UNIVERSITY OF NAIROBI

DEPARTMENT: CIVIL AND CONSTRUCTION ENGINEERING

ASSESSING FUNCTIONS OF BYPASS ROADS IN CITIES AND TOWNS: A CASE STUDY OF EASTERN BYPASS IN THE CITY OF NAIROBI

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A thesis submitted to the School of Engineering of the University of Nairobi in partial fulfillment for the requirements for the Degree of Master of Science in Civil Engineering (Transportation Engineering)

AUGUST, 2018

DECLARATION

I hereby declare that this thesis is my original work. To the best of my knowledge the work presented here has not been presented for a degree in any other institution of higher learning.

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DEDICATION

I dedicate this thesis posthumously to my late father, Mr. Charles Nyongesa whose efforts have culminated into this great achievement. He struggled all through to pay my school fees despite the family's difficult financial circumstances. I also give my love and special thanks to my wife and children who endured the long durations alone in the course of my research.

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ABSTRACT

Functions of bypasses and their impacts have been assessed in various studies worldwide. These roads are key in addressing traffic congestion, environmental pollution, road accidents and economic growth in cities and towns. Nairobi's Eastern Bypass is one such road constructed mainly as an alternative route for both local and traffic on transit in the City of Nairobi. However, after opening the bypass to traffic, it attracted unexpectedly high volumes of traffic and failed to function as a bypass in a short period. In this study, functions of Eastern Bypass in the City of Nairobi were assessed specifically to establish trip composition and traffic mix, traffic flow characteristics, current and future traffic and congestion levels based on traffic volume counts, origin and destination, and travel time and delays data. The study also compared various features along Eastern Bypass and bypass standards.

In summary, the study established that 43% of vehicles that operated along Eastern Bypass consisted of of cars and taxis, large cars, 4wheel drives, jeeps, pickups and vans; 35% were goods vehicles and 9% were public service vehicles among others. Again, approximately 12% of trips along Eastern Bypass consisted of local trips and 22% through trips while the rest of trips were either internal – external or external – internal trips. Still, the study established that over 39,295 passenger car units (PCUs) passed along Eastern Bypass daily or 1,638 PCUs per hour. Projections of this traffic indicated that over 123,325 PCUs will pass along Eastern Bypass per day or 5,139 PCUs per hour by 2029. This volume was comparatively higher than the projections in the feasibility study carried out for the bypass in 2007. Again, most vehicles along Eastern Bypass had their origins and destinations in counties and regions in Eastern, Central and North Eastern Kenya. This was attributed to the location of Eastern Bypass relative to these regions. On congestion, the study found that the dualled section of Eastern Bypass and locations with grade separated junctions experienced speeds between 70km/hr and 80 km/hr corresponding to levels of service ranging between B and A. However, sections of Eastern Bypass with single carriageways operated at levels of service between C and F. Finally, the study established that few features along Eastern Bypass meet bypass standards.

Keywords: Bypasses, bypass standards, traffic volumes, trip characteristics and traffic congestion

ABBREVIATIONS

AADT - Annual Average Daily Traffic

AASHTO - American Association of State Highway and Transport Officials

ADB - African Development Bank

ADT - Annual Daily Traffic

ANOVA - Analysis of Variance

B/C - Benefit-Cost

BI - Buffer Index

CBD - Central Business District

CBS - California Bypass Study

CC - Count Council

CCTV - Closed Circuit Television

CI - Congestion Index

CMI - Corridor Mobility Index

COMA - Cumulative Opportunities Measure of Accessibility

CPM - Congestion Performance Measures

CRBC - China Roads and Bridge Corporation

CSI - Congestion Severity Index

CV - Coefficient of Variation

DHV – Design Hourly Volume

DMI - Distance Measuring Instruments

DMT - Daily Miles Travel

DRA - Delay Ratio

ECMT - European Conference of Ministers of Transport

E-E - External - External trips

E-I - External - Internal trips

EIRR - Economic Internal Rate of Return

ERS - Economic Recovery Strategy for Wealth and Employment Creation

FFS – Free Flow Speed

GDP - Gross Domestic Product

GJA - Greater Johannesburg Area

GKMA - Greater Kampala Metropolitan Area

GOK- Government of Kenya

GPS - Global Positioning System

HCM - Highway Capacity Manual

HGV - Heavy Goods Vehicles

HPMS - Highway Performance Monitoring System

I-E - Internal-External trips

JICA - Japan International Cooperation Agency

JKIA – Jomo Kenyatta International Airport

KeNHA – Kenya National Highways Authority

KeRRA – Kenya Rural Roads Authority

KIPPRA - Public Policy Research and Policy Analysis

KM/hr - Kilometers per Hour

KNBS - Kenya National Bureau of Statistics

KRB - Kenya Roads Board

KShs - Kenya shillings

KURA - Kenya Urban Roads Authority

KUTIP - Kenya Urban Transport Infrastructure Project

LGV - Light Goods Vehicles

LOS - Level of Service

MC - Municipal Council

MTE - Metrocount Traffic Engineering

MGV - Medium Goods Vehicles

MoNMD - Ministry of Nairobi Metropolitan Development

MoLG - Ministry of Local Government

MOR- Ministry of Roads

MOTI - Ministry of Transport and Infrastructure

Mph - Miles per hour

MRT – Mass Rapid Transit Systems

MTRD - Ministry of Roads, Materials Testing and Research Department

MVM - Million Vehicle Miles

NaMATA - Nairobi Metropolitan Area Transport Agency

NARC - National Rainbow Coalition

NCBD - Nairobi Central Business District

NCHRP - National Cooperative Highway Research Program

NIUPLAN - Nairobi Integrated Urban Development Plan

NMA - Nairobi Metropolitan Area

NMR - Nairobi Metropolitan Region

NPV - Net Present Value

OD - Origin-Destination

OECD - Organization for Economic Co-operation and Development

ORN - Overseas Road Note

PCUs - Passenger Car Units

PET - Percentage Extension in Travel Time

PM - Particulate Matter

PMT - Person Mile Travel

PPP - Public Private Partnerships

PSVs - Public Service Vehicles

PTI - Planning Time Index

RCI - Roadway Congestion Index

RDM I - Road Design Manual Part I

RDR - Relative Delay Rate

RMI - Road Management Initiative

RSIP - Roads Sector Investment Programme

RSR - Relative Speed Reduction

SEMCOG - Southeast Michigan Council of Governments

SMG - System Metrics Group

STRADA - System for Traffic Demand Analysis

TAZs - Traffic Analysis Zones

TC - Town Council

TR - Travel Rate

TransCAD - Computer Aided Transportation Design software

TRI - Travel Rate Index

TTI - Travel Time Index

UI - Unemployment Insurance

UNECA - United Nations Economic Commission for Africa

US - United States

VKT - Vehicle Kilometer Travelled

WIM - Weigh-In-Motion

WisDOT - Wisconsin Department of Transportation

1. INTRODUCTION

1.1 Background

Growing volumes of ‘through’ traffic are often attributed to traffic flow challenges within the centres of towns and cities in many countries worldwide. In most of these towns, decision makers resort to construction of bypass roads as one way of addressing traffic flow challenges. By definition, a bypass is a special road or route that splits off from a road through central business district and passes along the fringe of a town or city, circumventing all or most developed portions of town or city. In this regard, the bypass diverts 'through' traffic away from town centres to the periphery leaving local streets to local traffic (Cena et al, 2007). However, bypasses also function as relief routes for local travel because they are connected to radial roads that usually terminate in the city or town centre. Still, bypasses can also be ring roads circulating traffic along the city boundaries or can as well be link roads connecting multiple cities and other urban centres in a country or countries in a region.

Although bypasses are meant for through traffic flows, these roads tend to open up previously inaccessible areas which attract new developments including industries, residential buildings, bars and restaurants among other businesses. As a result, they to a large extent serve local traffic generated from these developments (Collins and Weisbrod, 2000; Luburic et al, 2011).

When planning for bypasses, several factors need to be considered to ensure their functionality including examinination of the economic, social and political contexts associated with bypasses, policy, legal and institutional framework for implementing bypasses, impacts of bypasses, assessment and understanding of traffic movements in and out of a city or town, standards for bypasses, land use and development control and access to the bypass mechanism among others (Warfa et al, 2006).

Studies on impacts of bypass roads show that these roads reduce traffic volumes downtowns, improve road safety, and enhance environmental amenity. Additionally, improved accessibility increased values of properties abutting the bypass and beyond. Contrasingly, some studies found bypasses to cause negative impacts such as a decline in business revenues especially in less developed towns that rely mostly on through traffic as the major customer base (Mills et al,

2010). Further, several other studies revealed mixed and contradicting findings on impacts of bypass roads on traffic congestion. In some cases, bypasses successfully managed to improve local traffic movements by diverting through traffic away from urban centers. Yet other studies revealed little or no changes in traffic flow. Instead, downtown areas experienced improved local traffic volumes (Voorhees, 2005).

Despite the mixed findings, the Government of Kenya has continued to invest heavily in the construction of bypasses in various towns and cities to address traffic congestion besides other functions. The bypasses include: Northern, Eastern, Southern, Western, proposed Greater Eastern and Greater Southern bypasses and Western Ring Roads in the Nairobi City County and surrounding counties; South Coast Bypass also known as Dongo Kundu Bypass in Mombasa County; Kisumu Bypass linking Nyamasaria, Kisumu Airport and Kisian in Kisumu County; Northern and Southern bypasses in Nakuru County; the proposed Kisii Bypass around Kisii County; and Western and Eastern Bypass around Meru County among others (KURA, 2016). Notably, some of these bypasses comprise part of the flagship projects under the Kenya Vision 2030 economic blue print that aims to turn Kenya into a medium income economy with sustained annual growth of 10% measured in terms of Gross Domestic Product (GDP) (GOK, 2007). Accordingly, proponents of bypasses in Kenya should examine the economic, social and political contexts associated with bypasses as well as their impacts, prior to investing in the same. They should also assess and understand traffic movements in and out of the cities or towns to inform the planning, design and operation standards for successful bypass functions.

Eastern Bypass in the Nairobi City County stands out as a typical example of a bypass that was not well planned, designed, constructed and maintained to guarantee its functions. Currently, the bypass appears as congested as the many roads within the City of Nairobi it was intended to relieve.

1.2 Thesis Study

This thesis study examined a section of Eastern Bypass in the City of Nairobi. The bypass starts on Mombasa Road (A104) at City Cabanas and extends northeast crossing Outer Ring Road, Kangundo Road, three rivers (Nairobi, Gatharaini and Kamiti rivers respectively), Thika Road (A2), Railway Line and connects to Ruiru-Kiambu Road (C64). Most of the sections of the bypass lie within Nairobi City County while a small section is within Kiambu County specifically within the former Ruiru Municipal Council. The bypass is connected to other roads through both minor and major junctions including an interchange at Mombasa Road, an

overpass at Outer Ring Road, an Overpass at Kangundo Road, an underpass at Nairobi – Thika Road, a roundabout at Northern Bypass and a T- junction at Ruiru - Kiambu Road. It is worth noting that, Eastern Bypass is within the jurisdiction of the Nairobi Metropolitan Area Transport Agency (NaMATA).

In this study, the section of Eastern Bypass between City Cabanas and Thika Road junction was covered. This section and the linkage of Eastern Bypass with other roads within and around the City County of Nairobi are illustrated in **Figure 1.1.**

Figure 1.1: Section of Eastern Bypass covered in the study and its linkage with other roads

Source: Author, 2016

1.3 Problem Statement

Eastern Bypass in the Nairobi City County stands out as a typical example of a bypass that was not properly planned, designed, constructed and maintained to ensure it functions. The bypass was primarily constructed to address traffic flow challenges in the City of Nairobi. In this regard, the road was required to function as a high speed road with emphasis on providing high mobility for 'through' traffic and not to provide accessibility to the abutting land uses. However, immediately after the bypass was opened to traffic, it attracted unprecedentedly high volumes of traffic consisting of both local and traffic on transit. From observations, the bypass is as congested as the many roads within the City of Nairobi, the bypass was expected to decongest.

Traffic volumes along Eastern Bypass are higher than its design capacity even before the design life is attained. Traffic flow is characterized by very low vehicle speeds (though speeds along the bypass have not been established), stop and go flow movements and delays along most sections and junctions throughout the day. The scenario along Eastern Bypass could be linked to many factors including numerous roadside developments, lack of land use and development control for the area traversed by the bypass among other factors. Documentations reveal that at the time of design and construction of Eastern Bypass in 2007, the area traversed by Eastern Bypass was not planned and the then existing landuse plan for the City of Nairobi (Nairobi Metropolitan Growth Strategy) had expired with several recommendations including some of the proposals on the required infrastructure including road network as well as bypasses required by the year 2000 not yet implemented (JICA, 2006).

Upon completion of the construction of Eastern Bypass in 2011, several commercial, residential and industrial developments began setting up and currently many buidlings are evident along significant sections of the bypass. Each of the establisments has direct access to the bypass. Moreover, informal businesses including kiosks, furniture vendors and flower vendors among other dealers have set up within the bypass road reserve and significantly compromise the bypass functions.

The traffic situation along Eastern Bypass could be linked to unrealistic projection of traffic that was expected to use the bypass once construction was completed. This is because the planning

and design of Eastern Bypass relied on traffic estimates from different roads within the area traversed by the bypass since the bypass itself was not trafficked. The traffic estimates and projections may have been inadequate or unrealistic in view of diverted, generated and converted traffic that would use the road after completion.

Again, most sections of the bypass consist of two lane two way undivided carriageways contrary to the bypass reqirements. Therefore overtaking maneuvres by different vehicles are difficult. This situation is made worse by the fact that special lanes such as climbing lanes are missing despite the fact that the bypass was projected to serve significant volumes of slow moving trucks. Slow moving trucks along the bypass obstruct high speed vehicles from overtaking leading to long queues. The narrowness of the bypass also poses high risk of headon collision for any overtaking attempts.

Traffic flow challenges along Eastern Bypass are also be linked to public service vehicles (PSVs) that operate along the bypass. Operational behavior of public service vehicle operators along Eastern Bypass is characterized by picking and dropping of passengers at undesignated places including making arbitrary stops on the carriageways blocking other vehicle movements. The situation is further exacerbated by bus stops and illegal termini located along the bypass.

Further, Nairobi's rapidly increasing population as well as urbanization without commensurate infrastructure development could be a contributor to the functional failures of Eastern Bypass. People from upcountry and counties neighbouring the City of Nairobi come to the city in search of jobs, business opportunities as well as national government services. This piles pressure on existing services including roads and residential buildings and space. Many businesses and residential buidlings have been set up away from the defined city geographical area where property prices are affordable leading to city expansion. This situation has converted some roads which were previously functioning as ring roads located on the city's boundary such as Outer Ring Road to local roads serving residential areas and local traffic generated following expansion of the city. This situation has become evident along Eastern Bypass and is significanty affecting the functionality of the bypass.

Lastly, the failure of Eastern Bypass is linked to rapid motorization. A significant number of city residents have opted to use private cars as alternative means of transport for their movement within and around the City due to poor public transport within the City including Eastern Bypass.

The challenges highlighted above concerning Eastern Bypass notwithstanding, since opening of the bypass to traffic use, the function of the bypass has not been assessed to determine the traffic mix and trip composition, the extent to which Eastern Bypass features meet bypass standards as well as congestion levels along its course. This information is not only useful in determining the functions of Eastern Bypass, but can also provide more understanding on urban transport planning, especially with regard to bypasses proposed and being undertaken in various towns and cities in Kenya.

1.4 Research Questions

Research questions that sought to be answered in this study included the following:

i. What are the vehicle composition and traffic volumes along Eastern Bypass and how do they compare with the initial traffic projections?
ii. Where do the vehicles that operate along Eastern Bypass come from and where do they go to? What trips are made along Eastern Bypass?
iii. What is the level of congestion along Eastern Bypass?
iv. Do the features along Eastern Bypass meet bypass standards?

1.5 Objectives and scope of the study

Study objectives of this research were enumerated as follows:

i. To estimate vehicle composition and traffic volumes on Eastern Bypass and compare the same with initially projected traffic;
ii. To determine origins and destinations of vehicles, and estimate trips along Eastern Bypass;
iii. To estimate congestion levels along Eastern Bypass; and
iv. To compare features along Eastern Bypass with bypass standards.

1.6 Study methodology

This study reviewed both published and unpublished literature on bypasses and bypass functions among world cities, including relevant studies undertaken. The study reviewed design reports for Eastern Bypass including a site inventory of the constructed roadway features. The findings were compared with bypass standards. The study also used primary and secoundary data specifically from classified traffic counts, origin and destination surveys, travel time and delays

surveys to estimate traffic volumes, traffic mix, trip composition and traffic congestion along Eastern Bypass.

In collecting traffic data, this study included all motorized traffic operating along Eastern Bypass as there are currently no restrictions with regard to usage of Eastern Bypass.

1.7 Limitations of the study

This study was limited in various perspectives. For instance, although bypasses have several functions, this study was limited to traffic flows and traffic congestion along Eastern Bypass. The estimation of trip composition and congestion levels along Eastern Bypass was carried out during the day on weekdays since most normal trips in the City of Nairobi are made during weekdays. A section of Eastern Bypass from Thika Road to Kiambu/Ruiru Road was not included in the study to enable describe the general travel conditions along Eastern Bypass.

Despite the limitations, during the travel time and delays survey, this study conducted more runs than the estimated minimum runs for each direction on the studied sections to ensure results obtained were accurate, reliable and representative. Moreover, different congestion parameters were estimated and consistency in the values obtained was an indicator that the study and its findings were accurate and reliable. Finally, reliability of the study findings was derived from the fact that the study adopted traffic data collected by different agencies at different times.

1.8 Justification for the study

Assessing the functions of Eastern Bypass was timely because first, the demand for bypass roads in many towns and cities in Kenya is increasing despite the existing knowledge gap with regard to these unique types of roads. This study not only bridged the existing knowledge gap, but also availed standards required for bypass roads for adoption by practitioners.

Secondly, travel data obtained along Eastern Bypass as well as the estimated congestion parameters and study recommendations can provide a basis for formulating policies and regulations to ensure proper functioning of already constructed and proposed bypasses.

Thirdly, by estimating congestion levels along Eastern Bypass, this study is also a source of information to the public when planning and scheduling travel activities especially for those intending to use Eastern Bypass in their schedules.

Finally, the study findings could be a subject for further research in the institutions of research and learning.

1.9 Thesis Organization

This thesis is organized into five chapters. Chapter Two reviews relevant bypass literature including forms of bypasses and standards, functions and impacts of bypasses. Further, the Chapter summarizes studies on the urban transport challenges in the City of Nairobi, studies on Eastern Bypass, manuals and guidelines for design of roads in Kenya versus bypass standards, policy, legal and instutional framework for bypasses in Kenya and approaches for assessing bypass functions and quantifying congestion levels. Chapter Three describes specific field surveys including data collection, data analysis and approach for data projections. Chapter Four summarizes and interprets the results of the data analysis while conclusions and recommendations are presented in Chapter Five.

2. LITERATURE REVIEW

A substantial body of literature exists with regard to planning and design of bypass roads, functions of bypasses and associated impacts. This chapter made a comparative review of existing global, regional and local literature on bypasses including bypass standards, functions of bypasses and impacts. The chapter further reviewed urban transport challenges in City of Nairobi as well as studies undertaken on Eastern Bypass. Finally, approaches for estimating bypass usage, operating conditions and efficiency of travel along bypasses were reviewed.

2.1 Review of bypasses and bypass functions

2.1.1 Definition and forms of bypasses

A bypass is defined as a special road or route that splits off and passes along the fringe of a town or city, circumventing all or most portions of developed town or city (Cena et al, 2007). Various categories of bypasses are based on functional criteria including access (where many opportunities for entry and exit are provided), mobility (where few opportunities for entry and exit are provided), efficiency of travel in terms of travel time, speed limits, usage (in terms of annual average daily traffic), number of travel lanes and route spacing (FWHA, 2013). Robly (1969) defined and identified four forms of bypass roads as follows:

i. A simple bypass that starts on the outer edge and swings right or left away from the existing arterial that leads through a town centre;
ii. Full Freeway/Expressway (expressway represents arterial highway with full or partial control of access while freeway is an expressway with full control of access);
iii. Circumferential, Beltway, or Outer belt that makes a full circle around an urban area connecting at interchange points with main highways leading into the city center (radial roads); and
iv. Expressway or Freeway that goes from one outer side of the city center to the other passing near the central business district. In this regard, the local streets are left for use by local traffic.

The definition and forms of bypasses identified suffer from some limitations. For instance, the definition given for a bypass seems to generally conclude that a bypass is a continuous and standalone road starting and ending on a particular road or roads, circumventing a town or city center. The limitation of this definition being that it is oblivious to the fact that traffic can avoid a town center by connecting through various existing roads and not necessarily one continuous road since the idea is for one to bypass a town/city centre. The definition also fails to recognize that a built up area typically has many roads which are linked to form a network. In this regard, a

traveler intending to avoid passing through a central business district can connect through some linked roads whose alignment may be located away from the town or city center. Moreover, a bypass defined by amalgamation of many different existing local roads may not necessarily be an expressway or a freeway. The roads linked may also have been designed and constructed for different functions and enforced vehicle speeds may be below acceptable expressway or freeway speeds.

2.1.2 Standards for bypasses

Standards that define bypass roads include: design speeds, access mechanism to and from the bypass road, traffic served, safety requirements, bypass location, including the location of bypass entries and exits, geometry and cross sections of bypasses among other features (See **Table 2.1** below).

Table 2.1: Standards for bypasses

Bypass feature	**Requirements/Standards for bypasses**
Access	• Full access control to abutting properties. Access to abutting properties is allowed through back streets, which are linked to the bypass at grade separated junctions. • Access to the bypass should be made through interchanges or high standard junctions, to reduce disruptions to the traffic flow caused by traffic either joining or leaving the bypass. Emphasis for bypasses is on mobility as opposed to access. • The average distance between interchanges should not exceed 3 km for bypasses serving the needs of local traffic, while those with longer distance between interchanges mainly serve long-distance transit traffic. • Entries to and exits from the bypass are located away from the town center.
Location of bypasses relative to town centres	• Should be located several kilometers away from the city centers. The location in the closest vicinity of the town should be at least 10 km from the town center and entries and exists from the bypass should be located far from the town centers.
Traffic served	• Mainly serve through traffic. However, these roads can also be used for internal urban travels especially in cities where traffic requirements of interior traffic exceed to a large extent the local road network capacities. They may take over transit traffic and a large part of intercity and local traffic.
Geometry and cross-sections	• Should have geometry and cross-sections far more truck-friendly than typical city streets, to allow easy movement and turning.

Bypass feature	Requirements/Standards for bypasses
Design speed	• Design speed should be at least 80km/hr.
Safety	• Bypasses should have several lanes in each direction to cater for both low speed and high-speed vehicles, and allow safe overtaking maneuvers. Moreover, bypasses should have continuous wide shoulders, wide medians and wide lanes in each direction to ensure safety of the bypass users. Wider shoulders provide refuge for stalled vehicles along the bypass.
Land use and road side developments	• Land use along bypasses and roadside developments should be regulated and developments of informal structures banned to preserve the bypass functions.
Other requirements	• Bypasses should be free of any parking, loading or unloading of goods; picking or dropping of passengers, pedestrian crossings and curbside parking and limited access to other streets, roads or highways among other requirements.

Source: Otto et al.1996; Hasson et al, 2006; Cena et al, 2007; Fricker and Mills, 2009; Luburic et al, 2011

However, the basis for provisions for bypasses tabulated above is not given to assist in understanding how those tabulated specifications were arrived at. Normally, the design and operation of roads including bypasses should be subject to topography, land use and other physical features, environmental considerations, road function and control of access, traffic volume and capacity, design speed and other design controls, design vehicle and vehicle characteristics; economic and financial considerations (RDM I, 1979). Further, the choice of type of road cross section which specifies the width of shoulders, lane width and whether to separate carriageways is a factor of tenth year of projected traffic after opening of the road.

2.1.3 Functions and impacts of bypasses

Bypass roads function by rerouting through traffic from central business districts of towns or cities periphery. Through traffic generally include long distance trucks operating between different countries and regions; regional bound passenger buses; and other automobiles whose origins and destinations are situated away from given urban centers and have no business stopping downtown (Mills et al, 2010).

Typically, delays downtowns are caused by significant volumes of local traffic trying to access services or making deliveries for many establishments in central business districts as well as use of private cars. The delays are further exacerbated when through traffic is allowed to pass through downtown cities enroute to destinations outside the city's geographical boundary. Delays often result in increased vehicle emissions, noise and vibrations, increased wear and tear,

increased accidents and negative psychological and emotional impacts, which may culminate in 'road rage' among others (Papacostas et al., 1987). These situations arguably make downtown environment unlivable to both residents and visitors.

On the flip side, bypass users experience enhanced mobility, reduced environmental pollution, increased safety as well as travel time and cost savings where requirements for bypasses are strictly adhered to. These advantages emanate from a combination of innovative highway design of bypasses which separates various traffic types, particularly heavier trucks and buses from small occupancy vehicles and non-motorized traffic as well. Separation of trucks on transit from local traffic by rerouting them away from the central business district reduces obstruction, allow high vehicle speeds and easy overtaking maneuvers as well as increase roadway capacities for local traffic usage downtown (Arnott, 2001; Pnina et al, 2004; Cena et al, 2007). Further, mobility along bypasses is enhanced where access to the bypass is controlled and opposing traffic movements are separated as well as where climbing lanes are provided for slow moving vehicles (RDM I, 1979).

Regarding pollution, Pnina et al (2004) found that heavier trucks are a major contributor to urban environmental pollution compared to other vehicle categories. Specifically, truck traffic was found to contribute high volumes of particulate matter (PM) pollutants mainly from wear on the road surface, tyres and brakes, as well as from exhausts. The amounts of these pollutants however, were found to depend on the age of the trucks, type of fuel used, engine size and technology, weight of cargo transported and wheelbase. For instance, old loaded trucks with large engine sizes and wider wheel-bases consume more fuel and result in high volumes of emissions. The emissions are even higher if trucks are irregularly maintained, rely on high sulphur diesel fuels and haul weighty cargo (Elvik and Vaa 2004; Pnina et al, 2004). Therefore by rerouting trucks to bypasses, the associated pollutants are also removed from central business districts.

Still, the fact that bypasses are high speed roads means reduced pollutant emissions along the bypass and abutting land. However, these advantages may be short-lived if the traffic along the bypass increases beyond capacity. The possibilities of pollution reductions discussed herein notwithstanding, the construction of bypasses may not always guarantee improved environment

because some long distance traffic still end up in city centers to make deliveries even with bypasses in place. Again, some long distance truck drivers sometimes make stopovers in towns overnight before proceeding to their final destinations while trucks that supply the city with goods may not be served by bypasses. All these scenarios may still contribute to pollution in the town centres even where bypasses are constructed.

Again, bypass roads play a role on the safety of road users. Safety along a bypass may be linked to the separation of motorized and non-motorized traffic which not only reduces traffic conflicts and collisions but also improves the perception of safety, which may be as important to the public as measurable improvements in traffic safety (SMG, 2006). Downtown, safety may be improved when trucks are rerouted to the bypasses. However, removal of trucks downtown may also improve local vehicle speeds which may in turn increase accidents (Hasson et al, 2006).

On the economic front, bypasses may have both negative and positive impacts. On the one hand, a new bypass improves access to areas, increases the desirability and value of properties, and enables the development of new areas for residential and commercial use thereby increasing economic activity (Mills et al, 2010). On the other hand, bypasses may also have negative effects on the economy as they sometimes result in reduction in business revenues downtown owing to the reduction of traffic and hence reduced customer base. Firms that previously depended on passing traffic may particularly be susceptible. In some cases, shifts in traffic patterns result in some businesses closing or relocating (SGM, 2006).

2.1.4 Effectiveness of bypass functions

Effectiveness of bypass functions depend on many factors including those that affect route choices drivers make, location of bypass alignment relative to a town center, level of socio-economic development, length of the bypass relative to the route through the city or town centre, land use and planning policies, conditions of other roads in the road network, town/city sizes, traffic volumes and traffic control factors among other parameters (Warfa et al, 2006).

The location of the bypass alignment relative to the town dictates the volume of traffic likely to divert to the bypass road. The greater the distance from the town, the less likely that through traffic will proceed to town, because this traffic especially long distance trucks tend to be filtered from the rest of the traffic early.

Existing bypasses function well where land uses and development plans are compatible and where access to the bypass is strictly controlled. Local planning and zoning policies regulate

development aspects such as the height of buildings, acceptable population density, accessibility, limitation of growth of the central city boundary and creation of satellite towns, set standards for land use requirements including residential and ancillary uses; industrial areas, commercial centers, provision of roads and public transport among others. Uncontrolled access along a bypass and inadequate enforcement of land use planning can affect bypass functions in terms of the proportions of various traffic types that use the bypass. Enforcing traffic management policies such as congestion charging for through traffic found in the Central Business District (CBD), or banning truck traffic from the city's main business artery, traffic volumes can be significantly reduced (Kadiyali, 2002).

The size of community bypassed or a supporting population base (in the case of retailing) affects bypass functions. Cities and towns with larger population bases are likely to continue supporting businesses suffering from changed access arrangements and the potential loss of trade. Moreover, such towns can also attract shoppers from surrounding areas (Chase and Gustafson, 2004; Cena et al, 2007). Due consideration should be given to the nature of the bypassed area (whether it is a central business district or entire community), population size, nature of new route whether urban, fringe or rural, traffic characteristics (local, transit, mix and volume) and type of business (Robly, 1969).

Choice of route by drivers affects efficiency of bypass usage. Some motorists determine the routes they follow based on factors such as traffic levels, time, distance, delay and cost of travel, security, road side developments; aesthetics, weather and road condition (See **Table 2.2**).

Table 2.2: Factors that influence drivers' route choice behavior

Influence Factor	Associated attributes
Driver	Age, gender, life cycle, income level, education, household structure, profession and length of residence, number of drivers in family and number of cars in family among others.
Route	Travel time, travel cost, speed limits and delays among others.
Road	Type of road, width, length, number of lanes, angularity, intersections, slopes and bridges among others.
Traffic	Traffic density, congestion, number of turns, stop signs, and traffic lights, travel speeds, probability of accident, reliability and variability in travel time among others.
Environment	Aesthetics, land use along route, scenery, easy pick-up/drop-off, safety and parking among others.
Trip	Trip purpose, time budget, time of the trip, mode use and number of drivers among others
Circumstances	Weather conditions, day/night, accident enroute, route and traffic information among others.

Source: Jan et al. (2000)

Despite the many factors that control route choices drivers make as summarized in **Table 2.2** above, route choices by drivers are dependent on personal habits, cognitive limits, and real time information. For instance, a person's mental capability to learn, organize and recall spatial information is influential to travel behavior and varies with the driver's age, gender and its connection with cognition influence routes drivers choose and therefore affect any road usage including bypass roads. Again, availability of information such as accident delays; congestion; road works and route guidance from origin to destination, can cause motorists to modify their route. Such information is usually availed to a traveler from broadcast travel reports (radio and television), roadside displays, personal knowledge and observations, electronic guidance systems, cellular phones and the internet (Arentze et al., 2010).

2.1.5 Studies on impacts of bypass functions

Considerable literature exists on impacts of bypass functions on traffic congestion, environmental pollution, road accidents and economy. The studies employed a wide array of methodologies including before and after comparisons, in depth case studies and modeling among others. The aim was to understand the impacts of bypass functions, and to provide bypass proponents, and decision-makers with updated information that could be considered when planning and designing bypass roads. **Table 2.3** summarizes some of the studies undertaken on the impact of bypass functions.

Table 2.3: Summary of studies on impacts of bypasses

Reference	Study Area(s)	Methodology	Summary of findings
Buffington and Womack, (1995)	47 state Department of Transportation and six Canadian provinces	Review of secondary data from various studies	• Economic impacts in bypassed areas were inconclusive, although traffic-serving businesses were most likely to be adversely affected. • Declines observed in bypassed areas were attributed to unrelated economic trends, which may have been hastened by the construction of the bypasses.
Collins and Weisbrod (2000)	Richmond, Virginia I-295 Bypass (study population of 192,000 people)	Before-and-after comparison	• No reduction in downtown traffic. • Bypass carried less than 20% of the total traffic. • Nearly equal proportions of trucks used the new bypass and the original route. • Bypass opened sites for development in suburban ring for considerable industrial development, major regional shopping malls near bypass interchanges and some residential development.
	Fort Wayne, Indiana I-469 Bypass (study population of 300,000 people)	Individual case study before-and-after comparison	• Significant volume of truck traffic diverted to the bypass. • Little development at interchanges. • Traffic volumes on the old road went down by about 5,000 to 8,000 vehicles a day immediately the bypass was opened
	Appleton, Wisconsin Route 441 Bypass (study population of 350,000 people)	Individual case study before-and-after comparison	• Major retail development (big box stores) sprung up at bypass interchanges. • About 100 acres of industrial land developed; and some office space were set up in suburban locations.
	Danville, Virginia I-785 Bypass (study population of 108,000	Individual case study Before-and-after comparison	• Reduction in downtown truck traffic and increase in local vehicles. • No evidence of negative impacts on downtown businesses.

Reference	Study Area(s)	Methodology	Summary of findings
	people)		• Major impact occurred on new industrial sites near bypass interchanges.
Rogers and Marshment (2001)	Stonewall and other small, rural towns in Oklahoma	Econometric analysis and anecdotal evidence	• No significant effect on already declining small town business district. • No businesses relocated from old route to bypass route; • No new businesses were established along new route.
Wisconsin Department of Transport (1998)	17 bypassed communities whose populations ranged from 300 to 30,000 people.	• Used economic data, traffic counts, mapping, interviews, media research and site visits and modeling using econometric models. • 17 communities were compared to 14 similar ('control') communities without bypasses	• Bypasses do not cause changes to economic trends of communities or drastically reduce retail opportunities, and major unplanned development did not gravitate to bypass routes.
Andersen et al (1993)		Studied sales tax data, counts of traffic on bypasses, and counts of traffic on other highways for bypassed towns and other towns	• Moderate negative impact on travel-related businesses such as service stations; restaurants and bars; and motels/hotels.
Voorhees (2005)	Hightstown, Mt. Holly and Pemberton bypasses in the United States and Canada	Before and after Comparison	• Truck traffic was diverted out of downtown areas. • Overall downtown traffic volumes did not increase. • Local traffic flows increased.
Elvik et al (2009)	In Norweigh	Before and after Comparison	• Annual average daily traffic (AADT) of 4,525 passenger car units (PCUs) old main route reduced to 1,785 PCUs (over 60% reductions in AADT) while mean AADT on the bypass was 4,105 PCUs.
	Britain	Before and after comparison	• Average vehicle speeds in the sampled towns before construction of bypasses ranged between 38 and 44km/h. • Traffic speeds increased significantly and average traffic speeds on the constructed bypasses ranged between 78 and 95km/h.
Buttress (1996)	21 Kansas towns	Before and after Comparison using Unemployment Insurance (UI) data	Through traffic made average time-savings conservatively valued at over one million United States Dollars annually at a discounted

Reference	Study Area(s)	Methodology	Summary of findings
			rate of 10% when using a bypass instead of using congested downtown.
Robley (1969)	Iowa Department of Transportation	Review of reports on urban bypass impacts in cities	• Less traffic in central business districts. • Less congestion, better parking, and safer streets for pedestrian CBDs. • Reduced noise and air pollution due to less truck traffic volumes accessing city centre.
Elvik et al (2001)	Studies from around the world that included 93 evaluations of the impact of bypass roads on the number of road accidents on 20 bypass projects in Norway	Meta-analysis, results of a number of Before-and-after bypass method investigated effects of bypass roads on road accidents	• 25% decrease in the number of road accidents with casualties. • 19% decline in number of reports of road accidents with casualties.
Kipnis and Balasha (1976)	Ramla Town in Israel	Before and after comparison	• The level of safety for both vehicles and pedestrians was significantly influenced. • Vehicle-vehicle road accidents reduced by 50% while vehicle-pedestrian road accident casualties dropped by 30%.
SMG (2006)	Truckee Bypass in California	Before and after comparison	• Collision rate along the old route through town dropped from 2.34 collisions per Million Vehicle Miles (MVM) in 2002 to 0.53 collisions per MVM in 2003 while collision rate along Truckee Bypass was 1.05 per MVM in 2003.

A comparative review of the studies and the findings tabulated above is summarized below:

1. The studies reviewed were carried out mostly in overseas countries and considered towns and or cities with population of less than 400,000 people. The findings of similar studies could be different in the case of the City of Nairobi whose population is more than 3.1 million people as per the 2009 census (GOK, 2009).

2. Some of the data used in the research such as Unemployment Insurance (UI) data in the case study of Kansas towns by Buttress (1996) was context specific. Kenya does not have such an elaborate insurance scheme for unemployed citizens and therefore Unemployment Insurance (UI) data set may not be available for a similar study to be carried out in Kenya.

3. Most of the studies focused on the economic impacts of bypasses, using before and after case studies and econometric models in their analysis. In these studies, little appreciation was given on estimation of the types of trips made along the bypasses studied, a knowledge gap, which this thesis attempted to fill.

4. The studies reviewed did not address themselves specifically on the subject of congestion levels along bypasses. This study has estimated congestion along Eastern Bypass to bridge the identified gap.

5. The studies did not determine whether the bypasses studied met the required bypass standards which may have affected the study findings. This study compared constructed features and traffic operations with bypass design and operation standards to fill this gap in the studies reviewed.

2.1.6 Bypasses in selected world cities

2.1.6.1 Bypasses and ring roads in Tokyo

In Tokyo (Japan), the city's road network consists of several ring and radial roads, which are open to traffic or have been prioritized for construction or are under construction or are authorized in city planning, or are under investigation for future construction (See **Figure 2.1**).

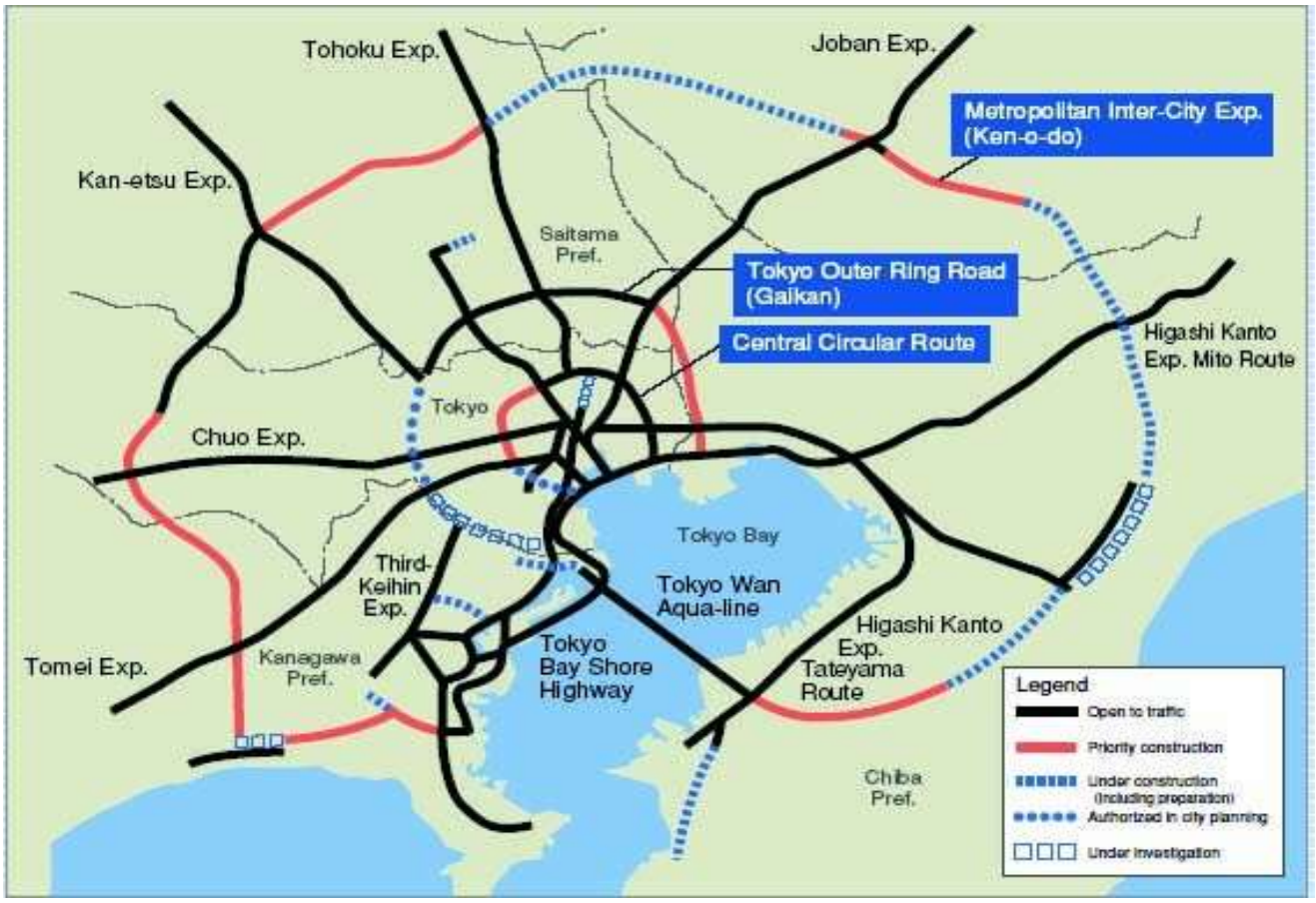


Figure 2.1: Tokyo Radial Road Network

Source: OECD/ECMT, (2007)

The ring roads and bypasses in Tokyo City are meant to ease circulation of traffic within the city by rerouting 'through' traffic to the ring roads (OECD/ECMT, 2007).

2.1.6.2 Mbabane bypass in the Kingdom of Swaziland

In the Kingdom of Swaziland, Mbabane bypass was developed to improve transport service levels, and continue to serve as the most industrialized corridor in Swaziland. This bypass also acts as international route linking Swaziland, the Republic of South Africa and Mozambique (ADB, 2003). The location of the bypass is shown in **Figure 2.2**.

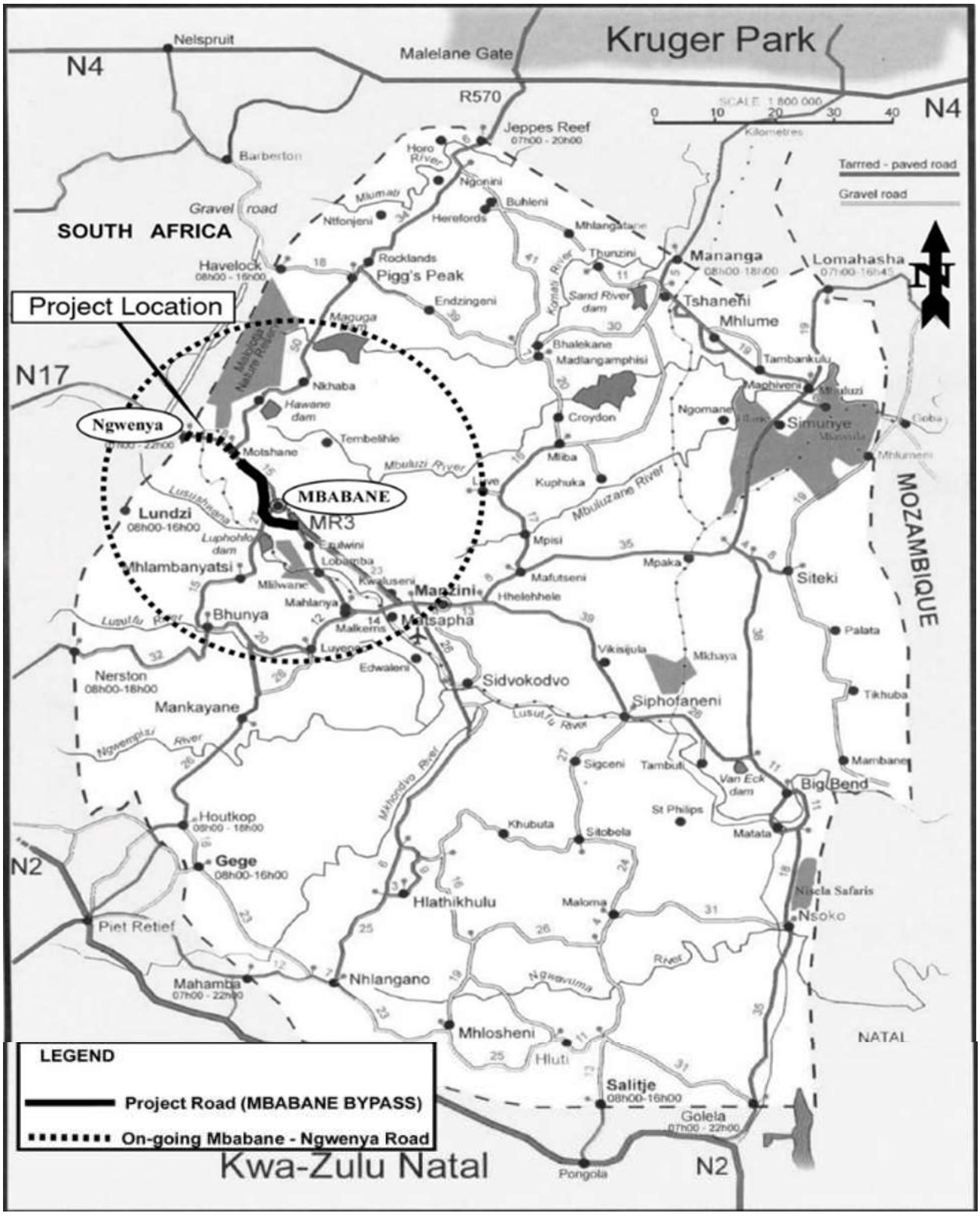


Figure 2.2: Mbabane Bypass in the Kingdom of Swaziland
Source: ADB, 2003

2.1.6.3 Bypasses in Johannesburg

Historically, Johannesburg was re-known for being one of South Africa's most congested cities (Chakwizira, 2007). To address the problem, three orbitals were constructed to decongest the Greater Johannesburg Area (GJA) including:

i. Eastern Bypass (N3) linking Johannesburg to Durban;
ii. Western Bypass (N1) linking Johannesburg to Pretoria and Cape Town; and
iii. Southern Bypass (N12) linking Johannesburg to Witbank and Kimberley.

The locations of these bypasses relative to the Johannesburg City Centre are as shown in **Figure 2.3**.

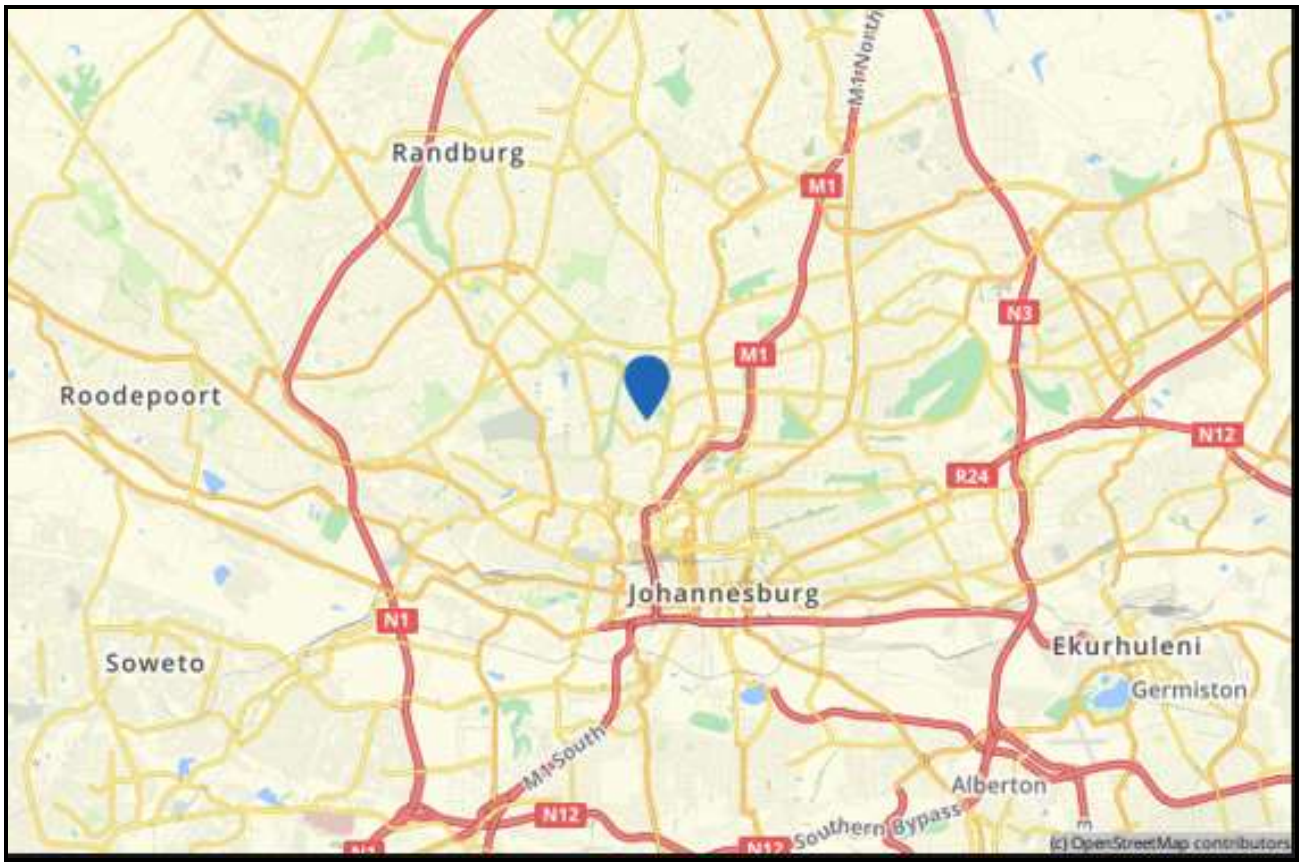


Figure 2.3: Bypasses in the Greater Johannesburg Area (GJA)

Source: Chakwizira, 2007

2.1.6.4 Bypasses in Kampala

Bypasses in Kampala consist of both inner and outer beltways which form rings around the Greater Kampala Metropolitan Area (GKMA). These bypasses include: Kampala Northern Bypass, the Proposed Kampala Southern Bypass and Lugogo Bypass among others. Kampala Northern Bypass is part of the Uganda section of the Northern Corridor Route that links the Port of Mombasa in Kenya and Bujumbura in Burundi via Nairobi, Kampala and Kigali. This road is about 21 km. On

the other hand, the proposed Kampala Southern Bypass also called new Entebbe Highway connects Northern Bypass and Entebbe Airport (Ministry of Finance, Planning and Economic Development, 2015). All bypasses around Kampala are meant to decongest Greater Kampala Metropolitan Area. According to the Ministry of Finance, Planning and Economic Development, the Northern Bypass reduces travel times and vehicle operating costs as well as protecting Kampala City roads from heavy commercial through traffic. This bypass also allows swifter traffic to the international airport (Ministry of Finance, Planning and Economic Development, 2015).

The locations of bypasses around the Greater Kampala Metropolitan Area are illustrated in **Figure 2.4** while **Table 2.4** provides other world cities where bypasses were adopted to addresss urban travel challenges.

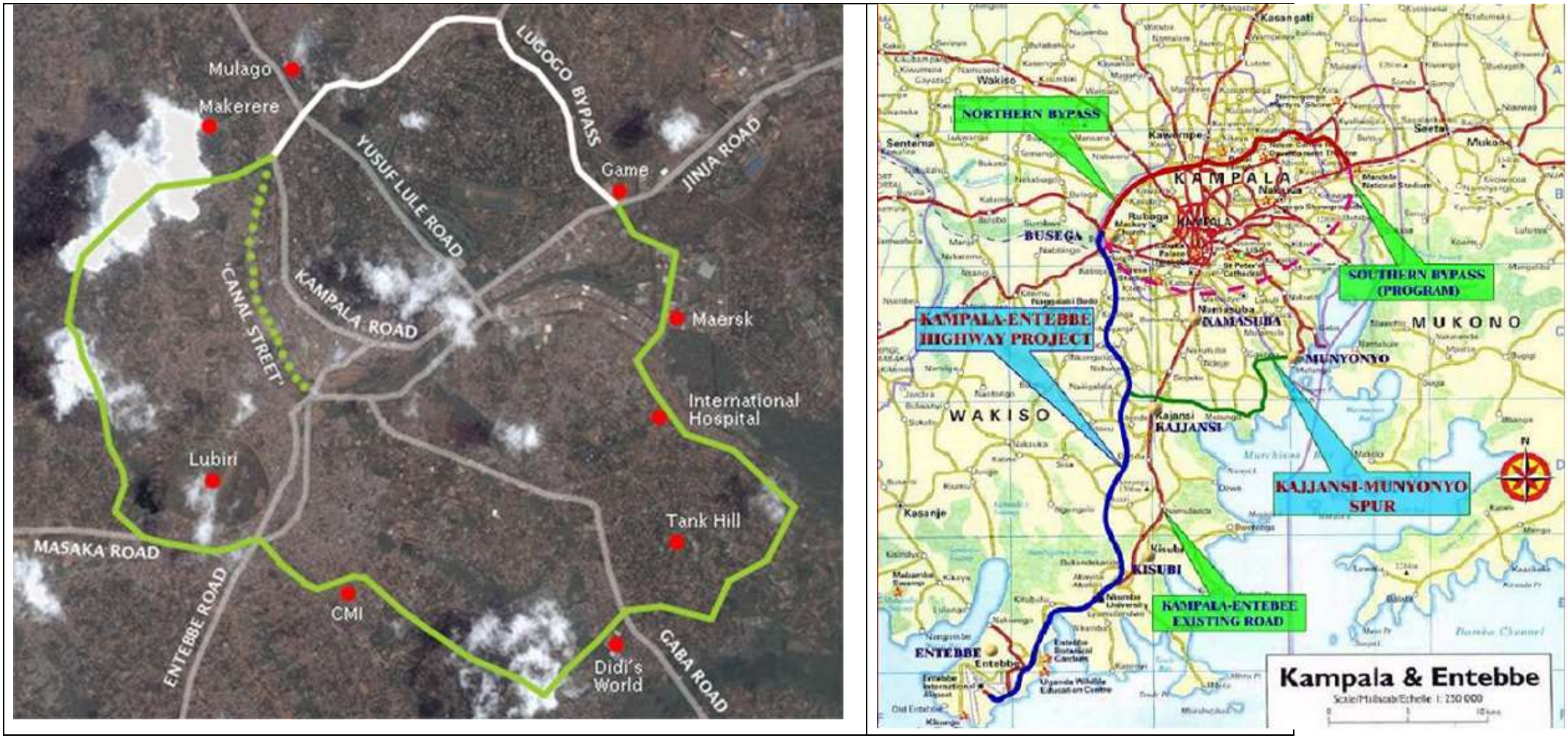


Figure 2.4: Bypasses in the Greater Kampala Metropolitan Area; *Source: Ministry of Finance, Planning and Economic Development, 2015*

Table 2:4: Other world cities where bypasses were adopted as solutions to congestion

City	Description of Problem and Bypass Solution
Beijing (New Geography, 2016)	In 2013, Beijing was ranked the ninth worst congested city in the world with a peak hour index of 76.5 that is, travel time increased by 76.5%. Likewise, in August 2010, China held the world record for having the longest traffic jam when a single bumper to bumper extended beyond 100km in Hebei Province. Consequently, the streets were turned into parking lots for 11 days as the gridlock proved unimaginable. Several ring roads were constructed around the city to address congestion.
Sao Paulo (New Geography, 2016)	In 2013, Sao Paulo (Brazil) had the world's longest combined traffic queues (309km long), which occurred on the evening of November, 15, 2013, with a peak hour index of 80.5. Ranked the seventh worst congested city in 2013, Sao Paulo's intense traffic congestion was for a long time exacerbated by truck traffic routed along the "Marginale" near the city center. Several ring roads were constructed to reroute trucks on transit away from the city center.
Bistrita (Mitran et al., 2012)	In Bistrita (Romania), the successful construction of the *Drumul Cetatii* Bypass led to the removal of traffic on transit from the Central Business District and significantly reduced automobile emissions. Thereafter, policy makers recommended bypasses as part of the tactical solutions for sustainable development in all Romanian cities.

2.1.7 Bypasses within the City of Nairobi and surrounding towns

Several bypasses have either been constructed or are under construction or have been planned for construction within the City of Nairobi and surrounding towns mainly to address traffic flow challenges mainly caused by traffic on transit movements among other purposes. They include: Northern bypass, Eastern bypass (31km), Southern bypass (29km), Western bypass, proposed Greater Eastern bypass (77km), Greater Southern bypass (188km) and Western Ring Roads (9 km) in the Nairobi City County and surrounding counties (KURA, 2016).

Eastern Bypass connects Mombasa Road at City Cabanas to Outer Ring Road, Kangundo Road, Thika Road Northern Bypass and Ruiru - Kiambu Road near Tatu City. On the other hand, Northern Bypass starts from Ruaka Shopping Centre on Limuru Road (C62) and crosses Banana Road (C63), Kiambu Road (C64) at Ridgeways, Kamiti Road at Githurai, Riara River and connects to Eastern Bypass, approximately 1.1 km from Ruiru – Kiambu Road (CRBC, 2007). The connection of Eastern and Northern bypasses together with Limuru road forms a semi-circle with respect to the Nairobi Central Business District.

Southern Bypass starts on Mombasa Road at Olesereni Hotel and progresses on the southern part of Nairobi along Nairobi National Park crossing Langata Road, Ngong Road, a section of Ngong Forest, Kikuyu Town and joins Waiyaki Way (A104). The road is approximately 29 km long and forms a semi-circle around Nairobi Central Business District.

Western Ring Roads consist of initially missing link roads on the western part of the City of Nairobi. These roads were constructed to provide alternative routes for traffic in order to address the traffic snarl ups in the City. Western Ring Roads were constructed as both single and dual carriageways in different sections (KURA, 2012).

The proposed Greater Southern Bypass starts off Mombasa Road at Kautandini Trading Centre in Machakos County, and runs in a westerly course for approximately 10km to Ulu Railway Station, then takes a north westerly course through Konza Trading Center and proceeds for approximately 46 km to cross Athi River - Namanga Road (A104), just past Isinya Trading Centre in Kajiado County. The road proceeds in the same direction through Olooloitikosh Trading Centre for approximately 48 km to cross Langata – Kiserian - Magadi Road (C58) at Kona Baridi. The road continues in the same direction through Kimuka Trading Centre, Ewaso Kedong and ends at Suswa Trading centre along Mai Mahiu – Narok Road, approximately 54 km. The road has also an arm starting off at Ewaso Kedong, running in a northerly direction through Kedong to link Mai Mahiu Town, approximately 30 km. In total, the proposed Greater Southern Bypass is approximately 188 km (KURA, 2016).

The proposed Greater Eastern Bypass is approximately 77 km long and is located within Machakos and Kiambu counties. The road starts at Lukenya Junction (A109/D519) in Machakos County which is at a short distance to the south east of Mombasa Road near Athi River town and progresses eastwards and intersects with Kangundo Road (C98) at Ngundu/Kamulu. The bypass then proceeds northwards to Nairobi river turn-off, where it branches, with the West bound limb connecting to Eastern Bypass at Nairobi River Turnoff. The continuing limb of the Greater Eastern Bypass progresses in a northerly direction to Munyu area and then turns in the north-easterly direction before joining Garissa Road (A3) near Kilimambogo in Kiambu County (KURA, 2011). **Figures 1.5 and 1.6** illustrate the locations of some of the bypasses within the Nairobi Metroplotian Area.

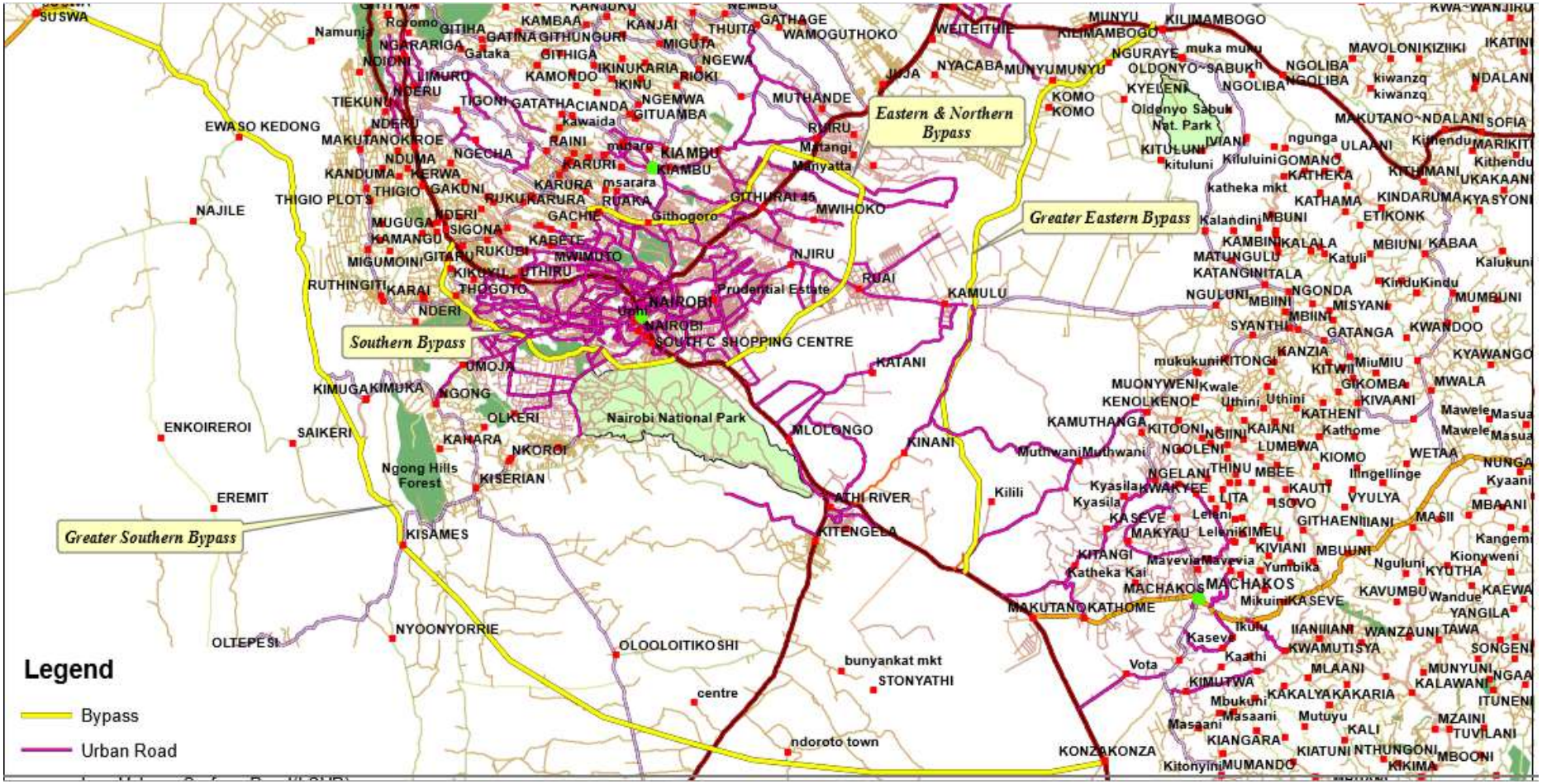


Figure 2.5: Proposed bypasses in the Greater Nairobi Metropolitan Area and its environs

Source: KURA, 2016

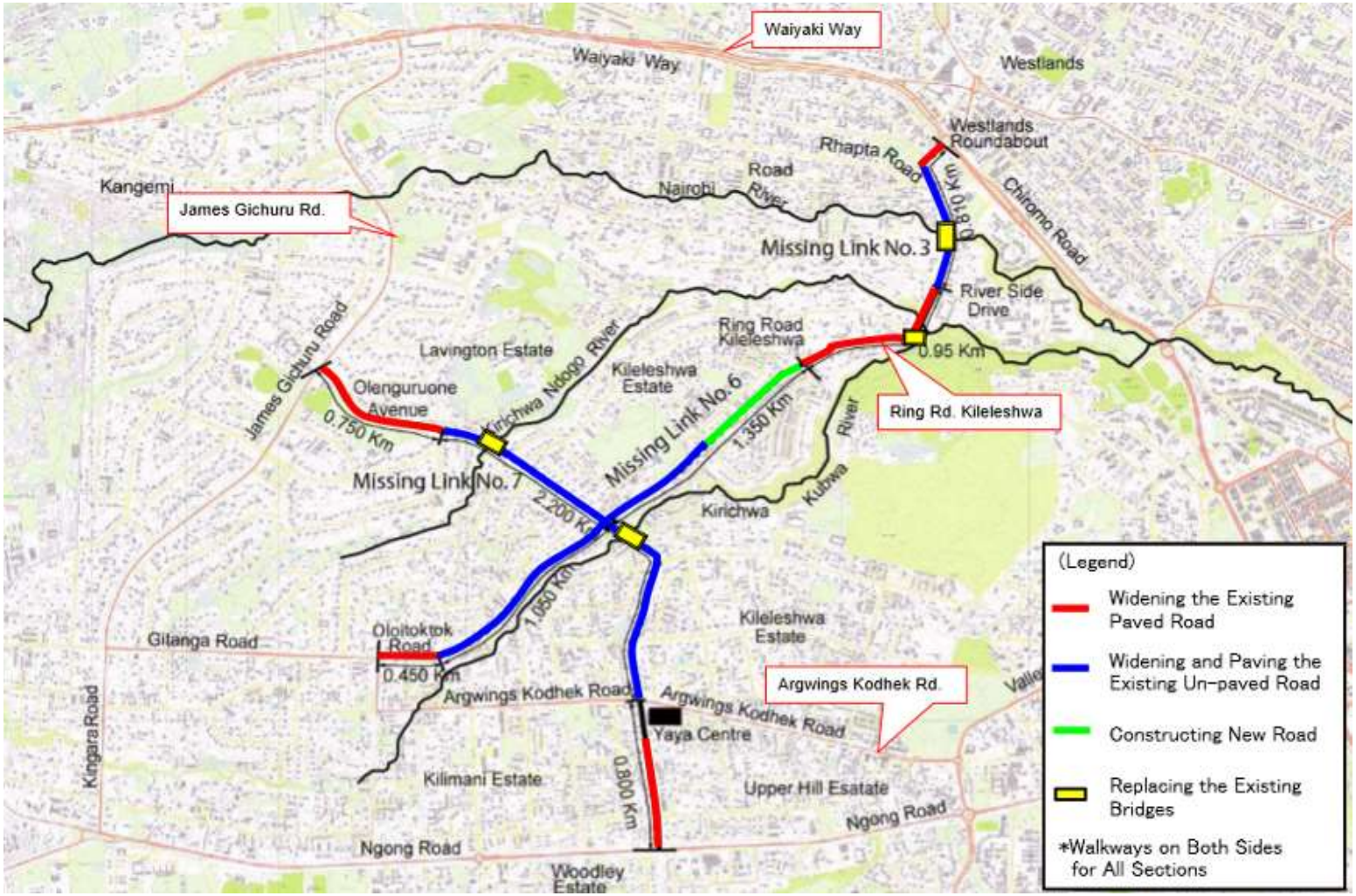


Figure 2.6: Nairobi Western Ring Roads

Source: KURA, 201byp

2.1.8 Bypasses in other towns

Bypasses in other towns in Kenya include: South Coast Bypass also known as Dongo Kundu Bypass in Mombasa County; Kisumu Bypass linking Nyamasaria, Kisumu Airport and Kisian in Kisumu County; Northern and Southern bypasses in Nakuru County; the proposed Kisii Bypass around Kisii County; and Western and Eastern Bypass around Meru County among others (KURA, 2016). Locations maps for bypasses in other towns /counties in Kenya are shown in **Appendix 1**.

2.1.9 Comparison of bypasses in world cities and Nairobi bypasses

From the review of bypasses, several similaries can be seen in terms of planning, naming of bypasses and reasons for constructing bypasses. In all bypasses reviewed, bypasses were named based on the location relative to the city's or towns. The bypasses in all juridictions reviewed are named as either Northern, Eastern, Western, Southern depending on the location of the bypass alignment in view of the town/city reviewed. Secondly, in all cases some of the bypasses have already been constructed and are in use. Thirdly, in each reviewed, expected benefits of bypasses after construction are similar and included decongesting the towns, reduction of environmmantal deterioration and improvement of accessibility as well as addressing safety concerns. Again, in all cases it is a finding that more and more bypasses continue to be investigated, planned and constructed with time away from previous town/city boundries in response to the expansion of towns/cities. However, it is noted that Bypasses in Japan were implemented timely as opposed to bypases identified and planned previously around the City of Nairobi. Secondly, in most of the studies especially those in overseas countries, studies have been conducted to find out their functions as well as impacts after construction unlike the case of Bypasses in the City of Nairobi. This is part of the gaps addressed in this thesis.

2.2 History of bypasses in the City of Nairobi

Bypasses within the City of Nairobi have been necessitated by many factors including rapid increase in human population, expansion of the city's geographical boundaries due to urbanization and increasing motorization and transit traffic passing through the city. These factors have led to many challenges including heavy traffic flows especially during peak hours, inadequate supply of services versus day time demands, inadequate infrastructure and sanitation facilities. According to the recent studies undertaken, the traffic management plans have outstripped the available resources necessitating expensive solutions such as

construction of bypasses (JICA, 2006, CRBC, 2007). Detailed review of these factors is given in the subsections below.

2.2.1 Geographical expansion of the City of Nairobi

The City of Nairobi was established when the construction of the railway in Kenya reached Nairobi in 1889. The City grew to become the British East Africa's commercial and business hub covering about 77 km² in 1907 and later became the center of transport, government and commerce in Kenya (JICA, 2006). At Kenya's independence in 1963, the city's boundary had expanded from 90 km^2 in 1927 to 690 km^2 in 1964 (See **Figure 2.7)**.

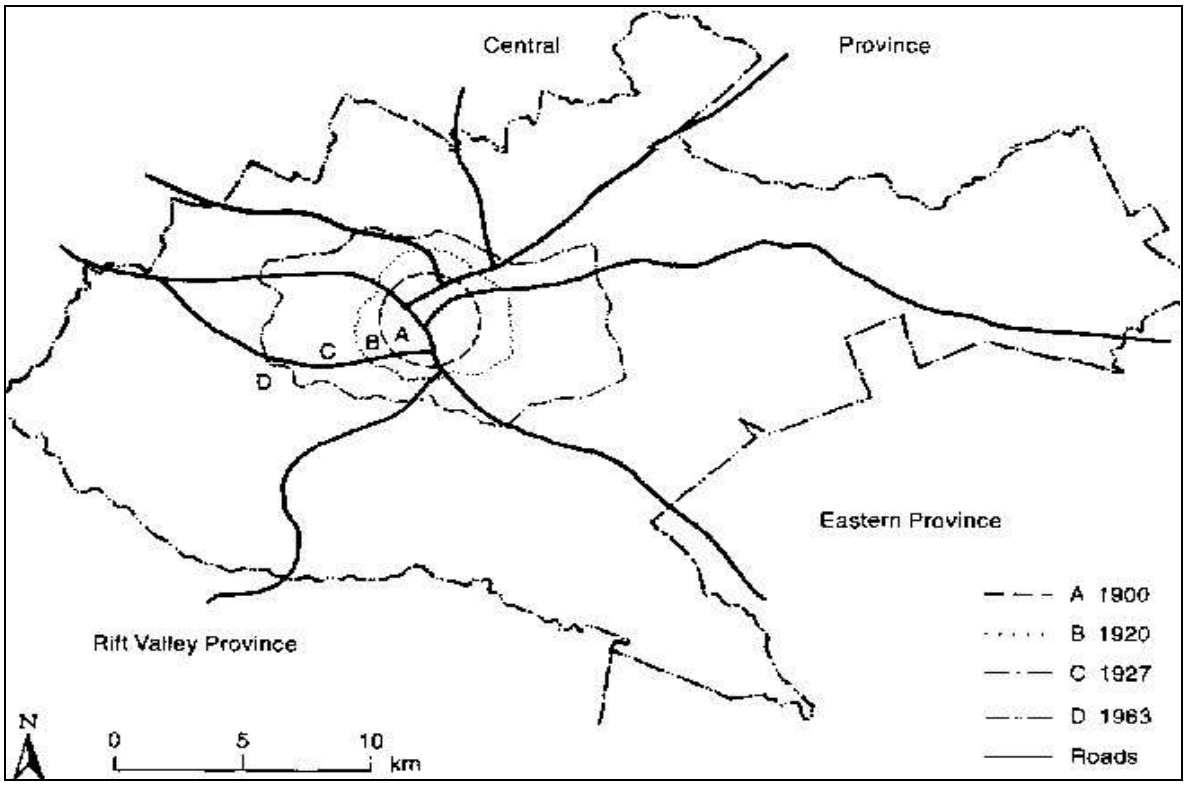


Figure 2.7: Evolution of Nairobi since 1900

Source: JICA, (2006)

The illustrated expansion of the City of Nairobi with time means that some roads which were previously located on the city's periphery to serve through traffic automatically converted into local roads serving developments in the expanded city. Such roads include Outer Ring Road which at the time served through traffic on Eastern side of the City. With the expansion of the City's boundary several residential developments were set up including Pipeline, Donholm, Tena, Umoja, Kariobangi South, Huruma, Komarocks and Kayole among other developments which generated significant traffic along Outer Ring Road. The generated traffic led to congestion making Outer Ring Road unattractive to through traffic movements.

2.2.2 Population in the City of Nairobi

Population in the City of Nairobi started to increase immediately the city was established. As at 1906, over 11,000 people lived in Nairobi. This population increased over time with many people from the neighboring districts travelling daily to the city. For instance, the 2009 Census found that over 3.1 million people live within the City of Nairobi while about 500,000 others travelled in and out of the capital city daily for work, school and business-related trips from neighboring districts such as *Thika, Kiambu, Murang'a, Kajiado*, and *Machakos* (GOK, 2009).

Further, the City presents business and employment opportunities which attract many populations from rural areas (rural - urban migration). This situation is further exacerbated by the fact that the headquarters of many government functionaries are located in the City of Nairobi and therefore attract many people to the city for services. However, the past trend of migration of people to the City is likely to reduce with the operationalization of County Governments which have taken significant functions closer to where people stay and can access services previously offered only in the City of Nairobi. Decentralization of services through devolved units notwithstanding, a recent projection indicate that the larger Nairobi Metropolitan Area will be a home of over 12 million people by 2030 (MoNMD, 2008) (see **Figure 2.8**).

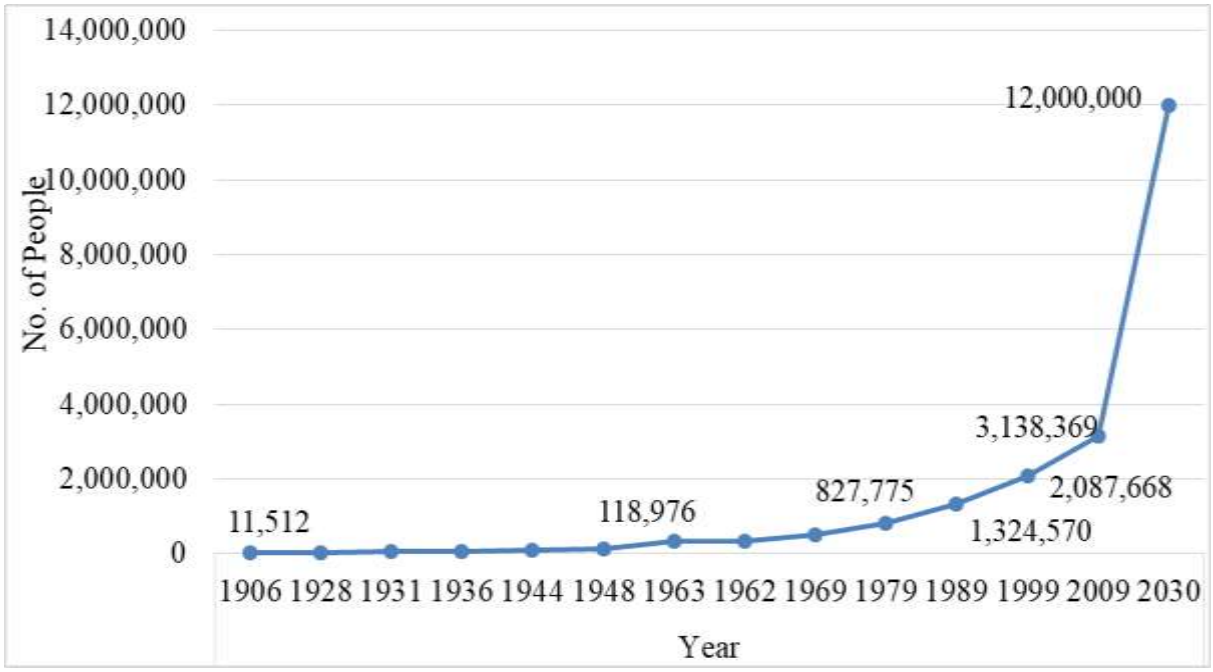


Figure 2.8: Nairobi's Population from 1906 to date

Source: City Council of Nairobi, 1973; GOK, 2007

The projected population increase in the City of Nairobi requires improved infrastructural development, housing and public transport.

2.2.3 Motorization in the City of Nairobi

Motorization is yet another big challenge in the City of Nairobi. This is illustrated from the many cars that are observed along the city roads as well as the trend of number of newly registered vehicles in the country. Notably, among the vehicle categories imported in the country every year, excluding motor cycles, saloon cars, sport utility vehicles, panels, vans and picks constitute the highest proportion of the vehicles as illustrated in **Figure 2.9**. According to the Kenya Institute of Public Policy Research and Analysis, (KIPPRA, 2007), 60% of the new vehicles registered in the country annually end up in Nairobi, implying that private cars are the preferred mode of transport for commuters, in the absence of other travel options for people and transportation of goods and services within the city. More and more vehicles are crowding the city's roadways leading to traffic congestion.

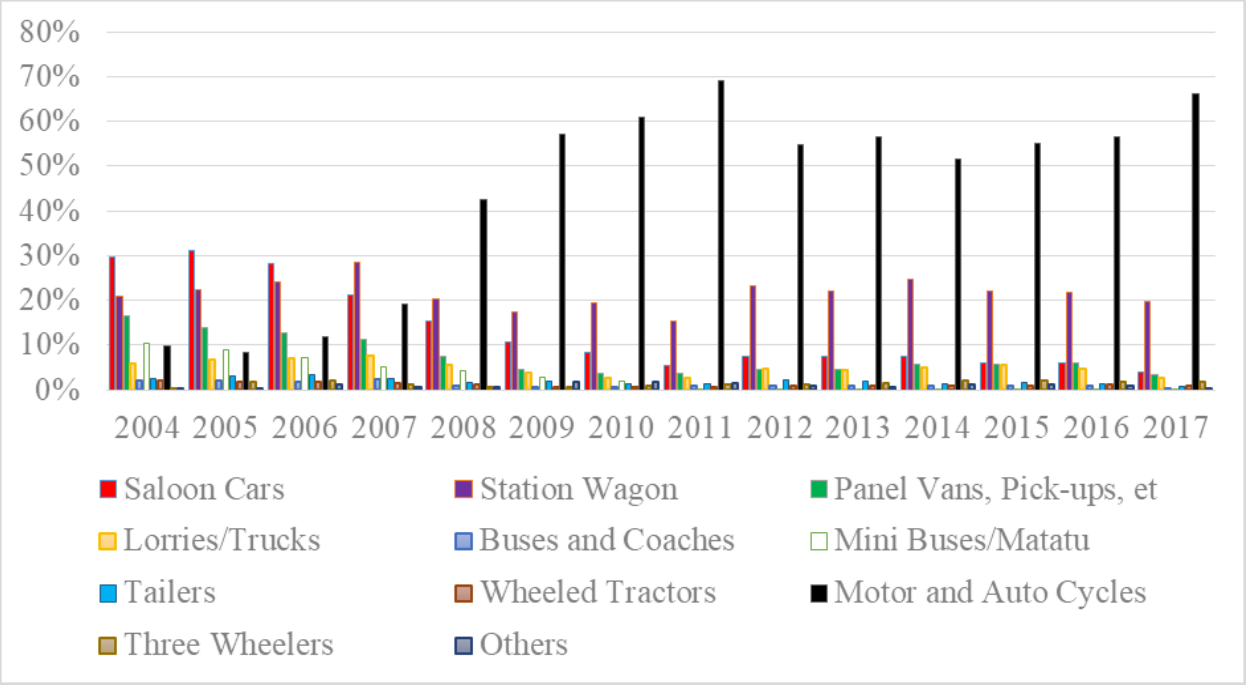


Figure 2.9: New Vehicle registration in Kenya since 2004
Source: KNBS (2004); KNBS (2007); KNBS (2017)

This situation has piled pressure to decision makers to seek for long term solutions including proposals to charge parking fees to discourage private carss, improvement of public transport by replacing the common 14- seater matatus with mass rapid transit systems, Bus rapid transit systems and commuter rails among others. However, most of this proposals have been

pushed back due to lack of financing, political competition and resistance especially by the matatu owners.

2.2.4 Transit traffic in the City of Nairobi

Transit traffic in the City of Nairobi arises from the increasingly competitive global economy that relies on the "just-in-time" transportation of raw materials and finished products. Transport of goods and services are mainly accomplished through road transport using trucks and long distance buses. The City of Nairobi is affected by heavy traffic on transit because major transit road corridors in Africa such as the Lagos-Mombasa Trans African road corridor which provides a road link between East African Port of Mombasa and ports of Nigeria and Cameroon in West Africa, Mombasa-Nairobi-Addis Ababa Road Corridor that promotes trade and regional integration between Ethiopia and Kenya, Northern Corridor connecting East African countries (Port of Mombasa - Kampala - Kigali - Bujumbura; and Tunduma-Dodoma-Namanga-Moyale connecting Nairobi to Tanzania through Namanga pass through the City of Nairobi.

Freight especially for landlocked countries such as Uganda, Ethiopia, South Sudan, Rwanda and Burundi as well as cargo meant for Democratic Republic of Congo among other African countries pass through the City of Nairobi along the northern corridor (section falling within the City of Nairobi's boundary). According to the monitoring reports along the Northern Corridor, more than 600 trucks on transit cross daily from Kenya to Uganda at Malaba while around 300,000 trucks cross the Kenyan border at Malaba and Busia every year (Fitzmaurice et al., 2013). **Figure 2.10** illustrates growth trend in container traffic at the Port of Mombasa.

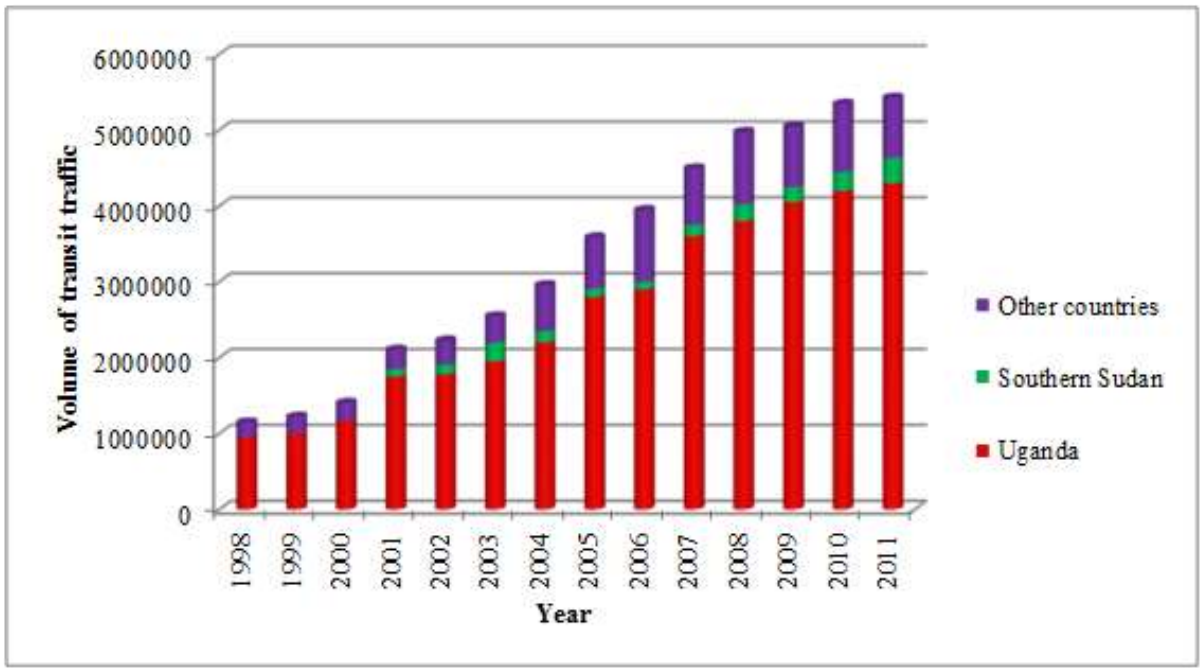


Figure 2.10: Traffic on transit at the Port of Mombasa
Source: Fitzmaurice et al., (2013)

It is worth noting that most of the cargo at the Port of Mombasa as illustrated in **Figure 2.10** above is moved to the mentioned destinations indicated by road through the City of Nairobi (Integrated Transport Policy, 2009). High volumes of trucks led to policy change by the City County banning all trucks from the Nairobi Central Business District dualing the day to ease traffic congestion. The trucks were required to use bypasses as alternative route through the City of Nairobi to their destinations. **Plate 1** shows the situation in the City of Nairobi specifically on Uhuru Highway before the ban on trucks was effected. .

Plate 1: Truck Traffic before opening of bypasses in the City of Nairobi

Source: Barasa, 2014

The high levels of cargo and passenger traffic transported along the Kenya's road network are economically unsustainable. There is urgent need to improve other modes of transport such as increasing the coverage of standard gauge railway to reduce overdependence on road transport. The recent directive to transport containers through the standard gauge railway from Mombasa to Nairobi Inland Container Deport (ICD) is likely to ease pressure on road transport.

2.2.5 Urban Planning in the City of Nairobi

The City of Nairobi has had different urban plans to coordinate different developments within its boundary. One such plans was the "Nairobi Master Plan for a Colonial Capital" formulated in 1948. This plan was meant to address diverse urban challenges for a period of 20 years. However, it is also worth noting that one of the objectives of the plan was to achieve racial segregation where the whites were to be separated from the blacks as the country was under British colony. The plan laid down guidelines for Nairobi's future development and earmarked land for major uses including important proposals for extensions to the road network. At independence in 1963, land use in Nairobi was as summarized in **Table 2.5** below.

Table 2.5: Land use in the City of Nairobi in 1963

Land use type	**Area (Km^2)**	**Cover (%)**
Residential areas	175.6	25.2%
Industrial/commercial/service centers	31.8	4.6%
Infrastructure	15.9	2.3%
Recreation	12	1.7%
Water bodies and riverine areas	11.8	1.7%
Urban agriculture	96.8	13.9%
Open lands	198.8	28.6%
Others (including protected areas)	153.6	22.1%
Total	**696.3**	**100.00%**

Source: City Council of Nairobi, 2007

Despite, the various land uses given above, the expansion of the City and its population was faster than anticipated in the Nairobi Master Plan for a Colonial Capital even before the planned period lapsed. A lot of challenges were experienced in the housing, provision of basic services and infrastructure among others. To address these challenges, another plan "Nairobi Metropolitan Growth Strategy" was formulated in 1973 following a three year comprehensive study by the Nairobi Urban Study Group. The strategy was specifically meant to address urban development and physical planning of Nairobi up to the year 2000. The main development aspects included catering for a projected population of 3,000,000 in the year 2000 from 585,000 in 1971 in Nairobi and the surrounding areas (NMGS, 1973) (JICA, 2006).

The Nairobi Urban Study Group consisted of more than twenty professionals representing the United Nations, Overseas Development Adminstration of the United Kingdom, Nairobi City Council and Colin Buchanan and Partners as lead consultants. This team of professionals collected data in the various sectors of planning, for example, in the transport sector, comprehensive data was collected both for private transport as well as public transport for the whole City of Nairobi which was divided into many zones. The data was analyzed and projected to the year 2000, following which the required infrastructure development was proposed for immediate implementation, mid-term (1985) and long Term (2000) implementation. Amongst others, Nairobi's Metropolitan Growth Strategy proposed the following:

- Putting in place constraints to ownership and use of private vehicles;
- Improved public transportation system;
- Staggering of working hours;
- Comprehensive transport corridor comprising of roads, railway and trunk bus routes, running from the West to North-East of Nairobi;
- Operation of conventional bus services over the greater road network;
- A system comprising of high capacity routes exclusive for buses;
- Ensuring urban roads are in the form of a modified grid pattern.
- Expansion of the city along corridors of development for flexibility to react to changing growth rates and other pressures. This would also ensure a measure of adaptability, which is not inherent in a more concentric form of development. **Figure 2-11** illustrates Nairobi's projected transportation requirements.

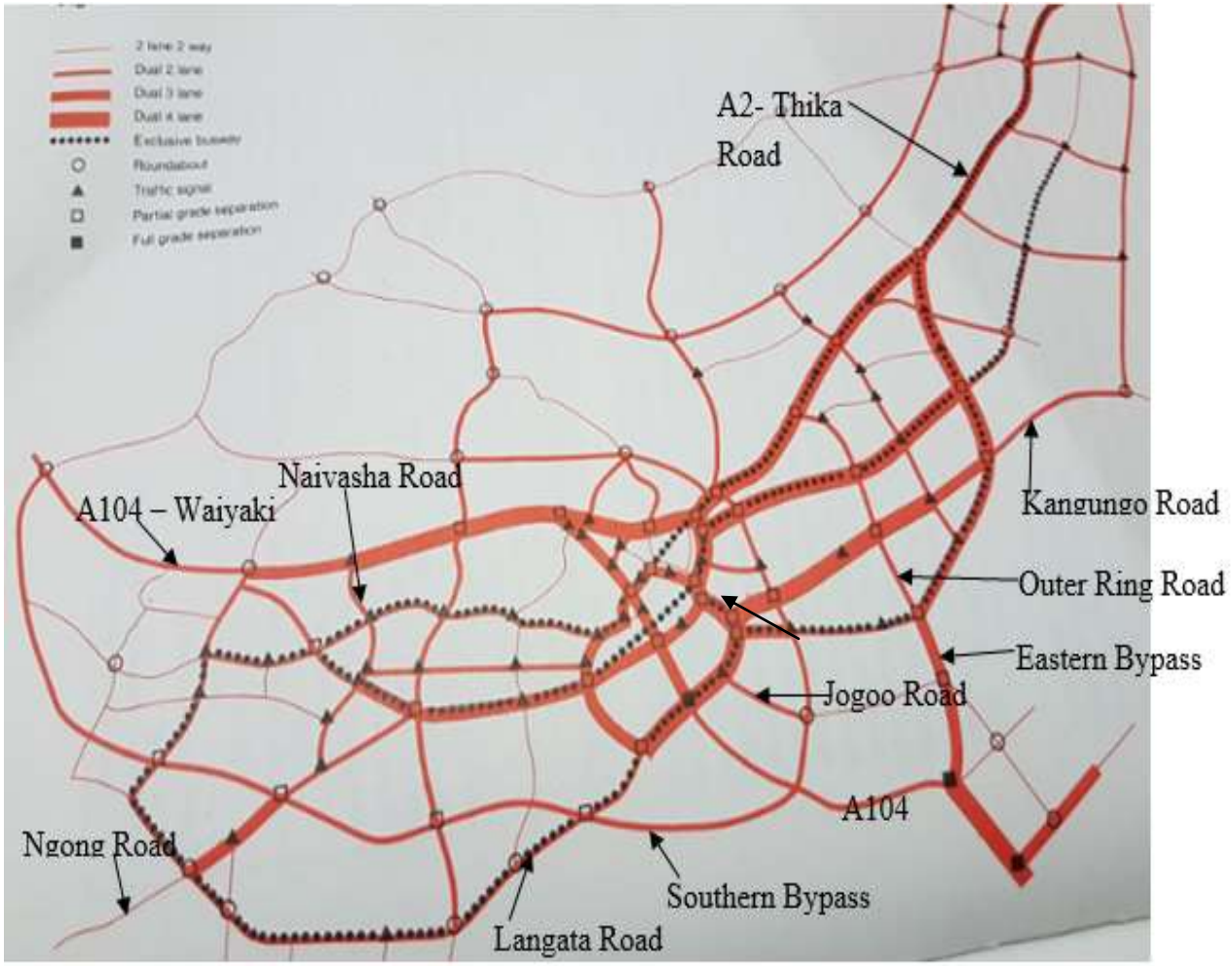


Figure 2.11: Long-term Transportation Strategy for Nairobi
Source: Nairobi Urban Study Group (1973)

The strategy was adopted by the government though at its expiry in the year 2000, few of the recommendations had been implemented. From the year 2000 onwards, there was no plan to guide the city's land use and development control. Haphazard patterns of development, with a mix of activities that are not compatible in the same area, as well as over-concentration of employment in the Central Business District (CBD) and industrial area became evident. These situations contributed to the chronic traffic congestion, environmental pollution and rapid growth of informal settlements within the City of Nairobi (City Council of Nairobi, 2007).

In 2003, Economic Recovery Strategy for Wealth and Employment Creation (2003-2007) was developed and adopted by the National Rainbow Coalition (NARC) Government. One of the objectives of the strategy in the road sector was to build and maintain durable quality "standard" roads with emphasis on safe and efficient transportation. One of the measures

envisaged to achieve this objective included strategy to decongest transport in key urban centres through construction of bypasses, mainly the Northern and Southern bypasses in Nairobi and Mombasa respectively (GOK, 2003). It is worthy noting that nothing took place until 2007 when study for Northern and Eastern Bypasses in Nairobi was undertaken and construction commenced in 2008.

In 2006, Transport Master Plan for Nairobi Metropolitan Area was developed. The study analyzed the then current traffic conditions in Nairobi, and forecasted the future urban transport demand. The study provided a conceptual plan, identified gaps between the existing and necessary capacity, provided guidelines and suggested systems for implementation. In view of the congestion-related challenges in the capital, the study emphasized the need to explore solutions which included, in addition to the expansion and building of new infrastructure, effective and efficient management of the existing infrastructure, controlled urban planning and growth, management and promotion of public transportation modes. Specifically, the study recommended improvements in the transport network including: road improvement (construction of five bypasses and link roads; sixteen missing links, eight radial roads, three circumferential roads, forty eight traffic signals and eighteen non-motorized traffic facilities); improvement of public transport; traffic management; staggering of working hours and creation of traffic institution (JICA, 2006).

Still, in 2008, Nairobi Metro 2030 Strategy was developed to facilitate the growth of urban and urban regions to create sustainable wealth and offer a high quality of life to its citizens and visitors by the year 2030. The strategy included the City of Nairobi and forty six former neighbouring Local Authorities covering approximately 32,000km^2 (Ministry of Nairobi Metropolitan Development, 2008). The extent of the Nairobi Metropolitan Region is illustrated in **Figure 2.12**.

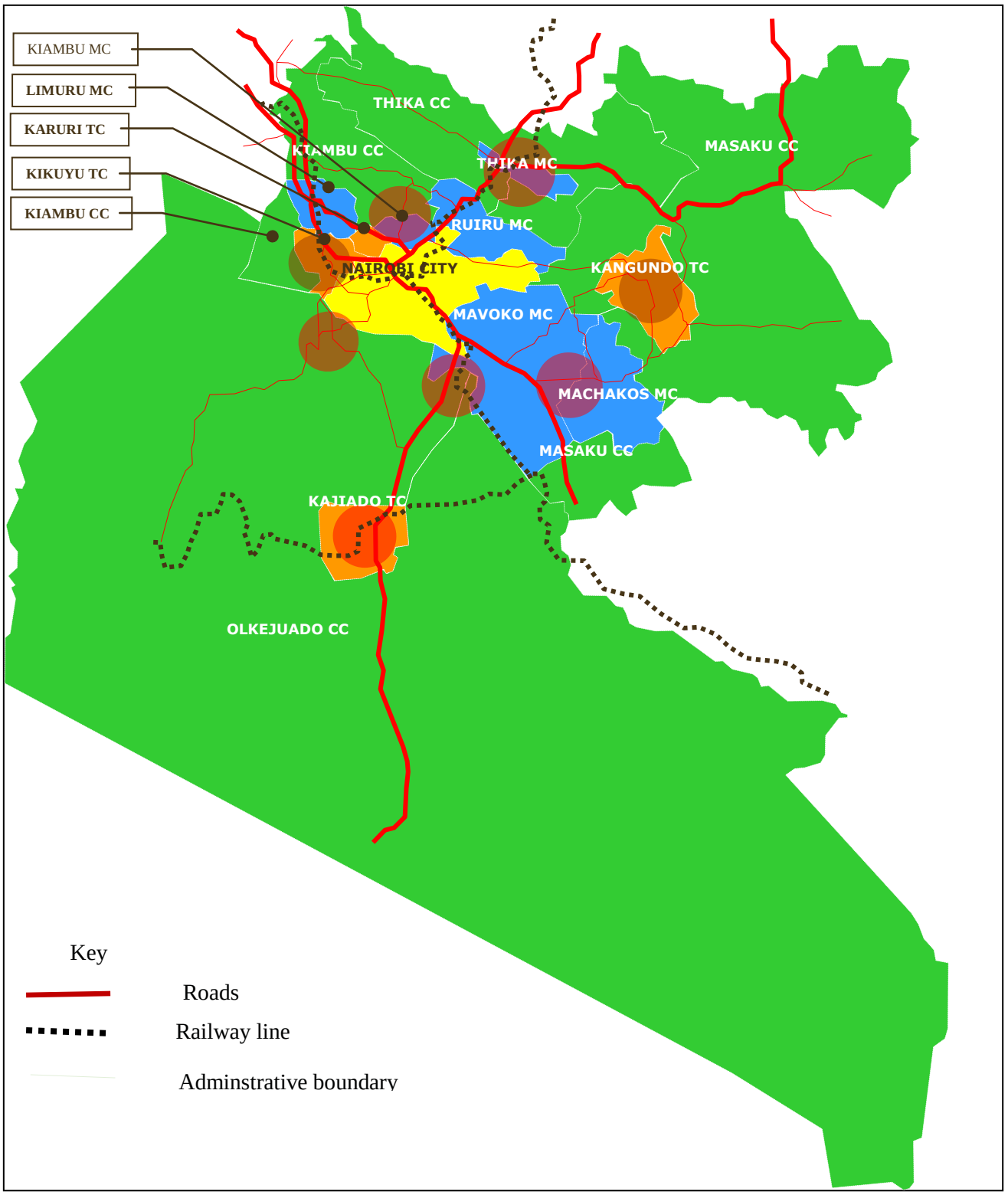


Figure 2.12: Map of Nairobi Metropolitan Region

Source: Ministry of Nairobi Metropolitan Development, 2008

In order to reach its vision, the strategy proposed to have a robust, internationally competitive, dynamic and inclusive economy; development of world class infrastructure to

support economic development, enhance linkages and accessibility to national, regional and global contexts (Ministry of Nairobi Metropolitan Development, 2008).

In 2013, an Integrated Urban Development Master Plan for the City of Nairobi was developed as a follow up study to the Transport Master Plan Study for Nairobi Metropolitan Area. The study investigated future transport network system taking into consideration the present network, ongoing road development projects, land and facility development projects, and land use plans. The report gave a conceptual plan and identified gaps between the existing and necessary capacity estimated by demand forecast, gave direction on how to fill identified gaps, and suggested system and institutions for implementation (Nairobi City County, 2013).

Table 2.6 summarizes urbanization challenges in the City of Nairobi while **Table 2.7** summarizes some of the studies reviewed and others as well as recommendations for improvement of road infrastructure specifically requiring the construction of bypasses to improve traffic flows within the City of Nairobi.

Table 2.6: Summary of urbanization challenge in the City of Nairobi

Year	1907	1963	2009	2030*
Area of Nairobi/ NMA Area (Km2)	77	696.3	696.3	32000
Population	11512	118976	3138369	12000000
Population Density (people per square km)	150	171	4508	375

**Projected*

Source: GOK, 2008; City Council of Nairobi, 2007

Table 2.7: Summary of literature on improvement of infrastructure in the City of Nairobi

Reference	Year	Purpose	Suggested improvements/bypasses
City Council of Nairobi (1973). Nairobi Metropolitan Growth Strategy, Volumes I and II	1973	Master plan for land use and transport to guide the city up to the year 2000. Specific objectives were as follows: • To provide a system capable of meeting maximum demands for trips by all modes at reasonable level of services; • To design the system to embody maximum flexibility so that it may easily be extended or adopted to cater for alternative or subsequent development; • To design and operate a system such that maximum efficiency is achieved by providing for maximum trip making at minimum cost, while minimizing damage to the environment.	Recommended land use and transport requirements including bypass roads in Nairobi from 1973 to the year 2000. The study recommended development of low density housing by construction of single storied houses but depending on improvement of such facilities as transport, infrastructure and public service costs
The Nairobi Bypass Construction Project, Feasibility Study and its Detailed Design Study (1988/1992) (JICA, 2006)	February 1988	Detailed design study for the route of Southern Bypass to divert through traffic on A104, and traffic on the other urban roads to decongest Nairobi.	Southern Bypass
Actions Towards a Better Nairobi, Report and Recommendations of the Nairobi City Convention	1993	Improvement plan of all sectors in Nairobi	Missing Link roads

A Road Network Development Master Plan Study (JICA, 2006)	May 1995	The report recommended upgrading of Uhuru Highway and Nairobi Bypass	Southern Bypass
Kenya Road Concession Framework (JICA, 2006)	November 2003	Concession study for the Northern Corridor road construction including Southern Bypass	Southern Bypass
Economic Recovery Strategy for Wealth and Employment Creation 2003-2007 (GOK, 2003)	June 2003	To build and maintain quality of standard roads with emphasis on safe and efficient transport	Construction of Northern and Southern bypasses in Nairobi and Mombasa
The Kenya Vision 2030 Second Medium Term Plan			Greater Eastern Bypass and Greater Southern Bypass
Transport Master Plan Study for Nairobi Metropolitan Area (JICA, 2006)	2006	To formulate a Master Plan for Urban Transport in the Nairobi Metropolitan Area for the target year 2025	Construction of Eastern, Northern Bypass, Western bypass and Southern Bypass; link roads; sixteen missing links, eight radial roads, three circumferential roads.
The Project on the Integrated Urban Development Master Plan for the City of Nairobi in the Republic of Kenya, (Nairobi City County, 2013)	2013	To review and develop concepts on sustainable urban development and improvement of living conditions based on the integrated urban development plan for Nairobi.	Implementation of several road projects including bypasses

Source: City Council of Nairobi, 1973; JICA, 2006; Nairobi City County, 2013

Of all the recommendations for infrastructure development in the various studies and plans tabulated above, to date, a few of the missing links (Western Missing Links), Northern and Eastern bypasses and Southern Bypass have been implemented though not to the required standards.

2.2.6 Feasibility study and design of Northern and Eastern Bypasses

In June 2007, the Government of Kenya in collaboration with the Peoples Republic of China, through China Road and Bridge Corporation (CRBC) carried out the feasibility study for Northern and Eastern Bypass Project. The study estimated traffic on the bypasses by the year 2010 when the bypasses were expected to be opened to traffic as well as further projections after completion based on the macroeconomic as well as sector performance data (China Roads and Bridge Corporation, 2007).

Classified traffic volume counts were carried along 20 road sections within the City of Nairobi including Kiambu Road, Mombasa Road, Waiyaki Way, Juja Road, Thika Road, Outer Ring Road, North Airport Road and Limuru Road among others. Ttraffic counts were also carried out at 30 intersections including Bunyala, Nyayo Stadium, and Westlands Roundabout, James Gichuru / Lusaka/Jogoo Road Roundabout and Enterprise/Mombasa Road junctions among others. The counts were conducted manually at each census station for 12 hours from 0630 to 1830 on weekdays. Twenty four hour (24hour) counts were undertaken at 5 stations. A screen line survey was also conducted to determine the traffic volume from and to urbanized areas at 15 stations located on major arterials and collectors including Langata Road, Ngong Road, Thika Road, Mombasa Road, Limuru Road, Juja Road, James Gichuru, Waiyaki Way and Naivasha Road among others. The projected traffic on Northern and Eastern Bypasses per day once constructed based on the surveys were as presented in **tables 2.8** and **2.9**.

Table 2.8: Estimated traffic along Northern and Eastern Bypasses in 2010

Section	m/cycle	Car	Pick up/4wd	Mini bus	Large bus	Light truck	Medium truck	Heavy truck	Articulated truck	Total
Eastern Bypass	17	1196	775	895	107	117	117	77	40	3341
Northern Bypass	17	1190	771	891	107	116	116	77	40	3325

Source: CRBC, 2007

Table 2.9: Projected traffic along Northern and Eastern Bypasses in 2029

Year/bypass	AADT in PCUs		
	2010	**2019**	**2029**
Eastern Bypass	4,877	13,034	26,570
Northern Bypass	4,852	13,364	26,463
Northern and Eastern Bypass	4,847	13,163	26,528

Source: CRBC, 2007

As indicated in **Table 2.9** above, it was envisaged that by 2029, Eastern Bypass roads would have an average annual daily traffic volume of 26,570 Passenger Car Units (CRBC, 2007). Economic analyses carried out found that at an estimated Economic Internal Rate of Return (EIRR) of 19.04%; and a Net Present Value (NPV) of KShs. 6.27 billion; at a prevailing social discount rate of 12% the bypasses were economically, environmentally and socially viable. Based on the feasibility study findings, both the Northern and Eastern bypasses were found to be paramount to facilitate traffic diversion, enhance service level, alleviate traffic pressure, mitigate vehicle emission, improve urban environment and achieve sustainable socio economic development for Nairobi if constructed (CRBC, 2007).

Based on the estimated traffic, the feasibility study report recommended the two bypasses to be designed as class A (International Trunk Road standard) at a design speed is 80 km/hour with dual 2lane carriageway (plus left auxiliary lane and a footpath on each side). Specifically, the feasibility study recommended for adoption, a widened urban road section with footpaths and illuminating facilities and dual carriageway (7m) with a median of 5m wide, 2m shoulder width, service roads on either side among others. The footpaths, lighting and cycling tracks on either sides of the roads were meant to encourage members of the public to be environment conscious and use safe tracks while footing or cycling to and from City Centre. The construction of both Eastern and Northern bypasses was completed in 2012 and immediately opened to traffic. However, only 5 km of Eastern Bypass from City Cabanas to Embakasi Roundabout was dualled with service roads and footpaths provided on either side (KURA, 2016).

2.2.7 Review of Kenyan road design manuals Versus bypass requirements

The design and construction of roads worldwide are guided by country specific guidelines as well as widely accepted standards such as American Association of State Highway and Transport Officials (AASHTO) and Highway Capacity Manual (HCM) among others. In Kenya, several manuals are used for design of roads including: Road Design Manual Part I (Geometric Design of Rural Roads – Ministry of Public Works and Housing 1979) and Road

Design Manual Part II (2nd Draft Road Design Guidelines for urban Roads (August, 2001) prepared by Ministry of Local Government under Kenya Urban Transport Infrastructure Project (KUTIP)), Road Design Manual Part III (Materials and Pavement Design), Road Design Manual Part IV (Bridge Design) and Road Design Manual Part V (Pavement Rehabilitation and Overlay Design) among others. Some of the main distinctions among various manuals in Kenya are illustrated in the following subsections.

2.2.7.1 Road Design Manual Part I

Road Design Manual Part I was intended for rural roads only. The manual classifies rural roads in Kenya depending on their function. The classification dictates the design speeds, level of access control, selection of geometric design standards compatible with road functions and road reserve requirements. Accordingly, the road function classification and level of access control determines design standards to apply to guarantee the intended use of the road when constructed. Some of the design features that convey the level of functional classification applicable to the driver include: carriageway width, continuity of alignment, spacing of junctions, frequency of accesses, standards for alignments and grades, traffic controls and road reserve widths. **Table 2.10** below summarizes the characteristics of various classes of roads as per Road Design Manual Part I.

Table 2.10: Characteristics of various classes of rural roads in Kenya

Road classification	**Road function**	**Desirable Road reserve requirements**	**Desirable level of access control**	**Design speed (km/hr)**
Class A – International Trunk Roads	Link internationally important places, cross international boundaries and terminate at the international ports	60metres	Full	100-120 on level terrain; 70 to 100 on rolling terrain; and 50 to 70 on hilly terrain
Class B – National Trunk Roads	Links nationally important places (principle towns and urban centers)	60metres	Full	
Class C – Primary Roads	Links provincially important centers to each other or to higher class of	40metres	Full / Partial	90-100 on level terrain; 60 to 90 on

Road classification	Road function	Desirable Road reserve requirements	Desirable level of access control	Design speed (km/hr)
	roads (Urban/rural centers)			rolling terrain; and 40 to 60 on hilly terrain
Class D – Secondary Roads	Links locally important centers to each other or to a more important center or to higher class of roads	25metres	Partial	80 on level terrain; 50 to 80 on hilly terrain; and 30 to 50 on rolling terrain
Class E – Minor Roads	Any road link to a minor center (local/market centers).	20metres	Partial/ unrestricted	

Source: Road Design Manual Part I, 1979

In addition, the Road Design Manual Part I also provides different cross-sections (transverse roadway features including the carriageway, lanes, drains, walkways among other roadway features) based on the 10 year projected traffic after opening of a constructed road. Traffic is given in terms of Annual Average Daily Traffic (AADT) or Design Hourly Volume (DHV) for different road cross sections as summarized in **Table 2.11** below.

Table 2.11: Recommended cross sections for a 2lane rural road

AADT or DHV in the year 10 (pcu)	Cross section type
AADT<150	V,VI, VII OR VIII
150<AADT<500	IV, V OR VII
500<AADT<2000	III OR IV
2000<AADT<4000 or 250<DHV<500	II OR III
AADT>4000 Or DHV>500	II

Source: Road Design Manual Part I, 1979

The dimensions of various components for each cross section are summarized in **Table 2.12**.

Table 2.12: Dimensions of various cross sections of rural roads in Kenya

Cross section type	No. of lanes	Carriageway width (m)	Shoulder width each side (m)	Median (m)	Carriageway shoulder (m)
I	4	14	2.5 outer shoulder 1.0m inner shoulder	9	30
II	2	7.0	1.5	None	10
III	2	6.0	1.0	None	8.5
IV	2	6.0	0.5	None	7.0
V	1	4.0	1.5	None	7.0
VI	1	4.0	0.5	None	5.0
VII	2		-	None	8.0
VII	1		-	None	6.0

Source: Road Design Manual Part I, 1979

Based on the provisions in the Road Design Manual Part I, bypass roads or sections of bypasses may fit design standards for classes A or B with cross section Type I if they traverse a rural setup. Comparatively; the constructed Eastern Bypass does not reflect these design requirements in sections that traverse rural set up especially between Kangundo Road and Thika Road.

2.2.7.2 Road Design Manual Part II

Road Design Manual Part II was intended for urban roads only. The manual consists of Road Design Guidelines for Urban Roads prepared by Ministry of Local Government (MoLG) under Kenya Urban Transport Infrastructure Project (KUTIP) in August, 2001. The guidelines categorize urban roads as local, collector or arterials. The characteristics of each of these classes are summarized in **Table 2.13** below.

Table 2.13: Characteristics of various classes of urban roads in Kenya

Parameter	Local	Collectors	Arterials
Traffic movement	Secondary to access	Equal to access	Primary
Flow condition	Interrupted flow	Interrupted flow	Uninterrupted flow except at intersections
Design speed (Km/hr)	30-40	50-70	70-90
Running speed(Km/hr)	20-40	30-70	40-90
Road reserve width (m)	9-15	20-60	80-90

Parameter	Local	Collectors	Arterials
Carriageway width (m)	5-7	7-7.5	7.5
Property access	Primary	Equal to traffic movement	Preferably excluded
Connections	Collectors and locals	Arterials, collectors and locals	Arterials and collectors
Parking	Accepted	Accepted / restricted	Excluded

Source: Road Design Guidelines for urban Roads (MOLG – KUTIP, August 2001)

Accordingly, based on the Road Design Manual Part 2, bypasses sections fall under the category of arterial roads as per the provisions in Table 2.13 above. However, the above guidelines should be accepted with caution since they are still in draft form. Arguably, the design and construction of bypasses in urban areas, should still meet the provisions in the Road Design Manual Part II, which require provision of adequate safety and convenience to all urban road users while maintaining proper balance among road functional classifications, environmental concerns and fiscal restraints.

2.2.8 Comments on the Kenyan manuals provisions and bypass requirements

Review of the provisions in the Kenya Road Design manuals for design of roads reveal inadequacies with respect to bypass standards summarized in **Table 2.1** of this thesis. For instance, while guidelines for urban roads prefer that access to properties along the bypass is excluded, bypass standards require total ban on direct access. Again, while the Kenya Road Design Manual Part 2 recommends carriageway width for arterials of 7.5m (MOLG – KUTIP, August 2001) meaning that it is acceptable for a bypass to be designed and constructed as a two lane two way single carriageway, bypass standards require bypasses to be dualled with many wide lanes in each direction, provision of service roads, wide shoulders and median to ensure mobility and safety (Otto et al, 1995).

Still, there is a contradiction between the provisions in the Manuals for Road Design in Kenya and the legal framework, especially with regard to the allowable operational speeds along various roads. One such contradiction is with regard to allowable maximum speeds. For instance, while the Road Design Manual Part 1 makes provisions for design speeds as higher as 120 km per hour, the Traffic Act, Cap 403 provides operational speed limits depending on whether a road passes through a built up area or not, and the class of vehicles. For instance, the Traffic Act, Cap 403, provides a maximum speed limit of fifty kilometers per hour on any road

within the boundaries of a trading center, township, municipality or city. However, the same law dictates different maximum speeds for different vehicle classes as summarized in **Table 2.14** below.

Table 2.14: Maximum operational speeds in Kenya

Class of vehicle	**Maximum speed (Km/hr)**
1.(a)(i) Motor cycles and motor cars, including motor cars normally used for hire but excluding all other public service vehicles, when travelling on dual carriageway highways	110
(ii) Motor cycles and motor cars including all cars normally used for hire but excluding all other public service vehicles when travelling on single carriageway highways	100
(b) All commercial vehicles, motor omnibuses, matatus and public service vehicles (excluding self-drive hire cars) travelling on any type of road)	80
(c) Articulated vehicles and other motor vehicles not drawing trailer on any type of road	80
2. All motor vehicles drawing one trailer on any type of road	65
3. Motor vehicles not fitted with pneumatic tyres	30

Source: The Traffic Act, Cap 403 (2009)

The application of the different speeds for rural and built up areas especially where a bypass road traverses through both built up and rural areas as well as the fact that different vehicle classes are allowed different maximum operation speeds on the same roadway may be the source of bypass malfunctioning in Kenya. Similarly accesses to the bypasses are not controlled since several direct accesses and developments within the road reserve are very significant along the bypass and could undoubtedly be the source of unattractive travelling conditions.

Another challenge in the functioning of Eastern Bypass in Nairobi arises from the successive changes in administration boundaries following the passing of the Constitution of Kenya, 2010. The Constitution of Kenya 2010 affected the validity of the original functional classification in terms of administrative centers, notably at local, district, provincial, national and international levels. Previously, road classifications were based on the zones linked which were also related to road functions. For example, Class A roads were defined as roads linking internationally important centres and international boundaries; Class B linked provincial headquarters and Class C linked District headquarters among others (Kenya Road Design Manual Part I, 1979).

With the Constitution of Kenya 2010, certain definitions such as provinces were abolished. Further, the law also established only two categories of roads (National Trunk Roads and County Roads), which then required that the existing road classifications be amended to be in tandem with the provisions of the Supreme Law. In addition to the changes, the criterion used in the classification of roads by the Constitution of Kenya 2010 was rather broad and subjective. Concequently, efforts have since been made by the Ministry of Infrastructure, Transport and Housing, Urban Development, Department of Infrastructure to review road classifications so as to compare with best international practices and develop a new road classification system. The main thrust of the approach was to make the road classification more objective and consistent by specifying quantifiable parameters (traffic, population and spacing) in classifying the roads and assigning the same to the appropriate levels of government (County or National Government). It would also be a dynamic system where road classes can be periodically reviewed in view of changes in traffic, and function, amongst other parameters.

Resultantly, in 2016, a new road classification register was gazetted in which roads were assigned to either County Government or National Government depending on the road class. In the gazetted roads register, all roads in the country were categorized as either County roads or National Trunk Roads with various classes as summarized in **Table 2.15** below.

Table 2.15: Current road classification in Kenya

Functional system	**Level of service /description provided**	**Rural road class**	**Urban Road Class**
Arterial	Roads that provide the highest level of service at the greatest permissible speed for the longest uninterrupted distance with access control.	S	-
		A	H (Au)
		B	J (Bu)
Collector	Roads that provide lower level of services than arterial roads at lower permissible speeds over short distances with limited access control. Meant to collect traffic from local roads and connect it with arterials.	C	K (Cu)
		D	L (Du)
Local	Consists of all roads not defined as arterials or	E	M (Eu)

Functional system	Level of service /description provided	Rural road class	Urban Road Class
	collectors, primarily provides access to residential, commercial or industrial areas with little or no through movement	F	N (Fu)
		G	P(Gu)

Source: GOK, (2016)

In the above classes, road Classes A, B, C were gazetted as National Trunk Roads while Road Classes D,E,F,G and others were classified as County Roads. It is worth noting that in the classification, Northern and Eastern Bypasses are classified as urban Roads Class A (GOK, 2016).

2.2.9 Policy, legal and Institutional framework for bypasses in Kenya

Various policies and legislations have been put in place to guide the management of roads in Kenya. Sessional Paper No. 5 of 2006 on Sustainable Management and Development of the Roads Sector provided the overall guiding policy direction as relates to the roads sector in Kenya. The goal of the policies outlined in this Sessional Paper was to attain an efficient road sector that supports and promotes economic growth through the cost effective provision and maintenance of infrastructure that is necessary for safe and reliable road transport (GOK, 2006). The key objectives of the policies were to:

- reduce transport costs and travel time by improving the condition of roads, including reducing congestion on urban roads by increasing capacity.
- increase accessibility
- optimize use of available resources
- increase the resources available for investment in the road sector
- enhance preservation of existing road assets
- create a conducive environment for increased private public partnership
- enhance road safety and cater adequately to the needs of Non-Motorized Traffic (NMT)
- enhance ownership through stakeholders participation in the road sector
- achieve an optimal institutional framework for effective implementation

Arising out of the sessional paper, legal and institutional framework to govern the road subsector in Kenya was developed. The sessional paper culminated in the enactment of the Kenya Roads Act, 2007. The Act established three semi-autonomous bodies to be responsible for managing, developing, rehabilitating and maintaining public roads. This arrangement

effectively took away previous arrangement where roads were managed by the Ministry of Roads and Public Works and Municipality Councils. The semi-autonomous bodies created by the Kenya Roads Act, 2007 and the respective mandates were as follows:

(i) Kenya National Highways Authority (KeNHA) responsible for Class A, B and C roads;
(ii) Kenya Rural Roads Authority (KeRRA) responsible for Class D, E & Others;
(iii) Kenya Urban Roads Authority (KURA) responsible for public roads in cities and municipalities (The Kenya Roads Act, 2007).

Other policies developed to guide the road subsector included the Integrated National Transport Policy, 2010, Roads 2000 strategy; and Road Sector Investment Programme (RSIP: 2010-2024) among others (Ministry of Roads, 2011).

Road development, rehabilitation and maintenance in Kenya are funded through the annual budgetary allocation, grants and loans from development partners and private sector through Public Private Partnerships (PPP) and fuel levy. The funding arrangements are supported by various legal frameworks such as Public Private Partnerships Act, 2013 for private sector participation and Kenya Roads Act, 2007 on distribution of funds from fuel levy for road maintenance among others. For instance, according to the Kenya Roads Act, 2007, KeNHA is allocated 40%, KeRRA 32%, KURA 15%, KRB 2%, Cabinet Secretary, Ministry of Transport and Infrastructure (MOTI) 10% and Kenya Wildlife Service 1% of the total fuel levy collections every year (Government of Kenya, 2007). However, this funding arrangement changed with the adoption of the Constitution of Kenya, 2010. Legislations meant to operationalize the Constitution of Kenya, 2010 have been put in place such as the County Revenue Allocation Act, 2012 (GOK, 2012). This act affected the funding of road development and maintenance in the country since it allocates 15% of the fuel levy collections to the forty seven county governments for purposes of maintaining the roads. Legislations are currently ongoing to repeal the Kenya Roads Act, 2007 to be in tandem with the constitution.

Historically, resources for road development have been found to be inadequate in view of the classified road network estimated to comprise over 163,000 km. owing to inadequate funds, some roads have for some time not been maintained leading a backlog of unmaintained roads. According to the Road Sector Investment Programme 2010-2024, over Kshs. 604.6 billion was required to be expended in the first five years of the Programme to deal with road maintenance, rehabilitation and development (Ministry of Roads, 2011).

With counties taking up the development and maintenance of roads, the situation could be made worse especially because of the competing priorities of the County Governments. There is likelihood that counties may easily divert resources meant for road development and maintenance to other county functions. Where such situations happen, road development and maintenance are likely not to be attended to.

2.2.10 Management of bypass roads in Kenya

Different government bodies are involved in the management, development and maintenance of bypasses in Kenya. Kenya National Highway Authority (KeNHA) constructed and is currently managing the Southern Bypass in Nairobi, Kisumu Bypass in Kisumu County and is also in the process of planning the construction and operation of the proposed bypasses in Eldoret, Ndongo Kundu Bypass in Mombasa and Western Bypass in Nairobi among others. Similarly, KURA designed, constructed and is currently in charge of maintaining Northern and Eastern Bypasses in Nairobi, Meru bypass in Meru, the proposed Greater Eastern and Greater Southern bypasses as well as Nakuru Bypasses in Nakuru County.

Having different institutions responsible for the design, construction and management of bypasses in the country may make the implementation of bypass standards and functions difficult especially where bypass standards are not in place. In accordance with road classification in Kenya, bypasses are classified as Class A or B Roads. This means that as per the Roads Act, 2007 which is yet to be repealed, all classes A, B and C roads ought to be managed by KeNHA. However, this is not the case since some bypasses are under the mandate of Kenya Urban Roads Authority. Arguably, there is an urgent need to streamline the roles among the Road Authorities with regard to bypasses in Kenya. World Bank's Road Management Initiative identified four building blocks aimed at commercializing the management of roads in the world. The four blocks include: creating ownership by involving road users in the management of roads to win public support for more road funding, to control potential monopoly power, and to constrain road spending to what is affordable; stabilizing road financing by securing an adequate and stable flow of funds; clarifying responsibility by clearly establishing who is responsible for what; and (iv) strengthening the management of roads by providing effective systems and procedures and strengthening managerial accountability (Potter, 1997). Undefined ownership of bypass roads in Kenya is therefore against the recommended best practices under the Road Management Initiative (RMI) which requires clear responsibility over road management.

However, despite the fact that management of roads in Kenya is in line with the world's best practices, there are challenges in terms of the general planning and enforecement of planned developments and development controls. In most towns in Kenya, physical planning as well as development controls are domiciled in the county and municipal councils. However, there has been laxity in the approvals and enforcement of developments leading to encroachment on designated rest areas, road reserves and among other controls in approved plans. These in most occasions have resulted in agencies managing roads such as Kenya Urban Roads Authority face difficulties in development and maintenance of roads. A classic example of the challenges experienced by Kenya Urban Roads Authority includes the implementation of roadworks for Northern and Eastern Bypass where the Authority spent over 50% of the project cost to relocate persons within the road reseve to pave way for the works, delayed implementation of European Union funded missing links within the City of Nairobi because of encroachment, court cases barring the implementation of many roads across the country among others (KURA, 2012).

2.3 Estimation of traffic flows, types of trips and congestion levels

2.3.1 Overview

Travel modeling involves determination of trip generation, trip distribution, mode choice and trip assignment. Trip generation provides the connection between land use and socio-economic characteristics of a region. It uses known relationships between trip making and demographics to predict the number of person trips, or 'trip ends', starting and ending in particular geographic areas, or 'traffic analysis zones' (TAZs). Trip distribution on the other hand, uses the characteristics of the transportation network and regional demographics to distribute trip ends from the generation model to specific origins and destinations. The number of trips from each origin to each destination can be calculated and presented in a trip table or matrix form. In most situations, gravity model is used to allocate traffic flows on O-D basis. The model allocates traffic flows on the basis of average travel distance, average travel time, or composite modal travel time as the primary impedance variables (Wright et al, 1989; Kadiyali, 2002).

Mode split determines the percentage of trips between a given origin and destination that use a particular transportation mode. Mode choice uses information about relative benefits of the utility of each travel mode such as trucks, rail, airplane and water vessels among others.

Trip assignment is the fourth and last step in the conventional transportation-forecasting model. In this step, trips between a given origin and destination are assigned a particular mode to the transportation network. This step forecasts traffic volumes on individual links of the modal

networks. Traffic is assigned to available transit or roadway routes using a mathematical algorithm that determines the amount of traffic as a function of time, volume, capacity, or impedance factors (Mei et al, 2011). **Diagram 2.1** summarizes the four stages of travel modeling.

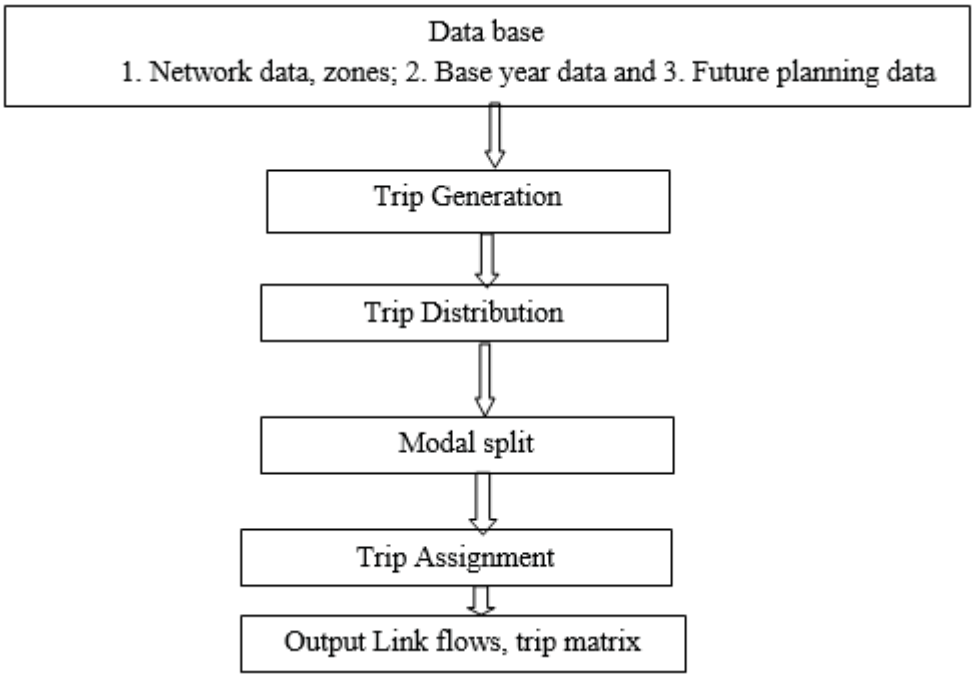


Diagram 2.1: Summary of travel modelling process

In this thesis, estimation of various types of trips along a bypass was one of the central objectives. In order to estimate trips, an understanding of traffic movement in and out of an area is required. This may be made possible by capturing details of vehicles observed entering and leaving a cordoned area at given stations usually located along major routes. Trips estimated from the captured data can be external-external (through trips), internal- internal (local trips), internal – external or external - internal trips. Through trips would include those vehicles that enter cordoned area and proceed through the cordoned area to a destination outside the cordoned area. External-internal trips, on the other hand would consist of vehicles with destination within the cordoned area. These vehicles enter the area; spend some time and then exit. In most cases, through trips and external-internal trips are determined from origin-destination (OD) surveys. Collection of OD data processes requires huge amount of resources and they are generally tedious (Pigman et al; 1978). Simpler ways for synthesizing trips are available and have been applied in different jurisdictions as detailed in the following subsections.

2.3.1.1 Estimation of through traffic using theory of sets

Estimation of through traffic using theory of sets was used by Luburić et al (2011) using vehicle registration plates on Zagreb bypass road, in the City of Zagreb, Croatia. The approach takes into account the traffic and technical characteristics of bypass roads.

Theoretically, a set is defined as a collection of objects that together form one whole. The objects of sets are called members, which can be numbers, letters of the alphabet, people and vehicles among others. A set cannot contain several equal elements, and the order of counting the elements in the set is not important. Based on the set theory, the analysis of the share of transit flows on bypasses can be mathematically modeled. Vehicles at a certain entry or exit on the bypass define a collection of objects. Since each vehicle is determined by its registration plate, there cannot be several equal elements in the set. Due to the various speed limits on bypasses, the order of counting in certain sets is variable, and not important. Hence, sets of vehicles at entries to bypasses and exits from bypasses contain the basic characteristics of mathematical sets (Luburić et al, 2011). The use of set theory to measure transit volume on bypasses is illustrated in **Figure 2.13** below.

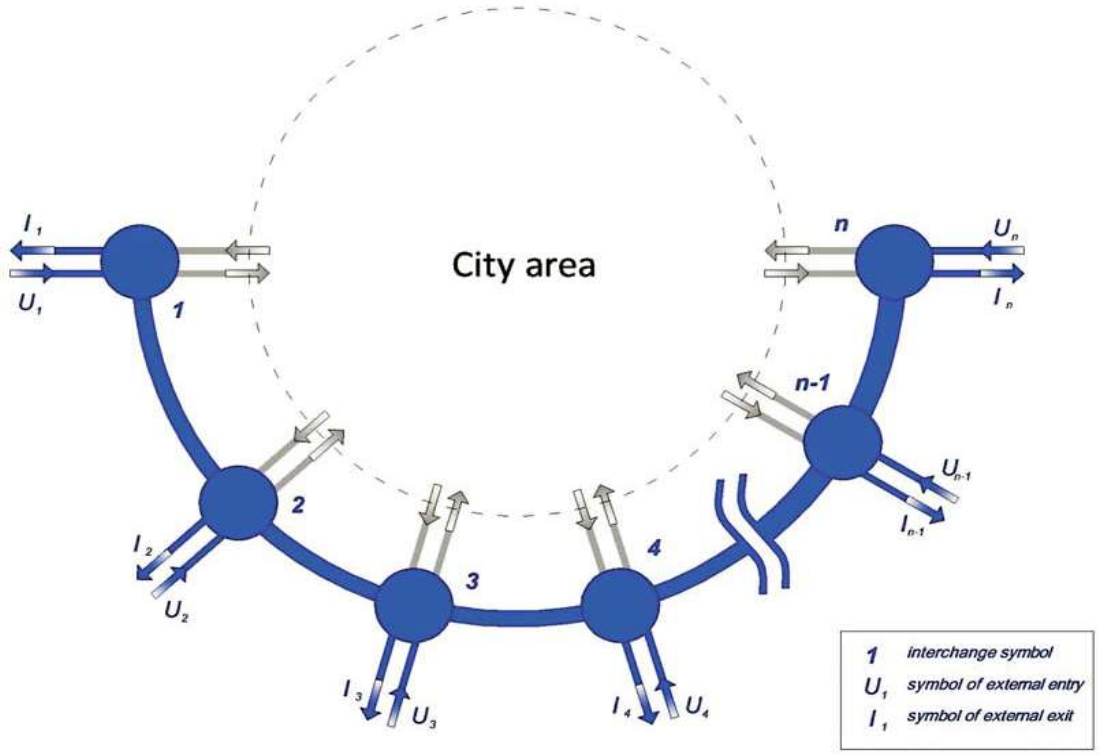


Figure 2.13: Illustration of theory of sets model for measuring through traffic
Source: Luburić et al, 2011

Assumptions made:

- *n* - number of interchanges on a certain bypass
- there is one external entry *U* and one external exit *I* at every interchange
- U_i - a set of vehicles that enters the bypass on external entry *i* (*i=1…n*)
- I_j - a set of all vehicles that leave the bypass on external exit *j* (j= *1…n*).

The transit flows for one entry and exit can be defined in such a way that:

T_{ij} is the set of all vehicles that from the external entry *i* go to external exit *j* and is defined by an expression:

$$Tij = U_i \cap I_j \quad (1)$$

Equation 1 above is illustrated in **Figure 2.14** below.

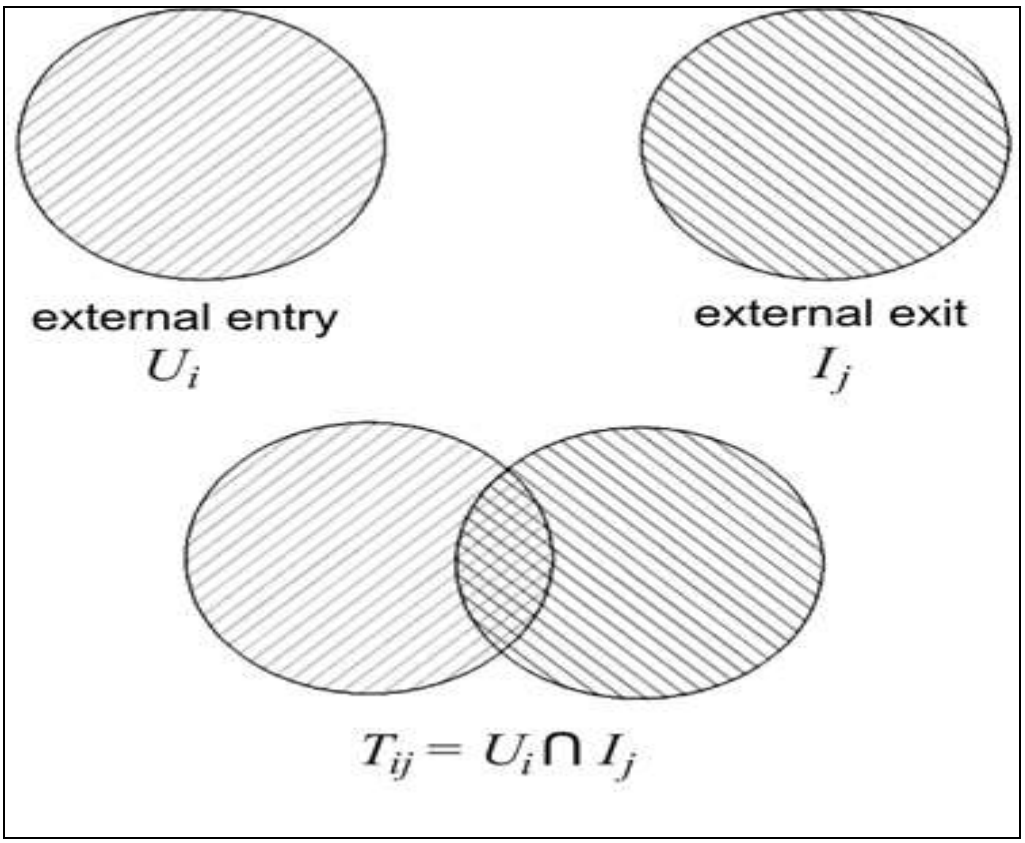


Figure 2.14: Determination of transit traffic at external entry and exit

Source: Luburić et al, 2011

Accordingly, the overall transit on a bypass can be defined by a union of all transit cross-sections for individual combination of entries and exits as given in equation 2 below:

$$T=T_{11} \cup T_{12} \cup \ldots \cup T_{nn} \quad (2)$$

Since a vehicle that has entered at one of the entries can appear at only one exit, the sets are disjunctive sets, (their intersection is an empty set).

$$T= T_{11} \cap T_{12} \cap \ldots \cap T_{nn}=0 \quad \ldots\ldots\ldots (3)$$

Thus, the total transit can be defined also by the sum in the following way:

$$T=\Sigma^{n}_{i=1} \Sigma^{n}_{j=1} |T_{ij}| \ldots\ldots\ldots (4)$$

Where,

|T| is the number of vehicles in set T, (number of vehicles in transit (cardinal number)).

In order to obtain the share of transit traffic on external entries to the bypass, the number of the members of set U has to be divided by the number of members of set T. Set U represents a union of sets of vehicles that entered the bypass on all external entries, and the complement of set U, |U|, represents the number of members of the set, (the number of vehicles at the entry):

$$|U| =\Sigma^{n}_{i=1} |U_i| \ldots\ldots\ldots (5)$$

In order to obtain total traffic picture on a bypass in terms of Annual Average Daily Traffic (AADT), the model has to be implemented several times during a day, a week and a year.

However, this methodology can only determine the share of transit traffic only, rather than the total distribution of traffic. In addition, the method does not give criteria for classification and categorization of vehicles, which was key in this study.

2.3.1.2 Modlin's Method

Modlin's method was built from linear regression equations to estimate the percentage of through trips in small communities in North Carolina. The model takes into account the following parameters: functional classification of the roads crossing the cordon line (interstate, principal arterial or minor arterial); Annual Average Daily Traffic (AADT), percentage of trucks in the traffic mix, number of vans and pickups, population of the cordoned area and route connectivity factor (Martin and McGuckin, 1998).

Modlin's method uses two steps in predicting through trips. First, the percentage of external trips are predicted for each cordon station as a function of the road class, AADT, percentage of trucks, percentage of vans and pickups and population within the cordon line. The percentage of external trips at each origin station is calculated using the equation below:

$Y_i = 76.76 + 11.22 \times I - 25.74 \times PA - 042.18 \times MA + 0.00012 \times ADT_i + 0.59 \times PTKS_i - 0.48 \times PPS_i - 0.000417 \times POP$…… (6)

Where,

Y_i = percentage of the Average Daily Traffic at external station $_i$, that are through trips,

I = interstate (0 or 1),

PA = principal arterial (0 or 1),

MA = minor arterial (0 or 1),

ADT_i = average daily traffic at external station i,

$PTKS_i$ = percentage of trucks excluding vans and pickups at external station i,

PPSi = percentage of vans and pickups at external station i, and

POP = population inside the cordoned area

The second step uses external trip percentages predicted in the first step, as well as route continuity factors to distribute the through trips between pairs of external stations. Modlin developed equations based on functional classes of roads to estimate the distribution of through trips that enter the analysis area at an origin external station (i) and pass through a destination station (j). The functional class of the destination station dictates which equation is to be used (Martin and McGuckin, 1998). The equations are as follows:

(i) Interstate road

Y = -2.70 + 0.21PTTDES + 67.86RTECON…….……..……..…… (7)

(ii) Principal arterial

Y = -7.40 + 0.55PTTDES + 24.68RTECON + 45.62ADT/CD …….…..…… (8)

(iii)Arterial road

Y = -0.63 + 86.68DT/CD + 30.04RTECON ……..….…….. (9)

(iv) Major Collector

Y = -1.08 + 0.00079DESADT + 0.47PTKDES + 31.78ADT/CD ……..……..….. (10)

(v) Minor collector and local street

$$Y = -0.40 + 109.42ADT/CD \ldots \quad (11)$$

Where,

Y = percentage distribution of through trip ends from an origin station to a destination station;

PTTDES = percentage of estimated through trip ends at destination station;

RTECON = route continuity (1 = yes, 0 = no);

ADT/CD = ADT at destination station divided by the sum of ADT at all stations;

DESADT = ADT at destination station;

PTKDES = percentage trucks excluding panels and pickups at the destination station.

The external-internal are calculated by subtracting the number of external trips from Average Annual Daily Traffic. In developing equations listed 6 to 11, the parameters summarized in **Table 2.16** below were used.

Table 2.16: Parameters adopted in the Modlin's Method

Parameter	**Description/source of parameter in the regression equations**	**Values used in coming up with Modlin's method**
Average annual daily traffic counts	Obtained from the Environmental Assessment of SR-9 corridor. Counts collected at 12 external stations over 24 hours.	Different AADT for different external stations in Greenfield Town (SR-9N: 5004; I-70W: 8430; US-40W: 7223; SR-9S: 4168; US – 40 E: 4922 & I-70 E:2879)
Percentage of trucks	Obtained from the Environmental Assessment of SR-9 corridor report specifically from classified vehicle results	Different figures for different external stations in greenfield (SR-9N: 13.1%; I-70W: 13.8%; US-40W: 13.8%; SR-9S: 14.5%; US – 40 E: 13.8% & I-70 E: 13.8%)
Percentage of vans and pickups	Obtained from the Weigh -In-Motion sensors (WIM) Survey on the interstates in Indiana	31% (being average value)
Population of the area within the cordon line	2000 Census (Greenfield population)	16,654 people
Route continuity	Route continuity factor of 1 was	1

Parameter	Description/source of parameter in the regression equations	Values used in coming up with Modlin's method
factor	assigned to pairs of stations where the origin was an interstate ramp from I-70 to SR-9 and the destination was located on SR-9.	
Functional classification or roads	US state or national network classification (principal arterial class interstate, principal arterial, or minor arterial)	Principal arterial class interstate, principal arterial, or minor arterial

Source: Martin and McGuckin, 1998

The weakness associated with Modlin's method is that it produces an illogical conclusion for larger areas. For example, the generation model produces through traffic trip percentages that are less than zero in urban areas with populations greater than 100,000. The method also overestimates the number of external trips due to double counting in the last step of the model when the trips are being distributed in the matrix (Martin and McGuckin, 1998). Based on the above limitations, the method could not be used to estimate trips in the City of Nairobi whose population was found to be over three million people (GOK, 2009).

2.3.1.3 Anderson's Method

Anderson's method is based on linear regression and was developed based on vehicle license plate surveys conducted in 7 cities in Alabama. The model predicts external-external as well as external-internal trips (Anderson et al., 2006). This model is similar to Modlin's method although Anderson method estimates both the percentages of external-external and external-internal trips in one step. Additionally, Anderson method uses an indicator variable to incorporate the effect of a nearby major center (traffic analysis area) as well as an external-internal factor to assist in predicting both external-internal and through trips. The equation below represents Anderson's method:

$$Y_{ij} = 11.368 - 0.0004968 * ADT_j + 11.57 * NMC_j + 9.187 * RTECON_{ij} + 44.857 * IEF \ldots\ldots\ldots (12)$$

Where,

ADT_j = average daily traffic at external station $_j$,

NMC_j = nearby major city at destination j,

$RTECON_{ij}$= route continuity between stations i and j,

IEF = internal-external factor (1 if i=j)

The number of trips between each pair of stations is calculated by multiplying the percentage of trips by half of the AADT (since the AADT used in the analysis is two-way AADT). After the trips are calculated, and made symmetrical, they are balanced to AADT using the biproportional method, an iterative method of balancing trips that ensures that the row and column sums, which in this case correspond to the total number of trips originating from a station or destined to a station, add to the desired value. The biproportional balancing equations are given below.

$$T_{ij}= T^{k-1}_{ij\,(}O_i^{des} /O^{k-1}_i) \quad (13)$$

$$T_{ij}= T^{k-1}_{ij\,(}D_j^{des} /D^{k-1}_j) \quad (14)$$

Where,

k = Iteration number

T^o_{ij} = Unadjusted number of trips from origin i to destination j

O_i^{des} = Desired number of trips at origin i

D_j^{des} = Desired number of trips at destination j

Anderson model is limited as it can only be applied to an area with populations less than 50,000 people. Furthermore, the new variable (NMC_i) representing the existence of nearby major cities (or transportation facilities) was determined based on arbitrary opinions of users. Based on these limitations especially on population, the model was found to be inappropriate in this study.

2.3.1.4 TransCAD Subarea Submodel Analysis

Subarea analysis uses a macro simulation performed in Computer Aided Design Transportation (TransCAD) software to estimate different types of trips; and origin - destination method to estimate trips (Guy and Fricker, 2005). This method uses the four-step traffic modelling processes (trip generation, trip distribution, modal split, and trip assignment) on a statewide level. The method analyses data using a macro simulation using TransCAD software. It extracts the origin-destination trip table for a subarea from the statewide origin-destination table. Before the subarea procedure is performed, the master network and the total daily origin-destination matrix are opened.

After getting a subarea origin destination matrix from TransCAD, it is made symmetrical and balanced to the actual AADT observed at the external stations in the area. TransCAD software

was used by Japan International Cooperation Agency (JICA) Team to model traffic on Nairobi's road network in their study (JICA, 2006). However, TransCAD software is expensive and could not be procured for use in this study. Secondly, given that the software is new and not available locally, it required identifying the software vendor to carry out capacity building including training on how to use the transcad software. The process of identifying, software vendor, a trainer and undertaking the actual training required time beyond the approved reaserch time.

2.3.1.5 Estimation of trips based on data from Road Side Interviews

This method estimates trip characteristics on a road from information obtained by randomly interviewing bypass users stopped at different survey stations (Kadiyali; 2002). The O-D information provides information that allows stakeholders to understand travel patterns and characteristics; measure trends; provide input to travel demand model development, forecasting, and planning for area - wide transportation infrastructure needs and services; and, monitor progress in implementing transportation policies especially with regard to bypasses. In summary, Origin - Destination data provides information on the trip ends of a driver (where a driver started the trip and where the trip ended).Trips made by a driver are either home based or non-home based (Kadiyali; 2002; Guy and Fricker, 2005). From trip end information, an O-D matrix can be generated out of which possible trips can be synthesized. The possible trips that can be derived from trip end information are summarized in **Figure 2.15** below.

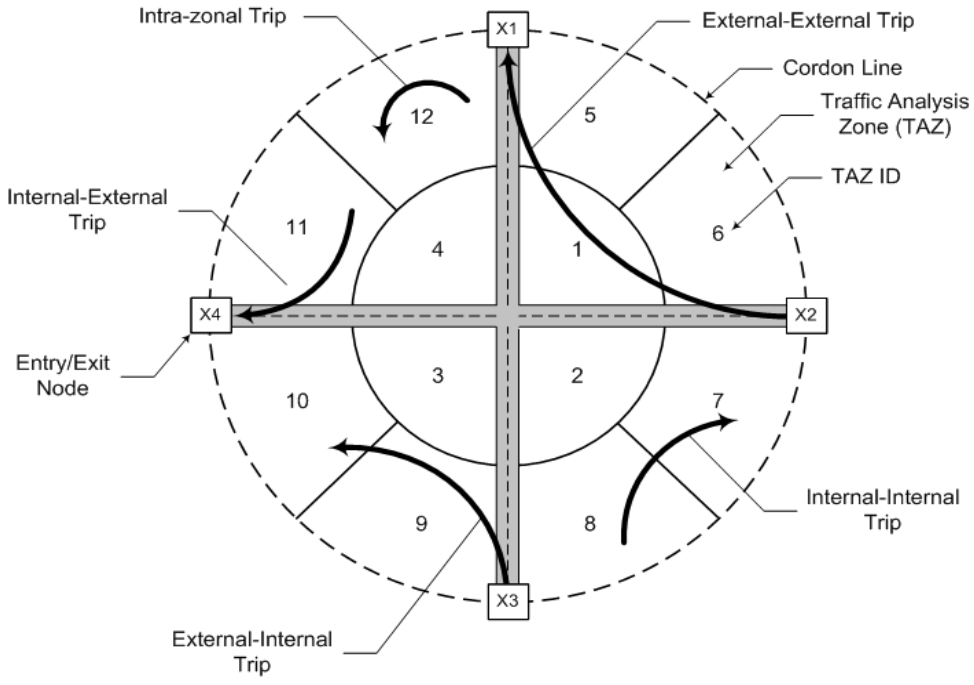


Figure 2.15: Possible types of trips based on OD Data
Source: Guy and Fricker, 2005

From the figure above, internal-internal trip represents road users whose origin and destination are within the cordoned area. Likewise, internal-external represents bypass users whose origin is within the cordoned area and whose destination is outside this area, but travels through an exit node on the cordon line. Another possible trip is the external-internal, which originates outside the cordoned area, travels through an entry node on the cordon line, and ends inside the cordoned area. The external-external trip has both its origin and destination outside the cordoned area, but passes through the same via entry and exit nodes.

External-External trips represent through traffic while Internal – Internal, Internal - External and External – Internal trips represent local traffic (Guy and Fricker, 2005). Since through traffic have no reason stopping in a town or city centre, rerouting such traffic to the bypass can ease traffic flows downtown cities and towns. However, local traffic often also use bypasses as possible links to the city centre (Luburic et al, 2011). One of the objectives of this study was to assess trips that operate along Eastern Bypass. Determination of trips based on the road side interviews of drivers was adopted in this study.

2.3.2 Estimation of Traffic Congestion

2.3.2.1 Overview

Traffic congestion represents a condition of traffic delay (when traffic flow is slowed below reasonable speeds) because the number of vehicles trying to use the road exceeds the traffic network capacity to handle them (HCM, 2010). This may be a recurrent or non-recurrent. Non recurrent congestion condition occurs due to unplanned or unexpected or large events such as road works, crashes and special events that may affect parts of the transportation system randomly and cannot be easily predicted. On the other hand, recurrent congestion results from factors that act regularly or periodically on a transportation system such as daily commuting or weekend trips. Recurrent congestion normally occurs during period of high traffic flows (peak hour periods), typically lasting from 06:00 to 09:00 am and from 3:30 to 7:00 pm. In the smaller urban areas, peak periods are shorter and last for only one or two hours. Off-peak congestion also occurs in some of the larger urbanized areas – especially on urban motorways (OECD/ECMT, 2007).

The level of traffic congestion can be estimated by analyzing basic congestion indicators such as speed, travel time, level of service and other congestion measures that illustrate the quality of travel. The National Cooperative Highway Research Program (NCHRP), a body administered by the Transportation Research Board (TRB) developed simple, reliable and understandable

methods for measuring traffic congestion, applicable to a route, a sub-area, a corridor or a sub-region. These measures are both simple and complex and their application varies. All congestion measures are built on basic travel time and delay data. Congestion performance measures (CPM) are applied in transportation studies to identify problems, assess transit routing and scheduling, and compare other alternatives and towards the measurement of the effectiveness of alternative evaluation. In addition, they can also be used as a basis for government investment and information for private sector decisions as well as to prioritize infrastructure improvements (Lomax et al; 1997).

Indicators of congestion can either be Central Value Indicators or Dispersion Value Indicators. Central Value Indicators describe average value of parameters such as speed and travel time among others. These indicators are calculated using either design defined data or field observable data (Moran; 2011). **Diagram 2.2** summarizes the various classes of congestion performance measures.

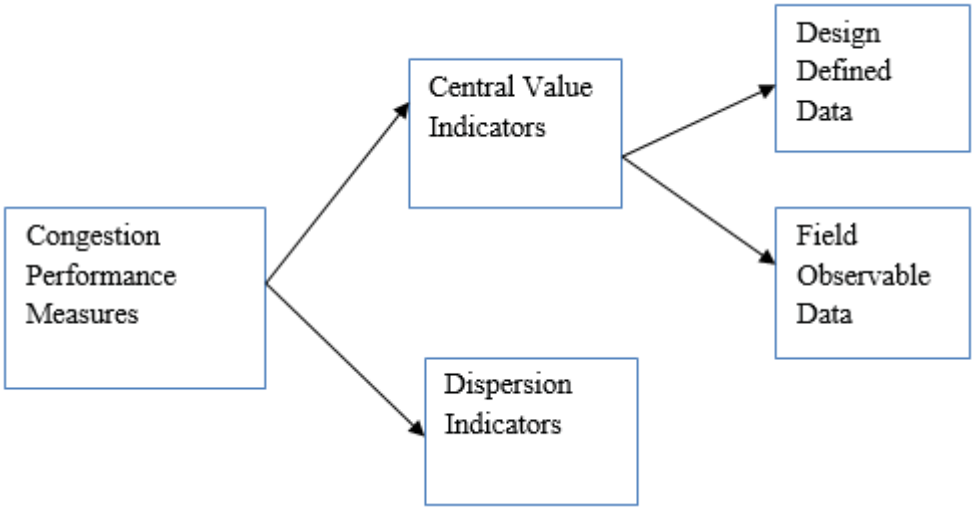


Diagram 2.2: Congestion performance measures
Source: Moran (2011)

Design defined data is applied during planning and design process for infrastructure. This data is normally obtained from previous analyses and studies such as national road plans or demand forecasting studies, which use input variables that are not observable in the field values. Simultaneously, field observable data is directly obtained using simulation models during the operation and maintenance of a transportation facility. This data describes the variabilities and dispersions from the average values and other statistical aspects of parameters such as travel

time, journey speed or other traffic descriptive parameters, neglecting central values (Moran; 2011).

2.3.2.2 Modelling effects of traffic congestion

According to Weisbrod et al. (2002), traffic congestion can have a wide range of negative impacts on people and on the business economy, including impacts on air quality (due to additional vehicle emissions), quality of life (due to personal time delays), and business activity (due to the additional costs and reduced service areas for workforce, supplier and customer markets). Whereas the effects of traffic congestion are felt differently depending on the user of a transportation facility, they typically cover four aspects: duration, extent, intensity and reliability (HCM, 2010). The definition and measurement of these aspects on various transportation systems are summarized in **Table 2.17** below.

Table 2.17: Measurement of Congestion Effects on Transportation Systems

Congestion aspect	**Measurement based on system type**		
	Single roadway	**Corridor**	**Area wide network**
Duration (amount of time a system is congested)	Hours facility operates below acceptable speed.	Hours facility operates below acceptable speed.	Set of travel time contour maps 'bandwidth' maps showing amount of congested time for system sections.
Extent (number of people affected or geographical distribution of congestion)	Percentage or amount of congested vehicle/people mile travel; or lane miles of congested road.	Percentage of vehicle/people miles in congestion; Percentage or miles of congested road.	Percentage of trips in congestion; person miles or person hours of congestion; Percentage or lane miles of congested road.
Intensity (level or total amount of congestion)	Travel rate, delay rate, relative delay rate, minute miles, lane mile hours.	Average speed or travel rate; delay per person mile travel (PMT); delay ratio.	Accessibility; total delay in person hours; delay per person; delay per PMT.
Reliability (variation in the amount of congestion)	Average travel rate or speed ± standard deviation; delay ±standard deviation.	Average travel rate or speed ± standard deviation; delay ± standard deviation.	Travel time contour maps with variation lines; average travel time ± standard deviation; delay ± standard deviation.

Source: HCM, 2010

Since this study was concerned with travel conditions on Eastern Bypass (single roadway as per **Table** 2.17 above), congestion measurements based on a single roadway system were adopted.

2.3.2.3 Congestion models

Several congestion models used in illustrating congestion exist. The models are grouped into four categories namely (i) basic measures (ii) ratio measures (ii) indices and (iv) level of service. The definitions and differences in application of the aforementioned models are summarized below (Lomax et al, 1997).

1) **Basic measures** relate to delay and represent additional time experienced by a road user in comparison to the free flow travel or acceptable travel time. The measures estimate the difference between system performance and the expectations for system elements and quantify congestion in terms of total delay for major urban areas. These measures include: average travel time, travel time, total delay, congested travel, congested roadway length, vehicle density and travel speed among others.
2) **Ratio measures** are developed by dividing one travel time or delay element by another. These ratios are developed based on travel rate (in minutes per mile) (the rate at which a road segment is travelled). Examples of ratio measures include: relative delay rate and delay ratio.
3) **Indices** include several congestion related elements in an equation and produce a single measure such as: travel rate index, corridor mobility index, roadway congestion index (RCI), congestion severity index, lane mile duration index and travel time index.
4) **Level of Service (LOS)** of a facility represents the quality of travel experienced by a facility user. It is determined by traffic flow characteristics such as vehicle density, volume-to-capacity ratio, average speed and intersection delay.

Highway Capacity Manual (HCM, 2010) provides the procedure for estimating level of service on a transportation facility, which also includes the effects of any delay-causing elements within or at the end of a link as illustrated in **Diagram 2.3**.

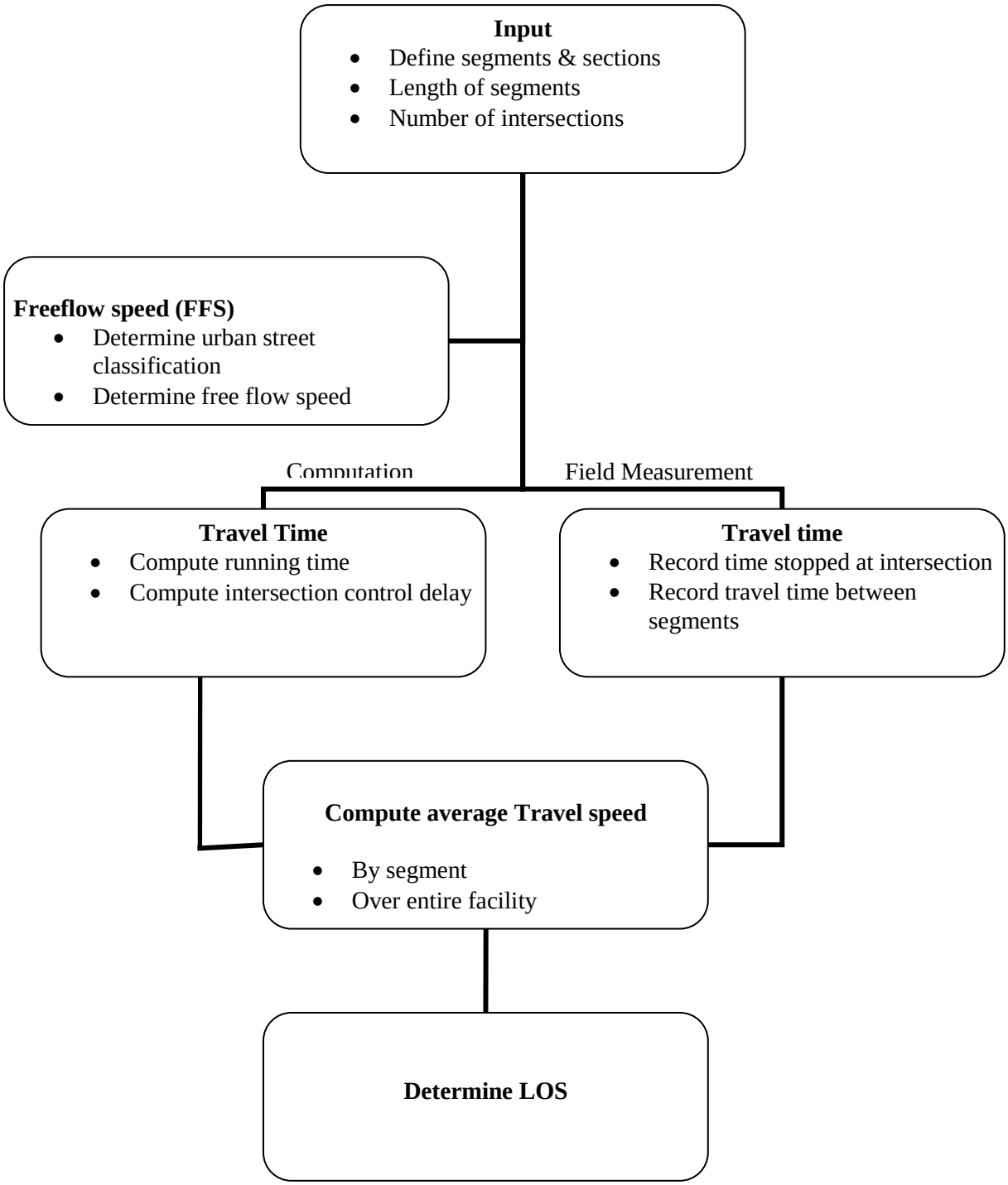


Diagram 2.3: Procedure for determining levels of service

Source: HCM, 2010

In the above diagram, free-flow speed (FFS) represents the average speed of vehicles on a facility, measured at low-volume conditions when drivers tend to drive at their desired speed and are not constrained by control delay (HCM, 2010). However, FFS varies depending on urban street classification, based on functionality and design. From a design point of view, urban streets can be High-Speed, Suburban, Intermediate or Urban. Based on functionality, streets are classified either as principal arterials or minor arterials. Principal arterials serve

relatively long trips between major points and through-trips entering, leaving, and passing through a city while minor arterials serve trips of moderate length within relatively small geographical areas (HCM, 2010). Levels of service for various classes of urban streets based on speed are summarized in **Table 2.18** below.

Table 2.18: Levels of Service for various classes of Urban Streets

Urban street class	**I**	**II**	**III**	**IV**
FFS	90 to 70 km/h	70 to 55 km/h	55 to 50 km/h	55 to 40 km/h
Typical FFS	80 km/h	65 km/h	55 km/h	45 km/h
LOS	**Average travel speed (km/h)**			
A	> 72	> 59	> 50	>41
B	> 56-72	> 46-59	> 39-50	>32-41
C	> 40-56	> 33-46	> 28-39	>23-32
D	> 32-40	> 26-33	> 22-28	>18-23
E	> 26-32	> 21-26	> 17-22	>14-18
F	≤26	≤21	≤ 17	≤14
Design Level of Service	C	C	D	D

Source: Exhibit 15-2. Urban Street LOS by class (HCM, 2010)

According to HCM (2010), Class I streets consist of highways on which motorists expect to travel at relatively high speeds, including major intercity routes, primary arterials, and daily commuter routes. Roads in Nairobi such as Thika Road, Mombasa Road including bypasses can be classified as urban streets Class I. Similarly, city Arterials such as Ngong Road, Jogoo Road and Langata Road are classified as Class II and Haile Selassie Class III respectively.

Level of Service can also be determined based on the hourly traffic volumes. However, this is dependent on the terrain, service volumes per hour and FFS. **Table 2.19** summarizes the LOS and service volumes for Class I streets, where bypasses fall at a free flow speed of 80km/hr.

Table 2.19: Service Volumes for Class I Two-Lane urban Highway

Terrain	**Service volume (Vehicle/hour)**				
	A	B	C	D	E
Level /flat	N/A	N/A	330	1000	2770
Rolling	N/A	N/A	170	790	2590
Mountainous	N/A	N/A	110	420	1300

Source: Highway Capacity Manual, 2010

Other than determining levels of service based on flow speeds, the same can also be determined based on Volume to Capacity ratio for sections between junctions. Volume to capacity ratio varies from 0 (free flow uncongested flow) to values greater than 1 (severely or heavily congested flow) (HCM, 2010). The volume to capacity ratio for various levels of service on a freeway is summarized in **Table 2.20** below.

Table 2.20: Levels of service based on volume to capacity ratios

LOS	V/C Ratio	Description
A	0.0-0.35	Best operating conditions and is considered free flow and not influenced by others.
B	0.35 -0.58	Reasonably free flow conditions but with some influence from others.
C	0.58 – 0.75	Constrained constant flow below speed limits, with additional attention required by the drivers to maintain safe operations. Comfort and convenience levels the driver declines noticeably.
D	0.75 – 0.90	Traffic operations approaching unstable flow with high passing demand and passing capacity nearing zero characterized by drivers being severely restricted in maneuverability.
E	0.90 – 1.00	Unstable flow near capacity, LOS often changes from E to F quickly because of the disturbances (Road conditions and accidents) in the flow.
F	>1.00	Heavily congested flow and traffic demand exceeds capacity, characterized by stop and go characteristics, poor travel time, low comfort and convenience and increased accident exposure.

Source: Highway Capacity Manual, 2010

Still, levels of service at intersections are estimated based on delays experienced. However, this depends on whether an intersection is signalized and non-signalized. Typical levels of service ratings for signalized and non-signalized intersections are provided in **Table 2.21**.

Table 2.21: Typical Intersection level of service ratings based on delays

LOS	Signalized intersection	Unsignalized intersection
A	≤10 sec	≤10 sec
B	10-20 sec	10-15 sec
C	20-35 sec	15-25 sec
D	35-55 sec	25-35 sec
E	55-80 sec	35-50 sec
F	≥80 sec	≥50 sec

Source: HCM, 2010

2.3.2.4 Congestion model relationships

The model relationships of various congestion performance measures, as well as their applications are summarized in **Appendix 20.**

2.3.2.5 Application of congestion measures

Different congestion measures are applied in the analysis of different cases as summarized in **Table 2.22** below.

Table 2.22: Recommended congestion measures for various types of analyses

Type of Analysis	Recommended Congestion Measures
Identification of problems	Travel time, travel time difference, travel rate and total delay.
Basis for government investigating or policies	Total delay, corridor mobility index, congested vehicle/person miles travel, congested roadway and accessibility.
Prioritization of improvements	Delay rate, total delay, relative delay, delay ratio, congested vehicle/person miles travel, congested roadway and accessibility.
Information for private sector decisions	Travel time, travel rate, delay rate and total delay.
Basis for national, state, regional, policies and programs	Total delay, congested vehicle/person miles travel, congested roadway and accessibility.
Assessment of traffic controls, geometrics, regulations	Travel time, travel rate, delay rate, relative delay rate and delay ratio.
Assessment of transit routing, scheduling, stop placement	Travel time, travel time difference, travel rate, total delay.
Base case (for comparison with	Travel time difference, delay rate, total delay,

Type of Analysis	Recommended Congestion Measures
improved alternatives)	corridor mobility index and accessibility.
Inputs for transportation models	Travel time, travel rate and delay rate.
Inputs for air quality and energy models	Travel time, travel rate and delay rate.
Measures of effectiveness for alternatives evaluation	Travel time rate, delay rate, total delay, corridor mobility index and accessibility.
Measure of land development impact	Travel time, travel time difference, travel rate and accessibility.
Input to zoning decisions	Travel time, travel time difference, travel rate, delay rate and accessibility
Basis for real time route choice decisions	Travel time, travel time difference, travel rate and delay rate.

Source: Lomax et al, 1997

2.3.2.6 Strengths and weakness of various congestion indicators

The strengths and weaknesses associated with various congestion performance measures are summarized in **Table 2.23** below.

Table 2.23: Strength and weaknesses of various congestion performance indicators

Indicator	Strengths	Weakness
Basic Measures	• Total delay can be a useful measure (i) of total duration of congestion of an urban area, (ii) to illustrate the effects of major improvements to one portion of a corridor that affects several other elements of the corridor, (iii) to perform economic or benefit/cost analysis that use information about the magnitude of the mobility improvements for cost-effectiveness decisions. • Congested travel can be a useful measure for estimating the spatial extent of congestion of an urban area; • Congested roadway length is simple to calculate and easy for the public and	• Congested travel or congested roadway length does not represent the different magnitude of congestion; • Congested travel or congested roadway length does not include travel time element in the measurement; • All these measures require careful interpretation to compare across metropolitan regions; • Travel time measures do not comprise the finer traffic events and therefore it is not responsive to exceptional conditions related to climatic events, accidents or construction activity

Indicator	Strengths	Weakness
	policymakers to comprehend ; and • Basic time-based measures of congestion provide a stronger basis for more generalized conclusions.	interferences; • Travel delay requires separation of recurring and incident delay; and • Queues are difficult to estimate. However, queues can be measured by use of aerial photography though this is costly
Ratio measures	• Delay rate can be used to estimate the difference between system performance and the expectations for those system elements, which can be used to rank alternative improvements; • Relative delay rate can be used to compare the relative congestion on facilities, modes or systems in relation to different mobility standards for system elements such as freeways, arterial streets and transit routes ; and • Delay ratio can be used to compare or combine the relative congestion levels on facilities with different operating characteristics like freeways, arterial streets and public transport routes	• Use of ratio measures is limited for a particular road type or facility and the value cannot be used effectively for a geographic area; • Required data is difficult and expensive to collect; and • Ratio measures may be difficult for public to understand because result is a number with no units.
Level of service measures	• Sophisticated technical knowledge is not essential to understand the model and therefore can be comprehended by non-technical people; • Data required for computation is easy to collect • The model is widely used; and • LOS is the representative variable in traffic flow analysis.	• LOS cannot provide a continuous range of values of congestion; • It only represents location-specific congestion phenomenon and does not reflect overall or regional congestion condition; and • The use of a stepwise LOS measure is sometimes misleading, especially when the condition is near a threshold.

Indicator	Strengths	Weakness
Indices	• It is easy for public to understand the main concept of this index; • Indices can be used for an urban area wide application (they can be applied to entire routes, entire urban areas, or individual freeway segments for off-peak and peak conditions); • Buffer index may be beneficial to the public because it tells them how congestion will affect them as individuals • Travel rate index (TRI) has the advantage of expressing traffic congestion in terms of both space and time; and • Roadway congestion index (RCI) allows for comparison across metropolitan areas by measuring the full range of system performance by focusing on the physical capacity of the roadway in terms of vehicles.	• Travel rate index or congestion severity index uses only two classes of roadway facilities. For an urban area whose substantial proportion of travel occurs on arterial class II and III and on CBD streets, this measure represents a partial scenario; • Use of RCI as a measure of congestion is more of a traffic density measure that a true congestion measure; • The use of corridor mobility index is limited to a particular corridor and it cannot be applied for an entire urban area; • Application of congestion index is limited to a roadway segment or a particular route. • Travel time index requires separation of recurring and incident delay. Measurement of non-recurring data can be difficult. • Lane-Mile Duration Index cannot reflect the effects of having different highway functions on traffic congestion. It provides poor results as traffic data is not collected in all freeway segments in an area. Its application in CBD area is limited unless the road segments and the traffic have similar characteristics like freeways. Lane mile duration index

Indicator	Strengths	Weakness
		value requires careful interpretation to compare across metropolitan regions. • Travel rate index can be difficult for public to understand.

Source: Aftabuzzaman, 2010

2.3.2.7 Adoption of traffic congestion measures along Eastern Bypass

Adoption of congestion indicators along Eastern Bypass required critical analysis of the merits of the various congestion indicators. According to Turner (1992), good congestion indicators should:

- Demonstrate clarity and simplicity (be simple, unambiguous, professionally credible, well-defined and easily understood, easy to apply/analyze and interpreted among various users);
- Describe and predict the magnitude of congestion (accurately reflect the quality of service for any type of system);
- Reflect changes in traffic flow, test options and opportunities;
- Allow comparison across metropolitan areas (deliver comparable results for various systems with similar congestion level); and
- Provide a continuous range of values, include travel time and relate to public transport congestion relief measures.

Table 2.24 summarizes various congestion indicators with respective to aforementioned factors.

Table 2.24: Comparison of traffic congestion measures

Congestion Measure	Sample models	Simplicity	Magnitude of congestion	City comparison	Continuous value	Travel time	Public transport
Basic measure	Total delay	Y	Y	N	Y	Y	N
	Congested travel	Y	N	N	Y	N	N
	Congested roadway	Y	N	N	Y	N	N
Ratio	Travel rate	Y	N	N	Y	Y	N
	Delay rate	Y	N	N	Y	Y	N
	Relative delay rate	Y	N	N	Y	Y	N
	Delay ratio	Y	N	N	Y	Y	N
LOS	Level of Service	Y	Y	N	N	N	N
Indices	Congestion index	N	Y	N	Y	Y	N
	Travel rate index	N	Y	Y	Y	Y	N
	Congestion burden index	N	Y	Y	Y	Y	N
	Roadway congestion Index	N	Y	Y	Y	Y	N
	Congestion severity index	N	Y	Y	Y	Y	N
	Corridor mobility index	N	Y	N	Y	Y	N
	Lane mile duration index	N	Y	Y	Y	Y	N

Source: Lomax (1997); Turner (1992); Aftabuzzaman, (2010)

Key Y: YES & N: NO

As illustrated in **Table 2.24**, none of the congestion measures fulfill the six criteria for a good congestion indicator and none of the measures considers public transport effects of congestion. Simple congestion measures satisfy fewer criteria while complex measures satisfy most of the criteria. For a good measure, trade-off between simplicity and complexity was necessary. In this regard, Travel Time Indicators, Level of Service, Segment Delay can be adopted in assessing congestion along Eastern Bypass. Moreover, since one of the objectives of this study aimed at identifying problems of traffic flow along Eastern Bypass, this study estimated the following congestion indicators: travel time, delay time, LOS, congestion index, speed, travel time difference, travel rate, Relative Speed Reduction (RSR), total delay, relative delay rate, delay ratio, travel time index, delay rate, Buffer Index and LOS, and Percentage Extension in Travel Time (PET).

2.4 Review of approaches for traffic data collection

2.4.1 Origin - Destination information

Origin and Destination (OD) information can be obtained through stated preference or revealed approach. In stated preference approach, drivers are stopped at a road side and interviewed to obtain information in their present and past trips. In this case, drivers are expected to recount their past actions with high degree of accuracy and honesty. However, this may be hard to accomplish since drivers may not be able to recount exactly and accurately about what happened. Again, drivers may also be aware of what happened, but for some reason choose to give wrong answers (Knorring, 2003).

On the other hand, revealed preference approach is where drivers' behavior is analyzed in real life situations but based on respondents' reports about previous actions. This data is obtained from third parties arising from past studies undertaken. The reports provide information on routes drivers actually chose as opposed to what they think they chose or what they think would prefer to choose for defined origins and destinations which is common in stated approach (Knorring, 2003).

2.4.2 Classified Traffic data

Classified traffic data can be collected manually by recording different classes of vehicles passing a particular census station along a route of interest. This information is recorded in a prepared traffic survey sheets (Transport Research Laboratory, 2004). Alternatively, classified traffic volume counts data can also be obtained automatically using traffic counters (Turner et al; 1998). Both manual and automatic counters can yield data including: vehicle class at a

particular place. Kenya Road Design Manual Part 1 and the Overseas Road Note 40 (ORN) define several vehicle classes as summarized in **Table 2.25** below.

Table 2.25: Classification of Motorized Traffic

Vehicle Category	Description
Motor cycles	All mopeds and other motor cycles
Cars	Include saloon cars, station wagons, passenger cars, jeeps and vans.
Matatus	All public service mini-buses with seating capacity less than 27
Buses	All public service buses with seating capacity more than 27
Light Goods Vehicles (LGV)	All trucks with maximum laden weight of 3 tonnes
Medium Goods Vehicles (MGV)	All trucks with 2 axles and laden weight between 3 and 5 tonnes
Heavy Goods Vehicles (HGV)	All trucks with 3 – 7 axles
Other Vehicles	Tractors and construction equipment among others

Source: Road Design Manual Part 1, 1979; TRL, 2004

Accuracy of classified traffic volume counts data depends on the duration of collection. According to the Overseas Road Note 40, traffic counts should be conducted for twenty four hours for seven consecutive days. This may require huge amount of resources and thus make the study generally uneconomical. Lesser traffic counts survey period of sixteen hours per day but with at least one weekday and one day on weekend with twenty hour counts is acceptable. More accurate results however, may be obtained when surveys are carried out for longer periods (TRL, 2004).

Similarly, traffic data collected using automatic counters can be classified based on various vehicle classification systems. One such method which is similar to the Kenyan classification system defined in the RDM Part 1 is classification based on modified Australian ARX vehicle classification system (See **Appendix 6** of this report for details).

2.4.3 Collection of travel time and delays data

Several methods exist for collection of travel time and delay data. They include: fixed sensor techniques and test vehicle techniques. Fixed sensor techniques include the use of inductive loop detectors, image sensors such as Closed Circuit Television (CCTV), magnetic sensors, vehicle license recognition and Weigh-in-Motion (WIM) sensors among others (Turner et al; 1998). Inductive loop detectors use a pair of pneumatic tubes that are set a certain distance apart, and attached to the pressure actuated switches which are activated when vehicles cross them. The time taken to travel the distance between the tubes is used to determine parameters such as spot speeds, lane occupancy, gaps, headways, axle configurations, axle distances and

axle weights as well as classified traffic volume counts among other traffic flow parameters (Mohan et al; 2012). However, the type of data that can be collected depends on the type of sensor applied. The use of fixed sensor techniques is limited in the sense that they do not yield data results such as delays, and possible causes of delays which were required in this study.

On the other hand, test vehicle techniques use vehicles intentionally driven along roadway segments of interest to collect travel condition data. These techniques collect data beyond what fixed sensor techniques can collect including delays and notable causes of delays. Examples of test vehicle techniques include: floating car method, average car method, chase car method, maximum car method and probe vehicle method (Traffic Engineering Manual, 2007). These methods differ in terms of procedure and test vehicle chosen. In this study, floating car approach was adopted in the collection of travel time and delay along Eastern Bypass. This method is the most commonly used method for conducting travel time studies, and yields reliable results. Moreover, the approach also produces good estimations for road segments with good visibility when there are not significant variations of flow (no vehicle entrances or exits) and when the frequency of sampling is high (Traffic Engineering Manual, 2007).

2.4.3.1 Sample size determination for runs and segments

Sample size of runs and segments to study ensures true picture of the average travel time along a route of interest. A number of studies have found that 10 to 15 runs provide reliable and accurate results (Turner and Holdener, 1995; Qiang (2007). Reaserch shows that acceptable sample sizes depend on the variation of travel times, specified error of travel time estimates and desired confidence levels (Lomax et al, 1997). Accordingly, the minimum number of runs can be estimated using equation 41 below (Mugenda et al; 1999**)**.

Sample size, $n = z^2 c.v^2/e^2$……..…..……..…….. (41)

Where:

n = number of travel time runs to be executed;

z = standard normal variate based on desired confidence level;

e = permitted relative error; and

c.v. = coefficient of variation of travel times (%).

2.4.3.2 Coefficient of variation of travel times

Coefficient of variation of travel times depends on several factors including: physical and traffic control characteristics on a roadway (number of signals, signal progression, ramp access

spacing), traffic conditions (free-flow versus stop-and-go congestion), road function and average daily traffic volume per lane among others (Turner et al; 1998). Coefficient of variations differs for freeways and arterial streets as summarized in **Table 2.26** below.

Table 2.26: Coefficients of Variation for Freeways and Arterial Streets

Freeways		Arterials	
Average Daily Traffic (ADT) Volume per lane	**Average Coefficient of Variation (%)**	**Traffic Signal Density (signals per database)**	**Average Coefficient of Variation (%)**
Less than 15,000	9	Less than 3	9
15,000 to 20,000	11	3 to 6	12
Greater than 20,000	17	Greater than 6	15

Source: Lomax et al; 1997; Turner et al; 1998

2.4.3.3 Relative error

Different values of relative errors depend upon the use of the travel time data. Commonly specified relative errors are ±5% for operations and evaluation studies; and ±10 percent for planning and policy-level studies (Lomax et al; 1997).

2.4.3.4 Selection of segments to study

Selection of sections along which travel time and delay data can be collected is typically undertaken by any of the following sampling methods (Southeast Michigan Council of Governments (SEMCOG), 2008)):

- Random sampling (random selection of roadway segments across the survey area);
- Stratified sampling (based on street categories);
- Prioritized random sampling – (based on one or more specific criteria); and
- Criteria based sampling (based solely on the application of predefined criteria).

Generally, choice of road sections to collect travel time and delay data depends on the specific characteristics of the sections, which may vary in terms of level of roadside developments, traffic volumes, level of access, length and road configurations among other parameters. For instance, according to Southeast Michigan Council of Governments (SEMCOG), 2008, short segments tend to exhibit greater variability in travel times due to the effects of traffic signals and other elements. Desired accuracy on short segments can be achieved by executing more runs. Further, Travel Time Data Collection Handbook, 1998 and National Cooperative Highway Research Programme (NCHRP) Report 398 recommend the maximum length of roadway segments based upon the functional class of the road as summarized in **Table 2.27**.

Table 2.27: Recommended ranges of roadway segments for travel time data collection

Street functional class	Range segment lengths (Km)
Freeways / expressways	1.6-4.8
Principal arterials	0.6-3.2
Minor arterials	0.8 – 3.2

Source: Turner et al; (1998)

Despite the specified maximum segment lengths above, Travel Time Data Collection Handbook allows though with a caveat, shorter than maximum length of segments for specific operational analyses.

Nevertheless, segment breakpoints, or route checkpoints, may be located at major interchanges, major signalized intersections, jurisdictional boundaries, and transition points between different roadway cross sections or changing land uses (Turner et al; 1998).

2.4.3.5 Data collection time

Travel time studies that focus on identifying congestion trends and problems, commonly consider three time periods for data collection (Turner et al; 1998):

- Morning peak period between 6am and 9am;
- Off-peak period between 10am and 11am, 1pm to 3pm, or after 7pm; and
- Evening peak period 4pm and 7pm.

In most cases, researchers prefer collecting data during morning peaks because travel conditions are usually uniform, consistent and predictable. Noon and afternoon peaks tend to have a great number of trips, and as such multiple travel stops and purposes are difficult to analyze (Lomax et al. 1997).

3. DATA COLLECTION

This chapter summarises data collected for determining vehicle classification and composition, origin and destination, trip composition, average daily traffic, future traffic and traffic congestion along Eastern Bypass. The chapter also provides the approach adopted to obtain and compare Eastern Bypass features and standards for bypasses. The data collected included classified volume counts, origin and destination data, travel time and delay data, as well as inventory of designed and constructed features on Eastern Bypass.

3.1 Survey Design and Development

Survey design and development involve many activities including: definition of survey area; determination of type of data to collect; method of collection; and determination of whether to sample or carry out census among others. Decision on whether to conduct a census or a sample survey depends on numerous factors such as budget and resources available, and population size (Turner et al; 1998; Tom and Rao; 2006). According to Richardson, Ampt & Meyburg, (1995), a good survey design should make trade-offs between competing demands of good design practice in several areas (such as sample design, survey instrument design, level of acceptability, conduct of surveys, and data weighting and expansion) so as to arrive at the most cost effective and high quality survey, which meets study objectives but within available budget. In this study, data was collected through sampling and census approaches.

3.2 Data collection

3.2.1 Classified traffic volumes and O-D Data

Classified traffic volume counts as well as origin - destination data along Eastern Bypass was obtained from various agencies including: Kenya Urban Roads Authority (KURA), Kenya Roads Board (KRB), Materials Testing and Research Department (MTRD) and the City County of Nairobi among others. Data was collected for both twenty four hour counts and less. In addition to the data aobtained from various agencies, similar data was collected by the Author along Eastern Bypass. The data collected aided in the comparison and validation of data obtained from other sources. Moreover, the use of data collected at various periods by different agencies along Eastern Bypass enabled establishment of traffic flow trends as well as determination of the traffic growth along the bypass since completion of the construction. The locations where data was collected along East Bypass are indicated in **Figure 3.1** below while **Table 3.1** summarizes specific surveys conducted.

Figure 3.1: Locations of traffic data collection points along Eastern Bypass
Source: Author, 2016

Table 3.1: Adopted traffic surveys data along Eastern Bypass

Reference	Data collected	Date of data collection	Comments
KURA, 2017	12 hour and 24hour classified traffic volume counts manually and OD survey at Embakasi between Taj Mall Roundabout and Embakasi Roundabout (near Kabansora)between Kangundo Road and Thika Road (proposed intersection of a link between eastern Bypass and Greater Eastern Bypass)	19th to 31st July and 1st August, 2017	Met the minimum data collection period of 16hours as per the Overseas Road Note 40 (Transport Research Laboratory, 2004).
Author, 2016	12 hour classified traffic volume counts manually at Shell Petrol Station along Eastern Bypass.	9th ,10th ,13th ,14th, 15th and 16th September, 2016	
Kenya Roads Board, 2014	36 hour classified traffic volume counts manually from 6.00am to 6.00pm at Basco Paints and Kangundo Road Junction along Eastern Bypass.	17th and 18th February, 2014	
Nairobi City County, 2013	36 hour classified traffic volume counts manually from 6.00am to 6.00pm at Kangundo Road Junction along Eastern Bypass	13th and 14th February, 2013	
KURA, 2011	24 hour classified volume counts using automatic counters located 500m from Embakasi Roundabout and 1km from Thika Road Junction along Eastern Bypass.	13th to 27th August, 2012	
KURA,2011	12 hour and 24hour classified traffic volume counts manually and OD survey at junction of Eastern Bypass and the proposed Greater Eastern Bypass (Near East Brook Hotel).	From 11th to1 4th May, 2011	
Ministry of transport, Infrastructure, Housing and Urban Development, Materials Testing and Research Department, 2011	24 hour classified traffic volume counts for 7 days along Eastern bypass at Ruai, Utawala and Ruiru and axle load compliance survey including OD for trucks.	From 22nd to 29th September, 2011	
Feasibility study for Northern and Eastern Bypass, conducted by CRBC in 2007	12 hour and 24 hour classified traffic volume counts from 0630 to 1830 on weekdays at five stations in 2007 at 10 stations chosen to represent the traffic on the Northern and Eastern Bypasses.	2007	

Source: Author, 2016

The following subsections briefly describe the data collection details listed in **Table 3.1** above.

3.2.1.1 Traffic volume counts data by MTRD in 2011

Materials Testing and Research Department (MTRD) conducted classified traffic volume counts for 7 concecutive days at three stations (Ruai, Utawala and Ruiru) along Eastern Bypass in September, 2011. The data was collected manually by trained enumerators using predesigned data collection forms. Specifically, the counts were carried out on 22nd, 23rd, 24th, 26th, 27th, 28th and 29th September, 2011 (Materials Testing and Research Department, 2011).

A total of 138,340 vehicles were counted in both directions during the survey period. A summary of vehicles counted is presented in **Tables 3.2** while detailed data recorded is given in **Appendix 2** of this thesis.

Table 3.2: Traffic Data collected by Materials Testing and Research Department in 2011

	Ruai Census station			**Utawala Census Station**			**Ruiru Census Station**		
	Towards City Cabanas	Fom City Cabanas	**Total**	Towards City Cabanas	Fom City Cabanas	**Total**	Towards City Cabanas	Fom City Cabanas	**Total**
Date									
22/9/2011	3019	4137	**7156**	4144	4753	**8897**	816	1096	**1912**
23/9/2011	3171	6516	**9687**	3703	3411	**7114**	950	2002	**2952**
24/9/2011	4491	3421	**7912**	4870	4401	**9271**	678	2426	**3104**
24/9/2011	811	941	**1752**						
26/9/2011	2762	3086	**5848**	3732	3708	**7440**	999	2717	**3716**
27/9/2011	2655	3409	**6064**	4646	4428	**9074**	1365	3320	**4685**
28/9/2011	2681	3463	**6144**	4642	4450	**9092**	1666	3312	**4978**
29/9/2011	2894	3420	**6314**	4609	4668	**9277**	1164	3016	**4180**
29/9/2011	789	982	**1771**						
Total	**23273**	**29375**	**52648**	**30346**	**29819**	**60165**	**7638**	**17889**	**25527**

Source: MTRD, 2011

Again, while carrying out traffic volume counts, Materials Testing and Research Department (MTRD) also conducted axle load survey at Ruai where vehicles were randomly intercepted and weighed. The team also captured other details of each vehicle intercepted including vehicle number plates, direction of movement, number of axles, weight of each axle, time of weighing, origin, destination and type of goods carried among others.

A total of 5,202 vehicles were intercepted as summarized in **Table 3.3** while detailed data captured is given as **Appendix 3** of this thesis.

Table 3.3: Summary of vehicles intercepted along Eastern Bypass during axle load survey

Date	Number of vehicles intercepted
22/09/2011	619
23/09/2011	549
24/09/2011	526
26/09/2011	821
27/09/2011	878
28/09/2011	812
29/09/2011	997
Total	5,202

Source: MTRD, 2011

3.2.1.2 Traffic volume counts and OD data by KURA in 2011

Kenya Urban Roads Authority (KURA) collected traffic volume data along Eastern Bypass in May 2011, during the design of the proposed Greater Eastern Bypass. Classified traffic volume counts data was collected manually by trained enumerators on 11th, 12th, 13th and 14th May, 2011 at the Junction of Eastern Bypass and the proposed Greater Eastern Bypass. A total of 34,679 vehicles were counted during the survey. A summary of vehicles counted is presented in **Table 3.4** below while detailed data is attached in **Appendix 4** of this Thesis.

Table 3.4: Summary of volume counts in May 2011

Date	To City Cabanas	From City Cabanas	Total
9-May-11	2,240	2,272	4,512
10-May-11	2,393	2,671	5,064
11-May-11	2,355	2,590	4,945
12-May-11	2,352	2,441	4,793
13-May-11	2,334	3,003	5,337
14-May-11	2,620	3,444	6,064
15-May-11	1,910	2,054	3,964
Total	16,204	18,475	34,679

Source: KURA, 2011

Simutaneously, Origin and Destination survey was undertaken for four days from 10th to 15th May, 2011 at the same station where traffic voulume counts were carried out on Eastern Bypass. During the OD survey, information recorded included: vehicle registration numbers, vehicle, origin, destination, direction of movement, number of occupants, goods carried, trip purpose and trip frequency (KURA, 2011).

A total of 824 drivers were intercepted and interviewed. The total directional movement of vehicles captured during the OD Survey is presented in **Table 3.5** while details of the data collected are given in **Appendix 5** of this thesis.

Table 3.5: Vehicles captured during OD Survey in June, 2011

Date	To City Cabanas	From City Cabanas	Total
9/6/2011	452	372	824

Source: KURA, 2011

3.2.1.3 Traffic volume counts data by KURA in 2012

Kenya Urban Roads Authority (KURA) carried out traffic counts along Eastern Bypass using automatic counters in 2012. This was part of the Authority's monitoring and evaluation exercise on the use of Northern and Eastern Bypasses. The counters were mounted at two locations along Eastern Bypass: 1000m from Thika Road Underpass and at 500m from Embakasi Roundabout towards Utawala. Traffic data was collected continuously from 13th to 20th August 2012 at both locations for each direction (KURA, 2012). The data was downloaded in the Metrocount Traffic Engineering (MTE) Software and vehicles were classified based on ARX vehicle classification system (See **Appendix 6** for ARX vehicle classification system). **Table 3.6** summarizes the volume counts collected by direction at each station while detailed data is given in **Appendix 7.**

Table 3.6: Classified traffic volume data along Eastern Bypass in 2012

Location	Date	Eastbound	West Bound	Total
500m from Embakasi Garisson Roundabout	14/8/2012	3116	4406	7522
	15/8/2012	2977	4373	7350
	16/8/2012	2972	4461	7433
	17/8/2012	3159	4506	7665
	18/8/2012	3102	4504	7606
	19/8/2012	3044	3951	6995
	20/8/2012	2986	3951	6937
1 Km from Thika Road towrds City Cabanas	14/8/2012	3129	3564	6693
	15/8/2012	3093	3395	6488
	16/8/2012	3065	3480	6545
	17/8/2012	3245	3236	6481
	18/8/2012	3357	711*	4068
	19/8/2012	2856	191*	3047
	20/8/2012	2831	35*	2866

Source: KURA, 2011

3.2.1.4 Traffic volume counts data by Nairobi City County in 2013

Nairobi City County in collaboration with Japan International Cooperation Agency (JICA) conducted traffic volume counts along major roads and streets in Nairobi during the development of Nairobi Integrated Urban Development Master Plan (NIUPLAN) in 2013 (Nairobi City County, 2014). One of the census stations was located along Eastern Bypass at Kangundo Road junction, where classified traffic volume data was collected continuously for 12 hours from 13th February, 2013 while thirty six hour counts were also carried out along Ngong Road, Mombasa Road, Limuru Road and Naivasha Road (Nairobi City County, 2014).

A total of 13,776 vehicles were counted along Eastern Bypass. Detailed traffic volume counts data collected is given in **Appendix 8** of this thesis.

3.2.1.5 Traffic volume counts data by Kenya Roads Board in 2014

Kenya Roads Board (KRB) collected traffic counts data in 2014 for purposes of updating traffic flows on the existing road network across the country in the Roads Sector Investment Programme 2010-2024 (RSIP). Traffic data along Eastern Bypass was collected at two stations: at Basco Paints to capture traffic from Mombasa Road towards Utawala and vice versa. The other station was located just before Thika Road/Eastern Bypass junction to capture traffic flowing from Ruiru to City Cabanas and vice versa. Data was collected for 36hours from 6.00am on 17th February, 2014 to 6.00pm on 18th February, 2014 at both stations (KRB, 2014).

The vehicles counted during the survey as summarized in **Table 3.7** below while detailed data is attached in **Appendix 9**.

Table 3.7: Classified traffic volume data by Kenya Roads Board in 2014

Location		**Basco Paints Census station**			**Thika/Eastern Census Station**		
Direction		Towards City Cabanas	From City Cabanas	**Total**	Towards City Cabanas	From City Cabanas	**Total**
Date	Day						
17/2/2014	Monday	9266	15017	**24283**	6676	7227	**13903**
17/2/2014	Monday (Night)	4871	4273	**9144**	3419	2824	**6243**
18/2/2014	Tuesday	5791	10964	**16755**	6775	7581	**14356**
Total		**19,928**	**30,254**	**50,182**	**16,870**	**17,632**	**34,502**

Source: Kenya Roads Board, 2014

3.2.1.6 Traffic volume counts data by the Author in 2016

The Author collected traffic volume counts in 2016 along Eastern Bypass at a census station located at Shell Petrol Station, near the proposed access road to Infinity Industrial Park, Embakasi. Data was collected manually by trained enumerators using predesigned classified traffic collection forms (See **Appendix 10**) daily for six days on 9th, 10th, 13th, 14th, 15th and 16th September, 2016 from 7.00am to 7.00pm.

A total of 69,981 vehicles were counted during the survey as summarized in **Table 3.8** while detailed data is attached in **Appendix 11**.

Table 3.8: Classified traffic volume data by the Author in 2016

Date	From City Cabanas	To City Cabanas	Total
9-Sep -16	6328	4460	10788
10-Sep -16	2751	4962	7713
13-Sep -16	6149	6161	12310
14-Sep - 16	6393	6701	13094
15 Sep -16	6429	7164	13593
16-Sep -16	6153	6330	12483
Total	**34,203**	**35,778**	**69,981**

Source: Author, 2016

3.2.1.7 Traffic volume counts data by KURA in 2017

Kenya Urban Roads Authority collected traffic counts data along Eastern Bypass at two locations: at the junction of Eastern Bypass and Link of Greater Eastern Bypass and at Embakasi between Taj Mall Roundabout and Embakasi Roundabout (near Kabansora) between Kangundo Road and Thika Road July and August, 2017. Data was collected to aid in designing Northern and Eastern Bypasses as 4-lane divided carriageway. Data was collected continuously from 19th July to 1st August, 2017 at the locations.

A total of 398,537 vehicles were counted in both directions as summarized in **Table 3.9** while detailed data is provided as **Appendix 12** of this thesis.

Table 3.9: Classified traffic volume data collected by KURA in 2017

Station	**Embakasi**				**Between junction with Thika Road and Kangundo Road Junction**		
Date	**From Town To Ruiru**	**From Ruiru To Town**	**Total**	Data	Ruiru to Utawala	Utawala to Ruiru to	**Total**
19-July -17	22,556	18,340	40,896	26-July -17	8866	10157	19023
20-July -17	22862	20203	43,065	27-July -17	9432	10019	19451
21-July -17	22,155	24,515	46,670	28-July -17	9921	10742	20663
22-July -17	21268	16315	37,583	29-July -17	10,277	10,261	20538
23-July -17	12291	13860	26,151	30-July -17	6373	4,493	10866
24-July -17	24900	17609	42,509	01-August -17	8943	7824	16767
25-July -17	20380	18169	38,549	31-July -17	8,453	7,353	15806
Total	**146,412**	**129,011**	**275,423**	**300,615**	**62,265**	**60,849**	**123,114**

Source: KURA, 2017

3.2.2 Collection of travel time and delays data

Travel time and delays were carried out using floating car approach.

3.2.2.1 Selection of segments to study

Seven segments along Eastern Bypass were selected based on criteria summarized in **Table 3.10** while **Figure 3.2** shows the physical locations of each segments/control points**.**

Table 3.10: Studied segments along Eastern Bypass

S/No.	**Bypass Section**	**Length (Km)**	**Type of carriageway**	**Basis for adpted segment**
1	Thika Road Roundabout (A) to East Brook Hotel (B)	3.8	2- lane undivided	Section with intense roadside developments
2	East Brook Hotel (B) to Shell Petrol Station next to Access to Infinity Industrial Park (C)	6.3		Section with less desinsity of road side developments (many trees and fallow land)
3	Shell Petrol Station next to Access to Infinity Industrial Park (C) to Kangundo Road Junction (D)	3.4		Location of grade separated junction with the bypass
4	Kangundo Road Junction (D) to Utawala	1.3		Location of a

S/No.	Bypass Section	Length (Km)	Type of carriageway	Basis for adpted segment
	/Githunguri Road Junction (E)			growing urban center
5	Utawala /Githunguri Road Junction (E) to Astrol Petrol Station (F)	2.7		Section with increasing road side developments
6	Astrol Petrol Station (F) to Embakasi Roundabout (G)	3.6		Location with minimum road side developments
7	Embakasi Roundabout (G) to U turn on Eastern Bypass (H)	5.0	4- lane divided	4 - lane divided carriageway with service roads on either side of the carraigeaways
7	U turn on Eastern Bypass (H) to Embakasi Roundabout (G)	5.0		
6	Embakasi Roundabout (G) to Astrol Petrol Station (F)	3.6		
5	Astrol Petrol Station (F) to Utawala /Githunguri Road Junction (E)	2.7		
4	Utawala /Githunguri Road Junction (E) to Kangundo Road Junction (D)	1.3		
3	Kangundo Road Junction (D) to Shell Petrol Station next to Access to Infinity Industrial Park (C)	3.4		
2	Shell Petrol Station next to Access to Infinity Industrial Park (C) to East Brook Hotel (B)	6.3		
1	East Brook Hotel (B) to Thika Road Roundabout (A)	3.8		

Source: Author, 2016

Figure 3.2: Segments along Eastern Bypass where travel time data was collected
Source: Author, 2016

3.2.2.2 Estimation of runs

Since the intention of this study was to assess the functions of Eastern Bypass, it falls under operations and evaluation studies. Therefore a confidence level of 95% and specified relative error of ±5% were adopted in estimating the sample size of runs undertaken and the number of segments along Eastern Bypass.

3.2.2.3 Selection of travel time variation factor

Since a bypass road can be a freeway or an expressway or a highway, travel time variations for freeways can be adopted with average daily traffic (ADT) between 15,000 and 20,000. This corresponds to average coefficient of variation of 11%. The adoption of freeway average coefficient of variation in estimating sample size of runs and segments to study along Eastern Bypass is consistent with the fact that Eastern Bypass is categorized as Urban Road Class A as per the latest road classification register. This means that Eastern Bypass provides the highest level of service at the greatest permissible speed for the longest uninterrupted distance with access control (Kenya Subsidiary Legislation, 2016).

Using the adopted parameters, the minimum sample number of runs, were estimated as follows:

$n = z^2 c.v^2/e^2$

Z= 1.96 at confidence level of 95%
C.V. =11%
e = 5%
$n = 1.96^2 \times (11/5)^2$
= 18.59
= 19 runs

3.2.2.4 Timing of Travel Time and delays Data collection

In order to select time for carrying out travel time and delays surveys along Eastern Bypass, this study reviewed the travel situations in Nairobi. Morning peak in the City of Nairobi occurs between 7:00am and 9:00am (2 hours). During this period, 10.0% of the traffic head to Nairobi while 6.0% leave Nairobi. During the evening peak (between 3.00 pm and 8.00pm), 6.7% of the traffic head to Nairobi while 8.4% leave Nairobi (JICA, 2006).

In this study, travel time and delay data was collected for every hour covering both peak and off peak periods in order to illustrate hourly variations. No data was collected during periods of bad weather, during public holidays and days characterized by incidents that were not recurrent.

3.2.2.5 Instrumentation for data collection

Instruments used in the travel time and delay data collection included: a test car, predesigned travel time and delay forms, pens and stopwatches. Travel time and delay data collection forms were designed based on the selected control points illustrated in **Figure 3.2**.

The data collection forms were refined through trial runs along Eastern Bypass from Thika Road Underpass to U turn on the Bypass at City Cabanas. A copy of the predesigned travel time and delay survey form is provided in **Appendix 13**.

3.2.2.6 Travel time and delays data collection process

Travel time and delays data was collected by the Author with assistance of three trained enumerators for a period of 8 days. The enumerators were civil engineering students on attachment at the Kenya Urban Roads Authority (KURA). The students were trained on the purpose of the study, data to be collected and method of data collection. Trial runs were undertaken by the enumerators to familiarize them with the data collection process and locations of check points along Eastern Bypass under guidance of the Author.

During the trial runs, a private car was hired and used as a test car. One stopwatch was set at the beginning of the run at Thika Road/Eastern Bypass roundabout (A) and the time of the day, day of the week were recorded for each run. The second stopwatch was used to record the duration of any delays encountered along a segment. During the practice runs, enumerators directly recorded data onto the data collection forms; time at each check point and delays experienced at any particular point on the studied segments. Observed causes of delay were also recorded.

Having successfully executed practice runs, enumerators collected the required data under the supervision of the Author. Data was collected during average or typical weekday in normal traffic conditions for a period of two weeks from 29th August to 10th September, 2016, from 7.00am to 7.00pm.

A total of 47 runs were carried out in both directions. **Table 3.14** below provides a summary of the runs executed; details of raw data collected are given in **Appendix 14** while a summary of travel times for each run for each segment for each direction is given in **Appendix 15** of this thesis.

Table 3.11: Summary of runs executed along Eastern Bypass

Date	Run No.	Thika Road Underpass to U turn on Eastern Bypass (Eastbound)	Travel Time for Eastbound (minutes)	U Turn on Eastern Bypass to Thika Road Underpass (Westbound)	Travel Time for Westbound
		14:18:10	33.18	14:51:21	48.93
	Run 1	14:51:21		15:40:25	
		15:41:13	53.53	16:34:45	55.98
	Run 2	16:34:45		17:30:46	
		17:30:46	51.25	18:22:01	57.78
29/08/2016	**Run 3**	18:22:01		19:20:14	
		7:11:26	47.77	7:59:40	51.22
	Run 4	7:59:40		8:50:27	
		8:50:27	37.32	9:27:08	54.62
	Run 5	9:27:08		10:22:31	
		10:22:31	43.73	11:06:47	89.37
	Run 6	11:06:47		12:35:25	
		12:35:48	53.82	13:29:59	66.03
	Run 7	13:29:59		14:35:57	
		14:35:37	59.38	15:23:14	59.18
	Run 8	15:23:14		16:22:03	
		16:22:03	90.90	17:53:09	77.80
30/08/2016	**Run 9**	17:53:09		19:11:21	
		7:06:10	113.88	9:00:17	37.43
	Run 10	9:00:17		9:38:51	
		9:38:51	38.57	10:18:17	51.23
	Run 11	10:18:17		11:09:03	
		11:10:04	65.08	12:16:59	44.50
31/08/2016	**Run 12**	12:16:59		13:00:29	

Date	Run No.	Thika Road Underpass to U turn on Eastern Bypass (Eastbound)	Travel Time for Eastbound (minutes)	U Turn on Eastern Bypass to Thika Road Underpass (Westbound)	Travel Time for Westbound
		13:00:49	44.33	13:42:29	44.80
	Run 13	13:42:29		14:27:41	
		7:09:14	56.05	8:05:11	48.87
	Run 14	8:05:11		8:54:19	
		8:54:19	35.68	9:30:38	49.20
	Run 15	9:30:38		10:19:26	
		10:19:26	94.85	10:54:35	36.60
	Run 16	10:54:35		11:31:59	
		11:31:59	56.82	12:27:10	48.15
	Run 17	12:27:10		13:15:01	
		13:15:01	103.95	13:59:04	38.38
	Run 18	13:59:04		14:38:51	
		14:38:51	37.95	15:16:54	27.85
	Run 19	15:16:54		15:43:03	
		15:43:03	33.38	16:17:40	79.05
	Run 20	16:17:40		17:36:37	
		17:36:37	56.88	18:33:44	59.25
1/9/2016	**Run 21**	18:33:44		19:32:29	
		7:06:24	56.72	8:03:41	64.33
	Run 22	8:03:41		9:07:21	
		9:07:21	53.20	10:00:09	53.20
	Run 23	10:00:09		10:51:27	
		10:51:27	31.28	11:22:10	33.52
	Run 24	11:22:10		11:56:39	
2/9/2016	**Run 25**	11:56:39	34.98	12:31:40	35.43

Date	Run No.	Thika Road Underpass to U turn on Eastern Bypass (Eastbound)	Travel Time for Eastbound (minutes)	U Turn on Eastern Bypass to Thika Road Underpass (Westbound)	Travel Time for Westbound
		12:31:40		13:21:14	
		13:21:14	70.72	14:32:31	69.42
	Run 26	14:32:31		15:41:06	
		15:41:06	68.77	16:50:20	68.77
	Run 27	16:50:20		18:13:14	
		7:09:14	37.22	7:46:01	47.80
	Run 28	7:46:01		8:34:13	
		8:34:13	29.95	9:04:16	32.95
	Run 29	9:04:16		9:37:19	
		9:37:19	33.13	10:18:11	54.82
	Run 30	10:18:11		11:13:22	
		11:13:22	49.28	12:02:05	50.08
	Run 31	12:02:05		12:52:00	
		12:52:00	49.80	13:42:12	54.88
	Run 32	13:42:12		14:35:19	
		14:35:19	44.38	15:20:56	73.58
	Run 33	15:20:56		16:33:21	
		16:33:21	70.67	17:44:41	47.67
	Run 34	17:44:41		18:31:01	
		18:31:01	50.40	19:22:37	51.38
	Run 35	19:22:37		20:11:14	
		7:14:26	29.75	7:44:41	35.95
3/9/2016	**Run 36**	7:44:41		8:20:44	
		8:20:44	51.42	9:11:19	43.98
4/9/2016	**Run 37**	9:11:19		9:55:20	

Date	Run No.	Thika Road Underpass to U turn on Eastern Bypass (Eastbound)	Travel Time for Eastbound (minutes)	U Turn on Eastern Bypass to Thika Road Underpass (Westbound)	Travel Time for Westbound
		9:55:20	48.10	10:43:14	47.30
	Run 38	10:43:14		11:31:56	
		11:31:56	41.67	12:12:16	67.37
	Run 39	12:12:16		13:20:54	
		13:20:54	52.80	14:12:06	62.80
	Run 40	14:12:06		15:01:40	
		15:01:40	52.32	15:53:21	61.05
	Run 41	15:53:21		16:54:19	
		16:54:19	52.63	17:47:41	56.62
	Run 42	17:47:41		18:43:04	
		7:06:10	47.90	7:54:16	51.98
	Run 43	7:54:16		8:46:17	
		8:46:17	49.77	9:36:31	36.70
	Run 44	9:36:31		10:13:49	
		10:13:49	35.80	10:48:01	43.13
	Run 45	10:48:01		11:32:53	
		11:32:53	43.92	12:08:58	35.12
	Run 46	12:08:58		12:43:51	
		12:43:51	52.68	13:35:10	50.90
5/9/2016	**Run 47**	13:35:10		14:26:16	

Source: Author, 2016

The number of runs executed surpassed the minimum sample estimated (19 runs), and therefore results of estimates of various parameters fairly represented the actual travel conditions along Eastern Bypass.

3.2.3 Collection of features along Eastern bypass

Information on the features along Eastern Bypass and designs was obtained from the Feasibility Study Report for the Northern and Eastern Bypass conducted in 2007; and from the 'As Built Reports' for Eastern Bypass. The reports were obtained from Kenya Urban Roads Authority. The review was complemented by a site inventory of the features along the constructed bypass during the travel time and delays. The data collected is summarized in **Table 3.12** while detailed information collected in **Appendix 17**.

Table 3.12: Inventory of facilities and accesses along Eastern Bypass

Bypass Section	Number of lanes in each direction	Shoulders provided	Walkways provided	Availability of services lanes/roads	No. of bus stops provided including illegal ones	No. of direct accesses to abutting properties/roads	Posted speed restrictions	No. of Pedestrain crossings
Thika Road Roundabout (A) to East Brook Hotel (B)	2	Yes	No	No	2	LHS -72 RHS -18	0	0
East Brook Hotel (B) to Shell Petrol Station next to Access to Infinity Industrial Park (C)	2	Yes	No	No	0	LHS-22 RHS-6	80 km/hr and 50km/hr	0
Shell Petrol Station next to Access to Infinity Industrial Park (C) to Kangundo Road Junction (D)	2	Yes	No	No	2	LHS -24 RHS -19	0	0
Kangundo Road Junction (D) to Utawala /Githunguri Road Junction (E)	2	Yes	No	No	1	LHS -9 RHS -25	0	0
Utawala /Githunguri Road Junction (E) to Astrol Petrol Station (F)	2	Yes	No	No	2	LHS -26 RHS -53	0	0
Astrol Petrol Station (F) to Embakasi Roundabout (G)	2	Yes	No	No	3	LHS -2 RHS -4	50km/hr	0
Embakasi Roundabout (G) to U turn on Eastern Bypass (H)	4	Yes	Yes	Yes	0	LHS -5 RHS -6	0	0

Source: Author, 2016

4. DATA ANALYSIS AND DISCUSSION

This chapter presents results of data analysis, interpretation and discussion. In particular, the chapter gives approach to data analysis, results and discussion on vehicle composition, average daily traffic, future traffic projections, types of trips, origin and destination of traffic, trip purpose, trip frequencies, travel time and delays and estimates of congestion measures as well as comparison of features on Eastern Bypass and bypass standards. Further, statistical tests carried out to evaluate significance, or lack of it in the results is provided specifically through analysis of variance (ANOVA).

4.1 Analysis of classified traffic volume data

4.1.1 Vehicle composition

Vehicles manually counted along Eastern Bypass from each source were aggregated and classified based on the criteria summarized in **Table 3.1** of this thesis. Similarly, traffic data collected using automatic counters was classified based on modified Australian ARX vehicle classification system (See **Appendix 6** of this thesis).The proportion of each vehicle classes was then computed.

From the analysis, over 43% of vehicles on Eastern Bypass consisted of cars, 9% public service vehicles and 35% goods vehicles. **Figure 4.1** presents findings of vehicle composition found on Eastern Bypass from the data collected.

The high proportion of cars found along Eastern Bypass means that the bypass is a preferred route or link for motorists going about their businesses within the City County of Nairobi and beyond. It also means that commuters in the city prefer to use private cars to public service vehicles. Contrastingly, motorcycles were not popular along Eastern Bypass as they constituted the least proportion of vehicles.

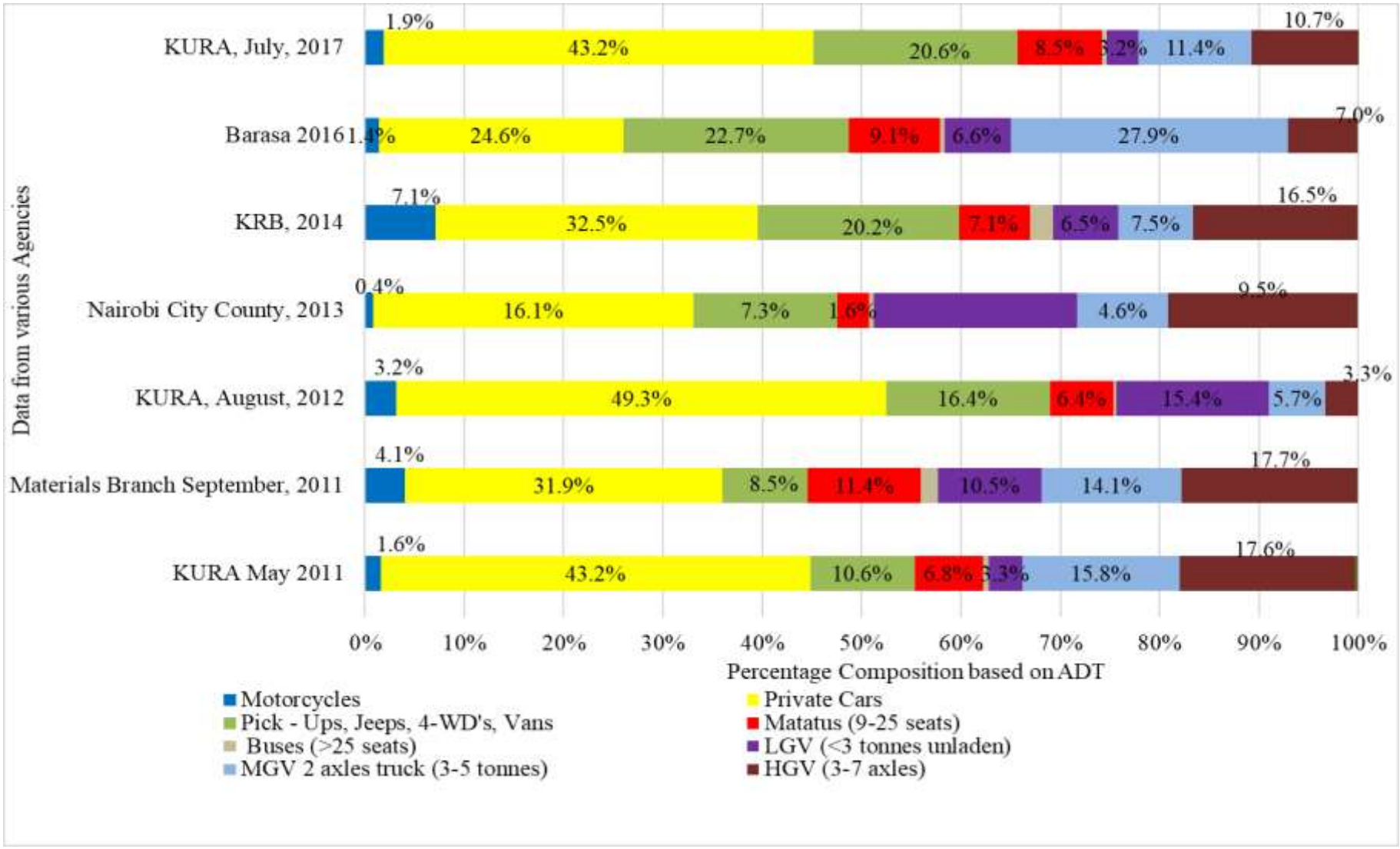


Figure 4.1: Vehicle composition along Eastern Bypass from various data sources

The volume of small occupancy vehicles along Eastern Bypass contradicts the known view that bypasses serve mainly goods vehicles on transit from one region to another (refer to **Table 2.1**). This finding may have been attributed to the fact that at the time studies were undertaken, existing alternative routes such as Outer Ring Road and others were not attractive to motorists. Again, the high proportion of cars found along Eastern Bypass shows that while planning for bypasses, due consideration should be given to both small occupancy vehicles and goods vehicles. Moreover, while constructing bypasses, existing alternative routes should also be improved to avoid influx of vehicles on a bypass once they are completed. Improvement of public transport could also lead to reduction of private car use along Eastern Bypass.

The percentage of cars found on Eastern Bypass mirrors the number of new cars imported in Kenya every year (See **Figure 2.3**). A significant proportion of cars imported in the country end up in urban areas. However, although motorcycles constitute the bulk of new vehicles registered in Kenya, motorcycles accounted for the least percentage of traffic composition along Eastern Bypass. This may mean that most motorcycles imported in the country either end up in rural areas or Eastern Bypass may not have been attractive to motorcycles.

Again, comparatively, the study findings with regard to vehicle composition along Eastern Bypass varied significantly with the projected vehicle composition carried out during the feasibility study as shown in **Figure 4.2**.

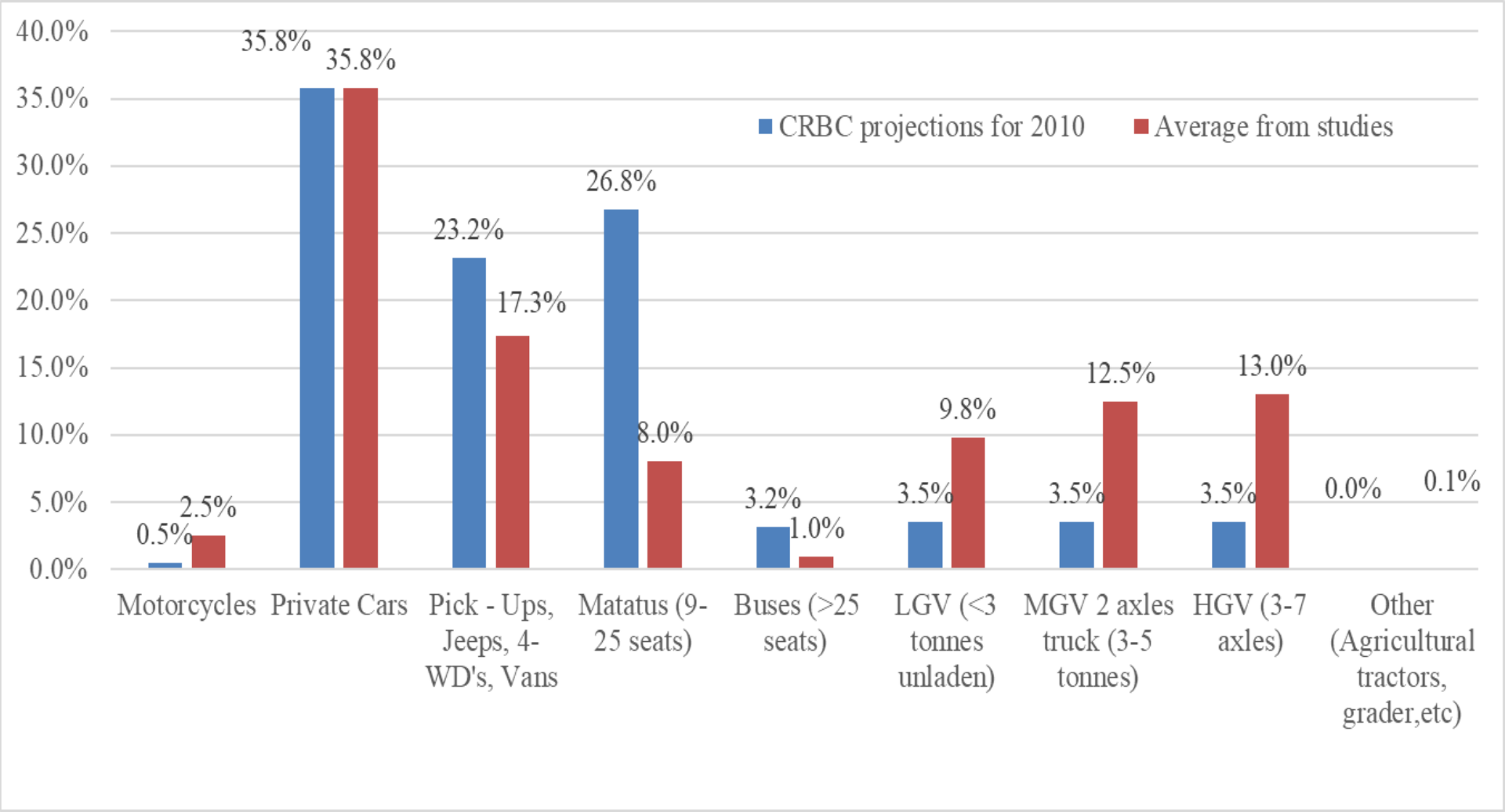


Figure 4.2: Comparison between projected vehicle composition and study findings along Eastern Bypass

Based on **Figure 4.2** above, the projections for pickups, vans, jeeps, four wheel drives, matatus and buses that were expected to use Eastern Bypass were over estimated while projections for motorcycles, light goods vehicles, medium goods vehicles and heavy goods vehicles on Eastern Bypass were under estimated. However, the projections for other vehicles for private car usage along Eastern Bypass were fairly accurate. From analysis of variance and standard deviation using the percentage mean of the collected data and projected traffic during feasibility report, the study found a variance of 75.505% and standard deviation of 8.6893613%. This meant that, on average, the estimated traffic in the 2007 and the study findings were 8.689361311 percent apart

4.1.2 Average daily traffic

Average daily traffic (ADT) along Eastern Bypass was calculated by totalling vehicles counted for each vehicle category and dividing the same by the number of day's data was collected. In computing ADT, a seasonal factor of 1 was applied to convert ADT to annual average dialy traffic (AADT) since the counts were carried out during normal roadway and traffic conditions. The results of analysis for ADT for data collected are presented in **Table 4.1**.

Table 4.1: Average daily traffic on Eastern Bypass since opening to traffic use

Data Source	Motorcyles	Private Cars	Pick - Ups, Jeeps, 4-WD's, Vans	Matatus (9-25 seats)	Buses (>25 seats)	LGV (<3 tonnes unladen)	MGV 2 axles truck (3-5 tonnes)	HGV (3-7 axles)	Other (Agricultural tractors, grader,etc)	Total
Materials Branch (September, 2011)	369	2891	774	1036	149	946	1276	1600	12	9053
KURA (May 2011)	80	2135	522	336	31	165	783	871	17	4941
KURA (August, 2012)	230	3543	1181	458	20	1106	409	237	0	7184
Nairobi City County, (February, 2013)	73	2916	1312	287	48	1847	831	1719	8	9039
KRB, 2014	737	3386	2105	745	249	682	785	1719	13	10421
Barasa (September, 2016)	161	2874	2650	1067	56	771	3257	815	13	11664
KURA (July, 2017)	334	7598	3626	1494	88	554	2001	1885	8	17588
Average	**259**	**3682**	**1782**	**825**	**99**	**1004**	**1286**	**1335**	**10**	**10284**

Again, ADT was estimated in terms passenger car units by coverting every vehicle captured into passenger car units using conversion factors summarized in **Table 4.2** below.

Table 4.2: Conversion factors for various types of vehicles

Vehicle type	Rolling terrain
Car/ taxi	1.0
Light Goods Vehicle	1.5
Medium goods vehicle	5.0
Heavy goods vehicle	8.0
Buses	4.0
Motorcycles	1.0
Pedal cycles	0.5

Source: Road Design Manual Part 1, 1979

The results of analysis of average daily traffic in terms of Passenger Car Units were as illustrated in **Figure 4.3** below.

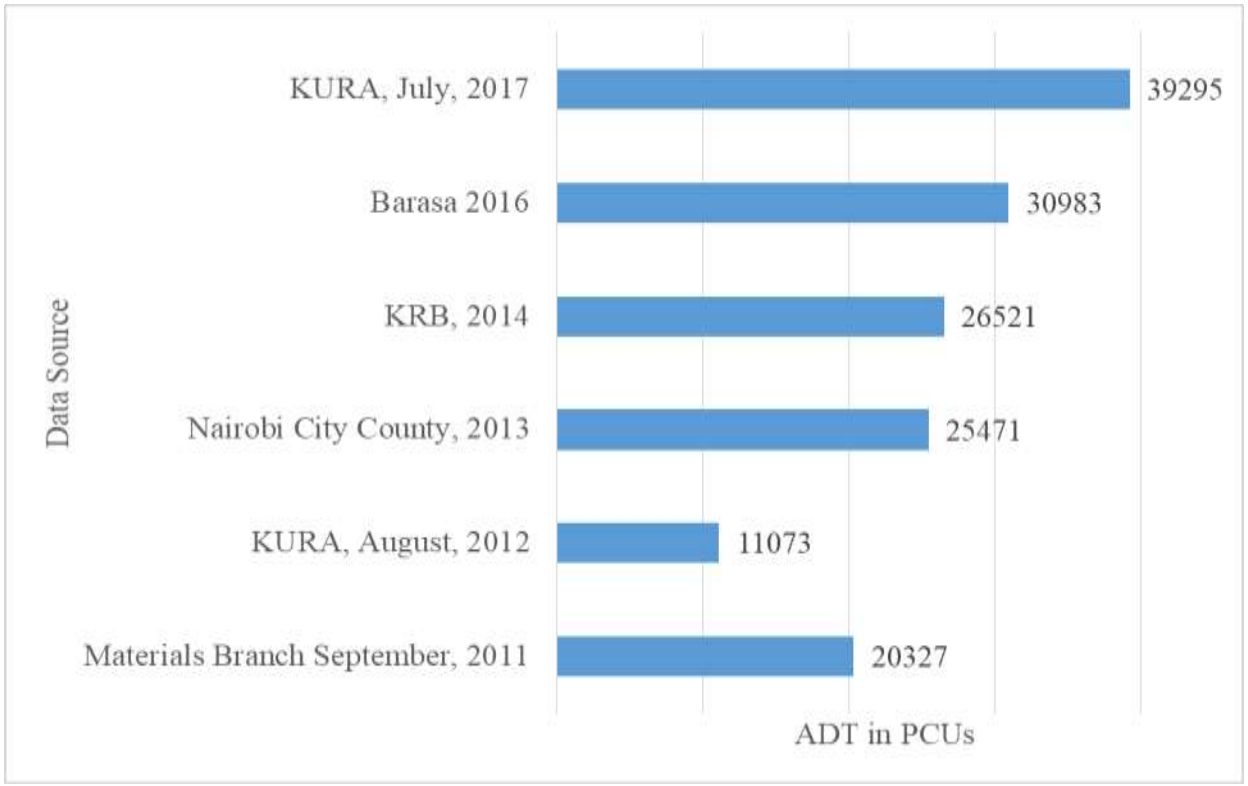


Figure 4.3: Average daily traffic along Eastern Bypass in PCUs since bypass opening

Source: Author, 2016

From the analysis presented in **Table 4.1** and **Figure 4.3**, immediately the bypass was opened in the 2011, it atttracted unprecedented volumes of traffic. An estimate of 20,327 passenger car units used Eastern bypass. The traffic along Eastern Bypass rose to 39,295 passenger car units in 2017. The rapid rise of traffic indicates that Eastern Bypass has been and continues to offer better travelling conditions for motorists and goods vehicles. The road may also be the only alternative route especially for most trucks originating and destined to Counties in Central, Eastern, North Eastern and Rift Valley regions in Kenya since the efforcement of the ban of trucks from passing through NCBD by the Nairobi City County.

Notably however, the averages daily traffic found along Eastern Bypass in 2012 was comparatively lower than 2011. The low traffic volumes along Eastern Bypass in 2012 could have been caused by failure in the functioning of counters. During the data collection processs some of the tubes reportedly snapped and could not collect data accurately. Moreover, the low ADT could also be attributed to the vehicle classification system adopted in the classification of collected traffic data. Data was classified based on the modified Australian ARX vehicle classification system (**See Appendix 6**) which is not similar to the criteria in the Kenya Roads Manual Part 1. Nevertheless, low traffic in 2012 may have been attributed to diversion of traffic to other roads due to high traffic volumes on Eastern Bypass.

Results from analysis of data collected in 2017 revealed that over 39,295 passenger car units passed along Eastern Bypass daily or 1,638 PCUs per hour. This volume is much higher than the forecasted flow in the feasibility study undertaken in 2007 which estimated that 26,570 PCUs would use Eastern Bypass by 2029. This may mean that the traffic generation, traffic diversion and the normal traffic factors relied upon in the feasibility study in 2007 to forecast the scenario in 2010 after construction as well as forecasts for 2029 were inaccurate. The unprecedented increase in traffic volumes found on Eastern Bypass over years can be attributed to high rate of motorization in the city as well as the positive economic growth in the country in general.

4.1.3 Future traffic along Eastern Bypass

Future traffic on Eastern Bypass was projected using an exponential equation given below.

$T_n=T_0\ \{(1+r)^n$ ……..……...…… (42)

Where,

$T_{n=}$ Traffic on Eastern Bypass by year n (taken as 2029 as per the projections of feasibility study report for purposes of comparison);

T_0= current Average Daily Traffic in PCUs (from latest traffic counts in 2017);

n= number of years of projection (taken as 2029 being the design period for Eastern Bypass);

r= rate of traffic growth (estimated through time series of traffic data collected after construction of the bypass);

The projected traffic was compared with traffic forecast in the feasibility study report and level of service by the year 2029 estimated using criteria given in **Table 2.19**.

4.1.3.1 Estimation of growth rate for traffic along Eastern Bypass

In order to establish growth of traffic on Eastern Bypass, important projected changes to economy, social and political atmosphere to ensure efficient transport in future was taken into account. Further, historical traffic data collected along the bypass since it was opened to traffic was also analysed to give indications of the traffic growth. However, analysis of historical data from 2011 to 2017 showed eratic growth rates as illustrated in **Figure 4.4** below.

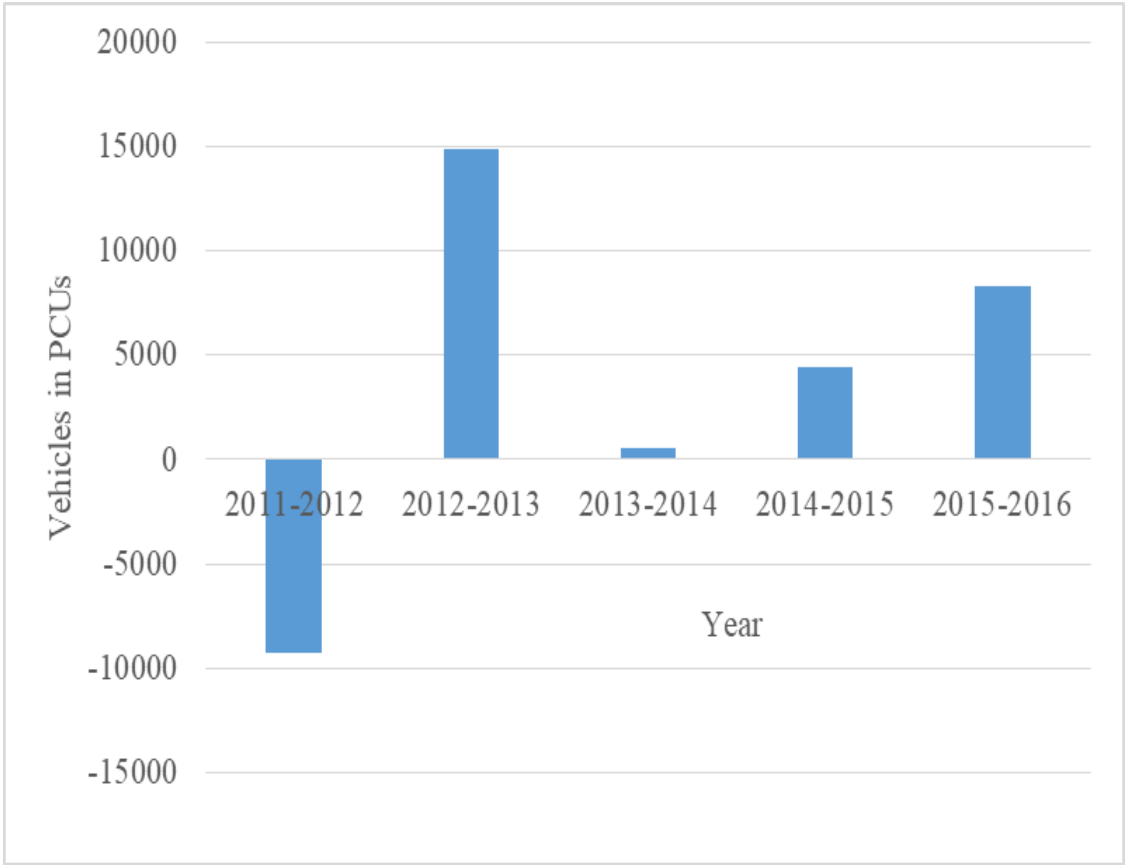


Figure 4.4: Growth of motor vehicles along Eastern Bypass since opening to traffic use

As shown in **Figure 4.4**, historical traffic data analysis gave nonuniform trend. Therefore it was necessary to adopt growth rate based on other indicators.

Again, an attempt to estimate traffic growth was made based on the trend in new registration of vehicles in Kenya based on data obtained from national Bureau of Statitics collected over a period of time as indicated in the **Figure 4.5** below.

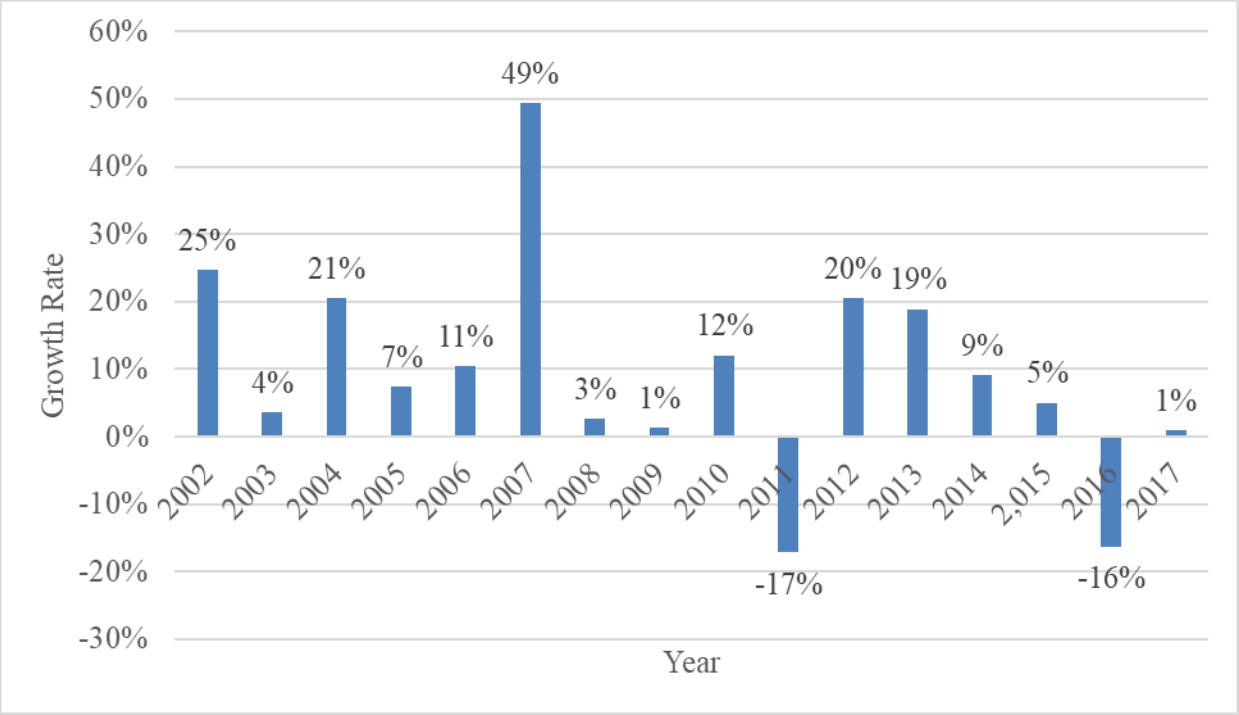


Figure 4.5: Growth of motor vehicles based on historical newly registered motorvehicles

Source: Author, 2017 (compiled from economic surveys between 2001 and 2017)

As shown in **Figure 4.5**, historical traffic data analysis gave nonuniform trend. Therefore it was necessary to adopt growth rate based on other indicators. In this regard, the Kenya Vision 2030 economic growth rate was conservatively adopted to project traffic along Eastern Bypass by 2030. According to Kenya Vision 2030, the Kenyan economy is expected to grow at an average growth rate of 10%. The implications of this is that all sectors of economy including transport are expected to post increased growth which may likely affect the efficiency of transport system since many people will likely own cars and the general vehicle population will significantly increase.

4.1.3.2 Projected traffic along Eastern Bypass

From analysis, future traffic flow projections along Eastern Bypass by the year 2029, at growth rate of 10%, was found to be 123,325 PCUs per day or 5,139 vehicles per hour. This finding is

more than double the projected traffic flow of 26,570 PCU per day by 2029 in the Feasibility Study report for Northern and Eastern Bypass.

At the projected traffic of 5,139 PCUs by the year 2029, Eastern Bypass will operate at level of service below E (service volume per hour of more than 2590 v/hr for rolling terrain) as per the Highway Capacity Manual, 2010 (**refer to Table 2.19**). Travel conditions along Eastern Bypass are likely to deteriorate further if nothing is undertaken to improve the current situation.

4.2 Origin and destination data analysis

Origin – destination data was analysed to establish origins and destinations of traffic captured on Eastern Bypass, O-D matrix, types of trips made, trip frequencies, vehicle composition, goods and services transported and trip purposes among other parameters.

4.2.1 Zoning

Origin – detination zones were derived from responses obtained with regard trip ends of drivers. From the review of reponses, places of origin and destination were found to be numerous and included places within different regions in Kenya and beyond. The geographical locations where drivers started or ended their journeys were adopted as zones. This data was reduced to manageable levels by adopting wide areas for OD zones. In this regard, county geographical boundaries of the forty seven counties were individually adopted as external zones for trip ends within Kenya as illustrated in **Figure 4.6**.

Figure 4.6: External Zones (based on County boundries) adopted in the study

Additionally, for trip ends falling outside Kenya, countries where such places were located were also adopted as individual external zones in origin and destination data analysis.

On the other hand, internal zones within the City of Nairobi were based on the eight districts including: Langata (*Zone 1*), Dagoreti (*Zone 2*), Kasarani (*Zone 3*), Makadara (*Zone 4)*, Embakasi (*Zone 5),* Kamukunji (*Zone 6*), Njiru (*Zone 7*), Starehe (*Zone 8*) and Westlands (*Zone 9*) districts. The district (zone) boundries were as indicated in **Figure 4.7**.

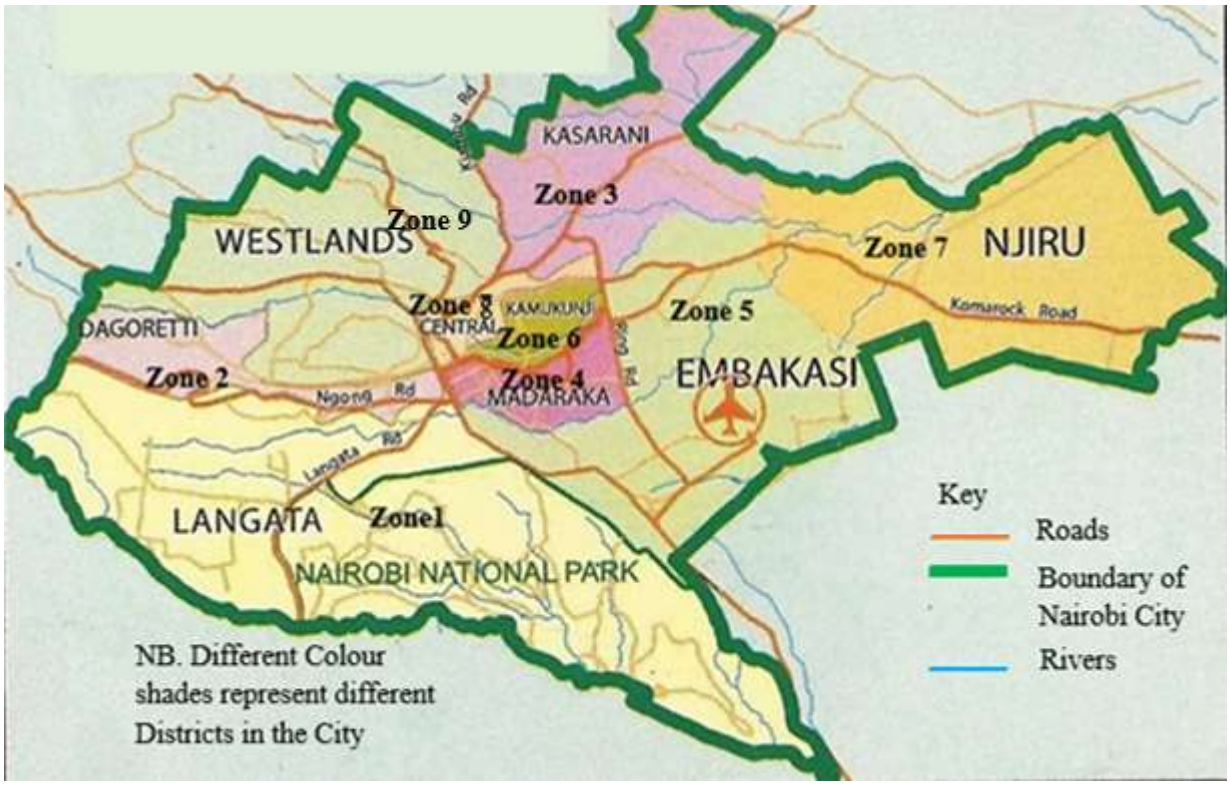


Figure 4.7: Internal zones adopted in the study

Drivers' responses with regard to places of origin and destination were cagorized within county geograpghical boundaries as well as district boundaries in the City of Nairobi. Based on these criteria, OD matrices were generated.

4.2.2 Analysis of drivers interviewed along Eastern Bypass

A total of 7,013 drivers were interviewed representing 48.75% of the vehicle population on Eastern Bypass. Out of the vehicles intercepted and interviewed, drivers of light goods vehicles were 41%, medium goods vehicle drivers were 29% and heavy goods vehicle drivers were 17%. The overall proportion drivers interviewed were as summarized in **Figure 4.8**.

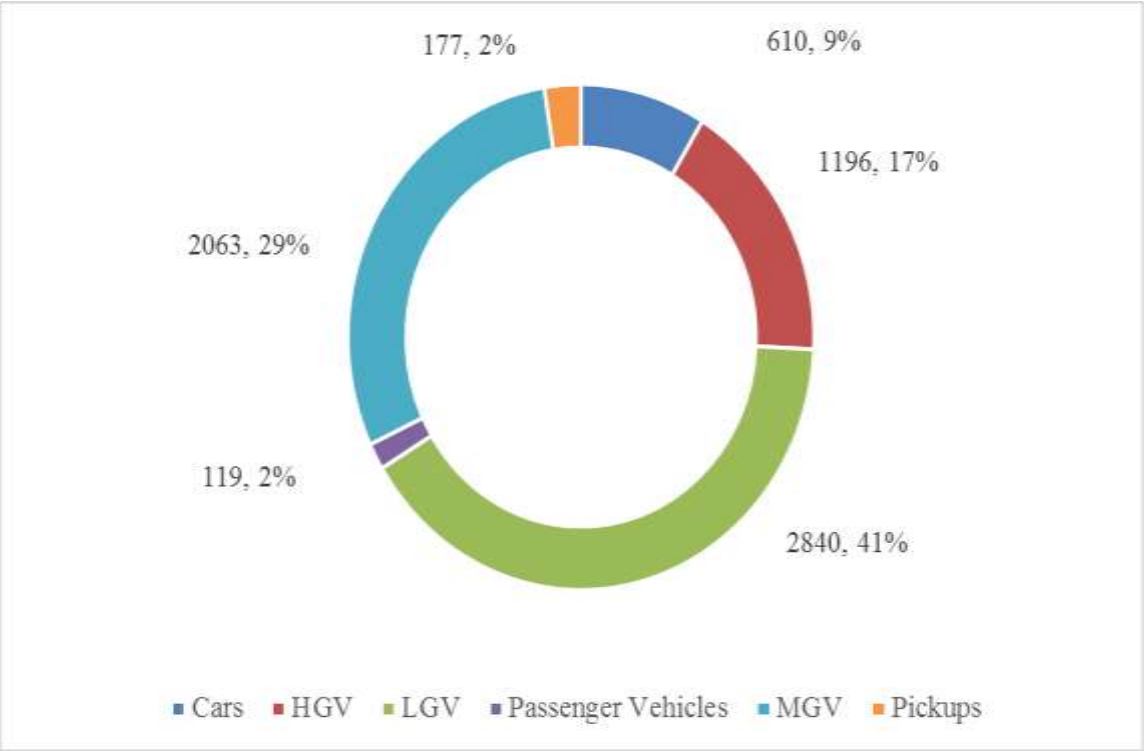


Figure 4.8: Proportion of various drivers interviewed during the OD Surveys
Source: MTRD, 2011; KURA, 2011, Nairobi City County, 2014

The fact that drivers of the various vehicle categories were intercepted and interviewed means that results of the responses given with regard to various parameters investigated were not only correct but also reliable. This also means that use of Eastern Bypass is not restricted to any particular vehicle class.

From the results, over 87% of drivers interviewed were ferrying goods. This could be linked to the recent ban of trucks in the Nairobi Central Business District by the Nairobi City County, a decision which was taken to address traffic congestion. All trucks were required to use bypasses as they approach the City of Nairobi enroute to their destinations. Again, the high proportion of the goods vehicles could also be linked to the fact that part of the OD data adopted was from axle load survey which mostly intercepted goods vehicles.

4.2.3 Origin and destination of traffic along Eastern Bypass

From analysis, traffic captured along Eastern Bypass originated from 22 counties in Kenya and in Uganda. Approximately 2,920 of the vehicles (41.7%) originated from Nairobi City County, 33.4% from Kiambu County, 8.6% from Machakos County and the remaining from 19 other counties and Uganda as summarized in **Figure 4.9**.

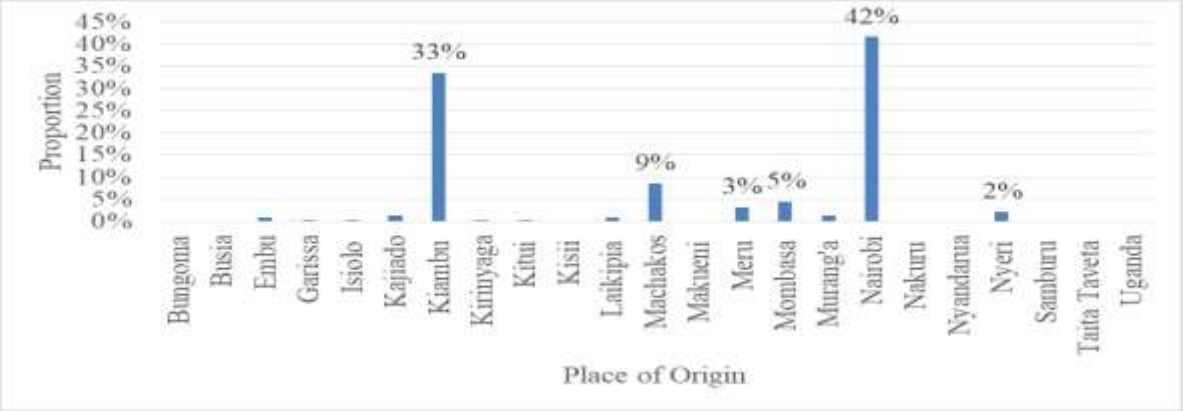


Figure 4.9: Origin of traffic intercepted along Eastern Bypass

In Kiambu, majority of the vehicles captured along Eastern Bypass originated from Thika Town (49%) followed by Juja (19%), Ruiru (14%) and Gathieko (11%) respectively as summarized in **Figure 4.10** below.

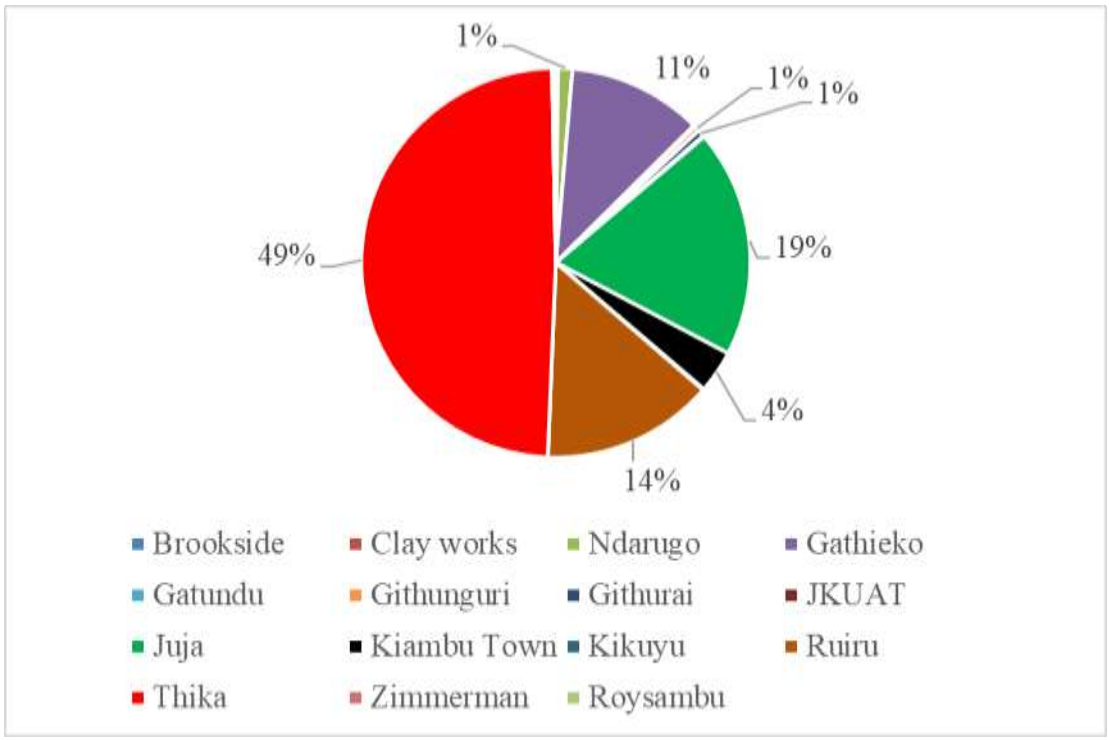


Figure 4.10: Origins of traffic from Kiambu County captured along Eastern Bypass

The high volumes of traffic from Kiambu could be linked to the agricultual activities including crop farming (bananas, pineapples, coffee) as well as dairy farming including the working class that commute between Kiambu and Nairobi daily. According to records from Kenya National Bureau of Statistics, about 500,000 people commute daily from the surrounding areas for work in the City and hence supports the study findings. Again, several quarries are located within the county such as Ndarugo, Gethioko in Thika for masonry stones clayworks for tiles and bricks

among others. Therefore vehicles could have been ferrying construction materials from Kiambu to variuos construction sites within the City of Nairobi and beyond. Further, the high volumes of traffic on Eastern Bypass from Kiambu could be linked to its nearness to Eastern Bypass compared to other counties as well as the fact that bypass connects Kiambu County to Nairobi City County.

Again, within the City of Nairobi, most vehicles captured along Eastern Bypass came from Embakasi District followed by Njiru, Kasarani and Langata in that order as shown in **Figure 4.11** below.

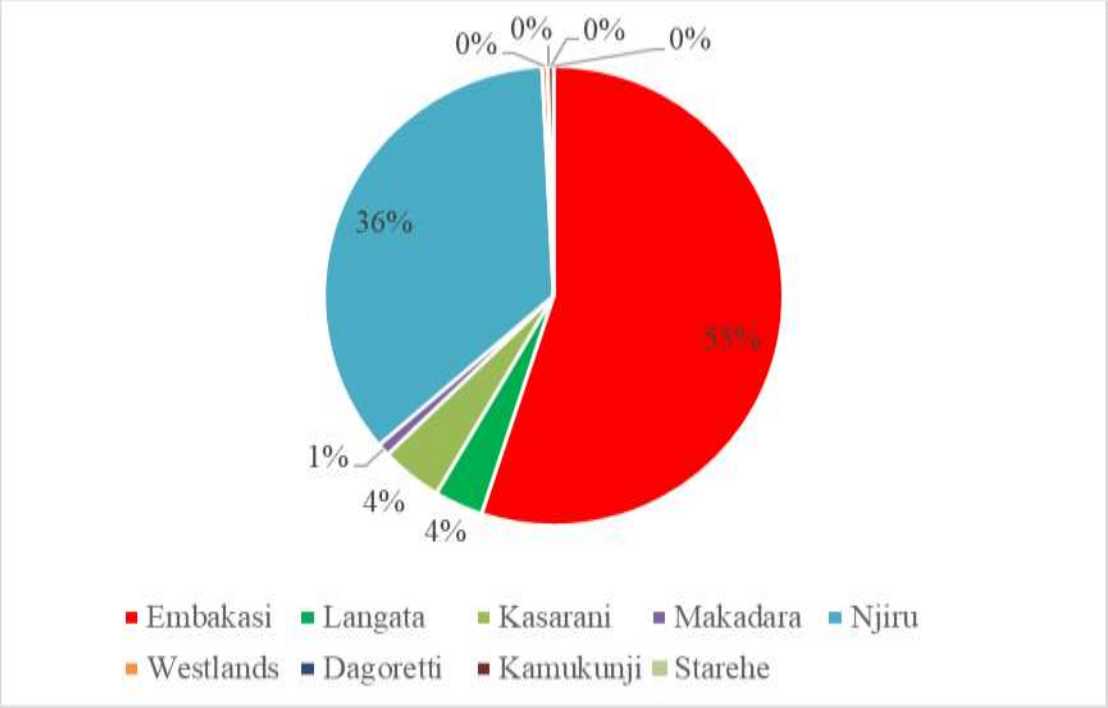


Figure 4.11: Origin of traffic capture along Eastern Bypass from various districts in Nairobi City

The high traffic from Embakasi District could be attraibuted to the fact that it covers several industries including Kenya Pipeline, container deports (Inland Container Depot) and signficant section of Nairobi's Industrial Area are located in Embakasi as well as cargo and passengers Jomo Kenyatta International Airport (JKIA) and high concentration of residential estates.
However, Dagoretti District did not contribute any traffic on Eastern Bypass probably because of its location relative to Eastern Bypass. The distribution of traffic from the City of Nairobi captured along Eastern Bypass to other counties in Kenya was as summarized in **Figure 4.12**.

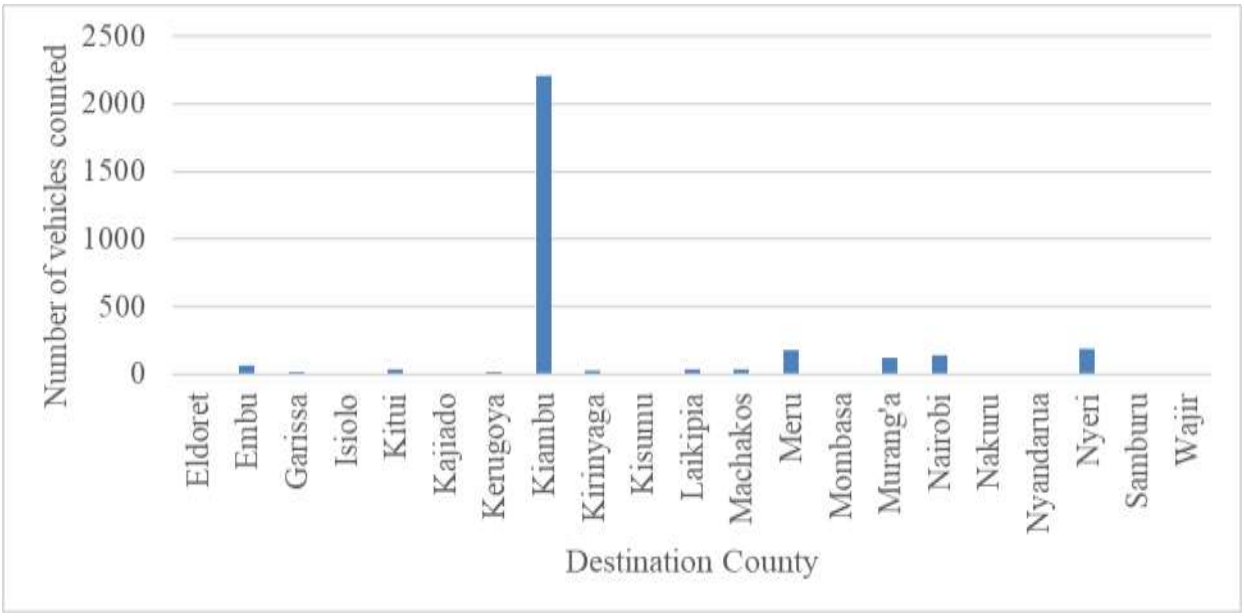


Figure 4.12: Distribution of traffic from the City of Nairobi

On the other hand, out of 7,013 drivers interviewed, over 41% had their destination within the City of Nairobi, 38.8% in Kiambu and the rest to other counties and Uganda. **Figure 4.13** summarizes the study findings of destinations of traffic on Eastern Bypass.

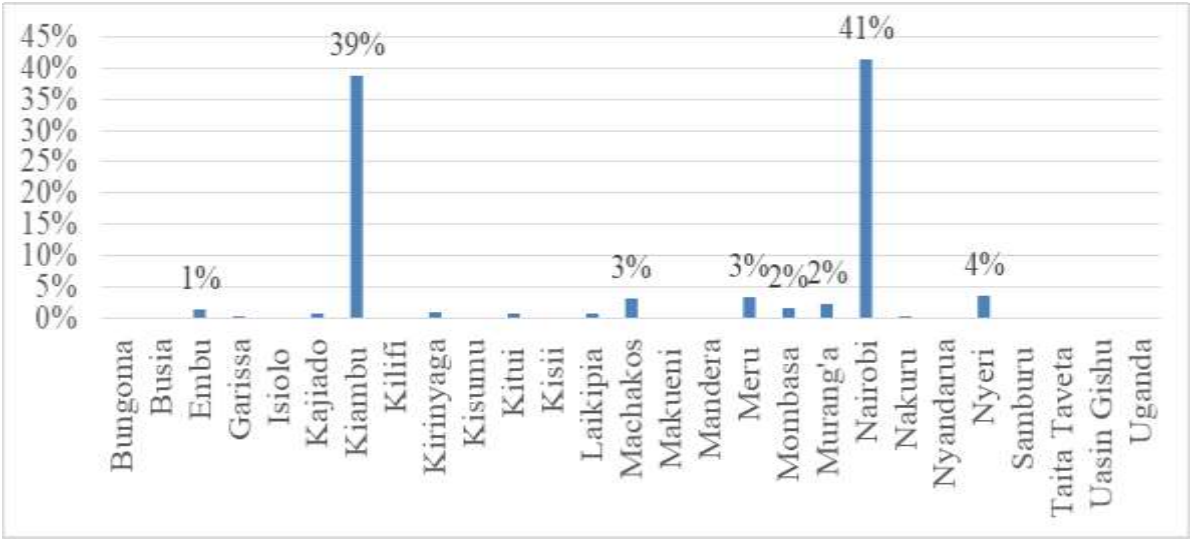


Figure 4.13: Destinations of traffic intercepted along Eastern Bypass

In Kiambu, most of the vehicles ended up in Thika followed by Ruiru, Juja, Kiambu and Githurai in that order as shown in **Figure 4.14**.

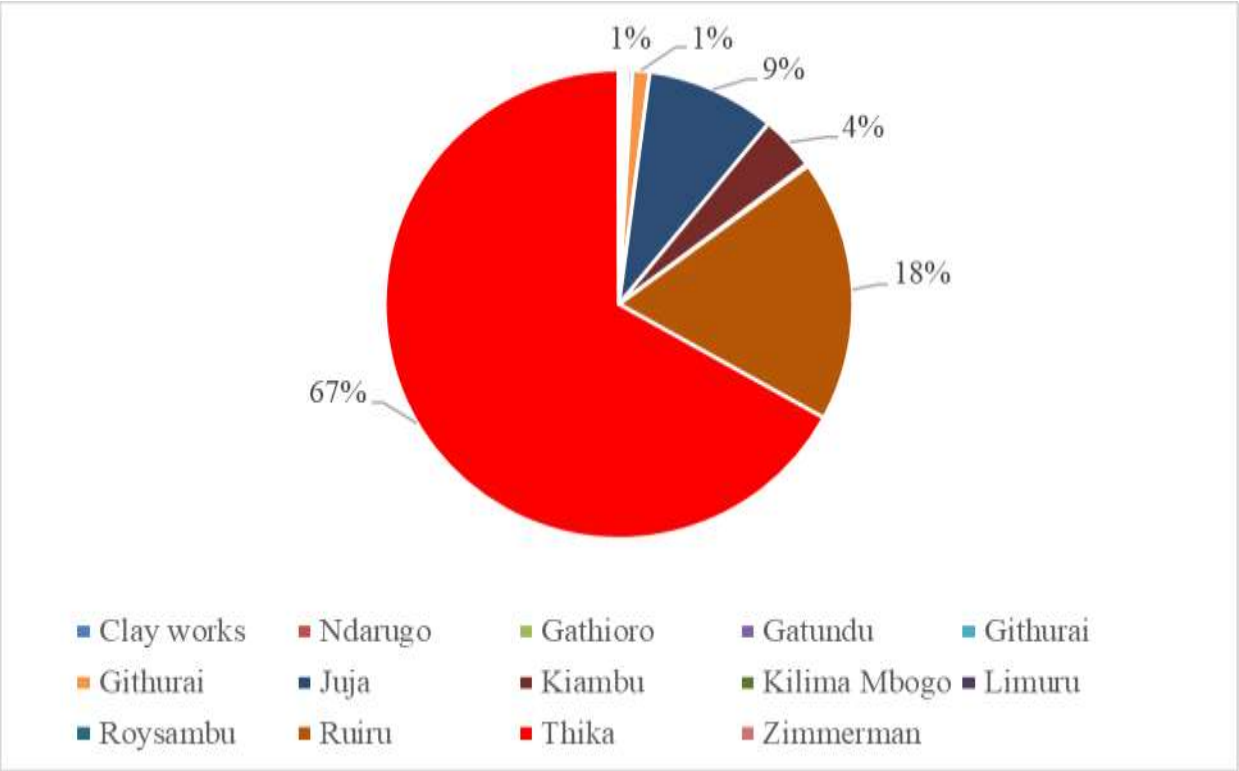


Figure 4.14: Distribution of traffic on Eastern Bypass to places within Kiambu County

Within the City of Nairobi, most vehicles captured along Eastern Bypass ended up in Embakasi, followed by Ruai, Njiru and Kayole in that order as summarized in **Figure 4.15**.

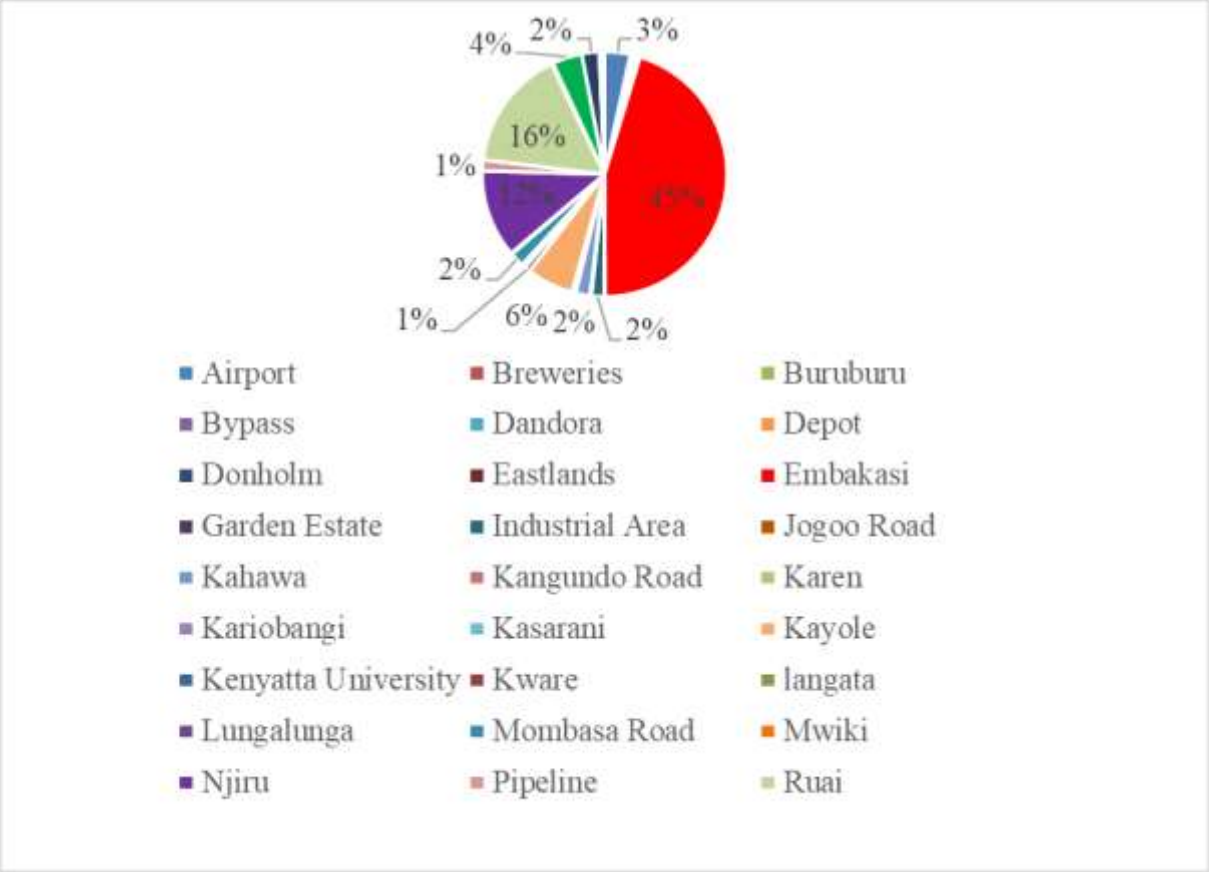


Figure 4.15: Destinations of traffic captured along Eastern Bypass

The distribution of traffic within districts within the City County of Nairobi is summarized in **Figure 4.16** below.

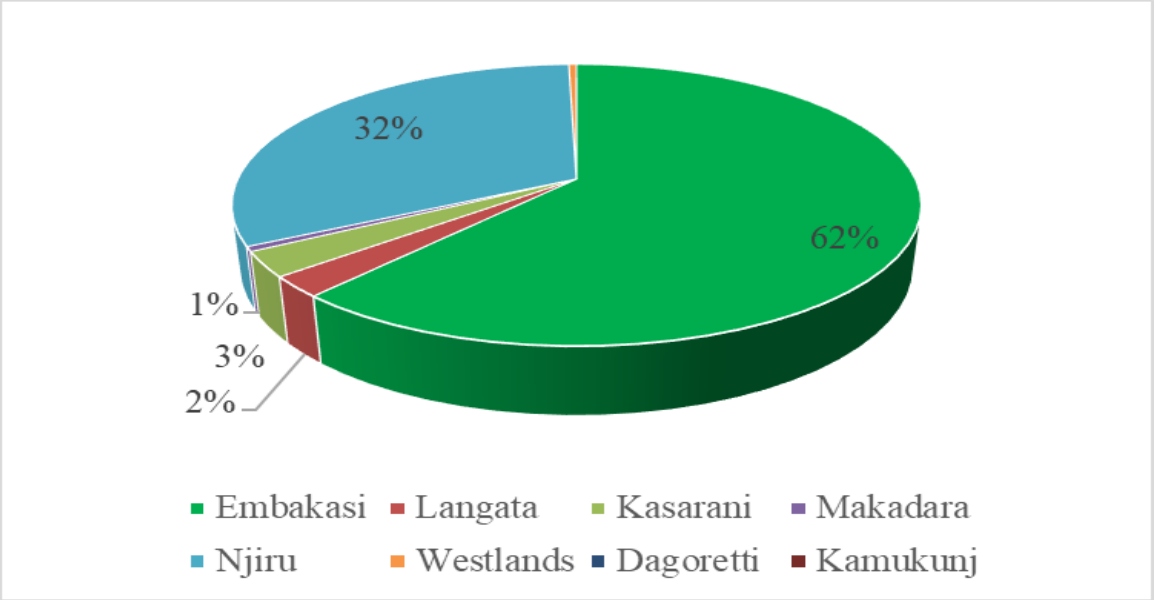


Figure 4.16: Destinations of traffic along Eastern Bypass within the City of Nairobi

The origin of traffic that ended up within the City of Nairobi captured along Eastern Bypass from other counties in Kenya was as summarized in **Figure 4.17**.

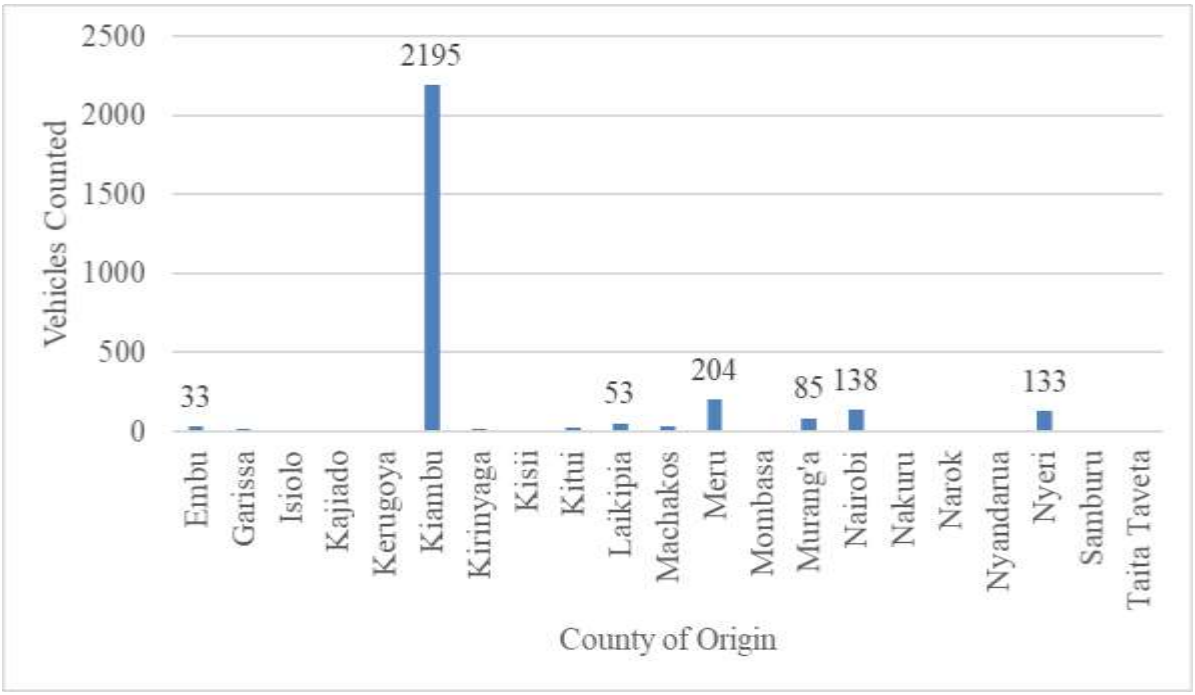


Figure 4.17: Origin of traffic captured along Eastern Bypass in the City of Nairobi

It is also worth noting that about 2891 vehicles found along Eastern Bypass ended up in the Nairobi County from other counties out of which over 60% originated from Kiambu County, 6.7% from Meru County and 4.3% from Nyeri County. Thus majority of the trip ends were in counties in Eastern, upper Eastern, Central and Lower Eastern parts of Kenya. OD matrix for traffic captured along Eastern Bypass within the City of Nairobi is given in **Table 4.3** while the overall derived Origin – Destimation Matrix for all drivers captured along Eastern Bypass is given in **Table 4.4**.

Table 4.3: Origin – Destination of matrix for traffic within the City County of Nairobi

		Destination						
Origin		Embakasi	Kasarani	Starehe	Njiru	Westlands	Langata	Total
	Embakasi	12	16	9	5	3	0	45
	Kasarani	26	0	3	10	0	1	40
	Langata	1	0	0	0	0	0	1
	Makadara	1	0	0	0	0	0	1
	Njiru	7	4	2	3	0	0	16
	Starehe	3	6	0	6	0	0	15
	Westlands	2	0	0	1	0	0	3
Total		52	26	14	25	3	1	121

Source: Author, 2016

Table 4.4: Origin – Destination of matrix

	COUNTY/COUNTRY OF DESTINATION																												
COUNTY OF ORIGIN		Bungoma	Busia	Embu	Garissa	Isiolo	Kajiado	Kiambu	Kilifi	Kirinyaga	Kisumu	Kitui	Kisii	Laikipia	Machakos	Makueni	Mandera	Meru	Mombasa	Murang'a	Nairobi	Nakuru	Nyandarua	Nyeri	Samburu	Taita Taveta	Uasin Gishu	Uganda	**Total**
	Bungoma	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	**2**
	Busia	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**
	Embu	0	0	0	0	0	0	20	0	1	0	1		0	4	0	0	1	2	2	32	2	0	0	0	0	0	0	**65**
	Garissa	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	17	0	0	0	0	0	0	0	**19**
	Isiolo	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	5	0	2	8	0	0	1	0	0	0	0	**17**
	Kajiado	0	0	4	1	0	0	68	0		1	0	0	0	1	0	0	3	0	3	12	0	0	2	0	0	0	0	**95**
	Kiambu	0	0	37	1	1	43	240	0	1	2	3	0	12	118	2	0	32	37	10	1749	4	3	46	0	0	0	0	**2341**
	Kirinyaga	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	23	0	0	0	0	0	0	0	**25**
	Kitui	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	23	0	0	0	0	0	0	0	**27**
	Kisii	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	**1**
	Laikipia	0	0	0	0	0	0	2	0		0	0	0	0	1	0	0	0	0	0	63	0	0	2	0	0	0	0	**68**
	Machakos	0	0	8	2	2	0	382	0	10	0	4	0	12	14	0	0	17	4	21	84	1	0	40	0	0	0	0	**601**
	Makueni	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**5**
	Meru	0	0	0	0	0	0	13	1	0	0	4	0	0	5	1	0	0	5	0	194	0	0	6	0	0	0	0	**229**
	Mombasa	0	0	2	5	2	0	137	0	9	0	1	0	7	2	0	1	26	0	6	97	1	0	21	0	0	0	0	**317**
	Murang'a	0	0	3	0	0	0	5	0	0	0	0	0	0	4	0	0	3	6	0	80	1	0	0	0	0	0	0	**102**
	Nairobi	0	0	50	17	2	8	1829	1	53	1	35	0	27	51	1	1	149	60	109	376	8	1	135	2	1	2	1	**2920**
	Nakuru	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	**6**
	Nyandarua	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	**1**
	Nyeri	0	0	0	0	0	0	7	0	0	0	0	0	0	9	0	0	5	5	2	124	0	0	0	0	0	0	0	**152**
	Samburu	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	**1**
	Taita Taveta	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	1	0	0	2	0	0	0	0	0	0	0	**7**

	Uganda	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	**4**
	Total	**0**	**0**	**104**	**27**	**7**	**51**	**2715**	**2**	**74**	**4**	**48**	**0**	**58**	**218**	**4**	**2**	**244**	**121**	**155**	**2891**	**17**	**4**	**254**	**2**	**1**	**2**	**1**	**7006**

Counties in Central, Lower Eastern, Upper Eastern and North Eastern are linked by Eastern Bypass through Thika road and Mombasa Road. The high proprtion of traffic between the forementioned region captured along Eastern Bypass may be associated with the fact that the bypass is a shorter route or convenient route to these regions through the City of Nairobi.

Contrastingly, little traffic from and to counties in Western, Nyanza and part of Rift Valley; and Uganda, Rwanda, Burundi and beyond were found on Eastern Bypass. Traffic from these regions and countries may have opted to use Southern Bypass or Outer Ring Road as they approached the City of Nairobi. These roads also provide alternative routes to the direct route through Nairobi Central Business District (Uhuru Highway) and there was no restrictions to their use.

4.2.4 Trip Composition

Types of trip along Eastern Bypass were determined from OD matrix established in this section. In this case, any two places mentioned by drivers as being their origins and destinations falling within the City County of Nairobi's boundary were taken as internal – internal trips while in cases where at least a destination or an origin was located within the Nairobi City County's boundary was categorized as internal - external trip or external – internal (Nairobi as a place of origin or destination). Finally, where both origins and destinations were outside the city's boundary, such trips were categorized as external – external trip (through trips).

Using the criteria above, the study found that approximately 34% (2544 vehicles) of the trips intercepted long Eastern Bypass moved from Nairobi City County geographical boundary to other counties (Internal - External Trips), 33% (2515 vehicles) moved from other places/counties and terminated their trips within the City County of Nairobi (External-Internal trips). Still, 21% of the drivers interviewed had both trip ends outside the City of Nairobi's boundaries (external-External trips or through traffic). Finally, about 12% of the vehicles started and ended their trips within the City of Nairobi's boundaries (Internal – Internal trips or local trips). **Figure 4.18** presents a summary various trips established on Eastern Bypass.

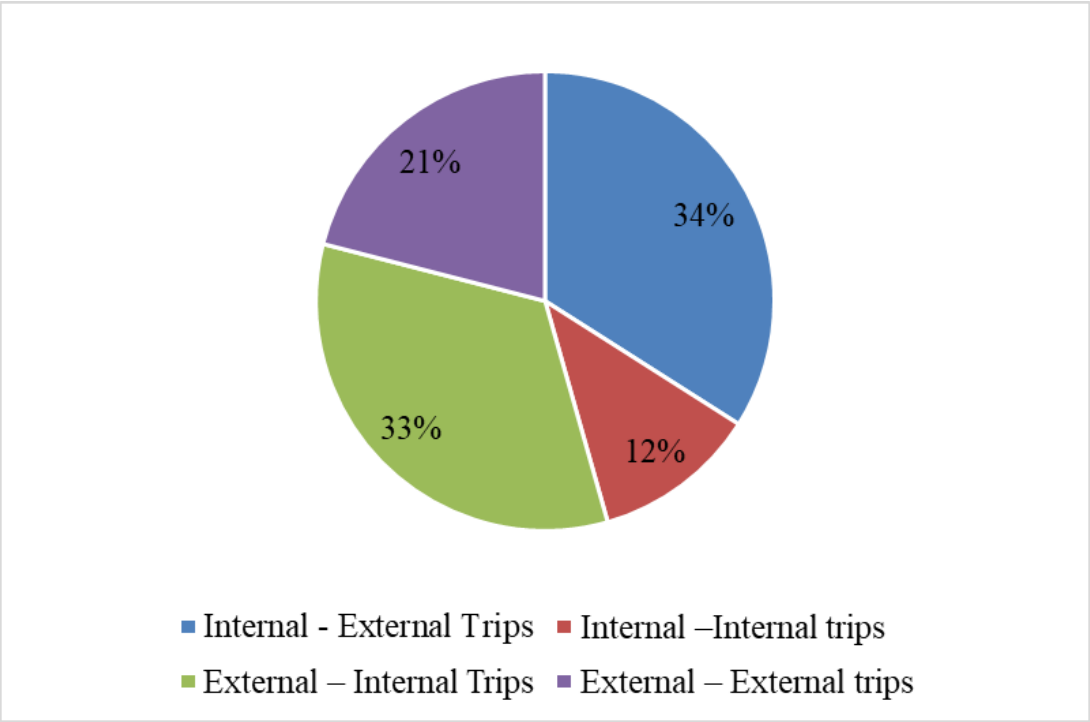


Figure 4.18: Types of trips on Eastern Bypass

The findings above show that Eastern Bypass not only serves traffic on transit trips but also local trips. It takes significant volumes of both intercounty and local traffic. This finding is similar to the findings by Lubric et al (2011) that found bypasses serving both local and traffic on transit flows. Therefore while planning for bypasses in built up areas, due consideration should be given to both through and local traffic travels to ensure proper functioning.

4.2.5 Trip purposes

Analysis of trip purpose was based on the drivers' responses. Analysis revealed that trips made included leisure trips, work trips, business trips, home based trips and school trips among others. Among the trips, business related trips were 58%, works trips were 30% and the rest were school and leisure among others as summarized in **Figure 4.19.**

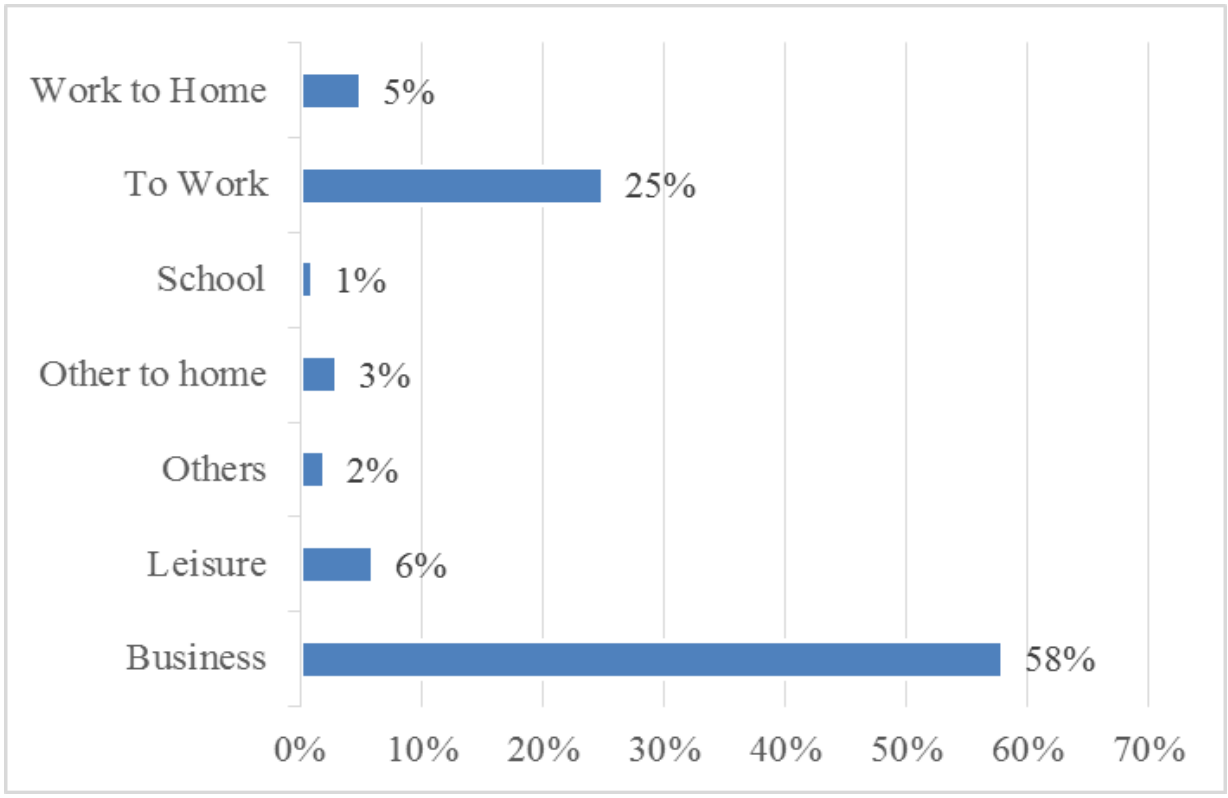


Figure 4.19: Trip puporses along Eastern Bypass

Work and business based trips along Eastern Bypass could be associated with traders taking goods to markets within the City of Nairobi and beyond such as fresh farm produce and industrial products, food and beverages among other goods. Similarly, business trips made along Eastern Bypass included trucks transporting consrution materials from quarries in the neighbourhoods of Eastern Bypass, manufactured goods from factories and people reporting to work places in supermarkets, hardware shops and informal businesses along Eastern Bypass, within the City of Nairobi and beyond.

Notably however, very few school trips were made along Eastern Bypass. This could mean the area traversed by the bypass had few learning institutions or there existed better alternative routes to places of learning such as Thika Road which school buses preferred to use. Similarly, where schools were available within the area traversed by the bypass, it is also possible that students lived in close proximity to their institutions and therefore walked to school.

Leisure trips accounted for 6% of the trips along Eastern Bypass. This was associated with the fact that several leisure joints are located along Eastern including fun city gardens near Utawala for children, Afro Sayari opposite infinity park road known for wedding parties,

several bars and resturants along the bypass including Kamakis, Tripple 'O' hotel and many clubs at Utawala and Ruai for revelers among others.

4.2.6 Goods and services transported along Eastern Bypass

Analysis of the types of cargo transported by the respondents showed that over 50% of the goods transported along Eastern Bypass consisted of road and building construction materials (manufactured and materials extracted from quarries) and 16% consisted of passenger vehicles (see **Figure 4.20**).

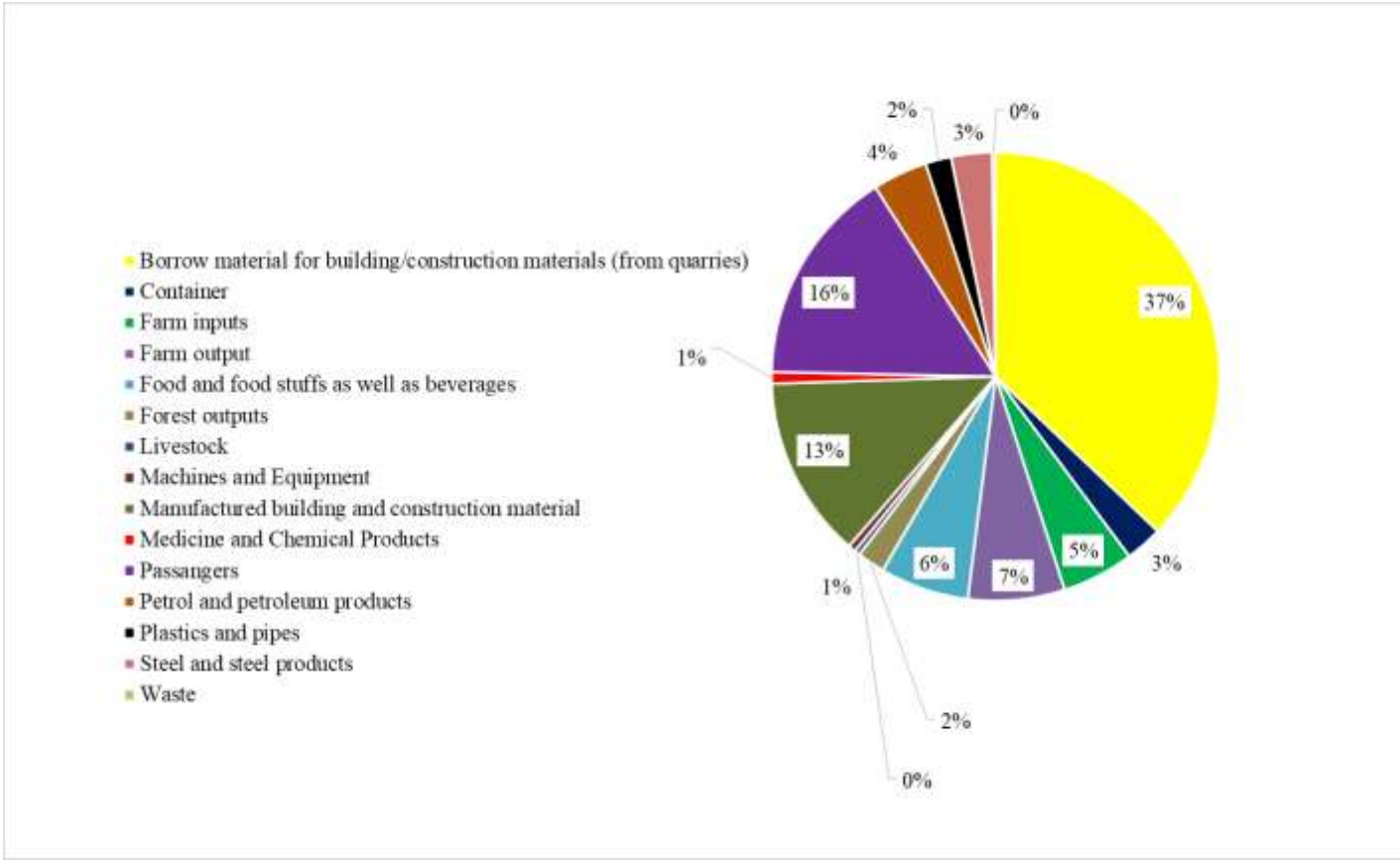


Figure 4.20: Goods and passengers along Eastern Bypass

The comparatively higher construction materials transported along Eastern Bypass could be linked to the several quarries located within Nairobi and its environs such as: Njiru and Ruai in Nairobi County where hardstones are extracted; Ndarugo in Kiambu County for machine cut stones; Syokimau and Mlolongo in Machakos County and Kitui County where sand is sourced among others. Moreover, construction materials could have originated from Nairobi's Industrial Area, cement manufacturing companies along Mombasa Road and Mombasa city as well as imports and exports through the Port of Mombasa and Jomo Kenyatta International Airport. The cargo transported included fresh farm produce such as miraa, coffee, tea, sunflower and flowers; cereals such as maize and beans as well as

industrial products including petrol and petroleum products, steel products, cement and raw materials such as clinker. Most of the construction materials ended up within Nairobi and the surrounding counties where many constructions were evident where some exports such as coffsee, tea and flowers are transported by air to international markets.

It is also worth noting that among the cargo transported along Eastern Bypass was waste. Several exhausters were observed along the bypass. The exhausters were carrying waste water to the exhauster manhole at Njiru which is linked to the treatment plant located at Dandora. The fact that a significant number of exhausters were found along Eastern Bypass means that many developments within the City and its surroundings are not served by sewer system and have septic tanks instead.

4.2.7 Trip frequencies

Analysis of trip frequencies from the drivers' responses showed that 44% of the drivers along Eastern Bypass made their trips daily, 21% weekly and twice a week and 9% monthly as summarized in Figure **4.21** below.

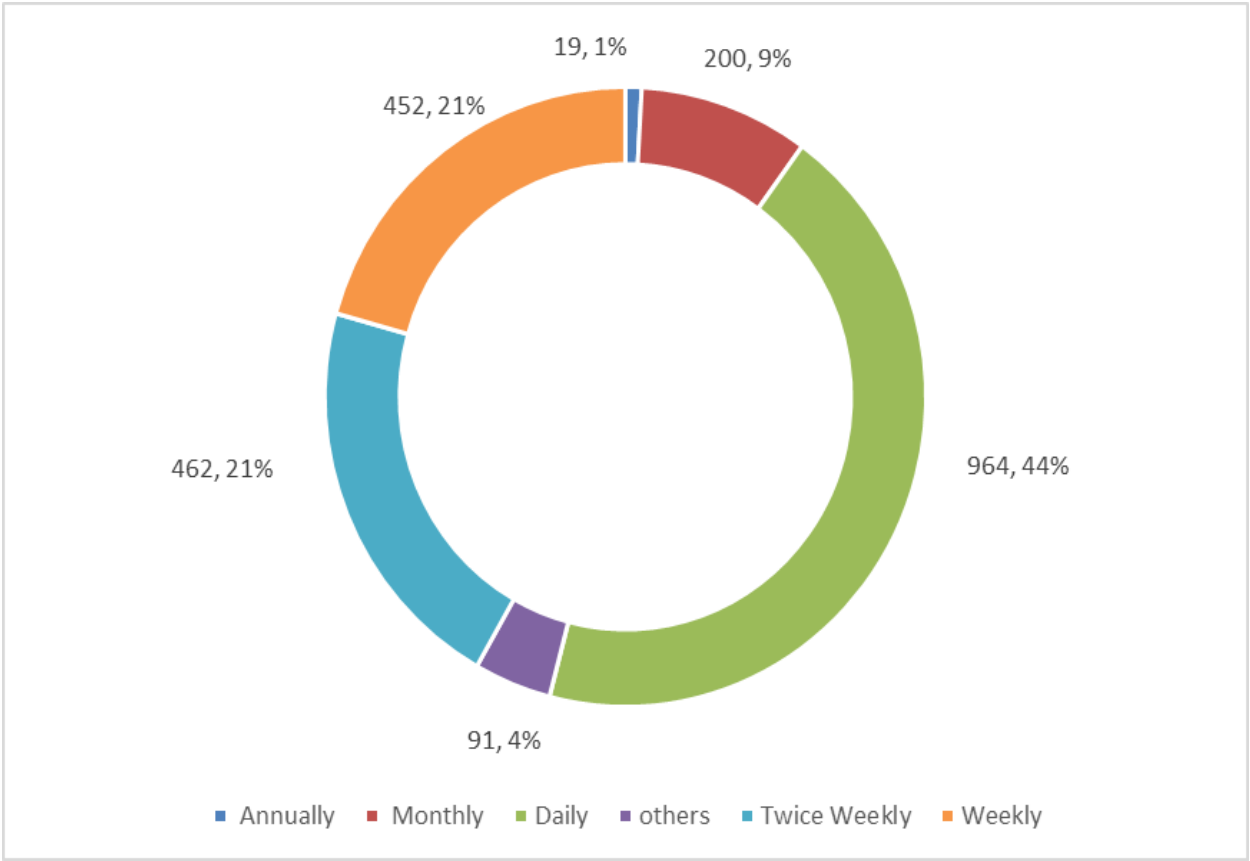


Figure 4.21: Frequency of trips along Eastern Bypass

Proportionately, the higher percentage of daily trips along Eastern Bypass could be associated with trucks transporting construction materials from quarries to construction sites within and outside the City's boundary by both the government and private developers. Daily trips could also have consisted of people reporting to and retiring from places of work within the City of Nairobi and surrounding areas. During morning hours between 7am and 9am most trips were work based while home based trips were prevalent in the evening indicating peak hours on the bypass. This means that significant proportion of commuters use Eastern Bypass as a link to their places of work.

Still, some respondents made trips weekly and monthly. Respondents in this category included long distance truck drivers who pick and drop cargo in far flung aregions such as Coast, Western, North Eastern, Nyanza, Central, Upper Eastern, Lower Eastern regions in Kenya as well as many countries in Africa.

4.3 Study findings on the features along Eastern Bypass

The study findings on the features along Eastern Bypass based on the inventory carried out are summarized in **Table 4.5** while comparison of features along Eastern Bypass with standards for bypasses is summarized in **Table 4.6**.

Table 4.5: Inventory of facilities and developments along Eastern Bypass

Bypass Section	Length (Km)	Number of lanes in each direction	Shoulders provided	Walkways provided	Availability of services lanes/roads	No. of bus stops provided including illegal ones	No. of direct accesses to abutting properties /roads	Developments within road reserve	Posted speed restrictions	No. of Pedestrain crossings
Thika Road Roundabout (A) to East Brook Hotel (B)	3.8	2	Yes	No	No	2	90	Parkings, informal traders and kiosks, illegal terminal	0	0
East Brook Hotel (B) to Shell Petrol Station next to Access to Infinity Industrial Park (C)	6.3	2	Yes	No	No	0	28	Flower vendors	80 km/hr and 50km/hr	0
Shell Petrol Station next to Access to Infinity Industrial Park (C) to Kangundo Road Junction (D)	3.4	2	Yes	No	No	2	43	Flower vendors parking for tankers	0	0
Kangundo Road Junction (D) to Utawala /Githunguri Road Junction (E)	1.3	2	Yes	No	No	1	34	Quarrying and wreckage of accident vehicles	0	0
Utawala /Githunguri Road Junction (E) to Astrol Petrol Station (F)	2.7	2	Yes	No	No	2	79	Informal traders	0	0
Astrol Petrol Station (F) to Embakasi Roundabout (G)	3.6	2	Yes	No	No	3	6	None	50km/hr	0
Embakasi Roundabout (G) to U turn on Eastern Bypass (H)	5.0	4	Yes	Yes	Yes	0	11	None	0	0

Source: Author, 2016

Table 4.6: Constructed bypass features along Eastern bypass and bypass requirements

Criteria	Design and operation standard (refer to 2.1)	Eastern Bypasses	Comments
Design speed	Should be designed and operated at least 80km/hr.	Designed for a maximum speed of 80km/hr. However, warning boards for speeds of 30km/hr, 50km/hr and 80km/hr are posted and enforced along the bypasses to minimize traffic accidents.	Partially meets bypass design but fails on operation criterion
Local street/bypass integration	Local streets - bypass integration using high standard junctions (interchanges).	A mixture of at grade and grade separated junctions including roundabouts provided along the bypasses. Specifically there is grade separated junctions at City Cabanas, Outer Ring Road, Kangundo Road and Thika Road/Eastern Bypass Junction; at grade roundabouts at Embakasi and Thika Road; and at grade junction with Githunguri Road at Utawala.	Meets design and operational criterion partially
Access to abutting land	No direct access permitted except through high standard junctions located at predetermined locations.	Several direct at grade accesses along the bypass with high concentration of the same at the built up sections such as Thika Road – East Brook Hotel section, section between Shell Petrol Station and Astrol Petrol Station.	Partially meets the criterion
Traffic	Intended exclusively for saturation of transit traffic flows with local traffic access at specified interchange locations.	Designed for traffic on transit. However, heavy local traffic evident along the bypass.	Criterion partially met
Geometry	Should have truck-friendly geometry and cross-sections.	Geometries were truck friendly in most sections.	Meets requirements
Loading and unloading, pedestrian movements, parking and stopping of vehicles	Movements of pedestrians, parking and stopping of vehicles along bypasses are prohibited.	Several bus stops are located along the bypasses and therefore allow vehicle stoppages to drop and pick up passengers. Bus stations provided with bus stops or bus station along road sections passing towns and major villages. Illegal termini along Eastern Bypass located at Thika Road Underpass, Kangundo Road, Embakasi and Utawala among other places.	Does not meet bypass requirements
Shoulders and medians	Continuously wide shoulders and medians should be provided to enhance safety.	Medians are not provided in most sections of Northern and Eastern bypasses since they have single carriageways. Except for a section between Embakasi Roundabout and Mombasa	Partially meets requirements

Criteria	Design and operation standard (refer to 2.1)	Eastern Bypasses	Comments
		Road 2m wide shoulders are provided on both sides of the carriageway.	
Location of interchanges	Average distance between interchanges does not exceed 3 km for bypasses serving local traffic and longer intervals for bypasses serving long-distance transit traffic.	Overpasses and underpasses provided where the bypasses cross existing urban arterial roads and therefore not based on required interchange intervals. However, there is only one interchange at City Cabanas.	Partially meets requirements
Carriageway	Dual carriageway with at least two lanes in each direction.	Most sections of the bypasses are single carriageways except the first 5km of Eastern Bypass and most sections of Southern Bypass.	Partially meets requirements
Roadside development and land use	Road side developments and land use should be controlled.	Road side developments and land use are not controlled. Many establishments observed along the bypasses with accesses to the bypasses granted haphazardly by relevant authorities.	Does not meet requirements
Safety features		• Road markings to divide opposite traffic lanes and carriageway edges; entrance/exit marking, and direction arrow. • Speed limit signs, place name and distance signs, prohibitory signs, and auxiliary signs erected along regular road segments whereas exit signs furnished on interchanges. • Guard posts and guard rails at bridge approaches and river crossings • Street lighting/studs to show carriageway edges and centerline	Partially meets bypass standards

Source: Author, 2016

4.4 Analysis of travel time and delays data

Travel times and delays data captured in the forms were entered in Microsoft excel to create a database. The database was reviewed and corrected by removing missing or unrealistic values. Travel time and delays for each individual runs were estimated for each segment based on the times recorded at the checkpoints for each direction. Mean or average travel times and delays were calculated for selected periods as well as for each hour.

Based on the mean travel times and length of the segments, average speeds for each segment were calculated for each direction at different times. Further, travel times and speeds for each segment were aggregated at three levels (7am to 9am, 9am to 3pm and 3pm to 7pm) to estimate peak periods along Eastern Bypass.

Reliability estimates including, 95 percentile travel times, variance, standard deviation (or coefficient of variation) for speeds and travel times were determined for every segment covered using the following relations.

$$Variance\ \ of\ travel\ time = \sum_{i}^{m}\left(\frac{t_i - t_{av}}{m-1}\right)^2 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (43)$$

Where:

t_i = travel time for i-th run for vehicle i

t_{av} = average travel time

m = total number of travel times

$$Standard\ Deviation\ of\ travel\ time = \sqrt{\sum_{i}^{m}\left(\frac{t_i - t_{av}}{m-1}\right)^2} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (44)$$

$$Coefficient\ of\ variation\ of\ travel\ time = \frac{\sqrt{\sum_{i}^{m}\left(\frac{t_i - t_{av}}{m-1}\right)^2}}{\frac{\sum_{i}^{m} t_i}{m}}\ x\ 100\% \ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (45)$$

$$Variance\ \ of\ travel\ speed = \sum_{i}^{m}\left(\frac{TS_i - TS_{av}}{n-1}\right)^2 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (46)$$

$$Standard\ Deviation\ of\ Travel\ Speed = \sqrt{\sum_{i}^{m}\left(\frac{TS_i - TS_{av}}{m-1}\right)^2} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (47)$$

$$Coefficient\ of\ variation\ of\ Travel\ Speed = \frac{\sqrt{\sum_i^m (\frac{TS_i - TS_{av}}{m-1})^2}}{\frac{\sum_i^m TS_i}{m}}\ x\ 100\% \quad \text{..... (48)}$$

Finally, estimates of various congestion indicators along Eastern Bypass were calculated by assuming a speed of 80km/hr as Eastern Bypass free flow speed. Congestion indicators estimated included: Levels of Service (LOS), Travel Time Differences (TTD), Travel Time Index (TTI), Buffer Index (BI), Planning Time Index (PTI), Congestion Index (CI), Relative Speed Reduction (RSR), Delay Rate (DR), Relative delay rate (RDR) and Delay ratio (DRA) using relevant equations in **Table 2.22**.

4.4.1 Results of travel time analysis

From the analysis, averagely, it took about one hour to travel between City Cabanas and Thika Road (26.1 km) at any time of the day. During weekends, it took average of 46.2 minutes for eastward travel and 52.5 minutes for westward travel. Comparatively, it took averagely 54.8 minutes for eastward travel and 52.1minutes for westward travel.

Travelling along Eastern Bypass took longer time during the morning peak compared to the evening in both directions. Higher travel times were recorded between 7am and 9am as well as between 5pm and 7pm indicating peak periods on Eastern Bypass. A summary of average travel time times during peak and off peak period in each direction were as summarized in **Figure 4.22** below.

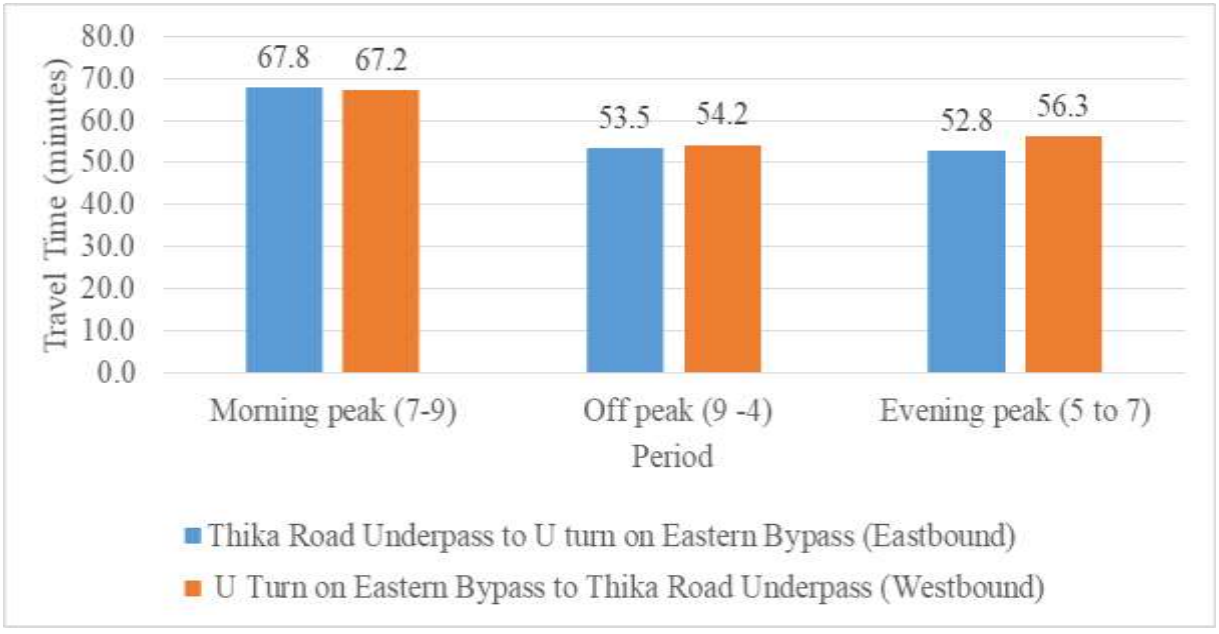


Figure 4.22: Average travel time along Eastern Bypass during Peak and off peak periods

The finding with regard to peak periods in this study was similar with findings of the Transport Master Plan Study undertaken by Japan International cooperation Agency (JICA) in 2006 with regard to peak periods in the City of Nairobi. Therefore the current study validates the JICA study. As per the JICA study, during the evening peak, 7.5% of the traffic flow head to or leave Nairobi, while 7.9% of the traffic flow travel from or to the city in the morning, meaning that more time was spent travelling in the morning.

However, during the evening peak, it took more time to travel from City Cabanas to Thika Road compared to travels from Thika Road to City Cabanas. This means that traffic volumes along the bypass was lower during morning periods compared to evening periods. The lower travel times in the evening could also be attributed to travel behavior and choices made by city residents who usually avoid known peak hours when traffic flows are high, and make their trips when peak flows have eased. Similarly, motorists may have opted for alternative routes fearing congestion along Eastern Bypass in the evening, thus resulting in low traffic flows.

Nevertheless, travel time was almost the same in either direction during offpeak periods. This meant that both directions experienced similar traffic volumes and travel impedence during offpeak periods. The graphical representation of the study findings are summarized in **Figure 4.23** below while a summary of runs and travel times on each segment is given in **Appendix 15** of this thesis.

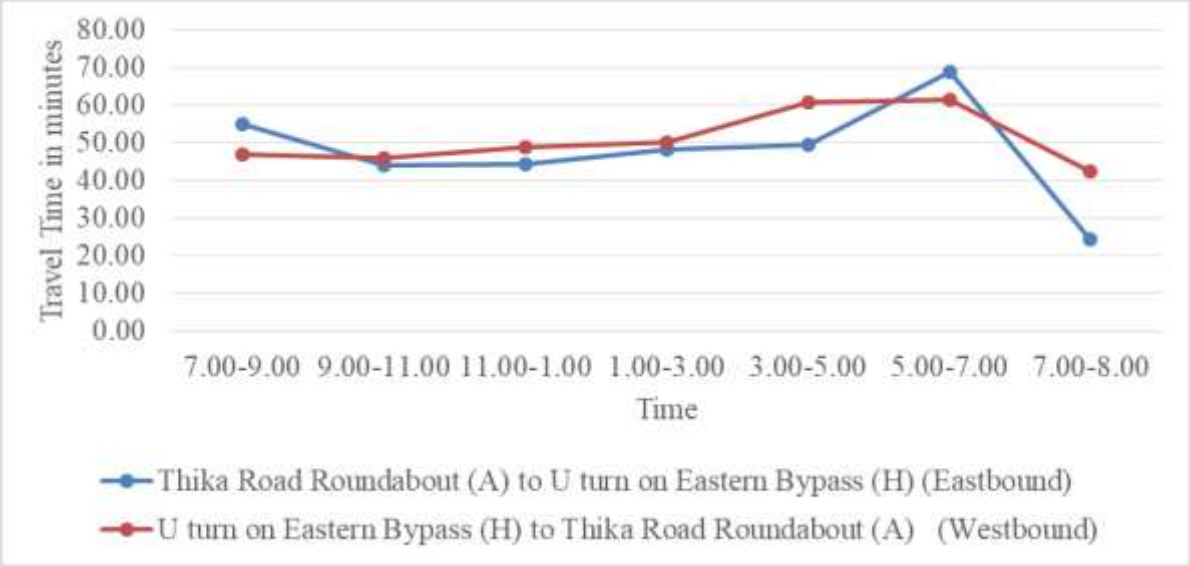


Figure 4.23: Average travel times along Eastern Bypass

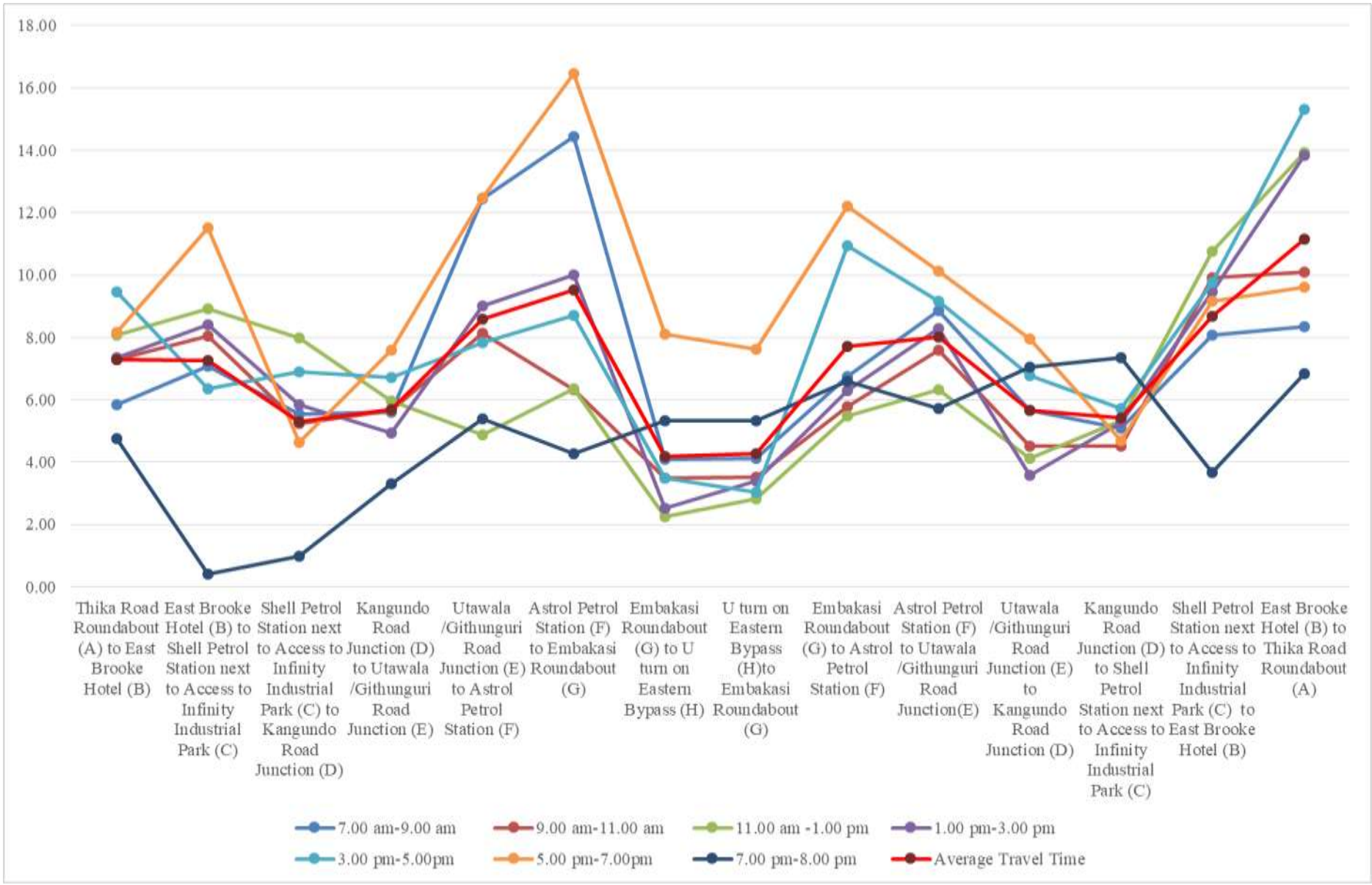
Again, results found that it took different durations to move between different sections of Eastern Bypass as summarized in **Table 4.7** and **Figure 4.24**.

Table 4.7: Travel times along Eastern Bypass

			TIME OF THE DAY											
			7AM TO 9AM				9.00AM to 3.00 PM				3.00 PM TO 8.00 PM			
BYPASS SECTION	**Length (Km)**	**Direction**	**Average Travel Time (Mins)**	**Variance**	**S.D**	**C.V.**	**Average Travel Time**	**Variance**	**S.D**	**C.V.**	**Average Travel Time**	**Variance**	**S.D**	C.V.
Thika Road Roundabout (A) to East Brook Hotel (B)	3.8	East bound	5.98	1.81	0.18	0.03%	7.50	16.97	0.65	0.03%	6.62	16.53	1.84	0.57%
East Brook Hotel (B) to Shell Petrol Station next to Access to Infinity Industrial Park (C)	6.3		6.64	2.26	0.28	0.05%	8.42	31.71	1.13	0.04%	7.61	59.43	3.13	0.38%
Shell Petrol Station next to Access to Infinity Industrial Park (C) to Kangundo Road Junction (D)	3.4		5.73	30.07	3.76	0.81%	6.49	67.04	2.39	0.11%	6.37	23.31	1.06	0.07%
Kangundo Road Junction (D) to Utawala /Githunguri Road Junction (E)	1.3		6.78	31.83	3.98	0.72%	5.69	8.59	0.34	0.03%	6.57	4.04	0.20	0.02%
Utawala /Githunguri Road Junction (E) to Astrol Petrol Station (F)	2.7		12.57	35.59	3.95	0.32%	7.19	39.25	1.57	0.09%	9.24	20.96	1.05	0.06%
Astrol Petrol Station (F) to Embakasi Roundabout (G)	3.6		11.18	82.21	13.70	2.50%	7.08	31.21	1.08	0.04%	8.88	94.08	3.92	0.19%
Embakasi Roundabout (G) to U turn on Eastern Bypass (H)	5		3.81	4.67	0.93	0.68%	2.89	8.72	0.31	0.03%	4.96	41.85	3.22	0.37%
U turn on Eastern Bypass (H) to Embakasi Roundabout (G)	5		3.35	1.15	0.23	0.19%	3.30	4.44	0.16	0.01%	7.38	113.47	9.46	0.95%
Embakasi Roundabout	3.6		7.05	7.63	1.53	0.60%	5.83	9.53	0.34	0.02%	10.55	32.80	2.52	0.14%

			TIME OF THE DAY											
BYPASS SECTION			**7AM TO 9AM**				**9.00AM to 3.00 PM**				**3.00 PM TO 8.00 PM**			
(H) to Astrol Petrol Station (F)		West bound												
Astrol Petrol Station (F) to Utawala /Githunguri Road Junction (E)	2.7		9.72	34.06	6.81	1.95%	7.29	19.35	0.69	0.03%	7.70	24.63	1.64	0.07%
Utawala /Githunguri Road Junction (E) to Kangundo Road Junction (D)	1.3		5.67	6.97	1.39	0.68%	4.06	11.22	0.45	0.05%	7.39	14.63	0.86	0.04%
Kangundo Road Junction (D) to Shell Petrol Station next to Access to Infinity Industrial Park (C)	3.4		5.08	1.52	0.30	0.17%	5.12	5.55	0.22	0.02%	6.53	14.20	0.95	0.07%
Shell Petrol Station next to Access to Infinity Industrial Park (C) to East Brook Hotel (B)	6.3		8.07	5.76	1.15	0.40%	10.53	172.54	7.19	0.34%	9.83	35.26	2.35	0.06%
East Brook Hotel (B) to Thika Road Roundabout (A)	3.8		10.01	32.56	8.14	3.25%	12.87	158.64	6.35	0.21%	13.86	78.73	7.16	0.27%

Source: Author, 2016


18.00
16.00
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
Thika Road Roundabout (A) to East Brooke Hotel (B)
East Brooke Hotel (B) to Shell Petrol Station next to Access to Infinity Industrial Park (C)
Shell Petrol Station next to Access to Infinity Industrial Park (C) to Kangundo Road Junction (D)
Kangundo Road Junction (D) to Utawala /Githunguri Road Junction (E)
Utawala /Githunguri Road Junction (E) to Astrol Petrol Station (F)
Astrol Petrol Station (F) to Embakasi Roundabout (G)
Embakasi Roundabout (G) to U turn on Eastern Bypass (H)
U turn on Eastern Bypass (H)to Embakasi Roundabout (G)
Embakasi Roundabout (G) to Astrol Petrol Station (F)
Astrol Petrol Station (F) to Utawala /Githunguri Road Junction(E)
Utawala /Githunguri Road Junction (E) to Kangundo Road Junction (D)
Kangundo Road Junction (D) to Shell Petrol Station next to Access to Infinity Industrial Park (C)
Shell Petrol Station next to Access to Infinity Industrial Park (C) to East Brooke Hotel (B)
East Brooke Hotel (B) to Thika Road Roundabout (A)
7.00 am-9.00 am
9.00 am-11.00 am
11.00 am -1.00 pm
1.00 pm-3.00 pm
3.00 pm-5.00pm
5.00 pm-7.00pm
7.00 pm-8.00 pm
Average Travel Time

As shown in the **Figure 4.24** above, averagely, it took the highest travel time to move from East Brook Hotel to Thika Road Underpass (11.41 minutes) and shortest time between City Cabanas and Embakasi Roundabout in both directions. The shortest time (4.22 minutes on average) found on a section between Embakasi Roundabout and Mombasa Road may be linked to the fact that it has a 4 – lane divided carriageway with service roads on either side. Therefore less traffic friction and infrequent stops were experienced along this section. On the other hand, the highest travel time experienced travelling from Brook Hotel to Thika Road Underpass could linked to the fact that the section consisted of a 2-lane undivided carriageway with intense roadside developments on either sides. The section also has an illegal bus terminus at the Thika Road junction which is used as a transfer location for public service vehicle operators, uncontrolled multidirectional traffic movements at the roundabout among other factors. These factors created high friction to the traffic flow at the section. Similarly, the study also recorded higher travel times in sections between Astrol Petrol Station and Githunguri Road/Utawala Junction. This section also had intense roadside developments with many direct accesses to and from the bypass. Other factors that affected smooth traffic flows included pedestrian crossings, vehicles entering and leaving bus stops, fire stations and restaurants among others.

4.4.2 Analysis of delays along Eastern Bypass

The study found varying delays in different segments of Eastern Bypass as summarized in **Table 4.8** below.

Table 4.8: Delays along Eastern Bypass

Road Section	Frequency of stops	Total Delay (Seconds)	Average Delay (Seconds)
Kangundo Road Junction to Utawala /Githunguri Road Junction	3	164	55
Shell Petrol Station next to Access to Infinity Industrial Park to Kangundo Road Junction	2	508	254
East Brook Hotel to Shell Petrol Station next to Access to Infinity Industrial Park	2	1246	623
East Brook Hotel to Thika Road Roundabout	2	998	499
Embakasi Roundabout to Astrol Petrol Station	4	341	85
Embakasi Roundabout to U turn on Eastern Bypass	1	1894	1894
Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	5	3357	671
Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	7	1069	153
Thika Road Roundabout to East Brook Hotel	4	507	127
Utawala /Githunguri Road Junction to Astrol Petrol Station	3	401	134

Source: Author, 2016

As indicated in **Table 4.8** above, the section of Eastern Bypass experienced the highest delay of 1894 seconds. This delay occurred only once during the whole survey period indicating that it is not a usual occurrence at the section. The delay at the section was occasioned by a truck which had stalled on the carriageway blocking one of the lanes. This led to a pile up of vehicles and a long queue of vehicles. However, travelling between Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel had the highest stops (7 times). This section did not have much road side developments except flower vendors. Most of the stops were associated with high traffic flows at the section and the fact that it is a 2lane undivided cariageway. Overtaking manuvres were difficult to make. Therefore high speed vehicles were forced to queue behind slow moving / stalled trucks leading to long vehicle queues.

Again, analysis of delays also revealed that Eastern Bypass expriences more delays during peak hours. However, more delays are encountered during the evening peak hours as summarized in **Figure 4.25** below.

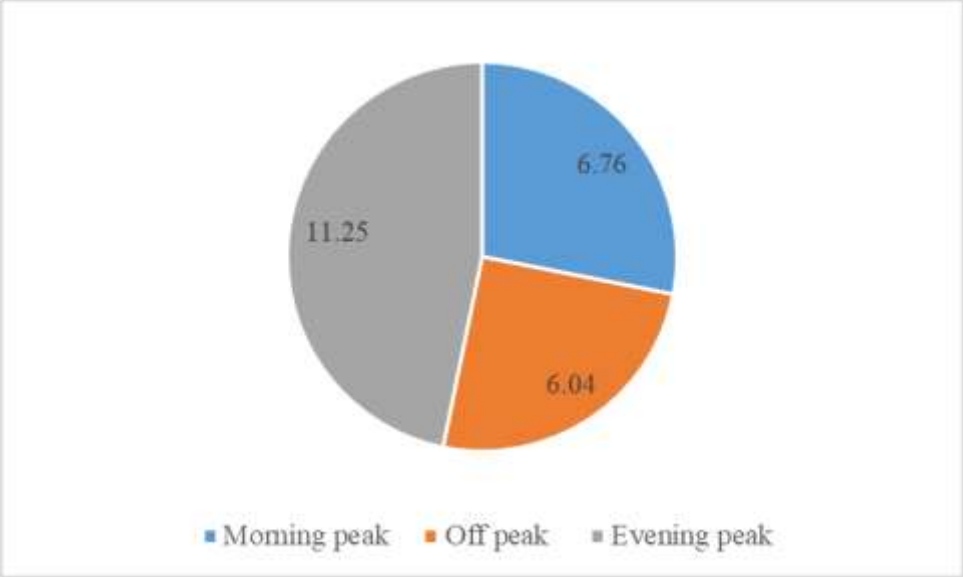


Figure 4.25: Average delays along Eastern Bypass in minutes

The high delays experienced by motorists in the evenings did not correspond to the comparatively lower travel times in the evening peak. This finding may be studied further.

The study findings on the locations where delays were encountered and observed causes are summarized in **Table 4.9**.

Table 4.9: Delays experienced along Eastern Bypass

Segment	Period	Location stopped	Delay in seconds	Cause of stopping
Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	Evening peak	Everbest Feeds	127	Traffic Jam
	Evening peak	Thika Rd Roundabout	101	Traffic Jam
Embakasi Roundabout to U turn on Eastern Bypass	Evening peak	Jambo Jet	1894	Traffic
Embakasi Roundabout to Astrol Petrol Station	Evening peak	Amrash Business Park	341	Traffic Jam
Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	Evening peak	Entry To Roundabout	236	Traffic Jam
Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	Morning Peak	Three Rings Hardware-Entry To Thika Rd	281	Traffic Jam
East Brook Hotel to Shell Petrol Station next to Access to Infinity Industrial Park	Morning Peak	Entry road to Infinity	906	Traffic Jam
Shell Petrol Station next to Access to Infinity Industrial Park to Kangundo Road Junction	Morning Peak	Suncity Utopia	271	Fueling
Kangundo Road Junction to Utawala /Githunguri Road Junction	Morning Peak	Tumaini Supermarket	164	Traffic Jam
Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	Off peak	Harry's Pub/ The Rock Ventures	145	Vehicle leaving pubs
East Brook Hotel to Thika Road Roundabout	Off peak	Thika Road	48	Traffic
	Off peak	Shell(Thika Rd)	141	Traffic
Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	Off peak	Entry to Infinity Road	1224	Fueling
Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	Off peak	Mni Kenda	1340	Traffic Jam

Segment	Period	Location stopped	Delay in seconds	Cause of stopping
Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	Off peak	Rock Ventures	74	Traffic
Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	Off peak	M Series	169	Traffic
East Brook Hotel to Thika Road Roundabout	Off peak	Shell Petro Station	950	Traffic
East Brook Hotel to Thika Road Roundabout	Off peak	Entry To Eastern Bypass	67	Traffic Jam
Shell Petrol Station next to Access to Infinity Industrial Park to Kangundo Road Junction	Off peak	A.P Training College	237	Traffic Jam
Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	Off peak	Jirani Springs	46	Traffic
East Brook Hotel to Shell Petrol Station next to Access to Infinity Industrial Park	Off peak	Reddamac	340	Traffic
Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	Off peak	Lansca Carwash	64	Traffic
Thika Road Roundabout to East Brook Hotel	Off peak	Exen Petro Station	198	Traffic Jam
Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	Off peak	M-Series	146	Traffic
Utawala /Githunguri Road Junction to Astrol Petrol Station	Off peak	Apt College	401	Traffic
Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	Off peak	Shell	574	Contractors Camp

Source: Author, 2016

The study established that about 36% of the traffic delays was experienced towards Thika Road from East Brook Hotel; 30% between Kangundo Road Junction to Shell Petrol Station next to the proposed access to Embakasi Industrial Park while least traffic delays (1%) was experienced along a section between Mombasa Road and Embakasi Roundabout (See **Figure 4.26** below).

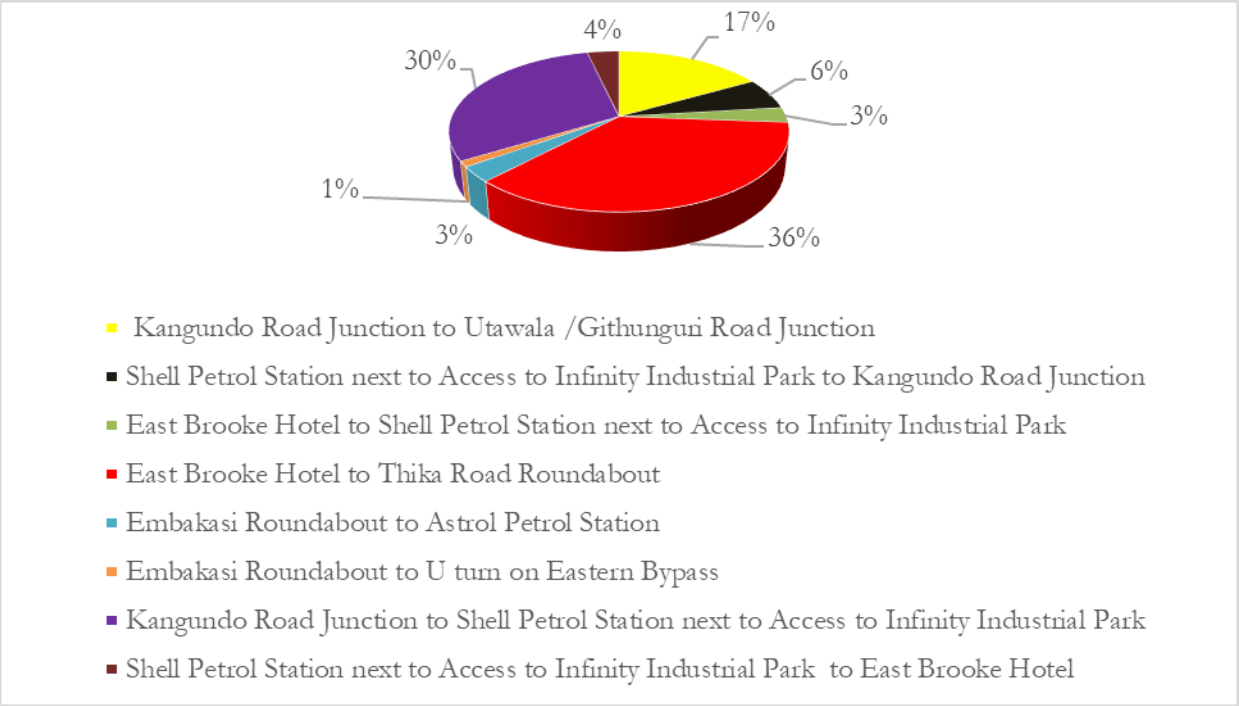


Figure 4.26: Delays experienced along Eastern Bypass

Notably again, the study found that 49% of the delays occurred between 3.00pm and 6.00pm; 45% between 9.00 am and 3.00 pm; and 6% of the delays occurred between 7.00am and 9.00 am. These delays could mostly be attributed to heavy traffic flows along Eastern Bypass. The flows were more than the bypass capacity.

Still, over 50% of the traffic delays along Eastern Bypass were as a result of the interrupted traffic flow due to roadside developments while 20% of the delays were attributed to long queues/ congestion along various sections of the road. **Figure 4.27** illustrates the overall study findings on the causes of delays along Eastern Bypass.

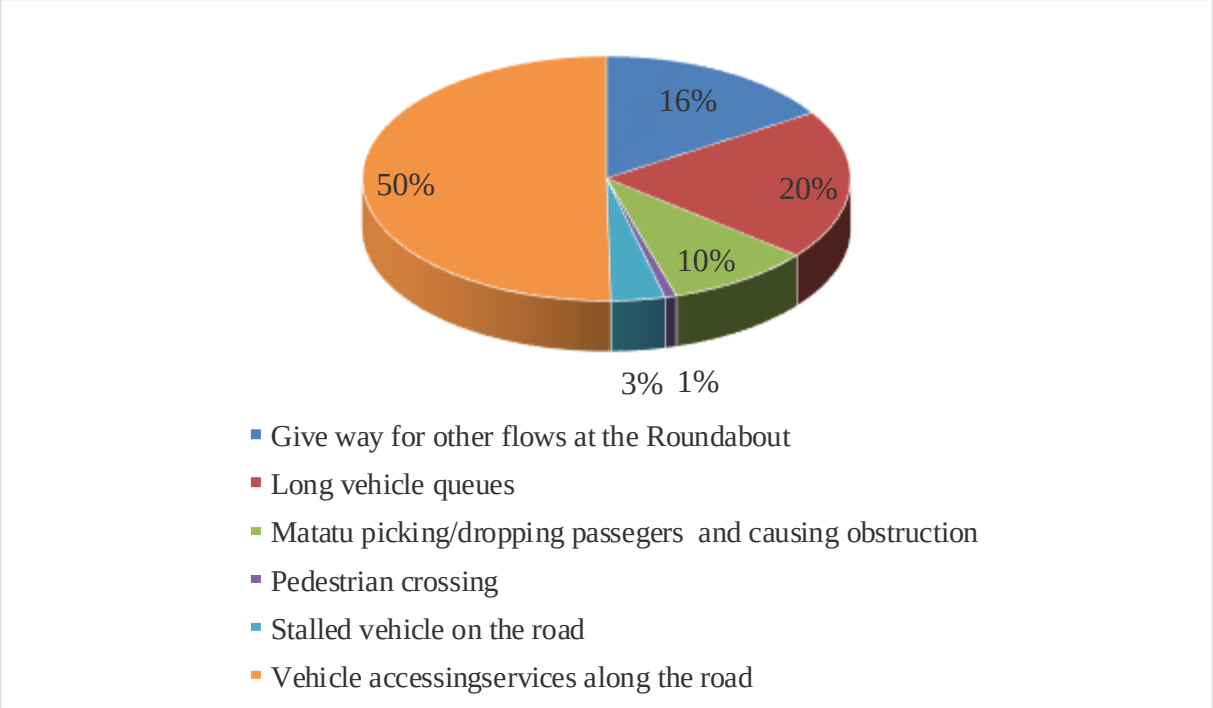


Figure 4.27: Causes of delays along Eastern Bypass

As indicated above, significant numbers of vehicles were observed accessing several establishments along the bypass causing obstructions to through traffic. Through traffic movements were forced to stop to allow right turning vehicles to access the abutting properties or join the bypass.

Again, absence of climbing lanes for slow moving trucks especially in sections with steep slopes such as between Kangundo Road and Utawala contributed significantly to the delays along Eastern Bypass. At the mentioned section, any attempts to overtake slow moving trucks were likely to lead to headon collisions. Drivers drove cautiously at the section and strictly adhered the traffic signs and stipulations.

Finally, high volumes of traffic especially in sections of 2- lane undivided carriageway also contributed to delays along Eastern Bypass. The roadway space was found to be inadequate. Vehicles were observed driving on shoulders and outside the carriageway as traffic volumes exceeded the roadway capacity. The delays experienced were also caused by obstructions to the traffic flows by direct accesses to the many establishments at the section. **Plate 2** illustrates some of the operations observed along Eastern Bypass during the study.

Plate 2: Operations along Eastern Bypass

Flower vendors between Road to infinity and East Brook Hotel

Furniture Vendors

Warehouse along Eastern bypass

Established estate at Utawala

PSV operating along Eastern Bypass

Filling station along Eastern Bypass

Source: Author, 2016

4.4.3 Travel Speeds and Levels of Service

Travel speeds on various segments of Eastern Bypass were estimated based on the average travel times and lengths of individual segments for each direction. The average speeds along Eastern Bypass from the study were as illustrated in **Figure 4.28** below while detailed findings for speeds for each segment at different times of the day are given in **Appendix 16** of this thesis.

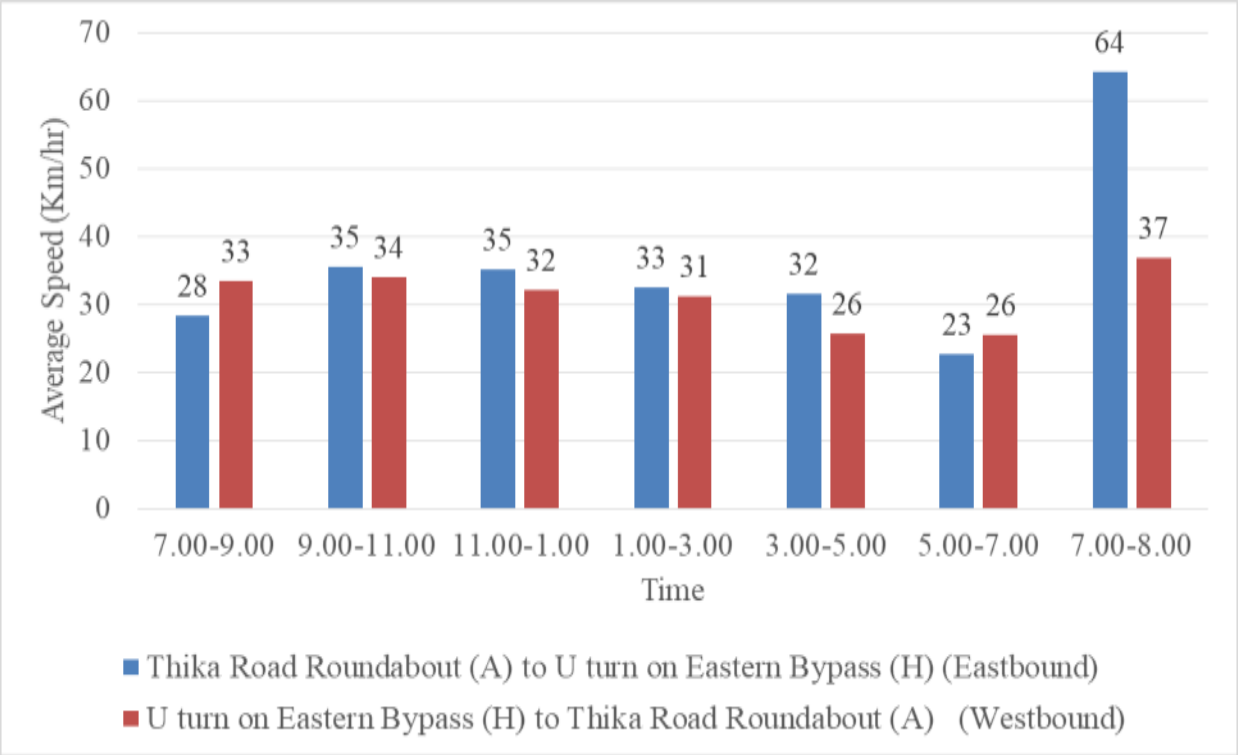


Figure 4.28: Weekday Average hourly speeds along Eastern Bypass

As shown in **Figure 4.28** above, overally, the average speed along Eastern Bypass was below 50 km/hr throughout the day. The mean speed was found to be 41 km/hr while the median speed was 42km/hr.

Further, analysis revealed that section between Embakasi and Mombasa Road experienced the highest travel speeds of over 80 km/hr throughout the day except during the evening peak where the average travel speeds reduced to 70 km/hr. The speeds between Mombasa Road and Embakasi Roundabout corresponded to levels of service A and B (refer to **Table 2.18**). This means that drivers' maneuvers were not constrained or influenced by other traffic users on the same roadway. It is worth noting that this section experienced relatively higher traffic flows in both directions compared to sections with 2-lane undivided carriageways.

The high speeds found on Eastern Bypass between Embakasi and Mombasa Road could be attributed to the fact that the section has a 4 - lane divided carriageway with service roads on either side. Therefore opposing traffic movements are separated while traffic destined to the abutting land uses were separately served by the service roads. In this regard, there was minimum or no disruptions by the abutting land uses to the main traffic flows. In addition, interchange at the City Cabanas and Outer Ring Road Underpass provides uninterrupted flow for different directional movements because of grade separation. Separation of opposing traffic and local traffic movements through a 4-lane divided carriageway with many lanes and provision of service lanes reduces traffic friction, allows ease of maneuverability and caters for stalled vehicles if any.

Sections of Eastern Bypass including: Astrol Petrol Station to Utawala /Githunguri Road Junction; Utawala /Githunguri Road Junction to Kangundo Road Junction; and Kangundo Road Junction to Utawala /Githunguri Road Junction experienced the lowest average travel speeds of below 26km/hr which corresponded to level of service F. This means that the section experienced heavily congested flow and traffic demand exceeded capacity, characterized by stop and go characteristics, poor travel time, low comfort and convenience and increased accident exposure.

Further, travel speeds along sections including: Utawala /Githunguri Road Junction to Astrol Petrol Station; Astrol Petrol Station to Embakasi Roundabout; and East Brook Hotel to Thika Road Roundabout; ranged between 26 km/hr and 32km/hr which corresponded to the level of service E. This implies the section experienced unstable traffic flow conditions.

At speeds of less than 32 km/hr, drivers' maneuvers were affected by other traffic on the same roadway leading to congestion and significant delays. These sections of the bypass consist of two lane undivided carriageways that serve opposing traffic. Again, no climbing lanes are provided for low speed trucks. This forced vehicles to queue behind slow moving trucks leading to long queues. A study should be conducted at this section to estimate fuel usage, environmental pollution, engine and mechanical wear among other parameters.

Table 4.10 summarizes average speeds along various segments of Eastern Bypass and the corresponding levels of service during peak and off-peak hours in each direction while **Table 4.11** summarizes road side features that may explain the study findings along each segment. Also see **Appendix 18** for hourly variations of the same parameters.

Table 4.10: Travel speeds and Levels of Service along Eastern Bypass

	Time of the day													
		7.00 to 9.00		9.00 to 11.00		11.00 to 1.00		1.00 TO 3.00		3.00 TO 5.00		5.00 TO 7.00			
Bypass Section	**Length (Km)**	Average Travel speed	LOS	Average Travel Speed	LOS	Average Travel Speed	LOS	Average Travel Speed	LOS	Average Travel Speed	LOS	Average Travel Speed	LOS	Average Travel Speed	Average LOS
Thika Road Roundabout (A) to East Brook Hotel (B)	3.8	40.37	C	32.39	D	34.05	D	33.66	D	27.18	E	29.86	E	32.92	D
East Brook Hotel (B) to Shell Petrol Station next to Access to Infinity Industrial Park (C)	6.3	60.02	B	50.84	C	50.49	C	46.25	C	65.35	B	41.22	C	52.36	C
Shell Petrol Station next to Access to Infinity Industrial Park (C) to Kangundo Road Junction (D)	3.4	50.79	C	42.22	C	41.03	C	43.37	C	37.18	D	46.35	C	43.49	C
Kangundo Road Junction (D) to Utawala /Githunguri Road Junction (E)	1.3	18.49	F	15.38	F	13.63	F	15.47	F	12.29	F	11.41	F	14.44	F
Utawala /Githunguri Road Junction (E) to Astrol Petrol Station (F)	2.7	17.08	F	22.05	F	58.41	B	23.09	F	22.95	F	14.07	F	26.27	E
Astrol Petrol Station (F) to Embakasi Roundabout (G)	3.6	29.07	E	37.49	D	35.08	D	34.48	D	27.90	E	16.01	F	30.00	E
Embakasi Roundabout (H) to U turn on Eastern Bypass (I)	5	84.92	A	107.33	A	140.81	A	130.45	A	91.64	A	70.44	B	104.27	A
U turn on Eastern Bypass (I) to Embakasi Roundabout (H)	5	100.57	A	102.42	A	109.64	A	94.22	A	113.65	A	68.92	B	98.24	A

Bypass Section	Length (Km)	Time of the day													
		7.00 to 9.00		9.00 to 11.00		11.00 to 1.00		1.00 TO 3.00		3.00 TO 5.00		5.00 TO 7.00			
		Average Travel speed	LOS	Average Travel Speed	LOS	Average Travel Speed	LOS	Average Travel Speed	LOS	Average Travel Speed	LOS	Average Travel Speed	LOS	Average Travel Speed	Average LOS
Embakasi Roundabout (H) to Astrol Petrol Station (G)	3.6	33.61	D	41.96	C	41.96	C	36.42	D	28.16	E	19.12	F	33.54	D
Astrol Petrol Station (G) to Utawala /Githunguri Road Junction (F)	2.7	19.56	F	26.94	E	26.44	E	21.74	F	41.87	C	19.16	F	25.95	F
Utawala /Githunguri Road Junction (F) to Kangundo Road Junction (E)	1.3	16.50	F	29.05	E	21.82	F	20.39	F	17.27	F	11.44	F	19.41	F
Kangundo Road Junction (E) to Shell Petrol Station next to Access to Infinity Industrial Park (D)	3.4	42.70	C	48.43	C	39.57	D	43.18	C	38.66	D	48.57	C	43.52	C
Shell Petrol Station next to Access to Infinity Industrial Park (D) to East Brook Hotel (B)	6.3	51.39	C	50.08	C	41.87	C	37.16	D	40.59	C	38.62	D	43.29	C
East Brook Hotel (B) to Thika Road Roundabout (A)	3.8	27.60	E	25.44	F	22.94	F	19.79	F	64.50	B	21.60	F	30.31	E

Table 4.11: Factors affecting travel times and speeds along Eastern Bypass

Bypass Section	Length (Km)	Travel Time (mins)	Speed (Km/hr)	Level of service	Number of lanes in each direction	Availability of services lanes/roads	No. of bus stops provided including illegal ones	No. of direct accesses to abutting properties/roads	Developments within road reserve	Posted speed restrictions	No. of Pedestrain crossings
Thika Road Roundabout (A) - East Brook Hotel (B)	3.8	9.21	24.8	F	2	No	2	90	Parking, informal traders and kiosks, illegal terminal	0	0
East Brook Hotel (B) - Shell Petrol Station next to Access to Infinity Industrial Park (C)	6.3	7.96	47.5	C	2	No	0	28	Flower vendors	80 km/hr and 50km/hr	0
Shell Petrol Station next to Access to Infinity Industrial Park (C) - Kangundo Road Junction (D)	3.4	5.36	38.1	D	2	No	2	43	Flower vendors parking for tankers	0	0
Kangundo Road Junction (D) - Utawala /Githunguri Road Junction (E)	1.3	5.67	13.8	F	2	No	1	34	Quarrying and wreckage of accident vehicles	0	0
Utawala /Githunguri Road Junction (E) - Astrol Petrol Station (F)	2.7	8.30	19.5	F	2	No	2	79	Informal traders	0	0
Astrol Petrol Station (F) - Embakasi Roundabout (G)	3.6	8.61	25.1	F	2	No	3	6	None	50km/hr	0
Embakasi Roundabout (G) - U turn on Eastern Bypass (H)	5.0	4.22	71.1	B	4	Yes	0	11	None	0	0

4.4.4 Volume to capacity ratio on Eastern Bypass

Volume to capacity ratios along Eastern Bypass among other roads within the City of Nairobi were established during the Nairobi Integrated Urban Transport Plan study. The findings of the study on Eastern Bypass and other roads covered were as summarized in **Figure 4.29** below.

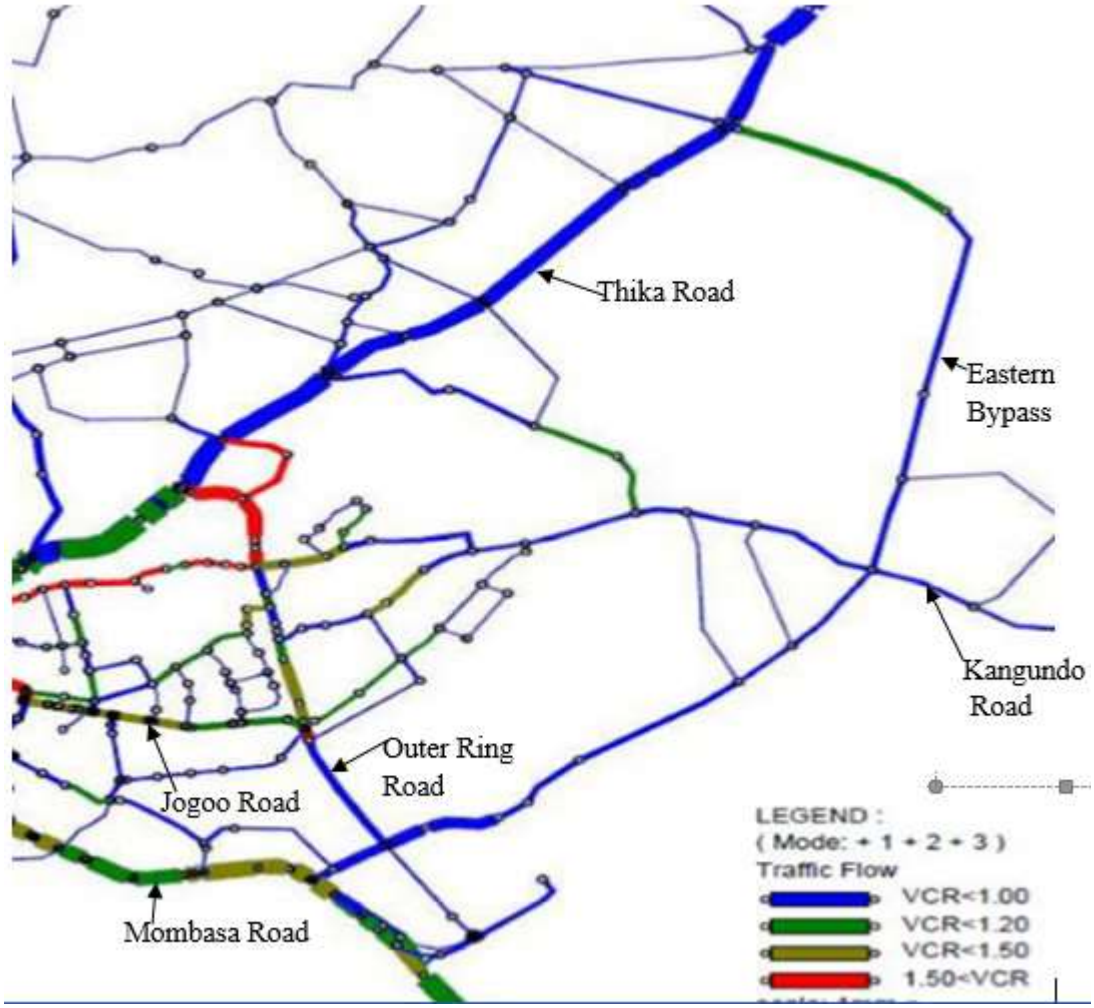


Figure 4.29: Volume to Capacity Ratios along Eastern Bypass in 2013

Source: Nairobi City County, 2014

As seen in the figure above, volume to capacity ratio were different on various sections and junctions of the roads studied. However, VCR on most sections was less than 1 and corresponded to level of service above E. Notably, the section between Kangundo Road and Thika Road was found to have VCR between 1 and 1.2 and corresponded to level of service less than F (see **Table 2.20**). This finding is similar to the travel time and delay survey undertaken in this study in 2016 at the same section. This means that the findings in 2016 on the travel time and delay were not only reliable but also served to validate the 2013 study.

Projections of the scenerio found by the study showed that travel conditions along many roads in the City of Nairobi's road network including Eastern Bypass would be worse if nothing was undertaken. The projected travel conditions in this regard were as indicated in in **Figure 4.30** below**.**

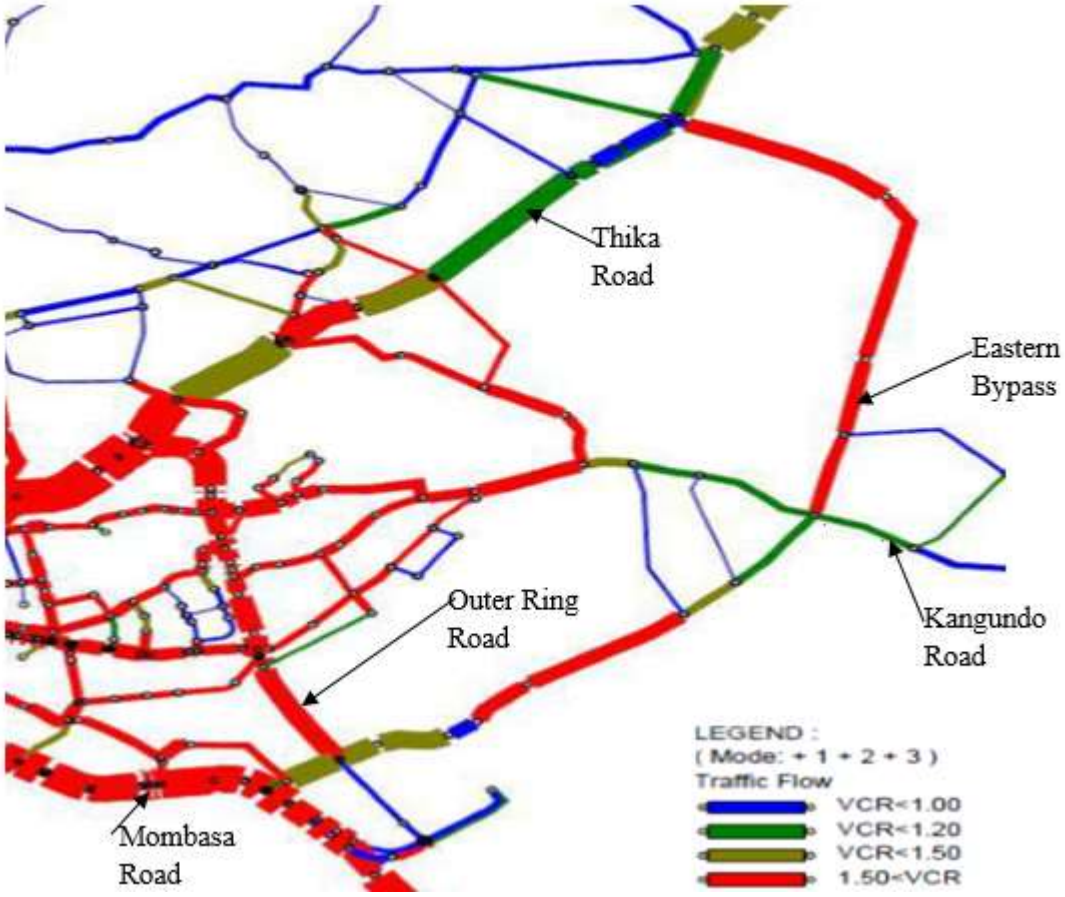


Figure 4.30: Projected future Volume to capacity ratios along Eastern Bypass
Source: Nairobi City County, 2014

As shown above, the roadway conditions along most of sections of Eastern Bypass would deteriorate with VCR greater than 1.5 in case nothing is done to improve the existing travel conditions. However, the projected deterioration of roadway conditions were less at Kangundo Road Junction and a section of the bypass between Embakasi Roundabout and Mombasa Road (VCR<1.20). This could be attributed to grade separation at Kangundo Road Junction, 4-lane divided carriageaway, grade separation at Outer Ring Road Junction, Interchange at City Cabanas and slip roads provided between Embakasi Roundabout and Thika Road to serve the abutting land uses.

4.4.5 Results of analysis of other congestion measures

Other congestion measures established based on the travel time and delay survey data included travel time difference, travel rate, travel time index, buffer index, planning time index, congestion index and relative speed reduction among others along Eastern Bypass. The findings of these indicators are summarized in **Appendix 19.** Brief discusions on some of the indictors including their implications are given in the subsections below.

4.3.5.1 Travel Time Difference

The difference in travel time between periods of peak flow and free flow conditions along Eastern Bypass was least between Mombasa Road and Embakasi Roundabout (TTD=0.63 minutes). This means that the section experienced less traffic friction and insignificant delays. This finding could still be linked to the fact the section consist of a 4 - lane divided carriageway with service lanes on either side. The service roads provided access to the abutting land uses which would otherwise impede through traffic flows if they accessed the main carriageway directly.

Again, the difference in travel time between periods of peak flow and free flow conditions along Eastern Bypass was the highest (TTD=9.08 minutes) between East Brook Hotel and Thika Road. This section has relatively high road side developments with direct access to the bypass. Further, at the Thika Road / Eastern Bypass there was an illegal terminus which significantly affected traffic movements. Public Service Vehicles picked and dropped passengers at the 'terminus' and generally blocked movement to and from the bypass leading to delays and long vehicle queues.

4.3.5.2 Travel rate

The difference between average network travel rate and uncongested network travel rate in minutes per kilometer along Eastern Bypass varied per section during morning and evening peak periods. Acceptable travel rate in minutes per kilometer based on the free flow speed of 80 km/hr was 1.2. Two sections (between City Cabanas and Embakasi Roundabout; and East Brook Hotel and Access to Infinity Industrial Park) were found to be within acceptable travel time rate both during the morning and evening peak periods. Travel rate was insignificant from City Cabanas to Embakasi Roundabout (TR=0.2), and significant from Utawala /Githunguri Road Junction to Astrol Petrol Station (TR=7.01). The section between East Brook Hotel and the Access to infinity Industrial Park has comparatively low intensity of roadside developments while as mentioned elsewhere the section between City Cabanas and Embakasi Roundabout consists of a 4 - lane divided carriageway with service roads on each side.

4.3.5.3 Travel time index

Comparison of travel time during peak period travel and free flow travel while accounting for both recurring and incident conditions was lowest (TTI=1.16) during peak hours between City Cabanas and Embakasi Roundabout. This means that during peak hours, motorists added 1.16 times the normal travel time to make a trip between City Cabanas and Embakasi Roundabout. Similarly, travel time during peak period travel and free flow travel was highest (TTI=6.70) from Utawala /Githunguri Road Junction to Kangundo Road Junction. This means that during peak hours, motorists added 6.70 times the normal time to make a trip between Utawala and Kangundo Road Junction. The additional time found from Utawala to Kangundo could be linked to the many conflicting traffic movements and the fact that the junction does not have transfer terminal for public transport vehicles heading to different destinations. This often resulted into long vehicle queues that sometimes spilled over to the bypass slowing down through traffic movements at the section. In addition, the fact that the sectionof bypass between Utawala and Kangundo Road Junction has an active quarry could also have contributed to the significant additional time estimated.

4.3.5.4 Buffer index

The extra time travelers must add to their travel schedule to ensure on-time arrival was lowest (BI= 0.20) when travelling from Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park during morning peak and 0.37 during afternoon peak. The lowest buffer Index (BI =0.16) was experienced during the evening peak while travelling from Embakasi Roundabout to U turn on Eastern Bypass.

The highest buffer index (BI= 2.63) was experienced when travelling from Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel during the morning peak and (BI=11.06) during the afternoon peak. Accordingly, travel time was most reliable when travelling from Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park during morning peak hours and from Embakasi Roundabout to U turn on Eastern Bypass in the evening peak. However, travel time was most unreliable when travelling between Shell Petrol Station next to Access to Infinity Industrial Park and East Brook Hotel in both directions during the morning and evening peak hours.

The above findings notwithstanding, based on the travel speeds and carriageway types, the study ought to have found a section of Eastern Bypass between Embakasi Roundabout to City Cabanas to be the most reliable section to travel along during both morning and Evening peak

periods because it is a dual carriageway and junctions with other roads are grade separated. Therefore there is need to study this parameter further for this section of Eastern Bypass.

4.3.5.5 Planning time index

The extra time motorists should add to a free flow travel time when using Eastern Bypass so as to be fairly confident of arriving at the destination by a certain time varied from segment to segment at different times of the day. In the morning peak, motorists should have added 1.23 times to free flow travel time to move from City Cabanas to Embakasi Roundabout and 21.08 times from Kangundo Road Junction to Utawala /Githunguri Road Junction. The significant extra travel times between Kangundo Road to Utawala could be attributed to the high volumes truck traffic sourcing construction material from quarries located within the mentioned section. Trucks accessed Eastern Bypass directly from and to the quarry causing obstructions to the other traffic using the road. Again, delays experienced at the section could also be attributed to the steepness of the road at the section and the fact that no climbing lane was provided. Loaded trucks had difficulties climbing the steep slope and significantly lowered overall speed of vehicle flows leading to long vehicle queues.

However, the shortest planning time was found when moving from City Cabanas to Embakasi Roundabout in the morning and longest planning time when moving from Kangundo Road Junction to Utawala /Githunguri Road Junction in the morning.

During off peak hours, motorists should add 4.73 times to travel from Shell Petrol Station next to Access to Infinity Industrial Park and East Brook Hotel in both directions. During evening peak, motorists should add 14.53 times the free flow travel time to travel from Utawala / Githunguri Road Junction to Kangundo Road Junction. The comparatively high traffic time when travelling from Utawala to Kangundo Road was attributed to the conflicting flows of vehicles joining and leaving the bypasses and lack of transfer terminal at Kangundo Road. Long queues that spilled over to the bypass obstructing through traffic movements on the bypass were evident. Traffic snarl ups/ non performing junction at the Kangundo Road junction which is grade separated could imply that separating traffic by use of grade separated junctions without addressing other factors may not necessary guarantee the functioning of bypasses.

4.3.5.6 Congestion index

Congestion index varied on different segments at different times of the day. In the morning peak, the study found the lowest congestion index of 0.02 between Embakasi Roundabout and U turn on Eastern Bypass and highest congestion Index of 5.96 between Kangundo Road

Junction and Utawala /Githunguri Road Junction. Moreover, Congestion Index was also lowest from Embakasi Roundabout to City Cabanas (CI = 0.32) and highest (CI = 6.58) from Utawala /Githunguri Road Junction to Kangundo Road Junction during evening peak periods. Segments with high Congestion Indices have intense roadside developments which attracted many traffic movements. Services along the section included hardware shops, bars and restaurants, supermarkets contributed to significant delays.

4.3.5.7 Relative Speed Reduction

The ratio of decline in speeds from free flow conditions on various bypass segments varied during morning and evening peak periods. In the morning, the study found RSR from Embakasi Roundabout to City Cabanas to be the lowest (RSR = 0.02) and highest (RSR = 0.86) from Kangundo Road Junction to Utawala /Githunguri Road Junction in the morning. In the evening peak however, the study found RSR from East Brook Hotel to Shell Petrol Station next to Access to Infinity Industrial Park to be the lowest (RSR= 0.01) and the highest (RSR = 0.79) from Utawala /Githunguri Road Junction to Kangundo Road Junction. The low relative speed reduction on a stretch of Eastern Bypass from Brook Hotel to the Access to the Proposed Embakasi Industrial Park could still be associated with the relatively low intensity of roadside developments. Since this stretch of the bypass is also the longest (6.3 km), it could have relatively constant volumes of traffic leading to almost constant vehicle speeds. Again, the low relative speed reduction between City Cabanas and Embakasi Roundabout could still be linked to the fact that the stretch is a 4-lane divided carriageway and therefore experienced less traffic friction compared to sections with 2-lane undivided carriageways.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary of the study

Eastern Bypass was constructed as an alternative route to both local and traffic on transit in the City of Nairobi. After its opening, the bypass attracted unexpectedly high volumes of traffic which have made the bypass not to function as a bypass. This study sought to estimate the functions of Eastern Bypass specifically to establish vehicle composition, current and future traffic, types of trips and trip purposes among other parameters. The study also sought to estimate the degree of traffic congestion along Eastern Bypass as well as assess the extent to which the constructed bypass features meet standards for bypass. Studies on bypasses generally, bypass standards, bypass impacts on traffic congestion, economic growth and environmental pollution and road accidents among others were reviewed. Further, the study reviewed bypass functions and traffic congestion and the same formed the basis for assessing the function of Eastern Bypass.

The study used both primary and secondary traffic data collected along Eastern Bypass including classified volume counts data; origin and destination data; and travel time and delay data which were analyzed and discussed. Features constructed along Eastern Bypass were obtained by reviewing design and construction reports from relevant state agencies and site inventory and the findings were compared with bypass standards.

In summary, the study found that most vehicles along Eastern Bypass consisted of cars and taxis, large cars, 4wheel drives, jeeps, pickups and vans, which accounted for 43%. Thirty Five percent (35%) were goods vehicles and 9% were public service vehicles among others. Further, the study found that about 39,295 PCUs passed along Eastern Bypass daily or 1,638 PCUs per hour and the same was projected to about 123,525 PCUs per day or 5,139 PCUs per hour by 2029 in a do nothing case. Moreover, the study found that about 12% of the trips along Eastern Bypass consisted of local trips, 22% were through trips while the rest were either internal – external or external – internal trips. Notably again, the study found that the dualled sections of Eastern Bypass generally experienced higher travel speeds and better levels of service compared with sections with two - way single carriageway. Finally, the study established that few features along Eastern Bypass met bypass standards.

5.2 Conclusions

Several conclusions were drawn from the study and included the following:

- ✓ Eastern Bypass served all types of vehicle category. However, small cars, taxis, 4wheel drives, jeeps, pickups and vans constituted the highest proportion of traffic along the bypass
- ✓ About 39,295 passenger car units passed at any point along Eastern Bypass daily or 1,638 PCUs per hour and the bypass currently serves traffic volumes beyond its design capacity.
- ✓ By 2029, about 123,325 PCUs per day will pass along the bypass daily or or 5,139 PCUs per hour in 2029 which will be higher than the projected figure of 26,570 PCUs per day.
- ✓ Eastern Bypass is used by both local and traffic on transit, with most of the traffic originating and ending up in towns and places in Central, Eastern and North Eastern Kenya.
- ✓ A lot of local traffic along the bypass generated from roadside developments as well as businesses within the City of Nairobi and Eastern bypass functions more as an access road as opposed to mobility for through traffic flows.
- ✓ Most trips along Eastern Bypass consisted of business trips and majority of the trips were made daily.
- ✓ Different segments of Eastern Bypass operated at different speeds and levels of service. On average, travel speed along Eastern Bypass was below 50 km/hr throughout the day on Eastern Bypass. However, travel conditions were more attractive in sections of the bypass with dual carriageways as well as sections with grade separated junctions.
- ✓ Eastern Bypass was heavily congested and most sections operated at level of service D throughout the day.
- ✓ Segments of Eastern Bypass with high density of roadside developments experienced poor travel conditions.
- ✓ Design features along Eastern Bypass partially met the standards for bypass roads.

5.3 Recommendations

5.3.1 Recommendations for future research

This study identified the following grey areas and recommended the same for future research:

i. Conduct a similar study to validate congestion performance indicators established in this study.

ii. Carry out studies on accidents on Eastern Bypass as well as changes on environment following its construction.

5.3.2 Recommendations for enhancing Eastern Bypass functions

The following were the study recommendations for improving traffic flows along Eastern Bypass:

i. Construct 4-lane dual carriageway and provide service roads along the whole bypass and replace all at grade junctions with grade separated junctions to improve traffic flows and levels of service.

ii. Regulate the developments along Eastern Bypass and its environs; and ban all direct accesses to and from the bypass and clear informal activities within the bypass road reserve.

iii. Construct circumferential bypasses so as to serve the various origins and destinations as well as directional demand.

iv. Provide termini for public service vehicles off Thika Road/Eastern Bypass Junction, off Embakasi Roundabout and off the Kangundo Road/Eastern Bypass Junction.

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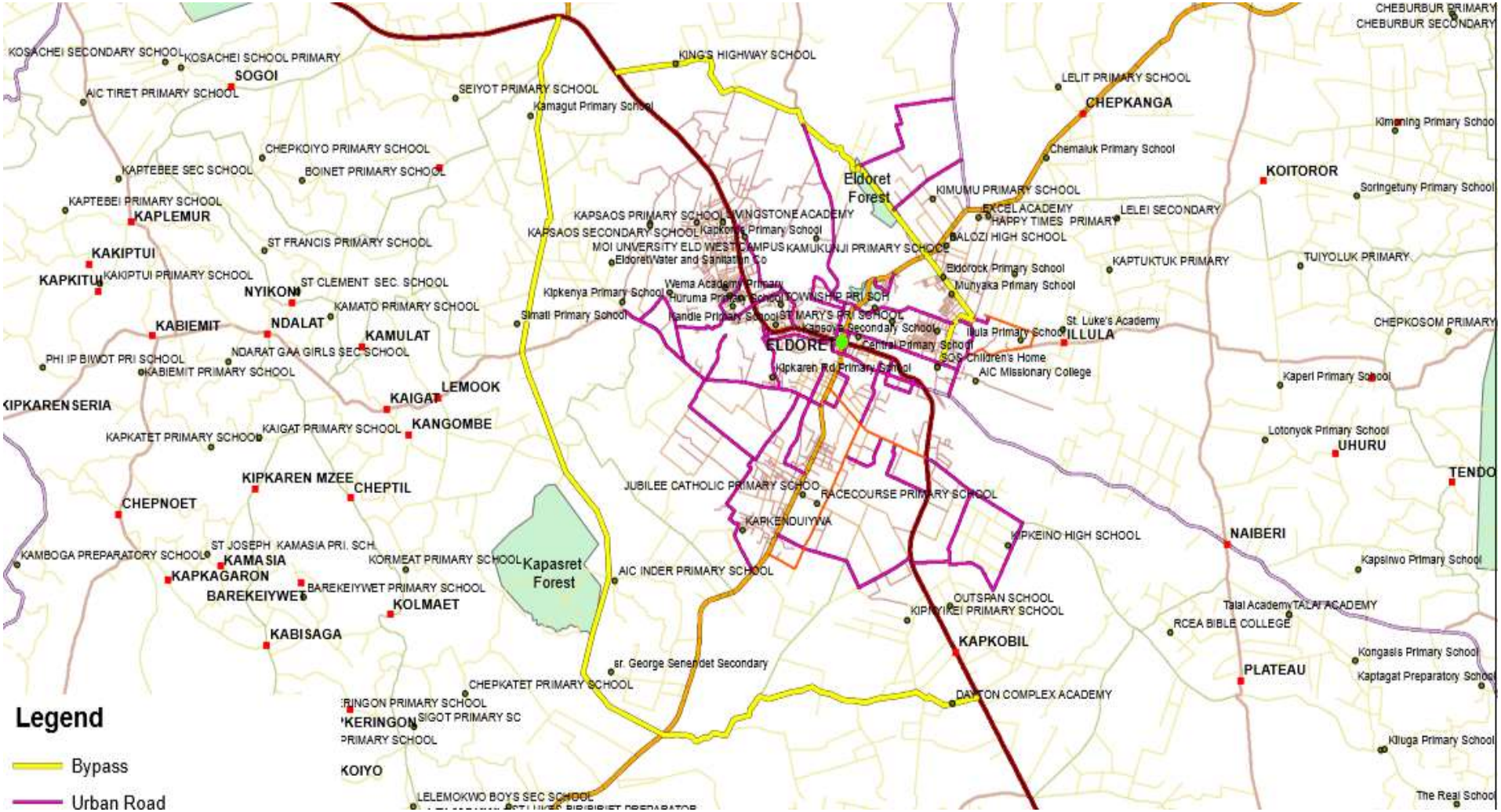
Appendix 1: Location maps for bypasses in other towns and counties in Kenya

Proposed bypasses around Mombasa in Mombasa County

Source: KURA, 2016

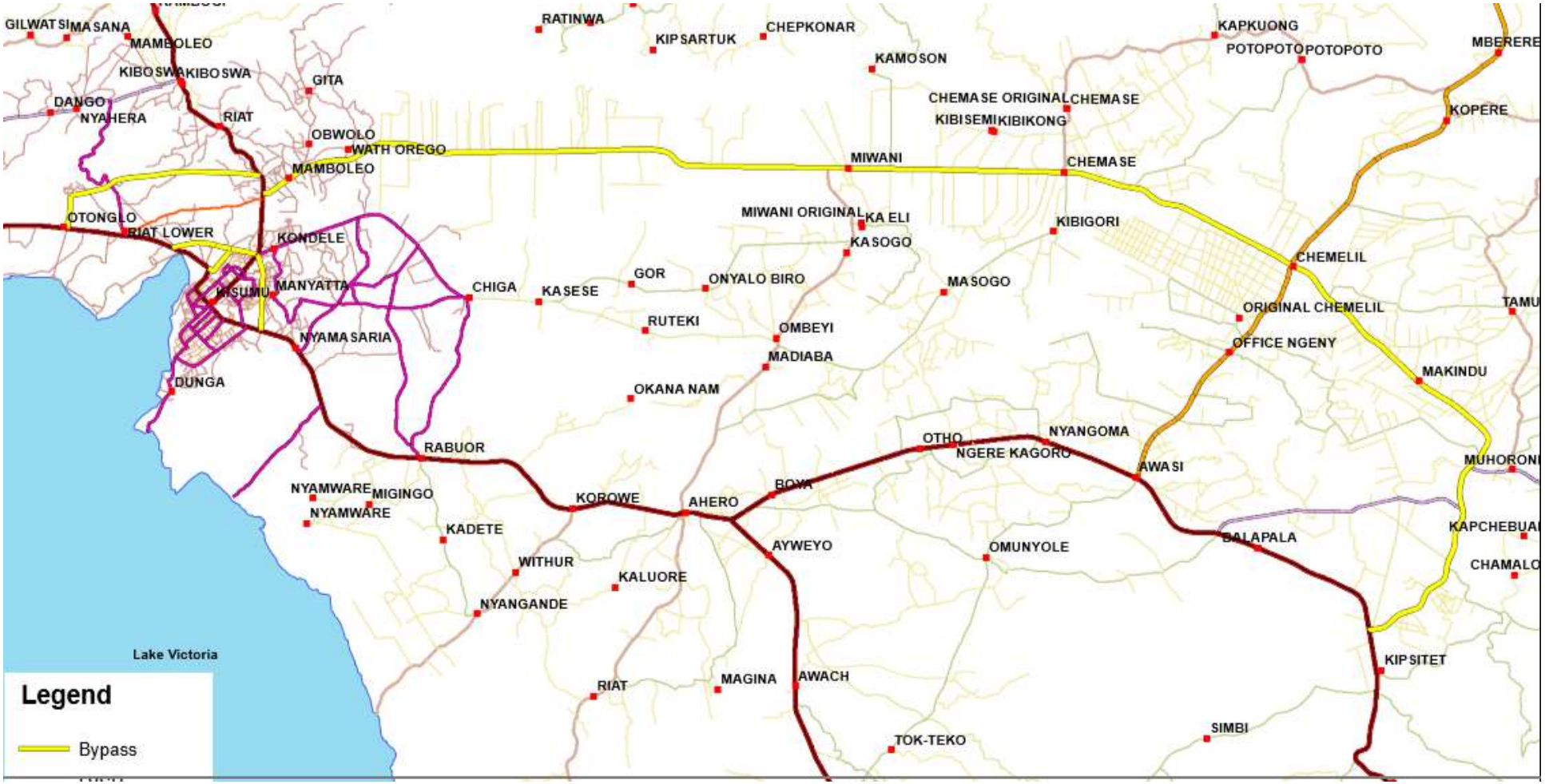
Proposed bypasses around Kisii Central Business District in Kisii County

Source: KURA, 2016



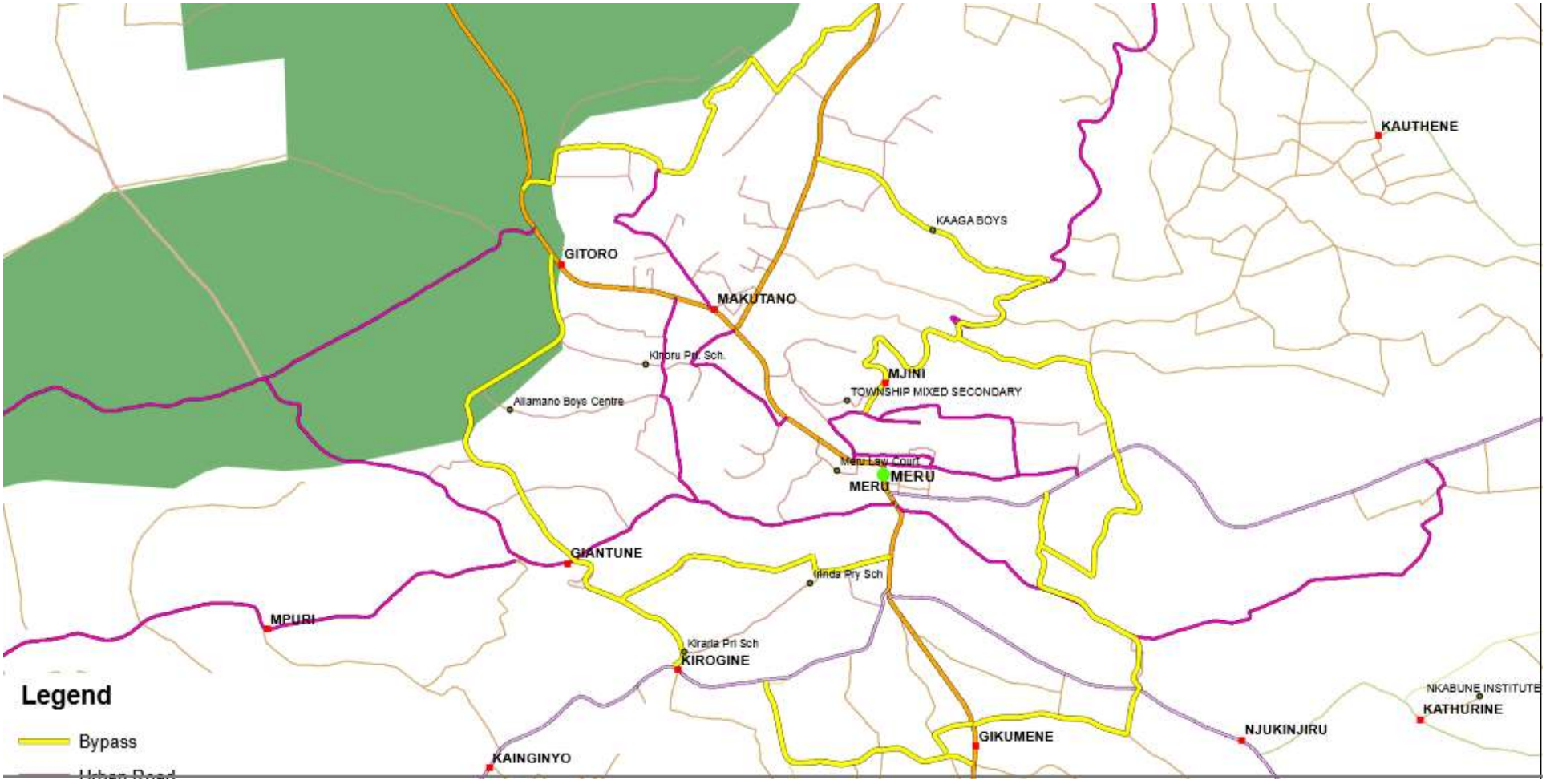
Proposed bypasses around Eldoret Central Business District in Uasin Gishu County

Source: KURA, 2016



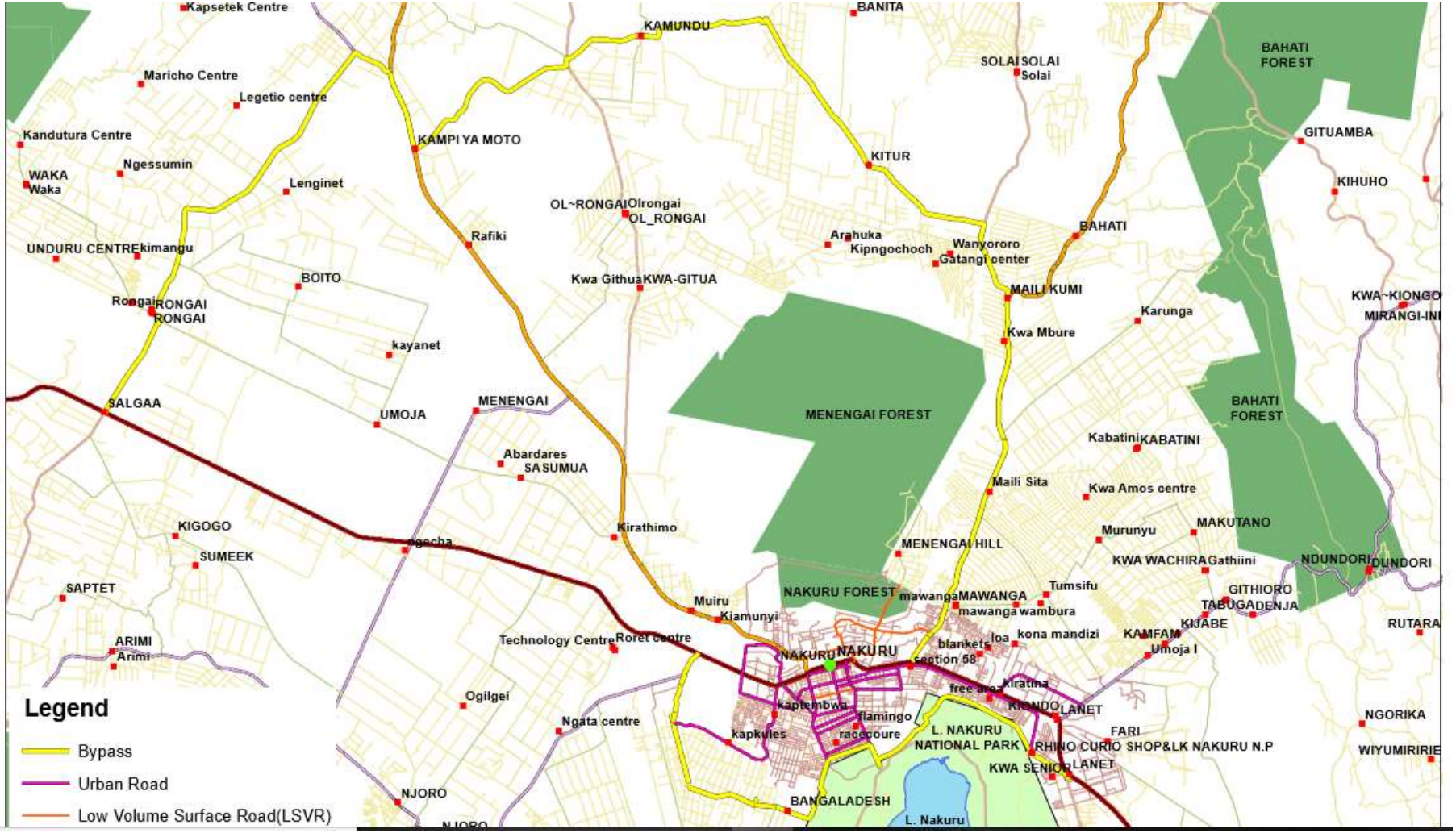
Proposed bypasses around Kisumu Central Business District in Ksumu County

Source: KURA, 2016



Proposed bypasses around Meru Central Business District in Meru County

Source: KURA,2016



Proposed bypasses around Nakuru Central Business District in County and the its environs

Source: KURA, 2016

Proposed bypasses in the Thika Central Business District in Kiambu County

Source: KURA, 2016

Appendix 2: Classified traffic volume counts data by MTRD

Traffic Counts data along Eastern Bypass at Ruai by MTRD											
DAY	DIRECTION	MOTORBIKES	CARS &TAXIS	SMALL BUS	SMALL TRUCK	LARGE BUS	MEDIUM TRUCK 2 AXLES	HEAVY GOODS VEHICLE	ARTICULATED	BICYCLES AND OTHERS	**TOTAL**
THURSDAY	LHS	94	843	138	633	8	287	727	275	14	3019
	RHS	296	686	610	471	162	550	663	556	143	4137
	TOTAL	**390**	**1529**	**748**	**1104**	**170**	**837**	**1390**	**831**	**157**	**7156**
FRIDAY	LHS	65	896	522	432	26	548	548	112	22	3171
	RHS	110	2086	503	1264	33	796	1082	562	80	6516
	TOTAL	**175**	**2982**	**1025**	**1696**	**59**	**1344**	**1630**	**674**	**102**	**9687**
SATURDAY	LHS	113	2253	309	629	58	315	638	160	16	4491
	RHS	118	1303	593	224	24	461	560	117	21	3421
	TOTAL	**231**	**3556**	**902**	**853**	**82**	**776**	**1198**	**277**	**37**	**7912**
SATURDAY	LHS	97	399	116	3	9	87	55	43	2	811
NIGHT	RHS	42	569	104	15	15	113	30	52	1	941
	TOTAL	**139**	**968**	**220**	**18**	**24**	**200**	**85**	**95**	**3**	**1752**
MONDAY	LHS	106	1145	243	285	17	345	432	165	24	2762
	RHS	79	978	156	602	14	365	685	179	28	3086
	TOTAL	**185**	**2123**	**399**	**887**	**31**	**710**	**1117**	**344**	**52**	**5848**
TUESDAY	LHS	100	994	135	389	16	312	528	157	24	2655
	RHS	102	1647	190	269	11	497	483	190	20	3409
	TOTAL	**202**	**2641**	**325**	**658**	**27**	**809**	**1011**	**347**	**44**	**6064**
WEDNESDAY	LHS	74	806	361	80	22	535	541	233	29	2681
	RHS	28	1416	142	640	19	354	698	149	17	3463
	TOTAL	**102**	**2222**	**503**	**720**	**41**	**889**	**1239**	**382**	**46**	**6144**
THURSDAY	LHS	78	1199	121	386	26	280	621	162	21	2894
	RHS	118	1600	129	298	23	478	514	247	13	3420
	TOTAL	**196**	**2799**	**250**	**684**	**49**	**758**	**1135**	**409**	**34**	**6314**
THURSDAY	LHS	19	258	110	4	12	174	115	95	2	789
NIGHT	RHS	25	322	162	3	25	186	140	114	5	982

Traffic Counts data along Eastern Bypass at Ruai by MTRD											
DAY	DIRECTION	MOTORBIKES	CARS &TAXIS	SMALL BUS	SMALL TRUCK	LARGE BUS	MEDIUM TRUCK 2 AXLES	HEAVY GOODS VEHICLE	ARTICULATED	BICYCLES AND OTHERS	**TOTAL**
	TOTAL	**44**	**580**	**272**	**7**	**37**	**360**	**255**	**209**	**7**	**1771**
Traffic counts data along Eastern Bypass at Utawala by MTRD in September, 2012											
DAY	**DIRECTION**	**MOTORBIKES**	**CARS &TAXIS**	**SMALL BUS**	**SMALL TRUCK**	**LARGE BUS**	**MEDIUM TRUCK 2 AXLES**	**HEAVY GOODS VEHICLE**	**ARTICULATED**	**BICYCLES** AND OTHERS	**TOTAL**
THURSDAY	LHS	127	1862	339	485	94	483	498	201	55	4144
	RHS	106	1501	562	437	97	826	938	237	49	4753
	TOTAL	**233**	**3363**	**901**	**922**	**191**	**1309**	**1436**	**438**	**104**	**8897**
FRIDAY	LHS	88	1762	402	385	92	400	397	149	28	3703
	RHS	68	1105	453	430	69	451	606	187	42	3411
	TOTAL	**156**	**2867**	**855**	**815**	**161**	**851**	**1003**	**336**	**70**	**7114**
SATURDAY	LHS	106	2498	533	404	129	465	490	198	47	4870
	RHS	97	1759	631	585	114	443	575	146	51	4401
	TOTAL	**203**	**4257**	**1164**	**989**	**243**	**908**	**1065**	**344**	**98**	**9271**
MONDAY	LHS	85	1282	440	392	102	626	530	221	54	3732
	RHS	78	1195	500	451	86	524	608	219	47	3708
	TOTAL	**163**	**2477**	**940**	**843**	**188**	**1150**	**1138**	**440**	**101**	**7440**
TUESDAY	LHS	89	1760	649	439	117	616	625	310	41	4646
	RHS	88	1709	623	554	88	397	626	297	46	4428
	TOTAL	**177**	**3469**	**1272**	**993**	**205**	**1013**	**1251**	**607**	**87**	**9074**
WEDNESDAY	LHS	103	1552	667	485	111	639	770	199	116	4642
	RHS	81	1430	653	547	103	675	745	175	41	4450
	TOTAL	**184**	**2982**	**1320**	**1032**	**214**	**1314**	**1515**	**374**	**157**	**9092**
THURSDAY	LHS	83	1640	693	433	131	635	621	326	47	4609
	RHS	67	1537	631	635	115	692	763	180	48	4668
	TOTAL	**150**	**3177**	**1324**	**1068**	**246**	**1327**	**1384**	**506**	**95**	**9277**
Traffic Counts Data along Eastern Bypass at Ruiru by MTRD											

Traffic Counts data along Eastern Bypass at Ruai by MTRD											
DAY	DIRECTION	MOTORBIKES	CARS &TAXIS	SMALL BUS	SMALL TRUCK	LARGE BUS	MEDIUM TRUCK 2 AXLES	HEAVY GOODS VEHICLE	ARTICULATED	BICYCLES AND OTHERS	**TOTAL**
DAY	**DIRECTION**	**MOTORBIKES**	**CARS &TAXIS**	**SMALL BUS**	**SMALL TRUCK**	**LARGE BUS**	**MEDIUM TRUCK 2 AXLES**	**HEAVY GOODS VEHICLE**	**ARTICULATED**	**BICYCLES** AND OTHERS	**TOTAL**
THURSDAY	LHS	99	414	36	97	15	103	21	5	26	816
	RHS	54	576	109	118	9	118	53	31	28	1096
	TOTAL	**153**	**990**	**145**	**215**	**24**	**221**	**74**	**36**	**54**	**1912**
FRIDAY	LHS	85	563	61	71	15	91	28	4	32	950
	RHS	85	543	150	411	17	464	255	46	31	2002
	TOTAL	**170**	**1106**	**211**	**482**	**32**	**555**	**283**	**50**	**63**	**2952**
SATURDAY	LHS	78	351	55	61	8	82	25	1	17	678
	RHS	135	595	5	536	1	576	443	84	51	2426
	TOTAL	**213**	**946**	**66**	**597**	**9**	**658**	**468**	**85**	**68**	**3110**
MONDAY	LHS	82	548	26	143	17	132	20	3	28	999
	RHS	468	524	80	520	59	522	373	61	110	2717
	TOTAL	**550**	**1072**	**106**	**663**	**76**	**654**	**393**	**64**	**138**	**3716**
TUESDAY	LHS	252	725	165	55	18	81	24	5	40	1365
	RHS	581	580	171	558	34	640	573		183	3320
	TOTAL	**833**	**1305**	**336**	**613**	**52**	**721**	**597**	**5**	**223**	**4685**
WEDNESDAY	LHS	196	715	123	184	12	308	50	2	76	1666
	RHS	527	588	192	597	37	620	556	71	124	3312
	TOTAL	**723**	**1303**	**315**	**781**	**49**	**928**	**606**	**73**	**200**	**4978**
THURSDAY	LHS	163	333	135	165	57	140	88	24	59	1164
	RHS	478	584	215	552	13	538	311	115	210	3016
	TOTAL	**641**	**917**	**350**	**717**	**70**	**678**	**399**	**139**	**269**	**4180**

Appendix 3: part of data of vehicles intercepted during axle load survey by MTRD in 2011

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
		LOCATION :	RUAI	DATE		22/9/2011	
7	H	KBY 628	0.063479197	Njiru	Mombasa Road	Empty	1-2-2
7	H	KBA 013K	0.138936885	Njiru	Mombasa Road	Empty	1-2-2
7	A	KAU 196W	4.205763549	Mombasa	Nakuru	Fuel	1-1-2-2-2-2
7	H	KAV 471G	2.881796939	Njiru	Ruiru	Soda	1-2-2
7	H	KAK 443K	1.841348696	Mombasa	Ruiru	Goods	1-2-2
7	H	KAS 745D	0.064006632	Njiru	Nakuru	Empty	1-2-2
7	A	KBL 624F	5.172498311	Mombasa	Kerugoya	Goods	1-1-2-2-2-2
7	H	KAU 505S	1.487598214	Embakasi	Kisumu	Soda	1-2-2
7	H	KAR 215S	0.184015073	Mombasa Road	Thika	Empty	1-2-2
7	H	KBJ 205J	0.083473684	Embakasi	Ruiru	Empty	1-2-2
7	H	KBP 120K	0.056155339	Njiru	Ruiru	Empty	1-1-2
7	A	KBE 948B	9.351278295	Mombasa	Nakuru	Goods	1-2-2-2-2-2
7	M	KAR 243H	0.088446177	Thika	Mombasa	Building Stones	1-2
7	H	KBD 024N	0.114365603	Mombasa	Thika	Goods	1-2-2
7	M	KAT 983	0.099409684	Thika	Mombasa	Building Stones	1-2
7	M	KAS 295J	0.056709732	Thika	Mombasa	Building Stones	1-1-2-2
7	A	KBJ 298S	4.335433921	Mombasa	Thika	Building Material	1-2-2-2
7	H	KBB 948F	2.664432852	Mombasa	Thika	Building Material	1-2-2
7	A	KAZ 888S	0.118287894	Mombasa	Thika	Goods	1-1-2-2
7	H	KAZ 543U	0.086038125	Mombasa	Thika	Bottles	1-2-2
7	A	BH 544T	3.223468782	Mombasa	Thika	Cement	1-2-2-2-2-2
7	M	KAS 243J	2.048112826	Mombasa	Thika	Sand	1-2
7	H	KBP 435Z	0.178322634	Njiru	Thika	Building Blocks	1-2-2
7	H	KAS 932T	4.445659146	Mombasa	Thika	Cement	1-2-2
7	A	KBK 6	6.863744198	Mombasa	Thika	Salt	1-2-2-2-2-2
7	H	KBC 694C	0.102144026	Thika	Mombasa	Empty	1-2-2
7	A	KBP 433Z	3.107553305	Mombasa	Thika	Flour	1-2-2-2-2-2
7	A	KBP 234S	0.13663134	Nairobi	Ruiru	Sand	1-1-2-2
7	H	KBL 149A	8.350271465	Mombasa	Mundoro	Crusher	1-2-2
7	H	KBC 463T	4.735707419	Thika	Nairobi	Building Stones	1-2-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
7	A	KBP 335U	4.011260265	Thika	Nairobi	Cement	1-1-2-2
7	H	KAX 364B	0.14687972	Njiru	Thika	Sand	1-2-2
8	A	KBC 698V	5.619834503	Embakasi	Kisumu	Soda	1-1-2-2
8	H	KAZ 257J	7.719546847	Thika	Mombasa	Goods	1-2-2
8	H	KBL 147A	9.207116584	Mombasa	Thika	Goods	1-2
8	M	KAM 297J	2.117599641	Utawala	Thika	Building Material	1-2
8	M	KAQ 005Z	4.977150525	Mombasa	Nakuru	Building Material	1-2
8	H	KAX 219Z	3.482355698	Utawala	Thika	Fuel	1-2-2
8	H	KBF 333V	6.338716076	Utawala	Thika	Goods	1-1-2-2-2-2
8	A	KBM 869Q	572.5673444	Mombasa	Nakuru	Goods	1-2-2
8	H	KBA 289V	0.10762195	Embakasi	Ruiru	Empty	1-2-2
8	M	KAX 967M	0.272372727	Utawala	Ruiru	Building Material	1-2
8	H	KAT 846C	0.113230841	Mombasa	Thika	Goods	1-2-2
8	M	KBC 289F	2.594736525	Thika	Njiru	Empty	1-2
8	H	KAS 339S	0.215580884	Thika	Njiru	Goods	1-2
8	M	KAV 956F	0.011722628	Thika	Njiru	Empty	1-2-2
8	M	KAA 427L	0.10434916	Mombasa	Ruiru	Goods	1-2-2
8	H	BB 261L	0.272213032	Njiru	Thika	Empty	1-2
8	H	KBK 504X	0.091089323	Mombasa Road	Ruiru	Empty	1-2
8	M	KAS 297F	0.019575821	Ruiru	Mombasa Road	Empty	1-2-2
8	M	KAP 555S	8.679550574	Mombasa Road	Juja	Goods	1-2
8	H	KAS 258S	2.27049556	Njiru	Thika	Ballast	1-2
8	A	KBP 923K	0.082775058	Njiru	Ruiru	Empty	1-2-2
8	H	KBM 823Y	0.114683211	Njiru	Thika	Building Material	1-1-2-2
8	M	KBL 465J	0.009463534	Njiru	Thika	Empty	1-2-2
8	H	KBF 506H	41.62787518	Njiru	Juja	Sand	1-2
8	H	KAS 209J	5.08591685	Utawala	Thika	Ballast	1-2-2
8	M	KBH 859	0.018634119	Kisumu	Mombasa	Empty	1-2-2
8	M	KBY 482	1.106603519	Mombasa	Nairobi	Cement	1-2
8	M	KBP 334S	0.010267549	Nairobi	Thika	Empty	1-2
8	H	KBC 035U	7.001285493	Kerugoya	Mombasa	Rice	1-2-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
8	M	KBN 405Z	0.00857117	Thika	Mombasa	Empty	1-2
8	A	KZP 062T	0.188789128	Mombasa	Thika	Empty	1-2-2-2-2-2
8	M	KBF 232	0.098298171	Thika	Mombasa	Sand	1-2
8	A	KBA 289S	19.06327293	Mombasa	Kisumu	Cement	1-2-2-2-2-2
8	H	KBC 227S	0.060567363	Nairobi	Thika	Empty	1-2-2
8	H	KAZ 289U	3.352653244	Nairobi	Nyeri	Goods	1-2-2
8	M	KBD 286J	0.497250768	Nairobi	Karatina	Goods	1-2
8	H	KAU 471G	0.076823079	Nyeri	Njiru	Empty	1-2-2
8	H	KBL 628K	0.317433721	Thika	Embakasi	Bottles Empty	1-2-2
8	H	KBB 286J	2.285560963	Nairobi	Nyeri	Goods	1- 2- 2
8	H	KAS 295J	0.098627634	Utawala	Thika	Empty	1 -2-2
8	A	KBB 948F	7.370848171	Mombasa	Nakuru	Goods	1- 2-2-2-2-2
8	H	KAG 212K	0.766790153	Njiru	Ruiru	Building Material	1-2-2
8	M	KAQ 363S	0.027461621	Thika	Utawala	Empty	1-2
8	M	KAT 347C	0.001573608	Thika	Njiru	Empty	1-2
8	M	KAS 119G	9.003350995	Utawala	Thika	Sand	1-2
8	H	KAZ 543U	0.2058598	Thika	Utawala	Empty	1-2-2
8	M	KAE 133V	0.217072934	Nairobi	Thika	Goods	1-2
8	A	KBH 544T	2.926753781	Mombasa	Nakuru	Goods	1-2-2-2-2-2
8	A	KBK 629G	5.726185367	Mombasa	Naivasha	Goods	1-1-2-2-2-2
8	H	KBG 494F	3.117811582	Thika	Mombasa	Goods	1-2-2
8	M	KBC 289S	0.025003176	Thika	Njiru	Empty	1-2
8	M	KAK 286J	0.073602092	Thika	Njiru	Empty	1-2
8	H	KAZ 589Y	2.576363134	Thika	Mombasa	Goods	1-2-2
8	A	KBP 628J	0.853405406	Embakasi	Thika	Empty	1-2-2-2
8	H	KAM 045S	10.12213182	Thika	Njiru	Sand	1-2-2
8	M	KAE 532G	0.085416255	Thika	Embakasi	Empty	1-2
8	H	KBD 819J	0.12281935	Njiru	Thika	Empty	1-2-2
8	H	KAP 939W	3.670799154	Njiru	Thika	Aggregates	1-2-2
8	H	KBL 678K	1.222037306	Embakasi	Thika	Soda	1-2-2
8	H	KBA 286S	4.128941953	Mombasa	Thika	Goods	1-2-2
8	H	KBL 278J	0.109271007	Njiru	Thika	Empty	1-2-2
9	H	KBK 496K	1.21760545	Thika	Njiru	Sand	1-2-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
9	H	KAX 369Y	0.196426999	Nairobi	Thika	Goods	1-2
9	H	KAM 045Y	0.064849707	Thika	Njiru	Empty	1-2
9	M	KAY 216S	0.114812221	Thika	Njiru	Empty	1-2
9	H	KBH 745C	0.035218504	Embakasi	Thika	Empty	1-2-2
9	H	KBD 015W	0.10800077	Njiru	Thika	Empty	1-2-2
9	M	KBD 597G	3.615552613	Thika	Njiru	Building Stones	1-2
9	M	KAS 372Q	1.143065528	Thika	Embakasi	Building stones	1-2-2
9	H	KAM 561T	13.17014758	Nairobi	Ruiru	Fertilizer	1-2-2
9	H	KBM 356U	5.411239625	Thika	Ruai	Building Stones	1-2-2
9	M	KAY 398M	0.01480237	Thika	Ruai	Empty	1-2-2-2-2
9	A	KBG 081C	0.032144824	Mombasa	Ruiru	Empty	1-2-2
9	H	KBM 556U	0.173388534	Embakasi	Ruiru	Empty	1-2-2
9	H	KBP 342Y	7.704989005	Thika	Njiru	Building Stones	1-2-2-2-2
9	A	KBP 558P	4.025893145	Mombasa	Thika	Cement	1-2-2
9	H	KBK 041K	2.576454871	Thika	Njiru	Building Stones	1-2
9	M	KBC 494J	4.072067861	Thika	Embakasi	Goods	1-1-2-2-2-2
9	A	KBM 556Z	5.890931083	Athi River	Karatina	Cement	1-2-2-2-2-2
9	H	KAP 387N	0.089610939	Njiru	Thika	Empty	1-2-2-2-2
9	M	KAE 453T	3.267118881	Nairobi	Thika	Goods	1-2
9	A	KAW 769	3.858416972	Njiru	Thika	Stones	1-2
9	A	KBN 466L	0.213552791	Njiru	Thika	Empty	1-2
9	A	KAM 821U	1.754410047	Mombasa	Thika	Assorted Goods	1-2-2-2-2-2
9	H	KAG 034R	0.083419725	Njiru	Thika	Empty	1-2-2
9	H	KBK 039X	0.08557239	Njiru	Thika	Empty	1-2-2
9	A	KBA 932K	6.770177526	Mombasa	Thika	Fuel	1-2-2-2-2-2
9	M	KAD 387R	1.087621746	Njiru	Thika	Ballast	1-2
9	M	KBG 183M	0.027950082	Njiru	Thika	Empty	1-2
9	M	KBM 889V	0.086873731	Thika	Njiru	Empty	1-2
9	M	KBK 104Y	0.740679198	Thika	Kayole	Building Stones	1-2
9	A	KBK 261L	6.376814626	Thika	Ruai	Building Stones	1-2-2-2
9	A	KAV 509W	2.022431977	Mombasa	Thika	Container	1-1-2-2-2-2
9	A	KBN 736K	4.107095152	Mombasa	Thika	Fuel	1-2-2-2-2-2
9	A	KAX 233U	7.429580504	Mombasa	Thika	Fuel	1-1-2-2-2-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
9	M	KBM 836M	0.018611356	Thika	Embakasi	Empty	1-2
9	M	29CD 297	0.375398949	Njiru	Embakasi	Goods	1-2
9	M	KAM 033X	0.172833906	Mau	Embakasi	Flowers	1-2
9	H	KBP 948J	0.066947467	Thika	Nairobi	Empty	1-2-2
9	M	KAZ 067S	0.003180734	Thika	Embakasi	Empty	1-2
9	M	KAY 039Y	0.969669061	Thika	Njiru	Goods	1-2
9	H	KBJ 903J	0.156669965	Thika	Embakasi	Goods	1-2-2
9	H	KAW 090S	2.503851587	Thika	Kayole	Goods	1-2-2
9	H	KBB 155E	0.046370602	Njiru	Thika	Empty	1-2-2
9	H	KBD 557F	0.293995955	Njiru	Thika	Empty	1-2-2
9	H	KBJ 090M	1.406744716	Thika	Njiru	Goods	1-2-2
9	M	KBA 093J	1.253514923	Nairobi	Thika	Fuel	1-2
9	H	KBF 040Y	0.158473611	Njiru	Thika	Empty	1-2-2
9	M	KBJ 831K	0.484585094	Thika	Njiru	Goods	1-2-2
9	M	KAA 663	0.326070317	Nanyuki	Nairobi	Goods	1-2
9	H	KAA 084U	2.323878729	Thika	Njiru	Goods	1-2-2
9	A	KBM 319N	4.625666573	Kampala	Thika	Goods	1-2-2-2-2-2
9	M	KBP 073X	1.233364844	Thika	Njiru	Building Stones	1-2
10	A	KBH 636A	2.839308909	Athi River	Thika	Steelbars	1-2--1-2-2-2
10	M	KBC 064S	3.660834538	Thika	Kayole	Building Stones	1-2
10	M	KAB 793Z	0.007120133	Njiru	Thika	Empty	1-2
10	M	KAA 295M	1.064528976	Thika	Njiru	Building stones	1-2
10	A	KAQ 350N	0.255914179	Mombasa	Thika	Container	1-2-1-2-2-2
10	H	KBC 093M	0.250026298	Njiru	Thika	goods	1-2-2
10	M	KBP 343J	0.000357814	Njiru	Githurai	Empty	1-2
10	H	KBJ 493S	0.176941543	Nairobi	Thika	Cement	1-2-2
10	M	KAB103C	1.949267632	Nairobi	Thika	Sand	1-2
10	H	KAZ 035U	0.066242279	Nairobi	Thika	Empty	1-2-2
10	A	KBP 312Q	2.475648271	Mombasa	Thika	Container	1-2-2-2-2-2
10	M	KBS 903Q	3.494544556	Nairobi	Thika	goods	1-2
10	H	KBG 109K	3.203745675	Athi River	Thika	Cement	1-2-2
10	H	KBJ 237E	0.296290461	Nairobi	Thika	Empty	1-2-2
10	M	KBM 064C	0.367644749	Thika	Nairobi	Empty	1-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
10	M	KBM 512B	0.012624527	Njiru	Thika	Empty	1-2
10	H	KBN 218S	0.216050893	Njiru	Ruiru	Empty	1-2-2
10	M	KBA 341K	0.0076848	Njiru	Thika	Empty	1-2
10	M	KAS 350J	2.307406639	Njiru	Thika	Sand	1-2
10	A	KAV 666T	11.66415964	Mombasa	Thika	Fuel	1-1-2-2-2-2
10	M	KAK 736F	1.784223344	Nairobi	Thika	Goods	1-2
10	M	KAM 823C	0.916429995	Thika	Juja	Goods	1-2
10	M	KBL 512B	3.16659533	Nairobi	Thika	Goods	1-2
10	A	KAZ 461A	0.215922839	Nairobi	Thika	Container	1-2-2-2-2
10	M	KAS 383E	0.004396337	Njiru	Thika	Empty	1-2
10	M	KBC 276Q	1.024585715	Nairobi	Thika	beer	1-2
10	M	KBA 193C	0.133907224	Njiru	Juja	Goods	1-2
10	H	KAS 187S	0.025415135	Thika	Nairobi	Empty	1-2
10	H	KAG 628W	3.737384333	Nairobi	Karatina	Flour	1-2
10	M	KAZ 832U	0.00424612	Njiru	Thika	Empty	1-2
10	H	KAV 003T	3.526396737	Nairobi	Thika	Fuel	1-2-2
10	M	KAS 990J	0.14769945	Nairobi	Ruiru	Goods	1-2
10	H	KAV 879J	4.743255788	Njiru	Thika	Sand	1-2-2
10	H	KAG 868T	0.234811565	Thika	Njiru	Empty	1-2-2
10	H	KAQ 657F	1.713206374	Mombasa	Nyeri	Fuel	1-2-2
10	M	KAZ 546T	1.637814543	Thika	Njiru	Goods	1-2
10	A	KAZ 735S	6.543439437	Mombasa	Thika	Goods	1-2-2-2-2-2
10	A	KAU 324G	0.088457864	Thika	Nairobi	Empty	1-2-2
10	H	KAS 293E	4.914587866	Njiru	Thika	Ballast	1-2-2
10	H	KAU 482S	2.885590856	Nairobi	Thika	Fuel	1-2
10	A	KBL 671Q	5.791304264	Mombasa	Thika	Container	1-2-2-2-2-2
10	A	KBL 924V	9.332782999	Mombasa	Thika	Cement	1-2-2-2-2
10	A	KBE 268J	0.005493841	Njiru	Thika	Empty	1-2
10	M	KBA 869U	0.126745292	Thika	Ruai	goods	1-2
10	M	KAT 986T	0.04739816	meru	Nairobi	goods	1-2
10	M	KAN 796S	13.67251758	Thika	Ruai	Empty	1-2
10	M	KAS 814J	4.239284183	Njiru	Thika	Building Stones	1-2
10	M	KAJ 216Y	4.84335526	Njiru	Juja	Sand	1-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
10	M	KAM 219J	2.960658428	Athi River	Thika	Cement	1-2
10	A	KAY 295E	13.02620908	Mombasa	Thika	goods	1-2-2-2-2
10	H	KBJ 956J	5.859993724	Nairobi	Thika	goods	1-2-2
10	A	KAQ 280G	9.092225624	Mombasa	Thika	Container	1-2-2-2-2
10	A	KBF 638J	8.311562924	Athi River	Thika	Cement	1-2-2-2-2
10	H	KBP 618Y	2.69835943	Juja	Utawala	Building stones	1-2-2
10	M	KAN 902J	20.07383235	Juja	Utawala	Building Stones	1-2
10	M	KBE 918J	2.107129904	Kangundo	Thika	Sand	1-2
10	M	KAY 238Z	0.011488906	Njiru	Juja	Empty	1-2
10	M	KBJ 316S	0.128728007	Nairobi	Thika	goods	1-2
10	M	KAM 219S	0.181772118	Nairobi	Nyeri	Animal feeds	1-1-2
10	A	KAK 111H	12.58334758	Mombasa	Thika	goods	1-2-2-2-2
10	M	KAH 228M	0.160563519	Nairobi	Thika	goods	1-2-2
10	A	KAT 326E	8.784272447	Athi River	Thika	Cement	1-2-2-2-2
10	H	KAY 311S	2.629050171	Embu	Thika	Soda	1-2-2
10	H	KAV 696F	0.025287624	Njiru	Thika	Empty	1-2-2
10	H	KBL 168F	3.60731684	Thika	Njiru	Building Stones	1-2-2
10	M	KBA 118U	0.912879578	Thika	Nairobi	Building Stones	1-2
10	H	KBD 196U	1.683058671	Athi River	Karatina	Cement	1-2-2
10	M	KAJ 176U	3.095549363	Kayole	Thika	Building Stones	1-2
10	M	KAA 730P	0.46120323	Nairobi	Ruiru	Goods	1-2
10	H	KAU 187M	26.58223682	Njiru	Thika	Sand	1-2-2
10	M	KAJ 118J	6.656964144	Njiru	Thika	Building Stones	1-2
10	M	KAB 980	0.033129819	Nairobi	Thika	Empty	1-2
10	M	KAS 231M	0.033520504	Nairobi	Thika	Empty	1-2
10	M	KAM 129C	3.029150982	Thika	Kayole	Building Stones	1-2
10	M	KXC 648	0.015586037	Nairobi	Juja	Empty	1-2
10	M	KYU 825	2.403803511	Thika	Embu	Building Stones	1-2
10	H	KYW 587	2.112563935	Thika	Embu	Building Stones	1-2-2
11	H	KBC 897N	2.866857699	Nairobi	Thika	Goods	1-2-2
11	H	KAU 193G	0.101983123	Njiru	Thika	Goods	1-2-2
11	M	KAZ 26J	0.033289402	Thika	Njiru	Empty	1-2
11	H	KAW 297Y	0.188104025	Nairobi	Thika	Empty	1-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
11	M	KBA 993N	0.366612791	Nairobi	Juja	Goods	1-2
11	M	KAZ 850R	7.539003943	Njiru	Thika	Sand	1-2
11	M	KBK 897G	1.420525196	Njiru	Thika	Building materials	1-2
11	M	KAK 611G	3.867367448	Utawala	Thika	Goods	1-2
11	M	KXY 976	2.135842238	Kayole	Thika	Ballast	1-2
11	M	KAS 981Q	0.233986308	Njiru	Nyeri	Goods	1-2
11	H	KBA 013K	0.110182345	Thika	Mombasa	Empty	1-2-2
11	H	KAA 291K	2.711077759	Utawala	Nyeri	Goods	1-2-2
11	A	KZC 454Q	4.806205619	Mombasa	Thika	Container	1-1-2-2-2-2
11	M	KAA 196J	0.04192789	Thika	Nairobi	Empty	1-2
11	M	KAL 241M	3.260795229	Nairobi	Thika	Papers	1-2
11	M	KBM 176J	3.837145055	Utawala	Thika	Building Materials	1-2
11	M	KAJ 878G	3.439429394	Nairobi	Meru	goods	1-2
11	M	KAR 560H	0.008914681	Thika	Nairobi	Empty	1-2
11	M	KAV 474S	4.006846338	Thika	Embakasi	Ballast	1-2
11	M	KBJ 241W	0.022338236	Thika	Kayole	Empty	1-2
11	M	KAZ 005	1.501783297	Njiru	Thika	building materials	1-2
11	H	KAS 267J	0.219755148	Nairobi	Thika	goods	1-2-2
11	M	KAB 257J	0.388019559	Utawala	Thika	building materials	1-2
11	M	KAJ 459D	0.009661361	Utawala	Thika	Empty	1-2
11	H	KBC 810R	9.562928618	Njiru	Thika	Building Materials	1-2-2
11	M	KAJ 059J	0.20495298	Nairobi	Ruiru	Empty	1-2
11	M	KBK 559Q	0.206092404	Njiru	Thika	Building Materials	1-2
11	M	KBH 502N	0.02017952	Thika	Utawala	Empty	1-2
11	M	KBA 602J	0.055679007	Thika	Njiru	goods	1-2
11	M	KBL 825C	1.808282723	Njiru	Thika	Building Materials	1-2
11	M	KBJ 855E	2.498514879	Njiru	Juja	Building Materials	1-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
11	A	KBH 161S	2.01071668	mombasa	Thika	Container	1-1-2-2-2-2
12	M	KBK 199A	1.437194415	Njiru	Thika	goods	1-2
12	M	KBJ 956J	5.146754779	Kangundo	Thika	Builing Materials	1-2
12	M	KBF 282W	0.172845941	Nairobi	Thika	Empty	1-2
12	M	KBN 653F	0.184014587	Kayole	Thika	Goods	1-2
12	M	KAW 188G	0.014806337	Nairobi	Nyeri	Empty	1-2
12	H	KBP 780Q	0.137841229	Nairobi	Thika	Goods	1-2-2
12	A	KZB 170D	4.263522186	Mombasa	Thika	Goods	1-2-2-2-2-2
12	M	KBJ 100B	2.728448062	Njiru	Ruiru	Sand	1-2
12	M	KBS 196J	2.187092665	Njiru	Thika	Builing Materials	1-2
12	M	KAV 354	0.0076848	Njiru	Thika	Empty	1-2
12	H	KBC 267J	0.108204015	Nairobi	Thika	Empty	1-2-2
12	M	KBP 377B	2.96800458	Mombasa	Thika	Goods	1-2
12	H	KAE 560L	0.137001135	Nairobi	Thika	Empty	1-2
12	H	KAY 937J	0.108507595	Njiru	Thika	Empty	1-2-2
12	M	KAQ 360R	0.026629186	Embakasi	Ruiru	Empty	1-2-2
12	M	KBJ 361R	0.022844272	Kayole	Thika	Empty	1-2
12	M	KAS 207T	0.974929217	Nairobi	Juja	Goods	1-2
12	H	KAM 269S	3.668769399	Nairobi	Thika	Maize	1-2-2
12	H	KAL 323T	1.238317478	Nairobi	Thika	Flour	1-2-2
12	H	KBL 882F	0.073076266	Mombasa	Thika	Empty	1-1-2-2-2-2
12	A	KBA 687J	10.40292941	Mombasa	Karatina	Flour	1-2-2-2-2-2
12	M	KAJ 608S	0.247007541	Nairobi	Thika	Flour	1-2
12	M	KAK 618J	1.915111189	Nairobi	Karatina	Alcohol	1-2-2
12	M	KBP 618N	4.048809717	Njiru	Thika	Sand	1-2-2
12	M	KBN 123T	3.916987723	Embakasi	Garissa	Soda	1-2
12	M	KAH 678S	0.95526564	Nairobi	Thika	Goods	1-2
12	H	KAJ 899J	12.917021	Njiru	Thika	Ballast	1-2-2
12	H	KAV 686V	12.74321733	Njiru	Thika	Ballast	1-2-2
12	M	KBL 238S	0.003570311	Ruai	Juja	Empty	1-2
12	A	KAH 336Z	0.168887151	Nairobi	Thika	Steelbars	1-2-2-2
12	M	KAY 389N	0.004354176	Nairobi	Thika	Empty	1-2
12	A	KAT 338S	1.352444235	Nairobi	Thika	Goods	1-2-2-2-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
12	M	KBM 394B	2.686618878	Thika	Ruai	Empty	1-2
12	M	KZF 305V	0.013635557	Njiru	Thika	Empty	1-2
12	A	KZD 049Q	7.030525112	Mombasa	Thika	goods	1-2-2-2-2-2
12	M	KAS 860Q	1.985006912	Mlolongo	Thika	goods	1-2
12	M	KBJ	0.010907932	Nairobi	Thika	Empty	1-2
12	H	KAV 272S	2.410405556	Athi River	Thika	Lime	1-2-2
12	M	KAX 665S	1.931649532	Athi River	Thika	Sand	1-2-2
12	M	KAD	0.15886413	Nairobi	Githurai	Animal feeds	1-2
12	M	KAV 815T	1.953109853	Mombasa	Ruiru	Empty	1-2
12	H	KBJ 205J	0.069217708	Nairobi	Meru	Fats	1-2-2
12	H	KAZ 636R	2.146892839	mombasa	Thika	Cabros	1-2-2
12	A	KWA 301	6.427139889	Embakasi	Githurai	Ballast	1-2-1-2-2-2
12	H	KTP 090S	3.178213711	mombasa	Thika	Cement	1-2-2
12	M	KAY 372S	0.003160036	Nairobi	Thika	Empty	1-2
12	M	KBE 093X	0.016340229	Njiru	Thika	Empty	1-2
12	M	KBR 163H	3.961711642	Njiru	Thika	Empty	1-2
12	H	KBE 909Z	0.147712762	Njiru	Thika	Empty	1-2-2
12	M	KAS 966Y	0.01295631	Njiru	Thika	Empty	1-2
12	A	KAV 926U	4.121071409	Nairobi	Meru	Alcohol	1-2-2-2-2-2
12	M	KBD 953F	3.238774212	Nairobi	Nyeri	Fertilizer	1-2
12	H	KAW 848V	0.003539511	Njiru	Ruiru	Empty	1-2
12	M	KVR 485	0.022713814	Njiru	Thika	Empty	1-2
12	M	KBD 283J	1.86996544	Mombasa	Thika	Flour	1-2
12	M	KBJ 367R	0.010724124	Nairobi	Thika	Empty	1-2
12	M	KAH 987J	0.049119755	Athi River	Thika	Empty	1-2
12	M	KBE 076Z	0.694732267	Nairobi	KU	Builing Materials	1-2
12	M	KBK 374Q	2.804829218	Mlolongo	Ruiru	Ballast	1-2
12	M	KBP 306B	0.006903679	Nairobi	Thika	Empty	1-2
12	M	KAK 904D	0.037174243	Nairobi	Ruiru	Empty	1-2
12	M	KAV 056K	0.048436011	Nairobi	Thika	Empty	1-2
12	M	KAG 927S	0.01914437	Nairobi	Githurai	Goods	1-2
12	A	KBP 989S	0.102292177	Nairobi	Thika	Empty	1-1-2-2
12	H	KBL 492W	0.061455581	Mlolongo	Thika	Empty	1-2-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
12	H	KAV 853B	4.839478059	Nairobi	Thika	Bitumen	1-2-2
12	M	KAJ 305M	0.138882346	Njiru	Thika	Assorted Goods	1-2
12	M	KAV 222M	0.023197411	Njiru	Thika	Empty	1-2
12	H	KBC 897N	0.103330379	Nairobi	Thika	Empty	1-2-2
12	M	KAH 327	0.241662686	Njiru	Thika		1-2
12	M	KAM 127M	0.018294911	Njiru	Thika	Empty	1-2
12	M	KAM 144Z	0.442499629	Kayole	Thika	Papers	1-2
1	A	KBP 782K	6.908173193	Nairobi	Thika	Empty	1-2
1	M	KAY 499R	0.549279265	Nairobi	Thika	Maize	1-2
1	M	KAY 218Z	4.499842061	Nairobi	Thika	Fats	1-2
1	H	KBN 097F	0.058553415	Embakasi	Thika	Empty	1-2
1	M	KAZ 111S	0.031668146	Nairobi	Thika	Empty	1-2
1	H	KAB 665	0.114264574	Nairobi	Thika	Container	1-2-2
1	M	KBJ 465W	1.090140523	Nairobi	Thika	Sweets	1-2
1	M	KAP 163C	0.945312043	Nairobi	Thika	Food Relief	1-2
1	M	KXV 168Z	0.569166049	Nairobi	Thika	Sodas	1-2
1	M	KAA 220T	0.017204593	Njiru	Thika	Empty	1-2
1	M	KAK 621E	0.02706318	Nairobi	Limuru	Empty	1-2
1	M	KAV 292M	2.126175891	Athi River	Narumoru	Cement	1-2
1	M	KAX 279V	4.018488279	Mombasa	Nyeri	sacks	1-2
1	A	KBB 685B	4.028328782	Mombasa	Ruiru	Plastics	1-2-2-2-2-2
1	M	KAT 305R	0.048448154	Nairobi	Thika	Empty	1-2
1	M	KWD 124	0.026897868	Kayole	Juja	Empty	1-2
1	M	KBP 112B	0.011249181	Ruai	Nyahururu	Empty	1-2
1	H	KVM 254	2.320404484	Kajiado	Thika	Goods	1-2-2
1	M	KBL 216	1.83056301	Bamburi	Muranga	Cement	1-2
1	A	KAT 342L	0.21498746	Nairobi	Thika	Empty	1-2-2-2-2-2
1	A	KBC 242K	5.29312997	Mombasa	Thika	Fuel	1-2-2-2-2-2
1	A	KBK 038M	7.94898135	Mombasa	Thika	Fuel	1-2-2-2-2-2
1	A	KAY 203K	5.081965135	Nairobi	Karatina	Alcohol	1-2-2-2-2-2
1	M	KAV 373N	0.012017494	Embakasi	Thika	Empty	1-2
2	M	KAC 318U	0.16334889	Njiru	Thika	Goods	1-2
2	A	KAS 216J	8.655295695	Mombasa	Thika	Goods	1-2-2-2-2-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
2	M	KAS 518U	1.849601774	N	Thika	Goods	1-2
2	M	KBA 789S	0.049299633	Njiru	Thika	Empty	1-2
2	H	KAG 683J	3.073403231	Embu	Thika	Soda	1-2-2
2	M	KBE 100P	0.022399945	Kayole	Thika	Empty	1-2-2
2	H	KAH 220F	0.097956705	Njiru	Thika	Empty	1-2-2
2	H	KAP 680S	0.071000197	Nairobi	Thika	Empty	1-2-2
2	M	KAY 618F	0.086557889	Nairobi	Thika	Goods	1-2
2	A	KAR 325R	3.692933887	Mombasa	Thika	Container	1-2-2-2-2-2
2	M	KBP 816F	0.133504583	Pipeline	Juja	Empty	1-2-2
2	A	KBN 618S	3.505303603	Nairobi	Thika	Goods	1-1-2-2-2-2
2	M	KAH 305M	0.001305814	Ruai	Thika	Empty	1-2
2	M	KAP 603S	0.137755676	Pipeline	Thika	Goods	1-2
2	M	KBL 608J	1.327185083	Njiru	Thika	Sand	1-2
2	M	KBL 308S	2.356824801	Nairobi	Thika	Goods	1-2
2	M	KBA 618J	0.01548435	Nairobi	Thika	Empty	1-2
2	M	KBC 583Z	1.901400831	Njiru	Ruiru	Sand	1-2
2	M	KAS 218U	0.025951972	Nairobi	Thika	Empty	1-2
2	A	KZS 667S	4.235231982	Nairobi	Kengen	Steelbars	1-2-2-2-2-2
2	M	KBP618Z	0.00118542	Ruai	Nyahururu	Empty	1-2
2	H	KAK 365L	0.069544048	Embu	Thika	Empty	1-2-2
2	A	KBP 045U	0.171003473	Mlolongo	Thika	Empty	1-2-2
2	M	KAH 916S	2.18970378	Njiru	Ruiru	Sand	1-2
2	M	KAJ 619V	0.006960269	Kayole	Ruiru	Empty	1-2
2	A	KZL 618S	5.234051569	Nairobi	Thika	Steelbars	1-1-2-2-2-2-
2	A	KZL 619S	6.854741847	Athi River	Thika	Cement	1-2-2-2-2-2
2	A	KAZ 529Y	6.693340275	Nairobi	Garissa	Cement	1-1-2-2-2-
2	M	KAP 618S	1.272885167	Nairobi	Thika	Fertilizer	1-2
2	M	KAY 981J	0.028037199	Njiru	Thika	Empty	1-2
2	M	KAY 078E	1.305476597	Nairobi	Thika	Fuel	1-2
2	M	KBA 861S	2.689223801	Njiru	Thika	Sand	1-2-2
2	H	KXR 978	0.225466981				
2	A	KBK 933G	6.494696975	Mombasa	Thika	Cement	1-2-2
2	H	KBP 139U	1.726843078	Embakasi	Thika	Soda	1-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
2	H	KAT 434G	1.433566355	Nairobi	Nyeri	Soda	1-2-2
2	A	KAZ 666D	0.095459684	Ruai	Juja	Empty	1-2
2	A	KAY 218S	11.93477029	Mombasa	Thika	Fuel	1-2
2	M	KAM 321T	3.325005322	Nairobi	Thika	Waste Papers	1-2-2-2-2-2
2	A	KAY 338S	2.950249469	Nairobi	Thika	Flour	1-2
2	A	KBA 572V	6.80708203	Nairobi	Thika	Fuel	1-2-2-2-2-2
2	H	KAB 218J	0.035083226	Nairobi	Thika	Empty	1-2-2
2	M	KAZ 111Z	0.037546496	Nairobi	Ruiru	Empty	1-2
2	M	KAB929A	0.025990017	Utawala	Juja	Empty	1-2
2	M	KAL 415G	0.026509685	Nairobi	Nakuru	Empty	1-2
2	M	KAC 161B	1.732492673	Embakasi	Juja	Waste Papers	1-2
2	H	KAV 682K	0.143488812	Utawala	Juja	Empty	1-2-2
2	M	KBM 342U	1.428496294	Embakasi	Kiambu	Animal feeds	1-2
2	H	KBP 404	0.48143511	Pipeline	Thika	Ballast	1-2-2
2	H	KZG 505	0.178356723	Embakasi	Juja	Empty	1-2-2
2	M	KBM 556P	1.253095541	Athi River	Thika	Cement	1-2
2	M	KAC 470D	3.963112608	Athi River	Thika	Steelbars	1-2
2	M	KAM 166M	0.389295498	Kayole	Thika	Cement	1-2
2	M	KWS 060	0.018250678	Njiru	Ruiru	Fuel	1-2
2	M	KBS 414V	0.086202313	Njiru	Thika	Empty	1-2
2	H	KAT 447V	0.182886459	Nairobi	Ruiru	Empty	1-2-2
2	M	KBN 904K	0.526223392	Athi River	Thika	Cement	1-2
2	M	KSY 262	0.290115838	Nairobi	Thika	Waste Papers	1-2
2	M	KAX 72V	5.606045638	Nairobi	Juja	Cement	1-2
2	H	KAY 218J	2.793805324	Nairobi	Kiambu	Ballast	1-2-2
2	M	KAS 185G	0.830495877	Nairobi	Thika	Flour	1-2
3	A	KAG 201S	7.684304327	Nairobi	Thika	Bitumen	1-1-2-2
3	M	KBC 518J	0.650118727	Nairobi	Nyeri	Goods	1-2
3	M	KAU 775D	1.473068452	Nairobi	Karatina	Animal feeds	1-2
3	M	KAS 218U	0.087847894	Njiru	Thika	Empty	1-2
3	M	KBC 111Z	0.075245042	Embakasi	Juja	Goods	1-2
3	H	KBA 718S	5.814956166	Athi River	Meru	Cement	1-2
3	M	KAZ 815U	2.509482889	Nairobi	Nyeri	Unga	1-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
3	A	KAU 171Y	4.969467503	Nairobi	Isiolo	Beer	1-2-2-2-2-2
3	M	KBJ 936S	0.123654435	Nairobi	Thika	Goods	1-2
3	A	KBA 819Y	0.190276803	Pipeline	Ruiru	Empty	1-1-2-2
3	A	KZY 218Y	6.633640504	Nairobi	Thika	Poles	1-1-2-2-2-2
3	M	KAQ 629Z	4.22634624	Njiru	Ruiru	Soils	1-2
3	A	KBB 387H	5.143484761	Nairobi	Thika	Cement	1-2-2-2-2-2
3	H	KAX 792S	1.830167396	Mombasa	Isiolo	Fertilizer	1-2-2
3	M	KBA 687Q	0.099145528	Nairobi	Juja	Rice	1-2
3	H	KAK 365L	0.084826219	Mombasa	Karatina	Empty	1-2-2
3	M	KAG 558	0.504997487	Athi River	Nyeri	Cement	1-2
3	A	KZD 138S	2.157319219	Nairobi	Thika	Goods	1-2-2-2-2-2
3	M	KAV 122J	0.899990091	Mombasa	Thika	Fuel	1-2
3	H	KBA 297J	0.178717425	Pipeline	Juja	Empty	1-2-2
3	A	KBL 206R	7.350816988	Athi River	Thika	Cement	1-2-2-2-2-2
3	M	KBJ 102W	0.010714865	Ruai	Nyahururu	Empty	1-2
3	M	KBM 423P	2.46623809	Nairobi	Meru	Goods	1-2
3	A	KAU 751T	7.827593116	Athi River	Nyeri	Cement	1-1-2-2-2-2
3	H	KBM 084R	2.735319445	Nairobi	Mwingi	Water bottles	1-2-2
3	H	KBA 878S	0.154106524	Njiru	Thika	Empty	1-2-2
3	H	KBL 835W	0.078313167	Nairobi	Thika	Empty	1-2-2
3	H	KBA 618S	0.086975179	Njiru	Thika	Empty	1-2-2
3	A	KBJ 269D	5.492333233	Nairobi	Thika	Fuel	1-2-2-2-2
3	A	KBP 443E	5.830002562	Nairobi	Nyeri	Container	1-1-2-2-2-2
3	M	KAN 989S	0.015990516	Njiru	Juja	Empty	1-2
3	A	KBA 689S	0.417597535	Nairobi	Thika	Empty	1-1-2-2-2-2
3	M	KAN 045F	0.002251929	Njiru	Ruiru	Empty	1-2
3	M	KAS 531B	10.05141497	Njiru	Juja	Cabros	1-2
3	H	KAV 218Y	0.036628704	Kayole	Thika	Empty	1-2-2
3	H	KBA 223J	0.049352809	Pipeline	Meru	Empty	1-2-2
3	H	KBC 218F	0.117460513	Embakasi	Maua	Empty	1-2-2
3	A	KAT 295W	3.14329531	Njiru	Juja	Sand	1-1-2-2-2-2
3	A	KBP 342Y	2.964565595	Njiru	Thika	Sand	1-2-2
3	H	KAS 957F	8.063945451	Njiru	Ruiru	Sand	1-2-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
3	H	KBG 230K	0.394759672	Nairobi	Thika	Goods	1-2-2
3	M	KAS 219Y	0.0398893	Nairobi	Thika	Goods	1-2
3	M	KAN 216J	8.265917213	Njiru	Ruiru	Empty	1-2
3	H	KBC 217J	0.079011995	Mombasa	Thika	Fuel	1-2-2
3	H	KAS 027F	0.092560896	Njiru	Ruiru	Empty	1-2-2
3	H	KAV 218Q	0.137909451	Embakasi	Juja	Empty	1-2
3	M	KZX 193	0.043217786	Nairobi	Kiambu	Empty	1-2
3	M	KAT 969F	4.638273777	Athi River	Thika	Cement	1-2
3	A	KAS 297	1.585989157	Athi River	Thika	Steelbars	1-2-2-2-2-2
3	M	KBA 869U	2.037050811	Nairobi	Meru	Fertilizer	1-2
3	A	KAS 2198Y	8.471352089	Mombasa	Thika	Container	1-1-2-2-2-2
3	M	KAZ 969J	0.023724557	Njiru	Ruiru	Empty	1-2
3	A	KZA 287S	0.359882023	Mombasa	Thika	Container	1-1-2-2-2-2
3	M	KBQ 219Y	0.006806287	Pipeline	Juja	Empty	1-2
3	M	KBP 562W	0.013495601	Embakasi	Ruiru	Empty	1-2
3	M	KAR 216Y	1.088175514	Nairobi	Karatina	Timber	1-2
3	M	KBA 518J	0.982241036	Nairobi	Thika	Fuel	1-2
3	M	KBE 026L	0.015500158	Nairobi	Juja	Empty	1-2
3	M	KBA 618S	0.004768815	Nairobi	Thika	Empty Crates	1-2
3	M	KAN 385Y	4.342624531	Nairobi	Thika	Fertilizer	1-2
3	M	KAR 219Y	1.883249561	Nairobi	Nyeri	Unga	1-2
3	H	KBJ 449S	0.12944679	Njiru	Ruiru	Empty	1-2-2
3	H	KBP 217F	3.134261738	Njiru	Thika	Sand	1-2-2
3	A	KBA 819Q	1.343623705	Nairobi	Juja	Milk	1-2-2-2-2-2
3	M	KAS 217J	0.008767963	Njiru	Ruiru	Empty	1-2
3	M	KAT 324Y	3.332556097	Nairobi	Thika	Tyres	1-2
3	H	KBJ 720J	0.570637384	Nairobi	Ruiru	Goods	1-2-2
3	A	KBH 487U	7.158929456	Namanga	Thika	Maize	1-2-2-2-2-2
3	A	KAS 218Y	7.684408959	Namanga	Thika	Maize	1-2-2-2-2-2
3	A	KAJ 848G	5.891069353	Mombasa	Thika	Fertilizer	1-2-2-2-2-2
4	M	KAY 295F	2.776182663	Nairobi	Thika	Goods	1-2
4	M	KBJ 959S	0.050328299	Nairobi	Thika	Goods	1-2
4	M	KAV 354A	0.191602499	Kayole	Ruiru	Goods	1-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
4	H	KBG 810R	0.154621539	Nairobi	Ruiru	Empty	1-2
4	H	KBE 419V	0.085909098	Nairobi	Ruiru	Empty	1-2-2
4	H	KAE 844P	2.049938882	Nairobi	Thika	Fuel	1-2-2
4	H	KAN 902J	4.372241079	Mombasa	Thika	Fuel	1-2-2
4	M	KAY 238Z	1.204802581	Njiru	Juja	Sand	1-2
4	A	KAM 219F	4.782260725	Mombasa	Thika	Goods	1-2-2-2-2-2
4	M	KAH 228M	0.026916578	Athi River	Nyeri	Cement	1-2-2
4	M	KAV 696F	0.012999836	Njiru	Thika	Empty	1-2
4	M	KBA 118U	0.041279786	Njiru	Ruiru	Empty	1-2
4	M	KAU 187M	0.050926478	Nairobi	Thika	Goods	1-2
4	M	KAV 268Y	0.017737397	Nairobi	Meru	Mattress	1-2
4	M	KAB 980S	0.040727394	Njiru	Juja	Empty	1-2
4	M	KAA 416U	0.181147973	Nairobi	Nyeri	Steelbars	1-2
4	M	KAV 450H	0.013206091	Nairobi	Thika	Empty	1-2
4	H	KBL 050K	0.125684452	Nairobi	Thika	Empty	1-2-2
4	A	KAM 129C	3.822479682	Athi River	Thika	Cement	1-2-2-2-2-2
4	M	KSV 355	1.001643319	Mlolongo	Githurai	Sand	1-2
4	M	KBH 158C	1.734683105	Njiru	Ruiru	Sand	1-2
4	H	KAS 124D	1.050367285	Nairobi	Thika	Goods	1-2-2
4	M	KAT 118F	2.417702493	Nairobi	Thika	Steelbars	1-2
4	M	KBN 218S	0.075383267	Nairobi	Samburu	Empty	1-2
4	M	KBE 111V	0.005423387	Nairobi	Thika	Mattress	1-2
4	M	KAY 317S	0.007680949	Nairobi	Thika	Mattress	1-2
4	M	KAY 438Q	0.171528821	Njiru	Thika	Builing Materials	1-2
4	M	KBK 041K	1.973967073	Embakasi	Ruiru	Cement	1-2
4	M	KAP 387N	0.017598025	Njiru	Thika	Empty	1-2
4	A	KBD 586C	5.994082299	Nairobi	Thika	Maize	1-2-2-2-2-2
4	M	KBB 721W	0.001878034	Nairobi	Ruiru	Empty	1-2
4	A	KAZ 066X	8.68850628	Nairobi	Matuu	Flour	1-2-2-2-2-2
4	M	KAW 696X	0.051009887	Nairobi	Ruiru	Empty	1-2
4	M	KAV 104Y	1.856654076	Njiru	Thika	Sand	1-2
4	A	KAZ 521R	5.852880824	Mombasa	Thika	Cement	1-2-2-2-2-2
4	M	KAV 509W	0.031697529	Nairobi	Ruiru	Empty	1-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
4	M	KAT 653C	0.037680928	Nairobi	Thika	Empty	1-2
4	M	KBK 298Q	0.050039417	Nairobi	Timau	Flowers	1-2
4	A	KBJ 667E	4.587544182	Mombasa	Meru	Cement	1-2-2-2-2-2
4	H	KAX 836M	0.061177698	Nairobi	Thika	Fuel	1-2-2
4	H	KAD 218S	0.155858086	Njiru	Juja	Empty	1-2-2
4	M	KAM 494J	0.010597791	Rongai	Nyeri	Empty	1-2
5	M	KAV 964D	0.179185067	Nairobi	Thika	Empty	1-2
5	M	KBA 319N	0.794562358	Nairobi	Thika	Fertilizer	1-2
5	M	KAA 295M	3.295076423	Nairobi	Nyeri	Fertilizer	1-2
5	M	KBA 103C	2.131193834	Nairobi	Nyeri	Goods	1-2
5	M	KBN 636A	0.02486766	Nairobi	Thika	Fuel	1-2
5	A	KAX 784C	5.29366685	Nairobi	Meru	Steelbars	1-2-2-2-2-2
5	H	KAA 084V	0.079760941	Nairobi	Kiambu	Empty	1-2-2
5	M	KBP 244K	0.109983071	Nairobi	Ruiru	Goods	1-2
5	A	KAT 301L	5.698586529	MOmbasa	Thika	Fuel	1-1-2-2-2-2
5	M	KAU 096S	0.017329837	Njiru	Thika	Empty	1-2
5	H	KBM 064C	0.062805966	Nairobi	Juja	Empty	1-2-2
5	H	KAM 219S	0.069426312	Njiru	Thika	Empty	1-2-2
5	M	KAN 518D	0.018898464	Njiru	Thika	Empty	1-2
5	M	KAP 218S	1.21468652	Nairobi	Thika	Goods	1-2
5	H	KAN 718J	0.074405001	Njiru	Thika	Empty	1-2-2
5	M	KBA 219K	0.024758061	Njiru	Thika	Empty	1-2
5	M	KAS 287	0.003192052	Nairobi	Thika	Empty	1-2
5	M	KAV279J	2.258127782	Nairobi	Thika		1-2
5	A	ZB 478S	0.537545396	Nairobi	Thika	Empty	1-1-2-2-2-2
5	M	KBD 598L	0.005765875	Embakasi	Juja	Empty	1-2
5	A	KAV 196U	1.163466578	Pipeline	Thika	Empty	1-1-2-2-2-2
5	M	KAS 198J	0.656365531	Njiru	Ruiru	Sand	1-2
5	M	KBA 128S	0.007121677	Njiru	Thika	Empty	1-2
5	A	KAZ 289J	7.023220806	Mombasa	Nanyuki	Fuel	1-1-2-2-2-2
5	M	KAV 352S	0.758769251	Nairobi	Thika	Goods	1-2
5	M	KAJ 218S	2.858958743	Nairobi	Nyeri	Unga	1-2
5	H	KAZ 216J	6.119762751	Njiru	Thika	Ballast	1-2-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
5	H	KAM 816U		Utawala	Juja	Empty	1-2-2
5	H	KBH 681		Njiru	Thika	Empty	1-2-2
5	M	KBN 186M		Njiru	Ruiru	Builing Materials	1-2
5	A	KAW 586L		Thika	Nairobi	Empty	1-1-2-2-2-2
5	A	KBE 518S		Mombasa	Thika	Clinker	1-2
5	M	KAZ 052L		Nairobi	Thika	Goods	1-2
5	A	KZD 349B		Athi River	Thika	Cement	1-1-2-2-2-2
5	M	KAS 637G		Nairobi	Meru	Goods	1-2
5	H	KYV 801Y		Mombasa	Thika	Fuel	1-2-2
5	M	KBM 683U		Thika	Nairobi	Fats	1-2
5	H	KAE 177C		Nairobi	Thika	Coffee	1-2-2
5	H	KBE 198P		Thika	Embakasi	Builing Materials	1-2
5	H	KBE 998C		Nairobi	Thika	Sand	1-2-2
5	A	KAV 269U		Athi River	Juja	Empty	1-2-2-2-2
5	H	KAE 918V		Njiru	Thika	Empty	1-2-2
5	A	KBH 730P		Mombasa	Thika	Container	1-1-2-2-2-2
5	H	KBQ 618Y		Thika	Kangundo	Goods	1-2
5	M	KAJ 111K		Thika	Nairobi	Fats	1-2
5	M	KBC 107Y		Thika	Njiru	Goods	1-2
5	H	KBJ 101U		Nairobi	Thika	Maize	1-2-2
5	M	KAJ 150V		Nairobi	Ruiru	Empty	1-2
5	M	KBC 522D		Nairobi	Thika	Poles	1-2
5	M	KTY 763E		Nairobi	Ruiru	Empty	1-2
5	M	KNA 294R		Nairobi	Thika	Empty	1-2
5	H	KBP 155E		Njiru	Ruiru	Builing Materials	1-2-2
5	M	KAV 283P		Nairobi	Meru	Fuel	1-2
5	A	KAY 386E		Njiru	Juja	Sand	1-1-2-2
5	M	KBK 409D		Mombasa	Thika	Goods	1-2
5	M	KAC 374C		Nairobi	Thika	Empty	1-2
5	A	KAY 392B		Mombasa	Sagana	Fuel	1-1-2-2-2-2
5	M	KAT 305R		Nairobi	Ruiru	Empty	1-2
5	H	KBQ 609Z		Airport	Muranga	Fuel	1-2-2
5	M	KAZ 103D		Nairobi	Meru	Container	1-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
5	H	KBC 810R		Njiru	Ruiru	Sand	1-2-2
5	H	KAM 948L		Nairobi	Thika	Goods	1-2-2
5	H	KAR 619B		Nairobi	Ruiru	Goods	1-2-2
5	M	KAZ 604B		Njiru	Thika	Empty	1-2
5	M	KAY 901X		Nairobi	Thika	Steelbars	1-2
5	M	KBN 365R		Nairobi	Thika	Sand	1-2
5	M	KBC 394L		Njiru	Ruiru	Empty	1-2
5	A	KBP 891S		Nairobi	Meru	Cabros	1-1-2-2-2-2
5	M	KAV 942J		Nairobi	Thika	Ballast	1-2
5	M	KAB 512K		Nairobi	Thika	Empty	1-2
5	M	KAV 853J		Nairobi	Thika	Mattress	1-2
5	H	KAD 402Y		Nairobi	Ruiru	Empty	1-2-2
5	M	KBD 055W		Njiru	Ruiru	Empty	1-2
5	A	KBF 436D		Mombasa	Embu	Fertilizer	1-2-2-2-2-2
5	A	KBH 352Y		Mombasa	Embu	Fertilizer	1-2-2-2-2-2
5	A	KAX 093Y		Mombasa	Embu	Fertilizer	1-2-2-2-2-2
5	M	KWA 002Y		Nairobi	Ruiru	Ballast	1-2-2
5	M	KBP 558V		Nairobi	Juja	Ballast	1-2-2
5	M	KBJ 471		Nairobi	Thika	Goods	1-2
5	M	KXV 458L		Njiru	Thika	Sand	1-2
5	M	KAL 437L		Njiru	Ruiru	Goods	1-2
6	B			Utawala	Thika	Students	1-2
6	A	KAW 615F		Mombasa	Ruiru	Fertilizer	1-1-2-2-2-2
6	M	KAZ 497C		Embakasi	Ruiru	Empty	1-2
6	H	KZD 008B		Mlolongo	Ruiru	Empty	1-2-2
6	A	KAJ 242A		Nairobi	North Eastern	Relief Foof	1-2-2-2-2-2
6	M	KBJ 081C		Nairobi	Meru	Empty	1-2
6	H	KAP 387M		Njiru	Thika	Empty	1-2-2
6	H	KAA 698J		Njiru	Ruiru	Empty	1-2-2
6	A	KBH 281Y		Nairobi	Kahawa	Fuel	1-1-2-2-2-2
6	M	KAJ 139U		Nairobi	Meru	Pipes	1-2
6	H	KAR 410S		Njiru	Githurai	Ballast	1-2
6	H	KBB 766X		Mlolongo	Ruiru	Empty	1-2-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
6	M	KBG 159E		Nairobi	Kahawa	Empty	1-2
6	M	KBM 987B		Ruai	Thika	Empty	1-2
7	H	KZG 505B		Nairobi	Thika	Empty	1-2
7	M	KAN 207C		Nairobi	Ruiru	Empty	1-2
RHS							DATE
7	H	KAV 008V	3.369228749				1-2-2
7	M	KWQ 466	1.277916066	Ruiru	Kayole	Building Stones	1-2
7	A	KAZ 839X	0.335730662	Samburu	Nairobi	Cattle	1-1-2-2-2-2
7	H	KAX 442G	0.050699392	Ruiru	Njiru	Empty	1-2-2
7	M	KYG 480Y	1.914800017	Thika	Nairobi	Assorted Goods	1-2
7	A	KBL 335	0.410916989	Thika	Nairobi	Fuel	1-1-2-2-2-2
7	B	KBB 404F	0.359974828	Ruiru	Nairobi	Assorted Goods	1-2
7	H	KBH 502N	4.175963055	Ruiru	Embakasi	Building Stones	1-2-2
7	H	KBD 509S	0.040020571	Ruiru	Njiru	Empty	1-2-2
7	H	KBB 055G	0.101888115	Thika	Embakasi	Assorted Goods	1-2-2
7	A	KAS 659M	1.922803138	Thika	Nairobi	Fuel	1-2-2-2-2
7	M	KAA 805S	0.004099541	Meru	Nairobi	Empty	1-2
7	H	KAZ 673R	11.25635938	Thika	Embakasi	Building Stones	1-2-2
7	M	KAS 772Z	0.024658654	Ruiru	Nairobi	Empty	1-2
7	H	KAW 849V	18.40204782	Githurai	Ruai	Fill Material	1-2-2
7	M	KAS 779D	0.693745877	Thika	Njiru	Building Stones	1-2
7	H	KBM 823Y	42.74976095	Thika	Ruai	Hard Cores	1-2-2
7	M	KBM 530V	4.100005751	Meru	Nairobi	Hard Cores	1-2
7	M	KBM 840G	12.53591197	Meru	Nairobi	Timber	1-2
7	B	KAN 695U	2.381098955	Muranga	Nairobi	Bananas	1-2
7	H	KAY 165F	4.131994817	Thika	Embakasi	Building Stones	1-2-2
7	M	KAB 220F	0.003028689	Thika	Embakasi	Empty	1-2
7	M	KBC 940T	0.003423601	Thika	Nairobi	Empty	1-2
7	H	KBC 440M	0.080785649	Ruiru	Ruai	Empty	1-2-2
7	B	KBL 513G	0.484585094	Thika	Industrial Area	Building Stones	1-2
7	H	KBP 604S	24.85976509	Thika	Umoja	Building Stones	1-2-2
7	H	KBK 211A	0.186186861	Thika	Umoja	Building Stones	1-2-2
7	H	KBB 158Z	0.233799886	Thika	Umoja	Building Stones	1-2-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
7	H	KAV 910V	4.03860014	Thika	Njiru	Hard Cores	1-2-2
7	H	KAP 935B	4.973326702	Thika	Njiru	Building Stones	1-2-2
7	A	KBB 710T	7.448589676	Thika	Njiru	Building Stones	1-2-2-2-2-2
7	H	KAT 448A	2.375869075	Thika	Njiru	Building Stones	1-2
8	M	KAS 860Q	0.140919884	Gethiekoa	Njiru	Goods	1-2
8	H	KAV 117S	11.22554209	Ruiru	Njiru	Hard Cores	1-2-2
8	H	KBH 957T	11.77572117	Gethiekoa	Embakasi	Building Stones	1-2-2
8	M	KAX 447	0.036410321	Thika	Nairobi	Hard Cores	12-2
8	M	KBP 037	0.017340749	Thika	Ruai	Empty	1-2
8	H	KBD 143	1.068663638	Ruiru	Embakasi	Empty	1-2
8	M	KAX 809G	0.055687643	Thika	Njiru	Crane	1-2
8	H	KABQ 739C	1.08291164	Thika	Embakasi	Assorted Goods	1-2-2
8	H	KAB 103T	11.69681512	Thika	Nairobi	Hard Cores	1-2-2
8	M	KBP 716E	4.044239709	Gethiekoa	Embakasi	Building Stones	1-2
8	M	KAS 049T	0.020716217	Ruiru	Nairobi	Empty	1-2
8	H	KAZ 267Q	4.95984136	Gethiekoa	Embakasi	Hard Cores	1-2-2
8	M	KBM 300V	0.01242026	Thika	Njiru	Empty	1-2
8	B	KBL 461G	2.37539287	Meru	Nairobi	Students	1-2
8	M	KYF 461	0.018634119	Meru	Nairobi	Empty	1-2
8	H	KBJ 010K	10.87013006	Ruiru	Embakasi	Hard Cores	1-2-2
8	M	KAR 137V	0.030495026	Thika	Nairobi	Empty	1-2-2
8	H	KUK 501	1.615372532	Thika	Embakasi	Building Stones	1-2
8	M	KBC 046S	0.814669637	Thika	Nairobi	Bottles	1-2
8	M	KAY 822S	0.153890607	Ruiru	Nairobi	Empty	1-2
8	M	KRW 928	1.660413304	Thika	Mlolongo	Empty	1-2-2-2-2-2
8	A	KAS 660L	0.516796551	Ruai	Mombasa	Assorted Goods	1-2-2-2-2-2
8	M	KBD 272Y	0.012096415	Sagana	Nairobi	Empty	1-2
8	H	KAZ 204Y	8.547878524	Thika	Njiru	Building Stones	1-2-2
8	H	KAH 667S	5.288334446	Gethiekoa	Kayole	Building Stones	1-2-2
8	H	KBM 950W	7.046411585	Ruiru	Njiru	Building Stones	1-2-2
8	H	KBB 261K	10.57187835	Thika	Njiru	Hard Cores	1-2-2
8	H	KBB 339L	12.18481722	Thika	Njiru	Hard Cores	1-2-2
8	M	KBE 100M	0.736728848	Isiolo	Nairobi	Cattle	1-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
8	M	KAY 230K	0.501944155	Thika	Njiru	Hard Cores	1-2
8	H	KBJ 918	6.791975666	Thika	Ruai	Hard Cores	1-2-2
8	M	KBB 353	0.021136917	Meru	Nairobi	Empty	1-2
8	A	KAZ 217S	0.211585092	Thika	Nairobi	Container	1-2-2-2-2-2
8	M	KAA 273P	1.797308512	Ruiru	Njiru	Building Stones	1-2
8	H	KAH 464H	2.513985487	Gethiekoa	Embakasi	Building Stones	1-2-2
8	M	KUA 270	0.345618494	Ruiru	Embakasi	Assorted Goods	1-2
8	H	KAV 908V	0.694427789	Thika	Ruai	Waste Paper	1-2-2
8	H	KAZ 608G	0.169691459	Ruiru	Kayole	Assorted Goods	1-2-2
8	H	KAV 154Y	0.044848279	Thika	Ruai	Assorted Goods	1-2-2
8	A	KAW 917D	2.314384338	Ruiru	Nairobi	Container	1-2-2
8	H	KBA 940T	4.810997451	Ruiru	Embakasi	Hard Cores	1-2-2
8	H	KBP 289B	0.037628277	Ruiru	Kayole	Assorted Goods	1-2-2
8	H	KAL 184S	0.167213015	Thika	Nairobi	Assorted Goods	1-2-2
8	H	KAT 431	1.056188045	Ruiru	Nairobi	Bottles	1-2-2
8	M	KWD 124	0.784136879	Ruiru	Embakasi	Building Stones	1-2
8	M	KBD 433J	0.019219047	Thika	Nairobi	Goods	1-2
8	H	KAV 159Y	0.080295934	Thika	Nairobi	Empty	1-2-2
8	M	KAM 993Z	0.026401976	Thika	Nairobi	Goods	1-2
8	B	KBL 806G	0.240038303	Meru	Nairobi	Students	1-2
8	H	KAY 329M	5.186353768	Ruiru	Embakasi	Building Stones	1-2-2
8	H	KBN 662F	4.631455035	Thika	Ruai	Hard Cores	1-2-2
8	H	KAZ 416R	4.237374122	Thika	Embakasi	Hard Cores	1-2-2
8	H	KBF 242H	0.107908806	Ruiru	Kayole	Sand	1-2-2
8	M	KBE 494P	0.01918783	Thika	Nairobi	Empty	1-2
9	M	KBD 258W	0.022501743	Ruiru	Kayole	Empty	1-2
9	M	KBC 984N	1.735276675	Juja	Nairobi	Building Stones	1-2
9	H	KBP 155E	0.042910504	Thika	Nairobi	Assorted Goods	1-2-2
9	A	KBK 210B	0.59407342	Thika	Nairobi	Empty	1-2-2-2-2
9	M	KXT 811	0.989739651	Juja	Embakasi	Building Stones	1-2
9	M	KRW 557	0.662091912	Juja	Ruai	Building Stones	1-2
9	H	KBC 810R	5.162017838	Ruiru	Embakasi	Hard Cores	1-2-2
9	A	KBC 915Y	0.5964341	Thika	Nairobi	Drums	1-1-2-2-2-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
9	H	KXX 033	1.670132952	Ruiru	Embakasi	Sand	1-2-2
9	M	KZZ 095	1.930072317	Ruiru	Embakasi	Building Stones	1-2
9	A	KAW 40	0.202477166	Thika	Nairobi	Empty	1-1-2-2-2-2
9	M	KAQ 483Q	0.040727394	Juja	Nairobi	Empty	1-2
9	M	KUV 729	1.174817307	Thika	Njiru	Assorted Goods	1-2
9	A	KAM 383Q	2.067977797	Thika	Nairobi	Fuel	1-2-2-2-2
9	H	KAJ 933F	3.557300601	Gethiekoa	Embakasi	Hard Cores	1-2-2
9	H	KBD 930Y	2.187349598	Juja	Nairobi	Hard Cores	1-2-2
9	M	KAC 100Z	0.066062128	Thika	Kayole	Empty	1-2
9	H	KAW 849X	11.34041773	Gethiekoa	Embakasi	Hard Cores	1-2-2
9	H	KAV 952P	0.12740304	Thika	Nairobi	Assorted Goods	1-2-2
9	H	KAB 218V	2.730212823	Thika	Kayole	Building Stones	1-2-2
9	H	KBK 194J	5.494974722	Juja	Embakasi	Building Stones	1-2-2
9	H	KAX 016	3.379931677	Thika	Njiru	Building Stones	1-2-2
9	H	KAM 965Z	2.808753981	Thika	Njiru	Building Stones	1-2-2
9	B	KAP 574S	1.28958925	Thika	Jogoo Road	Building Stones	1-2
9	M	KAY 736	11.56590708	Thika	Jogoo Road	Hard Cores	1-2
9	H	KBN 955N	7.567980823	Thika	South B	Building Stones	1-2-2
9	M	KBN 940A	1.97864192	Thika	Industrial Area	Hard Cores	1-2
9	M	KAV 312Z	1.186099888	Meru	Industrial Area	Assorted Goods	1-2
9	M	KZX 004Y	0.591093918	Meru	Nairobi	Assorted Goods	1-2
9	A	KBE 404Z	0.047353247	Ruiru	Ruai	Empty	1-2-2
9	M	KAJ 345U	0.006205501	Juja	Nairobi	Assorted Goods	1-2
9	M	KBJ 040Q	2.954774831	Juja	Nairobi	Empty	1-2
9	M	KBP 998A	4.408707896	Thika	Ruai	Hard Cores	1-2
9	H	KAV 662F	3.994765399	Thika	Ruai	Hard Cores	1-2-2
9	H	KAK 199S	3.647118749	Thika	Ruai	Building Stones	1-2-2
9	H	KBJ 205J	4.901396273	Thika	Ruai	Building Stones	1-2 - 2
9	M	KAY 271E	1.562231724	Thika	Ruai	Building Stones	1- 2
9	M	KAM 956Z	0.023397209	Thika	Ruai	Empty	1-2
9	H	KBK 986D	0.14023573	Thika	Ruai	Empty	1-2-2
9	H	KBN 993N	3.443453279	Thika	Embakasi	Hard Cores	1-2-2
9	H	KBN 986G	7.141020275	Thika	Embakasi	Hard Cores	1-2-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
9	M	KUZ 260	5.299769286	Thika	Embakasi	Hard Cores	1-2
9	H	KAW 042Y	2.815064979	Meru	Nairobi	Tea Leaves	1-2-2
9	H	KAT 983U	4.039201211	Thika	Embakasi	Hard Cores	1-2-2
9	H	KBB 261K	9.631800012	Juja	Embakasi	Hard Cores	1-2-2
9	H	KAV 939V	2.652063146	Thika	Kayole	Building Stones	1-2-2
9	M	KBK 903Q	1.0832068	Juja	Nairobi	Rice	1-2-2
9	H	KAV 907V	2.220778455	Juja	Embakasi	Goods	1-2-2
9	H	KAG 357V	0.251307823	Thika	Nairobi	Empty	1-2-2
9	M	KAY 553F	0.215782169	Juja	Ruai	Assorted Goods	1-2
9	H	KBN 039F	2.2441969	Thika	Embakasi	Hard Cores	1-2-2
9	H	KBC 877N	3.822771155	Juja	Nairobi	Building Stones	1-2-2
9	M	KWF 601	4.129429884	Thika	Njiru	Building Stones	1-2
9	M	KAL 301C	0.015867652	Juja	Nairobi	Empty	1-2
9	M	KAZ 127B	0.018097389	Thika	Nairobi	Empty	1-2
9	H	KBL 496K	3.164895828	Juja	Ruai	Building Stones	1-2-2
9	M	KAN 833K	0.069747972	Thika	Embakasi	Empty	1- 2
9	M	KAW 840V	0.024181951	Thika	Ruai	Empty	1-2
9	H	KBA 169Y	0.17169599	Thika	Nairobi	Empty	1- 2-2
9	M	KBL 132Y	4.121038591	Thika	Nairobi	Coffee	1-2
9	A	KAP 824C	0.303430132	Meru	Nairobi	Empty	1-2-2-2- 2
9	H	KWQ 646	1.29656705	Juja	Embakasi	Building Stones	1-2
9	A	KAS 427R	5.18281719	Juja	Kayole	Tea Leaves	1-1-2-2-2
9	H	KAQ 445P	3.838230622	Thika	Nairobi	Building Stones	1-2-2
9	M	KUR 035	0.046110061	Meru	Nairobi	Avacados	1-2
9	H	KBH 880C	0.362982122	Gethiekoa	Embakasi	Sand	1-2-2
9	A	KAU 378T	0.247987064	Nyeri	Mombasa	Empty	1-2-2-2-2-2
9	M	KYF 815	0.83477634	Thika	Mombasa	Hard Cores	1-2
9	H	KAG 356X	0.240943547	Embakasi	Nairobi	Bananas	1-2-2
9	H	KBH 957T	18.13828492	Thika	Ruai	Hard Cores	1-2-2
9	H	KAH 972J	6.786398128	Thika	Ruai	Hard Cores	1-2-2
9	M	KZQ 691	1.940310573	Thika	Ruai	Hard Cores	1-2
9	M	KBP 924E	2.493196036	Thika	Ruai	Hard Cores	1-2
9	H	KAQ 808M	0.249040372	Thika	Ruai	Empty	1-2-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
10	M	KAV 218S	0.025511141	Thika	Nairobi	Empty	1-2
10	M	KAZ 999J	0.009217149	Juja	Njiru	Empty	1-2
10	H	KAG 353N	1.725832267	Thika	Ruai	Assorted Goods	1-2-2
10	A	KBM 950W	1.550747185	Thika	Embakasi	Building Stones	1-2-2
10	M	KBM 982W	1.902134212	Thika	Kayole	Building Stones	1-2
10	M	KZG 505	1.243211435	Meru	Nairobi	Assorted Goods	1-2
10	M	KBE 497P	0.014630525	Meru	Njiru	Empty	1-2
10	M	KBP 105K	0.022935747	Thika	Nairobi	Empty	1-2
10	M	KXC 646	0.956829032	Thika	Ruai	Assorted Goods	1-2
10	M	KBH 966V	0.00394213	Thika	Nairobi	Empty	1-2
10	H	KAA 924L	2.709023184	Thika	Embakasi	Building Stones	1-2-2
10	A	KBA 445T	5.133250039	Karatina	Nairobi	Tea Leaves	1-1-2-2-2-2
10	H	KAB 211	3.090744086	Gethiekoa	Embakasi	Building Stones	1-2-2
10	H	KBK 392	2.807714284	Meru	Nairobi	Flour	1-2-2
10	M	KYB 218S	0.011222205	Karatina	Embakasi	Empty	1-2
10	M	KAW 250D	0.183024422	Thika	Nairobi	Assorted Goods	1-2
10	H	KAW 909W	1.440374202	Thika	Ruai	Hard Cores	1-2-2
10	H	KBL 135U	4.349582265	Thika	Airport	Hard Cores	1-2-2
10	H	KAY 010P	21.89162902	Gethiekoa	South B	Hard Cores	1-2-2
10	H	KAW 802T	3.072093155	Thika	Njiru	Building Stones	1-2-2
10	H	KAB 988	12.5779402	Thika	Njiru	Building Stones	1-2-2
10	M	KAQ 363B	2.476338083	Thika	Nairobi	Assorted Goods	1-2
10	M	KAV 988Y	1.860936476	Thika	Utawala	Building Stones	1-2
10	M	KAV 008V	0.008574796	Meru	Mombasa	Empty	1-2
10	M	KVX 429	1.302409698	Thika	Utawala	Building Stones	1-2
10	M	KBQ 653F	1.150332334	Thika	Utawala	Building Stones	1-2
10	M	KXT 909	0.720238108	Thika	Utawala	Building Stones	1-2
10	M	KAZ 604	0.06280769	Thika	Utawala	Empty	1-2
10	M	KTZ 862	1.295107062	Thika	Embakasi	Building Stones	1-2
10	H	KUX 035	16.26441591	Thika	Embakasi	Hard Cores	1-2-2
10	M	KBC 468W	2.081856471	Gethiekoa	Njiru	Building Stones	1-2
10	M	KAV 438B	1.431927958	Thika	Embakasi	Bricks	1-2
10	M	KBN 493G	0.129507707	Thika	Nairobi	Assorted Goods	1-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
10	H	KZD 284	3.42528742	Juja	Rongai	Building Stones	1-2-2
10	M	KAZ 233Q	0.028428384	Thika	Nairobi	Assorted Goods	1-2
10	M	KBN 884	8.549195808	Thika	Njiru	Building Stones	1-2
10	M	KAS 535K	0.034676219	Meru	Nairobi	Assorted Goods	1-2
10	M	KAA 426P	4.058840537	Juja	Embakasi	Building Stones	1-2
10	M	KWP 539	3.887772499	Juja	Embakasi	Building Stones	1-2
10	M	KBK 414Q	8.428449036	Thika	Nairobi	Building Stones	1-2
10	M	KSD 634	1.982304095	Thika	Njiru	Building Stones	1-2
10	H	KAZ 267Q	5.871858599	Juja	Ruai	Hard Cores	1-2-2
10	M	KAH 220T	1.656599363	Thika	Embakasi	Building Stones	1-2
10	M	KAR 410S	2.096889963	Juja	Kayole	Building Stones	1-2
10	M	KYF 109F	2.013881521	Thika	Njiru	Building Stones	1-2
10	M	KBF 590W	0.314113221	Meru	Nairobi	Fruits	1-2
10	M	KBB 929A	1.016899828	Thika	Mombasa	Building Stones	1-2
10	A	KBN 484C	6.622827691	Thika	Nairobi	Beer	1-1-2-2-2-2
10	H	KYW 505	0.963955296	Thika	Nairobi	Soap	1-2-2
10	A	KAT 255Y	11.93941015	Thika	Nairobi	Steel	1-1-2-2-2-2
10	H	KBJ 289F	4.581576333	Thika	Nairobi	Hard Cores	1-2-2
10	A	KBA 751A	0.387147522	Thika	Ruai	Hard Cores	1-2
10	A	KBP 009M	9.431308065	Nyeri	Mombasa	Empty	1-1-2-2-2-2
10	B	KVX 503	0.178256064	Thika	Nairobi	Assorted Goods	1-2
10	H	KAU 955C	7.161873959	Juja	Embakasi	Building Stones	1-2-2
10	M	KAA 446P	3.206197229	Juja	Ruai	Hard Cores	1-1-2-2
10	A	KBB 318S	6.67415882	Thika	Embakasi	Hard Cores	1-1-2-2
10	M	KAW 856B	0.015324946	Karatina	Nairobi	Empty	1-2
10	H	KAE 453T	3.274120905	Juja	Nairobi	Sand	1-2-2
10	H	KAW 849X	4.789572488	Juja	Utawala	Building Stones	1-2-2
10	H	KBG 104G	2.30405278	Juja	Utawala	Building Stones	1-2-2
10	M	KAV 150	1.424087303	Thika	Embakasi	Building Stones	1-2
11	H	KBQ 922Q	2.724955752	Meru	Nairobi	Flour	1-2-2
11	M	KAV 528K	1.335532213	Juja	Embakasi	Building Stones	1-2
11	M	KUN 670	0.875326466	Thika	Nairobi	Building Stones	1-2
11	M	KWF 630	1.367321502	Juja	Ruai	Building Stones	1-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
11	M	KBA 052G	2.767172022	Karatina	Nairobi	Assorted Goods	1-2
11	M	KAZ 479V	0.002410437	Meru	Nairobi	Empty	1-2
11	H	KBL 128G	0.116098639	Thika	Nairobi	Building Stones	1-2-2
11	M	KBC 798M	1.681051115	Meru	Embakasi	French Beans	1-2
11	H	KAH 738U	2.816847513	Juja	Embakasi	Building Stones	1-2-2
11	M	KAJ 334Q	0.030987344	Karatina	Nairobi	Assorted Goods	1-2
11	M	KBA 593L	0.000577565	Meru	Nairobi	Empty	1-2
11	A	KBA 884K	0.221934316	Karatina	Nairobi	Empty	1-1-2-2-2-2
11	M	KBK 665C	0.032306947	Meru	Ruai	Empty	1-2
11	M	KAN 394E	0.01274704	Thika	Nairobi	Empty	1-2
11	H	KAS 948Y	2.35309133	Juja	Njiru	Building Stones	1-2-2
11	M	KBM 058Y	0.286504692	Meru	Nairobi	Flowers	1-2
11	H	KAW 903T	0.55149946	Nanyuki	Nairobi	Flowers	1-2-2
11	M	KBM 657V	0.39309473	Karatina	Nairobi	Assorted Goods	1-2
11	A	KBD 887J	0.334505833	Meru	Nairobi	Assorted Goods	1-2-2-2-2-2
11	H	KBE 776Q	2.179504779	Juja	Embakasi	Building Stones	1-2-2
11	H	KAB 572W	2.071948784	Thika	Kayole	Building Stones	1-2-2
11	A	KBP 312E	0.252504373	Meru	Nairobi	Empty	1-1-2-2-2-2
11	H	KBC 810R	3.179219131	Gethiekoa	Embakasi	Building Stones	1-2-2
11	H	KAW 374S	7.072685604	Gethiekoa	Embakasi	Building Stones	1-2-2
11	M	KAQ 018U	1.403728531	Karatina	Ruai	Goods	1-2
11	A	KAW 882S	0.21408448	Embakasi	Nairobi	Empty	1-2-2-2-2
11	A	KAY 274Y	1.87963817	Karatina	Mombasa	Tea Leaves	1-2-2-2-2-2
11	M	KAW 188G	0.646652487	Thika	Embakasi	Building Stones	1-2
11	A	KBF 670H	2.090584983	Meru	Mombasa	Container	1-2-2-2-2-2
11	H	KBH 957T	17.30977074	Thika	Jogoo Road	Building Stones	1-2-2
11	M	KAG 561C	0.185380234	Juja	Nairobi	Assorted Goods	1-2
11	A	KAR 736	5.764513167	Ruiru	Kampala	Fertilizer	1-1-2-2-2-2
11	M	KAM 200J	1.523816866	Thika	Kayole	Building Stones	1-2
11	H	KAV 626E	1.442352644	Thika	Nairobi	Flour	1-2-2
11	H	KAX 219Z	1.366519321	Juja	Embakasi	Hard Cores	1-2-2
11	M	KAQ 235G	0.0137293	Juja	Embakasi	Hard Cores	1-2-2-2-2
11	A	KBL 831P	6.370169509	Nyeri	Nairobi	Tea Leaves	1-2-2-2-2-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
11	H	KBC 335X	0.098876125	Nyeri	Nairobi	Empty	1-2-2
11	A	KAB 938T	0.241404371	Embakasi	Nairobi	Empty	1-2-2-2-2-2
11	M	KAY 714L	0.013752836	Thika	Njiru	Empty	1-2
11	H	KAB 334T	3.442656537	Thika	Njiru	Empty	1-2-2
11	A	KAZ 954S	0.023649	Meru	Nairobi	Empty	1-2-2-2-2-2
11	M	KAC 688B	2.841671751	Thika	Kayole	Building Stones	1-2
11	H	KBB 261K	18.57592742	Thika	Embakasi	Building Stones	1-2-2
11	M	KBG 979K	2.19186606	Nanyuki	Nairobi	Coffee	1-2
11	M	KTH 046	1.156664962	Thika	Embakasi	Building Stones	1-2
11	A	KBK 228A	0.482302278	Thika	Athi River	Empty	1-2-2-2-2
11	A	KBK 227A	0.509115779	Thika	Athi River	Empty	1-2-2-2-2
11	M		1.910437094	Thika	Embakasi	Building Stones	1-2
11	M	KAR 483J	0.01494762	Thika	Embakasi	Empty	1-2
11	A	KBB 435S	5.487465109	Nyeri	Nairobi	Milk	1-2-2-2-2-2
11	H	KAT 983U	6.144363359	Thika	Njiru	Building Stones	1-2-2
11	M	KBP 463E	1.531573501	Thika	Njiru	Building Stones	1-2
11	M	KXG 775	2.358536296	Thika	Njiru	Building Stones	1-2
11	H	KBP 965T	0.768852784	Thika	Njiru	Building Stones	1-2-2
11	M	KAB 905S	3.534755739	Embakasi	Nairobi	Flour	1-2
11	B	KAS 305S	0.449104034	Thika	Ruai	Hard Cores	1-2
11	M	KAW 100K	0.070941704	Thika	Njiru	Building Stones	1-2
11	B	KAT 201C	0.065233516	Thika	Njiru	Building Stones	1-2
11	M	KBA 744A	0.021507924	Thika	Njiru	Empty	1-2
11	M	KXR 923	0.016355603	Thika	Njiru	Empty	1-2
11	H	KBC 156A	4.500479589	Thika	Ruai	Hard Cores	1-2-2
11	H	KAX 364B	5.625497051	Thika	Ruai	Hard Cores	1-2-2
11	M	KAV 815T	0.018857261	Nyeri	Nairobi	Empty	1-2
12	H	KAG 934	0.109397009	Thika	Ruai	Empty	1-2-2
12	M	KYU 717	0.004117457	Thika	Ruai	Empty	1-2
12	A	KBF 410Q	0.326202952	Thika	Ruai	Empty	1-1-2-2-2-2
12	H	KBC 415Y	0.902065224	Thika	Ruai	Flour	1-2-2
12	M	KAP 135	0.110896199	Thika	Njiru	Building Stones	1-2
12	M	KBP 138K	0.039518057	Thika	Ruai	Building Stones	1-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
12	M	KBG 100R	2.809736213	Thika	Ruai	Building Stones	1-2
12	H	KBP 975	0.156381481	Meru	Nairobi	Goods	1-2-2
12	M	KBP 109K	0.54427892	Chuka	Nairobi	Paper	1-2
12	M	KBL 523	2.450138077	Thika	Embakasi	Hard Cores	1-2
12	M	KAX 232A	0.22033071	Ruiru	Embakasi	Hard Cores	1-2
12	M	KAY 073X	2.867126522	Thika	Embakasi	Building Stones	1-2
12	M	KYD 982	0.828853273	Thika	Ruai	Building Stones	1-2
12	H	KAM 626Z	0.081519421	Thika	Embakasi	Building Stones	1-2
12	M	KUW 531	0.847084016	Thika	Ruai	Hard Cores	1-2
12	H	KBJ 864	10.06066833	Thika	Ruai	Building Stones	1-2-2
12	M	KTP 332	1.73861339	Thika	Ruai	Building Stones	1-2
12	M	KSV 030X	0.550155767	Thika	Embakasi	Empty	1-2
12	M	KBN 662F	0.014247822	Meru	Nairobi	Building Stones	1-2
12	H	KAH 972J	3.148102691	Thika	Ruai	Empty	1-2-2
12	H	KAW 849	14.01178971	Thika	Ruai	Hard Cores	1-2-2
12	M	KBP 762Y	0.043042455	Thika	Ruai	Hard Cores	1-2
12	M	KAW 430Y	0.162180839	Thika	Ruai	Empty	1-2
12	M	KAY 599	0.005210453	Thika	Ruai	Empty	1-2
12	H	KAX 449	4.411388163	Thika	Ruai	Empty	1-2-2
12	M	KBB	0.054896295	Nyeri	Nairobi	Building Stones	1-2
12	M	KRH	1.775543737	Thika	Ruai	Empty	1-2
12	H	KBC 973	1.345245725	Thika	Embakasi	Building Stones	1-2
12	A	KAU 430X	0.218133655	Thika	Embakasi	Empty	1-2-2
12	M	KBC 405Y	0.026993195	Meru	Nairobi	Empty	1-2
12	M	KAB 944X	2.141049751	Thika	Nairobi	Flour	1-2
12	M	KBP	7.531824241	Thika	Ruai	Building Stones	1-2
12	M	KBH 903	0.00571292	Thika	Ruai	Empty	1-2
12	M	KUX 440	0.857337278	Thika	Ruai	Building Stones	1-2
12	M	KUX 440	0.008103121	Githurai	Nairobi	Empty	1-2
12	H	KUV 050	5.959285274	Thika	Njiru	Hard Cores	1-2-2
12	A	KAB 933	9.721955102	Thika	Njiru	Ballast	1-2-2-2-2-2
12	H	KAC 635	3.1196857	Meru	Nairobi	Tea Leaves	1-2-2
12	H	KBA 934T	0.805696292	Thika	Ruai	Hard Cores	1-2-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
12	H	KAD 621R	4.489754975	Thika	Embakasi	Building Stones	1-2-2
12	H	KBB 933	0.123132601	Thika	Njiru	Building Stones	1-2
12	M	KAK 409	2.503890027	Githurai	Nairobi	Building Stones	1-2-2
12	H	KAD 403J	9.107541656	Githurai	Nairobi	Building Stones	1-2
12	M	KBP 319U	0.049421375	Thika	Mombasa	Empty	1-2-2
12	H	KUX 903	3.231442508	Thika	Mombasa	Building Stones	1-2
12	M	KBG 051X	0.030792306	Thika	Mombasa	Empty	1-2
12	M	KBP 503K	3.271549994	Embu	Nairobi	Timber	1-1-2-2-2-2
12	A	KAB 333S	0.255837251	Meru	Nairobi	Empty	1-2-2
12	H	KAY 402S	18.95923971	Meru	Embakasi	Building Stones	1-2
12	M	KAB 063S	0.02158459	Nyeri	Nairobi	Empty	1-2-2-2-2-2
12	A	KBH 138Q	0.275245258	Thika	Nairobi	Empty	1-1-2-2
12	A	KBP 784	5.37842728	Thika	Ruai	Building Stones	1-2
12	M	KUW 113	0.508960711	Thika	Embakasi	Hard Cores	1-2
12	M	KYQ 050	3.107039828	Thika	Ruai	Building Stones	1-2
12	M	KUE 285	4.976021055	Thika	Ruai	Building Stones	1-2-2
12	H	KAZ 269Q	4.449893787	Thika	Embakasi	Building Stones	1-2-2
12	H	KBP 624Z	8.353494732	Thika	Embakasi	Building Stones	1-2-2
12	H	KBQ 350C	8.78197597	Thika	Embakasi	Building Stones	1-2
12	M	KBL 040Y	1.63707684	Thika	Embakasi	Building Stones	1-2
12	M	KUX 063	1.41469731	Thika	Embakasi	Building Stones	1-2
12	M	KAX 070B	0.722939281	Thika	Ruai	Hard Cores	1-2
12	A	KAZ 521R	0.13070709	Thika	Nairobi	Empty	1-1-2-2-2-2-2
12	A	KAQ 609S	0.475583765	Karatina	Mombasa	Empty	1-1-2-2-2-2
12	A	KAB	0.896899931	Thika	Nairobi	Empty	1-2-2-2-2-2
1	M	XGK	5.412915135	Thika	Ruai	Building Stones	1-2
1	A	KBB 784Z	0.340096978	Thika	Mombasa	Empty	1-2-2-2-2-2
1	M	KAW 645	0.032199261	Ruiru	Mombasa	Empty	1-2
1	H	KAZ 416R	6.400517603	Ruiru	Embakasi	Hard Cores	1-2-2
1	M	KAU 925B	0.073184547	Thika	Embakasi	Empty	1-2
1	M	KAB 040U	0.031026833	Embu	Nairobi	Empty	1-2
1	A	KAV 174Q	0.295133586	Embu	Nairobi	Empty	1-1-2-2-2-2
1	M	KAB 875	0.010427781	Githurai	Nairobi	Empty	1-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
1	H	KAJ 784	0.374591695	Thika	Njiru	Hard Cores	1-2-2
1	H	KAW 769F	0.109460467	Thika	Njiru	Building Stones	1-2-2
1	M	KAV 570H	0.026628925	Meru	Nairobi	Empty	1-2
1	M	KAZ 502	0.063461942	Karatina	Nairobi	Empty	1-2
1	H	KAY 218S	10.72081145	Thika	Ruai	Building Stones	1-2-2
1	M	KBN 620R	0.039936057	Embu	Nairobi	Empty	1-2
1	H	KBC 219V	6.173007397	Thika	Njiru	Building Stones	1-2-2
1	H	KAG 356R	0.250012679	Karatina	Nairobi	Empty	1-2-2
1	M	KBC 333C	5.628898304	Nyeri	Nairobi	Coffee	1-2
1	M	KBA 553	0.299956537	Thika	Nairobi	Juice	1-2
1	H	KBM 147	4.150939873	Thika	Njiru	Hard Cores	1-2-2
1	A	KBP 229Q	0.365296015	Thika	Nairobi	Empty	1-2-2-2-2
1	A	KAP 135G	0.326136129	Thika	Nairobi	Empty	1-2-2-2-2-2
1	H	KBD 570N	2.383747962	Thika	Embakasi	Ballast	1-2-2
1	H	KAR 215S	0.91044594	Thika	Embakasi	Sand	1-2-2
1	M	KBQ 133F	1.422994206	Juja	Embakasi	Assorted Goods	1-2
1	A	KAT 890U	1.498586721	Meru	Nairobi	Assorted Goods	1-1-2-2-2-2
1	A	KAL 337N	11.27819537	Meru	Nairobi	Building Stones	1-2-1-2-2-2
1	H	KBD 132F	3.543377838	Thika	Njiru	Empty	1-2-2
1	A	KAC 912C	0.201812495	Nyeri	Nairobi	Empty	1-2-2-2-2-2
1	M	KAE 415	4.154937629	Meru	Nairobi	Paper	1-2
1	A	KAY 910S	0.220734841	Othaya	Nairobi	Empty	1-2-2-2-2
1	M	KAS 342Y	0.003047723	Karatina	Nairobi	Empty	1-2
1	M	KAA 160K	0.019633054	Thika	Nairobi	Empty	1-2
1	M	KAY 336M	1.469156224	Juja	Embakasi	Building Stones	1-2
1	A	KBB 797A	7.053037925	Meru	Nairobi	Tea Leaves	1-1-2-2-2-2
1	H	KAW 7495R	2.141233389	Thika	Njiru	Building Stones	1-2-2
1	H	KAS 668F	11.20670548	Juja	Embakasi	Building Stones	1-2-2
1	M	KAZ 608G	4.216439921	Ruiru	Njiru	Sand	1-2
1	M	KAN 148R	0.020314129	Thika	Nairobi	Empty	1-2
1	H	KBB 289L	7.936458561	Karatina	Nairobi	Flour	1-2-2
1	M	KBE 100P	3.148179625	Thika	Embakasi	Building Stones	1-2
1	M	KZX 304	1.732030562	Thika	Embakasi	Building Stones	1-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
1	M	KBN 993N	0.004087446	Meru	Nairobi	Empty	1-2
1	M	KAD 435Y	0.355778663	Thika	Embakasi	Sand	1-2
1	M	KAM 168S	0.011998123	Thika	Nairobi	Empty	1-2
1	A	KWA 484	0.370703046	Thika	Nairobi	Empty	1-2
1	M	KBN 990W	0.01509235	Thika	Embakasi	Empty	1-2-2-2-2
1	H	KAC 839C	0.077742262	Juja	Embakasi	Empty	1-2
1	M	KAY 329M	6.191386493	Juja	Embakasi	Building Stones	1-2-2
1	M	KAM 563R	0.001556661	Ruiru	Nairobi	Empty	1-2
1	H	KAW 963C	1.464002972	Thika	Nairobi	Flour	1-2
1	A	KBF 207H	0.193715291	Ruiru	Nairobi	Empty	1-2-2-2-2-2
1	A	KBH 936H	0.193048062	Thika	Nairobi	Empty	1-1-2-2-2-2
1	H	KXN 401	12.24104266	Juja	Embakasi	Building Stones	1-2
1	M	KAK 071P	0.034806716	Juja	Nairobi	Empty	1-2
1	A	KBF 218F	0.392440683	Thika	Nairobi	Empty	1-2-2-2-2
1	M	KBE 541E	0.056170701	Ruiru	Nairobi	Empty	1-2
1	M	KAD 079B	2.362356505	Juja	Embakasi	Sand	1-2
1	A	KAY 029A	5.773382057	Thika	Nairobi	Container	1-1-2-2-2-2
1	H	KAB 168C	0.442662488	Thika	Nairobi	Empty	1-2-2
1	M	KAN 186Y	0.837143194	Juja	Embakasi	Hard Cores	1-2
1	M	KAV 989W	2.692989008	Juja	Embakasi	Sand	1-2
1	H	KAV 989W	3.242417722	Thika	Nairobi	Assorted Goods	1-2-2
1	M	KAM 481V	2.89997843	Juja	Embakasi	Ballast	1-2
1	A	KAT 842Z	0.275251772	Thika	Nairobi	Empty	1-2-2-2-2-2
1	M	KTC 342A	0.030197628	Thika	Nairobi	Empty	1-2
1	M	KAV 067B	2.528931301	Thika	Embakasi	Building Stones	1-2
1	M	KAV 438K	2.455092589	Juja	Ruai	Assorted Goods	1-2
1	M	KBA 004C	0.348705026	Meru	Nairobi	Scrape Metals	1-2
1	M	KAW 695K	0.275778839	Thika	Nairobi	Assorted Goods	1-2
1	M	KAV 900K	0.137170398	Thika	Kayole	Building Stones	1-2
1	M	KVS 514	2.934231105	Thika	Nairobi	Assorted Goods	1-2
1	M	KAE 642F	11.10630768	Thika	Embakasi	Ballast	1-2
1	M	KAG 010U	0.724735695	Meru	Nairobi	Assorted Goods	1-2
1	H	KBJ 333J	4.309020754	Thika	Embakasi	Building Stones	1-2-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
1	M	KAG 914Z	0.221757033	Karatina	Nairobi	Assorted Goods	1-2
1	M	KBJ 029S	3.34221344	Gethiekoa	Embakasi	Hard Cores	1-2
1	M	KUA 270	1.319588809	Karatina	Nairobi	Assorted Goods	1-2
1	M	KAT 370S	0.033412682	Nyeri	Ruai	Assorted Goods	1-2
1	M	KAT 983U	2.663676712	Juja	Embakasi	Ballast	1-2
1	M	KUR 485	0.75308043	Meru	Nairobi	Goods	1-2
1	H	KBH 957T	13.96577575	Juja	Embakasi	Building Stones	1-2-2
1	M	KUW 531	1.497466425	Thika	Ruai	Building Stones	1-2
1	H	KAH 231H	1.239455713	Thika	Njiru	Ballast	1-2-2
1	M	KAS 724Q	0.01509235	Nyeri	Nairobi	Empty	1-2
1	M	KBF 205H	0.006766908	Thika	Nairobi	Empty	1-2
1	H	KBJ 205J	8.207230264	Gethiekoa	Embakasi	Building Stones	1-2-2
1	M	KBH 668T	2.582824305	Ruiru	Embakasi	Building Stones	1-2
1	M	KZD 778	1.228444175	Thika	Ruai	Building Stones	1-2
1	A	KBA 639A	0.221312744	Meru	Nairobi	Empty	1-2-2-2-2-2
1	H	KAX 908U	1.429907913	Thika	Kayole	Building Stones	1-2- 2
1	H	KBN 129J	18.65305369	Juja	Embakasi	Building Stones	1- 2-2
1	M	KYQ 597	0.007324766	Thika	Embakasi	Plastics	1-2
1	M	KBM 950W	3.735909456	Gethiekoa	Embakasi	Hard Cores	1-2
1	H	KBC 810R	3.457106588	Gethiekoa	Embakasi	Hard Cores	1-2-2
1	H	KBC 897N	4.661239287	Gethiekoa	Embakasi	Hard Cores	1-2-2
1	M	KAL 848S	0.025301275	Thika	Nairobi	Empty	1-2
2	H	KAS 745D	6.181958033	Thika	Embakasi	Hard Cores	1-2-2
2	M	KAP 223	0.022527457	Nyeri	Nairobi	Hard Cores	1-2
2	M	KAS 454Y	0.02501306	Thika	Embakasi	Empty	1-2
2	H	KWA 008T	3.964807181	Juja	Ruai	Empty	1-2-2
2	M	KBC 438C	1.575182311	Ruiru	Embakasi	Ballast	1-2
2	B	KBQ 092D	0.087539219	Thika	Nairobi	Building Stones	1-2
2	M	KZJ 427	2.302910233	Juja	Kayole	Empty	1-2
2	H	KAC 839C	0.060410666	Thika	Embakasi	Building Stones	1-2-2
2	M	KAR 056V	0.371766092	Meru	Nairobi	Assorted Goods	1-1-2- 2- 2- 2
2	H	KUA 623	4.793584282	Juja	Embakasi	Fuel	1- 2- 2
2	H	KAY 329M	2.923137119	Thika	Kayole	Hard Cores	1- 2-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
2	M	KAM 563L	0.002948654	Juja	Embakasi	Ballast	1- 2
2	M	KXR 451	0.098186989	Thika	Nairobi	Hard Cores	1- 2
2	A	KAW 936T	0.146149563	Nyeri	Nairobi	Bricks	1- 2 -2 -2-2-2
2	A	KWA 648B	0.352842855	Nyeri	Nairobi	Pineapples	1-2-2-2-2-2
2	A	KBF 207H	2.354571264	Meru	Nairobi	Pineapples	1-2
2	M	KBH 936H	0.046877251	Thika	Njiru	Assorted Goods	1-2
2	M	KXN 401	2.421812474	Juja	Embakasi	Building Stones	1-2
2	M	KAK 071P	0.020110381	Meru	Embakasi	Empty	1-2
2	A	KAG 812D	0.22504588	Karatina	Nairobi	Container	1-1-2-2-2
2	A	KBF 702H	2.193583048	Karatina	Nairobi	Container	1-2-2-2-2-2
2	M	KBE 342E	1.870663524	Thika	Nairobi	Ballast	1-2
2	A	KBL 064H	0.384956599	Nyeri	Nairobi	Empty	1-1-2-2-2-2
2	M	KAD 079B	1.861931218	Juja	Kayole	Building Stones	1-2
2	M	KAS 324D	0.018611356	Thika	Nairobi	Empty	1-2
2	M	KAY 029A	2.226427862	Thika	Nairobi	Flour	1-2
2	H	KAV 375P	0.033426573	Nyeri	Nairobi	Empty	1-2-2
2	H	KBL 168P	6.299292801	Thika	Njiru	Hard Cores	1-2-2
2	M	KAL 207L	0.014467128	Muranga	Nairobi	Empty	1-2
2	M	KAV 186P	3.390431754	Juja	Embakasi	Hard Cores	1-2
2	M	KAV 989N	1.35243651	Ruiru	Nairobi	Assorted Goods	1-2
2	M	KUV 729	1.258568161	Nanyuki	Nairobi	Assorted Goods	1-2
2	H	KAT 061X	1.524206514	Thika	Njiru	Ballast	1-2-2
2	H	KBM 595V	3.078245955	Thika	Kayole	Building Stones	1-2-2
2	M	KZX 248B	0.013871876	Ruiru	Nairobi	Empty	1-2
2	H	KRU 438	0.615958411	Juja	Embakasi	Building Stones	1-2-2
2	M	KVY 857	1.847901691	Thika	Embakasi	Assorted Goods	1-2
2	A	KAX 630U	4.622906927	Meru	Nairobi	Container	1-2-2-2-2
2	H	KBE 484	1.408039454	Juja	Embakasi	Building Stones	1-2-2
2	M	KXV 031	3.135908075	Meru	Nairobi	Charcoal	1-2
2	M	KSN 336	0.020503471	Juja	Ruai	Assorted Goods	1-2
2	M	KAT 346Y	4.016430841	Juja	Embakasi	Ballast	1-2
2	A	KAX 768	5.353421824	Karatina	Nairobi	Assorted Goods	1-2-2-2-2-2
2	M	KAW 859	3.297344155	Juja	Ruai	Building Stones	1-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
2	A	KBH 749C	1.469615095	Meru	Nairobi	Assorted Goods	1-2-2-2-2-2
2	A	KBM 648	3.739091222	Meru	Nairobi	Assorted Goods	1-1-2-2-2-2
2	M	KBC 346	0.210137996	Nyeri	Nairobi	Assorted Goods	1-2
2	M	KBH 447	0.018708226	Nyeri	Nairobi	Assorted Goods	1-2
2	H	KAB 340D	3.040704394	Thika	Njiru	Hard Cores	1-2-2
2	H	KBG 289K	0.066408478	Ruiru	Embakasi	Building Stones	1-2-2
2	M	KAD 161T	2.335047914	Ruiru	Kayole	Building Stones	1-2
2	M	KVS 294	0.208981522	Thika	Kayole	Building Stones	1-2
2	M	KBP 048T	1.602654888	Juja	Embakasi	Building Stones	1-2
2	H	KAE 642F	22.93606675	Ruiru	Embakasi	Hard Cores	1-2-2
2	M	KUN 670	2.074002363	Juja	Embakasi	Hard Cores	1-2
2	M	KAT 482S	0.824247641	Thika	Njiru	Building Stones	1-2-2
2	H	KAG 818S	1.810750719	Ruiru	Ruai	Building Stones	1-2-2
2	H	KBH 842	2.244591802	Juja	Embakasi	Building Stones	1-2-2
2	M	KAS 742	2.060822869	Juja	Embakasi	Building Stones	1-2
2	M	KBM 094Y	0.020921802	Nyeri	Nairobi	Empty	1-2
2	M	KAX 940B	1.948122155	Juja	Ruai	Ballast	1-2
2	H	KAW 849X	6.016389995	Juja	Embakasi	Building Stones	1-2-2
2	H	KBH 957T	9.593378899	Gethiekoa	Embakasi	Hard Cores	1-2-2
2	M	KAD 989C	0.106340362	Ruiru	Embakasi	Empty	1-2
3	M	KZW 828	1.059019254	Thika	Nairobi	Assorted Goods	1-2
3	A	KBC 048R	8.348592316	Karatina	Nairobi	Assorted Goods	1-1-2-2-2-2
3	H	KBE 469Y	25.96963936	Ruiru	Njiru	Hard Cores	1-2-2
3	A	KAD 387	83.07188288	Karatina	Nairobi	Flour	1-2-2-2-2
3	M	KBE 294U	461.6216888	Juja	Embakasi	Building Stones	1-2
3	M	KBD 688	0.017742416	Nanyuki	Nairobi	Empty	1-2
3	H	KAB 998U	4.154887995	Ruiru	Kayole	Sand	1-2-2
3	M	KYJ 864	4.064858509	Thika	Ruai	Building Stones	1-2
3	H	KAT 983U	32.19189268	Thika	Embakasi	Building Stones	1-2-2
3	H	KAX 183P	0.090229102	Ruiru	Njiru	Sand	1-2-2
3	M	KAV 940V	0.065326352	Thika	Nairobi	Empty	1-2
3	M	KAE 410L	0.091374143	Thika	Nairobi	Empty	1-2
3	M	KBL 354D	0.022682694	Juja	Ruai	Empty	1-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
3	H	KLY 602	2.90107989	Thika	Embakasi	Building Stones	1-2-2
3	H	KAX 941P	37.06242845	Thika	Embakasi	Building Stones	1-2-2
3	H	KAB 621M	0.040622408	Nyeri	Nairobi	Assorted Goods	1-2-2
3	H	KAU 259S	0.078462007	Thika	Nairobi	Ballast	1-2-2
3	H	KAN 178V	0.115811658	Thika	Nairobi	Ballast	1-2-2
3	M	KBP	1.023581848	Nyeri	Nairobi	Assorted Goods	1-2
3	M	KUR 473	1.028884257	Thika	Embakasi	Sand	1-2
3	M	KAE 493	7.248513648	Meru	Nairobi	Fruits	1-2
3	M	KAC 276B	0.895647688	Muranga	Nairobi	Waste Paper	1-2
3	M	KNR 042	0.008375118	Thika	Nairobi	Empty	1-2
3	M	KAY 610U	5.650452061	Karatina	Nairobi	Assorted Goods	1-2
3	H	KAD 493E	4.089755192	Juja	Embakasi	Hard Cores	1-2-2
3	A	KAY 193L	3.345770829	Nanyuki	Nairobi	Container	1-2-2-2
3	H	KAD 610S	0.070135899	Muranga	Nairobi	Flour	1-2-2
3	M	KAS 334	0.003995696	Ruiru	Nairobi	Empty	1-2
3	M	KZX 407U	3.023043479	Juja	Embakasi	Hard Cores	1-2
3	A	KBM 381C	0.294942606	Meru	Nairobi	Empty	1-1-2-2-2-2
3	M	KAS 969Y	0.996697158	Juja	Kayole	Building Stones	1-2
3	H	KAE 286Y	2.620769555	Ruiru	Embakasi	Building Stones	1-2-2
4	H	KAC 64	2.867092369	Thika	Njiru	Building Stones	1-2-2
4	H	KBX 364	0.321142047	Ruiru	Nairobi	Empty	1-2-2
4	H	KUT 001	0.151202228	Thika	Embakasi	Empty	1-2-2
4	M	KBG 409E	0.018729376	Thika	Njiru	Bricks	1-2
4	M	KBC 145	2.971229162	Meru	Nairobi	Building Stones	1-2
4	A	KBM 436E	0.400226318	Karatina	Nairobi	Flowers	1-2-2-2
4	H	KBG 582G	10.78512905	Juja	Embakasi	Building Stones	1-2-2
4	M	KAZ 416G	0.534466615	Ruiru	Nairobi	Assorted Goods	1-2
EASTERN BY - PASS							LOCATION :
LHS							DATE
7	A	KBK 966Q	10.42698712	Mombasa	Thika	Containers	1-2-2-2-2-2
7	H	KBP 863R	0.153719337	Mombasa	Thika	Assorted goods	1-2-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
7	H	KAA 307Y	2.383909724	Mlolongo	Thika	Ballast	1-2-2
7	H	KBK 586E	0.261909719	Mlolongo	Thika	Sand	1-2-2
7	H	KAV 904W	25.71283598	Kajiado	Kahawa West	Sand	1-2-2
7	M	KAG 354X	0.00668627	Nairobi	Thika	Empty	1-2
7	M	KBE 473V	9.244884974	Mombasa	Mwea	Cement	1-2
7	M	KAT 767L	4.289630413	Mombasa	Mwea	Cement	1-2
7	A	KBP 642Y	13.24187225	Mombasa	Meru	Fertilizer	1-1-2-2-2-2
7	M	KAG 492Z	0.013962569	Nairobi	Juja	Empty	1-2
7	H	KAM 626Z	5.298643539	Nairobi	Thika	Goods	1-2-2
7	H	KAH 304Y	0.104261808	Taveta	Thika	Empty	1-2-2
7	H	KAW 508C	0.249383473	Embakasi	Thika	Empty	1-2-2
7	M	KBP 598B	6.880643309	Nairobi	Murang'a	Animal feeds	1-2
7	M	KUL 313G	4.594708351	Mombasa	Thika	Cement	1-2
7	M	KAR 482P	0.148700078	Nairobi	Thika	Empty	1-2
7	M	KUW 531	0.117798645	Nairobi	Thika	Empty	1-2
7	A	KAT 569B	8.239688379	Nairobi	Meru	Fertilizer	1-2-2-2-2-2
7	M	KAU 370U	7.941174858	Nairobi	Nyeri	Fertilizer	1-2
7	M	KBA 669N	7.466800271	Mlolongo	Thika	Cement	1-2
7	A	KZM 302	0.62667048	Nairobi	Thika	Goods	1-2-2-2
7	M	KBD 289K	4.660212422	Athi River	Nyeri	Cement	1-2
8	A	KBG 493R	0.246166664	Nairobi	Thika	Empty	1-1-2-2
8	H	KAU 225U	0.153200187	Nairobi	Thika	Empty	1-2-2
8	H	KAS 218S	0.138370974	Nairobi	Thika	Goods	1-2-2
8	M	KAC 508S	6.471716865	Nairobi	Nyeri	Fertilizer	1-2
8	H	KAL 651C	5.63273029	Nairobi	Thika	Cement	1-2-2
8	H	KAE 218C	0.12948935	Nairobi	Thika	Empty	1-2-2
8	A	KAV 218V	20.33947364	Nairobi	Nyeri	Cement	1-1-2-2-2-2
8	H	KUW 219	4.077287172	Njiru	Juja	Goods	1-2-2
8	M	KAB 222F	0.031333357	Nairobi	Thika	Empty	1-2
8	A	KBC 119V	0.351635005	Nairobi	Thika	Empty	1-1-2-2-2-2
8	M	KAE 186E	0.047980568	Nairobi	Thika	Empty	1-2
8	M	KBB 668B	0.007072229	Nairobi	Nyeri	Empty	1-2
8	M	KAE 618Y	2.863723953	Mlolongo	Thika	Sand	1-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
8	H	KAG 910A	2.010155942	Nairobi	Thika	Goods	1-2-2
8	A	KBG 267R	12.89363613	Mombasa	Nyeri	Cement	1-1-2-2-2-2
8	H	KAH 972J	0.335764008	Nairobi	Thika	Goods	1-2-2
8	M	KAD 283S	5.845395272	Njiru	Thika	Sand	1-2
8	H	KBH 424R	0.101589549	Nairobi	Thika	Empty	1-2-2
8	M	KAD 470C	0.004862698	Nairobi	Thika	Empty	1-2
8	H	KBC 897N	0.17948065	Nairobi	Juja	Goods	1-2-2
8	H	KAK 874A	23.89896825	Njiru	Ruiru	Building stones	1-2-2
8	H	KBC 983Y	24.00933902	Mlolongo	Ruiru	Ballast	1-2-2
8	A	KAD 426Y	0.118733693	Nairobi	Thika	Empty	1-1-2-2
8	M	KAR 483P	5.526768622	Athi River	Othaya	Cement	1-2
8	M	KBE 473V	0.006880387	Nairobi	Thika	Empty	1-2
8	H	KBJ 665W	5.531017203	Embu	Meru	Sodas	1-2-2
8	M	KBA 541H	0.459181921	Nairobi	Nyeri	Cement	1-2
8	M	KBB 769M	9.741910435	Nairobi	Meru	Animal feeds	1-2
8	H	KAU 567Y	6.300009673	Embu	Thika	Sodas	1-2-2
8	M	KBN 062D	3.781210681	Athi River	Ruiru	Cement	1-2
8	M	KAR 160S	9.185890945	Mlolongo	Thika	Sand	1-2
8	A	KBF 493V	5.59433266	Njiru	Thika	GCS	1-2
8	H	KBK 525D	0.124326028	Nairobi	Thika	Milk	1-2-2
8	A	KBJ 520S	74.55672595	Mombasa	Thika	Containers	1-1-2-2-2-2
8	A	KZC 769Y	16.09702026	Athi River	Nyeri	Cement	1-1-2-2-2-2
8	M	KAV 006Y	0.000443235	Athi River	Nyeri	Mattresses	1-2
8	M	KBD 036F	0.012286259	Njiru	Thika	Empty	1-2
8	M	KAR 481P	0.014563938	Nairobi	Juja	Empty	1-2
8	M	KAV 013K	4.7139283	Kajiado	Thika	Fertilizer	1-2
8	M	KAT 065N	5.268451039	Athi River	Juja	Cement	1-2
8	M	KAS 854R	0.298055565	Athi River	Thika	Cement	1-2
8	M	KAM 219J	0.011416074	Nairobi	Thika	Empty	1-2
8	M	KAY 218S	5.367088344	Athi River	Nyeri	Cement	1-2
8	M	KAV 221S	0.010697336	Nairobi	Thika	Empty	1-2
8	M	KBA 296J	1.126961993	Kajiado	Thika	Sand	1-2
8	M	KBA 776W	0.021634997	Nairobi	Thika	Empty	1-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
8	A	KBN 051A	12.83539559	Mombasa	Thika	Cement	1-1-2-2-2-2
8	M	KYB 882	0.053208331	Nairobi	Thika	Empty	1-2
8	M	KXM 218S	0.085340952	Nairobi	Nyeri	Goods	1-2
8	M	KNA 418J	0.090811099	Nairobi	Nyeri	Goods	1-2
8	H	KAG 353N	0.139311043	Nairobi	Thika	Goods	1-2-2
8	M	KAS 217V	3.232732433	Njiru	Thika	Sand	1-2
8	M	KAX 999A	6.975318307	Njiru	Juja	Sand	1-2
8	A	KZY 218J	9.566352474	Mombasa	Thika	Cement	1-1-2
8	M	KXL 434	1.179446662	Nairobi	Thika	Fertilizer	1-2
8	H	KBJ 449S	0.384225185	Nairobi	Nyeri	Fertilizer	1-2-2
8	H	KAK 292A	4.234930985	Embu	Meru	Sodas	1-2-2
8	H	KBP 155E	12.15837518	Embu	Nyeri	Sodas	1-2-2
8	H	KBA 518S	445.5001466	Nairobi	Thika	Goods	1-2-2
9	H	KAS 297V	1.524645397	Nairobi	Thika	Maize	1-2-2
9	A	KBN 723M	13.1209106	Nairobi	Meru	Rice	1-1-2-2-2-2
9	M	KZC 502	5.57941521	Nairobi	Thika	Animal feeds	1-2
9	M	KBP 208Q	0.040577191	Nairobi	Thika	Plastics	1-2
9	M	KWT 339	0.020213775	Nairobi	Thika	Empty	1-2
9	H	KAY 329M	0.096203239	Nairobi	Juja	Empty	1-2
9	H	KAM 624S	3.649914808	Njiru	Thika	Empty	1-2-2
9	M	KBD 522Y	0.040121822	Nairobi	Ruiru	Containers	1-2-2
9	M	KBE 160P	0.021097222	Nairobi	Karatina	Flour	1-2
9	H	KBJ 668W	5.08441875	Embu	Meru	Sodas	1-2
9	M	KBB 218M	0.091191005	Nairobi	Thika	Empty	1-2
9	H	KAS 218J	0.230864732	Nairobi	Thika	Goods	1-2-2
9	M	KAR 566J	2.161410719	Nairobi	Nyeri	Fertilizer	1-2
9	M	KBC 682J	16.01366609	Athi River	Thika	Cement	1-2
9	A	KTX 916	13.6014695	Nairobi	Thika	Goods	1-2-2-2-2-2
9	M	KAS 111V	0.021634997	Njiru	Ruiru	Empty	1-2
9	M	KAV 219S	0.087865021	Nairobi	Thika	Plastics	1-2
9	M	KAM 218M	20.98339277	Athi River	Juja	Cement	1-2
9	H	KAG 037Y	0.321007977	Njiru	Thika	Empty	1-2-2
9	H	KRY 602	0.043237878	Nairobi	Thika	Empty	1-2-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
9	M	KAM 993Z	0.359043984	Nairobi	Thika	Plastics	1-2
9	H	KAY 933M	2.20575441	Mombasa	Nyeri	Fertilizer	1-2-2
9	A	KBN 940A	7.065847474	Mombasa	Thika	Cement	1-1-2-2-2-2
9	H	KBK 986D	0.208808154	Njiru	Thika	Empty	1-2-2
9	M	KAC 085G	0.011830789	Embu	Ruiru	Plastics	1-2
9	H	KAX 205P	5.774266919	Mombasa	Thika	Animal feeds	1-2-2
9	H	KAT 846C	0.098404501	Njiru	Juja	Empty	1-2-2
9	H	KAW 840T	0.07923063	Nairobi	Thika	Empty	1-2-2
9	H	KAE 558Y	0.246310435	Njiru	Ruiru	Goods	1-2-2
9	M	KAW 250D	1.228960201	Nairobi	Embu	Assorted goods	1-2
9	H	KAQ 363B	8.096627667	Nairobi	Murang'a	Steel	1-2-2
9	M	KAX 624R	0.028976276	Nairobi	Juja	Empty	1-2
9	M	KAB 291T	16.1257669	Athi River	Meru	Cement	1-2
9	A	KBP 392W	0.234494156	Embu	Ruiru	Empty	1-1-2-2-2-2
9	M	KBN 652F	0.30189707	Nairobi	Thika	Goods	1-2
9	M	KBF 618Z	0.035671777	Nairobi	Meru	Mattresses	1-2
9	A	BA751A	7.851798993	Nairobi	Thika	Fertilizer	1-1-2
9	M	KAZ 400Y	0.007939959	Nairobi	Thika	Empty	1-2
9	M	KAT 415Q	3.276231606	Mlolongo	Ruiru	Sand	1-2
9	A	KWX 150	13.55754607	Athi River	Thika	Cement	1-2-2-2-2-2
9	M	KAY 218J	5.861866137	Nairobi	Thika	Goods	1-2
9	M	KAV 484Q	0.209175484	Nairobi	Nyeri	Pipes	1-2
10	M	KAZ 561L	0.040164545	Nairobi	Thika	Empty	1-2
10	M	KZG 946	0.044423393	Nairobi	Juja	Empty	1-2
10	M	KSM 736	0.052182675	Nairobi	Thika	Empty	1-2
10	M	KBK 370Q	1.774312876	Njiru	Thika	Building stones	1-2
10	H	KBL 278S	0.116556861	Nairobi	Thika	Empty	1-2-2
10	H	KBB 216K	0.221840899	Nairobi	Thika	Empty	1-2-2
10	H	KAY 618S	0.108047475	Nairobi	Thika	Empty	1-2-2
10	H	KBP 693B	5.908990812	Mlolongo	Thika	Sand	1-2-2
10	A	KAY 618Y	19.93398641	Nairobi	Thika	Goods	1-2-2-2-2
10	M	KAS 217S	0.43773083	Njiru	Thika	Bitumen	1-2
10	A	KAT 366W	4.446291899	Mombasa	Meru	Fertilizer	1-2-2-2-2-2

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10	M	KAX 868S	0.087865021	Nairobi	Thika	Empty	1-2
10	H	KAZ 872L	5.254762834	Athi River	Thika	Cement	1-2-2
10	H	KBN 938A	4.653662441	Nairobi	Meru	Fertilizer	1-2-2
10	H	KBA 321A	6.463799177	Nairobi	Nyeri	Fertilizer	1-2-2
10	H	KBN 898U	10.95322187	Athi River	Thika	Cement	1-2-2
10	H	KAR 215S	0.144143567	Njiru	Juja	Sand	1-2-2
10	H	KAS 217U	0.214960976	Nairobi	Nyeri	Goods	1-2-2
10	M	KAT 819F	0.031333357	Nairobi	Thika	Empty	1-2
10	M	KAV 620K	0.060350895	Nairobi	Nyeri	Goods	1-2
10	M	KSY 218	1.1388756	Njiru	Ruiru	Building stones	1-2
10	M	KAS 219F	5.729435812	Kangundo	Thika	Sand	1-2
10	H	KAZ 555G	11.73803606	Njiru	Ruiru	Building stones	1-2-2
10	M	KBH 540Q	0.200260092	Nairobi	Ruiru	Goods	1-2
10	M	KBF 218S	0.125419232	Nairobi	Thika	Goods	1-2
10	H	KBA 117J	2.718680958	Njiru	Juja	Ballast	1-2-2
10	M	KAM 998H	0.034671618	Nairobi	Ruiru	Plastics	1-2
10	A	KBB 540H	0.187269015	Kayole	Ruiru	Empty	1-2-2-2-2-2
10	H	KAE 868B	0.094481205	Pipeline	Juja	Empty	1-2-2
10	M	KAZ 989M	9.459684037	Njiru	Thika	Sand	1-2
10	M	KAZ 103B	0.055916636	Nairobi	Meru	Plastics	1-2
10	M	KAM 218Z	8.784387982	Mlolongo	Ruiru	Ballast	1-2
10	M	KAH 218S	6.517297172	Nairobi	Thika	Maize	1-2
10	M	KAH 516S	0.10125002	Nairobi	Thika	Goods	1-2
10	M	KAQ 867R	0.091418719	Nairobi	Meru	Fertilizer	1-2
10	H	KAS 245T	2.229038506	Nairobi	Meru	Fuel	1-2-2
10	H	KAQ 219A	0.21120665	Nairobi	Thika	Empty	1-2-2
10	M	KAD 435M	0.256035129	Nairobi	Karatina	Assorted goods	1-2
10	M	KAE 614E	0.045705133	Nairobi	Nyeri	Empty	1-2
10	M	KAV 434E	0.294738856	Kajiado	Nyeri	Fertilizer	1-2
10	A	KAH 047M	12.5200826	Mombasa	Meru	Cement	1-1-2-2-2-2
10	M	KAS 915V	0.010203748	Nairobi	Thika	Empty	1-2
10	M	KAL 684Q	0.018458117	Nairobi	Juja	Cartons	1-2
10	M	KBC 769M	0.279679818	Nairobi	Thika	Assorted goods	1-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
10	M	KAP 630E	0.047586105	Nairobi	Nyeri	Plastics	1-2
10	H	KAY 796W	3.889170221	Mlolongo	Thika	Ballast	1-2-2
10	M	KUR 018	6.55562694	Mlolongo	Thika	Sand	1-2
10	M	KXU 582	1.660251143	Mlolongo	Thika	Sand	1-2
10	M	KBC 192S	7.442393702	Njiru	Thika	Building stones	1-2
10	H	KBJ 901C	11.78428711	Athi River	Nyeri	Cement	1-2-2
10	M	KAY 758A	5.009582433	Mlolongo	Thika	Cement	1-2
10	H	KBN 353R	0.268462536	Kajiado	Nyeri	Fertilizer	1-2-2
10	M	KAZ 989R	2.767290294	Mlolongo	Thika	Sand	1-2
10	M	KAV 049U	0.012111795	Njiru	Thika	Empty	1-2
10	M	KBJ 985T	4.497879124	Athi River	Nyeri	Cement	1-2
10	H	KBE 987Y	0.217975533	Nairobi	Thika	Empty	1-2-2
10	M	KAG 378P	0.004474661	Nairobi	Thika	Empty	1-2
10	H	KBH 574E	2.975425232	Mombasa	Nyeri	Fuel	1-2-2
10	M	KZY 165	0.045086065	Mlolongo	Thika	Assorted goods	1-2
10	H	KVY 017	3.53250558	Mombasa	Thika	Fertilizer	1-2-2
10	H	KAE 285G	3.234390445	Athi River	Thika	Cement	1-2-2
10	H	KBN 411W	8.433874857	Nairobi	Garissa	Relief foods	1-2-2
10	A	KBK 014S	9.889947656	Mombasa	Karatina	Containers	1-1-2-2-2-2
10	M	KBC 803Y	0.140745574	Nairobi	Thika	Water	1-2
10	M	KAZ 052Y	1.579958833	Nairobi	Thika	Animal feeds	1-2
11	M	KBF 915T	0.019900707	Njiru	Thika	Empty	1-2
11	M	KAY 215R	0.008877724	Nairobi	Thika	Empty	1-2
11	M	KAU 670U	0.009206688	Nairobi	Juja	Empty	1-2
11	M	KAV 218J	0.56242898	Nairobi	Thika	Iron sheets	1-2
11	M	KAR 302R	0.066326383	Nairobi	Thika	Empty	1-2
11	M	KAQ 225S	0.020265811	Nairobi	Thika	Empty	1-2
11	A	KBP 115H	3.766452563	Mombasa	Meru	Fuel	1-2-2-2-2-2
11	A	KBK 442S	0.583200931	Nairobi	Nyeri	Empty	1-2-2-2-2-2
11	A	KWK 949	10.52929204	Kajiado	Nyeri	Fertilizer	1-2-2-2-2-2
11	A	KBJ 289P	0.520976603	Nairobi	Meru	Empty	1-1-2-2-2-2
11	H	KAR 215S	0.079653651	Mlolongo	Thika	Empty	1-2
11	H	KUX 429	14.76188456	Nairobi	Karatina	Containers	1-2-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
11	M	KBL 495Y	0.268786574	Nairobi	Thika	Plastics	1-2
11	M	KAR 105D	0.030800318	Nairobi	Murang'a	Cartons	1-2
11	M	KYC 199	0.027228324	Nairobi	Juja	Waste papers	1-2
11	M	KAY 218Z	2.09587952	Mlolongo	Thika	Sand	1-2
11	H	KAV 986J	4.192134984	Embakasi	Thika	Ballast	1-2-2
11	M	KBL 229U	0.156396092	Nairobi	Murang'a	Fertilizer	1-2
11	H	KAC 218J	10.59251649	Mlolongo	Thika	Ballast	1-2-2
11	M	KAR 091S	6.849992719	Athi River	Thika	Cement	1-2
11	M	KBM 494V	6.31994137	Athi River	Karatina	Cement	1-2
11	M	KBJ 160B	7.155629491	Athi River	Nyeri	Cement	1-2
11	H	KBC 189D	4.124487074	Mlolongo	Thika	Ballast	1-2-2
11	H	KBJ 210R	0.011095872	Nairobi	Murang'a	Empty	1-2
11	M	KAQ 209C	7.666647264	Athi River	Thika	Cement	1-2
11	M	KBB 296V	0.097256011	Embakasi	Ruiru	Empty	1-2
11	H	KAG 313B	4.292081457	Nairobi	Ruiru	Sodas	1-2-2
11	H	KAL 218J	0.03347333	Nairobi	Meru	Empty	1-2
11	M	KBC 111L	1.098873412	Athi River	Thika	Cement	1-2
11	M	KBL 835A	0.251863046	Nairobi	Thika	Steel	1-2
11	M	KBC 117S	0.025408712	Nairobi	Thika	Plastics	1-2
11	M	KBL 829Z	2.732768293	Mlolongo	Juja	Sand	1-2
11	M	KBJ 130R	0.007284926	Nairobi	Thika	Empty	1-2
11	M	KBM 826R	0.029118921	Nairobi	Thika	Empty	1-2
11	M	KBJ 130R	3.079472996	Nairobi	Nyeri	Fuel	1-2
11	M	KAC 128C	1.437194415	Nairobi	Meru	Polland	1-2
11	M	KAN 979Y	0.005835433	Embakasi	Juja	Empty	1-2
11	A	KAF 939S	6.022167226	Njiru	Thika	Building stones	1-1-2-2-2-2
11	M	KBL 761S	0.020872234	Nairobi	Thika	Empty	1-2
11	M	KAL 331Y	0.025208729	Embakasi	Ruiru	Empty	1-2
11	M	KAL 300C	0.005057817	Nairobi	Murang'a	Empty	1-2
11	A	KBN 220F	0.811348707	Mombasa	Embu	Empty	1-1-2-2-2-2
11	A	ZC 028S	7.628545126	Mombasa	Meru	Containers	1-2-2-2-2-2
11	A	KBL 740L	13.03915334	Mombasa	Nyeri	Containers	1-2-2-2-2-2
11	H	KBM 956W	0.034444555	Kajiado	Murang'a	Empty	1-2-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
11	M	KAR 434A	0.024429938	Mlolongo	Thika	Empty	1-2
11	M	KAN 047H	14.05100488	Nairobi	Nyeri	Sodas	1-2
11	M	KAW 029B	1.848127949	Nairobi	Murang'a	Polland	1-2
11	A	KAW 047H	10.19920472	Mombasa	Karatina	Cement	1-2-2-2-2-2
11	H	KBJ 648J	2.909207451	Kajiado	Meru	Fertilizer	1-2-2
11	M	KBK 266Y	0.443444036	Nairobi	Nyeri	Fertilizer	1-2
11	M	KAS 961N	0.342419537	Nairobi	Thika	Goods	1-2
11	M	KBP 468K	0.001780704	Nairobi	Thika	Empty	1-2
11	M	KBJ 029B	0.031511971	Njiru	Murang'a	Empty	1-2
11	M	KAZ 218J	7.505785193	Nairobi	Meru	Cement	1-2
11	M	KAU 119F	0.025889588	Nairobi	Thika	Empty	1-2
11	A	KBN 461J	9.319157246	Nairobi	Karatina	Fertilizer	1-2-2-2-2-2
11	H	KAS 218S	0.067247043	Nairobi	Thika	Empty	1-2-2
11	M	KAV 222V	10.87821898	Mombasa	Thika	Fuel	1-2
11	M	KAG 119R	4.980315613	Nairobi	Kiambu	Fuel	1-2
11	M	KAR 618M	0.239227658	Nairobi	Thika	Goods	1-2
11	M	KAC 888J	0.015775902	Nairobi	Thika	Empty	1-2
12	A	KAZ 222V	8.747817124	Mombasa	Thika	Containers	1-1-2-2-2-2
12	M	KAM 219M	0.154008693	Nairobi	Karatina	Goods	1-2
12	M	KAV 218S	11.31995506	Nairobi	Nyeri	Cement	1-2
12	M	KAY 111T	0.044682225	Nairobi	Murang'a	Empty	1-2
12	M	KAV 219S	4.296257641	Mombasa	Meru	Fertilizer	1-2
12	M	KBK 470J	0.144976959	Nairobi	Thika	Goods	1-2
12	M	KAE 317Y	0.005879306	Nairobi	Karatina	Empty	1-2
12	H	KAV 239U	6.841268506	Njiru	Thika	Sand	1-2-2
12	M	KAV 803M	2.792884211	Mlolongo	Juja	Ballast	1-2
12	A	KBH 172C	9.879325396	Mombasa	Nyeri	Cement	1-2-2-2-2-2
12	H	KAE 285T	0.074287523	Embakasi	Thika	Empty	1-2-2
12	M	KUL 005V	0.01470925	Nairobi	Ruiru	Empty	1-2
12	A	KBF 283S	0.26354959	Embakasi	Thika	Empty	1-2-2
12	M	KBF 878V	0.001152115	Nairobi	Meru	Empty	1-2
12	H	KAM 878S	8.89955365	Embakasi	Kiambu	Ballast	1-2-2
12	M	KYN 797M	0.008608033	Nairobi	Nyeri	Empty	1-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
12	M	KTZ 886F	0.00467843	Mlolongo	Thika	Empty	1-2
12	A	KAV 518S	10.98105777	Athi River	Thika	Cement	1-2-2-2-2-2
12	M	KAS 917J	0.039788882	Nairobi	Thika	Empty	1-2
12	M	KAN 666K	0.021395852	Nairobi	Thika	Empty	1-2
12	M	KAV 237M	0.44051677	Nairobi	Juja	Goods	1-2
12	A	KBA 138J	7.255700532	Nairobi	Embu	Fertilizer	1-1-2-2-2-2
12	M	KBM 129M	4.064490811	Athi River	Kiambu	Cement	1-2
12	M	KVH 389	1.848237553	Mlolongo	Thika	Quarry dust	1-2
12	M	KAT 730H	7.400154309	Mlolongo	Kiambu	Quarry dust	1-2
12	M	KAB 086H	2.120276151	Mlolongo	Ruiru	Quarry dust	1-2
12	A	KBB 888K	1.591260514	Kajiado	Murang'a	Fertilizer	1-2
12	M	KAE 634J	5.809736393	Nairobi	Nyeri	Cement	1-2
12	M	KBK 794K	3.136091088	Nairobi	Meru	Fertilizer	1-2
12	M	KAR 290A	4.397551537	Nairobi	Meru	Fertilizer	1-2
12	M	KBH 844B	0.002843035	Embakasi	Thika	Empty	1-2
12	H	KBN 877C	2.333472578	Nairobi	Garissa	Fuel	1-2
12	M	KAY 930A	0.167340091	Nairobi	Thika	Empty	1-2
12	M	KAX 024K	0.04266026	Nairobi	Ruiru	Empty	1-2
12	M	KAV 279C	0.327353735	Nairobi	Juja	Goods	1-2
12	M	KBB 841M	0.038403048	Embakasi	Ruiru	Empty	1-2
12	M	KBK 397M	3.366387353	Nairobi	Thika	Fuel	1-2
12	M	KBC 753K	3.126656391	Nairobi	Meru	Fuel	1-2
12	M	KAH 086J	0.018947973	Nairobi	Nyeri	Empty	1-2
12	M	KBB 828K	0.090364214	Nairobi	Kutus	Assorted goods	1-2
12	H	KAE 634R	0.209403415	Nairobi	Ruiru	Goods	1-2-2
12	H	KBK 794Q	9.159361492	Mlolongo	Ruiru	Sand	1-2-2
12	M	KAR 290U	3.380586663	Mombasa	Kiambu	Cement	1-2
12	A	KBH 844E	8.737382701	Nairobi	Garissa	Flour	1-1-2-2-2-2
12	M	KAK 207Y	0.019969671	Embakasi	Thika	Empty	1-2
12	M	KBK 305D	0.12937684	Nairobi	Meru	Empty	1-2
12	H	KBN 877Y	18.01874408	Embakasi	Thika	Ballast	1-2-2
12	M	KAV 946T	0.02706318	Nairobi	Embu	Empty	1-2
12	M	KAV 514D	0.018035735	Embakasi	Kutus	Empty	1-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
12	M	KAX 482G	0.546709213	Mlolongo	Embu	Goods	1-2
12	M	KAL 013R	0.098582443	Nairobi	Kutus	Flour	1-2
12	M	KAX 024C	0.027934898	Nairobi	Thika	Empty	1-2
12	M	KBL 628G	1.709013078	Mombasa	Murang'a	Fuel	1-2
12	M	KAT 903S	1.056243559	Nairobi	Karatina	Fuel	1-2
12	M	KBP 930A	6.149219804	Nairobi	Nyeri	Fuel	1-2
12	A	KAX 618Y	7.911645047	Mombasa	Meru	Fertilizer	1-2-2-2-2-2
12	A	KAV 999S	13.75453373	Nairobi	Thika	Containers	1-1-2-2-2-2
12	M	KAG 367Y	2.363635254	Mlolongo	Juja	Ballast	1-2
12	M	KBG 200K	0.000542726	Nairobi	Garissa	Plastics	1-2
12	H	KAJ 358P	1.599996929	Nairobi	Thika	Goods	1-2-2
12	A	KBL 247B	0.488138239	Nairobi	Ruiru	Empty	1-1-2-2-2-2
12	M	KAV 944G	0.074627549	Nairobi	Thika	Empty	1-2
12	M	KAV 924Q	0.580470167	Athi River	Thika	Cement	1-2
12	A	KBE 419V	6.109965458	Athi River	Kiambu	Cement	1-1-2-2-2-2
12	M	KAJ 579N	5.466986424	Mlolongo	Thika	Building stones	1-2
12	H	KBK 394R	3.835522463	Nairobi	Meru	Flour	1-2-2
12	H	KBQ 601C	0.159317215	Nairobi	Thika	Empty	1-2-2
12	M	KAV 605T	0.013252011	Nairobi	Juja	Empty	1-2
12	H	KBL 417R	12.50626757	Nairobi	Embu	Fertilizer	1-2-2
12	M	KAQ 283T	0.035641747	Embakasi	Thika	Empty	1-2
1	H	KBK 416R	2.207397299	Embakasi	Thika	Hardcore	1-2-2
1	M	KAU 243G	5.85455403	Nairobi	Meru	Cement	1-2
1	H	KBN 249A	5.556178211	Nairobi	Nyeri	Fuel	1-2-2
1	M	KAB 098A	0.042897122	Nairobi	Thika	Empty	1-2
1	M	KAT 037N	0.868956377	Nairobi	Ruiru	Assorted goods	1-2
1	M	KBJ 282R	9.557909372	Athi River	Meru	Cement	1-2
1	M	KBE 508H	0.032634057	Nairobi	Thika	Ballast	1-2
1	M	KAP 290U	0.013635557	Nairobi	Ruiru	Empty	1-2
1	M	KAA 890X	0.02959997	Embakasi	Thika	Empty	1-2
1	H	KBK 214D	10.22661583	Mlolongo	Ruiru	Ballast	1-2-2
1	M	KBE 418J	8.356351637	Nairobi	Meru	Food	1-2
1	H	KBK 217S	1.649188929	Nairobi	Garissa	Steel	1-2-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
1	M	KTT 875	0.015112891	Nairobi	Nanyuki	Empty	1-2
1	M	KBM 024R	0.009967915	Nairobi	Thika	Empty	1-2
1	M	KAS 144K	1.05008953	Nairobi	Meru	Flour	1-2
1	M	KBK 612J	2.997191001	Nairobi	Thika	Cement	1-2
1	H	KBE 217F	0.645074642	Mombasa	Kahawa	Plastics	1-2-2
1	H	KBF 289J	2.518817694	Mlolongo	Ruiru	Ballast	1-2-2
1	M	KBA 481L	3.240638082	Embakasi	Juja	Building stones	1-2
1	A	KBM 640Y	11.11872536	Mombasa	Nyeri	Fuel	1-2-2-2-2-2
1	M	KAP 243C	0.021097222	Embakasi	Thika	Empty	1-2
1	M	KAG 871G	5.375622942	Njiru	Ruiru	Bricks	1-2
1	M	KAS 619J	0.027507006	Nairobi	Meru	Empty	1-2
1	A	KAY 118U	2.914191241	Kampala	Garissa	Steel	1-2-2-2-2-2
1	H	KAZ 218S	1.497969547	Nairobi	Karatina	Sodas	1-2-2
1	A	KBP 806N	10.98148656	Mombasa	Thika	Rice	1-2-2-2-2-2
1	A	KAQ 401A	9.899447384	Mombasa	Nyeri	Fertilizer	1-1-2-2-2-2
1	A	KBJ 244D	9.254623654	Mombasa	Nyeri	Fertilizer	1-2-2-2-2-2
1	A	KAT 280N	3.953451457	Mombasa	Thika	Fuel	1-2-2-2-2-2
1	M	KAY 280N	0.43430789	Nairobi	Thika	Goods	1-2
1	A	KBJ 345R	2.069736983	Nairobi	Thika	Containers	1-1-2-2-2-2
1	M	KAW 081G	0.034244268	Nairobi	Thika	Empty	1-2
1	M	KAB 218F	0.016118296	Mlolongo	Ruiru	Empty	1-2
1	M	KBJ 314J	5.403265869	Nairobi	Embu	Cement	1-2
1	M	KBG 784M	3.403001917	Athi River	Ruiru	Cement	1-2
1	A	KAW 360E	16.05730392	Athi River	Meru	Steel	1-1-2-2-2-2
1	M	KBA 493R	1.493536721	Embakasi	Kutus	Assorted goods	1-2
1	H	KAK 930E	0.471049932	Kajiado	Murang'a	Fertilizer	1-2-2
1	M	KAP 208W	0.020519747	Embakasi	Ruiru	Empty	1-2
1	M	KVR 485	0.018145354	Nairobi	Thika	Empty	1-2
1	M	KBA 970N	1.102041881	Nairobi	Nyeri	Assorted goods	1-2
1	H	KAT 133P	0.064554809	Nairobi	Kiambu	Empty	1-2
1	M	KYY 122	0.011630502	Mlolongo	Kutus	Empty	1-2
1	H	KZP 665	0.320989014	Nairobi	Nyeri	Cartons	1-2-2
1	H	KAE 375Q	0.241421843	Nairobi	Thika	Empty	1-2-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
1	A	KBG 220K	5.678206742	Mombasa	Nyeri	Containers	1-1-2-2-2-2
1	H	KBE 419V	2840.740096	Embakasi	Juja	Empty	1-2-2
1	A	ZC 081	8.780902956	Mombasa	Meru	Containers	1-1-2
1	M	KAV 454G	0.022523402	Nairobi	Murang'a	Empty	1-2
1	M	KAM 272R	0.00283556	Embakasi	Ruiru	Empty	1-2
1	M	KBP 377P	3.596086816	Athi River	Meru	Cement	1-2
1	M	KAT 847Y	8.139554734	Athi River	Ruiru	Cement	1-2
1	M	KAK 616G	4.145161027	Mlolongo	Thika	Ballast	1-2
1	M	KAX 478S	0.021934232	Nairobi	Kiambu	Empty	1-2
2	M	KBC 158C	0.023815914	Embakasi	Ruiru	Assorted goods	1-2
2	H	KBN 013R	13.72749918	Njiru	Thika	Hardcore	1-2-2
2	H	KBJ 817T	6.528217192	Mlolongo	Kiambu	Ballast	1-2-2
2	H	KAR 321E	9.497299679	Kajiado	Garissa	Fertilizer	1-2-2
2	M	KBL 258U	0.907033031	Nairobi	Ruiru	Assorted goods	1-2
2	H	KAW 431K	0.156396609	Njiru	Thika	Building stones	1-2-2
2	M	KBG 545C	0.006197033	Nairobi	Kiambu	Empty	1-2
2	M	KAV 197V	0.012698663	Nairobi	Meru	Empty	1-2
2	B	KAK 003B	0.033696908	Nairobi	Thika	Assorted goods	1-2
2	M	KAH 619R	0.024658654	Embakasi	Ruiru	Empty	1-2
2	M	KAY 024A	3.342319948	Kajiado	Meru	Fertilizer	1-2
2	M	KAC 902R	2.196482915	Athi River	Murang'a	Assorted goods	1-2
2	M	KAD 232D	2.506803847	Nairobi	Kiambu	Fuel	1-2
2	M	KBH 792T	0.017647273	Embakasi	Juja	Empty	1-2
2	M	KAN 510L	0.395550047	Nairobi	Thika	Fuel	1-2
2	H	KAZ 446T	3.599343247	Mlolongo	Ruiru	Sand	1-2-2
2	M	KBC 610U	8.528443504	Nairobi	Kiambu	Ballast	1-2
2	M	KAZ 346G	3.685362189	Nairobi	Nyeri	Assorted goods	1-2
2	A	ZB 970G	5.459605459	Mombasa	Murang'a	Containers	1-2-2-2-2-2
2	M	KBK 643R	0.018780532	Nairobi	Kiambu	Plastics	1-2
2	M	KBD 642E	0.031511971	Njiru	Thika	Empty	1-2
2	H	KAC 748Y	0.027192464	Nairobi	Kutus	Empty	1-2-2
2	M	KBE 019T	0.951254732	Njiru	Ruiru	Hardcore	1-2
2	M	KAQ 524W	0.003658339	Nairobi	Thika	Canvas	1-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
2	M	KBP 469R	0.014196533	Mlolongo	Juja	Empty	1-2
2	M	KBP 409E	3.974525011	Nairobi	Meru	Containers	1-2
2	H	KAT 481W	0.092249193	Nairobi	Ruiru	Sand	1-2-2
2	M	KAW 066H	0.046206321	Nairobi	Murang'a	Empty	1-2
2	H	KAJ 918Z	2.329847699	Nairobi	Thika	Sodas	1-2-2
2	A	ZC 469	0.514307362	Mombasa	Meru	Containers	1-1-2-2-2-2
2	H	KAZ 781R	0.057321193	Athi River	Thika	Assorted goods	1-2-2
2	M	KUZ 939	0.011249181	Nairobi	Juja	Empty	1-2
2	H	KAW 950U	3.105990418	Mlolongo	Thika	Sand	1-2-2
2	M	KAQ 289R	0.104988919	Nairobi	Kutus	Cartons	1-2
2	H	KAY 120Z	0.168751478	Ruai	Thika	Assorted goods	1-2-2
2	A	KAY 592U	7.800691804	Nairobi	Nyeri	Assorted goods	1-2-2-2-2-2
2	M	KAZ 118V	1.044658452	Mlolongo	Ruiru	Assorted goods	1-2
2	H	KZR 217S	0.054185165	Embakasi	Thika	Empty	1-2-2
2	M	KBA 073T	3.264613466	Njiru	Ruiru	Building stones	1-2
2	M	KAQ 407R	0.73097847	Nairobi	Kiambu	Firewood	1-2
2	M	KAT 280N	0.03030633	Nairobi	Nyeri	Flowers	1-2
2	M	KAZ 518Y	0.013962569	Mlolongo	Ruiru	Empty	1-2
2	H	KAQ 145Q	0.069427389	Nairobi	Thika	Scrap metals	1-2-2
2	M	KBC 562R	0.003254896	Nairobi	Kiambu	Empty	1-2
2	M	KBB 285R	2.660497858	Njiru	Kiambu	Building stones	1-2
2	M	KBM 634R	0.02119701	Nairobi	Thika	Empty	1-2
2	M	KAG 351H	0.039708371	Nairobi	Thika	Empty	1-2
2	M	KAU 601R	0.415649581	Nairobi	Meru	Fuel	1-2
2	A	ZC 450	7.187482929	Mombasa	Nyeri	Containers	1-1-2-2-2-2
2	A	ZC 839	10.42064307	Mombasa	Nyeri	Containers	1-1-2-2-2-2
2	M	KAC 295T	0.023129238	Nairobi	Thika	Empty	1-2
2	M	KAE 316R	0.026478461	Athi River	Juja	Empty	1-2
2	M	KAD 426T	0.016527739	Nairobi	Othaya	Empty	1-2
2	M	KBC 384T	0.026478461	Nairobi	Nyeri	Plastics	1-2
2	M	KBN 483K	0.054563874	Mlolongo	Nyeri	Plastics	1-2
2	A	KAX 073K	16.75521417	Mombasa	Thika	Plastics	1-1-2-2-2-2
2	H	KAW 287C	3.485752311	Njiru	Ruiru	Building stones	1-2-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
3	H	KBC 092R	0.167219553	Nairobi	Meru	Empty	1-2-2
3	M	KAE 417S	0.003506458	Ruai	Kiambu	Empty	1-2
3	A	KBC 515K	9.508799105	Athi River	Murang'a	Steel bars	1-1-2-2-2-2
3	A	KAR 696M	3.00396507	Nairobi	Nyeri	Steel bars	1-2-2-2-2-2
3	M	KYP 770	0.077045401	Emali	Thika	Ice	1-2
3	M	KBF 600R	5.354573546	Athi River	Thika	Cement	1-2
3	H	KAV 490C	3.93598609	Mlolongo	Thika	Sand	1-2-2
3	M	KUX 586	0.018235896	Ruai	Thika	Empty	1-2
3	M	KZG 445	0.025989488	Ruai	Thika	Empty	1-2
3	H	KBB 605Y	0.140098717	Ruai	Thika	Empty	1-2-2
3	M	KBC 105V	0.004451984	Ruai	Thika	Empty	1-2
3	A	KAB 620U	7.612654878	Njiru	Thika	Ballast	1-2-2-2-2-2
3	M	KAZ 446A	0.021699731	Njiru	Thika	Empty	1-2
3	M	KBJ 570R	4.385837646	Nairobi	Thika	Fuel	1-2
3	A	KBJ 567Y	3.310675054	Nairobi	Nyeri	Fuel	1-2-2-2-2-2
3	M	KAK 697K	0.012214335	Nairobi	Murang'a	Empty	1-2
3	A	KAU 623R	13.03329009	Nairobi	Thika	Crates	1-1-2-2-2-2
3	A	KBN 991V	6.037952756	Nairobi	Meru	Fuel	1-2-2-2-2-2
3	A	KBP 793R	0.36919412	Nairobi	Ruiru	Empty	1-1-2-2-2-2
3	H	KBP 100V	2.757585884	Mlolongo	Githurai	Ballast	1-2-2
3	H	KBH 442S	8.95891318	Mombasa	Meru	Fertilizer	1-2-2
3	A	KBA 902R	10.91432052	Mombasa	Meru	Fertilizer	1-2-2
3	M	KAZ 103R	0.012192291	Ruai	Thika	Empty	1-2
3	H	KVX 029	13.45165476	Mlolongo	Ruiru	Ballast	1-2-2
3	M	KAN 345T	0.008553067	Kibwezi	Thika	Empty	1-2
3	B	KBD 851N	0.841435701	Nairobi	Kiambu	Pass	1-2
3	M	KAH 922Y	0.025889588	Embakasi	Thika	Empty	1-2
3	M	KBB 184F	0.02452718	Nairobi	Thika	Empty	1-2
3	M	KTW 085	0.071209042	Ruai	Thika	Empty	1-2
3	M	KBP 105T	2.003026983	Athi River	Thika	Cement	1-2
3	M	KAC 945R	0.118575002	Kangundo	Thika	Empty	1-2
3	M	KAV 567R	0.332075051	Airport	Ruiru	Empty	1-2
3	M	KBP 577T	2.250038332	Jogoo rd	Ruiru	Cement	1-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
3	M	KAB 903E	0.022713814	Ruai	Thika	Empty	1-2
3	M	KVX 562	0.044320143	Ruai	Thika	Empty	1-2
3	H	KBE 419B	0.351607001	Zimmerman	Thika	Empty	1-2
3	H	KBJ 667T	4.525795279	Nairobi	Thika	Sodas	1-2-2
3	H	KAD 612S	1.192083829	Mlolongo	Thika	Sand	1-2-2
3	H	KAS 408W	2.345627261	Murang'a	Nairobi	French beans	1-2-2
3	M	KBE 214R	0.042333022	Mlolongo	Thika	Empty	1-2
3	M	KAR 653C	0.309132233	Nairobi	Thika	Goods	1-2
3	M	KBC 219Y	1.765412649	Nairobi	Thika	Cement	1-2-2
3	H	KAB 119E	0.148238269	Nairobi	Thika	Empty	1-2-2
3	M	KBL 442S	0.01266403	Ruai	Thika	Empty	1-2
3	M	KWZ 941	0.018294911	Ruai	Thika	Empty	1-2
3	H	KBL 030K	0.231272008	Ruai	Thika	Empty	1-2-2
3	M	KBE 456R	0.27259366	Nairobi	Thika	Goods	1-2
3	M	KAW 496Y	0.032448599	Nairobi	Thika	Empty	1-2
4	H	KBN 048T	0.165436403	Ruai	Thika	Empty	1-2-2
4	M	KBL 241K	4.865171429	Nairobi	Thika	Pass	1-2
4	M	KAM 319T	0.021942774	Ruai	Thika	Empty	1-2
4	M	KAQ 351U	0.037077679	Nairobi	Thika	Empty	1-2
4	M	KAS 661Q	2.482113764	Nairobi	Murang'a	Quarry dust	1-2
4	A	KAH 339U	22.65742075	Nairobi	Murang'a	Fuel	1-2-2-2-2-2
4	M	KBL 990Y	9.367408734	Nairobi	Nyeri	Cement	1-2
4	A	KBF 023H	13.85507296	Nairobi	Murang'a	Cement	1-2-2-2-2-2
4	M	KBF 143F	0.650473875	Nairobi	Murang'a	Empty	1-2
4	M	KBC 0933Y	0.030897268	Nairobi	Murang'a	Empty	1-2
4	M	KBP 033F	5.952212067	Nairobi	Nyeri	Salt	1-2
4	H	KBB 997C	1.434423524	Nairobi	Thika	Stones	1-2-2
4	A	KBL 090N	0.448746276	Nairobi	Nyeri	Empty	1-2-2-2-2-2
4	M	KBK 104F	0.022432313	Ruai	Ruiru	Empty	1-2
4	M	KAX 424B	0.043428725	Ruai	Thika	Empty	1-2
4	M	KBH 502N	0.123510889	Embakasi	Ruiru	Empty	1-2
4	M	KAB 103K	0.003539511	Embakasi	Ruiru	Empty	1-2
4	M	KUR 035	0.030727521	Embakasi	Ruiru	Empty	1-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
4	M	KBL 238Y	0.006958825	Embakasi	Ruiru	Empty	1-2
4	M	KAL 033C	0.015390269	Nairobi	Thika	Empty	1-2
4	M	KAU 060L	0.072553111	Nairobi	Thika	Empty	1-2
4	A	KBB 443G	17.9385006	Nairobi	Meru	Fuel	1-2-2-2-2-2
4	M	KUX 048	0.016304316	Ruai	Thika	Empty	1-2
4	M	KAM 820Z	0.96614903	Nairobi	Thika	Milk	1-2
4	M	KBP 127K	3.691309699	Nairobi	Thika	Fertilizer	1-2
4	H	KBK 331K	4.737724939	Athi River	Meru	Cement	1-2-2
4	M	KAB 289C	0.014563938	Nairobi	Nanyuki	Empty	1-2
4	M	KWR 148	1.348660363	Nairobi	Thika	Stones	1-2
4	A	KAX 304Z	6.523242286	Athi River	Thika	Cement	1-2-2-2-2
4	M	KWX 097	0.052250173	Njiru	Juja	Goods	1-2
4	M	KAJ 726P	0.080528543	Pipeline	Thika	Goods	1-2
5	M	KAM 928T	4.648655809	Athi River	Thika	Cement	1-2
5	M	KAM 969S	0.046815822	Nairobi	Thika	Empty	1-2
5	M	KAM 289C	0.00668627	Nairobi	Thika	Empty	1-2
5	B	KAS 219B	0.111293799	Nairobi	Juja	Passengers	1-2
5	M	KAB 376A	0.036031401	Nairobi	Thika	Empty	1-2
5	B	KAV 287T	3.644611589	Nairobi	Thika	Passengers	1-2
EASTERN BY -PASS							LOCATION :
RHS							DATE
HR	CODE	Reg. No.	E.F.	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
7.00a.m	A	KBQ 728	3.916464725	Juja	Embasaki	Hardcore	1.1.22
	M	KAT 759	0.039598772	Nyeri	Nbi	Empty	1.2
	M	KAE 439	0.054803154	Thika	Embaksi	Crane	1.2
	M	KBC 608	0.016962043	Thika	Nbi	Empty	1.2
	H	KBD 807Y	2.584678861	Juja	Embakasi	Hardcore	1.22
	A	ZC 437	0.137855177	Meru	Nbi	Empty	1.12.222
	M	KBP 753	0.047033796	Thika	Nbi	A. goods	1.2
	M	KAQ 551B	0.015286725	Muranga	Nbi	Empty	1.2
	H	KYX 360	0.041101849	Meru	Nbi	Empty	1.22

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	M	KBH 158C	0.016567991	Kiambu	Nbi	Empty	1.2
	H	KBB 2611K	29.41969355	Thika	Embakasi	Hardcore	1.22
	M	KBP 817	1.312865426	Gathiko	Njiru	Hardcore	1.2
	H	KAD 332	8.165648919	Thika	Nbi	Hardcore	1.22
	A	KAY 327M	9.272254263	Thika	Embakasi	B/Stones	1.1.22
	M	KAV 100B	0.031968535	Meru	Nbi	Empty	1.2
	H	KBA 246	0.0837564	Kiambu	Nbi	A goods	1.2
	H	KAP 668K	0.07267628	Thika	Kayole	A goods	1.22
	M	KAZ 144L	8.10466576	Thika	Nbi	Scrap Metal	1.2
	M	KAV 908	1.50737211	Thika	Nbi	Scrap Metal	1.2
	H	KAW 764	3.344505429	Muranga	Nbi	Container	1.22
	H	KAW 849	14.61426003	Thika	Embakasi	Fill Materials	1.22
	H	KAL 318F	3.293598676	Thika	Njiru	Hardcore	1.22
	H	KAG 356X	0.435503862	Thika	Njiru	Fill Materials	1.22
	M	KTU 216S	3.465580312	Thika	Embakasi	B/Stones	1.2
	M	KXY 526	9.905604592	Thika	Embakasi	B/Stones	1.2
	H	KBM 950W	9.232978589	Thika	Embakasi	B/Stones	1.22
	M	KBA 299G	0.022767204	Nyeri	Nbi	Empty	1.2
	A	KBL 030K	0.150262926	Meru	Nbi	Empty	1.1.22
	M	KBN 255N	0.098012405	Muranga	Nbi	Empty	1.22
	H	KBJ 010K	20.04674345	Gethioko	Embakasi	Hardcore	1.22
	H	KAX 219K	6.367881225	Gethioko	Embakasi	Fill Materials	1.22
	A	KBP 989F	5.320618034	Gethioko	Embakasi	Hardcore	1.1.22
8.00A.M	H	KAY 329M	7.663356103	Gethioko	Embasaki	Hardcore	1.22
	M	KAL 003R	0.012148588	Muranga	Nbi	Empty	1.2
	A	KBA 246	0.509940064	Meru	Nbi	Empty	1.22+222
	M	KAD 408D	1.214255301	Kiambu	Nbi	A goods	1.2
	M	KBL 465	0.034353476	Nyeri	Nbi	Empty	1.2
	M	KAZ 832R	0.02888167	Thika	Nbi	Empty	1.2
	H	KAD 332X	4.605945596	Muranga	Nbi	Container	1.22
	M	KWF 904	1.561778516	Thika	Embakasi	B/Stones	1.2
	M	KAP 668K	4.150053331	Meru	Nbi	"H2o	1.2
	H	KAV 636	1.959357528	Gethioko	Embakasi	Hardcore	1.22

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	A	KAW 433G	0.262383033	Nyeri	Nbi	Empty	1.22.222
	H	KBJ 205J	21.07760731	Thika	Embakasi	Hardcore	1.22.222
	A	KBC 605	0.323610451	Meru	Nbi	Empty	1.22.222
	M	KAT 324	0.0300266	Thika	Ruai	Empty	1.2
	M	KAZ 144L	0.026478461	Kiambu	Nbi	Empty	1.2
	M	KUJ 181	1.282270347	Thika	Embakasi	B/Stones	1.2
	M	KAA 218J	0.024338977	Kiambu	Nbi	Empty	1.2
	H	KAR 950M	0.060066253	Muranga	Nbi	Empty	1.22
	M	KBG 165R	0.115614938	Meru	Nbi	Flowers	1.2
	M	KBZ 316K	0.027507006	Kiambu	Embakasi	Empty	1.2
	H	KAV 908V	2.539507194	Gethioko	Embakasi	Fill Materials	1.22
	H	KAL 319F	3.436208465	Thika	Embakasi	Hardcore	1.22
	H	KAL 192G	2.635247597	Thika	Embakasi	Hardcore	1.22
	M	KBC 932	0.045317403	Meru	Nbi	Empty	1.2
	M	KAC 458	0.58505718	Kiambu	Nbi	Goods	1.2
	M	KBC 210T	0.299368936	Thika	Nbi	Goods	1.2
	H	KAL 179G	1.526376814	Gethioko	Embakasi	Fill Materials	1.22
	M	KSJ 651	5.332813396	Thika	Embakasi	B/Stones	1.2
	H	KBJ 010K	5.241981242	Thika	Embakasi	Hardcore	1.22
	H	KBJ 627T	17.34328308	Thika	Embakasi	Hardcore	1.22
	H	KBU 840J	0.828291965	Thika	Embakasi	Hardcore	1.22
	M	KBA 200G	0.019291089	Thika	Nbi	Empty	1.2
9.00a.m	H	KAY 468	2.093715331	Gethioko	Embakasi	Fill Materials	1.22
	M	KBC 232	42.6530901	Kiambu	Nbi	Empty	1.2
	H	KAG 154N	17.64777947	Thika	Kayole	B/Stones	1.22
	M	KBJ 745W	1.167972479	Nyeri	Nbi	A goods	1.2
	M	KWA 646	1.815246291	Kiambu	Embakasi	Canvas	1.2
	M	KAY 320	1.695019043	Gethioko	Embakasi	B/Stones	1.2
	M	KBC 984N	5.623248773	Gethioko	Embakasi	B/Stones	1.2
	M	KAQ 667	0.087950224	Kiambu	Nbi	A goods	1.2
	M	KAK 231X	44.30708002	Nyeri	Nbi	Timber	1.2
	M	KXD 298	16.67561653	Nyeri	Nbi	Timber	1.2
	M	KAS 494	0.019451012	Muranga	Nbi	Empty	1.2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	M	KAJ 3320	0.350088189	Thika	Ruai	A goods	1.2
	H	KAA 218J	4.177170506	Thika	Embakasi	Hardcore	1.22
	M	KAR 952M	0.026822988	Kiambu	Nbi	Empty	1.2
	H	KBK 563D	0.333872052	Meru	Nbi	Empty	1.22
	H	KAQ 356X	1.632595975	Muranga	Nbi	Container	1.22
	M	KAL 318F	0.018063135	Thika	Nbi	Empty	
	H	KAV 908U	4.358594499	Gethioko	Embakasi	Stones	1.22
	H	KAY 759	0.209942569	Ruiru	Nbi	Stones	1.22
	H	KBA 200S	2.830289884	Thika	Embakasi	B/Stones	1.22
	M	KBN 401Z	0.027299719	Nyeri	Nbi	Empty	1.22
	M	KWG 193	1.709013078	Thika	Nbi	A goods	1.2
	M	KBC 474	1.283217119	Thika	Embakasi	A goods	1.2
	M	KSY 505	2.249879844	Thika	Njiru	B/blocks	1.2
	M	KZL 721	0.904600086	Thika	Embakasi	B/blocks	1.2
	H	KAG 356G	0.334929527	Thika	Nbi	Empty	1.22
	H	KAX 219K	1.914654214	Thika	Nbi	Goods	1.22
	H	KBL 497R	0.28103918	Kiambu	Embakasi	Crane	1.22
	H	KAT 983K	10.50814044	Gethioko	Embakasi	B/Stones	1.22
	M	KAL 192G	0.017173827	Thika	Nbi	Empty	1.2
	A	KAZ 319F	39.70895406	Thika	Nbi	Goods	1.12222
	M	KAA 218J	0.289133059	Meru	Nbi	Flowers	1.2
	M	KBD 450	0.012199544	Meru	Nbi	Flowers	1.2
	A	KAV 378Y	0.295202455	Nyeri	Nbi	Empty	1.22.22
	M	KWF 058	0.444512439	Thika	Embakasi	B/blocks	1.2
	M	KAB 545K	2.626467003	Juja	Embasaki	B/Stones	1.2
	M	KBE 555	0.484956375	Kiambu	Embakasi	Plastics	1.2
	H	KBC 897N	2.238421657	Gethioko	Ruai	Fill Materials	1.22
	H	KAL 318F	1.82712014	Gethioko	Embakasi	Fill Materials	1.22
	H	KBF 620	2.181863208	Ruiru	Nbi	Canvas	1.22
	H	KBY 324S	37.99104044	Thika	Embakasi	B/Stones	1.22
	M	KAY 554	0.968342922	Muranga	Nbi	Flowers	1.2
	M	KAS 618J	0.006092003	Muranga	Nbi	Empty	1.2
	M	KBM 382P	1.82439962	Nyeri	Nbi	Empty	1.2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	H	KAN 025S	3.147522591	Ruiru	Embakasi	B/Stones	1.22
	M	KAY 397G	2.92896235	Thika	Nbi	Empty	1.2
	H	KAV 980U	3.22995147	Muranga	Embakasi	Empty	1.22
	M	KAW 618S	0.024658654	Karatina	Nbi	B/Stones	1.2
	M	KBF 824M	0.351237045	Kiambu	Nbi	Flour	1.2
	M	KAL 319F	0.292128597	Ruiru	Embakasi	B/Stones	1.2
	M	KAD 332X	0.200274441	Thika	Nbi	Goods	1.2
	M	KAV 036	0.015913887	Thika	Nbi	Empty	1.2
	A	KBA 897N	0.348177951	Thika	Embakasi	Empty	1.2.222
	H	KZP 665	0.099179453	Muranga	Nbi	Empty	1.22
	H	KZY 891	4.761216434	Nanyuki	Nbi	Empty	1.22
	H	KBD 816S	11.4703879	Thika	Kayole	B/Stones	1.22
	H	KAU 603D	6.445469626	Thika	Embakasi	B/Stones	1.22
	M	KAM 825K	2.20801193	Nyeri	Nbi	Flour	1.2
	M	KUY 682	1.647217437	Juja	Njiru	B/Stones	1.2
	H	KAR 810V	0.101203086	Juja	Nbi	Goods	1.22
	M	KBC 641M	0.035620316	Thika	Nbi	Empty	1.2
	H	KBH 810S	5.914990798	Gethioko	Embakasi	Hardcore	1.22
	M	KAV 378Y	7.269848355	Nanyuki	Embu	Timber	1.2
	H	KAV 939V	3.674552861	Gethioko	Embu	Fill Materials	1.22
	M	KBE 946	3.668985756	Thika	Embakasi	B/Stones	1.2
	H	KAB 572W	4.991306471	Thika	Embakasi	Fill Materials	1.22
	M	KYQ 517	3.216140542	Thika	Embakasi	B/Stones	1.2
	H	KAJ 515	0.321484373	Nanyuki	Nbi	Empty	1.22
	H	KAZ 302V	5.671414324	Juja	Njiru	B/Stones	1.22
	H	KAL 194G	1.180091937	Gethioko	Embakasi	Fill Materials	1.22
	M	KBD 450	0.425773718	Kiambu	Nbi	A. goods	1.2
	M	KAV 378G	2.249289848	Thika	Embakasi	B/Stones	1.2
	M	KZC 380	24.58965921	Juja	Embakasi	B/Stones	1.2
	H	KAL 267Q	3.582592062	Gethioko	Embakasi	Hardcore	1.22
	H	KAL 318F	5.989436242	Gethioko	Embakasi	Hardcore	1.22
	M	KBM 382B	2.997274437	Gethioko	Embakasi	Hardcore	1.2
	M	KXY 344B	0.987830751	Gethioko	Embakasi	B/Stones	1.2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	H	KAG 827X	0.233837824	Gethioko	Embakasi	Empty	1.22
	H	KBC 243C	18.88980504	Thika	Embakasi	Hardcore	1.22
	M	KBL 210	0.53104688	Nanyuki	Nbi	Empty	1.22
	M	KAX 718S	0.021417255	Kiambu	Nbi	Empty	1.2
	H	KAT 116V	0.204592113	Nyeri	Nbi	Empty	1.2
	M	KAC 684	2.480315144	Thika	Embakasi	B/Stones	1.22
	M	KBB 604T	0.021037536	Nyeri	Nbi	Empty	1.2
	H	KAW 849X	9.654526809	Ruiru	Embakasi	Fill Materials	1.22
	H	KBE 317S	1.643010151	Thika	Embakasi	Fill Materials	1.22
	M	KAC 451	0.561228432	Ruiru	Embakasi	Fill Materials	1.2
	M	KBM 590P	1.761700623	Juja	Ruai	B/Stones	1.2
	H	KAW 768Y	2.333314019	Ruiru	Embakasi	Fill Materials	1.22
	H	KBP 485P	0.127556271	Nanyuki	Nbi	Empty	1.22
	M	KAS 618D	0.018235896			Flowers	1.2
	M	KAS 784J	4.088426853	Juja	Embakasi	B/Stones	1.2
	M	KAG 196N	19.06775663	Juja	Embakasi	B/Stones	1.2
	M	KUY 499	1.958566951	Juja	Embakasi	B/Stones	1.2
	M	KBL 220Q	1.196070193	Juja	Njiru	B/Stones	1.2
	H	KAC 932	0.253092546	Gethioko	Embakasi	Empty	1.22
10.00a.m	H	KBJ 644C	4.782377935	Juja	Embakasi	B/Stones	1.22
	H	KAS 748J	3.302241786	Nanyuki	Nbi	Flowers	1.22
	H	KAY 320C	1.921571293	Meru	Nbi	A goods	1.22
	M	KAR 952M	0.096078737	Thika	Ruai	Empty	1.2
	M	KBQ 728	0.035641747	Kiambu	Embakasi	Empty	1.2
	A	KAV 432G	2.499976053	Meru	Nbi	Empty	1.22.222
	M	KAV 100B	0.011467655	Muranga	Nbi	Empty	1.2
	M	KAX 219K	11.92734792	Thika	Embakasi	Hardcore	1.2
	M	KAW 105T	0.020584283	Kiambu	Nbi	Empty	1.2
	M	KBQ 431J	2.643573103	Gethioko	Embakasi	B/Stones	1.2
	M	KBP 989F	1.630938196	Gethioko	Embakasi	B/Stones	1.2
	H	KAQ 356X	0.283382968	Thika	Nbi	Empty	1.22
	A	KBJ 654X	2.778928562	Thika	Nbi	Container	1.1.2.222
	M	KAW 849	0.110430042	Nanyuki	Nbi	Flowers	1.2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	M	KBA 246	5.59540673	Gethioko	Embakasi	Hardcore	1.2
	H	KBB 477	0.11685169	Thika	Nbi	Empty	1.22
	M	KAV 5193	0.12752097	Kiambu	Nbi	Empty	1.2
	H	KAD 322K	0.107004206	Thika	Embakasi	Empty	1.22
	H	KAZ 958A	3.306772726	Nyeri	Nbi	Flour	1.22
	A	KAR 958C	2.806704458	Gethioko	Embakasi	Hardcore	1.1.22
	M	KWQ 119	0.025786204	Thika	Nbi	Empty	1.2
	A	KBP 301V	2.537141999	Thika	Nbi	Goods	1.1.22
	H	KBL 417R	5.951433475	Gethioko	Embakasi	Fill Materials	1.22
	A	KBE 442K	0.2835679	Thika	Nbi	Empty	1.22.222
	M	KBK 903Q	3.847401437	Juja	Embakasi	B/Stones	1.2
	H	KUP 999	0.059139092	Thika	Nbi	Empty	1.22
	M	KUP 980	4.042002218	Juja	Embakasi	B/Stones	1.2
	H	KAY 778L	3.367032348	Juja	Embakasi	Fill Materials	1.22
	H	KBB 494	1.095976032	Thika	Nbi	Empty	1.22
	M	KWS 389	9.179353774	Gethioko	Embakasi	B/Stones	1.2
	M	KAN 191B	0.010938831	Juja	Pipeline	B/Stones	1.2
	M	KBB 304G	0.025208729	Juja	Nbi	Empty	1.2
	M	KAW	0.014806337	Ruiru	Nbi	Empty	1.2
	M	KTK	1.627236366	Thika	Embakasi	B/Stones	1.2
	M	KBK 414	9.391819454	Juja	Njiru	B/Stones	1.2
	H	KBN 804V	3.842686083	Juja	Ruai	B/Stones	1.22
	H	KBL 670K	3.905434656	Juja	Embakasi	Hardcore	1.22
	M	KAN 191B	0.535433663	Thika	Ruai	B/Stones	1.2
	M	KBB 405G	2.062564702	Thika	Embakasi	B/Stones	1.2
	M	KBP 310S	0.034244268	Thika	Nbi	Empty	1.2
	M	KTZ 400	5.488883674	Juja	Njiru	B/Stones	1.2
	M	KAN 434N	3.468533117	Juja	Njiru	B/Stones	1.2
	M	KAD 332B	0.015145881	Thika	Nbi	Empty	1.2
	A	KBN 598A	0.101835863	Thika	Embakasi	Empty	1.1.22
	A	KAR 691U	0.258212495	Thika	Nbi	Empty	1.1.2.222
	M	KXC 648	0.02354232				1.2
	M	KBJ 340W	0.787830826	Nanyuki	Nbi	Empty	1.2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	A	KAR 958S	0.706953129	Meru	Nbi	Empty	1.1.2.222
	A	KAW 105Y	0.032194459	Meru	Nbi	Empty	1.1.2.222
	H	KBC 817Q	0.176197993	Thika	Nbi	Empty	1.2
	M	KBC 906L	1.263641732	Gethioko	Ruai	Hardcore	1.2
	M	KBH 755V	0.031450488	Thika	Ruai	Goods	1.2
	M	KAE 512D	0.918978274	Gethioko	Embakasi	B/Stones	1.2
	A	ZC 815	0.266399213	Nanyuki	Nbi	Empty	1.1.2.222
	M	KAQ 475P	5.931071571	Gethioko	Embakasi	B/Stones	1.22
	M	KAY 778L	1.774967906	Gethioko	Embakasi	Hardcore	1.2
	M	KAW 849	0.048967622	Thika	Nbi	Empty	1.2
	M	KAY 327M	2.473912632	Juja	Embakasi	B/Stones	1.2
	M	KAG 418	5.444425536	Juja	Embakasi	B/Stones	1.2
	H	KBP 002K	3.147370251	Juja	Njiru	B/Stones	1.2
	M	KAY 505	2.120276151	Gethioko	Embakasi		1.2
	M	KAV 100B	1.754671741	Gethioko	Embakasi	B/Stones	1.2
	M	KWS 551	3.32183672	Juja	Embakasi	B/Stones	1.2
	A	KBG 418J	8.390834625	Juja	Embakasi	B/Stones	1.2.22
	M	KAN 871	4.241311687	Thika	Embakasi	B/Stones	1.2
	A	KBD 861S	0.391230811	Meru	Nbi	Empty	1.22.222
	A	KBA 718B	0.300142398	Meru	Nbi	Empty	1.22.222
	A	KAN 336	0.068006684	Meru	Nbi	Empty	1.1.2.222
	H	KBC 340L	7.053629687	Thika	Embakasi	Hardcore	1.22
	H	KAG 024	0.257693716	Nanyuki	Nbi	Empty	1.22
	M	KAD 220	2.419990987	Juja	Embakasi	B/Stones	1.2
	H	KBE 955M	4.580170995	Juja	Embakasi	Hardcore	1.22
	H	KBP 342Y	0.08082928	Ruiru	Nbi	Empty	1.22
	M	KBB 807Y	0.009428621	Kiambu	Nbi	Empty	1.2
	H	KAJ 245	0.003668691	M	Nbi	Empty	1.22
	A	KAY 039J	0.436105789	Nanyuki	Nbi	Empty	1.2.2.222
	M	KZX 304	1.89407083	Thika	Kayole	B/Stones	1.2
	H	KAS 948Y	3.294679601	Thika	Embakasi	Hardcore	1.22
	M	KTQ 100	1.625296067	Thika	Kayole	Hardcore	1.2
	M	KAE 371D	4.310467548	Juja	Embakasi	Hardcore	1.2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	M	KAZ 127B	0.021395852	Nyeri	Nbi	Empty	1.2
	H	KAW 767Y	0.243595819	Meru	Nbi	Empty	1.22
	H	KBJ 449J	16.9922605	Thika	Ruai	B/Stones	1.2
	M	KYJ 826	2.030148697	Juja	Ruai	B/Stones	1.2
	M	KUM 861	0.800223635	Juja	EMAKAS	B/Stones	1.2
	M	KBA 415	2.821623479	Thika	Embakasi	B/Stones	1.2
11.00a.m	M	KBA 011K	0.077467245	Muranga	NBI	Empty	1.2
	H	KBB 008F	5.313179204	Juja	Embakasi	B/Stones	1.22
	M	KUT 890	3.962918679	Juja	Ruai	B/Stones	1.2
	M	KG 265	0.103093192	Kiambu	Embakasi	Empty	1.2
	M	KYS 584	0.598206962	Muranga	Nbi	A goods	1.2
	A	ZC 841	0.227508349	Meru	Nbi	Empty	1.22.222
	M	KAQ 475V	0.045243849	Thika	Nbi	Empty	1.2
	H	KAR 332J	4.978095865	Juja	Embakasi	B/Stones	1.22
	M	KAN 191B	1.016190862	Juja	Embakasi	B/Stones	1.2
	M	KBN 636A	0.047560995	Thika	Nbi	Empty	1.2
	A	KBJ 989A	0.254018242	Meru	Nbi	Empty	1.1.222
	M	KAT 658Y	2.311061452	Juja	Embakasi	B/Stones	1.2
	M	KUY 197	1.430931708	Thika	Njiru	B/Stones	1.2
	M	KBN 773N	0.005679957	Muranga	Nbi	Empty	1.1
	H	KYQ 517	5.374056565	Juja	Kayole	B/Stones	1.2
	A	KXB 865	4.08659046	Thika	Embakasi	B/Stones	1.2
	M	KYA 003	0.351638839	Ruiru	Nbi	Container	1.2
	A	KAN 576	2.275623471	Nanyuki	Nbi	A goods	1.2
	M	KAU 946Y	2.72471964	Ruiru	Embakasi	Hardcore	1.22
	M	KBP 210	0.197751503	M	Nbi	Empty	1.1.2.222
	M	KAT 629	1.109884569	Juja	Embakasi	B/Stones	1.2
	M	KBP 261C	0.556972686	Nanyuki	Nbi	Empty	1.2
	M	KAP 652	4.393454423	Ruiru	Ruai	B/Stones	1.2
	M	KAC 201	0.014159174	Kiambu	Nbi	Empty	1.2
	M	KWA 694	0.621477647	Thika	Embakasi	B/Stones	1.2
	M	KBE 108A	0.002998453	Kiambu	Nbi	Empty	1.2
	M	KBQ 548C	0.018168933	Ruiru	Ruai	Empty	1.2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	M	KAZ 140	2.566168321	Ruiru	Embakasi	B/Stones	1.2
	M	KUL 307	3.388152025	Juja	Utawala		1.2
	M	KXY 398	0.284745233	Juja	Embakasi	B/Stones	1.2
	H	KAH 972S	13.6275718	Thika	Kayole	Hardcore	1.1.222
	M	KBP 098K	0.015437548	Kiambu	Nbi	Empty	1.2
	M	KAC 352D	0.11288974	M	Njiru	Macadamia	1.2
	M	KAW 654	1.865135272	Juja	Nbi	B/Stones	1.2
	M	KVZ 005	0.020584283	Ruiru	Ruai	Empty	1.2
	M	KTU 080	2.332240995	Juja	Njiru	B/Stones	1.2
	M	KBG 215R	0.037159452	Muranga	Nbi	Empty	1.2
	M	KBM 950W	3.088659962	Thika	Ruai	B/Stones	1.2
	H	KBC 849C	0.241302615	Nyeri	Nbi	Empty	1.22
	M	KBD 453P	0.014916823	Ruiru	Ruai	Empty	1.2
	M	KAK 207J	0.585521145	Ruiru	Kayole	B/Stones	1.2
	H	KAX 659N	0.158967009	Thika	Nbi	Empty	1.22.
11.15a.m	M	kaz 731	2.368008375	Ruiru	Njiru	B/Stones	1.2
	M	KUJ 181	0.736009241	Thika	Embakasi		1.2
	M	KAN 596B	0.015691488	Thika	Nbi	Empty	1.2
	M	KAN 821F	0.026005014	Thika	Nbi	Empty	1.2
	M	KBY 324S	2.006765779	Thika	Mlolongo	B/Stones	1.2
	M	KBB 929A	0.798391529	Juja	Embakasi	Hardcore	1.2
	M	KAE 489B	1.555022424	Ruiru	Njiru	B/Stones	1.2
	A	KBL 766P	0.263873787	Nyeri	Nbi	Empty	1.2.1.2.22
	H	KBN 735X	1.70496055	Juja	Ruai	B/Stones	1.22
	A	ZC 420B	13.88029341	Muranga	Mlolongo	Empty	1.22.222
	M	KBB 492	1.621610222	Kiambu	Nbi	A goods	1.2
	H	KAD 211K	0.062819878	Nanyuki	Nbi	Empty	1.22
	H	KBP 122K	2.026095056	Thika	Njiru	B/Stones	1.22
	H	KBD 611K	0.078525149	Isiolo	Nbi	Empty	1.22
	M	KAE 270	2.783467106	Juja	Embakasi	B/Stones	1.2
	M	KAR 597P	0.033305859	Meru	Nbi	Macadamia	1.2
	H	KAL 658	0.044366138	Ruiru	Nbi	Empty	1.22
	M	KAB 291	0.033330944	Thika	Ruai	Empty	1.2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	M	KAS 154Q	0.01266403	Kiambu	Nbi	Empty	1.2
	M	KTU 796	2.53913337	Thika	Mlolongo	Hardcore	1.2
	H	KAM 336	0.05713859	Muranga	Nbi	Empty	1.22
	A	KBH 730P	3.831951259	Juja	Embakasi	B/Stones	1.1
	M	KAV 457	0.03787943	Juja	Njiru	Empty	1.2
	M	KXV 114	3.480555501	Kiambu	Nbi	B/Stones	1.2
	H	KBE 286	2.989609077	Thika	Embakasi	Hardcore	1.22
	M	KAY 213F	0.017371618	Karatina	Nbi	Empty	1.2
	M	KAQ 089W	5.760706178	Isiolo	Nbi	Goods	1.2
	H	KAB 218F	2.127246692	Gethioko	Kayole	Hardcore	1.22
	M	KBN 119	0.048324302	Embu	Nbi	Empty	1.2
	M	KAR 222	0.521837231	Juja	Embakasi	B/Stones	1.2
	M	KBJ 029S	3.814701698	Juja	Embakasi	B/Stones	1.2
	M	KBN 562V	0.008218243	Thika	Nbi	B/Stones	1.2
11.30a.m	A	KAJ 658Y	0.268490804	Ruiru	Nbi	Empty	1.22.222
	A	KAN 576	0.410875422	Thika	Nbi	Empty	1.22.222
	H	KAG 218J	39.92879609	Gethioko	Embakasi	B/Stones	1.22
	M	KAB 118C	0.00218003	Juja	Nbi	Empty	1.2
	M	KAQ 686K	2.800998366	Juja	Njiru	B/Stones	1.2
	H	KYW 505	0.976814138	Thika	Nbi	Goods	1.22
	M	KBA 660E	1.082865376	Thika	Nbi	Scrap Metal	1.2
	M	KXX526	3.082066231	Juja	Embakasi	B/Stones	b
	M	KBB 721H	0.03988267	Thika	Nbi	Empty	1.2
	M	KAV 624Q	0.060330846	Thika	Nbi	B/Stones	1.2
	A	KAV 596B	2.397575542	Juja	Njiru	B/Stones	1.2.22
	H	KAK 464Z	1.594303314	Juja	Embakasi	B/Stones	1.22
	M	KBP 122K	0.061438651	Thika	Nbi	Empty	1.2
	H	KBN 350F	10.1504342	Juja	Pipeline	B/Stones	1.22
	H	KAR 881Q	2.617738467	Thika	Nbi	B/Stones	1.22
	M	KAH 517Q	0.019432839	Thika	Nbi	Empty	1.2
	M	KTP 333P	1.849866298	Juja	Pipeline	B/Stones	1.2
	M	KAW 654	4.098812869	Juja	Njiru	B/Stones	1.2
	M	KZG 518	1.001999202	Gethioko	Embakasi	Hardcore	1.2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	M	KAH 220T	1.246472879	Gethioko	Embakasi	Hardcore	1.2
	M	KVE 519	0.775209798	Juja	EMBAKASI	B/Stones	1.2
	M	KXX 960	6.398267015	Juja	Embakasi	B/Stones	1.2
	H	KAG 326S	11.24430593	Juja	Embakasi	B/Stones	1.22
	M	KBL 960K	3.974525011	Thika	NBI	Goods	1.2
	M	KAL 350E	0.701666617	Thika	NBI	Goods	1.2
	H	KAE 197H	11.31362272	Juja	Embakasi	B/Stones	1.22
	H	KBL 057H	0.886416163	Thika	NBI	Papers	1.22
	M	KBN 646F	0.016724132	Thika	NBI	Empty	1.2
	A	KBH 447V	0.456822233	Thika	Nbi	Empty	1.22.222
	H	KBF 557N	0.07388838	Thika	Nbi	Empty	1.22
	M	KSD 364	0.018186378	Juja	Njiru	Empty	1.2
	M	KAD 815Z	0.002437638	Thika	Nbi	Empty	1.2
12.00	H	KAZ 267Q	7.960994935	Juja	Embakasi	Fill/materials	1-22
	M	KBL 713L	0.007297076	Thika	Nbi	Empty	1-2
	M	KWF 967	8.088082079	Thika	Nbi	B/Stones	1-2
	M	KBM 198G	0.133030681	Isiolo	Nbi	Cartons	1-2
	H	KAG 841Y	1.847944425	Ruiru	Nbi	Cofee	1-22
	H	KAG 537Y	3.775910149	Ruiru	Nbi	Cofee	1-22
	H	KBN 846N	0.058159672	Juja	Njiru	Empty	1-2
	A	KBP 938Y	0.401043727	Thika	Nbi	Empty	1-22-222
	A	KBM 326W	11.42042841	Juja	Embu	B/stones	1-12-222
	M	KAN 498P	0.022043242	Thika	Nbi	A/goods	1-2
	M	KAE 246V	0.984758361	Thika	Nbi	B/materials	1-2
	H	KAC 780D	76.36148375	Juja	Nbi	B/Stones	1-2
	H	KBE 284A	1.337376534	Ruiru	Nbi	A/goods	1-22
	M	KBH 485	3.376649211	Thika	Embu	B/Stones	1-2
	M	KZY 304	0.115700228	Juja	Embu	H/Core	1-2
	M	KAS 289Z	0.564315297	Ruiru	Embu	B/Stones	1-2
	H	KBE 419V	15.91532088	Gethioko	Embu	Fill/materials	1-22
	A	KZE 946	0.058385614	Nyeri	Embu	Empty	1-2
	M	KBF 517R	0.093710977	MERU	Nbi	Empty	1-22-222
	M	KAE 197	0.304727356	kiambu	Nbi	Goods	1-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	A	KBP 126Q	2.006020546	Thika	Nbi	H/CORE	1-1-22
	A	KAD 917V	0.035834221	Meru	Embu	Empty	1-22-222
	M	KAS 217V	0.079653651	Ruiru	Nbi	Empty	1-2
	H	KAY 915	0.040969138	kiambu	Nbi	A/goods	1-22
	H	KAZ 918	0.166436031	Thika	Nbi	B/Stones	1-22
	M	KBC 518	6.997863971	Thika	Embu	B/Stones	1-2
	M	KBA 485	0.01752925	Nyeri	Ruai	Empty	1-2
	M	KAZ 359L	0.36194902	Thika	Ruai	B/Stones	1-2
	H	KAE 977V	2.362082041	Juja	Njiru	B/Stones	1-22
	M	KBK 184	0.831619476	Ruiru	Embu	Car	1-2
	H	KBF 990	2.351438546	Juja	Kayole	B/Stones	1-22
	A	KBM 831Y	2.186117725	kiambu	Nbi	goods	1-12-222
	H	KAE 644	1.001350582	Juja	Embakasi	H/Core	1-22
	H	KAT 248	4.510468754	Thika	Njiru	goods	1-22
	M	KAY 215	1.487599796	Thika	Ruai	B/Stones	1-2
	M	KAA 469D	6.179646944	Thika	Kayole	Empty	1-2
	A	KBA 485	0.387459399	Nanyuki	Mombasa	Empty	1-22-222
	M	KAM 287C	1.369597235	Juja	Embakasi	B/Stones	1-2
	M	KAR 876V	0.007454277	Ruiru	Nbi	Empty	1-2
	M	KAR 742Y	1.207785386	Juja	Embakasi	B/Stones	1-2
	H	KBJ 438C	0.159013647	Isiolo	NBI	Empty	1-22
	A	KXG 196	2.99544008	Thika	Embakasi	H/core	1-22
	M	KAM 336	2.988160897	Gathieko	Njiru	B/Stones	1-2
	M	KWY 169	2.138501017	Ruiru	NBI		1-2
	A	KAQ 924F	0.187736621	Thika		Empty	1-22-22
	H	KBK 922Q	1.929737343	Thika		Unga	1-22
	M	KAX 786	0.010335307		Embakasi	Empty	1-2
	M	KAH 218	0.997267775	Gethioko		H/core	1-2
	H	KAM 626Z	7.954364572				1-22
	H	KAB 218J	0.072915884	Thika	Nbi	Empty	1-2
	M	KWL 562	4.047628362	Juja	Pipeline	B/stones	1-22-222
	A	KAH 547	0.209967607		Embakasi		1-2-222
	M	KBF 940N	0.149683582	Muranga	Nbi	Empty	1-22

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	M	KAE 748B	0.05577899	Thika	Nbi		1-22
	M	KAC 617A	0.073907545	Ruiru	Njiru	B/Stones	1-22
	M	KBM 582B	1.31034155	Thika	Nbi	Goods	1-2
	A	KZC 960G	0.192838939	Isiolo	Mombasa	Empty	1-22-222
	M	KAD 240W	0.151557039	Meru	Nbi	Empty	1-22
	M	KAW 0694	1.815977154	Juja	Njiru	B/Stones	1-22
	A	KWR 218	0.22299065	kiambu	Nbi	Empty	1-2-222
	M	KAM 284	1.434449194	Ruiru	Embakasi	Goods	1-2
	M	KGT 031	1.664795372	Juja	NRB	B/stones	1-22
	H	KAG 356X	0.254134561	Meru	NRB	A/goods	1-22-222
	A	KAR 649 G	0.122239868	Muranga	NRB	Empty	1-12-222
1.00 PM	H	KAB 218S	0.197342798	Nanyuki	NRB	Empty	1-22
	M	KBM 198G	2.11425242	Juja	Embakasi	B/Stones	1-2
	M	KAG 537C	4.605801169	Juja	Embakasi	B/Stones	1-2
	H	KBP 518P	24.54679913	Gethioko	Embakasi	H/core	1-22
	H	KBM 237W	5.190531722	Gethioko	Embakasi	B/Stones	1-22
	H	KAE 246V	1.424249229	Juja	Embakasi	B/Stones	1-22
	H	KAS 780S	1.616494508	Juja	Kayole	B/Stones	1-22
	M	KAS 289C	3.805587506	Juja	Njiru	B/Stones	1-2
	A	KBK 218S	0.30889577	Thika	Ruai	Empty	1-22-222
	M	KUJ 045	0.731525434	Juja	Embakasi	H/Core	1-2
	M	KWQ 464	0.359563309	Meru	Nbi	goods	1-2
	M	KAA 468P	3.903482938	Juja	Pipeline	B/Stones	1-2
	H	KAJ 128R	0.068441035	Thika	Nbi	Empty	1-22
	M	KTO 100	2.189038577	Gathieko	Embakasi	H/Core	1-2
	A	KAH 027	0.147002014	Nanyuki	Nbi	Empty	1-22-222
	M	KBA 218F	0.010799486	Karatina	Nbi	Empty	1-2
	M	KBD 111G	1.535619923	Juja	Njiru	B/Stones	1-2
	M	KAS 219V	1.994942549	Isiolo	Nbi	Cattle	1-2
	M	KAG 297	0.171233898	Nyeri	Nbi	goods	1-2
	M	KYF 514	5.507269243	Juja	Embakasi	B/Stones	1-2
	M	KAB 219S	0.036071028	Muranga	Nbi	Empty	1-2
	M	KBK 315Y	0.011505959	Embakasi	Nbi	Empty	1-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	M	KAB 216J	0.269739573	Juja	Embakasi	H/core	1-2
	H	KBA 216J	0.133969578	Kiambu	Mombasa	Empty	1-22
	M	KAT 039	2.093267534	Juja	Embakasi	B/Stones	1-2
	H	KAA 039V	3.039967491	Juja	Embakasi	B/Stones	1-22
	A	KAU 180R	0.16508485	Maua	Nbi	Empty	1-22-222
	A	KAU 253	0.467011005	Thika	Nbi	Empty	1-22-222
	A	KAP 346C	4.580269398	Juja	NJIRU	B/Stones	1-22-222
	H	KAZ 862	1.872971581	Juja	Embakasi	B/Stones	1-22
	H	KBA 218C	3.68113005	Thika	Njiru	Cement	1-22
	H	KAL 316	7.074735407	Juja	EMBA	H/core	1-22
1400	M	KAH 220T	0.002200965	Nyeri	Nbi	Empty	1-2
	A	KAT 893U	0.660843357	Muranga	Nbi	Empty	1-22-222
	H	KAG 570L	1.887548522	Juja	Embakasi	H/Core	1-22
	M	KAH 922Y	1.642213814	Juja	Njiru	B/Stones	1-2
	H	KBN 401Z	3.89028231	Juja	Njiru	B/Stones	1-22
	M	KAW 188G	0.574411562	Meru	Nbi	Milk	1-2
	M	KAP597C	0.011787528	Thika	Nbi	Empty	1-2
	A	KBP 143W	0.200625222	Thika	Embakasi	Empty	1-22-222
	H	KAT 116V	0.161374241	Thika	Nbi	Empty	1-22
	H	KAM 289	0.047277697	Nyeri	Nbi	Empty	1-22
	M	KAR 149H	0.017261407	Nanyuki	Njiru	Empty	1-2
	H	KAG 383	0.156812082	Meru	Nbi	Empty	1-22
	M	KAG 289	0.133504583	Nanyuki	Nbi	Flowers	1-2
	M	KBL 129	0.250996206	Meru	Nbi	bananas	1-2
	H	KAY 2329	5.062022208	Thika	Nbi	Empty	1-22
	A	KUC 237	0.13767086	Juja	Embakasi	B/Stones	1-22-222
	A	KAT 983	6.836671603	Juja	Embakasi	fills/Materials	1-2
	M	KAC 189	4.09051478	Thika	Pipeline	Bricks	1-2
	M	KBJ 290E	0.00857117	Maua	Nbi	Empty	1-2
	A	KAX 214M	0.399387525	Nyeri	Nbi	Empty	1-12-222
	A	KBC 346C	0.235176793	Thika	Nbi	Empty	1-22-222
	M	KAV 594F	0.017811862	Embu	Nbi	Empty	1-2
	M	KBA 289M	0.028554161	Embu	Nbi	Empty	1-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	M	KXH 748	0.044835352	Juja	Embakasi	Blocks	1-2
	M	KAV 449	0.044835352	Muranga	Nbi	Empty	1-2
	M	KAV 408	0.038861225	Njiru	Nbi	Empty	1-22
	H	KAS 486Q	0.09335594	Kiambu	Nbi	Empty	1-22
	H	KAB 267Q	4.556847481	Meru	Nbi	CABBAGE	1-2
	M	KZD 515	2.608665692	Thika	Ruai	B/Stones	1-2
	M	KAX 41	0.899711427	Meru	Nbi	POSTS	1-2
	M	KAA 319S	4.776241365	Thika	Nbi	Tiles	1-2
	M	KAY 397	5.868354434	Meru	Nbi	potatoes	1-2
	M	KAB 209C	0.010653443	Thika	Nbi	Empty	1-2
	H	KBM 797V	3.307255054	Juja	Embakasi	B/Stones	1-22
	M	KYQ 517	2.84440317				1-2
	M	KTZ 862	1.56353112				1-2
	H	KAB 020A	2.720630895	Thika	Kayole	B/Stones	1-22
	A	KAV 437G	0.631038621	Thika	Nbi	Empty	1-22-222
	M	KAP 346C	0.013881974	Thika	Nbi	Empty	1-2
	H	KBP 121K	2.139935732	Juja	NJIRU	B/Stones	1-22
	H	KBQ 618S	0.120722566	Juja	Nbi	GOOGS	1-22
	M	KBJ 651N	4.962251891		Embakasi	B/Stones	1-2
	M	KAW 682Y	0.070388216	Kiambu	Nbi	Goods	1-2
	M	KAQ 405B	0.030191595	Thika	Nbi	Empty	1-2
	M	KAT 451	3.28733262	Juja	njuru	Goods	1-2
	M	KAC 821J	1.863386363	Juja	Kayole	H/CORE	1-2
	A	KAU 981C	0.205933525	Nanyuki	Nbi	B/Stones	1-22-2222
	A	KAU 638Q	10.91592018	Gethioko	Njiru	Empty	1-2-222
	H	KAD 991U	8.358339253	Gethioko	Njiru	B/Stones	1-22
	M	KAJ 818J	1.773561279	Gethioko	Embakasi	B/Stones	1-2
	M	KAN 144N	2.697297078	Juja	Embakasi	H/CORE	1-2
	M	KAG 826X	0.283163651	Thika	Nbi	Goods	1-2
	M	KBL 118A	5.944875217	Juja	Njiru	B/Stones	1-2
	H	KAG 495J	2.765195969	Thika	Embakasi	B/Stones	1-22
	H	KAH 217C	9.323004743	Meru	Nbi	Goods	1-22
	M	KAV 080Q	0.009207094	Thika	Nbi	Empty	1-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	M	KBL392K	1.414731931	Juja	Njiru	B/Stones	1-2
	M	KAX 771	0.005697352	Juja	Njiru	Empty	1-2
	A	KBP 911	0.326416966	Thika	Nbi	Empty	1-22-2222
	M	KAA 118B	4.468039582	Thika	Embakasi	B/Stones	1-2
	H	KBD 321K	4.467613445	Gethioko	Embakasi	FILL MTS	1-22
	H	KBC 897N	3.793758184	Gethioko	Embakasi	H/CORE	1-22
	M	KQT 361	0.026584834	Thika	Nbi	Empty	1-2
	M	KAP 900K	0.022044654	Thika	Nbi	Empty	1-2
	M	KAS 618	0.002019901	Thika	Nbi	EMPTY	1-2
	M	KAV 568D	2.012839893	Juja	Embakasi	B/Stones	1-2
	M	KBN 530V	5.630026472	Juja	Embakasi	B/Stones	1-2
	M	KAL 919	0.155390732	Meru	NRB	Goods	1-2
	M	KWN 59	0.001990428	Thika	Mlolongo	H/CORE	1-2
	M	KAG 618	1.652953372	Juja	Kitengela	B/Stones	1-2
	M	KGK 608H	2.309932032	Juja	Kitengela	B/Stones	1-2
	M	KBH 607	2.689708456	Juja	Njiru	B/Stones	1-2
	M	KBP 590S	0.157193407	Thika	Nbi	C. FAT	1-2
	M	KAK 988	0.068341518	Thika	NRB	EMPTY	1-2
	H	KAP 688	0.66553784	Thika	NRB	SODAS	1-2
	H	KAQ 916S	18.12751896	Juja	Embakasi	FILL MTSL	1-22
	M	KAY 603F	4.187520248	Juja	Embakasi	FILL MTSL	1-2
	M	KAN 198C	3.184488518	Thika	Embakasi	H/CORE	1-2
	M	KAA 674	0.186347321	Thika	NRB	EMPTY	1-2
	M	KAB 204	1.634260055	Thika	NRB	FLOUR	1-2
	H	KAL 168	0.040773358	EMBU	NRB	EMPTY	1-22
	M	KAG 876	0.001495375	NYERI	NRB	EMPTY	1-2
	H	KBL 161A	0.118164833	KARATINA	NRB	EMPTY	1-2
	H	KAG 353	2.676008684	Juja	KITENGELA	B/STONE	1-22
	A	KBD 460	5.164411005	Juja	UMOJA	H/CORE	1-22
	M	KUK 631	1.316356955	Juja	Embakasi	H/CORE	1-2
	H	KBL 406J	1.999744594	Juja	Embakasi	FILL MTSL	1-22
	M	KYZ 505	0.014610957	GARRISA	NRB	EMPTY	1-2
	H	KBK 340	6.144945694	Juja	Embakasi	B/STONE	1-22

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	M	KBL 008	2.285293758	Juja	Embakasi	B/STONE	1-2
	M	KUJ 045	1.194786097	Juja	NJIRU	B/STONE	1-2
	M	KBJ 688	4.386154704	Juja	PIPILINE	B/STONE	1-2
	M	KBM 0933	0.018334807	MURANGA	NRB	EMPTY	1-2
	M	KBL 608	0.009372177	EMBU	NRB	EMPTY	1-2
	M	UT 284	2.09005248	Juja	KAYOLE	B/STONE	1-2
	H	KAL 307	0.207113958	THIKA	NRB	EMPTY	1-22
1500	M	KAB 219V	4.084984592	Juja	Njiru	H/Core	1.2
	H	KAN 219	0.858104917	Juja	Embakasi	B/Stones	1.22
	A	KBG 218U	0.30262524	Thika	Nbi	Empty	1.22.222
	H	KAZ 229J	2.513882234	Gethioko	Embakasi	Fill Materials	1.22
	H	KAH 219M	5.622239164	Gethioko	Embakasi	Hardcore	1.22
	M	KBE 482L	0.799507991	Gethioko	Embakasi	H/Core	1.2
	H	KAL 900S	7.7831062	Juja	Kayole	B/Stones	1.22
	H	KAQ 285J	3.146564864	Juja	Pipeline	B/Stones	1.22
	H	KAR 148S	0.111162056	Thika	Nbi	Empty	1.22
	H	KBG 354E	0.132258131	Thika	Nbi	Empty	1.22
	H	KAA674	7.85637742	Juja	Nbi	Empty	1.2.222
	A	KBU 181A	1.647797654	Thika	Njiru	B/Stones	1.2
	A	KBN 530V	3.898654532	Thika	Nbi	Goods	1.22.222
	H	KBD 218	4.165168943	Gethioko	Embakasi	B/Stones	1.2
	M	KBL 218J	2.05067476	Gethioko	Embakasi	B/Stones	1.2
	A	KBJ 195M	0.560977819	Nyeri	Nbi	Empty	1.22.222
	A	KAG 308	0.40552729	Thika	Nbi	Empty	1.22.222
	A	KBD 117K	1.477499794	Juja	Embakasi	B/Stones	1.22
	M	KAT 218N	0.400022301	Juja	Embakasi	Fill Materials	1.2
	M	KAA 956V	0.005152094	Thika	Nbi	Empty	1.2
	M	KAV 860P	0.014540045	Kiambu	Nbi	Empty	1.2
	M	KVR 485	1.32094301	Gethioko	Embakasi	H/Core	1.2
	M	KJX 343	0.166131303	Gethioko	Embakasi	B/Stones	1.2
	H	KAW 189C	0.82292932	Juja	Njiru	H/Core	1.22
	M	KAU 259	0.986703201	Juja	Njiru	H/Core	1.2
	M	KAY 998J	0.711566341	Juja	Embakasi	H/Core	1.2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	M	KAZ 298U	3.732882195	Juja	Embakasi	B/Stones	1.2
	M	KBN 685S	0.021366441	Nyeri	Nbi	Empty	1.2
	H	KBA 259	2.149607284	Juja	Embakasi	B/Stones	1.22
	M	KAG 367K	1.929236989	Juja	Embakasi	H/Core	1.2
	H	KBJ 449S	9.329172075	Gethioko	Embakasi	H/Core	1.22
	M	KAG 162A	4.43227654	Gethioko	Pipeline	B/Stones	1.2
1540	H	KAB 218N	2.550189809	Juja	Embakasi	B/Stones	1.22
	A	KAZ 297J	0.191488956	Thika	Nbi	Empty	1.22.222
	H	KBL129K	0.168196927	Thika	Nbi	Empty	1.22
	M	KAC 282X	0.030614258	Thika	Nbi	Goods	1.2
	M	KAS 130T	0.018708226	Thika	Nbi	Empty	1.2
	M	KWS 218	0.017143099	Karatina	Nbi	Empty	1.2
	M	KAH 480P	0.032406727	Meru	Nbi	Cabbages	1.2
	H	KAX 950R	2.287874388	Gethioko	Embakasi	B/Stones	1.22
	H	KBM 948	0.022738205	Thika	Nbi	Empty	1.22
	A	KBL 281H	0.346541988	Thika	Nbi	Empty	1.22
	H	KBE 657	1.075098409	Meru	Nbi	bananas	1.22.222
	A	KAY 927A	0.480761524	Thika	Nbi	Empty	1.22
	M	KAE 618	2.355615139	Gethioko	Embakasi	B/Stones	1.1.2.222
	M	KAU 117C	0.959209341	Gethioko	Embakasi	B/Stones	1.2
	H	KBE 679	4.011751239	Juja	Njiru	H/Core	1.2
	M	KBP 817E	0.020585801	Meru	Nbi	Empty	1.22
	M	KBQ 061L	0.269705048	Thika	Nbi	Goods	1.2
	M	KBG 434K	8.032994886	Juja	Embakasi	B/Stones	1.2
	H	KAX 386L	0.151317111	Juja	Nbi	Empty	1.2
	H	KAM 157C	7.800942522	Juja	Embakasi	Fill Materials	1.22
	A	KAZ 211F	0.119405128	Thika	Njiru	Empty	1.22
	M	KBH 558V	0.02017952	Thika	Ruai	Empty	1.22.222
	A	KBD 5522G	4.719957793	Juja	Ruai	B/Stones	1.2
	M	KAJ 160	0.350905976	Juja	Embakasi	B/Stones	1.1.2.222
	A	KBP 338F	0.309647165	Muranga	Nbi	Empty	1.2
	M	KYB 186	0.060449147	Embu	Nbi	Empty	1.22.222
	H	KAT 983U	4.475394842	Meru	Nbi	potatoes	1.2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	M	KWL 117	0.002545221	Thika	Nbi	Empty	1.22
	M	KBM 611B	0.054398477	Thika	Njiru	Empty	1.2
	M	KTP 001	0.02783685	Thika	Ruai	Empty	1.2
	H	KAK 180L	1.598723911	Gethioko	Embakasi	H/Core	1.22
	M	KAW 718S	0.006709979	Thika	Nbi	Empty	1.2
	A	KBA 968	4.315385157	Juja	Embakasi	H/Core	1.2.22
	M	KAU 8661	2.175133173	Muranga	Nbi	Timber	1.2
	H	KAY 338L	1.614362007	Gethioko	Embakasi	B/Stones	1.22
	M	KAM 287V	1.45580072	Gethioko	Embakasi	B/Stones	1.2
	M	KAR 742J	0.051456503	Thika	Juja	Empty	1.2
	H	KBK 926	1.521045836	Gethioko	Njiru	B/Stones	1.22
	M	KAH 918	0.037772066	Juja	Njiru	Empty	1.2
	M	KAD 298	0.034281949	Juja	Nbi	Empty	1.2
	M	KAY 981F	0.015988926	Thika	Nbi	Empty	1.2
	H	KBP 118J	1.910432665	Gethioko	Embakasi	H/Core	1.22
	M	KAC 812H	1.488147065	Gethioko	Embakasi	B/Stones	1.2
	M	KAT 248	0.177967037	Thika	Nbi	Goods	1.2
	A	KBB 990	6.371320187	Thika	TZ	Cattle	1.22.222
	H	KAA 649D	1.931473112	Gethioko	Njiru	H/Core	1.22
	M	KBP 680J	0.366152921	Juja	Kayole	Goods	1.2
	M	KBH 789M	0.012973276	Thika	Nbi	Empty	1.2
	A	KAT 666Y	1.616780113	Meru	Embakasi	Empty	1.22+2.22
	M	KSN 340	1.532415254	Juja	Embakasi	B/Stones	1.2
	M	KZX 218	1.50268775	Juja	Embakasi	B/Stones	1.2
	H	KAU 211M	0.598036277	Nyeri	Embakasi	Empty	1.22
	M	KAK 986S	0.012619098	Thika	Nbi	Empty	1.2
	A	KAV 460F	0.382766195	Thika	Nbi	Empty	1.12.222
	M	KAS 689M	0.140273593	Thika	Nbi	goods	1.2
	M	KXD 363	1.572134229	Juja	Njiru	Goods	1.2
	M	KBD 671W	2.08083125	Meru	Nbi	B/Stones	1.2
	A	KBP 989F	4.823221672	Gethioko	Embakasi	Timber	1.2.22
	H	KBL 219C	1.817674979	Gethioko	Njiru	Fill Materials	1.22
	A	KBL 867F	1.515635687	Thika	Nbi	H/Core	1.12.222

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	H	KAL 218J	0.212309295	Thika	Nbi	Goods	1.22
	M	KAH 218M	0.018089826	MR	Nbi	Empty	1.2
	M	KAG 289	0.002810965	Thika	Nbi	Empty	1.2
	M	KAR 187F	0.352260164	Juja	Embakasi	B/Stones	1.2
1600	M	KBC 609	0.014606743	Thika	Nbi	Empty	1.2
	A	KBD 218J	0.201776189	Meru	Nbi	Empty	1.22.222
	H	KAG 367K	0.271048157	Thika	Njiru	Empty	1.22
	M	KBE 511P	0.018721718	Juja	Njiru	Empty	1.2
	H	KBA 218J	0.226577438	Thika	Nbi	Empty	1.22
	M	KBN 218B	0.020091651	Ruiru	Mlolongo	Empty	1.2
	A	KBD 222W	0.322917632	Thika	Nbi	Empty	1.22.222
	H	KBN 321Q	9.132284417	Juja	Njiru	H/Core	1.22
	H	KBN 193F	2.301644313	Juja	Nbi	B/Stones	1.22
	A	KAV 189S	0.180337731	Meru	Nbi	Empty	1.22
	H	KBA 128V	0.119441009	Ruiru	Nbi	Empty	1.22
	A	KBJ 525Z	0.272423877	Meru	Mombasa	Empty	1.12.222
	H	KAA 674A	1.861919673	Gethioko	Embakasi	H/Core	1.22
	M	KAM 994V	1.516644121	Gethioko	Embakasi	B/Stones	1.2
	M	KSK 257	0.046849352	Gethioko	Pipeline	B/Stones	1.2
	B	KAR 668	1.120096371	Thika	Mombasa	Passagers	1.2
	M	KAW 188	0.006453363				1.2
	A	KBM 594U	0.259432072	Thika	Nbi	Empty	1.12.222
	H	KAU 259	0.067491508	Juja	Nbi	Empty	1.22
	H	KAV 129X	0.134099078	Juja	Embakasi	Empty	1.22
	H	KAY 998V	0.050076803	Thika	Nbi	Empty	1.22
	M	KUS 198	2.780610353	Gethioko	Embakasi	H/Core	1.2
	M	KBA 216	0.047403883	Kiambu	Nbi	Empty	1.2
	M	KYJ 864	2.466522918	Juja	Pipeline	B/Stones	1.2
	M	KAL 191G	1.973552835	Juja	Embakasi	B/Stones	1.2
	A	KAD 596Z	0.416674707	Juja	Njiru	Empty	1.1.22
	H	KAN 198C	11.95916869	Juja	Embakasi	H/Core	1.22
	A	KBH 003R	22.34956518	Meru	Nbi	Timber	1.22.222
	A	KAZ 218V	6.921481689	Thika	Nbi	Container	1.22.222

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	M	KAW 119R	0.013495601	Thika	Nbi	Empty	1.2
	M	KAS 987J	4.545204013	Juja	Embakasi	H/Core	1.2
	M	KBA 418S	0.01742623	Juja	Nbi	Empty	1.2.
1630	M	KBP 984	1.418840134	Thika	Nbi	B/Stones	1.2
	H	KAL 845	2.091876903	Ruiru	Njiru	B/Stones	1.22
	A	KBP 054Y	0.207971277	Nanyuki	MSA	Empty	1.1.2.222
	H	KBD 658	0.051350557	Kiambu	nbi	Cartons	1.22
	M	KBK 604K	3.042909221	Juja	Kayole	B/Stones	1.2
	H	KAY 218S	12.19587119	Thika	Embakasi	B/Stones	1.22
	H	KAZ 986V	8.85809772	Ruiru	Embakasi	Sand	1.22
	M	KBP 715	1.319234567	Muranga	Nbi	A goods	1.2
	H	KBK 340	3.861066367	Ruiru	Kayole	B/Stones	1.22
	H	KAL 158	4.148287014	Thika	Embakasi	B/Stones	1.22
	H	KAG 436K	0.202565798	Nyeri	Nbi	A goods	1.22
	M	KVZ 005	0.022822714	Kiambu	Nbi	Empty	1.2
	A	ZC 635B	0.354721077	Nyeri	MSA	Empty	1.1.2.222
	H	KBH 027Y	0.152485127	Muranga	Embakasi	B/Stones	1.22
	H	KAE 133H	10.41503352	Isiolo	Nbi	CATTLE	1.22
	H	KAS 188J	0.229437917	Meru	Mombasa	Vegetables	1.22
	H	KAL 462F	2.583946398	Thika	Nbi	B/Stones	1.22
	M	KTL 919	1.154810511	Ruiru	Umoja	B/Stones	1.2
	M	KAX 218F	0.076438532	Kiambu	Nbi	Empty	1.2
	M	KAT 397	2.254872429	Ruiru	Embakasi	B/Stones	1.2
	H	KAX 219Z	3.029364564	Thika	Nbi	Hardcore	1.22
	M	KAA 319	0.018425067	Nanyuki	Nbi	Empty	1.2
	A	KAS 111J	0.172539586	Meru	Mombasa	Empty	1.2.1.222
	M	KAV 283V	1.260711008	Ruiru	Embakasi	B/Stones	1.2
	M	KBA 998J	0.026805797	Meru	Nbi	Empty	1.2
	M	KBD 286	1.669170916	Juja	Umoja	B/Stones	1.2
	H	KBC 349	1.523347233	Ruiru	Embakasi	B/Stones	1.22
	H	KAC 560	14.38837187	Gethioko	Nbi	Hardcore	1.22
	M	KAS 418	0.023764417	Nanyuki	Nbi	Empty	1.2
	H	KAG 826Y	0.145428125	Thika	Nbi	Empty	1.22

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	M	KAT 153B	0.01191735	Kiambu	Nbi	Empty	1.2
	H	KAK 500C	0.180684552	Thika	Embakasi	B/Stones	1.22
	M	KBM 880W	0.013510571	Nyeri	Nbi	Empty	1.2
	H	KAS 130Y	2.314076185	Ruiru	Kayole	B/Stones	1.22
	M	KAQ 646	1.230402473	Thika	Embakasi	B/Stones	1.2
	A	KAH 148P	0.200049398	Muranga	Nbi	Empty	1.2.222
	A	KAW 700V	0.468665597	Nanyuki	Mombasa	Empty	1.1.2.222
	M	KAX 750R	0.037546496	Kiambu	Nbi	Empty	1.2
	M	KWL 149	1.572074337	Thika	Nbi	B/Stones	1.2
	M	KAK 810P	0.055431071	Ruiru	Nbi	Empty	1.2
	A	KAS 150P	3.171096251	Thika	Nbi	Goods	1.1
	M	KTP 480	1.341431634	Juja	Embakasi	Hardcore	1.2
	H	KBE 657	4.192998141	Gethioko	Embakasi	B/Stones	1.22
	H	KBM 618Z	4.013245292	Gethioko	Embakasi	B/Stones	1.22
	A	KAY 928E	0.356640972	Thika	Nbi	Empty	1.12.222
	M	KWL 149	0.012703355	Thika	Nbi	Empty	1.2
	H	KAE 618	2.030769705	Ruai	Mlolongo	Goods	1.22
	M	KAY 167L	3.046813436	Juja	Ruai	B/Stones	1.2
	M	KZK 697	0.010492251	Meru	Nbi	Empty	1.2
	M	KAY 181G	1.446506882	Gethioko	Nbi	B/Stones	1.2
	H	KAV 182	2.603744597	Gethioko	Embakasi	Fill Materials	1.22
	M	KAU 118Z	0.01164672	Juja	Nbi	Empty	1.2
	H	KBE 687	0.233546048	Ruiru	Nbi	Empty	1.22
	H	KAJ 150	0.157926642	Thika	Nbi	Empty	1.22
	M	KBD 218M	0.646260384	Muranga	Nbi	Goods	1.2
	M	KBK 861U	3.408395854	Gethioko	Embakasi	B/Stones	1.2
	A	KBQ 196B	0.428820438	Thika	Kayole	Empty	1.12.222
	M	KAM 157C	0.068797413	Thika	Nbi	Empty	1.2
	M	KAG 145S	0.033318283	Nyeri	Nbi	Empty	1.2
	A	KZC 219	0.347159487	Thika	Nbi	Empty	1.12.222
	H	KAU 218M	0.521494686	Embu	Embakasi	Empty	1.22
	H	KAZ 999U	7.062288284	Juja	Embakasi	B/Stones	1.22
	M	KAY 179S	0.024540445	Ruiru	Nbi	Empty	1.2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	M	KYB 857B	1.571566614	Meru	Nbi	Potatoes	1.2
17000	M	KBJ 391	0.253737897	Nyeri	Nbi	A goods	1.2
	M	KAL 639	0.31477601	Ruiru	Umoja	B/Stones	1.2
	M	KAV 668	0.006970925	Meru		Empty	1.2
	M	KAG 689	0.926077463	Thika	Umoja	B/Stones	1.2
	A	KAU 438	6.52270269	Thika	Nbi	B/Stones	1.22.222
	M	KBD 985J	0.839420949	Ruiru	Kayole	B/Stones	1.2
	H	KBL 493W	5.923292735	Juja	Umoja	B/Stones	1.22
	A	KBK 342B	0.364481335	Nanyuki	Mombasa	Goods	1.1.22.222
	H	KLY 602	1.608907202	Juja	Kitengela	B/Stones	1.22
	M	KBL 307	0.02002785	Thika	Nbi	Flowers	1.2
	M	KBP 984	0.012635946	Karatina	Nbi	Empty	1.2
	M	KHJ 153E	4.74491173	Meru	Nbi	Tealeaves	1.2
	A	ZC 367G	0.410220407	Isiolo	Nbi	Empty	1.2.1.222
	M	KBA 792W	3.304122074	Thika	Mlolongo	B/Stones	1.22
	H	KAL 451	0.589034542	Ruiru	Njiru	B/Stones	1.22
	A	KAP 218S	2.253225592	Nanyuki	Mombasa	A goods	1.1.2.222
	A	ZA 534	0.14661532	Nanyuki	Mombasa	Empty	1.1.2.222
	A	ZD 049	3.376367804	Nanyuki	Mombasa	A goods	1.1.2.222
	A	ZA 211	3.691612343	Nanyuki	Mombasa	A goods	1.1.2.222
	H	KAZ 219V	0.074447337	Nyeri	Nbi	Empty	1.22
	M	KYM 184	0.676615524	Juja	Embakasi	B/Stones	1.2
	A	KBN 144X	0.92855859	Meru	Mombasa	A goods	1.1
	H	KBM 928A	0.118127459	Thika	Nbi	Empty	1.22
	M	KAY 122E	3.793678448	Thika	Kitengela	B/Stones	1.2
	A	KAQ 720G	3.108921849	Isiolo	Nbi	A goods	1.1.2.222
	M	KTL 887	10.64777536	Juja	Embakasi	B/Stones	1.2
	A	KAV 057Q	6.4195742	Isiolo	Mombasa	Container	1.22.222
	M	KAW 886L	1.744668793	Mwingi	Nbi	A goods	1.2
	M	KAT 471	0.00585371	Thika	Umoja	Empty	1.2
	M	KAQ 250G	0.107875692	Mwingi	NBI	A goods	1.2
	M	KTS 503	1.036892401	Meru	NBI	Flowers	1.2
	M	KZC 966	9.107525669	Thika	Kitengela	B/Stones	1.2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	A	KBP 307C	0.093013691	Nyeri	Mombasa	Empty	1.2.1.1.22
	H	KAG 980A	13.55431027	Thika	Mlolongo	B/Stones	1.22
	A	KAV 568D	0.23836333	Meru	Mombasa	Empty	1.2.1.222
	A	ZC530	6.768347294	Karatina	Nbi	A goods	1.2.1.222
	H	KAQ 899R	0.304241798	Juja	Umoja	B/Stones	1.22
	M	KAP 043W	0.219457546	Ruiru	Nbi	Empty	1.2
	M	KAY 814Z	0.017537719	Thika	Nbi	Empty	1.2
	M	KAV 445J	0.027551597	Nyeri	Mlolongo	Empty	1.2
	M	KTL 887	1.907389174	Juja	Kitengela	B/Stones	1.2
	H	KAK 500C	0.053683793	Ruiru	Nbi	Empty	1.22
	M	KBH 673	5.916188008	Nyeri	Nbi	Flour	1.2
	H	KAK 672H	4.464695164	Thika	Embakasi	Hardcore	1.22
	M	KUT 890	1.444490963	Meru	Nbi	Canvas	1.2
	A	KBN 162Q	0.517842998	Nanyuki	Mombasa	Empty	1.2.1.222
	H	KBP 289	9.044198084	Juja	Embakasi	B/Stones	1.22
	M	KWS 390	4.495737907	Juja	Embakasi	B/Stones	1.2
	M	KBN 862Z	0.209253382	Meru	Nbi	Potatoes	1.2
	A	KAG 194G	0.284468173	Thika	Nbi	Empty	1.22.222
	H	KBH 082W	1.207587826	Meru	Nbi	Maize	1.22
	M	KAS 960K	0.020794879	Nanyuki	Nbi	Empty	1.2
	A	KBA 218	5.493154263	Thika	Pipeline	Goods	1.1.2.222
	A	KAL 758	5.387773146	Thika	Mombasa	Goods	1.1.2.222
	A	KAE 133H	5.436623241	Garissa	Mombasa	Goods	1.1.2.222
	A	KAX 218F	0.006972991	Thika	Nbi	Empty	1.2
	M	KBP 552V	0.002579049	Juja	Nbi	Empty	1.2
	H	KAV 189M	5.167014378	Thika	Embakasi	Hardcore	1.22
	M	KBA 222	1.254128	Juja	Kitengela	B/Stones	1.2
	M	KBQ 210C	0.016670527	Thika	Nbi	Empty	1.2
	H	KAQ 379N	1.633043249	Thika	Umoja	B/Stones	1.22
	A	KAJ 219J	0.327975845	Isiolo	Nbi	Empty	1.1.2.222
	M	KAL 319V	0.036579042	Thika	Nbi	Empty	1.2
	M	KWS 138	1.235178328	Meru	Nbi	Bananas	1.2
	A	ZA	0.400465178	Ruiru	Nbi	Empty	1.2.2.222

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	M	KAB 629	2.669561353	Thika	Kitengela	B/Stones	1.2
	H	KZV 659	3.050196335	Juja	Umoja	B/Stones	1.22
	H	KAL 651K	1.694800697	Thika	Ruai	B/Stones	1.22
	A	ZC 706	1.524474061	Nyeri	Nbi	B/Stones	1.2.2.222
	A	ZC 095	3.809126421	Nyeri	Nbi	Empty	1.2.2.222
	H	KAB 199K	2.818146584	Juja	Embakasi	Empty	1.22
	M	KWE 492	2.861343491	Ruiru	Nbi	B/Stones	1.2
	M	KUK 004	0.799737448	Juja	Ruai	B/Stones	1.2
	A	KBM 868H	0.50849635	Isiolo	Mombasa	Empty	1.1.2.222
	M	KAT 124Y	6.267305516	Thika	Mlolongo	B/Stones	1.2
	M	KBC 448M	3.254330543	Thika	Umoja	B/Stones	1.2
	H	KAT 901	2.428840404	Ruiru	Mlolongo	Timber	1.22
	M	KAE 127C	2.113247615	Thika	Nbi	A goods	1.2
	A	KBM 049	3.528706204	Isiolo	Mombasa	A goods	1.2.2.222
	A	KBP 382	0.183945426	Isiolo	Mombasa	A goods	1.2.2.222
	M	ZT 571	2.688974293	Thika	Kitengela	B/Stones	1.2
	H	KAE 285G	0.049999523	Kiambu	Nbi	Empty	1.22
	M	KBG 658	0.199799313	Nyeri	Nbi	Empty	1.2
	H	KBB 160M	6.48644467	Thika	Umoja	Hardcore	1.22
1900	H	KAS 948Y	2.417172637	Juja	Embakasi	B/Stones	1.22
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6	H	KAV 792Y	0.195911437	Ruai	Thika	Empty	1-2
6	A	KAY 248C	4.73948971	Nairobi	Kiambu	Sodas	1-2-2-2-2-2
6	M	KAV 008V	2.133017175	Nairobi	Thika	Assorted Goods	1-2
6	H	KBB 899A	0.118293375	Embakasi	Thika	Empty	1-2-2
6	H	KBB 292A	0.122173692	Embakasi	Thika	Empty	1-2-2
6	M	KAG 804	0.048021089	Ruai	Juja	Empty	1-2
6	H	KBJ 205J	0.096130345	Embakasi	Juja	Empty	1-2-2
6	M	KAN 876C	1.38942163	Lungalunga	Nyeri	Fuel	1-2
6	M	KAV 007V	0.945184992	Nairobi	Kiambu	Cement	1-2
6	H	KAR 481H	0.089061672	Nairobi	Thika	Empty	1-2-2
6	M	KAT 065N	1.684448675	Nairobi	Thika	Cement	1-2
6	M	KAD 217B	0.00312539	Nairobi	Thika	Empty	1-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
6	A	KBJ 949C	13.14842896	Mombasa	Thika	Rice	1-1-2-2-2-2
6	A	KBP 547B	5.079970947	Mombasa	Nyeri	Fertilizer	1-1-2-2-2-2
6	M	KAZ 419K	0.028985189	Nairobi	Thika	Empty	1-2
6	A	KBM 946	6.145483139	Mlolongo	Thika	Cement	1-2-2-2-2-2
6	H	KZU 909	0.131315957	Ruai	Thika	Empty	1-2-2
6	M	KAT 496	3.734239871	Nairobi	Thika	Cement	1-2
6	H	KAJ 732U	1.871026343	Nairobi	Thika	Sodas	1-2-2
6	H	KAE 461S	1.563472911	Nairobi	Thika	Polland	1-2-2
6	M	KAW 092B	1.727566638	Athi River	Meru	Cement	1-2
6	M	KZE 515S	0.076836021	Nairobi	Thika	Empty	1-2
6	A	KBC 040N	7.139763139	Mombasa	Thika	Container	1-2-2-2-2-2
6	M	KBN 018M	4.074392027	Athi River	Nyeri	Cement	1-2
6	M	KBC 641	4.330180111	Athi River	Nyeri	Cement	1-2
6	M	KBK 437Q	0.01628289	Ruai	Kiambu	Empty	1-2
6	H	KAE 462B	1.493153211	Nairobi	Thika	Sodas	1-2-2
6	A	KBM 061T	5.464092136	Athi River	Nyeri	Cement	1-2-2-2-2-2
6	M	KBG 465E	0.048911867	Athi River	Muranga	Cement	1-2
6	H	KAA 006M	3.054070298	Athi River	Meru	Cement	1-2-2
6	A	KBM 008	3.937551218	Athi River	Nyeri	Cement	1-1-2-2-2-2
6	M	KAR 481H	1.285486098	Nairobi	Thika	Cement	1-2
6	H	KBK 039X	0.100644287	Nairobi	Thika	Empty	1-2-2
6	M	KAZ 416R	0.099682575	Nairobi	Meru	Empty	1-2
6	M	KAW 006	5.264361053	Athi River	Mwea	Cement	1-2
6	M	KAZ 780X	0.605326222	Athi River	Embu	Cement	1-2
6	M	KAT 068N	1.64735734	Athi River	Thika	Cement	1-2
6	H	KBJ 449S	0.150382956	Embakasi	Thika	Empty	1-2-2
6	A	KBD 537U	5.201654435	Mombasa	Thika	Container	1-2-2-2-2-2
6	M	KBM 486	0.006907591	Nairobi	Thika	Empty	1-2
6	M	KBB 218M	0.144047901	Nairobi	Thika	Crates Empty	1-2
6	M	KAZ 562C	0.051392798	Nairobi	Meru	Empty	1-2
6	M	KBE 657E	0.036813713	Nairobi	Nyeri	Empty	1-2
6	M	KWL 149	0.027771831	Nairobi	Thika	Empty	1-2
6	M	KZK 987	0.042264356	Nairobi	Nyeri	Empty	1-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
6	M	KAN 595K	0.408358923	Nairobi	Kitui	Cylinder	1-2
6	M	KAH 968C	0.034515428	Embakasi	Thika	Empty	1-2
6	M	KAS 815Y	2.957101899	Mlolongo	Kiambu	Charcoal	1-2
6	M	KAV 933L	0.829417645	Athi River	Thika	Timber	1-2
6	M	KAR 423B	2.507059703	Nairobi	Nyeri	Canvas	1-2
6	M	KBM 557H	4.454950992	Nairobi	Thika	Cement	1-2
6	M	KBP 681A	0.00417016	Nairobi	Meru	Empty	1-2
6	M	KAZ 288R	0.421126914	Nairobi	Thika	Empty	1-2
6	M	KAW 854B	4.282669241	Athi River	Meru	Cement	1-2
6	H	KAB 537	0.083249235	Nairobi	Kiambu	Empty	1-2-2
6	M	KBJ 670W	2.054343804	Nairobi	Thika	Sodas	1-2-2
6	H	KAN 255H	1.032672316	Nairobi	Nyeri	Empty	1-2-2
6	M	KBC 76	0.022029268	Nairobi	Meru	Empty	1-2
6	A	KBG 493V	0.092743482	Embakasi	Thika	Empty	1-1-2-2
6	M	KTT 435	0.017128451	Nairobi	Kiambu	Empty	1-2
6	H	KAH 699W	2.521685166	Nairobi	Thika	Fuel	1-2-2
6	H	KAJ 918Z	2.805442921	Nairobi	Thika	Cement	1-2-2
6	A	KBC 438	11.18993327	Mombasa	Meru	Fuel	1-2-2-2-2-2
6	H	KAW 849X	0.124452859	Embakasi	Ruiru	Empty	1-2-2
7	H	KAX 258	10.13430191	Nairobi	Ruiru	Ballast	1-2-2
7	M	KBA 170G	1.938678148	Kitengela	Limuru	Poultry	1-2
7	A	ZC 049	4.689569706	Busia	Thika	Maize	1-1-2-2-2-2
7	M	KAX 278Z	0.3991439	Nairobi	Gatundu	Medicine	1-2
7	M	KBK 497X	1.460583156	Nairobi	Gatundu	Medicine	1-2
7	M	KAU 744B	3.676742339	Athi River	Ruiru	Cement	1-2
7	M	KAN 394	4.152840836	Athi River	Ruiru	Cement	1-2
7	A	KBJ 766	4.597635544	Nairobi	Mwea	Fertilizer	1-2-2-2-2-2
7	M	KAZ 689	0.39733673	Athi River	Ruiru	Cement	1-2
7	M	KAJ 067R	2.754214357	Nairobi	Thika	Cartons	1-2-2
7	H	KAT 983U	0.235309702	Nairobi	Kiambu	Cement	1-2-2
7	A	KBQ 793C	2.193639486	Mombasa	Nanyuki	Container	1-1
7	H	KAG 622S	0.215963167	Mombasa	Nanyuki	Container	1-2-2
7	M	KAL 331Y	0.018611356	Nairobi	Kiambu	Empty	1-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
7	H	KBL 157A	7.426418302	Embakasi	Thika	Bitumen	1-2-2
7	H	KBL 030K	0.129389174	Embakasi	Thika	Empty	1-2-2
7	M	KXH 696	0.033150422	Ruai	Thika	Empty	1-2
7	M	KVC 491	0.028824178	Embakasi	Juja	Empty	1-2
7	M	KAZ 561K	2.763271254	Athi River	Thika	Cement	1-2
7	M	KAN 148R	2.237650414	Athi River	Thika	Cement	1-2
7	H	KAY 234J	0.23796581	Athi River	Nyeri	Cement	1-2-2
7	M	KAG 212U	0.993103583	Athi River	Kiambu	Cement	1-2
7	M	KBP 480A	0.031359834	Nairobi	Thika	Empty	1-2
7	M	KUM 309	0.028005086	Nairobi	Thika	Empty	1-2
7	M	KAV 424E	0.082587626	Nairobi	Kangema	Empty	1-2
7	M	KAN 789R	3.436518752	Nairobi	Muranga	Cement	1-2
7	M	KXY 382	405.328055	Ruai	Thika	Empty	1-2
7	M	KZZ 433	0.017809005	Ruai	Thika	Empty	1-2
7	M	KAY 395	0.546406158	Nairobi	Thika	Goods	1-2
7	A	KBG 518	5.863281031	Mombasa	Mwea	Rice	1-2-2-2-2-2
7	H	KAZ 113	0.225798524	Nairobi	Thika	Empty	1-2-2
7	M	KAZ 218J	0.018764671	Nairobi	Thika	Empty	1-2
7	M	KAA 663C	3.296740999	Nairobi	Thika	Calcium	1-2
7	H	KAB 381Y	0.128710294	Nairobi	Thika	Cement	1-2-2
7	H	KAY 338K	0.104448622	Embakasi	Thika	Empty	1-2-2
7	M	KAC 416K	0.030244078	Embakasi	Thika	Empty	1-2
7	A	KKY 923	6.720975316	Athi River	Nyeri	Cement	1-2-1-2-2-2
7	M	KAQ 415S	4.453250734	Athi River	Ruiru	Cement	1-2
7	M	KAM 423	0.450790188	Nairobi	Thika	Goods	1-2
7	M	KAB 316	2.433076007	Mombasa	Nyeri	Fertilizer	1-1-2-2-2-2
7	A	KBG 279R	3.041313951	Mombasa	Thika	Container	1-2-2-2-2-2
7	M	KAU 455Y	1.070471242	Embakasi	Thika	Ballast	1-2-2
7	A	KXX 443	7.759003436	Mombasa	Muranga	Metals	1-2
7	M	KAV 309C	2.196441269	Athi River	Muranga	Cement	1-2
7	A	KAY 405R	12.28656089	Nairobi	Nyeri	Container	1-2-2-2-2-2
7	M	KAX 410L	1.150092124	Athi River	Meru	Cement	1-2
7	M	KBP 342	1.378732238	Athi River	Ruiru	Cement	1-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
7	M	KBG 351C	1.365923277	Athi River	Meru	Cement	1-2
7	M	KAU 415C	1.365594104	Athi River	Meru	Cement	1-2
7	M	KBB 966	2.678369814	Kajiado	Thika	Fertilizer	1-2
7	A	KBP 197S	4.808997734	Mombasa	Thika	Calcium	1-2
7	M	KUW 615	0.012904345	Nairobi	Thika	Empty	1-2
7	M	KBC 793	0.699125376	Embakasi	Thika	Ballast	1-2
7	H	KAY 333C	2.526744753	Embakasi	Thika	Ballast	1-2
7	M	KAZ 718S	0.009221235	Nairobi	Nyeri	Plastic	1-2
7	M	KAJ 218M	0.019904726	Ruai	Thika	Empty	1-2
7	M	KAT 154	12.31760819	Nairobi	Thika	Cement	1-2
7	H	KAX 618M	0.193332753	Ruai	Thika	Empty	1-2-2
7	M	KAM 565	0.009047075	Embakasi	Thika	Empty	1-2
8	M	KBG 971E	0.273701232	Athi River	Githurai	Cement	1-2
8	M	KAG 885C	4.022905887	Nairobi	Nyeri	Fuel	1-2
8	M	KAB 112S	0.024584063	Athi River	Thika	Matresses	1-2
8	A	KAZ 414G	6.360472023	Nairobi	Meru	Fuel	1-2-2-2-2-2
8	H	KBC 910Z	7.739108758	Embakasi	Thika	Ballast	1-2-2
8	A	KBE 111	9.497894145	Athi River	Ruiru	Cement	1-2-2-2-2-2
8	H	KAQ 319	11.77102638	Athi River	Thika	Cement	1-2-2
8	H	KAE 688F	0.204289803	Nairobi	Thika	Empty	1-2-2
8	A	KAS 418J	8.388968736	Nairobi	Meru	Fertilizer	1-2-2-2-2-2
8	H	KBP 996M	3.524329296	Nairobi	Thika	Goods	1-2-2
8	H	KBF 218Z	5.861587118	Nairobi	Juja	Cement	1-2-2
8	H	KAZ 416R	0.118840664	Embakasi	Nyeri	Empty	1-2-2
8	M	KXG 618Q	0.05772383	Nairobi	Thika	Empty	1-2
8	H	KAG 808X	7.671997057	Mlolongo	Juja	Hard Core	1-2
8	A	KBB 567Z	6.551930131	Mombasa	Nanyuki	Cement	1-2-2-2-2-2
8	A	KBP 040S	4.79867377	Mombasa	Ruiru	Container	1-2-2-2-2-2
8	H	KBP 154V	7.534937346	Mlolongo	Ruiru	Ballast	1-2-2
8	H	KBJ 918M	0.13730258	Ruai	Juja	Empty	1-2
8	M	KBP 598B	1.395257139	Embakasi	Nyeri	Animal Feeds	1-2
8	H	KBJ 333S	0.187790667	Mlolongo	Juja	Empty	1-2-2
8	M	KAR 120H	0.030152797	Nairobi	Kiambu	Medicine	1-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
8	H	KBQ 846C	5.713019616	Mlolongo	Thika	Ballast	1-2-2
8	M	KBB 372A	5.299247493	Athi River	Thika	Cement	1-2
8	H	KBF 720H	10.29426569	Embakasi	Thika	Primix	1-2-2
8	A	KAS 872A	6.840079266	Mombasa	Nanyuki	Steel	1-2-2-2-2-2
8	A	KBG 395R	8.502612237	Nairobi	Thika	Cement	1-2-2-2-2-2
8	A	KAY 300F	7.35703663	Nairobi	Meru	Fertilizer	1-1-2- 2-2-2
8	A	KAS 218	8.385599873	Mombasa	Thika	Cement	1-2-2-2-2-2
8	M	KAK 033G	3.387439938	Nairobi	Meru	Fertilizer	1-2
8	H	KBN 677	0.194390952	Nairobi	Thika	Empty	1-2-2
8	M	KBH 832U	0.019039092	Nairobi	Thika	Empty	1-2
8	A	KBH 832U	6.867106968	Mombasa	Thika	Fertilizer	1-1-2-2-2-2
8	M	KBQ 865C	2.521144857	Mlolongo	Thika	Ballast	1-2
8	A	KAX 274J	0.529121386	Nairobi	Thika	Empty	1-1-2-2-2-2
8	M	KBQ 044	4.035365779	Athi River	Thika	Cement	1-2
8	M	KBA 217S	4.082164795	Athi River	Ruiru	Cement	1-2
8	H	KAX 764G	2.981179319	Nairobi	Thika	Lime	1-2-2
9	H	KBA 176Y	2.581356509	Nairobi	Meru	Flour	1-2-2
9	A	KAN 394	5.803819014	Nairobi	Thika	Fuel	1-1-2-2-2-2
9	M	KAJ 766	1.722677485	Ruai	Thika	Ballast	1-2
9	H	KAZ 908T	6.438494584	Athi River	Juja	Cement	1-2-2
9	A	KBF 740N	6.914710061	Mombasa	Meru	Fertilizer	1-1-2-2-2-2
9	M	KBD 380M	0.05278996	Embakasi	Meru	Maize	1-2
9	A	KAD 596Z	0.385302103	Nairobi	Muranga	Goods	1-2-1-1
9	H	KAZ 240U	2.403706279	Mlolongo	Thika	Ballast	1-2-2
9	M	KXZ 280	3.591961816	Mlolongo	Thika	Ballast	1-2
9	A	KBP 314T	7.459033302	Mombasa	Thika	Container	1-2-2-2-2-2
9	M	KBL 829Z	7.140086413	Athi River	Ruiru	Cement	1-2
9	A	KBL 624F	4.865830573	Mombasa	Meru	Fertilizer	1-1-2-2-2- 2
9	H	KAJ 920Z	3.204971276	Embakasi	Naivasha	Sodas	1- 2- 2
9	H	KAM 561T	18.04250275	Mlolongo	Thika	Ballast	1-2-2
9	H	KBC 746M	4.30884967	Mlolongo	Thika	Ballast	1 -2-2
9	H	KAZ 618	0.120218472	Embakasi	Thika	Empty	1-2-2
9	H	KBJ 553J	0.089149216	Nairobi	Ruiru	Empty	1-2-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
9	M	KBB 999	0.072803078	Njiru	Thika	Ballast	1-1-2
9	A	KAY 970T	6.97862282	Nairobi	Meru	Fertilizer	1-1
9	A	KAW 580Q	7.158127473	Nairobi	Thika	Container	1-1
9	A	KAS 220W	7.377725591	Mombasa	Ruiru	Container	1-1-2-2-2-2
9	M	KBA 279	1.010162911	Athi River	Thika	Steel	1-2
9	H	KLY 602	0.057483222	Nairobi	Thika	Empty	1-2-2
9	A	KBP 597V	30.17729103	Mombasa	Thika	Wheat	1-2-2-2- 2-2
9	H	KBC 186	23.23044511	Kajiado	Thika	Sand	1-2-2
9	M	KBK 120H	0.917162731	Mlolongo	Kahawa West	Ballast	1-2
9	H	KAS 872A	0.151944782	Njiru	Ruiru	Empty	1-2-2
9	M	KAK 033G	0.037375134	Embakasi	Thika	Empty	1-2
9	H	KBC749R	8.262839645	Embakasi	Thika	Primix	1-2-2
9	H	KAG 828M	13.19456661	Embakasi	Thika	Hard Core	1-2-2
9	M	KBF 785G	0.031839796	Nairobi	Thika	Empty	1-2
9	M	KAV 073F	2.503898436	Athi River	Ruiru	Cement	1-2
9	M	KBB 478S	2.332290444	Athi River	Nyeri	Cement	1-2
9	M	KBF 222	0.053123157	Nairobi	Thika	Goods	1-2
9	H	KBA 219	2.428155362	Athi River	Kutus	Cement	1-2-2
9	M	KAX 7494S	2.332290444	Athi River	Thika	Cement	1-2
9	H	KAL 260S	1.158320063	Athi River	Ruiru	Cement	1-2-2
9	A	047 SAA 02	0.675496804	Mombasa	Thika	Empty	1-2-2-2-2-2
9	M	KAS 609	0.621755076	Nairobi	Muranga	Goods	1-2
9	H	KBC 752	0.138254514	Nairobi	Thika	Empty	1-2-2
9	H	KBL 925D	14.93200241	Embakasi	Thika	Hard Core	1-2-2
9	H	KBD 608	0.309508643	Nairobi	Thika	Empty	1-2-2
9	H	KAV 301V	0.162236788	Embakasi	Thika	Empty	1-2-2
9	M	KAT 488U	0.658088469	Nairobi	Nyeri	Goods	1-2
9	M	KBN 287W	0.02129876	Nairobi	Juja	Empty	1-2
9	H	KBQ 433C	0.110115103	Nairobi	Ruiru	Empty	1-2-2
9	M	KBK 726	5.017973073	Njiru	Ruiru	Sand	1-2
9	M	KBP 086C	0.029364032	Pipeline	Thika	Empty	1-2
9	H	KBL 627W	3.071659425	Embakasi	Thika	Hard Core	1-2-2
9	M	KAG 575H	0.419008385	Nairobi	Juja	Goods	1-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
9	M	KBA 312F	4.567854215	Nairobi	Nanyuki	Medicine	1-2
9	M	KAH 174P	0.638788455	Mlolongo	Kiambu	Cement	1-2
9	M	KAM 933Z	0.175328456	Nairobi	Thika	Cartons	1-2
9	M	KAX 630U	6.660165789	Ruai	Thika	Primix	1-2
9	M	KYB 475	2.900256666	Nairobi	Thika	Steel	1-2
9	H	KAJ 414	3.89476272	Athi River	Nyeri	Cement	1-2-2
9	M	KBF 309	0.95071248	Nairobi	Thika	Fertilizer	1-2
9	M	KAM 744Y	0.024141458	Embakasi	Kiambu	Empty	1-2
9	M	KAS 418J	0.016962043	Nairobi	Ruiru	Empty	1-2
9	H	KAL 318F	0.220049541	Nairobi	Thika	Assorted Goods	1-2-2
9	M	KBC 394	3.463795127	Nairobi	Ruiru	Dust	1-2
9	H	KAM 196V	2.976460777	Nairobi	Thika	Cement	1-2-2
9	A	KBA 930W	6.568619178	Mombasa	Githurai	Container	1-1-2-2-2-2
9	M	KBA 583H	2.403055168	Ruai	Thika	Primix	1-2
10	M	KBA 219S	3.241164732	Nairobi	Thika	Ballast	1-2
10	M	KZX 304	0.015286725	Nairobi	Kiambu	Empty	1-2
10	H	KAG 984	28.76699242	Mlolongo	Thika	Ballast	1-2-2
10	H	KAT 632D	0.055646319	Nairobi	Kiambu	Empty	1-2-2
10	M	KAZ 732	2.668737989	Embakasi	Thika	Primix	1-2
10	H	KAE 669B	10.0461409	Athi River	Maua	Cement	1-2-2
10	A	KAT 429C	9.433234414	Mombasa	Nanyuki	Fuel	1-2-2-2-2-2
10	H	KAG 827	13.61491563	Kitengela	Thika	Cement	1-2-2
10	H	KBP 893	5.310779621	Embakasi	Kiambu	Ballast	1-2-2
10	M	KBC 411	0.026266355	Nairobi	Nanyuki	Empty	1-2
10	M	KAZ 647Z	2.169760771	Athi River	Ruiru	Cement	1-2
10	A	KBM 060T	5.014073747	Mombasa	Meru	Fuel	1-2-2-2-2-2
10	H	KBB 010K	0.193024287	Embakasi	Thika	Empty	1-2-2
10	M	KAG 842G	0.039082752	Kitengela	Thika	Empty	1-2
10	H	KAW 426W	8.322692676	Embakasi	Thika	Primix	1-2-2
10	M	KBA 237C	0.015826074	Mlolongo	Nanyuki	Empty	1-2
10	M	KBP 749E	0.031965994	Kitengela	Ruiru	Empty	1-2
10	H	KAL 413M	4.616946606	Nairobi	Kiambu	Fuel	1-2-2
10	A	KAH 048	7.960491432	Nairobi	Kiambu	Sodas	1-2-2-2-2-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
10	A	KBC 210Y	11.20506087	Nairobi	Nanyuki	Cement	1-2-2-2-2-2
10	A	KAW 250G	7.097528713	Nairobi	Thika	Beer	1-2-2-2-2-2
10	A	ZC 4706	5.822234691	Mombasa	Nyeri	Fuel	1-1-2-2-2-2
10	M	KBA 352G	0.057382025	Nairobi	Meru	Empty	1-2
10	H	KAL 469M	0.165271018	Nairobi	Nyeri	Assorted Goods	1-2-2
10	M	KAT 135C	7.261070076	Nairobi	Ruiru	Cement	1-2
10	M	KAK 207Y	0.030874069	Ruai	Kiambu	Empty	1-2
10	M	KAV 873A	2.671994191	Kajiado	Thika	Fertilizer	1-2
10	M	KAH 006Z	0.072037651	Nairobi	Muranga	Empty	1-2
10	H	KAL 720	0.059062874	Nairobi	Isiolo	Empty	1-2-2
10	M	KAP 347C	0.09767228	Nairobi	Ruiru	Assorted Goods	1-2
10	M	KAY 669A	0.565770351	Nairobi	Meru	Assorted Goods	1-2
10	M	KVE 485	0.053137137	Nairobi	Juja	Empty	1-2
10	M	KAT 453	1.051884761	Embakasi	Thika	Empty	1-2
10	H	KAX 342	10.54187481	Embakasi	Ruiru	Hard Core	1-2-2
10	M	KBN 075	1.341654242	Embakasi	Thika	Polythene	1-2
10	M	KBH 425G	0.05264284	Nairobi	Kiambu	Assorted Goods	1-2
10	H	KBP 486D	0.136943809	Nairobi	Thika	Empty	1-2-2
10	M	KAX 356C	2.225845435	Kitengela	Githurai	Medicine	1-2
10	M	KAE 615	0.085714263	Nairobi	Ruiru	Empty	1-2
10	A	KAR 684C	4.206188486	Mlolongo	Nanyuki	Steel	1-1-2-2-2-2
10	A	KAV 150R	13.24188758	Mombasa	Ruiru	Steel	1-1-2-2-2-2
10	M	KAC 246X	0.191560995	Mlolongo	Embu	Empty	1-2
10	M	KAD 426B	0.168327733	Nairobi	Embu	Empty	1-2
10	M	KBJ 210R	1.484129354	Nairobi	Githurai	Assorted Goods	1-2
10	H	KAL 855K	1.274676389	Kitengela	Muranga	Detergent	1-2-2
10	M	KBH 397W	2.230828826	Embakasi	Thika	Empty	1-2
10	M	KAT 304C	0.594585593	Mlolongo	Ruiru	Sand	1-2
10	M	KYR 390	1.350143342	Mombasa	Ruiru	Fertilizer	1-2
10	H	KBP 294	3.176764719	Embakasi	Thika	Ballast	1-2-2
10	A	KAH 271D	7.463048765	Mombasa	Thika	Rice	1-2-2-2-2-2
10	M	KAX 252S	0.295873338	Nairobi	Thika	Water	1-2
10	M	KAZ 487	0.047270673	Nairobi	Embu	Empty	1-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
10	M	KAN 394	0.020805	Nairobi	Ruiru	Empty	1-2
10	H	KBQ 601	0.111620444	Embakasi	Thika	Empty	1-2-2
10	M	KBJ 920Z	0.041415763	Nairobi	Ruiru	Empty	1-2
10	M	KAY 970T	2.401452817	Nairobi	Muranga	Fuel	1-2
10	M	KAY 337J	5.103404067	Nairobi	Ruiru	Polland	1-2
10	M	KAT 319C	0.122635148	Nairobi	Embu	Plastics	1-2
10	M	KBJ 391R	0.020516351	Nairobi	Kiambu	Empty	1-2
10	M	KAH 463	0.012639287	Nairobi	Meru	Paint	1-2
10	H	KAT 114A	3.339838118	Nairobi	Meru	Polland	1-2-2
10	A	KBN 216F	6.455664514	Athi River	Ruiru	Cement	1-2-2-2-2-2
10	H	KAB 537X	0.10380175	Ruai	Thika	Empty	1-2-2
10	H	KBC 9694Y	5.362387761	Embakasi	Thika	Ballast	1-2-2
10	M	KYB 210	0.029297306	Nairobi	Thika	Empty	1-2
10	M	KBC 148K	0.015935803	Nairobi	Juja	Empty	1-2
10	M	KBH 673V	0.4893762	Nairobi	Juja	Empty	1-2
10	H	KAE 263D	2.965763466	Nairobi	Ruiru	Flour	1-2-2
10	M	KBL 468M	6.075378956	Nairobi	Embu	Polland	1-2
10	M	KBA 550A	0.013329637	Kayole	Thika	Empty	1-2
10	M	KAD 609	3.577661758	Nairobi	Juja	Assorted Goods	1-2
10	M	KBF 686H	0.030495026	Nairobi	Thika	Empty	1-2
10	H	KAY 234J	0.22641451	Nairobi	Thika	Empty	1-2-2
10	M	KBA 815G	0.189801396	Embakasi	Thika	Goods	1-2
10	M	KBM 899Y	9.343368893	Mlolongo	Ruiru	Sand	1-2
10	M	KAX 543S	5.443193257	Mlolongo	Thika	Ballast	1-2
10	M	KAV 547S	7.727474337	Mlolongo	Thika	Sand	1-2
10	M	KAT 618Y	0.054947419	Nairobi	Thika	Empty	1-2
10	H	KAD 843	0.128100656	Nairobi	Thika	Empty	1-2-2
10	M	KAR 810V	4.475141769	Mlolongo	Thika	Sand	1-2
10	A	KAV 042B	4.322532809	Mombasa	Ruiru	Container	1-2-2-2-2-2
10	A	KAV 563T	6.916072271	Mombasa	Nanyuki	Container	1-1-2-2-2-2
10	M	KBL 935M	0.092446943	Nairobi	Thika	Empty	1-2
10	A	KBM 118G	7.051461558	Mombasa	Thika	Container	1-2-2-2- 2- 2
10	M	KBP 155J	0.031211877	Nairobi	Thika	Empty	1-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
10	H	KBB 501	7.530532311	Mlolongo	Thika	Ballast	1-2-2
10	M	KBP 665N	0.454692789	Nairobi	Thika	Goods	1-2
10	M	KAN 548	0.010346214	Nairobi	Juja	Empty	1-2
10	M	KBH 835C	1.059945938	Embakasi	Thika	Primix	1-2
10	M	KAX 988Z	0.075196821	Nairobi	Thika	Empty	1-2
10	M	KAE 154Z	0.079372713	Nairobi	Githurai	Empty	1-2
10	M	KBN 687V	0.090066893	Embakasi	Thika	Primix	1-2
10	M	KAV 275X	10.99879434	Athi River	Meru	Cement	1-2
10	H	KAE 063F	3.000110093	Mlolongo	Thika	Ballast	1-2-2
10	H	KAR 618	0.154136735	Nairobi	Kiambu	Empty	1-2-2
10	H	KAG 828X	10.63294668	Embakasi	Juja	Hard Core	1-2-2
11	A	ZC 936	1.24899539	Mombasa	Thika	Empty	1-2-2-2-2-2
11	H	KAW 672T	1.330005265	Nairobi	Thika	Generator	1-2-2
11	H	KAD 219	0.15902529	Embakasi	Juja	Empty	1-2-2
11	M	KAZ 098B	24.54216779	Athi River	Meru	Cement	1-2
11	M	KAR 243	0.1122984	Embakasi	Juja	Empty	1-2
11	M	KBP 649B	3.66324419	Nairobi	Thika	Iron Sheets	1-2
11	A	KAV 318J	8.810377677	Mombasa	Mangu	Cement	1-2-2-2-2-2
11	M	KAR 992Z	0.12044864	Nairobi	Thika	Goods	1-2
11	M	KAV 205R	2.827870544	Nairobi	Nyeri	Fuel	1-2
11	M	KUB 635	1.399942479	Mlolongo	Thika	Sand	1-2
11	H	KAZ 267Q	0.093198527	Embakasi	Thika	Empty	1-2-2
11	H	KBL 670K	0.077831383	Embakasi	Ruiru	Empty	1-2-2
11	M	KBM 832Y	0.106294142	Nairobi	Muranga	Empty	1-2
11	H	KBM 352	0.071241607	Pipeline	Juja	Empty	1-2-2
11	M	KBJ 385	0.007529307	Nairobi	Thika	Empty	1-2
11	M	29CD 179K	0.173402071	Nairobi	Embu	Goods	1-2
11	A	KBN 147X	3.73256915	Embakasi	Thika	Primix	1-2-2-2-2-2
11	M	KAQ 518X	1.978552299	Mlolongo	Thika	Ballast	1-2-2
11	H	KBK 395R	2.019978686	Nairobi	Karatina	Goods	1-2-2
11	H	KBJ 449S	0.152052571	Nairobi	Ruiru	Empty	1-2-2
11	A	KBA 577G	8.786539559	Nairobi	Garrissa	Fuel	1-2-2-2-2-2
11	M	KBA 999F	9.492835339	Mlolongo	Thika	Ballast	1-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
11	H	KAY 645X	2.074171994	Athi River	Thika	Cement	1-2-2
11	M	KAL 236Q	0.039756846	Nairobi	Thika	Empty	1-2
11	M	KAB 218	5.470400762	Mombasa	Kutus	Rice	1-2
11	M	KBP 298	0.022337508	Nairobi	Embu	Empty	1-2
11	H	KAV 508S	2.487998477	Nairobi	Kiambu	Sodas	1-2-2
11	H	KBA 321G	8.489142999	Mlolongo	Thika	Ballast	1-2-2
11	M	KBG 626V	0.0267059	Nairobi	Embu	Empty	1-2
11	M	KAV 617K	0.018943651	Nairobi	Thika	Lemon	1-2
11	M	KAQ 551B	1.420771906	Nairobi	Thika	Animal Feeds	1-2
11	M	KBJ 468J	5.133423218	Nairobi	Meru	Goods	1-2
11	M	KBJ 414	0.005547825	Kitengela	Kiambu	Empty	1-2
11	A	KAR 385S	6.599567226	Mombasa	Muranga	Flour	1-2-2-2-2-2
11	H	KAV 045T	10.27201724	Embakasi	Thika	Primix	1-2-2
11	A	KBH 884V	6.364536374	Mombasa	Nanyuki	Container	1-2-2-2-2-2
11	M	KAM 744Y	3.449143459	Athi River	Nyeri	Cement	1-2
11	A	KBM 778Y	5.788905992	Mombasa	Thika	Fertilizer	1-1-2-2-2-2
11	A	KBL 333A	10.70917054	Mombasa	Meru	Fertilizer	1-2-2-2-2-2
11	M	KAS 207T	1.061911418	Nairobi	Nyeri	Ply Wood	1-2
11	M	KAY 273F	0.007801835	Nairobi	Kiambu	Empty	1-2
11	M	KAM 498	0.06287965	Mlolongo	Thika	Steel	1-2
11	M	KBJ 142	0.004182784	Nairobi	Kiambu	Poultry	1-2
11	M	KAX 071X	0.037795628	Mlolongo	Ruiru	Empty	1-2
11	H	KAV 407S	1.604781959	Nairobi	Nyeri	Sodas	1-2-2
11	M	KAY 106T	0.066723583	Nairobi	Ruiru	Empty	1-2
11	M	KAE 364	0.052222141	Kitengela	Ruiru	Empty	1-2
11	M	KBH 047	0.04999652	Embakasi	Thika	Empty	1-2
11	H	KAT 234	2.340420341	Nairobi	Meru	Fuel	1-2-2
11	A	KAR 695F	6.791297764	Mombasa	Ruiru	Fertilizer	1-1-2-2-2-2
11	H	KBG 410T	4.292871883	Nairobi	Kahawa	Animal Feeds	1-2-2
11	A	T99Z ADH	0.361061748	Nairobi	Nanyuki	Empty	1-2-2-2-2-2
11	M	KAX 694T	2.15031933	Kitengela	Kiambu	Assorted Goods	1-2
11	H	KBJ 010K	32.32328528	Embakasi	Ruiru	Hard Core	1-2-2
11	H	KAE 454B	0.213992336	Embakasi	Ruiru	Empty	1-2-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
11	H	KBG 268N	0.116502552	Embakasi	Ruiru	Empty	1-2-2
11	H	KBJ 413R	0.174437416	Nairobi	Maua	Assorted Goods	1-2-2
11	A	KBB 018P	11.37615816	Mombasa	Meru	Fertilizer	1-1-2-2-2-2
11	M	KBK 483	0.159345157	Airport	Kiambu	Fuel	1-2
11	A	KBQ 683C	6.834820702	Kajiado	Nyeri	Fertilizer	1-1-2-2-2- 2
11	M	KBH 561C	0.002639148	Kitengela	Githurai	Empty	1-2
11	H	KBP 891C	16.98793039	Embakasi	Ruiru	Ballast	1-2-2
11	M	KAM 334B	1.94529038	Nairobi	Meru	Flour	1-2
11	M	KTU 926	0.057695007	Umoja	Thika	Empty	1-2
11	A	KBA 556A	3.416141393	Mombasa	Meru	Steel	1-1-2-2-2-2
11	M	KBM 522	0.043435652	Nairobi	Thika	Empty	1-2
11	M	KSU 619	0.083826007	Nairobi	Thika	Pipes	1-2
11	M	KBL 358W	1.958433759	Nairobi	Ruiru	Assorted Goods	1-2
11	M	KAX 543S	1.169958893	Embakasi	Juja	Assorted Goods	1-2
11	H	KAV 546F	2.434887427	Athi River	Garrissa	Cement	1-2-2
11	A	KAX 401V	0.154557777	Embakasi	Kiambu	Empty	1-2-1-2
11	M	KBB 781T	0.00554972	Nairobi	Nyeri	Empty	1-2
11	M	KAJ 933M	0.005370965	Nairobi	Meru	Empty	1-2
11	M	KAA 518	0.036965232	Embakasi	Meru	Goods	1-2
11	M	KAH 372B	3.884591363	Mlolongo	Thika	Ballast	1-2
11	M	KAS 926X	0.041478568	Nairobi	Thika	Crates Empty	1-2
11	M	KBA 505A	0.845056522	Nairobi	Thika	Assorted Goods	1-2
11	A	KBB 401	0.235415259	Mombasa	Thika	Empty	1-2-2-2-2-2
11	M	KTK 181	0.125744046	Nairobi	Juja	Empty	1-2
11	A	KBG 493V	0.103132156	Nairobi	Ruiru	Empty	1-1-2-2
11	M	KAY 631Y	0.030150046	Nairobi	Karatina	Empty	1-2
11	M	KBL 935M	1.235944571	Njiru	Juja	Sand	1-2
11	M	KAY 602T	0.034243519	Nairobi	Thika	Empty	1-2
12	M	KBH 442C	0.038123971	Nairobi	Nanyuki	Goods	1-2
12	H	KAQ 666	0.202865144	Embakasi	Thika	Empty	1-2-2
12	H	KAV 159Y	5.634673779	Mlolongo	Ruiru	Sand	1-2-2
12	H	KAB 239J	1.337279644	Nairobi	Thika	Fuel	1-2-2
12	H	KAE 154Z	0.23643049	Nairobi	Thika	Empty	1-2-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
12	M	KAT 608	0.084150832	Nairobi	Ruiru	Goods	1-2
12	M	KBN 687U	0.914651188	Kayole	Ruiru	Empty	1-2
12	M	EXGK 504K	0.009782027	Nairobi	Thika	Empty	1-2
12	M	KAD 843	4.846016236	Nairobi	Ruiru	Fuel	1-2
12	H	KAS 581R	0.317760288	Mlolongo	Juja	Ballast	1-2-2
12	H	KAK 619P	0.094485278	Nairobi	Embu	Empty	1-2-2
12	H	KAR 810V	0.082298709	Nairobi	Embu	Empty	1-2-2
12	M	KBP 565	0.468455428	Nairobi	Nanyuki	Fuel	1-2-2
12	M	KAQ 377W	0.262777427	Nairobi	Kiambu	Beef	1-2
12	M	KAP 399R	1.050013803	Nairobi	Garrissa	Fuel	1-2
12	H	KBD 024N	0.185795417	Nairobi	Thika	Empty	1-2-2
12	M	KBK 199H	2.827870544	Nairobi	Thika	Fuel	1-2
12	A	KBB 391H	8.97135475	Mombasa	Thika	Fertilizer	1-2-2-2-2-2
12	H	KAS 132Y	4.437794547	Mlolongo	Thika	Ballast	1-2-2
12	M	KBP 060A	0.10508734	Nairobi	Juja	Empty	1-2
12	M	KBG 132R	2.356998787	Athi River	Nyeri	Cement	1-2
12	A	KAY 392B	6.184990342	Nairobi	Embu	Fuel	1-1-2-2-2-2
12	M	KBN 708H	0.006437451	Nairobi	Thika	Empty	1-2
12	M	KAM 618J	0.049800613	Embakasi	Kiambu	Empty	1-2
12	M	KAY 505L	0.00912533	Pipeline	Karatina	Empty	1-2
12	A	KAV 808Q	0.761952372	Mombasa	Thika	Container	1-1-2-2-2-2
12	M	KAB 800F	0.044592711	Mlolongo	Thika	Ballast	1-2
12	H	KAG 897M	1.991862759	Mlolongo	Thika	Sand	1-2-2
12	H	KAZ 416R	0.166849576	Nairobi	Meru	Cement	1-2-2
12	M	KAX 865U	5.38939033	Nairobi	Nyeri	Cement	1-2-2-2-2-2
12	A	KBA 516S	0.405285492	Nairobi	Thika	Empty	1-2-2-2-2-2
12	A	KAH 678G	8.024663045	Nairobi	Thika	Cement	1-2
12	M	KTP 008	0.060724738	Ruai	Ruiru	Empty	1-2
12	M	KBF 205H	0.007923904	Nairobi	Ruiru	Empty	1-2
12	M	KBA 999P	0.307365396	Embakasi	Juja	Building Materials	1-2
12	M	KAM 238B	0.029800193	Nairobi	Thika	Empty	1-2
12	M	KAD 755J	0.097814867	Nairobi	Thika	Goods	1-2-2-2-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
12	A	KJT 372	0.839820157	Nairobi	Muranga	Empty	1-2
12	M	KAT 242	8.444504494	Nairobi	Thika	Cement	1-2-2
12	H	KAZ 267Q	2.863240034	Embakasi	Embu	Sodas	1-2
12	M	KBB 446M	0.146630504	Kayole	Thika	Empty	1-2-2
12	H	KBN 264X	0.115111104	Nairobi	Thika	Empty	1-2
12	M	KAS 212G	0.033796629	Nairobi	Juja	Empty	1-2
12	M	KBN 533N	0.001319536	Nairobi	Thika	Empty	1-2
12	H	KBP 772E	0.236964352	Nairobi	Thika	Empty	1-2-2
12	A	KAW 218S	6.129601759	Nairobi	Thika	Steel	1-2-2-2-2-2
12	M	KAV 222V	5.447782755	Nairobi	Nyeri	Animal feeds	1-2
12	M	KBL 425A	1.211352785	Nairobi	Meru	Fuel	1-2
12	H	KAW 795R	0.269739965	Nairobi	Nanyuki	Empty	1-2-2
12	H	KBA 669J	0.17089128	Embakasi	Juja	Empty	1-2-2
12	M	KXH 177	0.058014139	Embakasi	Thika	Empty	1-2
12	A	KBP 100T	25783.32221	Embakasi	Meru	Flour	1-2-2-2-2-2
12	A	KBL 204Z	0.342912349	Nairobi	Thika	Empty	1-2-2-2-2-2
12	M	KAZ 218Y	0.068976521	Nairobi	Thika	Empty	1-2
12	M	KAM 840Q	0.012889366	Athi River	Thika	Empty	1-2
12	M	KAV 434V	0.044484772	Kayole	Thika	Empty	1-2
12	M	KBK 408H	0.056197837	Nairobi	Thika	Goods	1-2
12	M	KBP 392W	0.699265566	Mlolongo	Thika	Ballast	1-2
12	A	KAY 752Z	5.911309053	Athi River	Matuu	Cement	1-2-2-2-2-2
12	M	KAJ 584V	0.12479527	Nairobi	Thika	Empty	1-2
12	H	KYW 680	0.133111779	Nairobi	Thika	Containers	1-2-2
12	M	KAL 192G	0.040600759	Nairobi	Juja	Empty	1-2
12	M	KBF 856U	1.805292833	Mlolongo	Juja	Ballast	1-2
12	H	KBP 849V	2.455920025	Nairobi	Garissa	Fuel	1-2-2
12	H	KAT 116V	2.553195162	Nairobi	Thika	Fuel	1-2-2
12	M	KAX 629S	0.072553111	Nairobi	Thika	Plastics	1-2
12	M	KBP 764V	3.623616668	Nairobi	Nyeri	Fertilizer	1-2
12	M	KBJ 800E	15.53066674	Nairobi	Ruiru	Timber	1-2
12	M	KBQ 210C	10.11908223	Nairobi	Eldoret	Cement	1-2
12	A	KBA 659C	9.0679346	Athi River	Matuu	Cement	1-2-2-2-2-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
12	A	KBA 888U	7.228064594	Nairobi	Thika	Rice	1-2-2-2-2-2
12	M	KBJ 414R	0.00242198	Nairobi	Juja	Empty	1-2
12	M	KAS 207S	0.004742729	Nairobi	Ruiru	Empty	1-2
12	M	KAV 971K	0.062778937	Mombasa	Ruiru	Plastics	1-2
12	M	KZV 281	1.347973459	Njiru	Thika	Sand	1-2
12	H	KAV 407S	0.079848746	Nairobi	Thika	Empty	1-2-2
12	M	KBH 047R	0.599561635	Nairobi	Murang'a	Fuel	1-2
12	A	KAM 024J	6.734477139	Mombasa	Thika	Containers	1-2-2-2-2-2
12	M	KBQ 456J	0.897043162	Athi River	Thika	Cement	1-2
12	H	KAT 015U	6.735673025	Nairobi	Kirunyuyu	Fertilizer	1-2-2
12	M	KAR 120H	1.652476447	Mlolongo	Thika	Dust	1-2
12	M	KBK 996S	3.66324419	Nairobi	Thika	Flour	1-2
12	A	KAH 790K	6.378282679	Mombasa	Thika	Fertilizer	1-2
12	M	KBH 987V	0.023791258	Nairobi	Thika	Empty	1-2-2-2-2-2
12	H	KBN 938C	4.240722881	Mlolongo	Thika	Ballast	1-2-2
12	M	KAC 840C	0.071562362	Nairobi	Ruiru	Goods	1-2
12	M	KAA 426P	0.150075471	Nairobi	Ruiru	Goods	1-2
12	M	KBN 565R	5.100867596	Nairobi	Thika	Rice	1-2
12	A	KBL 625F	10.02317686	Mombasa	Nyeri	Rice	1-2
12	A	KAV 667U	2.039498443	Mombasa	Thika	Containers	1-2-1-2-2-2
12	M	KAQ 377W	0.008263344	Nairobi	Thika	Rice	1-2
12	M	KBJ 793M	0.011249181	Nairobi	Thika	Rice	1-2
12	H	KJW 793	10.07685647	Mlolongo	Thika	Sand	1-2-2
12	H	KAT 474L	7.509047392	Mlolongo	Juja	Sand	1-2-2
12	M	KAU 225G	0.02310296	Nairobi	Thika	Empty	1-2
12	H	KBL 496K	12.98655274	Athi River	Thika	Cement	1-2-2
12	M	KAY 970T	1.841412398	Nairobi	Thika	Fuel	1-2
12	M	KAS 220W	0.088653386	Nairobi	Thika	Empty	1-2
12	M	KBC 186Y	0.14889888	Nairobi	Juja	Empty	1-2
12	A	KBP 290Y	6.081279431	Mombasa	Mwingi	Cement	1-2-2-2-2-2
12	M	KBP 015P	0.304438781	Kayole	Kiriani	Ironsheets	1-2
12	H	GK A084	1.510048109	Nairobi	Thika	Goods	1-2-2
12	M	KAL 318F	0.08211888	Nairobi	Thika	Empty	1-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
12	M	KBF 785G	0.007284	Nairobi	Thika	Plastics	1-2
12	H	KAV 073F	4.073591593	Mlolongo	Thika	Ballast	1-2-2
12	M	KBN 865N	0.01567414	Nairobi	Thika	Animal feeds	1-2
12	M	KBM 893A	0.005357466	Nairobi	Thika	Plastics	1-2
13	A	KBK 408H	13.98490232	Athi River	Thika	Cement	1-2-2-2-2-2
13	A	KBP 797D	12.93913645	Athi River	Nyeri	Cement	1-2-2-2-2-2
13	M	KBF 255J	0.00724158	Nairobi	Thika	Empty	1-2
13	M	KAM 992P	0.087364242	Nairobi	Juja	Empty	1-2
13	H	KSQ 469	0.121092923	Embakasi	Juja	Empty	1-2-2
13	H	KAZ 556R	0.109234919	Embakasi	Ruiru	Empty	1-2-2
13	M	KBL 229J	2.717517881	Njiru	Thika	Sand	1-2
13	H	KBJ 544W	3.248574941	Nairobi	Thika	Cement	1-2-2
13	H	KAV 666Z	2.087554726	Kajiado	Thika	Fertilizer	1-2-2
13	H	KAT 118V	2.986835781	Embakasi	Thika	Sodas	1-2-2
13	M	KBC 229L	2.434819455	Mombasa	Ruiru	Fertilizer	1-2
13	M	KAG 618X	1.650290228	Athi River	Nyeri	Cement	1-2
13	M	KAZ 299V	0.234726839	Athi River	Thika	Cement	1-2
13	A	ZA 557	7.816672132	Mombasa	Isiolo	Cement	1-2-2-2-2-2
13	M	KAP 282G	1.205724966	Nairobi	Meru	Animal feeds	1-2
13	M	KBK 191J	1.146589133	Mlolongo	Ruiru	Sand	1-2
13	H	KBP 2338P	0.154702229	Embakasi	Thika	Empty	1-2-2
13	M	KAV 498S	5.12660735	Athi River	Thika	Cement	1-2
13	M	KYQ 784	3.185080678	Nairobi	Thika	Papers	1-2
13	H	KAH 920K	0.081503988	Nairobi	Thika	Empty	1-2-2
13	H	KBA 751N	3.793598093	Nairobi	Kiambu	Goods	1-2-2
13	M	ZC 179	0.013294401	Embakasi	Ruiru	Empty	1-2
13	H	KAU 508S	0.073266483	Embakasi	Thika	Empty	1-2-2
13	M	KAU 562V	2.689460286	Nairobi	Meru	Fertilizer	1-2
13	M	KAY 229H	4.552228211	Nairobi	Nyeri	Animal feeds	1-2
13	M	KAA 667Y	0.945673451	Nairobi	Meru	Animal feeds	1-2
13	H	KAA 674N	6.231116498	Mlolongo	Juja	Ballast	1-2-2
13	M	KBM 571A	6.903350811	Mlolongo	Thika	Ballast	1-2
13	H	KAU 964D	7.990193611	Athi River	Thika	Cement	1-2-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
13	M	KSK 786	0.008918625	Nairobi	Thika	Empty	1-2
13	M	KVR 485	0.041741036	Nairobi	Juja	Empty	1-2
13	H	KBP 951V	4.079964695	Athi River	Thika	Cement	1-2-2
13	M	KAS 120G	15.23941104	Athi River	Meru	Cement	1-2
13	M	KBP 989F	0.008601789	Nairobi	Thika	Empty	1-2
13	H	KBA 222T	7.178058648	Athi River	Nyeri	Cement	1-2-2
13	M	KAQ 618Y	0.049776248	Nairobi	Nyeri	Posts	1-2
13	M	KAZ 996T	0.079482284	Nairobi	Thika	Empty	1-2
13	M	KAT 248C	0.325996841	Mlolongo	Juja	Ballast	1-2
13	M	KBJ 205Y	6.640108316	Athi River	Thika	Cement	1-2
13	H	KBJ 876Y	0.139370196	Nairobi	Thika	Empty	1-2-2
13	M	KAZ 618U	0.004675558	Nairobi	Maua	Empty	1-2
13	M	KZU 111	0.052378952	Nairobi	Thika	Empty	1-2-2
13	M	KBB 182A	0.010461924	Nairobi	Juja	Empty	1-2
13	M	KBF 218F	2.67030786	Athi River	Meru	Cement	1-2
13	A	KBN 968Y	6.560565702	Mombasa	Meru	Fertilizer	1-2-2-2-2-2
13	A	KBP 154V	2.076233193	Athi River	Meru	Cement	1-1-2-2-2-2
13	A	KBD 572K	6.626060015	Mombasa	Nyeri	Fertilizer	1-1-2
13	M	KBH 442C	0.185478353	Nairobi	Thika	Empty	1-2
13	H	KBB 372A	8.326048413	Mlolongo	Thika	Ballast	1-2-2
13	M	KAT 416U	0.015324946	Kitengela	Ruiru	Empty	1-2
13	M	KAX 217S	0.082477297	Nairobi	Nanyuki	Empty	1-2
13	M	KZC 980	1.157769205	Mlolongo	Ruiru	Sand	1-2
13	M	KBM 550B	0.039426539	Nairobi	Meru	Empty	1-2
13	M	KBL 534R	4.290777895	Mlolongo	Ruiru	Ballast	1-2
13	M	KAY 168U	0.019304182	Nairobi	Thika	Empty	1-2
13	H	KBC 897N	0.154769796	Nairobi	Thika	Fuel	1-2-2
13	M	KBP 919V	1.008393428	Nairobi	Thika	Goods	1-2
13	H	KAY 237J	0.148457135	Nairobi	Mwingi	Empty	1-2-2
13	M	KBP 014Q	0.046862368	Nairobi	Murang'a	Empty	1-2
13	H	KAX 219Z	0.229688885	Embakasi	Thika	Empty	1-2-2
13	H	KBN 418M	15.14609067	Athi River	Mwingi	Cement	1-2-2
13	H	KAS 226M	3.717185261	Mlolongo	Thika	Ballast	1-2-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
13	H	KAS 218S	3.464700934	Mlolongo	Juja	Ballast	1-2-2
13	M	KBC 967M	0.027459392	Nairobi	Thika	Empty	1-2
13	M	KBM 530Q	2.627103379	Athi River	Mwingi	Cement	1-2
13	M	KBK 276M	0.243968081	Nairobi	Ruiru	Goods	1-2
13	H	KAP 871Q	1.404924656	Kitengela	Ruiru	Assorted goods	1-2-2
13	M	KAP 934V	0.011480764	Nairobi	Meru	Empty	1-2
13	M	KAR 243X	0.012323774	Ruai	Thika	Empty	1-2
13	M	KBC 572E	1.470363261	Nairobi	Nyeri	Empty	1-2
13	H	KAG 306Y	5.916079445	Mlolongo	Thika	Ballast	1-2-2
13	H	KAY 388U	5.817425526	Mlolongo	Thika	Ballast	1-2-2
13	M	KBB 995C	1.066742738	Athi River	Meru	Cement	1-2
13	M	KBF 554C	2.248056502	Athi River	Thika	Cement	1-2
13	H	KAL 900S	0.334992397	Embakasi	Kiambu	Empty	1-2-2
13	H	KAB 435T	4.5148742	Nairobi	Nyeri	Assorted goods	1-2-2
13	A	ZC 577	3.17453859	Mombasa	Meru	Containers	1-1-2-2-2-2
13	A	KBH 576Z	5.796752487	Embakasi	Thika	Ballast	1-1-2-2
13	M	KAT 044H	0.237852872	Nairobi	Ruiru	Scrap metals	1-2-2
13	M	KBC 698B	0.075057352	Mlolongo	Mwingi	Empty	1-2
13	H	KAL 699U	7.000431195	Embakasi	Thika	Ballast	1-2-2
13	H	KBK 418D	3.909854975	Mlolongo	Thika	Sand	1-2-2
13	H	KAM 287C	0.167014467	Ruai	Thika	Empty	1-2-2
13	H	KAW 849U	0.174345025	Embakasi	Thika	Empty	1-2-2
13	H	KBB 424S	3.303128669	Embakasi	Thika	Ballast	1-2-2
13	H	KBH 555N	3.03065918	Embakasi	Thika	Ballast	1-2-2
13	M	KAX 560X	0.026996012	Nairobi	Ruiru	Empty	1-2
13	H	KAA 699U	0.074661221	Nairobi	Murang'a	Empty	1-2-2
13	M	KAJ 308B	0.054734185	Ruai	Thika	Empty	1-2
13	H	KAR 758B	1.016096007	Mlolongo	Kiambu	Sand	1-2-2
13	A	KAW 612E	0.096911676	Nairobi	Meru	Empty	1-1-2-2
13	M	KBM 171L	0.73933555	Umoja	Ruiru	Assorted goods	1-2
13	H	KBL 651S	0.164512111	Embakasi	Kiambu	Empty	1-2-2
13	M	KBJ 361R	0.261603097	Umoja	Thika	Empty	1-2
13	H	KAS 182A	2.684580057	Mlolongo	Ruiru	Ballast	1-2-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
13	H	KZP 665	0.909157472	Mlolongo	Ruiru	Ballast	1-2-2
13	H	KBL 163A	0.268793854	Mlolongo	Ruiru	Ballast	1-2-2
13	M	KAV 121Y	537.0967757	Nairobi	Maua	Empty	1-2
14	H	KAG 828K	4.500295243	Mombasa	Thika	Containers	1-2-2
14	H	KBM 445M	0.098393111	Embakasi	Ruiru	Empty	1-2-2
14	M	KTV 921	0.028918074	Mlolongo	Thika	Empty	1-2
14	H	KBC 440M	0.437663979	Nairobi	Nyeri	Assorted goods	1-2-2
14	A	KAX 834N	5.330701789	Mombasa	Nanyuki	Ironsheets	1-1-2-2-2-2
14	M	KYD 033	0.043713498	Nairobi	Kiambu	Empty	1-2
14	A	KAS 601S	6.517129772	Mombasa	Mwingi	Fuel	1-1-2-2-2
14	M	KAP 393Y	3.995211153	Athi River	Meru	Cement	1-2
14	H	KAH 392C	0.33553592	Nairobi	Mwingi	Assorted goods	1-2-2
14	M	KAB 605T	0.036813713	Nairobi	Meru	Empty	1-2
14	H	KAS 672T	18.57031901	Embakasi	Thika	Ballast	1-2-2
14	H	KBL 161A	5.725779331	Embakasi	Thika	Ballast	1-2-2
14	M	KQU 194	0.4035562	Nairobi	Meru	Empty	1-2
14	M	KAB 233K	3.023012887	Kajiado	Nyeri	Fertilizer	1-2
14	H	KAS 419K	2.196317644	Mlolongo	Ruiru	Sand	1-2-2
14	H	KAV 362S	3.574701333	Mombasa	Kutus	Fuel	1-2
14	M	KAM 616K	2.241065811	Mlolongo	Ruiru	Sand	1-2
14	M	KBL 798M	0.103878019	Nairobi	Nanyuki	Empty	1-2
14	H	KBL 153A	3.854348448	Kayole	Thika	Ballast	1-2-2
14	H	KBJ 563R	0.046167559	Ruai	Kiambu	Empty	1-2-2
14	M	KAP 248K	0.019890765	Nairobi	Maua	Empty	1-2
14	H	KZD 441	7.545560926	Kayole	Thika	Ballast	1-2-2
14	M	KAD 396X	1.805252708	Kayole	Thika	Ballast	1-2
14	M	KYY 552	0.028985189	Kitengela	Githurai	Empty	1-2
14	H	KAG 356X	5.065779353	Embakasi	Thika	Ballast	1-2-2
14	M	KAK 318G	0.031289721	Kitengela	Ruiru	Empty	1-2
14	M	KBL 419M	4.206085412	Nairobi	Kiambu	Sodas	1-2
14	H	KBP 104G	0.17782975	Nairobi	Ruiru	Cartons	1-2-2
14	M	KAA 035S	0.013233824	Mlolongo	Ruai	Empty	1-2
14	M	KAT 298U	0.007493374	Nairobi	Juja	Empty	1-2-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
14	M	KBN 503F	3.893239886	Embakasi	Thika	Ballast	1-2
14	A	KAY 383G	6.248946444	Nairobi	Nyeri	Ironsheets	1-1-2-2-2-2
14	A	KBA 558A	0.08519251	Embakasi	Thika	Empty	1-1-2-2
14	H	KAV 169Y	0.209669421	Embakasi	Thika	Empty	1-2-2
14	M	KAQ 351K	0.022093421	Nairobi	Nyeri	Empty	1-2
14	M	KAM 348C	0.431275883	Nairobi	Thika	Cartons	1-2
14	H	KBL 162A	5.628828877	Embakasi	Thika	Primix	1-2-2
14	M	KAT 843V	0.005912891	Nairobi	Meru	Empty	1-2
14	M	KAV 546F	3.739293	Nairobi	Juja	Cartons	1-2
14	A	KBC 090N	3.449839482	Athi River	Meru	Cement	1-2-2-2-2-2
14	H	KAZ 618U	3.290554246	Embakasi	Thika	Ballast	1-2-2-2-2-2
14	A	ZC 241	6.720014453	Athi River	Nanyuki	Cement	1-1-2-2-2-2
14	M	KAG 378P	0.001769115	Nairobi	Meru	Empty	1-2
14	M	KBN 684N	5.631726571	Nairobi	Meru	Ballast	1-2
14	A	KAA 819G	3.996101675	Mombasa	Meru	Rice	1-2-2-2-2-2
14	A	KBM 337Y	4.570558704	Mombasa	Meru	Rice	1-2-2-2-2-2
14	A	ZC 261A	6.66670782	Mombasa	Meru	Rice	1-2-2-2-2-2
14	M	KAZ 111S	2.421452593	Athi River	Nyeri	Cement	1-2
14	A	KBL 882R	8.080166642	Nairobi	Thika	Cement	1-2-2-2-2-2
14	M	KAL 697Y	2.997570729	Mlolongo	Thika	Sand	1-2
14	H	KBJ 333J	0.119483581	Embakasi	Ruiru	Empty	1-2-2
14	H	KBK 053H	0.064556425	Embakasi	Ruiru	Empty	1-2-2
14	H	KAW 612Y	0.106314741	Embakasi	Ruiru	Empty	1-2-2
14	H	KAT 893R	0.686002813	Mombasa	Nanyuki	Steel bars	1-2-2-2-2-2
14	H	KBJ 361R	0.083473075	Nairobi	Kiambu	Empty	1-2-2
14	M	KAS 182A	1.860847031	Nairobi	Nyeri	Assorted goods	1-2
14	H	KAZ 147Y	3.693384092	Mlolongo	Thika	Ballast	1-2-2
14	M	KAP 871G	0.081273432	Nairobi	Thika	Water	1-2
14	M	KBM 658V	0.058581026	Nairobi	Mwingi	Empty	1-2
14	H	KBC 914C	0.250483645	Embakasi	Ruiru	Empty	1-2-2
14	H	KBK 418D	9.066712297	Mlolongo	Thika	Sand	1-2-2-2-2-2
14	A	KAY 698F	4.373778212	Athi River	Mwingi	Cement	1-2
14	M	KAV 121Y	3.570494598	Mlolongo	Thika	Ballast	1-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
14	A	KAP 934N	2.425586041	Nairobi	Thika	Empty	1-1-2-2-2-2
15	H	KAQ 377W	0.201395249	Nairobi	Thika	Empty	1-2-2
15	M	KBD 324R	5.289338677	Athi River	Thika	Cement	1-2
15	H	KBH 847Y	2.111792936	Mlolongo	Ruiru	Ballast	1-2-2
15	H	KAH 616Y	8.43935223	Mlolongo	Juja	Ballast	1-2-2
15	H	KAS 583Y	0.219402866	Nairobi	Ruiru	Empty	1-2-2
15	M	KAS 132R	0.015215806	Nairobi	Thika	Empty	1-2
15	A	KBP 060A	1.092717361	Nairobi	Nyeri	Gas	1-1-2-2-2-2
15	H	KAD 621R	0.094946044	Nairobi	Kerugoya	Empty	1-2-2
15	M	KBA 854R	0.09255552	Mlolongo	Thika	Empty	1-2
15	M	KAZ 219K	0.035255131	Ruai	Juja	Empty	1-2
15	H	KAG 828X	9.053943641	Embakasi	Thika	Hardcore	1-2-2
15	H	KAT 968R	0.262049552	Nairobi	Ruiru	Empty	1-2-2
15	A	ZC 875S	5.21750627	Mombasa	Nanyuki	Steel bars	1-2-2-2-2-2
15	H	KAG 668W	15.80399779	Mlolongo	Thika	Sand	1-2-2
15	H	KAJ 475G	0.247589455	Nairobi	Thika	Empty	1-2-2
15	H	KBP 108K	0.086953117	Nairobi	Juja	Empty	1-2-2
15	M	KTP 041	0.023858744	Embakasi	Juja	Empty	1-2
15	H	KBJ 134R	0.181717576	Embakasi	Ruiru	Empty	1-2-2
15	M	KTK 158	0.765281574	Mlolongo	Thika	Ballast	1-2
15	H	KAY 237J	0.153398483	Nairobi	Thika	Empty	1-2-2
15	H	KBN 938S	6.572828196	Embakasi	Juja	Hardcore	1-2-2
15	M	KZV 625	0.054279538	Nairobi	Thika	Empty	1-2
15	H	KAZ 238U	2.584527849	Nairobi	Kiambu	Fuel	1-2-2
15	A	KBA 199G	9.723357305	Nairobi	Ruiru	Fertilizer	1-1-2-2-2-2
15	H	KAC 167N	0.059923174	Nairobi	Meru	Empty	1-2-2
15	M	KAB 980Z	1.177248255	Mlolongo	Thika	Sand	1-2
15	M	KAX 766S	11.27670189	Mlolongo	Thika	Flour	1-2
15	A	KBP 648S	5.110887852	Athi River	Meru	Cement	1-2-2-2-2-2
15	A	KAV 546F	6.636629554	Athi River	Thika	Cement	1-2-2-2-2-2
15	A	KAM 039H	4.147928655	Athi River	Kerugoya	Cement	1-2-2-2-2-2
15	H	KBA 024R	0.085012276	Nairobi	Murang'a	Empty	1-2
15	H	KAH 372B	0.104278151	Nairobi	Karatina	Empty	1-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
15	A	KAT 242R	2.567097946	Embakasi	Thika	Ballast	1-1-2-2
15	H	KAZ 267Q	0.124893321	Kitengela	Thika	Empty	1-2-2
15	M	KAM 047X	0.051592478	Nairobi	Meru	Empty	1-2
15	M	KBB 446M	1.698001378	Nairobi	Karatina	Fuel	1-2
15	M	KAL 689Y	1.627740821	Nairobi	Embu	Generators	1-2
15	M	KBN 254X	0.0064529	Nairobi	Nyeri	Empty	1-2
15	M	KBD 237Y	0.037586689	Nairobi	Meru	Empty	1-2
15	M	KXG 231	0.019747908	Nairobi	Ruiru	Empty	1-2
15	M	KBN 816F	1.201385926	Nairobi	Murang'a	Fertilizer	1-2
15	M	KAT 453R	0.00489942	Kitengela	Thika	Empty	1-2
15	H	KAL 173G	0.2103526	Embakasi	Thika	Cement	1-2-2
15	M	KAS 212G	0.231150727	Mlolongo	Ruiru	Steel bars	1-2
15	M	KAA 618B	0.214426195	Nairobi	Ruiru	Empty	1-2
15	H	KBQ 024J	12.31495339	Nairobi	Thika	Hardcore	1-2-2
15	H	KAE 244R	5.071912383	Mlolongo	Ruiru	Ballast	1-2-2
15	M	KAR 075S	0.087539219	Nairobi	Thika	Empty	1-2
15	M	KAV 618C	0.004860565	Nairobi	Thika	Empty	1-2
15	H	KAD 150E	2.629526638	Athi River	Thika	Cement	1-2-2
15	M	KBP 210E	0.263666077	Nairobi	Nyeri	Steel bars	1-2
15	M	KBP 772E	0.154488753	Nairobi	Thika	Goods	1-2
15	M	KAN 330R	0.081556829	Nairobi	Thika	Assorted goods	1-2
15	M	KAZ 304T	0.052661966	Embakasi	Juja	Empty	1-2
15	M	KAY 650A	0.019790512	Pipeline	Thika	Empty	1-2
15	M	KAP 392C	0.158870114	Nairobi	Thika	Assorted goods	1-2
15	M	KBN 271L	0.012291053	Nairobi	Thika	Empty	1-2
15	H	KAB 487V	0.050679386	Nairobi	Juja	Empty	1-2-2
15	H	KAZ 302Y	0.143710788	Mombasa	Ruiru	Empty	1-2-2
15	H	KAT 337S	0.199104584	Ruai	Thika	Empty	1-2-2
15	A	KAQ 635P	5.471630293	Mombasa	Meru	Steel bars	1-1-2-2-2-2
15	H	KAT 463K	0.111940885	Nairobi	Ruiru	Empty	1-2-2
15	M	KAT 465T	3.34461333	Athi River	Thika	Cement	1-2
15	H	KBH 694J	6.478203047	Athi River	Thika	Cement	1-2-2
15	M	KBK 298U	0.014325704	Nairobi	Thika	Empty	1-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
15	M	KAW 114K	0.486502574	Nairobi	Murang'a	Animal feeds	1-2
15	M	KAL 148R	0.093760164	Nairobi	Thika	Empty	1-2
15	M	KAQ 405T	2.898480387	Nairobi	Murang'a	Fuel	1-2
15	H	KAX 219Z	0.210438279	Embakasi	Thika	Empty	1-2-2
15	M	KAK 263R	0.006947372	Nairobi	Thika	Empty	1-2
15	H	KAH 972L	0.461174397	Embakasi	Thika	Empty	1-2-2
15	A	KBH 303Z	0.586206264	Mombasa	Murang'a	Containers	1-1-2-2-2-2
15	A	KBJ 339E	0.490043759	Mombasa	Nyeri	Empty	1-1-2-2-2-2
15	M	KBP 433R	1.761266502	Nairobi	Meru	Fertilizer	1-2
15	M	KYU 826	0.073261567	Ruai	Thika	Empty	1-2
15	M	KBJ 364R	0.033751734	Nairobi	Embu	Crates	1-2
15	H	KAG 828X	7.56605139	Ruai	Thika	Hardcore	1-2-2
15	M	KBP 363R	0.035130987	Ruai	Thika	Empty	1-2
15	M	KAR 120H	0.072004578	Ruai	Thika	Empty	1-2
15	M	KBM 254N	3.192758493	Nairobi	Thika	Flour	1-2
15	M	KBB 189K	1.123166507	Nairobi	Thika	Cement	1-2
15	H	KBG 177S	0.239374832	Nairobi	Thika	Empty	1-2-2
15	H	KAX 764G	0.174227331	Nairobi	Thika	Empty	1-2-2
15	M	KAS 218Y	0.328434137	Nairobi	Thika	Gas	1-2
15	M	KAY 300F	1.46765508	Nairobi	Thika	Flour	1-2
15	M	KAM 883Y	1.548920125	Nairobi	Embu	Fuel	1-2
15	H	KAE 881Y	0.244948055	Nairobi	Thika	Empty	1-2-2
15	H	KAX 974X	1.618663648	Mlolongo	Thika	Sand	1-2-2
15	H	KAW 193Z	0.423852824	Nairobi	Thika	Pass	1-2-2
15	H	KAG 828P	0.016297325	Nairobi	Thika	Empty	1-2
15	M	KAX 497T	0.007714663	Nairobi	Juja	Empty	1-2
15	M	KBP 040S	0.034349128	Nairobi	Meru	Empty	1-2
15	M	KBF 218Z	0.841418485	Nairobi	Meru	Petrol	1-2
15	A	KZG 618	3.365747455	Nairobi	Meru	Beer	1-2-2-2-2-2
15	M	KAH 112J	0.786032984	Athi River	Nyeri	Cement	1-2
15	M	KAP 631A	1.092797167	Athi River	Meru	Cement	1-2
16	M	KAE 347B	0.025186293	Nairobi	Meru	Assorted goods	1-2
16	H	KAV 107C	5.415850644	Embakasi	Thika	Ballast	1-2-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
16	M	KBN 442Z	0.037658391	Kitengela	Thika	Empty	1-2
16	M	KAP 509B	2.561344021	Mlolongo	Thika	Charcoal	1-2
16	M	KAW 552R	0.10724193	Nairobi	Nyeri	Empty	1-2
16	A	KAV 431G	3.988456613	Nairobi	Kiganjo	Wheat	1-2-2-2-2-2
16	H	KAP 677S	0.078879083	Nairobi	Kiambu	Empty	1-2-2
16	H	KAT 207Y	0.13511343	Nairobi	Meru	Empty	1-2-2
16	M	KBC 410L	2.215539932	Nairobi	Thika	Fuel	1-2
16	M	KAL 231L	0.012904345	Nairobi	Ruiru	Empty	1-2
16	H	KAJ 128R	3.486008139	Athi River	Thika	Cement	1-2-2
16	M	KBC 225R	0.005277672	Nairobi	Murang'a	Empty	1-2
16	M	KAL 235C	0.000312551	Nairobi	Murang'a	Empty	1-2
16	M	KAS 953D	0.002171816	Nairobi	Ruiru	Empty	1-2
16	H	KAP 060L	4.567996413	Embakasi	Thika	Ballast	1-2-2
16	H	KAE 117Y	0.117972093	Nairobi	Thika	Empty	1-2-2
16	M	GKA787	0.090764429	Nairobi	Kiambu	Crates	1-2
16	M	KBK 922G	0.042968389	Nairobi	Embu	Empty	1-2
16	H	KAG 537Y	0.069045938	Nairobi	Ruiru	Empty	1-2-2
16	H	KBN 314Z	3.085799126	Mlolongo	Thika	Ballast	1-2-2
16	M	KBE 314R	0.007855109	Nairobi	Mwingi	Empty	1-2
16	M	KAV 023S	0.054944967	Nairobi	Thika	Goods	1-2
16	M	KBH 124S	1.994322832	Nairobi	Meru	Assorted goods	1-2
16	M	KAP 340G	0.01684252	Nairobi	Thika	Empty	1-2
16	M	KXP 211	1.514743402	Mlolongo	Ruai	Sand	1-2
16	M	KAJ 062U	0.023603404	Nairobi	Kerugoya	Empty	1-2
16	A	KAS 230N	2.891459582	Mombasa	Ruiru	Steel bars	1-1-2-2-2-2
16	M	KAT 632D	0.024539614	Nairobi	Ruiru	Empty	1-2
16	M	KBL 154D	1.256625477	Nairobi	Thika	Goods	1-2
16	M	KAD 813Z	0.003050274	Nairobi	Thika	Empty	1-2
16	M	KAG 842S	0.036116827	Nairobi	Juja	Empty	1-2
16	M	KBD 939H	0.077451382	Nairobi	Ruiru	Empty	1-2
16	H	KAS 926Y	0.007227115	Nairobi	Meru	Empty	1-2-2
16	H	KBA 894Y	0.192283503	Nairobi	Kiambu	Assorted goods	1-2-2
16	M	KBM 505A	0.116113067	Nairobi	Ruiru	Empty	1-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
16	M	KAV 287Q	0.209048159	Nairobi	Thika	Assorted goods	1-2
16	M	KAV 069U	0.071305488	Mlolongo	Ruai	Empty	1-2
16	H	KBK 194R	0.010787224	Nairobi	Nanyuki	Empty	1-2-2
16	M	KBA 295G	0.00401239	Nairobi	Meru	Empty	1-2
16	M	KAY 631G	0.005188646	Nairobi	Githurai	Empty	1-2
16	H	KAK 035E	0.003047919	Kitengela	Ruai	Empty	1-2-2
16	M	KBD 522Y	0.000167673	Nairobi	Maua	Empty	1-2
16	H	KBN 898V	0.779818216	Embakasi	Thika	Ballast	1-2-2
16	M	KUR 035	0.00015347	Ruai	Thika	Empty	1-2
16	M	KBM 578B	0.159443451	Nairobi	Juja	Cartons	1-2
16	M	KBH 442C	1.694102686	Nairobi	Mwingi	Flour	1-2
16	M	KBL 303D	0.004074787	Embakasi	Ruiru	Empty	1-2
16	M	KWT 539	0.000266198	Kayole	Thika	Empty	1-2
16	M	KBM 657V	0.000592189	Nairobi	Meru	Empty	1-2
16	M	KXE 068	0.000408546	Mlolongo	Thika	Empty	1-2
16	A	KAW 134D	0.020711351	Nairobi	Meru	Empty	1-1-2-2-2-2
16	M	KBM 723D	0.001423469	Nairobi	Thika	Empty	1-2
16	M	KAG 302D	0.011539489	Nairobi	Ruiru	Empty	1-2
16	H	KAQ 827Y	0.001154217	Mlolongo	Thika	Ballast	1-2-2
16	M	KAM 239J	0.808061887	Nairobi	Thika	Flour	1-2
16	M	KBA 237C	0.180739368	Nairobi	Garissa	Assorted goods	1-2
16	H	KAL 469M	0.597610128	Nairobi	Nyeri	Assorted goods	1-2-2
16	M	KAW 618M	0.039258089	Nairobi	Thika	Empty	1-2
16	A	KAS 581R	0.132175949	Mombasa	Thika	Empty	1-1-2-2-2-2
16	M	KAP 799G	0.006342329	Ruai	Thika	Empty	1-2
16	M	KAH 066Z	0.063648486	Embakasi	Juja	Goods	1-2
16	A	KBQ 695E	0.16782981	Nairobi	Thika	Empty	1-1-2-2
16	H	KBK 504X	1.653827612	Nairobi	Thika	Flour	1-2-2
16	A	KVR 485S	5.279222417	Airport	Daadab	Relief food	1-2-2-2-2-2
16	A	KAW 798U	0.100471194	Nairobi	Kerugoya	Empty	1-2-2-2-2-2
16	A	KBH 921L	6.076859367	Mombasa	Garissa	Flour	1-1-2-2-2-2
16	A	KAT 463R	15.82646458	Mombasa	Garissa	Flour	1-1-2-2-2-2
16	M	KAC 022A	0.013107136	Kitengela	Thika	Timber	1-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
16	M	KBP 432R	0.008054465	Nairobi	Thika	Plastics	1-2
16	M	KAN 251R	4.554722762	Nairobi	Ruiru	Steel bars	1-2
16	H	KAW 051D	0.079065285	Embakasi	Juja	Empty	1-2-2
16	M	KAQ 446Y	1.571917114	Nairobi	Thika	Flour	1-2
16	M	KBN 817F	1.582654121	Nairobi	Nyeri	Chicken feeds	1-2
16	M	KBL 250W	0.020139478	Nairobi	Ruiru	Empty	1-2
16	M	KBJ 853S	0.001742708	Ruai	Murang'a	Empty	1-2
16	M	KTL 919	0.013352876	Nairobi	Thika	Empty	1-2
16	H	KBL 768T	0.101894172	Embakasi	Thika	Empty	1-2-2
16	H	KBK 256S	0.943274186	Embakasi	Thika	Concrete mixer	1-2-2
16	H	KAH 478Y	0.193783264	Mlolongo	Thika	Scrap metals	1-2-2
16	H	KBH 502H	0.189904984	Embakasi	Thika	Empty	1-2-2
16	M	KAS 518U	1.582159241	Nairobi	Nyeri	Calcium	1-2
16	M	KAK 306M	0.412773326	Nairobi	Juja	Cartons	1-2
16	M	KUC 598S	0.706281737	Mlolongo	Ruiru	Sand	1-2
16	H	KYY 835	0.076726969	Ruai	Juja	Empty	1-2-2
16	A	KBM 362S	4.769852329	Nairobi	Thika	Fertilizer	1-2-2-2-2-2
16	H	KAR 112S	0.080222475	Nairobi	Thika	Empty	1-2-2
16	H	KAC 923E	0.043631766	Nairobi	Thika	Empty	1-2-2
16	H	KAZ 656R	2.953833899	Nairobi	Juja	Goods	1-2-2
16	M	KAY 919H	0.006780131	Embakasi	Ruiru	Empty	1-2
16	H	KAH 252A	0.041463712	Nairobi	Meru	Empty	1-2-2
16	A	KAM 088H	4.578190929	Mombasa	Thika	Containers	1-2-2-2-2-2
16	M	KAZ 391B	1.355002186	Mlolongo	Thika	Sand	1-2
16	M	KAV 982G	0.038861225	Nairobi	Murang'a	Empty	1-2
16	M	KAE 634T	1.850400837	Nairobi	Garissa	Goods	1-2
16	M	KAE 638U	0.006158029	Nairobi	Meru	Empty	1-2
16	M	XGK H658	0.012280484	Nairobi	Ruiru	Empty	1-2
16	M	KAZ 111S	5.58752882	Embakasi	Thika	Ballast	1-2
16	M	KBA 751S	0.090010279	Nairobi	Thika	Assorted goods	1-2
16	M	KBK 053R	0.065849772	Nairobi	Ruiru	Empty	1-2
16	M	KBB 182A	1.672918158	Embakasi	Thika	Ballast	1-2
16	M	KAX 029N	1.00003175	Mlolongo	Thika	Sand	1-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
16	M	KAA 819Q	0.051751998	Nairobi	Meru	Empty	1-2
16	H	KBG 242Z	1.73926484	Embakasi	Juja	Hardcore	1-2-2
16	M	KBA 925T	3.388695514	Nairobi	Kutus	Fertilizer	1-2
16	H	KBA 148W	0.033112986	Ruai	Thika	Empty	1-2-2
16	H	KRN 170	6.795600837	Athi River	Ruiru	Cement	1-2-2
16	M	KBB 338D	3.337432253	Athi River	Githurai	Steel bars	1-2
16	A	KBM 238U	3.577910743	Mombasa	Garissa	Relief food	1-2-2-2-2-2
16	M	KBM 337Y	1.401943317	Mlolongo	Thika	Sand	1-2
16	M	KBL 882R	0.010738639	Nairobi	Nyeri	Empty	1-2
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0700	M	KAG 083G	1.779982042	Thika	Embakasi	B/Stones	1 - 2
0700	M	KBP 250A	0.017037991	Ruiru	Nairobi	Empty	1 - 2
0700	A	KAQ 899M	9.276692329	Meru	Nairobi	A. Goods	1-2-2-2-2-2-2
0700	M	KAL 685T	0.012744326	Ruiru	Nairobi	Empty	1 - 2
0700	H	KAY 239X	3.589731264	Gethieko	Embakasi	H/Core	1 - 2 - 2
0700	M	KAZ 088A	2.018413442	Juja	Kayole	B/Blocks	1 - 2
0700	M	KBM 394B	0.025777252	Kiambu	Nairobi	Empty	1 - 2
0700	A	KAT 209t	5.14093854	Gethieko	Embakasi	H/Core	1 - 2 - 2 - 2
0700	H	KBG 392E	17.24475804	Muranga	Nairobi	Maize	1 - 2
0700	M	KAK 441	0.024089919	Meru	Nairobi	Empty	1 - 2
0700	A	KAH 972J	6.930639148	Meru	Nairobi	A. Goods	1-2-2-2-2-2-2
0700	M	KBN 250V	0.00465813	Thika	Nairobi	Empty	1 - 2
0700	H	KAT 397Q	4.005718834	Meru	Nairobi	H/Core	1 - 2 -2
0700	M	KBL 468M	5.770876539	Gethieko	Embakasi	Flour	1 - 2
0700	M	KAW 849X	0.024544635	Meru	Nairobi	Empty	1 - 2
0700	H	KQP 843	8.010323894	Meru	Nairobi	H/Core	1 - 2
0700	M	KAH 224C	0.089133734	Gethieko	Embakasi	Empty	1 -2
0700	H	KBF 856V	0.066097474	Kerugoya	Nairobi	Empty	1 - 2
0700	A	KAR 182F	8.376566195	Kiambu	Nairobi	H/Core	1 - 2 - 2
0700	A	KTP 332	0.355035296	Gethieko	Embakasi	Empty	1-2-2-2-2-2-2
0700	M	KAR 290V	3.664727405	Gethieko	Nairobi	H/Core	1 - 2
0700	M	KAJ 968D	0.08982293	Ruiru	Kayole	Empty	1 - 2
0700	M	KAZ 236D	0.075975211	Thika	Nairobi	Scrap Metal	1 - 2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
0700	H	KAY 453F	6.676364346	Gethieko	Embakasi	H/Core	1 - 2 - 2
0700	M	KBB 285R	0.037035111	Thika	Nairobi	Empty	1 - 2
0700	M	KBC 443M	0.086789733	Maua	Nairobi	A. Goods	1 - 2
0700	M	KAH 699Y	0.031226173	Kiambu	Nairobi	Empty	1 - 2
0700	M	KAR 091S	1.548866225	Gethieko	Embakasi	H/Core	1 - 2
0700	M	KBH 874L	0.031591662	Ruiru	Ruai	Empty	1 - 2
0700	H	KBH 874L	0.187156032	Kiambu	Nairobi	A. Goods	1 - 2
0700	H	KAH 377U	0.164316953	Muranga	Nairobi	Empty	1 - 2 - 2
0700	H	KBP 108K	13.2921473	Thika	Embakasi	H/Core	1 - 2 - 2
0800	H	KAJ 357Z	4.137645925	Thika	Embakasi	H/Core	1 - 2 - 2
0800	H	KBB 081P	7.699685087	Thika	Embakasi	H/Core	1 - 2
0800	M	KBH 914J	1.673848692	Thika	Mlololongo	B/Stones	1 - 2 - 2
0800	M	KBM 068	0.025042716	Kerugoya	Nairobi	Empty	1 - 2
0800	M	KBL 346T	4.526858917	Meru	Nairobi	Bananas	1 - 2
0800	M	KBP 498Q	1.801269814	Kiambu	Nairobi	A. Goods	1 - 2
0800	H	KBJ 205J	12.14585369	Thika	Umoja	H/Core	1 - 2 - 2 - 2
0800	M	KBK 442Q	1.173576418	Thika	Nairobi	Rice	1 - 2
0800	M	KBF 325F	0.044871278	Nanyuki	Nairobi	Empty	1 - 2 - 2
0800	M	KAV 752D	1.710435837	Thika	Kayole	Scrap Metal	1 - 2
0800	M	KAV 668B	2.9537219	Muranga	Nairobi	Flour	1 - 2
0800	M	KAS 436D	0.016240091	Kiambu	Nairobi	Empty	1 - 2
0800	M	KYV 955	0.04858954	Ruiru	Nairobi	Empty	1 - 2
0800	H	KAW 878V	4.952802973	Muranga	Nairobi	Flour	1 - 2
0800	M	KBJ 728L	0.034206854	Meru	Nairobi	Empty	1 - 2
0800	M	KBJ 010K	10.70042983	Gethieko	Embakasi	H/Core	1 - 2
0800	M	KAS 161G	0.004352628	Ruiru	Nairobi	Empty	1 - 2
0800	M	EX GK 504X	1.38942163	Muranga	Nairobi	A. Goods	1 - 2
0800	A	KBM 476	0.465730366	Thika	Nairobi	Empty	1 - 2
0800	M	KBP 120P	0.780863169	Meru	Nairobi	Bananas	1 - 2
0800	M	KBK 211A	0.129476074	Kerugoya	Nairobi	Empty	1 - 2
0800	H	KBK 163D	0.208729101	Thika	Embakasi	Empty	1 - 2
0800	M	KBP 689F	1.263762704	Gethieko	Kayole	H/Core	1 - 2
0800	A	KAC 821H	11.11635285	Thika	Nairobi	B/Stones	1 - 2 - 2 - 2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
0800	M	KAT 983H	0.232824192	Muranga	Kayole	Flowers	1 - 2
0800	M	KBN 350H	7.889597052	Gethieko	Mombasa	H/Core	1 - 2
0800	H	KAB 071V	10.29767965	Thika	Embakasi	B/Stones	1 - 2 - 2 - 2
0800	A	KAG 284R	5.219313223	Thika	Nairobi	Beer	1 - 2
0800	H	KBD 024N	2.935307047	Gethieko	Mombasa	H/Core	1-2-2-2-2-2-2
0800	H	KBK 214D	0.096511701	Ruiru	Nairobi	Empty	1 - 2
0800	A	KBP 347E	4.866586023	Thika		Beer	1 - 2
0800	H	KAR 304S	0.122656685	Muranga		A. Goods	1 - 2 - 2
0800	M	KAT 363	2.789118167	Thika	Umoja	B/Blocks	1 -2
	H	KBB 261K	21.27217894	Gethieko	Embakasi	H/Core	1 - 2
	M	KAQ 629Z	0.113105773	Thika	Nairobi	Empty	1 - 2
	M	KAT 502Y	0.819069902	Muranga	Nairobi	Fruits	1 - 2
	H	KAD 280S	1.201764302	Thika	Nairobi	Empty Bottles	1 - 2
	H	KBG 268K	4.203315344	Thika	Kayole	B/Blocks	1 - 2-2
	M	KBB 738	0.048729313	Muranga	Nairobi	Empty	1 - 2
	A	KBP 301V	6.845757644	Gethieko	Embakasi	H/Core	1 - 2 - 2 - 2
	H	KAZ 998	0.372895308	Ruiru	Nairobi	A. Goods	1 - 2
	H	KAW 284X	0.162167457	Thika	Nairobi	Empty	1 - 2-2
	H	KAX 209	0.253495584	Thika	Nairobi	Empty	1-2-2
	M	KAZ 397	0.960769419	Ruiru	Nairobi	Scrap Metal	1 - 1-2-2
	M	KBC 201	3.02825974	Meru	Nairobi	Students	1 - 2
	M	KAT 468	0.008713086	Thika	Nairobi	Empty	1 - 2
	M	KBB 449	0.040577191	Thika	Nairobi	Empty	1 - 2
	H	KBK 191J	14.3816685	Thika	Nairobi	H/Core	1 - 2
	M	KBA 459S	0.027027219	Embu	Mombasa	Empty	1 - 2
	H	KAV 159Y	0.078164019	Nanyuki	Nairobi	B/Stones	1 - 2
	M	KAA 890P	3.066827193	Thika	Ruai	B/Stones	1 - 2
	H	KAS 435	0.089086926	Muranga	Nairobi	Empty	1 - 2 - 2
	H	KAT 983U	12.50167962	Gethieko	Embakasi	H/Core	1 - 2 - 2
	M	KAZ 132	0.008451337	Meru	Nairobi	Empty	1 - 2
	H	KAT 234J	9.430086244	Gethieko	Embakasi	H/Core	1 - 2 - 2
	A	KBF 856V	9.502353513	Gethieko	Nairobi	H/Core	1 - 2 - 2 - 2
	H	KAQ 277W	9.555107049	Gethieko	Nairobi	H/Core	1 - 2 - 2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	M	KAY 484	15.25244593	Muranga	Nairobi	Timber	1 - 2
	M	KAN 695K	0.296896209	Thika	Nairobi	A. Goods	1 - 2
	H	KBL 493W	5.258845046	Gethieko	Nairobi	H/Core	1 - 2 - 2
	M	KBD 688T	0.140627609	Nyeri	Nairobi	French beans	1 - 2
	M	KAS 113	0.023153406	Maua	Nairobi	Flowers	1 - 2
	M	KAY 643	1.700042763	Thika	Nairobi	Bricks	1 - 2
	H	KZU 091	1.142934941	Gethieko	Embakasi	H/Core	1 - 2 - 2
	M	KBK 429Q	0.16843993	Thika	Nairobi	Empty	1 - 2
	H	KAL 415	5.088807624	Thika	Utawala	Gravel	1 - 2 - 2
	H	KAL 593	1.692755457	Thika	Utawala	Gravel	1 - 2 - 2
	M	KAP 242X	0.881613595	Maua	Nairobi	Rice	1 - 2 - 2
	M	KBN	0.014725687	Muranga	Nairobi	Empty	1 - 2
	M	KAR 598T	0.809873238	Embu	Nairobi	Charcoal	1 - 2
	M	KAE 672F	0.864621854	Gethieko	Ruai	H/Core	1 - 2
	M	KBP 703Q	2.123335708	Thika	Embakasi	B/Blocks	1 - 2
	H	KAN 849X	7.076337539	Gethieko	Utawala	H/Core	1 - 2 - 2
	H	KBC 729F	8.937730119	Geethieko	Embakasi	H/Core	1 - 2 - 2
	M	KBU 415J	0.047409105	Embu	Embakasi	Empty	1 - 2
	M	KBJ 945C	0.044053965	Thika	Ruai	Empty	1 - 2
	H	KAZ 353	4.438119662	Thika	Ruai	H/Core	1 - 2
	M	KAZ 648	0.003383853	Thika	Ruai	Empty	1 - 2
	A	KBB 316S	0.073217405	Thika	Ruai	Empty	1-2-2-2-2-2
	H	KBP 175R	0.119893401	Thika	Embakasi	Empty	1 - 2
	H	KAU 007A	2.697893554	Thika	Ruai	H/Core	1 - 2 - 2
	H	KAR 392	2.872785825	Thika	Ruai	H/Core	1 - 2
	M	KBH 333	1.03234055	Thika	Ruai	Empty	1 - 2
	M	KAK 419S	0.018651956	Thika	Ruai	Empty	1 - 2
	H	KBL 492W	9.652848266	Gethieko	Embakasi	H/Core	1 - 2 - 2
	M	KAC 423R	0.160337997	Thika	Ruai	Sand	1 - 2
	M	KBB 302	3.638221774	Thika	Ruai	B/Blocks	1 - 2
	M	KAW 409Q	3.618840193	Thika	Ruai	B/Blocks	1 - 2
	A	KAW 423	0.200503555	Meru	Mombasa	Empty	1-2-2-2-2-2
	M	KAS 350P	0.048566138	Meru	Mombasa	Empty	1 - 2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	H	KAB 416R	6.145873303	Thika	Mlololongo	B/Blocks	1 - 2
	M	KBL 904	0.037716186	Thika	Ruai	Empty	1 - 2
	M	KAU 673R	0.026870087	Thika	Nairobi	Empty	1 - 2
	H	KAL 913K	8.576365904	Gethieko	Eb	H/Core	1 - 2
	H	EXGK837K	0.110233699	Ruiru	Nairobi	Empty	1 - 2
	A	KAB 394C	0.272494974	Meru	Mombasa	B/Blocks	1-2-2-2-2-2
	H	KBK 952	0.054998187	Thika	Nairobi	Empty	1 - 2
	A	KAX 493	10.4181743	Nyeri	Mombasa	B/Blocks	1-2-2-2-2-2
	M	KAM 821V	0.047248516	Thika	Njiru	Empty	1 - 2
	M	KAM 350X	5.120074305	Thika	Embakasi	B/Blocks	1 - 2
	H	KAZ 183	0.259038069	Gethieko	Ruai	Gravel	1-2-2-2
	M	KBJ 971W	0.023443098	Meru	Nairobi	Empty	1 - 2
	M	KBL 962	12.22360124	Thika	Nairobi	A. Goods	1 - 2
	M	KWL 467	4.902247156	Juja	Nairobi	B/Blocks	1 - 2
	H	KBM 950W	3.705585693	Gethieko	Embakasi	H/Core	1 - 2
	A	KBQ 616	42.99473771	Gethieko	Embakasi	H/Core	1 - 2 - 2 - 2
	M	KAX 864M	0.478639892	Thika	Nairobi	Scrap Metal	1 - 2
	M	KZX 304	3.154914988	Thika	Utawala	B/Stones	1 - 2
	M	KWD 124	0.042838546	Gethieko	Mlololongo	Gravel	1 - 2
	M	KUZ 260	7.078284018	Juja	Nairobi	B/Stones	1 - 2
	M	KAC 220L	0.003963167	Thika	Nairobi	B/Blocks	1 - 2
	M	KBD 412	0.208652243	Thika	Ruai	H/Core	1 - 2
	M	KBM 740	7.536081627	Juja	Embakasi	H/Core	1 - 2
	M	KVS 610	4.174554068	Juja	Embakasi	Empty	1 - 2
	M	KAA 468P	3.420812036	Gethieko	Embakasi	H/Core	1 - 2
	M	KAGB 906L	0.033975796	Thika	Nairobi	Blocks	1 - 2
	H	KBP 705S	8.096282095	Juja	Ruai	Empty	1 - 2
	M	KAT 767L	0.007145813	Juja	Njiru	H/Core	1 - 2
	H	KBK 194S	8.288779424	Thika	Mlololongo	Empty	1 - 2 - 2 - 2
	M	KTS 884	1.246173805	Thika	Ruai	H/Core	1 - 2
	M	KAW 851B	0.016720006	Thika	Embakasi	Empty	1 - 2
	M	KAW 250D	0.054732265	Meru	Mombasa	Empty	1 - 2
	M	KZL 891	4.878914237	Muranga	Nairobi	Scrap Metal	1 - 2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	H	KAM 965Z	2.888061099	Thika	Embakasi	H/Core	1 - 2 -2 - 2
	M	KAP 095K	3.227818938	Thika	Nairobi	Cooking fat	1 - 2
	H	KAN 988R	0.167297624	Meru	Nairobi	Flowers	1 - 2 - 2
	A	KBF 856V	6.781982555	Thika	Mlololongo	H/Core	1 - 2 - 2 - 2
	M	KAV 344P	0.05104834	Ruiru	Nairobi	Flowers	1 - 2
1000am	M	KAW 299	0.914422393	Meru	Nairobi	A. Goods	1 - 2
	M	KBM 640	0.064330533	Meru	Nairobi	Empty	1 - 2
	M	KAT 746	1.092170974	Juja	Nairobi	B/Stones	1 - 2
	H	KAU 190T	2.564480133	Gethiko	Embakasi	H/Core	1 - 2 - 2 - 2
	M	KZU 055	3.012654034	Juja	Nairobi	B/Stones	1 - 2
	M	KAM 352B	4.691087917	Juja	Nairobi	B/Stones	1 - 2
	M	KBL 922	0.079160186	Nanyuki	Nairobi	Flowers	1 - 2
	H	KAA 902	0.257576758	Juja	Umoja	Empty	1 - 2
	H	KAV 050K	2.54683029	Thika	Mlololongo	H/Core	1 - 2
	M	KBP 905V	5.001125943	Muranga	Nairobi	Bananas	1 - 2
	M	KXX 593	0.078829282	Thika	Embakasi	Empty	1 - 2
	H	KAZ 267D	6.566480358	Thika	Ruai	H/Core	1 - 2
	M	KAM 846	6.364056677	Thika	Embakasi	B/Blocks	1 - 2
	H	KAK 392S	0.062311995	Thika	Njiru	Empty	1 - 2
	H	KAV 930	2.988801358	Gethieko	Embakasi	H/Core	1 - 2
	H	KAW 767T	3.185992849	Juja	Embakasi	H/Core	1 - 2
	M	KAU 856C	0.011813039	Nanyuki	Nairobi	Empty	1 - 2
	M	KTZ 041	2.234463498	Juja	Nairobi	B/Stones	1 - 2
	A	KBP 136Q	11.54442287	Gethieko	Embakasi	H/Core	1 - 2 - 2 - 2
	H	KAK 996B	3.65291969	Gethieko	Utawala	P. Waste	1 - 2
	M	KBP 330	4.433159266	Thika	Mlololongo	B/Stones	1 - 2
	M	KBL 563Y	2.808942562	Gethieko	Utawala	B/Stones	1 - 2
	H	KBL 618S	4.198448481	Gethieko	Utawala	H/Core	1 - 2
	M	KBM 530V	5.820727059	Thika	Embakasi	Iron Sheets	1 - 2
	H	KBC 250G	20.4976459	Gethieko	Ruai	H/Core	1 - 2 - 2
	M	KBB 299M	2.03589032	Thika	South B	B/Blocks	1 - 2
	H	KBG 055E	0.1621468	Thika	Nairobi	Empty	1 - 2
	M	KBA 815G	0.006874267	Thika	Nairobi	Empty	1 - 2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	H	KAU 471K	0.969385139	Gethieko	Embakasi	H/Core	1 - 2 - 2
	M	KBD 024N	0.014141635	Ruiru	Embakasi	Empty	1 - 2
	M	KAS 085T	0.011878801	Thika	Airport	Empty	1 - 2
	H	KAH 377U	3.027260348	Juja	Embakasi	B/Stones	1 - 2 - 2
10.00am	M	KBK 007	1.361940641	Gethieko	Njiru	H/Core	1 - 2
	M	KAT 530Z	0.053702922	Thika	Mlololongo	Pipes	1 - 2
	M	KAW 503D	1.642078499	Thika	Airport	Flowers	1 - 2
	M	KBK 161N	0.282576288	Thika	Nairobi	Juice	1 - 2
	H	KBP 342Y	0.229863151	Gethieko	Embakasi	H/Core	1 - 2 - 2
	M	KZD 778	1.870582448	Juja	Ka	B/Stones	1 - 2
	M	KAX 304Z	0.032830749	Thika	Nairobi	Empty	1 - 2
	H	KZP 665	0.091285369	Ruiru	Embakasi	Empty	1 - 2 - 2
	H	KAW 849X	13.00263946	Getheiko	Embakasi	H/Core	1 - 2 - 2
	M	KAAA 344	7.428734355	Juja	Embakasi	B/Stones	1 - 2
	H	KBC 848	3.359646273	Getheiko	Embakasi	B/Stones	1 - 2 - 2
	H	KAH 950C	4.351519171	Getheiko	Embakasi	B/Stones	1 - 2 - 2
	H	KAL 318F	2.32610238	Getheiko	Embakasi	B/Stones	1 - 2 - 2
	M	KBP 057	0.013090718	Ruiru	Embakasi	Empty	1 - 2
	H	KBP 313	2.601374215	Ruiru	Embakasi	Fuel	1 - 2
	M	KBE 344E	0.05290591	Thika	Embakasi	Empty	1 - 2
	H	KAG 828X	0.331557549	Thika	Embakasi	Empty	1 - 2
	A	KBM 748X	0.32817684	Nanyuki	Mombasa	Empty	1-2-2-2-2-2
	M	KZC 966	16.42806794	Juja	Nairobi	Empty	1 - 2
	H	KBG 354E	0.201137827	Thika	Embakasi	Empty	1 - 2
	M	KAY 416L	0.058559158	Thika	Nairobi	Empty	1 - 2
	M	KBM 681V	3.96249242	Juja	Embakasi	B/Stones	1 - 2
	H	KBJ 205J	14.56311877	Getheiko	Embakasi	H/Core	1 - 2 - 2
	M	KWK 482	1.390733891	Juja	Nairobi	B/Stones	1 - 2
	H	KAW 529Y	1.586087957	Thika	Nairobi	Rice	1 - 2
	A	KBF 183	0.020057409	Meru	Mombasa	Empty	1-2-2-2-2-2
	H	KBL 148A	0.190380366	Thika	Utawala	Empty	1 - 2 - 2
	M	KYN 632	0.500414026	Thika	Utawala	Gravel	1 - 2
	M	KAE 413E	0.246130887	Thika	Utawala	H/Core	1 - 2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	M	KBN 646F	0.013904311	Thika	Utawala	Empty	1 - 2
	H	KBP 108K	20.02278386	Getheiko	Embakasi	H/Core	1 - 2 - 2
	H	KBK 042X	5.868235808	Thika	Embakasi	B/Blocks	1 - 2 - 2
11.ooam	M	KBB 615	3.815310703	Juja	Nairobi	Empty	1 - 2
	A	KAN 671A	0.192679389	Meru	Mombasa	B/Blocks	1 - 2
	A	KBM 656S	0.405012139	Thika	Mombasa	Empty	1-2-2-2-2-2
	M	KAM 285D	4.805484589	Juja	Nairobi	Empty	1 - 2
	M	KAR 810R	2.740434039	Juja	Nairobi	B/Blocks	1 - 2
	M	KXG 767T	7.100194363	Juja	Nairobi	B/Blocks	1 - 2
	M	KBQ 789C	0.103565381	Muranga	Nairobi	B/Blocks	1 - 2
	A	KAV 789C	0.401714886	Meru	Nairobi	Flowers	1-2-2-2-2-2
	H	KAY 272C	0.038157769	Thika	Njiru	Flowers	1 - 2 - 2
	H	KBJ 210R	0.040636478	Getheiko	Njiru	Empty	1 - 2 - 2
	M	KAT 229S	0.049145041	Ruiru	Nairobi	Empty	1 - 2
	M	KBC 788V	0.030435299	Thika	Mlololongo	Empty	1 - 2
	M	KBF 309K	0.014509476	Juja	Nairobi	Empty	1 - 2
	M	KBD 914L	0.884975709	Ruiru	Airport	Flowers	1 - 2
	H	KAB 992B	8.160253397	Getheiko	Embakasi	H/Core	1 - 2 - 2
	H	KBJ 557A	0.063404971	Thika	Ruai	Empty	1 - 2 - 2
	M	KWH 936S	0.051558634	Embu	Mombasa	Telcom	1 - 2
	A	KAV 673J	0.740807078	Meru	Mombasa	Empty	1-2-2-2-2-2
	M	KBA 805G	0.012049683	Kasarani	Mlololongo	Chemicals	1 - 2
	H	KAN 946Y	0.989880908	Thika	Nairobi	B/Blocks	1 - 2 - 2
	M	KAX 105Z	0.003210854	Thika	Nairobi	Empty	1 - 2
	H	KAL 319F	2.515968431	Getheiko	Ruai	H/Core	1 - 2 - 2
	M	KAR 990R	14.01240379	Getheiko	Ruai	H/Core	1 - 2
	M	KAZ 894	1.017599771	Thika	Kitengela	B/Blocks	1 - 2
	H	KBP 923U	8.69987842	Getheiko	Embakasi	H/Core	1 - 2 - 2
	M	KAY 474H	0.013631642	Nanyuki	Nairobi	Empty	1 - 2
	H	KAQ 377W	6.789456371	Getheiko	Embakasi	H/Core	1 - 2 - 2
	H	KAL 192G	4.762376729	Getheiko	Embakasi	Fill Mtrl	1 - 2 - 2
	H	KBD 662Z	7.253450547	Getheiko	Embakasi	Fill Mtrl	1 - 2 - 2
	M	GK A959K	6.702322922	Thika	Embakasi	Empty	1 - 2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	H	KBL 493W	9.342212636	Getheiko	Embakasi	Fill Mtrl	1 - 2 - 2
	M	KWB	2.610899377	Getheiko	Embakasi	Fill Mtrl	1 - 2
11.00am	M	KAX 796	0.01188353	Thika	Nairobi	Empty	1 - 2
	H	KBC 746M	0.207194385	Thika	Umoja	Empty	1 - 2
	M	KAN 264V	0.982077375	Juja	Pipeline	B/Blocks	1 - 2
	M	KAK 666	0.000697314	Thika	Embakasi	B/Blocks	1 - 2
	H	KAW 084	3.663742087	Juja	Embakasi	Fill Mtrl	1 - 2
	M	KAY 166F	3.825613501	Getheiko	Nairobi	H/Core	1 - 2
	M	KBM 200S	0.036191822	Thika	Nairobi	Empty	1 - 2
	H	KAN 042	1.221171139	Thika	Nairobi	A. Goods	1 - 2
	M	KTZ 862	0.026870087	Thika	Nairobi	Empty	1 - 2
	A	KBK 818	15.5137804	Muranga	Nairobi	Timber	1 - 2 - 2
	M	KBK 414Q	27.73185445	Meru	Nairobi	Timber	1 - 2
	M	KAS 040D	10.01890393	Juja	Embakasi	B/Blocks	1 - 2
	M	KAY 640X	0.088522123	Thika	Nairobi	Goods	1 - 2
	M	KTA 718	4.684724723	Getheiko	Embakasi	H/Core	1 - 2
	M	KXC 448	4.623473021	Getheiko	Embakasi	H/Core	1 - 2
	M	KAG 268Z	5.273435629	Muranga	Nairobi	Coffee	1 - 2
	M	KAZ 117E	0.018898464	Thika	Nairobi	Empty	1 - 2
	M	KAV 870P	2.688467595	Muranga	Nairobi	Coffee	1 - 2
	H	KAC 19S	1.669587624	Getheiko	Embakasi	H/Core	1 - 2
	M	KAW 911H	0.010998019	Meru	Nairobi	Bananas	1 - 2
	A	KAZ 687	0.153862557	Nanyuki	Nairobi	Empty	1-2-2-2-2-2
	A	KAB 667	0.430260781	Nanyuki	Nairobi	Empty	1 - 2 - 2
	M	KYA 003	2.18993619	Meru	Nairobi	Maize	1 - 2
	M	KBJ 451P	2.959603304	Getheiko	Embakasi	Fill Mtrl	1 - 2
	M	KSX 303	5.872675163	Ndurungu	Nairobi	B/Blocks	1 - 2
	M	KBB 887X	1.066393707	Mwingi	Nairobi	Chemicals	1 - 2
	H	KAW 767T	4.400336105	Getheiko	Embakasi	Fill Mtrl	1 - 2 - 2
	H	UBK 048J	11.19402742	Thika	Embakasi	Fill Mtrl	1 - 2 - 2
	M	KBK 922	3.257580266	Juja	Embakasi	B/Stones	1 - 2
	M	KBUL 402V	0.045958646	Thika	Nairobi	Goods	1 - 2
	M	KB; 402V	0.1555469	Muea	Nairobi	Rice	1 - 2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	M	KBC 879	1.855876751	Thika	Utawala	B/Blocks	1 - 2
11.00am	M	KAD 210S	0.098602985	Ruiru	Nairobi	Empty	1 - 2
	M	KUA 848	4.104363901	Juja	Nairobi	B/Blocks	1 - 2
	H	KBM 950W	7.546755724	Getheiko	Embakasi	Empty	1 - 2 - 2
	A	KAK 754T	0.222928523	Thika	Kayole	Empty	1 - 2 - 2
	M	KXX 616	5.864533574	Getheiko	Embakasi	Empty	1 - 2
	H	KBN 571A	5.958360805	Getheiko	Nairobi	Empty	1 - 2
	M	KBE 212	0.054111977	Embu	Kayole	Empty	1 - 2
	M	KAM 876B	11.03687909	Juja	Embakasi	B/Blocks	1 - 2
	A	KAX 214S	0.821993858	Meru	Nairobi	Empty	1-2-2-2-2-2
	M	KAU 875P	0.990813549	Embu	Airport	Empty	1 - 2
	M	KAS 106C	1.67360789			B/Blocks	1 - 2
	M	KBD 574G	0.176428141	Ruiru	Nairobi	Empty	1 - 2
	M	KAC 199S	0.005879181	Ruiru	Nairobi	Empty	1 - 2
	M	KTL 919	0.026583864	Thika	Nairobi	Empty	1 - 2
	A	KAW 911H	0.29966519	Ruiru	Mombasa	Empty	1-2-2-2-2-2
	M	KBN 010X	8.608111472	Juja	Umoja	Empty	1 - 2
	M	KYA 003	0.057810442	Ruiru	Nairobi	Empty	1 - 2
	H	KAY 839	5.337547793	Juja	Embakasi	Empty	1 - 2 - 2
	H	KAD 410S	10.63595641	Juja	Embakasi	Empty	1 - 2 - 2
	H	KAX 259	21.96267879	Getheiko	Embakasi	Empty	1 - 2 - 2
	M	KXC 648	3.245691525	Getheiko	Embakasi	B/Blocks	1 - 2
	M	KBF 008X	0.055382704	Thika	Njiru	Empty	1 - 2
	M	KAV 498D	0.045414068	Ruiru	Nairobi	Empty	1 - 2
	H	KAT 260J	1.929448564	Juja	Embakasi	Empty	1 - 2
	A	KBJ 815S	4.368630202	Juja	Embakasi	B/Blocks	1 - 2 - 2
	H	KAX 2444D	7.898742218	Getheiko	Embakasi	Empty	1 - 2
	M	KBK 048S	0.277265988	Meru	Embakasi	Empty	1 - 2
	H	KBC 237J	12.10281334	Juja	Nairobi	B/Blocks	1 - 2
	H	KBM 847B	14.50798451	Thika	Ruai	Empty	1 - 2
	A	KBK 962C	50.58606568	Thika	Embakasi	Empty	1 - 2 - 2
	M	KAN 474S	0.003467028	Ruiru	Nairobi	Empty	1 - 2
	M	KBC 402V	9.689079533	Thika	Njiru	B/Blocks	1 - 2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
1200pm	M	KBP 411	0.023364027	Ruiru	Nairobi	Empty	1 - 2
	A	KBP 425T	2.742468603	Thika	Nairobi	Empty	1-2-2-2-2-2
	A	KBD 421B	0.2265495	Thika	Nairobi	Empty	1-2-2-2-2-2
	H	KAW 400J	4.036428872	Thika	Embakasi	B/Blocks	1 - 2
	M	KAR 016E	0.050997458	Ruiru	Nairobi	Empty	1 - 2
	M	KAV 381Q	0.142929497	Kiambu	Mlololongo	Empty	1 - 2
	M	KAZ 492	0.168619754	Juja	Embakasi	B/Blocks	1 - 2
	H	KBM 532Q	25.79127398	Juja	Embakasi	Empty	1 - 2 - 2
	H	KBL 876Q	5.387876863	Nanyuki	Nairobi	Empty	1 - 2 - 2
	M	KAZ 371C	0.030191595	Thika	Nairobi	Empty	1 - 2
	H	KAJ 357	0.310329043	Thika	Nairobi	Empty	1 - 2
	M	KAR 142F	0.383245563	Meru	Nairobi	Empty	1 - 2
	H	KBM 221S	0.090241409	Ruiru	Nairobi	B/Blocks	1 - 2
	M	KZK 821	1.343856112	Juja	Nairobi	Empty	1 - 2
	M	KZX 618V	3.603473671	Muranga	Embakasi	Empty	1 - 2
	H	KBP 335X	0.378788247	Muranga	Embakasi	Empty	1 - 2
	M	KBM 048D	0.652326314	Juja	Nairobi	Empty	1 - 2
	H	KBK 618V	2.07522953	Thika	Nairobi	Empty	1 - 2
	M	KAW 532L	0.023977068	Thika	Embakasi	Empty	1 - 2
	M	KAL 597P	0.023621493	Meru	Nairobi	Empty	1 - 2
	M	KAT 146	0.164296566	Juja	Embakasi	B/Blocks	1 - 2
	H	KBP 255P	0.119263604	Mwingi	Nairobi	Empty	1 - 2
	M	KBE 154L	2.434696636	Juja	Nairobi	B/Stones	1 - 2
	M	KAY 611	0.247205523	Juja	Embakasi	Empty	1 - 2
	H	KAZ 848W	0.227145292	Juja	Kayole	Empty	1 - 2
	M	KWY 300	3.530712069	Muranga	Embakasi	B/Stones	1 - 2
	M	KWT 616	3.205441577	Juja	Embakasi	Chemicals	1 - 2
	M	KXG 701	8.048943069		Embakasi	B/Stones	1 - 2
	H	KBK 194J	9.091419837		Embakasi	H/Core	1 - 2
	M	KBH 946C	8.672860137		Embakasi	H/Core	1 - 2
	M	KAQ 1191	1.48044181	Muranga	Embakasi	Timber	1 - 2
	M	KAS 272C	2.254281222	Juja	Embakasi	B/Blocks	1 - 2 - 2
12.00pm	M	KBM 221S	3.878143579	Thika	Nairobi	C. fats	1 - 2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	H	KBB 405K	6.49403721	Nanyuki	Umoja	Flowers	1 - 2 - 2
	A	KAZ 240V	0.51104433	Muranga	Nairobi	Empty	1-2-2-2-2
	M	KZW 131	0.021667524	Thika	Mombasa	B/Blocks	1 - 2
	M	KTZ 400	4.60971485	Thika	Ruai	Empty	1 - 2
	M	KYJ 864	6.185690486	Thika	Ruai	B/Stones	1 - 2
	M	KWQ 458	7.520546986	Thika	Ruai	B/Blocks	1 - 2
	M	KVK 007	2.962111675	Thika	Embakasi	B/Blocks	1 - 2
	H	KBK 211A	0.153739241	Thika	Embakasi	B/Blocks	1 - 2 - 2
	A	KBQ 692E	39.97628636	Thika	Embakasi	B/Blocks	1 - 2 - 2
	M	KAS 561V	0.024758061	Thika	Nairobi	H/Core	1 - 2
	M	KAX 733C	0.045069348	Meru	Ruai	Empty	1 - 2
	M	KBM 478K	0.003655517	Thika	S. 'C'	Flowers	1 - 2
	H	KBP 108K	17.94843813	Gethieko	Nairobi	Empty	1 - 2 - 2
	M	KBB 929A	0.870479824	Thika	Nairobi	H/Core	1 - 2
	H	KAT 146	8.843705491	Gethieko	Embakasi	Goods	1 - 2
	H	KAY 348C	0.233637248	Thika	Embakasi	H/Core	1 - 2
	M	KBE 154K	5.093908186	Gethieko	Embakasi	Empty	1 - 2
	H	KZY 132	1.860050479	Gethieko	Embakasi	H/Core	1 - 2 - 2
	H	KAY 365	6.60387273	Gethieko	Embakasi	H/Core	1 - 2 - 2
	M	KBK 298G	0.559796607	Ruiru	Airport	H/Core	1 - 2
	M	KBP 464S	0.745907737	Meru	S. 'B'	Flowers	1 - 2
	M	KAU 487	1.17816611	Thika	Njiru	Bananas	1 - 2
	M	KWT 616	0.107778766	Thika	Njiru	B/Blocks	1 - 2
	H	KAM 626Z	0.113772966	Thika	Embakasi	B/Blocks	1 - 2 - 2
	M	KBP 372K	0.037543007	Ruiru	Airport	Empty	1 - 2
	M	KTK 053	2.459275963	Gethieko	Utawala	Empty	1 - 2
	A	KBH 946C	9.251934908	Karatina	Embakasi	H/Core	1-2-2-2-2-2
	M	KAT 906L	0.040787787	Meru	Nairobi	T. Leaves	1 - 2
	M	KYL 065	0.025232758	Meru	Nairobi	Empty	1 - 2
	M	KAQ 119J	0.00204205	Meru	Nairobi	Empty	1 - 2
	H	KAS 272C	0.058380924	Nyeri	Nairobi	Empty	1 - 2 - 2
12.00pm	M	KAM 304W	0.023199845	Nyeri	Nairobi	Empty	1 - 2
	M	KZA 524	0.025998049	Juja	Ruai	B/Stones	1 - 2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	M	KWF 674	2.989726183	Juja	Ruai	B/Stones	1 - 2
	H	KAW 846V	16.67242909	Gethieko	Embakasi	H/Core	1 - 2 - 2
	A	KBQ 693	41.8579023	Gethieko	Embakasi	H/Core	1 - 2 - 2
	M	KAV 542C	2.085683365	Juja	Njiru	B/Blocks	1 - 2
	A	KBJ 434J	8.144891338	Thika	Embakasi	B/Blocks	1-2-2-2-2-2
	H	KAX 391V	5.100513441	Thika	Mombasa	B/Stones	1 - 2
	M	EX GK 937	6.558024938	Thika	Njiru	T. Leaves	1 - 2
	H	KAV 216R	2.992089611	Thika	Kayole	B/Stones	1 - 2 - 2
	M	KBP 490V	8.415281114	Embu	Nairobi	Scrap Metal	1 - 2
	H	KBM 445V	2.358717752	Juja	Ruai	B/Stones	1 - 2
	M	KBK 592F	0.235927047	Thika	Embakasi	Empty	1 - 2
	H	KBP 951V	4.273588122	Thika	Nairobi	Flour	1 - 2 - 2
	H	KAY 298S	2.252828691	Thika	Njiru	B/Blocks	1 - 2 - 2
	M	KBC 427G	0.097581263	Mwingi	Nairobi	Empty	1 - 2
	H	KBK 195J	12.52413928	Gethieko	Njiru	H/Core	1 - 2 - 2
	H	KBJ 238R	4.839191736	Thika	Embakasi	H/Core	1 - 2 - 2
	M	KBH 442C	0.196414684	Thika	Inda. Area	Goods	1 - 2
	M	KAM 747Y	4.980719978	Thika	Nairobi	B/Blocks	1 - 2
	A	KBJ 456A	0.29715023	Mwingi	Nairobi	Empty	1-2-2-2-2-2
	A	KBB 967M	4.211576875	Mwingi	Nairobi	Continer	1-2-2-2-2-2
	M	KBK 408H	11.15682588	Juja	Kayole	B/Blocks	1 - 2
	H	KBC 250G	0.031750499	Nyeri	Nairobi	Empty	1 - 2 - 2
	H	KBD 024N	7.503936378	Gethieko	Embakasi	H/Core	1 - 2 - 2
	M	KAY 466	0.272600341	Ruiru	Nairobi	Scrap Metal	1 - 2
	M	KAS 509D	0.01492903	Thika	Nairobi	Empty	1 - 2
	M	KSQ 469	4.665357571	Juja	Njiru	B/Stones	1 - 2
	M	KBE 681	0.123696355	Meru	Mlololongo	A. Goods	1 - 2
	M	KAP 582G	0.036401594	Embu	Inda. Area	Empty	1 - 2
	M	KBK 191J	16.56461057	Thika	Embakasi	Fill Mtrl	1 - 2
	M	KAU 939V	3.68468461	Thika	Utawala	B/Stones	1 - 2
12.30pm	M	KAH 080	5.798324529	Thika	Nairobi	B/Blocks	1 - 2
	M	KAL	1.125333248	Gethieko	Njiru	Sheep	1 - 2
	H	KAR 554K	0.811915365	Thika	Nairobi	Empty Crates	1 - 2 - 2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	M	KBM 202R	0.004099541	Thika	Nairobi	Empty	1 - 2
	A	KBL 442	0.745434381	Meru	Mombasa	T. Leaves	1-2-2-2-2-2
	M	KAY 619U	5.612195431	Juja	Njiru	H/Core	1 - 2
	H	KAP 223S	4.106425949	Gethieko	Njiru	H/Core	1 - 2 - 2
	M	KBH 523V	3.058509722	Gethieko	Embakasi	H/Core	1 - 2
	M	KAY 049V	2.008912215	Gethieko	Embakasi	H/Core	1 - 2
	A	KBH 319S	0.853648972	Muranga	Nairobi	Metals	1-2-2-2-2-2
	M	KAW 907Q	4.489854012	Thika	Ruai	B/Stones	1 - 2
	M	KBP 952V	4.092522637	Ruiru	Nairobi	Flour	1 - 2
	H	KAM 024J	0.06975818	Mwingi	Nairobi	Empty	1 - 2 - 2
	M	KBQ 456J	0.035780209	Ruiru	Nairobi	Empty	1 - 2
	M	KYW 505	1.386085225	Thika	Embakasi	Flour	1 - 2
	M	KAT 051U	0.037795628	Thika	Nairobi	Pineapples	1 - 2
	H	KAW 769Y	2.015684323	Gethieko	Ruai	Gravel	1 - 2 - 2
	M	KBP 668S	1.312351776	Thika	Embakasi	B/Blocks	1 - 2
	M	KAR 120H	0.011482881	Thika	Nairobi	Empty	1 - 2
	H	KAB 193S	3.747855122	Gethieko	Utawala	H/Core	1 - 2 - 2
	M	KAD 109C	5.180585399	Thika	S.'B'	B/Blocks	1 - 2
	A	KBN 565R	8.255097769	Mwingi	Ruai	H/Core	1 - 2 - 2
	H	KBB 893E	1.773276883	Meru	Ruai	B/Blocks	1 - 2 - 2
	M	KBQ 361Q	3.043396878	Gethieko	Mlololongo	T. Leaves	1 - 2
	M	KAS 415S	0.078743786	Meru	Airport	Flowers	1 - 2
	M	KBP 674	1.506567955	Gethieko	Ruai	Gravel	1 - 2
	A	KBN 720C	0.72603607	Meru	Nairobi	Empty	1-2-2-2-2-2
	H	KBH 955C	0.153041154	Thika	Nairobi	Empty	1 - 2
	H	KAQ 377W	9.30074993	Gethieko	Ruai	Fill Mtrl	1 - 2
	A	KBJ 793M	0.52441451	Meru	Nairobi	Empty	1-2-2-2-2-2
	M	KAN 164H	3.749270372	Thika	Embakasi	H/Core	1 - 2
	H	KBP 235E	3.387438918	Gethieko	Utawala	Gravel	1 - 2 - 2
12.30pm	H	KAM 747Y	2.913698279	Nyeri	Nairobi	A. Goods	1 - 2
	H	KBF 322Y	3.812724095	Muranga	Nairobi	Scrap Metal	1 - 2
	M	KBP 051B	0.13779914	Ruiru	Nairobi	Empty	1 - 2
	H	KAL 318F	3.541045804	Thika	Ruai	B/Blocks	1 - 2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	H	KBM 893A	19.80031811	Thika	Embakasi	B/Blocks	1 - 2
	H	KBK 408H	15.04993012	Thika	Embakasi	B/Blocks	1 - 2
	H	KAZ 129G	5.019856476	Thika	Embakasi	B/Blocks	1 - 2
	A	KBF 856V	11.56023882	Gethieko	Embakasi	Fill Mtrl	1 - 2
	H	KXG 808	2.861057127	Juja	Kayole	B/Blocks	1 - 2
	H	KBG 128X	4.888916198	Juja	Ruai	B/Blocks	1 - 2
	A	KBN 874A	0.789658095	Nanyuki	Nairobi	Continer	1-2-2-2-2-2
	H	KAL 319F	2.843471039	Juja	Nairobi	B/Stones	1 - 2
	H	KAB 537K	2.837368628	Juja	Nairobi	B/Stones	1 - 2
	M	KBC 748D	0.095320294	Thika	Nairobi	Goods	1 - 2
	M	KBP 109K	0.055765184	Thika	Nairobi	Goods	1 - 2
	M	KUW 531	0.700179433	Ruiru	Nairobi	H/Core	1 - 2
	H	KAW	2.605611417	Ruiru	Embakasi	H/Core	1 - 2
	H	KBB 781T	0.126993665	Ruiru	Embakasi	Empty	1 - 2
	H	KAJ 933M	0.389268617	Meru	Nairobi	A. Goods	1 - 2
	H	KAS 309D	3.452809928	Juja	Embakasi	D/B	1 - 2
	H	KAZ 904M	13.73035398	Gethieko	Nairobi	H/Core	1 - 2
	H	KAV 939V	11.14360454	Gethieko	Embakasi	H/Core	1 - 2
	H	KAC 561N	0.544072726	Gethieko	Embakasi	H/Core	1 - 2
	M	KSM 736	3.308044494	Juja	Embakasi	B/Blocks	1 - 2
	A	KWA 430	0.360952659	Mwingi	Nairobi	Empty	1-2-2-2-2-2
	M	KBJ 563J	0.00564042	Maua	Ruai	Empty	1 - 2
	H	KAU 946T	11.12736509	Gethieko	Embakasi	H/Core	1 - 2 - 2
	H	KBP 411	3.420509386	Gethieko	Embakasi	H/Core	1 - 2 - 2
	H	KAZ 249Z	9.534838075	Gethieko	Embakasi	H/Core	1 - 2 - 2
	H	KAZ 881G	0.342997357	Thika	Nairobi	A. Goods	1 - 2 - 2
	H	KBL 255W	26.39488076	Juja	Nairobi	B/Stones	1 - 2 - 2
	M		0.065641464	Nyeri	Nairobi	Empty	1 - 2
1.00pm	A	KAG 622G	9.865809118	Juja	Kayole	B/Stones	1 - 2
	A	KBM 347X	0.597879151	Ruiru	Nairobi	Empty	1-2-2-2-2-2
	M	KRX 773	0.052355241	Thika	Njiru	Empty	1 - 2
	M	KYJ 826	0.905148631	Thika	Ruai	B/Blocks	1 - 2
	H	KBC 728	6.342152871	Gethieko	Embakasi	Fill Mtrl	1 - 2 - 2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	H	EX GK 831K	0.116502893	Muranga	Kitengela	Empty	1 - 2 - 2
	M	KTQ 832	6.01618378	Juja	Njiru	B/Stones	1 - 2
	M	KWY 599	7.717007808	Juja	Umoja	B/Stones	1 - 2
	M	VGKH 608	3.637419817	Juja	Embakasi	B/Stones	1 - 2
	M	KYM 493	2.610283466	Juja	Utawala	B/Stones	1 - 2
	M	KAR 362V	0.657466822	Meru	Nairobi	Cattle	1 - 2
	H	KAY 234J	8.457236019	Gethieko	Embakasi	H/Core	1 - 2 - 2
	M	KZX 505	2.235752976	Juja	Umoja	B/Stones	1 - 2
	H	KBJ 010K	8.053037142	Thika	Embakasi	H/Core	1 - 2
	M	KBE 324	0.037964825	Kiambu	Mlololongo	Empty	1 - 2
	H	KZV 412	2.984294072	Thika	Njiru	B/Stones	1 - 2 - 2
	A	KQX 653	11.49898674	Ruiru	Nairobi	Fertilizer	1-2-2-2-2
	M	KQN 864	3.716165556	Thika	Kitengela	B/Stones	1 - 2
	M	KBB 501G	0.008099795	Nanyuki	Nairobi	GM PM	1 - 2
	M	KAV 917E	1.804734295	Gethieko	Embakasi	B/Blocks	1 - 2
	M	KAW 689C	3.613228009	Gethieko	Embakasi	B/Blocks	1 - 2
	M	KBA 044D	8.186339847	Thika	Embakasi	H/Core	1 - 2 - 2
	H	KBH 530H	0.063647461	Thika	Nairobi	Empty	1 - 2 - 2
	H	KBP 618S	0.044428555	Muranga	Nairobi	Empty	1 - 2
	M	KZX 304	0.017329837	Thika	Nairobi	Empty	1 - 2 - 2
	H	KBK 194Y	0.063647461	Nyeri	Nairobi	Empty	1 - 2
	M	KZV 612	4.103527416	Gethieko	Embakasi	H/Core	1 - 2 - 2
	H	KZL 721	0.972836348	Meru	Nairobi	Goods	1 - 2
	M	KBP 514P	0.009039501	Thika	Nairobi	Empty	1 - 2
2.00pm	M	KAW 011B	1.90528353	Thika	Nairobi	A. Goods	1 - 2
	M	KAQ 373B	0.152742212	Thika	Nairobi	1-2-2-2-2	1 - 2
	A	KBJ 726N	0.677117592	Nanyuki	Nairobi	Empty	1 - 2
2.00pm	H	KAM 208D	21.75776162	Juja	Mlololongo	B/Stones	1 - 2 - 2
	H	KAD 624	0.19963245	Mwingi	Nairobi	Empty	1 - 2 - 2
	M	KAX 179X	0.053789517	Ruiru	Nairobi	Empty	1 - 2
	H	KAQ 482R	3.163661892	Thika	Embakasi	B/Stones	1 - 2 - 2
	M	KAT 135C	0.849981304	Thika	Embakasi	B/Stones	1 - 2
	M	KVR 485	2.315772977	Gethieko	Njiru	H/Core	1 - 2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	H	KAG 729V	0.825953295	Thika	Nairobi	Hides	1 - 2 - 2
	H	KBK 043X	6.184986735	Thika	Embakasi	B/Stones	1 - 2 - 2
	M	KBN 318K	1.439491411	Gethieko	Embakasi	Fill Mtrl	1 - 2
	A	KAV 559X	3.878324057	Juja	Kitengela	B/Stones	1 - 2 - 2
	M	KBF 030H	10.66893126	Gethieko	Embakasi	H/Core	1 - 2
	M	KAV 871B	32.82855168	Gethieko	Embakasi	H/Core	1 - 2
	H	KAT 953V	3.417290408	Gethieko	Embakasi	H/Core	1 - 2 - 2
	H	KAB 572W	3.971805204	Ruiru	Nairobi	A. Goods	1 - 2 - 2
	M	KAV 900K	0.264514741	Thika	Njiru	B/Stones	1 - 2
	H	KBP 081P	3.577460812	Gethieko	Embakasi	Fill Mtrl	1 - 2 - 2
	H	KAE 154Z	7.357683497	Gethieko	Embakasi	Fill Mtrl	1 - 2 - 2
	H	KAD 654S	20.79056529	Gethieko	Embakasi	Fill Mtrl	1 - 2 - 2
	H	KAZ 192G	2.704880379	Thika	Umoja	B/Stones	1 - 2 - 2
	H	KBL 292D	6.72932708	Thika	Umoja	B/	1 - 2 - 2
	M	KAH 628S	0.005493347	Thika	Nairobi	Empty	1 - 2
	M	KAH 699Y	1.580133669	Juja	Nairobi	B/Blocks	1 - 2
	H	KAV 772G	5.604444508	Juja	Embakasi	B/Blocks	1 - 2 - 2
	H	KAK 832W	16.46006612	Juja	Pipeline	B/Blocks	1 - 2 - 2
	H	KBA 985W	6.965148169	Gethieko	Embakasi	H/Core	1 - 2 - 2
	M	KBM 356V	0.030186469	Thika	Nairobi	Empty	1 - 2
	M	KBQ 431J	1.654796897	Gethieko	Embakasi	B/Stones	1 - 2
	M	KTK 686	5.045941365	Gethieko	Embakasi	H/Core	1 - 2
	M	KBM 300J	0.684702326	Gethieko	Embakasi	B/Blocks	1 - 2
	M	KAX 779	2.075861753	Meru	Nairobi	Goods	1 - 2
	H	KBN 571A	9.029786482	Juja	Nairobi	B/Blocks	1 - 2 - 2
	M	KSX 255	5.95435791	Meru	Nairobi	Potatoes	1 - 2
2.00pm	H	KAD 6254S	4.026707082	Thika	Njiru	B/Stones	1 - 2 - 2
	H	KBL 293	7.201411235	Thika	Embakasi	H/Core	1 - 2 - 2
	M	KTU 284	2.870491314	Thika	Embakasi	B/Blocks	1 - 2
	M	KAN 648X	4.293596684	Meru	Nairobi	Empty	1 - 2
	M	KAT 004Y	0.024061175	Juja	Umoja	B/Stones	1 - 2
	M	KUN 604	2.598343144	Nanyuki	Nairobi	Empty	1 - 2
	A	KAX 772G	0.468625075	Thika	Embakasi	B/Stones	1-2-2-2-2-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	H	KAM 619M	3.187299613	Thika	Embakasi	B/Stones	1 - 2 - 2
	H	KAZ 179G	2.401035822	Thika	Nairobi	Empty	1 - 2 - 2
	M	KAZ 179G	0.037631138	Meru	Nairobi	Maize	1 - 2
	H	KUB 559	3.809204251	Nyeri	Nairobi	Timber	1 - 2 - 2
	M	KAW 258	0.847845116	Gethieko	Embakasi	B/Stones	1 - 2
	H	KAV 772G	7.834811205	Thika	Nairobi	Goods	1 - 2 - 2
	M	KBM 356V	0.054111977	Thika	Nairobi	Container	1 - 2
	A	KTK 687M	7.927564196	Thika	Nairobi	Empty	1-2-2-2-2-2
	H	KBJ 662Y	0.157705292	Gethieko	Embakasi	H/Core	1 - 2
	H	KAZ 779	8.372164128	Gethieko	Embakasi	H/Core	1 - 2
	A	KBN 571A	3.99855203	Isiolo	Nairobi	Cattle	1-2-2-2-2-2
	H	KAK 832W	0.247235699	Thika	Nairobi	Empty	1 - 2
	M	KSX 255	0.046126117	Thika	Nairobi	Empty	1 - 2
	H	KBA 431J	0.110671785	Juja	Embakasi	Empty	1 - 2 - 2
	M	KAS 794S	1.273292863	Thika	Pipeline	B/Blocks	1 - 2
	M	KBA 985W	0.066225158	Thika	Embakasi	Empty	1 - 2
	M	KAV 023S	0.000172075	Thika	Nairobi	Empty	1 - 2
	A	KAP 011C	14.79128948	Thika	Nairobi	Empty	1 - 2 - 2
	M	KBF 856U	0.022760475	Gethieko	Embakasi	H/Core	1 - 2
	M	KAK 986S	0.971485667	Muranga	Nairobi	Empty	1 - 2
	H	KBM 300V	4.47212332	Thika	Embakasi	B/Blocks	1 - 2 - 2
	M	KAW 699Y	2.282538146	Gethieko	Embakasi	H/Core	1 - 2
	M	KBN 571A	1.242752782	Gethieko	Embakasi	H/Core	1 - 2
	M	KUM 848	5.21264427	Gethieko	Embakasi	H/Core	1 - 2
	A	KSX 255	0.434684325	Thika	Nairobi	Empty	1-2-2-2-2-2
	M	KAG 729U	0.044976677	Thika	Nairobi	Empty	1 - 2 - 2
2.00pm	A	KBA 044S	3.13885586	Meru	Nairobi	Container	1-2-2-2-2-2
	A	KBJ 339E	13.5535585	Thika	Nairobi	A. Goods	1-2-2-2-2-2
	M	KAE 697	0.027880405	Nyeri	Nairobi	Empty	1 - 2
	H	KBK 194J	13.84011937	Nanyuki	Nairobi	Empty	1 - 2
	A	KBP 764W	5.554455441	Thika	Ruai	B/Blocks	1-2-2-2-2
	A	KAB 618	6.821034321	Thika	Ruai	B/Blocks	1 - 2
	H	KAW 672	0.970496845	Thika	Nairobi	Goods	1 - 2 - 2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	M	KAQ 279	0.062904353	Juja	Embakasi	Goods	1 - 2
	M	KXG 701	1.307495241	Juja	Embakasi	H/Core	1 - 2
	M	KAX 199X	6.588205596	Thika	Nairobi	B/Stones	1 - 2
	M	KBE 634V	0.035217271	Thika	Nairobi	Empty	1 - 2
	H	KAG 729U	0.151444243	Kiambu	Nairobi	Drilling Rig	1 - 2 - 2
	H	KBG 729U	2.886766837	Thika	Nairobi	B/Stones	1 - 2
	A	KBL 148D	64.71482348	Juja	Embakasi	B/Stones	1 - 2 - 2
	H	KBF 030H	3.688298944	Juja	Pipeline	B/Stones	1 - 2
	H	KAY 956S	1.43763445	Juja	Njiru	B/Stones	1 - 2
	A	KAH 628S	0.713332403	Mwingi	Mombasa	B/Stones	1-2-2-2-2-2
	M	KBD 939P	0.005705692	Thika	Nairobi	Empty	1 - 2
	A	KBK 111X	0.329584955	Thika	Nairobi	Empty	1-2-2-2-2-2
	H	KAG 668W	0.419672376	Kiambu	Nairobi	Goods	1 - 2
	M	KBQ 361J	0.046247707	Ruiru	Nairobi	Empty	1 - 2
	A	KBM 356V	0.196315172	Nyeri	Mombasa	Empty	1-2-2-2-2-2
3.00pm	M	KBN 571A	0.590307092	_	_	B/Blocks	1 - 2
	M	KBB 409K	8.611319199	Thika	Athiriver	Aliminium	1 - 2
	M	KAZ 561	0.117558306	Meru	Airport	Flowers	1 - 2
	H	KBJ 009R	12.4291596	Thika	Embakasi	H/Core	1 - 2 - 2
	A	KBQ 693E	35.86401643	Thika	Embakasi	H/Core	1 - 2 - 2
	M	KAY 443C	3.946395021	Thika	Embakasi	B/Blocks	1 - 2
	M	KBC 934	0.157962563	Thika	Embakasi	Empty	1 - 2
	A	KBP 472Z	0.28649246	Thika	Embakasi	Empty	1-2-2-2-2-2
	M	KAT 501S	0.019405113	Thika	Embakasi	Empty	1 - 2
	M	KTZ 059Q	0.654576805	Thika	Embakasi	Empty	1 - 2
3.00pm	A	KGF	0.18758216	Nanyuki	Mombasa	Empty	1-2-2-2-2-2
	A	KBN 481	0.49685766	Nanyuki	Mombasa	Empty	1-2-2-2-2-2
	A	KBC 524F	3.371897265	Meru	Mombasa	T. Leaves	1-2-2-2-2-2
	M	KAL 377M	2.748794547	Thika	Embakasi	Stones	1 - 2
	M	KAR 243H	2.429524178	Thika	Embakasi	Stones	1 - 2
	M	KBG	0.033722014	Thika	Embakasi	Stones	1 - 2
	M	KAY 365	1.212446807	Thika	Embakasi	Stones	1 - 2
	M	KBP 553S	1.608729646	Thika	Ruai	B/Stones	1 - 2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	H	KBK 195J	19.0092632	Thika	Ruai	B/Stones	1 - 2 - 2
	H	KAL 192G	4.405635418	Thika	Embakasi	B/Stones	1 - 2 - 2
	H	KAL 585B	2.738115391	Thika	Utawala	B/Blocks	1 - 2 - 2
	H	KAH 445	0.81035128	Thika	Ruai	B/Blocks	1 - 2 - 2
	H	KAW 768Y	3.889745773	Embu	Nairobi	Goods	1 - 2 - 2
	H	KAV 988Y	5.17060097	Gethieko	Utawala	H/Core	1 - 2 - 2
	M	KAW 616C	2.832293045	Gethieko	Utawala	Gravel	1 - 2 - 2
	M	KBE 446E	2.104696275	Thika	Utawala	Blocks	1 - 2
	H	KBQ 904	8.073807125	Nanyuki	Airport	Flowers	1 - 2
	H	KAG 252Z	3.452417823	Gethieko	S.B	Gravel	1 - 2
	M	KAT 019E	8.24791024	Gethieko	Utawala	H/Core	1 - 2
	M	KAB 316K	0.038367891	Gethieko	Utawala	H/Core	1 - 2
	A	KBC 602	0.487647184	Thika	Nairobi	Empty	1 - 2
	M	KAA 700T	1.825606999	Thika	Nairobi	Blocks	1 - 2
	H	KAA 605J	7.949833707	Thika	Utawala	H/Core	1 - 2 - 2
	H	KAT 056	12.47578523	Thika	Utawala	H/Core	1 - 2 - 2
	H	KAT 104E	7.717362107	Thika	Utawala	H/Core	1 - 2 - 2
	H	KAC 922	2.066279353	Gethieko	Utawala	H/Core	1 - 2 - 2
	H	KAD 472T	4.066062613	Gethieko	Utawala	H/Core	1 - 2 - 2
	H	KBQ 445J	1.434182884	Gethieko	Njiru	B/Blocks	1 - 2 - 2
	M	KBM 446	0.108155868	Juja	Nairobi	Empty	1 - 2
	M	KAE 172	0.074186096	Thika	Nairobi	Empty	1 - 2
	H	KAV 232V	15.78456118	Ruiru	Embakasi	B/Blocks	1 - 2 - 2
	M	KAC 839	5.103861056	Gethieko	Embakasi	H/Core	1 - 2 - 2
4.00pm	M	KAY 240X	4.104766969	Thika	Nairobi	B/Stones	1 - 2
	M	KAS 932D	0.002971655	Nyeri	Nairobi	Empty	1 - 2
	H	KAE 406B	9.661898776	Gethieko	Embakasi	H/Core	1-2-2-2
	M	KBJ 040C	2.682726375	Thika	Embakasi	B/Stones	1 - 2
	M	KAG 196N	3.331119874	Thika	Mlololongo	Sand	1 - 2
	M	KBP 108K	3.191930779	Thika	Embakasi	B/Stones	1 - 2
	M	KBG 432	2.084579722	Thika	Ruai	B/Stones	1 - 2
	M	KBH 618	0.224628182	Ruiru	Airport	Flowers	1 - 2
	M	KAP 490N	0.132226861	Ruiru	Nairobi	Empty	1 - 2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	M	KAW 109G	0.043310453	Nyeri	Nairobi	Posts	1 - 2
	M	KAB 823	0.02129144	Thika	Kitengela	Empty	1 - 2
	M	KAC 147C	0.012904345	Thika	Nairobi	Empty	1 - 2
	M	KBP 923Q	0.011109199	Mu	Nairobi	Empty	1 - 2
	A	KBN 630	0.508201444	Muranga	Mombasa	Empty	1-2-2-2-2-2
	M	KBL 535L	0.015145254	Thika	Nairobi	Plastics	1 - 2
	M	KAV 233X	0.019997564	Meru	Nairobi	Maize	1 - 2
	M	KAW 006N	0.00064107	Ruiru	Kitengela	Empty	1 - 2
	M	KBM 113D	0.470470437	Mwea	Nairobi	Rice	1 - 2
	A	KBQ 350C	5.628368157	Gethieko	Embakasi	H/Core	1-2-2-2
	M	KAY 604L	0.04326561	Ruiru	Nairobi	Empty	1 - 2
	H	KAX 104D	0.240001059	Thika	Embakasi	Conc. Mixer	1-2-2-2
	M	KYM 014	3.484776789	Thika	Kayole	B/Stones	1 - 2
	M	KAH 699T	0.377548743	Thika	Embakasi	B/Stones	1 - 2
	M	KAB 199K	1.216790152	Kiambu	Nairobi	A. Goods	1 - 2
	H	KAJ 358D	2.193138022	Thika	Nairobi	B/Stones	1 - 2
	A	KBA 009L	0.234941582	Thika	Mombasa	Empty	1-2-2-2-2-2
	H	KBL 108W	2.101272585	Thika	Nairobi	B/Blocks	1-2-2-2
	H	KAL 267Q	6.626655583	Gethieko	Embakasi	Fill Mtrl	1-2-2-2
	H	KBL 293D	10.09125687	Gethieko	Embakasi	Fill Mtrl	1-2-2-2
	M	KTK 192	1.232845309	Thika	Nairobi	B/Blocks	1 - 2
	H	KBB 081P	5.242853632	Gethieko	Embakasi	Fill Mtrl	1-2-2-2
	A	KBF 856U	12.09063008	Gethieko	Embakasi	Fill Mtrl	1-2-2-2
4.00pm	H	KAR 741W	2.220850155	Thika	Nairobi	B/Blocks	1 - 2
	H	KAX 187E	2.644129682	Thika	Nairobi	B/Blocks	1 - 2
	A	KBK 752	0.27930129	Nanyuki	Nairobi	Empty	1-2-2-2
	M	KTX 621	0.279032645	Juja	Nairobi	B/Stones	1 - 2
	H	KAL 432Z	1.285910154	Juja	Nairobi	B/Stones	1-2-2-2
	H	KBL 492W	7.89251341	Gethieko	Embakasi	H/Core	1-2-2-2
	M	KWT 539	6.768793014	Juja	Njiru	B/Stones	1 - 2
	M	KYA 331	1.722941314	Juja	Nairobi	B/Stones	1 - 2
	A	KBM 291V	0.516444348	Kiambu	Nairobi	Empty	1-2-2-2
	H	KAV 939V	6.13406553	Gethieko	Embakasi	Fill Mtrl	1-2-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	M	KAZ 132B	0.00668627	Kiambu	Nairobi	Empty	1 - 2
	H	KAZ 318F	3.057365634	Gethieko	Embakasi	H/Core	1 - 2
	A	KAV 880M	4.895838215	Ruiru	Nairobi	Coffee	1-2-2-2-2-2
	H	KBC 204S	2.648222489	Juja	Kayole	B/Stones	1 - 2
	M	KAK 373U	0.155030044	Thika	Nairobi	A. Goods	1 - 2
	M	KXG 225	2.88789705	Meru	Nairobi	Maize	1 - 2
	H	KAV 193G	9.460685605	Gethieko	Embakasi	B/Stones	1-2-2-2
	M	KBB 840	0.01783883	Karatina	Nairobi	Empty	1 - 2
	M	KBD 842	0.084818098	Embu	Nairobi	Goods	1 - 2
	A	KAV 420C	2.545813491	Gethieko	Embakasi	H/Core	1-2-2-2
	H	KBZ 299	2.662585486	Gethieko	Embakasi	H/Core	1-2-2-2
	M	KYF 626	0.025506377	Kiambu	Pipeline	Empty	1 - 2
	M	KAY 953U	9.482461079	Juja	Embakasi	B/Stones	1 - 2
	M	KAB 572W	34.83302997	Juja	Pipeline	B/Stones	1 - 2
	H	KBP 081P	0.08368607	Thika	Njiru	Empty	1-2-2-2
	M	KAH 628S	2.067917557	Juja	Embakasi	Fill Mtrl	1 - 2
	A	KBE 487P	0.344459594	Thika	Nairobi	Empty	1-2-2-2-2-2
	M	KBM 356V	5.944995568	Gethieko	Embakasi	H/Core	1 - 2
	M	KTK 687M	3.649252139	Gethieko	Embakasi	H/Core	1 - 2
	H	KBN 571A	0.656299056	Meru	Nairobi	Bananas	1-2-2
	H	KAM 208A	4.847883047	Ndarungu	Embakasi	H/Core	1-2-2
	H	KAD 624	33.57046847	Gethieko	Embakasi	H/Core	1-2-2
4.00pm	M	KAZ 699R	4.054895919	Thika	Nairobi	B/Blocks	1 - 2
	H	KAZ 179G	4.749653557	Thika	Embakasi	H/Core	1 - 2
	H	KBP 244K	4.577892098	Thika	Embakasi	H/Core	1 - 2
	A	KBA 105N	0.418037141	Ruiru	Nairobi	Empty	1-2-2-2-2-2
	M	KTZ 862Z	0.068252817	Thika	Embakasi	Empty	1 - 2
	H	KAA 924L	2.423898203	Thika	Kayole	B/Blocks	1 - 2
	M	KBP 294Y	6.946094238	Thika	Mombasa	B/Stones	1 - 2
	A	KAN 394E	0.249870182	Nanyuki	Mombasa	Empty	1-2-2-2-2-2
	M	KBK 408H	0.049031685	Meru	Nairobi	Empty	1 - 2
	H	KBA 639A	12.62422692	Juja	Embakasi	H/Core	1 - 2
	A	KAR 091S	0.21211172	Kiambu	Nairobi	Empty	1-2-2-2-2-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	M	KWB 570	0.057458772	Thika	Nairobi	Empty	1 - 2
	M	KZP 665	4.691127235	Juja	Embakasi	B/Blocks	1 - 2
	H	KAJ 481N	0.092069565	Thika	Nairobi	Empty	1-2-2-2
	H	KBQ 692E	4.926985762	Thika	Embakasi	B/Stones	1-2-2-2
	A	KAQ 191W	45.87218832	Gethieko	Embakasi	H/Core	1-2-2-2
	M	KBB 899X	0.568995462	Nyeri	Nairobi	Empty	1 - 2
	M	KAP 846B	0.028844497	Ruiru	Ruai	Empty	1 - 2
	M	KAP 934V	0.137547204	Ruiru	Nairobi	Empty	1 - 2
	M	KBK 194J	0.037174243	Juja	Kitengela	B/Stones	1 - 2
	A	KAV 418Z	6.096501033	Thika	Nairobi	B/Stones	1-2-2-2-2-2
	M	KAM 446B	0.097184614	Thika	Nairobi	B/Stones	1 - 2
	M	KAJ 272C	1.984683696	Thika	Nairobi	Container	1 - 2
	H	KAL 103W	9.908746155	Gethieko	Nairobi	Empty	1-2-2-2
	M	KBL 495W	5.289953784	Thika	Embakasi	H/Core	1 - 2
	M	KAS 629T	0.024529374	Ruiru	Ruai	B/Stones	1 - 2
	M	KRA 925	0.848800537	Nyeri	Nairobi	Empty	1 - 2
	M	KBC 228N	0.338728647	Thika	Nairobi	Timber	1 - 2
	A	KAT 177D	0.572849191	Thika	Nairobi	Goods	1-2-2-2-2-2
	M	KAS 802Y	0.051527727	Muranga	Nairobi	F. Beans	1 - 2
	M	KAB 628S	0.804118841	Gethieko	Embakasi	B/Stones	1 - 2
4.00pm	M	KAZ 699R	4.054895919	Thika	Nairobi	B/Blocks	1 - 2
	H	KAZ 179G	4.749653557	Thika	Embakasi	H/Core	1 - 2
	H	KBP 244K	4.577892098	Thika	Nairobi	Empty	1 - 2
	A	KBA 105N	0.418037141	Ruiru	Nairobi	Empty	1-2-2-2-2-2
	M	KTZ 862Z	0.068252817	Thika	Ruai	Empty	1 - 2
	H	KAA 924L	2.423898203	Thika	Embakasi	B/Blocks	1 - 2
	M	KBE 898E	6.946094238	Thika	Kayole	B/Blocks	1 - 2
	A	KBP 294Y	0.249870182	Nanyuki	Mombasa	Empty	1-2-2-2-2-2
	M	KAN 394E	0.049031685	Meru	Nairobi	Empty	1 - 2
	H	KBK 408H	12.62422692	Juja	Embakasi	H/Core	1 - 2
	A	KBA 639A	0.21211172	Kiambu	Nairobi	Empty	1-2-2-2-2-2
	M	KAR 091S	0.057458772	Thika	Nairobi	Empty	1 - 2
	M	KWB 570	4.691127235	Juja	Embakasi	B/Blocks	1 - 2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	H	KZP 665	0.092069565	Thika	Nairobi	Empty	1-2-2-2
	H	KAY 481N	4.926985762	Thika	Embakasi	B/	1-2-2-2
	A	KBQ 692E	45.87218832	Gethieko	Embakasi	H/Core	1-2-2-2
	M	KAQ 191W	0.028844497	Nyeri	Nairobi	Empty	1 - 2
	M	KBB 899X	0.037174243	Ruiru	Ruai	Empty	1 - 2
	M	KAP 841B	3.335067221	Juja	Kitengela	B/Stones	1 - 2
	M	KAP 934V	7.003679206	Juja	Nairobi	B/Stones	1 - 2
	H	KBK 194J	12.76300744	Juja	Nairobi	B/Stones	1-2-2-2
	A	KAV 418Z	6.096501033	Thika	Nairobi	Container	1-2-2-2-2-2
	M	KAM 446B	0.097184614	Thika	Nairobi	Empty	1 - 2
	M	KAJ 272C	2.528542749	Thika	Embakasi	B/Stones	1 - 2
	H	KAL 103W	9.56160363	Gethieko	Embakasi	H/Core	1-2-2-2
	M	KBL 495W	5.289953784	Thika	Ruai	B/Stones	1 - 2
	M	KAS 629T	0.024529374	Ruiru	Nairobi	Empty	1 - 2
	M	KRA 925	0.848800537	Nyeri	Nairobi	Timber	1 - 2
	M	KBC 228N	0.338728647	Thika	Nairobi	Goods	1 - 2
	A	KAT 177D	0.572849191	Thika	Nairobi	Empty	1-2-2-2-2-2
	M	KAS 802Y	0.051527727	Muranga	Nairobi	F. Beans	1 - 2
	M	KAB 628S	0.804118841	Gethieko	Embakasi	B/Stones	1 - 2
5.00pm	M	KBJ 728L	0.026996012	Ruiru	Nairobi	Empty	1 - 2
	M	KZE 415	2.707113544	Juja	Ruai	B/Stones	1 - 2
	M	KAU 143F	2.770146809	Juja	Nairobi	B/Stones	1 - 2
	M	KAH 470R	0.104986388	Thika	Nairobi	Empty	1 - 2
	M	KBH 734	0.116735811	Muranga	Nairobi	Empty	1 - 2
	A	KAR 034T	3.985532227	Gethieko	Embakasi	H/Core	1 - 2
	H	T66Z BSF	0.544655127	Ruiru	Nairobi	F. Beans	1 - 2
	H	T652 BSF	0.487859885	Ruiru	Nairobi	Empty	1 - 2
	M	KBD 528F	0.504036455	Thika	Nairobi	Empty	1 - 2
	H	T6H BSF	0.569531019	Thika	Nairobi	B/Blocks	1-2-2
	M	KBB 957G	0.22056397	Nyeri	Nairobi	Timber	1 - 2
	M	KBF 407H	0.019451012	Thika	Nairobi	Empty	1 - 2
	M	KBE 571V	0.027575283	Meru	Nairobi	Empty	1 - 2
	M	KAK 339T	0.004647869	Nyeri	Nairobi	Empty	1 - 2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	M	KAV 205U	2.516209681	Gethieko	Embakasi	H/Core	1 - 2
	H	KAH 090V	3.51240914	Gethieko	Embakasi	H/Core	1-2-2
	M	KBQ 204J	0.021688006	Nyeri	Nairobi	Empty	1 - 2
	M	KAS 781D	3.936932355	Juja	Nairobi	B/Stones	1 - 2
	M	KAZ 697T	1.393763813	Juja	Nairobi	B/Stones	1 - 2
	M	KTK 158	4.416476974	Juja	Nairobi	B/Stones	1 - 2
	H	KAV 961B	2.071887172	Juja	Nairobi	B/Blocks	1-2-2
	M	KBP 063E	0.1122984	Kiambu	Nairobi	Empty	1 - 2
	H	KAB 545L	0.054498052	Nyeri	Nairobi	Empty	1-2-2
	M	KAV 169C	0.04004365	Muranga	Ruai	Empty	1 - 2
	M	KAH 566C	2.55886123	Juja	Embakasi	B/Blocks	1 - 2
6.00pm	M	KBQ 109S	5.482263919	Nyeri	Nairobi	Bananas	1 - 2
	M	KBA 618S	1.826562716	Meru	Embakasi	Empty	1 - 2
	M	KAV 917E	0.022503709	Thika	Nairobi	Empty	1 - 2
	M	KAY 324S	0.007793241	Thika	Nairobi	Empty	1 - 2
	M	KAJ 928	1.851850781	Meru	Nairobi	Goods	1 - 2
	M	KAR 362J	0.156260633	Juja	Embakasi	Empty	1 - 2
	M	KBM 347X	404.1298581	Juja	Embakasi	Empty	1 - 2
6.00pm	M	KAB 229	4.025277686	Thika	Nairobi	B/Blocks	1 - 2
	H	KBB 292S	4.669635798	Thika	Embakasi	H/Core	1-2-2
	H	KBK 558	0.090582362	Juja	Embakasi	Empty	1-2-2
	M	KJL 004	0.030435299	Meru	Nairobi	Empty	1 - 2
	M	KAQ 191C	0.040102014	Meru	Njiru	Empty	1 - 2
	H	KAM 486J	9.705462869	Nyeri	Nairobi	Empty	1-2-2
	M	KAU 805W	1.966245744	Juja	Embakasi	B/Stones	1 - 2
	M	KAN 047H	3.273347473	Juja	Embakasi	Fill Mtrl	1 - 2
	M	KBA 618J	5.32884023	Meru	Nairobi	Maize	1 - 2
	M	KBB 898X	0.812928962	Thika	Nairobi	Goods	1 - 2
	A	KAS 802Y	43.25050722	Gethieko	Embakasi	H/Core	1-2-2-2
	A	KBP 333J	0.248049794	Thika	Nairobi	Empty	1-2-2-2-2-2
	M	KBB 601G	0.007793241	Thika	Nairobi	Empty	1 - 2
LHS		29/9/2011					
7	M	KAN 637Y	2.401507886	Nairobi	Thika	Juice	1-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
7	H	KAK 392A	2.40220539	Nairobi	Thika	Soda	1-2-2
7	M	KBB 285R	2.031382524	Nairobi	Muranga	Goods	1-2
7	H	KBB 282 S	0.109706873	Nairobi	Thika	Empty	1-2-2
7	M	KTL 919	0.032406727	Kajiado	Juja	Empty	1-2
7	M	KAV 805N	3.145495685	Kajiado	Thika	Fertilizer	1-2
7	H	KAV 035A	10.75523295	Nairobi	Thika	Fertilizer	1-2-2
7	M	KAN 047H	9.034139586	Nairobi	Ruiru	Soda	1-2
7	H	KBQ 879	1.080902549	Embakasi	Thika	Hardcore	1-2-2
7	A	KBH 199S	1.147008596	Nairobi	Thika	Cartons	1-2-2
7	M	KAT 080E	2.560964839	Athi River	Thika	Cement	1-2
7	M	KAL 164Y	1.953971886	Athi River	Juja	Cement	1-2
7	M	KAT 304D	11.64303967	Athi River	Ruiru	Cement	1-2
7	A	KBL 055P	25.3158241	Mombasa	Thika	Cement	1-1-2-2-2-2
7	M	KAT 108W	0.038230719	Nairobi	Thika	Empty	1-1-2-2-2-2
7	A	KBM 349A	5.458004771	Mombasa	Thika	Wheat	1-1-2-2-2-2
7	H	KAM 555X	1.948883493	Nairobi	Nyeri	Flour	1-2-2
7	M	KAV 106D	0.083087178	Embakasi	Thika	Empty	1-2
7	H	KAL 192G	0.184315543	Embakasi	Thika	Empty	1-2-2
7	H	KAW707Y	2124.7476	Embakasi	Thika	Empty	1-2-2
7	H	KA; 323	2.250397421	Athi River	Nyeri	Cement	1-2-2
7	M	KBA 649K	0.051700098	Nairobi	Thika	Empty	1-2
7	A	KBP 817S	16.0874902	Athi River	Meru	Cement	1-2-2-2-2-2
7	H	KAX 242W	0.095346071	Embakasi	Thika	Empty	1-2-2
7	H	KAS 863Z	9.522023663	Embakasi	Thika	Ballast	1-2-2
7	A	KAV 220H	10.09894082	Mombasa	Mwingi	Fuel	1-2-2-2-2-2
7	H	KBK 528C	5.138863554	Mlolongo	Thika	Ballast	1-2-2
7	H	KAC 411D	0.247832154	Kitengela	Ruiru	Empty	1-2-2
7	M	KBN 352	0.042863315	Nairobi	Nyeri	Empty	1-2
7	H	KBM 950W	0.217126554	Nairobi	Thika	Empty	1-2-2
7	H	KBH 550	9.073217795	Embakasi	Thika	Ballast	1-2-2
7	M	KAL 179G	0.053237283	Nairobi	Mwingi	Plastics	1-2
8	H	KBK 195S	0.152488301	Embakasi	Thika	Empty	1-2-2
8	H	KBN 314Z	1.455233802	Embakasi	Thika	Ballast	1-2-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
8	H	KBP 155K	8.657842439	Embakasi	Thika	Ballast	1-2-2
8	H	KAZ 416	0.112905615	Embakasi	Thika	Empty	1-2-2
8	M	KBE 751S	8.002180961	Embakasi	Thika	Ballast	1-2
8	A	KWA 430T	15.80627911	Athi river	Nanyuki	Cement	1-2-1-2-2-2
8	H	KAS 880	0.159308447	Nairobi	Thika	Empty	1-2-2
8	M	KBL 541D	0.020729048	Nairobi	Thika	Empty	1-2
8	H	KAX 987	0.516762236	Nairobi	Ruiru	Goods	1-2-2
8	H	KAV 462D	3.593973509	Embakasi	Thika	Ballast	1-2-2
8	H	KBM 40H	10.96731015	Embakasi	Thika	Ballast	1-2-2
8	H	KAE 658D	5.15656679	Athi river	Kerugoya	Cement	1-2-2
8	H	KAT 064J	0.048604226	Nairobi	Thika	Empty	1-2-2
8	M	KAQ 298X	0.008162421	Nairobi	Thika	Empty	1-2
8	H	KAL 178G	2.434723907	Athi river	Ruiru	Cement	1-2-2
8	H	KAZ 619P	0.178265312	Embakasi	Thika	Empty	1-2-2
8	H	KAY 665U	8.691135533	Athi river	Ruiru	Cement	1-2-2
8	M	KBP 860V	0.028600419	Nairobi	Thika	Empty	1-2
8	M	KAZ 989D	0.047393097	Nairobi	Thika	Empty	1-2
8	H	KBC 493M	10.01226427	Embakasi	Thika	Ballast	1-2-2
8	H	KAE 454B	0.236560971	Embakasi	Thika	Empty	1-2
8	M	KZA 321	0.040030507	Ruai	Juja	Empty	1-2
8	M	KBH 867	8.706256036	Athi river	Muranga	Cement	1-2
8	H	KAA 674N	0.094335094	Embakasi	Thika	Empty	1-2-2
8	M	KAD 681B	11.50661656	Nairobi	Thika	Flour	1-2
8	M	KAV 034Z	458.2353011	Ruai	Thika	Passangers	1-2
8	M	KAZ 561H	0.100385433	Nairobi	Ruiru	Empty	1-2
8	H	KBJ 492	0.217784437	Embakasi	Thika	Empty	1-2-2
8	H	KBJ 105S	0.228413905	Embakasi	Thika	Empty	1-2-2
8	A	KBF 090N	15.27137193	Mombasa	Thika	Steel bar	1-2-2-2-2-2
8	H	KAX 211N	0.202374603	Nairobi	Thika	Goods	1-2-2
8	H	KBA 379C	2.551090653	Embakasi	Thika	Ballast	1-2-2
8	H	KAD 690B	0.105733384	Mlolongo	Thika	Empty	1-2-2
8	H	KBB 291 K	0.296440641	Nairobi	Thika	Goods	1-2-2
8	M	KBM 683U	7.850504096	Mombasa	Thika	Empty	1-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
8	H	KAK 199S	0.378059644	Embakasi	Thika	Empty	1-2-2
8	A	KBL 319D	7.707467411	Kajiado	Meru	Fertilizer	1-2-2-2-2
8	M	KAK 681C	0.03732304	Nairobi	Thika	Empty	1-2
8	H	KBA 644Z	5.656848683	Embakasi	Ruiru	Ballast	1-2-2
8	H	KBN 5656R	0.113149194	Embakasi	Thika	Empty	1-2-2
8	H	KBH 531N	4.24689643	Embakasi	Thika	Ballast	1-2-2
8	M	KRX 473	0.045243849	Nairobi	Ruiru	Empty	1-2
8	H	KBH 880C	11.77590169	Embakasi	Thika	Ballast	1-2-2
8	M	KBC 945F	0.022767204	Embakasi	Thika	Empty	1-2
8	H	KBA 013K	0.121298657	Embakasi	Thika	Ballast	1-2-2
8	A	KBF 318S	5509.082467	Athi River	Muranga	Cement	1-2-2-2-2-2
8	M	KYM 044	4.1188201	Embakasi	Thika	Ballast	1-2
8	M	KAR 867E	0.144102381	Nairobi	Thika	Goods	1-2
8	H	KAE 582J	2.166538554	Kajiado	Thika	Cattle	1-2-2
8	M	KJY 680	0.023788902	Nairobi	Thika	Empty	1-2
8	A	KBM 453B	14.68351026	Mombasa	Thika	Wheat	1-2-2-2-2-2
8	M	KAH 489	3.852710918	Athi River	Ruiru	Cement	1-2
8	H	KAV 858U	0.684363608	Embakasi	Thika	Empty	1-2-2
8	H	KAM 284C	0.173199014	Embakasi	Thika	Empty	1-2-2
8	A	KBK 160Y	12.06802315	Mombasa	Meru	Cement	1-1-2-2-2-2
8	H	KBL 812X	0.173338478	Nairobi	Thika	Empty	1-2-2
8	A	KBE 885E	69.75487263	Mombasa	Thika	Cement	1-2-2-2-2-2
8	M	KAV 493	0.022767204	Ruai	Thika	Empty	1-2
8	H	KAJ 442	4.374884347	Athi River	Meru	Cement	1-2-2
8	M	KVW 531	0.037896049	Njiru	Thika	Empty	1-2
8	H	KAS 014Y	16.5002664	Mlolongo	Thika	Sand	1-2-2
8	M	KBA 352C	0.120570803	Nairobi	Meru	Empty	1-2
8	A	KBQ 509K	0.736173351	Embakasi	Thika	Empty	1-1-2-2
8	A	KWR 148	15.80886443	Mombasa	Mwingi	Goods	1-2-2-2-2
9	H	KAD 675	7.714719134	Embakasi	Thika	Ballast	1-2-2
9	A	KBN 017Y	21893.17919	Mombasa	Thika	Steel bar	1-2-2-2-2-2
9	H	KAL 192G	0.075172888	Nairobi	Thika	Empty	1-2-2
9	H	KBL 208V	0.27585532	Embakasi	Meru	Empty	1-2-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
9	M	KAP 546R	0.007957329	NNA	Thika	Empty	1-2
9	A	KBH 122L	14.47784213	Athi river	Thika	Cement	1-2-2-2-2
9	M	KAV 013K	1.317416992	Kajiado	Mwingi	Fertilizer	1-2
9	H	KBB 081P	1.485389439	Nairobi	Muranga	Empty	1-2-2
9	M	KBP 235V	0.063667603	Nairobi	Ruiru	Empty	1-2
9	M	KAP 242K	0.100666736	Nairobi	Thika	Empty	1-2
9	M	KAE 453F	4.653726637	Kajiado	Nyeri	Fertilizer	1-2
9	M	KAQ 422	1.268052007	Nairobi	Thika	Flour	1-2
9	H	KAM 386V	10.16397259	Embakasi	Thika	Ballast	1-2-2
9	M	KAV 505V	4.70321543	Embakasi	Thika	Ballast	1-2
9	A	KAY 239V	0.444234805	Embakasi	Thika	Empty	1-1-2-2
9	H	KAD 651Y	50050.52485	Nairobi	Mwingi	Soda	1-2-2
9	M	KYM 218	0.039093278	Nairobi	Juja	Empty	1-2
9	H	KAV 259S	2.471312218	Athi river	Muranga	Cement	1-2-2
9	M	KAW 854B	5.761786605	Athi river	Ruiru	Cement	1-2-2
9	H	KAY 966Z	2.663513194	Athi river	Thika	Cement	1-2-2
9	M	KAB 072U	0.044675859	Nairobi	Ruiru	Empty	1-2
9	M	KXX 616	0.085005588	Ruai	Juja	Empty	1-2
9	M	KBQ 456J	8.144831638	Nairobi	Ruiru	Iron sheets	1-2
9	H	KBM 987Y	0.141059749	Embakasi	Thika	Empty	1-2-2
9	H	KAM 525Z	0.165476526	Nairobi	Thika	Empty	1-2-2
9	M	KAQ 668R	1.241619324	Nairobi	Thika	Medicine	1-2
9	H	KAM 626Z	3.783839021	Embakasi	Embu	Animal Feed	1-2-2
9	H	KBJ 774A	0.168419333	Embakasi	Thika	Empty	1-2-2
9	H	KAY 329	0.172500918	Embakasi	Thika	Empty	1-2-2
9	H	KBP 108K	0.134491094	Embakasi	Thika	Empty	1-2-2
9	H	KAV 743V	0.680929162	Nairobi	Muranga	Goods	1-2-2
9	H	KAW 764	0.156042715	Embakasi	Thika	Empty	1-2
9	M	KAT 192	0.010938831	Nairobi	Thika	Empty	1-2
9	M	KAY 134	0.085848478	Nairobi	Thika	Empty	1-2
9	M	KAY 138D	0.110636012	Nairobi	Thika	Empty	1-2
9	M	KAW 307L	3.577167105	Nairobi	Thika	Animal Feed	1-2
9	M	KAX 240B	0.025889588	Nairobi	Thika	Empty	1-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
9	A	KBM 088U	0.194824562	Embakasi	Thika	Empty	1-1-2-2
9	H	KAU 446	6.727031747	Embakasi	Thika	Ballast	1-2-2
9	H	KAT 331	6.487527956	Embakasi	Thika	Ballast	1-2-2
9	H	KAM 846R	0.285003099	Nairobi	Ruiru	Goods	1-2-2
9	M	KBJ 928	0.132462067	Nairobi	Thika	Empty	1-2
9	M	KBN 746W	0.004111338	Nairobi	Thika	Empty	1-2-2
9	H	KAL 179G	0.184105408	Embakasi	Thika	Empty	1-2-2
9	H	KBD 056G	0.199052797	Embakasi	Thika	Empty	1-2-2
9	M	KAX 473C	0.830444284	Nairobi	Thika	Salt	1-2
9	M	KAA 297W	0.023035123	Nairobi	Thika	Empty	1-2
9	H	KBN 101Z	0.300420282	Embakasi	Thika	Empty	1-2-2
9	H	KBP 531F	10.00362241	Embakasi	Thika	Ballast	1-2-2
9	A	KAW 791X	4.686839947	Kajiado	Mwingi	Fertilizer	1-1-2-2
9	M	KAS 556L	0.028246492	Nairobi	Thika	Empty	1-2
9	H	KAW 767W	0.139585061	Nairobi	Kiambu	Empty	1-2-2
9	M	KAK 207Y	0.020666558	Nairobi	Kiambu	Empty	1-2
9	H	KBC 157Y	0.171315948	Embakasi	Thika	Empty	1-2-2
9	H	KAZ 267D	0.187037342	Embakasi	Thika	Empty	1-2-2
9	M	KAR 809T	0.004431459	Embakasi	Meru	Empty	1-2
9	A	KAT 910G	5.903202687	Embakasi	Thika	Ballast	1-1-2-2
9	H	KBG 410R	6.101902177	Athi River	Thika	Cement	1-2-2
9	M	KZR 115	0.636008584	Nairobi	Ruiru	Firewood	1-2
9	A	KAS 916V	0.182190976	Embakasi	Thika	Empty	1-1-2-2
9	A	KBM 737	10.16385648	Uganda	Thika	Goods	1-1-2-2-2
9	M	KYY 743	4.106964087	Mlolongo	Thika	Sand	1-2
9	A	KBB 614A	0.207066335	Embakasi	Thika	Empty	1-2-2-2
9	H	KBG 493	0.138616115	Embakasi	Thika	Empty	1-2-2
10	A	KAR 491T	10.30400499	Nairobi	Matuu	Flour	1-1-2-2-2-2
	M	KAW 458W	0.014910146	Nairobi	Thika	Empty	1-2
10	M	KBC 192S	168200.7106	Embakasi	Thika	Ballast	1-2
10	M	KAU 292D	1.070240122	Nairobi	Kiambu	Goods	1-2
10	M	KBB 929A	0.029118921	Nairobi	Ruiru	Empty	1-2
10	M	KAM 933Z	0.117004334	Nairobi	Ruiru	Empty	1-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
10	A	KBJ 457A	2.629789367	Mombasa	Thika	Fertilizer	1-2-2-2-2-2
10	M	KBG 444H	0.027299719	Nairobi	Thika	Empty	1-2
10	H	KAH 013B	0.410851935	Nairobi	Thika	Empty	1-2-2
10	H	KAX 118C	1.574433572	Nairobi	Thika	Goods	1-2-2
10	M	KBK 194J	9.912007104	Nairobi	Thika	Timber	1-2
10	M	KAX 987Z	2.715150996	Mlolongo	Thika	Ballast	1-2
10	M	KBH 821S	0.010203748	Embakasi	Thika	Empty	1-2
10	M	KAE 582J	0.010203748	Nairobi	Juja	Empty	1-2
10	A	KAW 800G	10.26002829	Mombasa	Thika	Rice	1-2-2-2-2-2
10	A	KAV 931V	36094.14564	Embakasi	Thika	Ballast	1-1-2-2-2
10	A	KAK 227S	8.438891185	Mombasa	Thika	Rice	1-1-2-2-2-2
10	A	KAB 186V	14.29478475	Mombasa	Thika	Rice	1-2-2-2-2-2
10	H	KZP 038	0.377404649	Nairobi	Kiambu	Goods	1-2-2
10	M	KAD 592	4.682186761	Athi River	Ruiru	Cement	1-2-2
10	M	KAL 591X	0.207854113	Ruai	Thika	Empty	1-2
10	M	KAY 604J	9.391819454	Athi River	Thika	Cement	1-2
10	H	KBB 261	0.214474109	Nairobi	Juja	Empty	1-2-2
10	A	KBD 188	0.285638728	Nairobi	Ruiru	Empty	1-1-2-2
10	H	KBJ 278	0.368705782	BA	Nyeri	Goods	1-2-2
10	M	KBQ 692E	4.928532332	Nairobi	Meru	Fertilizer	1-2
10	H	KBE 700	7.398875816	Embakasi	Thika	Ballast	1-2-2
10	M	KBE 647K	1.611848935	Nairobi	Thika	Steel bar	1-2
10	A	KBG 921K	0.178821182	Nairobi	Meru	Empty	1-2-2-2-2-2
10	M	KBD 602	1.351110012	Nairobi	Thika	Tea Leaves	1-2
10	M	KAL 192G	0.13179268	Embakasi	Thika	Empty	1-2-2
10	M	KAV 839A	3.786416797	Kajiado	Thika	Fertilizer	1-2
10	H	KAR 822	1.828405598	Mlolongo	Ruiru	Sand	1-2-2
10	M	KYM 540	15.0192977	Mlolongo	Thika	Sand	1-2
10	H	KAM 004Y	0.155352219	Embakasi	Thika	Empty	1-2
10	A	KBQ 277K	13.59005451	Athi River	Nanyuki	Cement	1-2-2
10	H	KBP 191S	0.179403834	Embakasi	Thika	Empty	1-2-2
10	H	KAA 121D	0.108552098	Embakasi	Thika	Empty	1-2
10	M	KBP 012B	0.183112635	Nairobi	Thika	Tea Leaves	1-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
10	M	KBN 070F	0.089254633	Nairobi	Meru	Empty	1-2
10	M	KVR 485	0.044675859	Nairobi	Ruiru	Empty	1-2
10	M	KAP 640E	1.241511393	Nairobi	Thika	Flour	1-2
10	M	KBC 552	0.024916452	Nairobi	Thika	Empty	1-2
10	H	KAK 822Z	0.070552074	Nairobi	Muranga	Empty	1-2-2
10	H	KBM 010S	0.082579128	Nairobi	Ruai	Empty	1-2-2
10	M	KAD 840Q	5.309514124	Nairobi	Mwingi	Fuel	1-2
10	M	KAV 768Q	0.505440107	Nairobi	Nyeri	Animal Feed	1-2
10	H	KBC 442	12.79232401	Embakasi	Thika	Ballast	1-2-2
10	H	KAG 357	11.40082426	Embakasi	Thika	Ballast	1-2-2
10	H	KBC 728F	0.12609535	Embakasi	Thika	Empty	1-2-2
10	H	KBL 417R	0.149099431	Embakasi	Thika	Empty	1-2-2
10	A	KZD 641L	46.11155742	Nairobi	Thika	Rice	1-2-2-2-2-2
10	A	KAS 548	13.78242086	Nairobi	Thika	Rice	1-1-2-2-2-2
10	H	KAD 889	0.151674939	Nairobi	Thika	Empty	1-2-2
10	H	KAK 700	52.3250292	Nairobi	Muranga	Cement	1-2-2
10	H	KBC 0404C	0.694448597	Nairobi	Meru	Rice	1-2
10	M	KAV 027X	0.033749299	Nairobi	Nanyuki	Empty	1-2
10	M	KBA 671G	2.370230199	Nairobi	Nyeri	Flour	1-2
10	M	KBJ 299C	7.178482727	Nairobi	Meru	Fertilizer	1-2
10	A	KAA 787	10.84695908	Nairobi	Garissa	Relief Food	1-1-2-2-2-2
10	A	KAB 700S	14.3915771	Nairobi	Garissa	Relief Food	1-1-2-2-2-2
10	H	KBH 955C	23.79579359	Nairobi	Thika	Ballast	1-2-2
10	H	KAH 748H	3.875746036	Athi River	Thika	Cement	1-2-2
10	M	KAQ 058B	0.005003759	Nairobi	Thika	Empty	1-2
10	M	KAX 018	0.064765366	Nairobi	Thika	Mattresses	1-2
10	M	KAD 597	0.453637956	Nairobi	Nyeri	Gas	1-2
10	M	KSU 180	13.63674727	Mlolongo	Thika	Sand	1-2
10	M	KST 450	2.616757427	Embakasi	Thika	Ballast	1-2
10	M	KYY 845	0.050776048	nj	Juja	Empty	1-2
10	M	KBD 487P	3.111607714	Embakasi	Thika	Ballast	1-2
10	M	KWT 676	0.032381723	Nairobi	Juja	Empty	1-2
10	M	KAK 665T	14.25021555	Athi River	Muranga	Cement	1-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
10	A	KAX 354B	0.158317136	Embakasi	Thika	Empty	1-2
10	M	KBC 856Y	0.186279114	Nairobi	Thika	Goods	1-2
10	M	KBF 205H	0.028104826	Nairobi	Thika	Empty	1-2
10	H	KAD 298	0.094833412	Embakasi	Thika	Empty	1-2-2
10	M	KAV 060C	0.072534652	Njiru	Thika	Empty	1-2
10	H	KAQ 080	0.09582399	Embakasi	Thika	Empty	1-2-2
10	A	KN 349B	0.043426464	Embakasi	Thika	Empty	1-1-2-2
10	M	KBP 162A	0.045317403	Nairobi	Embu	Empty	1-2
10	H	KAV 939V	0.107492809	Embakasi	Thika	Empty	1-2-2
10	M	KAV 943V	0.012698663	Embakasi	Ruiru	Empty	1-2
10	M	KUN 618	0.033632815	Nairobi	Juja	Empty	1-2
10	H	KAW 467Y	0.102399614	Nairobi	Juja	Empty	1-2-2
10	M	KAM 083B	0.005866832	Nairobi	Thika	Empty	1-2
10	H	KBL 493W	0.08715813	Nairobi	Thika	Empty	1-2-2
10	M	KAD 666C	2735.75021	Nairobi	Ruiru	Empty	1-2
10	M	KAV 772S	9.515226667	Mlolongo	Ruiru	Sand	1-2
10	H	KBL 492	0.135566874	Nairobi	Thika	Soil	1-2-2
10	M	KBE 914Y	0.089494461	Nairobi	Ruiru	Empty	1-2
10	M	KLY 030	0.019786968	Nairobi	Ruiru	Empty	1-2
10	H	KAA 217U	10.19856164	Embakasi	Thika	Ballast	1-2-2
10	M	KAL 179G	0.043849738	Nairobi	Thika	Empty	1-2
10	H	KAQ 363G	7.345288931	Embakasi	Thika	Ballast	1-2-2
10	H	KBL 208V	0.180655731	Embakasi	Thika	Empty	1-2-2
10	M	KBB 570M	12.40676856	Mlolongo	Thika	Sand	1-2
	A	T642 BL4	8.814887994	Mombasa	Mombasa	Rice	1-1-2-2-2-2
10	M	KAK 876Z	5.123321116	Kajiado	Kajiado	Fertilizer	1-2
10	H	KWG 193	0.151719832	Embakasi	Embakasi	Empty	1-2-2
10	M	KBK 068K	0.059660743	Embakasi	Embakasi	Empty	1-2
10	A	KAP 609T	0.207660676	Embakasi	Embakasi	Empty	1-2-2
10	M	KVB 021	0.011403982	Embakasi	Embakasi	Empty	1-2
10	M	KBA 449Q	10.44403093	Athi River	Ruiru	Cement	1-2
10	M	KAT 930E	0.058100664	Nairobi	Embakasi	Empty	1-2
10	M	29CD 179K	0.174656935	Nairobi	Thika	Empty	1-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
10	M	KZR 986	6.052023023	Kajiado	Thika	Fertilizer	1-2
10	M	KAL 964	0.049328451	Ruai	Juja	Empty	1-2
10	H	KAS 163Y	0.108204015	Utawala	Gathioro	Empty	1-2-2
10	M	KBP 014P	0.100272466	Utawala	Gathioro	Empty	1-2
10	M	KBN 398A	0.955653283	Ruai	Ruiru	Goods	1-2
10	A	KBL 342K	12.59489857	Mombasa	Thika	Cement	1-1-2-2-2-2
10	A	KAB 444C	13.24453135	Nairobi	Nyeri	Cement	1-2-2-2-2-2
10	A	KBP 303X	6.81672534	Nairobi	Thika	Fertilizer	1-1-2-2-2-2
10	H	KBJ 010K	0.670524833	Utawala	Thika	Ballast	1-2-2
10	A	KBE 614M	10.40804227	Nairobi	Muranga	Fertilizer	1-1-2-2-2-2
10	M	KXU 433	0.010202671	Nairobi	Thika	Empty	1-2
10	H	KBF 856U	0.115707739	Embakasi	Thika	Empty	1-2-2
10	M	KAE 103F	10.51034624	Embakasi	Thika	Ballast	1-2
10	M	KBB 023F	0.068284787	Nairobi	Mwingi	Chemicals	1-2
10	A	KAT 098J	0.904449493	Nairobi	Nyeri	Battery	1-1-2-2-2-2
10	M	KBK 320D	0.138070022	Nairobi	Githurai	Goods	1-2
10	A	KBP 609K	6.284804673	Nairobi	Thika	Cement	1-2-2-2-2-2
10	M	KAQ 990B	3.368925773	Mlolongo	Ruiru	Sand	1-2
10	H	KBL 213U	0.116022064	Embakasi	Gathioro	Empty	1-2-2
10	M	KAB 254L	0.212138892	Ruai	Thika	Passangers	1-2
10	H	KAW 764Y	0.26361864	Utawala	Gathioro	Empty	1-2-2
10	H	KAL 541G	9.666304964	Utawala	Thika	Ballast	1-2-2
10	H	KAU 392F	0.100336296	Utawala	Gathioro	Empty	1-2-2
10	H	KAV 931V	3539.619051	Nairobi	Thika	Empty	1-2-2
10	M	KAW 313	3.438001676	Athi River	Muranga	Cement	1-2
10	A	KBE 919	16.69145223	Mombasa	Meru	Fertilizer	1-2-1-2-2-2
10	H	KAL 729	0.200597625	Embakasi	Thika	Empty	1-2-2
10	A	KBD 108U	73.97335113	Mombasa	Nanyuki	G	1-1-2-2-2-2
10	H	KAH 986V	0.148775198	Nairobi	Muranga	Empty	1-2-2
10	M	KBE 341E	0.020095834	Nairobi	Kiambu	Empty	1-2
10	H	KBA 768E	0.170503487	Embakasi	Thika	Empty	1-2-2
10	H	KBK 194J	0.113978954	Embakasi	Thika	Empty	1-2-2
10	H	KAX 987Z	0.207962658	Embakasi	Thika	Empty	1-2-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
10	M	KBE 571E	2.54598429	Nairobi	Mwea	Flour	1-2
10	H	KAL 319F	0.22855183	Embakasi	Thika	Empty	1-2-2
10	M	KAS 208Q	4.599868081	Athi River	Mwea	Cement	1-2
10	M	KAY 712B	0.26839235	Nairobi	Thika	Empty	1-2
10	H	KAE 263D	2.230334667	Nairobi	Meru	Tea Leaves	1-2-2
10	M	KAN 092C	0.01538883	Nairobi	Thika	Empty	1-2
10	M	KAW 148K	0.062584563	Nairobi	Thika	Empty	1-2
10	H	KBF 529	0.182633199	Embakasi	Thika	Empty	1-2-2
10	H	KBB 433T	0.203802351	Embakasi	Thika	Empty	1-2-2
10	H	KAE 421K	0.246824528	Embakasi	Thika	Empty	1-2-2
10	A	KAG 269Z	0.743326061	Nairobi	Thika	Container	1-2-2-2-2-2
10	A	KBQ 692E	0.953699506	Embakasi	Thika	Cement	1-1-2-2
11	M	KBL 952K	0.004705967	Nairobi	Thika	Empty	1-2
11	M	KBP 205E	0.013863232	Nairobi	Thika	Mattresses	1-2
11	A	KBH 593J	50.64874685	Nairobi	Nyeri	Fats	1-1-2-2-2-2
11	H	LAR 519R	7.495978949	Mlolongo	Ruiru	Sand	1-2-2
11	A	KBQ 694E	0.549873087	Nairobi	Ruiru	Goods	1-2-2
11	A	KAD 596Z	0.608049318	Nairobi	Meru	Goods	1-1-2-2
11	A	KBB 993R	9.415796118	Nairobi	Nyeri	Fuel	1-1-2-2-2-2
11	A	KAA 008	6.879652565	Athi River	Thika	Cement	1-1-2-2-2-2
11	M	KAB 419C	0.046624828	Ruai	Thika	Empty	1-2
11	A	KAD 593Z	11.20160616	Mombasa	Meru	Fertilizer	1-2-2-2-2
11	A	KAK 876Z	0.376598666	Mombasa	Thika	Empty	1-2-2-2-2-2
11	M	KAP 509T	0.793456239	Kajiado	Thika	Fertilizer	1-2
11	M	KUB 021	0.020435708	Nairobi	Muranga	Empty	1-2
11	M	KAB 352C	0.01528558	Nairobi	Kiambu	Empty	1-2
11	M	KAB 071Y	0.104947719	Nairobi	Thika	Empty	1-2
11	M	KAV 498D	0.057884996	Nairobi	Thika	Empty	1-2
11	M	KZR 986	6.967630231	Nairobi	Thika	Ballast	1-2
11	M	KAU 494	5.740111144	Mlolongo	Thika	Sand	1-2
11	M	KBA 993N	0.162820523	Mlolongo	Thika	Goods	1-2
11	M	KBJ 728L	2.818027818	Utawala	Thika	Ballast	1-2
11	M	KBC 383A	4.975496812	Nairobi	Kiambu	Animal Feed	1-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
11	M	KBK 334	1.931826612	Embakasi	Thika	Ballast	1-2
11	H	KVM 254	1.890902964	Nairobi	Thika	Fertilizer	1-2-2
11	A	KBN 565R	0.182074906	Embakasi	Thika	Empty	1-1-2-2
11	M	KBP 487	2.607725669	Nairobi	Embu	Batteries	1-2
11	M	KAN 442S	0.072745048	Embakasi	Thika	Empty	1-2
11	H	KAB 349E	0.22414174	Embakasi	Thika	Empty	1-2-2
11	M	KAH 557G	0.054320476	Embakasi	Thika	Empty	1-2
11	M	KAB 338C	3.335082499	Nairobi	Meru	Flour	1-2
11	M	KAP 212C	0.017472003	Nairobi	Thika	Empty	1-2
11	H	KAN 31A	2.688968677	Ruai	Thika	Hard core	1-2-2
11	H	KBK 476K	0.19075363	Ruai	Thika	Empty	1-2-2
11	A	KBP 443G	4.779512281	Mombasa	Nanyuki	Fuel	1-1-2-2-2-2
11	H	KAQ 133L	0.098138284	Embakasi	Thika	Empty	1-2-2
11	M	KAA 103Q	0.035826316	Embakasi	Thika	Empty	1-2
11	M	KAV 149E	10.40679086	Nairobi	Mwingi	Flour	1-2
11	M	KZQ 157	0.009514643	Nairobi	Ruiru	Empty	1-2
11	H	KAY 471	16.05085556	Athi River	Nyeri	Cement	1-2-2
11	A	KBQ 693E	0.464107759	Embakasi	Thika	Empty	1-1-2-2
11	M	KWZ 536	0.030642219	Ruai	Thika	Empty	1-2
11	H	KAA 316K	0.074346189	Utawala	Thika	Empty	1-2-2
11	M	KAM 704	0.054152617	Nairobi	Embu	Empty	1-2
11	A	KBA 389D	7.842229431	Mombasa	Thika	Rice	1-2-2-2-2-2
11	M	KXX 616	0.044524769	Njiru	Thika	Empty	1-2
11	M	KBL 358W	3.631955265	Nairobi	Thika	Flour	1-2
11	M	KBC 748	8.017417656	Nairobi	Thika	Animal Feed	1-2
11	A	KAT 336H	6.66396502	Nairobi	Thika	Fuel	1-2-2-2-2
11	M	KAZ 047S	1.872500655	Mombasa	Thika	Plastics	1-2
11	M	KBN 654F	0.404590187	Nairobi	Thika	Beans	1-2
11	H	KAW 849X	0.099178532	Embakasi	Thika	Empty	1-2-2
11	H	KBP 557K	14.27982824	Embakasi	Thika	Ballast	1-2-2
11	H	KYX 119	0.612374591	Nairobi	Ruiru	Goods	1-2-2
11	M	KAV 144T	3.095383242	Athi River	Kiambu	Cement	1-2
11	H	KAQ 043	0.129060714	Embakasi	Thika	Empty	1-2-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
11	A	KBJ 238D	10.03149275	Mombasa	Ruiru	Container	1-1-2-2-2-2
11	M	KBE 298P	0.007012233	Nairobi	Meru	Empty	1-2
11	H	KBL 208Y	0.359461651	Embakasi	Thika	Empty	1-2
11	A	KBF 855U	0.233138298	Embakasi	Thika	Empty	1-1-2-2
11	M	KBL 531M	1.999965951	Nairobi	Nanyuki	Fuel	1-2
11	M	KBD 425M	3.874420719	Nairobi	Thika	Fertilizer	1-2
11	M	KAD 610W	0.068642781	Nairobi	Thika	Empty	1-2
11	M	KBC 837Y	0.666982366	Nairobi	Thika	Charcoal	1-2
11	M	KAV 367A	1.457359522	Nairobi	Thika	Coffee	1-2
11	M	KAT 203U	1.212691003	Nairobi	Thika	Flour	1-2
11	H	KBE 970T	2.989049596	Kajiado	Ruiru	Fertilizer	1-2-2
11	A	KBL 235M	6.927646912	Mombasa	Thika	Rice	1-2-2-2-2-2
11	H	KBP 305 Y	4.424763078	Nairobi	Meru	Iron sheets	1-2-2
11	M	KAV 146R	0.193310093	Nairobi	Kirinyaga	Goods	1-2
11	M	KAR 837V	0.045004102	Nairobi	Thika	Empty	1-2
11	H	KBL 294D	0.214009967	Embakasi	Thika	Empty	1-2-2
11	M	KAV 989V	0.390442873	Nairobi	Embu	Fuel	1-2
11	H	KAB 621M	0.059432752	Nairobi	Kiambu	Goods	1-2-2
11	M	KAD 939W	2.042908167	Nairobi	Muranga	Goods	1-2
12	M	KBM 934D	5.482263919	Nairobi	Thika	Fertilizer	1-2
12	M	KZH 887	0.02452718	Nairobi	Thika	Empty	1-2
12	M	KAY 271F	0.408605718	Nairobi	Kiambu	Goods	1-2
12	H	KBK 351W	10.96888812	Athi River	Embu	Cement	1-2-2
12	H	KBM 893A	0.283730596	Embakasi	Thika	Empty	1-2-2
12	H	KBL 218U	0.274434355	Embakasi	Thika	Empty	1-2-2
12	H	KAZ 267D	0.231575563	Embakasi	Thika	Empty	1-2-2
12	H	KAV 272S	3.201078539	Nairobi	Ruiru	Goods	1-2
12	M	KAB 536	6.566482215	Mlolongo	Thika	Sand	1-2
12	M	KAW 845P	0.025537159	Nairobi	Thika	Empty	1-2
12	M	KBA 459S	3.644268795	Nairobi	Thika	Water	1-2
12	M	KXW 310	0.030766104	Nairobi	Thika	Empty	1-2
12	H	KAW 586X	2.919290429	Mombasa	Thika	Flour	1-2-2
12	M	KBH 123	0.030152015	Nairobi	Thika	Empty	1-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
12	M	KBD 098K	6.028164418	Athi River	Nanyuki	Cement	1-2
12	H	KBN 147X	0.049125941	Embakasi	Thika	Empty	1-2-2
12	H	KBC 510T	0.094270005	Embakasi	Thika	Empty	1-2-2
12	M	KAC 161B	4.50487274	Embakasi	Ruiru	Steel bar	1-2
12	M	KAP 492C	3.070088634	Athi River	Meru	Cement	1-2
12	A	KBD 593R	7.185597189	Mombasa	Kerugoya	Rice	1-2-2-2-2-2
12	M	KXK 988	1.059937126	Mlolongo	Thika	Sand	1-2
12	H	KBK 091S	0.190462311	Utawala	Thika	Empty	1-2
12	M	KAL 241	3.513404862	Mlolongo	Thika	BA	1-2
12	M	KAZ 008	2.052693376	Mlolongo	Thika	Sand	1-2
12	H	KBK 191S	0.398964626	Mlolongo	Thika	Empty	1-2
12	M	KYX 979	0.039074962	Utawala	Thika	Empty	1-2
12	M	KAC 489	0.012148588	Utawala	Thika	Empty	1-2
12	M	KAP 001C	0.063601239	Embakasi	Thika	Empty	1-2
12	M	KAR 503B	0.077318298	Nairobi	Ruiru	Goods	1-2
12	H	KBD 414E	0.142333874	Nairobi	Thika	Empty	1-2
12	M	KAV 053U	2.472269113	Nairobi	Githurai	Sand	1-2
12	M	KBL 205S	0.747965135	Mlolongo	Ruiru	Sand	1-2
12	M	KBD 208C	2.830567151	Mlolongo	Ruiru	Sand	1-2
12	H	KAM 824G	2.810061755	Nairobi	Thika	Goods	1-2-2
12	H	KAB 199K	0.245738324	Embakasi	Thika	Empty	1-2-2
12	M	KAV 818Y	3.081995016	Nairobi	Ruiru	Flour	1-2
12	H	KBK 563D	4.152312645	Embakasi	Thika	Steel bar	1-2-2
12	H	KBL 295D	0.046443034	Embakasi	Thika	Empty	1-2-2
12	M	KBQ 297C	0.040521314	Embakasi	Thika	Empty	1-2
12	M	KYY 687	5.526201767	Athi River	Embu	Cement	1-2
12	M	KWS 060	0.020207933	Embakasi	Thika	Empty	1-2
12	B	KAW 564U	0.835594116	Nairobi	Thika	Passangers	1-2
12	M	KBG 432K	0.04858954	Nairobi	Thika	Empty	1-2
12	M	KSY 508	0.026667347	Nairobi	Juja	Empty	1-2
12	M	KAA 855D	0.027192122	Nairobi	Kiambu	Empty	1-2
12	M	KAE 347	6.694491959	Nairobi	Thika	Cartons	1-2
12	A	KBE 830L	7.69264795	Mombasa	Meru	Container	1-2-2-2-2-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
12	H	KBD 024N	0.146199383	Embakasi	Thika	Empty	1-2-2
12	M	KBA 750N	0.544929925	Nairobi	Meru	Goods	1-2
12	M	KAY 114Q	1.810455154	Nairobi	Mwingi	Flour	1-2
12	H	KAV 050K	0.100776187	Nairobi	Thika	Empty	1-2-2
12	M	KUW 531	0.017721386	Nairobi	Thika	Empty	1-2
12	A	KBF 106S	0.15763588	Nairobi	Thika	Empty	1-1-2-2
12	M	KAQ 794R	0.199779033	Nairobi	Embu	Goods	1-2
12	H	KBM 445V	0.049143831	Nairobi	Ruiru	Empty	1-2-2
12	M	KZK 987	0.012943102	Nairobi	Ruiru	Empty	1-2
12	H	KAX 792	2.43866369	Embakasi	Thika	Ballast	1-2-2
12	A	KBJ 464A	7.904643486	Nairobi	Nyeri	Fertilizer	1-2-2-2-2-2
12	A	KBN 464U	0.150900966	Nairobi	Nyeri	Empty	1-1-2-2
12	M	KWJ 100	2.050196413	Mlolongo	Thika	Sand	1-2
12	M	KAY 397Q	0.04789701	Nairobi	Thika	Empty	1-2
12	M	KBQ 431J	0.007845917	Nairobi	Thika	Empty	1-2
12	M	KBB 451G	0.013586252	Nairobi	Thika	Empty	1-2
12	M	KAW 310R	1.417312485	Nairobi	Nyeri	Timber	1-2
	M	KAA998A	0.028656871	Nairobi	Meru	Empty	1 - 2
	M	KBQ981J	0.038123971	Embakassi	Kiambu	Empty	1 - 2
	H	KAE454B	0.243389687	A/River	Thika	Empty	1 - 2 -2
	M	KBH286A	3.807655717	Nairobi	Thika	Cement	1 - 2
	M	KAR254P	3.198826301	Nairobi	Kerugoya	Cement	1 - 2
	M	KAW952Z	2.600367705	Nairobi	Thika	A. goods	1 - 2
	M	KAE125K	0.02105774	Nairobi	Thika	Empty	1 - 2
	M	KBJ361R	0.018075732	Nairobi	Thika	Empty	1 - 2
	M	KZV491	0.031647216	Nairobi	Thika	Empty	1 - 2
	M	KBB563G	0.828136734	Nairobi	Embu	Empty	1 - 2
	M	KBE466M	0.007752888	Nairobi	Embu	Plastics	1 - 2
	M	KAN260V	0.007512473	Nairobi	Nyeri	Empty	1 - 2
	M	KBC416T	0.0267059	Nairobi	Githurai	Empty	1 - 2
	M	KAH692S	5.094997351	A/River	Meru	goods	1 - 2
	A	KBN347P	5.722500102	A/River	Thika	Cement	1 - 12 - 222
	A	KUR404	8.816119449	Mombasa	Thika	Cement	1-22-222

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	M	KBB511A	0.011868653	Embakassi	Chogoria	Cement	1 -2
	H	KBN681E	0.118231935	Nairobi	Nanyuki	Empty	1 - 22
	M	KAS780	2.384877748	Nairobi	Githurai	Empty	1 - 2
	M	KSD049	7.23950645	Nairobi	Meru	Cartons	1 - 2
	M	KAV567R	0.026784777	Nairobi	Thika	Fertilizer	1 - 2
	H	KBH688T	10.20114384	Mombasa	Mwingi	Empty	1 - 2
	M	KAR091S	0.025054437	Nairobi	Thika	Maize	1 - 22
	M	KAR416Z	6.51159109	Nairobi	Kitui	Empty	1 - 2
	M	KAZ255U	0.038714432	Nairobi	Thika	Maize	1 - 2
	M	KWL143	5.474128545	A/River	Thika	Empty	1 - 2
	M	KBC553M	0.020731012	Ruai	Thika	Cement	1 - 2
	M	KAL525B	4.696537861	A/River	Meru	Cement	1 - 2
	H	KAG634L	0.076695847	Nairobi	Thika	Empty	1 - 22
	M	KBJ893V	0.032849857	Nairobi	Thika	Gas	1 - 2
	M	KBC728F	1.706537139	Nairobi	Meru	Cement	1 - 2
	A	KBC728F	1.241286387	Nairobi	Kiambu	Fertilizer	1 - 22 - 2222
	H	KBF856U	0.150203622	Embakassi	Thika	Empty	1 - 22
	M	KXG225	0.039691222	Nairobi	Thika	Empty	1 - 2
	M	KBD210W	3.577764631	A/River	Ruiru	Cement	1 - 2
	M	KAA889Y	8.543628085	Nairobi	Murang'a	Empty	1 - 22
	H	KBL492W	13.97156822	Nairobi	Thika	Empty	1 - 2
	M	KUB530	0.045409305	Embakassi	Thika	Empty	1 - 22
	H	KAW894	0.107529091	Nairobi	Thika	Empty	1 - 22
	H	KAZ105S	2.345219351	Nairobi	Kiambu	Fertilizer	1 - 2
	M	KBA312G	1.094309445	A/River	Ruiru	Fuel	1 - 2
	M	KAE289M	1.049781876	Nairobi	Meru	Cement	1 - 2
	M	KAT325T	0.034862485	Nairobi	Thika	Empty	1 - 2
	M	KAK811L	0.000724729	Nairobi	Thika	Empty	1 - 22
	M	KAT078	0.924911128	A/River	Murang'a	Fertilizer	1 - 2
	M	KYF461	5.126789306	Nairobi	Ruiru	Cement	1 - 2
	H	KBB403G	17.45292785	Nairobi	Thika	Empty	1 - 2
	M	KAS926G	0.055765184	Nairobi	Murang'a	Empty	1 - 22
	H	KAY329M	0.114227747	A/River	Thika	Empty	1 - 22

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	H	KBN938A	3.068258752	Nairobi	Thika	Cement	1 - 2
	M	KRX273	0.035536884	A/River	Thika	Empty	1 -1 - 222
	A	KAW289G	10.80751213	Nairobi	Thika	Cement	1 - 2
	M	KAH441T	0.024707096	Nairobi	Juja	Empty	1 - 22
	H	KAL195G	0.113682186	Nairobi	Thika	Empty	1 - 22
	A	KBA205L	5.249973221	Embakassi	Thika	A. goods	1 - 1- 222
	A	KBL470	0.663784265	Pipeline	Thika	Empty	1 - 22 - 222
	H	KBE705U	0.2347933	Kayole	Thika	Empty	1 - 22
	H	KAX075P	0.138609425	Mlolongo	Juja	Empty	1 - 22
	H	KBQ310L	7.863626025	Njiru	Thika	Ballast	1 - 22
	H	KAQ684U	0.197220012	Nairobi	Thika	Empty	1 - 22
	H	KAL319T	0.207764282	N	Thika	Empty	1 - 2
	M	KAH326D	0.055214859	A/River	Thika	Empty	1 - 2
	H	KAA731G	4.367725292	Nairobi	Thika	Steel	1 - 22
	H	KAZ906Z	0.076911439	Nairobi	Thika	Empty	1 - 22
1.00	M	KBK 114Q	0.000768914	Nairobi	Ruiru	Empty	1 - 2
1.00	M	KBQ986S	0.077470373	Embakassi	Thika	Empty	1 -22
1.00	M	KBK992Q	0.115944787	Nairobi	Meru	Animal feed	1 - 22
1.00	M	KBF008H	2.134394967	Nairobi	Thika	Empty	1 - 22
1.00	H	KAW764Y	0.239150331	Embakassi	Thika	steel bars	1 - 2
1.00	M	KBN062D	3.472905797	A/River	Ruiru	Bitumen	1 - 2
1.00	H	KAV045Y	13.35798992	Embakassi	Thika	Matresses	1 - 2
1.00	M	KZQ157	0.017076927	Nairobi	Thika	Pipes	1 - 2
1.00	M	KAR992Z	0.304087918	Nairobi	Thika	Fuel	1 - 2
1.00	M	KAP917W	2.483745617	Nairobi	Thika	Animal feed	1 - 2
1.00	M	KBL419M	2.042396549	Nairobi	Thika	Cement	1 - 22-222
1.00	H	KBB010K	31.41776249	A/River	Ruiru	Empty	1-22
1.00	M	KSD618	0.024030737	Kitengela	Juja	Empty	1 - 22
1.00	A	KAA998A	0.534714744	Nairobi	Murang'a	Empty	1 - 2
1.00	H	KAV274D	0.130380687	Nairobi	Nyeri	Ballast	1 - 2
1.00	H	KBA013K	7.733937151	Nairobi	Thika	Empty	1 - 2
1.00	M	KBB721W	0.005121628	Embakassi	Meru	Empty	1 - 22 - 222
1.00	M	KYQ821	0.072267941	Nairobi	Thika	Empty	1 - 2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
1.00	M	KXS807	0.003358258	Njiru	Juja	Maize	1 - 22
1.00	A	KBH487	10.18992942	Nairobi	Thika	Timber	1 - 2
1.00	M	KAG494B	0.065589871	Mombasa	Ruiru	Empty	1 - 22 - 222
1.00	H	KBB361R	0.190437543	A/River	Thika	Ballast	1 - 22
1.00	M	KYW984	3.672223645	Embakassi	Thika	Empty	1 - 2
1.00	A	KBC090N	7.219242127	Embakassi	Thika	Maize	1 - 2
1.00	H	KBL493W	0.10036699	Mombasa	Juja	Empty	1 - 22
1.00	M	KAS871W	0.019633054	Nairobi	Ruiru	Empty	1 - 2
1.00	M	KAN260V	0.042494551	Nairobi	Nyeri	Empty	1 - 2
1.00	H	KAV465G	1.79897355	Nairobi	Kiambu	Sodas	1 - 2
1.00	M	KAQ340P	0.028205287	Nairobi	Meru	Empty	1 - 2
1.00	H	KBM078R	24.73263184	Nairobi	Thika	Ballast	1 - 2
1.00	M	KAP936M	0.002625256	Embu	Murang'a	Empty	1 - 22
1.00	M	KBE512P	1.579332065	Nairobi	Thika	Ballast	1 - 22
1.00pm	M	KBK 114Q	0.000768914	Nbi	Ruiru	Empty	1.2
	H	KBQ 986S	0.095037339	Embakasi	Thika	Empty	1.22
	H	KBK 992Q	0.139352698	Nbi	Meru	Empty	1.22
	M	KBF 008H	2.134394967	Nbi	Thika	Animal feeds	1.2
	H	KAW 764Y	0.239150331	Embakasi	Thika	Empty	1.22
	M	KBN 062D	3.472905797	A/River	Ruiru	Steel bars	1.2
	H	KAV 045Y	13.35798992	Embakasi	Thika	Bitumen	1.22
	M	KZQ 157	0.021644983	Nbi	Thika	Mattresses	1.2
	M	KAR 99Z	0.304087918	Nbi	Thika	Pipes	1.2
	M	KAP 917W	2.483745617	Nbi	Thika	Fuel	1.2
	M	KBL 419M	2.042396549	Nbi	Thika	Animal feeds	1.2
	H	KBB 010K	31.72175505	A/River	Ruiru	Cement	1.2
	M	KSD 618D	0.024030737	Kitengela	Juja	Empty	1.2
	A	KAA 998A	0.534714744	Nbi	Muranga	Empty	1.22.222
	H	KAV 274D	0.130380687	Nbi	Nyeri	Empty	1.22
	H	KBA 013K	7.733937151	Embakasi	Thika	Ballast	1.22
	M	KBB 721W	0.005121628	NBI	Meru	Empty	1.2
	M	KYQ 821	0.072267941	Njiru	Thika	Empty	1.2
	M	KXJ 807	0.003358258	Nbi	Juja	Empty	1.2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	A	KBH 487	10.18992942	Mombasa	Thika	Maize	1.22.222
	M	KAE 454B	0.065589871	A/River	Ruiru	Timber	1.2
	H	KBJ 361R	0.190437543	Embakasi	Thika	Empty	1.22
	M	KYW 984	3.672223645	Embakasi	Thika	Ballast	1.2
	A	KBC 090W	12.11767292	Mombasa	Thika	Maize	1.22.222
	H	KBL 493W	0.116314306	Nbi	Juja	Empty	1.22
	M	KAS 871W	0.019633054	Nbi	Ruiru	Empty	1.2
	M	KAN 260N	0.042494551	Nbi	Nyeri	Empty	1.2
	H	KAU 465G	1.79897355	Nbi	Kiambu	Sodas	1.22
	M	KAQ 340P	0.028205287	Nbi	Meru	Empty	1.2
	H	KBM 078R	24.73263184	Embakasi	Thika	Ballast	1.22
	M	KAP 936W	0.002625256	Nbi	Muranga	Empty	1.2
1.00pm	M	KBE 512P	1.579332065	Embakasi	Thika	Ballast	1.2
	H	KBJ 135S	0.231344565	Embakasi	Thika	Empty	1.22
	H	KAP 936U	3.707736952	Embakasi	Thika	Ballast	1.22
	M	KAQ 421J	1.914875783	Nbi	Thika	A..goods	1.2
	A	KAM 613P	2.832650057	Mombasa	Nanyki	Posts	1.22.222
	A	KBJ 154Q	11.6677613	Mombasa	Thika	Posts	1.22.222
	A	KAQ 667T	4.925248673	Mombasa	Thika	container	1.22.222
	A	KAW 820C	3.729982305	Mombasa	Thika	Rice	1.22.222
	A	KAX 840C	0.19085317	Embakasi	Thika	Empty	1.1.22
	H	KAQ 313E	3.403836635	Nbi	Thika	Sodas	1.22
	M	KBA 815G	0.120238356	A/River	Thika	Steel bars	1.2
	M	KAY 385	0.066238611	Nbi	Nanyki	papers	1.2
	A	KBB 516M	18.53953998	Mombasa	Thika	Fuel	1.1.222
	M	KBE 898E	3.013983645	Embakasi	Thika	Ballast	1.2
	M	KAQ 619U	0.050725814	Nbi	Embu	Empty	1.2
	H	KBA 218S	0.115222419	Nbi	Thika	Empty	1.22
	A	KBJ 251S	7.162438386	Mombasa	Thika	container	1.1.2.222
	M	KAS 991V	0.407549157	Nbi	Thika	Fertizer	1.2
	M	KAY 439S	0.02817896	Nbi	Thika	Empty	1.2
	M	KAX 504V	0.023348216	Nbi	Juja	Empty	1.2
	H	KBL 245	0.207250486	Embakasi	Thika	Empty	1.22

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	M	KAC 004L	0.040102014	Njiru	Juja	Empty	1.2
2.00p.m	H	KAW 769Y	4.218274777	Embakasi	Thika	Water Tank	1.22
	M	KBN 011	0.22224159	Embakasi	Thika	goods	1.2
	H	KBK 211A	0.105099521	Embakasi	Thika	Empty	1.22
	M	KYJ 826	0.087920456	Embakasi	Thika	Empty	1.2
	A	KAS 956Z	0.763481865	Nbi	Thika	Empty	1.12.222
	M	KAM 569M	4.163918458	Nbi	Thika	Fuel	1.2
	H	KBL 448M	9.324391846	Nbi	Thika	Cement	1.22
	A	KAH 040S	5.598527274	Nbi	Meru	Fertizer	1.1.222
	H	KAS 049T	5.362360343	Mlolongo	Thika	Ballast	1.22
	M	KAM 360D	0.468606335	Nbi	Thika	goods	1.2
	H	KAB 216C	2.431701825	Mlolongo	Juja	Ballast	1.22
	H	KAE 894	0.108824166	Embakasi	Thika	Empty	1.22
	M	KBE 674	0.002361449	Nbi	Nyeri	Empty	1.2
	H	KBP 311F	0.085252408	Embakasi	Thika	Empty	1.22
	A	KBM 022Q	12.57758313	Mombasa	Juja	container	1.22.222
	A	KBN 260Y	4.46496425	Mombasa	Juja	container	1.22.222
	M	KAE 347T	1.873813923	Mlolongo	Juja	Ballast	1.2
	M	KAT 128Y	0.084008766	Embakasi	Juja	Empty	1.2
	M	KAS 960	3.480345514	Nbi	Kerogoya	Animal feeds	1.2
	M	KBB 793S	2.32525251	Nbi	Thika	Fuel	1.2
	M	KZX 189	0.013591559	Ruai	Juja	Empty	1.2
	M	KBP 614	3.973518697	A/River	Muranga	Cement	1.2
	M	KAH 190K	0.080978845	Nbi	Thika	Empty	1.2
	H	KAL 304Q	0.1873804	Nbi	Thika	Empty	1.22
	M	KAX 321C	4.190284168	Nbi	Embu	Fuel	1.2
	M	KAC 499H	0.031647216	Nbi	Thika	Empty	1.2
	M	KAB 671A	0.016406099	Nbi	Ruiru	Empty	1.2
	H	KAZ 661V	0.151291903	Embakasi	Juja	Empty	1.22
	H	KAM 965X	0.097598623	Embakasi	Juja	Empty	1.22
	M	KAL 805L	0.020503471	Nbi	Thika	Empty	1.2
	H	KBN 898V	11.61238965	Mlolongo	Ruiru	sand	1.22
	A	KBJ 434S	0.567002382	Nbi	Thika	Empty	1.1.2.222

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	M	KWZ 203	2.398986824	Nbi	Meru	Fertizer	1.2
	A	KBM 476K	0.207454055	Nbi	Thika	Empty	1.1.22
	M	KAS 668Y	0.594771014	Nbi	Thika	Fuel	1.2
	H	KAY 841L	0.48225581	Embakasi	karatina	goods	1.22
	A	KBK 034L	0.341421353	Mombasa	Thika	Empty	1.22.222
	H	KAA 810J	0.062571068	Nbi	Juja	Empty	1.22
	M	KAL 331R	0.036222029	Embakasi	Juja	Empty	1.2
	A	KBP 824E	0.519360421	Nbi	Juja	Empty	1.12.222
	H	KBK 672A	0.128635881	pipeline	Juja	Empty	1.22
	H	KAK 532A	0.13819551	pipeline	Juja	Empty	1.22
	M	KBK 259Q	1.671978918	A/River	Muranga	Cement	1.2
	M	KAY 841L	0.223890482	Embakasi	Thika	Ballast	1.2
	M	KBK 032L	0.111540318	A/River	Thika	Empty	1.22
	M	KAE 197H	0.201813152	Embakasi	Thika	Empty	1.222
	M	KBN 897N	0.955589016			Ballast	1.2
	M	KAZ 661V	0.050375323	Nbi	Thika	Sanitary	1.2
	M	KBB 809L	0.186998371	Embakasi	Thika	Empty	1.2
	M	KAV 871B	0.09227554	Nbi	Thika	Empty	1.2
	H	KBK 191J	0.214030725	Embakasi	Thika	Empty	1.2
	H	KBL 431D	7.633013153	A/River	Thika	Cement	1.22
	A	KAY 295W	0.157511212	Mombasa	Ruiru	Empty	1.1.2.222
	H	KAL 331B	3.779547268	Nbi	Thika	Sodas	1.22
	M	KUA 270	0.012714717	Ruai	Embu	Empty	1.2
	M	KYB 857	0.0137293	Nbi	Juja	Empty	1.2
	M	KVK 631	0.012841031	Nbi	Ruiru	Empty	1.2
	H	KAB 671A	1.012224325	Nbi	Ruiru	Tyres	1.22
	H	KBP 108K	0.092611184	Embakasi	Sagana	Empty	1.22
	H	KBP 824V	12.92021959	Embakasi	Thika	Ballast	1.22
	H	KAL 858S	0.120324697	Embakasi	Thika	Empty	1.22
	H	KAJ 950L	0.059280454	Embakasi	Thika	Empty	1.22
	M	KBN 978	0.00313521	Nbi	Thika	Empty	1.2
	H	KAV 256P	0.070083762	Nbi	Meru	Empty	1.22
	M	KAY 504N	0.022789922	Embakasi	Thika	Empty	1.2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	M	KBN 978	0.044027574	Embakasi	Thika	Empty	1.2
	H	KAV 256P	0.649223556	A/River	Thika	Ballast	1.22
	H	KAY 502N	0.09790028	Mlolongo	Thika	Empty	1.22
	H	KBK 285Q	0.071886092	Mlolongo	Thika	Empty	1.22
	H	KAW 577Q	7.199893046	Nbi	Thika	Sand	1.22
	H	KAK 532A	7.411750632	Nbi	Ruiru	Sand	1.22
	H	KAT 240E	9.014131658	Nbi	Embu	Rice	1.22
	M	KZP 665	0.451332793	Nbi	Thika	goods	1.2
	H	KAZ 662V	0.280627732		Thika	Empty	
	M	KAR 672A	0.004955425		Thika	Empty	1.2
1.00p.m	M	KBK 114Q	0.000768914	Nbi	Ruiru	Empty	1.2
	H	KBQ 986S	0.095037339	Embakasi	Thika	Empty	1.22
	H	KBK 992Q	0.139352698	Nbi	Meru	Empty	1.22
	M	KBF 008H	2.134394967	Nbi	Thika	Animal feeds	1.2
	H	KAW 764Y	0.239150331	Embakasi	Thika	Empty	1.22
	M	KBN 062D	3.472905797	A/River	Ruiru	Steel bars	1.2
	H	KAV 045Y	13.35798992	Embakasi	Thika	Bitumen	1.22
	M	KZQ 157	0.021644983	Nbi	Thika	Mattresses	1.2
	M	KAR 99Z	0.304087918	Nbi	Thika	Pipes	1.2
	M	KAP 917W	2.483745617	Nbi	Thika	Fuel	1.2
	M	KBL 419M	2.042396549	Nbi	Thika	Animal feeds	1.2
	H	KBB 010K	31.72175505	A/River	Ruiru	Cement	1.2
	M	KSD 618D	0.024030737	Kitengela	Juja	Empty	1.2
	A	KAA 998A	0.534714744	Nbi	Muranga	Empty	1.22.222
	H	KAV 274D	0.130380687	Nbi	Nyeri	Empty	1.22
	H	KBA 013K	7.733937151	Embakasi	Thika	Ballast	1.22
	M	KBB 721W	0.005121628	NBI	Meru	Empty	1.2
	M	KYQ 821	0.072267941	Njiru	Thika	Empty	1.2
	M	KXJ 807	0.003358258	Nbi	Juja	Empty	1.2
	A	KBH 487	10.18992942	Mombasa	Thika	Maize	1.22.222
	M	KAE 454B	0.065589871	A/River	Ruiru	Timber	1.2
	H	KBJ 361R	0.190437543	Embakasi	Thika	Empty	1.22
	M	KYW 984	3.672223645	Embakasi	Thika	Ballast	1.2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	A	KBC 090W	12.11767292	Mombasa	Thika	Maize	1.22.222
	H	KBL 493W	0.116314306	Nbi	Juja	Empty	1.22
	M	KAS 871W	0.019633054	Nbi	Ruiru	Empty	1.2
	M	KAN 260N	0.042494551	Nbi	Nyeri	Empty	1.2
	H	KAU 465G	1.79897355	Nbi	Kiambu	Sodas	1.22
	M	KAQ 340P	0.028205287	Nbi	Meru	Empty	1.2
	H	KBM 078R	24.73263184	Embakasi	Thika	Ballast	1.22
	M	KAP 936W	0.002625256	Nbi	Muranga	Empty	1.2
	M	KBE 512P	1.579332065	Embakasi	Thika	Ballast	1.2
	H	KBJ 135S	0.231344565	Embakasi	Thika	Empty	1.22
	H	KAP 936U	3.707736952	Embakasi	Thika	Ballast	1.22
	M	KAQ 421J	1.914875783	Nbi	Thika	A..goods	1.2
	A	KAM 613P	2.832650057	Mombasa	Nanyki	Posts	1.22.222
	A	KBJ 154Q	11.6677613	Mombasa	Thika	Posts	1.22.222
	A	KAQ 667T	4.925248673	Mombasa	Thika	container	1.22.222
	A	KAW 820C	3.729982305	Mombasa	Thika	Rice	1.22.222
	A	KAX 840C	0.19085317	Embakasi	Thika	Empty	1.1.22
	H	KAQ 313E	3.403836635	Nbi	Thika	Sodas	1.22
	M	KBA 815G	0.120238356	A/River	Thika	Steel bars	1.2
	M	KAY 385	0.066238611	Nbi	Nanyki	papers	1.2
	A	KBB 516M	18.53953998	Mombasa	Thika	Fuel	1.1.222
	M	KBE 898E	3.013983645	Embakasi	Thika	Ballast	1.2
	M	KAQ 619U	0.050725814	Nbi	Embu	Empty	1.2
	H	KBA 218S	0.115222419	Nbi	Thika	Empty	1.22
	A	KBJ 251S	7.162438386	Mombasa	Thika	container	1.1.2.222
	M	KAS 991V	0.407549157	Nbi	Thika	Fertizer	1.2
	M	KAY 439S	0.02817896	Nbi	Thika	Empty	1.2
	M	KAX 504V	0.023348216	Nbi	Juja	Empty	1.2
	H	KBL 245	0.207250486	Embakasi	Thika	Empty	1.22
	M	KAC 004L	0.040102014	Njiru	Juja	Empty	1.2
2.00p.m	H	KAW 769Y	4.218274777	Embakasi	Thika	Water Tank	1.22
	M	KBN 011	0.22224159	Embakasi	Thika	goods	1.2
	H	KBK 211A	0.105099521	Embakasi	Thika	Empty	1.22

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	M	KYJ 826	0.087920456	Embakasi	Thika	Empty	1.2
	A	KAS 956Z	0.763481865	Nbi	Thika	Empty	1.12.222
	M	KAM 569M	4.163918458	Nbi	Thika	Fuel	1.2
	H	KBL 448M	9.324391846	Nbi	Thika	Cement	1.22
	A	KAH 040S	5.598527274	Nbi	Meru	Fertizer	1.1.222
	H	KAS 049T	5.362360343	Mlolongo	Thika	Ballast	1.22
	M	KAM 360D	0.468606335	Nbi	Thika	goods	1.2
	H	KAB 216C	2.431701825	Mlolongo	Juja	Ballast	1.22
	H	KAE 894	0.108824166	Embakasi	Thika	Empty	1.22
	M	KBE 674	0.002361449	Nbi	Nyeri	Empty	1.2
	H	KBP 311F	0.085252408	Embakasi	Thika	Empty	1.22
	A	KBM 022Q	12.57758313	Mombasa	Juja	container	1.22.222
	A	KBN 260Y	4.46496425	Mombasa	Juja	container	1.22.222
	M	KAE 347T	1.873813923	Mlolongo	Juja	Ballast	1.2
	M	KAT 128Y	0.084008766	Embakasi	Juja	Empty	1.2
	M	KAS 960	3.480345514	Nbi	Kerogoya	Animal feeds	1.2
	M	KBB 793S	2.32525251	Nbi	Thika	Fuel	1.2
	M	KZX 189	0.013591559	Ruai	Juja	Empty	1.2
	M	KBP 614	3.973518697	A/River	Muranga	Cement	1.2
	M	KAH 190K	0.080978845	Nbi	Thika	Empty	1.2
	H	KAL 304Q	0.1873804	Nbi	Thika	Empty	1.22
	M	KAX 321C	4.190284168	Nbi	Embu	Fuel	1.2
	M	KAC 499H	0.031647216	Nbi	Thika	Empty	1.2
	M	KAB 671A	0.016406099	Nbi	Ruiru	Empty	1.2
	H	KAZ 661V	0.151291903	Embakasi	Juja	Empty	1.22
	H	KAM 965X	0.097598623	Embakasi	Juja	Empty	1.22
	M	KAL 805L	0.020503471	Nbi	Thika	Empty	1.2
	H	KBN 898V	11.61238965	Mlolongo	Ruiru	sand	1.22
	A	KBJ 434S	0.567002382	Nbi	Thika	Empty	1.1.2.222
	M	KWZ 203	2.398986824	Nbi	Meru	Fertizer	1.2
	A	KBM 476K	0.207454055	Nbi	Thika	Empty	1.1.22
	M	KAS 668Y	0.594771014	Nbi	Thika	Fuel	1.2
	H	KAY 841L	0.48225581	Embakasi	karatina	goods	1.22

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	A	KBK 034L	0.341421353	Mombasa	Thika	Empty	1.22.222
	H	KAA 810J	0.062571068	Nbi	Juja	Empty	1.22
	M	KAL 331R	0.036222029	Embakasi	Juja	Empty	1.2
	A	KBP 824E	0.519360421	Nbi	Juja	Empty	1.12.222
	H	KBK 672A	0.128635881	pipeline	Juja	Empty	1.22
	H	KAK 532A	0.13819551	pipeline	Juja	Empty	1.22
	M	KBK 259Q	1.671978918	A/River	Muranga	Cement	1.2
	M	KAY 841L	0.33183552	Embakasi	Thika	Ballast	1.2
	M	KBK 032L	0.111540318	A/River	Thika	Empty	1.22
	M	KAE 197H	0.201813152	Embakasi	Thika	Empty	1.222
	M	KBN 897N	0.955589016			Ballast	1.2
	M	KAZ 661V	0.050375323	Nbi	Thika	Sanitary	1.2
	M	KBB 809L	0.186998371	Embakasi	Thika	Empty	1.2
	M	KAV 871B	0.09227554	Nbi	Thika	Empty	1.2
	H	KBK 191J	0.214030725	Embakasi	Thika	Empty	1.2
	H	KBL 431D	7.633013153	A/River	Thika	Cement	1.22
	A	KAY 295W	0.157511212	Mombasa	Ruiru	Empty	1.1.2.222
	H	KAL 331B	3.779547268	Nbi	Thika	Sodas	1.22
	M	KUA 270	0.012714717	Ruai	Embu	Empty	1.2
	M	KYB 857	0.0137293	Nbi	Juja	Empty	1.2
	M	KVK 631	0.012841031	Nbi	Ruiru	Empty	1.2
	H	KAB 671A	1.012224325	Nbi	Ruiru	Tyres	1.22
	H	KBP 108K	0.092611184	Embakasi	Sagana	Empty	1.22
	H	KBP 824V	12.92021959	Embakasi	Thika	Ballast	1.22
	H	KAL 858S	0.120324697	Embakasi	Thika	Empty	1.22
	H	KAJ 950L	0.059280454	Embakasi	Thika	Empty	1.22
	M	KBN 978	0.00313521	Nbi	Thika	Empty	1.2
	H	KAV 256P	0.070083762	Nbi	Meru	Empty	1.22
	M	KAY 504N	0.022789922	Embakasi	Thika	Empty	1.2
	M	KBN 978	0.044027574	Embakasi	Thika	Empty	1.2
	H	KAV 256P	0.649223556	A/River	Thika	Ballast	1.22
	H	KAY 502N	0.09790028	Mlolongo	Thika	Empty	1.22
	H	KBK 285Q	0.071886092	Mlolongo	Thika	Empty	1.22

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	H	KAW 577Q	7.199893046	Nbi	Thika	Sand	1.22
	H	KAK 532A	7.411750632	Nbi	Ruiru	Sand	1.22
	H	KAT 240E	9.014131658	Nbi	Embu	Rice	1.22
	M	KZP 665	0.451332793	Nbi	Thika	goods	1.2
	H	KAZ 662V	0.280627732		Thika	Empty	
	M	KAR 672A	0.004955425		Thika	Empty	1.2
	M	KBJ 046A	0.852638666	Nairobi	Karatina	Goods	1-2
	M	KAH 237B	0.028429109	Nairobi	Thika	Milk	1-2
	M	KAV 928S	0.204639059	Embakasi	Juja	Paving Slab	1-2
	H	KBB 101C	2.524229217	Embakasi	Juja	Ballast	1-2-2
	M	KBA 676	0.231637769	Embakasi	Juja	Paving Slab	1-2
	A	KAQ 629M	5.696444123	Embakasi	Thika	Container	1-2-2-2-2-2
	M	KAW 471S	18.4102781	Embakasi	Ruiru	Ballast	1-2
	M	KAS 133D	0.060996712	Nairobi	Thika	Plastics	1-2
	A	KBM 096S	6.230066739	Nairobi	Nyeri	Wires	1-2-2-2-2-2
	M	KAE 648	2.1333803	Nairobi	Thika	Fuel	1-2
	A	KAT 462U	0.475452197	Mombasa	Thika	Container	1-2-2-2-2-2
	H	KAV 954	6.182402169	Nairobi	Meru	Fertilizer	1-2-2
	H	KAZ 872L	3.334786509	Athi River	Nyeri	Cement	1-2-2
	M	KAW 341E	0.019197776	Nairobi	Nyeri	Empty	1-2
	M	KAV 285	4.126838842	Nairobi	Nyeri	Unga	1-2
	H	KAV 408	4.038082382	Mlolongo	Thika	Ballast	1-2-2
	M	KAZ 211	0.022293757	Nairobi	Kiambu	Empty	1-2
	M	KBB 309Y	0.231605287	Nairobi	Karatina	Empty	1-2
	M	KBA 200G	7.879910202	Athi River	Muranga	Cement	1-2
	A	KBJ 533D	22.74729466	Mombasa	Thika	Container	1-2-2-2-2-2
	M	KAT 732S	0.017647273	Nairobi	Thika	Empty	1-2
	M	KBC 834D	0.005148063	Nairobi	Thika	Empty	1-2
	A	KBC 424E	7.658274358	Mombasa	Thika	C	1-2-2-2-2-2
	M	KAH 040D	0.80731861	Nairobi	Juja	Unga	1-2
	H	KAD 989T	2.389628256	Mlolongo	Ruiru	Ballast	1-2-2
	H	KAY 124C	0.106430194	Nairobi	Nyeri	Empty	1-2-2-2-2-2
	A	KBQ 203E	6.921915425	Athi River	Garissa	Cement	1-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	M	KAM 652	4.677953129	Nairobi	Meru	Fertilizer	1-2
	M	KAL 035D	0.014971721	Embakasi	Ruiru	Empty	1-2
	H	KAW 157H	0.117857282	Nairobi	Thika	Empty	1-2-2
	M	KAJ 306F	0.020519747	Nairobi	Thika	Plastics	1-2
	H	KBN 040S	0.099878703	Embakasi	Juja	Empty	1-2-2
	H	KBG 606	2.325557714	Embakasi	Thika	Goods	1-2-2
	H	KAK 064Z	0.112060866	Nairobi	Thika	Empty	1-2-2
	M	KBD 666	0.866014404	Athi River	Nyeri	Steel Bars	1-2
	M	KAQ 901S	0.032481791	Embakasi	Kiambu	Empty	1-2
	M	KBA 895W	0.014159174	Nairobi	Nyeri	Empty	1-2
	M	KBC 618C	3.406398267	Nairobi	Thika	Paving Slab	1-2
	H	KAZ 218V	0.075133084	Embakasi	Thika	Empty	1-2-2
	M	KBH 663	0.001517524	Nairobi	Thika	Empty	1-2
	M	KBA 219	0.118821889	Nairobi	Juja	Goods	1-2
	M	KBA 100	0.148389113	Nairobi	Thika	Goods	1-2
	A	KBA 002	6.97384186	Nairobi	Nyeri	Fuel	1-1-2-2-2-2
	H	KBK 865U	0.17833383	Nairobi	Thika	Fuel	1-2-2
	H	KAW 732	1.787818968	Mlolongo	Thika	Ballast	1-2-2
	M	KBE 289	0.03458977	Nairobi	Thika	Empty	1-2
	H	KBK 017S	3.529841791	Athi River	Kiambu	Cement	1-2-2
	H	KBP 276	0.079861371	Embakasi	Thika	Empty	1-2-2
	H	KAE 324H	0.063256359	Nairobi	NJ	Empty	1-2
	M	KAT 214D	0.033751734	Nairobi	NJ	Empty	1-2
	M	KAS 013W	4.407058813	Nairobi	Nyeri	Fats	1-2
	M	KAW 129Y	0.364614346	Nairobi	Ruiru	Steel Bars	1-2
	H	KBM 348X	0.154619484	Embakasi	Juja	Empty	1-2-2
	M	KAX060D	1.430931708	Nairobi	Meru	Goods	1-2
	A	KBP 304S	6.322377638	Mombasa	Mwea	Rice	1-1-2-2
	A	KAX 114	0.145749729	Embakasi	Juja	Empty	1-1-2-2
	H	KAN 912Z	0.208806388	Nairobi	Thika	Empty	1-2-2
	A	KBH 664W	10.02857367	Nairobi	K	Container	1-2
	A	KAG 894Y	7.326495191	Mombasa	Mwingi	Fuel	1-2-2-2-2-2
	H	KBH 461U	0.076662237	Embakasi	Thika	Empty	1-2-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	M	KYY 286	3.502212671	Nairobi	Thika	Animal Feed	1-2
	M	KBA 811D	0.027348433	Nairobi	Thika	Empty	1-2
	H	KAH 294C	0.26699492	Embakasi	Thika	Empty	1-2-2
	M	KAE 342	0.470228205	Nairobi	Meru	Wires	1-2
	M	KBF 856V	0.015698187				1-2
	M	KXL 225	0.026724366				1-2
	H	KBD 210W	29.62315615				1-22
	A	KAZ 718J	6.270123277				1-22-222
	H	KBA 312G	3.230174302				1-22
	H	KAE 289M	0.07102318				1-22
	H	KAY 325C	1.736817424				1-22
	M	KBN 938A	0.006490774	Nairobi	Juja	Empty	1-2
	M	KAS 920G	0.004056084	Embu	Ruiru	Empty	1-2
	M	KAL 195G	0.029868724	Embu	Thika	Empty	1-2
	A	KAZ 015J	3.733341755	Mombasa	Thika	Container	1-22-222
	H	KBA 310L	2.250142287	Embu	Nyeri	Soda	1-22
	A	KAH 326D	0.402613255	Nairobi	Thika	Empty	1-12-222
	M	KAA 730S	0.033896317	Nairobi	Thika	Empty	1-2
	M	KAS 926G	0.025990017	Mlolongo	Juja	Ballast	1-2
	M	KAZ 254	2.66218827	Nairobi	Thika	Empty	1-2
	M	KAL 255C	0.107642704	Nairobi	Thika	Empty	1-2
	M	KBC 728F	0.011100266	Nairobi	Thika	Empty	1-22
	H	KBG 956S	0.081736151	Mombasa	Mwea	Rice	1-22-222
	A	KBC 416T	9.759813859	Nairobi	Thika	Goods	1-22
	H	KAZ 416Z	2.766122041	Nairobi	Thika	Plastics	1-2
	M	KAS 780	0.103150414	Athi River	Embu	Cement	1-2
	M	KAP 481R	9.796017714	Nairobi	Ruiru	Manua	1-2
	M	KBC 728F	1.37118739	Nairobi	Ruiru	Empty	1-2
	M	KBH 286A	0.032306947	Nairobi	Thika	Empty	1-22-222
	A	KAH 296N	6.35978313	Mombasa	Mwea	Rice	1-22-222
	M	KBA 666	0.009037743	Nairobi	Thika	Empty	1-2
	M	KAB 777	2.040871818	Nairobi	Thika	Goods	1-2
	A	KBF 686	0.102888268	Embu	Juja	Empty	1-1-22

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	H	KAV 493	0.197751042	Embu	Juja	Empty	1-22
	H	KBK 160Y	4.910181782	Utawala	Thika	Ballast	1-22
	M	KAA 998A	0.72028791	Mlolongo	Ruiru	Sand	1-2
	M	KBQ 981J	0.029058919	Embu	Juja	Empty	1-2
	M	KBH 454	0.023954051	Embu	Juja	Empty	1-2
	H	KAE 286A	0.176806216	Embu	Thika	Empty	1-22
	M	KAR 254U	0.024758061	Nairobi	Kiambu	Empty	1-2
	M	KAW 952Z	0.089400108	Athi River	Thika	Steel Bars	1-2
	M	KAE 154S	0.234329874	Nairobi	Thika	Milk	1-2
	H	KAE 125K	4.529914818	Mlolongo	Juja	Ballast	1-22
	H	KBJ 361R	0.16216677	Pipeline	N	Empty	1-22
	M	KZV 491	0.042134021	Embu	Juja	Empty	1-2
	M	KBB 563Q	0.005594143	Nairobi	Thika	Empty	1-2
	M	KBE 466M	0.119396683	Nairobi	Meru	Empty	1-2
	H	KAN 260V	3.634853247	Athi River	Thika	Cement	1-22
	A	KBC 416T	0.470225584	Mlolongo	Thika	Ballast	1-1-22
	H	KAH 692S	5.121377092	Mlolongo	Thika	Ballast	1-22
	A	KAY 511V	20.2477956	Mombasa	Mwea	Rice	1-22-222
	M	KAS 789	0.070849055	Nairobi	Thika	Empty	1-2
	H	KAA 049	0.242200041	Nairobi	Thika	Empty	1-22
	A	KBD 309D	8.259113104	Mombasa	Thika	Container	1-22-222
	M	KBP 805K	0.017128451	Nairobi	Thika	Empty	1-2
	M	KW 443	0.015505151	Nairobi	Thika	Empty	1-2
	M	KBC 553M	2.368197511	Nairobi	Kirunguya	Cement	1-2
	M	KAL 525B	16.70749326	Nairobi	Thika	Cement	1-2
	A	KAG 634	6.174581587	Athi River	Thika	Steel Bars	1-22-222
	M	KAG 634	0.014637732	Nairobi	Thika	Empty	1-2
	H	KBH 220S	27.62319764	Mlolongo	Thika	Ballast	1-22
	M	KBL 788	0.590484434	Nairobi	Thika	Goods	1-2
	M	KAA 686	0.003918321	Nairobi	Thika	Empty	1-2
	M	KAS 416T	0.009590221	Nairobi	Thika	Plastics	1-2
	M	KAN 260V	3.498434285	Nairobi	Thika	Cement	1-2
	M	KBB 563Q	2.433475922	Nairobi	Nyeri	Fuel	1-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
	A	KAE 125K	7.342297987	Nairobi	Garissa	Cement	1-1-22
4	M	KAZ 906M	1.657699413	Nairobi	Thika	Fuel	1-2
4	H	KAA 731H	0.069789107	Nairobi	Thika	Empty	1-2-2
4	A	KAW 289A	6.737617722	Mombasa	Thika	Container	1-2-2-2-2-2
4	M	KAS 926M	0.033023397	Nairobi	Ruiru	Empty	1-2
4	M	KBA 312M	2.146918664	Embakasi	Thika	Building Blocks	1-2
4	H	KAZ 133H	0.178198686	Nairobi	Muranga	Empty	1-2
4	M	KAV 689M	0.821886686	Athi River	Meru	Cement	1-2-2
4	H	KBP 976H	2.988616015	Mlolongo	Thika	Ballast	1-2
4	M	KBL 722D	0.034093757	Nairobi	Karatina	Empty	1-2-2
4	H	KAZ 105S	0.227048016	Nairobi	Nyeri	Empty	1-2
4	M	KAY 239M	1.988327827	Nairobi	Embu	Goods	1-2-2
4	A	KBC 470	0.510213125	Nairobi	Thika	Empty	1-2
4	M	KBM 657	0.024340203	Nairobi	Nanyuki	Empty	1-2-2-2-2-2
4	H	KAK 532A	3.2835669	Athi River	Juja	Cement	1-2
4	B	KAR 672A	0.144108151	Njiru	Thika	Passengers	1-2-2
4	M	KAZ 662U	0.008009458	Nairobi	Nyeri	Empty	1-2
4	M	KAK 298	0.026992059	Nairobi	Thika	Empty	1-2
4	H	KAB 671A	0.163634778	Nairobi	Ruiru	Empty	1-2
4	H	KBP 824K	9.203661456	Mlolongo	Thika	Ballast	1-2-2
4	H	KAY 295W	4.935859086	Mlolongo	Thika	Ballast	1-2-2
4	H	KAE 197H	0.125020795	Athi River	Thika	Cement	1-2-2
4	H	KAY 841L	0.088780339	Nairobi	Thika	Empty	1-2-2
4	H	KAV 871B	2.658136467	Nairobi	Thika	Empty	1-2-2
4	H	KBQ 665	0.092724642	Nairobi	Thika	Empty	1-2-2
5	M	KBL 431D	0.16267711	Nairobi	Embu	Goods	1-2
5	H	KAY 113Y	4.603865226	Nairobi	Meru	Fertilizers	1-2-2
5	M	KAV 946Y	0.918322624	Mlolongo	Juja	Ballast	1-2
5	M	KBE 426U	0.081101903	Nairobi	Thika	Empty	1-2
5	M	KAB 454	0.148163612	Nairobi	Thika	Goods	1-2
5	A	KAU 964	7.198054614	Nairobi	Muranga	Manure	1-2-2-2-2-2
5	A	KAV 410S	3.385845332	Mombasa	Thika	Post	1-2-2-2-2-2
5	M	KBG 221	0.0267059	Nairobi	Thika	Empty	1-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
5	M	KAC 618	0.085844388	Embakasi	Juja	Empty	1-2
5	H	KBA 217	0.199423756	Embakasi	Thika	Empty	1-2-2
5	A	KBC 117	0.572915707	Mombasa	Thika	Empty	1-1-2-2-2-2
5	H	KBL 295D	0.091396597	Nairobi	Thika	Empty	1-2-2
5	M	KBQ 618	1.511343243	Athi River	Thika	Cement	1-2
5	H	KAZ 618	0.179452188	Embakasi	Ruiru	Empty	1-2-2
5	H	KAY 987	0.088968765	Embakasi	Ruiru	Empty	1-2-2
5	H	KAM 700Y	21.60714145	Mlolongo	Juja	Ballast	1-2-2
5	A	KXX 616	0.395414836	Mombasa	Thika	Empty	1-1-2-2-2-2
5	H	KAT 336	0.311642043	Nairobi	Thika	Empty	1-2-2
5	A	KBD 618	5.684322871	Nairobi	Thika	Cement	1-2-2-2-2-2
5	M	KBA 219C	0.948514041	Nairobi	Thika	Timber	1-2
5	M	KAW 219	16.6507543	Nairobi	Thika	Flour	1-2
5	M	KBK 032L	7.354272642	Nairobi	Thika	Goods	1-2
5	A	KAY 481Y	0.325844764	Mombasa	Thika	Empty	1-2-2-2-2-2
5	A	KBP 227N	0.109257952	Nairobi	Thika	Empty	1-1-2-2
5	M	KUW 480	0.017581243	Embakasi	Juja	Empty	1-2
5	H	KBP 418F	0.504075657	Embakasi	Juja	Goods	1-2-2
5	A	KAV 560	0.991190087	Nairobi	Thika	Empty	1-2-2-2-2-2
5	M	KAK 122K	1.169958893	Nairobi	Thika	Fuel	1-2
5	M	KAV 218S	0.015935803	Nairobi	Nanyuki	Empty	1-2
5	M	KAS 216	0.008947028	Nairobi	Thika	Empty	1-2
5	M	KAV 216M	2.651866552	Njiru	Thika	Charcoal	1-2
5	M	KAM 618	0.082791449	Nairobi	Thika	Empty	1-2
5	H	KAP 327F	3.264455625	Mlolongo	Thika	Ballast	1-2-2
5	M	KBA 328A	0.670667028	Nairobi	Mwingi	Students	1-2
5	M	KVK 631	0.028246492	Ruai	Thika	Empty	1-2
5	M	KBN 582V	1.389393739	Nairobi	Meru	Nails	1-2
5	M	KBE 218	0.054709212	Nairobi	Thika	Crane	1-2
5	M	KAJ 260E	4.735898641	Athi River	Thika	Cement	1-2
5	M	KBH 574Q	3.333295003	Nairobi	Muranga	Fuel	1-2
5	B	KAX 710	0.198665027	Nairobi	Mwingi	Passengers	1-2
6	A	KAV 465G	0.264953796	Nairobi	Thika	Empty	1-2-2-2-2-2

Time	CODE	Reg. No.	Calculated Equivalent Factor	FROM	DESTINATION	GOODS/ SERVICE	AXLE CONFIGURATION
6	H	KBM 078R	16.84837917	Athi River	Thika	Cement	1-2-2
6	H	KBA 013K	0.147446205	Embakasi	Juja	Empty	1-2-2
6	A	KAW 929B	2.663180357	Mombasa	Thika	Container	1-2-2-2-2-2
6	M	KZV 858	1.496068668	Mlolongo	Thika	Sand	1-2
6	A	KBA 915C	13.77182122	Mombasa	Thika	Container	1-2-2-2-2-2
6	A	KBJ 345N	6.892134088	Athi River	Mangu	Cement	1-2-2-2-2-2
6	M	KBJ 083C	0.174211904	Nairobi	Kiambu	Goods	1-2
6	M	KAA 139H	0.034676219	Nairobi	Meru	Empty	1-2
6	H	KAV 274D	6.54837222	Mlolongo	Thika	Ballast	1-2-2
6	B	KAE 454B	3.340937465	Nairobi	Thika	Passengers	1-2
6	M	KAP 936M	0.035129986	Nairobi	Thika	Empty	1-2
6	B	KAS 602Y	0.013302493	Ruai	Thika	Passengers	1-2
6	H	KAG 570L	0.05388186	Embakasi	Juja	Empty	1-2-2
6	H	KAR 200M	2.967032833	Nairobi	Chuka	Flour	1-2-2
6	H	KAZ 061	0.366002984	Nairobi	Thika	Posts	1-2-2
6	H	KBN 784D	8.450938339	Athi River	Thika	Cement	1-2-2

Appendix 4: Classified traffic volume counts data by KURA

		Class / Date	C	LGV		MGV		HGV		B	MC	PC	TOTAL
				M	O	T	O	T/L	O				
COUNT STN. 08 - EASTERN BYPASS	DAY	**AVERAGE DAILY TRAFFIC - EMBAKASI BOUND**											
		9-May-2011	998	129	174	55	516	327	0	5	30	6	**2240**
		10-May-2011	1015	121	225	63	435	469	5	10	41	9	**2393**
		11-May-2011	885	153	242	106	394	447	2	22	90	14	**2355**
		12-May-2011	890	175	208	94	387	529	2	14	34	19	**2352**
		13-May-2011	1016	135	210	75	385	459	11	11	27	5	**2334**
		14-May-2011	957	243	327	86	398	482	60	15	48	4	**2620**
		15-May-2011	900	257	246	110	176	186	0	7	21	7	**1910**
		Average	**952**	**173**	**233**	**84**	**384**	**414**	**11**	**12**	**42**	**9**	**2314**
	NIGHT												
	DAY	**AVERAGE DAILY TRAFFIC - RUIRU BOUND**											
		9-May-2011	1011	114	257	61	367	424	0	9	24	5	**2272**
		10-May-2011	1084	160	301	107	467	495	0	18	31	8	**2671**
		11-May-2011	998	153	284	61	441	536	1	21	91	4	**2590**
		12-May-2011	1004	132	265	93	395	508	0	19	21	4	**2441**
		13-May-2011	1420	128	297	95	475	506	31	20	29	2	**3003**
		14-May-2011	1787	240	370	133	343	496	5	32	37	1	**3444**
		15-May-2011	978	214	247	17	300	236	5	15	35	7	**2054**
		Average	**1183**	**163**	**289**	**81**	**398**	**457**	**6**	**19**	**38**	**4**	**2638**

Appendix 5: Origin and Destination Data by KURA

NO.	HR	REG. No.	AXLE CONFIGURATION	TARE WEIGHT (KG)	FROM	DESTINATION	GOODS/ SERVICE
ROAD: RUIRU - KANGUNDO RD				**EASTERN BYPASS**		**OPERATOR NAME:**	
DIRECTION: KANGUNDO RD			**DATE: 9/06/2011**			**DAY:Thursday**	
1	6	KAR 519M	1.2	4500	Thika	Emali	Empty
2	6	KAD 843P	1.2	6600	Kitui	Nairobi	Empty
3	6	KAR 710V	1.22	9920	Embu	Nairobi	Empty
4	6	KBB 180R	1.2	1700	Kerugoya	Nairobi	Plastic
5	6	KBP 749E	1.2	4600	Ruiru	Athi River	Used Battery
6	6	KBB 089H	1.22-222	19000	Sagana	Nairobi	Empty
7	6	KAL 831B	1.22	9920	Mwingi	Nairobi	Empty Crates
8	6	KAA 981C	1.2	5560	Thika	Nairobi	Sand
9	6	KAM 995L	1.22	7830	Juja	Athi River	Stone
10	7	KAU 244J	1.22	9280	Kiriaini	Nairobi	Empty
11	7	KAY 796A	1.22	9040	Embu	Nairobi	Empty
12	7	KBD 597G	1.2	6720	Marsabit	Nairobi	Cattle
13	7	KAX 629S	1.2	4500	Thika	Nairobi	Empty
14	7	KAT 205Q	1.2	4960	Karatina	Nairobi	Empty
15	7	KBP 162A	1.2	4600	Embu	Ngong	Timber
16	7	KAZ 238B	1.22	11000	Thika	Nairobi	Empty
17	7	KBJ 262J	1.2	4600	Nyeri	Nairobi	Scrap Metals
18	7	KRN 854	1.2	5100	Njiru	Nairobi	Stones
19	7	KBN 789V	1.22	14000	Embu	Nairobi	Empty
20	7	KAD 838B	1.2	10000	Njiru	Kathiani	Empty
21	7	KAT 527C	1.2	4500	Maragua	Nairobi	Farm Produce
22	7	KBA 671A	1.22-222	19000	Thika	Mombasa	Empty
23	7	KBN 466V	1.2	6600	Marurui	Mlolongo	Empty
24	7	KBF 686H	1.2	4822	Thika	Nairobi	Empty
25	7	KBG 380E	1.2	6600	Mwingi	Nairobi	Empty
26	7	KBK 341Q	1.2	4870	Thika	Nairobi	Empty
27	7	KAS 610V	1.21-222	7200	Nyeri	Nairobi	Empty
28	7	KAN 003G	1.22-222	6500	Thika	Nairobi	Empty

NO.	HR	REG. No.	AXLE CONFIGURATION	TARE WEIGHT (KG)	FROM	DESTINATION	GOODS/ SERVICE
29	7	KBG 634A	1.2	4780	Thika	Mlolongo	Empty
30	7	KAV 122K	1.2	4400	Thika	Nairobi	Empty
31	7	KAZ 957F	1.22	9700	Ruiru	Mlolongo	Empty
32	7	KAW 280G	1.22-111	6470	Thika	Nairobi	Empty
33	7	KUS 910	1.2	5100	Njiru	Nairobi	Stones
34	7	KZL 736	1.2	2510	Kandara	Airport	Farm Produce
35	7	KAX 965L	1.2	3400	Meru	Nairobi	Empty
36	8	KAX 665S	1.2	4500	Maragua	Nairobi	Empty
37	8	KWQ 646	1.2	4820	Njiru	Nairobi	Stones
38	8	KBF 537W	1.22	10060	Njiru	Kayole	Empty
39	8	KBH 880C	1.22	13000	Ruiru	Mlolongo	Empty
40	8	KBN 401E	1.22	11000	Ruai	Transmara	Stones
41	8	29CD 297K	1.2	6400	UNEP	Embakasi	Empty
42	8	KBH 156N	1.2	3990	Nyeri	Nairobi	Empty
43	8	KXM 471	1.2	4000	Ruiru	Ruai	Stones
44	8	KBM 070P	1.2	4800	Meru	Nairobi	Empty
45	8	KBK 922Q	1.22	8900	Thika	Nairobi	Maize Flour
46	8	KAK 996P	1.22	11000	Thika	Kayole	Stones
47	8	KYX 366	1.22	7680	Embu	Nairobi	Empty
48	8	KAK 207Y	1.2	7800	Quarry	Utawala	Stones
49	8	KAP 322G	1.2	5100	Ruiru	Mlolongo	Stones
50	8	KAX 108V	1.2	2200	Thika	Embakasi	Chiken
51	8	KAU 060C	1.2	7800	Atiiku Quarry	Utawala	Stones
52	8	EX 46 KA 90	1.2	4200	Ruiru	Mlolongo	Empty
53	8	KAA 171A	1.2	3120	Ruiru	Mlolongo	Matressess
54	8	KAS 088Q	1.2	5500	Meru	Nairobi	Timber
55	8	KBE 768E	1.2	3120	Karatina	Airport	Farm Produce
56	8	KAX 391U	1.22	7500	Thika	Mombasa	Tea
57	8	KAS 461G	1.2	7800	Quarry	Utawala	Stones
58	8	KBN 806U	1.2	4000	Mwingi	Nairobi	Empty
59	8	KBJ 483W	1.2	4700	Mwingi	Nairobi	Empty
60	8	KAT 698C	1.22	8800	Nyeri	Nairobi	Empty
61	8	KBH 123Q	1.2	4600	Kirinyaga	Athi River	Empty

NO.	HR	REG. No.	AXLE CONFIGURATION	TARE WEIGHT (KG)	FROM	DESTINATION	GOODS/ SERVICE
62	8	KRT 345	1.2	5100	Quarry	Donholm	Stones
63	8	KBB 793M	1.2	5500	Meru	Nairobi	Empty
64	8	KBA 200G	1.2	4000	Kerugoya	Nairobi	Empty
65	8	KAP 639A	1.2	3800	Meru	Nairobi	Empty
66	8	KBC 265G	1.2	5060	Nanyuki	Airport	Farm Produce
67	8	KAS 781D	1.2	5420	Meru	Industrial Area	Scrap Metals
68	8	KBN 654F	1.2	4500	Kabati	Airport	Farm Produce
69	8	KAK 465E	1.22	8800	Nyahururu	Embakasi	Crates Empty
70	8	KBP 564B	1.2	7140	Embu	Nairobi	Empty
71	8	KBK 823J	1.2	5600	Meru	Nairobi	Empty
72	8	KAY 263F	1.2	3500	Meru	Nairobi	Empty
73	8	KRJ 585	1.2	7000	Quarry	Mawe Mbili	Stones
74	8	KBJ 361R	1.2	4400	Mau	Airport	Farm Produce
75	8	KUM 388	1.2	4450	Quarry	Kayole	Stones
76	8	KAA 016D	1.2	2800	Thika	Machakos	Bread
77	8	KAZ 377V	1.2	3400	Embu	Dandora	Alluminium
78	8	KBL 551K	1.2	4480	Meru	Kitengela	Timber
79	8	KAW 529Y	1.22	6700	Thika	Industrial Area	Maize Flour
80	8	KBB 002P	1.22	22000	Quarry	Utawala	Soil
81	8	KAR 718E	1.2	2480	Thika	Industrial Area	Empty
82	8	KAB 287U	1.22	11030	Quarry	Ukai	Stones
83	8	KAM 768B	1.2	6570	Thika	Nairobi	Empty
84	8	KBL 504W	1.2	4950	Matuu	Mlolongo	Empty
85	8	KAB 071V	1.2	5700	Thika	Embakasi	Blocks
86	8	KAN 750R	1.22	7900	Thika	Mombasa	Tea
87	8	KAP 022W	1.2	5600	Quarry	Utawala	Stones
88	9	KBE 912E	1.2	4500	Embu	Kayole	Timber
89	9	KXX 960	1.2	5640	Quarry	Kitengela	Stones
90	9	KZL 369	1.22	11650	Quarry	Utawala	Stones
91	9	KBH 027Y	1.22	10400	Juja	Mlolongo	Empty
92	9	KQU 002	1.22	5100	Quarry	Mlolongo	Stones
93	9	KAU 378Y	1.22-222	8320	Thika	Nairobi	Empty
94	9	KAZ 107S	1.2	7800	Meru	Nairobi	Empty

NO.	HR	REG. No.	AXLE CONFIGURATION	TARE WEIGHT (KG)	FROM	DESTINATION	GOODS/ SERVICE
95	9	KBC 250G	1.22	9950	Mwingi	Nairobi	Empty
96	9	KBL 369N	1.22-222	7000	Juja	Mombasa	Fruits
97	9	KAY 397Q	1.2	6000	Thika	Nairobi	Wheat Flour
98	9	KUH 889	1.2	5500	Githurai	Mlolongo	Empty
99	9	KZX 306	1.2	5500	Quarry	Utawala	Stones
100	9	KXT 922	1.2	4460	Clay Works	Njiru	Tiles
101	9	KTQ 937	1.2	5100	Quarry	Embakasi	Stones
102	9	KAK 156S	1.2	6700	Nyeri	Nairobi	Water
103	9	KBN 804V	1.22	10000	Ndaruku	Mlolongo	Stones
104	9	KAE 272E	1.2	3260	Thika	Nairobi	Cooking Fat
105	9	KAN 932W	1.22-222	9800	Thika	Taveta	Empty
106	9	KBH 439D	1.2	2200	Githurai	Ruai	Poles
107	9	KAK 677L	1.2	3850	Thika	Embakasi	Cooking Fat
108	9	KAX 308U	1.22	22000	Garrissa	Njiru	Cattle
109	9	KAS 966S	1.2	5370	Ruiru	Taveta	Empty
110	9	KAQ 761G	1.2	4620	Ruiru	Athi River	Empty
111	10	KAU 060L	1.2	6800	Quarry	Utawala	Stones
112	10	KAD 332X	1.22	8200	Mwingi	Mombasa	Tea
113	10	KYF 593	1.2	7860	Nyeri	Depot	Empty
114	10	KAG 841Y	1.22	9300	Ruiru	Embakasi	Coffee
115	10	KBA 174H	1.22-222	10200	Meru	Depot	Empty
116	10	KAK 394T	1.2	5700	Kiambu	Embakasi	Empty
117	10	KAE 426Z	1.2	5200	Quarry	Komarock	Stones
118	10	KYT 090	1.2	5000	Quarry	Njiru	Stones
119	10	KAM 820Z	1.2	3270	Ruiru	Industrial Area	Empty
120	10	KUV 729	1.2	5100	Juja	Kayole	Stones
121	10	KAV 154V	1.2	4260	Thika	Athi River	Empty
122	10	KBM 472Z	1.22	10200	Quarry	Embakasi	Stones
123	10	KXU 114	1.2	2420	Quarry	Dandora	Stones
124	10	KUS 910	1.2	5100	Quarry	Utawala	Stones
125	10	KBA 791N	1.2	4700	Nanyuki	Airport	Flowers
126	10	KAE 001T	1.2	6500	Thika	Tononoka	Empty
127	10	KXU 564	1.2	5600	Quarry	Kayole	Stones

NO.	HR	REG. No.	AXLE CONFIGURATION	TARE WEIGHT (KG)	FROM	DESTINATION	GOODS/ SERVICE
128	10	KAX 295C	1.2	4200	Embu	Depot	Empty
129	10	KAH 699Y	1.2	5300	Quarry	Utawala	Stones
130	10	KAY 271F	1.2	7200	Nanyuki	Airport	Flowers
131	10	KBJ 972V	1.12-222	8500	Thika	Embakasi	Stones
132	10	KAT 422Q	1.2	4300	Thika	Nairobi	Empty
133	10	KAP 701D	1.22-222	8500	Thika	Nairobi	Stones
134	10	KYU 825	1.2	1710	Quarry	Utawala	Stones
135	10	KWN 383	1.2	5600	Thika	Njiru	Stones
136	10	KBB 637X	1.2	6020	Thika	Njiru	Stones
137	10	KYB 857	1.2	7800	Githurai	Bypass	Empty
138	10	KBN 969F	1.22-222	7200	Juja	Depot	Empty
139	10	KBH 745C	1.2	4000	Ruiru	Nairobi	Empty
140	10	KAV 050K	1.22	6500	Thika	Airport	Stones
141	10	KAX 242C	1.22-222	8000	Thika	Emali	Stones
142	10	KAY 573H	1.2	4900	Thika	Ngong	Stones
143	10	KYN 581	1.2	5100	Thika	Umoja	Stones
144	10	KBP 709D	1.2	5980	Thika	Mlolongo	Stones
145	10	KXX 616	1.2	5100	Thika	Embakasi	Stones
146	10	KAZ 250R	1.2	5090	Embu	Athi River	Empty
147	10	KAT 912S	1.2	4500	Juja	Depot	Empty
148	10	KRJ 585	1.2		Quarry	Mawe Mbili	Stones
149	10	KAR 198E	1.2	2370	Thika	Nairobi	Steel Tubes
150	10	KBD 195W	1.2	4200	Ruiru	Athi River	Empty
151	10	KBL 212K	1.2	4920	Garrissa	Nairobi	Scrap Metals
152	10	KBP 098K	1.2	5000	Thika	Athi River	Empty
153	10	KBN 081H	1.2	4480	Mwea	Embakasi	Empty
154	10	KAV 037F	1.2	3200	Thika	Airport	Flowers
155	10	KAB 545K	1.2	5100	Thika	Embakasi	Stones
156	10	KAL 318F	1.22	10200	Quarry	Embakasi	Stones
157	10	KBC 984N	1.2	5600	Juja	Embakasi	Stones
158	11	KBL 672D	1.2	4900	Thika	Athi River	Empty
159	11	KAP 900K	1.2	3880	Thika	Nairobi	Empty
160	11	KAX 582Y	1.22	11300	Ruiru	Mombasa	Matressess

NO.	HR	REG. No.	AXLE CONFIGURATION	TARE WEIGHT (KG)	FROM	DESTINATION	GOODS/ SERVICE
161	11	KAR 319M	1.2	2640	Quarry	Pipeline	Stones
162	11	KAA 419K	1.2	5700	Meru	Nairobi	Empty
163	11	KBN 757F	1.12-222	7500	Ruiru	Mombasa	Empty
164	11	KAS 461G	1.2	5600	Quarry	Utawala	Stones
165	11	KAK 027J	1.22	8200	Juja	Embakasi	Stones
166	11	KYJ 864	1.2	5100	Ruiru	Kitengela	Stones
167	11	KAA 426P	1.2	4900	Juja	Embakasi	Stones
168	11	KTC 551	1.2	5100	Quarry	Embakasi	Stones
169	11	KBP 250A	1.2	5090	Embu	Nairobi	Empty
170	11	KBB 773X	1.2	4400	Thika	Mlolongo	Empty
171	11	KBA 193W	1.2	8919	Nyeri	Depot	Empty
172	11	KAX 357S	1.2	10000	Thika	Nairobi	Stones
173	11	KAX 771M	1.2	5700	Meru	Nairobi	Empty
174	11	KWP 972	1.2	4900	Ruiru	Mawe Mbili	Stones
175	11	KAU 060L	1.2	5700	Quarry	Utawala	Stones
176	11	KBH 264K	1.2	5040	Juja	Embakasi	Stones
177	11	KBA 280Y	1.2	4100	Mwingi	Nairobi	Charcoal
178	11	KWV 350	1.2	4900	Juja	Embakasi	Stones
179	11	KBG 190E	1.2	4480	Githurai	Kisii	Empty
180	11	KWK 873	1.2	5100	Quarry	Kamulu	Aggregates
181	11	KAK 743X	1.2	5780	Thika	Embakasi	Stones
182	11	KAJ 368K	1.2	4600	Muranga	Kayole	Timber
183	11	KAR 995B	1.2	3680	Kahawa	Utawala	Beer
184	11	KYB 857	1.2	4900	Quarry	Njiru	Stones
185	11	KYV 196	1.2	5700	Thika	Embakasi	Stones
186	11	KZW 212	1.2	2780	Muranga	Dandora	Timber
187	11	KBM 126V	1.2	4800	Ruiru	Mlolongo	Clay Tiles
188	11	KZX 304	1.2	5110	Quarry	Utawala	Stones
189	11	KBA 996N	1.22	9160	Thika	Machakos	Stones
190	11	KBK 105L	1.22	10200	Bypass	Kangemi	Stones
191	11	KAX 395L	1.2	5120	Nanyuki	Airport	Farm Produce
192	11	KAP 370L	1.22-222	7680	Thika	Depot	Empty
193	11	KAQ 405W	1.2	1700	Ruiru	Athi River	Scrap Metals

NO.	HR	REG. No.	AXLE CONFIGURATION	TARE WEIGHT (KG)	FROM	DESTINATION	GOODS/ SERVICE
194	11	KAE 453T	1.2	6950	Thika	Nairobi	Empty
195	11	KBD 922P	1.22	9360	Thika	Nairobi	Stones
196	11	KBM 705S	1.2	4640	Mwingi	Nairobi	Scrap Metals
197	11	KAE 255W	1.2	2900	Thika	Nairobi	Steel Metal
198	11	KBH 656S	1.2	9000	Thika	Langata	Cement
199	11	KYR 390	1.2	5490	Quarry	Utawala	Stones
200	11	KAU 964D	1.2	6630	Ruiru	Airport	Flowers
201	11	KBK 509G	1.12-222	7880	Thika	Nairobi	Tobacco
202	11	KBN 006A	1.2	4820	Matuu	Nairobi	Empty
203	11	KAR 931Z	1.2	3740	Nanyuki	Mombasa Rd	Farm Produce
204	11	KBE 493W	1.2	4720	Kiambu	Mombasa	Empty
205	12	KBX 574D	1.2	3000	Bypass	Githurai	Empty
206	12	KBM 105B	1.2	4500	Makutano	Athi River	Empty
207	12	KXU 114	1.2	2420	Quarry	Dandora	Stones
208	12	KAH 699Y	1.2	5300	Quarry	Ruai	Stones
209	12	KAZ 240L	1.22	8500	Muranga	Athi River	Clay
210	12	KAP 135G	1.2	7710	Thika	Nairobi	Empty
211	12	KAU 505S	1.22	8260	Thika	Nairobi	Crates Empty
212	12	KSL 495	1.2	7800	Thika	Syokimau	Stones
213	12	KAV 924Q	1.2	6200	Kahawa West	Athi River	Empty
214	12	KAB 689M	1.22	8800	Juja	City Cabanas	Stones
215	12	KTK 181	1.2	5100	Juja	Umoja	Stones
216	12	KBD 082U	1.22-222	7610	Thika	Mombasa	Empty
217	12	KYF 635	1.2	5100	Thika	Athi River	Stones
218	12	KXS 139	1.2	4570	Thika	Ruai	Household Goods
219	12	KBK 211A	1.22	11000	Ruiru	Mlolongo	Empty
220	12	KAG 693Z	1.2	3300	Ruiru	Njiru	Poles
221	12	KUS 910	1.2	5100	Quarry	Utawala	Stones
222	12	KAY 778L	1.22	9420	Thika	Nairobi	Stones
223	12	T967APH	1.2	4000	Thika	Tanzania	Empty
224	12	KAT 239E	1.22	8000	Embu	Nairobi	Empty
225	12	KAB 797G	1.2	4620	Ruiru	City Cabanas	Blanket Waste
226	12	KAP 934V	1.2	4000	Quarry	Kayole	Stones

NO.	HR	REG. No.	AXLE CONFIGURATION	TARE WEIGHT (KG)	FROM	DESTINATION	GOODS/ SERVICE
227	12	KBA 445G	1.22	6300	Juja	Kajiado	Empty
228	12	KBP 761A	1.22-222	8500	Thika	Athi River	Empty
229	12	KAK 938G	1.22	8100	Thika	Nairobi	Stones
230	12	KRJ 585	1.2	70000	Quarry	Mawe Mbili	Stones
231	12	KAJ 512C	1-1-2-2	9120	Thika	Mombasa Rd	Stones
232	12	KYE 358	1.2	5100	Quarry	Utawala	Stones
233	12	KVR 018	1.2	5100	Thika	Kayole	Stones
234	12	KBK 576D	1.22	10000	Darungo	Mlolongo	Stones
235	12	KYW 505	1.22	5150	Thika	Nairobi	Soap
236	12	KBH 463V	1.22-222	8850	Thika	Nairobi	Stones
237	12	KAC 521J	1.2	7100	Darungo	Syokimau	Stones
238	12	KAZ 817T	1.2	6790	Thika	Nairobi	Empty
239	12	KAN 590U	1.2	3400	Kithumani	Nairobi	Empty
240	12	KBP 493A	1.2	5700	Ruiru	Mlolongo	Empty
241	12	KAA 468P	1.2	4900	Darungo	Embakasi	Stones
242	13	KYJ 974	1.2	5100	Darungo	Ruai	Stones
243	13	KBB 002P	1.22	10000	Quarry	Ruai	Stones
244	13	KBA 091T	1.22	9360	Thika	Nairobi	Goods
245	13	KAZ 283U	1.2	6000	Nyeri	Nairobi	Petrol
246	13	KBL 541A	1.2	3140	Nyeri	Nairobi	Avocado
247	13	KAA 998R	1.2	5400	Quarry	Ruai	Stones
248	13	KAA 889G	1.2	5100	Quarry	Embakasi	Stones
249	13	KBP 205E	1.2	3200	Thika	Machakos	Matressess
250	13	KAT 894L	1.22-222	9000	Nanyuki	Nairobi	Milk
251	13	KAU 471G	1.22	9280	Ruiru	Nairobi	Soda
252	13	KAB 594U	1.22	8750	Thika	Nairobi	Papers
253	13	KBK 430U	1.22	7950	Quarry	Ruai	Stones
254	13	KBM 127G	1.22-222	7000	Juja	Nairobi	Avocado
255	13	KBK 500X	1.22-222	7000	Thika	Nairobi	Empty
256	13	KAW 963U	1.12-222	8000	Thika	Kitengela	Stones
257	13	KBH 958V	1.12-222	8000	Garrissa	Nairobi	Cattle
258	13	KAM 626Z	1.22	7330	Thika	Nairobi	Empty
259	13	KAW 682Y	1.2	6000	Thika	Ruai	Stones

NO.	HR	REG. No.	AXLE CONFIGURATION	TARE WEIGHT (KG)	FROM	DESTINATION	GOODS/ SERVICE
260	13	KAW 961J	1.2	4000	Meru	Nairobi	Bananas
261	13	KAZ 987	1.2	5100	Thika	Nairobi	Stones
262	13	KXW 310	1.2	7800	Thika	Ruai	Stones
263	13	KAS 461G	1.2	7800	Quarry	Ruai	Stones
264	13	KNF 601	1.2	5100	Thika	Kitengela	Stones
265	13	KZL 095	1.2	5200	Thika	Embakasi	Stones
266	13	KAL 462E	1.22	8820	Nanyuki	Nairobi	Milk
267	13	KAA 831Z	1.2	5200	Thika	Nairobi	Empty
268	13	KUW 531	1.2	5200	Quarry	Kayole	Stones
269	13	KAZ 318V	1.2	4620	Thika	Mombasa	Empty
270	13	KAC 426Z	1.2	5200	Thika	Komarock	Stones
271	13	KBE 409P	1.2	4960	Thika	Airport	Flowers
272	13	KBC 477L	1.22	8100	Thika	Nairobi	Juice
273	13	KAU 278J	1.2	2800	Thika	Athi River	Steel
274	13	KBK 301Q	1.2	4800	Nyeri	Industrial Area	Empty
275	13	EX46KA90	1.2	4200	Ruiru	Kayole	Empty
276	13	KBH 546H	1.22	18000	Thika	Mombasa	Empty
277	13	KBN 492Y	1.2	1700	Thika	Nairobi	Empty
278	13	KWD 836	1.2	5100	Juja	Utawala	Stones
279	13	KBP 069A	1.22	9000	Thika	Nairobi	Mangos
280	13	KAW 820C	1.12-222	8500	Lodwar	Nairobi	Empty
281	13	KAE 154Z	1.22	10000	Bypass	Ruai	Stones
282	13	KTU 178	1.2	5100	Darungo	Nairobi	Stones
283	14	KAW 907T	1.12-222	9500	Darungo	Embakasi	Stones
284	14	KBJ 539J	1.22	5000	Garrissa	Nairobi	Cattle
285	14	KTX 184	1.2	4930	Bypass	Kamulu	Chippings
286	14	KWJ 813	1.2	5100	Ruiru	Mombasa Rd	Stones
287	14	KBN 023F	1.12-222	7500	Isiolo	Mobasa	Empty
288	14	KAZ 103B	1.2	5400	Maua	Nairobi	Empty
289	14	KAA 577K	1.2	5100	Darungo	Rongai	Stones
290	14	KBN 037F	1.12-222	7500	Nyeri	Mombasa	Empty
291	14	KAY 901X	1.2	4300	Thika	Nairobi	Empty
292	14	KZX 187	1.2	5100	Thika	Donholm	Stones

NO.	HR	REG. No.	AXLE CONFIGURATION	TARE WEIGHT (KG)	FROM	DESTINATION	GOODS/ SERVICE
293	14	KXU 114	1.2	2420	Quarry	Dandora	Stones
294	14	KBJ 459E	1.22	9500	Nyeri	Nairobi	Empty
295	14	KBP 122K	1.22	13500	Thika	Nairobi	Stones
296	14	KAL 957A	1.22	8930	Thika	Industrial Area	Flour
297	14	KBM 507M	1.22	8500	Ruiru	Mombasa	Empty
298	14	KAX 900Y	1.22-222	7610	Thika	Mombasa	Empty
299	14	KXT 802	1.2	8000	Njenga	Mlolongo	Empty
300	14	KAP 949A	1.22-222	6200	Thika	Nairobi	Empty
301	14	KUM 388	1.2	4450	Quarry	Kayole	Stones
302	14	KBM 290K	1.12-222	8600	Thika	Mombasa	Empty
303	14	KAS 185G	1.2	4910	Thika	Nairobi	Bread
304	14	KAB 585L	1.22	9000	Ruiru	Transami	Coffee
305	14	KSV 542	1.2	5100	Juja	Syokimau	Stones
306	14	KAU 873A	1.2	4300	Muranga	Kajiado	Empty
307	14	KAL 323X	1.22	13800	Thika	Nairobi	Empty
308	14	KWP 130	1.2	5250	Juja	Kayole	Stones
309	14	KBJ 668J	1.2	3560	Mwea	Nairobi	Empty
310	14	KBP 557K	1.22	9500	Thika	Mlolongo	Stones
311	14	KAU 549H	1.22-222	7200	Juja	Nairobi	Stones
312	14	KAH 986U	1.22	9500	Juja	Nairobi	Stones
313	14	KAY 410Q	1.2	5100	Juja	Mlolongo	Stones
314	14	KAU 993A	1.12-222	7500	Garrissa	Nairobi	Cattle
315	14	KAN 877Y	1.2	6800	Ruaraka	Mawe Mbili	Empty
316	14	KAM 857B	1.2	3700	Thika	Airport	French Beans
317	14	KCZ 664	1.2	5100	Juja	Ruai	Stones
318	14	KBH 548R	1.12-222	7100	Ruiru	Mombasa	Empty
319	14	KAS 461G	1.2	5100	Quarry	Utawala	Stones
320	14	KAW 098B	1.2	4620	Thika	Mlolongo	Bananas
321	14	KBH 976Q	1.2	4900	Ruiru	Nairobi	Empty
322	14	KBKI 804R	1.2	2800	Ruiru	Airport	Empty
323	14	KAZ 127B	1.2	4200	Thika	Athi River	Empty
324	14	KWZ 389	1.2	5700	Darungo	Airport	Stones
325	14	T439 AUS	1.22	10000	Thika	Nairobi	Empty

NO.	HR	REG. No.	AXLE CONFIGURATION	TARE WEIGHT (KG)	FROM	DESTINATION	GOODS/ SERVICE
326	14	KAR 867E	1.2	3800	Thika	Nairobi	Soya Beans
327	15	KBP 598B	1.2	4650	Kerugoya	Embakasi	Empty
328	15	KYB 866	1.2	4900	Thika	Nairobi	Sand
329	15	KAH 699Y	1.2	5300	Darungo	Utawala	Stones
330	15	KZU 013	1.2	5100	Thika	Embakasi	Stones
331	15	KVS 891	1.2	6800	Darungo	Kayole	Stones
332	15	KVQ 783	1.2	5100	Thika	Kitengela	Stones
333	15	KAW 851B	1.2	4620	Thika	Nairobi	Onions
334	15	KAJ 711P	1.22	8140	Meru	Nairobi	Empty
335	15	KAB 623F	1.2	3800	Juja	Dandora	Stones
336	15	KYG 721	1.2	5100	Darungo	Athi River	Stones
337	15	KAJ 541X	1.22	9100	Nyeri	Mombasa	Tea
338	15	KBL 523P	1.22-222	9070	Thika	Depot	Empty
339	15	KAU 603D	1.22	9310	Ruiru	Mtito Andei	Stones
340	15	KBK 105L	1.22	11000	Ruiru	Mlolongo	Stones
341	15	KBD 576P	1.1-22	7800	Darungo	Nairobi	Stones
342	15	KBN 804V	1.22	10000	Ruiru	Mlolongo	Stones
343	15	KTL 919	1.2	5100	Darungo	Utawala	Stones
344	15	KAC 642S	1.2	5495	Ruiru	Mlolongo	Empty
345	15	KVZ 005	1.2	5000	Darungo	Kayole	Stones
346	15	KYM 066	1.2	4910	Darungo	Njiru	Stones
347	15	KBH 759V	1.2	4510	Embu	Nairobi	Empty
348	15	KYF 617	1.2	6550	Juja	Ngong	Stones
349	15	KBC 192S	1.2	4560	Thika	Mombasa	Cooking Fat
350	15	KBL 738M	1.2	4600	Thika	Mombasa	Cooking Fat
351	15	KXT 811	1.2	8140	Darungo	Njiru	Stones
352	15	KUN 870	1.2	5100	Darungo	Kayole	Stones
353	15	KAM 930B	1.2	7110	Meru	Depot	Empty
354	15	KBN 917V	1.2	4300	Thika	Donholm	Empty
355	15	KAV 919K	1.2	5100	Thika	Nairobi	Empty
356	15	KBM 011P	1.2	4000	Thika	Nairobi	Empty
357	15	KAN 833K	1.2	4900	Thika	Kayole	Stones
358	15	KBH 678R	1.22	8100	Garrissa	Njiru	Cattle

NO.	HR	REG. No.	AXLE CONFIGURATION	TARE WEIGHT (KG)	FROM	DESTINATION	GOODS/ SERVICE
359	16	KWM 621	1.2	5100	Juja	Ruai	Stones
360	16	KXX 648	1.2	5400	Thika	Depot	Empty
361	16	KBD 399F	1.22-222	7610	Muranga	Nairobi	Empty
362	16	KAX 111C	1.21-222	11430	Garrissa	Njiru	Cattle
363	16	KAJ 203C	1.22	7900	Juja	Athi River	Stones
364	16	KBN 181N	1.2	7900	Meru	Athi River	Empty
365	16	KAK 534P	1.22	9100	Juja	Embakasi	Stones
366	16	KAY 679F	1.2	2500	Nyeri	Kangundo	Cabbages
367	16	KBD 746D	1.2	4500	Muranga	Nairobi	Empty
368	16	KVN 799	1.2	5100	Juja	Utawala	Stones
369	16	KBD 574G	1.2	9000	Darungo	Embakasi	Stones
370	16	KAZ 819G	1.2	8970	Garrissa	Nairobi	Cattle
371	16	KAR 683P	1.22	9180	Embu	Mombasa	Empty
372	16	KAW 925Q	1.22-222	7800	Embu	Mombasa	Empty
373	16	KXU 564	1.12-222	5100	Darungo	Kayole	Stones
374	16	KUZ 859	1.2	5100	Juja	Embakasi	Stones
375	16	KAW 135R	1.2	9000	Juja	Mlolongo	Empty
376	16	KBJ 473W	1.22	4600	Ruiru	Nairobi	Empty
377	16	KAU 435D	1.12-222	6590	Thika	Mlolongo	Empty
378	16	KAK 712L	1.22	10800	Bypass	Eastleigh	Stones
379	16	KWR 600	1.2	5100	Thika	Ruai	Stones
380	16	KAU 124W	1.12-111	7800	Ruiru	Depot	Empty
381	16	KBJ 397E	1.12-222	8900	Nyeri	Athi River	Iron Sheets
382	16	KAJ 705H	1.2	3000	Muranga	Donholm	Timber
383	16	KXU 114	1.2	2420	Quarry	Dandora	Stones
384	16	KBE 614M	1.22-222	8900	Nanyuki	Nairobi	Empty
385	16	KAA 006M	1.22	8250	Nyeri	Athi River	Soil
386	16	KAX 504L	1.22	21000	Thika	Athi River	Hides
387	16	KBB 880A	1.22	8500	Thika	Nairobi	Empty
388	16	KAU 060L	1.2	7800	Thika	Mlolongo	Stones
389	16	KAZ 800R	1.2	5600	Meru	Mombasa	Bananas
390	16	KAA 912D	1.22	8800	Mukuruini	Athi River	Soil
391	16	KBL 746U	1.22-222	8800	Meru	Mombasa	Tea

NO.	HR	REG. No.	AXLE CONFIGURATION	TARE WEIGHT (KG)	FROM	DESTINATION	GOODS/ SERVICE
392	16	KBP 069K	1.22	24000	Darungo	Nairobi	Stones
393	16	KBB 933R	1.22	9800	Thika	Nairobi	Empty
394	16	KXY 164	1.2	10000	Darungo	Ruai	Stones
395	16	KAP 647C	1.2	3020	Thika	Airport	Flowers
396	16	KBH 557Z	1.22-222	8000	Thika	Mombasa	Empty
397	16	KBF 137W	1.2	4500	Thika	KAPA	Flour
398	16	KAS 948Y	1.22	4500	Thika	Embakasi	Stones
399	16	KYU 825	1.2	5200	Thika	Ruai	Stones
400	16	KAS	1.2	2200	Thika	Nairobi	Flour
401	16	KAW 835	1.2	7690	Quarry	Ruai	Stones
402	16	KAU 387Y	1.2	4460	Embu	Athi River	Hides
403	16	KAZ 505B	1.2	4770	Matuu	Embakasi	Crates Empty
404	16	KBN 947X	1.22-22	7100	Thika	Mombasa	Empty
405	16	KAD 447S	1.22	8450	Darungo	Industrial Area	Stones
406	16	KBD 593F	1.22-222	8900	Nanyuki	Athi River	Empty
407	16	KAK 546B	1.22	8430	Thika	Embakasi	Crates Empty
408	16	KBP 772E	1.2	6000	Ruiru	Kayole	Stones
409	16	KBK 086Q	1.2	4300	Ruiru	Lunga Lunga	Empty
410	16	KBM 121B	1.2	5400	Matuu	Nairobi	Empty
411	16	KAA 029W	1.2	5100	Darungo	Imara Daima	Stones
412	16	KYY 552	1.22	9600	Juja	Embakasi	Stones
413	17	KAK 826J	1.2	2670	Kinangop	Kangundo	Vegetables
414	17	KAZ 144M	1.22-22	9100	Muranga	Mombasa	Tea
415	17	KYT 090	1.2	5000	Juja	Njiru	Stones
416	17	KVY 978	1.2	5100	Darungo	Kayole	Stones
417	17	KAB 545K	1.2	5100	Thika	Embakasi	Stones
418	17	KBA 445T	1.12-222	9500	Thika	Mombasa	Tea
419	17	KUW 531	1.2	5200	Kattueko	Ruai	Stones
420	17	KTQ 937	1.2	5100	Juja	Umoja	Stones
421	17	KBC 635Y	1.2	4500	Ruiru	Depot	Empty
422	17	KAP 931B	1.22-222	7500	Gathungu	Mombasa	Tea
423	17	KBJ 413R	1.2	3600	Muranga	Pipeline	Milk
424	17	KBH 377F	1.2	5100	Ruiru	Umoja	Stones

NO.	HR	REG. No.	AXLE CONFIGURATION	TARE WEIGHT (KG)	FROM	DESTINATION	GOODS/ SERVICE
425	17	KBJ 299E	1.2	4600	Ruiru	Mombasa	Juice
426	17	KAT 643K	1.12-222	7500	Thika	Mombasa	Mats
427	17	KBD 162G	1.22-222	7500	Thika	Athi River	Empty
428	17	KAU 544J	1.22	8430	Thika	Embakasi	Crates Empty
429	17	KAM 394X	1.2	4140	Ruiru	Nairobi	Nails
430	17	KBM 440A	1.22-22	7500	Meru	Nairobi	Empty
431	17	KAY 423Q	1.2	5700	Juja	Airport	Flowers
432	17	KBN 659F	1.2	6500	Limuru	Mwala	Empty
433	17	KBP 448K	1.2	4460	Ruiru	Mombasa Rd	Wine
434	17	KBJ 137R	1.2	4400	Matuu	Loitoktok	Empty
435	17	KBM 469P	1.2	4500	Thika	Kitengela	Stones
436	17	KAP 387N	1.22	9200	Garrissa	Njiru	Cattle
437	17	KAG 570L	1.22	7400	Darungo	Embakasi	Stones
438	17	KAU 953Q	1.12-222	7000	Thika	Nairobi	Container
439	17	KAS 736D	1.2	2400	Ruiru	Industrial Area	Petrol
440	17	KAV 450X	1.2	3000	Thika	Nairobi	Empty
441	17	KBL 812H	1.2	3000	Thika	Nairobi	Bananas
442	17	KAU 382S	1.2	4700	Juja	Lunga Lunga	Empty
443	17	KAT 153B	1.2	4300	Meru	Athi River	Empty
444	17	KBK 149U	1.22	9360	Darungo	Utawala	Stones
445	17	KAU 996L	1.2	4600	Juja	Athi River	Empty
446	17	KBP 060K	1.22-222	27000	Meru	Mombasa	Empty
447	17	KAC 071X	1.2	15000	Nanyuki	Depot	Empty
448	17	KZF 020	1.22	8220	Thika	Nairobi	Papers
449	17	KBH 952V	1.2	3000	Thika	Embakasi	Empty
450	17	KAQ 770G	1.2	3500	Juja	Mlolongo	Empty
451	17	KZT 795	1.2	2800	Thika	Nairobi	Scrap Metals
452	18	KAM 263K	1.22	8500	Thika	Nairobi	Empty
ROAD: RUIRU - KANGUDO RD				**EASTERN BYPASS**		**OPERATOR NAME:**	
DIRECTION: RUIRU			**DATE: 9/06/2011**			**DAY:Thursday**	
1	6	KAW 212G	1.12-222		Ruai	Thika	Empty
2	6	KAK 392A	1.22	10000	Nairobi	Mwingi	Soda
3	6	KBB 311F	1.22	4700	Nairobi	Quarry	Empty

NO.	HR	REG. No.	AXLE CONFIGURATION	TARE WEIGHT (KG)	FROM	DESTINATION	GOODS/ SERVICE
4	6	KBL 491Y	1.22	4500	Nairobi	Kenyatta	Empty
5	6	KAU 052P	1.2	4700	KCC	Kithumu	Empty
6	6	KAS 406M	1.22	8344	Mombasa	Nyeri	Container
7	6	KBM 330K	1.2-222	17500	Mombasa	Thika	Wheat
8	6	KBM 219C	1.1-222	4000	Mombasa	Thika	Wheat
9	6	KRN 854	1.2	5100	Kariobangi	Quarry	Empty
10	6	KAC 495U	1.21	5810	Embakasi	Thika	Pallets
11	6	KAU 799Y	1.2	4200	Mlolongo	Thika	Empty
12	6	KAW 646	1.2	7000	Njiru	Quarry	Empty
13	6	KBK 834W	1.2	4480	Athi River	Embu	Cement
14	6	KAR 599B	1.2	4600	Dandora	Kitui	Milk
15	6	KAT 415Q	1.2	4500	Athi River	Mwea	Cement
16	6	KAW 851B	1.2	4620	Bamburi	Thika	Cement
17	7	KBN 401Z	1.22	11000	Njiru	Quarry	Empty
18	7	KAQ 761R	1.2	4620	Athi River	Thika	Cement
19	7	KBJ 222T	1.2	6300	Mombasa	Thika	Tyres
20	7	KAD 361Z	1.2	4900	Kamulu	Ruiru	Sand
21	7	KBP 552B	1.22	13500	Ruai	Njiru	Empty
22	7	KAW 956Y	1.2	4480	Athi River	Embu	Cement
23	7	KBE 513P	1.2	4800	Athi River	Juja	Cement
24	7	KBK 125H	1.2	2460	Dandora	Thika	Empty
25	7	KAE 485E	1.22	9000	Embakasi	Ruai	Empty
26	7	KAE 718P	1.22	9200	Nairobi	Thika	W/Papers
27	7	KAN 053P	1.2	8500	Nairobi	Garissa	Milk
28	7	KAZ 414X	1.2	5400	Embakasi	Muranga	Boxes
29	7	KAH 047M	1.12-222	7000	Athi River	Gatundu	Cement
30	7	KAV 406S	1.22	6500	Nairobi	Ruiru	Soda
31	7	KAL 323X	1.22	8200	Nairobi	Thika	Flour
32	7	KXH 748	1.2	8470	Ruai	Quarry	Empty
33	7	KBA 394Z	1.22	9600	Njiru	Quarry	Empty
34	7	KBL 030K	1.1-22	9500	Embakasi	Quarry	Empty
35	7	KBB 261K	1.22	9500	Embakasi	Quarry	Empty
36	7	KBL 716S	1.2	4980	Nairobi	Thika	Assorted Goods

NO.	HR	REG. No.	AXLE CONFIGURATION	TARE WEIGHT (KG)	FROM	DESTINATION	GOODS/ SERVICE
37	7	KBN 638E	1.22	10800	Nairobi	Isiolo	Empty
38	7	KBL 721D	1.2	4200	Nairobi	Meru	R/Tanks
39	7	KAH 972J	1.22	8500	Embakasi	Ruai	Empty
40	7	KBB 096F	1.2	4210	Industrial Area	Nanyuki	R/Tanks
41	7	KBB 213A	1.2	8630	Kagundo	Meru	Coffee
42	7	KBK 395R	1.22	1100	Mlolongo	Masinga Dam	A/Concrete
43	7	KBH 027Y	1.22	10400	Mlolongo	Juja	Aggregates
44	7	KBB 169K	1.22	10147	Kayole	Quarry	Empty
45	7	KAZ 780Y	1.2	4480	Mwea	Embu	Cement
46	7	KBD 158W	1.2	3040	Nairobi	Muranga	Milk
47	7	KAK 207Y	1.2	7800	Utawala	Ruai	Empty
48	7	KAS 461G	1.2	5200	Utawala	Ruai	Empty
49	7	KAU 060L	1.2	6000	Utawala	Ruai	Empty
50	7	KAP 135G	1.2	7710	Kagundo	Thika	A/Concrete
51	7	KBK 123Y	1.22-222	8800	Mombasa	Thika	Container
52	7	KAA 577K	1.2	5100	Utawala	Ruai	Empty
53	7	KAG 006E	1.22	11300	Embakasi	Ruai	Empty
54	8	KBL 754L	1.22-222	7530	Mombasa	Thika	Fuel
55	8	KAV 205R	1.22	9200	Nairobi	Thika	Diesel
56	8	KBD 580W	1.2	3200	Embakasi	Kirinyaga	Empty
57	8	KAP 679W	1.2	4620	Athi River	Kiambu	Cement
58	8	KRJ 585	1.2	5400	Utawala	Ruai	Empty
59	8	KBG 375M	1.2	3600	Dandora	Kiganjo	Cartons
60	8	KBP 311F	1.22	10300	Embakasi	Ruai	Empty
61	8	KAX 170V	1.22	15000	Embakasi	Ruai	Empty
62	8	KBN 868Z	1.2	5000	Embakasi	Thika	Empty
63	8	KAX 504L	1.22	8600	Athi River	Thika	Hides
64	8	KBK 257Q	1.2	5700	Kitengela	Thika	Empty
65	8	KBJ 986J	1.22	10000	Embakasi	Ruai	Empty
66	8	KAY 660A	1.2	6550	Airport	Nanyuki	Crates Empty
67	8	KUB 443	1.2	4720	Mlolongo	Ruiru	Ballast
68	8	KBJ 425J	1.2	4650	Athi River	Mwea	Cement
69	8	KAE 453T	1.2	6950	Nairobi	Thika	W/Brand

NO.	HR	REG. No.	AXLE CONFIGURATION	TARE WEIGHT (KG)	FROM	DESTINATION	GOODS/ SERVICE
70	8	KBB 717K	1.2	4500	Nairobi	Kiganjo	Empty
71	8	KBM 469P	1.2	5000	Nairobi	Thika	Empty
72	8	KWM 999	1.2	5700	Embakasi	Ndarugo	Empty
73	8	KYC 004	1.2	5100	Embakasi	Ndarugo	Empty
74	8	KAX 025P	1.2	5800	Embakasi	Ndarugo	Empty
75	8	KAE 454B	1.22	11600	Embakasi	Ruai	Empty
76	8	KBL 439D	1.2	4500	Industrial Area	Ruiru	Bottles Empty
77	8	KWR 600	1.2	5100	Embakasi	Thika	Empty
78	8	KAV 154V	1.2	4620	Athi River	Thika	Cement
79	8	KBM 127G	1.22-222	7000	Mombasa	Juja	Avacado
80	8	KAA 831Z	1.2	5100	Utawala	Kiambu	Ballast
81	8	KZL 369	1.22	11650	Kayole	Ruiru	Empty
82	8	KBH 751K	1.2	5300	Nairobi	Thika	Empty
83	8	KAM 073B	1.22	7000	Nairobi	Mattu	Assorted Goods
84	8	KAQ 518U	1.2	5500	Nairobi	Thika	Fuel
85	8	KBA 483G	1.22	9500	Mlolongo	Thika	Empty
86	8	KBA 584G	1.22-222	6200	Athi River	Thika	Cement
87	8	KBC 202G	1.2	4700	Nairobi	Mount Kenya	Chemicals
88	8	KBP 761A	1.22-222	8650	Bamburi	Thika	Cartons
89	8	KBL 670K	1.22	8600	Embakasi	Ruai	Empty
90	8	KAC 083A	1.2	5000	Mlolongo	Ruiru	Ballast
91	8	KBM 126V	1.2	6200	Mlolongo	Ruiru	Empty
92	8	KAU 155Y	1.22	9500	Nairobi	Thika	Sand
93	8	KAL 651C	1.22	8770	Mombasa	Thika	Animal Feeds
94	8	KBG 354E	1.22	10000	Mlolongo	Juja	Ballast
95	8	KBL 178K	1.2	5400	Umoja	Kangemi	Empty
96	8	KAG 022K	1.22	10200	Nairobi	Thika	Empty
97	9	KYB 857	1.2	7800	Utawala	Mihoko	Ballast
98	9	KBB 169K	1.22		Embakasi	Ruai	Empty
99	9	KWM 822	1.2	4910	Kayole	Mihoko	Quarry Dust
100	9	KAA 711T	1.22	5800	Athi River	Muranga	Cement
101	9	KAY 554F	1.12-222	8500	Dandora	Kangemi	Empty
102	9	KWF 601	1.2	5100	Kitengela	Thika	Empty

NO.	HR	REG. No.	AXLE CONFIGURATION	TARE WEIGHT (KG)	FROM	DESTINATION	GOODS/ SERVICE
103	9	KAV 953Q	1.22	7000	Nairobi	Juja	Container
104	9	KAL 416Z	1.2	7080	Njiru	Ruai	Empty
105	9	KBP 779A	1.22	9300	Nairobi	Meru	Cement
106	9	KXM 471	1.2	5400	Ruai	Ruiru	Empty
107	9	KAU 124W	1.12-222	7800	Mombasa	Ruiru	Gas
108	9	KAV 450F	1.2	6500	Nairobi	Kirinyaga	Empty
109	9	KBM 627C	1.22-222	7500	Mombasa	Thika	Papers
110	9	KAQ 379W	1.22		Embakasi	Thika	Empty
111	9	KAG 485W	1.22	9560	Nairobi	Thika	Empty
112	9	KBD 310W	1.2	5400	Athi River	Meru	Cement
113	9	KAJ 532V	1.2	5630	Njiru	Ruiru	Sand
114	9	KAD 678Y	1.2	4200	Njiru	Thika	Empty
115	9	KBH 309T	1.12-222	8650	Embakasi	Nanyuki	Slabs
116	9	KAU 060L	1.2		Utawala	Ruai	Empty
117	9	KAU 471G	1.22	9280	Industrial Area	Ruiru	Soda
118	9	KBK 062C	1.22-222	9000	Mombasa	Thika	Container
119	9	KBB 629A	1.2	4300	Industrial Area	Thika	Plastic
120	9	KAV 384V	1.22-222	12700	Mombasa	Thika	Drums
121	9	KAV 569G	1.12-222	8000	Nairobi	Thika	Empty
122	9	KAX 258C	1.2	4450	Embakasi	Kiambu	Empty
123	9	KAQ 610Z	1.22	13100	Imara Daima	Juja	Empty
124	9	KAV 682K	1.2	4400	Embakasi	Ruiru	Empty
125	9	KAG 180B	1.2	10000	Nairobi	Thika	Fuel
126	9	KBF 686H	1.2	4300	Airport	Thika	Empty
127	9	KAV 992C	1.22-222	8960	Mombasa	Wanguru	Rice
128	9	KAH 751G	1.22	8570	Nairobi	Runyenjes	Animal Feeds
129	9	KBH 178Z	1.12-222	8990	Athi River	Thika	Cement
130	9	KBJ 961J	1.12-222	8660	Mombasa	Thika	CPO
131	9	KAZ 346G	1.2	4460	Industrial Area	Thika	Animal Feeds
132	9	KBK 736J	1.2	6500	Mlolongo	Kiambu	Ballast
133	9	KAJ 364F	1.22	9100	Nairobi	Juja	Empty
134	9	KAV 944Q	1.22	9600	Westlands	Ruai	Empty
135	10	KAP 163M	1.22-222	8850	Mombasa	Thika	Poles

NO.	HR	REG. No.	AXLE CONFIGURATION	TARE WEIGHT (KG)	FROM	DESTINATION	GOODS/ SERVICE
136	10	KAQ 426V	1.22-222	8500	Athi River	Meru	Cement
137	10	KAU 938Z	1.12-222	9000	Nakuru	Githunguri	Animal Feeds
138	10	KBL 530V	1.22-222	6800	Mombasa	Muranga	Cooking Oil
139	10	KAY 755X	1.22	7500	Industrial Area	Thika	Fuel
140	10	KBH 204S	1.2	3648	Nairobi	Embu	Fuel
141	10	KAY 209Q	1.2	4670	Athi River	Embu	Cement
142	10	KAT 847N	1.2	4600	Nairobi	Thika	Empty
143	10	KBJ 563J	1.22	9100	Mlolongo	Thika	Concrete
144	10	KAR 157U	1.2	4900	Athi River	Embu	Hay
145	10	KAU 415S	1.22	9100	Nairobi	Thika	Flour
146	10	KBN 800V	1.2	4500	Nairobi	Thika	Crates Empty
147	10	KBD 732P	1.22	9460	Nairobi	Meru	Cement
148	10	KBJ 260A	1.22	7700	Nairobi	Njiru	Empty
149	10	KBB 261K	1.22	7800	Njiru	Ruai	Quarry Dust
150	10	KAT 336H	1.22-22	8170	Nairobi	Embu	Fuel
151	10	KBG 190X	1.2	5100	Industrial Area	Ruiru	Empty
152	10	KAU 933L	1.2	4600	Athi River	Karatina	Cement
153	10	KBJ 361R	1.2	5600	Airport	Timau	Empty
154	10	KBM 100V	1.22	7800	Nairobi	Meru	Flour
155	10	KAT 260D	1.12-211	7900	Athi River	Karatina	Steel
156	10	KSY 505	1.2	4800	Utawala	Ruai	Empty
157	10	KBK 105L	1.22		Utawala	Ruai	Empty
158	10	KAW 645Y	1.2	4200	Nairobi	Thika	Fuel
159	10	KBJ 805W	1.2	4820	Nairobi	Kitui	Flour
160	10	KBJ 100B	1.2	4570	Nairobi	Kerugoya	Cooking Oil
161	10	KZX 193	1.2	5400	Utawala	Ruai	Empty
162	10	KAE 761Z	1.22	7220	Nairobi	Nanyuki	Fuel
163	10	KBM 826V	1.2	4680	Nairobi	Kirinyaga	Crates Empty
164	10	KBK 292Q	1.2	3840	Nairobi	Nyeri	Crates Empty
165	10	KUV 545	1.2	5100	Ruai	Ruiru	Building Blocks
166	11	KAX 886U	1.22	10500	Kayole	Gatundu	Concrete
167	11	KBH 481U	1.22-222	7000	Eldoret	Mwingi	Raw Food
168	11	KAE 923S	1.22-222	9300	Mombasa	Meru	CPO

NO.	HR	REG. No.	AXLE CONFIGURATION	TARE WEIGHT (KG)	FROM	DESTINATION	GOODS/ SERVICE
169	11	KAM 623K	1.22	8500	Nairobi	Thika	Flour
170	11	KBM 939N	1.22-222	8900	Mombasa	Thika	CPO
171	11	KAL 712C	1.22-222	18000	Nairobi	Thika	Empty
172	11	KBE 905Y	1.22-222	18500	Mombasa	Thika	Empty
173	11	KBJ 665W	1.22	10800	Embakasi	Muranga	Soda
174	11	KAK 546B	1.22	10600	Embakasi	Thika	Soda
175	11	KBJ 048P	1.22	10400	Mlolongo	Thika	Bitumen
176	11	KAL 327E	1.22	10600	Embakasi	Mattu	Soda
177	11	KBE 675E	1.2	6600	Embakasi	Muranga	Empty
178	11	KAQ 270E	1.2	2800	Nairobi	Thika	Sweets
179	11	KAU 380S	1.2	4700	Nairobi	Juja	Steel
180	11	EX46KA90	1.2	4200	Mlolongo	Ruiru	Ballast
181	11	KBL 876F	1.12-222	7000	Mombasa	Juja	Empty
182	11	KVM 254	1.22	9040	Kajiado	Thika	Fertilizer
183	11	KBA 445G	1.22	6300	Kajiado	Ruiru	Sand
184	11	KAP 607Y	1.1-222	7000	Athi River	Thika	Cement
185	11	KBB 637X	1.2	7100	Njiru	Thika	Cement
186	11	KBN 472V	1.12-222	11000	Mombasa	Meru	Empty
187	11	KAM 823T	1.2	7300	Nairobi	Embu	Empty
188	11	KAM 995L	1.22	7830	Mlolongo	Thika	Fuel
189	11	KBN 653F	1.2	4500	Nairobi	Nanyuki	Empty
190	11	KBH 947V	1.2	4310	Nairobi	Mattu	Empty
191	11	KBJ 580Y	1.2	5280	Nairobi	Nyeri	Fuel
192	11	KAS 339Y	1.2	3400	Nairobi	Thika	Fuel
193	11	KAU 159Y	1.22	9450	Athi River	Ruiru	French Beans
194	12	KBA 572V	1.12-222	7500	Mombasa	Thika	Red Soil
195	12	KAY 826A	1.2	5000	Industrial Area	Meru	Diesel
196	12	KBB 625M	1.2	4620	Nairobi	Nyeri	Cables
197	12	KBE 847E	1.12-222	8500	Mombasa	Nyeri	R/Tanks
198	12	KBM 507M	1.22	8500	Mombasa	Thika	Flour
199	12	KBA 791N	1.2	4700	Nairobi	Nanyuki	Container
200	12	KAY 397Q	1.2	6000	Nairobi	Thika	Empty
201	12	KBA 254T	1.22-222	7530	Nairobi	Sagana	Gas Cylinder

NO.	HR	REG. No.	AXLE CONFIGURATION	TARE WEIGHT (KG)	FROM	DESTINATION	GOODS/ SERVICE
202	12	KBM 718V	1.2	6500	Mwala	Ruiru	Sand
203	12	KAC 642S	1.2	8500	Mlolongo	Ruiru	Cartons
204	12	KBH 673Y	1.2	5400	Athi River	Muranga	Cement
205	12	KAV 580M	1.22-222	8900	Mombasa	Thika	CPO
206	12	KBA 200G	1.22-222	4000	Nairobi	Kerugoya	Bottles Empty
207	12	KAY 448A	1.2	7350	Embakasi	Naru Moru	Diesel
208	12	KBM 068P	1.2	5180	Nairobi	Mwingi	Fuel
209	12	KBK 430U	1.22	7950	Njiru	Ruai	Empty
210	12	KAM 444E	1.22	8900	Malakisi	Thika	Tobacco
211	12	KBN 254N	1.2	4800	Industrial Area	Kirinyaga	Sugar
212	12	KAR 189B	1.2	4229	Nairobi	Meru	Fuel
213	12	KBN 124A	1.2	4740	Nairobi	Sagana	Fuel
214	12	KAK 243J	1.2	4900	Nairobi	Thika	W/Papers
215	12	KBH 969Q	1.22	9100	Mlolongo	Thika	Macadamia
216	12	KBM 061T	1.22-222	7500	Nairobi	Thika	Empty
217	12	KBL 054P	1.22-222	7350	Embakasi	Naru Moru	Diesel
218	12	KAK 677L	1.2	3820	Embakasi	Thika	Crates Empty
219	12	KYU 825	1.2	1710	Njiru	Thika	Empty
220	12	KAH 383U	1.22-222	9100	Mombasa	Juja	Salt
221	12	KAH 001T	1.2	6500	Dandora	Thika	Iron Sheets
222	12	KAY 271F	1.2	7200	Airport	Nanyuki	Empty
223	12	KAT 432C	1.2-222	33000	Embakasi	Kitui	Soda
224	13	KAX 266U	1.12-222	27000	Mombasa	Meru	Manure
225	13	KAQ 629Z	1.2	5950	Machakos	Ruiru	Soil
226	13	KAV 668B	1.2	4900	Nairobi	Ruiru	Empty
227	13	KAZ 301V	1.22	8790	Donholm	Garissa	Bitumen
228	13	KBL 762D	1.12-222	8900	Nairobi	Thika	Empty
229	13	KBF 165B	1.22-222	7610	Mombasa	Thika	Wheat
230	13	KAV 480B	1.22	10800	Njiru	Quarry	Empty
231	13	KAW 529Y	1.22	6700	Nairobi	Thika	Empty
232	13	KAR 037J	1.2-11	6750	Nairobi	Thika	Diesel
233	13	KAV 474S	1.2	4260	Athi River	Githimani	Cement
234	13	KBK 922Q	1.22	8900	Nairobi	Thika	Empty

NO.	HR	REG. No.	AXLE CONFIGURATION	TARE WEIGHT (KG)	FROM	DESTINATION	GOODS/ SERVICE
235	13	KAQ 551B	1.2	4360	Nairobi	Thika	Animal Feeds
236	13	KBK 755V	1.2	4510	Nairobi	Meru	Ply Woods
237	13	KAV 640H	1.22-222	8900	Mombasa	Thika	Container
238	13	KBH 859C	1.2	4820	Airport	Meru	Petroleum
239	13	KAW 033V	1.22	9600	Nairobi	Thika	Animal Feeds
240	13	KBK 258L	1.2-222	7700	Kakamega	Kitui	Sugar
241	13	KBK 307T	1.12-222	28000	Nairobi	Kangemi	Empty
242	13	KAZ 045K	1.2	6800	Industrial Area	Thika	Wine
243	13	KBD 352W	1.2	7200	Nairobi	Isiolo	Fuel
244	14	KBN 455F	1.22	7750	Nairobi	Thika	Fuel
245	14	KBD 162G	1.22-222	7800	Athi River	Juja	Blocks
246	14	KBD 622N	1.22-222	7700	Nairobi	Kangemi	Flour
247	14	KBP 782K	1.2	4800	Njiru	Thika	Empty
248	14	KBN 936M	1.12-222	8800	Nairobi	Sagana	Fuel
249	14	KAU 305R	1.12-222	7500	Mombasa	Makuyu	Bitumen
250	14	KYL 695	1.2	5000	Kagundo	Ruiru	Sand
251	14	KBP 451E	1.22	8000	Nairobi	Ruiru	Water
252	14	KAU 508S	1.22	9220	Embakasi	Githunguri	Soda
253	14	KYX 366	1.22	7680	Nairobi	Embu	Cooking Oil
254	14	KAU 123J	1.2	4400	Athi River	Embu	Cement
255	14	KBD 522Y	1.2	6600	Embu	Thika	Empty
256	14	KAN 877Y	1.2	6800	Utawala	Ruiru	Empty
257	14	KXW 310	1.2	7800	Kayole	Ndarugo	Empty
258	14	KBM 103B	1.2	4500	Nairobi	Nyeri	Nails
259	14	KAQ 770G	1.2	3500	Mlolongo	Ruiru	Boxes Empty
260	14	KAT 730H	1.2	4540	Mlolongo	Nyeri	Assorted Goods
261	14	KBH 958V	1.2	8000	Njiru	Thika	Empty
262	14	KAK 712L	1.12-222	10800	Njiru	Ruiru	Empty
263	14	KAQ 852M	1.22	4240	Nairobi	Thika	Animal Feeds
264	14	KAU 996L	1.2	5000	Athi River	Juja	Cement
265	15	KBM 249B	1.2	4880	Mlolongo	Thika	Sweets
266	15	KBK 574D	1.2	3000	Embakasi	Ruiru	Blocks
267	15	KBA 029T	1.2	3400	Nairobi	Kerugoya	Assorted Goods

NO.	HR	REG. No.	AXLE CONFIGURATION	TARE WEIGHT (KG)	FROM	DESTINATION	GOODS/ SERVICE
268	15	KBH 675C	1.2	4500	Athi River	Kagio	Cement
269	15	KAK 938C	1.2	8100	Nairobi	Thika	Empty
270	15	KAS 736D	1.22	2400	Nairobi	Ruiru	Empty
271	15	KAH 377F	1.2	4885	Utawala	Ruai	Empty
272	15	KAN 359V	1.2	2935	Athi River	Juja	Cement
273	15	KAX 357S	1.2	8000	Nairobi	Thika	Empty
274	15	KAR 319M	1.2	2640	Industrial Area	Thika	Juice
275	15	KBN 720F	1.2	2820	Nairobi	Kahawa West	Sausage
276	15	KAR 649E	1.2	3280	Mombasa	Thika	Water Pipes
277	15	KBH 310V	1.2	4550	Embakasi	Juja	Sugar
278	15	KBL 208C	1.2	5060	Nairobi	Meru	Tiles
279	15	KAJ 067R	1.2	7900	Nairobi	Thika	Waste
280	15	KAN 671A	1.2-22	6240	Nairobi	Thika	Empty
281	15	KAL 462E	1.22	8820	Nairobi	Thika	Empty
282	15	KAG 024W	1.22-222	10000	Mombasa	Thika	Salt
283	15	KBE 310L	1.22-222	17000	Mombasa	Thika	Empty
284	15	KBP 817E	1.2	4600	Athi River	Ruiru	Cement
285	15	KAK 156S	1.2	6700	Nairobi	Nyeri	Bottles Empty
286	15	KAW 088W	1.2	2250	Nairobi	Thika	Metal
287	15	KBM 551Q	1.2	3100	Ruiru	Ruiru	Empty
288	15	KAX 395L	1.2	5120	Nairobi	Nanyuki	Beans
289	15	KAQ 808M	1.22	12000	Nairobi	Ruai	Ballast
290	15	KAU 518S	1.2	3070	Nairobi	Nanyuki	Wheat
291	15	KWC 010	1.2	6820	Mlolongo	Ruiru	Ballast
292	15	KBE 513P	1.2	4800	Athi River	Thika	Cement
293	15	KAU 060L	1.2	4680	Nairobi	Ruiru	Empty
294	15	KBM 278Z	1.22	8500	Nairobi	Thika	Concrete
295	15	KAY 927A	1.22	9450	Nairobi	Ruiru	Red Soil
296	15	KAU 068A	1.2	3100	Nairobi	Juja	Cooking Oil
297	15	KBH 123Q	1.2	4600	Nairobi	Kirinyaga	Nails
298	15	KAX 482G	1.2	6700	Nairobi	Kitui	Empty
299	15	KBK 420D	1.2	11000	Nairobi	Thika	Empty
300	15	KBE 571P	1.2	4980	Nairobi	Embu	Flour

NO.	HR	REG. No.	AXLE CONFIGURATION	TARE WEIGHT (KG)	FROM	DESTINATION	GOODS/ SERVICE
301	15	KAR 546H	1.2	6780	Sultan Hamud	Ruiru	Sand
302	15	KBM 789C	1.12-222	7500	Nairobi	Meru	Diesel
303	15	KBM 877P	1.2	4700	Nairobi	Kitui	Diesel
304	15	KBM 746H	1.2	7200	Nairobi	Muranga	Tea Leaves
305	15	KBG 055E	1.22	9600	Nairobi	Laikipia	Petroleum
306	15	KBF 205H	1.2	3520	Athi River	Thika	Crates Empty
307	15	KBN 006A	1.2	4820	Nairobi	Thika	Flour
308	15	KSJ 619	1.2	4800	Nairobi	Embu	Empty
309	15	KBK 823J	1.2	5600	Nairobi	Meru	Petroleum
310	15	KBK 105W	1.22-222	7000	Nairobi	Meru	Empty
311	16	KBE 261L	1.2	4770	Nairobi	Laikipia	Petroleum
312	16	KYD 966	1.2	3286	Nairobi	Mwingi	Petroleum
313	16	KAN 542B	1.2	2800	Nairobi	Thika	Petroleum
314	16	KBM 571A	1.2	5800	Nairobi	Embu	Animal Feeds
315	16	KAW 878V	1.22	6700	Nairobi	Thika	Empty
316	16	KBN 486A	1.2	5100	Nairobi	Othaya	Petroleum
317	16	KBG 230K	1.22	9600	Nairobi	Ruiru	Empty
318	16	KAX 278Z	1.2	7760	Nairobi	Thika	Medicine
319	16	KAP 252A	1.2	4570	Nairobi	Laikipia	Petroleum
320	16	KAW 907T	1.12-222	95000	Nairobi	Ruiru	Empty
321	16	KAZ 103B	1.2	5460	Nairobi	Thika	Container
322	16	KAZ 238B	1.22	11000	Nairobi	Thika	Fuel
323	16	KBJ 221D	1.1-222	7000	Loitoktok	Thika	Maize
324	16	KAA 171A	1.2	3120	Nairobi	Ruiru	Empty
325	16	KBG 349E	1.2	6320	Nairobi	Ruiru	Empty
326	16	KAP 701D	1.22-222	8500	Kayole	Thika	Blocks
327	16	KAE 623D	1.22	7900	Nairobi	Thika	Empty
328	16	KAZ 318V	1.2	4620	Nairobi	Thika	Flour
329	16	KAP 894X	1.2	4880	Kamaru	Limuru	Hay
330	16	KAW 169K	1.2	9900	Athi River	Nanyuki	Beer
331	16	KAA 016D	1.2	2800	Machakos	Thika	Crates Empty
332	16	KBN 816F	1.2	4880	Nairobi	Muranga	Iron Sheets
333	16	KBP 761A	1.22-222	7880	Nairobi	Thika	Blocks

NO.	HR	REG. No.	AXLE CONFIGURATION	TARE WEIGHT (KG)	FROM	DESTINATION	GOODS/ SERVICE
334	16	KWR 148	1.22-222	7900	Athi River	Thika	Cement
335	16	KBN 180F	1.12-222	5110	Mios Bridge	Garissa	Maize
336	16	KAM 820Z	1.2	3270	Industrial Area	Ruiru	Milk
337	16	KAG 406T	1.22	9500	Mombasa	Thika	Empty
338	16	KAU 351M	1.12-22	7000	Mombasa	Thika	Poles
339	16	KAW 488D	1.12-222	8500	Loitoktok	Thika	Maize
340	16	KAS 781D	1.2	5420	Industrial Area	Meru	Wheel Barrows
341	16	KAV 226Q	1.22	6900	Mlolongo	Meru	Empty
342	16	KBE 912E	1.2	4500	Kayole	Nakuru	Timber
343	16	KAZ 377V	1.2	3400	Nairobi	Embu	Empty
344	17	KAW 820C	1.12-222	7000	Nairobi	Lokichogio	Flour
345	17	KBP 244K	1.2	6500	Nairobi	Embu	Bottles Empty
346	17	KBC 440M	1.22	1000	Nairobi	Yatta	Metal Bars
347	17	KAR 385S	1.22-222	6800	Nairobi	Muranga	Flour
348	17	KBJ 100J	1.22	9500	Nairobi	Meru	Flour
349	17	KAS 496D	1.22	8450	Mombasa	Mwea	Rice
350	17	KAB 855S	1.2	6470	Nairobi	Muranga	Fuel
351	17	KBF 036K	1.22	9960	Nairobi	Masinga	Empty
352	17	KBN 643F	1.2	3100	Industrial Area	Thika	Flour
353	17	KAH 400D	1.22-222	8140	Nairobi	Muranga	Sugar
354	17	KAE 197H	1.22	11220	Nairobi	Thika	Empty
355	17	KAU 757D	1.2	4435	Athi River	Mwea	Cement
356	17	KAU 964D	1.2	6630	Nairobi	Ruiru	Cartons
357	17	KBD 576P	1.1-22	7800	Kayole	Ruiru	Empty
358	17	KAY 263F	1.2	3500	Nairobi	Meru	Fuel
359	17	KBJ 110S	1.2	4450	Machakos	Thika	Crates Empty
360	17	KBG 338M	1.1-22	9100	Kayole	Githurai	Empty
361	17	KAQ 867R	1.2	4500	Embakasi	Kiambu	Firewood
362	17	KAV 682K	1.2	4400	Njiru	Ruiru	Empty
363	17	KAX 230P	1.2	3050	Tala	Thika	Crates Empty
364	17	KAK 309W	1.22	8900	Nairobi	Thika	Fuel
365	17	KBM 076Z	1.2	4200	Industrial Area	Kitui	Fuel
366	17	KAY 901Y	1.2	4300	Nairobi	Thika	Pipes

NO.	HR	REG. No.	AXLE CONFIGURATION	TARE WEIGHT (KG)	FROM	DESTINATION	GOODS/ SERVICE
367	17	KAS 925V	1.22	8600	Njiru	Thika	Empty
368	17	KAJ 393C	1.2	4600	Athi River	Kahawa West	Cement
369	17	KAS 104T	1.2	4600	Athi River	Karatina	Cement
370	17	KBN 854V	1.2-222	7950	Bamburi	KU	Blocks
371	17	KBK 589R	1.12	8700	SouthC	Juja	Empty
372	18	KAQ 033K	1.2	3780	Industrial Area	Thika	Fuel

Appendix 6: ARX Vehicle classification System

Vehicle Class	Axles and groups		Description	Parameters	Dominant Vehicle	Category
	Axles	Group				
1	2	1 or 2	Very Short - Bicycle or Motorcycle	d(1)<1.7m & axles=2		1 (Light)
2	2	1 or 2	Short - Sedan, Wagon, 4WD, Utility, Light Van	d(1)>=1.7m, d(1)<=3.2m & axles=2		
3	3, 4 or 5	3	Short Towing - Trailer, Caravan, Boat, etc.	groups=3, d(1)>=2.1m, d(1)<=3.2m, d(2)>=2.1m & axles=3,4,5		
4	2	2	Two axle truck or Bus	d(1)>3.2m & axles=2		2 (Medium)
5	3	2	Three axle truck or Bus	axles=3 & groups=2		
6	>3	2	Four axle truck	axles>3 & groups=2		
7	3	3	Three axle articulated vehicle or Rigid vehicle and trailer	d(1)>3.2m, axles=3 & groups=3		3 (Heavy)
8	4	>2	Four axle articulated vehicle or Rigid vehicle and trailer	d(2)<2.1m or d(1)<2.1m or d(1)>3.2maxles = 4 & groups>2		
9	5	>2	Five axle articulated vehicle or Rigid vehicle and trailer	d(2)<2.1m or d(1)<2.1m or d(1)>3.2m axles=5 & groups>2		
10	>=6	>2	Six (or more) axle articulated vehicle or Rigid vehicle and trailer	axles=6 & groups>2 or axles>6 & groups=3		
11	>6	4	B-Double or Heavy truck and trailer	groups=4 & axles>6		

Vehicle Class	Axles and groups		Description	Parameters	Dominant Vehicle	Category
	Axles	**Group**				
12	>6	>5	Double or triple road train or Heavy truck and two (or more) trailers	groups>=5 & axles>6		

Where:

Group - axle group, where adjacent axles are less than 2.1m apart

Groups - number of axle groups

Axles -number of axles (maximum axle spacing of 10.0m)

d (1)- distance between first and second axle d (2)- distance between second and third axle

Appendix 7: Classified traffic volume counts data collected using automatic counters by KURA

Site: [1] 500m from Embakasi Garisson Roundabout (Eastern Bypass)
Direction: 2 - East bound, A hit first. **Lane:** 0
Data type: Axle sensors - Paired (Class/Speed/Count)
Separation: Greater than 4.00 seconds. - (Headway)
Scheme: Vehicle classification (ARX)

*** Tuesday, August 14, 2012**

Time	Total	Drop --00	Drop --15	Drop --30	Drop --45	Cls 1	Cls 2	Cls 3	Cls 4	Cls 5	Cls 6	Cls 7	Cls 8	Cls 9	Cls 10	Cls 11	Cls 12
0000	57	12	21	18	6	5	42	0	8	0	0	0	0	2	0	0	0
0100	27	3	7	8	9	0	18	0	5	2	1	0	0	1	0	0	0
0200	25	3	8	6	8	1	19	0	3	1	0	0	0	0	1	0	0
0300	28	7	7	6	8	0	17	0	10	1	0	0	0	0	0	0	0
0400	60	10	14	17	19	1	45	0	10	4	0	0	0	0	0	0	0
0500	168	32	38	44	54	4	137	0	20	3	2	0	0	0	2	0	0
0600	200	57	51	46	46	9	152	0	28	6	1	0	0	1	3	0	0
0700	197	52	54	46	45	6	142	2	27	13	1	0	0	4	2	0	0
0800	165	43	44	46	32	6	112	0	21	19	0	0	0	5	2	0	0
0900	186	42	50	46	48	5	116	0	30	25	1	0	0	3	6	0	0
1000	180	53	45	39	43	5	105	0	45	20	2	0	0	0	3	0	0
1100	150	44	32	38	36	3	93	1	31	13	1	0	0	3	5	0	0
1200	149	42	31	36	40	1	82	3	32	22	2	0	0	2	5	0	0
1300	142	36	29	36	41	3	82	3	30	23	0	0	0	0	1	0	0
1400	180	42	40	43	55	0	101	2	37	26	0	0	2	7	5	0	0
1500	156	40	36	44	36	4	98	2	28	17	1	0	0	1	5	0	0
1600	144	33	38	32	41	5	89	3	21	21	0	0	0	2	3	0	0
1700	158	34	34	54	36	3	101	5	24	13	0	0	0	4	7	0	1
1800	175	41	37	50	47	1	118	1	31	13	1	0	0	5	4	1	0
1900	177	41	43	44	49	2	106	6	35	11	1	0	0	7	9	0	0
2000	139	42	35	36	26	1	88	2	27	12	1	0	0	3	5	0	0
2100	117	32	33	28	24	0	81	3	19	6	1	0	0	0	7	0	0
2200	74	23	19	20	12	2	62	0	4	3	2	0	0	1	0	0	0
2300	62	24	19	10	9	2	44	0	12	0	0	0	0	2	2	0	0
Total	**3116**	**788**	**765**	**793**	**770**	**69**	**2050**	**33**	**538**	**274**	**18**	**0**	**2**	**53**	**77**	**1**	**1**

*** Wednesday, August 15, 2012**

Time	Total	Drop --00	Drop --15	Drop --30	Drop --45	Cls 1	Cls 2	Cls 3	Cls 4	Cls 5	Cls 6	Cls 7	Cls 8	Cls 9	Cls 10	Cls 11	Cls 12
0000	35	10	8	8	9	0	29	0	5	0	0	0	0	0	1	0	0
0100	20	8	5	2	5	0	14	0	5	0	0	0	0	0	1	0	0
0200	25	11	5	4	5	2	16	0	4	2	0	0	0	0	1	0	0
0300	20	2	3	5	10	0	15	0	1	4	0	0	0	0	0	0	0
0400	53	14	9	12	18	0	42	0	7	3	0	0	0	0	1	0	0
0500	172	28	30	44	70	1	148	0	17	5	1	0	0	0	0	0	0
0600	202	63	45	49	45	4	160	1	26	3	2	0	1	2	3	0	0
0700	190	49	40	42	59	13	139	3	20	12	0	0	0	0	3	0	0
0800	193	39	47	62	45	4	137	0	27	22	1	0	1	0	1	0	0
0900	173	47	33	47	46	7	120	2	29	12	0	0	0	1	2	0	0
1000	157	46	35	35	41	7	86	2	35	25	0	0	0	0	2	0	0
1100	158	44	42	30	42	3	89	5	32	23	0	0	0	2	4	0	0
1200	155	41	37	41	36	4	84	2	28	26	3	0	0	2	5	1	0
1300	172	45	46	40	41	7	88	2	36	29	1	0	0	4	4	0	1
1400	145	26	40	41	38	4	90	2	23	20	0	0	0	2	4	0	0
1500	151	33	45	32	41	3	95	1	28	12	0	0	1	8	3	0	0
1600	146	34	43	37	32	4	86	3	23	23	0	0	1	4	2	0	0
1700	149	36	40	35	38	3	90	2	20	17	3	0	1	7	6	0	0
1800	137	26	33	40	38	2	85	0	31	10	2	0	1	3	3	0	0
1900	150	38	39	31	42	2	95	1	31	13	0	0	0	3	5	0	0
2000	129	35	29	38	27	5	83	0	21	12	0	0	0	3	5	0	0
2100	103	28	28	23	24	0	62	1	25	3	3	0	0	1	8	0	0
2200	86	26	20	20	20	2	62	3	7	0	0	0	0	6	6	0	0
2300	56	13	14	20	9	2	40	1	6	1	1	0	0	3	2	0	0
Total	**2977**	**742**	**716**	**738**	**781**	**79**	**1955**	**31**	**487**	**277**	**17**	**0**	**6**	**51**	**72**	**1**	**1**

*** Thursday, August 16, 2012**

Time	Total	Drop --00	Drop --15	Drop --30	Drop --45	Cls 1	Cls 2	Cls 3	Cls 4	Cls 5	Cls 6	Cls 7	Cls 8	Cls 9	Cls 10	Cls 11	Cls 12
0000	36	11	12	5	8	4	26	0	6	0	0	0	0	0	0	0	0
0100	27	9	4	4	10	0	13	0	12	0	0	0	0	0	2	0	0
0200	13	8	2	2	1	0	10	0	2	0	0	0	0	0	1	0	0
0300	23	5	2	7	9	0	16	1	4	1	0	0	0	0	1	0	0
0400	48	9	10	13	16	1	36	0	8	2	0	0	0	1	0	0	0
0500	173	31	39	52	51	4	136	0	19	7	1	0	2	3	1	0	0
0600	185	57	42	43	43	8	132	1	28	15	0	0	1	0	0	0	0
0700	197	44	46	49	58	10	137	1	21	20	1	0	0	2	4	0	1
0800	174	51	49	33	41	4	124	1	29	12	1	0	2	1	0	0	0

0900	174	42	41	49	42	4	111	0	37	15	0	0	1	3	3	0	0
1000	159	38	36	49	36	6	97	2	31	21	0	0	0	0	2	0	0
1100	158	37	39	40	42	3	84	2	38	28	1	0	0	2	0	0	0
1200	137	35	33	33	36	4	83	1	31	14	0	0	0	2	2	0	0
1300	154	50	33	38	33	3	78	1	46	17	0	0	0	6	3	0	0
1400	163	44	39	39	41	4	105	2	28	19	0	0	0	1	4	0	0
1500	139	35	36	33	35	6	77	0	24	19	3	0	0	3	7	0	0
1600	146	42	34	38	32	3	80	4	35	17	1	0	1	3	2	0	0
1700	144	38	40	35	31	1	83	5	26	18	0	0	0	4	7	0	0
1800	147	42	30	40	35	0	87	4	30	9	1	0	0	6	10	0	0
1900	150	42	35	34	39	0	96	2	29	9	0	0	0	5	9	0	0
2000	142	40	35	42	25	2	94	1	30	10	0	0	0	2	3	0	0
2100	121	34	31	28	28	1	75	1	22	9	1	0	0	1	11	0	0
2200	85	19	29	17	20	2	69	1	6	1	1	0	0	1	4	0	0
2300	77	19	25	19	14	4	52	2	15	2	0	0	0	0	2	0	0
Total	**2972**	**782**	**722**	**742**	**726**	**74**	**1901**	**32**	**557**	**265**	**11**	**0**	**7**	**46**	**78**	**0**	**1**

*** Friday, August 17, 2012**

Time	Total	Drop --00	Drop --15	Drop --30	Drop --45	Cls 1	Cls 2	Cls 3	Cls 4	Cls 5	Cls 6	Cls 7	Cls 8	Cls 9	Cls 10	Cls 11	Cls 12
0000	44	17	12	9	6	2	36	0	5	1	0	0	0	0	0	0	0
0100	30	4	12	9	5	3	21	0	5	0	0	0	0	0	1	0	0
0200	20	7	8	3	2	0	9	0	7	0	0	0	0	0	4	0	0
0300	21	4	3	1	13	0	16	0	5	0	0	0	0	0	0	0	0
0400	58	13	11	15	19	3	44	0	10	1	0	0	0	0	0	0	0
0500	157	19	29	45	64	3	134	0	14	5	1	0	0	0	0	0	0
0600	209	62	44	53	50	5	158	1	34	5	2	0	0	2	2	0	0
0700	219	45	54	58	62	6	178	3	24	6	0	0	0	0	1	1	0
0800	181	48	48	48	37	4	125	1	32	18	0	0	0	1	0	0	0
0900	171	42	39	45	45	9	110	1	34	9	0	0	0	0	8	0	0
1000	169	40	42	53	34	1	103	1	45	12	2	0	0	2	3	0	0
1100	171	37	43	47	44	5	100	3	28	26	0	0	0	4	5	0	0
1200	161	45	36	36	44	3	79	2	39	30	0	1	1	4	2	0	0
1300	138	31	36	41	30	2	75	1	32	21	1	0	0	3	3	0	0
1400	152	34	44	37	37	1	72	2	34	27	0	0	0	9	7	0	0
1500	152	38	44	42	28	5	74	1	35	26	2	0	0	3	6	0	0
1600	166	41	43	40	42	6	101	1	30	15	0	0	0	5	8	0	0
1700	159	41	43	32	43	2	106	0	26	17	1	0	0	4	3	0	0
1800	175	35	47	43	50	2	122	1	31	9	0	0	0	3	6	0	1
1900	153	43	41	31	38	4	81	3	35	21	1	0	0	5	3	0	0
2000	144	40	41	36	27	3	94	2	27	8	1	0	0	4	5	0	0

2100	137	35	34	33	35	1	101	1	22	5	1	0	0	3	3	0	0
2200	97	25	27	21	24	3	78	2	9	2	0	0	0	0	3	0	0
2300	75	19	29	9	18	5	61	0	4	2	0	0	0	2	1	0	0
Total	**3159**	**765**	**810**	**787**	**797**	**78**	**2078**	**26**	**567**	**266**	**12**	**1**	**1**	**54**	**74**	**1**	**1**

*** Saturday, August 18, 2012**

Time	Total	Drop --00	Drop --15	Drop --30	Drop --45	Cls 1	Cls 2	Cls 3	Cls 4	Cls 5	Cls 6	Cls 7	Cls 8	Cls 9	Cls 10	Cls 11	Cls 12
0000	58	20	17	16	5	1	45	1	8	0	0	0	0	0	3	0	0
0100	55	15	16	9	15	2	47	1	4	0	0	0	0	0	1	0	0
0200	29	9	8	7	5	1	25	0	3	0	0	0	0	0	0	0	0
0300	39	8	9	13	9	2	26	0	7	4	0	0	0	0	0	0	0
0400	63	13	18	11	21	2	48	0	10	2	0	0	0	0	1	0	0
0500	109	23	33	25	28	4	86	0	10	7	1	0	0	0	1	0	0
0600	166	32	38	51	45	9	120	2	25	7	1	0	0	2	0	0	0
0700	190	52	46	47	45	10	130	0	37	8	0	0	0	1	3	0	1
0800	178	40	45	43	50	3	132	1	31	9	0	0	0	1	1	0	0
0900	164	38	30	49	47	5	107	0	38	11	0	0	0	2	1	0	0
1000	164	42	46	43	33	2	103	1	32	19	0	0	0	3	4	0	0
1100	155	45	36	39	35	4	104	0	34	9	0	0	0	1	3	0	0
1200	145	34	31	41	39	1	85	2	31	17	0	0	0	2	7	0	0
1300	129	35	32	20	42	5	68	4	26	18	0	0	0	2	6	0	0
1400	142	29	37	37	39	4	85	1	25	18	2	0	1	3	3	0	0
1500	156	45	40	35	36	5	101	2	24	11	2	0	0	6	5	0	0
1600	175	49	36	39	51	2	115	0	33	17	0	0	0	3	5	0	0
1700	158	38	40	45	35	4	117	1	16	12	0	0	0	6	2	0	0
1800	162	45	45	31	41	1	115	3	24	10	0	0	1	2	6	0	0
1900	165	40	43	45	37	3	133	1	17	2	0	0	0	2	7	0	0
2000	163	45	37	41	40	0	138	1	17	5	0	0	0	1	1	0	0
2100	134	28	37	37	32	1	113	0	16	0	0	0	0	1	3	0	0
2200	117	36	29	25	27	2	101	1	10	3	0	0	0	0	0	0	0
2300	86	30	20	19	17	3	74	0	6	2	0	0	0	1	0	0	0
Total	**3102**	**791**	**769**	**768**	**774**	**76**	**2218**	**22**	**484**	**191**	**6**	**0**	**2**	**39**	**63**	**0**	**1**

*** Sunday, August 19, 2012**

Time	Total	Drop --00	Drop --15	Drop --30	Drop --45	Cls 1	Cls 2	Cls 3	Cls 4	Cls 5	Cls 6	Cls 7	Cls 8	Cls 9	Cls 10	Cls 11	Cls 12
0000	56	21	11	11	13	1	44	0	9	2	0	0	0	0	0	0	0
0100	62	13	12	20	17	3	52	0	2	2	0	0	0	0	3	0	0
0200	30	8	6	10	6	1	26	0	3	0	0	0	0	0	0	0	0
0300	25	5	7	6	7	1	18	0	3	1	1	0	0	1	0	0	0

0400	39	8	13	7	11	2	32	0	5	0	0	0	0	0	0	0
0500	73	22	19	20	12	2	61	0	7	3	0	0	0	0	0	0
0600	102	29	28	16	29	2	82	0	13	4	0	0	0	0	1	0	0
0700	152	44	43	29	36	11	113	1	20	3	0	0	0	3	1	0	0
0800	157	28	50	41	38	7	130	0	15	4	0	0	0	0	1	0	0
0900	179	47	39	51	42	4	141	0	23	0	0	0	0	5	6	0	0
1000	169	39	42	45	43	4	135	0	20	3	0	0	0	1	6	0	0
1100	187	50	45	44	48	1	158	1	18	1	1	0	0	2	5	0	0
1200	177	39	44	44	50	2	150	1	13	6	0	0	0	1	4	0	0
1300	164	35	45	38	46	2	137	0	10	4	0	0	0	5	6	0	0
1400	173	42	47	41	43	2	153	1	11	3	0	0	0	0	3	0	0
1500	177	43	46	50	38	5	157	1	8	2	0	0	1	1	2	0	0
1600	179	38	49	38	54	2	155	2	13	2	0	0	0	3	2	0	0
1700	172	43	43	41	45	4	145	1	12	3	0	0	1	0	6	0	0
1800	180	48	44	48	40	5	151	0	17	3	0	0	0	0	4	0	0
1900	178	42	39	52	45	0	158	2	11	2	1	0	0	2	2	0	0
2000	152	40	39	42	31	0	136	0	9	6	0	1	0	0	0	0	0
2100	115	38	27	28	22	1	105	0	7	1	0	0	0	0	1	0	0
2200	79	21	27	16	15	1	72	1	4	0	0	0	0	0	1	0	0
2300	67	20	14	20	13	5	55	1	4	1	1	0	0	0	0	0	0
Total	**3044**	**763**	**779**	**758**	**744**	**68**	**2566**	**12**	**257**	**56**	**4**	**1**	**2**	**24**	**54**	**0**	**0**

*** Monday, August 20, 2012**

Time	Total	Drop --00	Drop --15	Drop --30	Drop --45	Cls 1	Cls 2	Cls 3	Cls 4	Cls 5	Cls 6	Cls 7	Cls 8	Cls 9	Cls 10	Cls 11	Cls 12
0000	48	13	14	11	10	2	41	0	5	0	0	0	0	0	0	0	0
0100	28	7	8	8	5	1	25	0	2	0	0	0	0	0	0	0	0
0200	18	7	3	4	4	2	14	0	2	0	0	0	0	0	0	0	0
0300	17	4	1	6	6	0	16	0	0	0	1	0	0	0	0	0	0
0400	26	6	3	6	11	1	21	0	4	0	0	0	0	0	0	0	0
0500	86	14	20	23	29	1	76	1	5	2	0	0	0	0	1	0	0
0600	136	24	34	38	40	2	119	1	9	2	0	0	0	2	1	0	0
0700	178	40	38	48	52	9	138	0	26	3	0	0	0	0	2	0	0
0800	178	44	48	39	47	4	137	1	25	9	0	0	0	0	2	0	0
0900	179	39	45	49	46	3	131	0	28	9	1	0	1	1	5	0	0
1000	177	46	49	38	44	3	128	1	28	8	0	0	0	4	5	0	0
1100	170	46	42	41	41	4	122	0	29	7	0	0	0	3	5	0	0
1200	150	27	40	41	42	1	111	1	23	8	1	0	1	0	4	0	0
1300	153	36	40	39	38	2	114	0	16	16	0	0	0	2	2	1	0
1400	157	41	41	36	39	2	121	2	20	11	0	0	0	0	1	0	0
1500	159	36	42	43	38	4	109	0	24	11	1	0	0	4	6	0	0

1600	158	50	34	33	41	3	118	2	20	7	0	0	0	2	6	0	0
1700	171	41	39	45	46	7	119	1	25	11	1	0	0	4	3	0	0
1800	185	49	40	51	45	4	141	2	24	8	1	0	0	1	4	0	0
1900	171	48	50	42	31	1	150	1	13	2	0	0	0	3	1	0	0
2000	157	38	45	37	37	0	130	0	19	4	1	0	1	1	1	0	0
2100	116	34	22	34	26	2	99	0	8	6	0	0	0	0	1	0	0
2200	99	28	22	21	28	2	88	0	9	0	0	0	0	0	0	0	0
2300	69	15	18	22	14	2	53	0	11	0	0	0	0	0	3	0	0
Total	**2986**	**733**	**738**	**755**	**760**	**62**	**2321**	**13**	**375**	**124**	**7**	**0**	**3**	**27**	**53**	**1**	**0**

Site: [1] 500m from Embakasi Garrison Roundabout (Nairobi Eastern Bypass)
Direction: 4 - West bound, A hit first. **Lane:** 2
*** Tuesday, August 14, 2012**

Time	Total	Drop --00	Drop --15	Drop --30	Drop --45	Cls 1	Cls 2	Cls 3	Cls 4	Cls 5	Cls 6	Cls 7	Cls 8	Cls 9	Cls 10	Cls 11	Cls 12
0000	48	10	15	16	7	3	34	0	4	3	0	0	0	2	2	0	0
0100	35	13	8	7	7	2	24	0	7	0	0	0	0	0	2	0	0
0200	30	6	10	4	10	1	20	0	7	1	0	0	0	1	0	0	0
0300	24	5	7	7	5	0	15	0	5	2	0	0	1	1	0	0	0
0400	58	10	10	16	22	0	30	0	15	7	1	0	0	3	2	0	0
0500	134	22	36	36	40	3	79	0	39	5	0	0	1	3	4	0	0
0600	212	40	54	57	61	3	123	0	59	21	1	0	1	2	2	0	0
0700	250	61	59	67	63	4	170	0	41	21	4	0	2	2	5	0	1
0800	229	59	60	50	60	1	155	0	41	20	1	0	1	6	4	0	0
0900	235	63	50	64	58	4	149	1	38	26	1	0	1	4	10	1	0
1000	216	52	53	60	51	2	124	0	47	20	3	0	0	7	12	1	0
1100	232	59	64	54	55	5	137	2	54	26	1	0	0	2	5	0	0
1200	221	49	58	54	60	3	130	1	57	20	1	0	0	6	3	0	0
1300	260	63	63	65	69	3	155	0	61	23	4	0	1	6	7	0	0
1400	249	60	65	62	62	4	149	1	52	31	1	0	0	5	6	0	0
1500	255	62	68	57	68	3	172	0	43	23	2	0	0	9	3	0	0
1600	267	68	70	68	61	2	199	1	46	11	1	0	0	2	5	0	0
1700	257	65	67	56	69	6	198	1	33	12	2	0	0	3	2	0	0
1800	265	62	74	62	67	2	200	0	48	9	0	0	0	2	4	0	0
1900	249	60	57	69	63	5	187	1	39	5	3	0	1	5	3	0	0
2000	251	66	58	62	65	2	212	0	25	4	2	0	1	3	2	0	0
2100	209	60	54	52	43	3	175	0	26	3	2	0	0	0	0	0	0
2200	145	41	35	34	35	3	123	0	12	1	0	0	0	0	6	0	0
2300	75	29	20	15	11	4	59	0	7	2	0	0	0	1	2	0	0
Total	**4406**	**1085**	**1115**	**1094**	**1112**	**68**	**3019**	**8**	**806**	**296**	**30**	**0**	**10**	**75**	**91**	**2**	**1**

*** Wednesday, August 15, 2012**

Time	Total	Drop --00	Drop --15	Drop --30	Drop --45	Cls 1	Cls 2	Cls 3	Cls 4	Cls 5	Cls 6	Cls 7	Cls 8	Cls 9	Cls 10	Cls 11	Cls 12
0000	45	14	8	10	13	2	31	0	4	1	0	0	0	2	5	0	0
0100	37	5	10	13	9	1	26	0	3	3	1	0	0	1	2	0	0
0200	23	6	7	6	4	3	16	0	3	1	0	0	0	0	0	0	0
0300	34	10	8	9	7	0	22	0	9	1	0	0	1	0	1	0	0
0400	52	10	9	13	20	0	22	0	23	5	0	0	0	0	2	0	0
0500	115	15	23	34	43	1	58	0	39	13	0	0	1	2	1	0	0
0600	195	32	54	52	57	0	122	0	46	16	0	0	0	6	5	0	0
0700	244	59	67	62	56	3	156	0	59	20	0	0	0	1	5	0	0
0800	235	60	64	56	55	1	163	0	39	16	0	0	0	4	12	0	0
0900	231	55	64	59	53	5	141	0	43	31	0	0	0	3	8	0	0
1000	217	56	53	57	51	7	139	1	38	20	2	0	1	5	4	0	0
1100	225	51	59	59	56	1	123	0	55	34	1	0	0	5	5	1	0
1200	222	52	64	50	56	1	125	2	50	27	4	0	0	0	13	0	0
1300	243	62	59	60	62	4	160	0	48	23	1	0	0	3	4	0	0
1400	244	61	65	53	65	3	167	0	41	22	0	0	0	4	7	0	0
1500	255	59	61	66	69	1	171	2	49	25	0	0	1	0	6	0	0
1600	273	63	76	66	68	1	198	1	42	21	1	0	0	3	6	0	0
1700	255	66	54	69	66	7	194	1	36	8	2	0	1	1	5	0	0
1800	275	68	65	66	76	9	195	0	48	11	1	0	0	8	3	0	0
1900	266	64	66	67	69	6	211	1	31	6	2	0	1	2	6	0	0
2000	242	61	61	63	57	3	204	0	26	3	0	0	0	4	2	0	0
2100	211	54	52	49	56	4	180	1	22	1	0	0	0	0	3	0	0
2200	145	39	41	36	29	5	128	0	6	4	0	0	0	1	1	0	0
2300	89	26	24	22	17	7	75	0	5	0	0	0	0	1	1	0	0
Total	**4373**	**1048**	**1114**	**1097**	**1114**	**75**	**3027**	**9**	**765**	**312**	**15**	**0**	**6**	**56**	**107**	**1**	**0**

*** Thursday, August 16, 2012**

Time	Total	Drop --00	Drop --15	Drop --30	Drop --45	Cls 1	Cls 2	Cls 3	Cls 4	Cls 5	Cls 6	Cls 7	Cls 8	Cls 9	Cls 10	Cls 11	Cls 12
0000	42	9	11	15	7	3	32	0	4	0	0	0	0	0	3	0	0
0100	33	8	10	10	5	1	25	0	5	0	0	0	0	0	2	0	0
0200	18	5	1	4	8	0	12	0	3	0	0	0	0	1	2	0	0
0300	29	9	4	8	8	0	22	0	3	1	0	0	1	1	1	0	0
0400	61	9	10	16	26	0	25	0	26	7	1	0	0	0	2	0	0
0500	107	22	17	36	32	0	57	0	39	6	0	0	0	0	5	0	0
0600	205	36	50	60	59	1	119	0	55	22	1	0	1	1	5	0	0
0700	256	62	58	70	66	4	180	2	52	14	0	0	0	2	2	0	0
0800	256	64	60	73	59	4	171	1	51	22	0	0	2	1	4	0	0

0900	242	63	60	60	59	4	151	0	52	28	0	0	0	3	4	0	0
1000	236	62	55	54	65	2	168	0	43	9	1	0	3	4	6	0	0
1100	230	62	58	56	54	10	146	0	43	22	1	0	0	2	6	0	0
1200	251	58	66	65	62	5	141	1	64	24	1	0	1	5	9	0	0
1300	242	49	65	68	60	4	160	1	46	22	0	0	0	2	7	0	0
1400	231	51	54	62	64	4	143	1	46	21	1	0	1	6	8	0	0
1500	247	62	54	66	65	2	172	0	41	23	1	0	0	6	2	0	0
1600	276	72	73	69	62	7	192	0	53	20	0	0	0	1	3	0	0
1700	287	79	80	57	71	4	218	1	49	8	1	0	0	3	3	0	0
1800	260	73	55	64	68	8	184	1	43	8	0	0	0	5	11	0	0
1900	271	68	64	75	64	7	205	2	41	10	0	0	0	3	3	0	0
2000	232	59	60	54	59	6	193	1	22	4	0	0	1	1	4	0	0
2100	203	56	55	49	43	5	170	0	22	2	0	0	1	1	2	0	0
2200	157	48	43	35	31	4	133	0	19	0	0	0	0	0	1	0	0
2300	89	22	26	21	20	6	70	0	8	2	0	0	0	2	1	0	0
Total	**4461**	**1108**	**1089**	**1147**	**1117**	**91**	**3089**	**11**	**830**	**275**	**8**	**0**	**11**	**50**	**96**	**0**	**0**

*** Friday, August 17, 2012**

Time	Total	Drop --00	Drop --15	Drop --30	Drop --45	Cls 1	Cls 2	Cls 3	Cls 4	Cls 5	Cls 6	Cls 7	Cls 8	Cls 9	Cls 10	Cls 11	Cls 12
0000	60	14	20	9	17	5	43	0	6	0	0	0	0	0	6	0	0
0100	35	9	8	12	6	2	24	0	5	0	0	0	0	2	2	0	0
0200	23	6	5	7	5	0	15	0	5	0	1	0	0	1	1	0	0
0300	35	4	10	11	10	1	22	0	7	2	0	0	1	1	1	0	0
0400	63	6	11	23	23	2	27	0	19	6	1	0	0	1	7	0	0
0500	113	23	25	32	33	1	62	1	33	6	1	0	0	3	6	0	0
0600	193	43	46	52	52	1	114	1	54	15	2	0	0	2	4	0	0
0700	221	56	53	61	51	1	147	0	46	17	0	0	1	4	5	0	0
0800	241	66	59	52	64	3	162	0	60	13	1	0	0	0	2	0	0
0900	247	60	64	62	61	7	159	1	46	19	1	0	0	3	10	0	1
1000	242	65	57	61	59	1	163	1	55	16	2	0	0	0	4	0	0
1100	234	61	60	54	59	4	152	0	51	17	0	0	0	2	8	0	0
1200	226	54	59	59	54	3	150	1	41	22	3	0	0	2	4	0	0
1300	256	65	59	65	67	3	167	0	47	22	0	0	0	9	8	0	0
1400	269	66	68	67	68	3	181	0	44	24	3	0	3	6	5	0	0
1500	258	64	63	70	61	5	168	2	50	18	2	0	0	3	10	0	0
1600	282	71	70	73	68	1	200	0	50	21	2	0	0	3	5	0	0
1700	230	55	52	61	62	4	152	0	45	18	2	0	0	4	5	0	0
1800	261	64	66	60	71	7	191	0	48	9	0	1	1	2	2	0	0
1900	266	61	63	72	70	2	209	1	38	8	0	0	1	2	5	0	0
2000	242	58	63	67	54	5	191	0	36	3	2	1	0	1	3	0	0

2100	235	74	52	51	58	2	199	0	29	1	0	0	1	1	2	0	0
2200	162	43	41	38	40	8	136	0	14	2	1	0	0	0	1	0	0
2300	112	33	28	31	20	2	97	0	9	0	0	0	0	0	4	0	0
Total	**4506**	**1121**	**1102**	**1150**	**1133**	**73**	**3131**	**8**	**838**	**259**	**24**	**2**	**8**	**52**	**110**	**0**	**1**

*** Saturday, August 18, 2012**

Time	Total	Drop --00	Drop --15	Drop --30	Drop --45	Cls 1	Cls 2	Cls 3	Cls 4	Cls 5	Cls 6	Cls 7	Cls 8	Cls 9	Cls 10	Cls 11	Cls 12
0000	80	18	25	17	20	3	65	0	5	2	0	0	0	1	4	0	0
0100	57	18	20	10	9	5	45	0	4	2	0	0	0	0	1	0	0
0200	46	9	12	9	16	3	38	0	2	1	0	0	0	0	2	0	0
0300	36	8	11	10	7	1	24	0	4	3	0	0	1	1	2	0	0
0400	62	17	13	12	20	2	38	0	7	8	1	0	1	2	2	1	0
0500	108	22	30	25	31	2	59	0	35	2	0	0	0	3	7	0	0
0600	189	42	49	46	52	2	117	1	47	13	0	0	0	3	6	0	0
0700	236	53	58	61	64	1	171	0	40	10	3	0	0	2	9	0	0
0800	235	54	57	59	65	0	161	1	42	17	1	0	0	4	9	0	0
0900	233	56	59	62	56	5	152	2	40	20	3	0	1	4	5	1	0
1000	242	51	68	62	61	2	162	0	42	21	0	0	0	3	12	0	0
1100	246	64	62	60	60	7	159	3	42	22	0	0	2	6	5	0	0
1200	245	64	62	59	60	4	155	0	53	22	0	0	0	2	9	0	0
1300	258	64	63	64	67	3	183	1	44	17	1	0	0	3	5	1	0
1400	251	68	54	59	70	2	191	0	33	11	0	0	1	6	5	1	1
1500	294	70	75	71	78	6	224	1	40	14	0	0	0	2	7	0	0
1600	265	70	78	52	65	4	193	0	45	15	1	0	0	0	7	0	0
1700	265	70	66	66	63	6	211	1	33	9	0	0	0	2	2	0	1
1800	266	71	66	61	68	4	215	0	36	5	0	0	1	1	4	0	0
1900	256	74	60	61	61	4	211	0	28	8	0	1	0	3	1	0	0
2000	217	58	57	51	51	3	184	0	24	1	0	0	0	3	1	1	0
2100	179	58	43	35	43	6	159	0	10	2	0	0	0	0	2	0	0
2200	139	39	32	34	34	5	121	0	12	0	0	0	0	1	0	0	0
2300	99	28	21	28	22	5	80	0	7	2	0	0	0	1	4	0	0
Total	**4504**	**1146**	**1141**	**1074**	**1143**	**85**	**3318**	**10**	**675**	**227**	**10**	**1**	**7**	**53**	**111**	**5**	**2**

*** Sunday, August 19, 2012**

Time	Total	Drop --00	Drop --15	Drop --30	Drop --45	Cls 1	Cls 2	Cls 3	Cls 4	Cls 5	Cls 6	Cls 7	Cls 8	Cls 9	Cls 10	Cls 11	Cls 12
0000	69	22	16	15	16	1	63	0	0	2	0	0	0	0	3	0	0
0100	57	15	12	17	13	2	45	0	1	2	0	0	0	2	5	0	0
0200	39	11	11	8	9	1	30	0	5	0	2	0	0	1	0	0	0
0300	46	16	8	15	7	1	36	0	6	0	0	0	0	2	1	0	0
0400	52	9	11	18	14	0	32	1	11	2	0	0	0	3	3	0	0

0500	63	13	17	15	18	0	43	1	12	2	0	0	0	1	4	0	0
0600	126	22	34	33	37	5	80	0	32	5	0	0	0	1	3	0	0
0700	159	24	45	42	48	4	121	1	17	10	0	0	0	2	4	0	0
0800	161	32	37	45	47	2	131	0	16	6	0	0	0	0	6	0	0
0900	200	43	44	59	54	2	172	1	16	4	0	0	0	0	5	0	0
1000	200	40	54	50	56	0	163	0	22	4	0	0	1	2	8	0	0
1100	210	50	51	60	49	7	174	1	16	2	0	0	0	3	7	0	0
1200	223	54	54	54	61	6	188	0	19	2	0	0	0	3	5	0	0
1300	245	58	67	64	56	4	219	1	12	5	0	0	0	2	2	0	0
1400	272	65	70	66	71	2	242	0	17	4	0	0	0	2	5	0	0
1500	257	68	63	69	57	6	230	1	16	1	0	0	0	0	1	2	0
1600	258	63	71	62	62	5	226	0	18	6	0	0	1	0	2	0	0
1700	262	71	64	62	65	7	233	2	16	2	0	0	0	0	2	0	0
1800	265	62	66	75	62	3	241	0	19	0	0	0	0	0	2	0	0
1900	236	61	60	54	61	4	198	0	27	7	0	0	0	0	0	0	0
2000	210	63	56	49	42	1	197	1	10	1	0	0	0	0	0	0	0
2100	141	42	29	30	40	4	123	1	11	2	0	0	0	0	0	0	0
2200	117	28	31	27	31	0	104	0	10	1	1	0	0	1	0	0	0
2300	83	25	23	18	17	7	70	0	4	2	0	0	0	0	0	0	0
Total	**3951**	**957**	**994**	**1007**	**993**	**74**	**3361**	**11**	**333**	**72**	**3**	**0**	**2**	**25**	**68**	**2**	**0**

*** Monday, August 20, 2012**

Time	Total	Drop --00	Drop --15	Drop --30	Drop --45	Cls 1	Cls 2	Cls 3	Cls 4	Cls 5	Cls 6	Cls 7	Cls 8	Cls 9	Cls 10	Cls 11	Cls 12
0000	46	15	10	12	9	5	40	0	1	0	0	0	0	0	0	0	0
0100	36	13	6	11	6	1	34	0	1	0	0	0	0	0	0	0	0
0200	25	8	5	8	4	2	20	0	2	1	0	0	0	0	0	0	0
0300	25	8	3	5	9	1	21	0	2	0	0	0	0	1	0	0	0
0400	26	2	7	8	9	0	21	0	4	1	0	0	0	0	0	0	0
0500	71	11	17	20	23	3	41	0	16	5	1	0	0	0	5	0	0
0600	113	18	30	22	43	0	72	0	34	5	1	0	0	1	0	0	0
0700	151	40	44	31	36	4	101	0	31	12	1	0	0	0	2	0	0
0800	192	41	49	50	52	1	137	0	35	12	1	0	0	2	4	0	0
0900	198	52	46	45	55	2	146	1	36	8	0	0	1	0	4	0	0
1000	214	51	55	57	51	3	161	0	29	16	0	0	0	1	4	0	0
1100	243	57	54	64	68	9	185	1	37	8	0	0	0	2	1	0	0
1200	251	66	62	64	59	0	199	0	36	6	0	0	0	2	8	0	0
1300	265	63	68	64	70	2	226	0	24	7	0	0	0	1	5	0	0
1400	254	62	68	64	60	2	199	1	24	17	2	0	0	5	4	0	0
1500	258	62	60	67	69	7	209	1	29	6	0	0	0	4	2	0	0

1600	251	59	69	67	56	5	209	0	23	7	0	0	0	3	4	0	0
1700	258	62	61	64	71	4	221	0	24	5	0	0	1	1	2	0	0
1800	269	67	67	70	65	4	226	2	32	2	0	0	0	1	2	0	0
1900	239	60	62	64	53	4	206	0	22	4	0	0	0	0	2	0	1
2000	198	52	50	55	41	5	180	0	11	2	0	0	0	0	0	0	0
2100	174	48	39	43	44	2	153	1	13	2	0	0	0	3	0	0	0
2200	132	41	31	32	28	6	119	0	5	1	0	0	0	0	1	0	0
2300	62	13	16	19	14	2	54	0	4	0	0	0	0	1	1	0	0
Total	**3951**	**971**	**979**	**1006**	**995**	**74**	**3180**	**7**	**475**	**127**	**6**	**0**	**2**	**28**	**51**	**0**	**1**

Site: [2] 1Km from Thika Road Bridge (Nairobi Eastern Bypass)

Direction: 4 - West bound, A hit first. **Lane:** 0

*** Tuesday, August 14, 2012**

Time	Total	Drop --00	Drop --15	Drop --30	Drop --45	Cls 1	Cls 2	Cls 3	Cls 4	Cls 5	Cls 6	Cls 7	Cls 8	Cls 9	Cls 10	Cls 11	Cls 12
0000	30	10	11	6	3	4	15	0	7	2	0	0	0	0	2	0	0
0100	24	4	8	10	2	1	19	0	3	0	0	0	0	1	0	0	0
0200	24	9	4	5	6	1	17	0	4	1	0	0	0	0	1	0	0
0300	30	9	4	6	11	0	18	0	8	3	1	0	0	0	0	0	0
0400	54	6	10	17	21	4	31	0	9	8	2	0	0	0	0	0	0
0500	69	17	13	15	24	3	51	0	8	4	2	0	0	0	1	0	0
0600	150	22	34	51	43	6	103	0	25	11	1	0	0	3	1	0	0
0700	223	47	58	57	61	7	170	2	31	10	1	0	0	0	2	0	0
0800	206	57	39	57	53	9	136	0	27	19	1	1	0	4	9	0	0
0900	209	51	52	52	54	9	121	1	45	21	5	0	1	1	5	0	0
1000	212	50	52	57	53	13	135	0	44	10	2	0	1	0	6	0	1
1100	222	59	53	54	56	10	146	0	40	19	2	0	0	1	4	0	0
1200	215	57	54	51	53	6	117	1	52	20	6	0	1	6	6	0	0
1300	219	63	51	50	55	14	135	1	42	18	2	0	0	4	3	0	0
1400	224	54	56	56	58	15	125	0	51	18	4	0	1	6	3	0	1
1500	232	56	55	63	58	13	131	1	56	14	2	0	1	6	7	1	0
1600	249	53	72	61	63	14	171	1	39	12	1	0	2	3	5	0	1
1700	246	70	63	57	56	7	185	0	28	14	4	0	1	1	5	1	0
1800	223	72	49	49	53	4	151	0	30	12	3	1	1	11	10	0	0
1900	158	44	42	34	38	2	101	0	28	9	6	0	1	4	7	0	0
2000	131	38	37	29	27	0	90	0	18	6	5	0	0	7	5	0	0
2100	111	36	30	28	17	8	83	1	10	3	0	0	1	1	4	0	0
2200	61	20	14	13	14	9	40	0	7	1	1	0	0	1	2	0	0

2300	42	9	9	12	12	7	21	0	11	0	0	0	0	2	1	0	0
Total	**3564**	**913**	**870**	**890**	**891**	**166**	**2312**	**8**	**623**	**235**	**51**	**2**	**11**	**62**	**89**	**2**	**3**

*** Wednesday, August 15, 2012**

Time	Total	Drop --00	Drop --15	Drop --30	Drop --45	Cls 1	Cls 2	Cls 3	Cls 4	Cls 5	Cls 6	Cls 7	Cls 8	Cls 9	Cls 10	Cls 11	Cls 12
0000	26	6	5	9	6	3	11	0	7	3	0	0	0	0	2	0	0
0100	22	2	7	5	8	3	11	0	5	2	0	0	0	0	1	0	0
0200	17	0	5	5	7	1	10	0	5	1	0	0	0	0	0	0	0
0300	20	3	6	6	5	0	13	0	4	3	0	0	0	0	0	0	0
0400	26	5	8	9	4	3	14	0	7	1	0	0	0	1	0	0	0
0500	73	12	14	22	25	2	42	0	16	11	1	0	0	0	1	0	0
0600	144	21	31	46	46	7	99	1	26	5	0	0	0	1	5	0	0
0700	238	53	59	59	67	15	171	0	26	19	2	0	1	2	2	0	0
0800	219	55	49	55	60	16	138	2	42	15	1	0	1	0	4	0	0
0900	196	51	54	43	48	13	127	0	34	15	3	0	0	2	2	0	0
1000	202	46	57	49	50	6	122	1	47	12	3	0	2	2	7	0	0
1100	216	62	57	47	50	11	123	1	51	19	2	0	1	4	4	0	0
1200	204	56	43	54	51	7	128	0	41	18	3	0	0	4	3	0	0
1300	222	58	54	55	55	14	142	0	40	15	0	0	2	3	5	1	0
1400	230	61	53	62	54	11	145	0	45	16	4	0	2	4	3	0	0
1500	196	49	45	49	53	9	130	0	37	8	3	0	2	4	1	2	0
1600	250	60	60	65	65	9	167	1	51	6	3	0	1	5	7	0	0
1700	215	54	64	40	57	7	153	1	35	5	1	0	0	6	7	0	0
1800	180	50	42	54	34	2	111	0	40	14	2	0	0	4	7	0	0
1900	164	44	44	41	35	2	103	1	33	10	3	0	0	5	7	0	0
2000	128	30	33	32	33	1	91	0	19	9	2	0	1	1	4	0	0
2100	94	23	32	24	15	0	73	1	8	4	1	0	0	1	6	0	0
2200	72	19	20	20	13	7	48	0	4	5	1	0	0	0	7	0	0
2300	41	11	14	6	10	5	24	0	9	2	0	0	0	1	0	0	0
Total	**3395**	**831**	**856**	**857**	**851**	**154**	**2196**	**9**	**632**	**218**	**35**	**0**	**13**	**50**	**85**	**3**	**0**

*** Thursday, August 16, 2012**

Time	Total	Drop --00	Drop --15	Drop --30	Drop --45	Cls 1	Cls 2	Cls 3	Cls 4	Cls 5	Cls 6	Cls 7	Cls 8	Cls 9	Cls 10	Cls 11	Cls 12
0000	32	8	6	9	9	4	15	0	10	2	0	0	0	0	1	0	0
0100	21	2	4	8	7	2	13	0	5	0	0	0	0	0	1	0	0
0200	11	1	2	3	5	1	4	0	3	1	0	0	0	1	1	0	0
0300	21	3	5	5	8	0	12	0	7	2	0	0	0	0	0	0	0
0400	24	3	5	10	6	4	13	0	6	0	0	0	0	1	0	0	0
0500	70	11	16	22	21	2	46	0	9	9	1	0	0	3	0	0	0

0600	151	25	36	43	47	7	106	0	22	14	0	0	0	1	1	0	0
0700	215	54	47	59	55	2	160	0	38	10	0	0	0	2	2	0	1
0800	214	65	48	55	46	12	162	1	27	6	4	0	0	1	1	0	0
0900	214	64	52	45	53	16	132	0	47	9	5	0	0	4	1	0	0
1000	209	51	55	52	51	16	128	0	40	15	2	0	3	2	3	0	0
1100	218	57	52	52	57	11	141	0	42	21	0	0	1	2	0	0	0
1200	219	50	55	58	56	13	126	1	54	15	3	0	1	3	3	0	0
1300	215	54	60	50	51	7	147	0	39	15	2	1	0	1	2	1	0
1400	221	52	51	57	61	11	142	1	36	21	0	0	0	5	5	0	0
1500	228	57	57	52	62	14	143	1	41	18	3	0	1	1	5	0	1
1600	232	63	51	56	62	9	160	0	39	10	3	0	1	3	5	2	0
1700	245	63	70	60	52	10	163	0	38	15	4	0	2	5	8	0	0
1800	193	53	37	50	53	1	127	3	26	15	4	1	0	8	7	1	0
1900	173	49	49	40	35	2	130	0	20	10	2	0	0	3	6	0	0
2000	150	49	32	39	30	1	110	0	23	8	2	0	0	1	4	0	1
2100	78	19	18	19	22	1	56	0	10	2	1	0	0	2	6	0	0
2200	68	21	13	19	15	7	47	0	10	1	0	0	1	0	2	0	0
2300	58	11	22	12	13	6	38	0	9	3	0	0	0	1	1	0	0
Total	**3480**	**885**	**843**	**875**	**877**	**159**	**2321**	**7**	**601**	**222**	**36**	**2**	**10**	**50**	**65**	**4**	**3**

*** Friday, August 17, 2012**

Time	Total	Drop --00	Drop --15	Drop --30	Drop --45	Cls 1	Cls 2	Cls 3	Cls 4	Cls 5	Cls 6	Cls 7	Cls 8	Cls 9	Cls 10	Cls 11	Cls 12
0000	20	8	3	5	4	4	13	0	2	1	0	0	0	0	0	0	0
0100	28	4	8	9	7	2	18	0	4	2	0	0	0	0	2	0	0
0200	14	4	2	2	6	0	7	0	6	0	0	0	0	0	1	0	0
0300	14	1	3	3	7	2	6	0	5	1	0	0	0	0	0	0	0
0400	39	8	8	15	8	4	25	0	7	1	0	0	0	2	0	0	0
0500	89	16	18	25	30	1	58	0	20	7	1	0	0	1	1	0	0
0600	147	29	39	29	50	10	104	1	22	8	1	0	0	1	0	0	0
0700	210	50	53	59	48	5	148	0	38	15	2	0	1	0	1	0	0
0800	228	58	53	62	55	8	164	2	36	8	3	0	1	2	3	0	1
0900	204	57	49	48	50	6	144	0	33	14	2	0	1	1	2	0	1
1000	226	60	54	58	54	13	141	1	48	16	3	0	0	2	2	0	0
1100	234	65	63	56	50	17	152	0	35	18	2	0	0	4	6	0	0
1200	215	52	51	54	58	13	143	0	43	8	2	0	1	2	2	1	0
1300	220	55	54	59	52	9	133	0	39	16	3	0	0	10	9	0	1
1400	226	48	68	55	55	19	145	0	42	14	1	0	1	2	1	1	0
1500	232	61	56	57	58	9	162	0	40	8	2	0	1	3	7	0	0
1600	246	56	54	66	70	9	185	0	37	8	2	0	0	1	3	0	1
1700	258	60	71	63	64	9	196	1	37	5	1	0	2	2	5	0	0

1800	198	55	44	36	63	2	147	0	21	17	5	0	0	2	3	1	0
1900	111	53	51	4	3	0	100	1	1	2	3	0	0	3	1	0	0
2000	35	9	12	8	6	0	33	0	1	0	1	0	0	0	0	0	0
2100	23	5	10	7	1	0	17	0	1	3	1	0	0	0	1	0	0
2200	8	4	1	1	2	0	8	0	0	0	0	0	0	0	0	0	0
2300	11	2	3	1	5	1	10	0	0	0	0	0	0	0	0	0	0
Total	**3236**	**820**	**828**	**782**	**806**	**143**	**2259**	**6**	**518**	**172**	**35**	**0**	**8**	**38**	**50**	**3**	**4**

*** Saturday, August 18, 2012**

Time	Total	Drop --00	Drop --15	Drop --30	Drop --45	Cls 1	Cls 2	Cls 3	Cls 4	Cls 5	Cls 6	Cls 7	Cls 8	Cls 9	Cls 10	Cls 11	Cls 12
0000	4	2	2	0	0	0	3	0	0	0	0	0	0	0	1	0	0
0100	3	2	1	0	0	0	3	0	0	0	0	0	0	0	0	0	0
0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0300	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0500	10	0	1	3	6	0	9	0	0	0	1	0	0	0	0	0	0
0600	19	2	6	6	5	2	16	0	0	1	0	0	0	0	0	0	0
0700	17	1	2	8	6	1	15	0	0	0	1	0	0	0	0	0	0
0800	30	7	5	8	10	1	24	0	1	2	2	0	0	0	0	0	0
0900	44	14	8	8	14	1	42	0	0	0	1	0	0	0	0	0	0
1000	43	11	10	12	10	0	38	0	1	3	1	0	0	0	0	0	0
1100	57	16	16	12	13	2	46	0	2	4	3	0	0	0	0	0	0
1200	58	16	15	16	11	0	51	0	2	5	0	0	0	0	0	0	0
1300	57	18	15	13	11	3	47	0	2	2	1	0	0	0	2	0	0
1400	55	17	15	12	11	1	46	0	1	3	3	0	0	0	1	0	0
1500	36	4	9	15	8	1	30	0	0	3	1	0	0	0	1	0	0
1600	36	10	8	8	10	0	29	0	1	2	3	0	0	0	1	0	0
1700	33	6	6	11	10	0	30	0	1	2	0	0	0	0	0	0	0
1800	56	5	11	23	17	1	53	0	0	2	0	0	0	0	0	0	0
1900	62	17	20	11	14	0	53	0	0	5	2	0	0	1	1	0	0
2000	45	7	13	12	13	1	38	0	0	2	3	0	0	0	1	0	0
2100	19	5	6	6	2	0	18	0	0	1	0	0	0	0	0	0	0
2200	10	4	3	1	2	0	10	0	0	0	0	0	0	0	0	0	0
2300	16	1	2	8	5	2	12	1	0	1	0	0	0	0	0	0	0
Total	**711**	**165**	**174**	**193**	**179**	**16**	**614**	**1**	**11**	**38**	**22**	**0**	**0**	**1**	**8**	**0**	**0**

*** Sunday, August 19, 2012**

Time	Total	Drop --00	Drop --15	Drop --30	Drop --45	Cls 1	Cls 2	Cls 3	Cls 4	Cls 5	Cls 6	Cls 7	Cls 8	Cls 9	Cls 10	Cls 11	Cls 12
0000	12	10	1	1	0	0	12	0	0	0	0	0	0	0	0	0	0
0100	5	1	3	1	0	0	5	0	0	0	0	0	0	0	0	0	0

0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0300	2	1	0	0	1	0	2	0	0	0	0	0	0	0	0	0
0400	2	1	0	1	0	0	2	0	0	0	0	0	0	0	0	0
0500	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0
0600	4	1	0	1	2	0	3	0	0	0	1	0	0	0	0	0
0700	7	1	1	3	2	0	7	0	0	0	0	0	0	0	0	0
0800	6	1	1	3	1	2	3	0	0	0	0	1	0	0	0	0
0900	14	5	5	1	3	0	12	0	0	1	0	0	0	0	1	0
1000	17	3	5	6	3	3	10	0	3	1	0	0	0	0	0	0
1100	27	11	8	2	6	5	14	0	2	4	0	0	0	0	2	0
1200	15	4	4	4	3	1	10	0	1	0	0	0	0	1	2	0
1300	21	9	5	5	2	4	12	0	1	3	0	0	0	1	0	0
1400	18	4	3	6	5	3	13	0	0	2	0	0	0	0	0	0
1500	20	5	5	3	7	1	13	0	1	5	0	0	0	0	0	0
1600	16	1	7	6	2	3	11	0	0	2	0	0	0	0	0	0
1700	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
1800	2	1	1	0	0	0	2	0	0	0	0	0	0	0	0	0
1900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2000	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
2100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**191**	**59**	**51**	**43**	**38**	**22**	**134**	**0**	**8**	**18**	**1**	**1**	**0**	**2**	**5**	**0**	**0**

*** Monday, August 20, 2012**

Time	Total	Drop --00	Drop --15	Drop --30	Drop --45	Cls 1	Cls 2	Cls 3	Cls 4	Cls 5	Cls 6	Cls 7	Cls 8	Cls 9	Cls 10	Cls 11	Cls 12
0000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0500	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0700	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0800	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
0900	3	0	1	2	0	1	2	0	0	0	0	0	0	0	0	0	0
1000	4	1	2	1	0	0	4	0	0	0	0	0	0	0	0	0	0
1100	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
1200	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0
1300	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

1400	1	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0
1500	6	1	4	1	0	0	3	0	2	1	0	0	0	0	0	0
1600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1700	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
1800	5	1	2	0	2	0	5	0	0	0	0	0	0	0	0	0
1900	8	1	2	3	2	1	7	0	0	0	0	0	0	0	0	0
2000	2	2	0	0	0	0	1	0	0	0	1	0	0	0	0	0
2100	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0
2200	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2300	1	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0
Total	**35**	**8**	**12**	**9**	**6**	**3**	**28**	**0**	**2**	**1**	**1**	**0**	**0**	**0**	**0**	**0**

Site: **[2] 1km from Thika Road from Bridge (Nairobi Eastern Bypass)**
Direction: 2 - East bound, A hit first. **Lane:** 0
*** Tuesday, August 14, 2012**

Time	Total	Drop --00	Drop --15	Drop --30	Drop --45	Cls 1	Cls 2	Cls 3	Cls 4	Cls 5	Cls 6	Cls 7	Cls 8	Cls 9	Cls 10	Cls 11	Cls 12
0000	31	9	8	4	10	2	16	0	6	1	0	0	0	2	4	0	0
0100	11	2	3	3	3	0	4	0	5	0	0	0	0	0	2	0	0
0200	11	3	3	2	3	0	5	0	5	1	0	0	0	0	0	0	0
0300	17	3	5	3	6	0	7	0	7	1	0	0	1	1	0	0	0
0400	27	2	7	10	8	4	8	0	6	6	0	0	0	2	1	0	0
0500	83	24	15	23	21	4	35	0	24	8	0	0	1	5	6	0	0
0600	148	30	38	39	41	8	91	0	27	15	0	0	2	2	3	0	0
0700	200	49	51	50	50	11	130	0	40	12	2	0	1	2	2	0	0
0800	187	51	49	42	45	6	110	1	36	20	1	0	3	6	4	0	0
0900	197	45	54	52	46	13	107	0	40	22	3	0	1	5	6	0	0
1000	177	44	42	43	48	11	75	0	49	24	1	0	1	6	9	1	0
1100	178	40	49	48	41	4	87	1	55	21	0	0	0	1	9	0	0
1200	196	51	54	43	48	8	88	0	64	23	2	0	0	3	8	0	0
1300	186	44	49	47	46	10	83	0	58	24	2	0	0	5	4	0	0
1400	188	42	47	47	52	8	99	0	49	18	1	0	0	6	7	0	0
1500	201	50	52	55	44	7	118	0	51	13	2	0	1	4	4	0	1
1600	200	53	42	48	57	10	121	0	48	10	0	0	0	6	5	0	0
1700	200	57	42	48	53	6	129	0	45	11	1	0	0	5	3	0	0
1800	175	54	44	35	42	5	121	1	39	7	0	0	0	2	0	0	0
1900	161	39	44	40	38	0	124	0	28	6	1	0	0	1	1	0	0
2000	122	33	28	30	31	0	94	0	17	9	1	0	0	1	0	0	0
2100	101	25	19	29	28	5	74	0	17	2	1	0	0	0	2	0	0

2200	83	22	25	20	16	11	53	0	15	1	0	0	0	0	3	0	0
2300	49	21	12	9	7	7	29	0	6	2	0	0	0	0	4	1	0
Total	**3129**	**793**	**782**	**770**	**784**	**140**	**1808**	**3**	**737**	**257**	**18**	**0**	**11**	**65**	**87**	**2**	**1**

*** Wednesday, August 15, 2012**

Time	Total	Drop --00	Drop --15	Drop --30	Drop --45	Cls 1	Cls 2	Cls 3	Cls 4	Cls 5	Cls 6	Cls 7	Cls 8	Cls 9	Cls 10	Cls 11	Cls 12
0000	31	11	8	8	4	1	20	0	3	0	1	0	0	2	4	0	0
0100	18	3	5	6	4	2	7	0	6	1	0	0	0	0	2	0	0
0200	10	1	4	1	4	1	5	0	2	1	0	0	0	0	1	0	0
0300	16	2	1	10	3	0	6	0	7	2	0	0	1	0	0	0	0
0400	40	10	8	16	6	4	17	0	13	4	0	0	0	0	2	0	0
0500	59	12	13	13	21	1	33	0	15	6	2	0	0	0	2	0	0
0600	164	27	42	46	49	8	115	0	24	6	3	0	1	4	3	0	0
0700	204	52	50	45	57	17	131	0	35	12	1	0	0	3	4	0	1
0800	184	55	56	38	35	12	119	0	29	17	1	0	0	3	2	0	1
0900	183	48	47	41	47	9	95	0	47	18	0	0	1	3	10	0	0
1000	204	55	46	56	47	9	119	0	47	16	1	0	0	4	8	0	0
1100	189	40	54	49	46	12	84	0	59	24	2	0	0	5	3	0	0
1200	187	44	49	55	39	12	83	0	52	25	3	0	0	4	8	0	0
1300	190	49	39	52	50	9	100	0	46	25	0	0	1	5	4	0	0
1400	175	38	43	51	43	5	103	1	45	11	0	0	0	4	5	1	0
1500	196	52	43	48	53	8	121	0	43	15	0	0	0	3	6	0	0
1600	174	42	45	43	44	5	101	0	41	15	0	1	1	4	5	1	0
1700	208	57	39	51	61	4	136	0	44	11	0	2	0	4	6	1	0
1800	191	46	50	48	47	5	128	0	36	10	2	2	1	5	2	0	0
1900	144	37	38	36	33	1	103	0	34	0	1	1	0	3	1	0	0
2000	129	32	33	36	28	1	97	0	24	0	0	1	0	4	2	0	0
2100	71	12	19	24	16	0	59	0	8	2	0	0	0	1	1	0	0
2200	78	17	20	20	21	3	61	0	8	3	0	0	0	2	1	0	0
2300	48	19	9	12	8	7	32	0	7	0	0	0	0	0	2	0	0
Total	**3093**	**761**	**761**	**805**	**766**	**136**	**1875**	**1**	**675**	**224**	**17**	**7**	**6**	**63**	**84**	**3**	**2**

*** Thursday, August 16, 2012**

Time	Total	Drop --00	Drop --15	Drop --30	Drop --45	Cls 1	Cls 2	Cls 3	Cls 4	Cls 5	Cls 6	Cls 7	Cls 8	Cls 9	Cls 10	Cls 11	Cls 12
0000	29	14	3	8	4	4	16	0	6	0	0	0	0	1	2	0	0
0100	18	0	6	7	5	1	11	0	4	0	0	0	0	0	2	0	0
0200	9	3	2	1	3	0	3	0	4	0	0	0	0	1	1	0	0
0300	15	1	5	4	5	0	6	0	5	1	0	0	1	0	2	0	0
0400	24	2	9	7	6	5	5	0	11	2	0	0	0	1	0	0	0

0500	60	16	14	11	19	2	25	0	19	9	1	0	0	1	3	0	0
0600	158	25	43	44	46	6	99	0	40	7	1	0	1	0	4	0	0
0700	205	45	56	50	54	15	128	0	35	22	1	0	2	0	2	0	0
0800	176	47	47	43	39	5	123	0	25	16	0	1	0	0	6	0	0
0900	182	39	47	54	42	17	97	0	31	27	0	0	1	2	7	0	0
1000	184	41	50	44	49	12	101	0	46	17	0	0	0	5	3	0	0
1100	209	54	53	51	51	14	117	0	60	11	0	0	1	3	3	0	0
1200	201	44	51	55	51	10	97	0	64	18	1	0	0	2	8	0	1
1300	174	46	45	42	41	6	88	0	46	20	0	0	1	3	10	0	0
1400	188	49	45	43	51	9	107	0	44	19	0	0	0	3	6	0	0
1500	174	41	47	46	40	11	89	0	40	25	0	0	1	4	3	0	1
1600	196	51	47	50	48	9	117	0	48	15	1	0	0	3	2	0	1
1700	209	57	45	54	53	7	131	0	46	17	2	0	0	4	2	0	0
1800	203	54	45	58	46	2	146	0	38	6	1	3	0	3	4	0	0
1900	140	40	29	37	34	1	103	0	25	8	1	0	0	1	1	0	0
2000	108	31	30	28	19	2	82	0	15	7	1	0	0	0	1	0	0
2100	85	24	24	23	14	1	64	0	16	3	0	0	0	0	1	0	0
2200	71	19	18	21	13	5	48	0	12	1	0	0	0	2	3	0	0
2300	47	19	9	6	13	8	29	0	7	1	0	0	0	1	1	0	0
Total	**3065**	**762**	**770**	**787**	**746**	**152**	**1832**	**0**	**687**	**252**	**10**	**4**	**8**	**40**	**77**	**0**	**3**

*** Friday, August 17, 2012**

Time	Total	Drop --00	Drop --15	Drop --30	Drop --45	Cls 1	Cls 2	Cls 3	Cls 4	Cls 5	Cls 6	Cls 7	Cls 8	Cls 9	Cls 10	Cls 11	Cls 12
0000	16	5	4	6	1	3	5	0	3	0	0	0	0	1	4	0	0
0100	18	6	3	5	4	0	8	0	5	0	0	0	0	2	3	0	0
0200	13	5	1	1	6	0	4	0	7	0	0	0	0	0	2	0	0
0300	19	4	3	4	8	0	9	0	6	1	0	0	1	1	1	0	0
0400	32	7	4	9	12	8	7	0	9	5	0	0	0	1	2	0	0
0500	71	16	19	18	18	2	29	0	24	6	0	0	0	3	7	0	0
0600	155	25	32	48	50	7	101	0	30	11	0	0	0	3	3	0	0
0700	203	54	50	48	51	10	130	0	36	17	0	0	0	6	4	0	0
0800	204	47	46	59	52	13	128	0	37	21	2	0	0	1	2	0	0
0900	189	46	39	52	52	5	110	1	40	25	1	0	0	3	4	0	0
1000	194	46	51	47	50	11	99	0	52	24	1	0	0	2	5	0	0
1100	188	44	50	46	48	15	94	0	59	13	2	0	1	1	3	0	0
1200	200	49	48	46	57	5	108	0	56	22	3	0	0	3	3	0	0
1300	193	46	47	46	54	7	113	0	40	18	3	0	0	7	5	0	0
1400	186	53	38	43	52	10	118	0	35	15	2	0	1	2	3	0	0
1500	202	47	43	55	57	7	127	0	38	18	2	0	0	4	6	0	0

1600	203	45	55	58	45	6	115	0	48	25	2	0	0	4	3	0	0
1700	189	47	49	46	47	13	117	1	31	15	1	0	1	2	8	0	0
1800	183	51	42	49	41	1	122	0	42	12	1	1	1	1	2	0	0
1900	190	50	54	38	48	0	146	0	33	4	1	2	1	0	3	0	0
2000	138	34	30	32	42	1	105	0	23	5	2	0	0	1	1	0	0
2100	111	21	39	33	18	2	88	0	14	5	0	0	0	1	1	0	0
2200	86	20	24	14	28	3	68	0	12	3	0	0	0	0	0	0	0
2300	62	17	18	11	16	6	39	0	11	2	0	0	0	0	3	1	0
Total	**3245**	**785**	**789**	**814**	**857**	**135**	**1990**	**2**	**691**	**267**	**23**	**3**	**6**	**49**	**78**	**1**	**0**

*** Saturday, August 18, 2012**

Time	Total	Drop --00	Drop --15	Drop --30	Drop --45	Cls 1	Cls 2	Cls 3	Cls 4	Cls 5	Cls 6	Cls 7	Cls 8	Cls 9	Cls 10	Cls 11	Cls 12
0000	34	10	8	8	8	5	20	0	3	1	0	0	0	1	4	0	0
0100	21	8	7	4	2	0	11	0	5	0	0	0	0	0	5	0	0
0200	12	2	1	3	6	1	8	0	0	1	0	0	0	0	2	0	0
0300	24	8	6	5	5	1	9	0	11	0	0	0	1	1	1	0	0
0400	37	3	10	15	9	4	17	0	7	6	1	0	1	1	0	0	0
0500	68	7	19	21	21	1	35	0	17	5	0	0	1	2	7	0	0
0600	152	35	39	33	45	8	86	0	40	10	1	0	0	2	5	0	0
0700	202	46	49	47	60	11	140	0	27	12	1	0	0	1	10	0	0
0800	194	50	52	45	47	11	122	0	33	12	1	0	1	4	8	0	2
0900	190	45	49	51	45	13	111	1	35	20	1	0	1	2	6	0	0
1000	205	49	51	50	55	8	125	0	39	18	0	0	2	3	10	0	0
1100	214	54	48	61	51	5	127	0	54	17	1	0	1	4	5	0	0
1200	208	51	52	55	50	15	119	0	42	21	1	0	2	4	4	0	0
1300	198	41	52	53	52	14	125	0	39	13	2	0	0	1	4	0	0
1400	209	55	61	45	48	9	128	1	49	13	1	0	0	4	4	0	0
1500	214	56	50	50	58	10	136	0	47	5	1	0	1	3	11	0	0
1600	194	52	48	48	46	11	123	0	34	15	1	0	0	2	7	0	1
1700	223	59	50	58	56	15	155	0	34	10	1	0	0	1	7	0	0
1800	172	55	45	35	37	4	135	0	29	2	1	1	0	0	0	0	0
1900	163	51	40	32	40	3	129	0	28	1	0	0	0	1	1	0	0
2000	139	35	42	32	30	0	121	0	12	3	0	0	0	3	0	0	0
2100	102	30	25	28	19	1	91	0	9	0	0	0	0	0	1	0	0
2200	114	26	31	32	25	12	88	0	10	1	0	0	0	0	3	0	0
2300	68	21	18	19	10	7	50	0	6	1	0	0	0	1	3	0	0
Total	**3357**	**849**	**853**	**830**	**825**	**169**	**2211**	**2**	**610**	**187**	**14**	**1**	**11**	**41**	**108**	**0**	**3**

*** Sunday, August 19, 2012**

Time	Total	Drop	Drop	Drop	Drop	Cls	Cls	Cls	Cls	Cls	Cls	Cls	Cls	Cls	Cls	Cls	Cls

		--00	--15	--30	--45	1	2	3	4	5	6	7	8	9	10	11	12
0000	42	15	7	15	5	7	32	0	1	0	0	0	0	0	2	0	0
0100	32	11	7	8	6	6	17	0	2	1	0	0	0	1	5	0	0
0200	18	4	4	5	5	2	7	0	8	0	0	0	0	0	1	0	0
0300	23	7	7	2	7	3	9	0	7	1	0	0	0	2	1	0	0
0400	22	7	4	4	7	1	7	0	6	0	0	0	0	3	5	0	0
0500	29	8	6	9	6	3	8	0	9	3	0	0	0	3	3	0	0
0600	65	7	12	23	23	5	37	0	17	0	0	0	0	1	4	1	0
0700	109	22	24	25	38	8	73	0	10	10	0	0	0	2	6	0	0
0800	142	35	33	34	40	19	106	0	10	4	0	0	0	0	3	0	0
0900	164	44	34	39	47	21	126	1	9	1	0	0	0	0	6	0	0
1000	169	48	43	41	37	7	141	0	12	5	0	0	1	0	3	0	0
1100	186	41	48	47	50	12	146	0	16	3	0	0	0	1	8	0	0
1200	177	49	46	38	44	10	144	0	15	3	0	0	0	2	3	0	0
1300	177	40	51	40	46	5	143	0	15	5	0	0	0	4	5	0	0
1400	187	43	48	55	41	11	154	0	14	3	0	0	0	3	2	0	0
1500	181	48	48	48	37	9	158	0	6	3	0	0	1	1	2	1	0
1600	199	46	57	48	48	17	160	0	15	3	0	0	1	0	2	0	1
1700	194	47	53	49	45	21	165	0	6	1	0	0	0	0	1	0	0
1800	191	50	46	51	44	1	179	0	9	0	0	1	0	0	1	0	0
1900	163	37	46	39	41	8	139	0	12	2	0	0	0	0	2	0	0
2000	129	35	32	35	27	4	115	0	6	1	2	0	1	0	0	0	0
2100	114	28	28	31	27	12	96	0	3	2	1	0	0	0	0	0	0
2200	87	30	19	24	14	10	70	0	5	2	0	0	0	0	0	0	0
2300	56	19	11	16	10	6	42	0	6	2	0	0	0	0	0	0	0
Total	**2856**	**721**	**714**	**726**	**695**	**208**	**2274**	**1**	**219**	**55**	**3**	**1**	**4**	**23**	**65**	**2**	**1**

*** Monday, August 20, 2012**

Time	Total	Drop --00	Drop --15	Drop --30	Drop --45	Cls 1	Cls 2	Cls 3	Cls 4	Cls 5	Cls 6	Cls 7	Cls 8	Cls 9	Cls 10	Cls 11	Cls 12
0000	21	6	6	6	3	2	17	0	0	1	1	0	0	0	0	0	0
0100	13	1	9	1	2	1	11	0	1	0	0	0	0	0	0	0	0
0200	9	2	2	3	2	0	6	0	3	0	0	0	0	0	0	0	0
0300	12	4	3	3	2	1	5	0	4	1	0	0	1	0	0	0	0
0400	14	4	0	4	6	2	6	0	5	1	0	0	0	0	0	0	0
0500	32	3	6	11	12	3	14	0	8	2	2	0	0	0	3	0	0
0600	71	14	15	26	16	2	45	0	20	3	0	0	0	0	1	0	0
0700	126	28	22	35	41	6	82	0	26	8	0	0	0	1	3	0	0
0800	150	27	35	44	44	12	100	0	25	9	0	0	0	2	2	0	0
0900	160	37	39	40	44	11	100	0	32	9	0	0	2	1	5	0	0
1000	167	44	42	36	45	12	107	0	33	11	0	0	0	1	3	0	0

1100	194	46	48	52	48	12	138	0	29	7	1	0	0	3	4	0	0
1200	175	41	46	47	41	16	116	1	31	4	0	0	1	3	3	0	0
1300	199	48	50	52	49	11	142	1	29	9	0	0	1	0	6	0	0
1400	198	51	44	47	56	12	142	0	27	8	1	0	0	4	4	0	0
1500	174	40	50	42	42	17	116	1	26	6	1	0	0	3	4	0	0
1600	209	55	56	51	47	10	164	0	20	9	1	0	0	3	1	0	1
1700	200	49	53	52	46	8	150	1	31	5	1	0	0	2	2	0	0
1800	201	46	48	57	50	1	161	0	26	9	2	1	0	1	0	0	0
1900	163	39	56	44	24	0	143	0	15	2	0	1	0	1	1	0	0
2000	126	35	32	31	28	0	110	0	12	4	0	0	0	0	0	0	0
2100	96	31	26	26	13	1	87	0	7	1	0	0	0	0	0	0	0
2200	73	26	16	19	12	2	63	0	5	1	0	0	0	1	1	0	0
2300	48	15	13	8	12	7	32	0	4	2	0	0	0	1	2	0	0
Total	**2831**	**692**	**717**	**737**	**685**	**149**	**2057**	**4**	**419**	**112**	**10**	**2**	**5**	**27**	**45**	**0**	**1**

Appendix 8: Classified traffic volume counts data by Nairobi City County

Location:	**C-13**	**Eastern Bypass**		Direction:	**To Inside (South)**		Date:	**13-Feb**	Time:	**12hr**
Vehicle Type / Time	NMT		Private				Public		Sub Total (Vehicle)	Total
	1	2	3	4	5	6	7	8		
	Pedestrian	Bicycle Tricycle Push/Pull Cart	Motorcycle	Privatecar Taxi	Light Truck	Heavy Truck, Trailer	Matatsu	Bus Metro Shuttle		
Total	60	23	102	3,603	2,318	2,329	323	58	8,756	8,816
6:30- 9:00			14	313	134	90	42	9	602	>>>
9:00-12:00			9	255	173	195	27	7	666	>>>>
12:00-14:00			11	358	229	227	34	3	862	>>>>>
14:00-17:00			5	183	148	123	6	1	468	>>>
17:00-18:30			3	527	373	463	33	3	1,401	>>>>>>>>
Location:	**C-13**	**Eastern Bypass**		Direction:	**To Ruiru (North)**		Date:	**13-Feb**	Time:	**12hr**
Vehicle Type / Time	NMT		Private				Public		Sub Total (Vehicle)	Total
	1	2	3	4	5	6	7	8		
	Pedestrian	Bicycle Tricycle Push/Pull Cart	Motorcycle	Privatecar Taxi	Light Truck	Heavy Truck, Trailer	Matatsu	Bus Metro Shuttle		
Total	22	16	43	2,228	1,376	1,109	250	37	5,059	5,081
6:30- 9:00				178	67	46	13	2	306	>>>
9:00-12:00			3	130	99	70	13	2	317	>>>
12:00-14:00			4	110	130	99	13	1	355	>>>
14:00-17:00			3	210	109	122	23	5	472	>>>>
17:00-18:30			11	363	217	149	56	6	802	>>>>>>>>

Appendix 9: Classified traffic volume counts data by Kenya Roads Board

	APEC CONSORTIUM LIMITED							TRAFFIC VOLUME COUNT SHEET						
	Road Code:	H6/3	GIS Coordinates:		Eastings:		266209	Road Riding Surface Condition:			SMOOTH			
	Location Name:	BASCO PAINTS			Northings:		9853765	Surfacing:			BITUMINOUS			
	Census Point No.	H/2/3	Enumerator:		DENNIS			Date:	17/2/14					
	Weather:	RAINY												
		Direction 1:	Aproaching From:		MOMBASA RD		Exiting to:		UTAWALA		Lane:	1		
	Hour	M/cycle	Car	L-Car 4WD, Jeep	P-up/Van	Buses			Trucks				Other	Total
						M-Bus	S-bus	L-Bus	LT	MT	HT	Art-T		
Date		1	2	3	4	5	6	7	8	9	10	11	12	
	TOTAL (6:00-1700)	284	1606	607	636	640	205	282	500	356	439	177	1	5733
	TOTAL (18:00-5.00)	35	779	300	131	105	27	52	74	64	84	43	0	1694
	TOTAL (6:00-1700)	7	1393	833	833	315	234	321	671	519	370	251	0	5747
	TOTAL (6:00-1700)	173	1588	845	448	272	129	105	393	255	357	140	1	4706
	TOTAL (18:00-5.00)	233	817	164	458	179	143	131	119	98	42	38	9	2431
	TOTAL (6:00-1700)	68	978	573	269	218	60	28	175	172	122	51	1	2715
	APEC CONSORTIUM LIMITED							TRAFFIC VOLUME COUNT SHEET						
	Road Code:	H6/3	GIS Coordinates:		Eastings:		266269	Road Riding Surface Condition:						
	Location Name:	BASCO PAINTS			Northings:		9853765	Surfacing:						
	Census Point No.	H2/3	Enumerator:		SIMON MUTISYA			Date:	17/2/14					
	Weather:	RAINY												
		Direction 1:	Aproaching From:		MOMBASA RD		Exiting to:		UTAWALA		Lane:	2		
	Hour	M/cycle	Car	D, Jeep	up/Van	Buses			Trucks				Other	Total

						M-Bus	S-bus	L-Bus	LT	MT	HT	Art-T		
	TOTAL (6:00-1700)	323	2273	1294	964	1044	709	374	858	505	487	453	0	9284
	TOTAL (18:00-5.00)	249	839	173	509	176	166	146	122	104	54	41	0	2579
	TOTAL (6:00-1700)	88	1310	975	939	668	283	218	257	117	181	181	0	5217
		Direction 2:		Aproaching From:		UTAWALA		Exiting to:		MOMBASA RD		Lane:	2	
		M/cycle	Car	L-Car 4WD, Jeep	P-up/Van	Buses			Trucks				Other	Total
						M-Bus	S-bus	L-Bus	LT	MT	HT	Art-T		
	TOTAL (6:00-1700)	277	1276	522	331	344	157	204	201	207	567	468	6	4560
	TOTAL (18:00-5.00)	22	1060	510	124	337	78	13	67	104	61	63	1	2440
	TOTAL (6:00-1700)	50	1090	590	323	56	11	24	224	252	404	49	3	3076
	CONSORTIUM LIMITED							TRAFFIC VOLUME COUNT SHEET						
	Road Code:	H6		GIS Coordinates:		Eastings:	2756656.84		Road Riding Surface Condition:			SMOOTH		
	Location Name:	RUAI				Northings:	9860423.23		Surfacing:			BITUMINOUS		
	Census Point No.	H6/2		Enumerator:		LINET			Date:	17/2/14				
	Weather:	CLOUDY												
		Direction 1:		Aproaching From:		RUIRU		Exiting to:		CABANAS		Lane:	1	
	Hour	M/cycle	Car	L-Car 4WD, Jeep	P-up/Van	Buses			Trucks				Other	Total
						M-Bus	S-bus	L-Bus	LT	MT	HT	Art-T		
	TOTAL (6:00-1700)	431	2329	723	556	469	63	51	519	589	591	338	17	6676
	TOTAL (18:00-5.00)	230	920	509	380	201	54	41	155	299	300	330	0	3419
	TOTAL (6:00-1700)	397	2027	1191	671	417	199	136	362	500	555	316	4	6775

														10095
		Direction 2:		Aproaching From:		CABANAS		Exiting to:		RUIRU		Lane:	1	
						Buses			Trucks					
		M/cycle	Car	L-Car 4WD, Jeep	P-up/Van	M-Bus	S-bus	L-Bus	LT	MT	HT	Art-T	Other	Total
	TOTAL (6:00-1700)	267	2058	871	644	444	123	98	587	632	967	528	8	7227
	TOTAL (18:00-5.00)	201	948	297	327	157	43	78	170	179	180	244	0	2824
	TOTAL (6:00-1700)	46	199	60	45	18	17	13	57	66	38	40	0	599
		50	230	100	60	35	10	11	40	42	26	60	0	664
		55	175	60	23	1	1	8	30	60	30	1	0	444
	APEC CONSORTIUM LIMITED	63	273	121	60	54	18	17	56	72	57	46	3	840
	Road Code:	25	143	60	45	28	15	10	30	50	55	20	1	482
	Location Name:	40	231	77	38	27	16	20	40	48	60	20	5	622
	Census Point No.	35	186	42	35	25	7	5	22	36	40	56	0	489
	Weather:	22	148	65	35	24	4	2	19	29	58	32	1	439
		43	134	54	37	25	10	10	16	12	30	53	0	424
	Hour	35	240	87	55	65	15	40	43	90	100	45	4	819
	16:00	88	240	105	70	25	13	13	15	5	60	60	2	696
		72	380	80	60	71	10	30	103	81	95	80	1	1063
	6:00	574	2579	911	563	398	136	179	471	591	649	513	17	7581
	9:00							TRAFFIC VOLUME COUNT SHEET						
	10:00	H6		GIS Coordinates:		Eastings:	2756656.84		Road Riding Surface Condition:			SMOOTH		
	11:00	RUAI				Northings:	9860423.23		Surfacing:			BITUMINOUS		
	12:00	H6/2		Enumerator:		LINET			Date:	17/2/14				
	13:00	CLOUDY												
	14:00	Direction 1:		Aproaching		RUIRU		Exiting to:		CABANAS		Lane:	1	

				From:									
	15:00 16:00	M/cycle	Car	L-Car 4WD, Jeep	P-up/Van	Buses			Trucks				Other	Total
						M-Bus	S-bus	L-Bus	LT	MT	HT	Art-T		
Date	17:00	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	
	TOTAL	5	93	11	5	9	4	3	3	12	11	6	0	**162**
	18:00	28	280	54	26	38	0	2	25	40	27	17	0	**537**
	19:00	53	307	61	38	61	0	0	188	45	38	11	0	**802**
	20:00	46	300	57	40	43	3	3	25	53	75	19	9	**673**
	21:00	57	200	54	69	34	5	0	41	64	74	12	0	**610**
	22:00	35	180	48	61	39	0	2	23	63	60	24	0	**535**
	23:00	26	200	37	60	44	7	8	57	75	53	55	0	**622**
	0:00	40	149	65	52	46	6	5	38	56	57	70	0	**584**
	1:00	36	75	40	40	24	8	13	16	39	46	25	0	**362**
	2:00	27	125	43	35	20	0	0	45	31	45	41	0	**412**
	3:00	37	240	153	55	41	10	8	34	75	75	30	0	**758**
	4:00	41	180	100	75	70	20	7	24	36	30	28	8	**619**
	5:00	**431**	**2329**	**723**	**556**	**469**	**63**	**51**	**519**	**589**	**591**	**338**	**17**	**6676**
	TOTAL	40	290	135	105	100	45	30	52	90	43	60	0	**990**
	661	35	145	90	20	40	5	0	14	40	45	10	0	**444**
	6:00	10	240	138	55	40	0	0	10	30	20	74	0	**617**
	7:00	13	42	32	18	7	0	1	0	7	14	8	0	**142**
	8:00	22	27	20	11	2	0	3	2	11	11	3	0	**112**
	9:00	16	28	5	7	3	2	2	6	7	8	5	0	**89**
	10:00	10	7	15	41	0	0	2	6	18	34	17	0	**150**
	11:00	10	8	11	16	0	1	0	11	35	21	33	0	**146**
	12:00	9	12	16	26	1	0	2	5	15	21	31	0	**138**

	13:00	25	11	6	36	0	1	0	23	24	44	47	0	**217**
	14:00	21	16	8	25	0	0	0	20	18	33	38	0	**179**
	15:00	19	94	33	20	8	0	1	6	4	6	4	0	**195**
	16:00	**230**	**920**	**509**	**380**	**201**	**54**	**41**	**155**	**299**	**300**	**330**	**0**	**3419**
24hr Counts		17:00	**3249**	**1232**	**936**	**670**	**117**	**92**	**674**	**888**	**891**	**668**	**17**	**10095**
	TOTAL	42	240	81	42	46	12	11	22	36	37	16	0	**585**
	1.534	65	255	169	79	52	15	5	22	76	52	1	0	**791**
	609	44	200	164	85	67	22	10	62	63	73	11	0	**801**
		15	185	102	49	13	8	7	24	62	20	10	0	**495**
		55	180	95	60	25	10	35	25	30	60	40	0	**615**
		46	175	98	60	30	5	20	28	20	35	55	3	**575**
		47	146	83	48	22	9	0	37	40	37	42	0	**511**
		13	50	41	27	16	0	0	16	13	20	38	0	**234**
		15	43	39	39	16	3	5	17	24	34	11	0	**246**
		15	105	55	35	5	6	8	15	18	28	13	0	**303**
		20	208	131	74	50	53	5	30	63	43	29	1	**707**
		20	240	133	73	75	56	30	64	55	116	50	0	**912**
		397	**2027**	**1191**	**671**	**417**	**199**	**136**	**362**	**500**	**555**	**316**	**4**	**6775**
24hr Factor			1.39502	1.704	1.6835	1.42857	1.857	1.804	1.299	1.508	1.508	1.976	1	1.51213
24hr counts			2828	2029	1130	596	370	245	470	754	837	625	4	10245
		635	3038	1631	1033	633	243	169	572	821	864	646	11	10170
		635	3038	1631	1033	633	243	169	572	821	864	646	11	
		Direction 2:		**Aproaching From:**		**CABANAS**		**Exiting to:**		**RUIRU**		**Lane:**	**1**	
		M/cycle	**Car**	**L-Car 4WD, Jeep**	**P-up/Van**	**Buses**			**Trucks**				**Other**	**Total**
						M-Bus	**S-bus**	**L-Bus**	**LT**	**MT**	**HT**	**Art-T**		

		1	2	3	4	5	6	7	8	9	10	11	12	
		4	123	31	15	10	10	7	23	15	9	11	0	**258**
		8	240	90	57	21	5	2	40	28	34	17	0	**542**
		11	155	96	37	35	25	20	21	40	55	40	6	**541**
		11	147	62	36	28	2	3	23	47	23	18	1	**401**
		31	148	45	31	42	5	6	23	37	76	35	0	**479**
		35	165	78	78	63	34	30	66	65	93	45	0	**752**
		30	165	99	65	41	5	0	21	25	134	40	1	**626**
		35	140	70	60	20	0	0	45	105	125	70	0	**670**
		26	150	60	75	45	1	2	55	45	107	70	0	**636**
		25	235	90	45	19	5	0	90	79	85	55	0	**728**
		21	190	70	50	40	6	3	90	56	66	75	0	**667**
		30	200	80	95	80	25	25	90	90	160	52	0	**927**
		267	**2058**	**871**	**644**	**444**	**123**	**98**	**587**	**632**	**967**	**528**	**8**	**7227**
		50	228	84	57	80	15	15	50	55	30	55	0	**719**
		10	263	62	27	13	6	3	25	19	38	25	0	**491**
		11	160	54	12	11	4	43	23	37	37	0	0	**392**
		36	130	40	113	16	4	1	19	9	14	13	0	**395**
		36	43	18	15	11	1	0	12	6	11	6	0	**159**
		32	23	4	28	3	3	0	6	8	5	5	0	**117**
		3	5	5	9	3	0	0	8	2	3	30	0	**68**
		8	18	2	22	0	0	0	5	5	0	29	0	**89**
		2	3	0	0	0	0	0	3	7	13	24	0	**52**
		2	12	0	24	0	0	0	7	1	4	8	0	**58**
		2	13	3	0	0	0	0	6	0	0	19	0	**43**
		9	50	25	20	20	10	16	6	30	25	30	0	**241**
		201	**948**	**297**	**327**	**157**	**43**	**78**	**170**	**179**	**180**	**244**	**0**	**2824**
		468	**3006**	**1168**	**971**	**601**	**166**	**176**	**757**	**811**	**1147**	**772**	**8**	**10051**

		46	199	60	45	18	17	13	57	66	38	40	0	**599**
		50	230	100	60	35	10	11	40	42	26	60	0	**664**
		55	175	60	23	1	1	8	30	60	30	1	0	**444**
		63	273	121	60	54	18	17	56	72	57	46	3	**840**
		25	143	60	45	28	15	10	30	50	55	20	1	**482**
		40	231	77	38	27	16	20	40	48	60	20	5	**622**
		35	186	42	35	25	7	5	22	36	40	56	0	**489**
		22	148	65	35	24	4	2	19	29	58	32	1	**439**
		43	134	54	37	25	10	10	16	12	30	53	0	**424**
		35	240	87	55	65	15	40	43	90	100	45	4	**819**
		88	240	105	70	25	13	13	15	5	60	60	2	**696**
		72	380	80	60	71	10	30	103	81	95	80	1	**1063**
		574	**2579**	**911**	**563**	**398**	**136**	**179**	**471**	**591**	**649**	**513**	**17**	**7581**
		1.753	1.46064	1.341	1.5078	1.3536	1.35	1.796	1.29	1.283	1.186	1.462	1	1.39076
		1006	3767	1222	849	539	184	321	607	758	770	750	17	10543.3
		737	3386	1195	910	570	175	249	682	785	958	761	13	10297.2

Appendix 10: Sample forms for classified traffic volume counts data

Determining usability of Eastern Bypass

SHEET No.: | Enumerator's Name :

Station Name: | Approaching From: | Exiting To : | Date: Day/Night

Vehicle Type / Hour Starting	Motorcycle	Cars	Pick-ups, Jeeps, 4-WD's, Vans	BUSES		TRUCKS						5 - 7 Axles: Articulated & Draw-back Trucks		Others (Tractors, etc)
				Matatus & Minibuses (<27 seats) unladen	Buses (>27 seats) unladen	Light Trucks (<3.5 tonnes load)unladen		Medium Trucks (2 axles,3.5 - 7.5 tonnes load) unladen		Heavy Trucks (3 & 4 Axles, 7.5-12 tonnes load) unladen				
						T	O	T	O	T	O	T	O	
6:00 AM														
6:15 AM														
6:30 AM														
6:45 AM														
7:00 AM														
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6:15 PM														
6:30 PM														
6:45 PM														
7:00 PM														

Appendix 11: Classified traffic volume counts data collected by the Author in 2016

Vehicle Type/Hour Starting	Motorcycle	Cars	Pick-ups,Jeeps,4-WD's,Vans	Matatus&Minibuses	Buses	Light Trucks	Medium Trucks	Heavy Trucks	Others	Total
Approching From:	*THIKA RD*		**Exiting To:**	*EMBAKASI*	**Date:**	*9-Sep-16*				
7.00-7.15 am	3	16	12	18	0	7	8	20	0	**84**
7:15-7:30 am	5	13	9	21	0	8	24	13	0	**93**
7:30-7.45 am	2	24	13	14	0	11	15	12	0	**91**
7.45-8.00am	1	17	12	18	0	7	14	8	0	**77**
8.00-8.15am	1	16	16	11	0	12	14	7	0	**77**
8.15-8.30am	0	20	1	6	0	0	10	5	0	**42**
8.30-8.45am	0	20	20	8	0	9	6	2	0	**65**
8.45-9.00am	3	20	16	21	0	7	25	15	1	**108**
9.00-9.15am	3	20	19	16	0	10	19	6	0	**93**
9.15-9.30am	2	20	6	3	0	1	5	13	0	**50**
9.30-9.45am	2	20	12	5	2	15	20	16	0	**92**
9.45-10.00	1	20	12	11	0	2	30	15	0	**91**
10.00-10.15am	0	20	13	3	0	9	2	10	0	**57**
10.15-10.30am	1	20	14	9	1	13	20	10	0	**88**
10.30-10.45am	3	20	8	9	1	9	20	10	0	**80**
10.45-11.00am	3	20	14	13	0	8	29	15	0	**102**
11.00-11.15am	3	20	14	15	3	15	31	17	0	**118**
11.15-11.30am	2	20	14	10	3	12	23	10	1	**95**
11.30-11.45am	1	20	8	5	1	10	17	8	0	**70**
11.45-12.00pm	2	20	20	15	2	10	35	9	1	**114**
12.00-12.15pm	5	20	20	22	8	18	27	10	2	**132**

Vehicle Type/Hour Starting	Motorcycle	Cars	Pick-ups,Jeeps,4-WD's,Vans	Matatus&Minibuses	Buses	Light Trucks	Medium Trucks	Heavy Trucks	Others	Total
12.15-12.30pm	2	20	20	18	12	14	35	12	3	**136**
12.30-12.45pm	4	20	20	20	10	12	27	10	1	**124**
12.45-1.00pm	1	20	20	19	7	17	28	8	2	**122**
1.00-1.15pm	2	20	14	12	9	9	35	9	4	**114**
1.15-1.30pm	1	20	17	19	8	12	44	10	2	**133**
1.30-1.45pm	2	20	20	15	0	11	19	1	3	**91**
1.45-2.00pm	4	20	20	11	0	7	38	2	1	**103**
2.00-2.15pm	2	20	20	13	0	7	34	3	2	**101**
2.15-2.30pm	4	20	20	13	1	8	19	10	0	**95**
2.30-2.45pm	1	20	20	15		11	22	9	0	**98**
2.45-3.00pm	2	20	20	18	0	8	15	8	1	**92**
3.00-3.15pm	3	20	20	16	0	8	12	7	0	**86**
3.15-3.30pm	1	20	20	18	2	11	12	8	0	**92**
3.30-3.45pm	1	20	20	14	1	7	16	4	1	**84**
3.45-4.00pm	1	20	20	11	2	7	35	6	0	**102**
4.00-4.15pm	0	20	20	12	1	4	34	7	0	**98**
4.15-4.30pm	1	20	20	10	0	5	21	5	0	**82**
4.30-4.45pm	0	20	20	16	0	4	16	12	0	**88**
4.45-5.00pm	2	20	20	13	0	1	24	10	0	**90**
5.00-5.15pm	1	20	20	12	0	2	21	12	2	**90**
5.15-5.30pm	2	20	20	8	0	4	33	8	0	**95**
5.30-5.45pm	3	20	20	6	0	7	32	7	0	**95**
5.45-6.00pm	2	20	20	10	0	10	26	9	0	**97**
6.00-6.15pm	1	20	20	11	0	3	28	8	0	**91**
6.15-6.30pm	3	20	20	12	0	5	26	10	0	**96**

Vehicle Type/Hour Starting	Motorcycle	Cars	Pick-ups,Jeeps,4-WD's,Vans	Matatus&Minibuses	Buses	Light Trucks	Medium Trucks	Heavy Trucks	Others	Total
6.30-6.45pm	3	20	20	7	0	7	11	6	0	**74**
6.45-7.00pm	1	20	20	6	0	8	10	7	0	**72**
Total	**93**	**946**	**804**	**608**	**74**	**402**	**1067**	**439**	**27**	**4460**
Approching From:	*EMBAKASI*		**Exiting To:**	*THIKA ROAD*	**Date:**	*9-Sep-16*				
Vehicle Type/Hour Starting	Motorcycle	Cars	Pick-ups,Jeeps,4-WD's,Vans	Matatus&Minibuses	Buses	Light Trucks	**Medium Trucks**	Heavy Trucks	Others	**Total**
7.00-7.15 am	10	33	12	22	0	11	17	14	0	**119**
7:15-7:30 am	4	37	16	18	0	8	24	16	0	**123**
7:30-7.45 am	2	33	14	19	0	16	24	13	0	**121**
7.45-8.00am	3	36	17	14	0	7	19	11	0	**107**
8.00-8.15am	2	32	14	11	0	3	11	3	0	**76**
8.15-8.30am	0	34	20	12	0	5	12	4	0	**87**
8.30-8.45am	0	39	20	11	1	2	17	3	0	**93**
8.45-9.00am	1	38	20	17	0	10	21	14	0	**121**
9.00-9.15am	2	31	18	13	0	5	22	12	0	**103**
9.15-9.30am	1	38	35	5	0	12	19	7	0	**117**
9.30-9.45am	0	36	30	12	0	5	34	9	0	**126**
9.45-10.00	1	38	37	17	0	17	39	11	0	**160**
10.00-10.15am	1	39	35	25	0	8	42	6	0	**156**
10.15-10.30am	6	37	33	14	0	15	29	12	0	**146**
10.30-10.45am	1	38	37	20	1	10	47	7	0	**161**
10.45-11.00am	0	40	37	15	0	7	40	10	0	**149**
11.00-11.15am	0	38	34	13	1	16	39	11	0	**152**
11.15-11.30am	1	39	38	13	1	14	53	11	0	**170**

Vehicle Type/Hour Starting	Motorcycle	Cars	Pick-ups,Jeeps,4-WD's,Vans	Matatus&Minibuses	Buses	Light Trucks	Medium Trucks	Heavy Trucks	Others	Total
11.30-11.45am	0	36	33	12	0	6	50	11	0	**148**
11.45-12.00pm	1	39	36	13	1	8	39	2	0	**139**
12.00-12.15pm	4	40	37	16	1	11	40	11	0	**160**
12.15-12.30pm	1	35	33	15	0	7	41	8	0	**140**
12.30-12.45pm	0	38	30	9	1	5	43	9	0	**135**
12.45-1.00pm	1	37	35	9	0	3	39	11	0	**135**
1.00-1.15pm	0	40	33	0	0	0	14	1	0	**88**
1.15-1.30pm	0	38	36	0	0	0	17	0	0	**91**
1.30-1.45pm	0	35	37	8	0	7	43	10	0	**140**
1.45-2.00pm	1	38	40	5	0	3	45	11	0	**143**
2.00-2.15pm	3	37	33	8	0	1	48	13	0	**143**
2.15-2.30pm	0	30	20	7	1	4	44	9	0	**115**
2.30-2.45pm	1	40	36	8	0	0	47	7	0	**139**
2.45-3.00pm	0	33	33	1	0	1	139	7	0	**214**
3.00-3.15pm	2	35	34	7	1	15	40	3	0	**137**
3.15-3.30pm	1	37	31	8	0	7	41	4	0	**129**
3.30-3.45pm	0	36	33	12	0	8	37	7	0	**133**
3.45-4.00pm	0	35	31	14	0	7	35	9	0	**131**
4.00-4.15pm	0	34	32	16	6	15	37	16	0	**156**
4.15-4.30pm	2	35	35	8	3	15	37	13	0	**148**
4.30-4.45pm	1	35	37	6	1	10	32	10	0	**132**
4.45-5.00pm	0	36	40	11	8	18	39	13	0	**165**
5.00-5.15pm	2	29	32	10	3	11	22	7	0	**116**
5.15-5.30pm	0	38	34	7	5	7	27	13	0	**131**
5.30-5.45pm	1	33	31	9	6	8	26	11	0	**125**

Vehicle Type/Hour Starting	Motorcycle	Cars	Pick-ups,Jeeps,4-WD's,Vans	Matatus&Minibuses	Buses	Light Trucks	Medium Trucks	Heavy Trucks	Others	Total
5.45-6.00pm	0	36	30	8	6	6	26	12	0	**124**
6.00-6.15pm	1	38	32	9	8	7	25	6	0	**126**
6.15-6.30pm	2	33	34	10	6	7	22	8	0	**122**
6.30-6.45pm	1	31	38	8	3	6	25	6	0	**118**
6.45-7.00pm	1	33	32	7	8	6	24	7	0	**118**
Total	61	**1726**	**1475**	**532**	**72**	**380**	**1653**	**429**	**0**	**6328**
Approching From:	*THIKA ROAD*		**Exiting To:**	*CABANAS*	**Date:**	10-Sep-16				
Vehicle Type/Hour Starting	Motorcycle	Cars	Pick-ups,Jeeps,4-WD's,Vans	Matatus&Minibuses	Buses	Light Trucks	**Medium Trucks**	Heavy Trucks	Others	**Total**
7.00-7.15 am	1	20	20	10	0	11	47	6	1	**116**
7:15-7:30 am	2	20	20	12	0	6	45	11	0	**116**
7:30-7.45 am	1	20	20	13	0	10	38	8	2	**112**
7.45-8.00am	0	20	20	11	1	7	40	6	0	**105**
8.00-8.15am	0	20	20	11	0	11	40	8	0	**110**
8.15-8.30am	0	20	20	10	0	0	39	4	0	**93**
8.30-8.45am	2	20	20	7	0	7	37	6	0	**99**
8.45-9.00am	0	20	20	8	0	10	37	7	0	**102**
9.00-9.15am	0	20	20	13	0	8	39	4	0	**104**
9.15-9.30am	0	20	20	12	2	7	39	6	0	**106**
9.30-9.45am	2	20	20	11	0	8	37	7	0	**105**
9.45-10.00	0	20	20	11	0	10	37	2	0	**100**
10.00-10.15am	0	20	20	11	0	7	35	6	0	**99**
10.15-10.30am	0	20	20	11	0	11	37	3	0	**102**
10.30-10.45am	1	20	20	10	0	7	38	6	0	**102**

Vehicle Type/Hour Starting	Motorcycle	Cars	Pick-ups,Jeeps,4-WD's,Vans	Matatus&Minibuses	Buses	Light Trucks	Medium Trucks	Heavy Trucks	Others	Total
10.45-11.00am	0	20	20	8	0	9	36	7	0	**100**
11.00-11.15am	0	20	20	8	1	7	39	8	0	**103**
11.15-11.30am	0	20	20	10	0	6	38	8	0	**102**
11.30-11.45am	2	20	20	9	0	7	38	6	0	**102**
11.45-12.00pm	0	20	20	8	0	7	37	8	0	**100**
12.00-12.15pm	0	20	20	11	0	11	38	6	0	**106**
12.15-12.30pm	1	20	20	11	0	6	54	11	0	**123**
12.30-12.45pm	2	20	20	7	0	12	48	8	0	**117**
12.45-1.00pm	0	20	20	8	0	11	44	6	0	**109**
1.00-1.15pm	0	20	20	10	0	8	51	10	0	**119**
1.15-1.30pm	0	20	20	6	0	6	50	4	0	**106**
1.30-1.45pm	0	20	20	7	0	8	39	6	0	**100**
1.45-2.00pm	0	20	20	8	0	7	42	8	0	**105**
2.00-2.15pm	0	20	20	5	0	6	45	6	0	**102**
2.15-2.30pm	3	20	20	7	0	5	41	6	0	**102**
2.30-2.45pm	0	20	20	6	0	7	39	7	0	**99**
2.45-3.00pm	0	20	20	7	0	6	42	6	0	**101**
3.00-3.15pm	0	20	20	4	0	8	40	7	0	**99**
3.15-3.30pm	0	20	20	8	0	7	42	6	0	**103**
3.30-3.45pm	0	20	20	6	0	6	36	8	0	**96**
3.45-4.00pm	0	20	20	6	0	7	42	7	0	**102**
4.00-4.15pm	0	20	20	7	0	4	42	6	0	**99**
4.15-4.30pm	0	20	20	8	0	6	43	6	0	**103**
4.30-4.45pm	0	20	20	6	0	7	44	7	0	**104**
4.45-5.00pm	2	20	20	6	0	6	42	8	0	**104**

Vehicle Type/Hour Starting	Motorcycle	Cars	Pick-ups,Jeeps,4-WD's,Vans	Matatus&Minibuses	Buses	Light Trucks	Medium Trucks	Heavy Trucks	Others	Total
5.00-5.15pm	0	20	20	3	0	7	40	6	0	**96**
5.15-5.30pm	0	20	20	5	0	6	40	6	0	**97**
5.30-5.45pm	0	20	20	2	0	8	43	7	0	**100**
5.45-6.00pm	0	20	20	6	0	6	43	6	0	**101**
6.00-6.15pm	0	20	20	5	0	7	43	7	0	**102**
6.15-6.30pm	0	20	20	1	0	6	39	7	0	**93**
6.30-6.45pm	0	20	20	3	0	7	37	6	0	**93**
6.45-7.00pm	0	20	20	5	0	6	45	7	0	**103**
Total	**19**	**960**	**960**	**378**	**4**	**353**	**1967**	**318**	**3**	**4962**
Approching From:	*EMBAKASI*		**Exiting To:**	*THIKA ROAD*	**Date:**	*10-Sep-16*				
Vehicle Type/Hour Starting	Motorcycle	Cars	Pick-ups,Jeeps,4-WD's,Vans	Matatus&Minibuses	Buses	Light Trucks	**Medium Trucks**	Heavy Trucks	Others	**Total**
7.00-7.15 am	1	16	18	8	0	6	0	3	0	**52**
7:15-7:30 am	0	20	16	4	0	7	0	7	0	**54**
7:30-7.45 am	0	17	18	2	0	10	0	12	0	**59**
7.45-8.00am	0	19	16	7	0	6	0	12	0	**60**
8.00-8.15am	0	20	15	7	3	3	0	10	0	**58**
8.15-8.30am	2	20	15	10	3	2	7	4	0	**63**
8.30-8.45am	0	20	15	7	0	3	7	3	0	**55**
8.45-9.00am	0	20	12	4	0	6	5	7	0	**54**
9.00-9.15am	0	20	15	3	2	0	12	7	1	**60**
9.15-9.30am	3	20	15	3	1	5	5	7	0	**59**
9.30-9.45am	0	20	12	7	1	8	5	7	0	**60**
9.45-10.00	0	20	15	5	2	7	5	8	0	**62**

Vehicle Type/Hour Starting	Motorcycle	Cars	Pick-ups,Jeeps,4-WD's,Vans	Matatus&Minibuses	Buses	Light Trucks	Medium Trucks	Heavy Trucks	Others	Total
10.00-10.15am	0	20	12	3	3	6	0	10	0	**54**
10.15-10.30am	0	20	15	0	2	7	0	3	0	**47**
10.30-10.45am	1	20	15	7	4	5	0	5	0	**57**
10.45-11.00am	0	20	15	4	2	7	0	7	0	**55**
11.00-11.15am	0	20	18	3	2	7	0	7	0	**57**
11.15-11.30am	0	20	16	0	0	11	0	7	0	**54**
11.30-11.45am	2	20	17	7	0	12	0	10	0	**68**
11.45-12.00pm	0	20	16	8	0	11	0	10	0	**65**
12.00-12.15pm	0	17	16	2	0	0	26	5	0	**66**
12.15-12.30pm	0	16	17	1	3	0	26	2	0	**65**
12.30-12.45pm	0	13	15	0	0	3	24	3	0	**58**
12.45-1.00pm	0	16	15	3	3	0	28	1	0	**66**
1.00-1.15pm	2	20	20	2	0	0	25	5	0	**74**
1.15-1.30pm	0	16	16	0	0	0	27	2	0	**61**
1.30-1.45pm	0	17	16	5	0	4	23	5	0	**70**
1.45-2.00pm	0	16	20	0	0	13	23	3	0	**75**
2.00-2.15pm	0	20	0	2	1	0	24	7	0	**54**
2.15-2.30pm	0	20	7	0	0	0	26	5	0	**58**
2.30-2.45pm	0	18	10	0	0	0	26	13	0	**67**
2.45-3.00pm	0	15	12	0	0	0	25	2	0	**54**
3.00-3.15pm	0	16	0	0	0	0	21	4	0	**41**
3.15-3.30pm	1	8	12	0	7	0	20	7	0	**55**
3.30-3.45pm	0	12	0	0	0	0	14	3	0	**29**
3.45-4.00pm	0	17	12	0	0	5	21	1	0	**56**
4.00-4.15pm	0	13	13	0	0	0	17	6	0	**49**

Vehicle Type/Hour Starting	Motorcycle	Cars	Pick-ups,Jeeps,4-WD's,Vans	Matatus&Minibuses	Buses	Light Trucks	Medium Trucks	Heavy Trucks	Others	Total
4.15-4.30pm	0	10	15	0	0	0	16	2	0	**43**
4.30-4.45pm	2	14	12	0	3	0	13	1	0	**45**
4.45-5.00pm	0	15	14	0	0	7	20	3	0	**59**
5.00-5.15pm	0	11	15	0	0	0	17	5	0	**48**
5.15-5.30pm	0	13	11	0	0	0	32	6	0	**62**
5.30-5.45pm	0	17	0	0	4	0	26	10	0	**57**
5.45-6.00pm	0	13	12	0	0	3	17	7	0	**52**
6.00-6.15pm	0	18	15	0	0	0	20	8	0	**61**
6.15-6.30pm	0	13	12	0	2	0	33	2	0	**62**
6.30-6.45pm	0	17	15	0	0	0	25	4	0	**61**
6.45-7.00pm	0	12	12	0	1	0	19	6	0	**50**
Total	**14**	**815**	**640**	**114**	**49**	**164**	**680**	**274**	**1**	**2751**
Approching From:	*THIKA ROAD*		**Exiting To:**	*EMBAKASI*	**Date:**	*13-Sep-16*				
Vehicle Type/Hour Starting	Motorcycle	Cars	Pick-ups,Jeeps,4-WD's,Vans	Matatus&Minibuses	Buses	Light Trucks	**Medium Trucks**	Heavy Trucks	Others	**Total**
7.00-7.15 am	1	33	38	11	1	2	47	3	0	**136**
7:15-7:30 am	2	28	37	8	2	2	43	4	0	**126**
7:30-7.45 am	6	36	33	7	1	4	46	5	0	**138**
7.45-8.00am	8	33	32	10	0	3	39	6	0	**131**
8.00-8.15am	4	28	32	8	2	5	42	5	0	**126**
8.15-8.30am	4	36	30	11	0	1	38	7	0	**127**
8.30-8.45am	1	38	30	8	3	3	42	3	0	**128**
8.45-9.00am	3	28	32	13	0	2	41	3	0	**122**
9.00-9.15am	1	32	35	8	1	5	45	5	0	**132**

Vehicle Type/Hour Starting	Motorcycle	Cars	Pick-ups,Jeeps,4-WD's,Vans	Matatus&Minibuses	Buses	Light Trucks	Medium Trucks	Heavy Trucks	Others	Total
9.15-9.30am	2	33	30	10	0	1	37	4	0	**117**
9.30-9.45am	3	36	30	13	1	3	38	3	0	**127**
9.45-10.00	1	33	32	12	0	4	44	6	0	**132**
10.00-10.15am	1	36	31	9	0	2	41	6	0	**126**
10.15-10.30am	2	33	32	8	2	3	43	3	0	**126**
10.30-10.45am	1	33	31	14	0	5	38	4	0	**126**
10.45-11.00am	1	31	34	11	0	4	41	7	0	**129**
11.00-11.15am	1	40	40	15	2	5	42	4	0	**149**
11.15-11.30am	1	30	36	8	0	5	33	5	0	**118**
11.30-11.45am	3	33	22	18	0	4	45	5	0	**130**
11.45-12.00pm	0	23	21	6	1	3	32	3	0	**89**
12.00-12.15pm	1	36	31	11	0	2	43	5	0	**129**
12.15-12.30pm	3	32	32	5	0	2	39	5	0	**118**
12.30-12.45pm	4	33	32	13	0	3	42	5	0	**132**
12.45-1.00pm	4	31	33	14	0	1	39	5	0	**127**
1.00-1.15pm	1	32	31	11	1	1	41	5	0	**123**
1.15-1.30pm	3	33	32	7	0	2	38	5	0	**120**
1.30-1.45pm	2	32	33	9	3	2	42	4	0	**127**
1.45-2.00pm	3	34	33	14	0	3	45	3	0	**135**
2.00-2.15pm	1	32	33	7	0	3	44	1	0	**121**
2.15-2.30pm	1	33	31	13	2	1	44	3	0	**128**
2.30-2.45pm	2	32	33	8	1	3	43	4	0	**126**
2.45-3.00pm	4	34	31	12	0	3	44	1	0	**129**
3.00-3.15pm	7	37	34	14	0	5	44	3	0	**144**
3.15-3.30pm	4	33	31	7	0	2	47	1	0	**125**

Vehicle Type/Hour Starting	Motorcycle	Cars	Pick-ups,Jeeps,4-WD's,Vans	Matatus&Minibuses	Buses	Light Trucks	Medium Trucks	Heavy Trucks	Others	Total
3.30-3.45pm	2	36	33	11	0	2	44	4	0	**132**
3.45-4.00pm	4	37	33	10	1	1	43	5	0	**134**
4.00-4.15pm	1	28	33	12	0	3	37	4	0	**118**
4.15-4.30pm	2	31	32	9	0	5	37	5	0	**121**
4.30-4.45pm	3	33	28	10	0	3	43	3	0	**123**
4.45-5.00pm	1	28	31	8	0	6	39	2	0	**115**
5.00-5.15pm	0	32	32	9	0	7	45	5	0	**130**
5.15-5.30pm	2	35	28	11	0	5	39	3	0	**123**
5.30-5.45pm	5	33	31	12	0	4	38	7	0	**130**
5.45-6.00pm	0	36	33	7	0	7	44	6	2	**135**
6.00-6.15pm	3	37	36	11	0	10	49	5	0	**151**
6.15-6.30pm	1	35	32	8	0	8	50	8	2	**144**
6.30-6.45pm	0	36	33	9	0	7	49	6	0	**140**
6.45-7.00pm	0	35	36	7	0	6	51	11	0	**146**
Total	**110**	**1589**	**1539**	**487**	**24**	**173**	**2020**	**215**	**4**	**6161**
Approching From:	*EMBAKASI*		**Exiting To:**	*THIKA ROAD*	**Date:**	*13-Sep-16*				
Vehicle Type/Hour Starting	Motorcycle	Cars	Pick-ups,Jeeps,4-WD's,Vans	Matatus&Minibuses	Buses	Light Trucks	**Medium Trucks**	Heavy Trucks	Others	**Total**
7.00-7.15 am	1	33	35	11	0	11	31	10	0	**132**
7:15-7:30 am	2	35	28	13	0	6	28	10	0	**122**
7:30-7.45 am	3	37	31	7	0	7	29	7	0	**121**
7.45-8.00am	2	36	31	8	0	6	30	6	0	**119**
8.00-8.15am	0	37	36	11	0	10	25	10	0	**129**
8.15-8.30am	1	36	31	12	0	7	28	7	0	**122**

Vehicle Type/Hour Starting	Motorcycle	Cars	Pick-ups,Jeeps,4-WD's,Vans	Matatus&Minibuses	Buses	Light Trucks	Medium Trucks	Heavy Trucks	Others	Total
8.30-8.45am	1	37	33	13	0	6	25	6	0	**121**
8.45-9.00am	3	32	35	15	0	6	24	7	0	**122**
9.00-9.15am	3	36	35	12	0	10	24	8	0	**128**
9.15-9.30am	2	36	34	11	0	11	29	6	0	**129**
9.30-9.45am	2	35	31	12	0	7	27	6	0	**120**
9.45-10.00	3	36	32	13	0	8	28	7	0	**127**
10.00-10.15am	5	33	35	11	0	7	41	8	0	**140**
10.15-10.30am	1	30	33	8	0	7	28	6	0	**113**
10.30-10.45am	3	33	36	12	0	8	22	7	0	**121**
10.45-11.00am	4	32	37	11	0	8	28	8	0	**128**
11.00-11.15am	4	33	35	8	0	10	27	10	0	**127**
11.15-11.30am	1	35	36	9	0	8	31	11	0	**131**
11.30-11.45am	2	36	37	10	0	11	28	11	0	**135**
11.45-12.00pm	3	36	36	7	0	7	31	12	0	**132**
12.00-12.15pm	3	31	32	11	0	11	27	12	0	**127**
12.15-12.30pm	1	35	31	10	0	7	27	11	0	**122**
12.30-12.45pm	3	32	33	10	1	6	25	8	0	**118**
12.45-1.00pm	5	36	31	8	0	7	21	11	0	**119**
1.00-1.15pm	1	33	25	6	0	11	27	12	0	**115**
1.15-1.30pm	2	31	27	11	0	7	31	14	0	**123**
1.30-1.45pm	5	32	30	6	0	8	24	8	0	**113**
1.45-2.00pm	2	34	30	7	0	11	27	6	0	**117**
2.00-2.15pm	5	33	30	7	0	11	28	7	0	**121**
2.15-2.30pm	3	31	35	10	0	7	31	8	0	**125**
2.30-2.45pm	1	36	36	10	0	8	26	7	0	**124**

Vehicle Type/Hour Starting	Motorcycle	Cars	Pick-ups,Jeeps,4-WD's,Vans	Matatus&Minibuses	Buses	Light Trucks	Medium Trucks	Heavy Trucks	Others	Total
2.45-3.00pm	2	36	35	8	0	11	28	11	0	**131**
3.00-3.15pm	3	38	30	7	0	12	31	13	1	**135**
3.15-3.30pm	2	35	30	11	0	13	34	15	0	**140**
3.30-3.45pm	4	28	30	11	0	11	36	13	0	**133**
3.45-4.00pm	5	32	32	12	0	12	35	12	0	**140**
4.00-4.15pm	1	35	33	12	0	11	38	13	0	**143**
4.15-4.30pm	5	33	30	15	0	11	37	13	0	**144**
4.30-4.45pm	2	31	28	16	0	12	33	15	0	**137**
4.45-5.00pm	3	33	35	11	0	13	33	16	0	**144**
5.00-5.15pm	3	33	30	15	0	11	24	15	2	**133**
5.15-5.30pm	4	31	30	12	0	13	31	11	0	**132**
5.30-5.45pm	2	33	35	7	0	12	25	9	0	**123**
5.45-6.00pm	0	33	32	8	0	15	33	12	0	**133**
6.00-6.15pm	3	32	31	15	0	13	34	16	2	**146**
6.15-6.30pm	1	28	32	12	0	11	31	17	0	**132**
6.30-6.45pm	0	32	31	10	0	10	32	16	0	**131**
6.45-7.00pm	0	31	28	12	0	13	31	14	0	**129**
	117	**1612**	**1549**	**504**	**1**	**459**	**1404**	**498**	**5**	**6149**
Approching From:	*EMBAKASI*		**Exiting To:**	*THIKA ROAD*	**Date:**	*14-Sep-16*				
Vehicle Type/Hour Starting	Motorcycle	Cars	Pick-ups,Jeeps,4-WD's,Vans	Matatus&Minibuses	Buses	Light Trucks	Medium Trucks	Heavy Trucks	Others	**Total**
7.00-7.15 am	2	37	32	12	0	5	15	3	0	**106**
7:15-7:30 am	1	38	33	15	0	3	16	5	0	**111**
7:30-7.45 am	3	33	35	20	0	7	12	4	0	**114**

Vehicle Type/Hour Starting	Motorcycle	Cars	Pick-ups,Jeeps,4-WD's,Vans	Matatus&Minibuses	Buses	Light Trucks	Medium Trucks	Heavy Trucks	Others	Total
7.45-8.00am	0	38	26	17	0	8	11	2	0	**102**
8.00-8.15am	2	37	27	17	0	5	14	3	0	**105**
8.15-8.30am	2	38	19	13	0	5	10	12	0	**99**
8.30-8.45am	4	33	28	14	0	11	14	20	0	**124**
8.45-9.00am	1	36	31	10	0	16	24	6	0	**124**
9.00-9.15am	0	38	17	12	0	4	36	17	0	**124**
9.15-9.30am	3	35	32	7	2	17	14	10	0	**120**
9.30-9.45am	2	32	12	12	1	11	11	6	0	**87**
9.45-10.00	4	38	38	10	1	4	29	20	0	**144**
10.00-10.15am	4	36	36	14	1	12	29	14	0	**146**
10.15-10.30am	2	38	37	16	2	10	36	18	0	**159**
10.30-10.45am	1	38	32	16	0	8	22	15	0	**132**
10.45-11.00am	3	38	32	21	0	9	19	16	0	**138**
11.00-11.15am	1	36	32	18	0	16	27	16	0	**146**
11.15-11.30am	1	31	33	17	1	16	20	16	0	**135**
11.30-11.45am	3	32	36	21	0	20	28	16	0	**156**
11.45-12.00pm	2	36	36	23	0	22	28	17	0	**164**
12.00-12.15pm	1	33	34	14	0	10	26	11	0	**129**
12.15-12.30pm	2	35	37	11	0	12	29	13	0	**139**
12.30-12.45pm	3	33	32	17	0	13	52	13	0	**163**
12.45-1.00pm	4	32	36	11	0	8	44	8	0	**143**
1.00-1.15pm	2	35	33	8	0	12	29	11	0	**130**
1.15-1.30pm	3	38	36	13	0	13	28	8	0	**139**
1.30-1.45pm	2	36	33	14	1	13	36	9	0	**144**
1.45-2.00pm	1	38	36	16	0	14	37	11	0	**153**

Vehicle Type/Hour Starting	Motorcycle	Cars	Pick-ups,Jeeps,4-WD's,Vans	Matatus&Minibuses	Buses	Light Trucks	Medium Trucks	Heavy Trucks	Others	Total
2.00-2.15pm	2	33	32	14	2	11	39	8	0	**141**
2.15-2.30pm	2	32	25	8	1	3	36	2	0	**109**
2.30-2.45pm	0	36	35	16	0	1	38	1	0	**127**
2.45-3.00pm	4	34	32	9	0	5	40	3	1	**128**
3.00-3.15pm	1	31	33	9	0	1	38	3	2	**118**
3.15-3.30pm	2	36	31	13	0	3	40	2	0	**127**
3.30-3.45pm	0	33	34	10	0	6	37	3	0	**123**
3.45-4.00pm	3	32	29	13	0	7	38	5	1	**128**
4.00-4.15pm	0	31	32	14	0	8	42	6	0	**133**
4.15-4.30pm	3	32	35	12	1	10	40	6	0	**139**
4.30-4.45pm	1	33	36	11	0	7	42	7	0	**137**
4.45-5.00pm	2	32	33	13	2	11	47	8	0	**148**
5.00-5.15pm	0	31	26	11	0	6	44	5	0	**123**
5.15-5.30pm	2	30	30	7	0	8	48	4	0	**129**
5.30-5.45pm	3	32	30	13	0	11	43	8	0	**140**
5.45-6.00pm	1	40	35	15	0	12	52	7	0	**162**
6.00-6.15pm	0	40	35	14	0	15	44	6	0	**154**
6.15-6.30pm	2	33	31	9	0	13	53	5	0	**146**
6.30-6.45pm	0	36	32	16	0	11	49	4	0	**148**
6.45-7.00pm	0	36	32	20	0	12	54	3	0	**157**
Total	**87**	**1671**	**1519**	**656**	**15**	**465**	**1560**	**416**	**4**	**6393**
Approching From:	*THIKA ROAD*		**Exiting To:**	*EMBAKASI*	**Date:**	*14 SEP 016*				
Vehicle Type/Hour Starting	Motorcycle	Cars	Pick-ups,Jeeps,4-WD's,Vans	Matatus&Minibuses	Buses	Light Trucks	**Medium Trucks**	Heavy Trucks	Others	**Total**

Vehicle Type/Hour Starting	Motorcycle	Cars	Pick-ups,Jeeps,4-WD's,Vans	Matatus&Minibuses	Buses	Light Trucks	Medium Trucks	Heavy Trucks	Others	Total
7.00-7.15 am	2	31	32	12	0	6	34	8	2	**127**
7:15-7:30 am	1	35	31	15	0	4	24	10	1	**121**
7:30-7.45 am	3	36	27	11	0	7	29	7	2	**122**
7.45-8.00am	3	37	32	10	0	8	41	8	0	**139**
8.00-8.15am	1	36	31	12	0	6	27	7	0	**120**
8.15-8.30am	1	35	35	12	0	10	44	6	1	**144**
8.30-8.45am	2	40	38	13	0	5	29	9	0	**136**
8.45-9.00am	0	40	22	15	0	11	12	7	0	**107**
9.00-9.15am	2	40	33	15	0	11	43	9	0	**153**
9.15-9.30am	2	35	27	10	0	6	31	6	0	**117**
9.30-9.45am	2	33	23	17	0	7	35	3	0	**120**
9.45-10.00	1	31	26	10	0	4	37	0	0	**109**
10.00-10.15am	4	37	36	13	0	6	46	4	0	**146**
10.15-10.30am	4	31	25	12	0	4	37	2	1	**116**
10.30-10.45am	5	30	29	16	0	6	42	2	1	**131**
10.45-11.00am	3	33	30	11	1	7	48	3	0	**136**
11.00-11.15am	0	32	31	12	1	4	41	3	0	**124**
11.15-11.30am	1	36	37	13	0	0	50	10	2	**149**
11.30-11.45am	0	33	34	10	0	2	49	7	0	**135**
11.45-12.00pm	0	32	32	8	0	2	43	6	0	**123**
12.00-12.15pm	0	33	35	11	0	4	40	20	0	**143**
12.15-12.30pm	2	36	20	12	0	0	35	29	0	**134**
12.30-12.45pm	1	30	20	20	0	2	50	27	0	**150**
12.45-1.00pm	2	20	13	12	0	5	44	20	0	**116**
1.00-1.15pm	0	32	32	6	2	2	31	32	0	**137**

Vehicle Type/Hour Starting	Motorcycle	Cars	Pick-ups,Jeeps,4-WD's,Vans	Matatus&Minibuses	Buses	Light Trucks	Medium Trucks	Heavy Trucks	Others	Total
1.15-1.30pm	3	34	34	7	0	5	38	27	0	**148**
1.30-1.45pm	0	36	33	3	0	3	39	34	0	**148**
1.45-2.00pm	2	40	38	5	0	5	39	34	0	**163**
2.00-2.15pm	0	32	33	5	0	7	31	12	0	**120**
2.15-2.30pm	3	28	31	12	0	8	39	15	0	**136**
2.30-2.45pm	1	31	27	16	0	10	43	13	0	**141**
2.45-3.00pm	3	32	32	12	0	13	46	16	0	**154**
3.00-3.15pm	2	33	33	8	0	17	44	14	0	**151**
3.15-3.30pm	3	39	32	12	0	13	33	15	0	**147**
3.30-3.45pm	4	39	33	11	0	17	48	12	0	**164**
3.45-4.00pm	1	36	28	12	0	16	54	13	0	**160**
4.00-4.15pm	1	32	32	15	0	11	53	16	0	**160**
4.15-4.30pm	2	40	31	13	0	13	53	12	0	**164**
4.30-4.45pm	0	33	35	17	0	17	52	13	0	**167**
4.45-5.00pm	3	38	32	8	0	20	59	12	0	**172**
5.00-5.15pm	0	32	33	9	2	17	52	15	0	**160**
5.15-5.30pm	2	29	31	12	0	19	51	12	0	**156**
5.30-5.45pm	0	31	32	11	0	13	52	8	0	**147**
5.45-6.00pm	0	32	35	8	0	13	51	11	0	**150**
6.00-6.15pm	3	28	31	12	0	11	37	7	0	**129**
6.15-6.30pm	0	30	32	11	0	14	41	5	0	**133**
6.30-6.45pm	0	36	28	12	0	8	46	8	0	**138**
6.45-7.00pm	1	33	31	9	0	12	44	8	0	**138**
Total	**76**	**1618**	**1468**	**548**	**6**	**411**	**1987**	**577**	**10**	**6701**

Vehicle Type/Hour Starting	**Motorcycle**	**Cars**	**Pick-ups,Jeeps,4-WD's,Vans**	**Matatus&Minibuses**	**Buses**	**Light Trucks**	**Medium Trucks**	**Heavy Trucks**	**Others**	**Total**
Approching From:	*THIKA ROAD*		**Exiting To:**	*EMBAKASI*	**Date:**	*15 SEP 016*				
Vehicle Type/Hour Starting	Motorcycle	Cars	Pick-ups,Jeeps,4-WD's,Vans	Matatus&Minibuses	Buses	Light Trucks	**Medium Trucks**	Heavy Trucks	Others	**Total**
7.00-7.15 am	0	27	16	18	0	16	23	4	0	**104**
7:15-7:30 am	2	31	24	15	2	13	25	3	0	**115**
7:30-7.45 am	0	30	18	17	0	15	22	5	2	**109**
7.45-8.00am	1	36	28	23	0	18	32	6	0	**144**
8.00-8.15am	2	31	31	13	0	11	41	11	0	**140**
8.15-8.30am	0	40	35	16	0	9	47	15	0	**162**
8.30-8.45am	3	33	29	14	0	15	44	13	1	**152**
8.45-9.00am	1	35	32	17	0	12	28	16	1	**142**
9.00-9.15am	0	34	31	12	0	18	42	11	0	**148**
9.15-9.30am	3	36	28	15	1	11	30	15	0	**139**
9.30-9.45am	2	38	32	14	0	13	42	10	1	**152**
9.45-10.00	0	32	35	17	0	16	28	11	2	**141**
10.00-10.15am	3	35	33	8	0	14	37	13	0	**143**
10.15-10.30am	2	32	32	11	1	17	43	9	0	**147**
10.30-10.45am	0	36	29	13	0	13	43	10	0	**144**
10.45-11.00am	4	32	33	16	2	16	49	14	0	**166**
11.00-11.15am	0	36	29	14	0	14	42	18	0	**153**
11.15-11.30am	2	33	31	15	0	17	41	15	0	**154**
11.30-11.45am	3	36	33	12	0	13	42	18	0	**157**
11.45-12.00pm	0	33	35	16	0	16	54	15	0	**169**
12.00-12.15pm	2	34	33	12	1	7	46	20	0	**155**
12.15-12.30pm	0	37	30	13	0	11	41	12	0	**144**

Vehicle Type/Hour Starting	Motorcycle	Cars	Pick-ups,Jeeps,4-WD's,Vans	Matatus&Minibuses	Buses	Light Trucks	Medium Trucks	Heavy Trucks	Others	Total
12.30-12.45pm	0	31	34	7	3	0	46	8	0	**129**
12.45-1.00pm	1	35	31	18	0	5	42	13	0	**145**
1.00-1.15pm	0	31	32	13	2	2	42	10	0	**132**
1.15-1.30pm	2	37	28	12	0	7	36	10	0	**132**
1.30-1.45pm	0	38	33	13	0	7	29	10	0	**130**
1.45-2.00pm	1	39	35	6	0	11	39	16	0	**147**
2.00-2.15pm	0	36	31	8	0	13	40	18	0	**146**
2.15-2.30pm	1	32	23	15	0	15	36	7	0	**129**
2.30-2.45pm	2	31	28	12	0	14	22	17	0	**126**
2.45-3.00pm	1	29	35	16	0	12	32	12	0	**137**
3.00-3.15pm	1	40	32	13	0	12	31	17	1	**147**
3.15-3.30pm	3	38	36	19	1	15	53	15	0	**180**
3.30-3.45pm	4	33	33	22	2	15	60	19	0	**188**
3.45-4.00pm	3	36	35	20	1	19	51	27	0	**192**
4.00-4.15pm	5	38	34	23	0	20	54	27	0	**201**
4.15-4.30pm	0	37	38	17	0	18	56	15	0	**181**
4.30-4.45pm	2	28	23	24	1	21	51	13	1	**164**
4.45-5.00pm	1	34	27	16	1	13	41	15	0	**148**
5.00-5.15pm	2	36	30	18	2	19	47	17	0	**171**
5.15-5.30pm	1	32	29	20	0	16	47	15	0	**160**
5.30-5.45pm	3	28	36	14	0	17	46	17	0	**161**
5.45-6.00pm	5	30	32	16	0	12	53	15	0	**163**
6.00-6.15pm	1	30	30	14	0	9	40	13	0	**137**
6.15-6.30pm	2	29	29	18	1	11	47	19	0	**156**
6.30-6.45pm	0	33	35	20	0	8	41	17	0	**154**

Vehicle Type/Hour Starting	Motorcycle	Cars	Pick-ups,Jeeps,4-WD's,Vans	Matatus&Minibuses	Buses	Light Trucks	Medium Trucks	Heavy Trucks	Others	Total
6.45-7.00pm	0	31	33	17	2	11	23	11	0	**128**
Total	**71**	**1619**	**1479**	**732**	**23**	**627**	**1947**	**657**	**9**	**7164**
Approching From:	*EMBAKASI*		**Exiting To:**	*THIKA ROAD*	**Date:**	*15 SEP 016*				
Vehicle Type/Hour Starting	Motorcycle	Cars	Pick-ups,Jeeps,4-WD's,Vans	Matatus&Minibuses	Buses	Light Trucks	**Medium Trucks**	Heavy Trucks	Others	**Total**
7.00-7.15 am	3	23	16	13	0	7	21	8	0	**91**
7:15-7:30 am	0	20	27	22	2	8	18	6	0	**103**
7:30-7.45 am	2	32	31	25	0	11	25	10	0	**136**
7.45-8.00am	0	35	35	21	0	16	39	16	0	**162**
8.00-8.15am	1	30	32	11	0	12	27	9	2	**124**
8.15-8.30am	0	32	26	15	1	15	40	13	0	**142**
8.30-8.45am	2	35	34	16	0	20	47	16	0	**170**
8.45-9.00am	1	32	30	12	0	12	37	13	1	**138**
9.00-9.15am	3	35	28	18	0	15	50	15	0	**164**
9.15-9.30am	1	36	31	20	0	12	43	11	0	**154**
9.30-9.45am	2	39	32	13	0	8	46	12	0	**152**
9.45-10.00	0	32	29	10	0	7	46	9	0	**133**
10.00-10.15am	0	30	32	14	0	11	46	10	2	**145**
10.15-10.30am	4	29	34	13	0	13	50	13	0	**156**
10.30-10.45am	0	30	31	15	0	8	44	9	0	**137**
10.45-11.00am	1	33	34	13	2	10	44	16	0	**153**
11.00-11.15am	2	31	31	12	0	13	43	15	0	**147**
11.15-11.30am	1	28	29	9	0	9	49	17	0	**142**
11.30-11.45am	3	34	31	16	0	11	42	5	0	**142**

Vehicle Type/Hour Starting	Motorcycle	Cars	Pick-ups,Jeeps,4-WD's,Vans	Matatus&Minibuses	Buses	Light Trucks	Medium Trucks	Heavy Trucks	Others	Total
11.45-12.00pm	8	36	27	12	0	2	32	3	0	**120**
12.00-12.15pm	2	40	31	10	0	3	38	5	1	**130**
12.15-12.30pm	3	32	26	5	0	1	39	3	0	**109**
12.30-12.45pm	4	36	30	14	0	3	39	4	0	**130**
12.45-1.00pm	3	26	26	10	0	2	40	3	0	**110**
1.00-1.15pm	2	33	26	19	1	1	37	4	0	**123**
1.15-1.30pm	3	31	28	11	0	2	43	6	0	**124**
1.30-1.45pm	2	32	29	13	0	4	39	5	0	**124**
1.45-2.00pm	1	33	31	11	0	1	40	8	0	**125**
2.00-2.15pm	4	34	29	8	2	4	37	5	1	**124**
2.15-2.30pm	3	38	32	12	0	3	41	4	0	**133**
2.30-2.45pm	4	37	31	12	1	4	36	6	0	**131**
2.45-3.00pm	1	40	32	9	1	1	28	6	0	**118**
3.00-3.15pm	0	35	35	13	0	2	41	6	0	**132**
3.15-3.30pm	1	38	28	11	0	5	39	7	1	**130**
3.30-3.45pm	4	36	34	12	1	6	43	3	0	**139**
3.45-4.00pm	3	34	34	13	0	4	38	7	0	**133**
4.00-4.15pm	2	35	36	12	1	4	39	9	0	**138**
4.15-4.30pm	1	36	35	12	1	7	39	2	0	**133**
4.30-4.45pm	3	38	34	14	1	4	39	3	0	**136**
4.45-5.00pm	2	39	38	16	0	4	39	4	0	**142**
5.00-5.15pm	3	34	28	12	0	2	29	2	0	**110**
5.15-5.30pm	0	35	30	15	0	5	34	5	0	**124**
5.30-5.45pm	4	33	29	11	0	4	43	4	0	**128**
5.45-6.00pm	0	34	31	8	0	7	41	6	0	**127**

Vehicle Type/Hour Starting	Motorcycle	Cars	Pick-ups,Jeeps,4-WD's,Vans	Matatus&Minibuses	Buses	Light Trucks	Medium Trucks	Heavy Trucks	Others	Total
6.00-6.15pm	4	31	33	10	0	8	41	3	0	**130**
6.15-6.30pm	2	34	36	13	2	10	46	9	0	**152**
6.30-6.45pm	5	29	39	16	0	6	47	8	0	**150**
6.45-7.00pm	0	36	34	9	0	7	40	7	0	**133**
Total	**100**	**1601**	**1485**	**631**	**16**	**334**	**1884**	**370**	**8**	**6429**
Approching From:	*THIKA ROAD*		**Exiting To:**	*EMBAKASI*	**Date:**	*16-Sep-16*				
Vehicle Type/Hour Starting	Motorcycle	Cars	Pick-ups,Jeeps,4-WD's,Vans	Matatus&Minibuses	Buses	Light Trucks	**Medium Trucks**	Heavy Trucks	Others	**Total**
7.00-7.15 am	0	17	31	11	0	10	21	5	0	**95**
7:15-7:30 am	1	28	35	16	0	10	42	5	0	**137**
7:30-7.45 am	4	35	38	14	2	8	37	9	0	**147**
7.45-8.00am	3	39	35	18	0	11	47	15	0	**168**
8.00-8.15am	2	34	32	21	1	9	45	13	0	**157**
8.15-8.30am	5	33	34	18	0	12	46	16	0	**164**
8.30-8.45am	3	37	31	17	1	10	45	15	0	**159**
8.45-9.00am	2	34	34	16	0	8	49	13	0	**156**
9.00-9.15am	2	34	34	12	0	13	43	11	0	**149**
9.15-9.30am	0	35	33	14	1	11	46	13	0	**153**
9.30-9.45am	5	39	32	14	0	7	32	6	0	**135**
9.45-10.00	3	38	33	9	2	9	40	2	0	**136**
10.00-10.15am	1	34	29	14	0	4	43	4	0	**129**
10.15-10.30am	5	37	27	7	0	10	31	3	0	**120**
10.30-10.45am	3	34	29	10	4	7	34	2	0	**123**
10.45-11.00am	2	38	36	11	0	9	42	3	0	**141**

Vehicle Type/Hour Starting	Motorcycle	Cars	Pick-ups,Jeeps,4-WD's,Vans	Matatus&Minibuses	Buses	Light Trucks	Medium Trucks	Heavy Trucks	Others	Total
11.00-11.15am	4	34	33	9	0	6	32	4	0	**122**
11.15-11.30am	2	32	26	9	0	8	40	4	0	**121**
11.30-11.45am	3	34	28	8	0	4	37	9	0	**123**
11.45-12.00pm	2	36	28	9	1	7	33	7	0	**123**
12.00-12.15pm	2	34	33	13	1	11	33	8	0	**135**
12.15-12.30pm	4	36	34	11	2	8	38	6	0	**139**
12.30-12.45pm	0	31	27	9	0	8	41	4	0	**120**
12.45-1.00pm	2	32	31	12	1	6	34	2	0	**120**
1.00-1.15pm	3	35	34	9	0	8	34	5	0	**128**
1.15-1.30pm	4	33	36	11	0	5	37	5	0	**131**
1.30-1.45pm	4	33	36	13	1	4	37	6	0	**134**
1.45-2.00pm	5	36	31	9	0	8	36	3	0	**128**
2.00-2.15pm	1	31	29	10	0	5	37	5	0	**118**
2.15-2.30pm	3	27	31	7	2	7	36	3	0	**116**
2.30-2.45pm	2	33	28	12	0	8	38	2	0	**123**
2.45-3.00pm	2	34	33	14	0	6	35	6	0	**130**
3.00-3.15pm	4	31	36	7	1	10	31	3	0	**123**
3.15-3.30pm	3	28	31	9	0	8	34	5	0	**118**
3.30-3.45pm	2	32	33	12	1	12	36	3	0	**131**
3.45-4.00pm	1	33	32	13	0	11	38	2	0	**130**
4.00-4.15pm	1	33	33	11	1	8	40	2	0	**129**
4.15-4.30pm	2	31	34	9	0	6	35	4	0	**121**
4.30-4.45pm	3	33	36	11	2	7	31	5	0	**128**
4.45-5.00pm	2	31	33	9	1	9	35	6	0	**126**
5.00-5.15pm	3	31	32	10	0	6	40	8	0	**130**

Vehicle Type/Hour Starting	Motorcycle	Cars	Pick-ups,Jeeps,4-WD's,Vans	Matatus&Minibuses	Buses	Light Trucks	Medium Trucks	Heavy Trucks	Others	Total
5.15-5.30pm	2	32	37	13	1	9	35	7	0	**136**
5.30-5.45pm	1	33	38	14	0	8	42	4	0	**140**
5.45-6.00pm	1	32	34	8	1	7	38	3	0	**124**
6.00-6.15pm	3	33	34	13	0	7	40	2	0	**132**
6.15-6.30pm	2	34	31	8	0	8	40	3	0	**126**
6.30-6.45pm	1	31	31	16	2	6	37	4	0	**128**
6.45-7.00pm	1	30	32	14	0	7	38	6	0	**128**
Total	**116**	**1585**	**1558**	**564**	**29**	**386**	**1811**	**281**	**0**	**6330**
Approching From:	*Embakasi*		**Exiting To:**	*THIKA ROAD*	**Date:**	*16-Sep-16*				
Vehicle Type/Hour Starting	Motorcycle	Cars	Pick-ups,Jeeps,4-WD's,Vans	Matatus&Minibuses	Buses	Light Trucks	**Medium Trucks**	Heavy Trucks	Others	**Total**
7.00-7.15 am	2	20	31	8	0	8	23	0	0	**92**
7:15-7:30 am	0	34	33	10	3	10	29	0	0	**119**
7:30-7.45 am	3	35	29	12	0	6	23	0	0	**108**
7.45-8.00am	5	40	35	16	0	12	30	0	0	**138**
8.00-8.15am	2	36	33	20	1	4	37	7	0	**140**
8.15-8.30am	0	35	35	17	0	7	41	11	0	**146**
8.30-8.45am	3	31	28	16	0	6	29	0	0	**113**
8.45-9.00am	0	35	31	12	0	5	24	0	0	**107**
9.00-9.15am	1	32	33	15	0	10	28	0	0	**119**
9.15-9.30am	5	32	35	13	0	8	18	7	0	**118**
9.30-9.45am	2	26	28	15	2	8	30	12	1	**124**
9.45-10.00	2	33	29	12	3	12	21	14	2	**128**
10.00-10.15am	3	31	31	21	4	16	21	10	0	**137**
10.15-10.30am	2	28	30	14	2	8	21	15	0	**120**

Vehicle Type/Hour Starting	Motorcycle	Cars	Pick-ups,Jeeps,4-WD's,Vans	Matatus&Minibuses	Buses	Light Trucks	Medium Trucks	Heavy Trucks	Others	Total
10.30-10.45am	2	31	31	15	1	12	18	12	0	**122**
10.45-11.00am	4	27	30	17	0	14	25	16	0	**133**
11.00-11.15am	0	29	33	19	1	13	27	17	0	**139**
11.15-11.30am	1	29	24	5	0	11	17	13	0	**100**
11.30-11.45am	2	30	22	6	0	3	17	13	0	**93**
11.45-12.00pm	2	23	14	3	0	12	12	15	1	**82**
12.00-12.15pm	2	24	31	17	0	13	27	12	1	**127**
12.15-12.30pm	4	26	28	15	2	16	35	15	0	**141**
12.30-12.45pm	2	23	30	15	0	8	34	7	0	**119**
12.45-1.00pm	1	28	26	19	1	12	29	10	0	**126**
1.00-1.15pm	3	27	35	16	0	9	18	11	0	**119**
1.15-1.30pm	1	31	31	13	0	8	23	10	0	**117**
1.30-1.45pm	3	27	30	9	0	9	27	10	0	**115**
1.45-2.00pm	5	32	33	10	0	11	17	9	0	**117**
2.00-2.15pm	1	25	24	12	0	7	23	7	0	**99**
2.15-2.30pm	1	31	28	8	1	10	26	7	0	**112**
2.30-2.45pm	2	35	28	13	0	8	31	5	1	**123**
2.45-3.00pm	4	32	32	7	0	12	39	8	0	**134**
3.00-3.15pm	2	40	31	9	0	13	39	9	0	**143**
3.15-3.30pm	3	34	29	10	0	15	44	6	0	**141**
3.30-3.45pm	1	32	23	16	0	9	44	5	0	**130**
3.45-4.00pm	2	34	27	18	1	6	38	5	1	**132**
4.00-4.15pm	1	38	30	10	0	8	48	7	0	**142**
4.15-4.30pm	1	28	29	13	0	10	51	6	0	**138**
4.30-4.45pm	2	36	26	19	0	11	46	8	0	**148**

Vehicle Type/Hour Starting	Motorcycle	Cars	Pick-ups,Jeeps,4-WD's,Vans	Matatus&Minibuses	Buses	Light Trucks	Medium Trucks	Heavy Trucks	Others	Total
4.45-5.00pm	2	35	31	22	0	7	41	10	0	**148**
5.00-5.15pm	3	32	34	14	0	13	48	9	0	**153**
5.15-5.30pm	5	34	28	16	2	11	49	11	0	**156**
5.30-5.45pm	3	32	35	15	0	9	48	8	0	**150**
5.45-6.00pm	1	36	31	12	0	7	52	10	0	**149**
6.00-6.15pm	4	29	28	13	0	11	47	7	0	**139**
6.15-6.30pm	1	33	33	11	0	13	50	13	0	**154**
6.30-6.45pm	2	38	28	15	0	11	46	11	0	**151**
6.45-7.00pm	1	31	31	13	1	8	52	15	0	**152**
Total	**104**	**1500**	**1425**	**646**	**25**	**470**	**1563**	**413**	**7**	**6153**

Appendix 12: Classified traffic volume counts Data by KURA in 2017

Location	Direction	Date	Motorcyle	Private Cars	Pick - Ups, Jeeps, 4-WD's, Vans	Matatus (9-25 seats)	Buses (>25 seats)	LGV (<3.5 tons unladen)	MGV 2 axles truck (>1.5 tonnes)	HGV (3-4 axles)	Artics, Draw-bar Trucks (>4 axles)	Other (Agricultural tractors, grader,etc)	TOTAL
C4:Between junction with Thika Road and Kangundo Road junction													
	Ruiru-Utawala	Wednesday 26/07/2017	176	3,619	1,591	713	33	345	1,223	732	427	7	8,866
	Utawala-Ruiru		138	4,485	2,275	647	23	270	1,097	759	455	8	10,157
		Total	**314**	**8,104**	**3,866**	**1,360**	**56**	**615**	**2,320**	**1,491**	**882**	**15**	**19,023**
	Ruiru-Utawala	Thursday 27/07/2017	187	4,146	1,801	631	49	390	1,136	644	448	0	9,432
	Utawala-Ruiru		204	4,371	2,220	712	48	275	1,179	657	353	0	10,019
		Total	**391**	**8,517**	**4,021**	**1,343**	**97**	**665**	**2,315**	**1,301**	**801**	**0**	**19,451**
	Ruiru-Utawala	Friday 28/07/2017	172	4,785	1,964	665	56	306	981	599	392	1	9,921
	Utawala-Ruiru		196	4,804	2,208	787	75	331	1,296	688	352	5	10,742
		Total	**368**	**9,589**	**4,172**	**1,452**	**131**	**637**	**2,277**	**1,287**	**744**	**6**	**20,663**

	Ruiru-Utawala	Saturday	222	4,467	2,298	830	51	285	1,093	575	446	10	10,277
	Utawala-Ruiru	29/07/2017	266	4,806	1,815	895	83	209	1,140	642	398	7	10,261
		Total	**488**	**9,273**	**4,113**	**1,725**	**134**	**494**	**2,233**	**1,217**	**844**	**17**	**20,538**
	Ruiru-Utawala	Sunday	122	3,688	1,347	820	21	83	97	108	87	0	6,373
	Utawala-Ruiru	30/07/2017	103	2,321	976	665	29	112	92	69	125	1	4,493
		Total	**225**	**6,009**	**2,323**	**1,485**	**50**	**195**	**189**	**177**	**212**	**1**	**10,866**
	Ruiru-Utawala	Monday	232	3,083	2,186	854	40	298	1,235	606	407	2	8,943
	Utawala-Ruiru	31/07/2017	127	2,838	1,233	676	40	289	1,318	858	441	4	7,824
		Total	**359**	**5,921**	**3,419**	**1,530**	**80**	**587**	**2,553**	**1,464**	**848**	**6**	**16,767**
	Ruiru-Utawala	Tuesday	76	3,292	2,013	791	40	352	1,020	554	308	7	8,453
	Utawala-Ruiru	01/08/2017	115	2,484	1,453	771	31	334	1,097	745	319	4	7,353
		Total	**191**	**5,776**	**3,466**	**1,562**	**71**	**686**	**2,117**	**1,299**	**627**	**11**	**15,806**

Location	Direction	Date	Motorcyle	Private Cars	Pick - Ups, Jeeps, 4-WD's, Vans	Matatus (9-25 seats)	Buses (>25 seats)	LGV (<3.5 tons unladen)	MGV 2 axles truck (>1.5 tonnes)	HGV (3-4 axles)	Artics, Draw-bar Trucks (>4 axles)	Other (Agricultural tractors, grader,etc)	TOTAL
C3: Embakasi													

	Town - Ruiru	Wednesday 19/07/2017	724	10,898	3,778	1,626	911	389	2,195	926	1,107	2	22,556
	Ruiru - Town		699	8,482	3,871	1,562	586	648	997	765	724	6	18,340
		Total	**1,423**	**19,380**	**7,649**	**3,188**	**1,497**	**1,037**	**3,192**	**1,691**	**1,831**	**8**	**40,896**
	Town - Ruiru	Thursday 20/07/2017	738	11,286	5,016	1,298	892	616	1,256	834	924	2	22,862
	Ruiru - Town		679	9,849	4,314	1,397	492	391	1,673	800	590	18	20,203
		Total	**1,417**	**21,135**	**9,330**	**2,695**	**1,384**	**1,007**	**2,929**	**1,634**	**1,514**	**20**	**43,065**
	Town - Ruiru	Friday 21/07/2017	697	9,378	4,215	1,798	1,058	578	1,849	1,043	1,534	5	22,155
	Ruiru - Town		314	12,589	4,974	1,728	1,067	1,032	1,243	832	735	1	24,515
		Total	**1,011**	**21,967**	**9,189**	**3,526**	**2,125**	**1,610**	**3,092**	**1,875**	**2,269**	**6**	**46,670**
	Town - Ruiru	Saturday 22/07/2017	428	9,082	5,722	1,030	707	284	2,025	862	1,121	7	21,268
	Ruiru - Town		468	7,910	2,693	1,591	544	507	1,249	767	579	7	16,315
		Total	**896**	**16,992**	**8,415**	**2,621**	**1,251**	**791**	**3,274**	**1,629**	**1,700**	**14**	**37,583**
	Town - Ruiru	Sunday 23/07/2017	302	6,505	2,269	1,208	512	285	336	239	633	2	12,291
	Ruiru - Town		345	8,224	2,455	1,165	374	132	434	347	382	2	13,860
		Total	**647**	**14,729**	**4,724**	**2,373**	**886**	**417**	**770**	**586**	**1,015**	**4**	**26,151**
	Town - Ruiru	Monday 24/07/2017	709	12,830	4,174	1,455	883	568	2,178	1,176	927	0	24,900
	Ruiru - Town		558	7,598	4,516	1,882	515	371	672	844	653	0	17,609
		Total	**1,267**	**20,428**	**8,690**	**3,337**	**1,398**	**939**	**2,850**	**2,020**	**1,580**	**0**	**42,509**
	Town - Ruiru	Tuesday 25/07/2017	760	9,108	4,137	1,209	799	601	1,831	867	1,059	9	20,380
	Ruiru - Town		621	8,818	3,361	1,533	962	566	898	706	698	6	18,169
		Total	**1,381**	**17,926**	**7,498**	**2,742**	**1,761**	**1,167**	**2,729**	**1,573**	**1,757**	**15**	**38,549**

Appendix 13: Predesigned travel time and delay data collection form

Run No……. Date…….. **Location**	**Time readings** **(Hour, minutes & seconds)**	**Location stopped**	**Delay in seconds**	**Cause of stopping**
Thika Road Roundabout (A)				
East Brook Hotel (B)				
Shell Petrol Station next to Access to Infinity Industrial Park (C)				
Kangundo Road Junction (D)				
Utawala /Githunguri Road Junction (E)				
Astrol Petrol Station (F)				
Embakasi Roundabout (G)				
U turn on Eastern Bypass (H)				
Embakasi Roundabout (G)				
Astrol Petrol Station (F)				
Utawala /Githunguri Road Junction (E)				
Kangundo Road Junction (D)				
Shell Petrol Station next to Access to Infinity Industrial Park (C)				
East Brook Hotel (B)				
Thika Road Roundabout (A)				

Appendix 14: Travel times and delays data collected along Eastern Bypass

Location		Time readings (Hour, minutes & seconds)	Travel Time (Minutes)	Travel Speed (Km/hr)	Location stopped	Delay in seconds	Cause of stopping
**Run No……1……. Date……29/08/2016…….. **							
Segment	Length (Km)	14:18:10					
Thika Road Roundabout to East Brook Hotel	3.8	14:24:04	5.9	38.64			
East Brook Hotel to Shell Petrol Station next to Access to Infinity Industrial Park	6.3	14:30:55	6.85	55.18			
Shell Petrol Station next to Access to Infinity Industrial Park to Kangundo Road Junction	3.4	14:35:18	4.383	46.54			
Kangundo Road Junction to Utawala /Githunguri Road Junction	1.3	14:39:31	4.217	18.50			
Utawala /Githunguri Road Junction to Astrol Petrol Station	2.7	14:44:41	5.17	31.33			
Astrol Petrol Station to Embakasi Roundabout	3.6	14:49:07	4.43	48.76			
Embakasi Roundabout to U turn on Eastern Bypass	5	14:51:21	2.23	134.53			
U turn on Eastern Bypass to Embakasi Roundabout	5	14:53:45	2.4	125.00			
Embakasi Roundabout to Astrol Petrol Station	3.6	14:58:30	4.75	45.47			
Astrol Petrol Station to Utawala /Githunguri Road Junction	2.7	15:07:48	9.3	17.42			
Utawala /Githunguri Road Junction to Kangundo Road Junction	1.3	15:10:53	3.083	25.30			
Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	3.4	15:15:13	4.33	47.11	HARRY'S PUB/ THE ROCK VENTURES	145	Vehicle leaving pubs
Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	6.3	15:27:15	12.033	31.41			
East Brook Hotel to Thika Road Roundabout	3.8	15:40:25	13.17	17.31	THIKA ROAD	48	TRAFFIC
**Run No……2……. Date……29/08/2016…….. **							
Location		**Time readings (Hour, minutes & seconds)**	**Travel Time (Minutes)**	**Travel Speed (Km/hr)**	**Location stopped**	**Delay in seconds**	**Cause of stopping**
		15:41:13			SHELL(THIKA RD)	141	TRAFFIC
Thika Road Roundabout to East Brook Hotel	3.8	15:59:33	18.33	12.44			
East Brook Hotel to Shell Petrol Station next to Access to Infinity Industrial Park	6.3	16:06:25	6.87	55.02			
Shell Petrol Station next to Access to Infinity Industrial Park to Kangundo Road Junction	3.4	16:14:33	8.13	25.09			
Kangundo Road Junction to Utawala /Githunguri Road Junction	1.3	16:20:23	6.217	12.55			
Utawala /Githunguri Road Junction to Astrol Petrol Station	2.7	16:25:30	5.117	31.66			
Astrol Petrol Station to Embakasi Roundabout	3.6	16:31:15	5.75	37.57			
Embakasi Roundabout to U turn on Eastern Bypass	5	16:34:45	3.5	85.71			
U turn on Eastern Bypass to Embakasi Roundabout	5	16:36:22	1.617	185.53			
Embakasi Roundabout to Astrol Petrol Station	3.6	16:45:56	9.57	22.57			
Astrol Petrol Station to Utawala /Githunguri Road Junction	2.7	16:57:20	11.4	14.21			
Utawala /Githunguri Road Junction to Kangundo Road Junction	1.3	17:01:19	3.93	19.85			

Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	3.4	17:04:30	3.183	64.09			
Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	6.3	17:11:27	6.95	54.39	EVERBEST FEEDS	127	TRAFFIC JAM
East Brook Hotel to Thika Road Roundabout	3.8	17:30:46	19.317	11.80			
Run No……3……. Date……29/08/2016……..							
Location		**Time readings (Hour, minutes & seconds)**	**Travel Time (Minutes)**	**Travel Speed (Km/hr)**	**Location stopped**	**Delay in seconds**	**Cause of stopping**
		17:30:46			THIKA RD ROUNDABOUT	101	TRAFFIC JAM
Thika Road Roundabout to East Brook Hotel	3.8	17:41:30	10.73	21.25			
East Brook Hotel to Shell Petrol Station next to Access to Infinity Industrial Park	6.3	17:48:22	6.87	55.02			
Shell Petrol Station next to Access to Infinity Industrial Park to Kangundo Road Junction	3.4	17:52:10	3.8	53.68			
Kangundo Road Junction to Utawala /Githunguri Road Junction	1.3	18:01:08	8.97	8.70			
Utawala /Githunguri Road Junction to Astrol Petrol Station	2.7	18:08;54	7.77	20.85			
Astrol Petrol Station to Embakasi Roundabout	3.6	18:17:46	8.87	24.35			
Embakasi Roundabout to U turn on Eastern Bypass	5	18:22:01	4.25	70.59			
U turn on Eastern Bypass to Embakasi Roundabout	5	18:25:24	3.383	88.68			
Embakasi Roundabout to Astrol Petrol Station	3.6	18:38:41	13.283	16.26			
Astrol Petrol Station to Utawala /Githunguri Road Junction	2.7	18:43:17	4.6	35.22			
Utawala /Githunguri Road Junction to Kangundo Road Junction	1.3	18:53:29	10.2	7.65			
Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	3.4	18:59:46	6.283	32.47			
Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	6.3	19:05:20	5.57	67.86			
East Brook Hotel to Thika Road Roundabout	3.8	19:20:14	14.9	15.30			
Run No……4……. Date……30/08/2016……..							
Location		**Time readings (Hour, minutes & seconds)**	**Travel Time (Minutes)**	**Travel Speed (Km/hr)**	**Location stopped**	**Delay in seconds**	**Cause of stopping**
		7:11:26					
Thika Road Roundabout to East Brook Hotel	3.8	7:17:36	6.17	36.95			
East Brook Hotel to Shell Petrol Station next to Access to Infinity Industrial Park	6.3	7:25:21	7.75	48.77			
Shell Petrol Station next to Access to Infinity Industrial Park to Kangundo Road Junction	3.4	7:29:59	4.63	44.06			
Kangundo Road Junction to Utawala /Githunguri Road Junction	1.3	7:33:26	3.45	22.61			
Utawala /Githunguri Road Junction to Astrol Petrol Station	2.7	7:51:30	18.07	8.97			
Astrol Petrol Station to Embakasi Roundabout	3.6	7:56:56	5.43	39.78			

Embakasi Roundabout to U turn on Eastern Bypass	5	7:59:40	2.73	109.89			
U turn on Eastern Bypass to Embakasi Roundabout	5	8:02:08	2.47	121.46			
Embakasi Roundabout to Astrol Petrol Station	3.6	8:07:38	5.5	39.27			
Astrol Petrol Station to Utawala /Githunguri Road Junction	2.7	8:11:57	4.317	37.53			
Utawala /Githunguri Road Junction to Kangundo Road Junction	1.3	8:14:42	2.75	28.36			
Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	3.4	8:20:33	5.85	34.87			
Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	6.3	8:30:49	10.27	36.81	THREE RINGS HARDWARE-ENTRY TO THIKA RD	164,117	TRAFFIC JAM
East Brook Hotel to Thika Road Roundabout	3.8	8:50:27	19.63	11.61			
Run No……5……. Date……30/08/2016…….							
Location		**Time readings (Hour, minutes & seconds)**	**Travel Time (Minutes)**	**Travel Speed (Km/hr)**	**Location stopped**	**Delay in seconds**	**Cause of stopping**
		8:50:27					
Thika Road Roundabout to East Brook Hotel	3.8	8:56:51	6.4	35.63			
East Brook Hotel to Shell Petrol Station next to Access to Infinity Industrial Park	6.3	9:04:21	7.5	50.40			
Shell Petrol Station next to Access to Infinity Industrial Park to Kangundo Road Junction	3.4	9:08:23	4.03	50.62			
Kangundo Road Junction to Utawala /Githunguri Road Junction	1.3	9:12:19	3.93	19.85			
Utawala /Githunguri Road Junction to Astrol Petrol Station	2.7	9:19:37	7.3	22.19			
Astrol Petrol Station to Embakasi Roundabout	3.6	9:24:11	4.57	47.26			
Embakasi Roundabout to U turn on Eastern Bypass	5	9:27:08	2.95	101.69			
U turn on Eastern Bypass to Embakasi Roundabout	5	9:28:42	1.57	191.08			
Embakasi Roundabout to Astrol Petrol Station	3.6	9:34:07	5.417	39.87			
Astrol Petrol Station to Utawala /Githunguri Road Junction	2.7	9:38:16	4.15	39.04			
Utawala /Githunguri Road Junction to Kangundo Road Junction	1.3	9:40:50	2.57	30.35			
Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	3.4	9:45:30	4.67	43.68	CONTRACTOTS CAMP	1224	FUELING
Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	6.3	10:14:49	29.317	12.89			
East Brook Hotel to Thika Road Roundabout	3.8	10:22:31	7.7	29.61			
Run No……6……. Date……30/08/2016…….							
Location		**Time readings (Hour, minutes & seconds)**	**Travel Time (Minutes)**	**Travel Speed (Km/hr)**	**Location stopped**	**Delay in seconds**	**Cause of stopping**
		10:22:31					

Thika Road Roundabout to East Brook Hotel	3.8	10:28:21	5.83	39.11			
East Brook Hotel to Shell Petrol Station next to Access to Infinity Industrial Park	6.3	10:37:56	9.583	39.44			
Shell Petrol Station next to Access to Infinity Industrial Park to Kangundo Road Junction	3.4	10:43:28	5.53	36.89			
Kangundo Road Junction to Utawala /Githunguri Road Junction	1.3	10:48:17	4.817	16.19			
Utawala /Githunguri Road Junction to Astrol Petrol Station	2.7	10:57:14	8.95	18.10			
Astrol Petrol Station to Embakasi Roundabout	3.6	11:04:21	7.117	30.35			
Embakasi Roundabout to U turn on Eastern Bypass	5	11:06:47	2.43	123.46			
U turn on Eastern Bypass to Embakasi Roundabout	5	11:08:57	2.167	138.44			
Embakasi Roundabout to Astrol Petrol Station	3.6	11:13:22	4.417	48.90			
Astrol Petrol Station to Utawala /Githunguri Road Junction	2.7	11:18:33	5.183	31.26			
Utawala /Githunguri Road Junction to Kangundo Road Junction	1.3	11:22:19	3.77	20.69			
Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	3.4	11:27:41	5.37	37.99	MNI KENDA	1340	TRAFFIC JAM
Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	6.3	12:01:44	34.05	11.10			
East Brook Hotel to Thika Road Roundabout	3.8	12:35:25	33.683	6.77			
Run No……7……. Date……30/08/2016……..							
Location		**Time readings (Hour, minutes & seconds)**	**Travel Time (Minutes)**	**Travel Speed (Km/hr)**	**Location stopped**	**Delay in seconds**	**Cause of stopping**
		12:35:48					
Thika Road Roundabout to East Brook Hotel	3.8	12:51:07	15.317	14.89			
East Brook Hotel to Shell Petrol Station next to Access to Infinity Industrial Park	6.3	12:59:30	8.383	45.09			
Shell Petrol Station next to Access to Infinity Industrial Park to Kangundo Road Junction	3.4	13:11:37	12.117	16.84			
Kangundo Road Junction to Utawala /Githunguri Road Junction	1.3	13:17:28	5.85	13.33			
Utawala /Githunguri Road Junction to Astrol Petrol Station	2.7	13:22:16	4.8	33.75			
Astrol Petrol Station to Embakasi Roundabout	3.6	13:27:28	5.2	41.54			
Embakasi Roundabout to U turn on Eastern Bypass	5	13:29:59	2.517	119.19			
U turn on Eastern Bypass to Embakasi Roundabout	5	13:32:04	2.083	144.02			
Embakasi Roundabout to Astrol Petrol Station	3.6	13:36:58	4.9	44.08			
Astrol Petrol Station to Utawala /Githunguri Road Junction	2.7	13:44:48	7.83	20.69			
Utawala /Githunguri Road Junction to Kangundo Road Junction	1.3	13:47:36	2.8	27.86			
Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	3.4	13:52:08	4.53	45.03	THE ROCK VENTURES	74	TRAFFIC

Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	6.3	14:06:35	14.45	26.16	M SERIES	169	TRAFFIC
East Brook Hotel to Thika Road Roundabout	3.8	14:35:57	29.37	7.76	SHELL PETRO STATION	950	TRAFFIC JAM
Run No……8……. Date……30/08/2016……..							
Location		**Time readings (Hour, minutes & seconds)**	**Travel Time (Minutes)**	**Travel Speed (Km/hr)**	**Location stopped**	**Delay in seconds**	**Cause of stopping**
		14:35:37					
Thika Road Roundabout to East Brook Hotel	3.8	14:42:29	6.87	33.19			
East Brook Hotel to Shell Petrol Station next to Access to Infinity Industrial Park	6.3	14:52:17	9.8	38.57			
Shell Petrol Station next to Access to Infinity Industrial Park to Kangundo Road Junction	3.4	14:57:08	4.85	42.06			
Kangundo Road Junction to Utawala /Githunguri Road Junction	1.3	15:05:40	8.53	9.14			
Utawala /Githunguri Road Junction to Astrol Petrol Station	2.7	15:12:19	6.65	24.36			
Astrol Petrol Station to Embakasi Roundabout	3.6	15:18:50	6.52	33.13			
Embakasi Roundabout to U turn on Eastern Bypass	5	15:23:14	4.4	68.18			
U turn on Eastern Bypass to Embakasi Roundabout	5	15:28:59	5.75	52.17			
Embakasi Roundabout to Astrol Petrol Station	3.6	15:34:06	5.117	42.21			
Astrol Petrol Station to Utawala /Githunguri Road Junction	2.7	15:46:10	12.07	13.42			
Utawala /Githunguri Road Junction to Kangundo Road Junction	1.3	15:50:37	4.45	17.53			
Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	3.4	15:57:26	6.82	29.91			
Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	6.3	16:07:55	10.483	36.06			
East Brook Hotel to Thika Road Roundabout	3.8	16:22:03	14.13	16.14			
Run No……9……. Date……30/08/2016……..							
Location		**Time readings (Hour, minutes & seconds)**	**Travel Time (Minutes)**	**Travel Speed (Km/hr)**	**Location stopped**	**Delay in seconds**	**Cause of stopping**
		16:22:03			ENTRY TO EASTERN BY-PASS	67	TRAFFIC JAM
Thika Road Roundabout to East Brook Hotel	3.8	16:32:10	10.117	22.54			
East Brook Hotel to Shell Petrol Station next to Access to Infinity Industrial Park	6.3	16:40:54	8.73	43.30			
Shell Petrol Station next to Access to Infinity Industrial Park to Kangundo Road Junction	3.4	16:44:21	3.45	59.13	A.P TRAINING COLLEGE	237	TRAFFIC
Kangundo Road Junction to Utawala /Githunguri Road Junction	1.3	16:50:30	6.15	12.68			
Utawala /Githunguri Road Junction to Astrol Petrol Station	2.7	17:01:47	11.283	14.36			
Astrol Petrol Station to Embakasi Roundabout	3.6	17:31:06	29.317	7.37			
Embakasi Roundabout to U turn on Eastern Bypass	5	17:53:09	22.05	13.61	JAMBO JET	1894	TRAFFIC JAM

U turn on Eastern Bypass to Embakasi Roundabout	5	18:21:42	28.55	10.51			
Embakasi Roundabout to Astrol Petrol Station	3.6	18:35:15	13.55	15.94	AMRASH BUSINESS PARK	341	TRAFFIC JAM
Astrol Petrol Station to Utawala /Githunguri Road Junction	2.7	18:49:37	14.37	11.27			
Utawala /Githunguri Road Junction to Kangundo Road Junction	1.3	18:54:59	5.37	14.53			
Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	3.4	18:57:41	2.7	75.56			
Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	6.3	19:03:17	5.6	67.50			
East Brook Hotel to Thika Road Roundabout	3.8	19:11:21	8.07	28.25			
Run No……10……. Date…31/08/2016……..							
Location		**Time readings (Hour, minutes & seconds)**	**Travel Time (Minutes)**	**Travel Speed (Km/hr)**	**Location stopped**	**Delay in seconds**	**Cause of stopping**
		7:06:10					
Thika Road Roundabout to East Brook Hotel	3.8	7:11:27	5.283	43.16			
East Brook Hotel to Shell Petrol Station next to Access to Infinity Industrial Park	6.3	7:18:41	7.23	52.28	CONTRACTORS CAMP	906	FUELING
Shell Petrol Station next to Access to Infinity Industrial Park to Kangundo Road Junction	3.4	7:38:47	20.1	10.15	SUNCITY UTOPIA	271	TRAFFIC JAM
Kangundo Road Junction to Utawala /Githunguri Road Junction	1.3	7:59:20	20.55	3.80	TUMAINI SUPERMARKET	164	
Utawala /Githunguri Road Junction to Astrol Petrol Station	2.7	8:19:49	20.483	7.91			
Astrol Petrol Station to Embakasi Roundabout	3.6	8:49:51	30.03	7.19			
Embakasi Roundabout to U turn on Eastern Bypass	5	9:00:17	10.43	28.76			
U turn on Eastern Bypass to Embakasi Roundabout	5	9:06:39	6.37	47.10			
Embakasi Roundabout to Astrol Petrol Station	3.6	9:11:14	4.583	47.13			
Astrol Petrol Station to Utawala /Githunguri Road Junction	2.7	9:15:20	4.1	39.51			
Utawala /Githunguri Road Junction to Kangundo Road Junction	1.3	9:18:54	3.57	21.85			
Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	3.4	9:22:31	3.617	56.40			
Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	6.3	9:28:18	5.783	65.36	JIRANI SPRINGS	46	TRAFFIC
East Brook Hotel to Thika Road Roundabout	3.8	9:38:51	10.55	21.61			
Run No……11……. Date……31/08/2016……..							
Location		**Time readings (Hour, minutes & seconds)**	**Travel Time (Minutes)**	**Travel Speed (Km/hr)**	**Location stopped**	**Delay in seconds**	**Cause of stopping**
		9:38:51					
Thika Road Roundabout to East Brook Hotel	3.8	9:45:07	6.27	36.36			
East Brook Hotel to Shell Petrol Station next to Access to Infinity Industrial Park	6.3	9:52:00	6.883	54.92			

Shell Petrol Station next to Access to Infinity Industrial Park to Kangundo Road Junction	3.4	10:00:28	8.47	24.09			
Kangundo Road Junction to Utawala /Githunguri Road Junction	1.3	10:04:50	4.37	17.85			
Utawala /Githunguri Road Junction to Astrol Petrol Station	2.7	10:10:22	5.53	29.29			
Astrol Petrol Station to Embakasi Roundabout	3.6	10:15:51	5.483	39.39			
Embakasi Roundabout to U turn on Eastern Bypass	5	10:18:17	2.43	123.46			
U turn on Eastern Bypass to Embakasi Roundabout	5	10:20:25	2.13	140.85			
Embakasi Roundabout to Astrol Petrol Station	3.6	10:25:19	4.9	44.08			
Astrol Petrol Station to Utawala /Githunguri Road Junction	2.7	10:30:09	4.83	33.54			
Utawala /Githunguri Road Junction to Kangundo Road Junction	1.3	10:32:48	8.65	9.02			
Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	3.4	10:38:14	5.43	37.57			
Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	6.3	10:46:26	8.2	46.10			
East Brook Hotel to Thika Road Roundabout	3.8	11:09:03	22.62	10.08			
Run No……12……. Date……31/08/2016…….							
Location		**Time readings (Hour, minutes & seconds)**	**Travel Time (Minutes)**	**Travel Speed (Km/hr)**	**Location stopped**	**Delay in seconds**	**Cause of stopping**
		11:10:04					
Thika Road Roundabout to East Brook Hotel	3.8	11:18:35	8.52	26.76			
East Brook Hotel to Shell Petrol Station next to Access to Infinity Industrial Park	6.3	11:26:58	8.383	45.09	REDDAMAC	340	TRAFFIC
Shell Petrol Station next to Access to Infinity Industrial Park to Kangundo Road Junction	3.4	11:56:43	29.75	6.86			
Kangundo Road Junction to Utawala /Githunguri Road Junction	1.3	12:02:12	5.483	14.23			
Utawala /Githunguri Road Junction to Astrol Petrol Station	2.7	12:06:57	4.75	34.11			
Astrol Petrol Station to Embakasi Roundabout	3.6	12:14:39	7.7	28.05			
Embakasi Roundabout to U turn on Eastern Bypass	5	12:16:59	2.33	128.76			
U turn on Eastern Bypass to Embakasi Roundabout	5	12:19:38	2.65	113.21			
Embakasi Roundabout to Astrol Petrol Station	3.6	12:24:05	4.45	48.54			
Astrol Petrol Station to Utawala /Githunguri Road Junction	2.7	12:31:21	7.27	22.28			
Utawala /Githunguri Road Junction to Kangundo Road Junction	1.3	12:34:17	2.93	26.62			
Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	3.4	12:38:58	4.683	43.56			
Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	6.3	12:51:30	12.53	30.17			
East Brook Hotel to Thika Road Roundabout	3.8	13:00:29	8.983	25.38			
Run No……13……. Date……31/08/2016…….							
Location		**Time readings (Hour, minutes & seconds)**	**Travel Time (Minutes)**	**Travel Speed (Km/hr)**	**Location stopped**	**Delay in seconds**	**Cause of stopping**
		13:00:49					
Thika Road Roundabout to East Brook Hotel	3.8	13:12:07	11.3	20.18			
East Brook Hotel to Shell Petrol Station next to Access to Infinity Industrial Park	6.3	13:25:56	13.82	27.35			

Shell Petrol Station next to Access to Infinity Industrial Park to Kangundo Road Junction	3.4	13:28:20	2.4	85.00			
Kangundo Road Junction to Utawala /Githunguri Road Junction	1.3	13:34:07	5.783	13.49			
Utawala /Githunguri Road Junction to Astrol Petrol Station	2.7	13:37:54	3.783	42.82			
Astrol Petrol Station to Embakasi Roundabout	3.6	13:40:37	2.717	79.50			
Embakasi Roundabout to U turn on Eastern Bypass	5	13:42:29	1.87	160.43			
U turn on Eastern Bypass to Embakasi Roundabout	5	13:46:51	4.37	68.65			
Embakasi Roundabout to Astrol Petrol Station	3.6	13:51:44	4.883	44.24			
Astrol Petrol Station to Utawala /Githunguri Road Junction	2.7	13:59:11	7.45	21.74			
Utawala /Githunguri Road Junction to Kangundo Road Junction	1.3	14:04:28	5.283	14.76			
Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	3.4	14:12:10	7.7	26.49			
Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	6.3	14:17:48	5.63	67.14	LANSCA CARWASH	64	TRAFFIC
East Brook Hotel to Thika Road Roundabout	3.8	14:27:41	9.883	23.07			
Run No……16……. Date……1/09/2016……..							
Location		**Time readings (Hour, minutes & seconds)**	**Travel Time (Minutes)**	**Travel Speed (Km/hr)**	**Location stopped**	**Delay in seconds**	**Cause of stopping**
		7:09:14					
Thika Road Roundabout to East Brook Hotel	3.8	7:16:41	7.45	30.60			
East Brook Hotel to Shell Petrol Station next to Access to Infinity Industrial Park	6.3	7:23:20	6.65	56.84			
Shell Petrol Station next to Access to Infinity Industrial Park to Kangundo Road Junction	3.4	7:25:40	2.33	87.55			
Kangundo Road Junction to Utawala /Githunguri Road Junction	1.3	7:34:17	8.617	9.05			
Utawala /Githunguri Road Junction to Astrol Petrol Station	2.7	7:47:34	13.283	12.20			
Astrol Petrol Station to Embakasi Roundabout	3.6	8:01:40	14.1	15.32			
Embakasi Roundabout to U turn on Eastern Bypass	5	8:05:11	3.517	85.30			
U turn on Eastern Bypass to Embakasi Roundabout	5	8:09:47	4.6	65.22			
Embakasi Roundabout to Astrol Petrol Station	3.6	8:15:21	5.57	38.78			
Astrol Petrol Station to Utawala /Githunguri Road Junction	2.7	8:25:19	9.97	16.25			
Utawala /Githunguri Road Junction to Kangundo Road Junction	1.3	8:30:54	5.583	13.97			
Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	3.4	8:34:49	3.917	52.08			
Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	6.3	8:43:29	8.67	43.60			
East Brook Hotel to Thika Road Roundabout	3.8	8:54:19	10.83	21.05			
Run No……17……. Date……1/09/2016……..							
Location		**Time readings (Hour, minutes & seconds)**	**Travel Time (Minutes)**	**Travel Speed (Km/hr)**	**Location stopped**	**Delay in seconds**	**Cause of stopping**
		8:54:19					
Thika Road Roundabout to East Brook Hotel	3.8	8:59:20	5.017	45.45			
East Brook Hotel to Shell Petrol Station next to Access to Infinity Industrial	6.3	9:06:09	6.817	55.45			

Park							
Shell Petrol Station next to Access to Infinity Industrial Park to Kangundo Road Junction	3.4	9:10:32	4.383	46.54			
Kangundo Road Junction to Utawala /Githunguri Road Junction	1.3	9:15:29	4.95	15.76			
Utawala /Githunguri Road Junction to Astrol Petrol Station	2.7	9:23:11	7.7	21.04			
Astrol Petrol Station to Embakasi Roundabout	3.6	9:28:25	5.23	41.30			
Embakasi Roundabout to U turn on Eastern Bypass	5	9:30:38	2.217	135.32			
U turn on Eastern Bypass to Embakasi Roundabout	5	9:34:41	4.05	74.07			
Embakasi Roundabout to Astrol Petrol Station	3.6	9:39:04	4.383	49.28			
Astrol Petrol Station to Utawala /Githunguri Road Junction	2.7	9:43:29	4.417	36.68			
Utawala /Githunguri Road Junction to Kangundo Road Junction	1.3	9:47:31	4.03	19.35			
Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	3.4	9:53:49	6.3	32.38			
Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	6.3	10:01:51	8.033	47.06			
East Brook Hotel to Thika Road Roundabout	3.8	10:17:26	15.583	14.63			
Run No……18……. Date…1/09/2016……..							
Location		**Time readings (Hour, minutes & seconds)**	**Travel Time (Minutes)**	**Travel Speed (Km/hr)**	**Location stopped**	**Delay in seconds**	**Cause of stopping**
		10:17:26					
Thika Road Roundabout to East Brook Hotel	3.8	10:24:39	7.217	31.59			
East Brook Hotel to Shell Petrol Station next to Access to Infinity Industrial Park	6.3	10:34:47	10.13	37.31			
Shell Petrol Station next to Access to Infinity Industrial Park to Kangundo Road Junction	3.4	10:38:10	3.383	60.30			
Kangundo Road Junction to Utawala /Githunguri Road Junction	1.3	10:41:03	2.883	27.06			
Utawala /Githunguri Road Junction to Astrol Petrol Station	2.7	10:46:42	5.65	28.67			
Astrol Petrol Station to Embakasi Roundabout	3.6	10:52:08	5.43	39.78			
Embakasi Roundabout to U turn on Eastern Bypass	5	10:54:35	2.45	122.45			
U turn on Eastern Bypass to Embakasi Roundabout	5	10:57:37	3.03	99.01			
Embakasi Roundabout to Astrol Petrol Station	3.6	11:03:04	5.45	39.63			
Astrol Petrol Station to Utawala /Githunguri Road Junction	2.7	11:09:47	6.717	24.12			
Utawala /Githunguri Road Junction to Kangundo Road Junction	1.3	11:13:39	3.87	20.16			
Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	3.4	11:18:36	4.95	41.21			
Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	6.3	11:25:40	7.067	53.49			
East Brook Hotel to Thika Road Roundabout	3.8	11:31:59	6.317	36.09			
Run No……19……. Date……1/09/2016……..							
Location		**Time readings (Hour, minutes & seconds)**	**Travel Time (Minutes)**	**Travel Speed (Km/hr)**	**Location stopped**	**Delay in seconds**	**Cause of stopping**
		11:31:59					
Thika Road Roundabout to East Brook Hotel	3.8	11:42:14	10.25	22.24	EXXEN PETRO STATION	198	TRAFFIC JAM

East Brook Hotel to Shell Petrol Station next to Access to Infinity Industrial Park	6.3	12:01:17	19.05	19.84			
Shell Petrol Station next to Access to Infinity Industrial Park to Kangundo Road Junction	3.4	12:09:31	8.23	24.79			
Kangundo Road Junction to Utawala /Githunguri Road Junction	1.3	12:13:49	4.3	18.14			
Utawala /Githunguri Road Junction to Astrol Petrol Station	2.7	12:18:18	4.483	36.14			
Astrol Petrol Station to Embakasi Roundabout	3.6	12:24:40	6.37	33.91			
Embakasi Roundabout to U turn on Eastern Bypass	5	12:27:10	2.5	120.00			
U turn on Eastern Bypass to Embakasi Roundabout	5	12:29:47	2.617	114.64			
Embakasi Roundabout to Astrol Petrol Station	3.6	12:33:31	3.733	57.86			
Astrol Petrol Station to Utawala /Githunguri Road Junction	2.7	12:38:44	5.217	31.05			
Utawala /Githunguri Road Junction to Kangundo Road Junction	1.3	12:41:04	2.33	33.48			
Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	3.4	12:47:56	6.87	29.69			
Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	6.3	12:54:36	6.67	56.67			
East Brook Hotel to Thika Road Roundabout	3.8	13:15:01	20.417	11.17			
Run No……20……. Date……1/09/2016……..							
Location		**Time readings (Hour, minutes & seconds)**	**Travel Time (Minutes)**	**Travel Speed (Km/hr)**	**Location stopped**	**Delay in seconds**	**Cause of stopping**
		13:15:01					
Thika Road Roundabout to East Brook Hotel	3.8	13:21:41	6.67	34.18			
East Brook Hotel to Shell Petrol Station next to Access to Infinity Industrial Park	6.3	13:29:36	7.917	47.75			
Shell Petrol Station next to Access to Infinity Industrial Park to Kangundo Road Junction	3.4	13:34:46	5.167	39.48			
Kangundo Road Junction to Utawala /Githunguri Road Junction	1.3	13:39:22	4.6	16.96			
Utawala /Githunguri Road Junction to Astrol Petrol Station	2.7	13:47:31	8.15	19.88			
Astrol Petrol Station to Embakasi Roundabout	3.6	13:56:46	9.25	23.35			
Embakasi Roundabout to U turn on Eastern Bypass	5	13:59:04	2.3	130.43			
U turn on Eastern Bypass to Embakasi Roundabout	5	14:03:18	4.23	70.92			
Embakasi Roundabout to Astrol Petrol Station	3.6	14:11:57	8.65	24.97			
Astrol Petrol Station to Utawala /Githunguri Road Junction	2.7	14:15:44	3.783	42.82			
Utawala /Githunguri Road Junction to Kangundo Road Junction	1.3	14:19:09	3.417	22.83			
Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	3.4	14:22:29	3.33	61.26			
Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	6.3	14:31:10	8.683	43.53			
East Brook Hotel to Thika Road Roundabout	3.8	14:38:51	7.683	29.68			
Run No……21……. Date……1/09/2016……..							

Location		Time readings (Hour, minutes & seconds)	Travel Time (Minutes)	Travel Speed (Km/hr)	Location stopped	Delay in seconds	Cause of stopping
		14:38:51					
Thika Road Roundabout to East Brook Hotel	3.8	14:46:28	7.617	29.93			
East Brook Hotel to Shell Petrol Station next to Access to Infinity Industrial Park	6.3	14:53:36	7.133	52.99			
Shell Petrol Station next to Access to Infinity Industrial Park to Kangundo Road Junction	3.4	14:58:23	4.783	42.65			
Kangundo Road Junction to Utawala /Githunguri Road Junction	1.3	15:02:39	4.27	18.27			
Utawala /Githunguri Road Junction to Astrol Petrol Station	2.7	15:08:40	6.017	26.92			
Astrol Petrol Station to Embakasi Roundabout	3.6	15:14;27	5.783	37.35			
Embakasi Roundabout to U turn on Eastern Bypass	5	15:16:54	2.45	122.45			
U turn on Eastern Bypass to Embakasi Roundabout	5	15:19:34	2.67	112.36			
Embakasi Roundabout to Astrol Petrol Station	3.6	15:23:29	3.917	55.14			
Astrol Petrol Station to Utawala /Githunguri Road Junction	2.7	15:24:35	1.1	147.27			
Utawala /Githunguri Road Junction to Kangundo Road Junction	1.3	15:28:39	4.067	19.18			
Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	3.4	15:35:45	7.1	28.73			
Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	6.3	15;42:12	6.45	58.60			
East Brook Hotel to Thika Road Roundabout	3.8	15:43:03	0.85	268.24			
Run No……22……. Date……1/09/2016……..							
Location		**Time readings (Hour, minutes & seconds)**	**Travel Time (Minutes)**	**Travel Speed (Km/hr)**	**Location stopped**	**Delay in seconds**	**Cause of stopping**
		15:43:03					
Thika Road Roundabout to East Brook Hotel	3.8	15:48:11	5.13	44.44			
East Brook Hotel to Shell Petrol Station next to Access to Infinity Industrial Park	6.3	15:52:19	4.133	91.46			
Shell Petrol Station next to Access to Infinity Industrial Park to Kangundo Road Junction	3.4	15;55:32	3.217	63.41			
Kangundo Road Junction to Utawala /Githunguri Road Junction	1.3	16:02:58	7.433	10.49			
Utawala /Githunguri Road Junction to Astrol Petrol Station	2.7	16:08:42	5.733	28.26			
Astrol Petrol Station to Embakasi Roundabout	3.6	16:14;29	5.783	37.35			
Embakasi Roundabout to U turn on Eastern Bypass	5	16:17:40	3.183	94.25			
U turn on Eastern Bypass to Embakasi Roundabout	5	16:20:01	2.35	127.66			
Embakasi Roundabout to Astrol Petrol Station	3.6	16;39:14	19.217	11.24			
Astrol Petrol Station to Utawala /Githunguri Road Junction	2.7	16:48:19	9.083	17.84			
Utawala /Githunguri Road Junction to Kangundo Road Junction	1.3	17:02:29	14.17	5.50			
Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	3.4	17:09:49	7.33	27.83			
Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	6.3	17:21:24	11.583	32.63	ENTRY TO ROUNDABOUT	236	TRAFFIC JAM
East Brook Hotel to Thika Road Roundabout	3.8	17:36:37	15.217	14.98			

Run No……23……. Date…1/09/2016……..							
Location		**Time readings (Hour, minutes & seconds)**	**Travel Time (Minutes)**	**Travel Speed (Km/hr)**	**Location stopped**	**Delay in seconds**	**Cause of stopping**
		17:36:37					
Thika Road Roundabout to East Brook Hotel	3.8	17:42:19	5.7	40.00			
East Brook Hotel to Shell Petrol Station next to Access to Infinity Industrial Park	6.3	17:49:54	7.583	49.85			
Shell Petrol Station next to Access to Infinity Industrial Park to Kangundo Road Junction	3.4	17:53:46	3.87	52.71			
Kangundo Road Junction to Utawala /Githunguri Road Junction	1.3	17:59:17	5.517	14.14			
Utawala /Githunguri Road Junction to Astrol Petrol Station	2.7	18:14;13	14.93	10.85			
Astrol Petrol Station to Embakasi Roundabout	3.6	18:30:29	16.27	13.28			
Embakasi Roundabout to U turn on Eastern Bypass	5	18:33:44	3.25	92.31			
U turn on Eastern Bypass to Embakasi Roundabout	5	18:40:51	7.117	42.15			
Embakasi Roundabout to Astrol Petrol Station	3.6	18:47:31	6.67	32.38			
Astrol Petrol Station to Utawala /Githunguri Road Junction	2.7	18:53:41	6.167	26.27			
Utawala /Githunguri Road Junction to Kangundo Road Junction	1.3	19:01;14	7.55	10.33			
Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	3.4	19:09:59	8.75	23.31			
Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	6.3	19:17:08	7.15	52.87			
East Brook Hotel to Thika Road Roundabout	3.8	19;32:29	15.35	14.85			
**Run No……23……. Date…2/09/2016…….. **							
Location		**Time readings (Hour, minutes & seconds)**	**Travel Time (Minutes)**	**Travel Speed (Km/hr)**	**Location stopped**	**Delay in seconds**	**Cause of stopping**
Thika Road Roundabout		7:06:24					
Thika Road Roundabout to East Brook Hotel	3.8	7:13:40	7.27	31.36			
East Brook Hotel to Shell Petrol Station next to Access to Infinity Industrial Park	6.3	7:20:56	7.27	51.99			
Shell Petrol Station next to Access to Infinity Industrial Park to Kangundo Road Junction	3.4	7:24:18	3.37	60.53			
Kangundo Road Junction to Utawala /Githunguri Road Junction	1.3	7:31:26	7.13	10.94			
Utawala /Githunguri Road Junction to Astrol Petrol Station	2.7	7:51:14	19.8	8.18			
Astrol Petrol Station to Embakasi Roundabout	3.6	7:59:17	8.05	26.83			
Embakasi Roundabout to U turn on Eastern Bypass	5	8:03:41	6.4	46.88			
U turn on Eastern Bypass to Embakasi Roundabout	5	8:07:37	3.93	76.34			
Embakasi Roundabout to Astrol Petrol Station	3.6	8:14:47	7.17	30.13			
Astrol Petrol Station to Utawala /Githunguri Road Junction	2.7	8:30:44	15.95	10.16			

Utawala /Githunguri Road Junction to Kangundo Road Junction	1.3	8:40:38	9.9	7.88			
Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	3.4	8:46:21	5.717	35.68			
Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	6.3	8:51:07	4.77	79.25			
East Brook Hotel to Thika Road Roundabout	3.8	9:07:21	16.23	14.05			
Run No……24……. Date…2/09/2016……..							
Location		**Time readings (Hour, minutes & seconds)**	**Travel Time (Minutes)**	**Travel Speed (Km/hr)**	**Location stopped**	**Delay in seconds**	**Cause of stopping**
Thika Road Roundabout		9:07:21					
Thika Road Roundabout to East Brook Hotel	3.8	9:13:55	6.57	34.70			
East Brook Hotel to Shell Petrol Station next to Access to Infinity Industrial Park	6.3	9:21:29	7.57	49.93			
Shell Petrol Station next to Access to Infinity Industrial Park to Kangundo Road Junction	3.4	9:25:34	4.083	49.96			
Kangundo Road Junction to Utawala /Githunguri Road Junction	1.3	9:31:49	6.25	12.48			
Utawala /Githunguri Road Junction to Astrol Petrol Station	2.7	9:44:51	13.03	12.43			
Astrol Petrol Station to Embakasi Roundabout	3.6	9;52:29	7.63	28.31			
Embakasi Roundabout to U turn on Eastern Bypass	5	10:00:09	7.667	39.13			
U turn on Eastern Bypass to Embakasi Roundabout	5	10:06:41	6.533	45.92			
Embakasi Roundabout to Astrol Petrol Station	3.6	10:15:39	8.97	24.08			
Astrol Petrol Station to Utawala /Githunguri Road Junction	2.7	10:31:18	15.65	10.35			
Utawala /Githunguri Road Junction to Kangundo Road Junction	1.3	10:35:57	4.65	16.77			
Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	3.4	10:38:30	2.55	80.00			
Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	6.3	10:44:12	5.7	66.32			
East Brook Hotel to Thika Road Roundabout	3.8	10:51;27	7.25	31.45			
Run No……25……. Date.....2/09/2016……..							
Location		**Time readings (Hour, minutes & seconds)**	**Travel Time (Minutes)**	**Travel Speed (Km/hr)**	**Location stopped**	**Delay in seconds**	**Cause of stopping**
Thika Road Roundabout		10:51:27					
Thika Road Roundabout to East Brook Hotel	3.8	10:57:00	5.55	41.08			
East Brook Hotel to Shell Petrol Station next to Access to Infinity Industrial Park	6.3	11;01:22	4.37	86.50			
Shell Petrol Station next to Access to Infinity Industrial Park to Kangundo Road Junction	3.4	11:04:40	3.3	61.82			
Kangundo Road Junction to Utawala /Githunguri Road Junction	1.3	11:10:51	6.183	12.62			
Utawala /Githunguri Road Junction to Astrol Petrol Station	2.7	11:15:19	4.47	36.24			
Astrol Petrol Station to Embakasi Roundabout	3.6	11:20:21	5.03	42.94			
Embakasi Roundabout to U turn on Eastern Bypass	5	11:22:10	1.817	165.11			
U turn on Eastern Bypass to Embakasi Roundabout	5	11:25:14	3.07	97.72			

Embakasi Roundabout to Astrol Petrol Station	3.6	11:28:17	3.05	70.82			
Astrol Petrol Station to Utawala /Githunguri Road Junction	2.7	11:31:14	2.95	54.92			
Utawala /Githunguri Road Junction to Kangundo Road Junction	1.3	11:34:17	3.05	25.57			
Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	3.4	11:38:41	4.4	46.36			
Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	6.3	11:45:08	6.45	58.60			
East Brook Hotel to Thika Road Roundabout	3.8	11:56:39	11.517	19.80			
Run No……26……. Date….2…/09/2016……..							
Location		**Time readings (Hour, minutes & seconds)**	**Travel Time (Minutes)**	**Travel Speed (Km/hr)**	**Location stopped**	**Delay in seconds**	**Cause of stopping**
Thika Road Roundabout		11:56:39					
Thika Road Roundabout to East Brook Hotel	3.8	12:02:41	5.03	45.33			
East Brook Hotel to Shell Petrol Station next to Access to Infinity Industrial Park	6.3	12:09:38	6.95	54.39			
Shell Petrol Station next to Access to Infinity Industrial Park to Kangundo Road Junction	3.4	12:14:55	5.283	38.61			
Kangundo Road Junction to Utawala /Githunguri Road Junction	1.3	12:20:38	5.717	13.64			
Utawala /Githunguri Road Junction to Astrol Petrol Station	2.7	12:23:25	2.783	58.21			
Astrol Petrol Station to Embakasi Roundabout	3.6	12:28:31	5.1	42.35			
Embakasi Roundabout to U turn on Eastern Bypass	5	12:31:40	3.15	95.24			
U turn on Eastern Bypass to Embakasi Roundabout	5	12:34:59	4.983	60.20			
Embakasi Roundabout to Astrol Petrol Station	3.6	12:40:29	5.5	39.27			
Astrol Petrol Station to Utawala /Githunguri Road Junction	2.7	12:48:31	8.033	20.17			
Utawala /Githunguri Road Junction to Kangundo Road Junction	1.3	12:55:26	6.917	11.28			
Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	3.4	13:01:40	6.233	32.73			
Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	6.3	13:09:26	7.77	48.65	M-SERIES	146	TRAFFIC
East Brook Hotel to Thika Road Roundabout	3.8	13:21:14	11.8	19.32			
Run No……26……. Date..2…./09/2016……..							
Location		**Time readings (Hour, minutes & seconds)**	**Travel Time (Minutes)**	**Travel Speed (Km/hr)**	**Location stopped**	**Delay in seconds**	**Cause of stopping**
Thika Road Roundabout		11;56;39					
Thika Road Roundabout to East Brook Hotel	3.8	12;02;41	6.033	37.79			
East Brook Hotel to Shell Petrol Station next to Access to Infinity Industrial Park	6.3	12;09:38	6.95	54.39			
Shell Petrol Station next to Access to Infinity Industrial Park to Kangundo Road Junction	3.4	12;14:55	5.283	38.61			
Kangundo Road Junction to Utawala /Githunguri Road Junction	1.3	12:20;38	5.717	13.64			
Utawala /Githunguri Road Junction to Astrol Petrol Station	2.7	12:19:25	0.7833	206.82			
Astrol Petrol Station to Embakasi Roundabout	3.6	12:28:31	9.1	23.74			

Embakasi Roundabout to U turn on Eastern Bypass	5	12;31:40	3.15	95.24			
U turn on Eastern Bypass to Embakasi Roundabout	5	12:34:59	3.317	90.44			
Embakasi Roundabout to Astrol Petrol Station	3.6	12:40:29	5.5	39.27			
Astrol Petrol Station to Utawala /Githunguri Road Junction	2.7	12;48:31	8.033	20.17			
Utawala /Githunguri Road Junction to Kangundo Road Junction	1.3	12:55:26	6.917	11.28			
Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	3.4	13;01:40	6.233	32.73			
Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	6.3	13:09:26	7.77	48.65	M-SERIES	146	TRAFFIC
East Brook Hotel to Thika Road Roundabout	3.8	13:21;14	11.8	19.32			
Run No……27……. Date….2…/09/2016……..							
Location		**Time readings (Hour, minutes & seconds)**	**Travel Time (Minutes)**	**Travel Speed (Km/hr)**	**Location stopped**	**Delay in seconds**	**Cause of stopping**
Thika Road Roundabout		13;21:14					
Thika Road Roundabout to East Brook Hotel	3.8	13:29:56	8.7	26.21			
East Brook Hotel to Shell Petrol Station next to Access to Infinity Industrial Park	6.3	13:37:22	7.433	50.85			
Shell Petrol Station next to Access to Infinity Industrial Park to Kangundo Road Junction	3.4	13:45;20	7.967	25.61			
Kangundo Road Junction to Utawala /Githunguri Road Junction	1.3	13;54;10	8.833	8.83			
Utawala /Githunguri Road Junction to Astrol Petrol Station	2.7	14:08:46	14.6	11.10			
Astrol Petrol Station to Embakasi Roundabout	3.6	14:28:13	19.45	11.11			
Embakasi Roundabout to U turn on Eastern Bypass	5	14:32:31	4.3	69.77			
U turn on Eastern Bypass to Embakasi Roundabout	5	14:36:29	3.97	75.57			
Embakasi Roundabout to Astrol Petrol Station	3.6	14:42:11	5.7	37.89			
Astrol Petrol Station to Utawala /Githunguri Road Junction	2.7	14:53:55	11.733	13.81			
Utawala /Githunguri Road Junction to Kangundo Road Junction	1.3	15:01:18	7.383	10.56			
Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	3.4	15:09:41	8.383	24.33			
Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	6.3	15:21:17	11.6	32.59			
East Brook Hotel to Thika Road Roundabout	3.8	15:41:06	19.817	11.51			
Run No……28……. Date….2…/09/2016……..							
Location		**Time readings (Hour, minutes & seconds)**	**Travel Time (Minutes)**	**Travel Speed (Km/hr)**	**Location stopped**	**Delay in seconds**	**Cause of stopping**
Thika Road Roundabout		15:41:06					
Thika Road Roundabout to East Brook Hotel	3.8	15;49;22	8.27	27.57			

East Brook Hotel to Shell Petrol Station next to Access to Infinity Industrial Park	6.3	15:54:09	4.783	79.03			
Shell Petrol Station next to Access to Infinity Industrial Park to Kangundo Road Junction	3.4	16:10:12	16.05	12.71			
Kangundo Road Junction to Utawala /Githunguri Road Junction	1.3	16;17:49	7.617	10.24			
Utawala /Githunguri Road Junction to Astrol Petrol Station	2.7	16:30:38	12.817	12.64	APT COLLEGE	401	TRAFFIC
Astrol Petrol Station to Embakasi Roundabout	3.6	16;44;41	14.05	15.37			
Embakasi Roundabout to U turn on Eastern Bypass	5	16:50:20	5.65	53.10			
U turn on Eastern Bypass to Embakasi Roundabout	5	16:54:42	4.37	68.65			
Embakasi Roundabout to Astrol Petrol Station	3.6	17:09:44	15.033	14.37			
Astrol Petrol Station to Utawala /Githunguri Road Junction	2.7	17:24:10	14.433	11.22			
Utawala /Githunguri Road Junction to Kangundo Road Junction	1.3	17:34:34	10.4	7.50			
Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	3.4	17;40:46	6.2	32.90			
Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	6.3	17:59:01	18.25	20.71			
East Brook Hotel to Thika Road Roundabout	3.8	18:13:41	14.67	15.54			
Run No……29……. Date….3…/09/2016……..							
Location		**Time readings (Hour, minutes & seconds)**	**Travel Time (Minutes)**	**Travel Speed (Km/hr)**	**Location stopped**	**Delay in seconds**	**Cause of stopping**
Thika Road Roundabout		7:09:14					
Thika Road Roundabout to East Brook Hotel	3.8	7:16:21	7.117	32.04			
East Brook Hotel to Shell Petrol Station next to Access to Infinity Industrial Park	6.3	7:21;13	4.87	77.62			
Shell Petrol Station next to Access to Infinity Industrial Park to Kangundo Road Junction	3.4	7:25;49	4.6	44.35			
Kangundo Road Junction to Utawala /Githunguri Road Junction	1.3	7;32:51	7.033	11.09			
Utawala /Githunguri Road Junction to Astrol Petrol Station	2.7	7;38;11	5.33	30.39			
Astrol Petrol Station to Embakasi Roundabout	3.6	7;42;06	3.917	55.14			
Embakasi Roundabout to U turn on Eastern Bypass	5	7:46:01	3.917	76.59			
U turn on Eastern Bypass to Embakasi Roundabout	5	7;49:54	3.8833	77.25			
Embakasi Roundabout to Astrol Petrol Station	3.6	7:56:33	6.65	32.48			
Astrol Petrol Station to Utawala /Githunguri Road Junction	2.7	8;07:55	11.37	14.25			
Utawala /Githunguri Road Junction to Kangundo Road Junction	1.3	8;11;27	3.533	22.08			
Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	3.4	8;17:14	5.783	35.28			
Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	6.3	8:27;22	10.133	37.30			
East Brook Hotel to Thika Road Roundabout	3.8	8:34;13	6.85	33.28			
Run No……30……. Date….3…/09/2016……..							

Location		Time readings (Hour, minutes & seconds)	Travel Time (Minutes)	Travel Speed (Km/hr)	Location stopped	Delay in seconds	Cause of stopping
Thika Road Roundabout		8:34:13					
Thika Road Roundabout to East Brook Hotel	3.8	8:38:01	3.8	60.00			
East Brook Hotel to Shell Petrol Station next to Access to Infinity Industrial Park	6.3	8;44;33	6.533	57.86			
Shell Petrol Station next to Access to Infinity Industrial Park to Kangundo Road Junction	3.4	8:49:47	5.233	38.98			
Kangundo Road Junction to Utawala /Githunguri Road Junction	1.3	8:52;41	2.9	26.90			
Utawala /Githunguri Road Junction to Astrol Petrol Station	2.7	8:58:26	5.75	28.17			
Astrol Petrol Station to Embakasi Roundabout	3.6	9:02:54	4.467	48.35			
Embakasi Roundabout to U turn on Eastern Bypass	5	9:04:16	1.37	218.98			
U turn on Eastern Bypass to Embakasi Roundabout	5	9;06:57	2.683	111.82			
Embakasi Roundabout to Astrol Petrol Station	3.6	9:10:55	3.97	54.41			
Astrol Petrol Station to Utawala /Githunguri Road Junction	2.7	9:16:07	5.2	31.15			
Utawala /Githunguri Road Junction to Kangundo Road Junction	1.3	9;18:36	2.483	31.41			
Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	3.4	9:22:14	3.633	56.15			
Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	6.3	9:28:08	5.9	64.07			
East Brook Hotel to Thika Road Roundabout	3.8	9;37:19	9.183	24.83			
Run No……31……. Date…..3…/09/2016……..							
Location		**Time readings (Hour, minutes & seconds)**	**Travel Time (Minutes)**	**Travel Speed (Km/hr)**	**Location stopped**	**Delay in seconds**	**Cause of stopping**
Thika Road Roundabout		9:37:19					
Thika Road Roundabout to East Brook Hotel	3.8	9:42:49	6.5	35.08			
East Brook Hotel to Shell Petrol Station next to Access to Infinity Industrial Park	6.3	9:49;15	5.27	71.73			
Shell Petrol Station next to Access to Infinity Industrial Park to Kangundo Road Junction	3.4	9:55;21	6.1	33.44			
Kangundo Road Junction to Utawala /Githunguri Road Junction	1.3	10;00;46	5.417	14.40			
Utawala /Githunguri Road Junction to Astrol Petrol Station	2.7	10;10:51	10.083	16.07			
Astrol Petrol Station to Embakasi Roundabout	3.6	10:15;02	4.1833	51.63			
Embakasi Roundabout to U turn on Eastern Bypass	5	10;18;11	3.15	95.24			
U turn on Eastern Bypass to Embakasi Roundabout	5	10;23;40	5.4833	54.71			
Embakasi Roundabout to Astrol Petrol Station	3.6	10:27;17	3.617	59.72			
Astrol Petrol Station to Utawala /Githunguri Road Junction	2.7	10;37:14	9.95	16.28			
Utawala /Githunguri Road Junction to Kangundo Road Junction	1.3	10;41:53	4.65	16.77			
Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	3.4	10;46:37	4.733	43.10			

Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	6.3	10;54;11	7.57	49.93			
East Brook Hotel to Thika Road Roundabout	3.8	11:13:22	19.18	11.89			
Run No……32……. Date….3…/09/2016……..							
Location		**Time readings (Hour, minutes & seconds)**	**Travel Time (Minutes)**	**Travel Speed (Km/hr)**	**Location stopped**	**Delay in seconds**	**Cause of stopping**
Thika Road Roundabout		11;18:36					
Thika Road Roundabout to East Brook Hotel	3.8	11:23;45	5.15	44.27			
East Brook Hotel to Shell Petrol Station next to Access to Infinity Industrial Park	6.3	11;34:26	10.683	35.38			
Shell Petrol Station next to Access to Infinity Industrial Park to Kangundo Road Junction	3.4	11:40:08	5.7	35.79			
Kangundo Road Junction to Utawala /Githunguri Road Junction	1.3	11:48;52	8.733	8.93			
Utawala /Githunguri Road Junction to Astrol Petrol Station	2.7	11:55:15	6.3833	25.38			
Astrol Petrol Station to Embakasi Roundabout	3.6	12:00:48	5.55	38.92			
Embakasi Roundabout to U turn on Eastern Bypass	5	12;02:05	1.2833	233.77			
U turn on Eastern Bypass to Embakasi Roundabout	5	12:04:30	2.417	124.12			
Embakasi Roundabout to Astrol Petrol Station	3.6	12;13;42	9.2	23.48			
Astrol Petrol Station to Utawala /Githunguri Road Junction	2.7	12:22:16	8.57	18.90			
Utawala /Githunguri Road Junction to Kangundo Road Junction	1.3	12;25;21	3.083	25.30			
Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	3.4	12:29:31	4.17	48.92			
Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	6.3	12:41:00	11.483	32.92			
East Brook Hotel to Thika Road Roundabout	3.8	12:52:00	11	20.73			
Run No……33……. Date….3…/09/2016……..							
Location		**Time readings (Hour, minutes & seconds)**	**Travel Time (Minutes)**	**Travel Speed (Km/hr)**	**Location stopped**	**Delay in seconds**	**Cause of stopping**
Thika Road Roundabout		12;52:23					
Thika Road Roundabout to East Brook Hotel	3.8	12:59:34	7.1833	31.74			
East Brook Hotel to Shell Petrol Station next to Access to Infinity Industrial Park	6.3	13:08:46	9.2	41.09			
Shell Petrol Station next to Access to Infinity Industrial Park to Kangundo Road Junction	3.4	13:21:51	13.0833	15.59			
Kangundo Road Junction to Utawala /Githunguri Road Junction	1.3	13;25;20	3.4833	22.39			
Utawala /Githunguri Road Junction to Astrol Petrol Station	2.7	13;34:41	9.35	17.33			
Astrol Petrol Station to Embakasi Roundabout	3.6	13:40;17	5.6	38.57			
Embakasi Roundabout to U turn on Eastern Bypass	5	13:42:12	1.917	156.49			
U turn on Eastern Bypass to Embakasi Roundabout	5	13;45:54	3.7	81.08			
Embakasi Roundabout to Astrol Petrol Station	3.6	13:51:21	5.45	39.63			
Astrol Petrol Station to Utawala /Githunguri Road Junction	2.7	13:58;14	6.883	23.54			
Utawala /Githunguri Road Junction to Kangundo Road Junction	1.3	14;01;46	3.533	22.08			

Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	3.4	14:05:54	4.133	49.36	SHELL	574	CONTRACTORS CAMP
Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	6.3	14:24:31	18.617	20.30			
East Brook Hotel to Thika Road Roundabout	3.8	14;35;19	10.8	21.11			
Run No……34……. Date…..3..…/09/2016……..							
Location		**Time readings (Hour, minutes & seconds)**	**Travel Time (Minutes)**	**Travel Speed (Km/hr)**	**Location stopped**	**Delay in seconds**	**Cause of stopping**
Thika Road Roundabout		14;35:19					
Thika Road Roundabout to East Brook Hotel	3.8	14:44;08	8.817	25.86			
East Brook Hotel to Shell Petrol Station next to Access to Infinity Industrial Park	6.3	14;51;38	7.5	50.40			
Shell Petrol Station next to Access to Infinity Industrial Park to Kangundo Road Junction	3.4	14;55;24	3.433	59.42			
Kangundo Road Junction to Utawala /Githunguri Road Junction	1.3	15;01;40	6.27	12.44			
Utawala /Githunguri Road Junction to Astrol Petrol Station	2.7	15;07;28	5.8	27.93			
Astrol Petrol Station to Embakasi Roundabout	3.6	15;18;04	10.6	20.38			
Embakasi Roundabout to U turn on Eastern Bypass	5	15;20;56	2.87	104.53			
U turn on Eastern Bypass to Embakasi Roundabout	5	15;23:10	2.233	134.35			
Embakasi Roundabout to Astrol Petrol Station	3.6	15:42;56	19.77	10.93			
Astrol Petrol Station to Utawala /Githunguri Road Junction	2.7	15;52:41	9.75	16.62			
Utawala /Githunguri Road Junction to Kangundo Road Junction	1.3	15;56;05	3.4	22.94			
Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	3.4	16:00;17	4.2	48.57			
Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	6.3	16:08;49	8.533	44.30			
East Brook Hotel to Thika Road Roundabout	3.8	16;33:21	24.533	9.29			
Run No……35……. Date…..3..…/09/2016……..							
Location		**Time readings (Hour, minutes & seconds)**	**Travel Time (Minutes)**	**Travel Speed (Km/hr)**	**Location stopped**	**Delay in seconds**	**Cause of stopping**
Thika Road Roundabout		16;33;21					
Thika Road Roundabout to East Brook Hotel	3.8	16;41;24	8.05	28.32			
East Brook Hotel to Shell Petrol Station next to Access to Infinity Industrial Park	6.3	17;01:31	20.12	18.79			
Shell Petrol Station next to Access to Infinity Industrial Park to Kangundo Road Junction	3.4	17;07;46	6.25	32.64			
Kangundo Road Junction to Utawala /Githunguri Road Junction	1.3	17:14;37	6.85	11.39			
Utawala /Githunguri Road Junction to Astrol Petrol Station	2.7	17;30;29	15.87	10.21			
Astrol Petrol Station to Embakasi Roundabout	3.6	17;41;50	11.35	19.03			
Embakasi Roundabout to U turn on Eastern Bypass	5	17:44;41	2.85	105.26			
U turn on Eastern Bypass to Embakasi Roundabout	5	17:46;55	2.233	134.35			

Embakasi Roundabout to Astrol Petrol Station	3.6	17;57;25	10.5	20.57			
Astrol Petrol Station to Utawala /Githunguri Road Junction	2.7	18;09;49	12.4	13.06			
Utawala /Githunguri Road Junction to Kangundo Road Junction	1.3	18;17;39	7.833	9.96			
Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	3.4	18:20;11	2.533	80.54			
Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	6.3	18;26:17	6.1	61.97			
East Brook Hotel to Thika Road Roundabout	3.8	18;31;01	4.733	48.17			
Run No……36……. Date….3..…/09/2016……..							
Location		**Time readings (Hour, minutes & seconds)**	**Travel Time (Minutes)**	**Travel Speed (Km/hr)**	**Location stopped**	**Delay in seconds**	**Cause of stopping**
Thika Road Roundabout		18;58;14					
Thika Road Roundabout to East Brook Hotel	3.8	19;02;59	4.75	48.00			
East Brook Hotel to Shell Petrol Station next to Access to Infinity Industrial Park	6.3	19;03;23	0.4	945.00			
Shell Petrol Station next to Access to Infinity Industrial Park to Kangundo Road Junction	3.4	19;04;21	0.97	210.31			
Kangundo Road Junction to Utawala /Githunguri Road Junction	1.3	19;07;39	3.3	23.64			
Utawala /Githunguri Road Junction to Astrol Petrol Station	2.7	19;13;02	5.383	30.09			
Astrol Petrol Station to Embakasi Roundabout	3.6	19:17:18	4.27	50.59			
Embakasi Roundabout to U turn on Eastern Bypass	5	19:22:37	5.317	56.42			
U turn on Eastern Bypass to Embakasi Roundabout	5	19;27;56	5.317	56.42			
Embakasi Roundabout to Astrol Petrol Station	3.6	19:34;32	6.6	32.73			
Astrol Petrol Station to Utawala /Githunguri Road Junction	2.7	19:40;15	5.717	28.34			
Utawala /Githunguri Road Junction to Kangundo Road Junction	1.3	19;46:46	6.517	11.97			
Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	3.4	19;52;43	5.96	34.23			
Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	6.3	19;59:11	7.47	50.60			
East Brook Hotel to Thika Road Roundabout	3.8	20:11;14	12.05	18.92			
Run No……37……. Date…3.…/09/2016……..							
Location		**Time readings (Hour, minutes & seconds)**	**Travel Time (Minutes)**	**Travel Speed (Km/hr)**	**Location stopped**	**Delay in seconds**	**Cause of stopping**
Thika Road Roundabout		7;14;26					
Thika Road Roundabout to East Brook Hotel	3.8	7:18:10	3.733	61.08			
East Brook Hotel to Shell Petrol Station next to Access to Infinity Industrial Park	6.3	7:22:14	4.067	92.94			
Shell Petrol Station next to Access to Infinity Industrial Park to Kangundo Road Junction	3.4	7;25;12	2.97	68.69			
Kangundo Road Junction to Utawala /Githunguri Road Junction	1.3	7;30;54	5.7	13.68			

Utawala /Githunguri Road Junction to Astrol Petrol Station	2.7	7:36;09	5.25	30.86			
Astrol Petrol Station to Embakasi Roundabout	3.6	7;41;31	5.37	40.22			
Embakasi Roundabout to U turn on Eastern Bypass	5	7;44:41	3.17	94.64			
U turn on Eastern Bypass to Embakasi Roundabout	5	7:46:22	1.683	178.25			
Embakasi Roundabout to Astrol Petrol Station	3.6	7:51:19	4.95	43.64			
Astrol Petrol Station to Utawala /Githunguri Road Junction	2.7	7:58:51	7.533	21.51			
Utawala /Githunguri Road Junction to Kangundo Road Junction	1.3	8:06:17	7.433	10.49			
Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	3.4	8;09:26	3.15	64.76			
Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	6.3	8:14;49	5.3833	70.22			
East Brook Hotel to Thika Road Roundabout	3.8	8:20;44	5.917	38.53			
Run No……38……. Date…..4..…/09/2016……..							
Location		**Time readings (Hour, minutes & seconds)**	**Travel Time (Minutes)**	**Travel Speed (Km/hr)**	**Location stopped**	**Delay in seconds**	**Cause of stopping**
Thika Road Roundabout		8;20:44					
Thika Road Roundabout to East Brook Hotel	3.8	8;27:04	6.33	36.02			
East Brook Hotel to Shell Petrol Station next to Access to Infinity Industrial Park	6.3	8;36;12	9.133	41.39			
Shell Petrol Station next to Access to Infinity Industrial Park to Kangundo Road Junction	3.4	8;41:18	5.1	40.00			
Kangundo Road Junction to Utawala /Githunguri Road Junction	1.3	8;45:24	4.1	19.02			
Utawala /Githunguri Road Junction to Astrol Petrol Station	2.7	8:55:13	9.817	16.50			
Astrol Petrol Station to Embakasi Roundabout	3.6	9;07:57	12.733	16.96			
Embakasi Roundabout to U turn on Eastern Bypass	5	9:11;19	3.37	89.02			
U turn on Eastern Bypass to Embakasi Roundabout	5	9:13:43	2.4	125.00			
Embakasi Roundabout to Astrol Petrol Station	3.6	9:21:16	7.55	28.61			
Astrol Petrol Station to Utawala /Githunguri Road Junction	2.7	9:31:50	10.57	15.33			
Utawala /Githunguri Road Junction to Kangundo Road Junction	1.3	9:36;37	4.7833	16.31			
Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	3.4	9;40:11	3.5667	57.20			
Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	6.3	9:49:41	9.5	39.79			
East Brook Hotel to Thika Road Roundabout	3.8	9:55:20	5.65	40.35			
Run No……39……. Date….4..…/09/2016……..							
Location		**Time readings (Hour, minutes & seconds)**	**Travel Time (Minutes)**	**Travel Speed (Km/hr)**	**Location stopped**	**Delay in seconds**	**Cause of stopping**
Thika Road Roundabout		9:55:20					
Thika Road Roundabout to East Brook Hotel	3.8	10:04:16	8.933	25.52			

East Brook Hotel to Shell Petrol Station next to Access to Infinity Industrial Park	6.3	10:09:21	5.08333	74.36			
Shell Petrol Station next to Access to Infinity Industrial Park to Kangundo Road Junction	3.4	10:13:18	3.617	56.40			
Kangundo Road Junction to Utawala /Githunguri Road Junction	1.3	10:21:26	8.1333	9.59			
Utawala /Githunguri Road Junction to Astrol Petrol Station	2.7	10:31:38	10.2	15.88			
Astrol Petrol Station to Embakasi Roundabout	3.6	10:40:10	8.5333	25.31			
Embakasi Roundabout to U turn on Eastern Bypass	5	10:43:14	3.0667	97.83			
U turn on Eastern Bypass to Embakasi Roundabout	5	10:46:06	2.8667	104.65			
Embakasi Roundabout to Astrol Petrol Station	3.6	10:54:29	8.38333	25.77			
Astrol Petrol Station to Utawala /Githunguri Road Junction	2.7	11:00:12	6.2833	25.78			
Utawala /Githunguri Road Junction to Kangundo Road Junction	1.3	11:04:18	4.1	19.02			
Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	3.4	11:10:41	6.38333	31.96			
Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	6.3	11:20:18	9.617	39.31			
East Brook Hotel to Thika Road Roundabout	3.8	11:31:56	11.6333	19.60			
Run No……40……. Date..…4..…/09/2016……..							
Location		**Time readings (Hour, minutes & seconds)**	**Travel Time (Minutes)**	**Travel Speed (Km/hr)**	**Location stopped**	**Delay in seconds**	**Cause of stopping**
Thika Road Roundabout		11:31:56					
Thika Road Roundabout to East Brook Hotel	3.8	11:41:22	9.4333	24.17			
East Brook Hotel to Shell Petrol Station next to Access to Infinity Industrial Park	6.3	11:49:19	7.95	47.55			
Shell Petrol Station next to Access to Infinity Industrial Park to Kangundo Road Junction	3.4	11:53:09	3.8333	53.22			
Kangundo Road Junction to Utawala /Githunguri Road Junction	1.3	11:59:10	6.01667	12.96			
Utawala /Githunguri Road Junction to Astrol Petrol Station	2.7	12:08:14	9.0667	17.87			
Astrol Petrol Station to Embakasi Roundabout	3.6	12:15:21	7.117	30.35			
Embakasi Roundabout to U turn on Eastern Bypass	5	12:17:16	1.92	156.25			
U turn on Eastern Bypass to Embakasi Roundabout	5	12:20:48	3.5	85.71			
Embakasi Roundabout to Astrol Petrol Station	3.6	12:31:13	10.417	20.74			
Astrol Petrol Station to Utawala /Githunguri Road Junction	2.7	12:39;49	8.6	18.84			
Utawala /Githunguri Road Junction to Kangundo Road Junction	1.3	12:47:27	7.6333	10.22			
Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	3.4	12;54;29	7.0333	29.00			
Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	6.3	13;06:01	11.5333	32.77			
East Brook Hotel to Thika Road Roundabout	3.8	13:20:54	14.8833	15.32			
Run No……41……. Date.…4..…/09/2016……..							

Location		Time readings (Hour, minutes & seconds)	Travel Time (Minutes)	Travel Speed (Km/hr)	Location stopped	Delay in seconds	Cause of stopping
Thika Road Roundabout		13;20;54					
Thika Road Roundabout to East Brook Hotel	3.8	13:27:41	6.7833	33.61			
East Brook Hotel to Shell Petrol Station next to Access to Infinity Industrial Park	6.3	13:36:40	8.9833	42.08			
Shell Petrol Station next to Access to Infinity Industrial Park to Kangundo Road Junction	3.4	13:39:18	2.6333	77.47			
Kangundo Road Junction to Utawala /Githunguri Road Junction	1.3	13;43:29	4.1833	18.65			
Utawala /Githunguri Road Junction to Astrol Petrol Station	2.7	13:54:09	10.66667	15.19			
Astrol Petrol Station to Embakasi Roundabout	3.6	14:09:54	15.75	13.71			
Embakasi Roundabout to U turn on Eastern Bypass	5	14:12:06	2.2	136.36			
U turn on Eastern Bypass to Embakasi Roundabout	5	14:15:19	3.217	93.25			
Embakasi Roundabout to Astrol Petrol Station	3.6	14;22:22	7.05	30.64			
Astrol Petrol Station to Utawala /Githunguri Road Junction	2.7	14:32;46	10.4	15.58			
Utawala /Githunguri Road Junction to Kangundo Road Junction	1.3	14:36;18	3.5333	22.08			
Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	3.4	14:42:21	6.05	33.72			
Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	6.3	14;53:35	11.233	33.65			
East Brook Hotel to Thika Road Roundabout	3.8	15:01:40	8.08333	28.21			
Run No……42……. Date…..4..…/09/2016……..							
Location		**Time readings (Hour, minutes & seconds)**	**Travel Time (Minutes)**	**Travel Speed (Km/hr)**	**Location stopped**	**Delay in seconds**	**Cause of stopping**
Thika Road Roundabout		15;01:40					
Thika Road Roundabout to East Brook Hotel	3.8	15:10;46	9.1	25.05			
East Brook Hotel to Shell Petrol Station next to Access to Infinity Industrial Park	6.3	15:15:25	4.65	81.29			
Shell Petrol Station next to Access to Infinity Industrial Park to Kangundo Road Junction	3.4	15:23:14	7.817	26.10			
Kangundo Road Junction to Utawala /Githunguri Road Junction	1.3	15:31:56	8.7	8.97			
Utawala /Githunguri Road Junction to Astrol Petrol Station	2.7	15:41:26	9.5	17.05			
Astrol Petrol Station to Embakasi Roundabout	3.6	15;50:09	8.717	24.78			
Embakasi Roundabout to U turn on Eastern Bypass	5	15;53:21	3.2	93.75			
U turn on Eastern Bypass to Embakasi Roundabout	5	15:56:01	2.67	112.36			
Embakasi Roundabout to Astrol Petrol Station	3.6	16;10:13	14.2	15.21			
Astrol Petrol Station to Utawala /Githunguri Road Junction	2.7	16:17;31	7.3	22.19			
Utawala /Githunguri Road Junction to Kangundo Road Junction	1.3	16:24:14	6.717	11.61			
Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	3.4	16:30:17	6.05	33.72			
Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	6.3	16;42:10	11.8833	31.81			

East Brook Hotel to Thika Road Roundabout	3.8	16;54:19	12.15	18.77			
Run No……43……. Date….4..…/09/2016……..							
Location		**Time readings (Hour, minutes & seconds)**	**Travel Time (Minutes)**	**Travel Speed (Km/hr)**	**Location stopped**	**Delay in seconds**	**Cause of stopping**
Thika Road Roundabout		16;54:19					
Thika Road Roundabout to East Brook Hotel	3.8	17;01:40	7.35	31.02			
East Brook Hotel to Shell Petrol Station next to Access to Infinity Industrial Park	6.3	17:11;00	9	42.00			
Shell Petrol Station next to Access to Infinity Industrial Park to Kangundo Road Junction	3.4	17;16;34	5.57	36.62			
Kangundo Road Junction to Utawala /Githunguri Road Junction	1.3	17;21;30	4.93	15.82			
Utawala /Githunguri Road Junction to Astrol Petrol Station	2.7	17;32:28	10.967	14.77			
Astrol Petrol Station to Embakasi Roundabout	3.6	17;44:59	12.517	17.26			
Embakasi Roundabout to U turn on Eastern Bypass	5	17;47;41	2.7	111.11			
U turn on Eastern Bypass to Embakasi Roundabout	5	17;50:16	2.583	116.14			
Embakasi Roundabout to Astrol Petrol Station	3.6	17;58;18	8.033	26.89			
Astrol Petrol Station to Utawala /Githunguri Road Junction	2.7	18;09;11	10.883	14.89			
Utawala /Githunguri Road Junction to Kangundo Road Junction	1.3	18;14:25	5.233	14.91			
Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	3.4	18;19;20	4.917	41.49			
Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	6.3	18;31;51	12.517	30.20			
East Brook Hotel to Thika Road Roundabout	3.8	18;43;04	11.217	20.33			
Run No……44……. Date….5..…/09/2016……..							
Location		**Time readings (Hour, minutes & seconds)**	**Travel Time (Minutes)**	**Travel Speed (Km/hr)**	**Location stopped**	**Delay in seconds**	**Cause of stopping**
Thika Road Roundabout		7;06:10					
Thika Road Roundabout to East Brook Hotel	3.8	7;13;21	7.183	31.74			
East Brook Hotel to Shell Petrol Station next to Access to Infinity Industrial Park	6.3	7;19;36	6.25	60.48			
Shell Petrol Station next to Access to Infinity Industrial Park to Kangundo Road Junction	3.4	7;22:51	3.25	62.77			
Kangundo Road Junction to Utawala /Githunguri Road Junction	1.3	7;24;26	1.583	49.27			
Utawala /Githunguri Road Junction to Astrol Petrol Station	2.7	7;39;47	15.35	10.55			
Astrol Petrol Station to Embakasi Roundabout	3.6	7;51;09	11.37	19.00			
Embakasi Roundabout to U turn on Eastern Bypass	5	7;54:16	3.117	96.25			
U turn on Eastern Bypass to Embakasi Roundabout	5	7;57;48	3.533	84.91			
Embakasi Roundabout to Astrol Petrol Station	3.6	8:10:14	12.433	17.37			
Astrol Petrol Station to Utawala /Githunguri Road Junction	2.7	8:19;24	9.17	17.67			
Utawala /Githunguri Road Junction to Kangundo Road Junction	1.3	8:24;13	4.817	16.19			
Kangundo Road Junction to Shell Petrol Station next to Access to Infinity	3.4	8;30;18	6.083	33.54			

Industrial Park							
Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	6.3	839;29	9.183	41.16			
East Brook Hotel to Thika Road Roundabout	3.8	8;46:17	6.8	33.53			
Run No……45……. Date……5..…/09/2016……..							
Location		**Time readings (Hour, minutes & seconds)**	**Travel Time (Minutes)**	**Travel Speed (Km/hr)**	**Location stopped**	**Delay in seconds**	**Cause of stopping**
Thika Road Roundabout		8:46:17					
Thika Road Roundabout to East Brook Hotel	3.8	8:56;44	10.45	21.82			
East Brook Hotel to Shell Petrol Station next to Access to Infinity Industrial Park	6.3	9;09:31	12.783	29.57			
Shell Petrol Station next to Access to Infinity Industrial Park to Kangundo Road Junction	3.4	9;15:40	6.15	33.17			
Kangundo Road Junction to Utawala /Githunguri Road Junction	1.3	9:21:54	6.233	12.51			
Utawala /Githunguri Road Junction to Astrol Petrol Station	2.7	9:28:39	6.75	24.00			
Astrol Petrol Station to Embakasi Roundabout	3.6	9;34:26	5.783	37.35			
Embakasi Roundabout to U turn on Eastern Bypass	5	9:36;31	2.083	144.02			
U turn on Eastern Bypass to Embakasi Roundabout	5	9;39;09	2.63	114.07			
Embakasi Roundabout to Astrol Petrol Station	3.6	9:43:47	4.63	46.65			
Astrol Petrol Station to Utawala /Githunguri Road Junction	2.7	9:51:15	7.467	21.70			
Utawala /Githunguri Road Junction to Kangundo Road Junction	1.3	9:52:02	0.783	99.62			
Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	3.4	9:58:59	6.95	29.35			
Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	6.3	10:05:22	6.383	59.22			
East Brook Hotel to Thika Road Roundabout	3.8	10:13:49	8.45	26.98			
Run No……46……. Date…..5..…/09/2016……..							
Location		**Time readings (Hour, minutes & seconds)**	**Travel Time (Minutes)**	**Travel Speed (Km/hr)**	**Location stopped**	**Delay in seconds**	**Cause of stopping**
Thika Road Roundabout		10:13:47					
Thika Road Roundabout to East Brook Hotel	3.8	10:20:19	6.533	34.90			
East Brook Hotel to Shell Petrol Station next to Access to Infinity Industrial Park	6.3	10:28:40	8.35	45.27			
Shell Petrol Station next to Access to Infinity Industrial Park to Kangundo Road Junction	3.4	10:35:18	6.633	30.76			
Kangundo Road Junction to Utawala /Githunguri Road Junction	1.3	10;44:52	9.57	8.15			
Utawala /Githunguri Road Junction to Astrol Petrol Station	2.7	10:49:48	4.933	32.84			
Astrol Petrol Station to Embakasi Roundabout	3.6	10:55:41	5.883	36.72			
Embakasi Roundabout to U turn on Eastern Bypass	5	10:58:01	2.33	128.76			
U turn on Eastern Bypass to Embakasi Roundabout	5	11:00;30	2.483	120.82			
Embakasi Roundabout to Astrol Petrol Station	3.6	11:06:12	5.7	37.89			

Astrol Petrol Station to Utawala /Githunguri Road Junction	2.7	11:12;41	6.483	24.99			
Utawala /Githunguri Road Junction to Kangundo Road Junction	1.3	11;14;43	2.033	38.37			
Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	3.4	11:19;33	4.833	42.21			
Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	6.3	11;26:22	6.817	55.45			
East Brook Hotel to Thika Road Roundabout	3.8	11:32:53	6.517	34.99			
Run No……47……. Date……5..…/09/2016……..							
Location		**Time readings (Hour, minutes & seconds)**	**Travel Time (Minutes)**	**Travel Speed (Km/hr)**	**Location stopped**	**Delay in seconds**	**Cause of stopping**
Thika Road Roundabout		11:32:53					
Thika Road Roundabout to East Brook Hotel	3.8	11:38:14	5.35	42.62			
East Brook Hotel to Shell Petrol Station next to Access to Infinity Industrial Park	6.3	11:44:27	6.217	60.80			
Shell Petrol Station next to Access to Infinity Industrial Park to Kangundo Road Junction	3.4	11:50:23	5.933	34.38			
Kangundo Road Junction to Utawala /Githunguri Road Junction	1.3	11:56:01	5.633	13.85			
Utawala /Githunguri Road Junction to Astrol Petrol Station	2.7	12:01;21	5.333	30.38			
Astrol Petrol Station to Embakasi Roundabout	3.6	12:06;42	5.35	40.37			
Embakasi Roundabout to U turn on Eastern Bypass	5	12:08:58	2.27	132.16			
U turn on Eastern Bypass to Embakasi Roundabout	5	12:10:32	1.57	191.08			
Embakasi Roundabout to Astrol Petrol Station	3.6	12:15:40	5.133	42.08			
Astrol Petrol Station to Utawala /Githunguri Road Junction	2.7	12:21;16	5.6	28.93			
Utawala /Githunguri Road Junction to Kangundo Road Junction	1.3	12:25:26	4.17	18.71			
Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	3.4	12;30;09	4.717	43.25			
Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	6.3	12:37:59	7.833	48.26			
East Brook Hotel to Thika Road Roundabout	3.8	12:43:51	5.87	38.84			
Run No……48……. Date….5..…/09/2016……..							
Location		**Time readings (Hour, minutes & seconds)**	**Travel Time (Minutes)**	**Travel Speed (Km/hr)**	**Location stopped**	**Delay in seconds**	**Cause of stopping**
Thika Road Roundabout		12;43:51					
Thika Road Roundabout to East Brook Hotel	3.8	12:47:28	3.617	63.04			
East Brook Hotel to Shell Petrol Station next to Access to Infinity Industrial Park	6.3	12:54;11	6.717	56.28			
Shell Petrol Station next to Access to Infinity Industrial Park to Kangundo Road Junction	3.4	13:01:54	7.717	26.44			
Kangundo Road Junction to Utawala /Githunguri Road Junction	1.3	13:09;36	6.7	11.64			
Utawala /Githunguri Road Junction to Astrol Petrol Station	2.7	13:21:47	12.183	13.30			
Astrol Petrol Station to Embakasi Roundabout	3.6	13:32:58	11.183	19.32			

Embakasi Roundabout to U turn on Eastern Bypass	5	13:35:10	2.2	136.36			
U turn on Eastern Bypass to Embakasi Roundabout	5	13;38:19	3.15	95.24			
Embakasi Roundabout to Astrol Petrol Station	3.6	13:47;10	8.85	24.41			
Astrol Petrol Station to Utawala /Githunguri Road Junction	2.7	13;56:41	9.517	17.02			
Utawala /Githunguri Road Junction to Kangundo Road Junction	1.3	14:02;48	6.117	12.75			
Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	3.4	14:05;59	3.1833	64.08			
Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	6.3	14;14;08	8.15	46.38			
East Brook Hotel to Thika Road Roundabout	3.8	14:26;16	12.33	18.49			

Appendix 15: Summary of travel times per run per hour per segment for each direction

Travel Time in Seconds																			
Time	**7 to 8**							**8 to 9**						**9 to 10**					
Road Section	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15	R16	R17	R18	R19	R20
Thika Road Roundabout (A) to East Brook Hotel (B)	6.17	5.28	7.45	7.27	7.12	3.73	7.18	6.40	5.02	3.80	6.33			6.27	6.57	6.50	10.45			
East Brook Hotel (B) to Shell Petrol Station next to Access to Infinity Industrial Park (C)	7.75	7.23	6.65	7.27	4.87	4.07	6.25	6.53	9.13					7.50	6.88	6.82	7.57	5.27	12.78	
Shell Petrol Station next to Access to Infinity Industrial Park (C) to Kangundo Road Junction (D)	4.63	20.10	2.33	3.37	4.60	2.97	3.25	5.23	5.10					4.03	4.38	4.08	6.10	6.15		
Kangundo Road Junction (D) to Utawala /Githunguri Road Junction (E)	3.45	20.55	8.62	7.13	7.03	5.70	1.58	2.90	4.10					3.93	4.95	6.25	5.42	6.23		
Utawala /Githunguri Road Junction (E) to Astrol Petrol Station (F)	18.07		13.28	19.80	5.33	5.25	15.35	5.75	20.48	9.82				7.30	7.70	13.03	6.75			
Astrol Petrol Station (F) to Embakasi Roundabout (H)	5.43			8.05	3.92	5.37	11.37	14.10	30.03					4.57	5.23	7.63	4.47	12.73	5.78	
Embakasi Roundabout (H) to U turn on Eastern Bypass (I)	2.73				3.92	3.17	3.12	3.52		6.40				2.95	10.43	2.22	7.67	1.37	3.37	2.08
U turn on Eastern Bypass (I) to Embakasi Roundabout (H)					3.88	1.68	3.53	2.47	4.60	3.93				1.57	6.37	4.05	2.68	2.40	2.63	
Embakasi Roundabout (H) to Astrol Petrol Station (F)					6.65	4.95		5.50	5.57	7.17	12.43			5.42	4.58	4.38	3.97	7.55	4.63	
Astrol Petrol Station(F) to Utawala /Githunguri Road Junction (E)						7.53		4.32	9.97	15.95	11.37	9.17		4.15	4.10	4.42	5.20	10.57	7.47	
Utawala /Githunguri Road Junction (E) to Kangundo Road Junction (D)								2.75	5.58	9.90	3.53	7.43	4.82	2.57	3.57	4.03	2.48	4.78	0.78	
Kangundo Road Junction (D) to Shell Petrol Station next to Access to Infinity Industrial Park ©								5.85	3.92	5.72	5.78	3.15	6.08	4.67	3.62	6.30	3.63	3.57	6.95	
Shell Petrol Station next to Access to Infinity Industrial Park (C) to East Brook Hotel (B)								10.27	8.67	4.77	10.13	5.38	9.18	5.78	8.03	5.90	9.50	6.38		
East Brook Hotel (B) to Thika Road Roundabout (A)								19.6	10.8	6.85	5.92	6.8		10.6	16.2	9.18	5.65	8.45		
Travel Time in Seconds																				

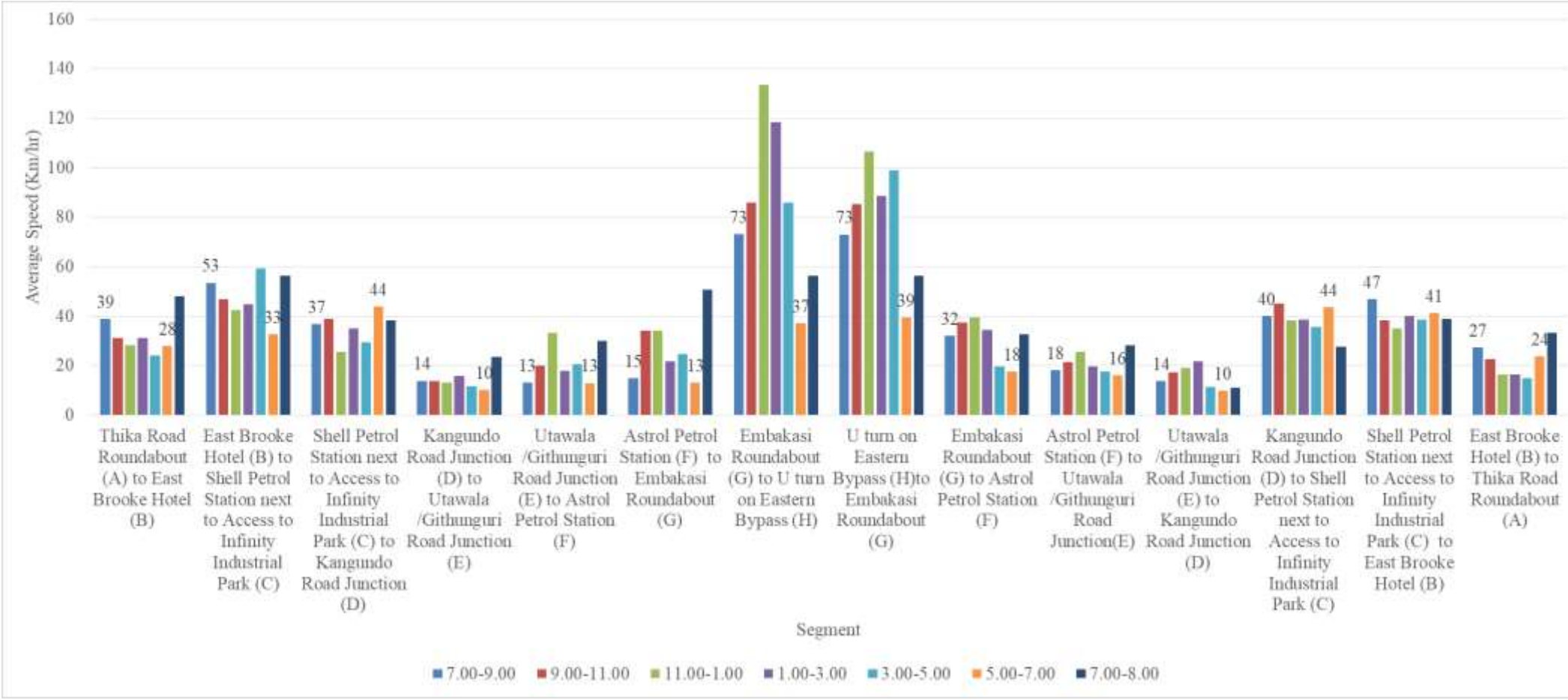
Travel Time in Seconds																				
Time	**10 to 11**						**11 to 12**						**12 to 13**							
Road Section	R21	R22	R23	R24	R25	R26	R27	R28	R29	R30	R31	R32	R33	R34	R35	R36	R37	R38	R39	
Thika Road Roundabout (A) to East Brook Hotel (B)	5.83	7.22	8.93	6.53			8.52	10.25	5.55	5.15	9.43	5.35	15.32	5.03	6.03					
East Brook Hotel (B) to Shell Petrol Station next to Access to Infinity Industrial Park (C)	9.58	10.13	5.08	8.35			8.38	4.37	10.68	7.95	6.22		8.38	19.05	6.95	6.95				
Shell Petrol Station next to Access to Infinity Industrial Park (C) to Kangundo Road Junction (D)	5.53	8.47	3.38	3.62	6.63		29.75	3.30	5.70	3.83	5.93		8.23	5.28	5.28					
Kangundo Road Junction (D) to Utawala /Githunguri Road Junction (E)	4.82	4.37	2.88	8.13	9.57		6.18	8.73	6.02	5.63			5.48	4.30	5.72	5.72				
Utawala /Githunguri Road Junction (E) to Astrol Petrol Station (F)	8.95	5.53	5.65	10.08	10.20	4.93	4.47	6.38	5.33				4.75	4.48	2.78	0.78	9.07			
Astrol Petrol Station (F) to Embakasi Roundabout (H)	5.48	5.43	4.18	8.53	5.88		7.12	5.03	5.55				7.70	6.37	5.10	9.10	7.12	5.35		
Embakasi Roundabout (H) to U turn on Eastern Bypass (I)	2.43	2.45	3.15	3.07	2.33		2.43	1.82					2.33	2.50	3.15	3.15	1.28	1.92	2.27	
U turn on Eastern Bypass (I) to Embakasi Roundabout (H)	2.13	3.03	6.53	5.48	2.87	2.48	2.17	3.07					2.65	2.62	4.98	3.32	2.42	3.50	1.57	
Embakasi Roundabout (H) to Astrol Petrol Station (F)	4.90	8.97	3.62		8.38		4.42	5.45	3.05	5.70			4.45	3.73	5.50	5.50	9.20	10.42	5.13	
Astrol Petrol Station(F) to Utawala /Githunguri Road Junction (E)	4.83	15.65	9.95		6.28		5.18	6.72	2.95	6.48			7.27	5.22	8.03	8.03	8.57	8.60	5.60	
Utawala /Githunguri Road Junction (E) to Kangundo Road Junction (D)	8.65	4.65	4.65				3.77	3.87	3.05	4.10	2.03		2.93	2.33	6.92	6.92	3.08	7.63	4.17	
Kangundo Road Junction (D) to Shell Petrol Station next to Access to Infinity Industrial Park ©	5.43	2.55	4.73				5.37	4.95	4.40	6.38	4.83		4.68	6.87	4.17	7.03	4.72			
Shell Petrol Station next to Access to Infinity Industrial Park (C) to East Brook Hotel (B)	29.32	8.20	5.70	7.57				7.07	6.45	9.62	6.82		34.05	12.53	6.67	11.48	11.53	7.83		
East Brook Hotel (B) to Thika Road Roundabout (A)	7.7	15.6	7.25				22.6	6.32	19.2	11.5	11.6	6.517	33.7	8.98	11	14.9	5.87			

Travel Time in Seconds						
Time	**13 to 14**		**14 to 15**		**15 to 16**	

Travel Time in Seconds																				
Road Section	R40	R41	R42	R43	R44	R45	R46	R47	R48	R49	R50	R51	R52	R53	R54	R55	R56	R57		
Thika Road Roundabout (A) to East Brook Hotel (B)	11.30	6.67	8.70	7.18	6.78	3.62		5.90	6.87	7.62	8.82			18.33	5.13	8.27	9.10			
East Brook Hotel (B) to Shell Petrol Station next to Access to Infinity Industrial Park (C)	13.82	7.92	7.43	9.20	8.98	6.72		6.85	9.80	7.13	7.50			4.13	4.78	4.65				
Shell Petrol Station next to Access to Infinity Industrial Park (C) to Kangundo Road Junction (D)	12.12	2.40	5.17	7.97	13.08	2.63	7.72	4.38	4.85	4.78	3.43			3.22		7.82				
Kangundo Road Junction (D) to Utawala /Githunguri Road Junction (E)	5.85	5.78	4.60	8.83	3.48	4.18	6.70	4.22						8.53	4.27	6.27	8.70			
Utawala /Githunguri Road Junction (E) to Astrol Petrol Station (F)	4.80	3.78	8.15	9.35	10.67	12.18		5.17	14.60					6.65	6.02	5.80	9.50			
Astrol Petrol Station (F) to Embakasi Roundabout (H)	5.20	2.72	9.25	5.60		11.18		4.43	19.45	15.75				6.52	5.78	10.60	8.72			
Embakasi Roundabout (H) to U turn on Eastern Bypass (I)	2.52	1.87	2.30	1.92		2.20		2.23	4.30	2.20				4.40	2.45	2.87	3.20			
U turn on Eastern Bypass (I) to Embakasi Roundabout (H)	2.08	4.37	3.70	3.15				2.40	4.23	3.97	3.22			5.75	2.67	2.23	2.67			
Embakasi Roundabout (H) to Astrol Petrol Station (F)	4.90	4.88	5.45	8.85				4.75	8.65	5.70	7.05			5.12	3.92	19.77				
Astrol Petrol Station(F) to Utawala /Githunguri Road Junction (E)	7.83	7.45	6.88	9.52				3.78	11.73	10.40	8.64			12.07	1.10	9.75				
Utawala /Githunguri Road Junction (E) to Kangundo Road Junction (D)	2.80							5.28	3.42	3.53	3.53	6.12		3.08	4.45	4.07	7.38	3.40		
Kangundo Road Junction (D) to Shell Petrol Station next to Access to Infinity Industrial Park ©	4.53	6.23	6.23					7.70	3.33	4.13	6.05	3.18		4.33	6.82	7.10	8.38	4.20		
Shell Petrol Station next to Access to Infinity Industrial Park (C) to East Brook Hotel (B)		7.77	7.77					14.45	5.63	8.68	18.62	11.23	8.15	12.03	6.45	11.60				
East Brook Hotel (B) to Thika Road Roundabout (A)	20.4	11.8	11.8					29.4	9.88	7.68	10.8	8.083	12.3	13.2	0.85	19.8				
Travel Time in Seconds																				
Time	**16 to 17**					**17 to 18**					**18 to 19**				**19 to 20**					
Road Section	R58	R59	R60	R61	R62	R63	R64	R65	R66	R67	R68	R69	R70	R71	R72	R73	R74	R75		

Travel Time in Seconds																				
Thika Road Roundabout (A) to East Brook Hotel (B)	10.12	7.35				10.73	5.70	8.05							4.75					
East Brook Hotel (B) to Shell Petrol Station next to Access to Infinity Industrial Park (C)	6.87	8.73	9.00			6.87	7.58	20.12							0.40					
Shell Petrol Station next to Access to Infinity Industrial Park (C) to Kangundo Road Junction (D)	8.13	3.45	16.05	5.57		3.80	3.87	6.25							0.97					
Kangundo Road Junction (D) to Utawala /Githunguri Road Junction (E)	6.22	6.15	7.43	7.62	4.93	5.52	6.85				8.97				3.30					
Utawala /Githunguri Road Junction (E) to Astrol Petrol Station (F)	5.12	5.73	12.82	10.97		11.28	15.87				7.77	14.93			5.38					
Astrol Petrol Station (F) to Embakasi Roundabout (H)	5.75	5.78	14.05	12.52		29.32	11.35				8.87	16.27			4.27					
Embakasi Roundabout (H) to U turn on Eastern Bypass (I)	3.50	3.18	5.65	2.70		22.05	2.85				4.25	3.25			5.32					
U turn on Eastern Bypass (I) to Embakasi Roundabout (H)	1.62	2.35	4.37	2.58		2.23					3.38	28.55	7.12		5.32					
Embakasi Roundabout (H) to Astrol Petrol Station (F)	9.57	19.22	8.03			15.03	10.50	14.20			13.28	13.55	6.67		6.60					
Astrol Petrol Station(F) to Utawala /Githunguri Road Junction (E)	11.40	9.08				14.43	7.30	10.88			4.60	14.37	6.17	12.40	5.72					
Utawala /Githunguri Road Junction (E) to Kangundo Road Junction (D)	3.93	14.17				3.93	14.17	10.40	6.72	5.23	10.20	5.37	7.83		7.55	6.52				
Kangundo Road Junction (D) to Shell Petrol Station next to Access to Infinity Industrial Park ©	3.18	7.33				3.18	7.33	6.20	6.05	4.92	6.28	2.70	2.53		8.75	5.96				
Shell Petrol Station next to Access to Infinity Industrial Park (C) to East Brook Hotel (B)	10.48	8.53				6.95	11.58	18.25	11.88	12.52	6.10				5.57	5.60	7.15	7.47		
East Brook Hotel (B) to Thika Road Roundabout (A)	14.1	24.5				19.3	15.2	14.7	12.2	11.2	4.73				14.9	8.07	15.4	12.1		

Appendix 16: Speeds on different segments along Eastern Bypass



Appendix 17: Facilities and accesses along Eastern Bypass

Bypass Section	Length (Km)	Number of lanes in each direction	Shoulders provided	Walkways provided	Availability of services lanes/roads	No. of bus stops provided including illegal ones	No. of direct accesses to abutting properties/roads	Developments within road reserve	Posted speed restrictions	No. of Pedestrain crossings
Thika Road Roundabout (A) to East Brook Hotel (B)	3.8	2	Yes	No	No	2	LHS -72 RHS -18	Parkings, informal traders and kiosks, illegal terminal near Thika Road Overpass,	0	0
East Brook Hotel (B) to Shell Petrol Station next to Access to Infinity Industrial Park (C)	6.3	2	Yes	No	No	0	LHS-22 RHS-6	Flower vendors	80 km/hr and 50km/hr	0
Shell Petrol Station next to Access to Infinity Industrial Park (C) to Kangundo Road Junction (D)	3.4	2	Yes	No	No	2	LHS -24 RHS -19	Flower vendors parking for tankers	0	0
Kangundo Road Junction (D) to Utawala /Githunguri Road Junction (E)	1.3	2	Yes	No	No	1	LHS -9 RHS -25	Quarrying and wreckage of accident vehicles	0	0
Utawala /Githunguri Road Junction (E) to Astrol Petrol Station (F)	2.7	2	Yes	No	No	2	LHS -26 RHS -53	Informal traders	0	0
Astrol Petrol Station (F) to Embakasi Roundabout (G)	3.6	2	Yes	No	No	3	LHS -2 RHS -4	None	50km/hr	0
Embakasi Roundabout (G) to U turn on Eastern Bypass (H)	5.0	4	Yes	Yes	Yes	0	LHS -5 RHS -6	None	0	0

Appendix 18: Hourly levels of service along Eastern Bypass

	7 to 8		8 to 9		9 to 10		10 to 11		11 to 12		12 to 13		13 to 14	
BYPASS SECTION	**Average Speed (Km/hr)**	**Level of Service**	**Average Speed (Km/hr)**	**Level of Service**	**Average Speed (Km/hr)**	**Level of Service**	**Average Speed (Km/hr)**	**Level of Service**	**Average Speed (Km/hr)**	**Level of Service**	**Average Speed (Km/hr)**	**Level of Service**	**Average Speed (Km/hr)**	**Level of Service**
Thika Road Roundabout to East Brook Hotel	38.13	D	44.27	C	31.99	E	32.78	D	33.52	D	32.67	D	34.83	D
East Brook Hotel to Shell Petrol Station next to Access to Infinity Industrial Park	62.99	B	49.62	C	52.00	C	49.10	C	55.06	C	43.43	C	44.23	C
Shell Petrol Station next to Access to Infinity Industrial Park to Kangundo Road Junction	54.01	C	39.49	D	42.75	C	41.69	C	38.41	D	34.01	D	40.92	C
Kangundo Road Junction to Utawala /Githunguri Road Junction	17.21	F	22.96	F	12.50	F	15.77	F	12.09	F	14.91	F	15.04	F
Utawala /Githunguri Road Junction to Astrol Petrol Station	14.45	F	17.53	F	19.92	F	23.48	F	30.67	E	70.63	B	23.71	F
Astrol Petrol Station to Embakasi Roundabout	25.85	F	11.26	F	36.59	D	38.57	D	37.40	D	33.13	D	33.71	D
Embakasi Roundabout to U turn on Eastern Bypass	94.34	A	44.06	C	102.15	A	113.54	A	144.28	A	137.34	A	117.15	A
U turn on Eastern Bypass to Embakasi Roundabout	113.47	A	87.67	A	110.52	A	94.33	A	118.08	A	111.34	A	97.25	A
Embakasi Roundabout to Astrol Petrol Station	38.06	D	31.39	E	44.33	C	38.41	D	49.31	C	38.75	D	38.09	D
Astrol Petrol Station to Utawala /Githunguri Road Junction	21.51	F	19.17	F	30.57	E	21.49	F	33.82	D	22.91	F	20.75	F
Utawala /Githunguri Road Junction to Kangundo Road Junction			16.50	F	36.48	D	14.19	F	24.76	F	19.55	F	27.86	E

Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park			42.70	C	45.86	C	53.56	C	39.95		32.40	D	15.78	F
Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel			51.39	C	55.10	C	43.81	C	51.71	C	35.32	D	13.90	F
East Brook Hotel to Thika Road Roundabout			23.00	F	25.56	F	25.23	F	22.07	F	21.41	F	7.12	F

	14 to 15		15 to 16		16 to 17		17 to 18		18 to 19		19 to 20			
BYPASS SECTION	**Average Speed (Km/hr)**	**Level of Service**	**Average Speed (Km/hr)**	**Level of Service**	**Average Speed (Km/hr)**	**Level of Service**	**Average Speed (Km/hr)**	**Level of Service**	**Average Speed (Km/hr)**	**Level of Service**	**Average Speed (Km/hr)**	**Level of Service**	**Overall Average Speed (Km/hr)**	**Overall Average LOS**
Thika Road Roundabout to East Brook Hotel	31.91	E	27.38	E	26.78	E	29.86	E			48.00	C	31.70	E
East Brook Hotel to Shell Petrol Station next to Access to Infinity Industrial Park	49.29	C	83.93	A	46.77	C	41.22	C					44.43	C
Shell Petrol Station next to Access to Infinity Industrial Park to Kangundo Road Junction	47.67	C	44.76	C	33.39	D	46.35	C					35.65	D
Kangundo Road Junction to Utawala /Githunguri Road Junction	18.50	F	12.20	F	12.36	F	12.76	F	8.70	F	23.64	F	15.28	F
Utawala /Githunguri Road Junction to Astrol Petrol Station	21.22	F	24.07	F	21.83	F	12.28	F	15.85	F	30.09	E	25.06	F
Astrol Petrol Station to Embakasi Roundabout	24.53	F	28.91	E	26.89	E	13.20	F	18.81	F	50.59	C	29.19	E
Embakasi Roundabout to U turn on Eastern Bypass	113.55	A	97.23	A	86.04	A	59.43	B	81.45	A	56.42	B	95.92	A
U turn on Eastern Bypass to Embakasi Roundabout	91.19	A	102.81	A	124.50	A	67.17	B	47.11	C	56.42	B	93.99	A

Embakasi Roundabout to Astrol Petrol Station	34.74	D	36.09	D	20.23	F	16.72	F	21.53	F	32.73	D	33.88	D
Astrol Petrol Station to Utawala /Githunguri Road Junction	22.74	F	59.10	B	16.02	F	16.10	F	21.46	F	28.34	E	25.69	F
Utawala /Githunguri Road Junction to Kangundo Road Junction	18.90	F	19.10	F	12.68	F	11.87	F	10.71	F	11.15	F	17.21	F
Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	39.15	D	35.73	D	45.96	C	40.01	C			14.39	F	31.19	E
Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	39.53	D	24.52	F	40.18	C	33.95	D			59.71	B	34.55	D
East Brook Hotel to Thika Road Roundabout	21.39	F	59.41	B	12.71	F	16.28	F			19.33	F	19.50	F

Appendix 19: Other congestion indicators along Eastern Bypass

Model	Thika Road Roundabout to East Brook Hotel	Estimated congestion indicator	East Brook Hotel to Shell Petrol Station next to Access to Infinity Industrial Park	Estimated congestion indicator	Shell Petrol Station next to Access to Infinity Industrial Park/ Kangundo Road Junction	Estimated congestion indicator	Kangundo Road Junction to Utawala /Githunguri Road Junction	Estimated congestion indicator	Utawala /Githunguri Road Junction to Astrol Petrol Station	Estimated congestion indicator	Astrol Petrol Station to Embakasi Roundabout	Estimated congestion indicator
Travel time difference												
Free flow Travel Time (travel time at 80km/hr) (min)		2.85		4.725		2.55		0.975		2.025		2.7
Free flow Travel Speed			80		80		80		80		80	
Peak Travel Time (morning)	5.98	3.13	6.64	1.91	5.73	3.18	6.78	5.81	12.57	10.55	11.18	8.48
off - Peak Travel Time	7.50		8.42		6.49		5.69		7.19		7.21	
Peak Travel Time (evening)	6.48	3.63	7.61	2.89	6.37	3.82	6.57	5.59	9.24	7.22	8.88	6.18
Peak Travel speed (morning)	38.14		56.93		35.59		11.50		12.89		19.32	
Peak Travel Speed (evening)	35.19		49.66		32.03		11.88		17.53		24.32	
Travel Rate (minutes /mile) morning		1.32		0.49		1.50		7.15		6.25		3.77
Travel Rate (minutes per mile) Evening		1.53		0.73		1.80		6.88		4.28		2.75
Acceptable travel rate		1.20		1.20		1.20		1.20		1.20		1.20
Travel Time Index (TTI)												
Peak Travel Time (morning)		2.10		1.41		2.25		6.96		6.21		4.14
Peak Travel Time (evening)		2.27		1.61		2.50		6.74		4.56		3.29
Buffer Index												
95th percentile of travel time Morning peak	7.27	0.22	9.133	0.38	20.1	2.51	20.55	2.03	20.483	0.63	30.03	1.69
95th percentile of travel time afternoon	11.3	0.51	13.82	0.64	13.0833	1.02	8.833	0.55	13.03	0.81	15.75	1.18
95th percentile of travel time Evening peak	10.73	0.66	20.12	1.64	3.87	-0.39	8.97	0.37	14.93	0.62	16.27	0.83
Planning Time Index												
95th percentile of travel	7.27	2.55	9.133	1.93	20.1	7.88	20.55	21.08	20.483	10.12	30.03	11.12

Model	Thika Road Roundabout to East Brook Hotel	Estimated congestion indicator	East Brook Hotel to Shell Petrol Station next to Access to Infinity Industrial Park	Estimated congestion indicator	Shell Petrol Station next to Access to Infinity Industrial Park/ Kangundo Road Junction	Estimated congestion indicator	Kangundo Road Junction to Utawala /Githunguri Road Junction	Estimated congestion indicator	Utawala /Githunguri Road Junction to Astrol Petrol Station	Estimated congestion indicator	Astrol Petrol Station to Embakasi Roundabout	Estimated congestion indicator
time Morning peak												
95th percentile of travel time afternoon	11.3	2.85	13.82	4.73	13.0833	2.55	8.833	0.98	13.03	2.03	15.75	2.70
95th percentile of travel time Morning peak	10.73	3.76	20.12	4.26	3.87	1.52	8.97	9.20	14.93	7.37	16.27	6.03
Congestion Index (CI)												
Morining		1.10		0.41		1.25		5.96		5.21		3.14
Evening		1.27		0.61		1.50		5.74		3.56		2.29
Relative Speed Reduction (RSR)												
Morning		0.52		0.29		0.56		0.86		0.84		0.76
Evening		0.30		0.01		0.36		0.76		0.65		0.51
Delay rate												
Morning		0.12		0.71		0.30		5.95		5.05		2.57
Evening		0.33		0.47		0.60		5.68		3.08		1.55
Relative delay rate (RDR)												
Morning		0.10		0.59		0.25		4.96		4.21		2.14
Evening		0.27		0.39		0.50		4.74		2.56		1.29
Delay ratio (DRA)												
Morning		0.69		0.69		0.69		0.69		0.69		0.69
Evening		0.27		0.39		0.50		4.74		2.56		1.29

Model	Embakasi Roundabout to U turn on Eastern Bypass	Estimated congestion indicator	U turn on Eastern Bypass to Embakasi Roundabout	Estimated congestion indicator	Embakasi Roundabout to Astrol Petrol Station	Estimated congestion indicator	Astrol Petrol Station to Utawala /Githunguri Road Junction	Estimated congestion indicator	Utawala /Githunguri Road Junction to Kangundo Road Junction	Estimated congestion indicator	Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	Estimated congestion indicator	Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	Estimated congestion indicator	East Brook Hotel to Thika Road Roundabout	Estimated congestion indicator
Travel time difference																
Free flow Travel Time (travel time at 80km/hr) (min)		3.75		3.75		2.7		2.025		0.975		2.55		4.725		2.85
Free flow Travel Speed	80		80		80		80		80		80		80		80	
Peak Travel Time (morning)	3.81	0.06	3.35	-0.40	7.05	4.35	9.72	7.69	5.67	4.69	5.08	2.53	8.07	3.34	10.01	7.16
off - Peak Travel Time	2.89		3.30		5.83		7.29		4.06		5.12		10.53		12.87	
Peak Travel Time (evening)	4.96	1.21	7.38	3.63	10.55	7.85	7.70	5.68	7.39	6.41	6.53	3.98	9.83	5.10	13.86	11.01
Peak Travel speed (morning)	78.77		89.56		30.66		16.67		13.76		40.13		46.85		22.79	
Peak Travel Speed (evening)	60.52		40.66		20.48		21.04		10.55		31.23		38.47		16.45	
Travel Rate (minutes /mile) morning		0.02		-0.13		1.93		4.56		5.78		1.19		0.85		3.01

Model	Embakasi Roundabout to U turn on Eastern Bypass	Estimated congestion indicator	U turn on Eastern Bypass to Embakasi Roundabout	Estimated congestion indicator	Embakasi Roundabout to Astrol Petrol Station	Estimated congestion indicator	Astrol Petrol Station to Utawala /Githunguri Road Junction	Estimated congestion indicator	Utawala /Githunguri Road Junction to Kangundo Road Junction	Estimated congestion indicator	Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	Estimated congestion indicator	Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	Estimated congestion indicator	East Brook Hotel to Thika Road Roundabout	Estimated congestion indicator
Travel Rate (minutes per mile) Evening		0.39		1.16		3.49		3.36		7.90		1.87		1.30		4.64
Acceptable travel rate		1.20		1.20		1.20		1.20		1.20		1.20		1.20		1.20
Travel Time Index (TTI)																
Peak Travel Time (morning)		1.02		0.89		2.61		4.80		5.81		1.99		1.71		3.51
Peak Travel Time (evening)		1.32		1.97		3.91		3.80		7.58		2.56		2.08		4.86
Buffer Index																
95th percentile of travel time Morning peak		0.68	4.6	0.37	12.433	0.76	15.95	0.64	9.9	0.75	6.083	0.20	29.317	2.63	29.37	1.94
95th percentile of travel time afternoon	7.667	1.65	6.37	0.93	9.2	0.58	11.733	0.61	7.6333	0.88	7.0333	0.37	127	11.06	127	8.87

Model	Embakasi Roundabout to U turn on Eastern Bypass	Estimated congestion indicator	U turn on Eastern Bypass to Embakasi Roundabout	Estimated congestion indicator	Embakasi Roundabout to Astrol Petrol Station	Estimated congestion indicator	Astrol Petrol Station to Utawala /Githunguri Road Junction	Estimated congestion indicator	Utawala /Githunguri Road Junction to Kangundo Road Junction	Estimated congestion indicator	Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	Estimated congestion indicator	Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	Estimated congestion indicator	East Brook Hotel to Thika Road Roundabout	Estimated congestion indicator
95th percentile of travel time Evening peak	5.75	0.16	19.77	1.68	15.033	0.43	14.37	0.87	14.17	0.92	11.6	0.78	18.25	0.86	19.317	0.39
Planning Time Index																
95th percentile of travel time Morning peak		1.71	4.6	1.23	12.433	4.60	15.95	7.88	9.9	10.15	6.083	2.39	29.317	6.20	29.37	10.31
95th percentile of travel time afternoon	7.667	3.75	6.37	3.75	9.2	2.70	11.733	2.03	7.6333	0.98	7.0333	2.55	127	4.73	127	2.85
95th percentile of travel time Morning peak	5.75	1.53	19.77	5.27	15.033	5.57	14.37	7.10	14.17	14.53	11.6	4.55	18.25	3.86	19.317	6.78
Congestion Index (CI)																
Morning		0.02		-0.11		1.61		3.80		4.81		0.99		0.71		2.51

Model	Embakasi Roundabout to U turn on Eastern Bypass	Estimated congestion indicator	U turn on Eastern Bypass to Embakasi Roundabout	Estimated congestion indicator	Embakasi Roundabout to Astrol Petrol Station	Estimated congestion indicator	Astrol Petrol Station to Utawala /Githunguri Road Junction	Estimated congestion indicator	Utawala /Githunguri Road Junction to Kangundo Road Junction	Estimated congestion indicator	Kangundo Road Junction to Shell Petrol Station next to Access to Infinity Industrial Park	Estimated congestion indicator	Shell Petrol Station next to Access to Infinity Industrial Park to East Brook Hotel	Estimated congestion indicator	East Brook Hotel to Thika Road Roundabout	Estimated congestion indicator
Evening		0.32		0.97		2.91		2.80		6.58		1.56		1.08		3.86
Relative Speed Reduction (RSR)																
Morning		0.02		0.12		0.62		0.79		0.83		0.50		0.41		0.72
Evening		0.21		0.19		0.59		0.58		0.79		0.38		0.23		0.67
Delay rate																
Morning		1.18		1.33		0.73		3.36		4.58		-0.01		-0.35		1.81
Evening		0.81		0.04		2.29		2.16		6.70		0.67		0.10		3.44
Relative delay rate (RDR)																
Morning		0.98		1.11		0.61		2.80		3.81		-0.01		-0.29		1.51
Evening		0.68		0.03		1.91		1.80		5.58		0.56		0.08		2.86
Delay ratio (DRA)																
Morning		0.69		0.69		0.69		0.69		0.69		0.69		0.69		0.69
Evening		0.68		0.03		1.91		1.80		5.58		0.56		0.08		2.86

Appendix 20: Relationships of various congestion models

Model	Model description	Model relationships	Applicability
Travel time	Travel time represents time taken to travel between two places, which are a certain distance apart.	D/S …….…….....(15) Where : D is distance and S is speed	Individual locations and short roadway sections
Average Travel Time	Average Travel time represents average travel time determined by averaging travel times after making several runs on a given section length.	$\text{Average Travel time} = \frac{\sum_i^m t_i}{m}$ ……. (16) where: t = average travel time for i-th run or vehicle i m = total number of travel times d = vehicle distance traveled or segment length	Individual locations and short roadway sections
Space Mean (Harmonic) Speed	Represents distance traveled per average travel time	$\text{Space Mean Speed} = \frac{nxd}{\sum t_i}$ ……. (17) ti = average travel time for i-th run or vehicle i n = total number of travel times d = vehicle distance traveled or segment length	Individual locations and short roadway sections
Average Delay	Total delay divided by total no. of runs	Average delay = total delay/no. of runs …….(18)	
Travel time difference	Travel time difference represents the difference in travel time between periods of	T2 – T1……..……(19)	Individual location, long roadway

Model	Model description	Model relationships	Applicability
	peak and free flow conditions	Where T2 is travel time during period during peak hour and T1 is travel time during period of free flow condition.	sections and modal analyses
Traffic transmission index (Q index)	Represents a function of average speed and the number and sum of speed changes (Levinson and Lomax, 1996). It was used to estimate driver's annoyance due to delay, a ratio of satisfaction versus effort expended, and a quality factor.	$Q = KS/(\Delta sf)$……..…… (20) Where; Q - quality of traffic transmission index K = constant whose value is1000 S = average speed (mph) Δs- absolute of speed changes per mile f = Number of speed changes per mile.	Individual location, long roadway sections
Travel Time Index (TTI)	Represents comparison of travel time during peak period travel and free flow travel while accounting for both recurring and incident conditions. It represents also the amount of additional time that is required to make a trip because of congested conditions on the roadway	$TTI = \frac{tt_{peak}}{tt_{nfreeflow}}$ …… (21) Where; TTI is Travel Time Index tt_{peak} is peak hour travel time $tt_{nfreeflow}$ is travel time during free flow conditions	Individual location, long roadway sections
Segment delay time	Represents additional time taken by a road user in comparison to the free flow travel or the acceptable travel time.	$Ds = (TT_{ac} - TT_{ap})*V_p$……..….. (22) $D/s = (TT_{ac} - TT_{ap})*V_p*V_{oc}$……..…..……(23) Ds = segment delay (vehicle-minutes) D/s = segment delay (person-minutes) TT_{ac} = actual travel time (minutes) TT_{ap} = acceptable travel time (minutes) V_p = vehicle volume in the peak-period (vehicles) V_{oc}=vehicle occupancy (persons/vehicle)	Roadway sections

Model	Model description	Model relationships	Applicability
Level of Service (LOS)	Represents the quality of travel experienced by a facility user and is determined by traffic flow characteristics such as vehicle density, volume-to-capacity ratio, average speed and intersection delay.	LOS= V/C ……..……. (24) V= Total volume of vehicles per hour calculated based on Average Annual Daily Traffic (AADT) and C=Hourly capacity of roads	
Buffer Index	Reflects the extra time travelers must add to their travel schedule to ensure on-time arrival. Buffer index calculates the extra percentage of travel time a traveler should allow when making a trip in order to be on time 95% of the time.	$BI = \frac{TT95\text{-}T_A}{T_A}$ ……. (25) Where: TT95: 95th percentile of travel time T_A : Average travel time	
Planning Time Index	Represents the extra time most travelers should add to a free flow travel time so as to be fairly confident of arriving at the destination by a certain time.	$PTI = \frac{TT95}{TT_{freeflow}}$ ……. (26) TT95: 95th percentile of travel time $TT_{freeflow}$ isfree-flow travel time	
Congestion Index (CI)	Congestion index is the ratio of link delay (the difference between actual and acceptable travel time) to acceptable travel time. It allows for comparison across metropolitan areas by measuring the full range of system performance by focusing on the physical capacity of the roadway in terms of vehicles.	$CI = \sum_i^m \frac{t_i+d_i}{t_i}$ ……..……. (27) Where CI = Congestion Index t_i = free flow travel time d_i = excess travel time	All vehicle journeys or for single links of corridors
Roadway	Measures daily Vehicle Mile Travel (VMT)	RCI = ([FreewayDMT/Ln.Mi. x Fwy.DVMT]+[Prin	

Model	Model description	Model relationships	Applicability
Congestion Index (RCI)	per lane-mile of freeways and principal arterial streets. RCI equation weights the daily VMT per lane mile values for the two functional classes by its respective amount of daily VMT. It is an empirically derived formula to quantify the relative congestion levels in urban areas.	Art.DVMT/Ln.Mi. x Prin.Arter.DVMT])/([13,000XFwy.DVMT]+ [5,000 x Prin. Art.DVMT]…… 28) Ln is lane; Mi is miles; DMT is Daily Miles Travel;Fwy is freeweway; art is arterial; prin Art is principle arterial and DVMT is daily vehicle miles travel	
Congestion Severity Index (CSI)	Measures freeway delay per million miles of travel. It measures freeway congestion in terms of total delay (vehicle-hours) per million vehicle miles of travel (VMT) and was used in the highway performance monitoring system to estimate relative congestion. Congested roadway are recommended primary congestion measures for sub areas and regional networks, congested Roadway	$CSI = D_{total/}VMT_{freeyway}$ ……..…….……..…….. (29) D_{total} is total freeway delay (vehicle hours) and $VMT_{freeway}$ is Million vehicle mile travel	Highways and Freeways congested Person miles of travel are recommended as primary congestion measures for subareas and regional networks,
Corridor mobility index (CMI)	Measures person-carrying capacity of corridors. CMI or rate of person movements defined as the product of peak-hour vehicle occupancy and travel speed. Congested vehicle mile of travel	$CMI = PV \times S_{average}e/N$……..……..……. (30) PV is Passenger volume (persons) $S_{average}$ is average travel speed N is normalizing value.	Recommended secondary measure of congestion for corridors, sub areas and regional network and modal analyses.
Network Speed ($S_{network}$)	Network speed is defined as the ratio between the total distances travelled on the network and the total travel time in the	$TR = \left\{\frac{\sum_{\epsilon}^{N} tt_i f_i}{\sum_{\epsilon}^{N} l_i f_i}\right\} experienced - \left\{\frac{\sum_{\epsilon}^{N} tt_i f_i}{\sum_{\epsilon}^{N} l_i f_i}\right\} uncongested$ … (31)	

Model	Model description	Model relationships	Applicability
	network	N is the set of links considered in the network, i is one of the links, tti is travel time on link i, fi is the vehicle flow on link i, and li is the length of the link i.	
Travel rate	Represents the "difference between the average network travel rate and the uncongested network travel rate in minutes per kilometer; the delay, 'lost travel time' or 'excess travel rate'. It is the reciprocal of the network speed.	$TR = \frac{1}{S_{network}} = \left\{\frac{\sum_{\epsilon}^{N} tt_i f_i}{\sum_{\epsilon}^{N} l_i f_i}\right\}$ ……(32) N is the set of links considered in the network, i is one of the links, tti is travel time on link i, fi is the vehicle flow on link i, and li is the length of the link i.	Short roadway sections, long roadway sections, corridors and modal analyses
Relative Speed Reduction (RSR)	This measure "represents the ratio of the decline in speeds from free flow conditions." It provides a way to compare the amount of congestion on different transportation facilities by using a continuous scale to differentiate between different levels of congestion.	$TTI = \frac{tt_{peak}}{tt_{nfreeflow}}$ ……(33) $S_{freeflow}$ is the free flow speed (measured or posted) and S_{obs} corresponds to the observed or measured speed during the peak traffic period.	Applied to entire routes, entire urban areas, or individual freeway segments for off-peak and peak conditions.
Delay rate	Is the rate of time loss for vehicles operating in congested conditions on a roadway segment or during a trip. This quantity can estimate system performance and compare actual and expected performance. Represents the difference between actual travel rate and acceptable	DR = TR_{ac} - TR_{ap}……..…….. (34) TR_{ac} = actual travel rate (minutes per mile) TR_{ap} = acceptable travel rate (minutes per mile) Travel rate, TR = TT/Ls=60/v……..……..……. (35)	Short roadway sections, long roadway sections, corridors and modal analyses

Model	Model description	Model relationships	Applicability
	travel rate.	TT = travel time (minutes) Ls = segment length (miles) V = travel speed (mph)	
Relative delay rate (RDR)	Relative delay rate reflects the condition of flow that travelers' can relate to their travel experience (Hamad and Kikuchi, 2002). The relative delay rate can be used to compare mobility levels on roadways or between different modes of transportation. This measure compares system operations to a standard or target. It can also be used to compare different parts of the transportation system and reflect differences in operation between transit and roadway modes	$RDR = DR/TR_{ap}$ ..... (36)	Long roadway sections, corridors and modal analyses
Delay ratio (DRA)	The delay ratio can be used to compare mobility levels on roadways or among different modes of transportation. It identifies the significance of the mobility problem in relation to actual conditions.	$DRA = DR/TR_{ac}$ ..... (37)	Short roadway sections, long roadway sections, corridors and modal analyses
Percentage Extension in Travel Time (PET)	Estimates the average prolongation of travel time in comparison with travel time when no congestion exists.	$PET_i = \frac{tt_i}{tt_i^0} - 1$ ..... (38) Where; tt_i is the observed travel time on link i and tt_0 is travel time during nighttime.	

Model	Model description	Model relationships	Applicability
		A zero value means free flow; while 100 % means that travel time is twice the free flow travel time	
Vehicle kilometer travelled (VKT)	Measures average delay by a vehicle travelling per kilometer and provides picture of how changing traffic levels and different policy packages can affect time lost to congestion, although delays are measured purely in terms of vehicle journey time.	$VKT_i = \sum_{\epsilon}^{N} f_i^T l_i$……..……...…….. (39) f_i^T= Flow on link *"i"* for period of time *"T"* l_i: Length of link *"i"* *N*: Set of the links in the analyzed network.	Sub areas and regional networks
Accessibility	Accessibility is a measure of the time to complete travel objectives at a particular location. Travel objectives are defined as trips to employment, shopping, home, or other destinations of interest. This measure is the sum of objective fulfillment opportunities where travel time is less than or equal to acceptable travel time. This measure can be used with any mode of transportation but is most often used when assessing the quality of transit services.	$COMA_i = \sum_j O_j X_j$ ……. (40) $COMA_i$ = cumulative opportunities measure of accessibility index of zone i to be estimated, O_j= opportunities such as employment in zone j, Xj = 0 if rij> r * and 1 otherwise, R_{ij} = resistance or friction between zones i and j, and R^*_{ij} = isochron radius such as 30-min search boundary within which the opportunities are enumerated. Sum of (objective fulfillment opportunities where actual travel time is ≤ acceptable travel time	Corridors, sub areas, regional networks and modal analyses. Accessibility is recommended as a primary congestion measure for sub areas, regional Networks and modal analyses and a secondary congestion measure for corridors

Source: Lomax et al, (1997); Turner et al (1998); Medley et al. (2003); HCM (2010) & Aftabuzzaman, (2010)