University of Nairobi

School of the Built Environment

Operations of Central Bus Terminus in Nairobi

By: Mwaniki Jane Wanjiku

W50/69943/2011

A project submitted in partial fulfillment for the degree of masters of urban management in the department of architecture and building science in the University of Nairobi.

2016

DECLARATION

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

_____

Signature Date

Mwaniki Jane Wanjiku

This thesis has been submitted for examination with my approval as university supervisor

_____

Signature Date

Dr. Samuel Obiero

This thesis has been submitted for examination with my approval as university supervisor

_____

Signature Date

Dr. Owiti A. K'Akumu

DEDICATION

To my late dad, my mum, my brothers and sisters.

ACKNOWLEDGEMENT

I am grateful to the almighty God for the gift of life and enabling me to carry out this research project. I acknowledge and appreciate my supervisors Dr. S. Obiero and Dr. O. A. K'Akumu for their guidance and constructive comments during this research. I would like also to acknowledge all support staff in the Department Architecture and Building Science for their support. I equally acknowledge the contribution of my fellow students who assisted at various stages of this research.

I appreciate all government officials I encountered in the course of this research from various ministries and departments for facilitating me access to books, journals and other relevant materials used in this project and granting me interviews.

I am grateful to my sister Rose, my friend Karanja for your support and encouragement in the course of this study. To Tag, say thank you for your emotional support and undying love throughout this project and especially towards the end, thank you for sacrificing your time.

I also acknowledge my respondents at the Central Bus Terminus especially the public service vehicles operators and officials, for their co-operation and willingness to participate in this study.

My appreciation to the many people not mentioned here but who assisted me in one way or the other in the completion of this research project.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ACRONYMS

ASSA	Anglophone Sub Saharan Africa
CBD	Central Business District
CIS	Commonwealth of Independent State
DINTP	Draft Integrated National Draft Policy
GDP	Gross Domestic Product
INTP	Integrated National Transport Policy
JICA	Japan International Cooperation Agency
KBS	Kenya Bus Service
KIPPRA	Kenya Institute for Public Policy Research and Analysis
KRA	Kenya Revenue Authority
LDC	Less Developed Countries
MoNMD	Ministry of Nairobi Metropolitan Development
MoTI	Ministry of Transport and Infrastructure
MOA	Matatu Owners Association
MWA	Matatu Welfare Association
MVOA	Matatu Vehicles Owners Association
NCCG	Nairobi City County Government
NMT	Non-Motorized Traffic
NMA	Nairobi Metropolitan Area
NMR	Nairobi Metropolitan Region
NMIMT	Non-Motorized and Intermediate Means of Transport.
NTSA	National Transport and Safety Authority
PSV	Public Service Vehicle
SACCO	Saving and Credit Cooperative Organization
SPSS	Statistical Package for Social Sciences
SSATP	Sub-Saharan African Transport Policy Program
UTODA	Uganda Taxi Operators and Drivers Association

ABSTRACT

Nairobi is an economic Centre being the capital city of Kenya and the Centre for Nairobi Metropolitan Area (NMA). The City of Nairobi lacks an urban development strategy that would serve as a focus for urban transport development. Public transport operates largely on a de-regulated environment with the informal transport sector contributing to the decay of the public transport service. The public transport sector is regulated by many institutions which are involved in regulation, management and provision of road public transport and operate under different laws. The objective of this research is to study the operational systems for road public transport terminus in the Central Business District (CBD) of Nairobi.

The research methodology involved review of literature, primary and secondary data collection, data analysis, interpretation and recommendation. The study provides policy recommendations for management of operations of road public transport terminus and recommends how to improve the operations of the Central Bus Terminus and other terminus in urban areas. The target population for the study were passenger utilizing the Central Bus Terminus, the public transport operators and transport "Saving and Credit Cooperative Organization" (SACCO's) and companies officials. The PSV operators formed the key informants on operations of the terminus. Interviews were also conducted with the relevant government officials to provide insight on the current operational systems and management practices and future plans for public transport in Nairobi.

The primary data was sourced by administering questionnaire, interviewing key informants, photography and observations. Secondary data was collected from the review of published and unpublished materials, government reports, print media and the internet. The Microsoft Excel, Statistical Package for Social Scientist (SPSS), and software's like Geographical Information Systems (GIS) were the main computer packages used for data analysis and interpretation. Tables, graphs, maps and text were used for data presentation.

The current modes for public transport in Nairobi have not been able to adequately meet the transport needs of many. Public transport operates on paratransits principle. Passengers take long periods of time waiting for PSV at terminus and even take longer time to get to their final destinations. Routes are not well planned and the Central Bus Terminus is located away from the passenger's final destinations. The terminus has not been designed for modal interchange. With no other modes of transport from the terminus passengers are forced to walk for a long time some taking as much as 45 minutes to get to their final destination. There is no comprehensive management framework of public transport and operations at the Central Bus Terminus have been left to the transport SACCO's or/and transport companies and other cartels.

CHAPTER ONE- INTRODUCTION

1.1 BACKGROUND INFORMATION

At the start of the third millennium, 47 per cent of the world's population lived in urban areas. Within the next two decades, this figure is expected to increase to 56 per cent. Even more challenging is the fact that 98 percent of the projected global population growth during the next two decades will occur in developing countries (United Nations, 1999). The study further indicates that vast bulk of this increase (86 per cent) will occur in urban areas, and of the total world's urban population increase, 94 per cent will occur in developing countries.

In most developing countries, the urban sector accounts for at least 50 percent of the gross national product; in some countries that number is over 70 percent (World Bank, 2005). The study further indicates that cities in developing countries often devote 15 to 25 percent and sometimes much more of their annual expenditure to their transport system. Between 8 and 16 percent of urban household income is typically spent on transport, although this can also rise to more than 25 percent for the poorest households in very large cities (World Bank, 2005), and about a third of all city infrastructure investment need is for the transport sector.

For the past few decades, African cities have been experiencing huge population increases (Trans-Africa Consortium, 2010). This is mainly due to galloping urbanization and rural exodus. The study further indicates that, it is estimated that by 2020 some 55 percent of the African population will be living in urban areas. Such fast-growing cities face enormous challenges in terms of infrastructure provision and the need to cope with the increasing demand for transport. This is especially acute as much of the existing road infrastructure in African cities is far from being appropriate for the actual transport demand (Trans-Africa Consortium, 2010).

The population of Nairobi alone has reached about 3.2 million residents (2009) with a day time population of 4.5 million people; this development has not been met with

commensurate growth in urban transport infrastructure and services (Integrated National Transport Policy (INTP), 2012). Public transport terminals are part of this infrastructure. In this project, the word terminal will refer to the (station) site which indicates the end of a transportation line and has a distributing function.

Terminals should provide safe and convenient transfer of commuters from one transport mode to another, and can also be used to purposely integrate various modes in the transportation system. A key component of an integrated transport network and of the "seamless journey" is easy and convenient interchange for the public transport user[1]. The study further indicates that interchange is often regarded as an impediment or even a deterrent to public transport use. In general an interchange interrupts journeys, most people favor direct services and may avoid making journeys that require interchange, or make them by car rather than by public transport. The most important attributes of interchanges for bus users are good quality, fully equipped shelters, real time information on bus arrivals and printed timetable information.

1.2 PROBLEM STATEMENT

Many "Anglophone" Sub Saharan Africa (ASSA) cities have experienced fragmentation of control over urban transport provision (Pirie, 2013). Infrastructure determines a city's welfare and economic activity (UN-Habitat, 2013). The study by the UN-Habitat, (2013) continue to state that although some areas of infrastructure provision are outside the scope of a local government, the infrastructure that affects most people's lives is delivered by municipalities or its partners. Gwilliam (2000), in his World Bank study, Public Transport in the Developing World notes that in most developing countries functional responsibilities within the transport sector are fragmented with little attempt to rationalize transport planning and management at the metropolitan level.

Transport sector in Kenya is characterized by high costs for passengers and freight, weak public and private institutions, and low levels of investment (INTP, 2012). A

[1] http://www.scotland.gov.uk/cru/resfinds/drf99-00.asp accessed on 1/11/2015

study by Kumar and Barrett (2008) indicates that, public transport in Nairobi operates in a largely deregulated environment, mostly operating on a paratransit system. Authorities in Nairobi have found it difficult to regulate the informal transport sector (Pirie, 2013). The public transport sector is fragmented with self-regulating operator's association's controlling the operations of road transport terminus in Nairobi.

The Ministry of Transport and Infrastructure (MoTI), provides policies and legislations governing the entire transport sector with various mandates devolved to several departments. National Transport and Safety Authority (NTSA) which falls under the MoTI, is the industry regulator for public transport in Kenya. The Authority is mandated with licensing of PSV and transport services regulation. It is also bestowed with the mandate to allocate routes in the country. Nairobi City County Government (NCCG) is responsible for providing picking and dropping points within the City for PSV, and managing public transport service in the city.

The 1982 study of "*Matatu Mode of Travel*" which was aimed at regularizing matatus as a mode of public transport recommended that NCCG provide parking for matatus in the CBD while the MoTI was to issue licenses for PSV's (Wagikondi 2013-unpublished). Following this directive the NCCG has not been able to provide adequate PSV terminus, and the ones that have been designated are not adequately managed. The management of most of the terminus have fallen in the hands of self-regulating operators associations.

The self-regulating operators have not been able to adequately manage the operations at the terminus. From field observation there is normally considerable congestion at and around the terminals in Nairobi which also impacts on other traffic. The researcher noted the problem is normally caused by too many PSV's trying to park, arrive at or leave the terminal at the same time. At Nairobi's Central Bus Terminus the scenario is the same. Form observation the terminus is characterized by congestion within and without especially during peak hours.

Due to the nature of public transport in Nairobi most PSV's start and end their journey at the terminus. This has been a major contributor to vehicle and passenger congestion at the terminus. Within the Central Bus Terminus there are normally long queues of commuters during peak hours, vehicle congestion and lack of parking space for vehicles terminating their service.

At the Central Bus Terminus there is little or no public control of route structure, operational practices, timetable or fares. This research seeks to study the operational systems at the Central Bus Terminus, and assess the operational limitations at the Terminus. Further the study seeks to provide possible solutions to the operational and management challenges experienced at the terminus.

1.3 RESEARCH AIMS AND OBJECTIVES

1.3.1 General Objective

To study operational systems of road public transport terminus in Nairobi.

1.3.2 Specific Objectives

To full fill the general objectives these are the specific objectives;

i) To identify and examine operational systems of the terminus
ii) To assess operational challenges of the terminus.
iii) To propose an operational and management framework to improve the performance of the transport terminus.

1.4 RESEARCH QUESTIONS

The following are question which will guide this study;

i) What are the current challenges for smooth operations of the terminus?
ii) What are the existing operational systems for the terminus?
iii) What are the best practices for operating of road transport terminus in Nairobi?

1.5 JUSTIFICATION OF THE STUDY

The recent urbanization trends have seen an increase in vehicular and pedestrian traffic in Nairobi city. The current legal and institutional framework governing provision and management of public transport services is fragmented and incoherent. Planning is disconnected from regulation and operations. Operations of termini have been left to market forces and operators associations with little or no government intervention.

The public transport service in Nairobi operates in a largely deregulated environment. The INTP, (2012) indicates that matatus will be relocated from CBD to act as feeders to an integrated public bus and rail transport system. Buses using dedicated bus lanes will be introduced and major termini integrated not just with other vehicle routes but passenger rail services. Until such plans are actualized, paratrasits remain the major means of public transport to the CBD. This makes this study of operations of road transport terminus important as it will seek to investigate the current operational practices of PSV terminus as well as examine operational limitations.

1.6 SCOPE OF THE STUDY

The study area is Nairobi CBD. The study will be limited to one identified terminus; the Central Bus Terminus. The terminus has two distinct termini, the Kenya Bus Station and Hakati Matatu Terminus. The terminus will be a representative of all major PSV's termini in Nairobi. The reasons for picking the terminus are discussed below.

The study scope is limited to the operations of Central Bus Terminus. The study focuses on identifying challenges of operations and examines the existing limitations for proper operations of the terminus. The study also provides actions to be undertaken for improving the performance of operations at the terminus, and proposes a framework to ensure an efficient public transport system and service in Nairobi.

1.7 ASSUMPTION OF THE STUDY

Public transport in Nairobi operates in a milieu of numerous institutions both public and private. The institutions operate with a disjointed legal framework. The effect of this

operating framework has a direct impact on operations of the public transport terminus in Nairobi. The study assumes that the plethora of institutions and laws governing public transport in Nairobi has influenced negatively the operations of road public transport terminus affecting the level of provision of public transport service.

1.8 DEFINITION OF THE STUDY AREA

1.8.1 The Study Area

The study will be carried out at the Central Bus Terminus. The Terminus consists of; Hakati Matau Terminus and Kenya Bus Station as shown in figure 1.1 and 1.2 below.

Figure: 1. 1 Hakati Matatu Terminus
Source: Envag (2012)

Figure: 1. 2 Kenya Bus Station Terminus
Source: JICA (2006)

1.8.2 Location of the Study Area

The study area is located in Nairobi CBD as shown in figure 1.3.

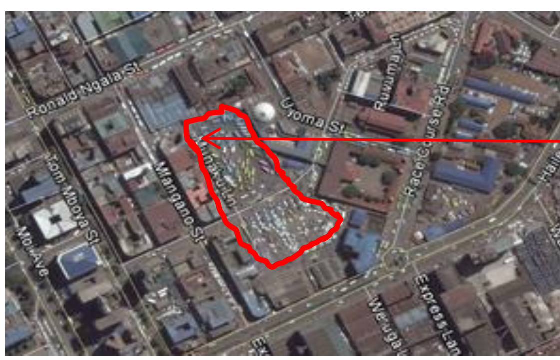

Figure: 1. 3 Satellite image showing location the Central Bus Terminus in Nairobi
Source: Google Earth (2015)

The terminus measures approximately 6000sqm. The terminus is served by 19 routes as indicated in table 1.1 and table 1.2.

Table: 1. 1 List of paratransits utilizing Hakati Matatu Terminus

S/no	Name Of The Transport SACCO/Company	Route No.	Destination
1	Indima-Nje	33	Kwa njenga
2	Nakam	110	Kitengela
3	Naboka	24	Karen
4	Highrise	16	Madaraka, Nyayo Highrise
5	St Mary's	15	Langata, Otiende
6	West Madaraka	14A/B	Nairobi West
7	Akilla Travellers Limited	12C/D	South C
8	South B MO	12	South B
9	County Link	11	
10	Narugi	160	Kiambu-Kwamaiko

Source: NCCG (2015)

Table: 1. 2 List of buses and paratransits utilizing Kenya Bus Station

S/no	Name of The Transport SACCO/Company	Route No.	Destination
1	KBS	46	Kawangware
		7	Kenyatta, Ngumo
		33B	utawala
2	City Shuttle	39	Ruai, Kangundo Road
3	City Tram Shuttle	105	kikuyu
		33	Utawala
		39	Ruai
4	City Hoppa	7	Ngumo Kenyatta Hospital
		46	Valley Road, Yaya, Kawangware
		4W	Wanyee
5	Eastern By-pass SACCO	39	Ruai, Kangundo Road
6	Forward SACCO	19/60	Kayole
7	Rasasi SACCO	15	Langata
7	Jaset Enterprises LTD	15	Langata, Otiende
8	Double M		Umoja, Komarock
9	Double M Connection		Umoja, Komarock

Source: NCCG (2015)

1.8.3 Road Infrastructure and Current Traffic Conditions

Nairobi CBD is a compact city center, composed of a grid-like network of streets. The physical street infrastructure in the study site consists primarily of paved roads. The

study site positions at the center of five streets namely; Haile Selassie Avenue, Race Course Road, Uyoma Street, Ronald Ngala Street and Mfangano Street. The access streets are linked by arterial roads to the outside of the CBD through which all vehicles entering or exiting the CBD must pass. The arterial out and into the Central Bus Terminus is primarily Haile Selassie Avenue which joins Uhuru highway intersection on one end and Ring Road/Landhies road on the other.

Vehicles are only permitted to enter the Central Bus Terminus through Uyoma Street. Vehicles enter through Race Course Road and Uyoma Street intersection, then restricted to Uyoma Street through which all vehicle entering the Central Bus Terminus must pass. Uyoma Street also carries through traffic which enters Ronald Ngala Street. Exit of vehicles from the Central Bus terminus is restricted to Mfangano Street which has two intersections. All vehicles must pass Hakati road into either Mfangano Street-Ronald Ngala Street intersection or Mfangano Street-Haile Selassie Avenue intersection. These two intersections are the gateway of vehicles leaving the Central Bus Terminus into the neighborhoods. They are connected to major arterial road which take traffic out of the CBD.

1.8.4 Land Uses at the Central Bus Terminus

The terminus is located in the middle of commercial developments including hotels, shops, and offices; other land uses include, institutions and public facilities, with other colossal commercial buildings within the vicinity of the terminus (see figure 1.4 and figure 1.5 below). The commercial buildings are home to several retail shops, this includes large scale retailers like supermarkets and small scale retailers and small individual businesses. The area around the terminus is undergoing change, visible are new commercial buildings coming up.

There are several educational facilities around the terminus, these are; CGHU mixed secondary school, St. Peters Clavers School and several private colleges. In the vicinity of the terminus, there are places of worship including a church and a mosque other institutional buildings include NCCG building and works department offices. Encircling

the terminus are informal commercial structures. The structures serve as hotels while others are used by hawkers to sell their wares.

Figure: 1. 4 Land uses around the terminus
Source: Author (2015)

Figure: 1. 5 Upcoming development within the vicinity of the terminus
Source: Author (2015)

1.8.5 Choice of Study Site

The fragmented institutional framework, unscheduled service and oversupply of PSV's in the CBD are a major concern for the public transport service in Nairobi. NTSA being the industry regulator for public transport in Kenya has continued to license PSV's to operate in the city with little regard to the capacity of the existing infrastructure to handle the ever increasing number of PSV's.

The Central Bus Terminus was planned for in the 1973 Nairobi master plan, for PSV which mainly consisted of Government owned buses (see figure 1.6). Over the years several designated and undesignated terminus have been developed, their location mostly dependent on availability of land. A study carried out by JICA, (2006), indicates that the Central Bus Terminus in the city center is the typical mode interchange area in the NMA. This is one of the reasons why the terminus was selected for this study.

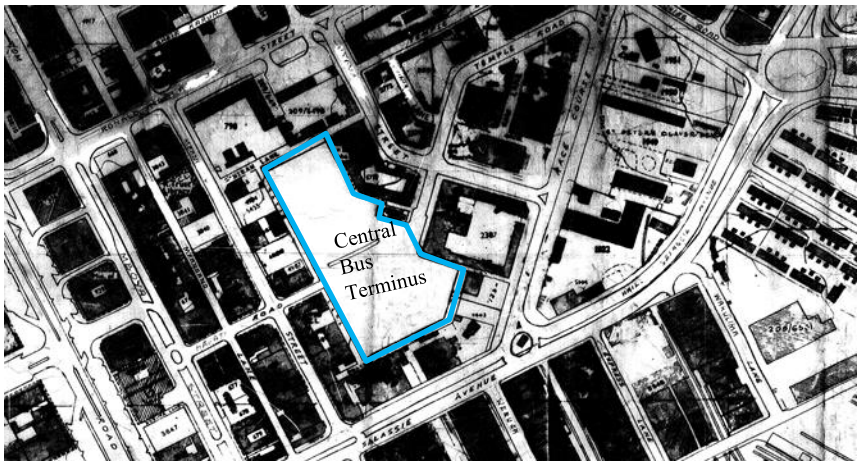

Figure: 1. 6 Map of Nairobi 1973 Master plan showing location of the Central Bus Terminus

Source: NCCG (2015)

Another reason for choosing the Central Bus Terminus for this study is that the terminus accommodates two types of public transport modes, Bus (big and medium sized buses) and matatus. The two modes operate from the same terminus using the same entrance and exit; though each mode operates on its own informal operational system. On the other hand the terminus experiences a lot of traffic congestion.

Lastly the terminus is integrated with various land uses; it is located in an area with high levels of commercial functions. There are also several institutional establishment and public facilities. There are Global calls for integrated transport and land development planning in cities, based on reasonably well-established mutual dependence of land use patterns and urban travel demand, user costs and charges, and environmental impacts (World Bank, 2005). The central Bus Terminus forms a dominant center best suited for traditional, fixed-route, fixed-schedule public transport modes; hence making a good focus for this research.

There are other Termini in the CBD, each has their own challenges and are complicated in their own dynamics. It can be noted that most termini within the city operate in a milieu of disorder and are faced with many operational challenges. The Central Bus Terminus offers a complex case. It experiences several problems, bottlenecks and

challenges. Lessons learnt on the study can be applied on other termini in Nairobi and the Country at large.

1.9 LIMITATION OF THE STUDY

Resources in terms of time and money were a major challenge. It is at a personal cost with no grant or funding from an institution that this study was carried out. It was done part time and took a long period.

1.10 OPERATIONAL DEFINITION OF CONCEPTS'

i) **Terminal-** Terminals are generally points at which goods/passengers enter and leave the transport system or change mode or vehicles. (Giannopoulos 1989 in Wagura 2000).

ii) **Operations-** Deals with the way the vehicles are operated, and the procedures set for this purpose including financing, legalities and policies[2]

iii) **Infrastructure-** This are fixed installation that allow a vehicle to operate, it consists of a way, a terminal and facilities for parking and maintenance[3]

iv) **Paratransit-** Refers to unscheduled public transport services that typically utilize small buses, minibuses (vans) and smaller sedan vehicles (UK-aid, 2015).

v) **Matatu-** Is a local word that is used to refer to 14 seater PSV in Kenya.

vi) **Matatu operator-** These are the people who are employed to offer services such as being drivers and conductors of the PSV.

vii) **Public transport-** Public transport is a shared passenger transportation service which is available for use by the general public, as distinct from modes such as taxis or hired buses which are not shared by strangers without private arrangement.

---

[2] (https://en.wikipendia.org/wiki/transport; accessed on 22/10/2015)

[3] (https://en.wikipendia.org/wiki/transport; accessed on 22/10/2015).

viii) **Informal public transport**- is used to refer to collective passenger transport with little or no control of its operations by an overall regulatory authority, usually characterized by an unplanned and ad-hoc service offer, insufficient or no respect for routes and no published or fixed fare structure (Trans-Africa Consortium, 2010).

ix) Congestion- Congestion arises when traffic exceeds infrastructure capacity and the speed of traffic declines. It can be defined as a situation where traffic is slower than it would be if traffic flows were at a low level.

x) **Mobility-**The movement from place to place (Zegras P. C. and Gakenheimer R,. 2006)

xi) **Systems Capacity-** Maximum sustainable hourly flow rate at which persons or vehicles reasonably can be expected to traverse a point or a uniform section of a lane or roadway during a given time period under prevailing roadway, environmental, traffic, and control conditions.

1.11 STRUCTURE OF THE STUDY

The rest of this project is structured as follows: Chapter 1 as indicated above is the Introduction, Chapter 2 is literature review, Chapter 3 discusses the research methodology used in collecting and analyzing data for this project, Chapter 4 indicates Study Area-Background Information, Policy and Previous Studies. Chapter 5 provides data analysis and interpretation, while Chapter 6 is Summary of Findings, Conclusion and Recommendations from the study. The final page consists of references showing materials both published and unpublished used for literature review and referencing in the project report. Appendixes are attached at the end of the project report.

CHAPTER TWO- LITERATURE REVIEW

2.1 INTRODUCTION

Transport is crucial for economic growth and trade, which are highly dependent on the conveyance of both people and goods (World Bank, 2007). Transport improvements promote economic growth and social development by increasing mobility and improving access to resources and markets (United Nations, 2012).

Transport requirements vary with the density of population (urban and rural), the distribution of wealth among a country's inhabitants, and the need to facilitate more efficient movements across international boundaries. In the city and the rural village alike, the basic problems are accessibility and affordability (World Bank, 2007). The study further indicates that improved rural roads, in particular, enhance access to markets, jobs, schools, social services, and health facilities. There may also be extreme problems caused by lack of mobility for individuals and communities in rural areas, where it is estimated that 1 billion people in low-income countries have no access to an all-weather road (World Bank Group, 2008 in Finn & Mulley, 2011).

2.2 URBAN PUBLIC TRANSPORT

Most urban transport, be it public or private, passenger or freight, motorized or non-motorized, in rich countries or in poor, uses the road system (World Bank, 2002). Public transport provides an alternative to private transport for passengers that do not have access to or cannot afford a private vehicle, which in developing countries is a large segment of the population. The greater capacity of public transport makes it an obvious choice of mode to convey passengers that need to be aggregated in large numbers (Roux, 2013).

2.3 URBAN PUBLIC TRANSPORT DEVELOPMENT

Over the next 20 years, many countries will for the first time become more urban than rural (World Bank, 2007). The study by the Bank further mentions that, although the benefits that urbanization brings cannot be overlooked, the speed and scale of this transformation presents many challenges. Fox (2000), in his study notes that the rapid

pace of urbanization especially in Less Developed Countries (LDCs) is leading to severe stresses on urban services, as most of these countries have neither the necessary existing infrastructure nor wealth to add new infrastructure. The study further indicate that city dwellers in developing countries have to rely on walking, cycling and public transport for almost all of their travel needs.

Effective urban public transportation requires coordinated attention to urban planning, to the construction and maintenance of infrastructure, and to the organization of transport services (Kumar & Barrett, 2008). Life in the city depends on transport, especially for the movements of people from their places of residence to where they must go to pursue all the activities of life, such as work, education, business, shopping and leisure activities.

2.3.1 Public Transport in Developed Countries

In the urban areas of most developed countries, public transport is provided by public or private operators who have medium- to long term agreements with a transport authority for a defined set of services, enforced legal protection against interlopers, and are usually subsidized to cover any losses due to the social and environmental dimensions of the services (Finn & Mulley, 2011). Paratransits and individual ownership of buses are very rare in developed cities. This is because the regulatory framework and operating environment favor a formal, corporate industry structure (Meakin, 2004).

2.3.2 Public Transport in Developing Countries

The market for urban passenger transport has experienced major change in many developing countries in Africa, Asia, and the Middle East for a variety of economic, political, and societal reasons and due to fundamental political and economic transition in Commonwealth of Independent State (CIS) and China (Finn & Mulley C, 2011). The study further indicates that such changes have included planned opening of the market to private operators and/or new entrants; unplanned opening of the market by the entry of unlicensed operators, especially where the licensed services become inadequate; privatization and other changes to the ownership base of large public sector transport

companies; emergence of large-scale minibus and paratransit; and national and urban policies and programs to upgrade the transport supply and quality.

Meakin, (2004) indicates that among the wide variety of mixed bus systems in developing cities are public sector operators, supplemented by a small-scale corporate private sector or a fragmented individual sector. In many cases the mix of public and private operators is a transitional stage where the state undertaking is declining, or losing market share, and the private sector is expanding. Further, many of these countries lack the financial resources, appropriate political/government structures, and sometimes the political stability to implement effective and efficient mobility services at affordable prices that meet the expectations of citizens (World Bank Group, 2008 in Finn & Mulley, 2011).

2.3.3 Public Transport Development in Africa

Across many Sub-Saharan African cities, during the first half of the twentieth century colonial governments established monopolistic public transport operations (UK-aid, 2015). The study further indicates that, while some of these services were rail-based, most were road-based; the road-based operations typically comprised fleets of conventional large buses operating scheduled services on networks of fixed routes focused on an urban center, with standardized fares, passenger information and vehicle branding.

In most cases the traditional bus companies were nationalized in the process of de-colonialization; this usually involved direct political control of fares (Gwilliam, 2000). The study further indicates that, initially they continued to operate without subsidy, but increasingly fell into deficit which was met by government on an open-ended basis. Eventually governments ceased to be able to meet the deficits and the companies became unable to maintain vehicles with a consequential decline, first in quality and eventually in quantity of service. Eventually most of the public companies failed and were disbanded.

Today throughout Africa, public transport is dominated by the operations of the 'disorganized' informal sector (market-based, unregulated, low-capacity service offers). Public transport systems in contemporary Sub-Saharan African cities are therefore heavily reliant upon paratransit services, and in most cities they hold the largest modal share (UK-aid, 2015).

2.3.4 Public Transport in Nairobi: The Historical Background

The need for public transport in Nairobi was identified in the 19th Century (Waguru, 2000-unpublished). The study further indicates that it was this recognition for need of public transport in Nairobi that saw the birth of Kenya Bus Service (KBS) in the early 1930's. Until 1973 KBS, which was 75 percent owned by United Transport International, and 25 percent by Nairobi City Council, had the sole monopoly right to provide bus services in Nairobi (Smith, 2005); it did these using full-sized buses. In the late 1960s it began to face increasing competition from illegally operated pick-ups and minibuses known as matatus.

In 1973 President Kenyatta issued a decree which allowed 'matatus' ferrying up to 25 passengers to operate without license, effectively ending United Transport's monopoly of public transport (Smith, 2005). In 1986, the government launched its own bus company, Nyayo Bus Services to provide urban services in Nairobi and certain other towns (Smith, 2005); however despite the supply of buses under grant or concessional aid, together with other tax and duty exemptions, this company collapsed.

In November 1991, Stagecoach Holdings Limited (a major and rapidly expanding United Kingdom bus company) bought United Transport's shareholding in KBS Limited (Smith, 2005); stagecoach expanded the fleet in the short term, but was then unable to sustain profitability in the liberalized business environment. In October 1998, a consortium of local investors acquired KBS Limited from Stagecoach Holdings (Smith, 2005). Table 2.1 below indicates brief history of public transport development in Nairobi.

In Nairobi, the public transport system is essentially run by private operator as the City Council opted for a deregulated market in line with national policy (Trans-Africa Consortium, 2008). The study further indicates that along the years, two main types of public transport operations emerged out of this deregulated environment: KBS, a formal company with a fleet of large buses and minibuses on the one hand and the matatus minibuses on the other, both often competing along the same routes.

Table: 2.1 Brief history of public transport in Nairobi

YEAR	DESCRIPTION
1934	Kenya Bus Service (KBS) initiated as a subsidiary of Overseas Motor Transport Company LTD of London (OMT)
1951	KBS taken over by United Transport Overseas LTD of London (UTO).
1960s	Matatus operated illegally as pirates
1966	26% of KBS shares acquired by Nairobi City Council
1973	Matatus legalized-market share insignificant
1982	Matatus Vehicles Owners Association formed
1986	Limited Commuter rail started
1988	National Youth Service (NYS) starts bus operations
1989	Matatus Vehicles Owners Association dissolved
1992	Establishment of Nyayo Bus Service Corporation (NBSC) UTO shares in KBS taken over by stagecoach of scotland
1995	Stagecoach Kenya Bus formed
1997	Liquidation of Nyayo Bus service Corporation
1998	Stagecoach KBS market share down to 50%. Stagecoach KBS fare increase and staff reduction
	Stagecoach KBS sold the company to a group of Kenyan investors Company's name changed back to Kenya Bus Service (KBS)

Source: JICA (2006)

2.4 URBAN PUBLIC TRANSPORT SYSTEMS

Economic and other activities of households, and city productivity and livability all depend vitally on the performance of urban transport systems (Mitric, 2008). Mitric (2008) further indicates that, when urban roads and public transport services are not good, consequences are felt by households, by businesses, and by the urban community at large. If poor performance goes unattended, transport may become a binding constraint on both economic growth and social development.

Various aspects influence how public transport is organized: how regulatory powers on public transport are divided between the national and local authorities, how public transport financing is organized, the ownership and structure of the operators, and the nature of the relationship between authorities and transport operators (Roux, 2013).

A prescription for an efficient and demand-responsive public transport system Meakin (2004) rests on four Principles namely:-

1. A coherent policy and realistic objectives and strategies to achieve them;
2. An industry structure that is capable of providing demand-responsive service;
3. A planning and regulatory framework capable of achieving the objectives;
4. A planning and regulatory institution capable of administering regulatory framework.

2.4.1 Policy and Implementation Strategies

If policies are well defined, then there are clear guidelines for taking decisions (Meakin, 2004); without policies, actions can be haphazard, inconsistent, and biased. The study further indicates that once policies are in place, strategies and plans can be derived, which can be used to guide day-by-day decision making.

In the public transport sector, policies may be classified as; the principles governing planning and investment, including the planning process itself and the criteria to be used in choosing between investment alternatives; the principles governing operations, competition and the regulatory framework, including measures to safeguard the public interest through the system of regulatory controls and to improve safety and environmental standards; the principles governing pricing, cost recovery, taxation and subsidies, including the setting of fares and tariffs, infrastructure financing mechanisms and the use of subsidies to achieve essential non-commercial goals, such as maintaining un-remunerative services or infrastructure; and the principles governing institutional arrangements, including the respective roles of the public (government) and private sectors and the organization of public-sector functions (Meakin, 2004).

2.4.2 Structure of the Public Transport Industry

The public transport industry can have various forms of ownership and structure, each of which has its own characteristics, advantages and disadvantages (Meakin, 2004). The regulatory regime has a strong influence on the nature of the industry and the way in which it operates. Meakin (2004) describes the three different industry structures as; monopoly structure; the operation of public transport is undertaken by one company or authority with no competition for contracts or services. The second structure entails a mix of small and large scale public and private operators, this is typically public sector operators supplemented by small private operators and the third structure comprises of multiple private operators, which is the case in many African cities.

2.4.3 Regulatory Framework

The regulatory framework gives the authority the necessary powers to implement policies and strategic plans for the development of public transport, and it implicitly set the limits of that regulatory power (Meakin 2004); it also defines the rights, obligations and freedoms of the operators. The study by Meakin (2004) further indicates that, for the effectiveness of public transport management, the regulatory framework should provide a legal basis to impose the right mix of obligations and incentives by which the policy objectives may be achieved.

Different regulatory frameworks can exist in the same location for different modes (e.g. long-term franchise or public monopoly for rail-based mode, with more competitive, open market for bus / Paratransit) (Roux, 2013). Meakin (2004) noted that there is no optimum regulatory regime, none is perfect. The most appropriate strategy should be selected and adjusted to local conditions.

Iles (2005), in Roux (2013) lists the three main areas of public transport regulation as: quality of service regulation which is primarily intended to ensure the safety of the public transport users and to protect the road system and other infrastructure from damage, quantity of service regulation which controls the number of public transport vehicles operating on a route and the frequency of the vehicle trips on the route (amount

of passenger capacity provided) and fare regulation which specifies the fares to be charged.

Meakin (2004) indicates that, a regulatory framework consists of the various legal instruments, these are; legislation which may have international, national, provincial, metropolitan or municipal effects, regulations made under legislation which formalize technical regulations and operating standards, administrative procedures which become subject to legal standards of fairness and objectivity, licenses and franchises and by-laws.

2.4.4 Regulatory Institutions

Institutional arrangements for public transport vary widely between different countries and cities, reflecting historical, political and social factors, but also reflecting the 'maturity' of their transport systems which is closely related to their stage of economic development (Meakin, 2004). Regulatory institutions should have enough capability and independence to undertake basic network planning, administer the regulations and guide the development of the public transport sector (Roux, 2013). Armstrong-Wright (1993), in Roux (2013), states that public transport systems are shaped by the various governmental institutions that play a role in the sector. The strength of these institutions can improve the effectiveness of public transport.

The structure of government varies widely between countries, but all share a basic hierarchical structure, with responsibility delegated downwards to local levels, and accountability upwards (Meakin, 2004). Where there is a major conurbation, Meakin (2004), states that perhaps the optimum strategy for the effective coordination of policy is a transport authority within metropolitan government; where there is no metropolitan tier of government, an authority may be constituted of representatives of the constituent local authorities.

The study by Meakin (2004) further indicates that, transport authorities vary widely in the scope of their powers, their degree of autonomy and their constitutions. Kumar and

Barrett (2008), mention that a capable authority must coordinate transport planning, infrastructure development, and regulation of services**.**

There are several optional approaches to the coordination of transport within a metropolitan conurbation (Meakin, 2004). This includes;
A metropolitan tier of government administers all functions, including urban passenger transport like in Shanghai.

No metropolitan tier of government and passenger transport is administered at metropolitan level through a metropolitan transport authority which comprises representatives of the constituent municipalities (common in Europe and the US).

Certain transport functions such as strategic planning, setting fares and operating standards are administered by a metropolitan authority, while other functions, such as the licensing and regulation of local services are administered at local (municipal) level.

No joint authority but municipal governments within the conurbation cooperate to administer urban transport (example: *'communautés urbaines'* in France).

Metropolitan transport is managed directly by central government or by provincial government where city government lacks the necessary funding and staff resources (examples in Dhaka, Bangladesh; Bangkok, Thailand; and Lahore, Pakistan).

2.5 PUBLIC TRANSPORT SYSTEMS PERSPECTIVE

Public transport has been viewed from three different perspective; passenger, operators and community (UK-aid, 2015); each aspect has specific requirement they use to measure performance of any public transport system.

2.5.1 Public Transport System from Passenger Perspective

There are two areas of greatest concern of public transport to passengers, namely service availability, and the comfort and convenience of service when it is available

(Kittelson *et al*., 1999; TRB, 2000). In their perspective, public transport is viewed adequate when service is available at or near the locations and at times when a passenger wants to travel. This may be realized when a passenger can get to and from the bus stops, knows how to use the service, and sufficient capacity is available at the desired time (Kittelson *et al*., 2003). If any of these factors is not satisfied, public transport will not be a favorable option for that trip, either a different mode may be used or the trip may not be made at all.

2.5.2 Public Transport System from Operator Perspective

Though the system must be designed and operated so that it meets passengers' requirements, its operation must be economical and technically efficient. The most concern of operators in respect to public transport is the organizational performance. This performance is mainly based on cost-efficiency indicators (e.g., operating expense per vehicle revenue kilometer and/or hour) and cost-effectiveness indicators (e.g., operating expense per passenger kilometer and/or passenger trip). These indicators seek to evaluate how well the service is working, with an ultimate goal of providing service along a route that minimizes the operating costs (Kittelson *et al*., 2003; Sheth *et al*., 2007).

2.5.3 Public Transport System from Community Perspective

Residents are concerned with costs and negative aspects of public transport service. For these reasons, a community perspective is considering targets with respect to externalities or societal variables such as air quality, noise pollution, natural resources and safety. In this respect, the performance of public transport is met when externalities induced in the provision of service are minimized (Sheth *et al*., 2007). According to (Dodson *et al*., 2011; Kittelson *et al*., 2003), public transport service benefits the community as a whole when it can contribute to social cohesion and sustainable environmental outcomes.

2.6 PUBLIC TRANSPORT MODES

Private transport and scheduled public transport are at the extremes of the transport modal spectrum; in between there are variety modes demonstrating different elements of the private/public extremes (UK-aid, 2015). The study further indicates that private transport is primarily characterized by the fact that the trip maker owns the vehicle and has full control over when and where trips are made. By contrast, public transport services have a variety of ownership arrangements that exclude the individual trip maker, and limit the user's ability to control when trips are made, as well as where they start and end.

2.7 PUBLIC TRANSPORT FINANCING

The 1994 'World Development Report' in World Bank (2007) reviews on the performance of infrastructure support and delivery globally; concluded that in many developing countries greater reliance should be placed on the private sector for direct provision of infrastructure and services. The study proposed that governments should concentrate more on creating and maintaining legal and regulatory frameworks to attract private providers but, at the same time, safeguard the interests of the poor, improve environmental conditions, and coordinate cross-sector interactions.

Well-developed financial institutions are critical to support capital-intensive public transport investments (Meakin, 2004). Mengesha *et a*l., (2002) in Roux (2013), mentions that the funding of public transport systems is a problem in African cities and it is made even worse by the fact that transportation usually takes a low priority in the budget allocation of a country.

Apart from the normal, non-dedicated, approach to government budgeting, which evidently does not work in most countries as far as urban transport is concerned, there are mainly four realistic ways to secure urban transport funding including; through a legislated link to fuel taxes, be it done nationally or locally, through a national program of grants and loans, fed from the budget, through land taxation and through locally based road use (congestion) charges (Mitric, 2008).

Funding current, capital (equity and financial) expenditures is the most problematic and the most complex policy and institutional issue for urban transport modes in developing countries, both in scale and timing (Mitric, 2008); it is also the most common binding constraint on urban transport development. Very few cities have an effective and sustainable approach to funding either their roads or public transport systems (Mitric, 2008). The study further noted that, the problem can be seen as a part of the larger subject of financing local governments, where it is intertwined with city-state relations, especially in the context of decentralization.

In addition, urban transport as an economic activity has a particular structural weakness in the financial dimension (Mitric, 2008); it has to do with revenue generation, and is present in both rich and poor countries. On the public transport side, the revenue-earning potential gets entangled with problems of affordability for low-income passengers and difficulties of tapping non-passenger beneficiaries of public transport infrastructure.

Many of the world's urban transport operators cannot cover their costs and, hence, require subsidies (Mitric, 2008). Mitric (2008) further states that, some cannot even cover their direct operating costs, much less capital costs; this may already be a problem for street-based public transport modes, but is much more serious for modes with high capital costs and a high fixed element in operating costs, e.g. metros, especially if the construction of elevated rights-of-way or tunnels is involved.

2.8 OPERATIONS MANAGEMENT OF PUBLIC TRANSPORT SYSTEM

The objective of urban traffic management is to make the safest and most productive use of existing (road-based) transport system resources (World Bank, 2002); it seeks to adjust, adapt, manage, and improve the existing transport system to meet specified objectives. By maximizing the efficiency of existing facilities and systems, capital expenditure can be avoided or deferred to gain time in which to develop longer-term

policy measures (World Bank, 2002); at the same time, traffic safety can be improved, and the adverse impact of road traffic on the city environment reduced.

2.8.1 Operations Management Road Public Transport Terminus

The "terminal constraint" means that too many passenger trips involve one or more bus changes, thus causing delays and raising the cost of travel (Kumar & Barrett, 2008). The study further states that the point at which passengers alight is often some distance from the desired destination, particularly in the CBD. The need to interchange is perceived by passengers as a penalty over and above the actual time changing mode or route, even in the best public transport systems. In practice it will be impossible to eliminate interchange, but all the major desire lines should be directly satisfied without need to interchange (Meakin, 2004).

The need to interchange between routes or between modes adds to the time spent waiting and to the inconvenience experienced by passengers. It also adds to passengers' direct costs as a fare may have to be paid for each mode or service boarded. In a large city many commuters might be expected to interchange once but less than 10 percent of passengers should be required to interchange more than once (Meakin, 2004); it is important to review and introduce changes to the route structure in order to reduce the number of interchanges.

2.8.1.1 Case Study 1- Illicit Control of Bus Terminals in Sri Lanka

Private bus operators in Sri Lanka report widespread extortion of 'departure fees' from bus crews at major terminals. The collectors are commonly referred to as 'runners' who exploit the vulnerability of individual bus operators by threatening violence against the crew or damage to the bus which might cause repair costs and loss of daily earnings disproportionate to the amount of the illicit fee. Also, on departure from the terminal the conductor of each bus has a stock of cash since he has collected fares. Buses of the state-owned bus companies are not required to pay the fees, even though private buses departing from the same terminal are charged. The amount of departure fee is reported to be approximately one adult fare for the route, or flat fee of LKR 20 (US Dollar 0.20).

This yields substantial amount of money at a busy terminal. Extortion by 'runners' has been a problem ever since private buses were re-introduced in 1979 (Meakin, 2004).

2.8.1.2 Case study 2-route associations in Thailand

The formation of a route association in Hat Yai, Thailand is regarded as a successful model. Almost 80% of Thailand's estimated 60,000 buses are operated by single vehicle owners. Transport cooperatives were first formed in Thailand in 1975 by the forced amalgamation of the many, mostly illegal, small vehicles and tuk-tuks. It was thought that enforcement would become easier, but in fact, the power and wealth of the cooperatives increased with more members, and that power was generally exercised against the interests of members and route management.

There were about 400 small vehicle cooperatives ranging in size from 400 to 1,000 members. Cooperatives are usually associated with unruly operations and major enforcement problems (PPK, 1988). A pilot fixed-route managed by an association was established in Hat Yai, under a bus reform study implemented jointly by the regulator and consultants. Prior to the project there were no fixed route buses operating in Hat Yai. The city's public transport system comprised 2,500 non-fixed routes, six-seater tuk-tuks. There was an oversupply of tuk-tuks because ownership was attractive to middle income groups who rent their vehicles to drivers who have few other alternative employment options (Meakin, 2004).

2.9 TERMINAL FACILITIES

One of the disadvantages of public transport modes is the transfer to the other modes (JICA, 2006); the transfer, which generate at mode interchange area such as railway stations and bus terminals, force such inconveniences as waiting time and walking between modes; therefore, one of the most important issues to improve the public transport system is the development of smooth transfer of mode interchange areas.

2.9.1 Terminal Area

Terminals are generally made at the end or beginning of bus lines, the major transfer points are generally areas where buses stand for longer (Gianoppoulos, 1989 in Wagura, 2000 un-published); these unlike the lay-bays, curbside stops require considerably large space to accommodate more vehicles and far more great numbers of passengers. They are simple, mostly in the open air structures compromising, loading berths and sidewalks for pedestrians.

2.9.2 Characteristics of Bus Terminals

The function of a Bus terminal primarily includes processing of vehicles, passengers, etc. with provision of necessary facilities for their smooth flow (MoNMD, 2011); the terminal serves as a point and unit where necessary information to user is made available for processing his journey. The study further indicates that a passenger bus terminal broadly needs to perform the functions to meet the requirements of the following: passenger and vehicle, passengers only, vehicles only, crew and management.

The functions related to both passengers and vehicles include: concentration, loading, dispersal and unloading. Passenger only oriented functions of the terminal include provision of: passenger platforms to board and alight, waiting lounges, baggage storage facilities, basic shopping and commercial facilities, utilities, services and amenities, information systems, ticketing facilities, shelter form weather, communication and postal facilities and eating places (MoNMD, 2011).

The components related to vehicle (bus) only include provision of: bays for loading and unloading, idle bus parking spaces, facilities related to maintenance and information system for movement within the terminal. The terminal components to meet the needs of crew are: rest rooms, information system, communication facilities and eating places. The terminal facilities for the management in terms of: demand management on account of concentration, incurring minimum expenditure, development of centralized

information, ensuring better control, operations management (planning, monitoring and control), and contracting of services / service providers (MoNMD, 2011).

2.10 CONCEPTUAL FRAMEWROK

Public transport in Kenya is characterized by multiplicity of institutions and plethora of laws. Public transport planning, regulation and management are spread across numerous institutions and this also applies to Nairobi. On the other hand various laws have led to division of transport authorities and resulted to spread of public transport responsibilities across various institutions. In the case of Nairobi the institutions include; National Government, Nairobi City County Government, Road Transport Authorities and private transport service operators.

In Nairobi various institutions play different role in regulation and management of public transport and provision of public transport infrastructure. There is lack of coordination and cooperation among various authorities with no central authority/body managing public transport. This has resulted to poor operational management of public transport in Nairobi. The same has been reflected at the public transport terminus. Most of public transport termini in Nairobi are managed by private entities that impose illegal conditions on the operators using the termini. There is no or little government intervention regarding operations and management of the termini leaving the operations and management to operators association and other cartels.

Table: 2. 2 Conceptual Framework: Operations of road public transport terminus.

INSTITUTION	ROLE /RESPONSIBILITIES
NATIONAL GOVERNMENT	
Ministry of Roads	- create laws, & formulation of Regulation, Policies, set standards and guidelines, - Ownership, Planning, funding, construction, expansion and maintenance of road infrastructure. -Taxation, source funds and control budgets. -Research on transportation
Kenya revenue authority.	-Registrar of motor vehicles (vehicle registration)
National Transport & Safety Authority	-Allocate routes -Licensing of PSV - ensures that the vehicles are in good condition. -Motor vehicle inspection to ensure road worthiness of vehicles - Regulation of public transport and the law enforcement of public transport rules. -Ensure safety and environmental protection
Traffic Police Department	- Enforce traffic rules, -Examine PSV drivers -Issue certificate of good conduct to Matatu crews.
ROAD TRANSPORT AUTHORITIES	
Kenya National Highways Authority	-Planning, expansion and ownership of national road infrastructure
Kenya Urban Roads Authority	-Planning, expansion and ownership of Urban road infrastructure
NAIROBI CITY COUNTY GOVERNMENT	
City Engineer Department	-Infrastructure development and preparation of strategic plan for transportation -Management of city transportation. - Maintenance of transportation infrastructure in the city
Planning Department	-Urban planning
Inspectorate Department	-Traffic control
Finance/Revenue	-Collection of revenues from PSV
TRANSPORT SERVICE OPERATORS	
KBS, Citi Hoppa, Double M, Matatu Operators, Matatu Owners, MOA, MWA.	-Provide Paratransit public transport service

Source: Author (2016)

CHAPTER THREE-RESEARCH METHODOLOGY

3.1 INTRODUCTION

This chapter focuses on the research design and methodology procedures used in this study. The chapter highlights the various research methods employed in this research. The various methods used in data analysis are also discussed. Included are details of the population selected for the study, a description of the respondents, sample and sampling techniques used, sampling procedure, quantitative and qualitative instrumentation used, data collection methods and the treatment and analysis of data and presentation.

3.2 RESEARCH METHODOLOGY

To satisfy the information needs of any study or research project an appropriate methodology has to be selected and suitable tools for data collection and analysis have to be chosen. Primarily there are two distinct approaches that inform the gathering of data in any research project namely the qualitative approach and quantitative approach. This research utilized both qualitative and quantitative methods; this made it possible to not only gather the most needed data but also the correct and relevant data to address the research problem and to ensure that the objectives of the study were successfully met. The qualitative data collection methods used includes participant observation, photography, in-depth interviews, etc. while the quantitative data collection method utilized structured questionnaires.

3.3 RESEARCH DESIGN

The research design for this study consists of literature review and field data collection to gather information on public transport systems, and better understand operations of road passenger public transport terminus. Literature gathered together with data collected, was used to evaluate road public transport in Nairobi and to examine the operational systems and management limitations of the Central Bus Terminus. The researcher trained two research assistants on data collection procedures up to the point when data was sorted and coded for entry into the computer.

3.4 DATA NEEDS

The researcher identified various data needs. The identified data needs include; Details on the Central Bus Terminus, number of passengers and number of PSV's utilizing the terminus and the names of all transport SACCO's/companies operating at the terminus were obtained from NCCG. Data on the On-going activities at the terminus and operational challenges was also needed this data was obtained from NCCG, operators association, and researcher's observation.

Data on operational systems at the terminus was obtained from NCCG officials and officials of the operators association. Data on facilities and services offered by the Central Government or NCCG was also obtained from government agencies, NCCG, operators association and passengers. Data on the relationship of the various actors performing the various activities with regard to operations and management of the terminus was obtained from NCCG and operators association. Evaluation of case studies, literature, policies, documents, reports was done to inform policy and proposed implementation framework, this data was synthesized and presented.

3.5 METHODS OF DATA COLLECTION

This section describes the methods and procedures that were followed in collection of data for this study. There are two methods addressed in this section which includes; primary and secondary data collection methods. These methods shall be geared towards maximizing the reliability and validity of the data collected to accurately answer the research questions and address the research objectives.

3.5.1 Primary Data Collection Method

Questionnaires containing both open ended and closed ended questions were used as one of the methods to collect primary data. This survey instrument was used as the main instrument providing quantitative data and was designed around opinion statements as a means of exploring respondent's perceptions of a wide range of issues. Contingency questions followed where necessary to gather more information. Before administering

the questionnaires they were pretested. The researcher administered the questionnaire with the help of the research assistant.

Structured and semi structured personal interviews were conducted providing qualitative data. The researcher used the interview schedules to conduct the personal interviews. During the interview the researcher used probing in order to get deeper information. Camera was also employed to capture the main features of the study where data could not be exhaustively described by words only. Observation was also used for data collection; this involved direct observation by the researcher to collect data and for ground trotting to update the maps and images.

3.5.2 Secondary Data Collection Methods

Secondary research is based on secondary sources that already exist. This involved review of both published and unpublished literature. Secondary research methods in the study included; analysis of relevant government papers and Acts of parliament and review of documents, statistical analysis of census and other data, academic papers, textbooks, newspapers, journals, maps and both published and un-published thesis in search of data relating to the study and the World-Wide Web (internet).

3.6 POPULATION AND SAMPLING

This section describes population, samples and sampling methods used in the study. Sampling is related with the selection of a subset of individuals from within a population to estimate the characteristics of whole population.

3.6.1 Target Population

The target population for this study comprised of all the passengers who use the Central Bus Terminus and the operators. For quantative analysis an "accessible population"/survey population was drawn from the target population. The sample for this research was taken from the accessible population. The target population includes all the passengers using the Central Bus Terminus around the clock (24hours), the accessible population was taken to be all passengers using the Central Bus Terminus from 7 Am to 7 Pm. These are the passengers that were considered to inform this

research. According to a study by MoTI (2012), off peak starts 1000Hrs to 1300Hrs, and ends between 1200Hrs to 1600Hrs depending on the route. For qualitative survey all public transport operators were included in the sample to be interviewed.

3.6.2 Sample and Sampling Technique

For quantative survey a sample was selected from the population to be a representative of the whole population. There are various sampling techniques and this research employed cluster sampling. The population was divided into 2 clusters. Cluster 1 consisted of passengers using Kenya Bus Station while cluster 2 consisted of passengers using the Hakati Matatu Terminus. Random samples were then picked from the two clusters and questionnaires administered. The operators formed the third cluster whose interview schedule were administered.

3.7 SAMPLING PROCEDURE

3.7.1 Quantative Data Sampling Procedure

The sample size is influenced by a number of factors, including the purpose of the study, population size, the risk of selecting a "bad" sample, and the allowable sampling error (Glenn, 1992). Kish (1965) indicates that, 30 to 200 elements are sufficient when the attribute is present 20 to 80 percent of the time (i.e., the distribution approaches normality). A sample size of 100 was considered sufficient for this study. The study assumption is that the attributes measured distribute normally or near so. In the case of this study the sample and population are heterogeneous. Nominal scale was used since the subjects are classified under a common characteristic.

The number of commuters using Central Bus Terminus on daily basis is estimated to be 20,000 per day (NCCG, 2015). The research design for this study consists of collecting data from the passengers and public transport operator at the Central Bus terminus. A number of 112 questionnaires were administered to passengers and 41 interview schedules to the public transport operators. This brings to a total of 153 research instruments administered at the Central Bus terminus. To ensure a more representative

sample size, respondents were picked in the morning peak hour, lunch hour and evening peak hours respectively per day for quantitative survey.

3.7.2 Qualitative Data Sampling Procedure

Qualitative data at the Central Bus Terminus was obtained for public transport operators. The operators formed the third cluster for this research. Interview schedules were deemed the most appropriate since the interviewee would elaborate freely on a wide range of issues. Sudman, (1976) suggests that a minimum of 100 elements is needed for each major group or subgroup in the sample and for each minor subgroup, a sample of 20 to 50 elements is necessary. A sample of 30 was considered appropriate for this research. A total of 41 interview schedules were conducted across the 18 number of transport SACCO's/companies operating at the Central Bus Terminus. The researcher ensured that a member from each SACCO was interviewed. Data regarding the number and names of transport SACCO's/companies operating at the Central Bus Terminus was obtained beforehand form NCCG transport department.

3.8 DATA COLLECTION PROCEDURE

3.8.1 Quantitative Data Collection Procedure

The data collection exercise involved administration of structured questionnaires with commuters at Central Bus Terminus as these were the most appropriate for collecting information required for the study on level of public transport service offered. In order to gather information on perceptions on operations of terminus 112 questionnaires were administered (constituting the basis of the quantitative component of the study) over a one week period. The questionnaires were administered to the public transport users at the Central Bus Terminus. The questionnaires served to collect information on the level of public transport service as experienced by passengers. An example of the questionnaire is provided in the annex.

3.8.2 Qualitative Data Collection Procedure

The personal interviews were conducted on an individual basis. A total of 41 interview schedules were conducted out over a period of 1 week. Interviews were held with

stakeholders in the public transport sector and those involved in the operations and management of the Central Bus Terminus. The PSV operators and officials of PSV transport SACCO's/companies operating at terminus formed the key informants within the sector. Interview schedules were developed for the interviews. In order to ensure information was gathered across all routes one interview schedule was conducted across all the 18 transport SACCO'S/companies operating at the terminus. The participants included SACCO Chairman, drivers, conductor, Bus Company and matatu officials and matatu owners.

Other interviews were also conducted with various government officials. Those interviewed include; NCCG officials (Planner, City engineer and enforcement officer), MoTI Officials, the police department, National Transport and Safety Authority (NTSA) officials (planning and enforcement), Kenya Urban Roads Authority (KURA), and Kenya Roads Board official.

The respondents were allowed to expand on the topic as they saw fit and to relate their own experiences. The interviewer intervened only for clarification or further explanation. The interview used probing questions for clarification of concepts and ideas. The researcher used note taking as a way of capturing data. The researcher also used a camera on the many trips made to the Central Bus Terminus to capture data and record. As a participant observer the researcher became a participant and used the terminus in order to relate her observations to the objectives of the study.

3.9 DATA ANALYSIS AND PRESENTATION

3.9.1 Quantitative Data Analysis and Presentation of Findings

The quantitative data collected was initially coded into numerical representations for statistical analysis and to derive statistical indices. Statistical analysis for the study was performed using SPSS software. The raw data was turned into numerical representation to allow statistical analysis to be conducted on the aggregated data. A code was developed for each of the response sets in the questionnaire, and numerical codes were assigned for each response. These responses were turned into a series of numbers for

capture using SPSS and excel platform for further statistical analysis. The researcher checked and cleaned the data by examining the coded data for any incorrectly assigned codes and correcting these errors by reviewing the original data. Results of data analysis have been presented through charts and frequency tables in the next chapter.

3.9.2 Qualitative Data Analysis and Presentation of Findings

According to Mugenda and Mugenda, (1999), qualitative data analysis tends to be primarily an inductive process of organizing data into categories and identifying patterns. For this study a content analysis method was followed. This type of analysis formed the core of analyzing the qualitative data collected during the study. Themes were identified, and the data was then classified into categories and themes. The researcher then identified the usefulness of the data collected in answering the research questions and addressing the research objectives. The most relevant and useful data was then presented in the form of written texts, tables, maps and photographs.

CHAPTER FOUR-STUDY AREA BACKGROUND INFORMATION, POLICY AND PREVIOUS STUDIES

4.1 INTRODUCTION

Nairobi is the capital city and the largest city of Kenya as well as one of the most important economic centers in East and Central African Regions. The Nairobi city accounts for 50% of formal employment in Kenya and generates over 50 % of GDP (JICA, 2014). The study further indicates that Nairobi city plays an important role not only as a political Centre but also as a model for economic development and social development. This project seeks to study the operation of road public transport terminus in Nairobi.

4.2 LOCATION

The city is divided into East-West by Nairobi and Mathare rivers. The development has tended to be in lateral east to west direction (JICA, 2006). The city is bounded by Kajiado County on the South and south west, Kiambu County on the north and North West and Machakos County on the east and south east.

4.3 HISTORICAL BACKGROUND

Nairobi became a city in 1954 and after independence in the year 1963 the city continued to be the capital of the new republic (JICA, 2006). Nairobi is an administrative, commercial, industrial and socio-cultural center of the republic of Kenya.

4.4 EMPLOYMENT

Over the last one decade the job creation rate in the informal sector, including the low income jua kali sub-sector has almost trebled that of the formal sector. The main formal employment zones in Nairobi are the CBD and the Industrial area along Jogoo/Mombasa road, Ruaraka/Thika road and Dandora. It is estimated that 45-59 percent of Nairobi's labor force works in informal sector whose activities spread throughout the city (JICA, 2006).

4.5 POPULATION AND DEMOGRAPHIC

The population of Kenya has increased many folds since independence in 1963. It was 10,942,705 in 1969 which increased to 38,610,097 in 2009 (Kenya Republic of: 2009 in MoNMD, 2011). Nairobi being the capital city is the most important city in the country with a population of 3,138,369 (Kenya Republic of: 2009). Table 4.1 below indicates population distribution for Nairobi and Kenya.

Table: 4. 1 Population Distribution by Province 1969-2009

	1969	**1979**	**1989**	**1999**	**2009**
NAIROBI	509286	827775	1324570	2143204	3,138,369
KENYA	10942705	15327061	21448047	28686607	38610097

Source: Kenya Republic of: (2009)

The average population density excluding Nairobi National Park, which occupies 117km^2 or 16.8% of the city's total area, is 5,429 per km^2. The population growth rate of the Greater Nairobi has been considerably higher than that of Kenya. The average annual growth rate of the Greater Nairobi was 4.2% from the 1989 census to the 1999 census and 4.0% from the 1999 census to the 2009 census, while that of Kenya was 3.0% in both periods (Kenya Republic of: 2009). Table 4.2 below indicates population by sex, number of house hold, area and density for Nairobi and Kenya.

Table: 4. 2 Population by Sex, Number of HH, Area, Density & District

	Male	**Female**	**Total**	**H/H**	**Area in Sq. KM**	**Density**
Kenya	19,192,458	19,417,639	38,610,097	8,767,958	581,313.2	66
Nairobi	1,605,230	1,533,139	3,138,369	985,016	695.1	4,515

Source: Kenya Republic of: (2009)

4.6 LAND USE AND URBAN TRANSPORT DEVELOPMENT IN NAIROBI

Land in Nairobi area is utilized for residential, industrial, transportation, commercial, urban agriculture, recreational, institutional, water bodies, national parks and national

reserves Nairobi is an economic Centre being the capital city of Kenya and the Centre for NMA (JICA, 2006).

The City of Nairobi, like most other urban centers lacks an urban development strategy that would serve as a focus for urban transport development (INTP, 2012). Although the proposed Nairobi Metropolitan Region Bus Rapid Transit System and the development of a light rail for Nairobi and its suburbs under Kenya Vision 2030 are meant to address this problem for Nairobi, there is a need for an urban policy for all cities, towns and other urban centers in the long term.

One of the reasons for traffic congestion in urban areas, especially in Nairobi and Mombasa is improper land use and physical planning (INTP, 2012). The Policy further states that land use planning and development especially in urban areas and road passenger transport development are currently not integrated. This is due to poor coordination of responsibilities for administration, planning and regulation of the various aspects of land use, infrastructure and operations.

4.7 NAIROBI'S TRANSPORT INFRASTRUCTURE AND NETWORK

4.7.1 Transport Infrastructure

Nairobi's transport infrastructure includes: Jomo Kenyatta International Airport and Wilson Airport, the railway line from Mombasa to Kampala (Uganda), and Thika, and international Northern Corridor road, national and urban roads. Urban transport is basically undertaken on roads (NCCG, 2015). The infrastructure map is shown in Figure 4.1 below.

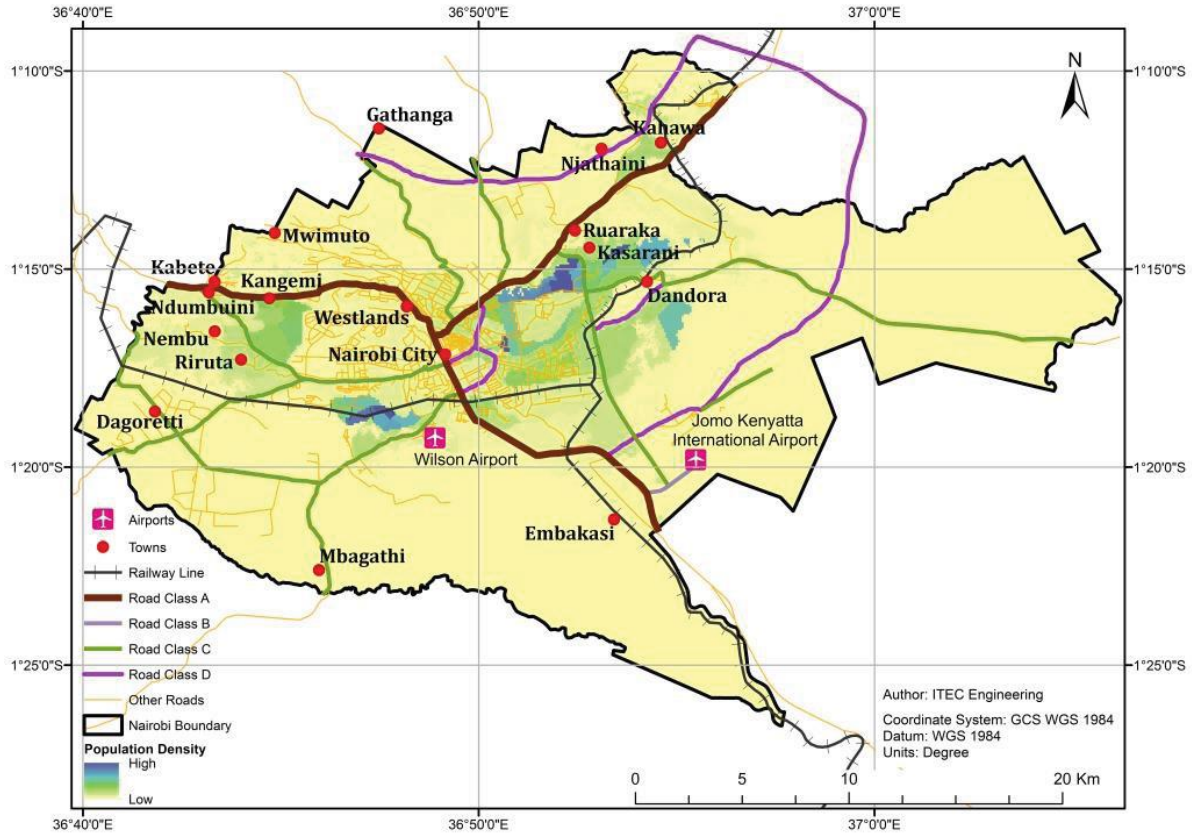

Figure: 4. 1 Nairobi's transport infrastructure map

Source: NCCG (2015)

4.7.2 Road Infrastructure and Network

Road transport infrastructure in Nairobi consists of the road network, termini, parking facilities and bus stops (JICA, 2006). The road network system in Nairobi is mainly composed of a radial pattern focusing to the CBD (NCCG, 2015). Moreover, most radial roads also function both as international transport axes and for local traffic flow (JICA, 2006). Nairobi has seven major radial roads as indicated in figure 4.2 that handle mainly international and intercity traffic. The radial roads consist of Waiyaki Way, Limuru Road, Kiambu Road, Thika Road, Uhuru Highway, Langata Road and Ngong Road.

Historically, the road network was developed as a subsidiary of the railway system up to the time of Kenya's independence in 1963 (INTP, 2012). Railways were developed for the transportation of bulk commodities and passengers over long distances. The

Policy further indicates that the existing infrastructure is inadequate in terms of reach, condition and technology. The Roads Act of 2007 created three authorities namely KeNHA (Kenya National Highway Authority), KURA (Kenya Urban Roads Authority) and KeRRA (Kenya Rural Roads Authority) to develop and manage roads infrastructure in Kenya. KeNHA is in charge of two main highways; Thika Superhighway and Mombasa Highway that pass through the heart of Nairobi. Figure 4.2 indicates the greater Nairobi Road network.

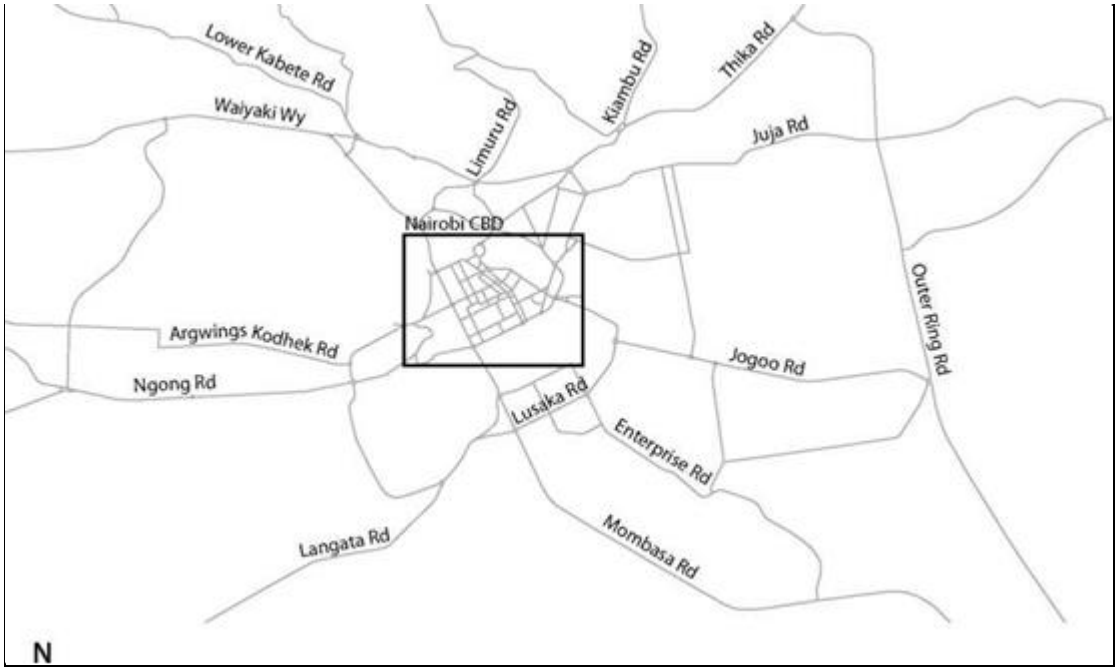

Figure: 4. 2 Greater Nairobi road network

Source: Gonzales et al. (2009)

Since there are few streets, and most arterials are radial, vehicular trips between different neighborhoods must share limited paved street space, concentrating traffic onto the sparse network of major roads. This is particularly problematic in and around the CBD (Gonzales *et al.*, 2009). The connections between the major arterials are few and far between, so there are usually no more than one or two reasonable routes for any origin-destination pair. This means that traffic cannot be redistributed to use street infrastructure more efficiently. Due to the lack of ring roads many peripheral trips must

pass through the CBD which compounds traffic congestion in the center (Gonzales *et al.*, 2009).

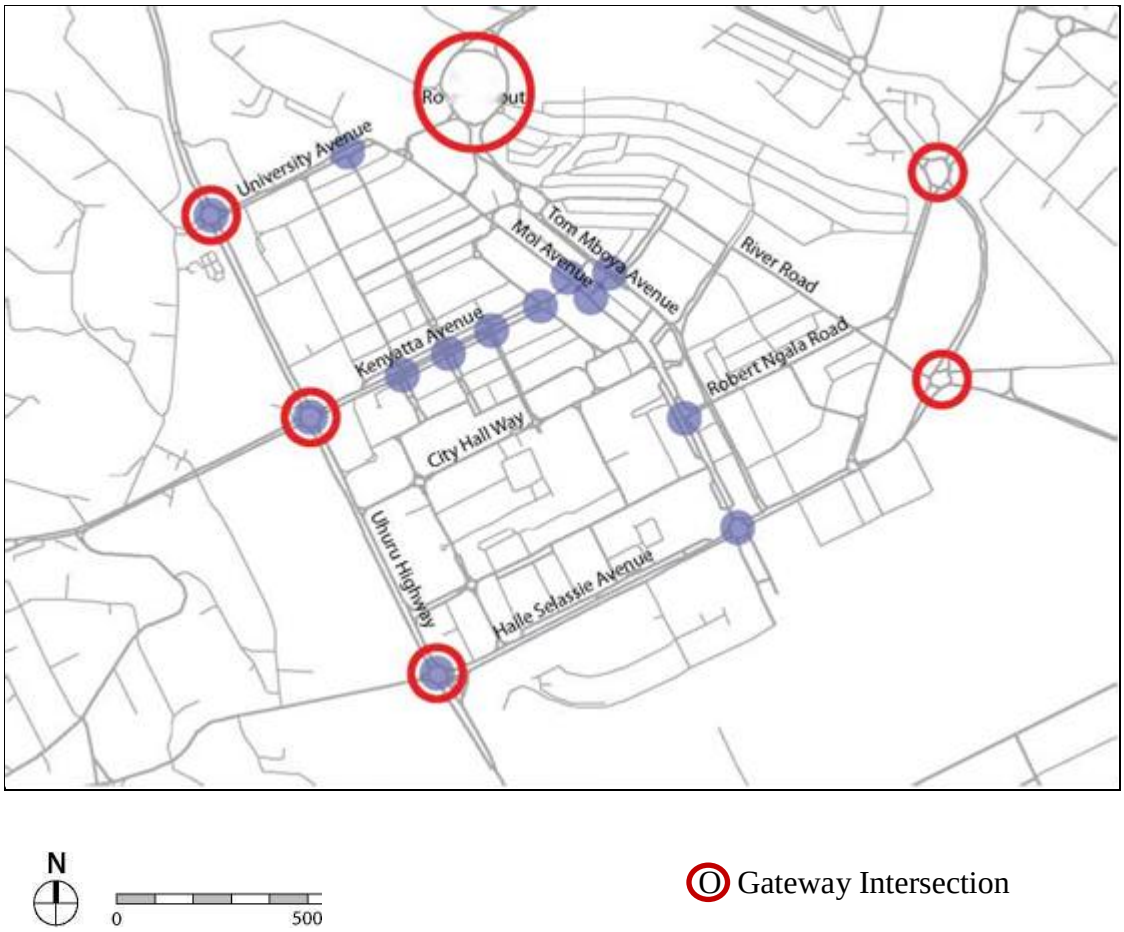

Figure: 4. 3 Nairobi CBD vehicles entry and exit points

Source: Gonzales et al. (2009)

The concentration of vehicles onto few streets and through few intersections, along with the limited available routes, makes traffic congestion on Nairobi's streets inevitable (Gonzales *et al.*, 2009). In order to drive into or out of the city center, vehicles must pass through one of six gateway traffic circles on the CBD's edge as shown in figure 4.3. This means that the capacity of the street network to serve trips entering and exiting the CBD from surrounding neighborhoods cannot exceed the capacity of these six intersections.

4.8 PUBLIC TRANSPORT IN NAIROBI

Buses, matatus, taxis, motorcycles and non-motorized vehicles provide urban passenger transport services in Kenya, and this is the case for Nairobi. There is no dedicated right of way (ROW) available for road-based public transport in Nairobi, and buses and Matatus have to share the congested carriageways with other road users (JICA, 2006).

Public transport in Nairobi has evolved considerably over the past few decades (JICA, 2006); today's system consists of private road-based services and limited commuter rail operations. The rail operations are not discussed here. The system operates in a largely deregulated environment, In addition, the systems operates virtually under the *laisser-faire* (non-interference) principal. The system basically consists of two completely different sub-systems of KBS and matatus, which compete on the same route with new entrants (privately owned large buses).

Nairobi generates a large number of trips (MoNMD, 2011); of them nearly 47 percent are by walk. Of the motorized public transport, comprising matatus and mini buses account for about 70 percent of the share, whereas, private modes such as, jeep, taxi, 4-wheel drive constitute 30 percent of all motorized trip The role of railway in enabling commuter movement is very limited.

The existing public transport system comprising of Bus and Matatu carries nearly four million passengers (MoNMD, 2011). Buses operate on about 67 routes and are estimated to carry about 0.40 million passengers per day which is about 4 percent of all passenger trips in Nairobi Metropolitan Region (MoNMD, 2011). Matatus, the 14-seater PSV, is the backbone of public mass transport system in NMR. They operate on 111 routes. The study further indicates that it is estimated that matatus carry about 3 million passengers per day.

4.8.1 Road Based Public Transport Service Suppliers in Nairobi

a) Bus

KBS is a private company that had some 266 large buses (61 seated passengers) on fixed routes and time tables in 2003 (JICA, 2006). Most routes they operate on are

radial, passing through the city Centre. This reduces the need for passenger transfers and provides a competitive advantage over the matatus which are permitted only to enter the city Centre along main peripheral roads (JICA, 2006). KBS split the company into two: KBS and Bus Truck Company. KBS now offers two services: Express service (new buses) which is for inter-city transport, mainly to western Kenya; and the metro shuttle minibus that services the high/medium income levels in Nairobi. The Bus Truck Company offers city transport and is now the main competitor with matatus (JICA, 2006).

b) Matatus

The term "Matatu system" refers to the system that has existed in Nairobi at least for the last 25 years and it is still lively today (JICA, 2006); it is not a "technical" definition, but rather a description of a set of practices regarding ownership, route structure, operational structure, control (or lack of it) interaction between various economic interests in the society and source of an intolerant certain traffic behavior. The Matatu fleet consists of a mixture of 14-seater Nissans, minibuses with a capacity of between 25 to 33 passengers and midi-buses with 45 seat capacities (JICA, 2006).

Matatus mostly operates on the same routes as KBS, but without timetables. On some routes such as north-south, they compete among themselves. Matatus largely ignore official bus stops especially in peak hours. They depart from the terminus only when fully occupies and generally drive non-stop to the final destination. In off-peak periods, drivers try to pick up as many passengers as possible on the way, which leads to erratic driving and stopping behavior. During congested periods, traffic rules are ignored (e.g. they use the road shoulders or lanes for opposing traffic to by-pass traffic jams) (JICA, 2006).

4.8.2 Public Transport Routes

There are 50 commuter bus routes in Nairobi as shown in figure 4.4 (Aligula *et al.*, 2005 in Roux, 2013). The major bus routes in Nairobi are Mbagathi Valley Road, Jogoo Road, Mombasa Road, Juju Road, Thika Road, Waiyaki and Ngong Road. The number

of bus routes has been gradually reduced over time, as routes have been abandoned and taken over by Matatus. KBS provides services on urban routes, intra-urban routes, suburban routes, intercity routes and rural routes (Mukabanah, 2009 in Roux, 2013).

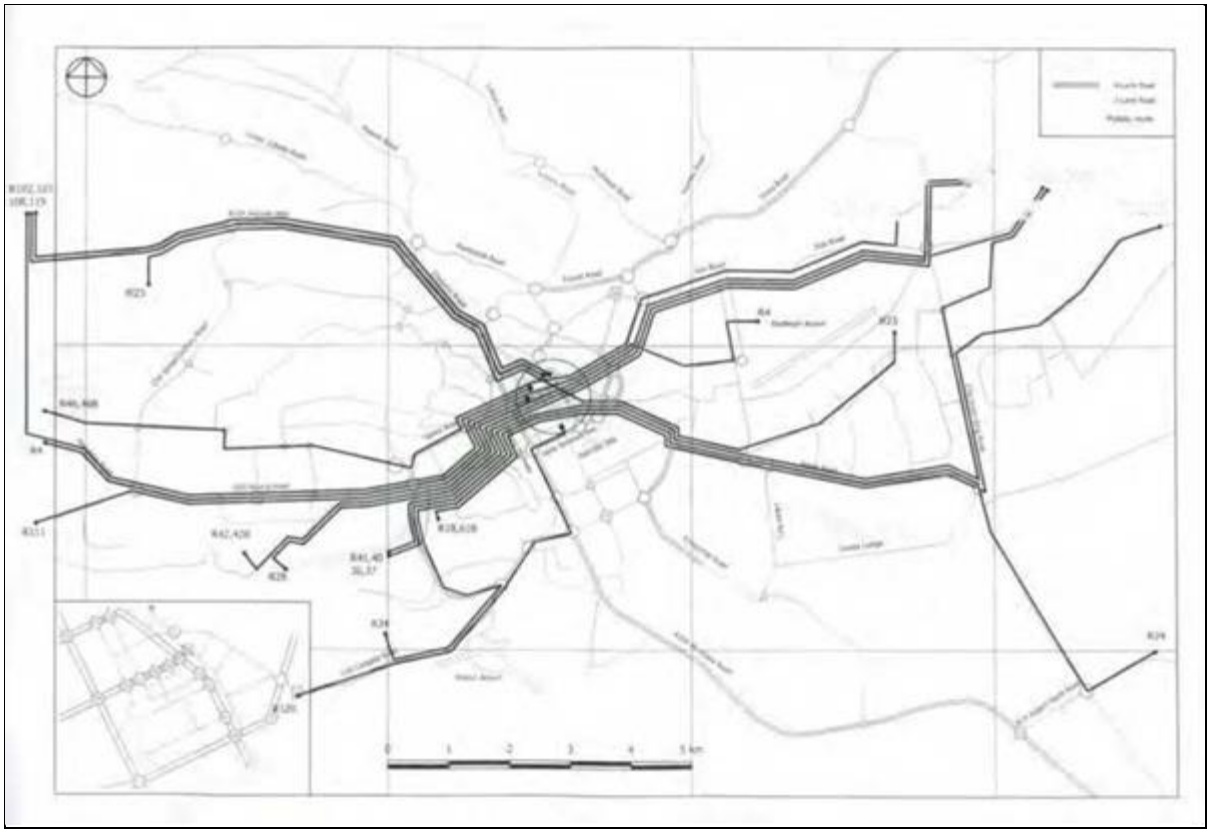

Figure: 4. 4 Commuter bus routes in Nairobi
Source: JICA (2006)

Matatus are only permitted to enter the city Centre along specific routes. The Matatu routes are generally shorter than the KBS routes, because they do not operate full radial routes across the town, in order to fit as many trips in as possible, and because they are not allowed in and through the CBD. Syndicates have developed over time and today most of the routes are controlled by associations that act as self-declared owners of the route (cartels) (Behrens *et al.*, 2011 in Roux, 2013). Figure 4.5 below indicates commuter matatu routes in Nairobi.

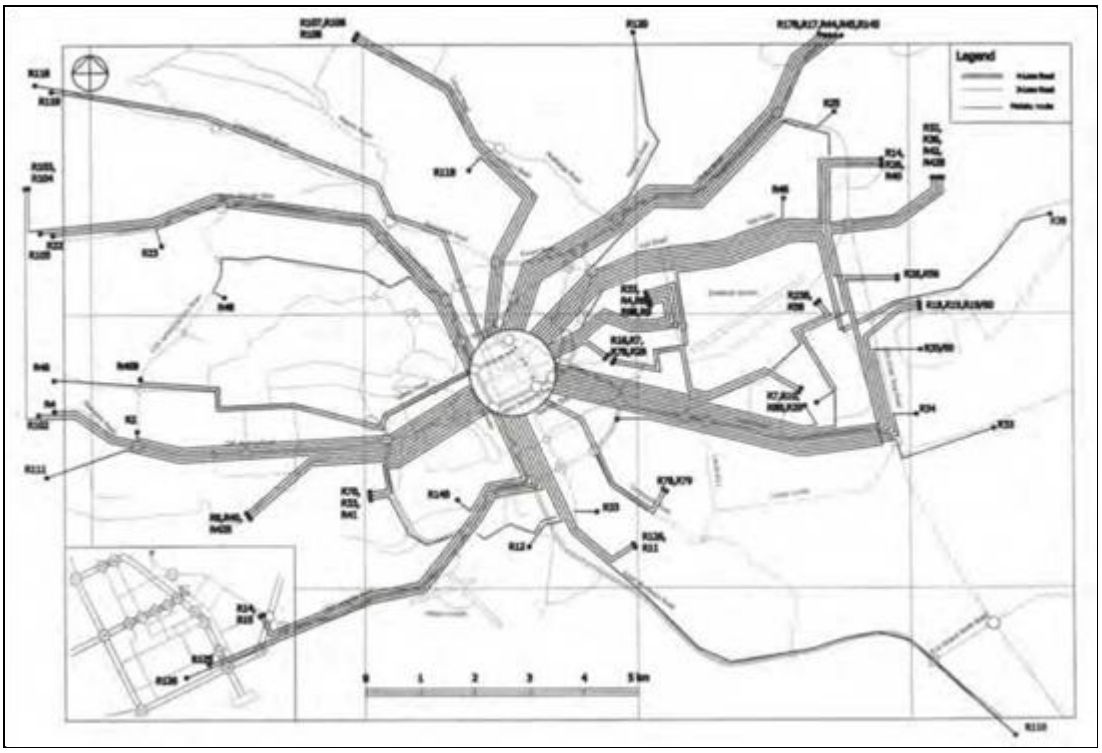

Figure: 4. 5 Commuter matatu routes in Nairobi

Source: JICA (2006)

4.9 FARES

Matatus have no fixed fares and; the matatu fares depend on the time of the day and weather conditions. The applicable fare is usually shown inside the vehicle windscreen. The fares are high during peak hours, late at night and during bad weather until a few years ago. Nowadays, the fare sometimes is lower during peak hour due to the many competitors to the matatu business. But fares are still high at night and during bad weathers (JICA, 2006).

4.10 CAR OWNERSHIP

Based on the findings of NUTRANS (2005), a majority (54 percent) of people living in households which did not own a car walked to their destination and another 33.5 percent were dependent on public transport (matatus) for their mobility. Table 4.3 below indicates percentage of households by ownership of household assets.

Table: 4. 3 Percentage of households by ownership of household assets by districts

	Bicycle	Motorcycle	Car/Truck/Tuktuk
KENYA	25.3	2.1	4.8
NAIROBI	11.4	1.3	12.2
NAIROBI WEST	12.4	1.3	13.0
NAIROBI EAST	11.5	1.3	10.7
NAIROBI NORTH	9.1	1.2	8.5
WESTLANDS	17.8	2.0	33.1

Source: Kenya Republic of: (2010)

According to the Draft Integrated National Transport Policy, (2009) there are approximately 899,000 vehicles registered in the country of which over 38,000 are PSV (matatus) with 7,000 located in Nairobi alone. It is estimated that there are 10,000-11,000 matatus and midi-buses operating in Nairobi. The Bus Track division of KBS now owns a fleet of about 270 single deck vehicles and also operates Metro Shuttle (Smith, 2005). Table 4.4 below shows number of licenses issued to public service vehicles and table 4.5 shows new vehicle registrations (2008-2012).

Table: 4. 4 Licenses issued to public service vehicles (2008-2012)

	2008	2009	2010	2011	2012
Passenger vehicle service	45268	15835	28840	23680	22052

Source: Kenya Republic of: (2013)

Table: 4. 5 New registration (2008-2012)

	2008	2009	2010	2011	2012
Motor cars	43,433	44,529	53,718	42,225	52,847
Buses and mini buses	6,449	5,540	4,864	2,113	1,716

Source: Kenya Republic of: (2013)

4.11 TERMINI IN NAIROBI CBD

There are two types of termini found in Nairobi: internal and external. There are 18 official termini in the CBD with additional ones outside the CBD but within the city example of Ngara and Kenyatta (Egav, 2012). The major external terminus for road-based public transport is along Landhies Road. Within the city there are other

undesignated locations where PSVs starts/end their journey or stops for passengers to board/alight. There are several designated bus stops and lay-byes within the CBD.

The internal public transport provides transport within the Nairobi area, while the external public transport provides long distance transport outside the NMA. Internal public transport shelters are found along the roads within the city Centre, although there are some stops that lack adequate shelter (Roux, 2013). The study by Roux further indicates that, the rapid growth in the number of Matatus has put a great strain on the use of termini facilities, particularly in the city Centre. Currently, most of all the terminals for bus and matatu are concentrated at the city Centre area. As a result, access roads to bus/matatu terminals are heavily congested (JICA, 2014). Table 4.6 below indicates the terminus within Nairobi CBD.

Table: 4. 6 List of terminus within Nairobi CBD

No.	Description of Names/location of Termini/Stops	Routes Served by the Termini	Terminus Capacity	Average Departure Time (min)
1	Ronald Ngala Opp Tuskys/Naivas	15,14,16	30	2
2	Government Printers-Haille Sellasie Avenue.	33(Embakasi),34,110,15,125,126,24(langata Rd),14,111,8		
3	Haile Sellasie Round About (Kenol kobil)	33(Embakasi),34,110,15,125,126,24(langata Road),14		
4	Koja		37	2.2
5	Jevenjee gardens	23,105,115,48,119,118	5	2.2
6	Timboroa Road off Lateme Odeon		34	5
7	Latema Odeon		48	2.2
8	Commercial Accra		89	2.0
9	Haille Sellasie-Next to Bomb blast	15,125,126,111,8,110,32,4,46,102,2		
1	Cross Road next to OTC	33,100,120,121		
11	Ambassador		28	12
12	Luthuli Avenue		36	1.2
13	Bus Station (Main)		108	1.4
14	Muthurwa		96	2.2
15	Railways		83	1.2
16	Ronald Ngala Opp. Oil Libya		30	1.0
17	Latema Odeon		48	2.2
18	Timboroa Road Off Latema Odeon		34	5.0

Source: Adapted from Envag (2012)

4.12 THE CENTRAL BUS TERMINUS

Nairobi Railway station and the Central Bus Terminus in the city center are the typical mode interchange areas in the NMA (JICA, 2006). The central Bus Terminus in the city centre is well developed as a mode interchange area; however heavy traffic congestion is observed at the terminals narrow entrance and exit points. There are also many

matatu termini around this terminus (JICA, 2006). Table 4.7 below indicates the routes operating at the Central Bus Terminus, route description and destination.

Table: 4. 7 Routes operating at the Terminus, description and destination

S/No.	Route No.	Route description	Destination
1	15	Bus Station-Lang'ata Road-Lang'ata Estate	Lang'ata
2	24	Bus Station-Mombasa Road-Lang'ata Road-Bomas-Hardy -Karen	Karen
3	16	Bus Station-Langata Road-mbagathi way-Nyayo highrise	Nyayo Highrise
4	14	Bus Station -Nyayo stadium,Nairobi West-Madaraka Estate-Strathmore	Otiende
5	12C	Bus station-South C shopping centre- Water training Institute	South C
6	11	Bus Station-South B-Dunga Road Bunyala road-city	Highridge
7	148	Bus Station-Thika Road-Thika Road- Garissa Road-Mwingi Town	Mwingi
8	24	Bus station/Aghakan Walk-Valley Road-Ngong Road-Dagorreti Corner- Karen-Hardy	Hardy
9	28	Bus Station-Juja Rd-Kariobangi	Kariobangi
10	39	Bus station-Jogoo road-Kangindo road-Njiru-Ruai	Ruai
11	37/38	Bus station-Jogoo road-Kangindo road-Njiru-Ruai	Ruai
12	38/39	Bus station-Jogoo road-Kangindo road-Njiru-Ruai	Ruai
13	201	Bus Station-Juja Road-Kagundo Road-Njiru-Ruai-Kamulu- Tala-Kangundo	Kangundo
14	202	Bus Station-Juja Road-Kagundo Road-Njiru-Ruai-Kamulu- Tala-Kangundo	Kangundo
15	33D	Bus Station-South B –South C-Nairobi West-Mbangathi Way-Ngumo Estate	Ngumo

Source: Adapted from Envag (2012)

4.13 POLICY, LEGAL, INSTITUTIONAL AND REGULATORY FRAMEWORK

The transportation system in Nairobi suffers from institutional fragmentation and a lack of coordination between institutions, which creates an adverse effect on public transport planning. The operators are organized into route associations that attempt to limit new entrants to the routes.

4.13.1 Kenya Integrated National Transport Policy

To enable the transport sector effectively play its role in this scenario, the Ministry of Transport launched the National Transport Policy Committee on 2nd April 2003. Its sole mandate was to formulate an Integrated National Transport Policy. The process was conducted on a consultative basis punctuated with modeling of solutions based on international best practice to bridge the gap between local challenges and planned interventions.

The Policy Paper, whose theme is "Transport for Prosperity", identifies a number of challenges inhibiting the transport sector from performing optimally its facilitative role in respect of national and regional economies. The Challenges include: poor Quality of transport services, inappropriate modal split, unexploited regional role of the transport system, transport system not fully integrated, urban environmental pollution, lack of an urban/rural transport policy, institutional deficiencies, inadequate human resource capacity and lack of a vision for the transport sector.

These challenges will be addressed through integration of transport infrastructure and operations as well as responding to market needs of transport. Other interventions will include the enhancement of transport services and quality, consumer protection, catering for consumers with special needs, ensuring fair competition, use and integration of information and communication technologies in transport development and operations (INTP, 2012).

Currently, the institutional framework for the inter-modal coordination is fragmented. The establishment if a Directorate of Transport by the Government of Kenya, with the following structure is proposed as shown in figure 4.6 below.

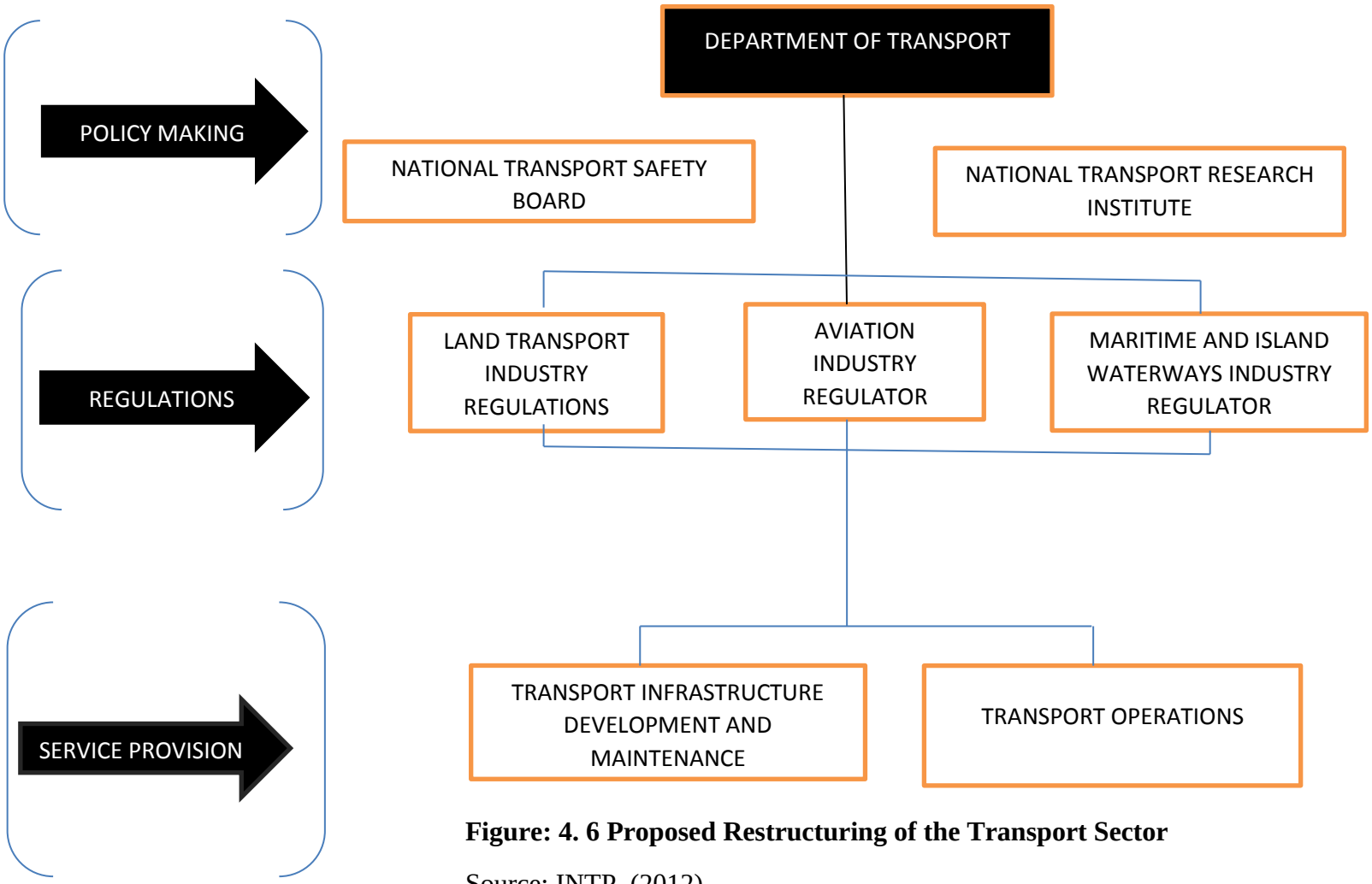

Figure: 4. 6 Proposed Restructuring of the Transport Sector

Source: INTP, (2012)

A key feature of this proposed reorganization is fidelity to the maxim of separating policy making, regulation and service provision roles in the transport sector. The INTP (2012) identifies the fragmented and uncoordinated legal and institutional framework for regulation, coordination, development and management of road passenger transport services. The functions of the NTSA, which is supposed to be the industry regulator does not include the provision of road passenger transport services. The Authority neither prepares road passenger transport plans, nor does it formulate standards in the quality of service and vehicle standards and regulations to guide industry operations. The current licensing framework is based on applications, while the supervision of the licensed operators is left to traffic police whose core function does not include this area of operational priority.

Further, even though NTSA license fees are derived from the NTSA licenses, its revenues are all remitted to the Exchequer, which is not obliged to allocate the same to the Authority. The Authority is therefore not financially autonomous and relies on central government financing. Similarly, it lacks institutional autonomy in decision making since its decisions are subject to ratification by the central government. While the private sector has shown immense interest and capacity to invest in road passenger transport, there has been lack of clear institutional guidance to foster meaningful long-term investment, especially in large buses.

4.13.2 Legal Framework

The transport operations in Kenya are regulated by various Acts of parliament. The legislation is disjointed. The main Acts of parliament that regulate road transport are indicated in table 4.8 below.

Table: 4. 8 Key Statutes governing Road Transport Sector in Kenya

DESCRIPTION	STATUTES AND REGULATIONS
Overarching Statutes	• The New Constitution of Kenya • The Kenya Police Act • The Administration Police Act • The Way leaves Act cap 292 • The State Corporations Act • The Environmental and Management Co-ordination Act 1999 • The Kenya Revenue Authority Act • The Insurance Act • The Exchequer & Audit Act, Cap 412 • Privatisation Act • Public Procurement and Disposal Act 2005 • Public Private Partnership Act • Lake Basin Development Act
Sector specific-Road Transport	• The Transport Licensing Act Cap 404 • The Kenya Road Boards Act, Cap 408 • The Road Maintenance Levy Fund Act No.9 of 1993 as amended in 1994 • The Public Roads Toll Act, Cap 407 • The Finance 2005 Act • The Public Roads and Roads of Access Act, Cap 399 • The Kenya Roads Act No.2 of 2007 • The Traffic Act, Cap 403 • The Streets Adoption Act, Cap 406 • The Valuation of Rating Act, Cap 266 • The Rating Act Cap 267 • The Wildlife Conservation & Management Act, Cap 376 • The Central Road Authority Act • The Agriculture Act, Cap 318 • The Physical Planning Act No.6 of 1996 • The National Transport and Safety Authority Act, 2012

Source: Adopted INTP, (2012)

4.13.3 Legislations

There are several legislations that have been passed for regulating public transport in Nairobi; of significance is the Legal *notice No. 23 of 11th March 2014 National Transport and Safety Authority (Operation of Public Service Vehicles) Regulations, 2014 (amendment to Dec 2013 regulations)*.The regulations indicate that no person shall operate a PSV without a valid license issued by the authority and stipulates

conditions of licensing of the PSV. The notice restricts the change of routes and transfer of route licenses without the approval of the authority. It also requires any individual applying for a license to provide certificate of registration as a company under the Companies Act, or a cooperative society under the Cooperative Societies Act.

4.13.4 The Nairobi City County Government Matatu Termini By-laws 2007

The by-laws prohibits anyone to establish or manage a private matatu terminus, except with written authority from the County Government of Nairobi; the county does not also allow or authorize any land, car park or petrol station to be used as a matatu terminus for the purpose of dropping off or picking up passengers.

The by-laws stipulates the waiting time at a designated stop to not more than five minutes and at a matatu terminus for more that forty minutes. While at the stop or terminus all matatus shall be under the direction of the enforcement officer. The role of the enforcement officer is to control parking at the terminus, the time of departure and arrival and any other matter conducive to the efficient and safe operations of a matatu terminus. The by-laws also prohibit hawking of whatever kind.

4.13.5 Key Institutions and Stakeholders Involved in Kenya's Public Transport

There is a fragmented and uncoordinated institutional framework for regulation, coordination, development and management of road passenger transport services (INTP, 2012). Management and organization of the city (Urban) transport is shared between the public and the private institutions. These shared responsibilities include policy issues, regulations and management of road infrastructure. When there are many institutions involved in one area, co-ordination and especially cooperation is essential. Below are some of the institutions involved with management and operations of the road transport in Kenya and Nairobi.

4.13.5.1 Institutions involved in planning, coordination and strategy

i) Ministry of Transport and Infrastructure

The ministry has two departments; state department of transport and state department of infrastructure. Main responsibilities as the key central government agency for road infrastructure are carried out through the two departments and the various state corporations. Responsibilities are shared among the state corporations under the ministry and the ministry itself.

State Corporations under the ministry include;

a) *National Transport and Safety Authority (NTSA)*

The National Transport and Safety Authority is a regulatory body formed by an Act of Parliament.; Act Number 33 on 26th October 2012. The National Transport and Safety Act 2012 Laws of Kenya, provides for the co-ordination and control of means and facilities for transport. Core functions are; to advise and make recommendations on matters relating to road transport and safety, to implement policies relating to road transport and safety, to plan, manage and regulate the road transport sector in accordance with the provisions of the Act no.33, 2012 and to ensure the provision of safe, reliable and efficient road transport service.

The Board is therefore the regulatory arm of the Government mandated to regulate activities within the road transport sub sector. The authority has various departments, below are the various functions of the regulating departments.

Directorate of Registration and Licensing

The directorate is tasked with; registration and licensing of motor vehicle, registration and regulation of the Matatu SACCO's, formulation and review of the curriculum of the driving schools and establishing systems and procedures for, and oversee the training, testing and licensing of drivers.

Directorate of Road safety

The directorate is tasked to; develop and implement road safety strategies, facilitate the education of members of the public on road safety and conduct research and audits of road safety.

Directorate of Motor Vehicle Inspection

The directorate is mandated to; booking of motor vehicle inspection, conduct motor vehicle inspection and certification and regulation of public services vehicles.

b) *Kenya National Highways Authority (KeNHA)*

The Kenya National Highways Authority was established by an Act of parliament; the Kenya Roads Act 2007. Section 3, 4 and 5 of the Kenya Roads Act (2007) provide for the establishment and functions of the KeNHA, which is responsible for the management, development, rehabilitation and maintenance of national roads. The core functions include; constructing, upgrading, rehabilitating and maintaining roads Class A, B, C roads, implementing road policies in relation to national roads, ensuring that the quality of roads works is in accordance with such standards as may be defined by the minister, and collecting and collating all such data related to the use of national roads as may be necessary for efficient forward planning.

c) *Kenya Urban Roads Authority (KURA)*

KURA is a statutory body established by the Kenya Roads Act, 2007. The Act also established other Road Authorities and provided for their powers and functions as stipulated within the Act. Sections 9, 10, 11 and 12 of the Roads Act, provide for the establishment, functions and composition of KURA which is the body corporate in charge of management, development, rehabilitation and maintenance of all public roads in the cities and municipalities in Kenya except where those roads are national roads.

Other functions of KURA include; constructing, upgrading, rehabilitating and maintaining roads under its control, controlling urban roads reserves and access to roadside developments, implementing road policies in relation to urban roads, in

collaboration with the Ministry responsible for transport and the Police Department, oversee the management of traffic and road safety on urban roads, monitoring and evaluating the use of urban roads, planning the development and maintenance of urban roads, collecting and collating all such data related to the use of urban roads as may be necessary for efficient forward planning and liaising and coordinating with other road authorities in planning and on operations in respect of roads.

d) *Kenya Roads Board (KRB)*

The main objective of KRB is to oversee 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. The KRB was established through an Act of Parliament, KRB ACT No. 7, in 1999 and was given presidential assent on 6th January 2000. The Act commenced on 1st July 2000 and the Board of Directors was appointed. The act specifies the following as the mandates of the board: administer the funds derived from the Road Maintenance Levy Fund (RMLF) and any other funds that may accrue to it, coordinate the development, rehabilitation and maintenance of the road network, with a view to achieving efficiency, cost effectiveness and safety, coordinate the implementation of all policies relating to the development, rehabilitation and maintenance of the road network, determine the allocation of financial resources from the RMLF or from any other source available to the Board required by road agencies for the development, rehabilitation and maintenance of the road network and monitor the operations or activities undertaken by road agencies in the development, rehabilitation and maintenance of the Kenyan road network.

ii) Nairobi City County Government

The NCCG has several departments each with several sections. The core departments responsible for public transport planning, management and enforcement include;

a) Roads, Public Works and Infrastructure sector

The sector deals with road repairs, rehabilitation and construction and street lighting. NCCG has City Engineer's department responsible for planning, development and

maintenance of county road infrastructure. Transport Unit (TU) is a large section under the City Engineers department and is mainly in charge of Nairobi Traffic management.

b) Lands, Physical Planning and Housing

This sector deals with forward planning, development control, urban renewal and urban design.

c) Finance and Economic Planning

The main responsibility of this sector is revenue mobilization.

d) Enforcement and County Askaris

The sector is tasked with provision of security and enforcement in the city. Duties include removal of illegal structures, traffic Marshalls and enforcement.

iii) Kenya Police Department

The Traffic Police play an important role in enforcement of traffic laws. The department also tests the drivers. The examiners issue certificates of competence to drivers after attending driving schools or been examined.

The traffic police also collect all accidents data for purpose of legal prosecution and/or insurance claims. The accidents data is processed through a P41 form to the traffic police headquarters on a regular basis enabling the police to have a good accident data. The accidents statistics are forwarded to the minister, MoTI.

iv) Kenya Revenue Authority

Kenya Revenue Authority is responsible for collection of revenue related to PSV.

v) Registrar of Motor Vehicles

The Registrar of Motor Vehicles has a key role to play in registration of vehicles and keeping of all vehicles records in the country.

vi) National Environmental Management Authority (NEMA)

NEMA is established under EMCA (Environmental Management and Coordination Act), No. 8 of 1999, as the principal instrument of the government in the implementation of all policies relating to the environment. This Act describes the legal and institutional framework of environment management. Environment Management and Co-ordination (Noise and Excessive vibration Pollution Control) Regulations, No. 61 of 2009 stipulates the maximum permissible noise levels in various zones and different times of the day as shown in table 4.9 below, this regulation also apply to operations of PSV. (For day and night for various zones Note: Day: 6:01 a.m. – 8:00 p.m., Night: 8:01 p.m. – 6:00 a.m).

Table: 4. 9 Maximum permissible noise levels (Leq)

S/No.	ZONE		DAY	NIGHT
A	Silent Zone		40	35
B	Places of worship		40	35
C	Residential :	Outdoor	45	35
		Indoor	50	35
D	Mixed residential (with some commercial & places of entertainment)		55	35
E	Commercial		60	35

Source: NEMA (2009)

vii) Kenya Bureau of Standards

The Kenya bureau of standard provides specifications for PSV. This includes the specifications of the PSV to be imported for passenger transport service and materials to be used for modification of the vehicles to meet the PSV standards.

viii) Association of Kenya Insurance

They provide third party motor vehicle insurance which is a requirement for licensing PSV.

4.13.5.2 Operations Stakeholders

a) Transport SACCO's/companies

Any person operating a PSV must belong to a transport SACCO/company. The SACCO system was instituted by the government to bring control to the public transport industry. The reforms in the transport sector have been going on for a while in Kenya. The Minister of Transport Hon. Kimunya came up with the idea that all matatus operators should be encouraged to form and join SACCO's/companies. This idea was discussed among all stakeholders who found it positive and worth taking up. NTSA is spearheading the implementation of the SACCO/Company registration and so far 750 have been registered. *Special Gazette Notice No 173 of 17th December 2013 (Legal notice No 219).* It stipulates requirements for registration of transport SACCO's and companies (body corporates) with NTSA for registration to operate a PSV.

b) Paratransits operators

Paratransit services are provided by private operators. The following stakeholders are involved in the paratransit industry; Bus and matatu owners, PSV operators (driver & conductor), Commuter Welfare Associations, Matatu Owners Association and the Matatu Welfare Association. There are also cartels involved in the Matatu industry and they are called the Mungiki and Kamjesh Gangs. These gangs extort money from the operators before allowing them to operate on certain routes.

4.13.6 Regulatory Framework

Transport in Nairobi is regulated mainly by the Traffic Act (2004). The INTP (2012), provides no clear transport and urban transport policy or overall policy direction for transport in Nairobi. There are fragments of policy statements issued from time to time to guide the sector. The national government (MoTI) licenses vehicles and regulates transport services through the NTSA.

At the local level, the NCCG is charged with planning and managing the urban road infrastructure system, but its jurisdiction is restricted to a boundary that no longer covers the whole urban area. Responsibility for the road network in Nairobi is shared between the MoTI and road transport authorities and the NCCG.

4.14 URBAN TRANSPORT STUDIES CARRIED OUT WITHIN NAIROBI

The Project on Integrated Urban Development Master Plan for the City

The study was carried out in the year 2014 by JICA, Nippon Koei Co., Ltd., IDCJ Inc., EJEC Inc. for NCCG. The study is aimed at developing an integrated urban development plan for Nairobi city, by reviewing and developing concepts on sustainable urban development and improving living conditions (JICA, 2014 (draft)).

Study on the development of a 50-year National Transport Master Plan for Kenya

The study was carried out in the year 2013 by RITES Limited (A government of India Enterprise) for Ministry of Transport and Infrastructure, Republic of Kenya. The document stresses the need for long term transport master plan for Kenya. The master plan development was occasioned by the realization that the present transport infrastructure in Kenya is rather inadequate and fragmented with limited linkage facility to the centers of production, markets, agriculture, industry, mining and tourism (Gauf, 2014).

Decongestion Study for the Nairobi CBD

The study was carried out in the year of 2012 by Wanjohi Consulting Engineers for Ministry of Nairobi Metropolitan Development. The Feasibility Report defines the arising of congestions as an exceeding demand of road space compared to its capacity (Gauf, 2014).

Development of a Spatial Planning Concept for Nairobi Metropolitan Region

The study was carried out in the year 2012, by Consulting Engineering Services (India) Pvt. Ltd. for the government of Republic of Kenya - MoNMD. This document is an elaborate study of the Nairobi Metropolitan Region. It includes an analysis of the current situation, while also offering proposals for future developments. The main issue of transportation is considered in the documents include congestion on major roads in NMR, unorganized public transport system, mixed traffic on road, commercial passenger vehicle and non-motorized traffic (Gauf, 2014).

Feasibility Study & Technical Assistance for Mass Rapid Transit System for NMR

The study was carried out in the year of 2011 by APEC Limited Consulting Engineers and Consulting Engineering Services (India) Private Limited, for Ministry of Transport, Republic of Kenya. The aim of the feasibility study was to identify mass rapid transit systems requirements within Nairobi City and NMR taking into consideration the results of the 2006 NUTRANS study (Gauf, 2014).

Nairobi Metro 2030

The study was carried out in the year 2008 by Government of the Republic of Kenya-MoNMD. The document is a statement about the aim of Nairobi to become a world class African region, which is able to create sustainable wealth and offer a high quality of life for its residents, the people of Kenya, investors and offer an unmatched experience for its esteemed visitors. The document main goals is to provide a framework for developing world class infrastructure to support development, enhance linkages and accessibility to national, regional and global contexts among others (Gauf, 2014).

The Study on Master Plan for Urban Transport in the NMA

The study was carried out in the year 2006 by JICA, Katahira and Engineers International, RECS International Inc for the Ministry of Roads and Public Works and Ministry of Local Government- the Republic of Kenya. The report consists of an analysis of both present and future conditions and demand of urban transport. It covers the issues of road, public transport, traffic management, institution, legislation, financing and urban environment (Gauf, 2014).

Nairobi Metropolitan Growth Strategy 1973

In 1971, the United Nations assisted the formulation of Metropolitan Growth Strategy in collaboration with the UN experts, urban planners in the City Council of Nairobi and urban planning consultants to form a Nairobi Urban Study Group. In 1973, Nairobi Metropolitan Growth Strategy was published (Gauf, 2014).

CHAPTER FIVE- DATA ANALYSIS AND INTERPRETATION

5.1 INTORDUCTION

Quantitative data was collected from public transport user's survey. The data obtained from the survey was analyzed using SPSS software and excel. Tables, charts and graphs were derived from the analysis and have been presented in this chapter. Qualitative data was obtained from interviews with key informants, documents, observations and photographs. The data was analyzed by reading through the recording of the various interviews conducted with the key informants, identifying the various themes, categories and patterns on the data collected and concurrently putting the report together as represented and discussed in this chapter.

At the analysis stage, the researcher ensured only the useful data that would address the research objectives was included in the report. The objective of this research is to study the operational systems for the road public transport terminus in Nairobi. In order to fulfill the main objective below are the specific objectives; to examine the operational systems of the terminus, to identify operational challenges at the terminus and to propose a framework to improve the performance of the transport terminus.

5.2 DATA INTERPRETATION AND PRESENTATION

5.2.1. Passenger Trend and Perceptions

The public transport survey was meant to collect data on public transport users' information regarding gender, mode of public transport used daily and how often it is used, utilization of terminus, time taken from the terminus to their final destination and the mode used, waiting time to board PSV and queuing at the terminus. Issues to do with accessibility of the terminus, the condition of the terminus and operations of the terminus were also investigated and what the passenger felt required improvements in service and operations management of the terminus.

5.2.1.1 Gender

A total of 112 respondents we interviewed, 60 percent were male and 40 percent were female as shown in table 5.1 below.

Table: 5. 1 Gender of respondents

Gender	Frequency	Per cent
male	67	59.8
female	45	40.2
Total	112	100.0

Source: Author (2016)

5.2.1.2 Mode of public transport commonly used by public transport users

Out of the total number interviewed 89 percent of public transport user's prefer public transport (Bus or Matatu) as their daily mode of transport to and from town, and only 11 percent did not utilize public transport on daily basis. Figure 5.1 below indicates that of the 89 percent who use public transport daily 38 percent use the bus, 29 percent use matatu, and 37 percent utilize both transport modes. This indicates that the Bus mode has the highest share of the public transport users terminating at the Central Bus Terminus.

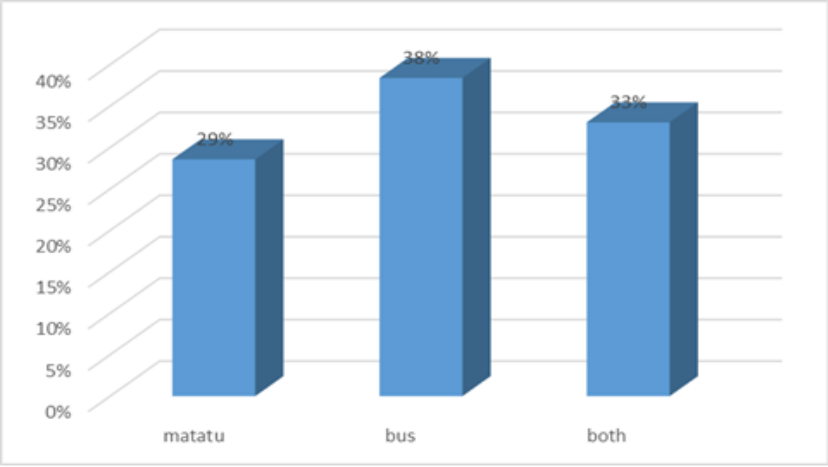

Figure: 5. 1 Public transport mode commonly used by commuters at the terminus

Source: Author (2016)

5.2.1.3 Daily trip and PSV passengers use of designated stops

According to the survey results 73 percent of the respondents come to the town Centre daily while 27 percent did not make daily trips to town Centre as indicated in figure 5.2 below. This indicates that majority of the respondents make daily trips to City Centre.

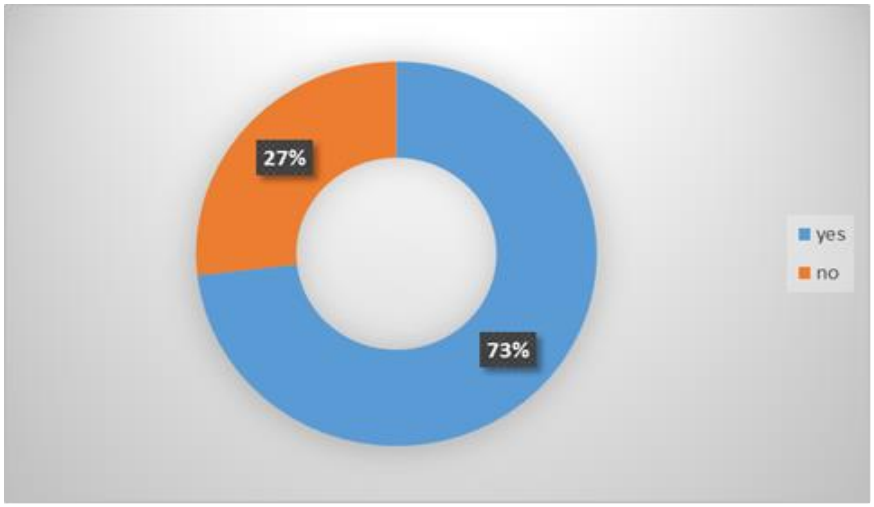

Figure: 5. 2 Percentage public transport users who come to town daily
Source: Author (2016)

According to the survey results, majority of respondents alight at the designated terminus. Figure 5.3 below indicates that, 83 percent board and alight at the designated terminus or stop while 17 percent board and alight anywhere along the route of their journey. Some of the respondents reported that, they alight before reaching the terminus due to convenience to reach their final destination and due to traffic jams but sometimes are forced to get to the terminus due to fear of arrest by NCCG enforcement officers, since the NCCG by-laws prohibit boarding or alighting a PSV at un-designated stops, even when the designated stops are not conveniently located to easily access their final destination. It can be noted that 17 percent who alight along the way feel that the terminus is located far from their final destination hence the need to alight at undesignated stops or at any other terminus located mostly along their route.

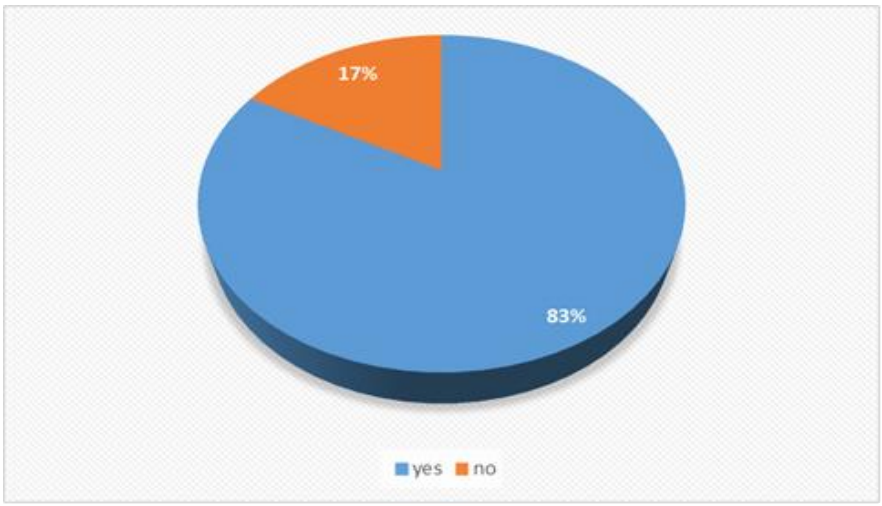

Figure: 5. 3 Percent of passengers boarding or alighting at the designated terminus
Source: Author (2016)

5.2.1.4 Mode of transport to final destination and time taken to final destination

Most public transport users do not end their journey at the terminus, hence the terminus acts as a distribution point for passengers to join other modes of travel to their specific points of destination. Figure 5.4 below indicates the modes of transport used by the transport users to their final destination.

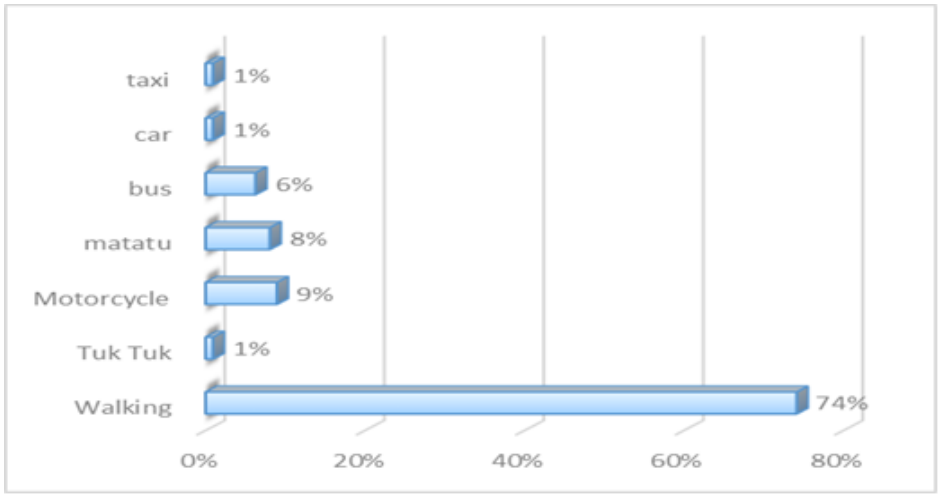

Figure: 5. 4 Transport mode used from the terminus to final destination
Source: Author (2016)

The results of the survey shows that 74 percent of the passengers walk to their final destination, from the Central Bus Terminus, 9 percent use motorcycle, 8 percent reported to use matatu, those who used the bus was 6 percent, Tuk Tuk 1 percent, car 1 percent and taxi 1 percent. In conclusion majority of transport users at the Central Bus Terminus walk to their final destination, that is 74 percent, with the other 26 percent using other transport modes to reach the final destination. This shows that Majority of public transport users who alight at the terminus are within walking distance to their final destination or have no alternative mode to their final destination walking being the only affordable and available mode.

According to the survey results of the passengers who change modes at the Central Bus Terminus, majority, 46 percent, take approximately 15minutes to get to their final destination, 33 percent 30 minutes and 21 percent above 45 minutes as shown in figure 5.5 below. This indicates that most passengers using the Central Bus Terminus have a final destination far away from the terminus and have to walk for long distances to get there.

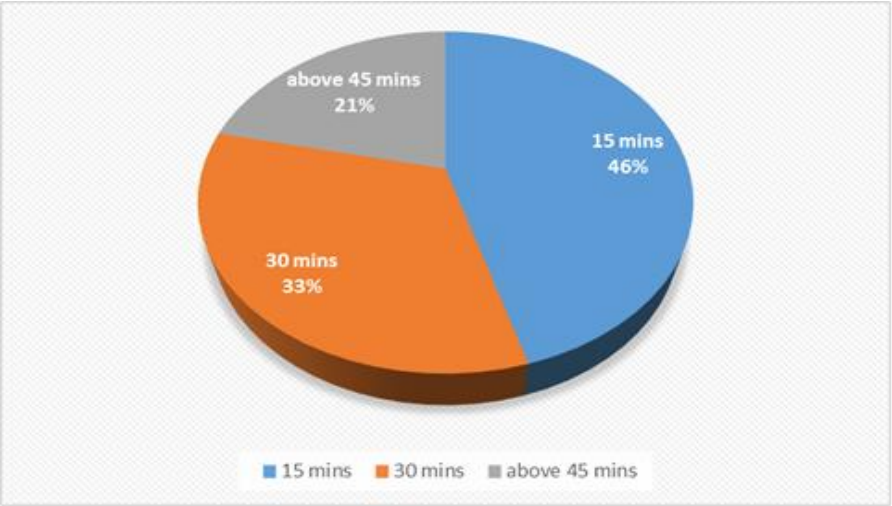

Figure: 5. 5 Duration taken from the Terminus to the final destination
Source: Author (2016)

5.2.1.4 Duration of waiting to board a bus/matatu in the morning and evening

According to the study results, 78 percent of the respondents wait for approximately 15 minutes to board a PSV in the morning, 18 percent wait for 30 minutes while only 4 percent wait for more than 45 minutes as shown in table 5.2 below.

Table: 5. 2 Duration of waiting to board a bus/matatu in the morning

Duration	Frequency	Per cent
15 minutes	87	77.7
30 minutes	20	17.9
Above 45 minutes	5	4.5
Total	112	100.0

Source: Author (2016)

Due to the nature of public transport in Nairobi, it can be noted that the 4 percent who wait for more than 45 minutes are the passengers boarding the PSV on undesignated stops on mid journey, by the time the PSV reach them it is mostly full as shown.

Table: 5. 3 Duration of waiting to board a Bus/matatu in the evening

Duration	Frequency	Per cent
15 minutes	47	42.0
30 minutes	28	25.0
Above 45 minutes	37	33.0
Total	112	100.0

Source: Author (2016)

In the evening the percentage of PSV users who wait for 15 minutes to board a PSV reduces to 42 Percent from 78 percent. This indicates that in the evening PSV users have to wait longer to board a PSV than in the morning. It can also be noted that in the evening the percentage of PSV users who have to wait for more than 45 minutes to

board a matatu is significantly higher than in the morning. 33 percent in the evening compared 4 percent to morning.

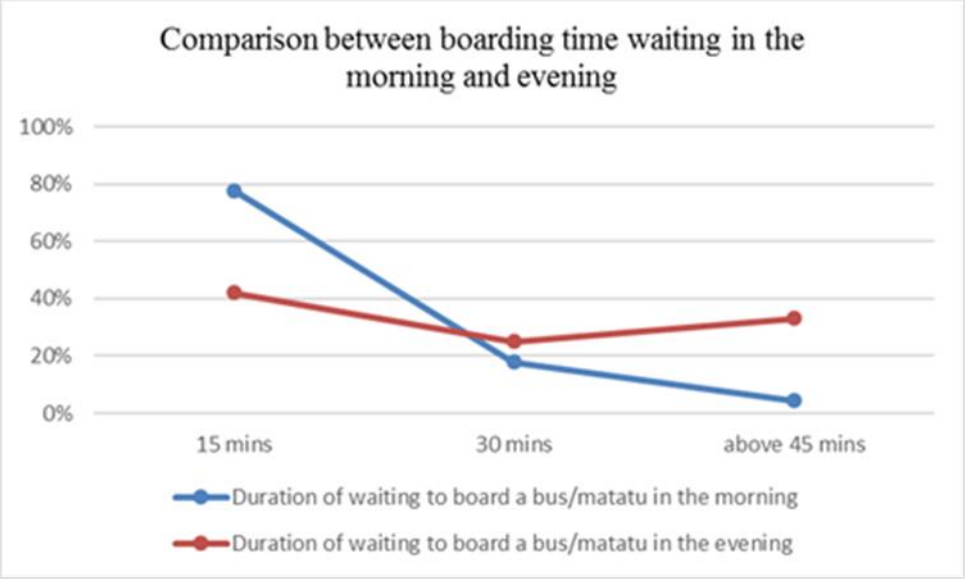

Figure: 5. 6 Comparison between boarding time waiting in the morning and evening
Source: Author (2016)

From secondary data it can be said that the nature of management structure within the central Bus Terminus contribute to passengers waiting longer in the evening to board PSV. Interview with PSV operators reveal that PSVs are always parked at off peak; off peak starts between 1000Hrs to 1300Hrs and ends at between 1200Hrs to 1600Hrs depending on the route (MoTI, 2012), this packing lots are always away from the terminus. During peak hour officials of PSV operators release the vehicle as the demand of PSV increases, as the vehicle get to town, the traffic volume increase this causes congestion at the entrance of the Central Bus terminus as the PSV enter the terminus at the same time to pick passengers.

5.2.1.5 Queuing at the Central Bus Terminus

At the Central Bus Terminus, the percent of respondent who responded to queuing at the terminus to board a PSV was 44 percent and those who did not queue is 56 percent

as indicated in figure 5.7 below. According to the results of the survey majority did not queue to board the PSV.

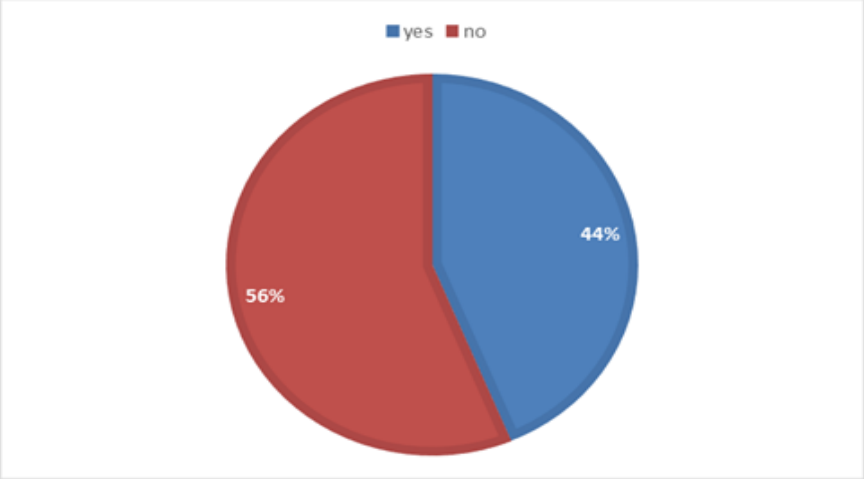

Figure: 5. 7 Percent of passengers who queue to board PSV

Source: Author (2016)

Some of the passengers interviewed said they wait for so long to board PSVs at the terminus especially during rush hour, they suggested more PSV should be brought in at this time. Some of the comments were, "*to bring more matatus at the terminus during rush hour*".

5.2.1.6 Accessibility of the terminus by pedestrians

Majority of the respondents 92 percent indicated that the terminus is easily accessible as indicated in table 5.4 below; this can be attributed to its central location within the CBD and the many commercial activities located within a walking distance to the terminus. Of the 8 percent who answered that the considered the terminus not easily accessible by pedestrians cited insecurity, passengers accidents and reckless driving by PSV as the main reasons.

Table: 5. 4 Accessibility of the terminus

	Frequency	Per cent
yes	103	92.0
no	9	8.0
Total	112	100.0

Source: Author (2016)

5.2.1.4 Condition of the terminus and other on-going activities

Less than half of the respondents responded to the condition of the terminus being good, that is 42 percent, 39 percent thought it was satisfactory while 12 percent said the condition of the terminus is poor as shown in figure 5.8 below.

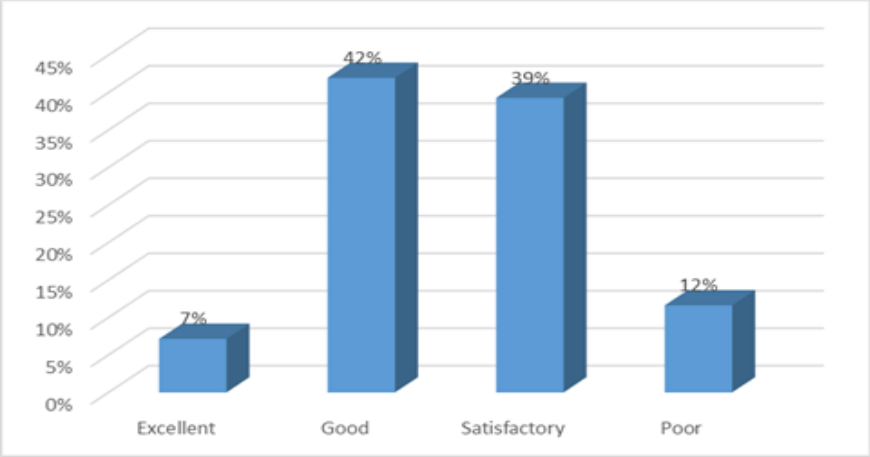

Figure: 5. 8 Condition of the terminus

Source: Author (2016)

Among the negative conditions of the terminus that were identified by the respondents as not appealing to them were; the dirty condition of the terminus, poor security and lighting, noise pollution, disturbance by hawkers and the terminus being too small. Some of the physical improvements suggested by the passengers include; improvement of the physical state of the terminus including repairs of the parking areas and waiting bays and expansion of the terminus.

Figure: 5. 9 Dilapidated state of part of the Kenya Bus Station Terminus

Source: Author **(**2016)

Figure: 5. 10 Dilapidated state of part of Hakati Matatu Terminus

Source: Author (2016)

From figure 5.9 and figure 5.10 shows clearly that the Central Bus Terminus is in poor physical state and needs improvement. The photographs above show some part of the terminus as dirty and dingy while the other and part of it shows the terminus under repair. The grimy areas within the terminus pose a security treat to passenger, especially at night, the passengers complained of being mugged. There is need to put the terminus in a good physical condition to ensure safety and cleanliness. The commuters at the terminus complained of noise pollution from touting, hawking and preachers. From the researcher's observation, there is a lot of noise pollution at the Central Bus Terminus mostly coming from hawkers, preachers, touts, high volume radios coming out of the commercial shops and activities surrounding the terminus, and music from the PSV. Figure 5.11 below shows some of the informal activities which take place at the terminus.

Figure: 5. 11 Informal commercial activities within the terminus

Source: Author (2016)

Asked what management concept that needs to be addressed at the terminus majority of them replied; uniformity of the crew from various SACCO's, fixed fare routine, supervision of the crew, management of parking to avoid traffic congestion, and control of loading arrangements through queuing.

5.2.2 Existing Management Structures at the Central Bus Terminus

5.2.2.1 Transport SACCO's and companies operating at the terminus

There are various transport SACCO and transport companies operating at the terminus. Table 5.5 and 5.6 below shows the list of SACCO's operating at the Central Bus Terminus, route number, destination, capacity, estimated number of trips per day per vehicle and number of PSV per transport SACCO/company.

Table: 5. 5 List of transport SACCO's/companies operating at Hakati Matatu Terminus.

S/No	Name of transport SACCO/ company	Route No.	Destination	No. of PSV per transport SACCO/ company	PSV Capacity	Est. No. Of Trips Per Day per vehicle
1	Indima-nje	33	Kwa-Njenga	40	14 & 33	7
2	South B	12C	South B	50	14 & 27	8-10
3	Rasasi	15,39 & 88				6-7
4	Akilla travellers	12C/D	South C	100	14	8
5	Narugi	160	Kiambu/ kwa maiko	45	14	4
6	Highrise K	16	Madaraka/ Nyayo Highrise	45	14	8
7	St Mary's	15	Langata/ Otiende	100	14	7
8	West Madaraka	14A/B	Nairobi West	54	14	8
9	Nakam	33/110	Kitengela	-	-	-
10	Twelve C	12C	South C Bellevue	38	14	9
11	County Link	11	South B	70	14/33	8

Source: Author, (2016)

Table: 5. 6 List of transport SACCO's/companies operating at Kenya Bus Station

S/No	Name of Transport SACCO/ company	Route No.	Destination	No. of PSV per transport SACCO/ company	PSV Capacity	Est. No. Of Trips Per Day per Vehicle
1	Citti Hoppa Operators	7/4W/146	Ngumo, Kenyatta, Yaya, Umoja, Karen,Utawala, Airport, Jamhuri, Wanyee, Buruburu,	320	33, 37,51	10
2	Rembo	33				
3	City Shuttle	39/33	Ruai, Kangundo Road, Utawala	66	37,51	5
4	Double M Connection	58	Umoja, Komarock	300	33,45	12
5	Eastern By-pass	38/39	Kangundo Road	30	33	7
6	Kenya Bus	46/7/33B	Kawangware, Kenyatta, Ngumo, Utawala	170	33,51	8
7	Forward	19/60	Kayole	40	37	10

Source: Author (2016)

A total of 18 transport SACCO's and bus companies were identified at the Central Bus Terminus, 11 operating from Hakati Matatu Terminus, and 7 from Kenya Bus Station Terminus. At the terminus the SACCO officials ensure there is order among the SACCO members operating at the terminus. From the field survey the SACCO ensures their members; operate in full uniform all the time, follow the fare chart adequately, board the vehicles in order, operate from the designated place, do not carry extra passengers, follow the NTSA rule and regulations and that they are not disorderly.

5.2.2.2 Operations at the Central Bus Terminus

From the results of the study it was noted that different SACCO's operating at the same terminus have the same destination hence competing for space and passengers at the same stops and at the terminus. An example is South B SACCO and County Link SACCO both going to South B. It was worth noting that different bus companies operate at the same terminus having the same route number and going to the same destination. Further interview with the operator also revealed that some of the SACCO operating at the terminus also utilizes other termini in the CBD; some of the other termini identified are; Muthurwa for the matatus and Ken-com stage, GPO bus stop, Ambassador Stage and Gill house stage for big buses. Some matatu operators said they usually park their matatus at the terminus when they are not busy, but when they are busy they go to pick passengers from other termini.

Majority of the operators interviewed admitted to operating on other routes other than their official routes which have been licensed by NTSA. Some of the reasons given by the operators for operating on unofficial routes include; try to make more money especially during off-peak hours, to make more trips per day, because some of the transport SACCO's/companies on their interest routes have cannot admit them, while others said they changed routes because passengers change route according to their work schedule. There we also case of same route numbers operating at the same terminus, an example is route number 33 going to Utawala and the same route number 33 going to kwa Njenga but being operated by different transport SACCO/company. In addition, it was noted that some routes had two or more Route numbers for instance, route 14A/B and route 38/39.

Different PSV capacities had same Route numbers and same destination and used same terminus hence competing for passengers both at the terminus and along the routes. An example is Route 33 whose destination is kwa Njenga and has vehicles with a capacity of 14 and 33. On the other hand some particular routes were dominated by higher capacity vehicles an example; 46, 58, 4W, 35/60 and 39. The study results indicate that most high capacity vehicles utilized the Kenya Bus Station terminus while small

capacity vehicles utilized the Hakati Matatu Terminus. The different capacity identified at the terminus are; 14, 27, 33, 37, 45 and 51.

The average trips per PSV type differed form according to capacity and destination. The estimated vehicle capacity for the Central Bus Terminus is 180 (MoTI, 2012). The total number of PSV operating at the terminus is 1,468 with 542 Matatus and 926 medium sized and big buses. The number of fleet in various transport SACCO's/companies differed. The transport Company with the highest number of fleets is Citti-Hoppa 320 midi-sized buses, followed by double M connection 300 midi-sized buses and St Mary's SACCO with 100 matatus. Though the PSV do not utilize the terminus all at the same time it can be said that the Central Bus Terminus is operating beyond its capacity. It was discovered that most buses use the terminus as a hoarding ground as they wait to go and ferry passengers from other termini.

4.2.2.3 Existing management structures at the Central Bus Terminus.

Interview with PSV operators and transport SACCO's/companies' officials revealed that there are various stakeholders involved with operations at the terminus. Some of the stakeholders identified are; SACCO Officials, persons appointed by SACCO officials, Transport company managers/supervisor, NCCG officials while others said MWA. Interview with NCCG officials indicated that there is little management that the NCCG do at the terminus. Their major responsibility is to ensure compliance with county by-laws while operations with regard to time taken at the terminus and boarding arrangements are entirely left to the transport SACCO's/ companies. Below are some responses from the PSV operators on what operational practices have been instituted at the terminus regarding picking and dropping of passengers within the Central Bus Terminus; use of a programme that involves issuance of numbers to formulate a schedule, queuing at the terminus at the arrival, use of numbers that have been issued during arrival, queuing for passengers and control of arrival and departure by the transport company officials

The above practices are practiced differently across different transport SACCO's/companies operating at the terminus. Below is an example of how this management practices have been applied across 3 different transports SACCO's and companies. The officials were interviewed by the researcher and their response on how arrival, departure and loading arrangements are organized at the terminus discussed below. The interviews were administered to the SACCO officials.

Bus

One of the SACCO officials interviewed informed that, one has to apply for a parking bay/area within the terminus to the NCCG. The application is done by the SACCO officials on behalf of all its members. In the application letter one has to give a justification on how to de-congest the CBD if granted the parking bay. Once a parking bay has been allocated by NCCG at the terminus one has to acquire all other licenses required to operate a PSV from NTSA. The officials then take charge of the daily operations of the PSV within the terminus.

An official of one of the midi-sized bus, who was interviewed, reported to having an internal arrangement to control the buses. Each driver is issued with a work sheet, on which he is to record all his trips for the day. The worksheet includes time of departure from the place of origin to time of arrival at the terminus. The Schedules are recorded on the schedule board as shown on figure 5.11 below. At arrival at the terminus the operator has to report to the company official who signs their work sheet and records them at the schedule board and issues them with a number. This schedule board is to ensure that the buses carry in order. If the number issued is too far one is allowed to go and carry form another terminus example Ambassador or ken-com. The company has official on those other terminus and mostly communicates via mobile radios. At the place of origin there are other officials who also communicate on mobile radio with those based in the CBD.

Figure: 5. 12 Schedule board for buses at Kenya Bus Station Terminus
Source: Author (2016)

Figure 5. 13 Schedule for matatu at the Hakati Matatu Terminus
Source: Author (2016)

Interview with one of the officials of a matatu SACCO revealed that they use almost the same schedule programme with the bus. The interviewee informed the researcher that, at the entrance of the terminus there is record book on which the SACCO officials records the matatus as they enter the terminus. After a short while another SACCO official picks the book and takes it to another official who is stationed at the designated parking bay where passengers aboard the vehicle. The list recorded during arrival is then transferred to the book with the official at the exit. All operators have to pick a number and they follow that order to board passengers. The officials at the exit have to ensure that only vehicles that have been recorded use the parking bay and in order of arrival. All the vehicles have to pay a daily fee to the transport SACCO officials to utilize the terminus; this fee is considered as a management fee.

It was noted by the officials of both the bus and matatu SACCO's that there was little or no interference by government authorities within regard to operations of the transport SACCO's/companies at the terminus, as long as the operators follow the NCCG traffic by-laws and other traffic laws. The by-laws mostly applies to dropping and picking of passengers at the entrance and exit of the terminus, parking of more than allowed buses at the terminus among others regulations, by-laws and traffic laws.

Both Bus and matatu admitted to not having a fixed fare structure but varies with the time of the day and season. Fare charts are used to display fares charged, for matatu the

fare charts are a small board that is put on top of the matatu so that the passengers can read the fares as they get into matatu. For big and medium sized bus fares are fixed inside the vehicle or placed on the ground next to the door of the vehicle. Most PSV use cash as a fare collection method with big buses issuing tickets to passengers for fares paid.

5.2.3 Operational Challenges at the Central Bus Terminus

Interviews with the operators at the terminus brought forward various operational challenges, these are; the arrangement of vehicles within the terminus is not organized, some PSV allow passengers to alight and board anywhere within the terminus but not at the designated stops, too many vehicles hence taking long before making a trip, the matatu cartels being favored by government officials, parking fees a very high, the terminus is too small which leads to congestion within the terminus, corruption among government officials (NCCG enforcement officers and the police), conflict between PSV operators the NCCG officials and the police, the control by SACCO reduces the number of trips one makes per day, the current loading programme reduces the number of trips made in a day, harassment by the NCCG enforcement officers and the police, lack of dialogue between the NCCG and the PSV operator and NCCG has left the control of the terminus to the SACCO officials.

Proposed measures to be taken include; reshuffle the management with other members, remove the hawkers from the terminus, all NCCG officials should have uniforms, to be given other routes to be able to reach more customers, ban fees imposed by SACCO's to use the terminus, cooperation between the NCCG officials and the PSV operators, the government should take control of the terminus and management to be under NCCG., remove the police from the terminus and let managers of the SACCO's take control, the PSV operators to be engaged on permanent basis to enjoy benefits like insurance and medical cover and have specific working hours (8 Hours per day), and impose new rules and regulations at the terminus for efficient running of operations at the terminus

5.2.4 Licensing of PSV

Interview with various operators revealed that in order to operate a PSV one has to acquire various licenses. First the operator has to pay advance tax to KRA even before applying for a license to NTSA. Some other fees include, fees paid to NTSA to acquire an operating license and monthly fees paid to NCCG for parking. Some SACCO requires the PSV operator to pay a daily fee ranging from 200ksh to 300ksh to the SACCO official as a management fee for utilizing the terminus.

5.2.4.1 Procedure for obtaining a PSV License

Interview with NTSA officials revealed that there are 3 types of PSV licenses; road service license, short-term license and tour license. The road service license is given to three categories of vehicles. All PSV are issued with road service license indicating their designated routes but tour vehicles and institutional vehicles given road service licenses without any specific route, meaning they are allowed to conduct business anywhere within the borders of Kenya.

Short term license is given to PSV matatu/bus that wants to move out of their normal route. In order to ease issuance of short term licenses NTSA sells to the transport SACCO/Company a booklet of 50 licenses at a price of 1,250ksh each for them to sell to their members in case they want to change route for various reasons. The SACCO is able to easily issue to its members the short term licenses in case of an emergency.

All applications for road service license are online. NTSA has created an online portal for application of road service license. All applications should be done through the transport SACCO's/companies and payments done through Mobile phone payment or through the bank. Being the industry regulator NTSA allocates routes based on demand of service offered by the current transport SACCO/company, the flow of passengers and demand of public transport vehicle on that route. Figure 5.7 below indicates the procedure for obtaining road service license for PSV.

Table: 5. 7 Procedure for obtaining a Road Service Licence for PSV

S/No.	Activity	Actors	Requirements/ Other remarks
1	Application to join a Transport SACCO /company	PSV owner	
2	Fit the vehicle with speed governor, seats and yellow line	PSV owner	Business license clearance certificate
3	Pay advance tax to KRA	PSV owner	
4	Book for inspection with NTSA	Applicant Traffic police	Inspected whether the vehicle meets the requirements for passenger vehicle (seat arrangements, fire extinguisher, first Aid tool kit) etc.
5	Presentation of vehicle to the police for road worthiness inspection		Road worthiness certificate SACCO certificate
6	Online Application for RSL by the transport SACCO/company	SACCO/company officials	
7	Issuance of license	NTSA Applicant	Scrutiny and satisfaction of the above requirements

Source: Author (2016)

5.2.5 The physical conditions of the Central Bus Terminus

There are various facilities at the terminus, some of the facilities include, shades, security light, public toilets, passenger resting benches, city clock, stalls, shops and make shift PSV offices as shown on figure 5.12 below. From observation most of the facilities at the terminus are not adequate and the ones provided are in poor physical state.

1. Lighting Mast

2. Benches

3. Public toilet

4. City clock

Figure: 5. 14 Some of the facilities at the Central Bus Terminus

Source: Author (2016)

There is visible conflict of vehicular traffic, pedestrian traffic and informal commercial activities at the terminus. It was observed at the entrance and exit points of the study site passengers shared the street with vehicles while hawkers were carrying out commercial activities on the pedestrian walkways. Figure 4.15 depicts the existing scenario at the terminus.

Figure: 5. 15 Conflict of pedestrian, vehicular traffic and commercial activities at the Central Bus Terminus

Source: Author, (2016)

There were also other activities taking place at the terminus. Hawking was observed as taking place at the terminus and several private vehicles had been parked within the terminus as indicated in figure 5.16 and figure 5.17 below respectively. Vehicle congestion was observed at the terminus. Noise pollution from PSV and business around the terminus was also recorded.

Figure: 5. 16 Hawking activities at the Terminus
Source: Author (2016)

Figure: 5. 17 Private car parking at the Terminus
Source: Author (2016)

Some of the proposed measures by the operators at the terminus included; Removal some pavements to create more space, removal of the hawkers from the terminus, Provision of more security lighting to light the terminus especially at night, cleaning the terminus, provision of a place to wash vehicles within the terminus, control of traffic and parking within the terminus, provision of more waiting shades, parking bays and public toilets, completion of the construction of Hakati Matatu Terminus and renovation of the terminus.

5.3 EMERGING ISSUES

There various acts of parliament that regulates transport operations in Kenya, these laws are disjointed. The institutional framework for public transport planning, management and regulation is fragmented and uncoordinated, it is shared between the public and the private institutions with no central body to coordinate and ensure collaboration between various institutions. The current arrangement has created institutional vacuum. There is lack of an urban transport authority to comprehensively deal with urban passenger transport.

There is a lack of collaboration between NTSA and NCCG in regulation the operations and licensing of PSV. The NCCG being the provider of parking space and termini facilities in the city has no say in the number of PSV licensed to operate in the CBD. The NCCG is usually overwhelmed by the demand for PSV parking in the CBD. There is lack of a framework or plans for licensing of PSV to carry out their transport activities in the city. Moreover the NCCG does not have the financial and technical capacity to prepare passenger transport plans on which licensing can be based. On the other hand NTSA is burdened with a lot of responsibilities with limited technical and financial capacity. This has resulted into a weak licensing framework. It is clear that licensing of PSV is not based on the basis of road passenger transport plans or studies leading to unbalanced vehicle supply on certain routes and too many vehicles operating within the CBD causing vehicle congestion.

Public transport system in the City of Nairobi operates in a largely deregulated environment with a Paratransit public transport service. The public transport industry structure comprises of multiple operators, mostly organized around their routes in the form of transport SACCO's/ companies. Over time syndicates have developed and today most of the routes are controlled by associations that act as self-declared owners of the route. They attempt to limit new entrants to the routes and any interested party who has interest in joining their routes cannot be admitted, one has to pay a hefty sum of money to be admitted despite having interest to operate on that route. This has resulted to some PSV operating on unlicensed routes.

Out of the total number interviewed 89 percent of public transport user's prefer public transport (Bus or Matatu) as their daily mode of transport to and from town. This indicates that there is need to have an efficient public transport system that for economic growth and social development. Sheffi (1985), in his studies states that, transportation level of service can be measured in terms of travel time, schedule convenience, reliability, safety, comfort, spatial coverage, accessibility to the service, and many other factors. 38 percent of the passengers interviewed reported to use the bus, 29 percent use matatu while 37 percent use both. There is need to introduce High capacity vehicles. This will reduce congestion on the road and congestion of PSV at the Central Bus Terminus in the city.

Travel behavior indicates that most passengers utilizing a terminus need to reach a final destination which is usually beyond the terminus. In order to get to their final destination passengers have to change modes. The results of the survey show that 74 percent of the passengers walk to their final destination.

According to the study results, 78 percent of the respondents wait for approximately 15 minutes to board a PSV in the morning, while in the evening the percentage of PSV users who wait for 15 minutes to board a PSV reduces to 42 Percent from 78 percent. More passengers tend to wait longer to board PSV in the evening. At the Central bus terminus public transport is unscheduled, with vehicles departing from the terminus when reaching a pre-determined occupancy, which is mostly full. This can be said to contribute greatly to the longer waiting periods in the evening. Another major contributor to this delay is traffic congestion on the road and at the entrance of the Central Bus Terminus.

A total of 18 SACCO and transport Bus companies were identified at the Central Bus Terminus, 11 operating from Hakati Matatu Terminus and 7 from Kenya Bus Station Terminus. Each of this Transport SACCO's/companies had their own management structures and loading arrangements at the terminus. The management is mostly based

on monitoring the PSV as they enter the Terminus, issuance of numbers and following the same numbers to ferry the passengers. The above practice is practiced differently across different transport SACCO's/companies though varying slightly. There was evident of non-involvement of government authorities in managing the operations of the terminus. Evidently the NCCG has left the control of the terminus to the SACCO officials.

From the results of the study it was noted that different SACCO's operating at the same terminus have the same destination hence competing for space and passengers along the routes and at the terminus. SACCO operating at the central bus terminus also utilizes other terminus in the CBD and operates on other routes other than their official routes which have been licensed by the NTSA.

Some PSV allow passengers to alight and board anywhere within the terminus but not at the designated stops. Congestion at the terminus is evident. The number of fleets operating at the terminus is beyond the terminus capacity.

There are a total of 138 PSVs routes within the NMR. One common thing about the PSV routes is that they all terminate at the city. Some PSV operators park their PSV at the terminus during off peak for long period. On the other hand the medium sized buses and the big buses use the terminus as a parking bay as they wait for their turn at other terminus. These terminuses were identified in an earlier chapter as Ken-com, Ambassador and GPO.

Traffic at the Central Bus Terminus is characterized by congestion and unsafe pedestrian crossing. There is one entrance and one intersection for vehicles entering the Central Bus terminus, and one exit point and two intersections through which all exiting vehicles must pass. The terminal's narrow entrance and exit points are usually characterized by heavy traffic congestion especially during peak hours. There are no signal controls at the intersections, and traffic is managed by traffic police and posted signs.

There is a relatively high rate of flow of pedestrians on the access streets of the Central Bus terminus; there is limited alternative infrastructure for people to walk. Largely there is inadequate pedestrian access to and from the terminus including connectivity with footways. Pedestrian have to compete with informal traders for space on the shoulders of the access streets. There is evident conflict between vehicular traffic and pedestrian traffic especially pedestrians crossing the road. This interaction causes inefficiency for vehicular traffic operations and poses danger for people crossing the streets. Many passengers need to cross the streets either before boarding or after alighting, and general consideration should be given to providing facilities for pedestrians to enable them to cross the road safely and conveniently.

Public transport vehicles currently operating at the terminus are inaccessible to people with disability and there are virtually no formal sidewalks for people with disability. The road surface being the only alternative for people with disability is uneven, or broken, or cut by open trenches, with no attention paid to how a wheelchair bound person could safely obtain access.

There is also a lack of readily available information at the terminus regarding services offered by the public transport vehicles. Information about fares charged, timetables, route maps, service numbers and path for bus is missing. Travel information is provided by black boards that are placed on top of the vehicle, indicating route and destination. There is no passenger information display sign.

The central Bus Terminus is in poor physical condition though there was evidence of efforts to improve the terminus especially Hakati Matatu Terminus with some construction works that have been left unfinished. There are no surface marking for vehicles and there is no proper clearance for approaching and exiting vehicle. At the terminus there are few shelters for waiting passenger and most of them do not have seats and litter bins are not provided.

The terminus is poorly lit and the environment at the terminus is hostile to passengers. Noise pollution is rampant at the terminus mostly coming out of the hawkers, preachers, touts, high volume radios, and music from the PSV. At the same time hawkers have invaded the terminus and mushrooming of informal structures along pedestrian walkways is evident. The numerous commercial activities surrounding the terminus are an eyesore and cause distraction and obstruction to passengers.

CHAPTER SIX-SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

6.1 SUMMARY OF FINDINGS

The research findings are summarized as follows;

1) At the institutional level, there is lack of an urban transport authority to comprehensively deal with the problem of urban passenger transport among other related issues. The public transport sector in Kenya operates under a plethora of institutions without a custodian authority. This is reflected on the lack of a comprehensive framework to guide operations of PSV at the Central Bus terminus; PSV operations at the terminus has been left at the discretion of transport SACCO's/companies.
2) Inadequacies of laws and disjointed legislations have resulted to spread of public transport responsibilities across various institutions. On the other hand and poor law enforcement have aggravated the poor state of operations especially at the termini, traffic regulations are excessively flouted while illegal gangs charge unauthorized fees which inhibit the operations on certain routes by interested industry investors.
3) The operations at the terminus have made the PSV user captives of the public transport system, since vehicles only depart when they reach a pre-determined occupancy and do not follow the NCCG by-laws which state that no PSV should stay for more than 40minutes at the terminus. Passengers wait for long period sometimes even hours before departure.
4) There is lack of road passenger transport plans or appropriate guidelines/framework which should form the basis for regulation and provision of public transport service; this can be attributed to inadequate financial and technical capacity in government institutions and the NCCG for carrying out transport research.
5) The public transport in Nairobi operates on paratransit principles. At the Central Bus terminus operations are characterized by mayhem and the environment at the terminus is hostile to passengers. Some PSV refuse to follow the loading

programme and sometimes chaos erupt. On the other hand operations are affected when PSV park for long hours within the terminus, sometimes there is no room for arriving vehicles Passengers alight before they reach the terminus due to congestion at the entrance. The disorder in turn affects the operations at the terminus since there is little government control of activities at the terminus.

6) The number of transport SACCO's/Companies operating at the Central Bus Terminus is very high and exceeds the terminus capacity. The operations of the various operators are not singularized each operating under its own local arrangement. There is also a lot of competition between various modes, routes and different vehicle capacities within the Central Bus terminus.
7) The Central Bus Terminus is in poor physical state; the facilities provided are inadequate or in disrepair. There is no provision for NMT for passengers. There is a lot of illegal commercial activities and hawking taking place at the terminus. Lastly there are very high levels of noise pollution from numerous activities taking place at the terminus; including hawking, touting, preaching and business audio advertisements. These uncontrolled activities affect operations at the terminus.

6.2 CONCLUSIONS

Urban transport in Nairobi is marked by a multiplicity of laws and a plethora of institutions. Transport-related functions are spread over too many institutions, county, national and private. Lack of coordination between different government agencies and other stakeholders induces poor regulation. Some of the important functional areas like provision and operations management of public transport service specifically the termini have left to the private sector with weak monitoring structures. At the Central Bus Terminus operations are carried by private entities mostly operators associations. The level public transport service is poor. The objective of the study was to study the operations of road public transport termini in Nairobi CBD.

Both quantative and qualitative data was collected was collected and analyzed which has been used to inform this research. Data was obtained from both primary and

secondary sources. The results of survey indicate that the current transport systems do not meet the transport needs of the passengers and the transport infrastructure is inadequate. The performance of the public transport service is poor and the infrastructure especially the terminus is not in good condition. The operations at the terminus are characterized by chaos with little control from government agencies. The poor management structure at the terminus makes the transport user captives of the current public transport system. Lack of appropriate government structures have resulted to deterioration of the public transport service at the terminus.

6.3 RECOMMENDATIONS

There should be a central body to guide coordination and collaboration between the various institutions mandated to regulate, provide, and manage public transport service and infrastructure in Nairobi. The body would ensure collaboration and coordination between NTSA as the public transport industry regulator and NCCG which is mandated to provide picking and dropping points for PSV within Nairobi city. This collaboration should also be extended to other roads authorities, (KeNHA and KURA) who are involved in development of public transport infrastructure.

In order to curb cartelism and properly regulate the transport sector the government should regulate the number of PSV within transport SACCO/company. Currently the minimum number of vehicles a transport SACCO/company is allowed to own according to NTSA regulations is 30 but there is no maximum.

The Central Bus Terminus should be developed as a modal interchange station. According to the survey results 74 percent of the respondents walk to their final destination while the rest use other means. NMT infrastructure should also be well developed within and around the Central Bus Terminus; this is because NMT is one of the most dominant mode of transport within the study area.

The Poor physical condition of the terminus should be improved; this should entail completion of the on-going work at Hakati Matatu Terminus, Painting of the Kenya Bus

station and all buildings surrounding the terminus, repair of street lights, increase the number of waiting bays at the Hakati Matatu Terminus and introduce some at Kenya Bus Station. The authorities should also create space for queuing at the Hakati Matatu terminus; the current design does not provide enough space for passengers to queue as they board the PSV. Enforcement of NCCG by-laws and other should be enhanced at the Central Bus Terminus to control illegal activities at the terminus and eradicate noise pollution.

6.3.1 Policy Proposals

The Structure of the Public Transport Industry in Nairobi is composed of multiple private operators who provide the public transport service. This industry structure has not adequately met the transport needs of the city and the quality service is wanting. The study proposes a change in the existing industry structure. Meakin, (2004) states that a variety of market structures exist, there is need to identify the most appropriate market structure and then customized it to fit a particular city characteristic.

The study proposes the establishment of a public transport authority. There are several alternative designs for such authorities. Currently the MoTI is in the process of setting out a metropolitan transport authority for NMR. The authority is envisioned to play a central role in provision, organization and management of urban public transport. This study proposes that the major role to be assigned to the authority should be regulation of private sector competition for the good of the public transport users and ensure that operators or outsiders do not take advantage and limit competition. Other responsibilities the study proposes to be assigned to the authority include; carrying out of transport studies, formulation of policies and strategies for development of public transport, prepare road passenger transport plans to ensure balance of vehicle supply on all routes and management of public transport service.

6.3.2 Implementation Proposals

The NCCG should take over management of operations at the Central Bus Terminus. All vehicles entering the Central Bus Terminus shall be recorded electronically by the

NCCG official and shall be required to leave the terminus within 15 minutes from the time of entry. Currently the NCCG by-laws allows for 40minutes. This will encourage a circular movement of vehicles within the city throughout the day and shall ensure vehicles pick passengers *en route* at designated stops. The county government should ensure proper utilization of the terminus and limit the number of PSV operating from there.

Redesign of the urban street infrastructure especially within Nairobi. The road network system in Nairobi is mainly composed of a radial pattern focusing to the CBD and the connecting arterial streets are few and far apart. Due to the nature of the road network many peripheral trips must pass through the CBD. To break the radial nature of the road network circular mass transit route surrounding CBD area is proposed order to create high accessibility in CBD and reduce the vehicle traffic congestion in CBD. Bus stops and terminus should be introduced along major transport corridors and arterial roads to avoid passengers making unnecessary trips to the CBD. This shall increase the number of official stops along major radial and arterial roads.

6.3.3 Areas of Further Study

Public transport completion in Kenya is not regulated. The sector is dominated by numerous private individual operators operating in a free market. Unregulated completion has resulted from unfair completion and deterioration of the service of the transport service. A further study should be carried out to investigate regulation of private sector competition in the public transport sector in Kenya and provide a framework for such regulation.

REFERENCES

Envag Associates (K) Ltd, (2012). PSV demand, termini capacities and compliance level with TLB regulations in Nairobi Metropolitan Area. Ministry of Transport-Transport Licensing Board, Final.

Finn B. and Mulley C., (2011). Urban Bus Services in Developing Countries and Countries in Transition: *A Framework for Regulatory and Institutional Developments*. Journal of Public Transportation, Vol. 14, No. 4.

Fox H., (2000). Review of Urban Public Transport Competition, Draft Final Report. Department for International Development.

Gauff Consultants, (2014). Mass Rapid Transit System Harmonization Study Nairobi Metropolitan Region. Republic of Kenya Ministry of Transport and infrastructure Nairobi.

Gonzales E. J., Chavis C., Li Y., and Daganzo C. F., (2009). Multimodal Transport Modeling for Nairobi, Kenya: Insights and Recommendations with an Evidence-Based Model WORKING PAPER UCB-ITS-VWP-2009-5.

Glenn D. I., 1992. Determining Sample Size; fact sheet PEOD-6. University of Florida, Florida, Cooperative Extension Service.

Gwilliam K., (2000). "Public Transport in the Developing World—Quo Vadis?" TWU Series. World Bank Discussion Paper TWU-39. Washington, DC.

JICA, 2014.,The Project on Integrated Urban Development Master Plan for the City of Nairobi in the Republic of Kenya Final Report (DRAFT). Nippon Koei Co., Ltd. IDCJ Inc. EJEC Inc.

JICA, 2006., The study on master plan for urban transport in the Nairobi Metropolitan Area in the republic of Kenya; Ministry of roads and public works, Ministry of Local Government-The Republic of Kenya. *Final report appendix (volume I)*. Katahira & Engineers international Recs International INC

Kenya, Republic of., 2012. Integrated National Transport Policy. *Sessional Paper No.2*

Kenya, Republic of., 2009. Kenya Population and Housing Census Volume II- August 2010

Kenya, Republic of., 2009. Statistical abstract (2013) Kenya National Bureau of Statistics

Kenya, Republic of., Laws of Kenya., The Environmental Management and Coordination Act 1999, The Traffic Act Chap 403, The Roads act 2007, The National Transport and Safety Authority Act 2012.

Kumar A. and Barrett F., 2008. Africa Infrastructure Country Diagnostic. Background Paper 1; Stuck in Traffic: Urban Transport in Africa. The World Bank.

Meakin R., 2004. "Transport Policy Advice" Training Course: Bus Regulation and Planning –Bus Sector Reform GTZ. Division 44 Environment and Infrastructure Sector project.

Mitric S., 2008. Urban transport for development; *Towards an Operationally-Oriented Strategy.* The World Bank Washington, D.C.

Ministry of Nairobi Metropolitan Development., 2011. Development of a Spatial Planning Concept for Nairobi Metropolitan Region; DRAFT PLAN, by Consulting Engineering Services (India) Private Limited India, Kenya, in association with Runji & Partners, Consulting Engineers and Planners LTD, KENYA.

Mugenda O. M and Mugenda A. G., 1999. Research Methods; *Quantitative and Qualitative approaches.* African Centre for Technology Studies (ACTS) Nairobi, Kenya.

Nairobi City County Government., 2007. Termini By-laws

Nairobi Urban Study Group., 1973. Nairobi Metropolitan Growth Strategy

Pirie G., 2013. Sustainable Urban Mobility in "Anglophone" Sub-Saharan Africa; thematic study prepared for Global Report on Human Settlement. Available from http:www.Unhabitat.org/grhs/2013.

Roux Y., 2013. (Masters Dissertation) A Comparative study of Public Transport systems in Developing Countries. UNIVERSITY OF CAPETOWN, Centre for Transport Studies, Snape Building, Upper campus C/o Department of Civil Engineering. VREF African FUT CoE for Studies in Public and Non-Motorized Transport.

Sheffi Y., 1985. Urban Transportation Networks; *Equilibrium Analysis with Mathematical Programming Methods*. Massachusetts Institute of Technology.

Smith A., 2005. Study of Institutional, Financial and Regulatory Frameworks of Urban Transport in Large Sub-Saharan Cities. The World Bank, *International Africa Region.*

Trans-Africa Consortium., 2008. Overview of Public Transport in Sub-Saharan Africa.

Trans-Africa Consortium., 2010. Public Transport in Sub-Saharan Africa-*Major trends and case studies.*

United Nations., 1999. HUMAN DEVELOPMENT REPORT

United Nations., 2012. Sustainable urban transportation systems and overview. Economic and social commission for Asia and the pacific and CITYNET.

UK-aid., 2015. Urban infrastructure in Sub-Saharan Africa – harnessing land values, housing and transport. *Literature review on public transport*.

UN-Habitat., 2013. Urban Planning for City Leaders

Wagikondi M.M., 2013. Muthurwa Terminus, Nairobi, Kenya. Master's Thesis (un-published).

Waguru N.C., 2000. An Examination of the Operation and Management of the Public Bus Terminal Facilities in Nairobi CBD (un-published).

World Bank., 2002. Cities on the move; *a World Bank urban transport strategy review.*

World Bank., 2005. Cities on the move; *a World Bank urban transport strategy review.*

World Bank Independent Evaluation Group., 2007. A Decade of Action in Transport; *an Evaluation of World Bank Assistance to the Transport Sector, 1995–2005*. The World Bank, Washington, D.C. 2007. http://www.worldbank.org/ieg

Zegras P. C. and Gakenheimer R., 2006. Driving forces in developing cities' transportation systems: Insights from selected cases.

APPENDIXES

Appendix 1: Questionnaire for commuters at the Central Bus Terminus

UNIVERSITY OF NAIROBI

School of the Built Environment

E-mail: architecture@uonbi.ac.ke

Project Title: Operations of Central Bus Terminus in Nairobi.

DECLARATION: *The information so provided in this questionnaire shall be confidential and shall be used for academic purposes only.*

Questionnaire No……Date and Time of interview……
Interviewer……...Respondents Name (Optional)…….....
Route (Name and Number)…… Vehicle Registration number…….

1. Gender
   a) Male b) Female
2. Is Public transport your preferred daily mode of transport?
   a) Yes b) No
3. i) What public transport mode do you commonly use?
   a) Matatu b) Bus c) Both
   ii) Give reasons
4. i) Do you come to town Centre daily?
   a) Yes b) No
   ii) From the Central Bus Terminus to your next destination which mode will you use?
   a) Walking b) Tuk Tuk c) Motorcycle d) Matatu e) Bus f) Car g) Taxi h) Others (specify)

iii) Aproximately how long will it take you to get to your final destination?

a) 15min b) 30min c) above 45min

5. i) Do you board and a light the vehicle at a designated terminus/bus stop?

   a) Yes b) No

   ii) If no above state where you alight and give reasons

6. Do you consider the passenger information given by public service vehicles operators adequate?

   a) Yes b) No

   b) If no above give the kind information that you would like provided.

7. How long do you wait to board a bus/Matatu

   i) In the morning

      a) 15min b) 30min c) Above 45min

   ii) In the evening

      a) 15min b) 30min c) Above 45min

8. At the terminus do you queue to board the bus/matatu

   a) Yes b) No

9. i) Would you say the terminus is easily and safely accessible by pedestrians?

   a) Yes b) No

   iii) If No above give reasons

10. I) Do you think the terminus has been provided with adequate amenities?

    a) Yes b) No

    ii) If No above what do you think is missing?

11. How would you describe the condition of the terminus?

    a) Excellent b) Good c) Satisfactory d) Poor

12. In your own opinion what management aspect at the terminus would you like implemented to improve service at the terminus?

Thank you for sparing your time to answer the questions.

Appendix 2: Interview schedule for paratransit operators at the Central Bus Terminus

UNIVERSITY OF NAIROBI

School of the Built Environment

E-mail: architecture@uonbi.ac.ke

Project Title: Operations of Central Bus Terminus in Nairobi.

DECLARATION: *The information so provided in this interview schedule shall be confidential and shall be used for academic purposes only.*

Interview Schedule No……Date and Time of interview…….....

Interviewer……...Name of interviewee (Optional)……..

Route (Name and Number)…….Role (Driver, Conductor, Owner etc)……

1.Sex

a) Male b) Female

2. Age (tick appropriately)

Age (Years)	Tick (X)	Age (Years)	Tick (X)
15-19		40-44	
20-24		45-49	
25-29		50-54	
30-34		55-59	
35-39		and above	

3.Education background (tick appropriately)

Level of Education	Tick (X)	Level of Education	Tick (X)
Post-College training		Post primary training	
College training		Primary	
secondary		No formal education	

4.For how long have you worked in the matatu industry

a) 1years and below b) 2-3 years c) 4-5 years d) 6 years and above

5. Which operators associations do you belong to?

6. Why did you start/join the current route of operation?

7. What management practices have been imposed by your route associations?

8. Apart from your official route do you operate any other route and if yes state the reasons why?

9. Do you always start and end your journey at the designate bus stop/ terminus?

10. Do you use any other terminus within the CBD other than this one?

11. How many licenses do you have to pay to operate a PSV at this terminus?

12. How many trips do you make per day?

13. Do you have a fare structure and can I see it?

14. What fare collection method is used?

15. Who manages the terminus?

16. What are the loading arrangements at the terminus; is there a schedule for arrival and departure and who controls it.

17. What services are offered by the County Government at the terminus and are the services offered satisfactory?

18. How are the activities being carried out at the terminus affect productivity of your vehicle?

19. What government/county incentives/services would you require to improve the performance of your service?

20. What are your views about the role of the various stakeholders in the management of the terminus?

21. What major problems do you encounter at the terminus?

22. What would you like to be done to streamline management at the terminus?

Thank you for sparing your time to answer the questions

Appendix 3: Interview schedule for the management companies and SACCOS's operating at the Central Bus Terminus

UNIVERSITY OF NAIROBI

School of the Built Environment

E-mail: architecture@uonbi.ac.ke

Project Title: Operations of Central Bus Terminus in Nairobi.

DECLARATION: *The information so provided in this interview schedule shall be confidential and shall be used for academic purposes only.*

Interview Schedule No……Date and Time of Interview……...

Interviewer……...Name of interviewee (Optional)…….

Route (Name and Number)……..Respondents position/responsibility……...

Name of the Bus Company……

1. How many of your buses/Matatus are currently operating at the Central Bus terminus?
2. Does your company/SACCO operate any other routes apart from the vehicles operating from the Central Bus Terminus?
3. Do you follow a designated route by the County Govenrment?
4. How many trips does each bus/matatu make per day on the various routes you operate?
5. How much do you pay to the County Government to operate from the Central Bus Terminus.
6. Do you charge any fees for operators to join your SACCO and what operational terms have you imposed on the members
7. Do you charge any daily fee to the SACCO members to operate from the Central Bus Terminus

8. Under what terms have you been allowed to carry out your transport services at the Central Bus Terminus by the County Government?
9. Is the company involved in the operations, maintenance or management of the terminus?
10. What arrival/depature or loading arrangements do you have with the various operators operating under your SACCO, is there a schedule?
11. Do you have an information Centre for the passengers?
12. What challenges does the company encounter with regard to operations and management at the terminus and what would you like to be done to streamline the operations and management at the Central Bus Terminus.

Thank you for sparing your time to answer the questions

Appendix 4: Interview schedule for Nairobi City County Government officials.

UNIVERSITY OF NAIROBI

School of the Built Environment

E-mail: architecture@uonbi.ac.ke

Project Title: Operations of Central Bus Terminus in Nairobi.

DECLARATION: *The information so provided in this interview schedule shall be confidential and shall be used for academic purposes only.*

Interview Schedule No……Date and Time of Interview……

Interviewer…….……..Name of interviewee (Optional)…….

CITY ENGINEER-(Position of the Interviewer……)

1. What role does the department play in Public transport management in Nairobi CBD?
2. What is the procedure of acquiring parking bay at the Nairobi CBD?
3. What criterion do you follow while allocating Matatus the various parking bays in the CBD from which to carry out their service, specifically the Central bus terminus?
4. Do you collaborate with any other government department or institution in allocation of parking bays
5. What function was the terminus planned and designed for and is it currently fulfilling that function?
6. Are you in charge of the management of the Central Bus Terminus and what is the scope of your engagements?
7. What amenities have you provided for at the Central Bus Terminus and are they adequate?
8. What is the annual cost of maintenance of the Central Bus Terminus?

9. Do you have special funds for construction and maintenance of transport infrastructure in the city and are the funds effectively utilized?
10. Do you have the financial and institutional capacity to manage public transport in Nairobi City this is in regard to terminus management?
11. Do you have future plans for design and re-planning of the Central Bus Terminus; its current design, use, entry and exit points?
12. What are the major challenges you are currently facing in the management of the Central Bus terminus?

PLANNER--(Position of the Interviewer……)

1. What is your role in management of public transport in Nairobi CBD?
2. What are the existing public transport planning studies or public transport plans prepared for the city that guide management of public transport?
3. When was the last transport study carried out and by whom?
4. Are there any plans or transport studies carried out on management of the Central Bus Terminus including that have been previously carried out and is it possible to obtain them?
5. What challenges is the city experiencing regarding public transport planning and management in the city?

CHIEF FINANCE OFFICER-(Position of the Interviewer……)

1. What type of licenses do you charge public transport operator operating at the Central Bus terminus?
2. How much revenue do you collect from the Central Bus terminus?

ENFORCEMENT OFFICER-(Position of the Interviewer……)

1. What role do you play in management of the Central Bus Terminus?
2. Who is in charge of safety and security issues at the central Bus Terminus?
3. What traffic management measures or initiatives have you put in place at the Central Bus Terminus?

4. What collaborative roles are there between you and other government agencies like the police with regard to traffic management?
5. What are the major challenges you are currently facing regarding enforcement at the Central Bus terminus?

Thank you for sparing your time to answer the question

Appendix 5: Interview schedule for Ministry of Transport and Infrastructure officials

UNIVERSITY OF NAIROBI

School of the Built Environment

E-mail: architecture@uonbi.ac.ke

Project Title: Operations of Central Bus Terminus in Nairobi.

DECLARATION: *The information so provided in this interview schedule shall be confidential and shall be used for academic purposes only.*

Interview Schedule No……Date and Time of interview……

Interviewer……..Name of interviewee (Optional)……

CHIEF ENGINEER

1. What measures have you put in place to ensure public transport demand is met in Nairobi City?
2. What are the existing policies that govern public transport in Kenya?
3. What are the future proposed strategies for public transport in Nairobi?
4. What are the long term plans for public transport in NAirobi?
5. What current structural and institutional reforms have recently been established and implemented in road passenger public transport in Kenya?

Thank you for sparing your time to answer the questions.

Appendix 6: Interview schedule for Road Transport Authorities officials

UNIVERSITY OF NAIROBI

School of the Built Environment

E-mail: architecture@uonbi.ac.ke

Project Title: Operations of Central Bus Terminus in Nairobi

DECLARATION: *The information so provided in this interview schedule shall be confidential and shall be used for academic purposes only.*

Interview Schedule No…….Date and Time of interview……

Interviewer……..……....Name of interviewee (Optional)…….

CHIEF ENGINEER-KENYA NATIONAL HIGHWAYS AUTHORITY

1. Do you have any role you play in traffic management in Nairobi CBD?
2. Do you collaborate with any authority with regard to management of public transport in Nairobi CBD?

MANAGER ROADS-KENYA URBAN ROADS AUTHORITY

1. What role do you play in management of public transport in Nairobi CBD?
2. Do you collaborate with any authority with regard to management of public transport in Nairobi CBD?
3. What plans do you have for traffic management in Nairobi CBD?

CHIEF ENGINEER –KENYA ROADS BOARD

1. What role do you play in ensuring effective provision of public transport infrastructure in Nairobi CBD?

Thank you for sparing your time to answer the questions

Appendix 7: Interview schedule for National Transport and Safety Authority officials

UNIVERSITY OF NAIROBI

School of the Built Environment

E-mail: architecture@uonbi.ac.ke

Project Title: Operations of Central Bus Terminus in Nairobi.

DECLARATION: *The information so provided in this interview schedule shall be confidential and shall be used for academic purposes only.*

Interview Schedule No……Date and Time of interview……

Interviewer……...Name of interviewee (Optional)……

DIRECTOR GENERAL-NATIONAL TRANSPORT AND SAFETY AUTHORITY

1. What is your role in management of public transport service in Nairobi CBD?
2. What revenues do you collect from the public transport operators?
3. What services do you offer in return?
4. How many public service vehicles are registered to carry out transport service in the city?
5. How many matatu SACCOs or bus companies are registerd to carry public transport service in the city?
6. What is the procedure of allocating routes, how do you determine which routes to register?
7. How do you decide the number of public transport licenses to issue for various routes?
8. How do you regulate competition among the various public transport providers?
9. How do you monitor the level of service in the public transport sector?
10. How do you ensure standards of quality and safety of public transport service are maintained?

11. Do you have control over fares charged by the public transport provider?
12. Is the existing institutional capacity in government adequate for road passenger public transport management in Kenya?
13. What kind of structures have you set up to bridge the gap between your institution and the public transport operators?
14. Are there any studies that you have carried out or carrying out regarding public transport in Nairobi?
15. In your opinion do you think the self-regulating SACCO's and transport companies are successful in making sure public transport is adequately provided?
16. Why did you introduce the self-regulating SACCO's and companies
17. Do you have the legislation that introduced it?
18. Where does your role come in the checking the activities of SACCO's

Thank you for sparing your time to answer the questions

Appendix 8: Interview schedule for traffic commandant-Central

UNIVERSITY OF NAIROBI

School of the Built Environment

E-mail: architecture@uonbi.ac.ke

Project Title: Operations of Central Bus Terminus in Nairobi.

DECLARATION: *The information so provided in this interview schedule shall be confidential and shall be used for academic purposes only.*

Interview Schedule No……...Date of interview……

Interviewer……..Name of interviewee (Optional…….

Role (Police inspector, Base traffic commander, Traffic Police)……

TRAFFIC COMMANDANT

1. What is your role in traffic management in Nairobi CBD?
2. What are the main challenges of traffic control at the Central Bus terminus?
3. What is the rate of public transport gang related violence that has been experienced at the terminus?
4. What are the rate of vehicle accidents and fatalities that have been reported at the Central Bus Terminus?
5. What collaboration efforts are there between you and the County Government on traffic management?
6. Do you have collaboration with any other agencies regarding traffic management in the CBD?
7. What changes would you like implemented that would improve traffic management around and within the Central Bus Terminus?

Thank you for sparing your time to answer the questions.