

**QUALITY MANAGEMENT AND SAFETY IN PUBLIC TRANSPORT SACCOS
IN NAIROBI CITY COUNTY**

RUTH WANJIKU NJOROGE

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DECLARATION

I declare that this research project is my original work and has never been submitted for award of a degree in any other University.

Signed..... Date.....

RUTH WANJIKU NJOROGE

D61/80094/2012

This project has been submitted for examination with my authority as the university supervisor.

Signed..... Date

KARIUKI C. NGUGI

Lecturer, Department of Management Science

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DEDICATION

I would like to dedicate this work to my family and friends for giving their unlimited support, help, encouragement and motivation throughout the completion of this research project.

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ABBREVIATIONS AND ACRONYMS

MCDM	Ministry of Cooperative Development and Marketing,
NCC	Nairobi City County
QM	Quality Management
SPC	Statistical Process Control
TLB	Transport Licensing Board
TQM	Total Quality Management
WHO	World Health Organization

ABSTRACT

Quality is a shared responsibility of the authority and the operator: to the authority, it is the strategic responsibility to define the level of quality; to the operator the managerial and operational responsibilities are to ensure that the agents successfully deliver the defined quality service. This study sought to establish quality management practices by public transport Saccos in Nairobi City County.

The study adopted a descriptive research design. The target population was 85 registered Public Transport Saccos in Nairobi City County according to the National Transport and Safety Authority. The Saccos were distributed in nine major routes within Nairobi City County. Cluster sampling method was used to select one third (1/3) of the Saccos from each route. There were three respondents from each of the selected Saccos who included owner/management, driver/conductor and passenger. Hence the total number of respondents was ninety. The study used primary data. The data was collected using a questionnaire. Data collected was analyzed using means, standard deviation and linear regression.

The study established that there is a positive and significant relationship between quality management and public transport Sacco's safety. It was further established that total quality management had the most influence on safety in public transport, followed by self-assessment, benchmarking and quality loop. The study recommends that policy makers should focus on intensifying the implementation of quality management practices to improve public transport safety to all citizens. The study further recommends that investors in the public transport should invest more in total quality management, followed by self-assessment, benchmarking and quality loop.

CHAPTER ONE: INTRODUCTION

1.1 Background

Quality Management (QM) is an approach to managing organizations with emphasis on continuous improvement and customer satisfaction. It entails the application of systematic tools and approaches for managing organizations with these ends in mind and involves the establishment of structures for maintaining focus on these ends and enacting organizational improvement processes (Klimoski, 1994). During the last decades, many concepts and models of quality management have been established including Total Quality Management (TQM), Statistical Process Control (SPC), Bench Marking, Standardization and Certification (ISO 9000-9004), Quality Loop, Balanced Scorecard, and Self-Assessment Methods, among others. All of them have been enhanced based on the experiences in application (Deming, 1989). For the purpose of this study, a key focus will be on QMP applicable to Public Transport Saccos.

Safety in Public Transport is the state of being free of risk or danger, natural or accidental, while using public service vehicles thus being in control of recognized hazards and reducing risk of harm or damage to as low as reasonably practicable (Friman, 2004). The term safety when used as an attribute encompasses all measures, actions or systems aiming at ensuring the state of safety (Graeff, 2009). Efforts to restructure public transport in Nairobi city county and its environs, in order to improve Public Transport Safety, has thumbed its nose at nearly every attempt by the national government and the old city council of Nairobi to enforce discipline and free itself from the stigma involved with matatus drivers and conductors (Graeff, 2009).

Public Transport Saccos in Kenya are required to adhere to regulation set by Sacco's regulation authority (SASRA). In Kenya and neighboring nations, matatus are privately owned minibuses. These minibuses ply set routes, run from termini, and are used for both inter and intra-city travel. In addition to a driver, a matatu may be staffed by a conductor. It is a requirement for all public service vehicles to be registered to a Public Transport

Sacco in order to operate. Public Transport Vehicles not registered can be charged as per the regulating Act.

1.1.1 Quality Management

Quality Management ensures that an institution, products and services are consistent. In today's extremely competitive and challenging business environment, quality management provides a relatively new way to remaining competitive, controlling costs and improving efficiency and safety among businesses. Quality Management is achieved through the use of Quality Management Practices (QMP). A company that employs quality management practices is likely to have its stakeholders, that is, employees, suppliers, customers among others, benefit as a result of increased satisfaction (Samson& Terziovski, 1999). These QMP include but are not limited to the following.

Total Quality Management (TQM) is an organizational philosophy that stresses meeting customer requirement and expectations the first time, and sustainably. Philosophy, therefore, in this context encompasses a set of structured principles, value systems with attitude and beliefs, and processes that are never ending and always in motion in detecting and preventing defects while creating an idea of innovation (Machobane, 2008). TQM therefore is a way to continuously improve the performance at every level of operation, in every functional area of a system using all available human and capital resources.

Benchmarking is a measurement-based method used in TQM to make operational improvements. It is defined as a process of measuring products, services, and practices against those of competitors and "best-in-class" organizations, for the purpose of improvement (Camp, 1989). The main goal of benchmarking is to build on the successful experiences of others instead of "re-inventing the wheel". The idea is simple: the most efficient way to implement change is learning from the positive experience of other organizations and its benefits derived from that (Mezghani, 2005:109). Quality loop results from a series of interactions between two worlds with clearly distinctive viewpoints, the world of customers and the one of the supplier(s). It is also based on four

distinctive benchmarks namely: expected quality, targeted quality, delivered quality and targeted quality.

Self-assessment methods are approaches based on the concept of measuring to improve with the objective of bringing continuous improvement processes to the system. Self-assessment is a practical way for companies to measure their own performances and from there to improve these by adapting their organizational system. Self-assessment makes comparison possible with other companies.

1.1.2 Safety in Public Transport

The term safety in Public transport refers to methods and measures for reducing the risk of a person using the road network being killed or seriously injured. Best-practice public transport safety strategies focus upon the prevention of serious injury and death crashes in spite of human fallibility which is contrasted with the old road safety paradigm of simply reducing crashes assuming road user compliance with traffic regulations (WHO, 2010). Transport safety design is today about providing a road environment which ensures vehicle speeds will be within the human tolerances for serious injury and death wherever conflict points exist (WHO, 2010).

The following parameters can be used in measuring Public Road Safety: The number of accidents and road fatalities reported over the period of study; number of drivers being charged with road traffic offences; number of un-roadworthy vehicles recorded over the period of study; number of public service vehicles registered within Public Transport Saccos; quality of service offered by Public Transport Saccos and number of sensitization/awareness programs on Safety in Public Transport. Some of the measures with potential to significantly improve Safety in Public Transport and to lay the foundation for longer term gains include: maintaining safer speeds; ensuring safer roads and roadsides; safer vehicles; safer road users and safer behavior (National Road Safety Action Plan, 2010).

1.1.3 Quality Management and Safety in Public Transport

Quality Management should be integrated into the public transport system for best results of improvement of Safety in Public Transport. Public Transport Saccos are the backbone of Public Transport. Transport Saccos are today probably the largest informal sector in the county but sadly with very little systematic management leading to decreased levels of Public Transport Security. Road misconduct in Nairobi has not been put under control despite several laws passed by parliament to ensure public road safety. The problem has to do with lack of or little concern for quality management practices (NTSA, 2014).

Some of the QMP that Public Transport Saccos can implement include moderation of speeds, maintenance of roads, proper training, respect for road signs and flexibility in working hours. This is critical in establishing a safer Public Transport System. At lower speeds there are fewer crashes and less severe injuries. Speed can be monitored through a point-to-point automatic speed detection and speed governors. Safety gains can also be realized through road infrastructure improvements. Investment in the construction and maintenance of quality road network is primarily associated with mobility and economic performance benefits, but produces an ancillary safety benefit (Department of Infrastructure and Regional Development, 2008).

1.1.4 Public Transport Saccos

Public Transport Saccos in Kenya were formed to bring sanity to public transport. Matatu and bus drivers and conductors had to organize themselves into cooperatives (SACCOS) or companies for ease of management and enforcement of discipline. It is mandatory for all those seeking a Transport Licensing Board (TLB) certification to be members of a Matatu Sacco in Kenya or belong to a company. The Matatu Saccos have played a significant role in the growth of public transport and some have now become respected brands in the sector.

Public transport Saccos in Nairobi City County (NCC) are operated by a few bus companies and the paratransit matatus. There are 85 Public Transport Saccos registered within Nairobi City County (National Transport and Safety Authority, 2014). Nairobi

City is the capital of Kenya. It is also a commercial, industrial, tourist and communications center of the Eastern African region and hosts many international agencies serving the region and several United Nations bodies. The city's population which was 350,000 inhabitants in 1963 rose to 0.83, 1.3, 2.2, 3.2 and 3.8 million in 1979, 1989, 1999, 2005 and 2009, respectively (Kenya Population Census, 2012). Matatu drivers and conductors, who constitute 80 per cent of the public transport system, are estimated to have an annual turnover of Kshs73 billion (Graeff, 2009).

In February 2004 the Ministry of Transport introduced new regulations governing the operation of Public Transport Saccos. These regulations are the compulsory fitting of safety belts and speed governors popularly known as the Michuki Rules. In addition, standing on matatus was banned. As a result of these regulations, many matatus were taken off the road, which caused great disruption to Public Transport Saccos, forcing many people to walk to work. After the government issued a legal notice requiring all the Matatu's to join SACCOs or limited liability companies by December 2010, over 655 Matatu SACCOs had been registered with the Ministry of Cooperative Development and Marketing, MCDM, by March 2011 (MCDM, 2011).

1.2 Statement of the Problem

Quality is a shared responsibility of the authority and the operator: to the authority, it is the strategic responsibility to define the level of quality and to the operator; the managerial and operational responsibilities are to ensure that the agents successfully deliver the defined quality service. In this respect, an integrated action involving authorities and drivers and conductors is a key factor to provide a service quality that meets the expectations of the customers (Tyson, 2003).

A number of researches have been done in the area of quality management public transport. Tam and Hui (1996) studied TQM in public transport organization in Hong Kong. The study focused on the internal customer and continuous quality monitoring in public transport organizations. The study revealed that the perception of quality is not

stable. Thus, a continuous effort is required to identify customers' changing needs and aspirations.

Zákorová (2010) in his research concluded that as the mid-point in all contemplation customer and his expectations must be considered for the level of quality in transport services to be improved. He suggested the use of the following measurable indicators: the average capacity of passenger transport, the coefficient of equipment failure, the transport time acceptable for achieving the aim; the level of services offered in passenger transport, and passengers' safety. Safety should be actively managed from the very top of an organization. However, the main limitation is the low priority attached by organizations to safety (Civil Aviation Advisory Publication, 2009).

Some researchers have looked at the specific problem of TQM implementation in the public sector (Moon & Swafin-Smith 1998; Robertson & Seneviratne 1995; Stringham 2004; Yosuf & Aspinwall 2000) and tried to analyse whether TQM implementation requires a different orientation in the public sector (Ehrenberg & Stupak 1994). Thabang and Machobane (2008) carried out a study on the effect of total quality management on urban public transport operations. He concluded that senior managers were far from being fully aware of TQM concepts and principles, and, consequently applies them in their day-to-day work. Wamuyu, (2013) in her study concluded that the significant QMP in influencing supermarket performance included top management commitment.

However, the above mentioned studies did not cover on the area of quality management and security in the public transport sector and quality management and safety in public transport in Nairobi City County has not been under investigation before. This research will focus on Quality Management Practices' role in enhancing Public Transport Safety in Public Transport Saccos. This study, therefore seeks to answer the following questions: what are the quality management practices adopted by Public Transport Saccos in Nairobi? What are the patterns of safety experienced by Public Transport Saccos in Nairobi City County? What is the relationship between Quality management practices and safety pattern in Nairobi City County Public Transport Saccos?

1.3 Objectives of the Study

1. To establish Quality Management Practices by Public Transport Saccos in Nairobi City County.
2. To establish the pattern of safety in Public Transport in Nairobi City County.
3. To determine the relationship between Quality management practices and safety pattern of Public Transport in Nairobi City County.

1.4 Importance of the Study

The results of this study will be beneficial to government policy makers. The governments can assess, monitor, and fine-tune public transport policies and better exercise their regulatory role. The results will assist in improving Public Transport Safety in Nairobi City County.

The findings of the study will be applicable to the general public and investors in public transport sector. Citizens will be able to hold governments and service providers accountable through better information.

Public transport service providers will be able to identify performance gaps and set targets and measures to fill them. Other public transport service providers, in different towns, who are interested in improving Public Transport Safety, can use the findings of this research to get some insights on how to implement quality management in order to increase Safety in Public Transport.

Academicians and Researchers who are interested in doing research in this area can use the findings and recommendations of this research as a form of reference or a basis for further academic research work.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

Quality Management focuses on continuous process improvement within Public Transport Saccos to provide improved Safety in Public Transport in an efficient and effective manner. There is growing awareness that a well-designed and well-executed quality management system is one of the most effective ways to increase Safety in Public Transport. However, there's a lot of confusion around the quality subject and many organizations are still mired in quality confusion and how best to implement quality management practices. Most companies encounter difficulties while trying to implement quality management practices as well as achieving expected benefits (Kirk, 2000). This chapter is going to outline best practice QMP in Public Transport Saccos and a mix of specific measures which if implemented could lead to road safety.

2.2 Quality Management

The main focus of this study is on actual QMP being adopted by Public Transport Saccos. There are many QMP advanced with most literature being embedded in the works and prescriptive philosophies of quality gurus. The study however is aimed at discovering best practices in reference to the level of quality performance of public transport Saccos. The study will address quality management practices including Total Quality Management (TQM), Benchmarking, Quality Loop, and Self-Assessment methods and brings about an integrated contingency approach to quality management practices.

Quality has become one of the most important drivers of the global competition today. Although the literature on TQM includes a rich spectrum of works, there is no consensus on the definition of quality. The notion of quality has been defined in different ways by different authors. Gurus of the TQM practices such as Garvin, Juran, Crosby, Deming, Ishikawa and Feigenbaum all provided their own definitions of quality concept and TQM. TQM is an organizational philosophy that stresses meeting customer requirement and expectations the first time, and sustainably.

Benchmarking does not appear to be used in Public Transport Safety where technological advances differ. The first benchmarking variable is to identify road safety problems. This constitutes an important step towards resolving them, but it is also necessary to define and understand further aspects of the problems. Increased speed on a specific road immediately results in a statistical increase in crashes, injuries and fatalities. There's need to find out the motivation behind speeding in Nairobi City County and find the best practices to solve it.

Self-assessment helps institutions to know that they meet all the requirements, the onsite review can focus on areas for improvement rather than spending a lot of time on what the service already does well. Public Transport Saccos can use Self-Assessment methods in their internal operations to improve Safety in Public Road Transport. QMP therefore will work to ensure that Public Transport Saccos activities towards Safety in Public Transport are consistent in the areas of quality planning, quality control, quality assurance and quality improvement (Dale, 1997).

2.2.1 Total Quality Management

The concept and foundation of Total Quality Management (TQM) is based on the writings and teachings of the quality pioneers such as W. Edwards Deming, Joseph Juran, and Phillip Crosby who contributed to the body of knowledge now known as TQM. The early focus on quality evolved from inspection to quality control and later to quality assurance (Dale, 1999). Shiba et al (1993) defined TQM as an evolving system of practices, tools, and training methods for managing companies to provide customer satisfaction in a rapidly changing world. Broadly speaking, TQM is a viewpoint for managing ways of doing things in an organization which is aimed at ensuring that the stakeholders' objectives and expectations are met in an efficient and effective manner without tampering with ethical values and principles (ISO 8402, 1994). Several studies show that implementation of TQM practices gives firms an edge in competing globally (Easton, 1993).

Whilst many municipalities had made significant strides in adopting TQM, Machobane (2008) identified that little had been written on how TQM has been applied in the Department of Transport and Infrastructure Planning of the Cluster: Transport, Infrastructure and Environment. He concluded that management action was required in improving urban public transport by making use of TQM as a management tool. In testing the validity or otherwise of the hypothesis, he semi-structured interviews, focus group discussion and participant observation methods to collect data from senior managers, employees, public transport drivers and conductors and users. In the analysis, it was clear that senior management in local government had the capacity and experience to ensure that TQM approaches worked but the system was not customer focused. Hence TQM called for a cultural transformation that required employee involvement at all levels and the spirit of teamwork amongst them.

In a research survey (Andrle, 1993) on Quality Initiatives and Efforts of Public Transportation Organizations, the findings indicated that TQM was a new concept in the US which had attracted the attention of many public transit systems. The public transit industry had begun to implement quality programs in order to improve performance and increase customer satisfaction, particularly for external customers. Some of the measures used in the study included number of drivers complying with the laws while at work.

Schwager (1994) looked at Quality Management in Public Transportation and concluded that Implementing TQM requires clear, long-term leadership commitment to satisfied customers and responding to customers' expectations. TQM also requires cultural change and transformation of organizations and finally a continuous and lasting TQM program is not possible without the involvement of employees. It was observed that the number of crashes and fatalities reduced considerably as a result of TQM practices within Public Transport drivers and conductors.

2.2.2 Benchmarking

Benchmarking is an organizational change process directed towards continuous improvements, a focus of much change in the transport industry today. Similarly, Bain et

al. (2000) viewed benchmarking as an important way organizations can improve their services and processes. The idea is simple: the most efficient way to implement change is by learning from the positive experience of other organizations. By doing this, the organization gathers information for improvement and insights, which may lead to better performance (Henning et. al, 2011).

Taylor (2006) identified benchmarking as an intellectual process of identifying strengths and weaknesses of a system in comparison with peers that are facing similar challenges. He identified several factors that make the process of benchmarking urban public transport difficult. To name a few: the sophisticated nature of the exercise, lack of willingness, lack of resources, and definition problems.

In a research on benchmarking and public transport conducted by Transit Cooperative Research Program (2010), major limitations face included collection of data which required significant amount of time and resources and developing standard definitions of core performance measurement that can fit in comparing organizations. The study identified some fundamental differences between peers e.g. city size, operating environment, route network structure and agency objectives. As a result, it was difficult to conclude on benchmarking results.

Another study identified that benchmarking outside one's industry was more difficult as differences between organizations were magnified. While on the other hand benchmarking within the public transport industry can lead to improvements but only up to the industry's current level of best practice (International Benchmarking Clearinghouse, 1992). The measures used included correct and consistent use of safety devices and recorded number of traffic offences within their institutions.

The present review of literature on benchmarking, carried out as a part of on-going research, has identified certain issues which have not been satisfactorily addressed or not been addressed at all. These issues can be regarded as inadequacies and they offer scope for further research and exploration. The issues pointed out by Dattakumar (2003)

include choosing benchmarking partner, the cost and duration on benchmarking process and the human resource in benchmarking which also affect benchmarking in public transport.

Kopczynski and Lombardo (1999) suggested that expensive mistakes can be made if an institution adopts policies that appear to be successful elsewhere, only to discover that other characteristics or features of the institution may have been responsible for its high level of performance. Liu and Moini (2014) compared benchmarking safety measures among different transport modes. The measures of public transport safety used in the study included fatalities per 100 MVMT, fatalities per 100,000 population, fatalities per 100,000 registered vehicles, and fatalities per 100,000 licensed drivers.

2.2.3 Quality Loop

The quality loop results from a series of interactions between two worlds with clearly distinctive viewpoints, the world of customers and the one of the service provider(s). It is based on 4 distinctive benchmarks identified in the loop namely expected quality, targeted quality, delivered quality and perceived quality (Mezghani, 2005). The Quality Loop links the perspective of the users (Service Beneficiaries) with that of the drivers and conductors and authorities (Service Partners) by setting out the steps by which the latter can most effectively meet the needs of the former, thus maximizing the convenience of the service.

The aim of the public transport provider should be to minimize the gap between the service qualities sought, targeted, delivered and perceived (Anderson et al., 2013). Anderson, in his study, identified that quality loop illustrates the distinction between customer satisfaction which is a subjective measure of success, and performance measurement, which is an objective measure of success. Both types of measurement are required to understand how well the organization is serving the customer.

CEN (2002) has developed and proposed the service quality loop which explains the process of quality management. Firstly, CEN (2002) identified the positive correlations

between the individual items of the service quality, on one hand, and the correlations between the overall service quality and these items – desired, targeted, delivered, and perceived – quality on the other hand. Nathanail (2008) identified the positive one direction correlation between the overall service quality – desired, perceived, targeted, and delivered – and the overall user satisfaction.

While, Lai and Chen (2010) broke down this conclusion into more detailed analysis in which they have identified that service quality has a positive correlation with perceived quality, and overall quality with perceived quality have a positive correlation with user level of satisfaction. Users` satisfaction has a major impact on both level of involvement and user loyalty (behavioral intentions). Richard Anderson et al. (2013) argued that it is vital that transport providers understand the needs of users and, ideally, attempt to deliver a service which best matches these needs – therefore the service quality targeted should be as close as possible to the service quality sought. User behavior and number of reported incidents were a key measure of public transport safety perception among respondents.

In a study: The Possibilities of Standardizing the Quality Level in public 33 passenger Transport from Customer Point of View (Konečný, Kostolná , 2014) , an assessment of perceived quality and expected quality by passengers was undertaken. The study summarized that there was no any significant higher perceived quality by customers against its specified requirements. In almost all cases, customer requirements were stricter than actual satisfaction with what he perceives and what he is given. Levine et al (1999) used improved infrastructure and passenger reactions as a measure of public transit Safety. They examined the extent to which the respondent were dependent on public transit, the state of lighting infrastructure after dark and perceived state of safety among respondents.

2.2.4 Self-Assessment Methods

Self-assessment process allows an organization to discern clearly its strengths & areas in which improvements can be made. It culminates in planned improvement actions which are then monitored for progress (Teo & Dale, 1997).

In more detail, Van der Wiele et al. (1996) point out that organizations are using self-assessment to identify strengths and weaknesses, and to facilitate internal and external learning in terms of the transfer of best practice and ideas. Brown & van der Wiele (1996) show, on the basis of a national postal survey of self-assessment practices in Australia, that the reasons for using self-assessment are mainly to find opportunities for improvement and to direct the improvement process, while the goals for the introduction of self-assessment are to improve business performance, to drive continuous improvement and to increase quality-awareness in all aspects of the business. In the public transport sector, self-assessment can be used to find opportunities for improvement in both internal processes and transport safety.

2.3 Safety in Public Transport

Safety in Public Transport is the state in which the probability of harm to persons or of property damage is reduced to, and maintained at, a level which is as low as reasonably possible through a continuing process of hazard identification and risk management. A study conducted by concluded that there was evidence that past improvements in speed management had been a major factor in reducing road accident deaths, and that a Safe System approach combining infrastructure and speed management measures further produced substantial safety gains for road users. The study pointed certain behaviors as diminishing the safety gains in public transport. These behaviors included speeding, drink and drug impaired driving, driving while fatigued, being distracted or aggressive while driving, and not using, or incorrectly using, safety devices (seatbelts and child restraints). The study highlighted speed management as a key measure to improving safety in public transport (National Road Safety Action Plan, 2010).

Chitere and Kibua (2004) in their study found the following limitations in road safety improvement in Kenya: seat belts fitted by some matatus were substandard and did not guarantee safety in the event of accidents. In some vehicles, they were not cared for and some passengers declined wearing them owing to their being dirty. The matatu Saccos were hiking fares which compelled passengers to appeal to the government to control them although this was not been possible owing to the liberalized market economy among other factors highlighted.

The study concluded that there was need for strengthening training of public transport drivers through regulation of activities of commercial training schools and support of initiatives being taken by the vehicle owners associations, NGOs and insurance firms in training of the drivers in road safety in order for safety gains to be felt in public transport.

2.4 Quality Management and Safety in Public Transport

The purpose of a safety pattern in public transport is to present the argument that a system, be it physical or procedural, is acceptably safe to operate in. The quality management practices implemented should indicate compliance with the system safety requirements or patterns. A key element of the pattern format when applied to bring about safety is the notion of pattern applicability (Kelly and McDermid, 1997). The approach of packaging various measures to promote safety in public transport is what is lacking in developing cities today. The pattern of safety of QMP that can be utilized within Public Transport Saccos can be grouped into four: maintaining safer speeds, ensuring safer roads and roadsides, safer vehicles, safer road users and safer behaviour.

Speed is known to be a risk factor with regards to Safety in Public Transport. TQM tools can be used to moderate the speed of public transport leading to fewer crashes or crashes that do occur result in less severe injuries because of the lower impact energies involved. Aside from automated speed technologies and point to point speed detection approach by authorities, identifying high-risk roads or road sections for speed limit reductions where road improvements are not feasible in the short term is a preventive measure to be observed. Implementation of high profile mass public education campaigns about safer

speeds and campaigns that support the concept of unpredictability in speed enforcement (National Road Safety Action Plan, 2010).

The benefits of vehicle safety improvements tend to accrue over many years, as new vehicles gradually replace existing vehicles in the public transport domain. Transport vehicles safety innovations should focus on crash prevention and occupant protection. Un-road worthy Public Transport vehicles should be completely banned by Public Transport Saccos from operations. Public Sacco's management should conduct regular checks and self-assessment on their fleet of vehicles. In order to improve Safety in Public Transport, it is important to ensure TQM practices like supplementing regulatory processes with other approaches, including partnerships with industry, consumer awareness programs, and safety oriented fleet purchasing policies are undertaken (National Road Safety Action Plan, 2010).

Road user behaviour is elemental to the safety of our public transport system. Safety authorities must therefore continue to adopt measures to reduce the frequency of behaviors that pose a risk to Safety in Public Transport. Drug and alcohol abuse is one such behaviour. Authorities can undertake a review of best practice community programs that aim to minimize road trauma impacts resulting from alcohol use. Action can also be extended in the implementation of random drug testing. Work towards blood sampling for drugs and alcohol for all drivers involved in fatal and serious injury crashes and pursues actions on driver impairment. A practice of flexibility in shifts and working conditions should be adopted to monitor on driver fatigue and distraction (National Road Safety Action Plan, 2010).

2.5 Quality Management and Public Transport Saccos

In Public Transport, the two main principal actors are the local authorities (government) and drivers and conductors (Saccos). QM is strongly dependent on the procedure for the choice of the drivers and conductors and on the relations between local authorities and operator. TQM aims to radically transform the organization through progressive changes in the attitudes, practices, structures and systems.

Public Transport Saccos can implement the Plan-Do-Check-Act (PDCA) cycle to improve Safety in Public Transport. In a study by Takebayashi and Nitta (2009), the review process using PDCA cycle was well received by the authorities as it gave them meaningful action points on the operations of the bus service.

Self-assessment program facilitates planned and progressive improvement of the Public Transport Saccos infrastructure for safety and contributes fundamentally to Government's efforts to enhance the effectiveness of Public Transport Safety activities. Safety is an integral part of the safety management system of Public Transport Saccos for routine, cyclic measurement, assessment and improvement of performance. In many cases best practice may lay outside the respective industries, so other public transport operations and other industries should be reviewed for relevant practice. A study conducted by Taylor (2006) on Urban Transport Benchmarking Initiative found out that it is a challenge for policy makers in larger cities to manage the existing transport infrastructure in order to optimize the use of public transport and improve road safety.

The transport literature has identified several gaps associated with public transport service quality loop. Several studies have been generated in attempts to overcome and address the gaps. Eboli and Mazzulla (2007) proposed a methodology to evaluate the service quality through the division of subjective and objective measurements. Iseki and Taylor (2010) identified the effect of an individual service attribute on the overall level of satisfaction. Lai and Chen (2011) explored the relation between passenger intentions and the different service attributes. This study will aim at using the Quality Loop as a QMP for improving Safety in Public Transport through improved and desired service by Public Transport Saccos.

2.6 Summary and Conceptual Framework

Safety in Public Transport is at an important crossroad. Despite a commendable road safety measures, Public Transport Saccos apprehension of safety in public transport is high, modern systems are becoming increasingly complex, and transport infrastructure is very congested in many parts of the country. Technology has enabled the development of more sophisticated tools for managing safety than ever before.

2.6.1 Summary of Literature Review

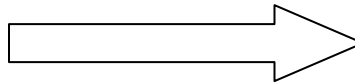
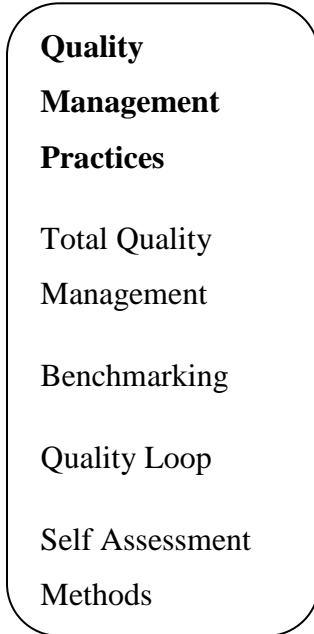
From the literature, QMP at the Public Transport Saccos is one of the sure means to deliver improved Safety in Public Transport. It depicts that the connectivity and the link between QM and Safety in Public Transport requires Public Transport Saccos to set clear visions, missions, objectives and measurements to deliver the expected levels transport safety (Machobane, 2009). To successfully implement QM, principles need to be identified to ensure that there is a fit between QM and the effective public transport system. Hence the fundamental objective of this study is to attempt and describe the best fit would be between QM and the Public Transport Saccos operations to bring about Safety in Public Transport in Nairobi City County. The key indicators of Safety in Public Transport highlighted include number of road crashes, injuries & fatalities reported, number of drivers and the public charged with traffic offences, number of people who have knowledge of and correctly use safety devices and the state of road transport infrastructure.

2.6.2 Conceptual Framework

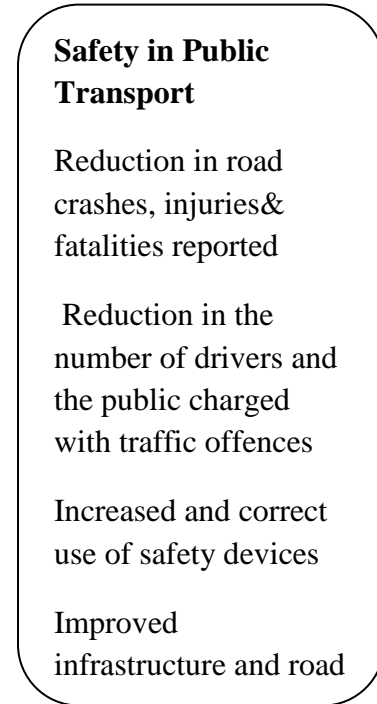
The conceptual Framework in Figure 2.1 shows the relationship between quality management practices and the safety pattern in Public transport. Mugenda and Mugenda (2003), define a conceptual framework as a hypothesized model identifying the concepts under study and their relationships. The framework clearly depicts certain quality management practices that determine patterns of safety in Public transport Saccos. These patterns of safety include but are not limited to maintaining safer speeds, ensuring safer roads and roadsides, safer vehicles, safer road users and safer behaviour.

Figure 2.1: Conceptual Framework

Independent Variables



Dependent Variables



CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the methodology that was used in this study. It explained the design, the research design variables and provides a broad perspective of the description and selection of the target population. The research focused on the statistical techniques used to test the research framework, the identification of critical quality management practices and causal relationship between variables used. The chapter focused on the research design, target Population, and research instruments that were used. Description of the sample and sampling procedures were documented as well as the data collection and analysis procedures that were used in the study.

3.2 Research Design

The study adopted a descriptive research design to survey the influence of Quality Management on Safety in within Public Transport Saccos in Nairobi City County. The choice of descriptive survey research design was made based on the fact that the study was intended to analyze the state of affairs already existing in the field without manipulating any variable.

3.3 Population of the Study

The target population was a total of 85 registered Public Transport Saccos in Nairobi City County according to the National Transport and Safety Authority (2015) distributed in 9 major routes as shown in table 3.4. Nairobi City County was chosen for this study because of its high population and high number of public transport Saccos concentration within the central business district forcing them to operate under more strict conditions.

3.4 Sampling

The study applied cluster sampling technique to select a sample size of 90 respondents. Cluster sampling was considered appropriate since it enabled one to make proportionate, and therefore meaningful, comparisons between sub-groups in the population which typically reflected the characteristics of the population as a whole.

Cluster sampling was used to group data into nine major routes operating within Nairobi City County. One-third of the Saccos from each route were selected through convenience sampling based on subjective judgment of the main Saccos operating in every route. 3 respondents from each of the Saccos selected, were conveniently selected to fill in the questionnaires including Sacco owners/ managers, drivers and conductors, commuters/passengers. This gave a total of 90 respondents.

Table 3.1 represents a summary on information of the nine major routes in Nairobi City County, the number of public transport Saccos in each route, the sample size and total number of respondents in the study.

Table 3.1: Target population and sample size

Route	No. of Saccos	Number sampled	No. of respondents
Jogoo Road	21	7	21
Kiambu Road	6	2	6
Langata Road	11	4	12
Mombasa Road	5	2	6
Ngong Road	8	3	9
Ring Road Ngara	5	2	6
Thika Road	17	6	18
Upperhill Road	3	1	3
Waiyaki Way	9	3	9
TOTAL	85	30	90

3.5 Data Collection

The study used primary data. Primary data was used to collect current information relevant to the study. Primary data was preferred because it assisted in collecting information for the specific purpose of the study. The data was collected through the use of a questionnaire.

The questionnaire used open and close ended questions and was divided into three sections. Section A helped to gather the general information with regard to the subject matter. Section B collected data regarding quality management practices by public transport Saccos. Section C gathered information regarding the safety pattern in public. It was self-administered to a total of 90 respondents in the presence of the researcher.

3.6 Data Analysis

The completeness and accurate response of the questionnaire was checked upon completion of the data collection process. Grouping and arranging of data with respect to specific questions was then conducted. Means and Standard deviation were applied for establishing the quality management practices applied and the safety pattern by Public Transport Saccos. Mean was used to determine the average response of the most frequent response. Regression analysis was used to determine the relationship between quality management practices in public transport and safety. Regression was used due to its ability to test the nature of influence of independent variables on a dependent variable.

The regression model was of the form:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \epsilon$$

where:

Y = Dependent Variable (Safety)

X_j = Quality Management Practice (Total Quality Management, Benchmarking, Quality Loop, Self-Assessment Methods)

B_j = Regression Coefficient for variable X_j

ε = error term

CHAPTER FOUR: DATA ANALYSIS, FINDINGS AND DISCUSSION

4.1 Introduction

This chapter discusses the interpretation and presentation of the findings. The purpose of the study was to examine quality management practices by Public Transport Saccos in Nairobi City Council. The study also sought to establish the pattern of safety in Public Transport in Nairobi City County and finally to determine the relationship between quality management practices and safety pattern of Public Transport in Nairobi City County.

4.2 The Response Rate

The sample size of this study was 90 respondents who were from 9 major routes within Nairobi City County who included Sacco owners, managers, drivers and conductors, passengers and regulating body representatives, out of which 72 responses were obtained, which represents 80% response rate. According to Babbie (2002) any response rate of 50% and above is adequate for analysis thus 80% is even better.

4.3 General Information

This section presents the demographic information of the respondents which include name of the Matatu Sacco, route of Matatu Sacco, relationship with the Sacco, employees' position, number of female drivers in the Sacco, average age of driver employees in the Sacco and opinion on making public transport safer.

4.3.1 Name of the Matatu SACCO and Route

The respondents were asked to indicate the name of the Matatu Sacco and the route. Their responses are as shown in Table 4.1

Table 4.1: Name of the Matatu Sacco and Route

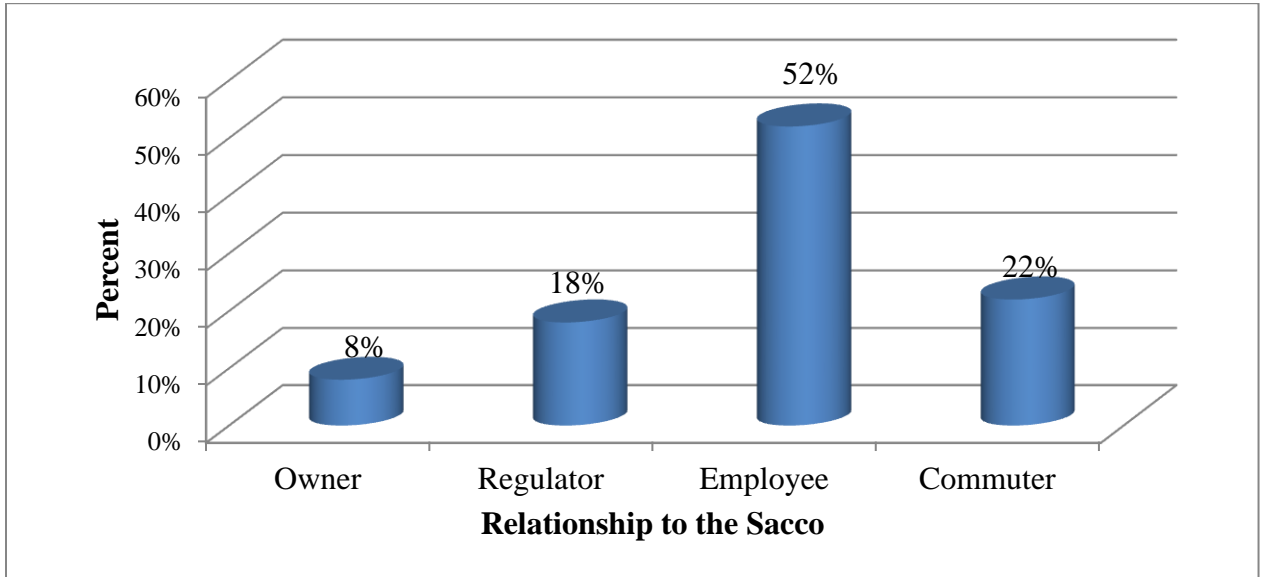
Route	ROUTE/ AREA	SACCO NAME
1	JOGOO RD	Buru Buru 58 travellers sacco,city hoppa, embassava cooperative, forward travellers, kani transporters, marverous shuttle, mwamba travellers, unified international, outer circle, pinpoint solutions, himosa, umoja innercore
2	KIAMBU RD	fig komba, walokana multipurpose, lophamultipurpose, baraka travelers
3	LANGATA RD	eleventh hour, orokise sacco, serian savings and credit, snowball sacco
4	MOMBASA RD	indimanje sacco, nakam, rembo shuttle
5	NGONG RD	Dakika, Kaboswa, Kibera Buteti, Pakin Alicia
6	RING ROAD NGARA	Dix Hult, Eastleigh commuter, Eastleigh route sacco
7	THIKA RD	Baba Dogo 25 travellers, fourty four sacco, githurai 45,kariobangi, Lucky Baba Dogo, Mwiki PSV, Neo Kenya Mpya
8	UPPERHILL RD	Huruma 46, Huruma Mini bus sacco,Kenya Bus service
9	WAIYAKI WAY	City star shuttle Limited, Latema 22, Metrotrans East Africa

From the findings, all the commuters interviewed were well conversant with the names of the Matatu Saccos and the routes they operated in.

4.3.2 Respondents relationship to the Sacco

The respondents were asked to indicate how they were related to the Sacco. The results were as shown in Figure 4.1.

Figure 4.2: Respondents relationship to the Sacco

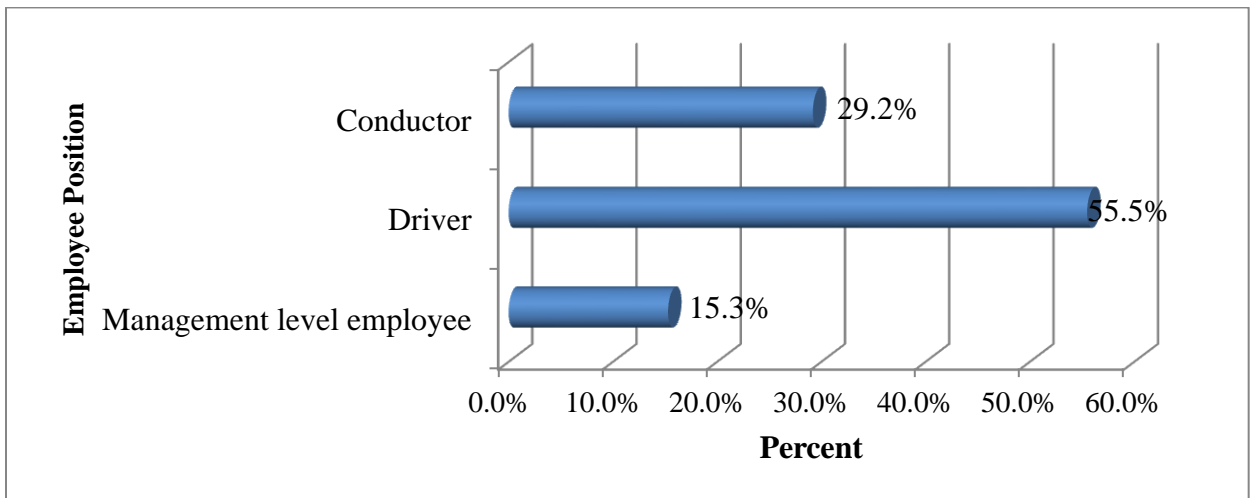


From the findings, 52% indicated that they were employees, 22% indicated they were commuters, 18% indicated that they were regulators and 8% indicated that they were owners. This shows that most of the respondents who participated in the study were employees of the various Saccos.

4.3.3 Employees Position in the Sacco

The respondents were asked to indicate the position they hold in the Sacco. The results were as shown in Figure 4.3.

Figure 4.3: Employees Position in the Sacco



According to the finding in Figure 4.2, 55.5% of the respondents indicated that they were drivers, 29.2% indicated they were conductors and 15.3% indicated that they are in the management level within the Saccos. This shows that most of the respondents who participated in the study were drivers.

4.3.4 Number of female drivers in the Sacco

The respondents were asked to indicate the number of female drivers in their Sacco. From the finding in Table 4.2, majority of the respondents indicated that they had no female drivers in their respective Saccos. This depicts that most women were not working as drivers in the respective Saccos.

Table 4.2: Number of female drivers in the Sacco

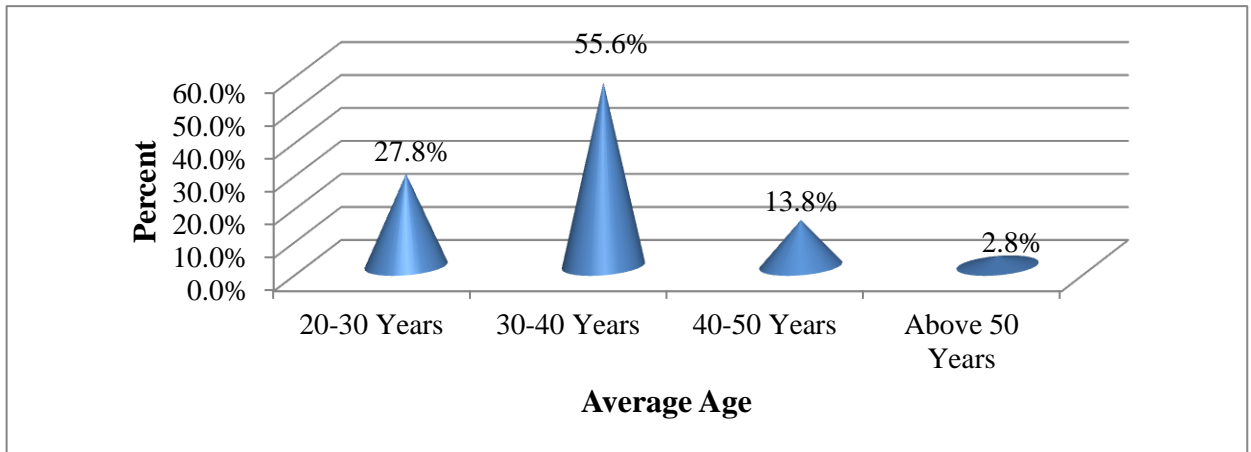
SACCO	No. of Female Drivers	Percentage
Buru Buru 58 travellers Sacco, Nakam, Mwamba, City Star	1	4.8%
Prime Transcity	2	9.5%
Umoinner, Dakika, Pakin Alicia	3	14.3%
Kani Sacco, Embassava	4	19.0%
Lopha, Forward Travellers	5	23.8%
Serian Sacco, Pinpoint solutions	6	28.6%
Total	21	100

From the findings in Table 4.2, few women worked as drivers in Public Transport Saccos.

4.3.5 Average Age of the Driver Employees

The respondents were asked to indicate their age. The results were as shown in Figure 4.3.

Figure 4.3: Average Age of the Driver Employees



From the findings in Figure 4.3, 55.6% of the driver employees indicated that they are aged between 30 to 40 years, 27.8% indicated they were aged between 20 to 30 years, 13.8% indicated between 40 to 50 years and 2.8% were aged above 50 years. This depicts that most of the respondents were aged between 30 and 40 years.

4.3.6 Safer Public Transport

In relation to what would make public transport safer, the respondents indicated that drivers should observe traffic rules and regulations and that all Public Transport Vehicles should be fitted with speed governors. They also indicated that all vehicles and roads should be kept in good condition. Corruption should also be fully avoided on the roads. In addition, stringent policies should be formulated to deal with drunken drivers, whether they operate with personal cars or public vehicles. Good communication between the driver and the traffic police is also paramount on our roads.

4.4 Quality Management Practices by Public Transport Saccos in Nairobi City County

The study sought to establish quality management practices by Public Transport Saccos. In an effort to achieve this, the respondents were requested to indicate their level of agreement on the extent to which aspects of quality management were practiced by the Sacco. The aspects of Quality Management investigated were Total Quality Management, Benchmarking, Quality Loop and Self-Assessment Methods.

4.4.1 Total Quality Management on Public Transport Saccos

The study sought to establish the extent to which Total Quality Management was observed in Public Transport Saccos. The respondents were asked to indicate the extent to which they agreed on the adoption of aspects of total quality management.

Table 4.3: Total Quality Management on Public Transport Saccos

Total Quality Management Aspect	Extent	Practiced
	Mean	Std. Dev
The Sacco operates well serviced vehicles	4.319	0.901
The roads are well marked at high risk areas	3.000	1.267
The Sacco shares road safety information with employees	4.028	1.100
Adoption of Total Quality Management	3.7823	1.0893

From the finding in Table 4.3, the respondents strongly agreed with a mean of 4.319 and standard deviation of 0.901 that the Sacco operates well serviced vehicles. The respondents also indicated that they were neutral on whether the roads are well marked at high risk areas. Also, the respondents agreed with a mean of 4.028 that the Sacco shares road safety information with employees. The respondents agreed with a mean of 3.7823 and standard deviation of 1.0893 on the adoption of Total Quality Management in Public Transport Saccos.

4.4.2 Quality Loop on Public Transport Saccos

The study sought to establish quality loop on of Public Transport Saccos. In an effort to realize this, the respondents were requested to indicate the extent to which they agreed with various statements related to quality loop.

Table 4.4: Quality Loop on Public Transport Saccos

Quality Loop Aspect	Extent	Practiced
	Mean	Std. Dev
The vehicles are fitted with speed governors	4.417	0.801
The management has regulated working hours for employees	3.083	1.297
Adoption of Quality Loop	3.750	1.049

From the finding in Table 4.4, the respondents strongly agreed with a mean of 4.417 that the vehicles are fitted with speed governors. They were neutral with a mean of 3.083 that the management has regulated working hours for employees. The respondents were neutral with a mean of 3.750 and standard deviation of 1.049 on the adoption of Quality Loop in Public Transport Saccos.

4.4.3 Benchmarking on Public Transport Saccos

The study sought to establish benchmarking on Public Transport Saccos. The respondents were asked to indicate their level of agreement on various statements on benchmarking.

Table 4.5: Benchmarking on Public Transport Saccos

Benchmarking Aspect	Extent Practiced	
	Mean	Std. Dev
The Sacco observes road safety measures taken by other Saccos	4.125	0.949
The Sacco implements working safety standards from other Saccos	4.208	0.749
Adoption of Benchmarking	4.1665	0.849

According to the finding in Table 4.5, the respondents agreed with a mean of 4.208 that the Sacco implements working safety standards that were successful in other Saccos.

They also agreed with a mean of 4.125 that the Sacco observed road safety measures taken by other Saccos. The respondents strongly agreed with a mean of 4.1665 and standard deviation of 0.849 on the adoption of Benchmarking in Public Transport Saccos.

4.4.4 Self-Assessment Methods on Public Transport Saccos

The study sought to establish self-assessment on Public Transport Saccos. In an effort to establish this, the respondents were to indicate their level of agreement on various statements related to self-assessment.

Table 4.6: Self-Assessment Methods on Public Transport Saccos

Self-Assessment Aspect	Extent Practiced	
	Mean	Std. Dev
The Sacco uses a route with well-maintained roads compared to other routes	2.819	1.079
The Sacco seeks feedback from its customers	3.778	0.996
The vehicles are regularly serviced	4.708	0.458
The drivers are sober on the roads	4.222	1.165
Employees are trained on safety improvement procedures	3.917	0.946
The Sacco has internal safety monitoring programs such as inspection	4.014	0.896
The Sacco has safety standards to control its operations	3.819	1.0790
The vehicles has directed line feedback numbers for customers reporting	4.125	0.949
The Sacco conducts continuous improvement training for its employees	3.444	1.443
Adoption of Self-Assessment	3.8718	1.001

From the finding in Table 4.6, the respondents strongly agreed with a mean of 4.708 that the vehicles are regularly serviced. They also agreed with a mean of 4.222 that the drivers are sober on the roads. The respondents further agreed with a mean of 4.125 that the

vehicle has direct feedback numbers for customers reporting. In addition, the respondents agreed with a mean of 4.014 that the Sacco has internal safety monitoring programs such as inspection. They also agreed with a mean of 3.917 that employees are trained on safety improvement procedures. Further, they agreed with a mean of 3.819 that the Sacco has safety standards to control its operations. The respondents also agreed with a mean of 3.778 that the Sacco seeks feedback from its customers. Additionally, the respondents agreed with a mean of 3.444 that the Sacco conducts continuous improvement training for its employees. Lastly, the respondents indicated to be neutral that the Sacco uses a route with well-maintained roads compared to other routes. In general, the respondents agreed with a mean of 3.8718 on the adoption of Self-assessment in Public Transport Saccos.

4.5 Public Transport Safety Pattern

The respondents were requested to indicate the extent to which various safety issues can be observed in the Public Transport Sacco. The results were as shown in the Table 4.7.

Table 4.7: Public Transport Safety Pattern

SAFETY ASPECT	Extent Present	
	Mean	Std. Dev
The Sacco management is involved when accidents occur	3.417	0.818
The Sacco has a well mapped out route	3.792	0.409
The drivers' follow traffic rules and regulations	4.375	1.227
The Sacco shares road safety information with customers	3.028	1.113
The roads are well maintained compared to other routes	3.222	0.996
The drivers are well trained compared to other routes	2.792	0.749
The vehicles are well maintained compared to other routes	3.167	1.187
The vehicles have hotline numbers to give feedback on operations	3.000	0.000

The vehicles are fitted with proper seatbelt for each occupant	3.375	0.813
The vehicles are well fitted with speed governors	3.778	0.982
The vehicles' sound system are played at moderate volume levels	3.597	1.044
The Sacco responds to customers' queries, expectations and feedback	3.403	0.799
Security checks on boarding are well conducted	2.181	0.757
Road users observe road safety rules	2.389	0.491
Drivers use mobile phones while driving	2.611	1.390
Safety Pattern	3.208	0.8517

According to the finding in Table 4.7, the respondents indicated with a mean of 4.375 and standard deviation of 1.227 that the drivers' follow traffic rules and regulations. The respondents also indicated with a mean of 3.792 that the Sacco has a well mapped out route. The respondents also indicated that the vehicles are well fitted with speed governors. They also indicated with a mean of 3.597 that the vehicles' sound system is played at moderate volume levels. Further, they indicated with a mean of 3.417 that the Sacco management is involved when accidents occur. The Sacco response to customers' queries, expectations and feedback was good as indicated with a mean of 3.403 that. The extent to which vehicles were fitted with proper seatbelt for each occupant was medium, indicated with a mean of 3.375. The respondents, also indicated with a mean of 3.222 that the roads are well maintained compared to other routes.

The respondents indicated with a mean of 3.167 which was medium that the vehicles were well maintained compared to other routes. With a mean of 3.028, the respondents indicated that it was medium that the Sacco shares road safety information with customers. Further, the respondents also indicated with a mean of 3.000 that the vehicles have hotline numbers to give feedback on operations. It was also indicated with a mean of 2.792, medium, that the drivers were well trained compared to other routes. The respondents also found that drivers use mobile phones while driving as medium. The

respondents rated the public as low on road users observation on road safety rules as shown by a mean of 2.389. Finally, the respondents indicated with a mean of 2.181 that security checks on boarding are well conducted as low. In general, the respondents indicated with a mean of 3.208 on the safety pattern by Public Transport Saccos.

4.6 Relationship between Quality Management and Safety

The study sought to determine relationship between Quality Management and Safety in Public Transport Saccos. The relationship is as shown in Table 4.8.

Table 4.8: Data for Regression Analysis

Descriptive Statistics	Safety	Total Quality Management	Quality Loop	Bench-Marking	Self-Assessment
Mean	3.208	3.7823	3.75	4.1665	3.8718
Standard Deviation	0.8571	1.0893	1.049	0.849	1.001

Table 4.9: Model Summary

Model	R	R Square	Adjusted Square	Std. Error of the Estimate
1	.789 ^a	.623	.600	.23219

The R-Squared is the proportion of variance in the dependent variable (Safety in public transport) which can be explained by the independent variables. The R-squared in this study was 0.623, which shows that the four independent variables (Total Quality Management, Benchmarking, Quality Loop and Self-Assessment Methods) can explain 62.3% of the dependent variable. This shows that the other factors not studied in this study explain 37.7% of the dependent variable (Safety in public transport).

Table 4.10: Analysis of Variance

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	5.961	4	1.490	27.640	.000 ^b
	Residual	3.612	67	.054		
	Total	9.573	71			

The analysis of variance in this study was used to determine whether the model is a good fit for the data. From the findings, the p-value was 0.000 which is less than 0.05 hence the model is good in predicting how the four independent variables influence safety in public transport. Further, the F-calculated (27.640) was more than the F-critical (2.46) which shows that the models was suitable in predicting the influence of the independent variables on the dependent variable.

Table 4.11: Regression Coefficient

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	4.523	.212		21.320	.000
Total Quality Management	.745	.074	1.578	10.080	.000
Benchmarking	.377	.052	-.920	7.181	.000
Quality Loop	.325	.061	.630	5.301	.000
Self-assessment method	.403	.072	.749	5.633	.000

Based on Table 4.11, the equation for the regression line is:

$$Y = 4.523 + 0.745X_1 + 0.377X_2 + 0.325X_3 + 0.403 X_4$$

According to the intercept (B_0), when the four independent variables are held constant, the value of safety in public transport will be 4.523. In addition, holding all the other independent variables constant, a unit increase in total quality management would lead to a 0.745 increase in safety in public transport. The relationship was significant as shown by a p-value of 0.000. Further, holding the other independent variables constant, a unit increase in benchmarking would lead to a 0.377 increase in safety in public transport. The relationship was significant as shown by p-value of 0.000. In addition, holding all the other variables constant, a unit increase in quality loop would lead to a 0.325 increase in safety in public transport. The relationship is significant as shown by a p-value of 0.000. Lastly, the findings show that a unit increase in self-assessment method would lead to a 0.403 increase in safety in public transport. The relationship was insignificant as shown by a p-value of 0.000. From these findings we can infer that total quality management was influencing safety in public transport most, followed by self-assessment, benchmarking and quality loop.

4.7 Discussion of the Findings

In relation to Total Quality Management on public transport Sacco's safety, the study established that the Saccos operate well serviced vehicles. Dale, (1999) argues that early focus on quality evolved from inspection to quality control and later to quality assurance. This is practiced in the Public Transport Saccos whereby Sacco operators aim at not just reducing the number of deaths and fatal injuries after an accident but preventing the accidents before they occur. The study also found that the roads are well marked at high risk areas and that the Sacco shares road safety information with employees. Shiba (1993) defined TQM as an evolving system of practices, tools, and training methods for managing companies to provide customer satisfaction in a rapidly changing world. New technologies are coming up in the Public Transport industry to improve on Safety such as speed governors and cashless payment systems to curb corruption and reduce traffic offences committed.

Regarding benchmarking on public transport Sacco's safety, the study found that the Sacco implements working safety standards from other Saccos. This agrees with Bain (2000) who viewed benchmarking as an important way organizations can use to improve their services and processes. The study also found that the management has regulated working hours for employees. Kopczynski and Lombardo (1999) suggested that expensive mistakes can be made if an institution adopts policies that appear to be successful elsewhere, only to discover that other characteristics or features of the institution may have been responsible for its high level of performance.

In relation to Quality loop on public transport Sacco's safety, the study found that the vehicles are fitted with speed governor. This agrees with Anderson (2013) who indicated that the aim of the public transport provider should be to minimize the gap between the service qualities sought, targeted, delivered and perceived. In addition the study established that the Sacco observes road safety measures taken by other Saccos. Konečný, Kostolná (2014) indicated that an assessment of perceived quality and expected quality by passengers is vital.

With respect to Self-assessment methods on public transport Sacco's safety, the study revealed that the vehicles are regularly serviced. The study also found that the drivers are sober on the roads. The study further found that the vehicle has directed line feedback numbers for customers reporting. In addition, the Sacco management has put in place internal safety monitoring programs such as inspection. It was also found that employees are trained on safety improvement procedures. Further, the study found that the Sacco has safety standards to control its operations. Additionally, the Saccos conduct continuous improvement training for its employees. Lastly, the Saccos use a route with well-maintained roads compared to other routes. This concurs with Van der Wiele (1996) who point out that organizations are using self-assessment to identify strengths and weaknesses, and to facilitate internal and external learning in terms of the transfer of best practice and ideas.

CHAPTER FIVE: CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter integrated the summary of key data findings, conclusion drawn from the findings and the recommendations that were made. The conclusions and recommendations drawn were focused on addressing the purpose of the study which aimed at discovering best practices in reference to the level of quality performance of public transport Saccos. The study also sought to establish the pattern of safety in Public Transport in Nairobi City Council.

5.2 Conclusion

The study concludes that there is a positive and significant relationship between total quality management and Public Transport Saccos Safety. Total quality management improves public transport Sacco's safety. This clearly indicates that increase in total quality management increases safety in public transport business.

The study also concludes that there is a positive relationship between benchmarking and public transport Saccos safety. The study found that Saccos implement working safety standards from other Saccos and that the Saccos were also found to observe road safety measures taken by others. This clearly depicts that with high level of safety measures observance will lead to improved public transport safety.

The study further established that there is a positive relationship between quality loop and public transport Safety. Vehicles fitted with speed governors are in position to reduce fatal accidents that happen as a result of reckless driving and hence reduce rate of death on our roads. Regulated working hours for employees working in public transport vehicles is likely to enhance soberness and this in turn have a positive impact in safety of public transport.

In addition, the study concludes that there is a positive relationship between assessment methods and public transport safety. Increase of regularly serviced vehicles improves safety on public transport vehicles. Also, having feedback numbers for customer reporting improves customer relations thus improving safety on public transport vehicles. In addition, internal safety monitoring programs such as inspection discourages un roadworthy vehicles thus leading to positive feedback on the public transport sector. Employees are trained on safety improvement procedure and Sacco has safety standards to control its operations. This also improves the standards of the vehicles operating on roads. The fact that most Saccos use a route with well-maintained roads compared to other routes lowers the number of accidents occurring hence imposing a positive impact on the public transport safety.

5.3 Recommendations

From the above conclusion, the study recommends that policy makers should impose policies to govern the transport sector. The key focus should be on formulating policies that will improve public transport safety for the citizens. The policies formed should also be friendly to ensure that both service provider and passengers appreciate the transport industry.

The use of total quality management increases safety in public transport business. The study therefore recommends that investors in public transport sector should involve integrate total quality management practices in their operations as this will lead to improved safety in the public transport.

The study also recommends that public transport management should ensure their Saccos have internal quality assurance policies and self regulating measures to govern them in order to improve public transport safety.

Regular service of vehicles improves safety on public transport. The study therefore suggests that all the public service stakeholders should be have quality loop practices implemented in their organizations.

These include regular servicing having feedback numbers for customer reporting improves customer relations thus improving safety on public transport vehicles. The study thus recommends that the management of all public service vehicles in transport sector should provide a reliable benchmarking practices and procedures to ensure that their services and public transport standards match the best in the industry.

5.4 Limitations of the Study

In the course of the study, some challenges were encountered that could affect the research findings in one way or another. The biggest challenge was in data collection where the respondents were hesitant to fill in the questionnaires provided to them hence I cannot ascertain the level of accuracy of the information provided.

Another challenge was confidentiality. The respondents were not willing to divulge the strategies adopted by the organization despite assurances that the questionnaires were for academic purposes only.

5.5 Suggestion for Further Studies

The study found that the independent variables used could only explain 62.3% of the safety in public transport. This study therefore suggests that further studies should be conducted to investigate on other factors that influence the safety in public transport in Kenya. This research study concentrated in public transport Saccos operating within Nairobi City County. The same study can be carried out on the same in other cities within Kenya in order to improve public transport safety in these major towns.

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APPENDICES

Appendix I: List of Transport Saccos Registered in Nairobi City County

	SACCO NAME	ROUTE/ AREA
1	BURUBURU 58 TRAVELLERS SACCO	JOGOO RD
2	CITY HOPPER LIMITED	JOGOO RD
3	CITY TRAM SHUTTLE LTD	JOGOO RD
4	DABUMATO COMMUTER	JOGOO RD
5	DANDORA USAFIRI	JOGOO RD
6	EASTLANDS EAGLES LIMITED	JOGOO RD
7	EMBASSAVA COOPERATIVE	JOGOO RD
8	ESTATES CONNECTION	JOGOO RD
9	FORWARD TRAVELLERS	JOGOO RD
10	KANI TRANSPORT SAVINGS	JOGOO RD
11	KAYO-LINE GROUP COMPANY	JOGOO RD
12	LAKENYA TRANSPORT SACCO	JOGOO RD
13	MAVEROUS SHUTTLE LIMITED	JOGOO RD
14	MWAMBA TRAVELLERS SACCO	JOGOO RD
15	UNIFIED INTERNATIONAL	JOGOO RD
16	OUTER CIRCLE SACCO	JOGOO RD
17	PEJO TECH COMPANY LTD	JOGOO RD
18	PINPOINT SOLUTION (K) LTD	JOGOO RD
19	HIMOSA TRAVELLERS SACCO	JOGOO RD
20	UMOINNER SACCO	JOGOO RD
21	UMOJA INNERCORE TENA	JOGOO RD
22	FIG KOMBA	KIAMBU RD
23	WALOKANA MULTIPURPOSE	KIAMBU RD
24	KILLETON PASSENGERS	KIAMBU RD
25	LOPHA MULTIPURPOSE	KIAMBU RD
26	RUNKA SERVICES	KIAMBU RD
27	BAKAKI 101 TRAVELLERS	KIAMBU RD
28	RONGAO SACCO	LANGATA RD
29	ONGATA RONGAI BUS	LANGATA RD
30	ELEVENTH HOUR TRANSPORT	LANGATA RD
31	OROKISE SACCO LTD	LANGATA RD
32	SERIAN SAVINGS AND CREDIT	LANGATA RD
33	SNOWBALL SACCO SOCIETY	LANGATA RD

34	NABOKA TRAVELLERS SACCO	LANGATA RD
35	LANKANA SACCO SOCIETY	LANGATA RD
36	OROMATS SACCO SOCIETY LTD	LANGATA RD
37	ONGATA LINE TRANSPORTERS	LANGATA RD
38	RASASI INVESTMENT LIMITED	LANGATA RD
39	12C TRANSPORT SACCO LTD	MOMBASA RD
40	INDIMA (NJE) SACCO	MOMBASA RD
41	NAKAM SACCO SOCIETY	MOMBASA RD
42	NGUSO TRAVELLERS SACCO	MOMBASA RD
43	REMBO SHUTTLE SAVINGS AND	MOMBASA RD
44	DAKIKA MATATU OWNERS	NGONG RD
45	HIGHRISE KIBERA SACCO	NGONG RD
46	KADANA TRAVELLERS	NGONG RD
47	KASBOWA SAVINGS AND	NGONG RD
48	KIBERA BURETI SACCO	NGONG RD
49	KIBERA MATATU OWNERS	NGONG RD
50	MADIWA MATATU OWNERS	NGONG RD
51	PAKIN ALICIA SACCO	NGONG RD
52	DIX-HULT MATATU OWNER	RING ROAD NGARA
53	EASTLEIGH COMMUTER	RING ROAD NGARA
54	EASTLEIGH ROUTE SACCO	RING ROAD NGARA
55	KIRAGI TRAVELLERS SAVINGS	RING ROAD NGARA
56	MOONLIGHT COACH COMPANY	RING ROAD NGARA
57	BABA DOGO 25 TRAVELLERS	THIKA RD
58	FOURTY FOUR SACCO	THIKA RD
59	GITHURAI 45 SACCO	THIKA RD
60	JONSAGA FLATS SACCO	THIKA RD
61	KARIOBANGI MATATU OWNERS	THIKA RD
62	KIU INVESTMENT SACCO	THIKA RD
63	LUCKY BABA DOGO	THIKA RD
64	LUCKY TRANSPORTERS	THIKA RD
65	MARIMBA INVESTMENT LIMITED	THIKA RD
66	MARIMBA TRAVELLERS SACCO	THIKA RD
67	MNK SACCO SOCIETY LTD	THIKA RD
68	MWIKI PSV SACCO	THIKA RD
69	MWIRONA SACCO LTD	THIKA RD
70	NAKATHI TRAVELLERS SACCO	THIKA RD

71	NAWAKU SACCO	THIKA RD
72	NEO KENYA MPYA PASSENGERS	THIKA RD
73	RUKAGINA 44 SACCO	THIKA RD
74	HURUMA 46 SAVINGS AND	UPPERHILL RD
75	HURUMA MINI-BUS SACCO LTD	UPPERHILL RD
76	KENYA BUS SERVICE	UPPERHILL RD
77	CITY STAR SHUTTLE LIMITED	WAIYAKI WAY
78	COMPLIANT MANAGEMENT	WAIYAKI WAY
79	COSY TRAVELLERS LTD	WAIYAKI WAY
80	HANNOVER COMMERCIAL	WAIYAKI WAY
81	KANGEMI MATATU OWNERS	WAIYAKI WAY
82	KAWANGWARE MATATU	WAIYAKI WAY
83	LATEMA 22 TRAVELLERS	WAIYAKI WAY
84	METROTRANS EAST AFRICA	WAIYAKI WAY
85	KAZANA TRAVELLERS	WAIYAKI WAY

Appendix II: Introduction Letter



UNIVERSITY OF NAIROBI
SCHOOL OF BUSINESS
MBA PROGRAMME

Telephone: 020-2059162
Telegrams: "Varsity", Nairobi
Telex: 22095 Varsity

P.O. Box 30197
Nairobi, Kenya

DATE 07/10/2015

TO WHOM IT MAY CONCERN

The bearer of this letter RUTH WANJIKU NJOROGE


Registration No. DG1/80094/2012

is a bona fide continuing student in the Master of Business Administration (MBA) degree program in this University.

He/she is required to submit as part of his/her coursework assessment a research project report on a management problem. We would like the students to do their projects on real problems affecting firms in Kenya. We would, therefore, appreciate your assistance to enable him/her collect data in your organization.

The results of the report will be used solely for academic purposes and a copy of the same will be availed to the interviewed organizations on request.

Thank you.


PATRICK NYABUTO
MBA ADMINISTRATOR
SCHOOL OF BUSINESS



Appendix III: Research Questionnaire

This questionnaire has been designed for the sole purpose of collecting data on the implementation of quality management practices in Public Transport Saccos in Nairobi City County. The data collected will be treated with a very high degree of confidentiality and it is meant for academic purposes only.

Section A: General Information

1. Name of the Matatu SACCO:
2. Route of Matatu SACCO:
3. How do you related to this SACCO?
 - a) Owner
 - b) Commuter/ Passenger
 - c) Regulator
 - d) Employee
4. If an employee, which position do you hold in the SACCO?
 - a) Management level employee
 - b) Driver
 - c) Conductor
5. How many female drivers are there in the Sacco.....
6. What is the average age of driver employees in the Sacco?
 - a) 20-30 YEARS
 - b) 30-40 YEARS
 - c) 40-50YEARS
 - d) ABOVE 50 YEARS
7. In your opinion, what do you think would make public transport safer?
.....
.....
.....
.....

Section B: Quality Management Practices in Public Transport Saccos in Nairobi City County.

8. Please indicate if you agree with the following statements on quality management practices in Public Transport Saccos you have worked with. The scale below is applicable:

1= I strongly agree 2= I agree 3= I am undecided 4= I disagree
5=I strongly disagree

Statement	Rating
The Sacco operates well serviced vehicles	
The roads are well marked at high risk areas	
The Sacco shares road safety information with employees	
The vehicles are fitted with speed governors	
The management has regulated working hours for employees	
The Sacco observes road safety measures taken by other Saccos	
The Sacco implements working safety standards from other Saccos	
The Sacco uses a route with well-maintained roads compared to other routes	
The Sacco seeks feedback from its customers	
The vehicles are regularly serviced	
The drivers are sober on the roads	
Employees are trained on safety improvement procedures	
The Sacco has internal safety monitoring programs such as inspection	
The Sacco has safety standards to control its operations	
The vehicles have direct line feedback numbers for customers reporting	
The Sacco conducts continuous improvement training for its employees	

Section C: Public Transport Safety Pattern.

9. Please indicate if you agree with the following statements on Public Transport safety in Public Transport Saccos.

Use the table with a five point scale to answer this question, where 1 =High, 2 = Good, 3 = Medium, 4 = Low, 5 = extremely poor

Statement	1	2	3	4	5
The Sacco management is involved when accidents occur					
The Sacco has a well mapped out route					
The drivers' follow traffic rules and regulations					
The Sacco shares road safety information with customers					
The roads are well maintained compared to other routes					
The drivers are well trained compared to other routes					
The vehicles are well maintained compared to other routes					
The vehicles have hotline numbers to give feedback on operations					
The vehicles are fitted with proper seatbelt for each occupant					
The vehicles are well fitted with speed governors					
The vehicles' sound system are played at moderate volume levels					
The Sacco responds to customers' queries, expectations and feedback					
Security checks on boarding are well conducted					
Road users observe road safety rules					
Drivers use mobile phones while driving					

Appendix IV: Public Transport Saccos Route Numbers

Matatu route Number	Destination/ bus-stops
1	Ngong Road, Citam/NPC Valley road, The Junction Mall, Dagoretti
2	Ngong Road, Citam/NPC Valley Rd, The junction Mall, Dagoretti Kikuyu
3	Ngong Road, Adam;s Arcade, Dagoretti corner
4	Ngong Road, Adams, Dagoretti
6	Eastleigh Area/ Pangani Girls/ Pangani Shopping Centre. Kariokor Market
7C	Community, Upper hill Area, Kenyatta National Hospital, Nairobi Hospital, Doctors Plaza Silver Springs hotel
8	Ngong road, Kibera Slums/Kibra, Adams Arcade, Toi Market
9	Eastleigh Area. Ngara Civil Servants Housing Scheme, K.I.E, Pangani Roundabout. Fig Tree Trade Center Ngara
11	South B, Bellevue
15	Nyayo Stadium, Nairobi west &Madaraka (near the road), Tuskys T-mall, Wilson Airport, Carnivore Simba Sallon, Uhuru Gardens, Langata Shopping Centre, Otiende, Barracks, Langata Cemetry (on the lower side), Nairobi Safari walk and Nairobi National Park, Nairobi Animal Orphanage
14	Langata road upto T-Mall, Strathmore University, Nairobi West,
17B	Thika road, Thika super highway, Roysambu, Kasarani, Santon, Mwiki, St Francis Hospital,
23	Kangemi, Westlands, Uhuru Highway, Kangemi, ABC place, Safaricom House and Uhuru highway.
24	Karen Shopping Centre, Hardy, all Langata road routes,

	Bogani, Bomas of Kenya, Galleria Shopping Mall, Catholic University, Kenya School of Law, Nairobi Academy, Hill Crest International School, Animal protection, Co-op bank training centre, Giraffe Center, Karen C school.
25	Baba Ndogo, Thika Road upto GSU flyover,
33	Ngumo Estate, KNH, Mbagathi, Masai Market
33	Embakasi route, through joggo road, donholm, City Stadium, Pipeline, Tumaini Estate and Fedha Estate, Avenue Estate (Sometimes mombasa Road)
34 (matatus)	Langata Area through Mbagathi road, KNH, T-mall, Wilson airport, Carnivore, Langata shopping Centre.
34 (buses)	JKIA, Jogoo Road, Embakasi, Fedha, donholm (Sometimes mombasa Road)
35/60	Umoja innercore, Umoja I and umoja II
44	Kahawa West, Kamiti Maximum Prison, Zimmerman, Githurai 44 Roysambu, USIU, Farmers Choice, Northern Bypass
45	Thika Road, Thika Super highway, Githurai 45
58	Buru buru
100 / 120	Kiambu town, kiambu road, Sharks Palace Kiambu road, CID center, Ridgeways, Rock city kiambu road, Muthaiga roundabout
102	Kikuyu Township, Dagoretii, Ngong road, The junction mall etc
105	Kikuyu via Uhuru highway, Westlands, Kangemi, Uthiru, Kinoo
106	Banana, Muchatha, village Market
110	Kitengela, mlolongo, Athi river
111	Ngong, Ngong road, Dagaoretti corner, (sometimes kiserian,)

125/126	Ongata Rongai, Kiserian, Bomas of Kenya, Nazarene University, Catholic University, Multimedia University, Nairobi National Park/ orphanage, Safari walk, Langata Barracks, Galleria, Brookhouse International School, Langata hospital, Langata Police Station, Langata Cemetery
146	Ruiru, Thika Road, Kahawa Wendani, Kahawa Barracks, Kahawa Sukari, Kenyatta University/ KU, Ruiru Bypass
237	Thika town, all routes on Thika Road, Kahawa Ruiru