UNIVERSITY OF NAIROBI

MASTER OF ARTS IN VALUATION AND PROPERTY MANAGEMENT

PROSPECTS OF THE PROPOSED GREEN PARK TERMINUS FOR THE DECONGESTION OF NAIROBI'S CENTRAL BUSINESS DISTRICT

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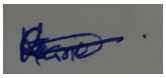
JULY, 2023

DECLARATION

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



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DEDICATION

This research project is dedicated to my guardians, Mr. and Mrs. Kamau; my friends; and my siblings; for their unending support and love. It is also dedicated to all the interested readers, all commuters, Matatu Owners Association officials, and the government officials charged with the responsibility to keep our cities in motion and in order. May the Lord bless you and keep you.

ABSTRACT

Rapid population growth results in rapid urbanization. Nairobi has been experiencing rapid urbanization for the last few decades. For the CBD to be efficiently running, an efficiently working infrastructure has to be in place to match the needs of the growing population. A lack of this results in traffic congestion, similar to the case of the Nairobi CBD. The planning of the Nairobi CBD was last based on the outdated 1973 Master Plan. However, this can no longer sustain the needs of the population. The government then decided to start implementing the Nairobi Metropolitan Services Improvement Project (NaMSIP) which is where the Green Park Terminus comes in. This study, therefore, aims to investigate the prospects of the proposed Green Park Terminus for the decongestion of the Nairobi CBD. The research provides details on the problem statement, research objectives, and it traces the history of Nairobi and how traffic congestion became a menace. It also details the measures that other cities around the world have in place to curb traffic congestion. The study also includes the interventions that have been planned for Nairobi, those that have been implemented and those being implemented, while also having a look at the past traffic decongestion initiatives and why they failed. The research goes ahead to include the proposed solutions as well as the theoretical framework adopted to guide the research. The research methodology details the direction that the research will actually take in data collection through the use of semi-structured questionnaires, presentation and analysis. Nairobi Metropolitan Services (NMS) planners, Matatus Owners Association SACCO officials and commuters are the chosen respondents in the research. The research study closes with the conclusions, recommendations and areas for further research, based on the research done.

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LIST OF ACRONYMS

BRT – Bus Rapid Transit

CBD – Central Business District

CS – Cabinet Secretary

GoK – Government of Kenya

GPS – Global Positioning System

ICT – Information and Communication Technologies

INTP – Integrated National Transport Authority

ITDP Africa – Institute for Transportation and Development Policy

ITH – Integrated Transport Hubs

JICA – Japan International Cooperation Agency

KeNHA – Kenya National Highway Authorities

KeRRA – Kenya Rural Roads Authority

KNBS – Kenya National Bureau of Statistics

KR – Kenya Railways

KURA – Kenya Urban Roads Authority

LRT – Light Rail Transport

MOA – Matatu Owners Association

MOU – Memorandum of Understanding

MRT/MRTS – Mass Rapid Transit/Mass Rapid Transit System

NAMATA – Nairobi Metropolitan Area Transport Authority

NaMSIP – Nairobi Metropolitan Services Improvement Project

NEMA – National Environment Management Authority

NHIF – National Hospital Insurance Fund

NIUPLAN – Nairobi Integrated Urban Development Master Plan

NMR – Nairobi Metropolitan Region

NMS – Nairobi Metropolitan Services

NMT – non-motorized transport

NSSF – National Social Security Fund

NTSA – National Transport and Safety Authority

PLB – Public Light Buses

PSV – Public Service Vehicle

SACCO – Savings and Credit Cooperative Organization

VMS – Variable Message Signs

CHAPTER 1: INTRODUCTION

1.1 Background of the Study

Rapid urbanization has been a major contributor to the traffic congestion menace in Nairobi County. This is especially clear from the last two census: 2009 and 2019. According to the Kenya National Bureau of Statistics (2010), the 2009 census recorded the population of Nairobi County as 3,138,369 while the 2019 census recorded Nairobi's population as 4,397,073 (KNBS, 2010). In a span of 10 years, there was an increase of 1,258,704 people, thus a 40% population increase. With such a fast-paced population growth rate, it is expected that infrastructural development would be just as fast-paced to match the needs of the growing population. This has, however, not been the case in Nairobi.

Traffic congestion, especially, has been a thorn in the flesh for Nairobi residents. It has been an even greater issue within Nairobi's central business district (CBD). The planning in Nairobi has been reliant on the 1973 Master Plan owing to the failure to attract political and financial support from the government, and due to a lacking framework to acquire resources from the private sector to enable its implementation. From this, urban problems such as "inefficient urban structure, mismatch between rate of urban growth & infrastructure development, institutional capacities, external factors influencing urban development, lack of urban character, inadequate coordination between relevant organizations, among others (Kazungu, 2018)" have resulted. With the CBD being the busiest section of the Nairobi Metropolitan Area, this is where traffic congestion is the most rampant (JICA, 2006). To curb this issue, the government, through the Nairobi Metropolitan Services (N.M.S.), is planning to shift the bus termini to the outskirts of the CBD. The Green Park Terminus is one of the proposed bus termini to help with CBD decongestion. It will be located at the previous Nairobi NV Lunar Park, next to the Railways Sports Club. It is expected to serve all

public service vehicles plying Langata road, Ngong Road, Argwings Kodhek road to Kikuyu, Ngong, Kawangware, Dagoretti, Kibera, Highrise, Ngumo, Rongai, Kiserian, Otiende, Langata, Madaraka and Nairobi West. The terminus will act as a pick-up and drop-off point. This research paper, therefore, seeks to investigate the possibility of the terminus solving the congestion of the CBD and the challenges facing the pre-implementation process of the Green Park Terminus.

The Nairobi Metropolitan Services Improvement Project (NaMSIP) is a government of Kenya project, whose objective is to ensure that the urban infrastructure and services within the Nairobi Metropolitan Region (NMR) are strengthened. The project falls under the State Department for Housing and Urban Development. The implementing agency was formerly, the Ministry of Transport, Infrastructure, Housing, and Urban Development but the responsibility was shifted to the Nairobi Metropolitan Services (NMS). The Nairobi County Government was expected to take on the implementation of the project. However, following its inability to see the implementation through, the National Government took back jurisdiction of the project. The NMS has been acting on behalf of the National Government in the areas of transport, health, roads, and urban works; since these are the sections that the Nairobi County Government failed to adequately cater to. Further, NaMSIP is a donor activity, receiving joint funding to a tune of US$300 million from the International Development Association (IDA), World Bank and US$30 million from the National Government of Kenya, totaling US$330 million. NaMSIP was declared effective on December 2012, with an initial expectation of closing in June 2017, but it was revised to September 2020. However, it is still ongoing. The implementation of the project is in collaboration with several county governments that fall within the Nairobi Metropolitan Region, namely: Nairobi, Machakos, Murang'a, Kiambu, and Kajiado.

NaMSIP is meant to bring into implementation certain socio-economic services, serving the masses in the short and long-term. This is meant to be accomplished through the improvement of significant public services including solid waste management, sewerage and sanitation, public infrastructure and spatial planning of the sections surrounding railway stations, disaster and emergency preparedness, roads, and security and street lighting. NaMSIP is, therefore, broken down into four components:

i. institutional reform and planning;
ii. local, basic services and infrastructure;
iii. large infrastructure; and
iv. Monitoring and evaluation.

This research project focuses on the bus termini aspect of NaMSIP, and specifically, the Green Park Terminus. It, therefore, falls within the large infrastructure component (Njenga, 2017). This component is meant to cater to the provision of large scale infrastructure in transport, sewerage and solid waste services as the government seeks to meet the needs of the growing Nairobi population. The Green Park Terminus is, therefore, a proposed solution to the traffic congestion in Nairobi CBD.

1.2 Problem Statement

Efficient operations within the central business district are fueled by efficiently working infrastructure. This efficiency ought to be based on the population and the rate at which it grows. The Nairobi CBD ought not to be an exception. It has, for the longest time, suffered from the effects of bad governance, poor organizational structures, and an ever-growing demand for space and efficiency in its transportation network (Kazungu, 2018). Currently, the CBD is known for unending traffic snarl-ups into and out of the city center. Nairobi has been ailing from the

mismatch between infrastructural development and population growth for more than 40 years (Kazungu, 2018). Properly designated and accommodating bus termini within the CBD are lacking, explaining why a driver may end up spending up to 30 minutes searching for a parking space. Traffic congestion then easily results from such tailbacks following obstruction during parking and picking of passengers. Security issues are also common. Poor planning is the main culprit, however. This is where the need for the Green Park Terminus on the outskirts of the CBD comes in.

The NMS has taken up the initiative of trying to correct the situation by finding alternative bus terminals in the outskirts of the city center for the public service vehicles serving Nairobi and the rest of Kenya. This is where the proposed Green Park Terminus comes in. Part of the infrastructure set out for pedestrian and vehicle use within the CBD has been illegally converted to terminals by PSVs, thus finding greater need for the proposed terminals by the NMS (NMS, 2021). NaMATA has also been looped in to decongest Nairobi through the Bus Rapid Transit (B.R.T.) system, which is linked to the bus terminals for better efficiency (NAMATA, 2022). This proposed move is expected to result in the decongestion of Nairobi CBD, and the greater Nairobi, as a measure of traffic management. However, there is also the importance of focusing and filling the needs of commuters and the rapidly-growing Nairobi population.

Barasa (2021) shares that traffic congestion in Nairobi is caused by the various forms of transportation, including private and public vehicles, thus not only the latter are the cause. The author also points out that pollution results as a negative externality of road use. To curb this menace, the author proposes toll charges on highways (major), the introduction of congestion tax as well as the introduction of carbon tax. Raising the cost of using vehicles will discourage their use with an aim of reducing congestion. Global Site Plans – The Grid (n.d.) shares the thought that

the 2014 Transport and Urban Decongestion Committee, like the Nairobi Integrated Master Plan, recommends similar solutions to the Nairobi congestion issue including lay-by construction, feeder road expansion, road infrastructure development, and major road dualling. However, these solutions are shortsighted as supply factors are given more focus compared to demand factors. There is little consideration for human mobility compared to vehicle mobility. There is, therefore, need to look at the demand factors as a way of solving the congestion problem in Nairobi since at the end of the day, the services provided should match up with the needs of the growing population. Rukunga (2002) attempts to develop a traffic congestion reduction strategy within the Nairobi CBD with the view of developing ways of ensuring traffic facility optimization and quality improvement of the speed of mobility. The author recommends the pricing of congestion, teleworking, restraint of traffic, and having ring roads within the CBD as strategies to deal with CBD congestion. Lusaka, just like Nairobi, is also on the path towards decongesting its CBD through developing bus stations on the outskirts of the CBD. It has not yet been implemented and its possibility of working is yet to be seen (Msoni, 2021). Some of the proposed solutions are being implemented. However, it is clear that lack of consideration of human or pedestrian mobility may still present congestion issues in one way or another.

Chicago Metropolitan Agency for Planning (CMAP) (2021) finds that congestion pricing has been working for Singapore following its introduction in 1975 after its population and economic growth were noted. As much as this was beneficial to the reduction of traffic congestion, the city, especially the CBD greatly benefitted more from the Electronic Road Pricing in 1998 that has set rates for certain parts of the city, including the CBD thus reducing traffic congestion. Elias-Trostmann, Petzhold & Valk (2015) find three ways that have helped reduce traffic congestion in Sau Paulo. Impact quantifying is one way that engaged researchers with companies for a combined

effort towards embracing walking and cycling to work. Involvement of top leaders is another solution which has enabled sustainable engagement through company leadership for long-term commitment to dealing with congestion. Lastly, overcoming cultural barriers through incentives and educating employees has encouraged the use of more sustainable transport modes, mostly public transportation. These solutions have worked for Singapore and Sau Paulo since the government and the private sector have come together. The idea in the Nairobi case, similarly, is to encourage use of public transportation and reduce traffic congestion.

Nairobi, among other cities in developing and developed countries, faces a huge traffic congestion problem. The county lacks an integrated public transport system, resulting in congestion, road accidents and environmental pollution (Akoko, 2022; Dixon & Labuschagne, 2018). Owing to the traffic congestion problem, the government of Kenya, through the NMS, decided to undertake the development of the Green Park Terminus to decongest the CBD. This study, therefore, seeks to find out the likelihood of the Green Park Terminus decongesting the CBD for greater user efficiency.

1.3 Research Objectives

1.3.1 General Objective

To investigate the prospects of the proposed Green Park Terminus for the decongestion of the Nairobi central business district.

1.3.2 Specific Objectives

a. To evaluate the past Nairobi CBD traffic decongestion initiatives and establish why they failed.
b. To assess the challenges facing the pre-implementation process of the Green Park Terminus.

c. To establish whether or not the Green Park Terminus will solve congestion in the CBD.

1.4 Research Questions

The main research question is: What are the prospects of the proposed Green Park Terminus on the decongestion of the Nairobi central business district?

The sub-research questions are:

a. What are the past Nairobi CBD traffic decongestion initiatives and why did they fail?
b. What are the challenges facing the pre-implementation process of the Green Park Terminus?
c. Will the Green Park Terminus solve the congestion of the CBD?

1.5 Significance of the Study

This research will be paramount to urban planners who will be able to predict the road capacity in the CBD in line with travel activities in future, thus ensuring that there are services and facilities in place to cater to this need (Matsouka, 2006). This will also ensure a match between the infrastructural development and the growing population in Nairobi CBD. It is expected that this research will inform urban planners of the functionality of the Green Park Terminus in curbing traffic congestion in the CBD so that they can either improve on existing and proposed solutions or develop more effective solutions.

On top of this, the NMS will be able to engage in effective decision making on matters relating to curbing traffic congestion in the CBD as policy makers. It also means that tax collection will be made easier, thus increasing productivity from CBD-related operations, including from matatu operators. A more conducive environment will be provided for CBD business operators if indeed

the project is successful in dealing with congestion. Seeing that the Nairobi CBD is a hub for many activities, it is important to not only Nairobi residents and matatu operators but also to those who visit during the day. Commuters from all walks of life will greatly benefit from this research (Josephine, Abiero, & Micah, 2021). On top of advising the responsible government authorities (experts within the agencies) on ways of improving the efficiency of road transportation and the CBD, they will be able to better address any presenting issues which will in turn increase the reliability, safety and efficiency of the road transportation network for residents and commuters. On this note, NMS is still responsible. The government will be responsible for addressing any issues that the research points out to make it possible for CBD efficiency to be realized.

1.6 Scope of the Study

This research seeks to find out the views of urban planners within NMS, the Matatu Owners Association and Nairobi residents operating within the Nairobi CBD since they are the ones affected by traffic congestion. The urban planners are responsible for developing recommendations such as the Green Park Terminus that would be expected to be effective in curbing traffic congestion in the CBD and checking the effectiveness of the said recommendations during testing and implementation. The Matatu Owners Association is responsible for the empowerment of public transport investors and providing an enabling environment for business through ensuring that safety and operational efficiency for road operators and users is attained (The Business Advocacy Fund, 2009). Matatu operators interact a lot with the CBD, thus their say is equally important in the improvement of traffic operations within the CBD. Nairobi residents travel from the different parts of Nairobi and its outskirts to the Nairobi CBD to conduct business. The study is expected to take 2 to 3 months. The geographical location of the research will be the Nairobi CBD.

1.7 Definition of Important Terms

Bus terminus/termini/station – is the end of a travel route or transportation line; a station where vehicles loan or unload goods or passengers.

Central Business District (CBD) – "is that part of the city which contains the principal commercial streets and main public buildings. Throughout history the CBD has been characterized by a number of land use changes that include industrial, residential, commercial, administration, and consumption (Kitchin & Thrift, 2009)."

Decongestion – is the process of providing relief to traffic congestion.

MRT/MRTS – Mass Rapid Transit/Mass Rapid Transit System – it details a combination of individual trips into shared trunk linkages, embracing various traffic modes in mixed traffic (Singh & Kashyap, 2016).

NaMSIP – Nairobi Metropolitan Services Improvement Project, is a project mean to improve and strengthen urban infrastructure and services within the Nairobi Metropolitan Region as a way of bringing Vision 2030 into realization and aids Kenya move towards becoming a middle-income country.

Prospects – is to explore an area or the possibility of future success.

PSV – Public Service Vehicle, otherwise known as matatus, make up a mode of transport that, in a parallel manner, operates on a large-scale as a government-subsidized or government-run transport system (McCormick et al., 2013).

Traffic congestion – is when the demand for travel exceeds road capacity as well as the increase in cost for the road user as a result of normal traffic flow disruption (Afrin & Yodo, 2020).

1.8 Organization of the Study

This research paper, in order to have a smooth transition and a flow of ideas, will be arranged into various sections. These sections are:

Chapter 1 – Background and research problem

This section will detail the background of the study as an introduction to the research project followed by the problem statement which indicates the gap that the research seeks to fill or the question to be answered. It will also detail the research objectives and questions as a way of shedding light on the congestion problems, while the significance of the study will detail the beneficiaries of the research. The scope determines the coverage of the research. Chapter 1 also details the organization. Lastly, it includes the key definition of terms present in the research.

Chapter 2 – Review of related literature

This section will serve as the foundation of the research. A summary of what is already known about CBD decongestion through bus terminals will be included, including basic background information. This calls for details provided on the critical studies done on the area. The insufficiency of the critical studies will be identified and how the subject study will fill the gap left.

Chapter 3 – Method and procedures

This section will identify the method of research to be employed in the research study. It will also detail the subjects or respondents under study. The research instrument description will also be provided. The procedure followed during data gathering will be narrated since it gives direction to the findings. The method of sampling applied and the formulae applied to come up with the findings will also be included.

Chapter 4 – Data presentation, analysis and interpretation

This section will detail tabulation of the gathered data using the research questionnaire as the research instrument. Data interpretation will be conducted on the all the presented data. The findings' summary will be sourced from this section.

Chapter 5 – Summary, conclusion and recommendations

This is the final section of the research. It will provide a summary of the research findings following chapter 4's data interpretation as an answer to the research problem. Conclusions will also be made on the findings acquired. Finally, recommendations will be given on the basis of the study significance, will detail further assessment on the subject in focus and will identify any other areas that ought to be studied.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

This research seeks to unearth whether or not the proposed Green Park Terminus under NaMSIP will solve the traffic congestion issue that has been ailing the Nairobi CBD for decades. Traffic congestion has been negatively felt across Nairobi, and it is especially a sensitive issue within the heart of the city given that the CBD hosts a lot of people for business and leisure activities. With the failure to conduct adequate planning for the effective running of the CBD by the government, it is only right that investigation into the possibility of the proposed Green Park terminus in the CBD outskirts curbing an issue that the Nairobi CBD has long been known for is conducted. To acquire information on this part of the research; journal articles, legislations, other types of articles, histories, and books, if any, will be employed. This literature review is meant to show that traffic congestion is not an isolated problem, but to show that certain ideas can be borrowed, from both far and near, and hopefully, be used to curb the traffic congestion problem in this context. It is basically borrowing ideas that have been tried and tested then checking the Kenyan situation against that, and gauging the sources, whose ideas might work in the Nairobi context, even if they have not been implemented yet. This section will detail the empirical review, the theoretical framework and the conceptual framework.

2.2 Understanding Traffic Congestion

Traffic congestion is the result of an imbalance between demand and supply within the transportation aspect of a city or locality (Bull & Cepal, 2003). This is a good start to understanding the traffic congestion issue in the Nairobi CBD. Traffic congestion has, in the recent past till date, become a plaguing issue that cannot just be shrugged off. It is especially present in growing metropolitan areas and in those areas that are considerably large in industrialized and developing

countries alike. It is said to be the price that people pay as a result of the derivation of benefits from the agglomeration of economic activities and population (Lindsey and Verhoef, 2000). Traffic congestion, especially in light of the Nairobi CBD case would be defined as traffic delay when the speeds are lower than reasonable, resulting in slower traffic flow due to excess vehicles on a smaller stretch of road in comparison to its design capacity. This is no different in the CBD since traffic congestion results from vehicular blockage of roads since public service vehicles park and pick up passengers on pavements and on roads within the CBD whose purpose was initially meant to enable traffic flow (Gachanja, 2012). The designated zones for parking and picking of passengers is limited in consideration of the size of the population using public means and the increase in the number of PSVs. These designated zones were initially meant for a smaller population and a smaller number of PSVs since it was based on the 1973 master plan, whose use is now outdated (Gachanja, 2012).

Traffic congestion is seen as an issue to matters mobility. However, it is what results from operational inefficiency. It is expected that conducting errands, heading to work or school, and back occur within the same period of time. This means that people are headed in the same direction at any one time. Private and public service vehicles are moving at the same time (Downs, 2004). Traffic snarl-ups are, therefore, bound to occur. These are peak times. Vehicles come from every direction to the Nairobi CBD, through it and to elsewhere around the city and beyond. The number of vehicles accessing the CBD at such a time exceed the "requirement" based on how many vehicles the CBD can hold. The bus terminals in the CBD then turn out to be inefficient and limited in serving the masses, the PSVs and the private vehicles. Not even the parking spaces available can hold the volume of vehicles accessing the CBD. This is why and where the proposed Green Park Terminus in the CBD outskirts would come in handy, not only to relieve the CBD of traffic

congestion, but to also make it easier for road users using whichever means of transport to get around. Roads and pavements will then be put to their intended use.

2.3 Types of Traffic Congestion

Overall, there are two main types of traffic congestion. These are recurring and nonrecurring. The non-recurring type basically explains temporary disruptions present during travel, including special events, accidents, bad weather, and road works; which are usually unplanned or unexpected (Geotab, 2018). Recurrent traffic congestion, on the other hand, is a daily occurrence, at the same time and occurring at around the same time. This usually occurs during peak times of the day. Falling under these two types are sub-types. These are:

2.3.1 Environment

This is a non-recurrent type. Traffic congestion is greater during extreme weather such as rain. Road conditions are affected in the process. Drivers are not able to see the roads clearly, thus forcing them to slow down which then results in traffic congestion (Geotab, 2018). The situation gets worse if the roads are impassable and filled with water, or there is an accident along the road during extreme weather. Such cases are common in Nairobi.

2.3.2 Human

This is a non-recurring type that is common. This is seen in drunk-driving, distracted driving, emotional driving, and drowsy driving cases. They usually result in collisions or fatalities (Geotab, 2018). This type basically looks at the individual driver's behavior and its impact on traffic congestion. A traffic slowdown is expected as a result due to accidents or vehicle braking. Such cases happen every so often on Kenyan roads, especially in Nairobi.

2.3.3 Mechanical

This is a non-recurrent type of congestion. The mechanical type is yet another caused by mechanical failings by vehicles in use. The cause is usually failure of vehicle tire maintenance or hitting sharp objects on the road (Geotab, 2018). Since it is unexpected, traffic congestion is usually the result, at least until the road is clear. This type can be prevented at times and not preventable during other times.

2.3.4 Infrastructure

Traffic congestion resulting from infrastructure development or lack of it can easily be said to have been the fault of humans. This could be true to some degree. However, with the rapidly changing world and technology, it is difficult for engineers to keep up with the changes. Potholes and bottlenecks in overly populated areas could easily result in traffic congestion (Geotab, 2018). The bottlenecks especially, account for a lot of traffic for the likes of Nairobi CBD due to a growing population whose needs have not been met through planning. This is a common occurrence in the Nairobi CBD.

2.4 Causes of Traffic Congestion

There are various causes of traffic congestion. One cause is the excessive amount of vehicles, whether public or private. Kenya saw vehicle registration increase from 18,405 in August, 2021 to 23,869 in September, 2021 (Trading Economics, 2021). With road users purchasing more vehicles annually, it is expected that the infrastructure in place will fail to entirely meet the road capacity needs of the users. This is one of the reasons for the occurrence of traffic congestion. This would explain why Mike Sonko, the former Nairobi governor had proposed car-free days to relieve Nairobi residents of the hassle resulting from traffic congestion (ITDP Africa, 2020).

Inefficiency in public transportation is another cause of congestion. Public transportation fails to effectively meet user and commuter needs, especially when it comes to misbehavior that is clear from wrong usage of pavements and using minor roads in the CBD for dropping and picking of passengers (Harriet, Poku & Emmanuel, 2013). In the end, the delays and inefficiencies resulting from such actions have lasting, negative impacts on Nairobi's and Kenya's socio-economic activities and landscape.

Urbanization and economic development go hand in hand since people move from the rural areas to the urban areas in search of greener pastures and if they believe that there are greater employment opportunities in urban areas. This is, therefore, another cause of traffic congestion. With greater economic development comes greater traffic congestion. Better careers, social programs and housing or accommodation will eventually lead to greater congestion. The number of vehicles on the roads greatly increases due to urbanization occurring at a rapid pace. The volume of traffic is expected to rise as a result, thus traffic congestion is expected (Tilak & Reddy, 2016). Population growth is an expected cause of traffic congestion. This is an expectation following rapid urbanization. With an increase in population comes an increase in road travel demand. Raheem et al. (2015) especially denotes that the increase in population does not correspond with the development of new roads or infrastructure. Nairobi is no different, given its infrastructural development and planning is based off of the 1973 Master Plan. Traffic congestion is, therefore, an expected result.

The condition of roads is yet another cause of traffic congestion. This is especially in light of poor conditions. These are clear in light of unsuitability of the location of bus stops; as in the case of pickup and drop-off locations in the Nairobi CBD; having uneven features of the road and; as is the case in Nairobi CBD, lacking in lane discipline (Tilak & Reddy, 2016). The low quality of

materials used for infrastructural development is also to blame. This is common in Nairobi and Kenya at large since it is used as a tactic for contracted officials to cast their corruption nets wide. This results in poor road conditions which result in traffic snarl-ups that could easily be avoided through good quality construction and development.

Lastly, circumstances that may be unforeseen are another cause of congestion (Schwietering & Feldges, 2016). Road works, for instance, are a major issue on Kenyan, and therefore, Nairobi roads. The Nairobi Expressway is one such road whose works have caused the piling up of traffic, thus traffic congestion (Wanzala, 2021). The contractors in charge sacrifice previously existing roads in good condition for the newer ones that would rake in billions for them. Accidents are also expected during road works. There is constant traffic congestion towards and out of the Nairobi CBD as a result due to its location on and near major roads.

2.5 Problems of Traffic Congestion

As relating to any other urbanization issue, traffic congestion is bound to cause problems for city residents and commuters in general. A longer travel time is the commonest and most obvious problem of traffic congestion. Salon and Gulyani (2019) point out that the median travel time in Nairobi is 30 minutes. It is unfortunate that even the commuters who are closer to the CBD would still use 30 or so minutes to get into the CBD when a day with clear or clearer traffic would take 10 or 15 minutes for the same commute. On this note, many others prefer taking a walk to the CBD as opposed to boarding PSVs. A lot of time and resources are spent.

Travel costs are yet another problem. This is in light of the cost of fuel. Being stuck in traffic means more fuel consumption in comparison to flowing traffic. Traffic congestion results in more stopping time and slow traffic flows which means that as long as the engine is on, even if no movement can be detected, the fuel is still being consumed. It gets worse because of the rise in

fuel around the world, and Kenya has been greatly affected. Commuters also dig deeper into their pockets through higher fares to fill the gap left by the fuel price increments (Treiber, Kesting & Thiemann, 2008). The costs are usually passed on to the commuters or consumers in form of fares and any related costs.

Productivity is greatly affected too. This is directly linked to the point of travel costs. If one is spending more time in traffic within the Nairobi CBD, it basically means that they are spending less time being productive and building the nation. Economic costs are bound to be experienced too. Accessibility is the other problem of congestion (Salon & Gulyani, 2019). With traffic congestion, it is clear that certain parts of the CBD will be inaccessible due to blockage, especially by PSVs on roads and pavements. This calls for searching for other routes or remaining in traffic until the coast is clear.

2.6 Tackling Traffic Congestion Problem in World cities

2.6.1 Bogota, Colombia

Traffic congestion has been an age-old problem, not only within the African confines, but also in other countries around the world. Bogota, the capital of Colombia, is one of the places in the world that has felt the effect of traffic congestion. The city is ranked first in the list of cities around the world with the greatest amount of traffic congestion. The reasons behind this congestion are poor public transportation, a lot of people driving their own cars, and the geography of the city (Kopf, 2020). Congestion further results from a greater driving demand than the supply of roads available.

However, the city is also making progress in light of trying to reduce the high levels of traffic congestion. The country has been adopting Bus Rapid Transit (BRT) and non-motorized transport solutions and potential solutions. Their innovative policies have also played a role in traffic congestion reduction. The city has continuously embraced comprehensive transport planning

decade in, decade out (CCAP, 2012). A citizen culture campaign had been adopted in the early 1990s by the then government while the subsequent government went with a mobility strategy that had its eyes on the use of alternative options of transport, non-motorized transport, public transport, and a reduction in the private vehicle use (CCAP, 2012). In light of the NMS and NAMATA efforts, this is what Kenya is trying to do. The proposed development of the Green Park Terminus and the other termini, BRT, and non-motorized transport are an encouragement to commuters to embrace public transport and alternative travel options within the CBD and its outskirts. Their workability will be proven through implementation. The proposed development is an adoption of the integrated transport system. However, it ought to have been tested to establish that the system will indeed be functional.

However, as much as Colombia has managed to make strides towards traffic congestion reduction, it faces challenges in line with the measures put in place. The public transport solutions having been provided, it would be expected that congestion would reduce. Unfortunately, the urbanization rates are peaking with an increasing demand. The demand outweighs supply since the supply is not meeting the demand fast enough. As a result, traffic congestion and air pollution have resulted from the mismatch (Oxford Business Group, 2019). On top of these two challenges, competition between the use of motorcycles and paratransit, and the use of public transport that that is formal (Pojani & Stead, 2017). It is important to note that when the traffic congestion measures were in the planning stage, the greatest challenge identified was the acquisition and utilization of real-time data for the creation of an efficient plan (ESI, 2021). Sadly, this is still an issue given the increase in the rate of urbanization since the increase in the population size changes and increases every so often.

2.6.2 Singapore

With Singapore being a densely populated country, it is no surprise that one would expect traffic congestion to result, especially with the fact that it is small in size. However, the country, through the Land Transport Authority, has a strategy in place to ensure travel demand management, public transport improvement, application of advanced technologies, and integrated transport planning (Dinh, 2019). The country embraces early strategic planning to deal with obstacles before the countrymen encounter them and as a way of ensuring the people receive maximum services and value from their government. Bus interchanges have been linked to Mass Rapid Transit (MRT) stations within, while developments have been designed around Integrated Transport Hubs (ITH) for comfort and convenience, thus serving the CBD and the CBD outskirts (Dinh, 2019). The Nairobi CBD would greatly gain from linkage between BRT stations and bus terminals, which is expected of the proposed NAMATA and NMS projects. Convenience and comfort ought to be at the forefront of development designing around hubs for the sake of commuter satisfaction (Dinh, 2019). Nairobi is still struggling when it comes to catering to the convenience and comfort needs of commuters and users of transport within the CBD, in general.

The country has further ensured that public transport is improved through buses, Light Rail Transit (LRT) and Mass Rapid Transit (MRT). Buses provide services to residential areas and less heavy corridors, MRT serves heavy corridors while LRT serves MRT feeders. Public transportation is designed such that pedestrian streets, cycling facilities and walkways are developed pointing or moving towards bus stops and MRT stations (Dinh, 2019). Looking at this, the NMS and NAMATA are also trying to achieve the same through non-motorized transport in the CBD to cater to pedestrians and cyclers, the likes of the Green Park Terminus in the outskirts of the CBD,

and the BRT stations. It may take a while to achieve such standards of functionality for the CBD since Singapore has been planning for a long time.

Application of advanced technologies in Singapore takes the form of enhancement of the traffic management system for the achievement of smooth flowing traffic and improvement of the carrying capacity. Delay is greatly minimized through full signalization and high coordination of road networks in the streets. This allows for control and surveillance of traffic at intersections that are critical to traffic management (Dinh, 2019). Nairobi is yet to embrace such a tactic for traffic decongestion within the CBD. There is a lot of traffic leading to, within and out of the CBD. Nairobi embraces a combination of traffic police and traffic lights in traffic control, but this is still not as effective in controlling traffic.

2.6.3 Stockholm, Sweden

According to Wong (2014), there are a variety of ways employed by different countries in tackling traffic congestion around the world. Stockholm, Sweden, has an electronic road pricing scheme which runs between 6:30 a.m. to 6:30 p.m. The scheme is a system which charges motorists for accessing the CBD (central city) during weekdays. However, there are exemptions placed on emergency vehicles, cars operating on eco fuel, buses, and taxis from and headed to the Lidingo Island. In the first two years of its implementation, the scheme led to a 25% reduction in traffic volumes during peak periods, leading to an increase in toll revenues to $300,000 and the removal of a million vehicles from the road on a daily basis (Wong, 2014). The revenues have then been used to improve other services in the transport industry. Such a scheme would be highly effective in Nairobi, discouraging commuters from using private means to the CBD, thus opting for public means instead.

2.6.4 London, United Kingdom

London, in the United Kingdom, is another city that has been known to struggle with traffic congestion before. It has been employing an electronic journey planner, which helps drivers receive advice on alternative routes to use in light of the multiple transport modes available (Wong, 2014). The success of this planner is based on the users' willingness to readily share information with the public. The masses enjoy bonuses of taxi booking, GPS monitoring, and traffic monitoring in real time, thus allowing commuters freedom the decision to choose their transport mode of choice (Wong, 2014). With the consideration of the BRT, the proposed Green Park terminus and the other proposed bus termini, increase in rail services, taxis, walking, and bicycles; Nairobi CBD would benefit from the expansion of the modes of transport and such a journey planner to update commuters on the best routes and best modes to consider for travel around the city, into and out of the city.

2.6.5 Copenhagen, Denmark

Copenhagen in Denmark is yet another capital city that has had issues with traffic congestion. It boasts of an integrative transport model which helps in traffic congestion mitigation and/or avoidance. It allows for the linkage to government, agencies and companies in terms of availability of information while bringing together transport operators (Wong, 2014). The integrative ticketing system allows for efficiency and flexibility for users during transport mode boarding and transferring, due to ticketing ease, and access to location, ticket and destination information. It further allows for seamless integration of all transport modes, through the cycle parking facilities and bus stops (Wong, 2014). Travel time is also shortened through the bus priority signaling system that operates on GPS and radio. As a result, there has been a decrease in the use of cars and an increase in bicycle use, which have resulted in a reduction in carbon emissions.

2.6.6 M42 Motorway, United Kingdom

An active traffic management approach has been adopted by the United Kingdom as a traffic (congestion) reduction measure on the M42 motorway. Variable Message Signs (VMS) are used on the motorway for varied lane use and speed to allow for the management of flow of traffic, especially during peak hours, as a measure of reducing traffic congestion. An increase in speed limits results in the increase in road carrying capacity while providing alerts in case of accidents and congestion for alternative route consideration (Wong, 2014). It is a more cost effective option compared to widening of the motorway, while allowing for carbon emission reduction due to lower fuel consumption and high speeds. Such an active traffic management approach would come in handy in Nairobi, but may not be applicable in the Nairobi CBD, maybe along the expressway, on Mombasa Road, and Thika Road Highway.

2.6.7 Barcelona, Spain

Barcelona has applied a smart technology approach to urban mobility. This is through traffic control cameras and parking management. Commuters are able to know about parking availability through analytics video and parking spot sensors which transmit real-time data. The transmission occurs through Wi-Fi infrastructure that links local author and end user devices. Traffic is monitored in real time through the traffic control cameras whose connection is through fiber optics. The control center is then able to decrease or increase the green light frequency on the basis of the condition of traffic (Wong, 2014). This smart technology would come in handy in Nairobi CBD since it would ensure that parking availability is communicated to commuters before getting to the specific parking facility. It would especially benefit from traffic control in the CBD through the cameras already installed and then adding sensors, thus proving effective in traffic congestion

reduction. This would greatly benefit Nairobi CBD because of the snarl-ups that result from parking issues.

2.6.8 Hong Kong

Hong Kong deals with its traffic congestion issue through provision of Public Light Buses (PLB), which provide services to areas that are difficult to reach. They have greater efficiency and faster due to a carrying load of 16 passengers, with non-stop services offered as well as operating on higher frequencies. Market demands are easily and quickly responded to, with greater comfort and a direct route served in the process. Illegal transport is also dealt with. The proposed BRT consideration by NAMATA is expected to operate non-stop, frequently and with greater efficiency (Wong, 2014). Coupled with the proposed NMS Green Park Terminus, efficiency is expected to be achieved within the CBD, its outskirts and outside Nairobi, in the long haul.

2.6.9 Hangzhou, China

Hangzhou in China is not unique to traffic congestion challenges. However, the Chinese city operates on a public cycling system with its operation pegged on public bike-sharing. The city has provided 3,000 service points, with 67,000 public bikes made available. It further boasts of a rental volume of 230,000 bikes on a daily basis. This is as of 2013. A smart card is provided, which can be used for any mode of transport within the city, while also allowing for the use of cash deposits for travelers who are not local (Wong, 2014). It is popular because it allows for ease of movement from one transport mode to another as well as its ease in use for daily transport. Its success is pegged on innovation through revenue generation via advertisement and integration of biking with tourism, especially for tourists (Wong, 2014). This would be a beneficial and effective option for Nairobi CBD once the non-motorized transport is well developed. This is especially due to allowing commuters to move from Green Park Terminus to the other terminus and vice versa,

especially due to their proposed location in the outskirts of the CBD. It is a good option for health living and for ease of movement around the CBD. For this to happen, the government has to have pedestrians and commuters in mind during development. This will work well with the proposed development of the Green Park Terminus in curbing traffic congestion in the Nairobi CBD.

2.7 Traffic Congestion in Nairobi/Nairobi CBD

Traffic congestion is rampant in Nairobi, especially when heading to the Nairobi central business district. A point to note is that this congestion is mostly made possible by an increase in the populations moving to Nairobi, mostly from rural areas in search of greener pastures, from other towns and from the outskirts of Nairobi. The congestion is especially due to an influx of private vehicles owned by scores of people. With this in mind, private car possession is made possible by easy access to car loan options by the public (Kariuki, 2015). At the same time, people will make certain choices as a way of proving to others that they have the ability to drive vehicles even at the expense of care for their own and their families' basic needs and care. It is, therefore, important to note that the issues are interconnected, starting with a growing population and/or urbanization. This is not to say that public service vehicles are not a cause in themselves, given the lack of consideration for other road users when dropping or picking passengers on pavements and roads meant for travel as opposed to parking in the CBD. If anything, the greatest portion of the Nairobi population uses public means to move from one point to the next. To help meet the growing population's transportation needs as and when needed, an efficient transportation system is needed (Salon and Gulyani, 2019). The level of efficiency of the transport system determines where people reside. Furthermore, the choice of residential areas is based on the income and expenditure levels of the residents.

From the Deloitte City Mobility Index; Dixon, Irshad and Labuschagne (2018) point out the fact that the customer satisfaction level realized from the mobility service and inclusion within the transport sector stands at 20%. As much as there is something to show for the little effort directed towards the improvement of travel around the city, so much more can be done to better the situation, especially in light of traffic congestion that results in the increase in travel time (massive delays), monetary losses and wastage of fuel (Jain, Sharma, and Subramanian, 2012). On the future of mobility capability, Nairobi currently ranks passively with a selection of barriers to its name, while slowly closing in on proactivity, and while continuing to face some barriers. Nairobi can only become a leader in the future of mobility once it retains its proactivity, once attained, but with just a few barriers left to deal with. At the moment, the county is plagued by many issues, some with direct impacts and others with indirect impacts on traffic congestion considering the lack of planning spanning decades.

Unfortunately, Nairobi faces the challenge of management of its public transportation system. From poor urban planning to poor organizational structures to an increasing number of vehicles to meet the growing travel needs of its people, Nairobi faces its fair share of human and vehicular traffic, congestion as well as the ineffectiveness of pedestrian services (Nyang'ura, 2017). Not only these, but Nairobi especially faces the issue of an increasing population with a lack of an equal effort put towards meeting its needs. There have been various attempts aimed at improving the situation over the years. However, the efforts have ended in futility each time.

In light of the planning history of Nairobi, it started out as a railway town. It progressed to becoming the headquarters of the Kenya-Uganda railway network in 1899. The first master plan for the county was in 1948 but it was quickly considered irrelevant following a rapid increase in population, and changes in the socio-economic and political climate. The most known about master

plan is the one from 1973. It was meant for the realization of the growth strategy between 1973 and 2000. Unfortunately, it required a lot of capital in its implementation, which went unallocated, as well as requiring resources from the private sector to enable its implementation, but the framework in this regard was lacking. 1979 saw the development of a rationalization zonal plan meant for land use densification which, unfortunately, failed to cater to the increasing population density through amenities and infrastructure. However, it influenced the city development and structure as it stands in Nairobi today (Nairobi City County Government, 2012). A sector-based approach was adopted in the 1980s for the development process management at the local and national levels. Following this adoption to help with urban development management, several interventions were proposed in line with the sectorial plans drafted at the time. These interventions include:

a. Nairobi Metropolitan Strategy
b. Integrated Solid Waste Master Plan
c. Nairobi Urban Transport Plan
d. Nairobi Metropolitan Region Spatial Plan
e. Water and Sewer Master Plans
f. Mass Rapid Transport Plan (Nairobi City County Government, 2012)

These interventions have only been in writing, but not implemented; at least not until ten or so years ago when the work slowly began. The Nairobi Metropolitan Services Improvement Project (NaMSIP) falls within these proposed interventions from 40 or so years ago. Nairobi has been ailing from urban development challenges due to the ever growing population and a ballooning number of public service vehicles. These are some of the issues that are slowly being addressed, with other challenges awaiting proposals to address them, such as traffic congestion (Nairobi City

County Government, 2014). The lack of planning has meant embracing a fragmented approach to urban development, which is still in use today. As a result, rapid population growth has been a menace, traffic congestion has been a major issue and lack of appropriate urban plans have only made the situation worse. There is an increasing ownership of personal vehicles increasing the amount of congestion in Nairobi. According to figure 2.1, the number of people ferried by multiple cars can fit into a bus, as well as a few bicycles. Such considerations can minimize the traffic congestion in Nairobi. Nairobi has taken to proposing the development of the Green Park Terminus in the CBD outskirts based on the Nairobi Integrated Urban Development Master Plan (NIUPLAN), with the coordination between the Nairobi County Government (now under the NMS) and the Japan International Cooperation Agency (JICA) (Nairobi City County Government, 2014).

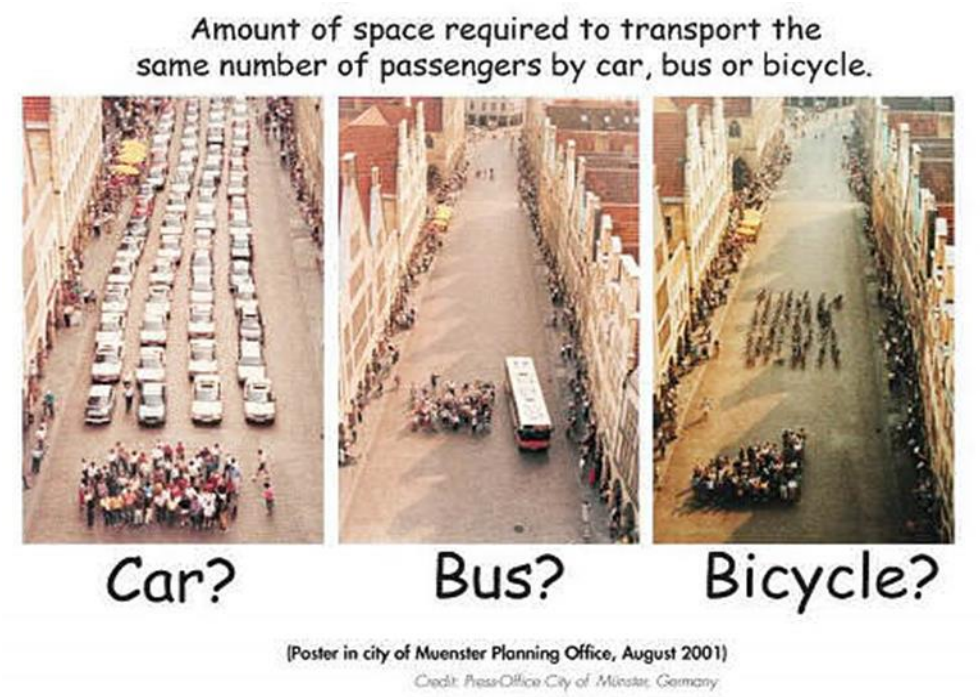

Figure 2. 1: *Amount of space required to transport 60 people by car, bus or bicycle*

Source: *Press-Office City of Mönster, Germany*

2.8 Past Traffic Decongestion Initiatives in Nairobi and Why They Failed

There have been attempts at trying to deal with decongestion in recent years.

2.8.1 Nairobi CBD Shuttle Service, 2008

In 2008, the stakeholders within the Transport Ministry and industry agreed to have a Nairobi CBD Shuttle service established. Its route was from the Muthurwa Terminus via Haile Selassie Avenue to the Globe Cinema Roundabout and back to Muthurwa. The Double M buses were picked out to operate under the shuttle services for a period of two weeks (Oirere, 2016). In the process, the Ministry of Local Government was tendering for the shuttle services while trying to figure out more routes of operation. Unfortunately, the operations were cut short after the two weeks when a number of members of Parliament were of the view that the move was meant to be beneficial to some politicians and businesses, especially to those who were in support of former President Mwai Kibaki's government. There had been a proposal to form a Nairobi City Traffic Management Committee whose mandate would be to shuttle service monitoring, on top of the engagement into other decongestion efforts. However, this never came into being.

2.8.2 New PSV Regulation Implementation (March 2014 – November 2014)

The Transport Cabinet Secretary (C.S.), Michael Kamau, faced difficulty during the implementation of new regulations within the PSV sector, following the failure by the Kenya Country Bus Owners Association to comply with them (Odongo, 2020). The implementation was meant to improve compliance with the government regulations while increasing safety and orderliness in the CBD, thus partially decreasing congestion. The rules included:

i. SACCO membership – a vehicle has to be a part of a SACCO with at least 30 vehicles, they ought to have a fleet management system and the SACCO ought to give the National Safety and Transport Authority (NTSA) a monthly accident report.

ii. Operators must comply with labor laws. Employees must be employed on a permanent basis, and must be members of NHIF and NSSF, with end of the month salary payments.

iii. Every vehicle has to have 2 drivers, especially for the long distance vehicles, with each driver covering up to 8 hours.

iv. Speed governors - installation of tamper-proof speed governors (Nairobi City County Government, 2014).

v. Matatu operators required to file a report on accidents and how they deal with passenger complaints, every three months/quarter.

vi. Inspection – weekly vehicle inspection by qualified mechanics and an onboard mechanic for long distance vehicles who checks the vehicle before the start of the journey

vii. Getting rid of colors and graphics on matatus.

A court order was filed to restrain the C.S. from enforcing the set regulations.

In the same year, former Governor of Nairobi, Dr. Evans Kidero, got into a Memorandum of Understanding (MoU) with the Beijing Municipal Commission of Transport and Foton, which details that the commission and Foton would supply high capacity buses (Boss, 2018). They were to be supplied at a cost of Kshs. 6.4 billion and as a replacement to matatus. However, the plan failed even before it began because of corruption allegations against it.

2.8.3 CBD Ban of all Commuter Matatus (March 15, 2015 – March 2016)

All matatus were banned from Nairobi CBD by the former Governor Kidero, but the decision was publicly opposed by Mike Sonko, the then Nairobi senator. The ban was considered to be lawful by the Transport C.S., Michael Kamau, especially as a decongestion measure. He pushed for the ban to be fruitful, despite being a tough process, for the sake of creating sanity within the CBD (Odongo, 2020). However, the ban did not take effect and instead, Dr. Evans Kidero, the then

governor, agreed to get into talks with the Matatu Owners Association leaders, which did not bear fruit. The situation remained unchanged until the governor exited the office in 2017 during the elections.

2.8.4 Plan to Ban Matatus from CBD (April 2018)

2018 saw Mike Mbuvi Sonko, the Nairobi Governor at the time, ban public service vehicles from the CBD, with the motivation being for people to keep a healthy lifestyle and to decongest the CBD. It was short-lived, given the chaos and disapproval that followed from the public and matatu operators. As a result, some streets were filled with traffic from private vehicles while other routes were full of trekking commuters from public transport drop-off points moving into the CBD or to other public transport pick-up points. This was not well planned since it resulted in back-to-back traffic within the Nairobi CBD and along the main transport routes feeding the CBD. In the end, the decongestion initiatives that had been implemented, even for a short time, showed that consideration of all affected stakeholders was important for traffic decongestion in the Nairobi CBD to work.

As a result of the failure of the initiatives, the Nairobi Metropolitan Services (N.M.S.) has taken on the mantle of trying to see through the traffic decongestion plan in the CBD. The NMS; led by the NMS Director, Major General Mohamed Badi; has taken on the improvement of the Nairobi CBD through the proposal to implement the Nairobi Metropolitan Services Improvement Project (NaMSIP). The NMS has taken over from the Nairobi County Government, at least until the current government is done serving its term. NMS has come in as the agency delivering services on behalf of the national government on the shortfalls of the Nairobi County Government in the health, transport, planning and development, utilities and ancillary, and public works sectors (Mageka, 2021). A number of streets within the CBD have already been revamped and re-carpeted,

especially those in dire need of a facelift (Josephine, Abiero, & Micah, 2021; Nation, 2020). The NMS has also put efforts into trying to actualize the decongestion issue through the development of bus termini such as the Green Park Terminus in the outskirts of the city center as a way of curbing the issues spanning decades (Nation, 2020). The terminals are either under construction or still in the planning stage. Specifically, the Green Park Terminus is yet to be implemented. The NMS is in the process of bringing this efficiency into realization (Nairobi Metropolitan Services, 2021).

2.9 Policy and Legal Framework

2.9.1 Policy Frameworks

2.9.1.1 Vision 2030

This is a policy framework developed by the Government of Kenya as it pursues socio-economic development, with the aim of transforming the country into a middle income country able to provide a high quality life for its own through industrialization by 2030. Vision 2030 operates on the basis of democracy, good governance, and rights for all; promotion of social cohesiveness and justice; and achieving economic prosperity in light of 3 pillars: political, social, and economic; respectively (Muthoka, 2019). Infrastructure comes in where the 3 pillars merge for development. Vision 2030 ensures that infrastructural development is highly prioritized through a country that is well connected and linked. Infrastructural development can only be effective if it is indeed working for its people, which means that traffic congestion should be an issue of the past for infrastructural development to be effective in national development.

2.9.1.2 Transport Sector Policy

The Integrated National Transport Policy (INTP) is a policy that helps address the challenges that the transport sector experiences and prevents it from optimal performance through transport

infrastructure and operation integration while ensuring that the transportation needs are duly met. The policy plays a significant role in the achievement of Vision 2030 through ensuring that a quality transport system is attained as a response to the needs of the people (Muthoka, 2019). According to Republic of Kenya (2010), the specific strategic objectives in line with Nairobi CBD's traffic decongestion are:

i. "Fostering national and regional economic integration and trade facilitation;
ii. Establishing appropriate institutional systems;
iii. Developing and maintaining an integrated and coordinated transport system;
iv. Developing appropriate funding/financing mechanisms;
v. Integrating transport and land use planning and management systems;
vi. Delivering efficient and effective sector operations;
vii. Enhancing investments in the transport sector;
viii. ICT application in the transport system;
ix. Incorporating environmental protection and resource conservation issues in transport sector activities."

2.9.2 Legislations

2.9.2.1 Kenya Roads Act, 2007

The Kenya Roads Act, 2007 authorizes road development, and sets in motion powers and functions, with the authorities detailed as the Kenya National Highways Authority (KENHA), Kenya Urban Roads Authority (KURA), and Kenya Rural Roads Authority (KeRRA). KURA, specifically, is tasked with development, management, maintenance, and rehabilitation of municipal and city public roads which would explain its role in traffic decongestion of the Nairobi

CBD (Kenya, 2012). The body is established under the Kenya Roads Act, 2007. Its mandate and functions are aligned with the Constitution of Kenya, 2010.

2.9.2.2 National Transport and Safety Authority Act, 2012

This is an Act of Parliament that provides for the National Transport and Safety Authority establishment, its functions, powers, and any related purposes. According to Kenya (2012), the functions of the authority within this act are:

i. "Advise and make recommendations to the Cabinet Secretary on matters relating to road transport and safety;
ii. Implement policies relating to road transport and safety;
iii. Plan, manage and regulate the road transport system in accordance with the provisions of this Act;
iv. Ensure the provision of safe, reliable and efficient road transport services; and
v. Administer the Act of Parliament set out in the First Schedule and any other written law."

Within the Act, the authority is granted power to have in place a county transport and safety committee in consideration of the NTSA Act (section 21). The committee is granted responsibilities to provide advice to NTSA on county road transport system matters, the system's regulation and management, and audit report preparation and submission tied to the system's efficiency, safety, and reliability (Kenya, 2012). The NTSA also has the responsibility is license issuance and revocation in ferrying of goods and passengers, fare regulation, and passenger safety. These responsibilities contribute to increase or decrease of traffic congestion in the Nairobi CBD.

2.9.2.3 County Government Act, No. 17 of 2012

The County Government Act, 2012 details the powers, responsibilities, and functions of the county governments in service delivery towards county development and any related purposes. In this consideration, county governments are tasked with developing county legislation, carrying out functions as dictated by the Act, carrying out any other functions together with other county governments, and conducting executive functions as dictated by the Act. On top of these, any functions transferred from the national to county governments is another responsibility bestowed upon them, and public service establishment and staffing as detailed in the Kenyan Constitution (Kenya, 2012). In light of these responsibilities, the County Government of Nairobi is able to carry out its duties, including putting the traffic decongestion measures in place. This is where the Nairobi Metropolitan Services (N.M.S.) came in since it was acting on behalf of the County Government of Nairobi at a time when the established N.M.S. was tasked with seeing through the county responsibilities more effectively. Specifically, the planning and development department played a central role in the development of the Green Park Terminus.

2.9.2.4 Environmental Management and Coordination Act, 2012

The Act established the National Environment Management Authority, the authority tasked with general coordination and supervision of matters touching on the environment. Specifically, NEMA fulfills section 3(1) of GoK (2012) which that states, “Every person in Kenya is entitled to a clean and healthy environment and has the duty to safeguard and enhance the environment.” Safeguarding and enhancing the environment, in light of the issues the Nairobi CBD is facing, is similar to ensuring the CBD is operating at optimum capacity and in a manner that is beneficial to those accessing the CBD. In greater detail, this means ridding the CBD of the traffic congestion

issue (vehicles and people), thus not only reducing travel time and related costs, but also reducing the level of pollution and eventually improving the health and wellbeing of people in Nairobi.

2.10 Theoretical Framework

2.10.1 The Concentric Ring Theory

For a clearer understanding of this research, it is paramount to bring in the theories that help explain the Nairobi CBD situation. The Concentric Ring Theory is one of these theories, developed by Park and Burgess in 1925 (Blackledge, 2009). It was used to explain the growth and structure of a city. Their growth and development was outward in form of concentric zones as density, accessibility and values were on a decline with the distance increasing away from the city center leading to the establishment of five circular zones. Struggling for scarce resources in the urban setting, especially land, resulted in competition among groups which led to urban space division into the concentric zones whose distinction was clear, based on the characteristics that people shared due to being under similar ecological pressures. The greater the desirability of certain areas, the higher the rents (Brown, 2011). With greater success through succession, businesses and people were able to move away from the city center (outward). This theory, therefore, predicted physical and social deterioration towards the city center and greater prosperity towards the edge of the city.

The zones, from the city center, are:

i. The central business area/central business district (CBD)

ii. Zone of transition

iii. Factory and low income housing zone

iv. Middle and high income housing zone

v. The outer commuter zone (Blackledge, 2009)

2.10.1.1 The Central Business District

With this being the core of the city, it has the greatest complementarity and accessibility levels. It holds the centrality of where from the transportation routes radiate. The location is advantageous to its users, thus attracting high values of land especially given the high level of demand against its minimal size. There is a congregation of uses that benefit from complementarity and accessibility, for instance, offices, leisure, retail uses, administrative, and generally benefitting uses (Blackledge, 2009). Residential use is highly restricted due to space and high land and rental values.

2.10.1.2 Zone of transition

This is the inner city area right after the CBD developed from the CBD expansion and attracting land values that are relatively high. It has new buildings and older ones undergoing redevelopment, conversion or rehabilitation (Brown, 2011). It is the oldest residential area with high density low income neighborhoods or high income neighborhoods. The accessibility levels are similarly high.

The factory and low income housing zone is an area planned out for industrial and residential users. The residences are mostly for the factory workers (Blackledge, 2009). The presence of slums and industrial pollution reflect the impact of the industries present.

Middle and high income housing zone is a residential zone with modern amenities with lower land values and single family homes, mostly. There is unlimited space to build bigger homes since higher income groups reside here, with the option of conducting agricultural activities. It is a zone free from pollution, thus residents live a good quality life (Nadh, 2020). Transportation, parking and communication facilities are properly featured.

The outer commuter zone is located in the outermost concentric zone past the middle and higher income residential zone. It details small human settlements, cities and towns; with their constitution forming the commuter zone (Blackledge, 2009). Commuter residents commute to the CBD daily for business and employment. This is a low density area. Its isolation is characterized by satellite towns and suburbs.

Looking at the concentric zones, the Nairobi CBD falls within the CBD which is the innermost zone. This zone makes it possible for the users and activities to have the interdependence (Brown, 2011). It is also highly accessible which would explain why a lot of people from different parts of Nairobi gain access to and/or congregate here on a daily basis. This is the central point for the radiation of transportation routes, thus explaining the presence of bus stations for not only Nairobi, but also the rest of Kenya. This would explain why traffic congestion is rampant in this area. The congregating of so many people and so many vehicles would easily congest such a small space, with everyone in need of a right of way (Blackledge, 2009). For a small sized area, it sure is in intense demand due to its accessibility and complementarity advantages. This would also explain the high land values that the CBD attracts, second only to Upperhill. For space utilization, high-rise buildings are erected to serve all and sundry. People travel to and through the CBD for business and employment opportunities, both formal and informal. Traffic congestion is, therefore, bound to occur.

2.10.2 Central Place Theory

This theory was put forward by Walter Christaller in 1933. He had a look at settlement size and distribution operating in an urban system, with marketing standing out. Its focus is on the relationship between central places in form of towns and cities, and hinterlands (making use of services from central places). The threshold for good and range of good are two important concepts

identified. The former looks at the sales volume, at minimum, that ought to be maintained to sell the good while the latter details the distance, at maximum, that consumers willfully travel to acquire the good. The good's demand ends up being its price and travel cost function for purchase by the consumer (Paszto, 2020). Customers will, therefore, visit the nearest center available while retailers ensure their businesses are located close to their customers. It is expected that travel costs are at a minimum while good and service costs are at a maximum. Small and medium sized towns offer goods and services of less variety while larger cities offer goods and services of more variety. Higher-level goods and services present in larger cities include big sports venues, government functions, insurance, health services, and higher education. This is not forgetting that larger cities also offer regular services. With this in mind, this theory functions on three principles: marketing, administrative and transport.

Looking at this research project, there is a relationship between the research and the central place theory. There is a direct relationship between the central place or the CBD and the hinterland (Paszto, 2020). A lot of the goods and services offered in the Nairobi CBD are those in high demand and those which will not pose an issue for the customer travelling there to purchase them. The Nairobi CBD can be said to be the nearest, centralized place for trading of goods and services for residents travelling from different parts of Nairobi and Kenya at large. Nairobi can, therefore, be considered a larger city. With this in mind, the congregation of people from all over means that a lot of people travel towards the CBD at any given time (Paszto, 2020). Traffic congestion is, therefore, unavoidable given the movement of people towards one direction. Most main administrative services are located in Nairobi, and a number of them in the CBD. Further, considering the number of people that depend on these administrative functions, this in no doubt results in traffic congestion in Nairobi CBD.

2.11 Conceptual Framework

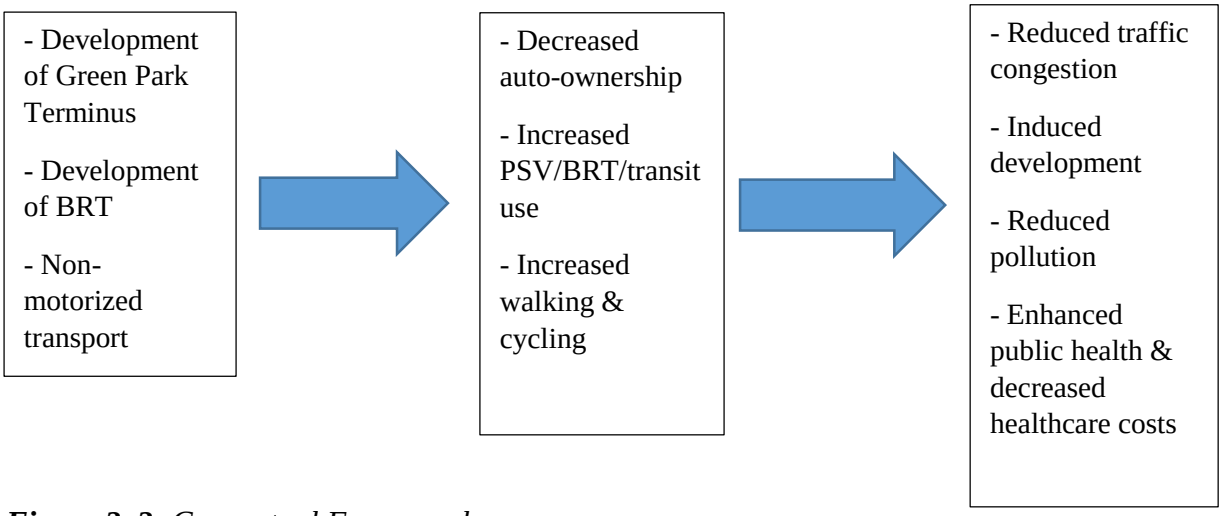

Figure 2. 2: *Conceptual Framework*

Source: *Author*

2.12 Way forward

Nairobi CBD, for more than 40 years, has been in need of change in planning and urban development. This research looks to investigate the prospects of the proposed Green Park Terminus in the decongestion of Nairobi CBD. With this in mind, it is important to understand traffic congestion, the various types of congestion, its causes, and the problems arising from congestion. Further this chapter of the research study peeks at traffic congestion in other parts of the world and how the issue is being dealt with, and the proposed solutions within the Kenyan context including what the NMS is doing to change the narrative. To place the traffic congestion issue in context, the concentric ring theory and the central place theory have been discussed, especially in light of how traffic congestion would come about in the Nairobi CBD.

In consideration of Nairobi and the need for decongestion, it would do the County Government of Nairobi some good to identify, from other cities, the measures that would work in the Nairobi

CBD. The need for borrowing ideas from other cities would be informed by the success rate of the various traffic decongestion initiatives in the said cities. After identification of the measures, there would be need to test them out on a small scale to determine their workability before implementation, followed by implementation in a manner that helps meet the needs of the population that accesses the Nairobi CBD. To partially inform this, the researcher has looked into the research methodology, the findings from the research, and given recommendations in light of the issues identified and how best to proceed.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

This chapter details the method that the research adopted in explaining the aspect under investigation. It provides the information on the research design chosen for the purpose of the study and the reasoning behind the choice. The study area of the research is detailed for familiarization. Information on the participants is provided in terms of the criteria for inclusion, the identification of the participants and how sampling was done. Further, the research methods that were employed are included and a description provided.

3.2 Research Design

The exploratory research design was used for this study. This section details how the researcher obtained the evidence that was used to address objectives and research questions. However, it is important to note that exploratory research design usually has no intention of providing conclusive evidence, but it helps provide a better understanding about a phenomenon or situation. Further, this type of research design was applicable in this research due to the fact that the matter under research was new to the Kenyan context, thus had not been done before in light of research or implementation.

3.3 Study Area/Location of Study

According to KNBS (2019), the urban population in Nairobi stands at 4,397,073 people. It is the most populous county in Kenya and most importantly, it is the capital city of Kenya. Going by Tanaka, Hyodo, & Furuichi (2014), the Nairobi CBD is located within the rectangle shaped by Uhuru Highway, Haile Selassie Avenue, Moi Avenue, and University Way. Haile Selassie Avenue borders Uhuru Highway, Moi Avenue borders University Way and Haile Selassie, while Uhuru Highway meets Uhuru Highway at the Uhuru Highway Junction. It is estimated that the Nairobi

CBD is accessed by approximately 22,000 public service vehicles on a daily basis. This is based on the Matatu Owners Association Nairobi chairman. With such numbers of PSVs accessing it, it is expected that the number is much bigger, considering that a significant number of private vehicles also access the CBD. Traffic congestion, as a result, is inevitable. According to ITDP Africa (2020), the congestion in Nairobi does not only result from public transport vehicles, but also private vehicles. Even with 13% of commuters using private means while 41% using PSVs and 40% walking, the number of private vehicles is higher than PSVs, but carrying fewer commuters. This calls for more bus termini, parking facilities and non-motorized transport facilities, which are expected to be met through the NMS-backed Green Park Terminus among other bus termini, non-motorized transport (NMT) facilities, and the Bus Rapid Transport (BRT) by NAMATA. There is an imbalance between the needs of the users of such facilities and the facilities or infrastructure available within the CBD, especially in terms of ample space. The courses being undertaken by the Kenyan government are meant to help alleviate the traffic congestion issue.

3.3.1 Current Proposed Solutions for Nairobi

3.3.1.1 Nairobi Metropolitan Services Improvement Project (NaMSIP)

The Nairobi Metropolitan Services Improvement Project (NaMSIP) is a government project worth US$330 million, whose jurisdiction falls under the Ministry of Housing and Urban Development. The financing of the project is by the Government of Kenya and the World Bank, through the International Development Association (IDA). The project became effective on the 17th of December, 2012 with an initial expectation of closing on the 30th of June, 2017 but it was then revised to the 30th of September, 2020 (NMS, 2021). However, the project is still ongoing. The

project covers the Nairobi Metropolitan Region (NMR) which covers Nairobi, Kiambu, Kajiado, Machakos, and Murang'a. The project details four components. These are:

Institutional Reform and Planning

This component deals with planning and capacity enhancement for the metropolitan counties involved, with a budget of US$15 million.

Metropolitan Infrastructure and Services

This component deals with the provision of large scale metropolitan infrastructure linked to transport, sewerage, and solid waste services, with a budget of US$250 million (Njenga, 2017). This is where the Green Park Terminus falls as part of the infrastructure linked to the transport component.

County Government Infrastructure and Services

This component deals with providing financing for urban infrastructure given priority in 13 of the metro urban centers, with a budget of US$60 million.

Project Management, Monitoring and Evaluation

This component deals with providing financing for management activities linked to the implementation of projects such as establishment and implementation of a monitoring and evaluating system of a comprehensive nature, and the training of agencies responsible for implementation in social and environmental management.

NaMSIP is meant to ensure the strengthening of the connectivity between the NMR growth centers in light of land use plan preparation and public infrastructure construction or upgrade in areas around transport nodes and railway stations, and traffic flow and management improvement

(NMS, 2021). The bus termini project under NaMSIP falls under component 2 which touches on transport matters. This project will involve the construction and upgrade of bus termini in the outskirts of Nairobi central business district, with the intention of managing and improving traffic flow. Some are in the process of being constructed with the likes of the Green Park Terminus having been constructed, awaiting implementation. Currently, most of the bus termini in the city center are around the Nairobi railway station. However, this is not strategic in destination or location. Bus stops in the external part of the central business district (CBD) are on minor roads, in the form of trunk roads, resulting in passengers being picked up at intersections or roadsides (Gachanja, 2012). The effect of this is traffic build-up. With the vehicles, especially public service vehicles, accessing the CBD and its outskirts contributing to traffic congestion, then it only makes sense to plan a way out of the menace. NMS is looking to solve this menace through the proposed bus termini while this research looks to investigate the possibility of doing so through the Green Park Terminus.

Green Park Terminus

The Green Park Terminus is a proposed bus terminal whose development has been conducted by the Nairobi Metropolitan Services, on behalf of the Nairobi County Government. The terminal falls under the Nairobi Integrated Urban Growth Master Plan and Decongestion Strategy. The idea behind the terminal is to ensure that the public service vehicles end their trips at the edge of the Nairobi central business district as a measure of reducing traffic congestion within the CBD. It will occupy the former Nairobi NV Lunar Park space as indicated in figure 3.1. Figures 3.2 to figure 3.5 show the current state of the Green Park Terminal while figure 3.6 is the terminus during one of the three test-runs conducted by the N.M.S.

Figure 3. 1: *Former Nairobi NV Lunar Park*

Source: *Lunar Park Kenya*

Figure 3. 2: *Access View of the Green Park Terminus*

Source: *The Star Digital Newspaper*

Figure 3. 3: *View of the CBD from the Green Park Terminus*

Source: *The Star Digital Newspaper*

Figure 3. 4: *View of the Green Park Terminus at the Old Railways Club*

Source: *Kenyans.co.ke*

The terminus is one among the five terminals proposed by the government to relocate public service vehicles from the CBD to the outskirts of the CBD as a traffic congestion minimization measure. It is meant to be a high capacity bus station serving public service vehicles plying Langata

road, Ngong Road, Argwings Kodhek road to Kikuyu, Ngong, Kawangware, Dagoretti, Kibera, Highrise, Ngumo, Rongai, Kiserian, Otiende, Langata, Madaraka and Nairobi West; thus acting like a pick-up and drop-off point.

Figure 3. 5: *An electronic PSV boarding routes signage mounted at Green Park Terminus*

Source: *The Star Digital Newspaper*

Figure 3. 6: *View of Matatus at the Green Park Terminus during one of the test-runs*

Source: *The Standard*

On top of the focus of the terminal placed on public service vehicles, it will host modern services such as a mini-supermarket, a police station, a dispensary as well as other stores. The terminus will operate on a solar energy system for lighting purposes with well-tendered gardens for aesthetic purposes. All users' needs of the terminus will further be catered to through the provision of two ablution blocks at the drop-off and pick-up points. The proposed location of the bus terminal has been considered strategic for the users and in the struggle towards attaining traffic decongestion.

3.3.1.2 Travel Solutions, NAMATA and NMS

Nairobi residents usually have a number of options to consider as their travel solutions. According to Dixon, Irshad and Labuschagne (2018); the transportation options for Nairobi residents are public transit (46%), walking (39%), private car (13%), bicycle (1%), and other options (1%). Those who opt for walking usually try to save on fare or do so if there is easy accessibility, on foot, between their place of residence and their place of work. This can only mean that a huge percentage of the population opts for public service vehicles to meet its transportation needs while the more able portion of the population considers private vehicles as an affordable option and as a means of providing comfort and privacy. This results in a demand and an increase in the availability of both public and private options to ferry the masses from one point to the next. This is one of the ways through which traffic congestion is born, especially through the increase in private means with only a few people ferried by each private vehicle.

There is an illustration given on the reason for the growth of congestion, especially through private vehicles. As an example, figure 2.1 shows the same number of people ferried by various forms of transportation (Brodowicz, Pospieszny, & Grzymala, 2015). It is clear that traffic congestion is greater when private transportation is on the rise and better curbed when using bicycles and even better when using public transportation such as through the use of buses. A city like Nairobi would

easily benefit from such insights since this encourages commuters to consider as the best alternative. This is well covered by the Nairobi Metropolitan Area Transport Authority (NAMATA) in their quest for transport infrastructure, works, and facilities' development and operations to ensure a public transportation system that is integrated, sustainable, and evidential. This is where the Bus Rapid Transport (BRT) comes in. NMS is working with NAMATA since their projects require coordination with each other (NAMATA, 2022). BRT will also pass through the CBD and its outskirts, especially in light of where the bus terminals will be located.

3.4 Target Population and Sampling

The target population of the research study was NMS urban planners, Matatu Owners Association, and Nairobi residents commuting to Nairobi CBD. Considering their respective populations, the study targeted 5 NMS urban planners, 9 matatu owners/SACCO chairmen within the Matatu Owners Association, and 300 commuters that were accessing the Nairobi CBD for work and business as confirmed in the questionnaire.

The study covered NMS urban planners, Nairobi residents that were accessing the CBD and Matatu Owners Association through the use of purposive sampling techniques. According to Wagikondi (2013), Nairobi city has a day population of 4.1 million. Given that a huge percentage of goods and services are located within the CBD, it is safe to say that a huge percentage of this population accesses the CBD on a daily basis and millions access the CBD at any one time. It is difficult to distribute and administer questionnaires and conducting interviews to them all, not forgetting that most people are usually on the move. Purposive sampling allowed for a small number of cases to be used in the representation of the target population while explaining the area of focus. 5 NMS urban planners were representative of the views of the NMS urban planning departments, and 9 Matatu Owners Association SACCO chairpersons based in Nairobi were

representative of the views of the association and matatu operators within the association's Nairobi jurisdiction. There are 98 SACCOs operating within Nairobi, therefore, the 9 chairpersons were a representation of them. 300 residents/commuters to the CBD were representative of the greater population accessing the CBD. The study looked at 300 commuters since the population that was accessing the CBD was unknown. The study applied non-probabilistic sampling since the greater population that was accessing the CBD needed to be broken down into the NMS urban planners, Matatu Owners Association, and residents/commuters. This was on the basis of the information important to the study, which was acquired from this target population. They were identified as the target population based on who was affected by the congestion issue and who was the decision maker pertaining to this matter.

3.5 Methods of Data Collection

The data collection methods are central to any research. This section, therefore, was paramount to the research and its conclusion. The methods of data collection that were applied to this research study were interviews and observations. In greater detail, the researcher conducted in-depth interviews through the use of semi-structured questionnaires. These were used to collect primary data from the research participants. The results acquired were then used in the data analysis section of the study. Both open and close-ended questions were present in the questionnaires for a more effective approach to acquiring ample data. Purposive sampling was applied in the process of acquisition of raw data. With stratified random sampling; 5 NMS urban planners, 9 Matatu Owners Association SACCO chairmen, and 300 commuters to the CBD were interviewed; while the researcher conducted observations. The sample consisted of government officials, MOA officials, and citizens who were familiar with the operations within the CBD.

The research study also included the collection of secondary data. The secondary data was used to build on the research study, thus providing any related research conducted within the country and in other countries. This was in the form of published census and other statistical data, legislations, journal articles, newspapers, internet articles, databases including government databases, government publications, and internal records.

3.6 Data Analysis & Presentation

Following data collection is data analysis which is used to acquire important and relevant information. It focused on the review, presentation and interpretation of data acquired from respondents using semi-structured questionnaires, with some having been issued in-person while others were issued using Google forms based on the research study's objectives. The research aimed to investigate the prospects of the proposed Green Park Terminus for the decongestion of the Nairobi CBD. On top of this, the research also aimed to evaluate the past Nairobi CBD traffic decongestion initiatives and establish why they failed. The assessment of the challenges facing the pre-implementation process of the Green Park Terminus was yet another aim of the research. The final focus of the research was to establish whether or not the Green Park Terminus would solve congestion in the CBD. The synthesized information was then presented in the form of charts and graphs. This presentation section was part of the research report.

3.7 Ethical Considerations

Ethical considerations are a significant part of research. A researcher is, therefore, required to remain ethically upright throughout the research process. As such, this study abided by ethical research norms to ensure that the research promoted or upheld the aims of research up to and including seeking consent, conducting the research, using the research data, and presenting the findings through error avoidance, knowledge, and truth (Sileyew, 2019). This consideration

ensured that the researcher refrained from research data falsification, fabrication, and misrepresentation for the sake of minimizing error and promoting truth. The privacy of the respondents should be respected including their identity and any information that they provide, which is privileged and ought to remain confidential. In this regard, the researcher did not disclose the respondents' personal information while ensuring that information shared remained confidential.

The researcher ensured that the respondents were filled in on what the research was about while seeking each respondent's consent to take part in the research study and using the information shared to inform the research (Sileyew, 2019). The researcher also ensured that any information acquired from secondary sources was adequately cited and referenced to acknowledge the work of other researchers as well as other direct and indirect contributors, thus avoiding cases of plagiarism.

CHAPTER 4: DATA ANALYSIS, PRESENTATION & INTERPRETATION

4.1 Introduction

This chapter details the findings and analysis of data collected from a sample of 314 respondents who are or are expected to be an integral part of the operation of the proposed Green Park Terminus in decongesting the Nairobi CBD.

The study sought to investigate the prospects of the proposed Green Park Terminus for the decongestion of the Nairobi CBD, evaluate the past Nairobi CBD traffic decongestion initiatives and establish why they failed, assess the challenges facing the pre-implementation process of the Green Park Terminus and establish whether or not the Green Park Terminus will solve congestion in the CBD.

As a result, there were three types of questionnaires: those issued to Matatu Owners Association SACCO chairpersons, those issued to the NMS planners (urban/transport/road) and those issued to the Nairobi commuters. The questionnaires contained both open-ended and closed questions. 315 questionnaires, in total, were issued to the respondents from the previous 314 questionnaires due to an additional respondent in the NMS planning department. 239 responses were acquired, thus being representative of 76.1% of the total number of respondents; with 224 responses from commuters, 9 responses from the Matatu Owners Association and 6 responses from the NMS planning department. According to Booker, Austin, & Balasubramanian, (2021), "There is no established threshold for defining a high response rate but a rate of 80% or higher is considered excellent". A high response rate is essential in providing results that are valid, generalizable and reliable. The data was then analyzed using content analysis where the following is carried out:

i. "Identifies specific body of material to be studied
ii. Define characteristics/qualities to be examined

iii. Tabulate the identified characteristics found in the material being studied, and where appropriate subject the data to statistical analysis to determine any significant differences

iv. Interpret the data as they reflect on the problem under investigation (Patel & Patel, 2019)"

4.2 General Findings

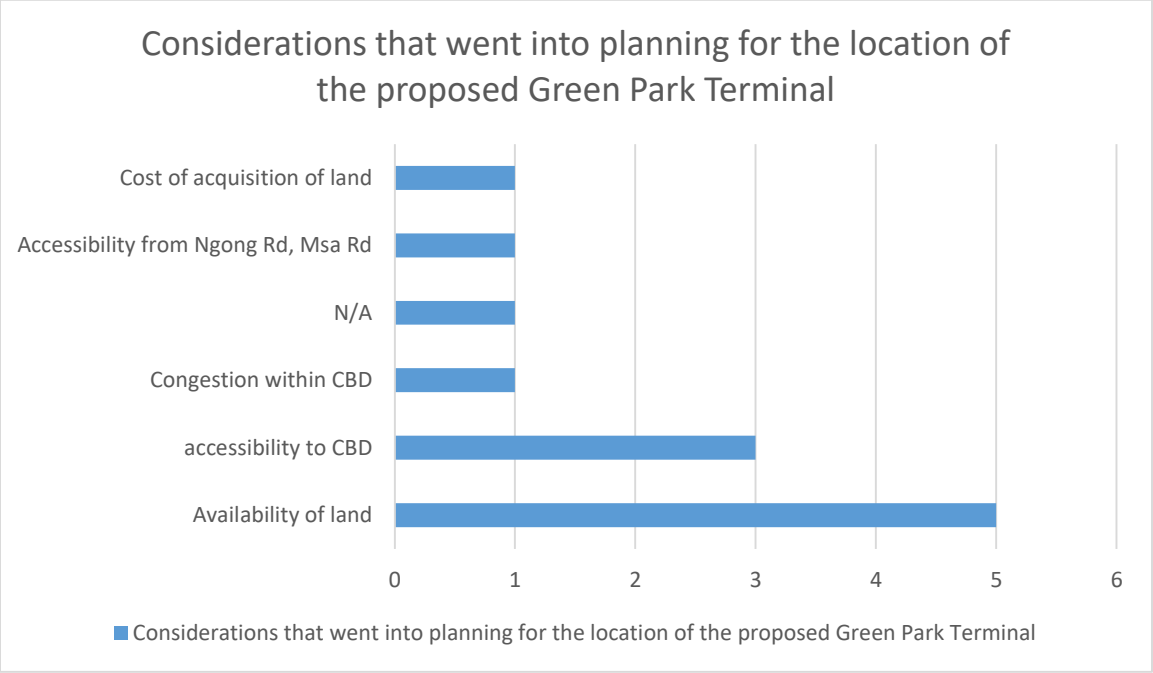

Figure 4. 1: *Considerations that went into planning for the proposed Green Park Terminal*

Source:*Author*

According to figure 4.1 above, five NMS planners out of six identified that the availability of land takes the lion's share as the main consideration that went into planning for the location of the proposed Green Park Terminus. To explain this further, the availability of this piece of land was pegged on the fact that it belonged to the Kenya Railways pensioners, as revealed by two planners, thus providing an opportunity for a government to government sale, simplifying the sale process. To show that the project had been in the works, one of the NMS transport planners, a transport engineer, revealed a document to back this up. This was the Transport and Urban Decongestion

Committee final report published in 2014 and presented to the then Nairobi Governor, Dr. Evans Kidero. Among the recommendations in the report is the point, "The Nairobi City County should establish five mega PSV termini at the periphery of the CBD as follows:

> NSSF land between GPO and Laico Regency Hotel – build a 10-storey park building with first four floors should be designated for PSVs only."

The County Government of Nairobi had previously considered the NSSF land as an option for removing the PSVs from the CBD, before the land belonging to KR pensioners was available for purchase.

Accessibility to the CBD as mentioned by three planners and congestion within the CBD, accessibility from Ngong Road and Mombasa Road, and the cost of acquisition of land shared by one planner each, were the other important considerations that went into planning for the location of the proposed Green Park Terminus. From the information shared by the planners, it is clear that the availability of land was the main consideration for planning, and especially since once available, the national government reached out to the county government (the then NMS) calling for the implementation of the project.

4.2.1 The prospects of Green Park

The first objective was meant to investigate the prospects of the proposed Green Park Terminus for the decongestion of the Nairobi CBD through questioning commuters, Matatu Owners Association SACCO chairpersons and the NMS planners. The answer to this objective is tied to the answers to the specific objectives: identify the past Nairobi CBD traffic decongestion initiatives and establish why they failed, identify the challenges facing the pre-implementation process of the Green Park Terminus and establish whether or not the Green Park Terminus will

solve congestion in the CBD. On this note, the summary of the findings linked to the objectives are detailed in the successive sections (findings from specific objectives) of the research.

4.2.2 Evaluation of past Nairobi CBD initiatives

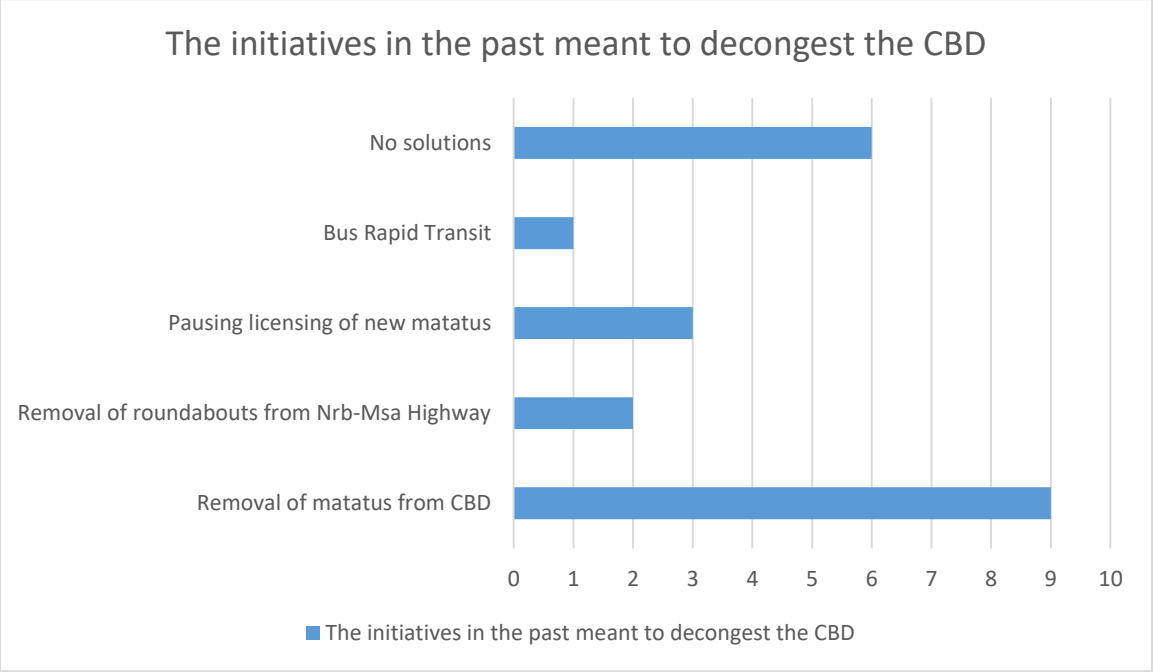

Figure 4. 2: *The initiatives in the past meant to decongest the CBD (MOA)*

Source: *Author*

According to figure 4.2 above, the MOA SACCO officials mentioned that there have been various initiatives in the past meant to decongest the CBD. All the officials agreed that proposed and once actualized removal of matatus from the CBD is a past failed initiative. The former Transport CS Kamau and the former Nairobi Governor, Evans Kidero, mentioned plans in the short term, medium term and long term to decongest the CBD. However, the plans were not actualized. The specific plan of removal of matatus from the CBD never happened. Former Governor, Mike Sonko, had also proposed and had the plan actualized for a day, but it caused a lot of snarl-ups in and around the CBD.

On top of removal of matatus from the CBD, a majority of the MOA officials (six of them) agreed that the past initiatives were just temporary options and not CBD decongestion solutions. The other initiatives were the removal of roundabouts along the Nairobi-Mombasa Highway and the pausing of licensing of matatus accessing the CBD, both of which were proposals from both the former Transport CS Kamau and the former Governor, Evans Kidero. One of the MOA officials mentioned the Bus Rapid Transit (BRT) as a past, failed initiative. The reasoning behind it is that it hit a snag, thus no progress has been made.

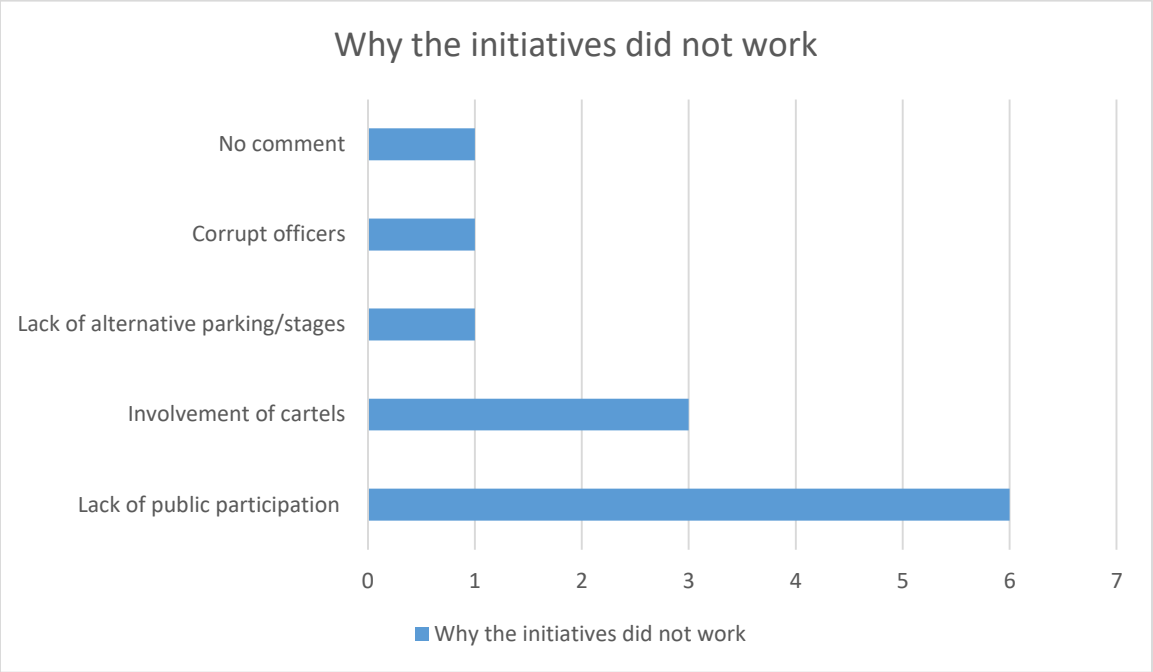

Figure 4. 3: *Why the initiatives did not work*

Source: *Author*

According to figure 4.3, six of the MOA SACCO officials identified lack of public participation with the stakeholders (MOA and commuters) is the major reason why the past initiatives failed. Three of the officials also mentioned the involvement of cartels within the enforcement

authority/government to a point of hindering progress in implementation of CBD decongestion initiatives. Lack of alternative/stages and corrupt officers were mentioned by one official each as reasons for the failure of the past initiatives. Lastly, one out of the nine officials had no comment on the matter.

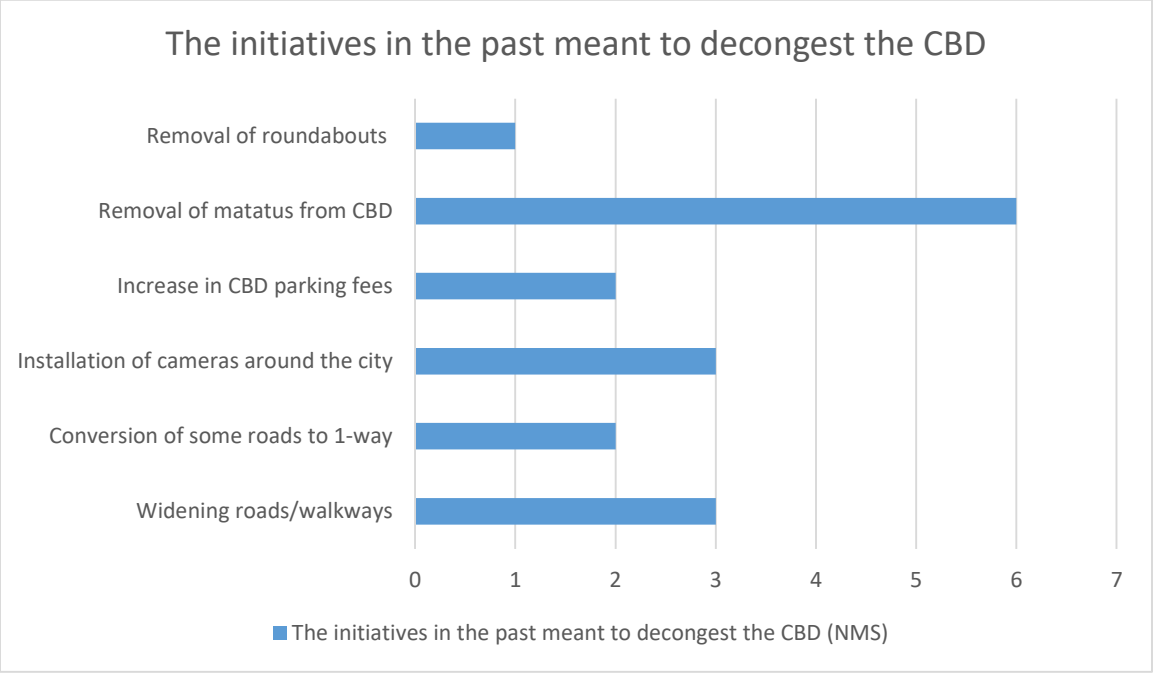

Figure 4. 4: *The initiatives in the past meant to decongest the CBD (NMS)*

Source: *Author*

According to figure 4.4, all of the NMS planners involved in the study were of the idea of removal of matatus from the CBD as the main CBD traffic decongestion initiative that failed. Three of the planners shared that widening roads/walkways within the CBD has been done in the past to reduce traffic congestion. Installation of cameras around the city, as mentioned by three planners, was done by the National Government as a traffic control initiative. Increase in CBD parking fees and conversion of some roads to 1-way have been done in the past as a way of decongesting the CBD to discourage use of private vehicles in the CBD and to decrease congestion in the CBD. The

removal of roundabouts was mentioned as a proposal that has been made in the past as a CBD traffic decongestion initiative.

The reasons given for these past initiatives failing to decongest the CBD are because they have been considered to be short-term solutions for decongestion, awaiting the medium-term and long-term solutions for them to work in unison for the wholesome realization of decongestion within the CBD.

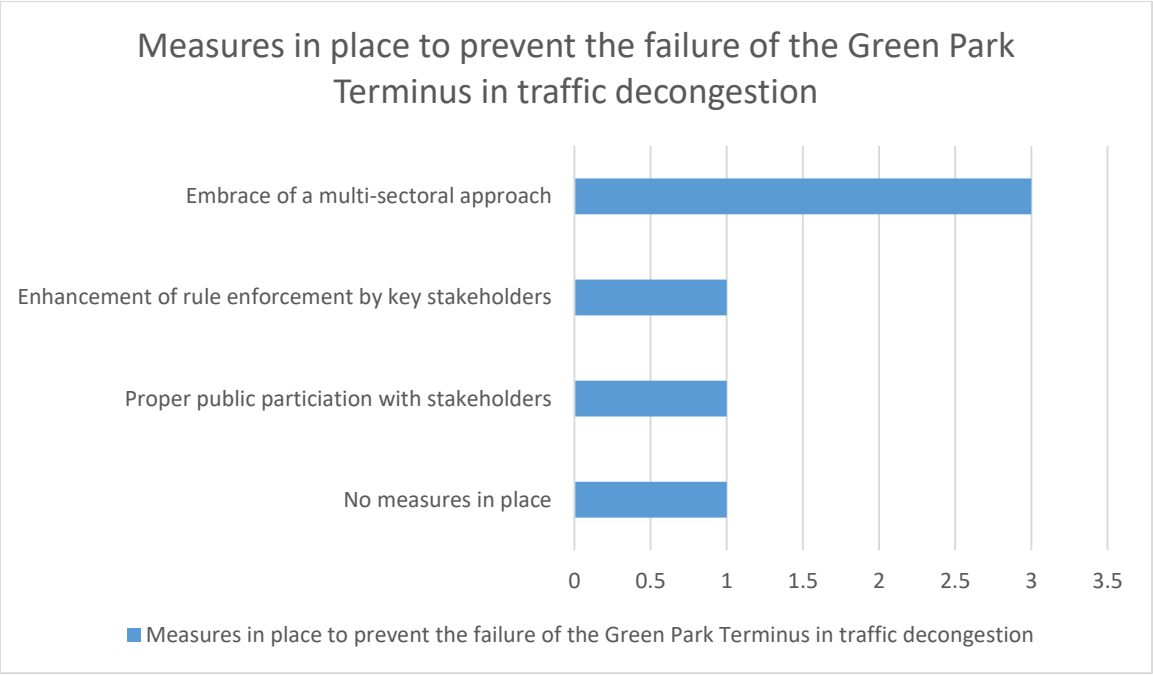

Figure 4. 5: *Measures in place to prevent the failure of the Green Park Terminus*

Source: *Author*

According to figure 4.5, three out of the six planners were of the idea that the government is looking to embrace a multi-sectorial approach to sort out traffic congestion within the CBD. The explanation given in this case has to do with the implementation of short-term, medium-term and long-term solutions, and then having them work together since they are all interconnected. One

out of the three planners mentioned the five proposed termini (Green Park Terminus, Desai and Park Road Terminus, Muthurwa Terminus, Bunyala and Workshop Road junction Terminus, and Fig Tree Terminus) as a measure. He further mentioned diametric routing (use of cross-town routes) through use of Mass Rapid Transit in the long-term, as an intervention proposed where the initiative brings in Kenya Railways to improve efficiency of transportation within the CBD and extending to the Nairobi Metropolitan area. This way, there will be interconnections to the main routes in the city and created connections for upcountry matatus/vehicles. One of the six planners mentioned the enhancement in the enforcement of rules by key stakeholders as a measure to ensure the users of the terminus limit its use to the initial plan. One other planner mentioned proper public participation and consultation with industry players and planning professionals as a measure in place to prevent the failure of the terminus. Lastly, one planner mentioned that the government had no measures in place to prevent the failure of the Green Park Terminus in traffic decongestion within the CBD.

4.2.3 Challenges facing the pre-implementation process

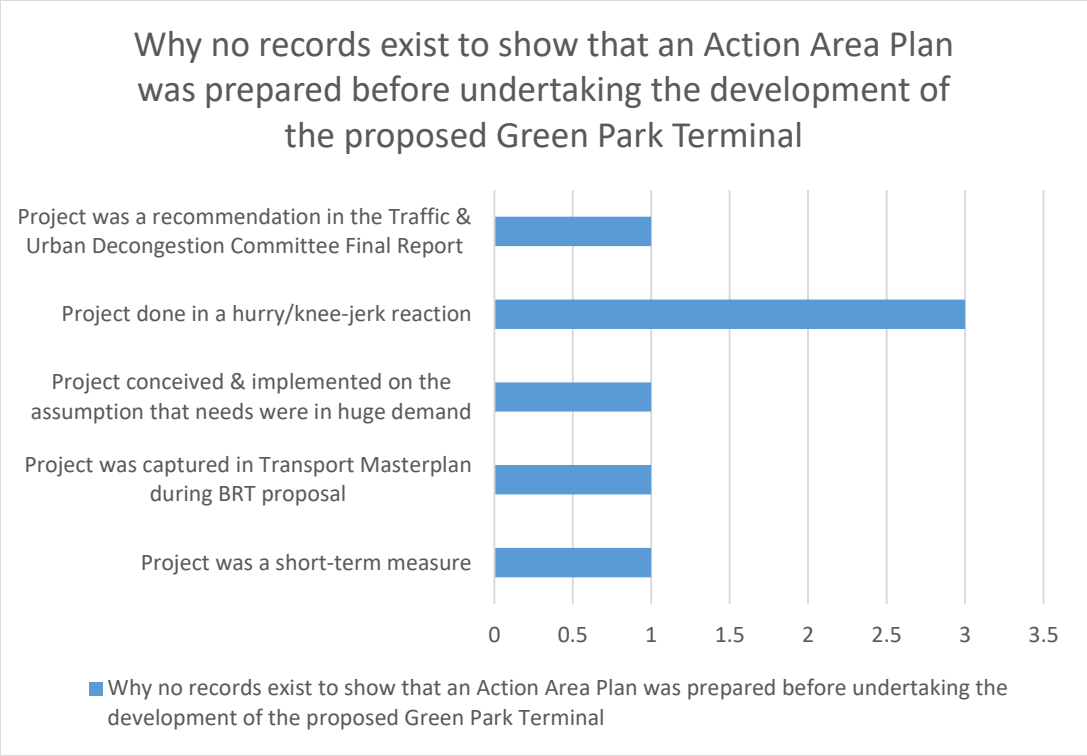

Figure 4. 6: *Why no records exist to show that an Action Area Plan was prepared before undertaking the development of the proposed Green Park Terminus*
Source: *Author*

According to figure 4.6 above, three of the NMS planners mentioned that the Green Park Terminus project was done in a hurry. Two of the three planners mentioned that once it was established that the previous Lunar Park land was available for purchase, the National Government (the office of the former President, Uhuru Kenyatta) called for the NMS to implement the project. The project can be said to have been hurriedly implemented since the normal procedure for public projects was not followed. To give this further context, one of the planners mentioned that as a result, no public participation was conducted, explaining that this is the reason why the project might not work.

Another planner mentioned that there lacked an Action Area plan since the project was mentioned as a recommendation in the Transport and Urban Decongestion Committee Final Report (October,

2014). However, this document is only available in the hard copy and can only be acquired from the County Government (formerly NMS) transport planning offices. He further shared that there had been several recommendations to construct a terminus on the western side of the CBD as detailed in the 2014 report.

One other NMS planner shared that the project was conceived and implemented on an assumption that the needs were already in huge demand.

Another planner mentioned that the lack of an Action Area plan could be attributed to the project being a short-term measure of decongestion and that it was captured in the Transport Master plan during the BRT proposal by the government. The project is meant to fill in current gaps which will then be readjusted in future to serve the growing population needs.

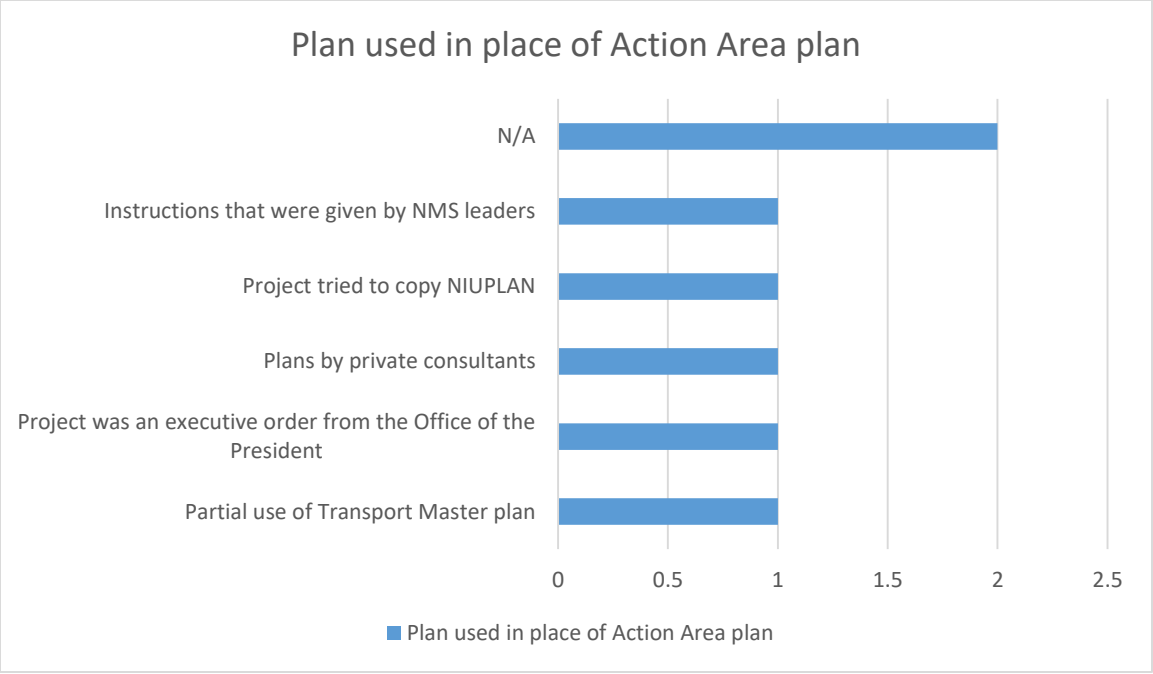

Figure 4. 7: *Plan used in place of the Action Area Plan*

Source: *Author*

According to figure 4.7 above, the NMS planner who had mentioned the project being captured in the Transport Master plan, further mentioned that the Transport Master plan was partially used. On top of this, he mentioned that the project was an executive order from the Office of the former President, Uhuru Kenyatta, thus needed to be implemented without question.

On the conception and implementation of the project on the assumption that the commuter needs were in huge demand, the planner shared that the NMS internally consulted among the various Nairobi City County departments and then implemented the project. It was based on plans by private consultants.

One of the planners who mentioned the hurried development of the Green Park Terminus, shared that just instructions that were given by the NMS leaders were the "plans" used in the project. The other planner who held similar sentiments mentioned that the plan used in the project tried to copy the Nairobi Integrated Urban Development Master Plan (NIUPLAN) which proposed having bus stops/parking outside the CBD. Lastly, two of the NMS planners made no comments on the plan that was used instead of an Action Area Plan.

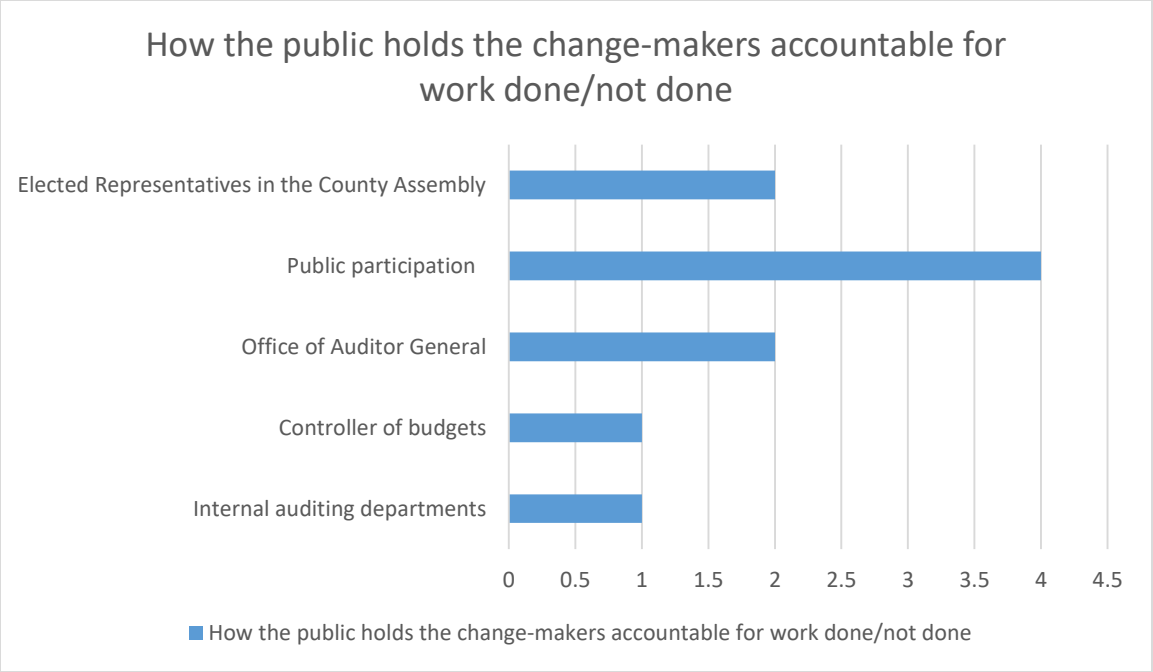

Figure 4. 8: *How the public holds change-makers accountable for work done/not done*

Source: *Author*

From the figure 4.8 above, the field study shows that there are various ways that the public holds change-makers accountable for work done or not done. Four of the six planners indicated that public participation is the most significant way of holding them accountable. One of the four mentions as per the Constitution and in real sense, the public should demonstrate against projects such as the Green Park Terminus, seeing that the project was done in a hurry and with no public participation.

Another way mentioned by two planners is through the elected representatives in the County Assembly. According to Article 185(4) (a & b) of the Constitution of Kenya (2010) (Kenya, 2013), "A county assembly may receive and approve plans and policies for-

a. the management and exploitation of the county's resources; and

b. the development and management of its infrastructure and institutions."

In this regard, the County Assembly is responsible for representing the needs of the public. As a result, the public gets to hold the change-makers accountable through the means of the County Assembly.

Two of the NMS planners also mentioned the Office of the Auditor General as a means through which the public can hold accountable their change-makers. One of the planners mentioned that the Auditor General would require that the planners/engineers take everything into account while also including the public in decision making, which is where public participation comes in.

The other means that came up through one of the NMS planners were accountability through internal auditing departments at the government offices and the Controller of budgets. The last planner provided no comment on the matter.

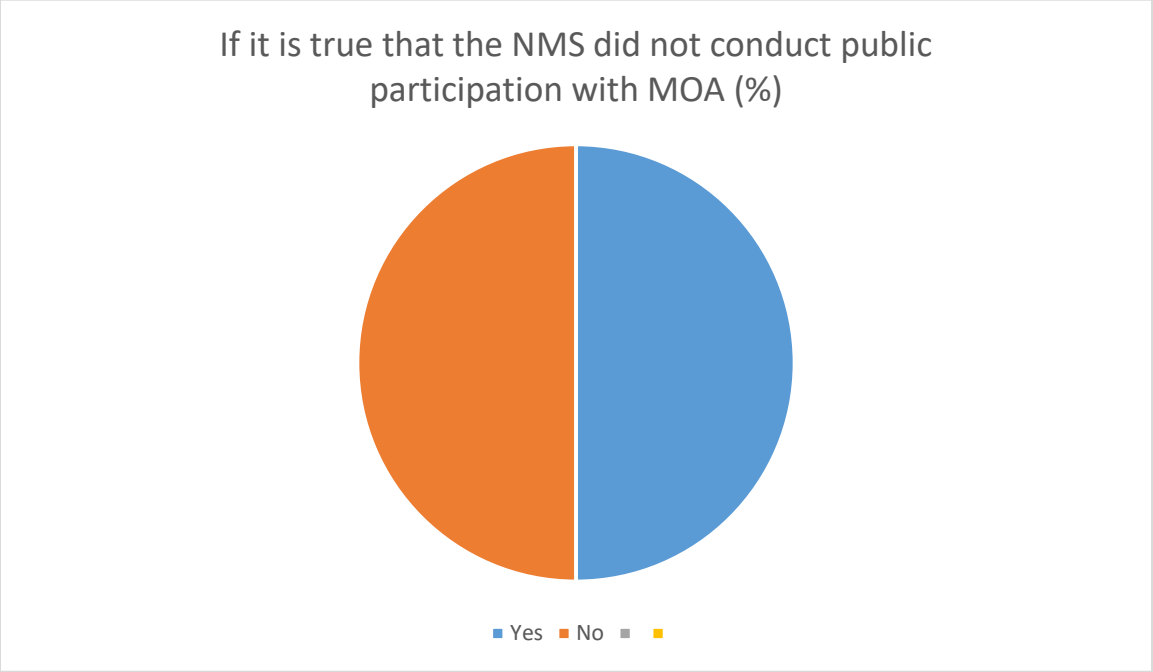

Figure 4. 9: *If it is true that the NMS did not conduct public participation with the MOA*

Source: *Author*

According to figure 4.9 above, 50% of the NMS planners agree that no public participation with the MOA was conducted by the NMS while 50% of them disagree with this statement. To explain their stand, one of those who agreed with the statement mentioned that since public participation is no secret, if it was done, then Nairobians would have known and would have been involved in the process. Another one in agreement mentioned that NMS was working on the assumption that it was conducting its operations from a point of public interest. The NMS, therefore, did not engage with the public. Another planner in agreement mentioned that the test-runs showed that Green Park was not accommodative to the number of matatus. He also mentioned that the spillover effect of traffic resulted from the implementation. In essence, he mentioned this as a way to show that the public was not involved in the decision making of the terminus.

As for the 50% who disagreed with the statement, one of them plainly mentioned that public participation was done. Another mentioned that several meetings were held at the current bus stations and that most improvements were suggested by matatu operators. The other planner in disagreement mentioned that the Matatu Owners Association was not involved in land acquisition, but was involved in several meetings during the construction phase.

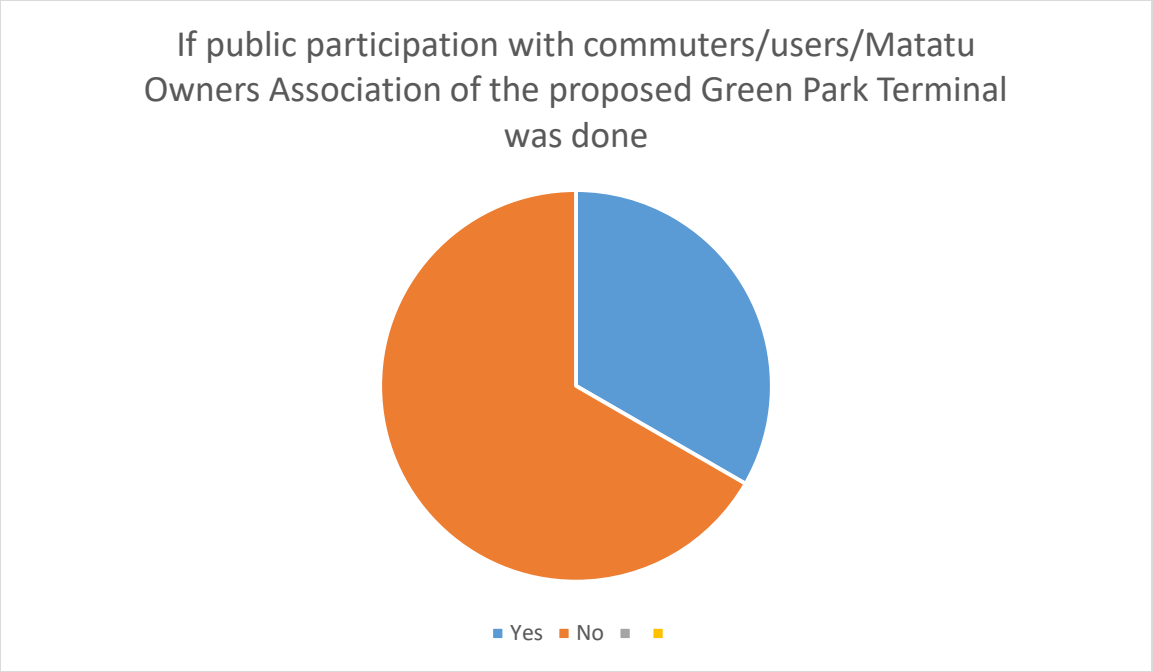

Figure 4. 10: *If public participation with commuters/users/Matatu Owners Association of the proposed Green Park Terminal was done*

Source: *Author*

According to the figure 4.10 above, 33% of the NMS planners agreed that public participation with commuters and MOA of the proposed Green Park Terminus was done while 67% disagreed with the public participation being done. One of the planners that disagreed mentioned that the project was in-house, but it should have been done through the NMS Office of Public Communications. Those who disagreed went on to share that since it was not done, no records exist and as a result, no issues could have been raised without public participation, thus providing no opportunity for raised issues to be tackled.

One of those who agreed with public participation being done mentioned that public participation with PSV operators was done. On the records that exist to show this, they mentioned that there were minutes from the public participation meetings in existence, but the issue remains that the

meetings were not made public knowledge. As a result, they mentioned the following issues that were raised during the public participation process:

i. Whether the park had adequate capacity to accommodate all PSVs/capacity of the terminus
ii. How the circulation of vehicles will happen without causing congestion
iii. How allocation of spaces will be done
iv. How commuters are going to get to and from the CBD/NMT facilities to CBD
v. How the disabled/elderly will commute to the CBD
vi. Last mile connectivity
vii. PSV companies using Waiyaki Way terminating at the CBD but serving same passenger points with those terminating at Green Park Terminus

One of the planners mentioned that the issues were tackled through:

i. Providing buses to ensure that the elderly/disabled were dropped in the CBD
ii. Circulation into and out of the terminus was improved
iii. Walkways were done and expanded

Another planner mentioned that most of the issues raised were dealt with, while others were to be done when the terminus was in operation.

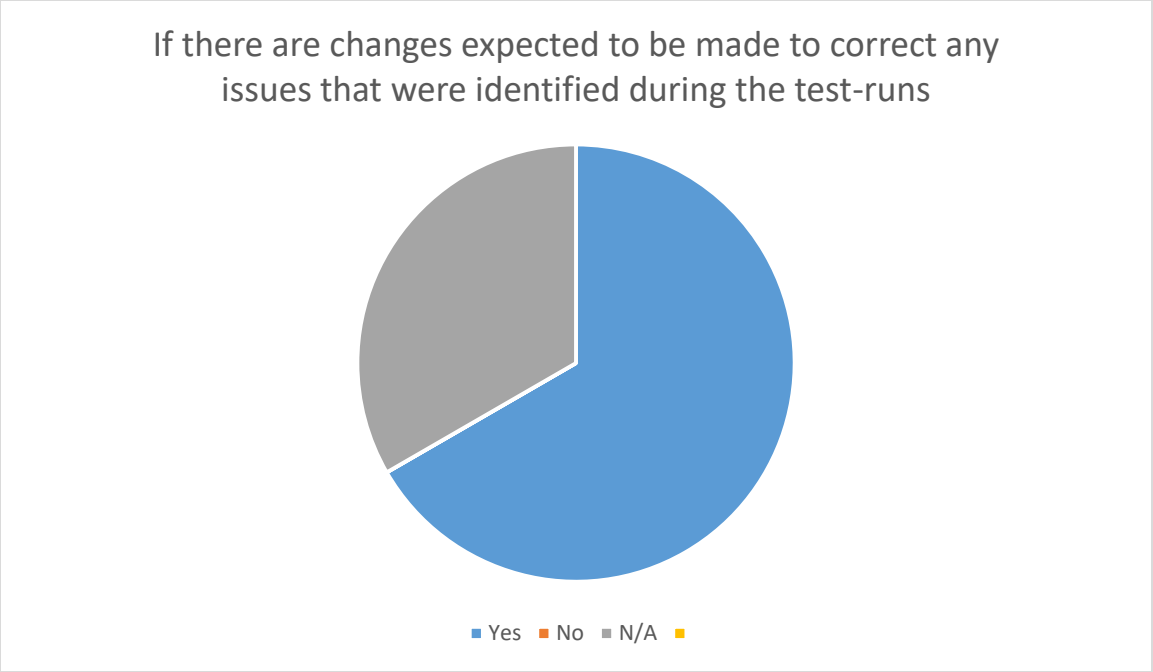

Figure 4. 11: *If there are any changes expected to be made to correct any issues that were identified during the test-runs*

Source: *Author*

According to figure 4.11 above, 67% of the NMS planners agreed that there are changes expected to be made to the proposed Green Park Terminus following the test-runs that were conducted, while 33% were unaware of any expected changes. Among the 67%, one mentioned that there were very many changes expected if the terminus was to work. The changes mentioned are:

i. The routes to be served by the terminus are expected to be changed
ii. Change to the user information
iii. Capacity adjustment involvement of all the stakeholders and allowing them to give their input on the proposed terminus
iv. Kenya Urban Roads Authority (KURA) plans on building an underpass for pedestrians across Uhuru Highway for efficiency of functionality to be realized

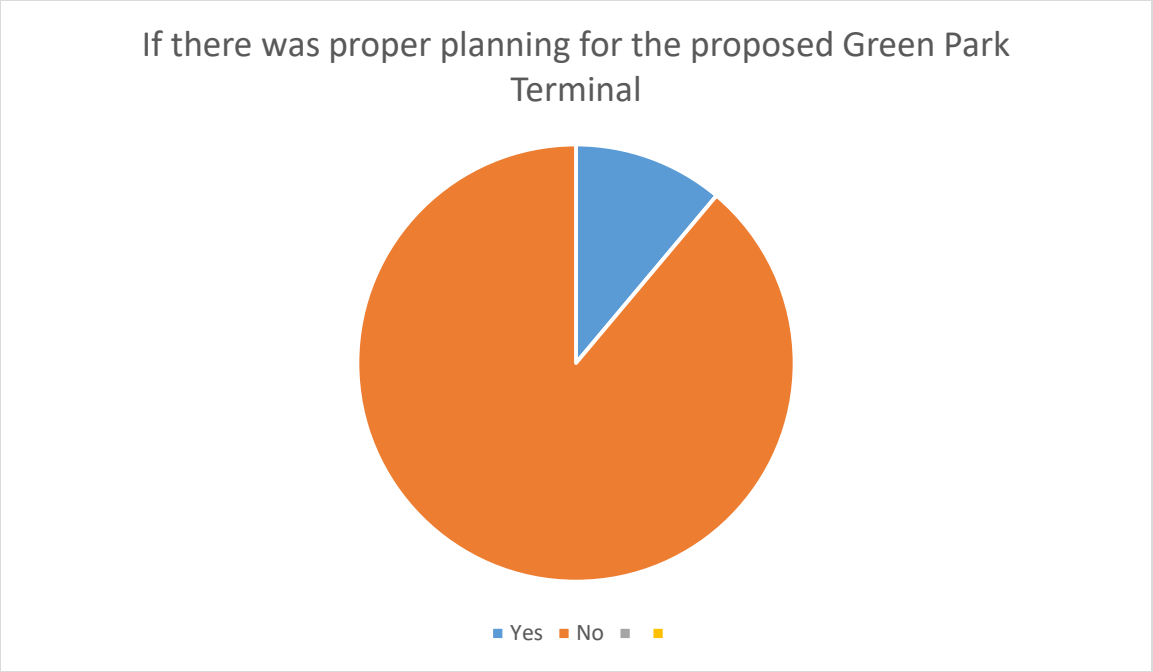

Figure 4. 12: *If there was proper planning for the proposed Green Park Terminal*

Source: *Author*

According to figure 4.12 above, 11% of the MOA officials believed that there was proper planning for the proposed Green Park Terminus while 89% of them thought otherwise. To explain their thoughts, the MOA official that agreed with proper planning thought that the terminus is a good option for the decongestion of the Nairobi CBD. Two of the officials that constituted the 89% that disagreed believed that lack of public participation or the public participation not being done well was the reason behind poor planning. Three others from the 89% believed that the government only utilized limited space for the terminus and one even recommended the utilization of half of the Uhuru Park space for the terminus. One other official disagreed with proper planning of the terminus owing to the entry and exits being wrong while passenger access was not viable, therefore, presenting a security risk for them. The other two officials had no comment on the matter.

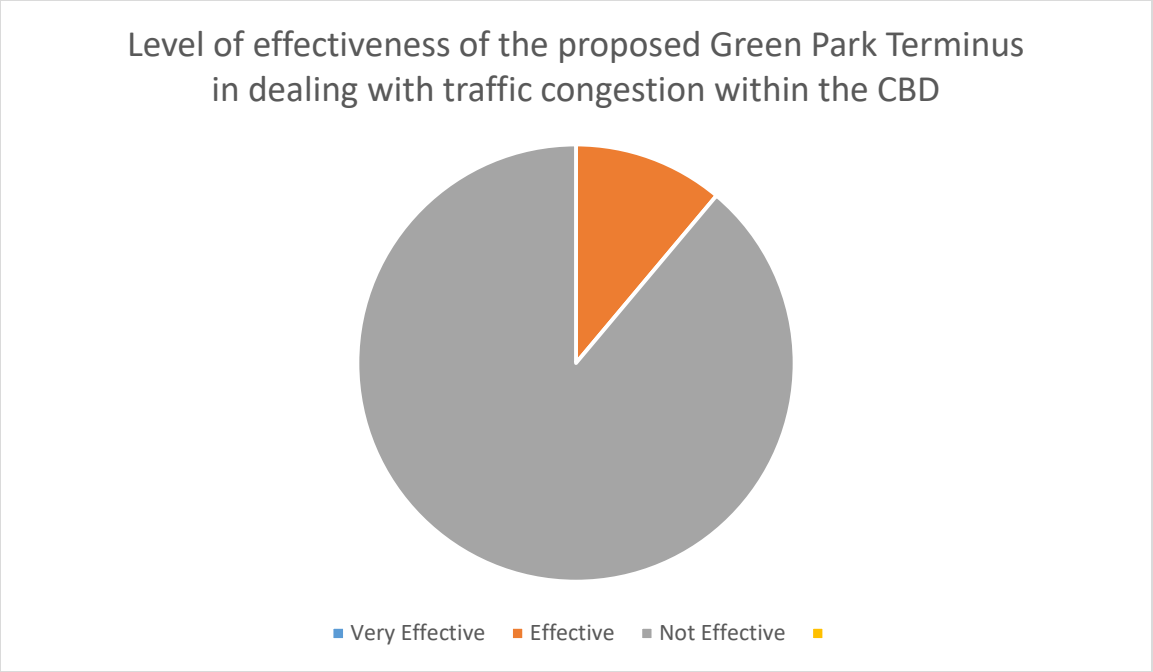

Figure 4. 13: *Level of effectiveness of the proposed Green Park Terminus in dealing with traffic congestion within the CBD*

Source: *Author*

According to figure 4.13 above, 11% of the MOA officials believed that the proposed Green Park Terminus will be effective in dealing with traffic congestion within the CBD, while 89% believed that it is not an effective solution to the congestion menace in the CBD. The agreeing MOA official believes that the terminus will help decongest the CBD. What stands out among the 89% is that the terminus is too small to hold all the matatus that the terminus seeks to serve, especially since it will be serving many routes. These routes are: Langata road, Ngong Road, Argwings Kodhek road to Kikuyu, Ngong, Kawangware, Dagoretti, Kibera, Highrise, Ngumo, Rongai, Kiserian, Otiende, Langata, Madaraka and Nairobi West (JICA, 2016). This, therefore, means that there are more matatus in the said routes than the proposed terminus can hold. One among the 89% mentioned that this is the case because the NMS, as the responsible authority, did not do a study

on the matatus operating in the area, thus along the routes. Another also mentioned that there is inadequacy in the entry and exit points of the proposed terminus. One of the officials also mentioned that being a matatu owner that operates from the Umoja area to the CBD, he knows where the shoe pinches. The reasoning of the last official was that with proper location of CBD stages by the County Government, there is a possibility of relieving traffic congestion within the CBD. This will especially help to eliminate the greed by those who allot stage spaces from the engineering department.

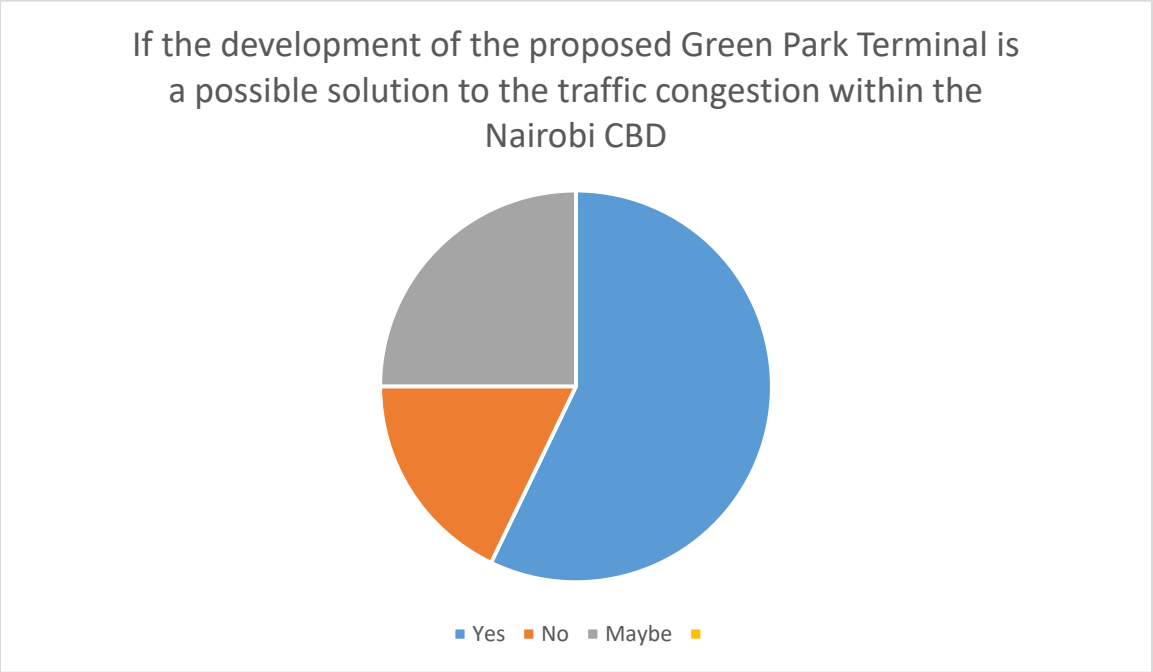

Figure 4. 14: *If the development of the proposed Green Park Terminal is a possible solution to the traffic congestion within the Nairobi CBD*

Source: *Author*

According to figure 4.14 above, 57.1% of the commuters agreed that the proposed development of the Green Park Terminus will be a possible solution to traffic congestion in the CBD, 17.9%

disagreed with the possibility of the proposed terminus solving the congestion issue, while 25% thought that maybe the terminus will solve the congestion issue.

Those who agreed with the development of the terminus provide various reasons, summarized below:

i. Apportioning public vehicles a terminal is a step towards decongestion since the weight tilts to one side of the town, the terminal side.
ii. The move will restrict matatus to the outskirts of the CBD
iii. Improvement of traffic flow and ease of movement through a proper project design, thus decongesting the CBD
iv. Consideration of the terminus as a parking space for private vehicles
v. Achievement of orderliness
vi. Centralized location for all commuters

As for the 17.9% of commuters that disagreed with the possibility of the terminus decongesting the CBD, their responses can be summarized as follows:

i. Poor location
ii. More traffic congestion expected from the area of development due to a large number of PSVs with a limited space to work with
iii. Increase in the use of private cars in the CBD as the terminus is not at close proximity and with poor NMT infrastructure, access to the station will discourage use of public transport
iv. Its functionality will improve when a commuter system accompanies the terminus

The view of the 25% of commuters who thought that maybe the development of the proposed terminus would decongest the CBD can be summarized below:

i. Other measures still need to be put in place to tackle traffic

ii. The terminus might decongest the CBD, but only for one or two chosen routes while providing for a fast way for the commuters to be ferried to the CBD

iii. It can work if commuters are provided with transportation to other stations from the terminus

iv. The terminal will help alleviate congestion but this will encourage more private drivers to access the CBD. However, congestion will not cease completely.

v. Its ability to decongest the CBD is dependent on execution

vi. The purchase of private vehicles will still remain an obstacle to decongestion of the CBD

vii. Unsure of the possibility of the terminus to decongest

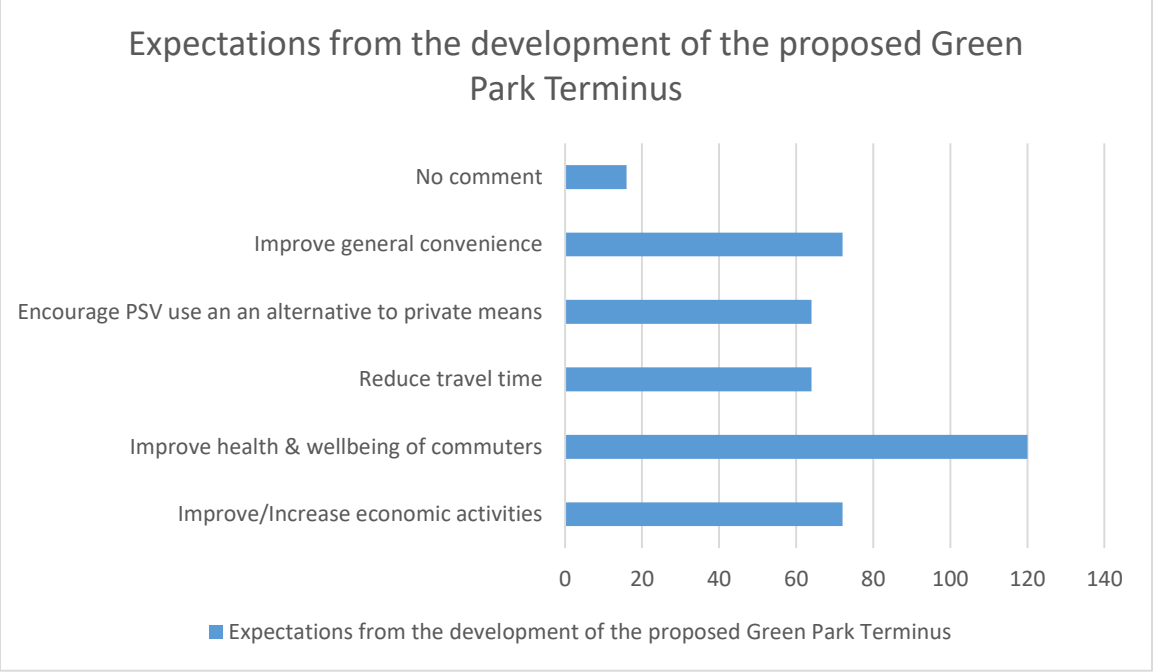

Figure 4. 15: *Expectations from the development of the proposed Green Park Terminus*

Source: *Author*

According to figure 4.15 above, 72 commuters out of the 224 that responded believe that the proposed Green Park Terminus will improve and/or increase economic activities within the CBD following decongestion. 120 of them believe that it will improve the health and wellbeing of commuters since most of the commuters, if not all, will need to walk from the Green Park Terminus to their destination or their connecting bus station. 64 of them believe that through CBD decongestion, the terminus will reduce travel time, with a similar number believing that the terminus will encourage the use of PSVs as an alternative to private vehicles. Improvement of convenience, generally is the expectation of 72 of the 224 commuters regarding the terminus. Lastly, 16 of the participants did not respond to this question.

Various reasons were given by the respondents for the choices above, as summarized below:

i. Less congestion will result in ease of movement with minimized noise pollution
ii. Promotion of healthy business transactions
iii. Travel time reduction is impossible due to having to walk from terminus to other areas
iv. Increase in government revenue through taxation
v. Little or no time spent in traffic
vi. Enhanced orderliness resulting in increased efficiency, thus increased economic output and increased use of PSVs
vii. Nairobi will be a healthy, walking town thus improving the quality of life
viii. The terminus will shorten the travel to work for some commuters
ix. The terminus is strategically located
x. Encouragement of PSVs if prices are controlled
xi. The terminus will boost security because of access by a lot of users
xii. Improvement in convenience

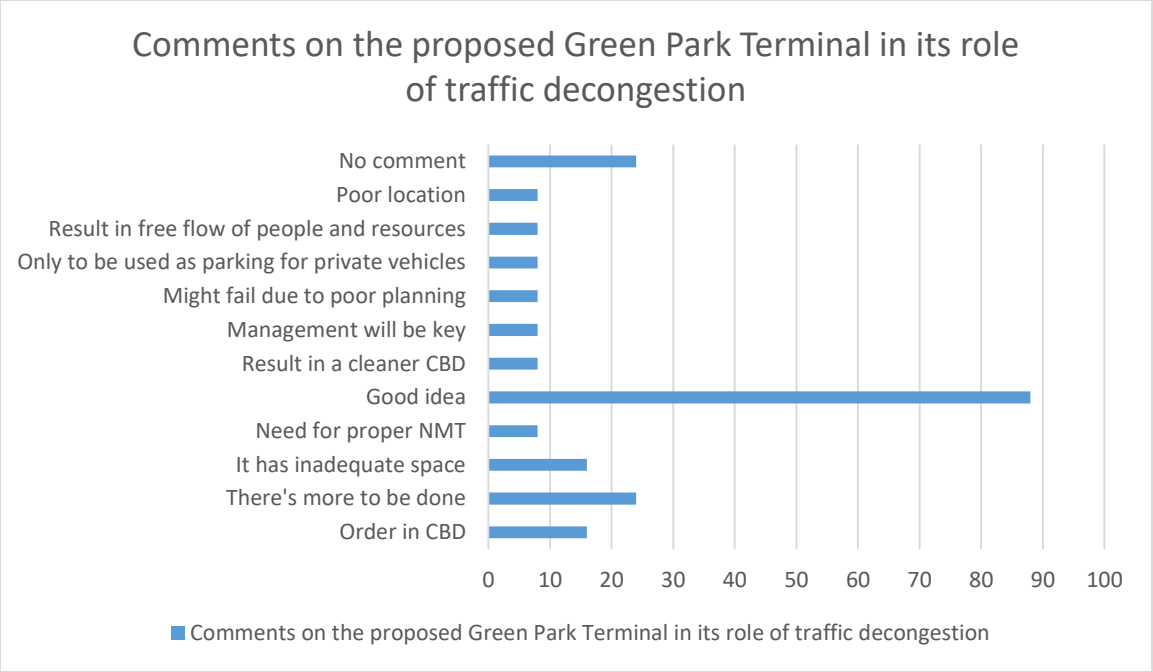

Figure 4. 16: *Comments on the proposed Green Park Terminus in its role of traffic decongestion*

Source: *Author*

From figure 4.16 above, 88 of the commuters considered proposed Green Park Terminus a good idea. However, the reasons in line with being a good option can be summarized as follows:

i. Shifting the matatus from their current location will decongest the CBD
ii. Space is inadequate
iii. Need for consideration of movement of people living with disabilities
iv. It has its pros and cons
v. Measures need to be taken into consideration
vi. It is ambitious and incomplete, but with room for improvement
vii. Needs to be properly planned, designed and executed
viii. It was well thought-out, thus a step forward

24 of the commuters commented that more needed to be done. In line with this, the routes should be reduced to one or two for maximum efficiency, more needs to be done to see its effect on traffic movement, and it has to be a multi-sectorial approach to work effectively in decongesting. Others commented that the terminus is poorly located, thus ineffective in dealing with congestion. The terminus will bring order to the CBD due to doing away with the matatu menace according to 16 of the commuters. The current space is inadequate to hold all the matatus plying the various routes it serves as per the comments of 16 of the respondents. According to eight of the commuters, there is need to develop decent and pedestrian friendly walkways that will serve them by encouraging healthy and safe spaces for users. A cleaner and eco-friendly CBD is bound to result from decongestion, thus fostering new and better businesses. According to a few commuters, the project is bound to fail if proper planning and management techniques are not employed, since it would otherwise be just a transfer of traffic. It was mentioned as a recommendation that the terminus should be used as parking for private vehicles while 24 more commuters preferred not to comment.

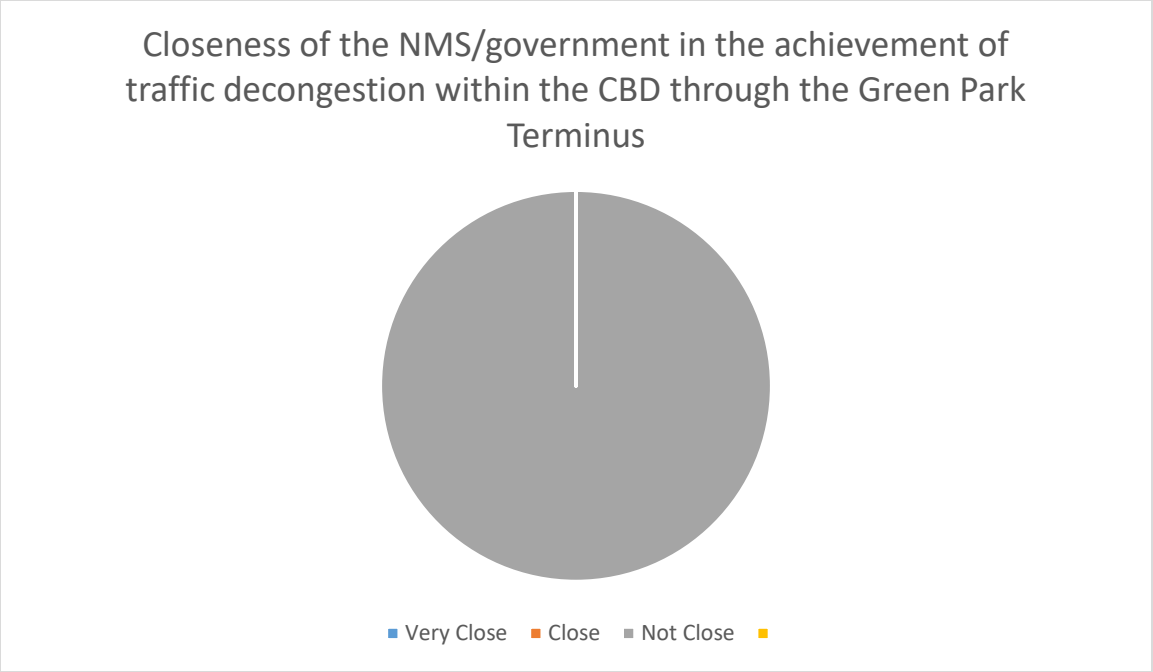

Figure 4. 17: *Closeness of the NMS/government in the achievement of traffic decongestion within the CBD through the Green Park Terminus*

Source: *Author*

According to figure 4.17 above, 100% of the NMS planners believe that the NMS (now County Government of Nairobi) is not close to the achievement of traffic decongestion through the Green Park Terminus. To explain this, one mentions that it will take 2 years for the terminus to help with decongestion. Another planner shares that the county government has made great strides but a lot needs to be done. The third planner mentions that "we have a long way to go" while the fourth mentions that the realization is still far since in isolation, Green Park will not achieve decongestion, rather it will require other interventions in the city for it to be achieved. Lastly, another planner mentions that the Green Park Terminus might not solve the congestion problem.

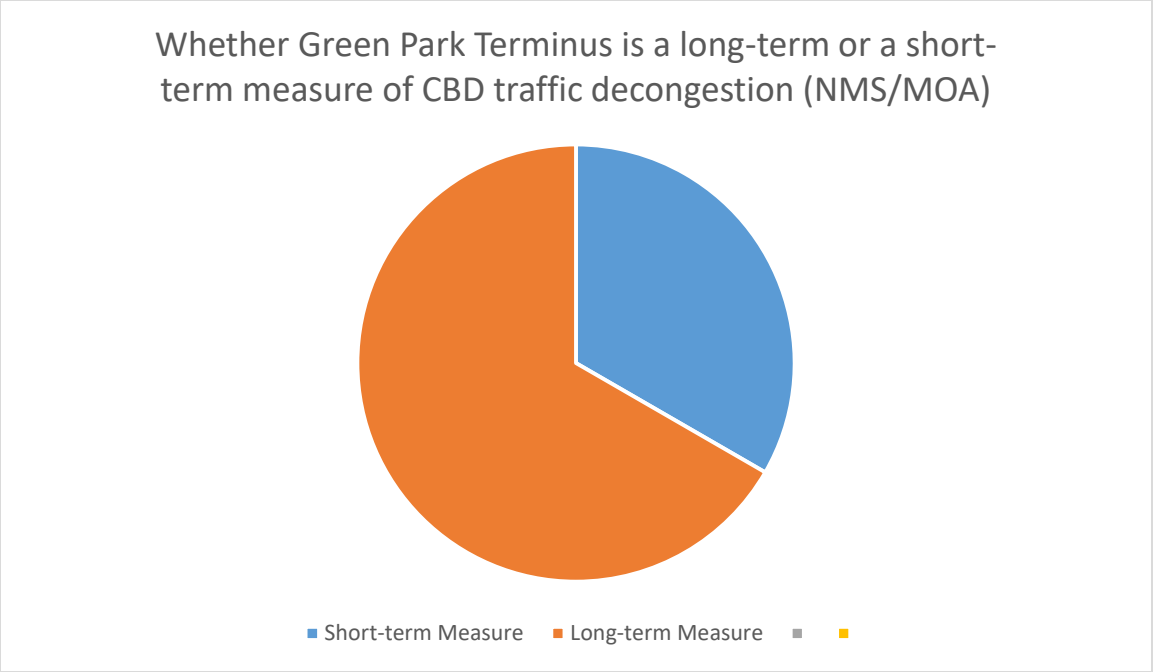

Figure 4. 18: *Whether Green Park Terminus is a long-term or a short-term measure of CBD traffic decongestion (NMS/MOA)*

Source: *Author*

From figure 4.18 above, 33% of the NMS planners mention that the Green Park Terminus is a short-term measure of traffic decongestion while 67% of them share that the terminus is a long-term measure of traffic decongestion. From the 33%, the reasoning is that the terminus will help deal with the current public transport menace, thus the government is planning to implement the Mass Rapid Transit System (MRTS) to deal with decongestion in the long-term. The Green Park Terminus will be part of the MRTS along Haile Selassie Avenue.

As for the 67% of planners, there is the reasoning that the terminus is part of a bigger plan to remove PSVs from the CBD and the current bus termini of Machakos Country Bus and Bus Station are currently overwhelmed. The other NMS planners share that the resources spent on the terminus

are quite enormous, but unfortunately, adequate research was not done hence, it may never work and if the terminus takes effect, it will take a long period for efficient functionality.

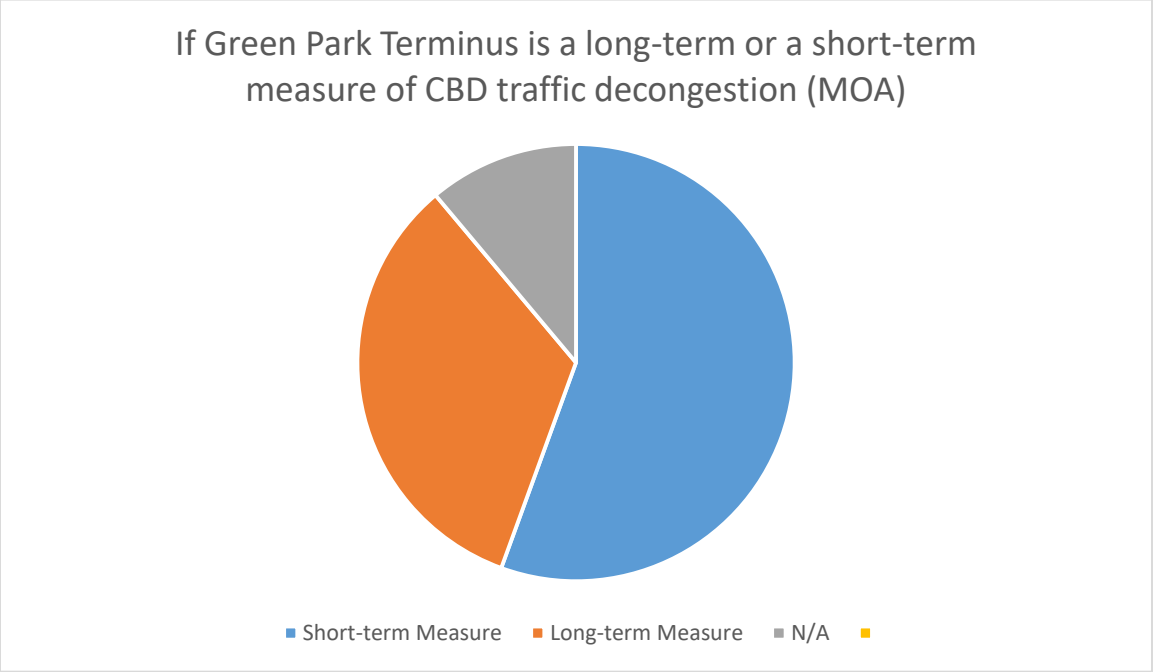

Figure 4. 19: *If Green Park Terminus is a long-term or a short-term measure of CBD traffic decongestion (MOA)*

Source: *Author*

According to figure 4.19 above, 55.6% of the MOA officials consider the Green Park Terminus a short-term measure of decongestion, 33.3% of them consider it a long-term measure, while 11.1% of them consider the terminus neither a short-term nor long-term measure. Among the 55.6%, the reasoning shared is that if no more alternatives are offered, then the terminus remains a short-term measure of decongestion. The 33.3% of officials consider it long-term with proper execution and when effectively utilized without politicizing the project. The 11.1% of officials consider the terminus neither a short-term nor long-term measure of decongestion since the project was not well thought out.

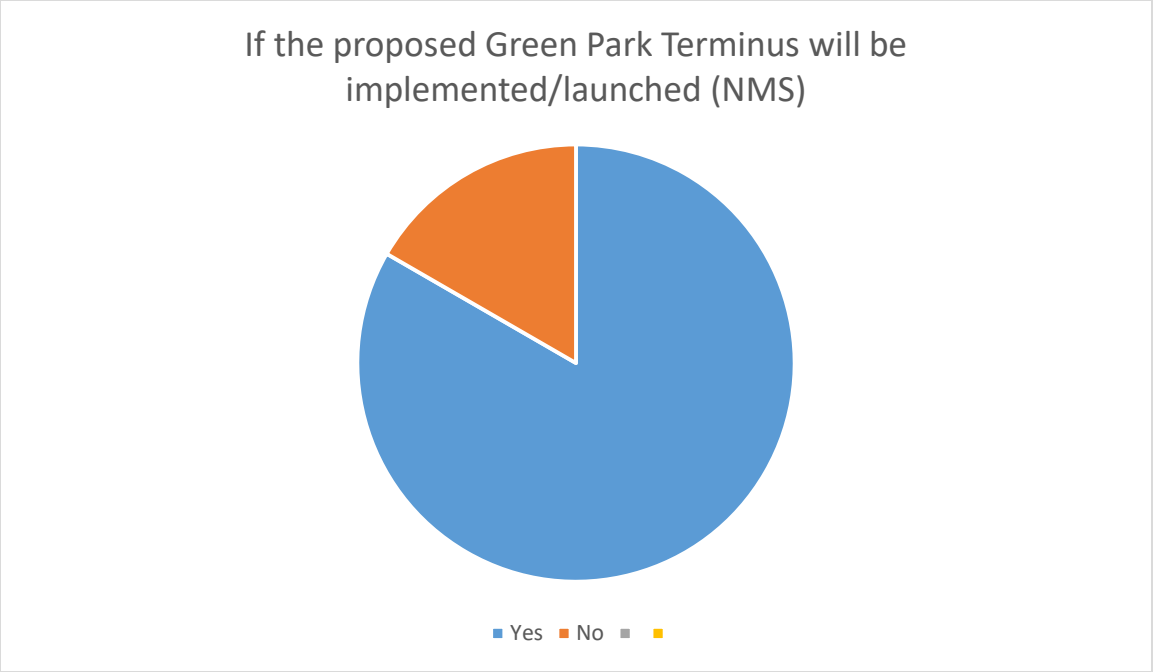

Figure 4. 20: *If the proposed Green Park Terminus will be implemented/launched (NMS)*

Source: *Author*

From figure 4.20 above, 83.3% of the NMS planners believe that the Green Park Terminus will be launched or implemented while 16.7% of them believe that it will not be launched/implemented. One among the officials in the 83.3% group believes implementation will be done once the county government (NMS) settles down following the transitions resulting from the August 9 elections. Other planners believe it will be implemented in 6 months or in a year or less. One of the planners believes that implementation will be done after addressing issues touching on the capacity and routes served by the terminus. A different NMS planner believes that the terminus will be launched, but it is not as functional as it had been envisioned. Furthermore, the planner shares that the Kenya Urban Roads Authority (KURA) has a plan to construct an underpass through Uhuru Highway to allow for pedestrian traffic. The planner goes ahead to share that the implementation might not happen since pedestrians and potential commuters will face a challenge in crossing

Uhuru Highway to access the terminus. To close, 16.7% of the planners believe that implementation of the terminus will not be implemented because it has not been accepted by the stakeholders, hence it might never work. On top of this, the planner shares that for any project to work, the stakeholders must be convinced of its importance.

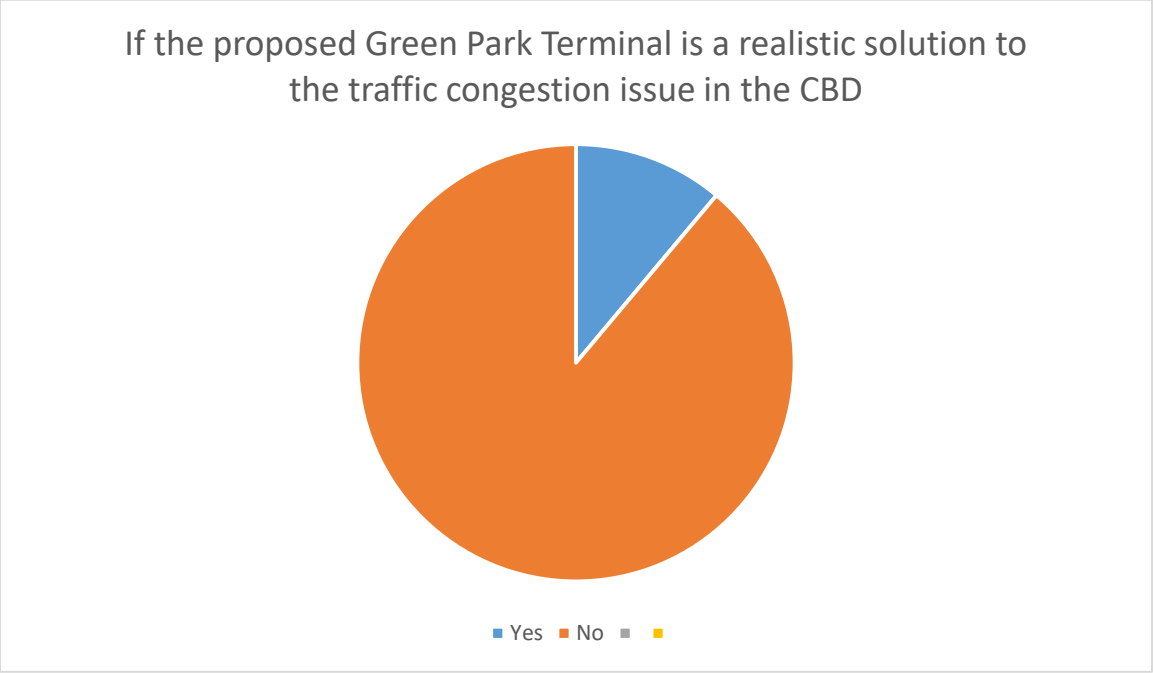

Figure 4. 21: *If the proposed Green Park Terminal is a realistic solution to the traffic congestion issue in the CBD (MOA)*

Source: *Author*

From figure 4.21 above, 11.1% of the MOA officials believe that the Green Park Terminus is a realistic solution to traffic congestion in the CBD while 88.9% of them believe that it is not a realistic solution to traffic congestion within the CBD.

Among the 88.9%, four of the nine MOA officials share that there is limited space and parking to work with, especially considering the many vehicles from the various routes that the terminus is

supposed to serve. One official shares the need for the NMS leadership to have involved the matatu SACCOs as opposed to engaging with companies. It will be an unrealistic solution, according to two MOA officials, because the NMS did not conduct research before kicking off the project, thus failing to inform the same people that are to be served by the terminus. Another official shares that the operators ought to plan their needs themselves as opposed to having the government involved in providing these needs. As for the 11.1% of the officials, no comment was provided to accompany the thought on the terminus being a realistic solution to traffic congestion in the CBD.

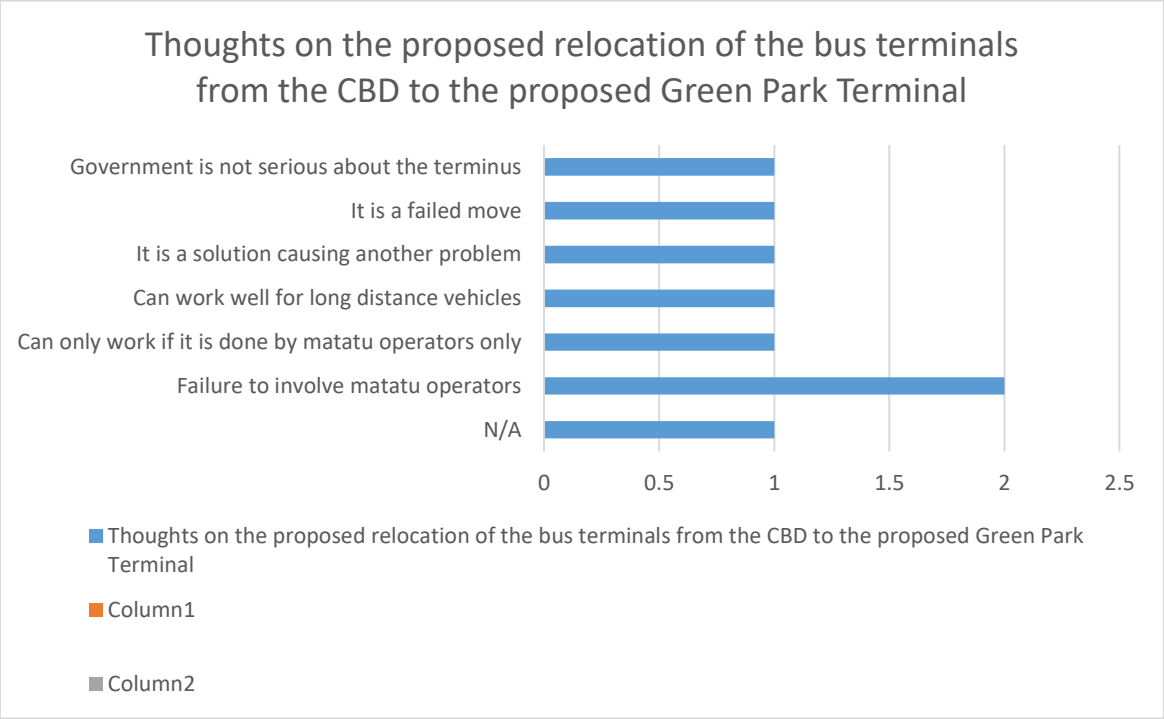

Figure 4. 22: *Thoughts on the proposed relocation of the bus terminals from the CBD to the proposed Green Park Terminal*

Source: *Author*

According to figure 4.22 above, three out of the nine MOA officials hold to the views that there was non-involvement of matatu operators by NMS during the public participation phase for the

Green Park Terminus. One of the three officials shares that from the onset, the NMS and NTSA formed a committee with brokers and not with the operators. The other two mention that it is a good idea and they are in support, however, the NMS did not involve the genuine/real matatus owners. An official mentions that the government, through the NMS, is not serious about the terminus. The terminus has also been considered a failed move. One of the MOA officials views the terminus as part of the solutions causing other problems such as passengers being required to walk long distances including the sick and physically challenged passengers. The terminus may be considered to be a solution if it only done by matatu operators as one official details. Lastly, an official mentions that the terminus can work well for long distance vehicles, especially since the commuters will have readily available information on their daily, CBD service commutes.

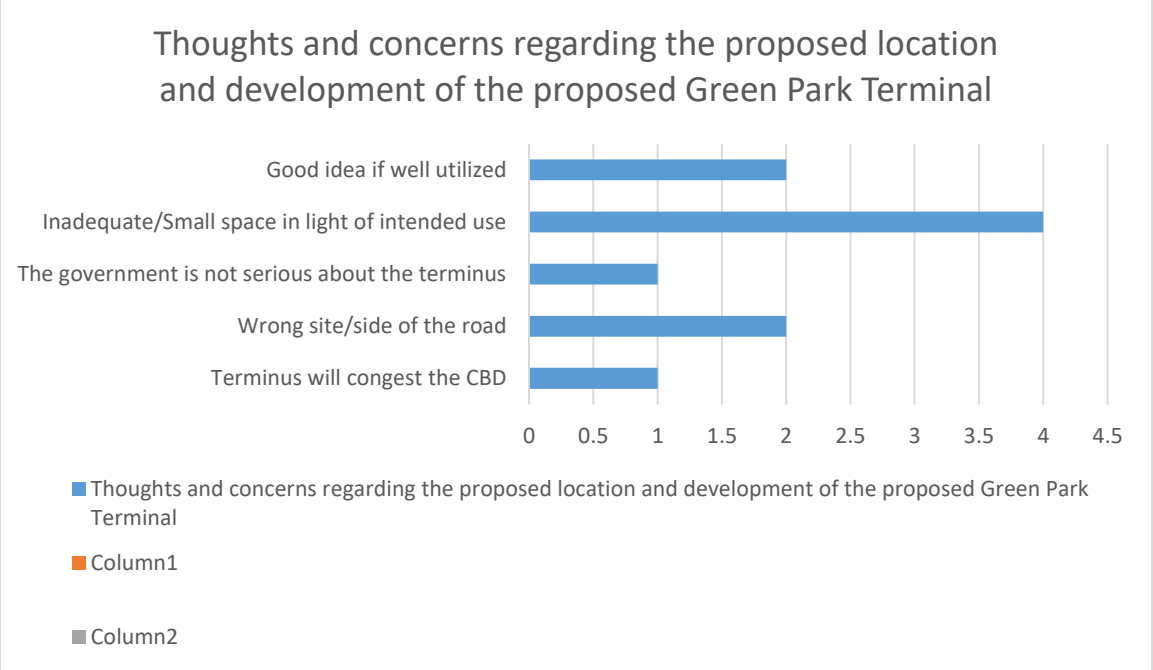

Figure 4. 23: *Thoughts and concerns regarding the proposed location and development of the proposed Green Park Terminal*

Source: *Author*

From figure 4.23 above, four of the nine MOA officials are concerned that the proposed terminus has limited space for the matatus plying the routes that it is supposed to serve. Two of the officials believe that the chosen site for the terminus development is the wrong site and on the wrong side of the road, especially when it comes to accessibility of the terminus by passengers. It might not work, as a result. Another official is concerned that the terminus will only create more traffic towards the CBD while another views the government as not being serious about the terminus. Two other officials view it as a good idea if well utilized while ensuring effective public participation, and that matatus will operate at the terminus without interference.

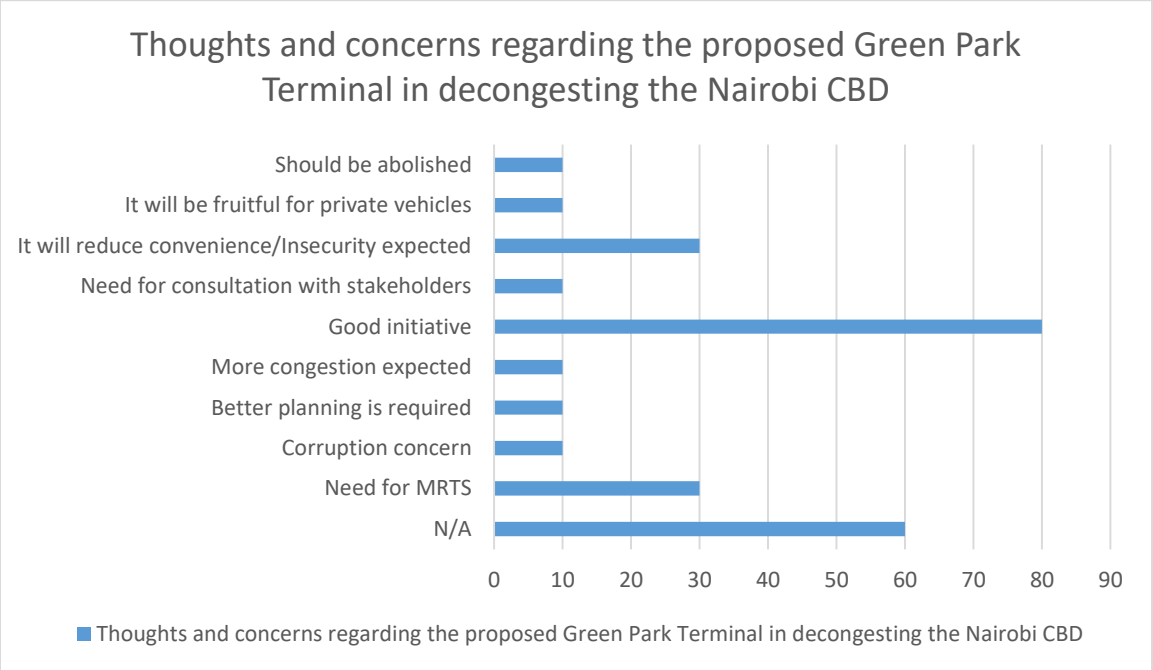

Figure 4. 24: *Thoughts and concerns regarding the proposed Green Park Terminal in decongesting the Nairobi CBD*

Source: *Author*

According to figure 4.24 above, 64 of the commuters view the proposed terminus as a good initiative. However, the reasons vary. It is a good initiative but there are potential issues of security,

convenience, and connectivity; however, other commuters viewed this explanation as the concern itself, thus eliminating the idea of the terminus being a good initiative. Others mentioned that it is a good initiative if Kenyans give it the support it requires, it is a good way to regain Nairobi's lost glory, it will aid in job creation, it might not fully resolve traffic issues, it is insightful, will ease traffic flow into and out of the CBD, and will decongest to a certain extent. 24 of the commuters saw need for the MRTS. The reasons given are more factors will play a role in decongestion, it will encourage PSV use and discourage private car use, and MRTS will cater to people with disabilities as well as those people who prefer not to walk. A significant number of commuters were not sure about the thoughts and concerns that they might have had, had none or preferred not to comment on the matter. A small number of people shared their thoughts on the need to have the project abolished, others considered it a fruitful parking option for private vehicles, and there is need for better planning and feasibility analysis in its effect on commuter revenue and hawker trends. Some commuters thought of it as a concern in the case of needing to deal with corruption upfront, otherwise it will defeat the purpose of the terminal if violators can still bypass it and have their way by bribery. The location of the terminus implies that there will be more traffic at the Haile Selassie roundabout that leads to the CBD, as detailed by eight of the 224 commuters. Another group of eight commuters questioned whether its implementation was properly consulted with stakeholders and if there was approval from them since this is a critical part of the success of the project.

According to the MOA officials, there are various options that can be considered as alternative decongestion measures for Nairobi CBD. One of the nine officials mentioned the need to have every SACCO apportioned a slot and equal distribution of vehicles per slot per SACCO. Another official proposed the county government to conduct a public participation exercise on the terminus

matter and alternative options will be proposed. Yet another official was for the idea that all private vehicles be banned from the CBD while ensuring that more stages are acquired for the alternative expansion of spaces, thus taking care of all stakeholders. The introduction of high capacity buses after the improvement of the road network came up as another alternative measure. One of the officials proposed the need for traffic to flow freely within the CBD without the interference of the police since it is done deliberately as a moneymaking venture for them through extortion of matatu operators. Involving the operators in every plan is a good place to start since it will make things easier, with all parties represented as one official shared. Lastly, another official proposed that the county government invest in land even if it means bringing down a story building to make way for a parking spot for matatus as they await their turn to ferry passengers to various destinations.

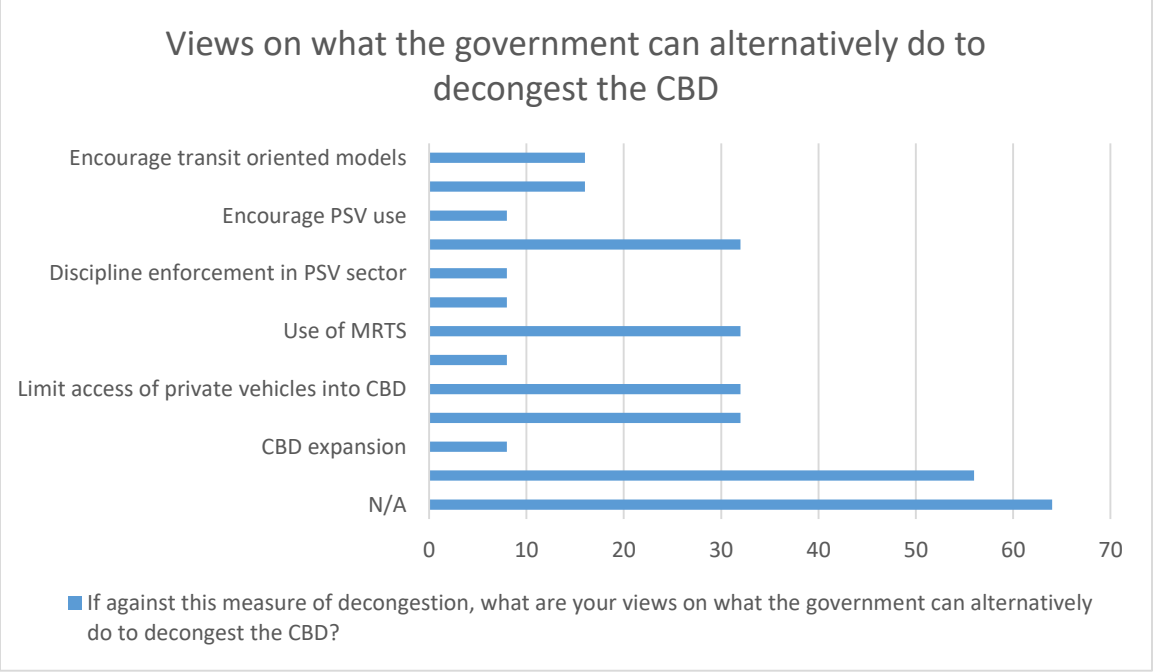

Figure 4. 25: *Views on what the government can alternatively do to decongest the CBD*

Source: *Author*

From figure 4.25 above, commuters gave a number of views on alternative decongestion measures. With a representative of eight for some measures; the commuters shared need for expanding the CBD to reduce congestion; use the proposed Green Park Terminus for parking private vehicles; and upgrading the PSV experience through orderliness, safety, affordability, and reliability. Other views include enforcing discipline in the PSV sector and encouraging the use of PSVs within the CBD and its outskirts. As for the groups of 16 that provided their views, the respondents suggested increase in parking fees within the CBD to discourage private cars from accessing the CBD. In line with this is the suggestion by 32 out of 224 to restrict the access of private vehicles into the CBD. Others within this bracket of responses suggested limiting the access of PSVs into the CBD. In this case, some were of the idea that matatus only be allowed to pick up and drop off passengers within the CBD at designated places, thus leaving no opportunity for stalling. The use of MRTS was widely suggested by 32 commuters, which are clean and effective, while running along the key corridors of the city; providing interconnected BRT systems, rail and tramline systems and optimizing pedestrian walkability within the CBD, and encouragement of use of Mass Rapid Transit buses within the CBD. On the rail network, 56 commuters suggested this as an alternative measure. Their suggestions were pegged on reviving the rail network and developing the network in constituencies thus interconnected rail networks, increasing accessibility to the rail system and providing incentives, and developing a rail network to support the CBD. Another suggestion made by a fairly sized group of 32 commuters was the need to improve the road design to accommodate cycling through a safer means encouraging consideration of alternative transportation options, especially from the terminus to work and back. This then calls for the development of non-motorized transport infrastructure while also lighting up the streets for security purposes. A small number of commuters suggested encouraging the use of transit oriented development models that

encourage working within residential areas to discourage travel to CBD. Lastly, a significant number of commuters, 64, preferred not to comment on the matter.

4.4 Summary

To summarize, the data analysis, presentation, and interpretation section was effectively used in answering the specific objectives of the research. They include evaluating the past Nairobi CBD traffic decongestion initiatives, assessing the challenges facing the pre-implementation process of the Green Park Terminus, and establishing whether or not the Green Park Terminus will solve congestion in the CBD. The data was collected through interviews conducted through the use of semi-structured questionnaires and observations while the data was presented through charts, graphs, and tables.

CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This section of the research paper concludes the study by looking at the implication of the findings. The chapter reviews the issues identified and in discussion in chapters 2, 3 and 4 in line with the study findings. It will further provide strategies to address the issues identified in the assessment through the recommendations' section.

5.2 Summary of Findings

There have been various traffic decongestion initiatives in Nairobi CBD in the past with various reasons to explain their failure. The initiatives include removal of matatus from the CBD, installation of cameras around the city, removal of roundabouts, increase in parking fees in CBD, widening of roads and walkways, conversion of some roads to 1-way, pausing the licensing of new matatus, BRT, and no solutions/temporary solutions only. Some measures like installation of cameras around the city, increase in parking fees in CBD and widening of roads and walkways, conversion of some roads to 1-way have been actualized but have done little, if any, to reduce traffic congestion within the Nairobi CBD. Other measures like the removal of matatus from the CBD have been actualized for a day then entirely done away with due to causing more congestion than before. Most of the measures, however, have just been proposals made in the past, but never actualized.

The initiatives have failed to work in the past mostly because of the lack of public participation, the initiatives were short-term solutions, the involvement of cartels have hampered progress in decongestion, corrupt traffic police officers, and lack of alternative PSV stages.

To prevent a similar failure of the Green Park Terminus as the past decongestion initiatives in the realization of traffic decongestion, the measures in place are consideration to embrace a multi-

sectorial approach to decongest the CBD and implementation of the 5 proposed termini. Other initiatives are use of diametric routing, enhancement of rule enforcement by key stakeholders, conducting proper public participation and consultation, as well as no measures were in place to prevent its failure.

The first and most significant challenge facing this process is the lack of an Action Area Plan to guide the implementation of the Green Park Terminus. The lack of it can be attributed to the Green Park Terminus implementation being done in a hurry and on the assumption that the needs were on demand. It had been mentioned in the Transport Master Plan as well as in the Transport and Urban Decongestion Committee Final Report, 2014. However, these do not detail the proposed Green Park Terminus as it should be in the Action Area Plan. The implementation is also said to have been dependent on the instructions of the NMS leaders and the NIUPLAN. The lack of the Action Area Plan presents the challenge of holding change-makers accountable for work done or work not done. This further proves it difficult to hold the change-makers accountable due to lack of public participation, and thus an avenue for the public to make their issues known to their elected representatives in the County Assembly.

The other challenge experienced during the pre-implementation process is the failure of the NMS to engage the public through public participation or where it was involved, the public, specifically the MOA, was called in during the construction phase and when recommending improvements. The NMS Office of Public Communications, therefore, failed to involve the public where and when it mattered most.

Where it was mentioned that public participation was conducted (during the construction phase), the following issues were raised:

i. Whether the park had adequate capacity to accommodate all PSVs/capacity of the terminus
ii. How the circulation of vehicles will happen without causing congestion
iii. How allocation of spaces will be done
iv. How commuters are going to get to and from the CBD/NMT facilities to CBD
v. How the disabled/elderly will commute to the CBD
vi. Last mile connectivity
vii. PSV companies using Waiyaki Way terminating at the CBD but serving same passenger points with those terminating at Green Park Terminus

It was mentioned that some of the issues were tackled through:

i. Providing buses to ensure that the elderly/disabled were dropped in the CBD
ii. Circulation into and out of the terminus was improved
iii. Walkways were done and expanded

The issues that were not tackled, as the planners mentioned, were already dealt with or are expected to be tackled when the terminus kicks off its operations. Further, the following changes are expected to be made following the test-runs conducted on the proposed Green Park Terminus:

i. The routes to be served by the terminus are expected to be changed
ii. Change to the user information
iii. Capacity adjustment involvement of all the stakeholders and allowing them to give their input on the proposed terminus
iv. Kenya Urban Roads Authority (KURA) plans on building an underpass for pedestrians across Uhuru Highway for efficiency of functionality to be realized

On proper planning of the terminus, majority of the MOA officials believe that proper planning was not done. This is yet another challenge identified during the pre-implementation phase of the Green Park Terminus. The lack of proper planning can be attributed to lack of public participation, utilization of limited space for the terminus, wrongful positioning of the entry and exit points, and the terminus presenting a security risk to passengers due to distance to CBD, lack of proper lighting and lack of proper NMT facilities.

S/N	**Challenges facing the pre-implementation process of the Green Park Terminus (from major to minor)**
1.	Lack of an Action Area Plan to guide the implementation of the Green Park Terminus
2.	Failure of the NMS to engage the public through public participation during the construction phase and when recommending improvements
3.	Failure to conduct proper planning

Figure 5. 1: *Challenges facing the pre-implementation process of the Green Park Terminus (from major to minor)*

Source: *Author*

Majority of the MOA officials believe that the terminus will be ineffective in solving the congestion issue in the CBD. This is attributable to limited space to hold matatus from the routes it will be serving and inadequacy in entry and exit points. The ability of the County Government to solve the issue through proper location of stages to serve matatus while being required to eliminate greed of the engineering department officials who allocate the stage slots is a current obstacle to decongestion.

The NMS planners believe that the Green Park Terminus is not close to the achievement of decongestion of Nairobi CBD because a lot needs to be done before it is launched and it can only realize decongestion, not in isolation, but together with other interventions. To add on to this, majority of the NMS planners believe that the terminus is a long-term measure because it is part of a bigger plan to decongest Nairobi CBD and that it will also take a long period of time to function efficiently. Majority of MOA officials on the same matter, believe that the terminus is a short-term measure of decongestion, especially if no more alternatives are offered.

On possibility of the proposed Green Park Terminus being implemented/launched, the NMS planners believe that it will be implemented in a year or less and after the issues of routes served by the terminus and capacity are addressed.

The commuters expect that the terminus will improve health and wellbeing of commuters, improve general convenience, improve/increase economic activities in the CBD, encourage PSV use as an alternative to private means use, and reduce travel time, in that order. Further, a majority of the commuters believe that the Green Park Terminus is a good idea, based on the following reasoning:

i. Shifting the matatus from their current location will decongest the CBD
ii. Space is inadequate

iii. Need for consideration of movement of people living with disabilities
iv. It has its pros and cons
v. Measures need to be taken into consideration
vi. It is ambitious and incomplete, but with room for improvement
vii. Needs to be properly planned, designed and executed
viii. It was well thought-out, thus a step forward

Majority of the commuters believe that the Green Park Terminus is a possible solution to the congestion in the CBD. They believe this will be possible because:

i. Apportioning public vehicles a terminal is a step towards decongestion since the weight tilts to one side of the town, the terminal side.
ii. The move will restrict matatus to the outskirts of the CBD
iii. Improvement of traffic flow and ease of movement through a proper project design, thus decongesting the CBD
iv. Consideration of the terminus as a parking space for private vehicles
v. Achievement of orderliness
vi. Centralized location for all commuters

From the MOA officials' point of view, the Green Park Terminus is not a realistic solution to traffic congestion in the Nairobi CBD. This is attributed to the limited space and parking available in the terminus, failure of NMS leadership to involve the genuine matatu SACCOs, lack of public participation, and the need to have operators plan their needs themselves as opposed to having the government do it.

On relocation of terminals from the CBD to Green Park, the majority of the MOA officials hold to the thought that failure to involve matatu operators during the public participation phase will work against the NMS/County Government. On top of this comes the inconsideration of passengers having to walk long distances from and to the terminus, especially the physically challenged and sickly passengers while presenting more security issues.

Tied to this relocation issue is the issue of the proposed location and development of the terminus. The MOA officials have concerns that the terminus has limited space for all the matatus it is expected to serve, it stands on a wrong site especially for access by commuters, while it is also expected to cause more traffic towards the CBD. However, if well utilized and without interference from the police and with effective public participation, it will work. Majority of the commuters, however, view the terminus as good idea with the potential to partially solve traffic issues, create jobs, and will help regain Nairobi's lost glory, but with the exception of potential issues such as security, convenience and connectivity.

On alternative traffic decongestion measures, the MOA officials propose conducting public participation on how public needs can be met, equal apportioning and distribution of stage slots to SACCOs, and introduction of high capacity buses after improvement of the road network. Other proposals are banning of private vehicles from the CBD, free traffic flow without interference and extortion from the traffic police, involvement of operators in every plan by the government, and greater investment of the county government in land for parking as waiting spots for matatus. On alternative measures from the commuters' point of view, the proposals include expansion of the CBD; use of the terminus as private vehicle parking; PSV experience upgrading through orderliness, affordability, safety, and reliability; and encourage use of PSVs as an alternative to private vehicles. Other proposals are discipline enforcement in the PSV sector, increasing parking

fees to discourage access of private cars into the CBD, limit PSVs' access into CBD by allowing only pickup and drop off at designated points, and development of the Mass Rapid Transit System for an interconnected system. Revival and development of the rail network, improvement of the road design to encourage cycling thus requiring development of the NMT infrastructure, street lighting, and use of transit oriented development models to encourage working within residential areas, are the other proposals.

5.3 Conclusion

From the analysis conducted on the findings from the NMS, MOA officials and the commuters, the proposed Green Park Terminus still has a long way to go if it is to contribute to the decongestion of the Nairobi CBD. As it currently stands, it will not decongest the Nairobi CBD.

It is clear that such a proposal is given more focus as a supply factor as opposed to the county government developing solutions in line with demand factors from the population, in consideration of the needs of the commuters and matatu operators. This is especially seen from the terminus' hurried implementation by the national and county governments, eliminating an opportunity for public participation with the affected parties to be done. The findings revealed that the decision to go ahead with implementation was based on the assumption that the services were in huge demand, thus the operations were from a point of apparent public interest. The services that the government provides through the terminus fail to match up with the needs of the growing population in Nairobi, and especially the population accessing the CBD on a daily basis.

The Nairobi CBD ails from the human and infrastructural types of traffic congestion. Decongestion, in this regard, can be done through an effective integrated public transport system, which caters to the human aspect through effective NMT infrastructure and the Mass Rapid Transit System (MRTS). In light of this, the Green Park Terminus only caters to a minute aspect of the

integrated transport public system which means that decongestion is far into the future, if it is to be realized. The literature review provides details on how different cities in countries around the world have adopted an integrated transport system in the form of MRTS in various forms and electronic road pricing, generally providing for alternative options of transport. This provides an efficient and easy way for commuters to travel to, from, within, and outside the Nairobi CBD. Nairobi is lagging behind in comparison to other cities, in this regard, that have embraced working interventions to traffic congestion. The findings reveal that research has already been done on the current state of Nairobi, with proposals on how to decongest the CBD and the city in general available. However, difficulty is present when it comes to implementation. For this change to be possible, there are various challenges that first need to be tackled including ensuring public participation is done before any public project is undertaken and rigorous research is conducted on the workability of the proposal given the uniqueness of Nairobi CBD. Other challenges to be dealt with are the need for the county government to operate according to the law, eliminating cartels that derail progress; regular auditing of government departments responsible for decongestion projects to prevent project stalling and embrace of technology including cameras and traffic lights to control traffic, thus eliminating need for traffic police on the roads. These can be considered challenges since the resources available are not put into good use or are misused for the benefit of a few, foregoing the needs of the public.

The findings have revealed that there are a number of decongestion initiatives proposed and actualized in the past that ended failing to decongest the CBD. The analysis reveals that most of these initiatives were just proposals made especially during former Governor Kidero's time which were never actualized. Former Governor Sonko tried to actualize removal of matatus from the CBD for a day without conducting research for how it would work, but the move failed. Some

NMS/County Government interventions such as some roads converted into walkways and 1-way routes, and the installation of cameras have been actualized in the past for decongestion, but in real sense, have played a minute role in decongesting the CBD. The failure points to lack of public participation, corrupt government officers and the presence of cartels in government.

To establish whether or not the Green Park Terminus will solve congestion in the CBD, the findings reveal that it will not. The most important reason is that public participation was not done. A lack of consultation with the stakeholders means that the project is only meant to benefit government officials, thus lacking a means of holding accountable those responsible. If it is to work, very many changes would be expected to be done on the terminus, and even more, if public participation is done. However, the effects would begin to be felt in the long-term. Considering that the initiatives from the past have failed to decongest the CBD, measures need to be put in place to prevent the terminus from failing to achieve its goal. Majority of the measures are short-term, but it is clear that decongestion in the Nairobi CBD will only work through the implementation of a multi-sectorial approach such as the Mass Rapid Transit System (MRTS) which the respondents mentioned as being part of the long-term decongestion plan for Nairobi.

The results, therefore, point to the fact that decongestion cannot be achieved through the implementation of the terminus only. The government has to be ready and willing to embrace and implement an integrated public transport system such as the Mass Rapid Transit System for the terminus to contribute to CBD decongestion and even more, for the system to maximize efficiency and ease for passengers through convenience, cost, safety, comfort, and accessibility.

5.4 Recommendations

The study proposes a number of recommendations for the Green Park Terminus to decongest the Nairobi CBD or at least contribute towards its decongestion. The first recommendation is the need

for public participation to acquire the views of the public on proposals that are brought forward for the decongestion of the CBD. Necessary adjustments to the current state of the terminus and any related interventions can be made along the way. Increasing the capacity of the terminus will ensure that it all the routes are effectively served. Development of effective NMT infrastructure/facilities will cater to the human needs, thus dealing with human congestion while improving convenience and security for those who opt for alternative modes of transport/travel. Embrace of diametric routing for creation of interconnections among main routes in the city. The increase in parking fees within the CBD will discourage the use of private means while encouraging the use of PSV means. However, orderliness, convenience and security have to be achieved within the PSV means of travel for people to be encouraged to use it. Lastly, the implementation of a multi-sectorial approach to decongestion in the form of Mass Rapid Transit (MRT) to effectively sort out the traffic congestion issue in Nairobi CBD. This calls for the wholesome interaction among the 5 termini, the Bus Rapid Transit (BRT) option, diametric routing, rail network, and possibly, the use of the Nairobi Expressway for the effectiveness of the MRT to be realized in Nairobi CBD decongestion.

5.5 Areas for further research

The researcher recommends that the following areas be considered for further research:

1. The role that the Green Park Terminus plays within the Mass Rapid Transit System (MRTS) in the decongestion of Nairobi
2. The difficulties of interventions in the realization of traffic decongestion

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APPENDICES

NAIROBI METROPOLITAN SERVICES QUESTIONNAIRE

GRACE NJERI KIARIE – B92/34271/2019

UNIVERSITY OF NAIROBI

DEPARTMENT OF REAL ESTATE, CONSTRUCTION MANAGEMENT & QUANTITY SURVEYING

MASTER OF ARTS IN VALUATION & PROPERTY MANAGEMENT

RESEARCH PROJECT

(Investigation into the Prospects of the Proposed Green Park Terminus for the Decongestion of the Nairobi Central Business District)

NAIROBI METROPOLITAN SERVICES QUESTIONNAIRE

Disclaimer: *This questionnaire is being administered to inform a Master's Degree for an academic project. Any information provided is confidential and will be used for this purpose only*

Name of Interviewer _____

Name/No. of Interviewee _____

1. Following the taking over of the county responsibilities by the NMS from the Nairobi County Government, how does the NMS fulfill the role of planning for the Nairobi Metropolitan Region?

   _____

   _____

2. What is the role of NMS – Urban Planning Division in the development of the proposed Green Park Terminal and in traffic decongestion?

   _____

   _____

3. What considerations went into planning for the location of the proposed Green Park Terminal?

---

4. Following the test-runs conducted on the proposed Green Park Terminal, how close do you think the NMS/government is in the achievement of traffic decongestion within the CBD?

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5. Is the proposed Green Park Terminal a:

☐ Short-term measure of traffic decongestion?

☐ Long-term measure of traffic decongestion?

Why so?

---

6. An Action Area Plan helps change-makers turn visions into reality, while increasing efficiency and accountability within an organization. No records exist to show that an Action Area Plan was prepared before undertaking the development of the proposed Green Park Terminal. Why is this so?

What plan was used instead?

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7. How does the public get to hold the change-makers accountable for work done/not done?

8. The Matatu Owners Association chairman recently mentioned that NMS did not involve the association in planning for the proposed Green Park Terminal, thus no public participation process was conducted. Would you consider this to be true?

☐ Yes ☐ No

Why or why not?

9. Public participation is a significant part of a project. No documentation or records exist to show that public participation was conducted during planning for the project. Was public participation with commuters/users/the Matatu Owners Association of the proposed Green Park Terminal done?

☐ Yes ☐ No

When was it done and which records exist to show this?

What issues, if any, were raised during the public participation process?

How were the issues tackled, if any?

10. Going forward, do you think the proposed Green Park Terminal will be implemented/launched?

☐ Yes ☐ No

If so, how soon?

If not, why not?

11. Are there changes expected to be made, to correct any issues that were identified during the test-runs?

☐ Yes ☐ No

If so, what changes?

12. In consideration of the past, failed traffic decongestion initiatives for Nairobi CBD, what measures are in place to prevent the failure of the Green Park Terminal in the realization of traffic decongestion?

MATATU OWNERS ASSOCIATION QUESTIONNAIRE

Disclaimer: *This questionnaire is being administered to inform a Master's Degree for an academic project. Any information provided is confidential and will be used for this purpose only*

Name of Interviewer _____

Name/No. of Interviewee _____

1. What do you think are the causes of traffic congestion within Nairobi CBD?

_____

_____

2. What issues have matatus been facing year in, year out while accessing or operating within the Nairobi CBD?

_____

_____

3. There have been various initiatives in the past meant to decongest the CBD in the past. Why do you think they did not work?

_____

_____

4. The government, through the NMS, has proposed the relocation of the bus terminals from the CBD to the proposed Green Park Terminal. What are your thoughts?

_____

_____

5. What are your thoughts and concerns regarding the proposed location and development of the proposed Green Park Terminal?

_____

_____

6. Following the test-runs conducted on the proposed Green Park Terminal, how effective do you think the proposed Green Park Terminal will be in dealing with traffic congestion within the CBD?

☐ Very Effective ☐ Effective ☐ Not Effective

Please explain your answer above

_____

_____

7. Do you think there was proper planning for the proposed Green Park Terminal?

☐ Yes ☐ No

Why or why not?

_____

_____

8. Would you consider the proposed Green Park Terminal a short-term or a long-term measure, if any, for CBD traffic decongestion?

_____

Why or why not?

_____

_____

9. In consideration of past failed attempts at decongestion, is the proposed Green Park Terminal a realistic solution to the traffic congestion issue ailing the Nairobi CBD?

☐ Yes ☐ No

Why or why not?

_____

_____

10. What would you propose as alternative traffic decongestion measures for the Nairobi CBD?

_____

_____

NAIROBI COMMUTERS QUESTIONNAIRE

Disclaimer: *This questionnaire is being administered to inform a Master's Degree for an academic project. Any information provided is confidential and will be used for this purpose only*

Name of Interviewer _____

Name/No. of Interviewee _____

1. What is your area of residence?

   _____

2. What means do you use to commute to the Nairobi CBD? (You can tick more than 1)

   ☐ Personal car ☐ Matatu ☐ Walking

   ☐ Bus ☐ Boda boda ☐ Other

3. What often brings you to town?

   ☐ School ☐ Business ☐ Employment ☐ Other

4. Which route do you take to Nairobi CBD?

   ☐ Mombasa Road ☐ Lang'ata Road ☐ Ngong Road

   ☐ Valley Road ☐ Jogoo Road ☐ Waiyaki Way

   ☐ Thika Road ☐ Other

5. How long does it take you from your place of residence to Nairobi CBD?

   With traffic _____

   Without traffic _____

6. How long does it take you from the CBD to your place of residence?

With traffic _____

Without traffic _____

7. Are the fares adjusted based on the presence or absence of traffic?

☐ Yes ☐ No

8. What has your experience been with the current bus stations within the CBD in consideration of traffic congestion?

_____

9. Do you feel like the bus stations are strategically located?

☐ Yes ☐ No

Why or why not?

_____

_____

10. Do you think the location of bus stations is a direct influence on traffic congestion?

☐ Yes ☐ No

Why do you think so?

_____

_____

11. Do you consider the development of the proposed Green Park Terminal a possible solution to the traffic congestion within the Nairobi CBD?

☐ Yes ☐ No

Why so?

_____

_____

12. Do you think the proposed development of the Green Park Terminal will:

i. Improve/increase economic activities within the CBD from reduced overcrowding?

☐ Yes ☐ No

ii. Improve the health and wellbeing of commuters from encouraging walking between terminals/to the various destinations?

☐ Yes ☐ No

iii. Reduce travel time?

☐ Yes ☐ No

iv. Encourage the use of public transport as an alternative to the use of private means?

☐ Yes ☐ No

v. Improve convenience, generally?

☐ Yes ☐ No

Why or why not?

_____

_____

13. What are your comments on the proposed Green Park Terminal in its role of traffic decongestion?

_____

_____

14. If against this measure of decongestion, what are your views on what the government can alternatively do to decongest the CBD?

_____

_____

15. What are your thoughts and concerns regarding the proposed Green Park Terminal in decongesting the Nairobi CBD?

_____

_____