scramble for space to spread out their wares. This sometimes leads to fighting among themselves. These hawkers also block access to the formal businesses along the street. This creates conflicts between hawkers and premise owners. The hawking activities also trigger conflicts with vehicles and pedestrians by blocking the movement of the people. Most of these conflicts on the use the pavements and carriage way among different space users have not been effectively resolved by the planning authority within NCC.

Most of the hawking activities along Ronald Ngala Street take place on the pavements of the buildings and this causes obstruction to the formal businesses both from the pedestrians and hawkers’ wares along the street. Accessibility into the shops, supermarkets and other public places by customers become difficult due to huge numbers of pedestrians who spread out their wares in front of the formal business buildings’ frontages. The implication of hawking activities taking place up to the pavements and shop frontages is that the activities reduce the speed of pedestrian movements and accessibility to other businesses within the street. All these also reduce the general performance of the street.

5.2.4 Environmental conflicts

There is environmental pollution such as air and noise pollution and also littering of the street by hawkers during rush hours. This affects air quality making the atmosphere unpleasant and also results in health complications. This in turn causes health problems among people using Ronald Ngala Street. This can be improved through adopting planning that is inclusive of all space users along this street.

5.2.5 Insecurity

Insecurity along the street is another major challenge faced by the street users especially pedestrians. Safety of the street is always compromised by pick-pocketing and mugging practices, which are rampant along the street during rush hours.
Insecurity is on the rise due to inadequate policing facilities and inadequate capacity to curb crime. This has further been made wise by the continued increase of unemployment among the city residents. Lack of efficient security lighting, poor street and alleys have seen an increase in fear of working late thus making the street users adjust their working hours for fear of darkness and being mugged. The insecurity issue has also discouraged investors and service providers thus worsening the already worse street security situation.

Insecurity cases such as crime along this street has also slowed down the use of the street by pedestrians and also hindered the spirit of investments along the street. Proper security measures should be laid down to curb the cases of insecurity along this street by providing 24-hour security surveillance. This will ensure that the street is safe to all street users and at any time either day or night hours.

5.2.6 Conflicts arising from Operation of Motorists along the street

Another major challenge is the operation within the three matatu stages along Ronald Ngala Street (one in front of Nakumatt Ronald Ngala, one opposite Oilibya Petrol station and another one in front of Tusker House). There are usually many PSVs comprising of buses and minibuses which are usually overcrowded especially during the rush hours. This causes huge jam along the street by blocking other vehicles from moving along the street. The stage in front of Nakumatt Ronald Ngala is chaotic on a daily basis since the long buses to Githurai and Kahawa West do park in large numbers hooting all sorts of sounds and blocking the carriage way.

There are always accidents along Ronald Ngala Street caused by the unscrupulous matatu and bus drivers along the street. Pedestrians do get run over by the PSVs along the street. The matatu operators along the street do not observe traffic rules while using the street. They usually swerve from one lane to another without observing other users of the street. These matatus and buses sometimes collide with one another and even overturn along the street causing a lot of jam along the street. The planning and policy implication of these are uncoordinated transport facilities and management by the relevant authority.

5.3 Design guiding principles and concepts for deigning sustainable Streets.

1. Connectivity-There should be interconnected street grid network which disperses traffic and eases walking.
2. **Walkability**—There should be segregation between NMT and MT transport to ease movement.

3. **Urban design**—There should be quality design which embraces aesthetics and human comfort.

4. **Sustainability**—The design should be eco-friendly and minimize environmental pollution.

5.3.1 **The Guiding Concepts are:**

1. Well-designed quality built and natural environment.

2. Well-connected street transport system.

5.4 **Alternative Street planning models/Approaches for Ronald Ngala Street.**

1. **Neighborhood Street Model (NSM)**

NSM Model uses more of an integrated approach in development of streets. It combines storm water management features, curb extensions, vertical speed control elements, and bicycle facilities that encourage safe speeds and meter through traffic. Local streets in residential neighborhoods are often underutilized as spaces for play and leisure. These streets should provide safe and inviting places to walk with direct access to local stores and schools. Design for local streets can combine storm water management features, curb extensions, vertical speed control elements, and bicycle facilities that encourage safe speeds and meter through traffic.

*Figure 7: Illustration of the Neighborhood Street Model (NSM)*

Source: Adapted from University City District, 2011
2. Transit corridor Model (TCM)

Transit corridors, including light rail (LRT), streetcar, and bus rapid transit (BRT), promote economic development around high-quality transit service while fostering a pedestrian scale in which walking and biking actively complement public transit. As major generators of pedestrian traffic, heavy surface transit routes should be prioritized for pedestrian safety improvements in both the immediate surrounding area and major access routes within the transit access shed. When redesigning streets for high-quality transit service, designers should assess how transit service is impacted not only by the geometry of the corridor, but also its existing signal timing, signal phasing, turns, and other operations that may jeopardize the quality of service.

![Figure 8: Illustration of the Transit corridor Model (TCM)](image)

Source: Adapted from University City District, 2011

3. Mixed use Street (MUS)

Mixed-use local high streets serve important transport link functions, both for private vehicles and public transport, their primary identity and role is provided through the place functions that they facilitate. Streets are key determinants of neighborhood livability. They provide access to homes and neighborhood destinations for pedestrians and a variety of vehicle types, from bicycles and passenger cars to moving vans and fire apparatus. They provide a place for human interaction: a place where children play, neighbors meet, and residents go for walks and bicycle rides.
4. A Balanced ‘link and place’ approach/ Model (BLPAM)

A Balanced ‘link and place’ approach/ Model (BLPAM) is a comprehensive and consistent approach to street planning and design that fully recognizes and pays equal attention to the link and place functions of mixed-use streets. This will first require a better understanding and codification of the place functions of urban mixed-use streets.

In most high streets, this rebalancing is likely to require a shift in the current allocation of space provision, away from giving first priority to through traffic, to a greater concern with improving local access modes, and making better provision for footway activities, public amenities and public spaces. This rebalancing of priorities and space allocation is already starting to happen in some parts of the UK, such as Newland Avenue in Hull, Cowley Road in Oxford and Walworth Road in South London, with the twin objectives of improving the street environment and reducing accident rates.

Success of a Balanced ‘link and place’ approach/ Model (BLPAM) is likely to depend on micro-aspects of design, such as the precise location and orientation of public seating, taking into account both their patterns of use and their impact on movement along the footway. Improvements also need to be skilfully introduced, so that they do not lead to commercial pressures that exclude the existing businesses or groups of people who have contributed to the character of the area.
Fig 10: Illustration of a balanced ‘link and place’ approach/ Model (BLPAM) on London Road, UK.

Source: TfL AIMS database; Ordnance Survey, © Crown copyright, all rights reserved.

5.4.1 Evaluation of the Alternative Street planning models/Approaches for Ronald Ngala Street

Streets are the lifeblood of our communities and the foundation of our urban economies. They make up more than 80 percent of all public space Nairobi city and have the potential to foster business activity, serve as a front yard for residents, and provide a safe place for people to get around, whether on foot, bicycle, car, or transit. The vitality of urban life demands a design approach sensitive to the multi-faceted role streets play in our cities.

1. Neighborhood Street Model (NSM)

NSM Model uses more of an integrated approach in development of streets. On 1-way neighborhood streets, travel lanes may be striped to narrow the perceived width of the roadway. An undifferentiated traveled way encourages higher speeds. Crash rates have been shown to increase as lane width increases. However, its major strengths include, left-side bike lanes that reduce the risk of dooring conflicts and are an effective treatment for most neighborhood streets. Raised crosswalks or curb extensions maintain safe travel speeds and reinforce the residential nature of the street.
There is adequate Parking. When parking opportunities are inadequate, people are more likely to park illegally in locations that may block access by emergency service vehicles and lastly it promotes Connected street net-works which provide multiple ways for emergency response vehicles to access a particular location and multiple evacuation routes. In addition, a connected street system encourages slow, cautious driving since drivers encounter cross traffic at frequent intervals.

2. Transit corridor Model (TCM)

Transit corridor Model coordinates with land use changes to maximize a corridor’s potential for economic growth and physical transformation. Setback guidelines and other land use regulations should be tailored to create a pedestrian-scale environment. A raised cycle track on both sides of the corridor promotes the combination of bicycle and transit usage. A center-running 1-way or 2-way cycle track may be preferable in some cases to reduce the dangers of turning conflicts in combination with transit. Enforcement measures should be put in place to discourage encroaching vehicles from using the dedicated bus lanes. In some cases, median transit lanes may serve as a route for emergency vehicles.

Corridors with high transit traffic, where double-parking and local traffic pose obstacles to effective transit, should be considered for BRT, LRT, or streetcar. High-quality transit service and lanes decrease conflicts between buses and through traffic on heavy transit routes, can speed travel times, and reinforce the desirability of transit as an option. Wide transit corridors are challenging to cross in a single cycle. Consider the tradeoffs between shortening signal cycle lengths and providing sufficient time for all pedestrians to cross the street.

The design of a transit stop is an opportunity to reinforce the speed and desirability of the system. Shelters and stations should be built to accommodate the typical number of waiting passengers at the peak hour. The major drawback of this model is it expensive to implement especially in Kenya which has not included light rail (LRT), streetcar, and bus rapid transit (BRT), to promote economic development around high-quality transit services.

3. Mixed use Street Model (MUSM)

Mixed use Street Model (MUSM) encourage residents to walk or cycle to retail, leisure and public facilities in their local area. However, for their economic survival, businesses also depend on customers drawn from further away. The evolution of these streets on arterial routes, served by high-frequency public transport services (bus and underground), means that they provide good accessibility for a wider base of regional customers, enabling many of them to use more sustainable means of transport than cars. The major strengths of this model are:
Facilitating social inclusion- In general, the three case study areas appear to be able to attract a wide range of population groups, in terms of age and ethnicity, that are both representative of the local area and are drawn from a wider catchment area. The streets are accessible to those without access to a car, as well as to car drivers.

Providing community focus and local identity- Mixed-use streets provide a natural focal point where local people can meet friends, both formally and informally, by appointment or by chance. They offer many opportunities for unplanned encounters, and enable people to expand their personal horizons by observing those from other cultures and with other perspectives, in a non-threatening environment. As important meeting places for social activity, mixed-use streets help to sustain and build local community capacity and social capital, and can contribute to reducing feelings of isolation and depression. For many people, the local high street represents the physical and cultural heart of their community, providing a valued sense of local identity.

Offering safe environments- although mixed-use local high streets appear to function well in many ways, contributing to several of the sustainability criteria, they are not generally perceived to be pleasant public spaces in which to spend time, either by local residents or visitors. Their physical environment does not contribute to environmental sustainability or livability, thereby detracting from their attractiveness and risking undermining their future use, and hence their ongoing contribution to economic and social sustainability.

Major Critique

Dominance of traffic in the street scene- In mixed-use streets the design of the high street has given priority to the link traffic function over the place activity function. In all three of the case study areas, the most significant problems that street users and residents identified related to the volumes of road traffic on the high street, and associated concerns about traffic dominance, including air pollution and traffic noise.

4. A Balanced ‘link and place’ approach Model (BLPAM)

The successes of the case study streets were achieved despite tensions and problems that affected both their link and place functions, and had a detrimental effect on the streets as livable spaces. Mixed-use local high streets serve important transport link functions, both for private vehicles and public transport, their primary identity and role is provided through the place functions that they facilitate. A comprehensive and consistent approach to street planning and design is required that fully recognizes and pays equal attention to the link and place functions of mixed-use streets. This will first require a better understanding and codification of the place functions of urban mixed-use streets.

BLPAM approach overcomes the Mixed use Street Model (MUSM) by the fact it reduces traffic dominance, accident risk and severance by widening footways, adding barrier-free
median strips, planting greenery, providing extra controlled pedestrian crossings, and introducing 20mph zones.

5.4.2 Choice of the preferred Street planning models/Approaches for Ronald Ngala Street
As seen from the alternative street models One of the greatest design innovations will come from a recognition that footways cater for a wide range of pedestrian place activities and sensitively catering for them without formalizing space use too much and so jeopardizing the attractiveness that comes from the buzz of diverse, interacting and intensive street activity.

Success is likely to depend on micro-aspects of design, such as the precise location and orientation of public seating, taking into account both their patterns of use and their impact on movement along the footway. Improvements also need to be skilfully introduced, so that they do not lead to commercial pressures that exclude the existing businesses or groups of people who have contributed to the character of the area.

The preferred development scenario for Ronald Ngala Street is the balanced ‘link and place’ approach Model (BLPAM) which is in line with improved Space Allocation and Utilization. The major strengths that this model will address as far as Ronald Ngala Street is concerned include:

a) Enabling street spaces the hawkers should be relocated to other designated locations where space can be reorganized to accommodate most of them such as Muthurwa and Kariorkor Markets where rearrangement is possible. This will help to decongesting the street which is normally flooded with many hawkers spreading their wares on the pavements of the buildings along the street. This could also facilitate the efficient flow of traffic along this key business street.

b) Provision of parking space where vehicles operating along Ronald Ngala Street use the inadequately provided parking spaces along the street such as those parking close to Ronald Ngala post office and Tusker House. These existing parking spaces are few and in most cases vehicles are usually parked on the road leading to congestion hindering vehicular movement along the street. Proper parking spaces need to be provided for along the street to solve the problem of parking along the street.

c) Reorganization of functional activities along the street. The model will enhance the accommodation of various activities, movement functions, utilities and parking spaces along the street. This will reduce conflicts in space use along the street. Major street components such as commercial activities, public purpose land use, public utilities and other land uses need to be developed to enhance functionality of the street.

d) Supporting economically sustainable centres- Strong transport links, both regionally and locally, contribute to the economic sustainability of the local high street by providing good access for customers drawn from a wide catchment area. By providing vibrant centres for local business activity, the balanced ‘link and place’ approach
Model (BLPAM) also contribute more generally to sustaining their local economies. Well-balanced ‘link and place’ approach local high streets are able to achieve high levels of satisfaction among their local and visitor populations in terms of the services they provide.

e) Providing street lighting that facilitates the various footway activities assists with way finding and provides a strong sense of personal security, as well as meeting the needs of road traffic. Support facilities such as street lights and water supply need to be enhanced along the street. Street lights will ensure that there is safety during night hours by providing adequate lighting of the street.

f) Reducing street clutter and improving the quality, attractiveness and cleanliness of the footway and frontages. The situation of Ronald Ngala Street during rainy seasons is usually worse. The water floods the whole street, making movement of pedestrians difficult. There is need for provision of proper storm water drainage system along the street to solve the problem of flooding when it rains.

g) Improving and increasing the number of public amenities, such as seating, lighting and well-maintained public toilets, and providing a generally higher-quality public realm; there is inadequate street furniture along Ronald Ngala Street and the model will lead to improvement of street furniture along the street. People using Ronald Ngala Street need to have sites where they can sit and rest. Street furniture such as benches, traffic barriers, bollards, streetlamps, traffic lights, traffic signs, bus stops, taxi stands, watering troughs, and waste receptacles need to be provided for along the street.

h) Coordinating public transport provision to facilitate informal modal interchange and reduce traffic and pedestrian congestion, and accidents.

5.5 Recommendations

To adequately respond to the above problems and to achieve the normative view of a well performing urban street system, the following are recommended:

- **Relocation of hawkers.** Hawking activities are common along Ronald Ngala Street especially during the evening hours from 6pm to around 8.30pm. The spaces hawkers use along this street are small and along pavements and pedestrians walkways/sidewalks. The hawkers along this street have reorganized their spaces of operation and with their huge numbers the street proves inadequate in terms of hawkers operation. Therefore, the hawkers should be relocated to other designated locations where space can be reorganized to accommodate most of them such as Muthurwa and Kariorkor Markets where rearrangement is possible. This will help to decongesting the street which is normally flooded with many hawkers spreading their wares on the pavements of the buildings along the street. This could also facilitate the efficient flow of traffic along this key business street.
• **Policy enforcement by the NCC on the use of the street by buses and matatus along the street.** This should be carried out by the NCC officers who should ensure that these vehicles do not interfere with other space users in terms of encroachment into the pavements, proper alignment of the vehicles as they pick passengers within the matatu stages in the study area. This will reduce the space conflicts along the street and reduce the vehicular congestions. Accidents caused by the motorists will also reduce through the enforcement of traffic rules along the street. The buses should operate in a manner that they don’t clump themselves together along the street at a particular time. They should be ordered properly along the street such that there are only a maximum of three buses picking passengers at a particular time.

• **Development of street furniture along the street.** There is inadequate street furniture along Ronald Ngala Street and this calls for urgent improvement of street furniture along the street. People using Ronald Ngala Street need to have sites where they can sit and rest. Street furniture such as benches, traffic barriers, bollards, streetlamps, traffic lights, traffic signs, bus stops, taxi stands, watering troughs, and waste receptacles need to be provided for along the street. The space that will be used here is the space next to Family bank fronting Moi Avenue and the open space next to Tusker House, the space fronting the matatu stage.

• **Improvement and Upgrading of Infrastructure and Service Facilities.** The existing infrastructural and service facilities within Ronald Ngala Street require improvement. The street carriage way’s condition requires proper recaperting and maintenance. This shall enable the street to accommodate the high traffic flow that is generated along the street. The capacity of the sewer and drainage channels need to be upgraded for them to meet both the current and future demands of the street.

• **Improved Space Allocation and Utilization along Ronald Ngala Street.** There is need for the reorganization of functional activities along the street to enhance the accommodation of various activities, movement functions, utilities and parking spaces along the street. This will reduce conflicts in space use along the street. Major street components such as commercial activities, public purpose land use, public utilities and other land uses need to be developed to enhance functionality of the street.

• **Improvement of the street support facilities.** Support facilities such as street lights and water supply need to be enhanced along the street. Street lights will ensure that there is safety during night hours by providing adequate lighting of the street.

• **Provision of parking space.** Vehicles operating along Ronald Ngala Street use the inadequately provided parking spaces along the street such as those parking close to Ronald Ngala post office and Tusker House. These existing parking spaces are few and in most cases vehicles are usually parked on the road leading to congestion hindering vehicular movement along the street. Proper parking spaces need to be provided for along the street to solve the problem of parking along the street.
• **Provision of proper storm water drainage system.** The situation of Ronald Ngala Street during rainy seasons is usually worse. The water floods the whole street, making movement of pedestrians difficult. There is need for provision of proper storm water drainage system along the street to solve the problem of flooding when it rains.
Fig.11: Proposed Site Plan for Ronald Ngala Street section between Tom Mboya Street and Munyu Road

SITE PLAN

Source: Author, 2014
CHAPTER SIX:

SUMMARY OF RECOMMENDATIONS AND CONCLUSIONS

This section of the study provides a summary of the various problems identified in relation to the space use for the respective land uses within the study area. The report synthesized the findings and proposed the interventions aiming at providing a guide for the improvement of the performance of the street.

6.1. Summary of the emerging issues

From the findings of chapter 2, 3 and 4, certain critical issues emerge. These include:

✓ **Role of Urban Space**—Urban life, social relations exist to the extent that they possess a spatial component: they project themselves into space, becoming inscribed there, and in the process producing that space itself.

✓ **Sustainable Space organization** by recognizing all dimension of space and integrating them together into a whole holistic view e.g. public spaces, urban spaces and especially where there is no clear distinction of the space for containing or occupation or accommodating specific functional uses activities especially in urban areas (operational space).

✓ **Reduction of space conflicts** by promoting a sustainable space use especially matters to do with Public interest, Public spaces and conflicts in Space use along a street. Hence there is need for planners to define address the diversity of urban space concept so as to avoid conflict between the interests of various publics or discourse communities.

✓ **Role of street spaces**—The street spaces not only forms a means of access to or through locations but also acts as an arena for social expression. The street as a public place supports a plethora of human functions forming a place of interconnection between the social, economic and cultural as well as environmental aspects of human activity.

✓ **Land use-Transport Interaction** where each land use has its own specific mobility requirements and therefore transportation is a factor of activity location, which in turn is associated with specific land use.
Empowerment from the policy, legal and institutional frameworks such as the vision 2030, Integrated Kenya National Transport Draft Policy, the respective Ministries, The Constitution of Kenya (2010) that all advocate for good transport system so do the laws. Most of them however have not recognized the need for integrated land use-transport planning.

Strategic location of Ronald Ngala Street- The study area is located on gently sloping ground thus most of the infrastructure facilities and services can be easily maintained.

Conflict of space (Hawking related, open space, Pedestrian, Vehicular related and parking related conflicts) that calls for redesigning of various land uses within the study area to accommodate then sustainably. Risks of space conflicts such as safety, health risks and environmental pollution that calls for immediate planning intervention of the area.

Policies and by laws intervention is necessary in the study area so as to reduce space conflicts within the study area especially allocation of space to the hawkers within the Nairobi CBD and the overriding strategy is to try and help bring sanity into the whole spectrum of the urban commercial business activities in the city with reference to hawkers and the formal businesses.

Rehabilitation and street planning, design, management and operation to suit the set standards- It is important that road safety issues are examined within a systems framework that takes into account and gives equal footing to the road, the road user, the vehicle and the overall environment. This framework is of great relevance and can be used effectively when analyzing and planning for the entire transport system, or specific aspects of it, such as pedestrian and cyclist access as well provision of space for street vendors.

Suitability of planning regulations- This calls for Rehabilitation and redesigning of transport infrastructure to suit the set standards especially on the NMT and MT transport. There were concerns and acknowledged dilemmas by the NCC officials about how detailed and strict planning regulations on the streets should be, and how much they are actually adhered to.
6.2 Summary of Major Recommendations

To adequately respond to the above problems, the following are recommended:

- **Development of street furniture along the street.** There is inadequate street furniture along Ronald Ngala Street and this calls for urgent improvement of street furniture along the street. People using Ronald Ngala Street need to have sites where they can sit and rest. Street furniture such as benches, traffic barriers, bollards, streetlamps, traffic lights, traffic signs, bus stops, taxi stands, watering troughs, and waste receptacles need to be provided for along the street.

- **Improvement and Upgrading of Infrastructure and Service Facilities.** The existing infrastructural and service facilities within Ronald Ngala Street require widening it to be able to accommodate the high traffic flow that is generated along the street. The capacity of the sewer and drainage channels need to be upgraded for them to meet both the current and future demands of the street.

- **Relocation of hawkers.** Hawking activities are common along Ronald Ngala Street especially during the evening hours from 6pm to around 8.30pm. The spaces hawkers use along this street are small and along pavements and pedestrians walkways/sidewalks. The hawkers along this street have reorganized their spaces of operation and with their huge numbers the street proves inadequate in terms of hawkers operation. Therefore, the hawkers should be relocated other designated locations where space can be reorganized to accommodate most of them such as Muthurwa and Kariorkor Markets where rearrangement is possible. This will help to decongesting the street which is normally flooded with many hawkers spreading their wares on the pavements of the buildings along the street. This could also facilitate the efficient flow of traffic along this key business street.

- **Improved Space Allocation and Utilization along Ronald Ngala Street.** There is need to reorganization of functional activities along the street to demonstrate the capacity of what the street can handle and what it cannot handle in regards to accommodation of various activities, movement functions,
utilities and parking spaces along the street. This will reduce conflicts in space use along the street. Major street components such as commercial activities, public purpose structures, public utilities and other land uses need to be developed to enhance functionality of the street.

- **Improvement of the street support facilities.** Support facilities such as street lights and water supply need to be enhanced along the street. Street lights will ensure that there is safety during night hours by providing adequate lighting of the street.

- **Provision of parking space.** Vehicles operating along Ronald Ngala Street use the inadequately provided parking spaces along the street. These existing parking spaces are few and in most cases vehicles are usually parked on the road leading to congestion hindering vehicular movement along the street. Proper parking spaces need to be provided for along the street to solve the problem of parking along the street.

- **Provision of proper storm water drainage.** The situation of Ronald Ngala Street during rainy seasons is usually worse. The water floods the whole street, making movement of pedestrians difficult. There is need for provision of proper storm water drainage system along the street to solve the problem of flooding when it rains.

- **Policy enforcement by the NCC on the use of the street by buses and matatus along the street.** This will reduce the space conflicts along the street and reduce the vehicular congestions. Accidents caused by the motorists will also reduce through the enforcement of traffic rules along the street.

### 6.4. Conclusion

This research project proposes that providing for all space/street users would improve the existing conditions for pedestrians, cyclists and street vendors in the transportation and urban space of Ronald Ngala Street. This requires dedicating financial and human resources to incorporate the needs of these street users in road design, land use planning, transport infrastructure investment, urban policy and decision-making, legislation and
services. Providing for all space users along Ronal Ngala Street will require innovative approaches and radical decisions on the part of political leaders, planners and citizens. The concern about inclusive transport planning, which forms a basis for providing street for all, is at the centre of a number of studies, programmes and institutions.

6.5 Areas for Further Research

In light of the fact that this study has worked in understanding the current space allocation and occupation along the street and establishing where the conflicts arise, it has left a gap in trying to zoom into specific areas which would have been good for universal understanding of the issue of conflicts in space use along urban streets of Kenya. The Kenyan policy makers also need to go on board to research about better street organization techniques and policies since this is found to be lacking along the study area. As aforementioned earlier there are no courses of actions available to guide the operations of various street space users along Ronald Ngala Street.

The study has developed and formulated a framework that can be used to address these issues, underpinning critical issues and spatial recommendations as per the activities along the street.
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APPENDICES:

Appendix 1: interview schedule

UNIVERSITY OF NAIROBI
DEPARTMENT OF URBAN AND REGIONAL PLANNING

THE STUDY OF CONFLICTS IN THE SPACE USE ALONG RONALD NGALA STREET IN NAIROBI CBD.

Declaration: This questionnaire is a part of a study of the conflicts in the space use along Ronald Ngala Street in Nairobi CBD, in partial fulfillment of the requirements for the degree of B.A (Urban and Regional Planning). Any information provided is confidential and will be used for this purpose only.

KII (City Planning Department)

QUESTIONS:

10. Who are the street users along Randald Ngala Street?
11. How is the operation of each category of space user along this street?
12. How are these current functional use activities along Ronald Ngala Street distributed or allocated?
13. How many businesses are located along the street?
14. Have you ever counted them?
15. What are the criteria used in registering informal traders along the street?
16. Are these informal businesses allocated specific site for operation?
17. What are the criteria in the allocation of space?
18. After allocation is there security of tenure?
19. Is there monitoring of the operations of these businesses by the Nairobi City County?
20. What are the conflicts in the space use experienced along this street?
21. What are some of their main causes?
22. What are the effects of the above mentioned conflicts on the street?
23. Who resolves these conflicts?
24. What role do the individual business operators play?
25. How have these plans redefined the space especially considering the interaction of road users with the formal and informal businesses?
26. Have these plans been geared towards relocation or inclusion of the above mentioned functional use activities along the street?
27. What are some of the existing efforts to deal with operational conflicts?
28. What are the guiding policies that are provided on the design and operation of this street?
29. What are space requirements for the various types of businesses along the street especially the hawkers?
30. What are the standards and regulations on the use of this street?
31. What are the challenges that have been registered in planning for this area?
32. What maintenance measures are put in place for this street?
33. What is your view towards an effective improvement of the operation of the street?
Appendix 2: interview schedule

UNIVERSITY OF NAIROBI
DEPARTMENT OF URBAN AND REGIONAL PLANNING

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INTERVIEW SCHEDULE TO THE STREET STAKEHOLDERS

NCC OFFICER

PART A: RESPONDENTS DETAILS

Date:…………………………

Name of respondent…………………………………………………………………………………………Position
…………………………………………………………………………………………………………………………

Phone number………………………………………… Email
Address……………………………………………………………………………………………………………

PART B: GUIDING QUESTIONS

34. Who are the street users along Ranald Ngala Street?
35. Who allocates space along the street among different users?
36. What is the criteria used?
37. How is the operation of each category of space user along this street?
38. How are these current functional use activities along Ronald Ngala Street distributed or allocated?
39. How many businesses are located along the street?
40. What are the criteria used in registering informal traders operating along the street?
41. Are these informal businesses located to specific site of operation?
42. What are the criteria in the allocation of space?
43. What security of tenure does the council/county provide?
44. Is there any monitoring of the operations of these businesses by the Nairobi City County?
45. How is this carried out?
46. How is the information used?
47. What are the conflicts in the space use experienced along this street?
48. What are some of their causes?
49. What are the effects of the above mentioned conflicts in the operation of business on the street?
50. How are these conflicts usually resolved?
51. What are some of the existing efforts to deal with these conflicts?
52. What are the guiding policies that are provided on the design and operation of activities on this street?
53. What are space requirements for the various types of businesses along the street especially the hawkers?
54. What are the challenges that have been experienced in planning for this area?
55. What maintenance measures does the council/county provide for this street?
56. What further improvements would you wish to suggest for the planning and control of space allocation, occupation and utilization along this street?

THANK YOU!!
Appendix 3: interview schedule

UNIVERSITY OF NAIROBI
DEPARTMENT OF URBAN AND REGIONAL PLANNING

THE STUDY OF CONFLICTS IN THE SPACE USE ALONG RONALD NGALA STREET IN NAIROBI CBD.

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INTERVIEW SCHEDULE TO THE STREET STAKEHOLDERS
TRANSPORT SACCO REPRESENTATIVES AND DRIVERS

PART A: RESPONDENTS DETAILS

Date:……………………………

Name of respondent…………………………………………………………………………Position
……………………………………………………………………………………………………

Phone number…………………………………………………………………………………Email

Address…………………………………………………………………………………………

PART B: GUIDING QUESTIONS

1. What number of public service vehicles is registered to operate along this street?
2. How many trips do they make on average per day?
3. Considering the location of matatu stages what from your experience are the major challenges experienced in parking or operating along the street?
4. Who is supposed to address these challenges?
5. Have there been any effort to address the issues in the past?
6. How were the efforts if any carried out?
7. Have you ever as stakeholders raised these issues with the city county?
8. How did they respond?
9. How well do you interact with the city county on the matter?
Appendix 4: interview schedule

UNIVERSITY OF NAIROBI
DEPARTMENT OF URBAN AND REGIONAL PLANNING

THE STUDY OF CONFLICTS IN THE SPACE USE ALONG RONALD NGALA STREET IN NAIROBI CBD.

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INTERVIEW SCHEDULE TO THE STREET STAKEHOLDERS

TRAFFIC OFFICERS

PART A: RESPONDENTS DETAILS
Date:……………………………

Name of respondent………………………………………………………………………………..Position
…………………………………………………………………………………………………………………

Phone number……………………………………………….. Email
Address……………………………………………………………………………………………………

PART B: GUIDING QUESTIONS

1. What type of activities are undertaken along this street?
2. Are there accidents along Ronald Ngala Street?
3. If yes, which type of accidents?
4. What are the causes of these accidents?
5. What causes the traffic congestion along this street?
6. What are some of the efforts put in place to reduce traffic congestion along this street?
7. What do you think should be done to improve traffic condition along this street?
Appendix 5: pedestrian questionnaire

UNIVERSITY OF NAIROBI
DEPARTMENT OF URBAN AND REGIONAL PLANNING

THE STUDY OF CONFLICTS IN THE SPACE USE ALONG RONALD NGALA STREET IN NAIROBI CBD.

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PEDESTRIAN QUESTIONNAIRE

Questionnaire No: …………………….. Date of interview……………………………..

Time of interview ……………………..

PART A: RESPONDENTS DETAILS

1. Name of respondent (Optional):……………………………………………………………

    Position in the family……….Age: below 20( ), 20-30 ( ), 31-40 ( ), 41-50 ( ), 51-60 ( ), Above 60 ( )

2. Sex: (1) Male ( ) (2) Female ( )

3. Marital status: (1) Married (2) Single (3) Divorced/Separated (4) Widowed/Widower (5) other (specify)
4. Religion

5. Highest education level attained: (1) Primary (2) secondary (3) tertiary (4) other
(specify)

6. What is the size of your household?

7. Location of your residence.................Distance from Ronald Ngala Street..............

8. What is the purpose of your trip? Shopping (……) work (……) going home (……) recreation (……) other (specify).................................................................

9. How often do you use Ronald Ngala Street? Very often ( ) often ( ) regularly ( ) infrequently ( ) very infrequently ( )

10. What is your main mode of transport to:

<table>
<thead>
<tr>
<th></th>
<th>Walk throughout</th>
<th>Bike</th>
<th>Matatu</th>
<th>Taxi</th>
<th>Bodaboda</th>
<th>Car</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work/school</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shopping</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recreation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social visits (friends)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

11. How safe is this street: i) During the day for:

<table>
<thead>
<tr>
<th></th>
<th>Very safe</th>
<th>Safe</th>
<th>Average</th>
<th>unsafe</th>
<th>Very unsafe</th>
</tr>
</thead>
<tbody>
<tr>
<td>pedestrians</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cyclists</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motorists</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ii) During the night

<table>
<thead>
<tr>
<th></th>
<th>Very safe</th>
<th>Safe</th>
<th>average</th>
<th>unsafe</th>
<th>Very unsafe</th>
</tr>
</thead>
</table>
12. What in your opinion are some of the factors that lead to lack of pedestrian safety along this street?

13. What facilities do you find provided in Ronald Ngala Street specifically for pedestrian use? Name them.

14. Who should provide such facilities in Ronald Ngala Street?

15. What other pedestrian facilities would you like to be provided in this street?
   A............................................................................................................................
   B............................................................................................................................
   C............................................................................................................................

16. What forms of insecurity have you witnessed on this street?

   ............................................................................................................................
   ............................................................................................................................

122
Appendix 6: Passenger questionnaire

PASSENGER QUESTIONNAIRE

Questionnaire No: ……………………… Date of interview…………………………

Time of interview …………………

PART A: RESPONDENTS DETAILS

1. Name of respondent (Optional):…………………………………………………………

   Position in the family………..Age: below 20( ), 20-30 ( ), 31-40 ( ), 41-50 ( ),
   51-60 ( ), Above 60 ( )

2. Sex: (1) Male ( ) (2) Female ( )

3. Marital status: (1) Married (2) Single (3) Divorced/Separated (4) Widowed/Widower (5) other (specify)

4. Religion………………………………

5. Highest education level attained: (1) Primary (2) secondary (3) tertiary (4) other (specify)

6. What is the size of your household?
   ………………………………………………………………………………………………

7. Location of your residence……………….Distance from Ronald Ngala Street………………

8. What is the purpose of your trip? Shopping (……) work (……) going home (……)
   recreation (……) other (specify)………………………………………………………………………………
   ………………………………………………………………………………………………

9. How often do you use Ronald Ngala Street? Very often ( ) often ( ) regularly ( )
   infrequently
10. What is your main mode of transport to:

<table>
<thead>
<tr>
<th></th>
<th>Walk throughout</th>
<th>Bike</th>
<th>Matatu</th>
<th>Taxi</th>
<th>Bodaboda</th>
<th>Car</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work/school</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shopping</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recreation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social visits (friends)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

11. How safe is this street: i) During the day for:

<table>
<thead>
<tr>
<th></th>
<th>Very safe</th>
<th>Safe</th>
<th>Average</th>
<th>unsafe</th>
<th>Very unsafe</th>
</tr>
</thead>
<tbody>
<tr>
<td>pedestrians</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cyclists</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motorists</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ii) During the night

<table>
<thead>
<tr>
<th></th>
<th>Very safe</th>
<th>Safe</th>
<th>average</th>
<th>unsafe</th>
<th>Very unsafe</th>
</tr>
</thead>
<tbody>
<tr>
<td>pedestrians</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cyclists</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motorists</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

12. What in your opinion are some of the factors that threaten pedestrian safety along this street?

………………………………………………………………………………………………
………………………………………………………………………………………………
………………………………………………………………………………………………
………………………………………………………………………………………………

13. What form of insecurity have you witnessed along this street?

………………………………………………………………………………………………
………………………………………………………………………………………………
………………………………………………………………………………………………
………………………………………………………………………………………………

14. What facilities do you find provided for pedestrian use along the Ronald Ngala Street? Name them.

………………………………………………………………………………………………
………………………………………………………………………………………………

124
15. Who should provide such facilities along the street?

16. Are those provided adequate? 1. Yes ( ) 2. No ( )

17. If no, what other improvements would you suggest to improve pedestrian use of the road?

What are some of pedestrian facilities would you like to be provided in this area?

A

B

C
Appendix 7: business questionnaire

UNIVERSITY OF NAIROBI
DEPARTMENT OF URBAN AND REGIONAL PLANNING

THE STUDY OF CONFLICTS IN THE SPACE USE ALONG RONALD NGALA STREET IN NAIROBI CBD.

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BUSINESS QUESTIONNAIRE

Questionnaire No: …………………….. Date of interview………………………

Time of interview ……………………..

PART A: RESPONDENTS DETAILS

15. Name of respondent (Optional):…………………………………………………………

16. Position in the family……………… Age: below 20( ), 20-30 ( ), 31-40 ( ), 41-50 ( ), 51-60 ( ), Above 60 ( )

17. Sex: (1) Male ( ) (2) Female ( )

18. Marital status: (1) Married (2) Single (3) Divorced/Separated (4) Widowed/Widower (5) other (specify)

19. Religion…………………………………….
20. Highest education level attained: (1) Primary  (2) secondary  (3) tertiary  (4) other
    (specify)

21. What is the size of your household?
    ........................................................................................................................................
    ......

22. Location of residence…………………………Distance from Ronald Ngala Street………………..

23. How much is your monthly income? (Tick where applicable)

<table>
<thead>
<tr>
<th>Net monthly earnings (Ksh)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 5,000</td>
<td></td>
</tr>
<tr>
<td>5,001-15,000</td>
<td></td>
</tr>
<tr>
<td>15,001-25,000</td>
<td></td>
</tr>
<tr>
<td>25,001-35,000</td>
<td></td>
</tr>
<tr>
<td>Above 35,000</td>
<td></td>
</tr>
</tbody>
</table>

NATURE OF BUSINESS

24. Observation on type and Location of Business

    1. Formal ( )  2. Informal ( )  Location: Pavement ( )  Inside Shop ( )

24. a) What type of business do you operate?...........................................................................

    b) Why have you chosen to operate this kind of business?
    ........................................................................................................................................
    ........................................................................................................................................

24. c) Is the business registered? 1. Yes ( ) 2. No ( )

24. d) Do you pay any taxes to the Nairobi City County? 1. Yes ( ) 2. No ( )
e) If yes, which ones?..............................................................................................................................

f) How much do you pay per month?.........................

12

a) Have you employed anyone to assist in the operation of your business? 1. Yes (   ) 2. No (   )
   ii) If yes, how many people? ...........................................
   iii) Are you related (family members) 1. Yes (   ) 2. No (   )

b) Is there any other business activity you are involved in? 1. Yes (   ) 2. No (   )

c) If yes, which one?..............................................................................................................................

d) Where?.........................................................

e) How did you acquire space for locating your business along this street?
   A. Leased from NCC
   B. Room rented
   C. Took space where there were no developments
   D. Bought plot
   E. Others, please specify
      .................................................................

FACTORS FAVOURING BUSINESS ALONG RONALD NGALA STREET

13. Why did you choose this specific location for your business?..........................................................

14. What advantages do you experience for your business by this location?

..............................................................................................................................................................
..............................................................................................................................................................
..............................................................................................................................................................
..............................................................................................................................................................
..............................................................................................................................................................
..............................................................................................................................................................

128
a) Where do you source goods for resale?......................................................................................................................

b) Which people buy from you?.........................................................................................................................................

15. Did you operate the business elsewhere before coming here? 1. Yes ( ) 2. No ( )

a) If yes where?.................................................................

b) Why did you move from the said site?........................................................................................................................

c) What is the main difference experienced between this place and the previous location?

...............................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................

...............................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................

CONFLICTS

16. What are the challenges of working at this site/street?

...............................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................

...............................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................................

17. Are you satisfied with the width of the street? 1. Yes ( ) 2. No ( )

a) If No, why?....................................................................................................................................................................................

b) If Yes, why?....................................................................................................................................................................................

c) Are there space conflicts in this area? 1. Yes ( ) 2. No ( )

d) If Yes, which ones?...................................................................................................................................................................
18. Which of the following conflicts are experienced?

<table>
<thead>
<tr>
<th>Conflict type</th>
<th>Cause</th>
<th>Location</th>
<th>Effects</th>
<th>Resolution suggestions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Space tenureship</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Obstruction of registered traders</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blockages of utility lines</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Obstruction of traffic(both pedestrians and vehicular)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental pollution</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health risks</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

19. Does the design (morphology) of the site affect your business and how you operate it?

1. Yes ( )  2. No ( )

a) If yes, how?

b) What is the state of the following in the site?

<table>
<thead>
<tr>
<th></th>
<th>Good</th>
<th>Bad</th>
<th>Very Bad</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water supply</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drainage/channels/or facilities</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Solid waste disposal

Human traffic flow

Vehicular traffic flow

20. Is there any conflict between your business and the street carriage way? 1. Yes ( ) 2. No ( )

If yes, which type?

a) Are these conflicts resolved? 1. Yes ( ) 2. No ( )

b) How are the conflicts resolved?

c) Who assists in the resolution?

d) If not resolved, why are they not resolved?

e) Whose responsibility is it to resolve such conflicts within the street?

21. What role do you as business owners play in the process of resolving operational conflicts along this street?

22. Is there harassment by the city county officers/officials? 1. Yes ( ) 2. No ( )

a) If yes, what are the reasons/basis of this harassment?
### Appendix 8: Observation checklist

**UNIVERSITY OF NAIROBI**
**DEPARTMENT OF URBAN AND REGIONAL PLANNING**

**THE STUDY OF CONFLICTS IN THE SPACE USE ALONG RONALD NGALA STREET IN NAIROBI CBD.**

**FIELD OBSERVATION CHECKLIST**

<table>
<thead>
<tr>
<th>NO</th>
<th>WHAT IS TO BE OBSERVED</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Street character</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Encroachment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Surface standards</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Slope character</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Sizes of the carriage way and street wayleaves (measurements)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Surface water drainage</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Direction</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Blockages</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Channels</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Quality of effluents</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>On street activities</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Type of activities</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Scale of activities</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Location of activities</td>
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<td>• Effects of activities on pedestrians, transport, environment and other uses.</td>
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<td>• Space occupation and utilisation</td>
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<td>4</td>
<td>Organization of activities</td>
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<tr>
<td></td>
<td>• Type of activities</td>
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<td></td>
<td>• Location- proximity to matatu stage</td>
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</tbody>
</table>
-average distance from the street carriage way
  - Spatial organization of the activities within the street space.

<table>
<thead>
<tr>
<th>5</th>
<th>Solid waste disposal</th>
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<tbody>
<tr>
<td></td>
<td>Types of solid waste degenerated by different activities.</td>
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<td></td>
<td>Receptacles</td>
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<td>Location</td>
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<td>Scale</td>
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<td>Methods and frequency at disposal or collection</td>
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<td>Environmental and health implications</td>
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<tr>
<th>6</th>
<th>Buildings</th>
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<tbody>
<tr>
<td></td>
<td>Scale (height) of formal and temporary buildings</td>
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<td></td>
<td>Encroachment into street</td>
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<td>Setbacks</td>
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<td>Redevelopments</td>
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<td>Functions of buildings</td>
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<thead>
<tr>
<th>7</th>
<th>Pedestrian traffic</th>
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<td>Direction of flow</td>
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<tr>
<td></td>
<td>Main entry point of traffic</td>
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<td>Main destination of traffic</td>
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<td>Walkway provision and character</td>
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<td>Conflict points</td>
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<td>Size of pavements, road reserves</td>
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<thead>
<tr>
<th>8</th>
<th>Vehicular traffic</th>
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<td>Conflict points</td>
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<tr>
<td></td>
<td>Parking spaces</td>
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<td></td>
<td>Defined parking/informal parking</td>
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<td></td>
<td>Matatu stage</td>
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<tr>
<td></td>
<td>• Design of the stage</td>
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<td>• Space allocated</td>
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<td>• Flow of passengers in and out of stage</td>
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<td>• Conflict point within the street</td>
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<td>• Bottlenecks</td>
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<td>• Water points</td>
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<td>• Sanitation facilities</td>
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<td>• Use</td>
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<td>• Condition and adequacy</td>
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