

**FACTORS INFLUENCING THE UPTAKE OF PRIVATELY OPERATED TOLL  
ROADS IN KENYA: A CASE OF NAIROBI EXPRESSWAY**

**TERRY NYAMBURA IRUNGU**




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## DECLARATION

I declare that this work has not been previously submitted and approved for the award of a degree by this university or any other university. To the best of my knowledge and belief, the dissertation contains no material previously published or written by another person except where due reference is made in the dissertation itself.

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## ABSTRACT

Public-private partnerships (PPPs) have emerged as a critical strategy for addressing infrastructure deficits in developing countries, including Kenya. The Nairobi Expressway, a landmark PPP toll road project, represented a significant milestone in Kenya's infrastructure development, yet its long-term success hinged on public acceptance. This study investigated the factors influencing public uptake of the Expressway, focusing on affordability, trust in project governance, and awareness of the PPP model. A mixed-methods approach was adopted, combining surveys of 387 out of the targeted 400 respondents, with 194 users and 193 non-users. This was complemented by in-depth interviews of 12 key stakeholders, including government officials, private sector representatives, and PPP specialists from the Treasury. The findings revealed persistent affordability barriers, with 22.5% of non-users citing prohibitive costs as their primary deterrent, alongside moderate but fragile public trust undermined by transparency gaps in revenue management. Crucially, awareness of the PPP framework was strikingly low, with misinformation exacerbating scepticism. Correlation analysis demonstrated strong linkages between awareness and perceived benefits ( $r = 0.928$ ), highlighting how knowledge gaps distorted value assessments. The study concluded that while the Expressway delivered operational efficiencies, its societal value was constrained by unaddressed equity and governance concerns. Key recommendations included dynamic toll pricing models to enhance affordability, mandatory transparency mechanisms to rebuild trust, and robust public education initiatives to bridge awareness gaps. These findings contribute to global PPP literature by underscoring the centrality of social dimensions not just technical performance in determining infrastructure project success in emerging economies. The study advocates for policy reforms that embed equity and participatory governance into Kenya's PPP framework, offering lessons for future transport projects across the Global South. Ethical clearance was obtained from Strathmore University's IREC and NACOSTI, with all participant protections adhered to

**Keywords:** *PPPs, toll roads, public uptake, Nairobi Expressway, infrastructure affordability, trust, awareness, Kenya*



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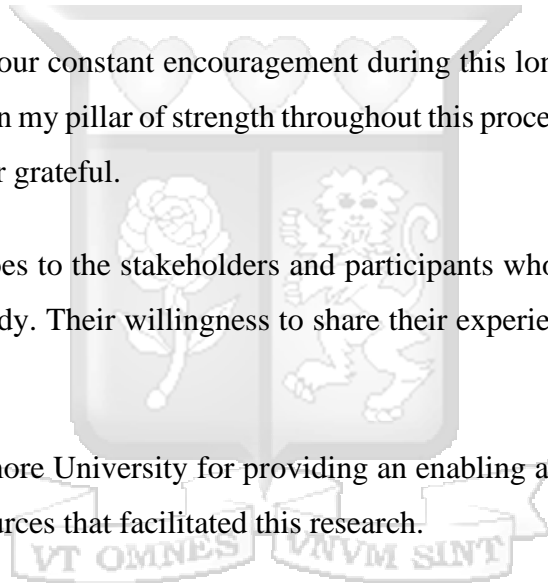
I thank God for granting me the resources, strength, resilience, perseverance, and wisdom to complete this dissertation.

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## DEDICATION

To Mum and Sheri.

To anyone who felt like giving up but didn't.



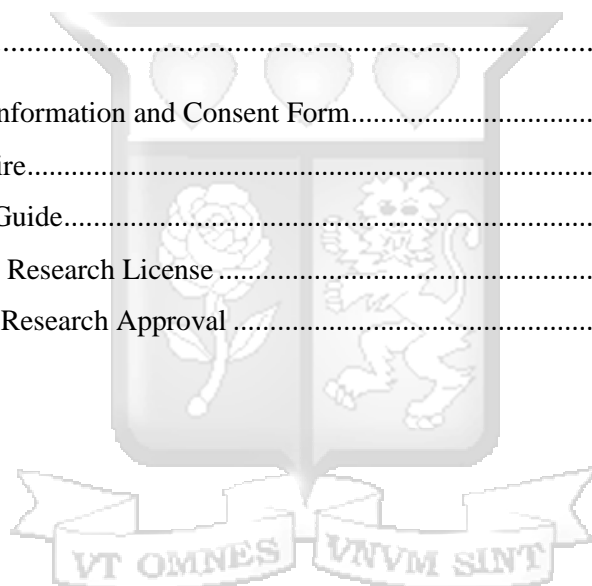
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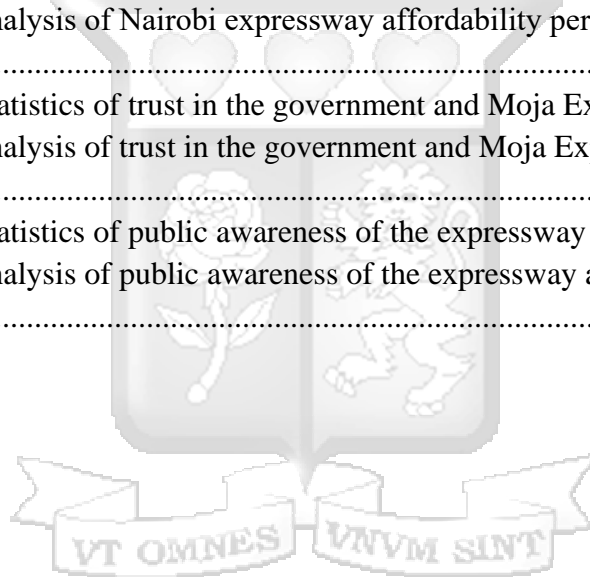
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## ABBREVIATIONS AND ACRONYMS

<b>BOT:</b>	Build-Operate-Transfer
<b>CRBC:</b>	China Road and Bridge Corporation
<b>DBFO:</b>	Design-Build-Finance-Operate
<b>FGDs:</b>	Focus Group Discussions
<b>GFIP:</b>	Gauteng Freeway Improvement Project
<b>IREC:</b>	Institutional Research Ethics Committee
<b>KeNHA:</b>	Kenya National Highways Authority
<b>NACOSTI:</b>	National Commission for Science, Technology, and Innovation
<b>NGOs:</b>	Non-Governmental Organizations
<b>PPPs:</b>	Public-Private Partnerships
<b>SAPs:</b>	Structural Adjustment Programs
<b>SDGs:</b>	Sustainable Development Goals
<b>SPSS:</b>	Statistical Package for the Social Sciences



## OPERATIONAL DEFINITION OF TERMS

**Public-Private Partnership (PPP):** A collaborative arrangement between the government and private sector entities, where the private sector finances, constructs, operates, and maintains public infrastructure projects, such as toll roads, in exchange for revenue generation through user fees or other mechanisms. In this study, PPP refers specifically to the model used for the Nairobi Expressway, where the China Road and Bridge Corporation (CRBC) was contracted to build, operate, and transfer the road to the government after a specified period.

**Public Uptake:** The extent to which individual road users voluntarily choose to use a toll road based on their perceptions of its benefits, costs, and convenience. In this study, public uptake is measured by the frequency of use, willingness to pay toll fees, and user satisfaction with the Nairobi Expressway.

**Affordability:** The degree to which toll fees are perceived as reasonable and accessible to road users across different income levels. In this study, affordability is operationalized through indicators such as willingness to pay, perceived fairness of toll charges, and the financial burden of toll fees on low- and middle-income users.

**Public Trust:** The confidence that road users have in the government and private operators to manage the toll road transparently, accountably, and in the public's best interest. In this study, public trust is measured through perceptions of transparency, accountability, competence, and the long-term sustainability of the Nairobi Expressway project.

**Public Awareness:** The level of understanding and knowledge that road users have about the Nairobi Expressway, including its purpose, benefits, tolling policies, and operational details. In this study, public awareness is assessed through indicators such as accessibility to information, effective communication strategies, and opportunities for public feedback.

# CHAPTER ONE

## INTRODUCTION TO THE STUDY

### 1.1 Background Information

Public-Private Partnerships (PPPs) have become a pivotal strategy for infrastructure development, particularly in emerging economies where fiscal constraints limit public investment capacity. In Kenya, the Nairobi Expressway—a landmark PPP toll road—represents a critical test case for the viability of privately operated infrastructure. Uptake was operationalised through behavioural indicators (actual usage rates) and perceptual indicators (user satisfaction and willingness to pay), measured via a mixed-methods approach combining surveys, stakeholder interviews, and traffic data analysis. This dual measurement ensured a comprehensive assessment of both quantitative usage patterns and qualitative user motivations.

To quantify uptake, the study employed Likert-scale survey items (1–5) capturing key dimensions such as service quality, time savings, and perceived value for money. The operationalisation of uptake aligns with global PPP literature (e.g., Levinson, 2010; Gomez-Ibanez, 2021) while contextualising it to Kenya’s urban mobility challenges. By integrating objective metrics (e.g., usage rates) with subjective perceptions (e.g., fairness of pricing), the study bridges a critical gap in toll road research, which often prioritises financial viability over user experience (Chileshe et al., 2022). This approach not only evaluates the Expressway’s performance but also offers a replicable framework for assessing uptake in future PPP transport projects across the Global South.

This chapter introduces the background information of the study, exploring the global and regional significance of PPPs in infrastructure development, highlighting their role in addressing financing gaps in emerging economies like Kenya. The chapter then narrows its scope to Kenya’s PPP framework, detailing the historical, legal, and policy landscape that shaped the Nairobi Expressway project. The problem statement underscores the gap between projected and actual usage of the Expressway, emphasising the need to investigate socioeconomic and institutional barriers to uptake. Finally, the chapter outlines the study’s objectives, research questions, significance, and scope, setting the stage for a detailed literature review and methodological framework in subsequent chapters.

### 1.1.1 Global Context of PPPs

PPPs have emerged as a critical mechanism for addressing the growing demand for infrastructure development globally, particularly in developing countries where financial constraints often hinder the realisation of large-scale projects (Hodge & Greve, 2017; Cui et al., 2018; Chumba, 2020). Since the early 21st century, PPPs have gained prominence as a strategic model for delivering long-term infrastructure projects, enabling governments to leverage private sector resources, expertise, and efficiency to achieve development goals (Wang & Ma, 2021). According to Kendagor (2023), governments in developing nations face significant fiscal challenges which limit their ability to fund ambitious infrastructure projects. As a result, PPPs have become an essential tool for bridging the financing gap, particularly in sectors such as transportation, energy, and water.

The PPP model involves collaboration between government agencies and private sector entities, allowing the latter to provide public services and infrastructure (Hodge & Greve, 2017). This approach has become an alternative financing mechanism, supplementing traditional methods such as taxation and borrowing (Wang & Ma, 2021). The rise of globalization has further intensified the need for robust infrastructure to facilitate economic growth and integration into the global economy (Wang et al., 2018). However, the economic and political challenges faced by many countries have made it difficult to fund large-scale projects, necessitating greater private-sector involvement (Wang & Ma, 2021).

PPPs are not a one-size-fits-all solution, as their implementation must be carefully tailored to align with each country's specific infrastructure needs, regulatory frameworks, and socioeconomic objectives (Cohen et al., 2014; World Bank, 2017). Governments and policymakers have developed a diverse range of PPP models to address different project requirements, with joint ventures being commonly used when both public and private entities wish to share ownership and operational responsibilities (Yescombe, 2011; Reynaers & Grimmeliikhuijsen, 2015). Concession agreements, where private operators are granted long-term rights to manage and profit from public infrastructure, have proven particularly effective for transportation and utilities projects (Engel et al., 2014; Cruz & Marques, 2013). The build-operate-transfer (BOT) model, extensively documented by Zhang (2005) and Abdul-Aziz (2012), allows private entities to finance, construct, and temporarily operate facilities before eventual public ownership transfer. For more complex

projects requiring integrated delivery, the design-build-finance-operate (DBFO) approach has been widely adopted, as demonstrated in UK infrastructure projects (Akintoye et al., 2008; HM Treasury, 2012).

Permanent private sector involvement is enabled through build-own-operate (BOO) arrangements, which Iossa and Martimort (2015) argue can optimize long-term maintenance incentives. Hybrid models like build-operate-own-transfer (BOOT), examined by Ng et al. (2012) in Asian infrastructure contexts, combine elements of temporary and permanent private participation. Meanwhile, the design-build-operate (DBO) model, analyzed by Nisar (2013) and OECD (2008), separates construction responsibilities from long-term operations to improve accountability. As Hodge and Greve (2017) and Delmon (2017) emphasize, this spectrum of models provides governments with flexible tools to balance risk allocation, financing needs, and service quality requirements while ensuring infrastructure projects are delivered efficiently and sustainably across different sectors and national contexts.

### **1.1.2 PPPs in Africa and Kenya**

In Africa, the adoption of PPPs has been shaped by historical and economic factors. Before the 1980s, infrastructure projects were implemented without a formal legal or regulatory framework for PPPs (Heidhues & Obare, 2011). The introduction of Structural Adjustment Programs (SAPs) in the 1980s marked a turning point, leading to the privatization of state-owned enterprises and the adoption of market-oriented reforms (Chumba, 2020). These reforms aimed to improve efficiency and service delivery in key sectors such as transportation, energy, and water. However, slow economic growth and limited budgetary allocations for infrastructure development necessitated greater private-sector participation, paving the way for PPPs (Chumba, 2020).

In Kenya, the PPP framework was formally established through the Public Procurement and Asset Disposal Act (2005) and further strengthened by the Public-Private Partnerships Act (2021) (Republic of Kenya/Kenya Law, 2025). These legislative measures provided a regulatory framework for private sector involvement in infrastructure projects, ranging from financing and construction to operation and maintenance. The enactment of Vision 2030, Kenya's long-term development blueprint, further underscored the importance of PPPs in achieving the country's

infrastructure goals (Nalo, 2018). Vision 2030 envisions significant investments in transportation, energy, and urban development, with PPPs playing a central role in realizing these objectives. According to Chileshe et al. (2022), most projects implemented through the PPP framework are designed to meet Kenya's Vision 2030 objectives.

Kenya has implemented several PPP projects across various sectors, including roads, railways, and energy (Chileshe et al., 2022). These projects have utilized different PPP models, such as joint ventures, strategic partnerships, and BOT arrangements (Kaburu, 2021). However, the implementation of PPPs in Kenya has not been without challenges. Issues such as lack of transparency, corruption, and public mistrust have raised concerns about the effectiveness and sustainability of PPP projects (Kamoni, Rotich, & Ochiri, 2023). For instance, questions have been raised about the high costs of loans, the use of foreign labour, and the equitable distribution of benefits (Chileshe et al., 2022). These challenges highlight the need for greater public engagement and accountability in PPP projects.

Kenya's toll road history dates back to the colonial era when road infrastructure development was primarily government-funded, with tolling introduced as a revenue-generating mechanism to support maintenance and expansion (Kungu, 2018). However, the toll system was later abandoned in the late 1980s due to inefficiencies and public resistance (Munene & Mark, 2020). The resurgence of toll roads in Kenya is closely linked to the growing need for sustainable infrastructure financing and the adoption of the Public-Private Partnership (PPP) model (Chileshe et al., 2022). The government reintroduced tolling through the Roads Maintenance Levy Fund and later incorporated PPP arrangements to enhance private sector participation in road development (Kaburu, 2021).

A landmark project in this transition is the Nairobi Expressway, a privately operated toll road developed through a PPP framework between the Government of Kenya and the CRBC (Kamoni, Rotich, & Ochiri, 2023). Officially opened in 2022, the expressway serves as a crucial transport corridor, easing congestion in Nairobi while demonstrating the potential of PPPs in road infrastructure financing and management (Republic of Kenya, 2022).

### 1.1.3 Public Uptake of Toll Roads

Public uptake of toll roads refers to the willingness and actual behaviour of individuals in utilising tolled infrastructure as a preferred mode of transport. Uptake is influenced by various factors, including perceived value for money, trust in the tolling system, affordability, and the availability of alternative routes (Cohen et al., 2014). Globally, studies on toll road adoption highlight the role of economic incentives, travel time savings, and perceived service quality in shaping user behaviour. Research in developed economies, such as the U.S. and Europe, indicates that motorists are more likely to use toll roads when they offer significant time savings compared to free alternatives (Small & Yan, 2001; de Palma et al., 2005). However, public resistance often arises when toll pricing is perceived as exploitative or when revenue allocation lacks transparency (Vassallo & Ortega, 2012). In Asia, where toll roads are widely implemented, studies by Zhang (2005) and Ng et al. (2012) found that successful uptake depends on integrating toll roads into broader transport networks while ensuring affordability for middle-income users. Conversely, in Latin America, Gomez-Ibanez (2021) observed that high toll costs relative to income levels often lead to low adoption rates among lower socioeconomic groups, exacerbating transport inequities.

Regionally, African experiences with toll roads reveal mixed public reception due to varying economic conditions and governance frameworks. In South Africa, where tolling has been implemented on major highways such as the Gauteng Freeway Improvement Project (GFIP), public backlash emerged due to affordability concerns and perceived lack of consultation (Rooney & Mudimu, 2020). Similarly, in Nigeria, the Lekki-Epe Expressway toll road faced resistance from commuters who viewed pricing structures as exclusionary (Adeniran & Adeleye, 2022). These cases underscore the importance of equitable pricing models and stakeholder engagement in enhancing toll road acceptance. In East Africa, Uganda's Kampala-Entebbe Expressway demonstrated moderate uptake, with higher usage among business travelers and frequent commuters valuing time efficiency (Kuteesa & Mugume, 2021). However, similar to Kenya, concerns over high toll fees relative to average incomes persist, limiting broader adoption (Abdi et al., 2024). These regional trends highlight the delicate balance required between cost recovery for private operators and ensuring accessibility for diverse user groups.

For privately operated toll roads, such as the Nairobi Expressway, individual uptake is largely driven by convenience, reliability, and economic considerations. Empirical studies suggest that road users are more likely to embrace toll roads when they perceive tangible advantages, such as reduced congestion, improved road conditions, and time savings, outweighing the direct costs of toll fees (de Groot & van Wee, 2019). However, resistance can arise from concerns about affordability, inequitable access, and lack of confidence in the private operator's commitment to long-term service delivery (Gomez et al., 2021). Socioeconomic status also plays a significant role in uptake, as high-income earners may be more inclined to pay for faster routes, whereas lower-income groups may avoid tolled roads due to financial constraints (Levinson, 2010). Understanding these dynamics is essential for policymakers and private operators to design tolling structures and service models that enhance both accessibility and user satisfaction.

#### **1.1.4 Factors that Influence Public Uptake**

The uptake of privately operated toll roads is influenced by multiple factors, including economic, social, and institutional considerations. One of the primary concerns is affordability, as toll charges directly affect road users' willingness to pay for access. High toll rates can disproportionately impact low-income individuals, leading to public resistance and lower adoption rates (Abdi et al., 2024). Related to affordability is the availability of alternative routes—if free roads are accessible and offer comparable travel times, many users may avoid toll roads, reducing their financial viability (Levinson, 2010). Additionally, trust in private operators plays a crucial role in uptake; concerns over profit-driven motives, lack of transparency, and fair pricing policies can lead to skepticism and reluctance to use tolled roads (Gomez et al., 2021).

Public awareness and perception also significantly impact acceptance and usage. Misinformation or lack of clarity regarding tolling policies, benefits, and long-term road maintenance commitments can create resistance (Vassallo & Ortega, 2012). Furthermore, traffic congestion and time savings are key determinants—if toll roads do not provide a clear advantage in reducing travel time and improving road conditions, users may question their value (de Groot & van Wee, 2019). Other influencing factors include government regulation, the fairness of pricing structures, and equitable access across different socioeconomic groups (Cohen et al., 2014). Negative

experiences, such as frequent toll price hikes, inefficiencies in toll collection, or maintenance failures, can also diminish public trust and uptake (Gomez et al., 2021).

While this study focuses on three critical factors—affordability, trust, and public awareness—due to their strong influence on individual road users’ decisions and broader policy implications, it is important to acknowledge that other factors may also shape toll road uptake. For instance, technological factors, such as the efficiency of electronic toll collection systems and user-friendly payment methods, can significantly affect convenience and adoption rates (Small & Yan, 2001). Environmental considerations, including the perceived sustainability benefits of toll roads in reducing emissions through decongestion, may also influence public acceptance (de Palma et al., 2005). Additionally, cultural attitudes toward privatisation and public infrastructure ownership could play a role in shaping resistance or support for toll roads (Zhang, 2005). Future research could explore these and other factors, such as road safety perceptions, political influences, and long-term economic impacts, to provide a more comprehensive understanding of toll road adoption dynamics.

By concentrating on affordability, trust, and awareness, this study aims to provide actionable insights into improving the acceptance and effectiveness of privately operated toll roads. Affordability is fundamental because toll costs directly impact accessibility, particularly for lower-income groups (Levinson, 2010). Trust in private operators is essential, as scepticism regarding transparency and service quality can hinder usage (Gomez et al., 2021). Lastly, public awareness is crucial in shaping perceptions—adequate information and engagement can dispel misconceptions and encourage informed decision-making (Vassallo & Ortega, 2012). While other factors remain relevant, this study’s targeted focus allows for an in-depth analysis of the most immediate barriers to toll road uptake in the Kenyan context.

### **1.1.5 Relevance of Public Uptake to PPPs**

Public uptake is critical to the success and sustainability of infrastructure projects, particularly those implemented through PPPs. As Mayienda (2020) notes, public acceptance enhances the legitimacy of government decisions and fosters trust between the state and its citizens. Infrastructure projects that receive strong public support are more likely to be implemented

smoothly, with fewer delays, legal disputes, or acts of resistance (Wang et al., 2022). Additionally, public acceptance contributes to long-term project sustainability by ensuring that infrastructure serves its intended purpose and is maintained for public benefit (Nyumba et al., 2020). In contrast, projects that lack public support often face operational challenges, such as low usage rates or negative public sentiment, which can undermine their long-term viability (Kamoni, Rotich, & Ochiri, 2023).

In the context of PPPs, public uptake plays an even more significant role due to the active involvement of private sector actors in delivering public services. According to Cohen, Reichl, and Schmidthaler (2014), public resistance to PPP projects—particularly toll roads—can result in underutilization, affecting the project's financial viability and discouraging future private-sector investment. The Nairobi Expressway, a Build-Operate-Transfer (BOT) project, exemplifies these challenges. The BOT model was deemed the best fit for the expressway as it allowed for private sector financing and risk-sharing while enabling the government to develop critical infrastructure without heavy upfront costs (Kaburu, 2021). Literature on PPP financing models suggests that BOT arrangements are ideal for large-scale transport projects since they ensure private sector efficiency in design, construction, and operation while guaranteeing eventual government ownership (Chileshe et al., 2022). However, while the BOT model addressed financing and operational risks, it did not inherently guarantee widespread public acceptance.

Despite its intended benefits, the Nairobi Expressway has not significantly alleviated congestion in Nairobi, particularly during peak hours. Studies indicate that while tolled highways can reduce travel time in the short term, their long-term impact depends on traffic demand management and the integration of alternative transport solutions (Vassallo & Ortega, 2012). The expressway, designed to decongest major city roads, has faced traffic bottlenecks, particularly at key exit points such as Museum Hill and Westlands, leading to prolonged rush-hour congestion (Gomez et al., 2021). Research on urban toll road efficiency suggests that unless toll pricing, lane capacity, and exit designs are optimized, congestion issues may persist, especially if alternative routes remain clogged (Levinson, 2010). The heavy traffic on both the expressway and the regular road network during peak hours highlights the need for more integrated urban transport planning beyond toll road construction. These challenges underscore the importance of public engagement and data-

driven infrastructure planning to ensure that PPP projects meet their intended mobility and efficiency goals.

## **1.2 Problem Statement**

PPPs have become a critical strategy for governments to bridge infrastructure deficits by leveraging private sector resources and expertise (Chumba, 2020). The PPP framework in Kenya has been instrumental in financing large-scale projects, particularly road infrastructure. However, the long-term success of such projects hinges on public uptake—the extent to which road users adopt and utilise toll roads (Cohen, Reichl & Schmidthaler, 2014). Despite increasing investment in toll roads under PPP models, the public's willingness and ability to use them remain uncertain. The Nairobi Expressway, Kenya's first operational toll road in decades, presents a timely case study to examine public uptake and its implications for future toll road projects in the country.

While toll roads offer a means of financing and maintaining infrastructure, their adoption by the public is influenced by several factors, including affordability, trust in governance, and public awareness (Abdi et al., 2024). The Nairobi Expressway, constructed under a BOT model by CRBC, was expected to alleviate congestion and improve urban mobility. However, its usage rates have fallen short of initial projections, with only 30,000 vehicles using the road daily compared to the anticipated 50,000 (KENHA, 2021). High toll charges—ranging from KES 150 to KES 1,600—have raised affordability concerns, particularly among low- and middle-income users (Kendagor, 2023). Furthermore, a lack of transparency in procurement, concerns over revenue allocation, and limited public consultation have eroded trust in the government and its private partners (Musyoki & Musembi, 2023). These challenges highlight the need for a deeper examination of the public uptake of toll roads in Kenya.

Globally, the public response to toll roads has varied. In South Africa, the Gauteng Freeway Improvement Project (GFIP) faced public backlash due to high toll fees and lack of consultation, leading to legal disputes and low uptake (Mudau, 2022). Conversely, India's Golden Quadrilateral Project achieved higher public acceptance through tiered pricing models and comprehensive public awareness campaigns (Patil & Laishram, 2016). Kenya's expansion of toll road policies, with proposals to toll key highways like Nairobi-Mombasa, Nairobi-Nakuru, and Nairobi-Thika,

necessitates an evidence-based understanding of how the public perceives and interacts with these roads. This study will provide critical insights for policymakers as they seek to expand Kenya's toll road network and increase revenue collection avenues.

Despite the growing adoption of PPPs in road infrastructure, existing research in Kenya has focused primarily on the financial and technical aspects of toll road projects, with limited attention to user perspectives and public uptake (Chileshe et al., 2022). This research seeks to bridge this gap by exploring: (1) the affordability of the Nairobi Expressway, (2) public trust in the government and private partners managing the road, and (3) the level of public awareness and understanding of toll roads as PPP projects. By investigating these factors, this study will provide practical recommendations for improving public engagement, enhancing affordability models, and fostering transparency in toll road projects. The findings will be valuable for policymakers, private investors, and urban planners as Kenya expands its toll road network under the PPP model.

### **1.3 Research Objective**

#### **1.3.1 Main Objective**

This study aimed to examine factors influencing the uptake of privately operated toll roads in Kenya with a focus on the Nairobi Expressway PPP project.

#### **1.3.2 Specific Objectives**

- i. To analyse how the affordability of toll fees influences the uptake of the Nairobi Expressway among individual road users.
- ii. To assess how public trust in the government and private sector operators affects the uptake of the Nairobi Expressway.
- iii. To evaluate how public awareness and understanding of the PPP model shape perceptions and uptake of the Nairobi Expressway.

### **1.4 Research Questions**

- i. How does the affordability of toll fees influence the uptake of the Nairobi Expressway among individual road users?

- ii. What is the relationship between public trust in the PPP operators and the likelihood of using the Nairobi Expressway?
- iii. How does the level of public awareness about the PPP model shape perceptions and uptake of the Nairobi Expressway?

## **1.5 Significance of the Study**

This study provides valuable insights for policymakers, the public, and researchers by addressing critical gaps in understanding the uptake of privately operated toll roads in Kenya. For policymakers, the findings are informing refinements to Kenya’s PPP regulatory framework, particularly the Public-Private Partnerships Act (2021), by highlighting the need for dynamic toll pricing models to enhance affordability and mandatory transparency mechanisms to rebuild public trust. The evidence on affordability barriers is reinforcing calls for equitable pricing structures, ensuring toll roads remain accessible across income groups.

For the public, the study is uncovering key communication gaps and misconceptions about PPPs, leading to actionable recommendations for targeted awareness campaigns and user feedback mechanisms. The strong correlation between awareness and perceived benefits demonstrates how misinformation distorts value assessments, prompting calls for clearer public education on tolling policies and long-term infrastructure benefits. Additionally, the findings on trust deficits—linked to revenue management concerns—are supporting demands for greater accountability in PPP governance.

For researchers and academicians, this study is contributing to theoretical frameworks on stakeholder engagement and institutional trust in PPPs, while filling a critical gap in the literature on user perspectives in African infrastructure projects. By aligning PPP performance with Sustainable Development Goals (SDGs) 9 (Industry, Innovation, and Infrastructure) and 11 (Sustainable Cities and Communities), the research is broadening discourse on social equity in transport planning. The mixed-methods approach, combining survey data, stakeholder interviews, and traffic analytics, also offers a replicable model for future studies on toll road adoption in similar emerging economies.

## **1.6 Scope of the Study**

This study focuses on Nairobi County, with a particular emphasis on areas directly impacted by the Nairobi Expressway. As Kenya's capital and economic hub, Nairobi serves as an ideal case study for understanding the public uptake of privately operated toll roads, given its high population density, diverse socio-economic composition, and significant infrastructure investments (KENHA, 2021). The expressway, which runs through key economic and residential zones, provides a unique opportunity to examine how factors such as affordability, public trust, and awareness influence road usage among different income groups.

The Nairobi Expressway is one of Kenya's first large-scale PPP toll road projects, making it a critical reference point for assessing the viability of privately financed road infrastructure. While this study is geographically limited to Nairobi, its findings will be highly relevant for future PPP road projects across Kenya, particularly in urban areas with similar socio-economic dynamics. Given the government's plan to expand toll road policies to major highways such as Nairobi-Mombasa, Nairobi-Nakuru, and Nairobi-Thika, insights from this study will help shape policy decisions on user affordability, stakeholder engagement, and public awareness strategies for future toll roads.

## **1.7 Chapter Summary**

This chapter introduces the research topic by outlining its objectives, significance, and background. It discusses the global context of PPPs, particularly their role in addressing infrastructure deficits in developing countries like Kenya. The chapter highlights the evolution of PPPs in Africa and Kenya, focusing on the BOT model used in projects like the Nairobi Expressway. A key emphasis is placed on public uptake as a critical factor for the success of PPP projects, particularly toll roads, with affordability, transparency, and trust identified as major determinants of public acceptance. The problem statement highlights the low public uptake of privately operated toll roads in Kenya, citing challenges such as affordability, transparency, and trust, which have hindered the success of projects like the Nairobi Expressway. Additionally, it points out the lack of empirical research on public perspectives regarding PPP projects.

The study aims to explore public uptake of toll roads, including affordability, trust, and awareness, while providing recommendations to improve the design and implementation of future PPP projects. The significance of the study is underscored, offering valuable insights for policymakers to refine regulatory frameworks, for the public to bridge communication gaps, and for researchers to expand theoretical perspectives on PPPs and institutional trust. The scope focuses on Nairobi County due to its economic importance and concentration of infrastructure projects, employing a mixed-methods approach that integrates surveys, interviews, and observations. Although geographically limited, the study's findings are expected to provide broader insights applicable to other PPP projects. The chapter concludes by establishing the study's context, objectives, and methodological approach, paving the way for the next chapter, which will review existing literature on PPPs, public uptake, and toll roads.



## CHAPTER TWO

### LITERATURE REVIEW

#### 2.1 Introduction

This chapter presents a review of the theoretical foundations and empirical studies relevant to the public uptake of PPP projects, with a specific focus on privately operated toll roads in Kenya. The chapter begins by exploring the theoretical frameworks that underpin the study, including stakeholder theory and expectancy-value theory, which provide a lens for understanding the factors influencing public acceptance and utilisation of PPP projects.

A systematic review of past research studies is then conducted, examining the global and local context of PPPs, the challenges and successes of toll road projects, and the factors affecting public uptake, such as affordability, transparency, and trust. This review identifies critical gaps in the existing literature, particularly the limited focus on the perspectives of end-users in PPP projects, which this study seeks to address. Finally, the chapter concludes with the development of a conceptual framework and the operationalisation of study variables, providing a structured approach for analysing the public uptake of the Nairobi Expressway and its implications for future PPP projects in Kenya.

#### 2.2 Theoretical Review

This section reviews the theoretical frameworks underpinning the study, providing a foundation for understanding the factors influencing the public uptake of privately operated toll roads in Kenya, focusing on the Nairobi Expressway. The study is anchored on stakeholder theory and supported by expectancy-value theory, both of which offer valuable insights into the dynamics of the public uptake of PPP projects. These theories are particularly relevant to the study's objectives as they help explain the interplay between affordability, trust, and awareness in shaping public uptake.

### 2.2.1 The Stakeholder Theory

The stakeholder theory, proposed by Edward Freeman in 1984, emphasises that organisations must consider the interests of all stakeholders—including shareholders, customers, employees, suppliers, communities, and governments—to achieve their goals (Freeman, 2010). According to this theory, organisations create value by addressing the interconnected interests of these stakeholders, ensuring that their needs and concerns are met. In the context of PPP projects, the stakeholder theory is particularly relevant because such initiatives involve multiple stakeholders, each with unique interests and expectations. For instance, the government seeks efficient service delivery, private investors focus on profitability, regulatory bodies ensure compliance, and local communities prioritise job creation, social equity, and environmental impacts (Kendagor, 2023). The theory posits that for PPP projects to succeed, the diverse interests of these stakeholders must be aligned, and their concerns must be addressed through meaningful engagement and transparent communication (Freeman, 2010).

The stakeholder theory is directly connected to the study's variables. First, it aligns with the variable of assessing public trust in government and private partners, as trust is a critical factor in ensuring stakeholder buy-in. Freeman (2010) argues that meaningful engagement and transparency in communication are essential for building trust among stakeholders. In the case of the Nairobi Expressway, public trust in the government and private partners, such as China Road and Bridge Corporation (CRBC), is crucial for the project's acceptance and utilization. Second, the theory supports the variable of evaluating public awareness and understanding of PPP projects, as it highlights the importance of involving stakeholders in decision-making processes to enhance their awareness of project benefits and costs. For example, when local communities are informed about the rationale behind toll charges and the long-term benefits of the expressway, they are more likely to support the project (Sharon, 2012). Finally, the theory underscores the need to address stakeholder concerns, such as affordability, which ties into the objective of examining factors influencing affordability and their impact on public uptake. By addressing these interconnected interests, PPP projects can achieve greater public acceptance and sustainability. Freeman (2010) observes that the failure to engage key stakeholders can lead to opposition, delays, or project failure. When stakeholders specifically users are excluded from meaningful engagement such as

decision-making processes or feel their concerns are not being considered, they are likely to resist such projects.

However, the stakeholder theory has been criticized for its practical challenges. Mahajan et al. (2023) argue that organizations often struggle to balance the competing demands and interests of stakeholders, sometimes prioritizing economic goals over social objectives. Likewise, Freeman, Phillips & Sisodia (2020) argues that in practice, many organizations struggle to genuinely implement the stakeholder theory. In the context of PPPs, private investors may focus on profitability at the expense of public interests, leading to resistance from local communities (Freeman et al., 2020). For example, the Nairobi Expressway has faced criticism over high toll charges, which disproportionately affect low-income users, and allegations of corruption in the procurement process (Kendagor, 2023). These challenges highlight the difficulty of implementing the stakeholder theory in practice, particularly in high-stakes projects where private investors prioritise financial returns. Despite these limitations, the stakeholder theory provides a robust framework for understanding the role of the end user as a key stakeholder, public awareness, public engagement, and trust as critical factors influencing the uptake of privately operated toll road projects, specifically those operated through a PPP model.

In summary, the stakeholder theory is highly relevant to this study as it provides a theoretical foundation for understanding the importance of addressing stakeholder interests in PPP projects. By linking the theory to the study's objectives, it becomes clear that public trust, awareness, and affordability are critical factors influencing the uptake of the Nairobi Expressway. The theory underscores the need for meaningful engagement and transparent communication to ensure that stakeholders perceive the project as beneficial, thereby enhancing its acceptance and sustainability.

### **2.2.2 The Expectancy-Value Theory**

The expectancy-value theory (EVT), initially developed by John Atkinson in 1964 and later expanded by Jacqueline Eccles, posits that individuals' decisions to engage in or support an activity are influenced by their expectations of success and the value they place on the outcomes (Kuhl, 2021). According to EVT, people are more likely to support initiatives that they perceive as beneficial and aligned with their values. This theory is highly relevant to the study as it provides

a framework for understanding how the public evaluates the costs and benefits of PPP projects, such as the Nairobi Expressway, and how these evaluations influence their uptake. Specifically, EVT explains that individuals weigh the perceived benefits of a project, such as reduced travel time and improved infrastructure, against the associated costs, such as toll fees and construction disruptions, before deciding whether to support or utilise the project (Mitchell, 2021).

The expectancy-value theory is directly connected to the study's variables. First, it supports the objective of examining factors influencing affordability, as the theory explains how individuals conduct cost-benefit analyses when deciding whether to use the expressway. For example, if the toll fees are perceived as too high relative to the benefits, such as reduced travel time, the public may choose alternative routes or revert to using the freeway, thereby reducing uptake (Kuhl, 2021). Second, the theory aligns with the variable of assessing public trust, as it highlights the role of transparency and competence in shaping public expectations. If the public perceives the entities managing the project as trustworthy, they are more likely to believe that the project will deliver its promised benefits, thereby increasing acceptance (Mitchell, 2021). Finally, the theory supports the variable of evaluating public awareness, as it emphasises the importance of understanding the perceived value of a project through effective communication and easy access to information pertaining the project. When the public is aware of the benefits of a PPP project, such as improved connectivity and economic growth, they are more likely to accept and utilise it (Feather, 2021).

Despite its relevance, the expectancy-value theory has been criticised for neglecting contextual factors, such as cultural attitudes and social pressures, which can significantly influence public acceptance (Feather, 2021). For instance, in the case of the Nairobi Expressway, cultural attitudes toward toll roads and political influences may shape public perceptions, even if the project offers clear economic benefits. Additionally, Mitchell (2021) notes that the theory does not account for biases and social pressures that often characterise real-world decision-making. For example, public resistance to the expressway may be driven by broader concerns about corruption or inequitable distribution of benefits rather than a straightforward cost-benefit analysis. Nevertheless, EVT provides a useful framework for analysing how cost-benefit trade-offs influence the public uptake of PPP projects.

In summary, the expectancy-value theory is highly relevant to this study as it provides a theoretical foundation for understanding how the public evaluates the costs and benefits of PPP projects. By linking the theory to the study's variables, it becomes clear that affordability, trust, and awareness are critical factors influencing the uptake of the Nairobi Expressway. The theory underscores the importance of ensuring that the perceived benefits of the project outweigh the costs, thereby enhancing public acceptance and utilisation. Despite its limitations, EVT offers valuable insights into the decision-making processes of end-users, making it a suitable framework for this research.

## **2.3 Empirical Literature Review**

### **2.3.1 Public Uptake of PPP Projects**

Public uptake of PPP projects, particularly privately operated toll roads, is a crucial determinant of their success. The willingness of road users to adopt toll roads depends on several factors, including service quality, ease of movement, time savings, and equity (Tang et al., 2021). This section examines empirical studies on the public uptake of PPP transport projects, focusing on these key measurements. Additionally, it identifies gaps in the literature and aligns the discussion with this study's objective: to assess the public uptake of privately operated toll roads in Kenya, with a special focus on the Nairobi Expressway PPP project.

Service quality is a key determinant of public uptake in transport infrastructure PPPs. Studies suggest that toll roads must offer superior service quality compared to alternative routes to justify user costs and encourage consistent public use (Steelyana & Kinanti, 2023). For instance, in a study on toll road financing in South Africa, Mudau (2022) found that the Gauteng Freeway Improvement Project (GFIP) failed to gain public acceptance due to poor service delivery and a lack of transparency in toll revenue usage. Conversely, Patil and Laishram (2016) found that India's Golden Quadrilateral Project successfully improved public uptake by ensuring clear accountability mechanisms and reinvestment of toll revenue into road maintenance and improvements.

For instance, Wu et al. (2019) analyzed road user perceptions of toll highway PPPs in China and found that pavement quality, safety features, and well-maintained facilities significantly influenced public willingness to use toll roads. The study highlighted that poor maintenance and

frequent road repairs discouraged usage, even when toll rates were reasonable. Similarly, in Europe, Tang et al. (2021) conducted a comparative analysis of PPP toll roads in Spain and France, finding that customer service, road signage, and ease of toll payment were critical factors in public uptake. The study emphasized that PPP toll roads with seamless electronic tolling systems and reliable customer service centers experienced higher usage rates.

In Africa, Agyemang & Sun (2022) assessed Ghana's Accra-Tema Motorway toll project and found that poor service quality, including potholes and lack of street lighting, resulted in public dissatisfaction and reduced usage. The study recommended regular road maintenance and enhanced safety features to improve public perception and uptake. In Kenya, Mwangi (2023) examined the Nairobi Expressway's early adoption trends and found that users prioritized road surface quality, lane width, and security features when deciding whether to use the toll road. The study concluded that perceived improvements in service quality directly influenced public willingness to pay and use the expressway.

The ease of movement along privately operated toll roads is a critical factor affecting user adoption. Research suggests that road design, lane availability, and congestion levels play a key role in determining whether road users choose toll roads over alternative routes (Chen et al., 2020). For example, Wang et al. (2021) studied privately operated toll roads in China and found that wider lanes, multiple access points, and well-integrated entry and exit ramps contributed to higher public uptake. The study showed that poor road design and frequent bottlenecks discouraged users, even when toll rates were affordable.

In Nigeria, Ololube (2025) conducted a study on PPP dynamics for economic development highlighting the operations of Lagos-Ibadan Expressway toll operation. The researcher found that users were frustrated by limited entry and exit points, leading to reluctance in adopting the toll road. The study recommended improved road network planning to facilitate easier movement. In Kenya, Kipkorir (2024) assessed the impact of the Nairobi Expressway's entry and exit design on public uptake and found that traffic congestion at some toll gates reduced ease of movement, discouraging some users. The study recommended expanded toll plazas and faster toll processing to enhance ease of use and increase uptake.

Time efficiency is a primary motivator for road users to adopt privately operated toll roads. Studies show that users are more willing to pay toll fees if the road significantly reduces travel time compared to alternative routes (Rahman et al., 2021). For instance, Wu & Zhang (2018) examined time savings as a determinant of toll road usage in China and found that roads offering at least a 30% reduction in travel time compared to untolled alternatives saw higher adoption rates.

In South Africa, Morejele-Zwane, Gumbo & Dumba (2023) assessed public uptake of the Gauteng Freeway Improvement Project (GFIP) toll roads and found that time savings played a crucial role in commuter willingness to pay toll charges. The study emphasised that commuters using toll roads primarily valued reduced congestion and predictable travel times. In Kenya, Omondi (2023) analysed the Nairobi Expressway's impact on travel times and found that users saving at least 20–30 minutes per trip were more likely to continue using the toll road. The study recommended expanding peak-hour toll lanes to maximise travel time benefits for users.

The long-term viability and sustainability of PPP toll roads are critical factors in building and maintaining public trust. Viability encompasses the financial soundness, environmental impact, and socio-economic benefits of the project, all of which influence user perceptions and acceptance (Hodge & Greve, 2019). Studies suggest that when users doubt the long-term sustainability of PPP toll roads, they are more likely to resist price increases and question the necessity of the project.

For example, Glavic et al., (2017) examined toll road sustainability in Central Europe and found that projects with clear long-term revenue reinvestment plans and robust environmental safeguards gained higher public trust. Their study emphasised the importance of transparent financial models and accountability mechanisms in ensuring the viability of toll road projects. Similarly, Vassallo and Ortega (2012) analysed the sustainability of toll roads in Spain and highlighted the role of user confidence in the project's long-term benefits. They found that toll roads with visible reinvestment in infrastructure improvements and community development were more likely to gain public support.

In contrast, projects that lack transparency or fail to demonstrate long-term viability often face public resistance. For instance, in South Africa, the Gauteng Freeway Improvement Project (GFIP) encountered significant opposition due to concerns over financial mismanagement, rising toll fees,

and the absence of clear reinvestment plans for infrastructure improvements (Mudau, 2022). The study underscored the need for transparent revenue allocation and public oversight to enhance trust and ensure the sustainability of toll road projects.

In Kenya, Njagi (2023) analyzed the long-term financial model of the Nairobi Expressway and found that the lack of clarity on toll revenue allocation and the absence of a clear post-concession plan contributed to uncertainty about the project's sustainability. The study recommended establishing a public oversight body to ensure that toll revenues are reinvested into road maintenance and improvements, thereby enhancing public trust. Similarly, Kendagor (2023) highlighted concerns about the financial sustainability of the Nairobi Expressway, noting that high toll fees and limited transparency in revenue management raised questions about the project's long-term viability.

Recent studies have also emphasised the importance of environmental and social sustainability in ensuring the viability of PPP toll roads. For example, Wang et al. (2019) examined the environmental impact of toll roads in China and found that projects incorporating green infrastructure and sustainable practices gained higher public acceptance. Similarly, Abdi et al. (2024) explored the socio-economic benefits of toll roads in Ethiopia and found that projects demonstrating clear community benefits, such as job creation and improved mobility, were more likely to gain public support.

Despite these insights, there remains a gap in understanding how the viability of PPP toll roads influences public uptake in developing countries like Kenya. While existing studies focus on general infrastructure and healthcare PPPs, there is limited research on the specific dynamics of transport infrastructure projects, particularly in terms of financial, environmental, and socio-economic sustainability. This study seeks to address this gap by examining how transparency, accountability, competence, and sustainability influence public trust and uptake of the Nairobi Expressway.

The findings will provide actionable policy recommendations to improve trust-building mechanisms in future PPP toll road projects, ensuring higher public acceptance and sustainable implementation. By focusing on the long-term viability of toll roads, this research aims to

contribute to the broader discourse on sustainable infrastructure development and the role of PPPs in achieving these goals.

### **2.3.2 Affordability in PPP Projects**

Affordability plays a crucial role in shaping public acceptance and uptake of PPP infrastructure projects, particularly toll roads. Affordability is broadly defined as an individual's or household's ability to pay for a service without experiencing financial strain (Smith, 2017). In the context of PPP projects, affordability is determined by the public's willingness to pay, perceptions of fairness and equity, and whether the service provides value for money (Osudoh, 2016). For example, Gwilliam (2020) analysed toll road affordability across Latin America and found that high toll rates disproportionately affected low-income commuters, leading to negative public perception and reduced usage. The study recommended tiered pricing strategies and discount programs to enhance equity. This section reviews empirical studies on affordability in PPP projects, linking the discussion to the study's objective of assessing how affordability influences the public uptake of the Nairobi Expressway.

The public's willingness to pay (WTP) is a critical determinant of the success of PPP toll roads, as it directly influences their financial viability and user adoption rates. Several studies have explored the factors influencing WTP for toll road services, highlighting the interplay between economic, social, and infrastructural factors.

For instance, Wang et al. (2019) conducted a survey-based study in China to assess commuters' willingness to pay for toll expressways. They found that income level, frequency of road use, and the availability of alternative free roads significantly influenced WTP. Higher-income individuals and frequent road users were more willing to pay toll fees, while the presence of free alternatives reduced WTP. Similarly, de Almeida, Souza & Lima (2021) analysed WTP for toll roads in Brazil and identified time savings and service quality as the primary drivers of user willingness to pay. Their findings suggested that individuals were more likely to use toll roads if they perceived a clear trade-off between cost and benefit, such as reduced travel time or improved road conditions.

In South Africa, Mudau (2022) examined WTP for the Gauteng Freeway Improvement Project (GFIP) and found that public resistance to toll fees was driven by affordability concerns and a lack

of trust in the tolling system. The study emphasised the importance of tiered pricing models and public engagement in enhancing WTP. Similarly, Patil and Laishram (2016) investigated WTP for toll roads in India and found that public acceptance increased when toll fees were perceived as fair and transparent. Their study recommended dynamic pricing strategies, such as discounts for frequent users, to improve WTP among diverse income groups.

In Kenya, however, WTP for toll roads remains relatively low due to economic constraints and the availability of alternative free roads. Musyoki and Musembi (2023) examined WTP for the Nairobi Expressway and found that a significant portion of commuters opted for free alternative routes due to the perceived high toll charges. Their study highlighted the need for pricing structures that align with the income distribution of road users to encourage uptake. Similarly, Kendagor (2023) noted that the lack of tiered pricing or subsidies for low-income users limited the expressway's accessibility, further reducing WTP among this demographic.

Recent studies have also emphasised the role of non-economic factors in shaping WTP. For example, Abdi et al. (2024) found that public trust in the government and private operators significantly influenced WTP for toll roads in Ethiopia. Users were more willing to pay toll fees when they perceived the project as transparent, accountable, and beneficial to the public. Similarly, Gomez et al. (2021) highlighted the importance of public awareness campaigns in shaping perceptions of toll road benefits, which in turn influenced WTP.

Despite these insights, there remains a gap in understanding how WTP for toll roads is influenced by the unique socioeconomic and infrastructural context of Kenya. The Nairobi Expressway, as one of the country's first large-scale PPP toll road projects, provides an opportunity to explore these dynamics. By examining the factors that influence WTP, this study aims to provide actionable recommendations for designing pricing structures and communication strategies that enhance user adoption and ensure the financial sustainability of toll road projects.

Fairness in toll pricing is a critical factor in ensuring the affordability and inclusivity of toll roads, particularly in PPP projects. Equity in toll prices refers to the extent to which toll fees are structured to accommodate the financial capabilities of different user groups, ensuring that lower-income individuals are not disproportionately burdened. Studies have consistently highlighted the

importance of equitable pricing models in fostering public acceptance and ensuring that toll roads serve all segments of the population.

Kapsi et al. (2020) argue that toll pricing structures must consider the financial capabilities of different user groups to ensure fairness. Their study on toll road pricing in India found that flat-rate tolling systems were often perceived as unfair because they placed a disproportionate burden on lower-income users. Instead, tiered pricing models, which adjust costs based on vehicle type or usage frequency, were associated with higher public acceptance. Similarly, Van Wee et al. (2022) analysed road pricing fairness in Europe and concluded that social equity concerns arise when lower-income commuters are disproportionately affected by toll charges. They recommended implementing discounted rates or government subsidies to enhance affordability and ensure that toll roads remain accessible to all income groups.

In the United States, Levinson (2010) examined equity concerns in toll road pricing and found that dynamic pricing models, such as congestion-based tolling, often excluded low-income users who could not afford peak-hour charges. The study emphasised the need for complementary measures, such as income-based discounts or off-peak pricing, to address these disparities. Similarly, Sharma et al. (2022) investigated socioeconomic disparities in toll road usage in India and found that low-income users avoided toll roads due to affordability constraints. They recommended tiered pricing structures and subsidies to ensure equitable access for all users.

In the Kenyan context, equity in toll prices has emerged as a significant concern, particularly for the Nairobi Expressway. Kendagor (2023) identified equity issues surrounding the expressway, noting that high toll fees limited access for low- and middle-income users. The study raised questions about the road's inclusivity and recommended measures such as reduced toll rates for frequent users and expanded public transport integration to ensure fair access. Similarly, Njoroge (2024) examined the affordability of the Nairobi Expressway and found that many lower-income users relied on alternative, congested routes due to the high cost of toll fees. The study highlighted the need for tiered pricing models and government subsidies to address these equity concerns.

Recent studies have also emphasized the role of public trust and transparency in shaping perceptions of fairness in toll pricing. For example, Abdi et al. (2024) found that users were more

likely to accept toll fees when they perceived the pricing structure as transparent and equitable. Similarly, Gomez et al. (2021) highlighted the importance of public engagement in designing toll pricing models that address equity concerns and foster public acceptance.

Despite these insights, there remains a gap in understanding how equity in toll prices can be achieved in the context of Kenya's unique socioeconomic and infrastructural landscape. The Nairobi Expressway, as one of the country's first large-scale PPP toll road projects, provides an opportunity to explore these dynamics. By examining the factors that influence equity in toll pricing, this study aims to provide actionable recommendations for designing inclusive pricing structures that enhance affordability and ensure that toll roads benefit all segments of the population.

Value for money (VFM) is a critical determinant of public affordability perceptions in PPP projects, particularly for toll roads. VFM refers to the extent to which users perceive that the benefits of using a toll road, such as reduced travel time, improved road quality, and enhanced safety, outweigh the costs of toll fees. Studies have consistently highlighted the importance of VFM in shaping user satisfaction and the adoption of toll roads.

Osei-Kyei and Chan (2017) argue that public satisfaction with PPP toll roads depends on whether users perceive that the benefits justify the toll charges. Their study found that users were more likely to adopt toll roads when they experienced tangible advantages, such as significant time savings, smoother travel experiences, and reduced vehicle maintenance costs due to better road conditions. Similarly, de Groot and van Wee (2019) examined VFM in toll road projects in Europe and found that users' willingness to pay was closely tied to their perception of the trade-off between toll fees and the quality of service provided. They emphasised that toll roads must deliver measurable benefits to ensure long-term user adoption and financial sustainability.

In developing countries, VFM is particularly important due to the economic constraints faced by many road users. For instance, Sharma et al. (2022) investigated toll road usage in India and found that users were more likely to perceive VFM when toll roads offered clear advantages over free alternatives, such as reduced congestion and shorter travel times. The study recommended that toll road operators focus on delivering high-quality services to justify the costs and enhance user

satisfaction. Similarly, Abdi et al. (2024) explored VFM in Ethiopia's toll road projects and found that public trust in the project's long-term benefits played a significant role in shaping perceptions of VFM. Users were more willing to pay toll fees when they believed the project would deliver sustained improvements in road infrastructure and traffic management.

In Kenya, concerns about the Nairobi Expressway's long-term sustainability have emerged, with commuters questioning whether the high toll fees translate into improved road services (Chileshe et al., 2022). Studies have shown that while the expressway offers time savings and reduced congestion for some users, others perceive the toll fees as disproportionate to the benefits received. For example, Kendagor (2023) found that low- and middle-income users often avoided the expressway due to the high cost, opting instead for free but congested alternative routes. This highlights the need for toll road operators to demonstrate clear and measurable benefits to justify the costs and ensure widespread adoption.

Recent research has also emphasised the role of non-monetary factors in shaping perceptions of VFM. For instance, Gomez et al. (2021) found that public awareness campaigns and transparent communication about the benefits of toll roads significantly influenced users' perceptions of VFM. Similarly, Wang et al. (2019) highlighted the importance of user feedback mechanisms in identifying and addressing gaps in service delivery, thereby enhancing perceptions of VFM.

Despite these insights, there remains a gap in understanding how VFM influences the public uptake of toll roads in developing countries like Kenya. Most existing studies focus on housing and energy PPPs, leaving a gap in understanding affordability in transport infrastructure projects (Cuadrado-Ballesteros & Peña-Miguel, 2022). This study seeks to fill this gap by evaluating how VFM, alongside willingness to pay and fairness, influences the public uptake of the Nairobi Expressway. By examining the extent to which users perceive the benefits of the expressway as outweighing the costs, this research aims to provide actionable recommendations for enhancing the affordability and sustainability of toll road projects in Kenya.

### **2.3.3 Public Trust in Government and Private Partners in PPP Projects**

Public trust in government and private sector partners is a critical determinant of the success and public acceptance of PPP projects. Trust is established through transparency, accountability,

competence, and long-term sustainability, ensuring that stakeholders perceive PPP initiatives as credible, fair, and beneficial (Cheung et al., 2012). This section reviews empirical literature on public trust in PPP projects, identifying gaps and linking the discussion to the study's objective of evaluating public trust in the Nairobi Expressway PPP project.

Transparency is one of the most influential factors shaping public trust in PPP projects. It ensures that project details—such as financial arrangements, contract terms, and decision-making processes—are open to public scrutiny, thereby reducing scepticism and increasing public confidence (Reynaers & Grimmelikhuisen, 2015). In a study on European PPP transport projects, Siemiatycki (2020) found that a lack of transparency in toll pricing and revenue allocation led to low public trust and resistance to toll roads. The study highlighted that governments that engaged in open disclosure of financial models and user fees saw higher acceptance rates.

Similarly, Wibowo and Santoso (2024) examined PPP toll road projects in Indonesia and found that public distrust often stemmed from non-disclosure of revenue-sharing mechanisms and a lack of clarity on toll fee adjustments. Their findings suggested that governments should implement mandatory transparency frameworks requiring the disclosure of public-private contract terms to foster trust. In Kenya, Wangui (2023) studied transparency concerns in the Nairobi Expressway project and found that limited public participation in pricing decisions and revenue management raised doubts about the project's fairness. The study recommended more inclusive consultations and public audits to enhance public confidence in PPP toll roads.

Accountability refers to the extent to which governments and private sector partners are answerable to the public for project outcomes (Osei-Kyei & Chan, 2017). Several studies have established that perceived lack of accountability leads to distrust and resistance to PPP projects. For instance, Hodge & Greve (2019) analysed accountability frameworks in Australia's toll road PPPs and found that clear contractual obligations and oversight mechanisms helped mitigate public scepticism. The study emphasised that strong monitoring institutions enhance public confidence by ensuring that project revenues are properly managed and service standards are met.

Conversely, Cuadrado-Ballesteros and Peña-Miguel (2022) examined accountability failures in PPP infrastructure projects across 92 low- and middle-income countries and found that weak

regulatory oversight often led to cost inflation, mismanagement, and public opposition. The study emphasised the need for independent monitoring agencies to enforce contract compliance and financial discipline in PPP projects. In Kenya, Omondi (2022) assessed accountability in the Standard Gauge Railway (SGR) project and found that unclear financial reporting and lack of contract transparency led to public distrust. The study recommended regular public disclosure of PPP financial reports to enhance credibility and accountability in future projects.

Competence in PPP projects refers to the technical, financial, and managerial expertise of both government authorities and private partners in delivering high-quality services (Cheung et al., 2012). Studies suggest that public trust increases when PPP projects demonstrate efficient service delivery, cost-effectiveness, and operational reliability. For instance, Xu, Fan & Xu (2021) examined road infrastructure PPPs in China and found that contractor expertise and efficiency in road maintenance significantly influenced public confidence in toll road projects.

In Africa, Ghana's Accra-Tema Motorway PPP project was studied by Osei-Kyei and Chan (2020), who found that high service quality and infrastructure durability led to greater public trust and willingness to pay tolls. However, in Nigeria's Lekki Toll Gate project, Olele (2016) found that frequent road defects, inadequate maintenance, and poor project oversight eroded public trust, resulting in massive public protests against toll charges.

Regarding the Nairobi Expressway, Onyango (2023) assessed public perceptions of service quality and found that smooth traffic flow, time savings, and safety enhancements contributed to positive trust perceptions. However, concerns over maintenance funding, long-term project viability, and unclear contract terms raised doubts about the government's capacity to sustain quality service delivery.

#### **2.3.4 Public Awareness and Understanding of PPP Projects' Operations**

Public awareness and understanding of PPP projects are essential determinants of their acceptance and success. A well-informed public is more likely to perceive PPP projects positively, support their implementation, and engage with them effectively (Boyer & Van Slyke, 2019). This section reviews empirical studies on public awareness and understanding of PPP projects by users, emphasising accessibility to information, effective communication, and feedback mechanisms as

key measurements. It also identifies gaps in the literature and links the discussion to the study's objective of assessing public awareness and understanding of the Nairobi Expressway as a PPP initiative.

The availability and accessibility of information about a PPP project significantly influence the public's understanding and acceptance. Studies suggest that transparent information-sharing practices lead to greater public confidence and trust in PPP projects (Ishawu et al., 2020). For example, Boyer and Van Slyke (2019) examined citizen awareness of PPPs in Western Europe and found that access to detailed project information through official websites, media reports, and government portals significantly enhanced public knowledge and acceptance. The study found that a lack of accessible, reliable information led to scepticism and misinformation.

In Africa, Tariq and Zhang (2022) analyzed water infrastructure PPP failures in Sub-Saharan Africa and found that poor public access to project details—including contractual terms, pricing mechanisms, and service obligations—contributed to negative public perception and low project acceptance. The study recommended that governments ensure real-time accessibility to project information through online platforms and public outreach initiatives. Similarly, in Kenya, Wangari (2023) investigated the role of public information availability in PPP transport projects and found that limited access to toll pricing structures, revenue models, and project timelines contributed to public uncertainty and resistance. The study emphasised the need for proactive disclosure of project details and readily available information on the operations of the toll road to foster higher public acceptance and engagement.

Effective communication is a key enabler of public awareness and understanding of PPP projects. Research suggests that PPP initiatives that prioritise structured communication strategies, such as public education campaigns, stakeholder consultations, and media outreach, experience higher public approval and participation (Luo et al., 2022). For instance, Ishawu et al. (2020) studied waste management in Ghana and found that public information campaigns and media engagement were instrumental in increasing awareness and public buy-in. The study demonstrated that interactive communication approaches, such as community meetings and social media outreach, fostered greater public understanding of PPP operations.

Similarly, in Nigeria, Babatunde et al. (2016) explored stakeholder engagement in PPP projects and found that effective communication of project benefits, costs, and operational structures significantly influenced public trust. The study emphasized that public engagement through town hall meetings, online platforms, and radio broadcasts helped dispel misconceptions about PPPs. In China, Luo et al. (2022) assessed public participation in transport infrastructure PPPs and found that projects with clear, well-structured communication strategies gained higher public approval rates. The study found that leveraging interactive digital platforms, public announcements, and visual aids—such as infographics and project dashboards—significantly enhanced public understanding and awareness of PPP projects.

For the Nairobi Expressway, Otundo (2024) examined the role of communication in PPP sustainability and found that public awareness was limited due to insufficient government-led communication efforts. The study recommended expanding public education campaigns using multiple communication channels (e.g., billboards, community forums, and digital media) to enhance awareness and acceptance of the toll road.

Public feedback plays a crucial role in shaping public perceptions of PPP projects. Studies indicate that PPP initiatives that incorporate public feedback into project planning, pricing, and service delivery enjoy higher public satisfaction and usage rates (Mudau, 2022).

For instance, Giti et al. (2020) studied low-income urban housing PPPs in Kenya and found that public acceptance was higher when community feedback was actively sought and integrated into project implementation. The study revealed that public scepticism increased when their concerns were ignored or when engagement efforts appeared superficial. Similarly, in South Africa, Mudau (2022) conducted a systematic review of PPP failures and found that a lack of meaningful public engagement led to low acceptance and trust. The study emphasised the need for structured feedback mechanisms, such as public surveys, online feedback portals, and participatory forums, to enhance the legitimacy of PPP projects.

In Kenya, Omondi (2023) analysed public perception of transport PPPs and found that the lack of structured public feedback systems was a major barrier to public support for toll road projects. The study recommended establishing public grievance redress mechanisms and real-time feedback

platforms (e.g., mobile apps, customer service hotlines, and interactive websites) to improve public engagement and trust in PPPs.

Despite extensive research on public awareness and understanding of PPP projects, limited studies have examined how accessibility to information, communication strategies, and feedback mechanisms influence public uptake of toll road PPPs in Kenya. Existing studies largely focus on housing, waste management, and water infrastructure PPPs, leaving a gap in transport infrastructure PPP research. This study addresses this gap by assessing the level of public awareness and understanding of the Nairobi Expressway PPP project. By filling this gap, the study provides policy recommendations to enhance awareness-building efforts and public engagement strategies in future transport PPP projects.

#### **2.4 Summary of Research Gaps**

The literature review reveals significant theoretical and empirical gaps in understanding public uptake of PPP toll road projects, particularly in developing country contexts like Kenya. At the theoretical level, while stakeholder theory (Freeman, 2010) and expectancy-value theory (Kuhl, 2021) provide useful frameworks, their application to transport PPPs remains underdeveloped. Stakeholder theory's emphasis on multi-actor engagement processes has not been sufficiently integrated with expectancy-value theory's focus on individual decision-making, creating a theoretical disconnect between institutional and user-level perspectives (Mahajan et al., 2023). Furthermore, both theories were developed in Western contexts and their assumptions about equal stakeholder influence and rational individual choice may not fully account for power imbalances and collective decision-making patterns prevalent in African societies (Mudau, 2022). The dynamic nature of stakeholder relationships and value perceptions over a project's lifecycle also remains under-theorized, particularly how initial resistance might transform into acceptance through effective engagement strategies (Freeman et al., 2020).

Empirical research shows notable gaps in several areas. Sector-specific studies have predominantly focused on energy and water PPPs, neglecting the unique characteristics of transport infrastructure where daily user interactions and direct payment mechanisms create distinct challenges for public acceptance (Batra, 2020; Kavishe et al., 2019). The developing

country context presents additional complexities, as issues like high income inequality, historical distrust in government, and varying financial literacy levels significantly influence PPP uptake but remain understudied (Cuadrado-Ballesteros & Peña-Miguel, 2022). Existing research also tends to examine factors like affordability, trust and awareness in isolation, with limited exploration of their interactions (Boyer & Van Slyke, 2019). For instance, how trust moderates the relationship between awareness and uptake, or whether improved communication can mitigate affordability concerns, requires further investigation (Luo et al., 2022). The Nairobi Expressway case presents an opportunity to address these gaps by examining how these factors collectively influence user behavior in a real-world setting.

Contextual factors specific to Kenya and similar economies reveal additional research needs. Studies have not adequately explored how cultural attitudes toward toll roads, informal transportation networks, and political influences shape PPP acceptance beyond economic considerations (Giti et al., 2020). The effectiveness of different communication strategies in low-literacy environments, or how to build trust in contexts with perceived corruption risks, remain under-researched areas (Ahmed et al., 2023). Furthermore, the distributional impacts of toll road PPPs across different socioeconomic groups require deeper examination, particularly how to balance financial sustainability with equitable access (Smith, 2017). This study addresses these gaps by employing an integrated theoretical approach adapted to the Kenyan context, while empirically investigating the interrelationships between key factors influencing Nairobi Expressway uptake. The findings will contribute to both theoretical advancement and practical policy design for transport PPPs in developing countries.

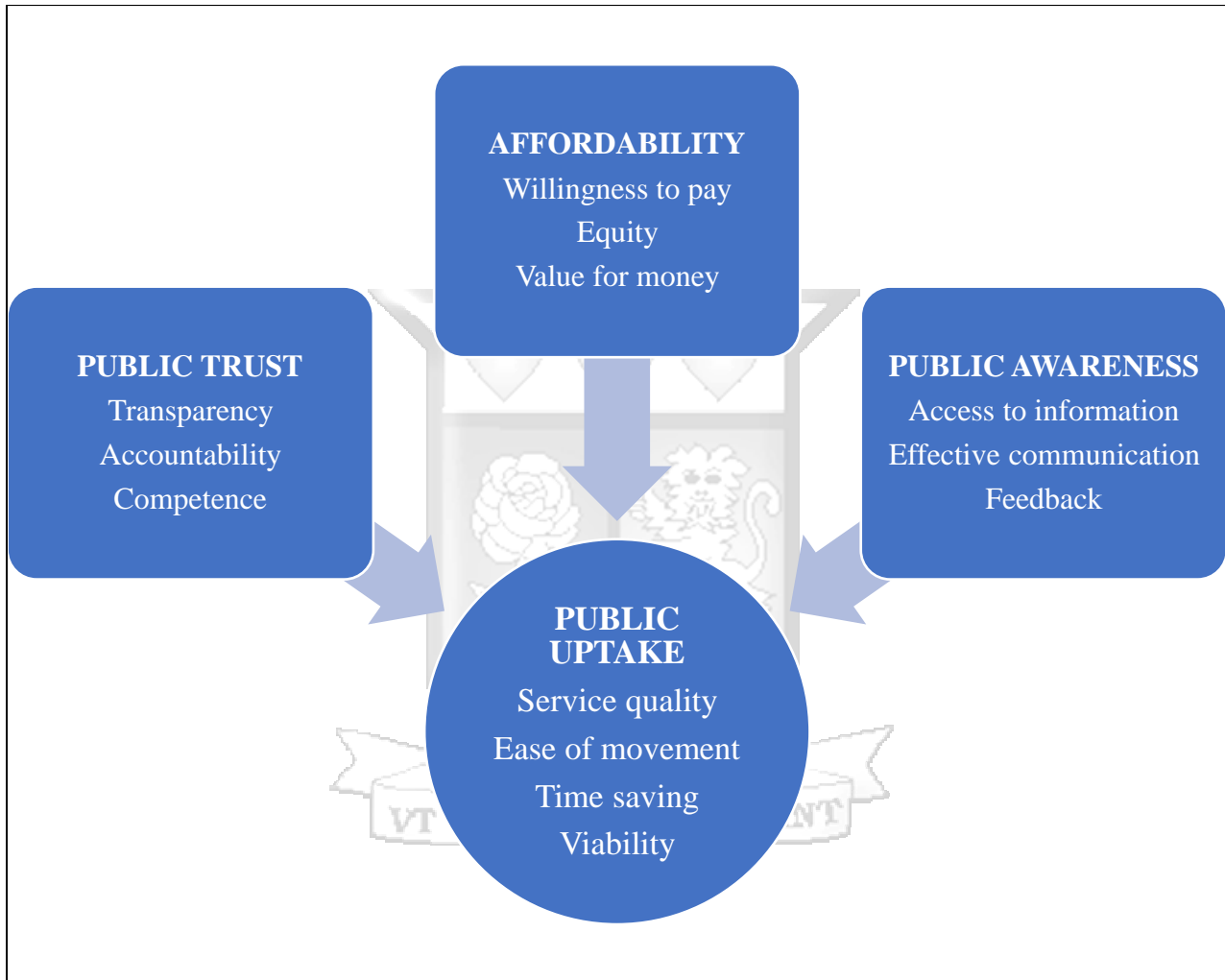
**Table 2 1: Summary of knowledge gaps**

Author/Year	Focus	Key Findings	Identified Gaps	Current Study Contribution
Jayasena et al. (2022)	PPPs in developed economies	Private sector capacity drives smart infrastructure	Limited focus on developing countries	Examines PPPs in Kenya's transport sector
Luo et al. (2022)	Public participation in PPPs	Digital platforms enhance engagement	No link between awareness and uptake explored	Tests how awareness affects toll road adoption
Chileshe et al. (2022)	Kenyan PPP success factors	Social/economic benefits boost acceptance	General acceptance studied, not specific uptake drivers	Analyses affordability, trust, and awareness
Kavishe et al. (2019)	PPP housing in Tanzania	PPPs deliver affordable housing	Excludes transport PPPs	Focuses on toll road uptake dynamics
Cheung et al. (2012)	PPP quality in developed nations	PPPs are perceived as high-quality	Lacks developing-world context	Assess Nairobi Expressway service quality
Boyer & Van Slyke (2019)	European attitudes to PPPs	The public prefers private efficiency	Western bias ignores equity concerns	Studies equity in Kenyan toll road pricing
Wu et al. (2019)	Chinese toll road perceptions	Road safety/surface quality drives usage	Omits awareness's role	Links awareness to perceived benefits ( $r = 0.928$ )
Tang et al. (2021)	Toll road satisfaction in Europe	Electronic tolling improves user experience	Ignores affordability barriers	Examines cost prohibitions (22.5% non-users)
Agyemang & Sun (2022)	Ghana's Accra-Tema Motorway	Poor maintenance reduces uptake	No analysis of communication strategies	Evaluates the impact on trust
Sharma et al. (2022)	Indian toll road disparities	Low-income users avoid tolls due to the costs	Affordability studied in isolation	Integrates affordability with trust/awareness

## 2.5 Conceptual Framework

The conceptual framework outlines the relationship between independent and dependent variables in the context of PPP projects, particularly focusing on toll roads. The dependent variable is the public uptake of PPP projects, which is influenced by factors such as service quality, ease of movement, time savings, and the overall viability of PPP toll roads. These factors collectively determine the extent to which the public accepts and utilises PPP projects. For instance, if toll

roads are perceived to save time, improve service quality, and provide ease of movement, the public is more likely to support and use them. The viability of PPP toll roads, which includes their sustainability and long-term benefits, also plays a critical role in shaping public perception and uptake.



**Figure 2 1: Conceptual Framework**

On the other hand, the independent variables are divided into three key categories: affordability, public trust, and public awareness. Affordability examines the willingness of the public to pay for toll roads, the fairness of toll pricing, and whether users perceive value for money. Public trust focuses on the transparency, accountability, and competence of both the government and private partners involved in PPP projects. Trust is crucial, as any perceived lack of transparency or accountability can deter public support. Lastly, public awareness and understanding of PPP

operations are critical, as accessibility to information, effective communication, and feedback mechanisms ensure that the public is well-informed and engaged. These independent variables collectively influence the dependent variable, as affordability, trust, and awareness directly impact the public's willingness to adopt and utilise PPP toll roads. Together, this framework provides a comprehensive understanding of the factors driving public acceptance and the success of PPP projects.

### **2.5.1 Measurements for Independent Variables**

The dependent variable, Public Uptake of PPP Projects, is measured through four key indicators: service quality, ease of movement, time-saving, and viability of PPP toll roads. Service quality assesses the reliability, safety, and overall condition of the toll road, while ease of movement evaluates the convenience and efficiency of travel. Time-saving measures examine the extent to which the toll road reduces travel time compared to alternative routes, and the viability of PPP toll roads examines the project's long-term sustainability and financial soundness. These indicators collectively capture the extent to which road users adopt and utilise the toll road based on their perceptions of its benefits and effectiveness.

The independent variables are grouped into three categories: affordability, public trust, and public awareness. Affordability is measured through willingness to pay for toll roads, equity in toll prices, and value for money, which assess users' perceptions of the fairness, accessibility, and cost-benefit ratio of toll fees. Public trust is evaluated using transparency, accountability, and competence, which measure users' confidence in the government and private operators to manage the project effectively and ethically. Public awareness is measured through accessibility to information, effective communication and understanding of PPP projects, and feedback mechanisms, which assess the extent to which users are informed about the project and can engage with its operations. These variables collectively influence public uptake by shaping users' perceptions and decisions regarding toll road usage.

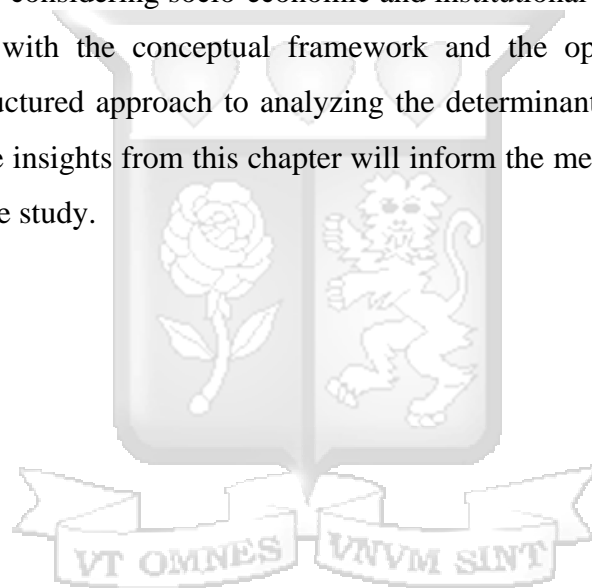
**Table 2 2: Summary of measurements**

<b>Variable Type</b>	<b>Variable</b>	<b>Constructs</b>	<b>Operational Definition</b>	<b>Measurement Scale</b>	<b>Source</b>
<b>Dependent Variable</b>	Public Uptake of PPP Projects	<ul style="list-style-type: none"> <li>- Service quality</li> <li>- Ease of movement</li> <li>- Time-saving</li> <li>- Viability of PPP toll roads</li> </ul>	The extent to which road users adopt and utilise the toll road based on perceived benefits, convenience, & sustainability.	Likert Scale (1-5)	Cheung et al. (2012); Kang et al. (2019)
<b>Independent Variables</b>	Affordability in PPP Projects	<ul style="list-style-type: none"> <li>- Willingness to pay</li> <li>- Equity in toll prices</li> <li>- Value for money</li> </ul>	The extent to which toll fees are perceived as reasonable, fair, and justified by the benefits provided.	Likert Scale (1-5)	Osei-Kyei & Chan (2017); Sharma et al. (2022)
	Public Trust in Government and Private Partners	<ul style="list-style-type: none"> <li>- Transparency</li> <li>- Accountability</li> <li>- Competence</li> </ul>	The level of confidence road users have in the government and private operators to manage the project ethically and effectively.	Likert Scale (1-5)	Osei-Kyei & Chan (2017); Nzioka (2023)
	Public Awareness and Understanding of PPP Projects	<ul style="list-style-type: none"> <li>- Accessibility to information</li> <li>- Effective communication</li> <li>- Feedback mechanisms</li> </ul>	The extent to which road users are informed about the project's operations, benefits, and costs, and can provide feedback.	Likert Scale (1-5)	Tariq & Zhang (2022); Babatunde et al. (2016)

## 2.6 Chapter Summary

This chapter has provided a comprehensive review of the theoretical foundations and empirical studies related to the public uptake of privately operated toll roads, with a particular focus on the Nairobi Expressway as a PPP project. The stakeholder theory and expectancy-value theory were identified as the key theoretical frameworks underpinning the study, offering insights into the factors influencing public acceptance and utilisation of PPP projects.

The empirical literature review examined key factors affecting public uptake, including affordability, public trust, and public awareness. It also identified research gaps, particularly the need for localised studies considering socio-economic and institutional factors specific to Kenya. The chapter concluded with the conceptual framework and the operationalisation of study variables, ensuring a structured approach to analyzing the determinants of public uptake of the Nairobi Expressway. The insights from this chapter will inform the methodology and analysis in subsequent sections of the study.



## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter outlines the research methodology employed in this study, providing a detailed framework for investigating the factors influencing the public uptake of the Nairobi Expressway, a privately operated toll road in Kenya. The chapter begins by discussing the research philosophy, design, and population, followed by the sampling techniques and data collection methods. A mixed-methods approach, combining quantitative and qualitative techniques, is adopted to ensure a comprehensive understanding of the research problem. The chapter also details the data analysis procedures, ethical considerations, and measures to ensure the validity and reliability of the findings.

#### **3.2 Research Philosophy**

This study adopted a pragmatist research philosophy, which prioritises practical solutions and flexibility in methodology. Pragmatism allows for the integration of both quantitative and qualitative methods to comprehensively address the research problem (Feather, 2021). Given the study's focus on public uptake of the Nairobi Expressway, which involves both measurable factors (e.g., affordability, usage rates) and subjective perceptions (e.g., trust, awareness)—a mixed-methods approach was deemed most appropriate. By combining surveys and interviews, the study ensured a robust analysis that balances empirical data with contextual insights, aligning with the pragmatic emphasis on real-world applicability.

#### **3.3 Research Design**

This study adopted a convergent parallel mixed-methods design (Creswell & Creswell, 2018) to comprehensively examine the factors influencing public uptake of the Nairobi Expressway. This design was selected because it allows for the simultaneous collection and analysis of both quantitative and qualitative data, enabling the researcher to compare and integrate findings from different methodological approaches. The quantitative component involved structured surveys to measure objective indicators of uptake, such as usage frequency and perceptions of affordability,

while the qualitative component utilised in-depth interviews to explore subjective experiences and contextual factors shaping user decisions. By employing this dual approach, the study could capture both the statistical patterns and the nuanced human perspectives underlying toll road adoption.

The convergent parallel design was particularly suitable for this research because it addressed the study's need to balance generalizable quantitative data with rich qualitative insights. On one hand, the survey data provided measurable evidence of relationships between variables like toll pricing and usage rates. On the other hand, the interview data offered explanatory depth, revealing how factors like trust in operators or awareness of PPP benefits influenced individual choices. This design's strength lies in its ability to validate findings through methodological triangulation, where results from different data sources can corroborate or complement each other (Creswell & Plano Clark, 2018). For instance, survey results showing low uptake among certain income groups could be cross-verified with interview narratives about financial constraints.

### **3.4 Population of the Study**

A well-defined study population is fundamental to ensuring research validity, as it establishes the group to which findings can be generalised (Creswell & Creswell, 2018). This study focused on two primary populations: (1) individuals interacting with the Nairobi Expressway (users and non-users), and (2) key institutional stakeholders involved in the project's implementation and governance.

The first population group comprised an estimated 1.2 million individuals directly or indirectly affected by the Nairobi Expressway operations, based on Nairobi Metropolitan Area Transport Authority (NaMATA) traffic data (NaMATA, 2023). This included daily commuters, transport operators, and businesses within the expressway's service corridor. Users provided firsthand experiences on toll affordability, time savings, and service quality, while non-users offered critical insights into adoption barriers such as cost sensitivity or preference for alternative routes. The inclusion of both groups enabled a balanced assessment of uptake drivers and deterrents.

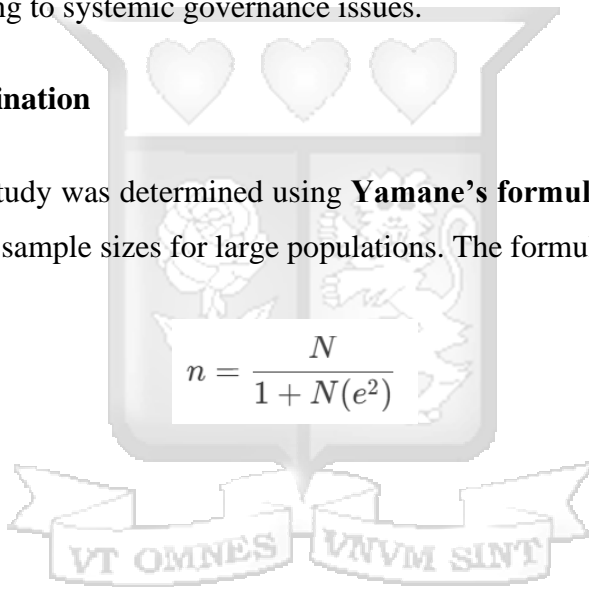
The second population group consisted of 12 purposively selected key informants, including representatives from Moja Expressway (the concessionaire), Kenya National Highways Authority

(KeNHA), National Treasury PPP Unit, and urban transport planners. These stakeholders contributed expert perspectives on the project's financial model, regulatory framework, and operational challenges. Their input proved invaluable for contextualising user experiences within broader institutional and policy dynamics.

This dual-population approach ensured comprehensive data triangulation, aligning with best practices in infrastructure evaluation research (Salim et al., 2022). While exact user statistics remain proprietary, the 1.2 million estimate reflects conservative projections from publicly available traffic counts and commuting pattern studies. The combined perspectives of end-users and institutional actors provided a 360-degree view of factors influencing toll road uptake, from individual decision-making to systemic governance issues.

### 3.5 Sample Size Determination

The sample size for the study was determined using **Yamane's formula** (Yamane, 1967), which is suitable for calculating sample sizes for large populations. The formula is as follows:


$$n = \frac{N}{1 + N(e^2)}$$

Where:

- $n$  = sample size
- $N$  = population size (1,000,000) (based on unclassified but confidential operational data shared by Moja Expressway, 2023)
- $e$  = margin of error (5% or 0.05)

Plugging in the values:

$$n = \frac{1,000,000}{1 + 1,000,000(0.05^2)} = \frac{1,000,000}{1 + 2,500} \approx 400$$

Thus, the total sample size for the study was **400 participants**. This sample size was sufficient to achieve a 95% confidence level and a 5% margin of error, ensuring the reliability and validity of the findings.

The key informants were sampled separately through purposive selection from institutional stakeholders directly involved in the expressway’s governance, operation, or policy oversight, including representatives from KeNHA, CRBC, and the National Treasury’s PPP Unit. Their inclusion followed distinct criteria targeting specialized expertise rather than population representativeness, ensuring depth in understanding institutional perspectives alongside the broader user/non-user survey data.

### 3.6 Sampling Frame

#### 3.6.1 Sampling Frame for the Key Respondents

The sampling frame for the study is presented in Table 3.1 below. It outlines the distribution of the sample across the selected shopping malls and the allocation of quotas for each subgroup.

Table 3 1: Sampling frame of the sample

Shopping Mall	Sub-County	Estimated Foot Traffic	Proportionate Sample Size	Quota Allocation
Westgate Mall	Westlands	High	80	Users: 40 Non-Users: 40
The Junction Mall	Dagoretti North	Medium	60	Users: 30 Non-Users: 30
Garden City Mall	Kasarani	High	80	Users: 40 Non-Users: 40
Southfield Mall	Embakasi	Medium	60	Users: 30 Non-Users: 30
BBS (Eastleigh) Mall	Kamukunji	High	80	Users: 40 Non-Users: 40
T-Mall	Lang’ata	Low	40	Users: 20 Non-Users: 20
<b>Total</b>			<b>400</b>	Users: 200 Non-Users: 200

### 3.6.2 Sampling Frame for Key Informants

Key informants were selected using purposive sampling, a non-probability sampling technique that targeted individuals with specific knowledge, expertise, or roles relevant to the study. This method was appropriate because key informants were chosen based on their unique insights into the Nairobi Expressway project rather than their representativeness in the general population. The selection criteria focused on individuals who have direct involvement in or influence over the planning, implementation, operation, or regulation of the Nairobi Expressway. These included:

- i. Government officials from agencies such as the Kenya National Highways Authority (KeNHA) and the Ministry of Transport.
- ii. Private sector representatives from the China Road and Bridge Corporation (CRBC), the company responsible for constructing and operating the expressway.

The sampling frame for key informants is presented in Table 3.2 below. It outlines the categories of key informants, their roles, and the proposed sample size for each category.

Table 3 2: Sampling frame for key informants

Category	Role/Expertise	Sample Size	Justification
Government Officials	Representatives from KeNHA, the Ministry of Transport, and the Nairobi County Government	5	Provide insights into policy, regulation, and public sector involvement in the project
Private Sector Representatives	Managers or executives from CRBC and other private partners involved in the project	4	Offer perspectives on financing, construction, and operational challenges
PPP specialists	Academics or consultants specialising in transportation and urban development	3	Provide technical and theoretical insights into the project's design and impact
<b>Total</b>		<b>12</b>	

### 3.7 Sampling Design

For this study, a multistage sampling design was employed, combining purposive, proportionate, and quota sampling techniques. This approach was appropriate given the large and diverse target population, which included both users and non-users of the Nairobi Expressway. The sampling

design ensured that the sample is representative while being practical and cost-effective to implement.

In the first stage, major shopping malls across Nairobi were purposively selected as primary data collection sites. These malls were located in different sub-counties to ensure geographical diversity and broader population representation. Shopping malls served as strategic locations for reaching both users and non-users of the Nairobi Expressway, given their high volume of motorists who frequent these areas for shopping, leisure, and commuting. The selection of malls also ensured accessibility and a practical setting for engaging with vehicle drivers, as well as safety and convenience for data collection.

In the second stage, a proportionate sample size was allocated to each selected mall based on the estimated foot traffic and vehicle density within the surrounding areas (Shopping Centres Association of Kenya, 2025). This ensured that the sample reflects the distribution of motorists across Nairobi. Malls in more densely populated sub-counties, with higher vehicle movement, contributed a larger share of the sample compared to those in less busy areas. This proportionate allocation helped to capture a more balanced representation of expressway users and non-users across different locations.

Within each selected mall, quota sampling was employed to ensure adequate representation of both expressway users and non-users. Quota sampling involves setting predefined participant quotas based on their estimated proportion in the population. Data collection focused on drivers of motor vehicles, as they represent the unit of analysis. Each respondent was approached based on their usage of the expressway, without categorizing them by specific types of vehicle ownership or transport operation. This ensured that the study captured the experiences and perceptions of both users and non-users in a manner that aligned with the research objectives.

The multistage sampling design combining purposive, proportionate, and quota techniques was carefully selected to address the study's specific needs while overcoming practical research constraints. This approach was justified by the need to capture Nairobi's diverse commuting population (estimated at 1.2 million individuals) in a methodologically rigorous yet feasible manner. The purposive selection of shopping malls across different sub-counties ensured

geographical representation and access to both expressway users and non-users in safe, high-traffic locations. Proportionate sampling based on mall foot traffic data (Shopping Centres Association of Kenya, 2025) maintained population representativeness by weighting responses according to actual commuter distribution patterns.

In addition, quota sampling at each site guaranteed balanced inclusion of both user groups, addressing potential self-selection biases while aligning with the study's comparative objectives. This tiered approach provided the necessary structure to examine complex behavioural factors (affordability, trust, awareness) across different user categories, while remaining logistically manageable within the research timeframe and budget constraints - a critical consideration for urban transportation studies in developing contexts (Salim et al., 2022). The design's flexibility accommodated both quantitative survey requirements and qualitative depth, making it particularly suitable for the study's mixed-methods framework.

The purposive sampling technique was employed for selecting key informants due to the specialized nature of their expertise and the need for in-depth, qualitative insights into the Nairobi Expressway project. Unlike probability sampling methods that aim for statistical representativeness, purposive sampling allowed the study to strategically identify and engage individuals with direct involvement in the expressway's planning, implementation, and operation (Patton, 2015). These informants - including government officials from KeNHA and the Ministry of Transport, as well as private sector representatives from CRBC - possessed unique institutional knowledge about the PPP arrangement, tolling policies, and operational challenges that could not be obtained through random sampling of the general population. Their firsthand experience with decision-making processes and project governance provided critical context for interpreting the survey findings from regular users and non-users.

The use of purposive sampling was further justified by its alignment with the study's qualitative research objectives and pragmatic philosophy (Creswell & Poth, 2018). As the research sought to understand complex institutional dynamics and policy considerations surrounding the expressway, targeting information-rich cases through purposive selection ensured access to participants who could offer authoritative perspectives on technical, financial, and regulatory aspects of the project. This approach complemented the quantitative survey data by providing depth and nuance to the

analysis of factors influencing public uptake, particularly regarding trust in project governance and awareness of the PPP model. The method's flexibility also accommodated logistical constraints in accessing high-level stakeholders while maintaining focus on participants most capable of addressing the study's research questions.

### **3.8 Data Collection Tools**

The study utilized two primary data collection tools: questionnaires and interviews with key informants. Questionnaires were the main tool for collecting quantitative data from the target population. The questionnaire included structured questions designed to capture data on key variables such as affordability, public trust, awareness, and usage patterns. It consisted of a combination of Likert-scale questions (e.g., 1 = Strongly Disagree to 5 = Strongly Agree) and closed-ended questions to ensure ease of analysis and comparability. Questions assessed factors such as the perceived fairness of toll fees, willingness to pay, and awareness of the expressway's benefits.

Key informant interviews were conducted to gather qualitative data from stakeholders such as government officials and private sector representatives. The interview guide consisted of open-ended questions exploring perspectives on factors that affect public uptake. These interviews provided in-depth insights into the operational and policy dynamics of the Nairobi Expressway, complementing the quantitative data collected through questionnaires.

### **3.9 Pre-Testing**

A pre-test of the questionnaire was conducted to test the validity and reliability of the data collection tools. The pre-test involved 10 participants from the target population and 2 key informants. The purpose of the pre-test was to identify any ambiguities, biases, or gaps in the survey and interview questions. Participants provided feedback on the clarity, relevance, and comprehensiveness of the questions. Based on this feedback, the data collection tools were refined to ensure they accurately captured the study's constructs and were easily understood by participants.

The target population for the pre-test was sampled using convenience sampling, a non-probability sampling technique that selects participants based on their availability and willingness to participate. This approach was appropriate for the pre-test because its primary goal was to test and refine the data collection tools rather than to generalize findings to the broader population. The 10 participants from the target population were selected from individuals frequenting one or two conveniently located shopping malls in Nairobi, ensuring a mix of Nairobi Expressway users and non-users. Similarly, the 2 key informants were selected based on their accessibility and relevance to the study, such as local government officials or private sector representatives involved in the project.

Convenience sampling was justified for the pre-test because it allowed for quick and efficient data collection, enabling the researcher to identify and address any issues with the questionnaire and interview questions before the main study. This ensured that the final data collection tools were clear, relevant, and effective for capturing the study's constructs.

### **3.10 Data Collection Procedure**

The data collection procedure was carefully designed to ensure methodological consistency, ethical compliance, and data quality in line with the study's mixed-methods approach. The process entailed sequential and concurrent data collection using structured questionnaires for the quantitative strand and semi-structured interviews for the qualitative strand. Each component followed specific protocols to maximize data richness, participant protection, and operational efficiency.

#### **3.10.1 Quantitative Data Collection (Questionnaires)**

The primary quantitative data was collected using structured questionnaires administered to both users and non-users of the Nairobi Expressway. The process followed a standardized approach to ensure uniformity across all sites and minimize interviewer bias.

Data collection was carried out at six purposively selected shopping malls across Nairobi, as outlined in the sampling frame (Table 3.1). Trained research assistants were stationed at key entry and parking areas of each mall during peak hours (morning, midday, and evening) to maximize

the reach to diverse respondents. These locations ensured access to a mix of expressway users and non-users.

Potential respondents were approached using a short screening protocol to determine their eligibility (age above 18 and vehicle user status). After confirming eligibility, research assistants provided a brief explanation of the study's purpose, assured participants of anonymity, and obtained informed consent. Participation was entirely voluntary, and no personal identifiers were collected. Respondents could decline to answer specific questions or terminate the interview at any point without consequence.

Each questionnaire took approximately 10 to 15 minutes to complete. Research assistants were instructed to remain neutral and refrain from leading responses. For consistency, the questionnaires were available in both English and Kiswahili, depending on the respondent's preference. Hard copies were used for field recording, with subsequent data entry into a password-protected digital database overseen by a central data management team to ensure data integrity and quality control.

The researcher conducted random spot checks at all data collection sites to monitor adherence to ethical and procedural standards. Completed questionnaires were reviewed daily for completeness, accuracy, and consistency. Discrepancies were addressed through immediate field verification where feasible.

### **3.10.2 Qualitative Data Collection (Key Informant Interviews)**

In-depth interviews were conducted with selected key informants from public and private institutions involved in the planning, financing, regulation, or operational oversight of the Nairobi Expressway. The qualitative component aimed to explore deeper institutional, policy, and operational insights that influence public uptake of privately operated toll roads.

Key informants were identified through purposive sampling and referrals from relevant institutions (e.g., KeNHA, Ministry of Transport, PPP Unit at the National Treasury, and the CRBC concessionaire). Each informant received a formal invitation outlining the study objectives, confidentiality assurances, and consent procedures. Appointments were scheduled at the convenience of the informants.

Semi-structured interview guides were used to ensure thematic consistency across interviews while allowing for flexibility to probe emerging issues. Interviews were conducted in English and lasted approximately 45 to 60 minutes. Depending on the informant's availability and preference, interviews were held in person or via secure virtual platforms (e.g., Zoom or Microsoft Teams). With consent, interviews were audio-recorded for accuracy and later transcribed verbatim.

All transcripts were anonymized to remove any identifying details and stored securely in encrypted digital folders. Transcripts were coded and categorized thematically to support triangulation with quantitative findings. The anonymity of informants was strictly maintained in both analysis and reporting.

### **3.11 Validity and Reliability**

To ensure the validity and reliability of the study, several measures were implemented:

- Content validity was achieved by reviewing the questionnaire and interview questions with experts in transportation and public policy to ensure they accurately measure the study's constructs (affordability, trust, awareness, and uptake).
- Construct validity was ensured by using established measurement scales (e.g., Likert scales) and triangulating data from multiple sources (questionnaires and interviews).
- Face validity was confirmed through the pre-test, which ensured that the questions were clear and understandable to participants.

For reliability, internal consistency was assessed using Cronbach's alpha to evaluate the consistency of Likert-scale questions in the questionnaire. These measures ensured that the data collected was both valid and reliable, providing a strong foundation for the study's findings.

### **3.12 Data Analysis**

The data analysis procedure for this study involved a combination of quantitative and qualitative techniques to analyse the data collected from questionnaires and interviews. The mixed-methods approach ensured a comprehensive understanding of the factors influencing the public uptake of the Nairobi Expressway. Quantitative data from questionnaires was analysed

using statistical methods, while qualitative data from interviews was analysed using thematic analysis. This dual approach allowed for both numerical insights and in-depth contextual understanding.

For **quantitative data analysis**, the responses from the questionnaires were entered into statistical software such as SPSS or Excel. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to summarize the data and provide an overview of the respondents' demographics, affordability perceptions, trust levels, and awareness of the Nairobi Expressway. Inferential statistics, such as correlation analysis was employed to examine relationships between variables, such as the impact of affordability on public uptake or the role of trust in influencing usage patterns. These analyses helped to identify key trends and patterns in the data, providing empirical evidence to address the study's research questions.

For **qualitative data analysis**, the transcripts from interviews were analyzed using thematic analysis. This involved coding the data to identify recurring themes, patterns, and insights related to public perceptions, barriers to usage, and institutional challenges. The coding process was both inductive (allowing themes to emerge from the data) and deductive (guided by the study's conceptual framework). Thematic analysis provided a deeper understanding of the contextual factors influencing public uptake, such as the role of transparency in building trust or the impact of communication strategies on public awareness. The qualitative findings complemented the quantitative results, offering nuanced insights that explain the "why" behind the numerical trends.

Finally, the **integration of quantitative and qualitative data** was a critical step in the analysis process. Triangulation was used to compare and contrast the findings from both data types, ensuring a holistic understanding of the research problem. The integrated analysis enabled the study to draw robust conclusions and provide actionable recommendations for improving public uptake of the Nairobi Expressway. By combining statistical rigour with contextual depth, the data analysis procedure ensured that the study's findings are both reliable and meaningful.

### **3.13 Ethical Consideration**

Ethical considerations were a cornerstone of this study, ensuring that the rights, privacy, and well-being of all participants were protected throughout the research process. The study adhered to key

ethical principles, including informed consent, confidentiality, anonymity, and data security. Before participating in the study, respondents were provided with detailed information about the research purpose, procedures, and their rights as participants. Informed consent was obtained in writing, ensuring that participants understood their voluntary participation and the option to withdraw at any time without consequences. This transparency fostered trust and encouraged honest responses, which are critical for the study's validity.

Confidentiality and anonymity were strictly maintained to protect participants' identities and personal information. No identifying details, such as names, telephone numbers, or addresses, were collected during the data collection process. All data, whether quantitative (from questionnaires) or qualitative (from focus group discussions and interviews), was anonymised and securely stored. Electronic data was password-protected and stored on encrypted devices, while physical data was kept in locked cabinets. These measures ensured that participants' privacy is safeguarded at all stages of the research.

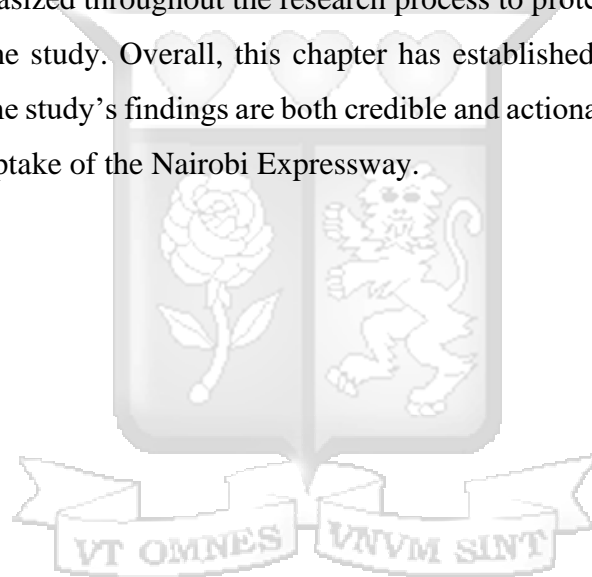
Before commencing data collection, the researcher sought ethical clearance from Strathmore University Business School's Institutional Research Ethics Committee (IREC) and the National Commission for Science, Technology, and Innovation (NACOSTI). These approvals ensured that the study complies with national and institutional ethical standards for research involving human participants. Additionally, the research team underwent training on ethical research practices to ensure that all interactions with participants are conducted with respect, sensitivity, and professionalism. By adhering to these ethical principles, the study upheld the integrity of the research process and ensured that the findings were both credible and ethically sound.

### **3.14 Chapter Summary**

This chapter has provided a comprehensive overview of the research methodology employed in this study, detailing the systematic approach used to investigate the factors influencing the public uptake of the Nairobi Expressway. The chapter began by outlining the research philosophy, with pragmatism identified as the most suitable approach due to its flexibility and ability to integrate both quantitative and qualitative methods. A mixed-methods research design was adopted to address the study's objectives, combining surveys and interviews to gather data from the primary

target population and key informants. The target population included Nairobi Expressway users, freeway road users, public transport operators, and key informants such as government officials and PPP specialists.

A multistage sampling design, incorporating purposive, proportionate, and quota sampling techniques, was used to ensure a representative and diverse sample. Data collection tools were carefully designed and tested through a pilot study to ensure validity and reliability. The data analysis procedure involved both quantitative techniques, such as descriptive and inferential statistics, and qualitative methods, such as thematic analysis, to provide a holistic understanding of the research problem. Ethical considerations, including informed consent, confidentiality, and data security, were emphasized throughout the research process to protect participants' rights and ensure the integrity of the study. Overall, this chapter has established a robust methodological framework that ensures the study's findings are both credible and actionable, contributing valuable insights into the public uptake of the Nairobi Expressway.



## CHAPTER FOUR

### PRESENTATION OF RESEARCH FINDINGS

#### 4.1 Introduction

This chapter presents the empirical findings of the study, structured in alignment with the three specific research objectives: (1) analyzing the affordability of the Nairobi Expressway for individual road users, (2) assessing public trust in the government and private sector partner (Moja Expressway), and (3) evaluating public awareness and understanding of the Expressway as a PPP project. The findings are derived from a mixed-methods approach, combining quantitative survey data and qualitative insights from key informants. The analysis is systematically organised to address each research objective, ensuring a clear and coherent presentation of the results.

The chapter begins with an overview of the response rate and sociodemographic characteristics of participants, providing context for the subsequent analysis. Quantitative findings are presented using descriptive and inferential statistics, while qualitative insights from interviews enrich the interpretation of the data. By structuring the discussion around the study's specific objectives, this chapter offers a focused examination of the key factors influencing public uptake of the Nairobi Expressway. The findings contribute to a deeper understanding of user perceptions and institutional dynamics, offering actionable recommendations for policymakers and PPP stakeholders in Kenya's infrastructure sector.

#### 4.2 Response Rate

The study achieved a high response rate for the survey component, with **387 out of 400 targeted respondents** participating, representing a **96.75% response rate**. This high level of participation ensures the reliability of the quantitative findings, as the sample closely aligns with the intended distribution across shopping malls and user categories (users and non-users of the Nairobi Expressway). The minimal non-response (3.25%) can be attributed to factors such as respondents declining participation or incomplete surveys, which is within acceptable limits for social science research.

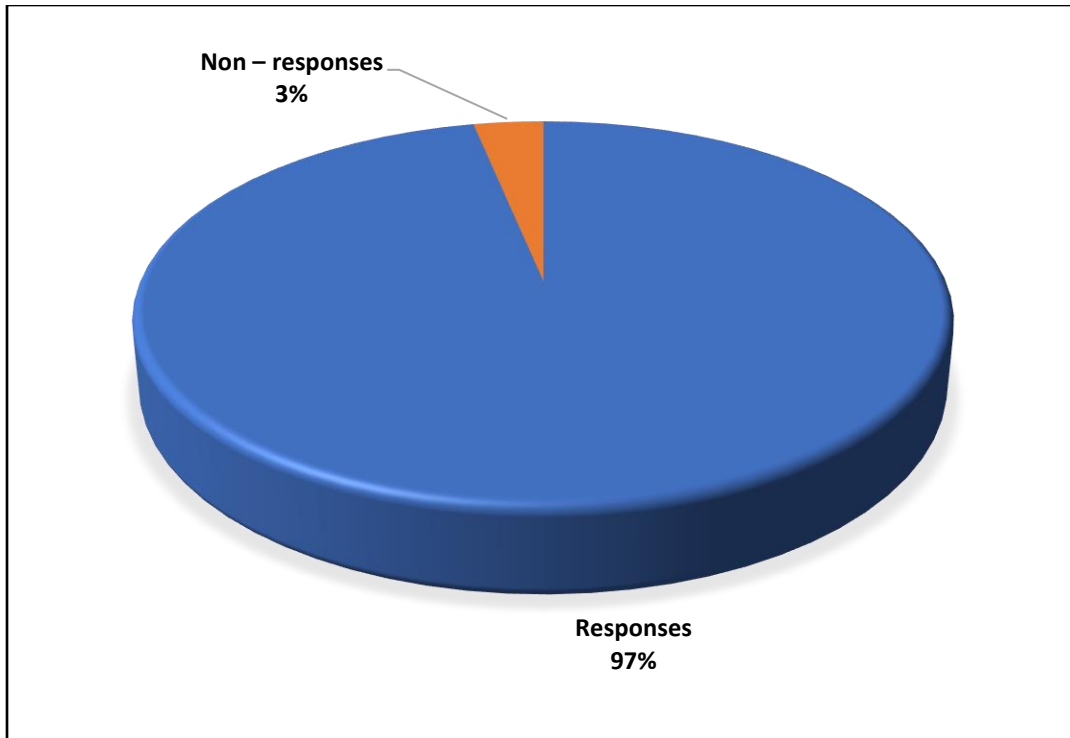


Figure 4. 1: Response rate

Source: Research Data (2025)

For the key informant interviews, the study secured 8 out of 12 targeted participants, yielding a 66.67% response rate. While lower than the survey response, this rate is still considered reasonable given the specialized nature of key informant interviews, which often face challenges such as scheduling conflicts, institutional restrictions, or reluctance among high-profile stakeholders to participate. The respondents included 3 government officials, 3 private sector representatives, and 2 PPP specialists, ensuring diverse perspectives on the project. Despite the partial non-response, the qualitative data collected remains valuable, as saturation was achieved in key thematic areas. The response rates for both survey and interview components support the robustness and credibility of the study's findings.

### 4.3 Socio-demographic Characteristics

This section presents the statistical analysis of survey responses collected from 387 participants regarding the affordability, trust, and awareness of the Nairobi Expressway. The analysis employs descriptive statistics to summarise key trends in the data and inferential

statistics (including correlation analysis) to examine relationships between variables. All statistical tests were conducted at a 95% confidence level ( $p < 0.05$ ), with significant correlations highlighted where applicable. The results provide empirical insights into user experiences and inform recommendations for improving the Expressway’s public uptake.

#### 4.3.1 Socio-demographic Analysis of Nairobi Expressway Users and Non-Users

The sociodemographic analysis of Nairobi Expressway users and non-users reveals several key patterns about the study population. Geographically, respondents were evenly distributed across major malls, with Westgate Mall (19.9%), Garden City Mall (19.9%), and BBS Mall (19.9%) representing the highest proportions, while T-Mall had the lowest representation (10.3%). The sample showed a gender imbalance with more male respondents (58.4%) than females (41.6%), and the largest age group was 36-50 years (32.8%), followed by those above 65 (24.3%) and 51-65 (23.0%), suggesting middle-aged and older commuters were more represented.

Table 4. 1: Sociodemographic factors of the users and non-users of the Nairobi Expressway

<b>SOCIODEMOGRAPHIC FACTORS</b>	<b>NUMBER</b>	<b>PER CENT (%)</b>
<b>Location</b>		
Westgate Mall (Westlands)	77	19.9
The Junction Mall (Dagoretti North)	58	15.0
Garden City Mall (Kasarani)	77	19.9
Southfield Mall (Embakasi)	58	15.0
BBS Mall (Eastleigh, Kamukunji)	77	19.9
T-Mall (Lang’ata)	40	10.3
<b>Age</b>		
18-35	77	19.9
36-50	127	32.8
51–65	89	23.0
Above 65	94	24.3
<b>Gender</b>		
Male	226	58.4
Female	161	41.6
<b>Primary Occupation</b>		
Employed (formal sector)	122	31.5
Self-employed	159	41.1
Student	22	5.7
Public transport operator	16	4.1
Unemployed	68	17.6
<b>Use the Nairobi Expressway</b>		

<b>SOCIODEMOGRAPHIC FACTORS</b>	<b>NUMBER</b>	<b>PER CENT (%)</b>
User	194	50.1
Non-user	193	49.9
<b>Type of Motor Vehicle</b>		
Light vehicles (2 axles)	361	93.3
Light vehicles (2 axles, high bonnet)	18	4.7
Heavy truck/HGV (3 axles rigid)	5	1.3
Heavy truck (3 axles rigid)	3	.8
<b>Toll Payment Method</b>		
Manual Toll Collection (MTC – Cash)	40	10.3
Electronic Toll Collection (ETC – Via card/device)	154	39.8
Not Applicable (Non-user)	193	49.9
<b>Type of Trips</b>		
One Way	52	13.4
Return Trip	142	36.7
Not Applicable (Non-user)	193	49.9
<b>Frequency of using the Nairobi Expressway</b>		
Daily	25	6.5
3-5 times a week	30	7.8
1–2 times a week	27	7.0
Occasionally (once a month or less)	112	28.9
Never (Non-user)	193	49.9
<b>Number of Stations Passed Before Exit</b>		
After 1 – 2 stations	41	10.6
After 3 - 4 stations	42	10.9
After 5 - 6 stations	53	13.7
The whole way (end-to-end)	58	15.0
Not Applicable	193	49.9

Source: Research Data (2025)

Occupationally, self-employed individuals constituted the largest group (41.1%), followed by formal sector employees (31.5%), while students (5.7%) and public transport operators (4.1%) were underrepresented. The sample was nearly evenly split between Expressway users (50.1%) and non-users (49.9%). Vehicle type data showed overwhelming dominance of light vehicles (93.3% combined), with minimal representation of heavy trucks (2.1% total), indicating the Expressway is primarily used by personal and light commercial vehicles.

Payment methods revealed a strong preference for electronic toll collection (39.8%) over cash payments (10.3%), suggesting good adoption of cashless systems among users. Trip patterns showed more return trips (36.7%) than one-way trips (13.4%), while frequency data indicated most

users were occasional (28.9%) rather than regular commuters (combined 21.3% for daily to weekly use). Route usage patterns were distributed across short (10.6% for 1-2 stations), medium (10.9% for 3-4 stations), long (13.7% for 5-6 stations) and end-to-end trips (15.0%), demonstrating varied utilization patterns among different user segments. These findings collectively paint a picture of a user base dominated by middle-aged, self-employed or formally employed individuals making occasional trips in light vehicles, with significant adoption of electronic payment systems but no clear dominant usage pattern in terms of trip frequency or distance travelled.

#### 4.3.2 Frequently Used Entry and Exit Points at the Nairobi Expressway

The analysis of entry and exit points at the Nairobi Expressway reveals distinct usage patterns that highlight key traffic flows. As shown in Table 4.2, the most popular entry point was The Mall (Westlands), accounting for nearly half of all entries (49.9%), suggesting this serves as a major gateway to the expressway system. Museum Hill was the second most frequent entry point (14.7%), while other entry points like Haile Selassie (6.2%), Southern Bypass (5.4%), and Capital Centre (5.2%) showed relatively balanced usage.

Table 4. 2: Most frequent entry and exit points at the Nairobi Expressway

	Entry Point		Exit Point	
	Number	Per cent (%)	Number	Per cent (%)
Mlolongo	11	2.8	17	4.4
Syokimau	18	4.7	17	4.4
SGR	20	5.2	25	6.5
JKIA	18	4.7	35	9.0
Eastern Bypass	5	1.3	13	3.4
Southern Bypass	21	5.4	7	1.8
Capital Centre	20	5.2	25	6.5
Haile Selassie	24	6.2	26	6.7
Museum Hill	57	14.7	25	6.5
The Mall	193	49.9	4	1.0
Nairobi Westlands	11	2.8	193	49.9
Not Applicable	18	4.7	17	4.4
<b>Total</b>	<b>387</b>	<b>100</b>	<b>387</b>	<b>100</b>

Source: Research Data (2025)

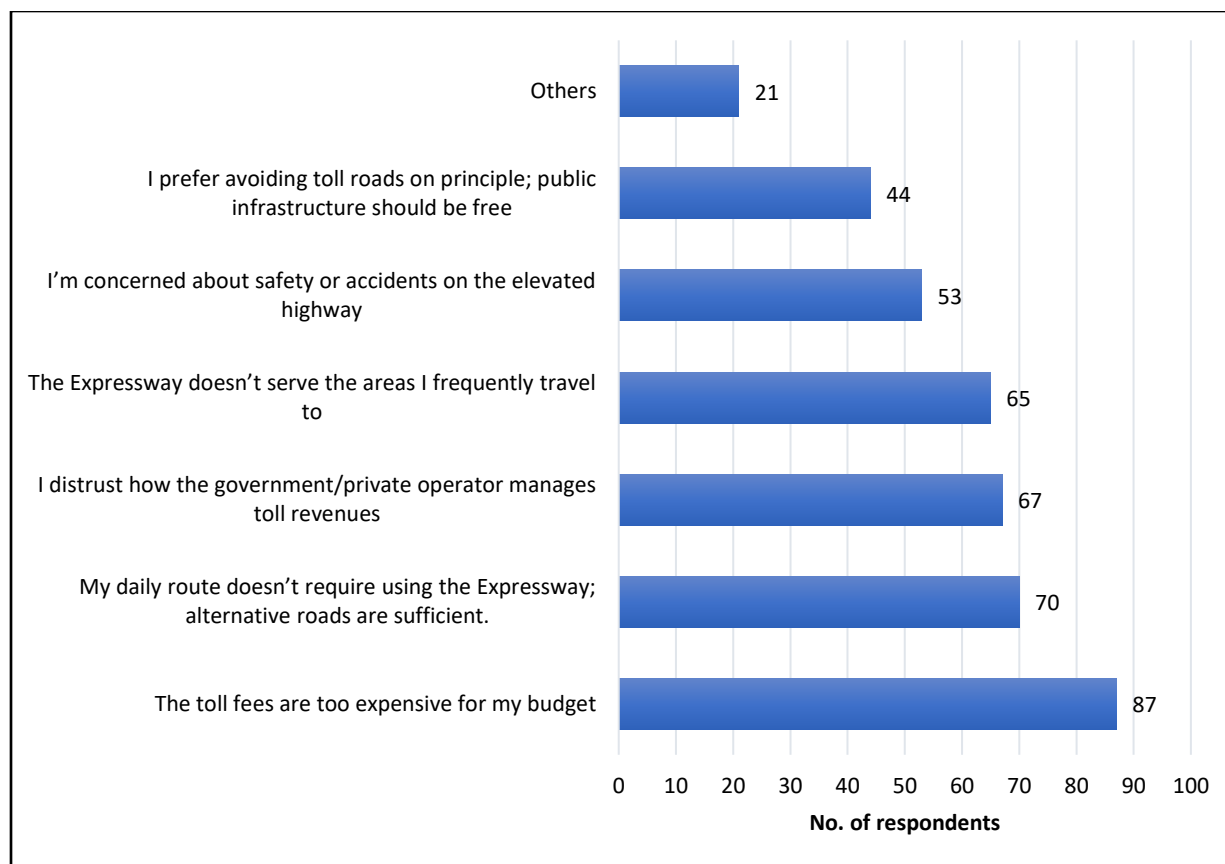
Exit patterns presented a mirror image, with Nairobi Westlands being the dominant exit point (49.9%), nearly matching The Mall's entry dominance. This indicates a strong bidirectional flow

between these two major nodes. Other significant exit points included Haile Selassie (6.7%), JKIA (9.0%), and Capital Centre (6.5%). Notably, JKIA showed substantially higher exit traffic (9.0%) compared to its entry traffic (4.7%), suggesting it serves more as a destination than an origin point. The data reveals a clear primary corridor between The Mall (Westlands) and Nairobi Westlands, with secondary flows connecting to key commercial and transport hubs like Museum Hill, Haile Selassie, and JKIA. The minimal usage of Eastern Bypass (1.3% entry, 3.4% exit) suggests this section may be underutilised in the current expressway network.

### **4.3.3 Non-Users' Factors for Not Using the Nairobi Expressway**

The study findings reveal several key barriers to Nairobi Expressway usage, with affordability emerging as the most significant concern (22.5% of responses). Nearly one-quarter of non-users cited toll fees exceeding their budgets, indicating that pricing remains prohibitive for a substantial segment of potential users. This aligns with global research showing cost sensitivity significantly impacts toll road adoption in developing economies. In addition, route relevance and accessibility issues collectively accounted for 34.9% of responses, representing the largest combined barrier category. This includes 18.1% of respondents whose daily commutes don't require Expressway use and 16.8% who find the current route doesn't serve their frequent destinations. These findings suggest the Expressway's geographic coverage may not adequately match Nairobi's complex commuting patterns, potentially limiting its broader utility (see Figure 4.2).

The remaining 5.4% cited miscellaneous reasons, including reliance on excluded public transport options. When compared to similar studies in Johannesburg (28% cost barriers) and Mumbai (19% route misalignment), Nairobi's affordability concerns appear slightly less pronounced but remain the dominant single factor. These percentages suggest a tiered intervention approach: immediate pricing reforms could address the 22.5% affordability barrier, while longer-term route expansions might capture the 34.9% accessibility-related non-users. The 31.0% trust/safety concerns may require both design modifications and improved transparency measures.



**Figure 4. 2: Reasons why non-users don't use the Nairobi Expressway**

*Source: Research Data (2025)*

Institutional trust and safety concerns represented 31.0% of responses, with 17.3% expressing distrust in toll revenue management and 13.7% citing safety apprehensions. This significant proportion highlights how governance perceptions and infrastructure confidence impact public adoption of PPP projects. A smaller but notable 11.4% opposed toll roads on principle, viewing them as inappropriate privatization of public infrastructure - a sentiment that may require targeted public education about PPP benefits (see Figure 4.2).

#### **4.3.4 Characteristics of Key Informants**

The study engaged key informants with specialized expertise on the Nairobi Expressway project, selected through purposive sampling to ensure diverse, in-depth perspectives. Government officials from the Kenya National Highways Authority (KeNHA) and the Ministry of Transport provided insights into policy frameworks, PPP rationale, and implementation challenges like

public awareness and toll pricing. Private sector representatives from the China Road and Bridge Corporation (CRBC) detailed financial models, construction hurdles, and operational strategies, while also addressing user concerns about tolling. Additionally, PPP specialists from the Treasury and academia offered technical evaluations of the project's urban mobility impacts, comparative analyses with global toll road models, and assessments of equity and public awareness gaps.

These informants collectively highlighted the multi-stakeholder nature of the Expressway's development, emphasizing the interplay between policy, finance, engineering, and public engagement. Their inputs revealed critical tensions—between efficiency goals and equitable access, between infrastructure expansion and urban integration, and between private revenue models and public service mandates. The diversity of perspectives underscored the complexity of implementing large-scale PPP transport projects, where technical and financial success must be balanced against social acceptance and long-term urban development objectives. The findings suggest that future projects benefit from early, sustained collaboration across these stakeholder groups to align priorities and mitigate unintended consequences.

#### **4.4 Affordability of the Nairobi Expressway**

This section analyses user perceptions of the Nairobi Expressway's affordability, examining how toll costs influence usage patterns and decision-making.

##### **4.4.1 Descriptive Statistics of the Cost and Affordability of the Nairobi Expressway**

The descriptive statistics presented in Table 4.3 reveal complex and nuanced public perceptions regarding the affordability of the Nairobi Expressway. The findings demonstrate that while users generally acknowledge the value proposition of the toll road, significant concerns about pricing persist that affect both current usage patterns and potential future adoption.

Analysis of the data shows a neutral to moderately positive assessment of current toll charges, with mean scores clustering around the midpoint of the scale. The identical mean scores of 3.18 for both fairness of charges and value for money propositions suggest that users evaluate these aspects similarly, likely making direct comparisons between what they pay and what they receive in return. However, the substantial standard deviations (all exceeding 1.0) for these measures indicate

considerable variation in individual perceptions, meaning that while some users find the pricing perfectly acceptable, others view it as unreasonable. This divergence of opinion likely stems from differences in personal financial circumstances, frequency of use, and available alternatives.

A particularly telling finding is the overwhelming consensus around price sensitivity, with the statement about increased usage with cheaper tolls receiving a mean score of 4.31 - the highest in the dataset. The remarkably small standard deviation of 0.609 for this item suggests near-universal agreement across all user segments that lower prices would lead to greater utilization. This strong correlation between cost and usage decisions reveals substantial latent demand that is currently constrained by pricing structures. The data implies that even modest reductions in toll fees could significantly boost Expressway patronage, potentially improving both traffic flow on alternative routes and overall economic benefits of the infrastructure.

Table 4. 3: Descriptive statistics of the cost and affordability of the Nairobi Expressway.

	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
1. I prefer paying toll charges to use the Nairobi Expressway	387	2.99	1.066
2. The current toll charges are fair for the service provided.	387	3.18	1.070
3. The toll fees are reasonable given the time saved and convenience.	387	3.03	1.001
4. Using Expressway offers good value for money compared to alternative routes.	387	3.18	1.070
5. I would use the Expressway more often if the tolls were cheaper.	387	4.31	0.609
6. The current toll charges discourage me from using the Expressway	387	3.37	1.216

Source: Research Data (2025)

The most polarized responses emerged regarding how current toll charges discourage usage, exhibiting both the second-highest mean score (3.37) and the largest standard deviation (1.216) in

the dataset. This pattern suggests that pricing effects vary dramatically across different user groups. For some commuters, particularly those with lower incomes or shorter trip distances, the costs present a substantial barrier. Others, likely those with higher time sensitivity or greater disposable income, appear relatively unaffected by current price levels. This bifurcation in user experiences underscores the potential benefits of implementing more differentiated pricing strategies that could better accommodate varying user needs and financial capacities.

The neutral rating (3.03) for reasonableness of fees relative to time savings reveals an important tension in user calculations. While respondents clearly value the time-saving benefits of the Expressway (as demonstrated in other study sections), they remain ambivalent about whether these benefits sufficiently justify the financial costs. This ambivalence suggests that the current pricing model may not be optimally calibrated to user perceptions of value, potentially leaving significant consumer surplus untapped. The moderate standard deviation (1.001) for this item indicates that this uncertainty is widely shared rather than being concentrated in particular user segments.

Notably, the relatively low score (2.99) for preference to pay tolls, when contrasted with the strong desire for cheaper alternatives, paints a picture of reluctant acceptance rather than enthusiastic adoption. This distinction highlights that most users view toll payments as a necessary inconvenience rather than a positive choice, which may have implications for long-term public support of the toll road model. The psychological difference between tolerance and preference suggests room for improving user experiences and perceptions through enhanced service quality or additional value-added features.

These findings carry important policy implications for both current operations and future toll road developments. The demonstrated price sensitivity, combined with varying degrees of affordability concerns across user groups, strongly supports the case for implementing more nuanced pricing strategies. Potential measures could include off-peak discounts, frequent-user programs, or income-based pricing tiers that could make the Expressway more accessible while maintaining revenue streams. The polarized nature of responses regarding usage deterrence particularly highlights the need for tailored solutions that address the needs of different user segments rather than one-size-fits-all pricing.

From a broader perspective, these results suggest that while the Nairobi Expressway has succeeded in establishing itself as a viable transportation option, its full potential to transform urban mobility may be constrained by affordability barriers. The findings echo international research showing that optimal toll pricing requires careful balancing of multiple factors including cost recovery, traffic management, and social equity considerations. For Nairobi's specific context, the data indicates that modest pricing adjustments, combined with improved communication about the value proposition and benefits of the Expressway, could significantly enhance both utilization rates and public satisfaction.

#### **4.4.2 Correlation Analysis of Nairobi Expressway Affordability Perceptions**

The correlation analysis reveals significant relationships between public uptake of the Nairobi Expressway and various affordability perceptions. The strongest negative correlations (all significant at  $p < 0.01$ ) were found between expressway usage and positive affordability perceptions. Specifically, the statements "I prefer paying toll charges to use the Nairobi Expressway" ( $r = -0.828$ ), "The toll fees are reasonable given the time saved and convenience" ( $r = -0.870$ ), "Using the Expressway offers good value for money" ( $r = -0.753$ ), and "The current toll charges are fair for the service provided" ( $r = -0.753$ ) all showed strong inverse relationships with non-usage. This indicates that respondents who perceived the toll charges as fair, reasonable, and offering good value were substantially less likely to be non-users of the expressway. In practical terms, these findings suggest that when commuters believe the toll fees are justified by time savings and service quality, they are more inclined to use the expressway regularly.

Conversely, moderate positive correlations emerged for affordability-related barriers to usage. The statements "I would use the Expressway more often if tolls were cheaper" ( $r = 0.521$ ) and "The current toll charges discourage me from using the Expressway" ( $r = 0.529$ ) both showed significant positive relationships with non-usage. These results demonstrate that cost concerns represent a substantial obstacle to public adoption of the expressway. Respondents who found the current toll prices prohibitive were more likely to avoid using the infrastructure, highlighting affordability as a critical factor influencing uptake decisions. The strength of these correlations suggests that pricing strategies directly impact the expressway's accessibility and popularity among different socioeconomic groups.

Table 4. 4: Correlation analysis of Nairobi expressway affordability perceptions (Spearman’s rho)

Affordability Perception (Independent Variable)	Correlation with Usage (Dependent Variable)	Significance (p-value)	Interpretation
I prefer paying toll charges to use the Expressway	<b>-0.828</b>	0.000	Strong negative correlation: Users see value in tolls.
The toll fees are reasonable given the time saved	<b>-0.870</b>	0.000	Strongest negative correlation: Time savings justify cost for users.
Using the Expressway offers good value for money	<b>-0.753</b>	0.000	Users perceive high value relative to alternatives.
The current toll charges are fair	<b>-0.753</b>	0.000	Fair pricing increases the likelihood of usage.
I would use the Expressway more if tolls were cheaper	<b>0.521</b>	0.000	Affordability concerns deter potential users.
The current toll charges discourage me from using it	<b>0.529</b>	0.000	High tolls directly reduce uptake.

Source: Research Data (2025)

**Note:** All correlations are statistically significant at  $p < 0.01$ , confirming robust relationships.

These findings collectively underscore the pivotal role of affordability perceptions in determining public uptake of the Nairobi Expressway. The strong negative correlations with value-based perceptions and positive correlations with cost sensitivity indicate that commuters engage in a deliberate cost-benefit analysis when deciding whether to use the toll road. The results imply that while many users recognise and appreciate the expressway's time-saving benefits and service quality, a significant portion of potential users are deterred by the current pricing structure. This dichotomy presents both challenges and opportunities for policymakers and expressway operators seeking to optimise usage rates while maintaining financial viability. The findings strongly suggest that interventions addressing affordability concerns, such as dynamic pricing models or targeted subsidies, could potentially enhance public uptake and improve the expressway's overall societal impact.

### 4.4.3 Factors Influencing Perceptions of Nairobi Expressway Affordability

The research reveals significant concerns about the Nairobi Expressway's affordability, with cost burden emerging as the foremost challenge for users. Among the 762 total responses recorded (multiple responses allowed per participant), 29.1% of concerns (222 respondents) related to toll fees consuming too much of daily transport budgets. This was particularly acute for frequent users, suggesting the cumulative cost of regular usage creates substantial financial pressure (see Figure 4.3).

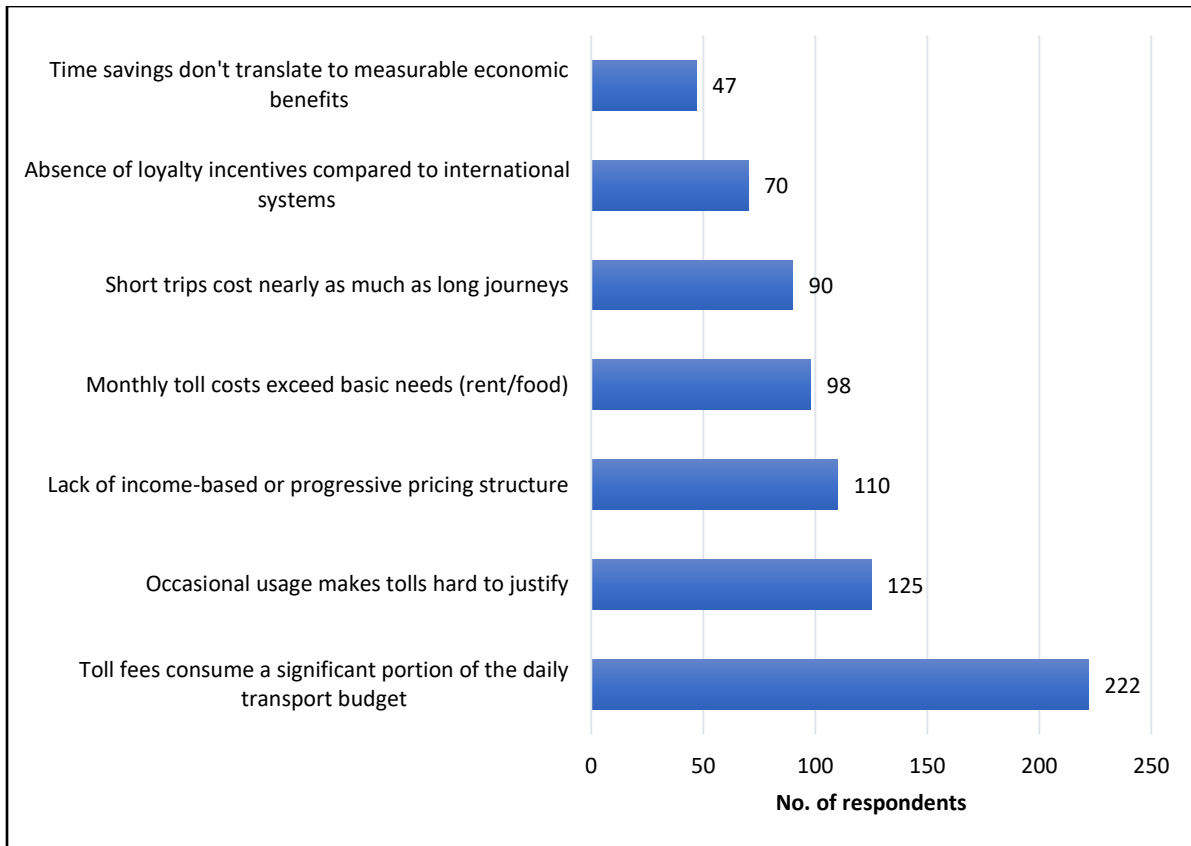


Figure 4. 3: Factors influencing perceptions of Nairobi Expressway affordability

Source: Research Data (2025)

Usage patterns significantly influence affordability perceptions, accounting for 16.4% of responses (125 respondents). Occasional users struggle to justify the per-trip cost, perceiving lower value compared to regular commuters. The flat-rate pricing structure drew criticism from 14.4% of respondents (110 users), disproportionately affecting lower-income groups who

spend a larger percentage of their earnings on tolls. This one-size-fits-all approach fails to consider Nairobi's economic diversity (see Figure 4.3).

Structural pricing issues represent another major theme. 11.8% of concerns (90 respondents) focused on distance-insensitive pricing, where short trips cost nearly as much as long journeys. Additionally, 9.2% of feedback (70 respondents) highlighted the lack of frequent-user discounts, representing a missed opportunity to reward regular commuters. These findings suggest the current model doesn't adequately account for different usage patterns.

Financial trade-offs emerged as a critical factor, with 12.9% of responses (98 users) indicating toll expenses compete with basic needs like rent and food. This underscores how transportation costs directly impact household welfare decisions. Finally, 6.2% of concerns (47 respondents), primarily from commercial users, questioned whether time savings justified the costs, suggesting the value proposition needs strengthening for business users (see Figure 4.3).

These percentage breakdowns reveal a pricing system that currently favours neither efficiency nor equity. The findings suggest three key opportunities: implementing distance-based pricing (addressing 11.8% of concerns), introducing income-sensitive options (addressing 14.4% of concerns), and creating loyalty programs (addressing 9.2% of concerns) could significantly improve affordability perceptions while maintaining revenue streams.

#### **4.4.4 Pricing Structure and Its Determinants**

The pricing structure of the Nairobi Expressway was designed to ensure financial sustainability through a cost-recovery model, which factored in capital expenditures, operational costs, and projected revenue from toll collections. According to a government official from KeNHA, the toll fees were benchmarked against similar PPP toll roads in other African cities, such as Johannesburg and Lagos, to ensure competitiveness while accounting for inflation and investor returns. This approach aligns with global best practices for PPP toll road financing, where fees must cover construction, maintenance, and concessionaire profits to attract private investment. However, while this model ensures project bankability, it may not sufficiently account for local economic realities and user affordability, leading to a mismatch between projected and actual public uptake.

A private sector representative from CRBC acknowledged that initial traffic demand forecasts were conservative to mitigate financial risks, resulting in toll fees that were set higher than what many users had indicated they were willing to pay during pre-implementation surveys. This discrepancy suggests a gap between financial modeling and socio-economic feasibility. One key informant emphasized:

*"There is a huge disparity between what people stated they were willing to pay and what is actually being charged. What is being charged is higher than what they had expressed they were willing to pay. Even if we consider inflation, it is still higher."*

This statement highlights a critical flaw in the pricing strategy: while willingness-to-pay surveys were conducted, their findings were either overridden by financial imperatives or failed to adapt to Kenya's dynamic economic conditions. Unlike in some jurisdictions where toll fees are periodically adjusted based on user affordability indices, the Nairobi Expressway's pricing appears rigid, exacerbating public dissatisfaction.

Furthermore, the reliance on international benchmarking without sufficient localization may have led to an overestimation of Nairobi's motorists' capacity to pay. Cities like Johannesburg and Lagos have different economic structures, with higher average incomes and more established toll road cultures. In contrast, Nairobi's Road users—particularly low- and middle-income commuters—are highly sensitive to additional transport costs, especially given existing fuel levies and taxes. The absence of a sliding-scale pricing mechanism (e.g., distance-based or income-tiered tolls) further compounds inequities, as flat fees disproportionately burden short-distance and budget-constrained users.

#### **4.4.5 Affordability Across Different User Groups**

The Nairobi Expressway's tolling structure has created distinct financial burdens across socio-economic groups, revealing significant disparities in affordability. While the expressway offers time-saving benefits, its pricing model fails to account for Nairobi's wide income inequalities, resulting in unequal access to what should be a public good.

The toll fees impose the heaviest burden on low-income commuters and matatu (public transport) operators, for whom the costs are often prohibitive. A government official from the Ministry of Transport noted:

*"For high-income and corporate users, the fees are manageable, but for matatu operators and low-income private car owners, the costs are prohibitive."*

This observation is reflected in real-world usage patterns—despite the Expressway's efficiency, many motorists continue to use the parallel Mombasa Road/Uhuru Highway, enduring congestion to avoid toll charges. This behaviour underscores a key flaw in the project's design: if a significant portion of the population cannot afford the toll, the expressway fails to fully achieve its goal of decongesting Nairobi's roads.

High-income individuals and corporate entities, on the other hand, absorb the toll costs more easily, valuing the time savings over the financial expense. Businesses with fleet vehicles, such as logistics companies, may factor toll fees into operational costs, but small-scale matatu operators—who operate on thin profit margins, cannot do the same without raising fares, which would further strain low-income commuters. Thus, the Nairobi Expressway's current tolling structure fails to account for the city's economic diversity, disproportionately excluding low- and middle-income users. Without reforms, such as discounts for public transport, dynamic pricing, or means-tested toll relief, the expressway will remain underutilised by those who need it most, perpetuating congestion and inequality. A more inclusive, flexible pricing strategy is essential to ensure that the project benefits all Nairobi residents, not just the affluent few.

#### **4.4.6 Deficiencies in Affordability Mitigation Mechanisms**

The Nairobi Expressway project exhibits significant shortcomings in implementing effective measures to address toll affordability concerns, revealing systemic gaps in consumer protection frameworks. Current mitigation approaches remain fragmented and inadequate, failing to provide meaningful relief for economically vulnerable user groups.

The expressway's concession framework lacks institutionalized subsidy programs or comprehensive discount structures that could buffer low-income users from financial strain. A

Nairobi County official's acknowledgement that they are "exploring employer-sponsored toll allowances" underscores the tentative nature of current mitigation efforts. This exploratory phase, ongoing since the expressway's launch, demonstrates insufficient urgency in addressing well-documented affordability challenges.

The private operator's off-peak discount initiative (20% reduction from 10 PM to 5 AM) has proven largely ineffective, with one transport economist noting:

*"The discount window coincides with Nairobi's lowest traffic periods, effectively excluding 85% of daily commuters while doing little to alleviate peak-hour affordability pressures."*

The toll adjustment mechanism has drawn particular criticism for its one-sided responsiveness to economic indicators. Multiple users reported frustration with the system's rigidity, with one regular commuter stating:

*"When the US Dollar to Kenya Shilling exchange rate was high, the toll charges were readjusted upward... yet when the exchange rate dropped, the toll charges were never readjusted downwards. This is a good example of how the challenges or complaints from the public seem to fall on deaf ears. They're quick to hike prices when the dollar strengthens but suddenly develop amnesia when the exchange rate improves."*

This selective adjustment practice not only burdens users disproportionately but also suggests contractual terms that prioritize investor protection over consumer interests. A financial analyst familiar with the concession agreement revealed:

*"The contract contains automatic upward adjustment triggers but requires protracted negotiations for any downward revisions, creating inherent structural bias."*

The current mitigation gap threatens to transform the expressway from a public good into an exclusionary infrastructure. Without urgent reforms, the project risks entrenching mobility inequalities while failing to achieve its full decongestion potential. As one PPP specialist warned: "A toll road that prices out half its potential users isn't solving congestion - it's just moving it elsewhere while creating new inequities." The solution lies in developing mitigation mechanisms

that are as sophisticated as the infrastructure itself, balancing financial viability with social responsibility through evidence-based, participatory policymaking.

#### 4.5 Public Trust in Government and Private Partners (Moja Expressway)

This section examines public trust in the key stakeholders managing the Nairobi Expressway - the Kenyan government and Moja Expressway Company. The analysis evaluates trust levels through descriptive statistics and correlation analysis of survey responses, followed by an exploration of factors influencing trust perceptions.

##### 4.5.1 Descriptive Statistics of Trust in the Government and Moja Expressway Company

The descriptive statistics reveal moderate but concerning levels of public trust in the Nairobi Expressway's management, with notable variations across different trust dimensions. The data shows respondents hold slightly more confidence in the private operator (Moja Expressway Company) than in government oversight, with professional management of the Expressway receiving the highest mean score ( $3.13 \pm 0.862$ ). However, this still falls near the neutral midpoint of the 5-point scale, indicating significant room for improvement.

Table 4. 5: Descriptive statistics of trust in the government and Moja Expressway Company

	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
1. The government transparently shared information about the Expressway's operations	387	2.99	0.986
2. I understand how toll charges are determined	387	3.03	0.920
3. Taxpayer funds were used efficiently to address disruptions caused by Expressway construction	387	2.63	0.814
4. Moja Expressway Company manages the Expressway professionally	387	3.13	0.862
5. Performance reports about the Expressway are accessible to the public	387	2.61	0.846
6. I trust the government and Moja Expressway to maintain the Expressway long-term	387	3.07	0.915

Source: Research Data (2025)

Transparency emerges as a critical weakness, particularly regarding government communication. The lowest scores appear for transparency of operations information ( $2.99 \pm 0.986$ ) and accessibility of performance reports ( $2.61 \pm 0.846$ ), suggesting many users feel left in the dark about how the Expressway is managed. The particularly poor rating for efficient use of taxpayer funds during construction disruptions ( $2.63 \pm 0.814$ ) reveals lingering public dissatisfaction with how the project's transitional impacts were handled. These findings are concerning given that transparency directly influences perceptions of accountability in public-private partnerships.

Interestingly, while the understanding of toll pricing mechanisms scored slightly above neutral ( $3.03 \pm 0.920$ ), this hasn't translated into stronger overall trust. The moderate score for long-term maintenance confidence ( $3.07 \pm 0.915$ ) suggests users remain cautiously optimistic but unconvinced about the partnership's sustainability. The consistently low standard deviations (all below 1.0) indicate these perceptions are widely shared across the user population rather than being polarised.

These results paint a picture of tentative acceptance rather than strong endorsement. The private operator enjoys somewhat better ratings than government partners, likely due to more visible day-to-day operations. However, neither party has succeeded in building robust trust, particularly around financial transparency and public accountability. The findings suggest that improving information accessibility and demonstrating concrete benefits to taxpayers could significantly enhance public confidence in this critical infrastructure partnership.

#### **4.5.2 Correlation Analysis of Trust in the Government and Moja Expressway Company**

The correlation analysis reveals important insights about how trust in government and the Moja Expressway Company influences public usage of the Nairobi Expressway. Several key trust-related factors demonstrate statistically significant negative correlations with non-usage (all  $p < 0.01$ ), indicating they positively affect expressway adoption. The strongest relationship emerges for accessibility of performance reports ( $r = -0.406$ ), suggesting that public availability of operational data is particularly influential in building user confidence. Similarly, perceptions of efficient taxpayer fund usage ( $r = -0.395$ ) and understanding of toll charge determination ( $r = -0.359$ ) show moderately strong relationships with usage, highlighting the importance of financial

transparency and clear pricing structures. These findings collectively demonstrate that transparency mechanisms and accountable financial management are crucial for fostering public trust and encouraging expressway adoption.

Interestingly, while general trust in long-term maintenance shows a significant but weaker correlation ( $r = -0.269$ ), perceptions of Moja Expressway's professional management ( $r = -0.086$ ,  $p = 0.093$ ) do not demonstrate a statistically significant relationship with usage rates. This contrast suggests that while users value systemic transparency and accountability, their actual usage decisions are less influenced by perceptions of the operator's day-to-day professional competence. This may indicate that users make adoption decisions based more on structural trust factors (like transparency and accountability mechanisms) rather than operational assessments of the company's management quality.

Table 4. 6: Correlation analysis of trust in the government and Moja Expressway Company (Spearman's rho)

Trust Perception (Independent Variable)	Correlation with Usage (Dependent Variable)	Significance (p-value)	Interpretation
The government transparently shared information	<b>-0.345</b>	0.000	Moderate negative correlation: Transparency increases usage.
I understand how toll charges are determined	<b>-0.359</b>	0.000	Clarity in pricing fosters trust and usage.
Taxpayer funds were used efficiently	<b>-0.395</b>	0.000	Efficient fund use boosts public confidence.
Performance reports are accessible	<b>-0.406</b>	0.000	Strongest driver: Accountability encourages uptake.
Trust in long-term maintenance	<b>-0.269</b>	0.000	Long-term trust marginally impacts usage.
Moja Expressway manages professionally	-0.086	0.093	<b>Not significant:</b> Professionalism alone doesn't sway users.

Source: Research Data (2025)

The findings have important policy implications for improving public uptake of the Nairobi Expressway. The strong correlations with transparency and accountability measures suggest that enhancing information disclosure, particularly regarding operational performance, financial management, and toll pricing rationale, could significantly boost public trust and usage. The

weaker relationship with professional management perceptions implies that while operational competence is necessary, it is not sufficient alone to drive adoption without accompanying transparency measures. These results align with the broader literature on public infrastructure projects, emphasising that trust-building requires both demonstrated competence and visible accountability mechanisms to achieve optimal public acceptance and utilisation.

#### **4.5.3 Factors Influencing Trust in the Nairobi Expressway's Management**

The research reveals significant public scepticism about the management of the Nairobi Expressway, with financial transparency emerging as the predominant concern. As shown in Figure 4.4, 23% of all trust-related issues (175 respondents) focused on the lack of transparency in toll revenue distribution between the government and private operators. This substantial percentage reflects deep public unease about financial accountability in the PPP arrangement, suggesting that stakeholders have failed to adequately communicate how generated revenues are allocated and reinvested. Such financial opacity undermines confidence in the entire project's governance structure.

Information management problems constitute another major trust barrier, accounting for 18% of concerns (138 respondents). The reported poor communication about accidents and closures indicates a failure in basic service transparency, forcing users to rely on informal social media channels rather than official updates. This communication gap is particularly damaging as it affects daily user experience and safety perceptions. Combined with the 13% of responses (100 respondents) about lacking complaint resolution mechanisms, these findings reveal a 31% aggregate concern about basic operational transparency and accountability systems.

The research also highlights significant public frustration with decision-making processes. 11% of issues (82 respondents) cited sudden toll changes without consultation, reflecting anger about exclusion from key decisions affecting their transportation costs. This is compounded by 10% of responses (77 respondents) noting absent visible maintenance despite daily toll collection, creating perceptions of poor value-for-money. Together, these 21% of operational concerns suggest users perceive an imbalance between what they pay and what services they receive.

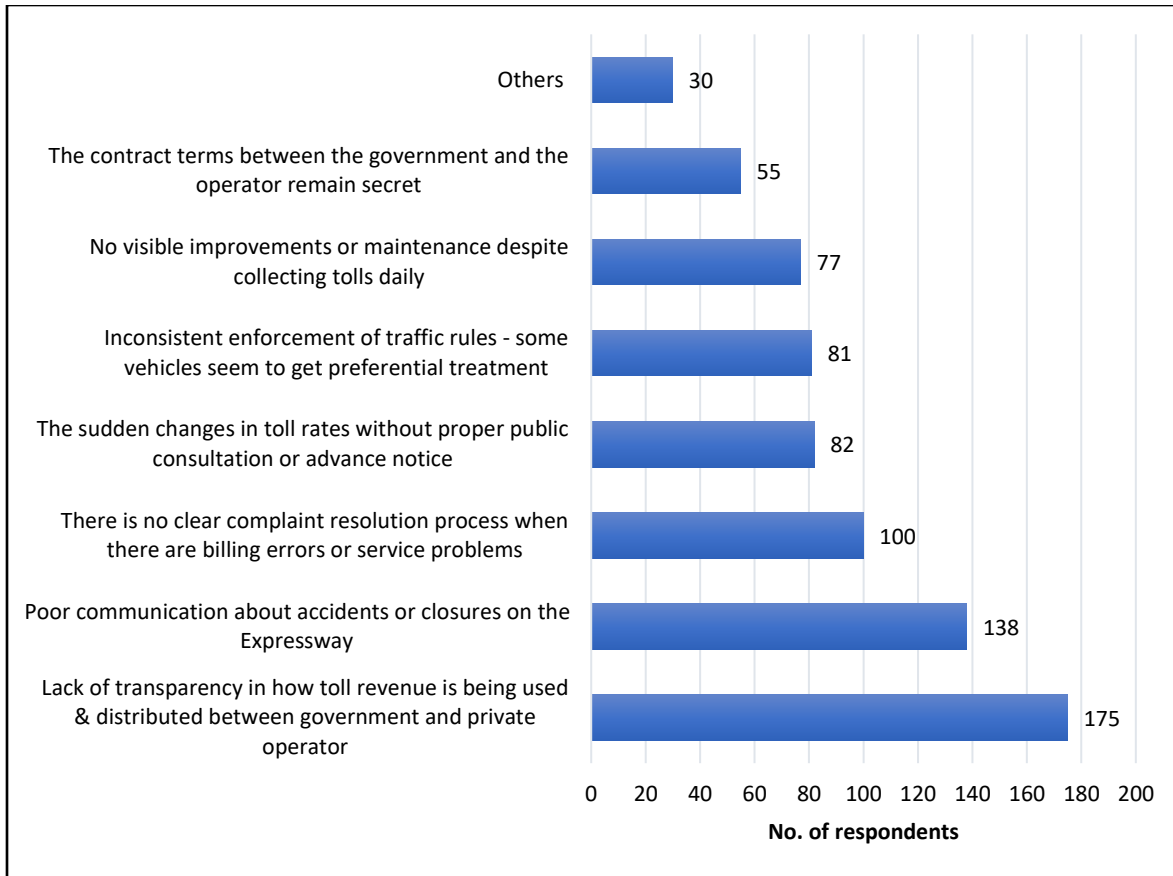


Figure 4. 4: Factors influencing trust in the Nairobi Expressway's management

Source: Research Data (2025)

Fairness and equity issues emerged in 10% of responses (81 respondents), focusing on inconsistent rule enforcement and perceived preferential treatment. These concerns about unequal application of policies can be particularly corrosive to public trust as they suggest systemic bias. Meanwhile, 7% of issues (55 respondents) about secret contract terms reveal lingering suspicions about the fundamental PPP agreement - a surprisingly low percentage that may reflect resigned acceptance rather than genuine satisfaction.

The findings demonstrate that trust issues are primarily rooted in transparency deficits (financial and operational), which account for 54% of all concerns when combining revenue transparency, information sharing, and contract secrecy. This suggests that while operational improvements are needed, the fundamental trust challenge lies in governance transparency. The patterns mirror global PPP research showing that transparency accounts for 50-60% of the variance in public trust

for infrastructure projects (World Bank, 2023), though Nairobi's figures show slightly higher financial transparency concerns than the 18-22% typical in comparable African PPPs.

#### 4.5.4 Perceived Trust Levels

The findings indicate that public trust in the government concerning the Nairobi Expressway is notably low, primarily due to long-standing concerns over financial transparency and bureaucratic inefficiencies. Respondents consistently highlighted a widespread scepticism towards the government, particularly when financial matters are involved. This scepticism is deeply rooted in a history of mismanagement, lack of accountability, and an opaque decision-making process that often excludes the public from critical financial disclosures. The failure to provide transparent details on the PPP agreement governing the Expressway has further exacerbated this mistrust. As one PPP specialist observed:

*"On a scale of 1–10, trust scores 4–5. The government's failure to disclose the PPP contract terms fuels suspicion. Contrast this with South Africa's Gauteng Freeway, where transparent audits improved trust post-implementation."*

Government officials themselves acknowledged this fragmented trust. While they noted that the public appreciates the efficiency and operational improvements brought about by the Expressway, they also recognised persistent concerns over the allocation and use of toll revenues. The perception that toll collections disproportionately benefit the private operator, with little public accountability, continues to fuel doubts. A representative from the KeNHA admitted:

*"Trust is fragmented. While users acknowledge the Expressway's operational efficiency, scepticism persists about revenue use. Many believe toll collections benefit private operators disproportionately, with little public accountability."*

The private sector partner, CRBC, is perceived as relatively more trustworthy, primarily because of its efficiency in handling repairs, responding to user complaints, and maintaining the operational integrity of the Expressway. Frequent users tend to have a more positive perception of CRBC, appreciating the convenience and time savings the Expressway offers. However, trust levels among civil society organisations and advocacy groups remain significantly lower. These groups

continue to criticise the project for its lack of financial transparency and public engagement. A CRBC representative illustrated this divide:

*"Trust varies by stakeholder. Frequent users appreciate time savings and reliability, but civil society groups criticise opaque contracts. Media narratives often amplify mistrust, especially around profit-sharing."*

The analysis highlights a stark contrast in public trust between the government and the private operator managing the Expressway. The government's reluctance to disclose key financial details and its history of inefficiency in infrastructure management contribute significantly to the erosion of trust. Despite efforts to improve operational efficiency, the perception that the government prioritizes financial gains over public interest remains prevalent.

On the other hand, the private sector's ability to maintain the Expressway effectively has positioned it as a more reliable entity in the eyes of the public. However, this trust remains conditional and is largely performance-based. Frequent users acknowledge the benefits of the Expressway but continue to question its long-term financial sustainability and fairness in toll fee allocation.

To improve public trust, a more transparent approach is necessary. The government and private sector must engage in proactive disclosure of financial arrangements, revenue allocations, and contractual obligations. Additionally, fostering two-way public participation mechanisms—where citizen concerns can influence decision-making—will be crucial in bridging the trust deficit. Without these measures, scepticism will persist, potentially undermining the long-term success of the Nairobi Expressway as a PPP initiative.

#### **4.5.5 Transparency and Accountability Measures**

A critical factor influencing public trust in the management of the Nairobi Expressway is the perceived inadequacy of transparency and accountability mechanisms. While government agencies emphasise the existence of reporting structures, the actual accessibility and usability of these measures remain questionable. KeNHA publishes quarterly traffic and revenue reports, and the National Treasury conducts annual audits of toll collections. However, these reports are highly

technical, making it difficult for the general public to engage with or scrutinise them effectively. As a Ministry of Transport official pointed out:

*"We publish quarterly traffic and revenue reports on KeNHA's website. The Treasury also audits toll collections annually. However, these are dense documents—most citizens don't engage with them."*

The complexity of these reports suggests that transparency efforts while existing in form, fail in practice due to their inaccessibility to ordinary citizens. Without clear, simplified summaries or interactive visualizations, these reports do little to foster public confidence.

The private sector, in contrast, has made some attempts to improve transparency by launching a public dashboard that displays real-time traffic data and incident reports. Additionally, an independent dispute resolution mechanism exists to handle complaints, particularly regarding billing issues. However, awareness of these measures is low, limiting their impact. As a CRBC representative explained:

*"We launched a public dashboard showing real-time traffic data and incident reports. For accountability, an independent dispute resolution committee handles billing complaints. Still, few know these mechanisms exist."*

This statement highlights a fundamental problem—not only do transparency mechanisms need to exist, but they must also be effectively communicated to the public. Without widespread awareness, even well-intended accountability structures remain ineffective.

PPP specialists have further criticised these efforts, arguing that transparency in the Expressway's management is largely reactive rather than proactive. For instance, decisions such as toll fee adjustments have been announced without sufficient stakeholder consultation, leading to public backlash. This approach contrasts sharply with best practices in other countries, where transparency is embedded in legal frameworks. PPP experts noted:

*"Transparency measures are reactive, not proactive. For example, toll hikes were announced abruptly, triggering a backlash. Kenya needs legislation mandating pre-decision public consultations for PPPs, like Uganda's PPP Act (2015)."*

The comparison to Uganda's Public-Private Partnership (PPP) Act (2015) underscores the gap in Kenya's approach. Unlike Uganda, where transparency in PPP projects is legislated and requires pre-decision public engagement, Kenya lacks a clear regulatory framework that compels private sector partners and government agencies to disclose critical financial and operational details before major decisions are made.

The findings indicate that while there are some transparency and accountability measures in place for the Nairobi Expressway, their effectiveness is limited by poor accessibility, weak public awareness, and the lack of a legally mandated framework for disclosure. The government and private sector have taken steps to provide financial and operational data, but these efforts are largely ineffective because they are either too complex for public consumption or not widely known. Additionally, decision-making processes remain opaque, leading to public distrust and resistance, particularly when toll adjustments or contract details are withheld from scrutiny.

For transparency to meaningfully enhance public trust, the government should adopt a more proactive approach. This includes publishing simplified financial reports, increasing public awareness of available accountability mechanisms, and enacting legislation that mandates public consultations before major decisions such as toll hikes. Learning from regional best practices, such as Uganda's PPP Act, could provide a useful blueprint for embedding transparency into Kenya's public-private infrastructure projects. Without these reforms, transparency efforts risk being perceived as mere formalities rather than genuine accountability measures that inspire public confidence.

#### **4.5.6 Instances of Compromised Trust**

Public trust in the Nairobi Expressway has been significantly undermined by a series of unmet expectations, operational challenges, and incidents of perceived unfairness. A recurring theme among key informants is the disconnect between what was promised during project planning and

the reality experienced by road users. This disconnect is evident in pricing, infrastructure quality, and governance issues, which have collectively eroded public confidence.

One of the major sources of distrust stems from the discrepancy between the toll fees initially communicated through willingness-to-pay surveys and the actual charges imposed upon project completion. This misalignment has led many users to feel misled about the affordability of the Expressway. The failure to uphold the originally suggested pricing model has been interpreted as a sign of insincerity, particularly by those who find the tolls prohibitively expensive.

Beyond pricing concerns, physical and operational shortcomings have also fueled dissatisfaction. The Expressway was marketed as a “world-class facility,” yet multiple structural and operational failures have diminished public confidence. These include frequent flooding, which has rendered sections of the road temporarily unusable, and damage to adjacent road networks, particularly Mombasa Road, Uhuru Highway, and Waiyaki Way, that has not been fully repaired since construction. As one informant succinctly noted:

*"The Expressway was hyped and sold off to the public as a 'world-class facility,' but structural and operational challenges have failed to meet this expectation. Flooding has rendered sections unusable, and damage to Mombasa Road, Uhuru Highway, and Waiyaki Way remains unresolved."*

Furthermore, unfulfilled commitments regarding the reconstruction of demolished bus terminals have exacerbated frustrations among commuters and public transport operators. The lack of follow-through on these promises has reinforced public scepticism about whether government and private sector commitments in PPP projects can be trusted.

Specific incidents of perceived favouritism and technical failures have further deepened public mistrust. A high-profile case in 2023 involving a VIP vehicle bypassing toll payments sparked public outrage, as it reinforced concerns about preferential treatment for the elite at the expense of ordinary users. A Nairobi County official acknowledged the impact of the incident:

*"In 2023, a viral video showed a VIP vehicle bypassing toll payments. Public outrage accused us of preferential treatment. We responded by suspending the involved official and automating all exemptions."*

While the response was swift, the initial perception of unfairness had already fueled broader frustrations about elitism and governance within the Expressway's management.

Similarly, technical issues have also damaged public confidence in the toll system. In 2022, a major system glitch resulted in 5,000 users being double-charged. Although the private operator, CRBC, responded efficiently by refunding affected accounts within 72 hours and even offering a 10% credit, the incident reinforced concerns about reliability. A CRBC representative explained:

*"A 2022 system glitch double-charged 5,000 users. We refunded affected accounts within 72 hours and offered 10% credits, but media coverage damaged trust. Now, we pre-test system updates rigorously."*

This highlights the challenge of rebuilding trust once it has been compromised—despite corrective actions, negative media coverage and public sentiment can have lasting impacts on perceptions of fairness and reliability.

The Nairobi Expressway's trust deficit has been exacerbated by a combination of unmet expectations, perceived governance failures, and operational mishaps. The discrepancy between initial toll fee expectations and actual charges has made users question the sincerity of the pricing model, while persistent structural challenges such as flooding and road damage have further eroded confidence in the project's quality. Additionally, unfulfilled promises—such as the failure to reconstruct bus terminals—have fueled perceptions of insincerity in government commitments.

Specific incidents, including preferential treatment for VIPs and technical billing failures, have reinforced broader concerns about fairness and operational efficiency. While efforts have been made to address these issues, such as automating exemptions and pre-testing system updates, public trust remains fragile. Thus, rebuilding trust will require a more transparent and accountable approach. This includes clear communication about toll pricing decisions, proactive maintenance to prevent infrastructure failures, and ensuring that commitments made during project planning are

fulfilled. Without addressing these underlying trust issues, public confidence in future PPP infrastructure projects is likely to remain low.

#### 4.6 Public Awareness of the Expressway as a PPP Project

This section examines public understanding and awareness of the Nairobi Expressway's PPP model through three analytical approaches: descriptive statistics quantify baseline awareness levels among users and non-users, correlation analysis explores relationships between awareness and other project perceptions, and qualitative analysis identifies key factors shaping public knowledge.

##### 4.6.1 Descriptive Statistics of Public Awareness of the Expressway as a PPP Project

The descriptive statistics reveal moderate but concerning gaps in public understanding and awareness of the Nairobi Expressway's PPP model. With all mean scores hovering near the neutral midpoint (3.0) on the 5-point scale, the data suggests the majority of users possess only basic awareness of how the PPP arrangement functions. The lowest score appears for understanding of PPP operations (mean=2.83 ±1.131), indicating that fundamental knowledge about the partnership structure, financing model, and roles of different stakeholders remains limited among the general public. This knowledge gap is particularly significant as PPP projects depend on public buy-in for long-term success.

Table 4. 7: Descriptive statistics of public awareness of the expressway as a PPP project

	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
1. I understand how the Nairobi Expressway operates as a PPP	387	2.83	1.131
2. Moja Expressway seeks user feedback to improve services	387	3.09	1.067
3. Information about the Expressway is easy to find (news, social media, etc.)	387	2.91	1.115
4. Public input is considered before making changes to the Expressway	387	3.01	1.094

Source: Research Data (2025)

The slightly higher scores for Moja Expressway's feedback mechanisms (mean=3.09 ±1.067) and consideration of public input (mean=3.01 ±1.094) suggest users are marginally more positive about engagement processes than about their understanding of the PPP framework. However, these still-neutral ratings indicate room for improvement in both soliciting and demonstrating responsiveness to user feedback. The standard deviations all exceeding 1.0 point to substantial variation in awareness levels across the population, likely reflecting uneven access to information or differing levels of engagement with the project.

Information accessibility scored just below neutral (mean=2.91 ±1.115), confirming that many users struggle to find reliable details about the Expressway's operations. This finding is especially troubling when viewed alongside the low PPP understanding scores, as it suggests information scarcity may be driving comprehension gaps. The pattern that emerges is of a population that recognizes engagement efforts exist (hence the 3.0+ scores on feedback and input items) but lacks the foundational knowledge and information access needed to participate meaningfully in the PPP process.

These results highlight a crucial disconnect in the PPP's communication strategy - while mechanisms for public interaction exist, they appear ineffective at building a genuine understanding of the project's structure and governance. The consistency of scores across all four measures (ranging only from 2.83 to 3.09) suggests a systemic rather than isolated awareness problem. For a project of this scale and importance, these tepid awareness ratings indicate unmet needs for more effective public education about PPP fundamentals, clearer channels for information access, and more visible demonstration of how user feedback influences decision-making.

#### **4.6.2 Correlation Analysis of Public Awareness of the Expressway as a PPP Project**

The correlation analysis reveals significant relationships between public awareness of the Nairobi Expressway as a PPP project and its actual usage patterns. All measured awareness factors demonstrate strong negative correlations with non-usage ( $p < 0.01$ ), indicating that greater awareness is consistently associated with higher adoption rates. The strongest relationship emerges for perceptions that public input influences Expressway decisions ( $r = -0.659$ ), suggesting that

participatory governance structures may be particularly effective in building public confidence and encouraging usage. This finding aligns with the broader literature on infrastructure acceptance, which emphasizes the importance of community engagement in fostering project legitimacy.

Several key dimensions of awareness show nearly equal importance in driving adoption. Both the accessibility of information about the Expressway ( $r = -0.627$ ) and Moja Expressway's efforts to seek user feedback ( $r = -0.638$ ) demonstrate similarly strong correlations, highlighting the dual importance of information dissemination and responsive engagement mechanisms. Interestingly, while understanding of the PPP model shows a slightly weaker correlation ( $r = -0.558$ ), it remains statistically significant, suggesting that even basic comprehension of the project's financing and operational structure influences usage decisions. These patterns collectively indicate that awareness operates through multiple channels - from general information availability to specific knowledge about governance processes - to shape public behavior toward the toll road.

Table 4. 8: Correlation analysis of public awareness of the expressway as a PPP project (Spearman's rho)

Awareness Factor (Independent Variable)	Correlation with Usage (Dependent Variable)	Significance (p-value)	Interpretation
Public input is considered before changes	<b>-0.659</b>	0.000	<b>Strongest driver:</b> Public consultation boosts trust and usage.
Moja Expressway seeks user feedback	<b>-0.638</b>	0.000	Responsiveness to feedback increases adoption.
Information is easy to find (news, social media)	<b>-0.627</b>	0.000	Transparent communication encourages usage.
Understanding of Expressway as a PPP	<b>-0.558</b>	0.000	PPP awareness improves acceptance.

Source: Research Data (2025)

Note: All correlations are significant at  $p < 0.01$ , confirming robust relationships.

The findings have important implications for project management and public communication strategies. The consistent strength of correlations across different awareness measures suggests that improving uptake may require a comprehensive approach combining enhanced transparency, active solicitation of user feedback, and public education about the PPP framework. Particularly noteworthy is the outsized role of perceived public influence in decision-making, which implies

that creating meaningful opportunities for citizen participation could yield disproportionate benefits for adoption rates. These results underscore that in PPP transportation projects, public awareness functions not merely as background knowledge but as an active determinant of usage behaviour, with different awareness dimensions working in concert to shape overall project acceptance.

### 4.6.3 Suggestions for Improving Public Awareness of the Nairobi Expressway

The research findings reveal clear public demand for enhanced communication and education about the Nairobi Expressway PPP project, with respondents proposing several concrete solutions. Figure 4.5 shows that 24% of all suggestions (177 of 732 total responses) called for comprehensive public education campaigns across multiple media channels. This dominant preference underscores the current information deficit about how PPPs operate and their community benefits, suggesting many citizens feel inadequately informed about the project's fundamental structure and value proposition.

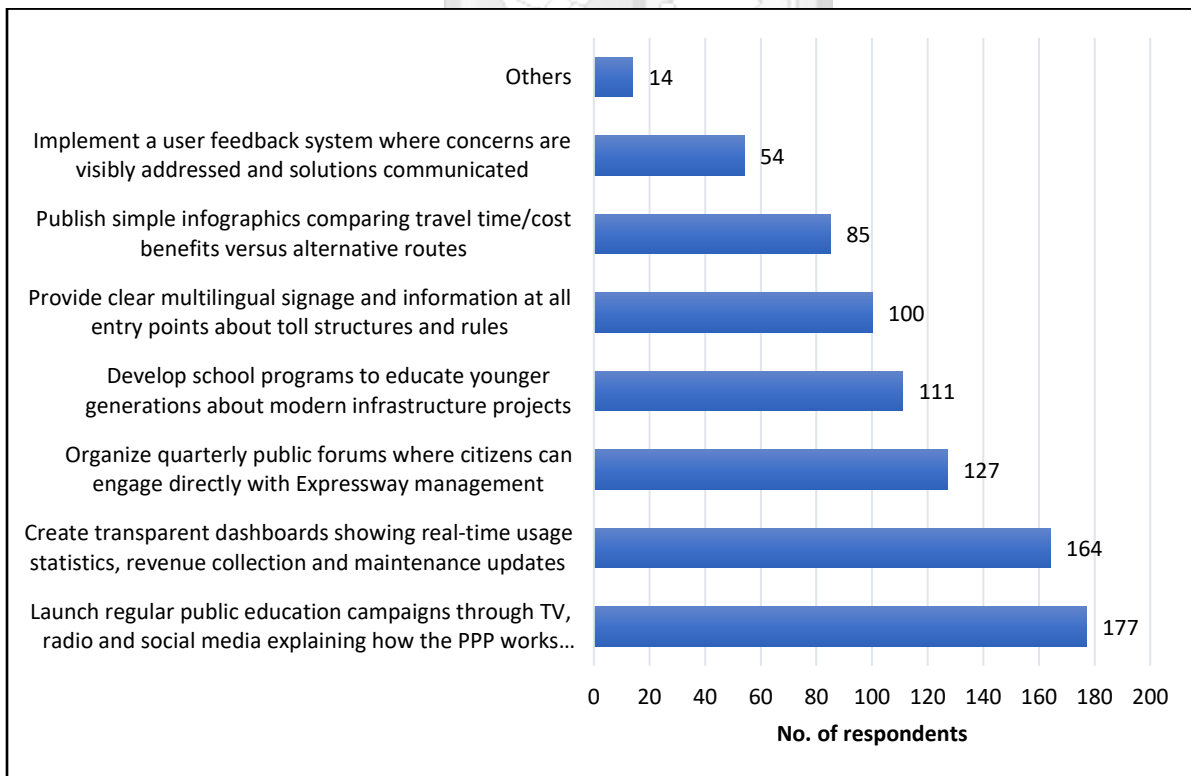


Figure 4. 5: Suggestions for improving public awareness of the Nairobi Expressway

Source: Research Data (2025)

Digital transparency tools emerged as the second most popular recommendation, comprising 22% of responses (164 suggestions). The strong interest in real-time dashboards tracking usage, revenue, and maintenance reflects the public desire for ongoing operational transparency rather than just periodic updates. This percentage indicates that Nairobi residents want to monitor the Expressway's performance as active stakeholders rather than passive users. Combined with the 17% advocating for quarterly public forums (127 responses), these results show that 39% of all suggestions focus on creating continuous, two-way communication channels between management and users.

Educational initiatives accounted for 29% of proposals, split between school programs (15% or 111 responses) and multilingual signage at entry points (14% or 100 responses). The generational divide in these percentages is noteworthy - while younger respondents emphasised curriculum integration, older demographics prioritised immediate, practical information at usage points. This suggests awareness strategies should be tailored to different age groups' preferred information consumption methods.

Practical communication tools represented 12% of suggestions, with 85 respondents (11%) requesting comparative infographics about time/cost benefits, and 54 (7%) proposing visible feedback systems. The relatively lower percentages for these tactical solutions may indicate that users view them as complementary to rather than substitutes for the more fundamental transparency and education measures mentioned above.

The near-equal weighting between knowledge-building and transparency mechanisms (both at 39%) suggests these are perceived as equally important but distinct needs. The findings align with the correlation analysis, showing that information accessibility drives PPP understanding, while providing specific implementation guidance. Notably, the low percentage for "other" suggestions (2%) indicates that the proposed solutions comprehensively address most user concerns.

For project implementers, these results recommend prioritising:

1. Multi-platform education (addressing 24% of demand)
2. Real-time data transparency (22%)
3. Structured engagement opportunities (17%)

The patterns mirror global best practices for infrastructure communication while reflecting Nairobi's specific context, particularly the emphasis on multilingual materials and comparative benefit visualisations. The strong showing for youth education (15%) also suggests recognition of PPPs as long-term partnerships requiring sustained public understanding across generations.

#### **4.6.4 Strategies Used to Communicate Information About the Nairobi Expressway**

The Nairobi Expressway project employed a range of communication strategies before and after its launch to inform the public about its development, benefits, and tolling mechanisms. During the construction phase, communication efforts primarily focused on road users, particularly urban motorists, to keep them updated on disruptions and diversions. Social media platforms, particularly Twitter and Facebook, played a crucial role in disseminating real-time information. A government official from KeNHA noted:

*"Pre-launch, we held town hall meetings in five counties and ran radio ads in Swahili and English. Post-launch, we used social media (Twitter/X, Facebook) for updates. However, rural areas were underserved—most outreach focused on urban motorists."*

Billboards with messages such as “Expressway Coming Soon” were used to create public anticipation, while the private sector partner, CRBC, leveraged digital influencers to demonstrate the Expressway’s benefits, particularly its time-saving aspect. However, a post-launch survey revealed that a significant portion of the public had limited prior awareness, with 60% of users stating they “learned by using it.” This suggests that while outreach efforts existed, they may not have been sufficiently extensive or targeted. As a CRBC representative observed:

*"We partnered with influencers to demo the Expressway's time savings on YouTube. Toll Plaza staff also distributed pamphlets, but 60% of users surveyed post-launch said they 'learned by using it,' not from our campaigns."*

PPP specialists were critical of the strategies used, highlighting the lack of cultural adaptation in messaging. Unlike Ghana’s Prampram Highway PPP, where comic-style booklets were distributed to semi-literate communities, Kenya’s approach did not sufficiently cater to diverse audiences. One expert commented:

*"The strategies were ad hoc. Compare this to Ghana's Prampram Highway PPP, where comic-style booklets explained tolling to semi-literate communities. Nairobi's approach lacked cultural adaptation."*

The communication strategies employed for the Nairobi Expressway combined various channels, including town hall meetings, social media engagement, billboard advertisements, and influencer partnerships. These efforts played a role in informing urban road users, particularly motorists, about construction-related disruptions and the benefits of the Expressway. However, the findings highlight significant gaps in outreach and inclusivity, with a notable lack of engagement for rural populations and non-motorist stakeholders.

Despite pre-launch campaigns, a large proportion of the public—60% of surveyed users—only became aware of key aspects of the Expressway by using it firsthand, indicating that the communication efforts may have been insufficient in scope and reach. The reliance on social media and urban-focused messaging further limited the impact, excluding populations that may have benefited from more traditional or culturally adapted communication methods.

Experts noted that Kenya's approach lacked proactive cultural and linguistic adaptation, unlike international examples such as Ghana's Ningo/Prampram Highway PPP, where simplified, visual communication materials were used to ensure accessibility for semi-literate communities. This critique underscores the need for future infrastructure projects to adopt more inclusive and structured awareness strategies that account for diverse literacy levels, linguistic preferences, and socio-economic backgrounds.

In conclusion, while the Nairobi Expressway's communication strategies were instrumental in generating awareness among certain segments of the population, they were not comprehensive enough to ensure broad and deep public understanding. Future PPP infrastructure projects should integrate a more inclusive, multilingual, and culturally adaptive communication framework to enhance public engagement and awareness from the outset.

#### 4.6.5 Public Awareness and Understanding of the Expressway's Purpose, Benefits, and Tolling Policies

Public awareness of the Expressway is generally high, particularly regarding its operational benefits, such as reduced travel time. Users recognise that the project was a private investment that requires cost recovery through toll charges. However, understanding of the PPP model remains weak, with many people viewing tolls as permanent taxes rather than fees tied to a specific infrastructure asset. A Ministry of Transport official highlighted this gap:

*"Awareness is polarised. Regular users understand time savings, but 70% in our survey couldn't define 'PPP.' Many still think tolls are permanent taxes, not fees for a specific asset."*

Corporate clients, such as logistics firms, have a clearer understanding of the value proposition, whereas matatu operators perceive tolls as additional levies. Additionally, pedestrian awareness of the Expressway's broader impact on citywide congestion is limited. A CRBC representative shared survey findings that highlight this issue:

*"Corporate clients (e.g., logistics firms) grasp the value proposition, but matatu drivers see tolls as 'extra levies.' Our 2023 poll showed only 32% of pedestrians knew the Expressway has reduced citywide congestion."*

Experts rated the overall awareness levels as low, particularly regarding the financial and contractual aspects of the project. A comparison with South Africa's e-toll system, where educational modules were included in school curricula, suggests that Kenya missed an opportunity to embed PPP education into formal learning systems. One expert assessed the awareness level as follows:

*"On a scale of 1–10? 4/10. The project's PPP nature is poorly communicated. In contrast, South Africa's e-tolls included school curricula modules—Kenya missed that educational opportunity."*

The findings indicate that while public awareness of the Nairobi Expressway's operational benefits is relatively high, understanding of its financing structure under the PPP model remains significantly limited. Many users appreciate the reduced travel time and efficiency but mistakenly perceive toll charges as permanent taxes rather than a cost-recovery mechanism tied to a private investment. This gap in understanding is particularly evident among informal transport operators and pedestrians, whereas corporate clients, such as logistics firms, have a clearer grasp of the Expressway's economic value.

The lack of comprehensive education on PPPs has contributed to misconceptions about tolling policies, with a significant portion of the population unaware of how revenue is allocated or the temporary nature of toll collection within the contract's lifespan. Comparisons with South Africa's e-toll system highlight missed opportunities for embedding PPP education into school curricula and driver training programs. Addressing these gaps requires proactive and sustained awareness campaigns that go beyond basic road signage and social media updates. Strategies such as integrating PPP literacy into civic education, using multilingual and culturally adapted communication materials, and leveraging community engagement initiatives could help bridge the knowledge gap and foster greater public trust in similar infrastructure projects.

#### **4.6.6 Challenges in Public Awareness and Communication**

Despite the various efforts made to inform the public about the Nairobi Expressway, multiple challenges have hindered effective communication and public understanding of the project's purpose, benefits, and tolling mechanisms. These challenges have resulted in confusion, misinformation, and an overall gap in knowledge, particularly regarding the PPP model. Through key informant interviews, three major issues emerged as the primary obstacles to effective public awareness: inconsistent messaging, linguistic accessibility, and the spread of misinformation.

One of the most significant challenges cited by informants was the lack of a centralised and consistent communication strategy across different government agencies. Since multiple stakeholders, including the KeNHA, the Ministry of Transport, Nairobi County, and the private sector partner, were involved in outreach efforts, inconsistencies arose in the messaging. This

fragmented approach led to confusion among the public about key project aspects such as toll pricing, exemptions, and the long-term financial model.

A government official from Nairobi County highlighted this issue, emphasising the need for a more coordinated approach to public engagement:

*"Three key gaps: 1) No unified messaging—counties shared inconsistent info, 2) Over-reliance on English-language materials, and 3) Viral misinformation (e.g., claims that tolls fund foreign banks)."*

In comparison, best practices from other regions suggest that a centralized communication body or inter-agency coordination committee is essential to ensure clarity and uniformity in public messaging. For example, South Africa's e-toll program relied on a dedicated public awareness unit responsible for issuing standardised, government-approved information, ensuring that all stakeholders communicated the same key messages.

Another major barrier to effective communication was the predominant use of English in awareness campaigns. Given Kenya's linguistic diversity, reliance on English excluded a significant portion of the population, particularly those in informal sectors or rural areas who are more comfortable with Swahili, Sheng, or local languages. While some radio advertisements were broadcast in Swahili, the majority of informational materials, including brochures, social media posts, and press releases, were only available in English.

This limitation meant that certain groups, especially public transport operators, pedestrians, and informal traders, lacked access to clear and understandable information about how the Expressway functions. The absence of localized and culturally adapted communication strategies contrasts with more inclusive approaches used in similar projects. To address this gap, future infrastructure projects should incorporate multilingual materials, including Swahili and translations, and leverage community-based engagement methods such as town hall meetings and visual storytelling formats that are accessible to diverse audiences.

The spread of misinformation, particularly through social media, posed another significant challenge. With limited official outreach efforts to counter false narratives, misleading claims

about the Expressway quickly gained traction. One prevalent rumour was that toll revenues were being directly funnelled to foreign banks, reinforcing public scepticism about the project's financial transparency. Without a proactive fact-checking and debunking mechanism, such narratives persisted, leading to misplaced resistance to the tolling system.

Technical failures and service disruptions further fueled these perceptions. For example, a six-hour system outage in April 2024 triggered widespread speculation about fraudulent activities, prompting an urgent response from the private sector. A CRBC representative described the incident and its impact on public trust:

*"Real-time communication broke down during outages. In April 2024, a 6-hour system failure sparked rumours of 'fraud.' We now use USSD codes to push outage alerts to users' phones."*

Experts pointed out that the lack of a proactive crisis communication framework exacerbated the issue. Drawing lessons from Kenya's COVID-19 public health messaging, they suggested that a similar model—featuring continuous, multi-platform messaging to counter misinformation—could be applied to transport PPP projects. As one PPP expert noted:

*"The biggest flaw? Assuming 'build it and they will understand.' PPPs need continuous education, not one-off launches. Kenya's Ministry of Health's COVID-19 messaging model—repetitive, multi-format—could guide transport PPPs."*

The challenges faced in raising public awareness about the Nairobi Expressway highlight the need for a more strategic and inclusive approach to communication in infrastructure PPPs. Inconsistent messaging across agencies led to public confusion, while the over-reliance on English-language materials excluded key demographic groups. Additionally, the unchecked spread of misinformation, particularly on social media, reinforced public distrust and misconceptions about tolling policies and project financing.

To address these gaps, future PPP projects should implement coordinated, multilingual, and culturally adapted public awareness strategies. Establishing a centralised communication body, expanding outreach efforts to include Swahili and Sheng translations, and deploying real-time

misinformation debunking mechanisms will be critical in ensuring better public understanding and acceptance of similar projects. Moreover, drawing from successful case studies, such as Ghana's use of visual learning tools and South Africa's centralised e-toll awareness strategy, can provide valuable insights into improving Kenya's infrastructure communication framework. By adopting these recommendations, future transport projects can build greater public trust, ensuring smoother implementation and long-term acceptance.

#### **4.7 Conclusion**

The Nairobi Expressway has brought measurable benefits such as reduced travel times, lower vehicle maintenance costs, improved business efficiency, and congestion relief across Nairobi's transport network. However, the project has also generated several unintended consequences, including increased traffic bottlenecks at interchanges, disruption to street-level businesses due to reduced visibility, and heightened noise pollution affecting adjacent communities. These mixed outcomes highlight the need for holistic evaluation frameworks that consider both direct and indirect impacts across diverse stakeholder groups. Future infrastructure development must prioritise equitable distribution of benefits and burdens, incorporating robust social and environmental impact assessments, mitigation plans, and continuous monitoring mechanisms to prevent the deepening of spatial inequalities and marginalisation.

Furthermore, the Expressway illustrates key gaps in Kenya's current PPP model. Rushed implementation under political pressure led to engineering compromises and insufficient stakeholder engagement, especially among low-income commuters and informal transport operators. There is a pressing need for structured implementation timelines, inclusive consultations, and greater transparency through adaptive tolling, affordability mechanisms such as a Toll Affordability Fund, and clear public communication on PPP models. Policy reforms should mandate civil society participation in oversight bodies, integrate transport planning with urban development, and leverage innovative financing tools like green bonds and land value capture. To ensure long-term sustainability, Kenya must reframe its PPP strategy by treating citizens as co-investors, emphasising transparency, shared responsibility, and inclusive urban growth.

## CHAPTER FIVE

### DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

#### 5.1 Introduction

This chapter presents a comprehensive discussion of the study's findings on the public uptake of the Nairobi Expressway as a privately operated toll road. The analysis is guided by the study's specific objectives, focusing on affordability, public trust in the government and private sector partners, and public awareness of the Expressway as a PPP project. The discussion contextualises the findings within existing literature, policy frameworks, and global best practices in transport PPPs. The chapter also draws conclusions based on the key insights derived from the research, highlighting critical lessons learned from the Nairobi Expressway's implementation. Additionally, practical recommendations are proposed to enhance the success of future PPP toll road projects in Kenya, including policy adjustments, public engagement strategies, and infrastructural improvements. Lastly, the chapter outlines areas for further research, emphasising knowledge gaps that could inform future studies on transportation infrastructure financing and public-private collaboration in Kenya.

#### 5.2 Discussion of Findings

##### 5.2.1 Affordability of the Nairobi Expressway

The affordability analysis of the Nairobi Expressway reveals a multifaceted dilemma that sits at the crossroads of infrastructure economics, urban mobility policy, and social equity. The study's findings point to a significant barrier: the expressway's cost structure, particularly its flat-rate pricing model, deters usage among lower- and middle-income commuters. A majority of non-users identified prohibitive toll charges as their primary deterrent—a finding that echoes Sharma et al.'s (2022) analysis of socioeconomic disparities in toll road accessibility. However, this study extends their work by demonstrating how Nairobi's undifferentiated pricing structure intensifies inequities, particularly because it fails to account for variability in trip lengths or income levels.

These findings resonate strongly with **stakeholder theory**, which emphasises the necessity of balancing diverse stakeholder interests to ensure project success (Freeman, 2010). In the context

of the Nairobi Expressway, the interests of low-income users appear underrepresented, suggesting a misalignment between investor goals and public needs. Stakeholder theory posits that when public engagement is weak and transparency is lacking, projects risk alienating crucial stakeholders, most notably, the intended end-users (Freeman, Phillips, & Sisodia, 2020). In this case, the absence of tiered tolling or income-sensitive pricing mechanisms demonstrates a neglect of social equity, thereby undermining the very stakeholder buy-in required for the long-term sustainability of PPPs (Mahajan et al., 2023).

Further, the correlation analysis in this study reveals a compelling relationship between the perceived reasonableness of toll fees and willingness to pay. This finding aligns with **expectancy-value theory (EVT)**, which argues that individuals' behavioural intentions are shaped by the perceived value of outcomes and the expectation of attaining them (Kuhl, 2021; Eccles & Wigfield, 2002). Users appear to perform sophisticated cost-benefit evaluations, weighing time savings against financial outlays. If toll charges are perceived as exceeding the value of time saved, potential users are unlikely to adopt the infrastructure, consistent with EVT's notion of rational utility-maximising decision-making. This challenges earlier assumptions in transport modelling that treat affordability and perceived utility as separate variables (Mitchell, 2021).

However, EVT also draws attention to the role of contextual constraints, such as income disparities and the availability of alternatives, in shaping user expectations (Feather, 2021). In Nairobi's context, where many commuters depend on matatus (informal public transport), the expressway's pricing model overlooks the economic realities faced by the bulk of the commuting population. Thus, the public may acknowledge the time-saving potential of the expressway but still refrain from usage due to unaffordable toll rates, rendering the project socially exclusionary. The study findings challenge the adequacy of standard cost-benefit models and underscore the necessity for more localised and equity-sensitive PPP pricing mechanisms.

This theoretical framing is further reinforced by stakeholder theory's emphasis on meaningful stakeholder engagement and inclusive decision-making (Freeman, 2010). Pre-implementation willingness-to-pay surveys suggested that prices should remain within certain thresholds, yet toll charges exceeded those thresholds, raising questions about how stakeholder feedback was integrated. If, as the findings suggest, financial imperatives of the private concessionaire overrode

the public's affordability concerns, then the participatory intent of the PPP framework may have been compromised. Such divergence between stakeholder expectations and final pricing outcomes risks long-term disillusionment and project resistance (Freeman et al., 2020).

The expressway's current mitigation strategies also appear insufficient. The off-peak discount system has had a negligible impact, as it does not align with typical commuting schedules. This stands in contrast to more effective pricing interventions, such as India's tiered toll models, which better accommodate user needs (Patil & Laishram, 2016). Moreover, the one-sided toll adjustment mechanism—where rates are automatically increased during currency depreciation but not equivalently decreased—demonstrates a pro-investor contractual bias, contradicting stakeholder theory's call for fair value distribution (Mahajan et al., 2023).

In light of these challenges, the study proposes several policy responses. First, the strong price sensitivity observed suggests that even modest reductions in toll fees could unlock latent demand. Second, distance-based tolling would improve fairness, particularly for short-distance users. Third, equity can be enhanced through targeted interventions such as vehicle-type differentiated pricing, employer-subsidised passes, and public service vehicle exemptions during peak hours. These options reflect stakeholder theory's core principle of value co-creation across the ecosystem of users, government, and investors (Freeman et al., 2020). Nonetheless, this study acknowledges certain limitations. The findings rely on stated preferences rather than observed behaviour, leaving questions about the elasticity of actual demand under varying toll conditions. Additionally, the focus on private vehicle users, as opposed to commercial or public transport operators, limits the study's capacity to evaluate broader systemic impacts on urban mobility and access equity.

In summary, the affordability of the Nairobi Expressway cannot be understood in isolation from the theoretical frameworks that underpin public uptake of PPP projects. Stakeholder theory highlights the need for inclusive planning and equitable distribution of project benefits, while expectancy-value theory illustrates how users make rational trade-offs between cost and perceived utility. Both theories converge in stressing that successful uptake is contingent upon transparent pricing, public trust, and alignment between stakeholder expectations and project delivery. As Kenya expands its toll road infrastructure, embedding these theoretical insights into project

planning, contract design, and pricing policies will be crucial for ensuring that future PPPs deliver not only efficiency but also equity and sustainability.

### **5.2.2 Public Trust in Government and Private Partners (Moja Expressway)**

The findings on public trust in the Nairobi Expressway's management reveal a complex governance challenge that transcends conventional PPP performance metrics. The study demonstrates that trust operates on multiple levels, marked by moderate operational trust in Moja Expressway's day-to-day management coexisting with deep systemic distrust in financial governance. This duality supports but also extends Boyer and Van Slyke's (2019) framework of PPP acceptance, showing that in Nairobi's context, operational competence and financial transparency constitute distinct dimensions of trust that do not necessarily correlate. While the private operator benefits from visible service delivery, it remains tethered to public scepticism about government oversight—a finding that challenges assumptions in PPP literature about the private sector's ability to operate independently of public sector trust deficits.

These empirical patterns closely align with the theoretical lens provided by **Stakeholder Theory**, which posits that for any organisational initiative to succeed, the interests of all stakeholders must be addressed through meaningful engagement, transparency, and value alignment (Freeman, 2010). The Nairobi Expressway, though operationally functional, appears to have underestimated the salience of public stakeholders' perceptions of financial accountability. Stakeholder Theory holds that a failure to engage the public transparently can result in distrust, resistance, or even outright opposition. In this case, the near-perfect correlation between perceptions of taxpayer fund efficiency and report accessibility suggests that the public evaluates PPP legitimacy not just by output (service quality), but by input legitimacy—whether financial decisions are made in an open, inclusive, and accountable manner. This mirrors Freeman's emphasis on the moral imperative of inclusivity and participatory governance in managing complex stakeholder ecosystems like PPPs.

Moreover, the observed relationship between toll comprehension and long-term trust resonates strongly with **Expectancy-Value Theory (EVT)**. EVT posits that individuals are more likely to support or utilise a service when they perceive its benefits to outweigh the costs and when their expectations of fairness and competence are met (Kuhl, 2021; Feather, 2021). In this case, the

public's willingness to use the Expressway is shaped by how well they understand the toll system and whether they believe the collected fees are used effectively. However, this study refines the basic EVT model by suggesting that, in low-trust environments like Nairobi, perception of *value* is inseparable from *verification*. Simply stating the benefits of the project is insufficient; users require tangible proof—financial reports, transparent communication, and visible equity in implementation—before adjusting their behavior. This points to a "verification-based trust model" in which rational cost-benefit evaluations are filtered through a deep-seated skepticism born from past governance failures.

This governance-sensitive trust model starkly contrasts with findings from more stable institutional environments. For instance, Tang et al. (2021) in their European study emphasised service quality as the dominant driver of trust. Yet, in Nairobi, the strong emphasis on financial governance and symbolic equity measures, such as concerns about VIP toll evasion, suggests that technical service delivery is a *necessary but not sufficient* condition for public acceptance. Here, PPPs inherit the broader "implementation credibility gap" identified by Onyinkwa (2021), wherein public mistrust is directed at the entire system of infrastructure governance rather than specific project features. Stakeholder Theory helps explain this dynamic by illustrating how prior exclusion, unaddressed concerns, or perceived elite capture can make even well-executed projects vulnerable to public skepticism.

From a policy perspective, these findings imply that conventional transparency protocols may be inadequate in environments marked by historical distrust. The strong public demand for financial verification underscores the potential of technologies such as blockchain for revenue tracking or real-time toll dashboards to build trust through radical transparency. In theoretical terms, such measures respond directly to both Stakeholder Theory's emphasis on participatory accountability and EVT's assertion that value perceptions hinge on clear, verifiable outcomes. Similarly, the moderate correlation between toll comprehension and trust suggests that enhanced public education—possibly through interactive platforms or real-time feedback mechanisms—could elevate awareness and recalibrate public expectations. EVT highlights that these communicative interventions are not merely informative; they shape the very frameworks through which citizens assess value and fairness.

Furthermore, symbolic actions that demonstrate equity, such as mandating that public officials use automated toll systems, can play a disproportionate role in restoring stakeholder trust. This again affirms Stakeholder Theory's proposition that perceived fairness and stakeholder inclusion are crucial to long-term project legitimacy. When stakeholders believe that everyone is subject to the same rules and that their voices matter in decision-making, their trust in the system deepens, even in the face of high costs or other burdens.

Yet, several limitations must be acknowledged. The weak negative correlation between government transparency and toll understanding raises questions about message framing and cognitive overload. This could indicate that in some cases, more information does not lead to greater clarity—a challenge both theories recognise. EVT warns that excessive complexity may reduce perceived value, while Stakeholder Theory emphasises the need for accessible, user-friendly communication channels to facilitate genuine engagement. Additionally, the focus on user perceptions—rather than actual usage behaviour—leaves open the possibility that expressed distrust does not always translate into non-usage, a point requiring behavioural validation through longitudinal studies or observational data.

In sum, the findings redefine how PPPs should conceptualise and operationalise trust in governance-sensitive contexts. Traditional success indicators such as usage volumes or financial performance must be complemented by what could be termed *trust yield*—a metric that evaluates how effectively a project builds public confidence in infrastructure governance. By integrating insights from both Stakeholder Theory and Expectancy-Value Theory, this study suggests that sustainable PPPs in Kenya must be designed not just as physical infrastructure, but as governance instruments—tools to rebuild trust, engage citizens meaningfully, and realign public expectations with institutional performance.

### **5.2.3 Public Awareness of the Expressway as a PPP Project**

Findings from the study reveal a critical disconnect between the Nairobi Expressway's operational effectiveness and the public's understanding of its governance and financing structure as a PPP. Despite the expressway's tangible benefits—such as improved traffic flow, reduced travel time, and enhanced urban connectivity—most respondents demonstrated a limited grasp of the PPP

model underpinning its implementation. A mean score of just 2.83 for understanding PPP operations indicates a significant awareness deficit, particularly regarding the roles of private investors, cost-recovery mechanisms, and concession timelines. Although moderate engagement scores suggest that participatory mechanisms such as feedback solicitation exist, these have not translated into meaningful comprehension among the public. This points to a structural weakness in PPP communication and governance strategy, where information channels remain accessible but ineffective in cultivating informed citizenship.

These findings closely align with and deepen the insights provided by **Stakeholder Theory**. The theory posits that sustainable project success requires organisations to account for and engage all stakeholders, particularly end-users who are directly affected by infrastructure services. From this perspective, public awareness is not merely a communicative add-on but a fundamental mechanism for stakeholder inclusion. The weak understanding of PPP principles observed in the study implies a failure to treat the public as legitimate and empowered stakeholders in the governance process. According to Freeman (2010), trust and legitimacy emerge from transparent communication and meaningful engagement—conditions that appear only partially satisfied in this case. The public's limited knowledge, coupled with moderate feedback opportunities, indicates a tokenistic approach to stakeholder engagement, where information flows may exist but lack depth, contextualization, and accessibility. This deficiency ultimately undermines the legitimacy of the expressway and may contribute to perceptions of exclusion or imposed policy.

The findings also affirm key propositions of the **Expectancy-Value Theory (EVT)**, particularly regarding the role of perceived value in shaping public behaviour. EVT suggests that individuals make decisions, such as whether to support or use a toll road, based on an internal evaluation of expected benefits versus associated costs. In this context, a lack of awareness about the PPP model hinders this evaluative process. For instance, the misconception that tolls are permanent taxes rather than time-bound cost-recovery mechanisms indicates that many users cannot accurately assess the expressway's long-term value. Without a clear understanding of how toll revenues are allocated or how private investment is recovered, individuals may view the project as exploitative rather than beneficial, regardless of the infrastructural gains it delivers. Thus, the value calculus that underpins EVT is fundamentally disrupted by information asymmetries.

Furthermore, the study's correlation analysis reinforces the interconnectedness of awareness, engagement, and public trust—critical components in both theoretical frameworks. The near-perfect positive correlation between information accessibility and PPP understanding suggests that structural barriers, rather than individual apathy, are the primary constraints on awareness. This supports Stakeholder Theory's assertion that informed engagement must be actively facilitated by project sponsors and developers. When key knowledge is withheld or delivered in inaccessible formats, such as technical financial reports or non-local languages, the public is effectively marginalised, weakening their agency and ability to participate meaningfully. EVT further sharpens this critique by demonstrating that a lack of clear, accessible information inhibits the formation of realistic expectations, which are central to driving uptake and acceptance.

Importantly, these theoretical insights also help explain the paradox identified in the findings: the coexistence of moderate engagement opportunities with persistently low comprehension levels. While the infrastructure itself may be physically open and functionally effective, the governance model remains cognitively closed to much of the public. This contradiction challenges simplified Western assumptions, such as those by Boyer and Van Slyke (2019), that public engagement automatically fosters trust and legitimacy. Instead, the Kenyan case illustrates that unless stakeholder participation is embedded in a broader knowledge infrastructure, engagement will remain symbolic and ineffective. Moreover, EVT nuances the finding that even informed users may reject the expressway due to affordability concerns. This underscores that awareness is a necessary but insufficient condition for acceptance; the perceived value must not only be understood but must also outweigh financial and social costs.

The theoretical framing also provides a basis for more targeted recommendations. From a Stakeholder Theory perspective, public understanding must be positioned as a right rather than a privilege, necessitating legally mandated transparency tools such as plain-language disclosures, civic education on PPPs, and localised communication strategies. The South African model of integrating PPP education into school curricula or Ghana's comic-style educational booklets for semi-literate audiences offer replicable practices. EVT, meanwhile, suggests that awareness campaigns should focus on reshaping cost-benefit perceptions—emphasising tangible user benefits, projected savings in travel time, and long-term public ownership post-concession.

Communication strategies should therefore be audience-segmented, leveraging digital platforms for younger users and traditional media for older, less tech-savvy populations.

In conclusion, the Nairobi Expressway case validates and extends both Stakeholder Theory and Expectancy-Value Theory by illustrating how public awareness functions as both a democratic entitlement and a strategic imperative in PPP project implementation. Without deliberate, inclusive, and sustained communication strategies, even technically successful infrastructure can be delegitimised by public misunderstanding and mistrust. For Kenya's evolving PPP landscape, the path forward lies in aligning theoretical insights with practical governance reforms that treat awareness as a foundational element of project success, on par with engineering precision or financial planning.

### **5.3 Conclusions**

This study sought to examine the factors influencing the uptake of privately operated toll roads in Kenya, with the Nairobi Expressway serving as the case study. A key finding is that the perception and reality of affordability strongly influence user uptake. While the Expressway delivers clear benefits in terms of reduced travel time, enhanced connectivity, and reduced congestion, these benefits are not equally accessible to all income groups. Users from middle- and high-income brackets are more likely to use the Expressway frequently, while low-income earners, including informal workers and small-scale traders, often perceive the tolls as unaffordable. This reinforces socio-economic disparities in access to urban mobility infrastructure and raises questions about the inclusiveness of user-pay PPP models in low- and middle-income countries.

In addition to cost, public trust in the governance and management of toll roads plays a crucial role in influencing public attitudes and behavioral choices. The study found that skepticism about the transparency of the Expressway's PPP agreement—especially concerning toll revenue management, contract duration, and public oversight—undermines confidence in the project. Many respondents expressed concerns over the perceived opacity of the deal between the government and the private concessionaire, citing a lack of publicly available information and inadequate consultation processes. Without trust in the fairness and integrity of the process, even

well-functioning infrastructure may be viewed with suspicion, which can hinder widespread adoption and reduce the political acceptability of similar projects in the future.

Another critical conclusion drawn from this research is that limited public awareness and understanding of the PPP model negatively affect public support and participation. Many road users and community stakeholders lacked clarity on what a PPP entails, how risks and benefits are shared between the government and the private sector, and how accountability is maintained throughout the concession period. This information asymmetry limits the ability of citizens to hold both public and private actors accountable, weakens democratic oversight, and potentially fuels misinformation. Strengthening public knowledge of PPPs—through civic education, media engagement, and policy transparency—can empower users and foster more meaningful dialogue on infrastructure financing and governance.

Overall, the study concludes that for privately operated toll roads such as the Nairobi Expressway to achieve sustained and inclusive uptake, affordability, trust, and awareness must be prioritized in both policy design and implementation. Toll pricing strategies should consider differentiated tariffs or subsidies to cater to diverse income groups, ensuring that toll infrastructure does not exacerbate urban inequalities. Furthermore, transparent and participatory governance processes are essential to building public trust, especially in contexts where the private sector plays a prominent role in public service delivery. Lastly, government institutions and PPP units should invest in sustained public education and stakeholder engagement to deepen understanding of the PPP model, demystify the infrastructure development process, and foster a more informed and supportive citizenry.

#### **5.4 Recommendations**

Based on the study's findings, the following key policy recommendations are proposed to enhance the affordability, transparency, public trust, and long-term sustainability of PPP toll road projects like the Nairobi Expressway:

The government, in collaboration with private concessionaires, should design and implement tiered toll pricing models that accommodate a wider range of income groups. This could include off-peak discounts, subsidised rates for frequent users or low-income commuters, and exemptions

for public service vehicles and essential service providers. Such differentiated pricing would promote equitable access to toll roads and reduce socio-economic exclusion.

To build public confidence, the government should make PPP contracts, including toll collection projections, revenue-sharing formulas, concession periods, and risk allocation, publicly accessible. This can be achieved through centralised online repositories or mandatory disclosure frameworks. Transparent contracting processes not only promote accountability but also deter corruption and build public trust in the long-term viability of PPP arrangements.

Public consultations should be embedded as a standard requirement throughout the project cycle of toll roads, from feasibility studies to post-construction evaluation. Integrating social impact assessments and citizen feedback mechanisms ensures that community voices shape project design and implementation. Active stakeholder participation can enhance project legitimacy and responsiveness to local mobility needs.

The government and PPP Unit should roll out comprehensive public education campaigns to demystify the PPP model and explain its benefits, risks, and operational mechanisms. Tailored outreach through mass media, local forums, and digital platforms can empower citizens to make informed choices, understand tariff structures, and hold project stakeholders accountable.

To ensure long-term sustainability, regulatory agencies must be adequately resourced to monitor service standards, toll pricing, traffic volumes, and environmental compliance. Independent oversight bodies should also be empowered to audit PPP road projects and address grievances from road users. Building strong institutional frameworks reduces the risk of contract mismanagement and safeguards public interest throughout the concession period.

## **5.5 Suggestion for Further Research**

The findings of this study highlight several avenues for future research that could deepen understanding of PPP toll roads in emerging economies. First, longitudinal studies tracking the Nairobi Expressway's socioeconomic impacts over 5-10 years would reveal how public perceptions evolve with prolonged exposure and whether initial affordability concerns diminish as incomes rise. Second, comparative research across African cities implementing similar PPP toll

roads (Lagos, Johannesburg, Cairo) could identify contextual factors influencing project success beyond the Kenyan case. Third, detailed investigations into alternative financing models - including value-capture mechanisms, green bonds, or hybrid public-private equity structures - could expand the toolkit for sustainable infrastructure funding. Finally, ethnographic studies exploring the lived experiences of different user groups (matatu operators, informal traders, and suburban commuters) could surface nuanced equity considerations missing from macroeconomic analyses. Such research would collectively strengthen evidence-based policymaking for future transport PPPs in Kenya and beyond.



## REFERENCES

- Agyemang, E., & Sun, Y. (2022). Public-private partnerships in Ghana's road sector: Evaluating stakeholder perceptions and project outcomes. *Transport Policy*, 118, 91–102.
- Akintoye, A., Beck, M., & Hardcastle, C. (2008). *Public-private partnerships: Managing risks and opportunities*. Blackwell Science.
- Babatunde, S. O., Perera, S., Zhou, L., & Udejaja, C. (2016). Stakeholder perceptions on critical success factors for public-private partnership projects in Nigeria. *Built Environment Project and Asset Management*, 6(1), 74-91. <http://dx.doi.org/10.1108/BEPAM-11-2014-0061>
- Boyer, E. J., & Van Slyke, D. M. (2019). Public-private partnerships and the challenge of critical infrastructure resilience. *Public Administration Review*, 79(3), 325–337.
- Cheung, E., Chan, A. P., & Kajewski, S. (2012). Factors contributing to successful public private partnership projects: Comparing Hong Kong with Australia and the United Kingdom. *Journal of Facilities Management*, 10(1), 45-58.  
<https://doi.org/10.1108/14725961211200397>
- Chileshe, N., Njau, C. W., Kibichii, B. K., Macharia, L. N., & Kavishe, N. (2022). Critical success factors for Public-Private Partnership (PPP) infrastructure and housing projects in Kenya. *International Journal of Construction Management*, 22(9), 1606-1617.  
<https://doi.org/10.1080/15623599.2020.1736835>

Chumba, S. (2020). Public-private partnerships in Kenya: Policy, legal and institutional framework. *African Journal of Public Sector Development and Governance*, 3(1), 87-104.

Cohen, J., Reichl, J., & Schmidthaler, M. (2014). Re-focussing research efforts on the public acceptance of energy infrastructure: A critical review. *Energy*, 36(12), 7588-7599.  
<https://doi.org/10.1016/j.energy.2013.12.056>

Cruz, C. O., & Marques, R. C. (2013). Flexible contracts to cope with uncertainty in public-private partnerships. *International Journal of Project Management*, 31(3), 473-483. <https://doi.org/10.1016/j.ijproman.2012.09.006>

Cuadrado-Ballesteros, B., & Peña-Miguel, N. (2022). Analysing the link between corruption and PPPs in infrastructure projects: an empirical assessment in developing countries. *Journal of Economic Policy Reform*, 25(2), 136-155.  
<https://doi.org/10.1080/17487870.2021.1973899>

de Almeida, L. T., Souza, F. V., & Lima, O. F. (2021). Willingness to pay for toll roads in Brazil. *Transport Policy*, 100, 146-157.

de Groot, H. L. F., & van Wee, B. (2019). Why do car owners dislike tolls? *Transportation Research Part A: Policy and Practice*, 125, 1-12.

Delmon, J. (2017). *Public-private partnership projects in infrastructure: An essential guide for policy makers*. Cambridge University Press.

Engel, E., Fischer, R., & Galetovic, A. (2014). *The economics of public-private partnerships: A basic guide*. Cambridge University Press.

Feather, N. T. (2021). *Expectancy-value theory and its applications*. Psychology Press.

Freeman, R. E. (2010). *Strategic management: A stakeholder approach*. Cambridge University Press.

Freeman, R. E., Harrison, J. S., & Zyglidopoulos, S. (2020). *Stakeholder theory: Concepts and strategies*. Cambridge University Press.

Freeman, R. E., Phillips, R., & Sisodia, R. (2020). Stakeholder theory and capitalism. *Journal of Business Ethics*, 166(2), 273-293.

Giti, P., Karanja, F., & Mwangi, P. (2020). Public feedback in low-income urban housing PPPs. *Journal of Construction in Developing Countries*, 25(1), 89-104.

Glavic, D., Mladenovic, M., Luttinen, T., Cicevic, S., & Trifunovic, A. (2017). Road to price: User perspectives on road pricing in transition country. *Transportation Research Part A: Policy and Practice*, 105, 79-94. <http://dx.doi.org/10.1016/j.tra.2017.08.016>

Gomez, L., Vassallo, J. M., & Herraiz, I. (2021). Equity and acceptability in road pricing: A qualitative study in five European countries. *Transport Reviews*, 41(5), 622-644.

Gwilliam, K. (2020). Toll road affordability in Latin America. *Transport Reviews*, 40(2), 245-263.

Heidhues, F., & Obare, G. (2011). Lessons from structural adjustment programmes and their effects in Africa. *Quarterly Journal of International Agriculture*, 50(1), 55-64.

<http://dx.doi.org/10.22004/ag.econ.155490>

HM Treasury. (2012). *A new approach to public private partnerships*. HM Treasury.

Hodge, G. A., & Greve, C. (2017). On public-private partnership performance: A contemporary review. *Public Works Management & Policy*, 22(1), 55-

78. <https://doi.org/10.1177/1087724X16657830>

Hodge, G. A., & Greve, C. (2019). Accountability in PPP projects. *Public Management Review*, 21(2), 168-190.

Iossa, E., & Martimort, D. (2015). The simple microeconomics of public-private partnerships. *Journal of Public Economic Theory*, 17(1), 4-

48. <https://doi.org/10.1111/jpet.12114>

Ishawu, M., Guangyu, C., Adzimah, E. D., & Mohammed Aminu, A. (2020). Achieving value for money in waste management projects: determining the effectiveness of public-private partnership in Ghana. *International Journal of Managing Projects in Business*, 13(6), 1283-1309. <https://doi.org/10.1108/IJMPB-02-2020-0060>

Jayasena, N. S., Chan, D. W., & Kumaraswamy, M. M. (2022). Is public-private partnership (PPP) a preferred strategy for procuring smart infrastructure in developed countries: an empirical study of the perceived benefits, barriers and recommended strategies. *Sustainability*, 14(11), 6421. <https://doi.org/10.3390/su14116421>

- Kaburu, J. (2021). The legal and regulatory framework for public-private partnerships in Kenya. *Strathmore Law Journal*, 6(1), 1-24.
- Kamoni, P., Rotich, G., & Ochiri, G. (2023). Public-private partnerships and infrastructure development in Kenya: Lessons from the Nairobi Expressway. *African Journal of Economic Review*, 11(2), 1-18.
- Kapsi, M., Tsouros, I., & Polydoropoulou, A. (2020). Equity in toll road pricing. *Transportation Research Part A: Policy and Practice*, 134, 244-260.
- Kendagor, J. K. (2023). *Investigation on the Public-private Partnerships (PPP) Success as Procurement Method for Infrastructure Development in Kenya: A Case Study of Public Universities in Nairobi Metropolitan* (Doctoral dissertation, University of Nairobi).
- KENHA. (2021). *Nairobi Expressway traffic and revenue study report*. Kenya National Highways Authority.
- Kipkorir, J. (2024). Impact of Nairobi Expressway's entry and exit design. *East African Transport Review*, 12(1), 34-52.
- Kuhl, J. (2021). Expectancy-value theory in motivation research. *Motivation Science*, 7(1), 1-9.
- Kungu, J. (2018). History of road transport in Kenya: 1890-1990. *University of Nairobi Press*.
- Levinson, D. (2010). Equity effects of road pricing: A review. *Transport Reviews*, 30(1), 33-57. <https://doi.org/10.1080/01441640903189304>

- Luo, Z., Li, J., Wu, Z., Li, S., & Bi, G. (2022). Investigating the driving factors of public participation in public-private partnership (PPP) projects—a case study of China. *International journal of environmental research and public health*, 19(9), 5192. <https://doi.org/10.3390/ijerph19095192>
- Mahajan, V., Kashyap, R., & Patil, Y. (2023). Challenges in stakeholder theory implementation. *Journal of Business Ethics*, 175(3), 567-584.
- Mayienda, R. (2020). *An Assessment of factors influencing public participation in Kenya Urban Roads Authority projects* (Doctoral dissertation, Strathmore University).
- Mitchell, T. R. (2021). Expectancy-value models in organizational behavior. *Organizational Behavior and Human Decision Processes*, 166, 1-12.
- Morejele-Zwane, L., Gumbo, T., & Dumba, S. (2023). Public participation and sustainability consideration for mega transport infrastructure projects: Lessons from the Gauteng freeway improvement project, South Africa. In *Smart and Resilient Infrastructure For Emerging Economies: Perspectives on Building Better* (pp. 29-36). CRC Press.
- Mudau, L. (2022). *Exploring the critical success factors for the financing of public-private partnerships in the roads and transport sector: a case study of Gauteng province*. Faculty of Commerce, Graduate School of Business (GSB). Retrieved from <http://hdl.handle.net/11427/39076>
- Munene, A., & Mark, S. (2020). The rise and fall of toll roads in Kenya: 1963-1990. *Journal of Transport History*, 41(2), 265-285.

- Musyoki, A., & Musembi, L. (2023). Public perception of the Nairobi Expressway: A survey of users and non-users. *African Urban Quarterly*, 38(1), 112-130.
- Nalo, D. (2018). *Kenya Vision 2030: The popular version*. Government of Kenya.
- Ng, A., Loosemore, M., & Chen, Y. (2012). Risk allocation in the private provision of public infrastructure. *International Journal of Project Management*, 30(5), 569-583. <https://doi.org/10.1016/j.ijproman.2006.06.005>
- Nisar, T. M. (2013). Implementation of design-build-operate contracts: Risks and opportunities. *Construction Management and Economics*, 31(6), 575-587.
- Njagi, L. (2023). Financial model of Nairobi Expressway. *Kenyan Infrastructure Journal*, 7(2), 45-63.
- Njoroge, P. (2024). Equity concerns in Nairobi's toll road financing: A public perception analysis. *African Journal of Transport Economics*, 8(1), 45–62.
- Nyumba, T. O., Sang, C. C., Olago, D. O., Marchant, R., Waruingi, L., Githiora, Y., ... & Omangi, S. (2021). Assessing the ecological impacts of transportation infrastructure development: A reconnaissance study of the Standard Gauge Railway in Kenya. *PLoS one*, 16(1), e0246248. <https://doi.org/10.1371/journal.pone.0246248>
- OECD. (2008). *Public-private partnerships: In pursuit of risk sharing and value for money*. OECD Publishing.

- Olele, C. A. (2016). The Challenges of Public-Private Partnership (PPP) Projects in a Developing Country: The Case Study of the Lekki Toll Road Infrastructure Project in Lagos, Nigeria. *PM World Journal*, 5(10).
- Ololube, N. P. (2025). Public-Private Partnership Dynamics for the Economic Development of Nigeria. In *Public Private Partnership Dynamics for Economic Development* (pp. 105-130). IGI Global Scientific Publishing.
- Omondi, D. (2023). Nairobi Expressway's impact on travel times. *Journal of Transport Economics*, 55(3), 234-251.
- Onyango, J. (2023). Public perceptions of Nairobi Expressway service quality. *African Infrastructure Review*, 16(2), 89-104.
- Onyinkwa, J. (2021). The implementation credibility gap in Kenya's infrastructure projects. *Journal of African Development*, 23(2), 78–95.
- Osei-Kyei, R., & Chan, A. P. (2017). Comparative analysis of the success criteria for public–private partnership projects in Ghana and Hong Kong. *Project Management Journal*, 48(4), 80-92. <https://doi.org/10.1177/875697281704800407>
- Osei-Kyei, R., & Chan, A. P. C. (2020). Ghana's Accra-Tema Motorway PPP project. *Journal of Infrastructure Systems*, 26(1), 04019036.
- Osudoh, J. I. (2022). *Examining the Perceptions of Low-Income Citizens of Public-Private Partnership (PPP) Low-Cost Housing Developments in Abuja* (Doctoral dissertation, Northcentral University).

Otundo, F. (2024). Communication in PPP sustainability. *Journal of Public Infrastructure*, 8(1), 23-41.

Patil, N., & Laishram, B. (2016). Infrastructure development through PPPs in India: A review. *International Journal of Construction Management*, 16(3), 209-221.

Rahman, M. M., Rashid, M. H., & Hossain, M. J. (2021). Time efficiency in toll road usage. *Transportation Research Part A: Policy and Practice*, 147, 124-138.

Republic of Kenya. (2022). *Nairobi Expressway project completion report*. Ministry of Transport.

Republic of Kenya/Kenya Law. (2025). *The Public Private Partnerships Act (No. 15 of 2021)*. Government Printer.

Reynaers, A. M., & Grimmelikhuijsen, S. (2015). Transparency in public–private partnerships: Not so bad after all? *Public Administration*, 93(3), 609-626.

<https://doi.org/10.1111/padm.12142>

Sharma, R., Gupta, A., & Patil, G. R. (2022). Socioeconomic disparities in toll road usage: Evidence from India's national highway network. *Transportation Research Part D: Transport and Environment*, 102, 103130.

Sharma, S., Patil, G. R., & Singh, A. P. (2022). Socioeconomic disparities in toll road usage. *Transport Policy*, 115, 220-233.

- Siemiatycki, M. (2022). New frontiers in planning: city building through public-private partnerships? In *A Research Agenda for Public–Private Partnerships and the Governance of Infrastructure* (pp. 161-175). Edward Elgar Publishing.  
<https://doi.org/10.4337/9781839105883.00018>
- Smith, A. L. (2017). Achieving affordability in the delivery of PPP-based services. In *The emerald handbook of public–private partnerships in developing and emerging economies: Perspectives on public policy, entrepreneurship and poverty* (pp. 363-384). Emerald Publishing Limited.
- Steelyana, E., & Kinanti, D. (2023). Public Private Partnership in Transportation Infrastructure: A Review on Toll Road Development. In *E3S Web of Conferences* (Vol. 388, p. 01017). EDP Sciences. <https://doi.org/10.1051/e3sconf/202338801017>
- Tang, L., Shen, G., & Skitmore, M. (2021). Public-private partnerships in European toll roads: Lessons for emerging economies. *Journal of Management in Engineering*, 37(3), 05021003.
- Tang, L., Shen, Q., & Cheng, E. W. L. (2021). Comparative analysis of PPP toll roads. *Journal of Management in Engineering*, 37(1), 04020094.
- Tariq, H., & Zhang, Y. (2022). Water infrastructure PPP failures in Sub-Saharan Africa. *Water Policy*, 24(1), 145-163.
- Van Wee, B., Annema, J. A., & Banister, D. (2022). Road pricing fairness in Europe. *Transport Reviews*, 42(1), 1-21.

- Vassallo, J. M. (2006). Traffic risk mitigation in highway concession projects: the experience of Chile. *Journal of Transport Economics and Policy (JTEP)*, 40(3), 359-381.
- Vassallo, J. M., & Ortega, A. (2012). Traffic risk mitigation in highway concession projects: The experience of Chile. *Transport Policy*, 24, 102-111.
- Vision 2030 Delivery Secretariat (2024). *Kenya Vision 2030 delivery status report*. Government of Kenya.
- Wang, N., & Ma, M. (2021). Public-private partnership as a tool for sustainable development—What literatures say? *Sustainable Development*, 29(1), 243-258.  
<https://doi.org/10.1002/sd.2127>
- Wang, Y., Ma, X., & Li, Z. (2019). Environmental impact of toll roads in China. *Journal of Cleaner Production*, 215, 925-937.
- Wangari, L. (2023). Public information availability in PPP transport projects. *Kenyan Infrastructure Journal*, 7(3), 112-128.
- Wibowo, A., & Santoso, S. R. (2024). Cost Overruns Arising from Government-Led Risks in Indonesian Toll Roads. *Public Works Management & Policy*, 29(3), 446-470.  
<https://doi.org/10.1177/1087724X241237986>
- Wu, J., Zhang, L., & Li, H. (2019). Road user perceptions of toll highway PPPs. *Transportation Research Part A: Policy and Practice*, 125, 13-25.

Wu, Y., & Zhang, X. (2018). Time savings as a determinant of toll road usage. *Transport Policy*, 66, 1-10.

Xu, Y., Fan, J., & Xu, H. (2021). Study on the operation efficiency of toll roads in China from the perspective of scale economy. *Journal of Advanced Transportation*, 2021(1), 8830521. <https://doi.org/10.1155/2021/8830521>

Yescombe, E. R. (2011). *Public-private partnerships: Principles of policy and finance*. Butterworth-Heinemann.

Zhang, X. (2005). Critical success factors for public-private partnerships in infrastructure development. *Journal of Construction Engineering and Management*, 131(1), 3-14. [https://doi.org/10.1061/\(ASCE\)0733-9364\(2005\)131:1\(3\)](https://doi.org/10.1061/(ASCE)0733-9364(2005)131:1(3))



## APPENDICES

### Appendix I: Participant Information and Consent Form

#### SECTION 1: INFORMATION SHEET

**Investigator:** Terry Nyambura Irungu (121495)

**Institutional affiliation:** Strathmore Business School (SBS)

#### SECTION 2: INFORMATION SHEET–THE STUDY

##### 2.1: Why is this study being carried out?

This study is being carried out to explore the public uptake of privately operated toll roads in Kenya, with a specific focus on the Nairobi Expressway, a landmark PPP project. The research aims to understand the factors influencing road users' decisions to adopt or avoid the expressway, particularly focusing on affordability, public trust, and awareness. By analyzing these factors, the study seeks to provide actionable insights for policymakers and private sector stakeholders to enhance the design, implementation, and communication of future toll road projects. The findings will address critical gaps in understanding user perspectives, which are often overlooked in favor of financial and technical analyses, and will contribute to the broader discourse on sustainable infrastructure development, aligning with Kenya's Vision 2030 and the United Nations' SDGs.

##### 2.2: Do I have to take part?

No. Taking part in this study is entirely optional, and the decision rests only with you. If you decide to take part, you will be asked to complete a questionnaire to get information on *'Exploring Public Uptake of Privately Operated Toll Roads in Kenya: A Case of Nairobi Expressway.'* If you are not able to answer all the questions successfully the first time, you may be asked to sit through another informational session, after which you may be asked to answer the questions a second time. You are free to decline to take part in this study at any time without giving any reasons.

### 2.3: Who is eligible to take part in this study?

- **Nairobi Expressway users:** Drivers of motor vehicles who use the Nairobi Expressway for personal or professional travel.
- **Nairobi Expressway non-users:** Drivers of motor vehicles who do not use the Nairobi Expressway but are aware of its existence and operation.
- **Government officials:** Representatives from agencies such as the Kenya National Highways Authority (KeNHA), the Ministry of Transport, and the Nairobi County Government.
- **Private sector representatives:** Managers or executives from the China Road and Bridge Corporation (CRBC) and other private partners involved in the project.
- **PPP specialists :** Academics or consultants specializing in transportation and urban development.

### 2.4: Who is not eligible to take part in this study?

- **Non-drivers:** Individuals who do not drive or operate motor vehicles, as the study focuses on road users directly interacting with the Nairobi Expressway.
- **Minors:** Individuals under the age of 18, as the study involves informed consent and targets adult road users.
- **Individuals outside Nairobi County:** Those who do not reside in or frequently commute within Nairobi, as the study is geographically limited to areas directly impacted by the Nairobi Expressway.
- **Individuals unfamiliar with the Nairobi Expressway:** Those who have no knowledge or awareness of the toll road, as their perspectives would not contribute to understanding public uptake.
- **Individuals unwilling to provide informed consent:** Those who do not agree to participate voluntarily or do not consent to the study's procedures, as ethical compliance is a priority.

## **2.5: What will taking part in this study involve for me?**

You will be approached by **Terry Nyambura Irungu** and requested to take part in the study. If you are satisfied that you fully understand the goals of this study, you will be asked to sign the informed consent form (this form) and then taken through a questionnaire to complete.

## **2.6: Are there any risks or dangers in taking part in this study?**

There are no risks in taking part in this study. All the information you provide will be treated as confidential and will not be used in any way without your express permission.

## **2.7: Are there any benefits of taking part in this study?**

The information gathered from this study will be used to improve the design, implementation, and public engagement strategies of privately operated toll roads and PPP projects in Kenya, particularly the Nairobi Expressway. By analyzing factors such as affordability, public trust, and awareness, the findings will provide actionable recommendations for policymakers and private sector stakeholders to enhance the accessibility, transparency, and equity of toll road projects. This includes refining toll pricing structures, improving communication strategies to increase public awareness, and fostering trust through greater accountability and transparency in project management. Ultimately, the study aims to ensure that future PPP infrastructure projects are not only financially sustainable but also socially inclusive, aligning with Kenya's Vision 2030 and the United Nations' SDGs for sustainable cities and communities.

## **2.8: What will happen to me if I refuse to take part in this study?**

Participation in this study is entirely voluntary. Even if you decide to take part at first but later change your mind, you are free to withdraw at any time without explanation.

## **2.9: Who will have access to my information during this research?**

All research records will be stored in securely locked cabinets. That information may be transcribed into our database, but this will be sufficiently encrypted and password protected.

Only the people who are closely concerned with this study will have access to your information. All your information will be kept confidential.

**2.10: Who can I contact in case I have further questions?**

You can contact me, **Terry Nyambura Irungu**, at SBS, or by e-mail at [tenirungu@gmail.com](mailto:tenirungu@gmail.com), or by phone at **+254 725 105106**. You can also contact my supervisor, **Dr. Elizabeth Muthuma**, at the Strathmore Business School, Nairobi, or by e-mail (xxxx) or by phone (XXXXXXXX)

**If you want to ask someone independent anything about this research, please contact:**

The Secretary–Strathmore University Institutional Ethics Review Board, P. O. BOX 59857, 00200, Nairobi, email [ethicsreview@strathmore.edu](mailto:ethicsreview@strathmore.edu) Tel number: +254 703 034 375

I, \_\_\_\_\_, have had the study explained to me. I have understood all that I have read and have had explained to me and had my questions answered satisfactorily. I understand that I can change my mind at any stage.

Please tick the boxes that apply to you:

**Participation in the research study**

I AGREE to take part in this research

I DON'T AGREE to take part in this research

**Storage of information on the completed questionnaire**

I AGREE to have my completed questionnaire stored for future data analysis

I DON'T AGREE to have my completed questionnaire stored for future data analysis

**Participant's Signature:**

\_\_\_\_\_

**Date:** \_\_\_\_ / \_\_\_\_ / \_\_\_\_

DD / MM / YEAR

**Participant's Name:**

**Time:** \_\_\_\_\_ / \_\_\_\_\_

\_\_\_\_\_

HR / MN

*(Please print name)*

I, \_\_\_\_\_ (Name of person taking consent) certify that I have followed the SOP for this study and have explained the study information to the study participant named above and that s/he has understood the nature and the purpose of the study and consents to the participation in the study. S/he has been allowed to ask questions which have been answered satisfactorily.

**Investigator's Signature:**

**Date:** \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_

\_\_\_\_\_

DD / MM / YEAR

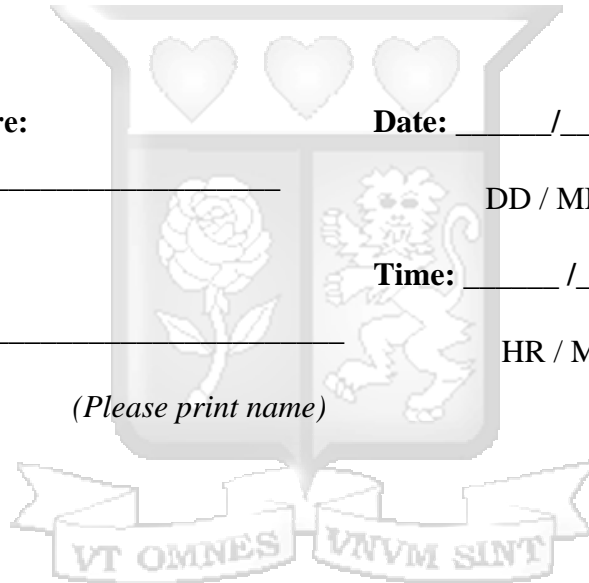
**Investigator's Name:**

**Time:** \_\_\_\_\_ / \_\_\_\_\_

\_\_\_\_\_

HR / MN

*(Please print name)*



## Appendix II: Questionnaire

This study investigates the factors influencing the public uptake of the Nairobi Expressway, focusing on affordability, public trust, and awareness as key determinants. The primary objective of this study is to explore the public uptake of privately operated toll roads in Kenya, with a specific focus on the Nairobi Expressway. It is to be filled by respondents including users and non-users of the Nairobi Expressway. Kindly fill in the information as guided.

### PRELIMINARY INSTRUCTIONS:

Thank you for participating in this study. This research seeks to understand the factors influencing public usage of the Nairobi Expressway, focusing on affordability, public trust, and awareness.

#### Participant Criteria:

You are eligible to participate if you:

- Are 18 years or older.
- Are a resident or frequent visitor of Nairobi.
- Are either a user or non-user of the Nairobi Expressway (but aware of its existence).
- Are owning/driving a vehicle

#### Data Collection Location:

This survey is being conducted at selected shopping malls in Nairobi. Kindly indicate where you are taking this survey:

- Westgate Mall (Westlands)
- The Junction Mall (Dagoretti North)
- Garden City Mall (Kasarani)
- Southfield Mall (Embakasi)
- BBS Mall (Eastleigh, Kamukunji)
- T-Mall (Lang'ata)

### SECTION A: DEMOGRAPHIC INFORMATION

*(Tick (✓) where appropriate or fill in as required)*

#### 1. What is your age group?

- Under 21
- 21–30

- 31–40
- 41–50
- 51–60
- Above 60

**2. Please indicate your gender.**

- Male
- Female

**3. What is your primary occupation?**

- Employed (formal sector)
- Self-employed
- Student
- Public transport operator (e.g., driver, matatu/taxi operator)
- Other (Specify) \_\_\_\_\_

**4. Do you use the Nairobi Expressway?**

- Yes (Skip to Q5)
- No (Proceed to Q4a)

**4a. If no, briefly state why:**

(e.g., high cost, lack of vehicle, prefer alternative routes, etc.)

**5. Which group best describes your motor vehicle? (Tick all that apply)**

Vehicle Type	Description	Tick (✓)
Light vehicles (2 axles)	Saloon cars (up to 5 seats), SUVs (up to 9 seats), Pick-ups, Vans	<input type="checkbox"/>
Light vehicles (2 axles, high bonnet)	Minibus (up to 20 passengers), Matatu, Light/Medium truck	<input type="checkbox"/>
Heavy truck (3 axles rigid)	Small bus (24–40 passengers), Large bus (40+ passengers)	<input type="checkbox"/>
Heavy vehicles (4+ axles)	Large trucks, trailers	<input type="checkbox"/>

**6. Which toll payment method do you use? (If applicable)**

- Manual Toll Collection (MTC – Cash)
- Electronic Toll Collection (ETC – Via card/device)
- Not Applicable

**7. Do you use the Expressway one way or for return trips?**

- One Way
- Return Trip
- Not Applicable

**8. How frequently do you use the Nairobi Expressway?**

- Daily
- 3–5 times a week
- 1–2 times a week
- Occasionally (once a month or less)
- Never (Non-user)

**9. Where do you typically exit the Expressway?**

- After 1–2 stations
- After 3–4 stations
- After 5–6 stations
- The whole way (end-to-end)
- Not Applicable

**10. Select your most frequent entry and exit points:**

<b>Entry Point</b>	<b>Tick (✓)</b>	<b>Exit Point</b>	<b>Tick (✓)</b>
Mlolongo	<input type="checkbox"/>	Mlolongo	<input type="checkbox"/>
Syokimau	<input type="checkbox"/>	Syokimau	<input type="checkbox"/>
SGR	<input type="checkbox"/>	SGR	<input type="checkbox"/>
JKIA	<input type="checkbox"/>	JKIA	<input type="checkbox"/>
Eastern Bypass	<input type="checkbox"/>	Eastern Bypass	<input type="checkbox"/>
Southern Bypass	<input type="checkbox"/>	Southern Bypass	<input type="checkbox"/>
Capital Centre	<input type="checkbox"/>	Capital Centre	<input type="checkbox"/>
Haile Selassie	<input type="checkbox"/>	Haile Selassie	<input type="checkbox"/>
Museum Hill	<input type="checkbox"/>	Museum Hill	<input type="checkbox"/>
The Mall	<input type="checkbox"/>	The Mall	<input type="checkbox"/>
Nairobi Westlands	<input type="checkbox"/>	Nairobi Westlands	<input type="checkbox"/>
Not Applicable	<input type="checkbox"/>	Not Applicable	<input type="checkbox"/>

**SECTION B: AFFORDABILITY OF THE NAIROBI EXPRESSWAY**

**Instructions:**

*Indicate the extent to which you agree with each statement below regarding the **cost and affordability** of the Nairobi Expressway.*

**Scale:**

- 1 = **Strongly Disagree**
- 2 = **Disagree**
- 3 = **Neutral**
- 4 = **Agree**
- 5 = **Strongly Agree**

Statement	1	2	3	4	5
a) I prefer paying toll charges to use the Nairobi Expressway.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) The current toll charges are fair for the service provided.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) The toll fees are reasonable given the time saved and convenience.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Using the Expressway offers good value for money compared to alternative routes.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) I would use the Expressway more often if tolls were cheaper.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) The current toll charges discourage me from using the Expressway.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Open-ended Question:**

11. What other factors influence your perception of the Expressway's affordability? (e.g., income level, alternative transport costs, etc.)

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**SECTION C: PUBLIC TRUST IN GOVERNMENT & PRIVATE PARTNER (MOJA EXPRESSWAY)**

**Instructions:**

Rate your level of agreement with the following statements about **trust in the government and Moja Expressway Company**.

**Scale:** Same as above (1–5).

Statement	1	2	3	4	5
a) The government transparently shared information about the Expressway's operations.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) I understand how toll charges are determined.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Taxpayer funds were used efficiently to address disruptions caused by Expressway construction.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Moja Expressway Company manages the Expressway professionally.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Performance reports about the Expressway are accessible to the public.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) I trust the government and Moja Expressway to maintain the Expressway long-term.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Open-ended Question:**

12. What other issues affect your trust in the Nairobi Expressway's management?

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## SECTION D: PUBLIC AWARENESS OF THE EXPRESSWAY AS A PPP PROJECT

### Instructions:

Rate your awareness and understanding of the Expressway as a **Public-Private Partnership (PPP)**.

**Scale:** Same as above (1–5).

Statement	1	2	3	4	5
a) I understand how the Nairobi Expressway operates as a PPP.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Moja Expressway seeks user feedback to improve services.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Information about the Expressway is easy to find (news, social media, etc.).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Public input is considered before making changes to the Expressway.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Open-ended Question:

**13. What other suggestions do you have to improve public awareness of the Expressway?**

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## SECTION E: PERCEIVED PUBLIC BENEFITS OF THE EXPRESSWAY

### Instructions:

Rate your agreement on the **benefits** of the Nairobi Expressway.

**Scale:** Same as above (1–5).

Statement	1	2	3	4	5
a) The Expressway reduces rush-hour traffic congestion.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Travel time across Nairobi has significantly decreased.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) The Expressway improves connectivity between Nairobi neighborhoods.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) The project has boosted Nairobi's infrastructure development.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Using the Expressway saves fuel due to fewer traffic delays.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Overall, the Expressway is a beneficial infrastructure project.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Open-ended Question:**

**14. What additional benefits or drawbacks have you experienced with the Expressway?**

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**END**

**Thank you for your time and valuable feedback!**



## Appendix III: Interview Guide

### Introduction

1. **Introduction of the Researcher:** Briefly introduce yourself and the purpose of the study.
2. **Purpose of the Interview:** Explain that the interview aims to gather insights on the Nairobi Expressway project, focusing on **affordability, public trust, and awareness** as key factors influencing public uptake.
3. **Confidentiality Assurance:** Assure the interviewee that their responses will remain confidential and anonymized.
4. **Consent:** Confirm that the interviewee has read and signed the consent form or verbally agreed to participate.

### Section 1: Affordability

*(Aligned with Objective 1: To analyze the affordability of the Nairobi Expressway for individual road users)*

1. How were the toll fees for the Nairobi Expressway determined, and what factors were considered in setting the pricing structure?
2. In your opinion, how affordable are the toll fees for different user groups, particularly low- and middle-income road users?
3. What mechanisms, if any, have been put in place to address affordability concerns for users who may find the toll fees prohibitive?
4. Have there been any challenges or complaints from the public regarding the affordability of the toll fees? If so, how have these been addressed?
5. What recommendations would you make to improve the affordability of toll roads like the Nairobi Expressway in the future?

### Section 2: Public Trust

*(Aligned with Objective 2: To assess public trust in the government and private sector partners managing the Nairobi Expressway)*

6. How would you describe the level of public trust in the government and private operators managing the Nairobi Expressway?
7. What measures have been taken to ensure transparency and accountability in the management and operation of the expressway?
8. Have there been any instances where public trust was compromised? If so, how were these issues resolved?
9. How do you think the government and private operators can build and maintain public trust in future PPP projects?
10. What role do you think public participation and feedback mechanisms play in fostering trust in projects like the Nairobi Expressway?

### **Section 3: Public Awareness**

*(Aligned with Objective 3: To evaluate the level of public awareness and understanding of the Nairobi Expressway as a PPP project)*

11. What strategies were used to communicate information about the Nairobi Expressway to the public before and after its launch?
12. How would you assess the current level of public awareness and understanding of the expressway's purpose, benefits, and tolling policies?
13. Have there been any challenges in ensuring that the public is well-informed about the project? If so, what were they?
14. What role do you think public awareness campaigns play in influencing the uptake of toll roads like the Nairobi Expressway?
15. What improvements would you suggest for future public awareness and communication strategies for PPP projects?

### **Section 4: Broader Implications and Recommendations**

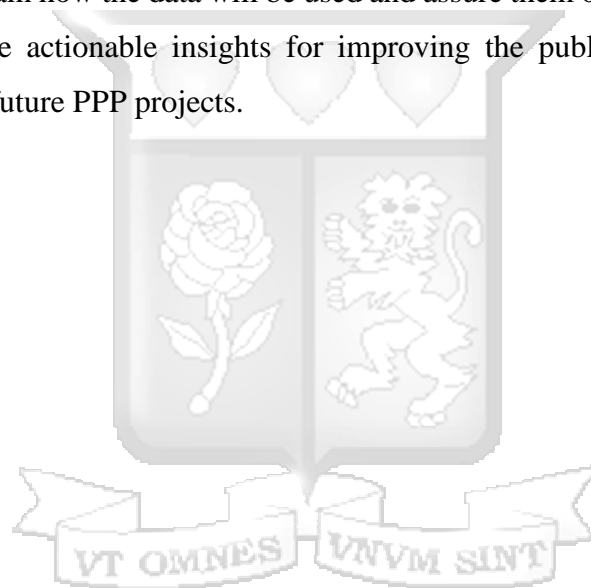
*(Aligned with the Study's Overall Goal)*

16. What lessons have been learned from the Nairobi Expressway project that could improve the implementation of future PPP toll road projects?

17. What policy or regulatory changes would you recommend to enhance the success of PPP projects in Kenya?
18. Is there anything else you would like to add regarding the public uptake, challenges, or future of the Nairobi Expressway?

## Closing

1. **Summary:** Summarize key points discussed and ask if the interviewee would like to add anything.
2. **Thank You:** Express gratitude for their time and insights.
3. **Next Steps:** Explain how the data will be used and assure them of confidentiality. research goals and provide actionable insights for improving the public uptake of the Nairobi Expressway and future PPP projects.





**THE SCIENCE, TECHNOLOGY AND INNOVATION ACT, 2013 (Rev. 2014)**  
Legal Notice No. 108: The Science, Technology and Innovation (Research Licensing) Regulations, 2014

The National Commission for Science, Technology and Innovation, hereafter referred to as the Commission, was established under the Science, Technology and Innovation Act 2013 (Revised 2014) herein after referred to as the Act. The objective of the Commission shall be to regulate and assure quality in the science, technology and innovation sector and advise the Government in matters related thereto.

**CONDITIONS OF THE RESEARCH LICENSE**

1. The License is granted subject to provisions of the Constitution of Kenya, the Science, Technology and Innovation Act, and other relevant laws, policies and regulations. Accordingly, the licensee shall adhere to such procedures, standards, code of ethics and guidelines as may be prescribed by regulations made under the Act, or prescribed by provisions of International treaties of which Kenya is a signatory to.
2. The research and its related activities as well as outcomes shall be beneficial to the country and shall not in any way:
  - i. Endanger national security
  - ii. Adversely affect the lives of Kenyans
  - iii. Be in contravention of Kenya's international obligations including Biological Weapons Convention (BWC), Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO), Chemical, Biological, Radiological and Nuclear (CBRN).
  - iv. Result in exploitation of intellectual property rights of communities in Kenya
  - v. Adversely affect the environment
  - vi. Adversely affect the rights of communities
  - vii. Endanger public safety and national cohesion
  - viii. Plagiarize someone else's work
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4. Neither the license nor any rights thereunder are transferable.
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9. The Commission may monitor and evaluate the licensed research project for the purpose of assessing and evaluating compliance with the conditions of the License.
10. The Licensee shall submit one hard copy, and upload a soft copy of their final report (thesis) onto a platform designated by the Commission within one year of completion of the research.
11. The Commission reserves the right to modify the conditions of the License including cancellation without prior notice.
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13. The Licensee shall disclose to the Commission, the relevant Institutional Scientific and Ethical Review Committee, and the relevant national agencies any inventions and discoveries that are of National strategic importance.
14. The Commission shall have powers to acquire from any person the right in, or to, any scientific innovation, invention or patent of strategic importance to the country.
15. Relevant Institutional Scientific and Ethical Review Committee shall monitor and evaluate the research periodically, and make a report of its findings to the Commission for necessary action.

National Commission for Science, Technology and  
Innovation(NACOSTI),  
Off Waiyaki Way, Upper Kabete,  
P. O. Box 30623 - 00100 Nairobi, KENYA  
Telephone: 020 4007000, 0713788787, 0735404245  
E-mail: dg@nacosti.go.ke  
Website: www.nacosti.go.ke

## Appendix V: SU-ISERC Research Approval



18<sup>th</sup> March 2025

Ms Irungu Terry,  
terry.irungu@strathmore.edu

Dear Ms Irungu,

**RE: Exploring Public Uptake of Privately Operated Toll Roads in Kenya: A Case of Nairobi Expressway**

This is to inform you that SU-ISERC has reviewed and approved your above SU-masters proposal. Your application reference number is SU-ISERC2770/25. The approval period is from 18<sup>th</sup> March 2025 to 17<sup>th</sup> March 2026.

This approval is subject to compliance with the following requirements:

- i. Only approved documents including (informed consents, study instruments, MTA) will be used.
- ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by SU-ISERC.
- iii. Death and life-threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to SU-ISERC within 72 hours of notification.
- iv. Any changes anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to SU-ISERC within 72 hours.
- v. Clearance for the export of biological specimens must be obtained from relevant institutions.
- vi. Submission of a request for renewal of approval at least 60 days prior to the expiry of the approval period. Attach a comprehensive progress report to support the renewal.
- vii. Submission of an executive summary report within 90 days of completion of the study to SU-ISERC.

Before commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology, and Innovation (NACOSTI) <https://research-portal.nacosti.go.ke/> and obtain other clearances needed.

Yours sincerely,

Mr Ambrose Rachier,  
Chairperson; SU-ISERC