BASELINE ASSESSMENT OF THE NON-MOTORIZED TRANSPORT FACILITIES AND INFRASTRUCTURE IN NAIROBI COUNTY

31TH JANUARY, 2020
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<tr>
<td>AU</td>
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1 INTRODUCTION
1.1 Background of the study
Non – Motorized Transport (NMT) is a means of transport that include walking, the use of wheelbarrows and carts, animal transport (horses, camels, donkeys, mules, and oxen), animal-drawn carriages (such as sledges), bicycles and tricycles for passenger and freight transport (GOK, 2012). NMT modes also include the use of wheelchairs, skateboards, and strollers. The most common NMT modes in Nairobi are walking, cycling for personal and as public transport, and human and animal-drawn carts for goods and garbage transport; wheelbarrows and trolleys are also used but to a limited extent (Nairobi City County Government, 2015).

The Kenya Alliance of Resident Associations (KARA)1 in collaboration with the Nairobi City County Government (NCCG) and United Nations Environment Programme (UNEP)2 developed a Non-Motorized Transport (NMT) Policy for Nairobi County in 2015 with the aim of to provide a framework for harmonisation, prioritization, and coordination of NMT infrastructure and facility development and maintenance in Nairobi (reference). The policy was developed out of the realisation that more than 48% of the Nairobi's population use NMT (walking or cycling) to access their workplace, businesses, and general movement. However, this core mobility infrastructure that creates access to the city for the majority and is also used to carry goods necessary for small businesses is woefully neglected in current transportation planning and resource allocation. The NMT has a significant economic positive impact, including reduced traffic congestion, traffic calm, improved public health, and better access to economic opportunity for all.

The NMT Policy was officially handed over to the County Government at a launch event held on March 19, 2015 and had been adopted at the County Assembly. Among the recommendations of the Policy is the need for updated data that can inform decision making regarding investment and planning for NMT facilities. The NMT Policy for Nairobi provides clear policy guidelines, infrastructural, and facility parameters upon which the assessment can be measured. In this regard, KARA embarked on a baseline survey to ascertain the existence, status, usability, and safety of the NMT facilities (cycle paths, pedestrian walkways, footbridges, etc.). The survey report shall not only inform investment and planning for NMT facilities in Nairobi but also provide sufficient safety information to NMT users, security status along the routes and eliminate the missing links (detours) by adhering to the principle of coherency and barriers to improve the function of the multi-stakeholders steering committee proposed by the Policy.

In terms of policy direction, the Integrated National Transport Policy (2012)3 states that the development and maintenance of infrastructure for NMT will be supported by all local authorities (stakeholders) and road agencies. Even though the NMT national policy guideline is basically in place, lack of data on champions at both national and county levels for universal implementation of the policy

1 The Kenya Alliance of Resident Associations (KARA) is the apex body representing the voice and pro-active action of resident associations on consumers and taxpayers’ rights countrywide – on accelerated access to public service delivery. See more on https://www.kara.or.ke/ 2 The United Nations Environment Programme (UNEP) is the leading global environmental authority that sets the global environmental agenda, promotes the coherent implementation of the environmental dimension of sustainable development within the United Nations system, and serves as an authoritative advocate for the global environment. See more on https://www.unenvironment.org/about-un-environment 3 The Integrated National Transport Policy is the key policy document that seeks to improve the institutional and legal framework in Kenya and has been in preparation for the better part of a decade. The policy highlights a number of critical challenges relating to infrastructure, regional linkages, environmental impact, policies and integration, and institutional capacity and structure.
is still a challenge. Further, the policy observes that there is no clear national and county NMT policies that provide appropriate laws and regulations to guide planning, resource allocation, and implementation of NMT facilities. Likewise, a 2016 UNEP report on Non-Motorised Transport observed that data on NMT infrastructure in Africa is scarce, and yet fundamental for ensuring that appropriate solutions for NMT are found. One of the challenges to scarce collection of data to inform NMT policy development is that data may be partial and fragmented, and therefore policy makers may not be able to compare the relative cost-effectiveness of different interventions. However, it is critical to undertake data collection and analysis as part of NMT policy development and to inform decision making. It can be time intensive but if done appropriately it can provide exceptional added value (UN Environment, 2016). It is worth noting that since the enactment of the Roads Act 2007, the Kenya Urban Roads Authority (KURA) has been instrumental in providing NMT facilities as standard features on urban roads. Good practices can be seen on the “missing links” in Nairobi. NMT provisions on major international highways passing through Nairobi and other urban areas is still a problem as guidelines still do not exist (Nairobi City County Government, 2015).

Also, NMT development is supported at both the national and local policies and development plans. The Constitution of Kenya (2010), under the Bill of Rights, stipulates that every person shall enjoy the rights and fundamental freedoms in the Bill of Rights to the greatest extent consistent with the nature of the right or fundamental freedom. Further, the Constitution of Kenya 2010 states that every person has the right to freedom of association and freedom of movement. It is on this basis that the NMT policy was put in place to ensure an integrated and all-inclusive transport system for Nairobi in which the non-motorized users are provided with appropriate space and facilities to enjoy their freedom of safe movement, which is a fundamental human right.

Further, the implementation of NMT policy strongly recommends harmonization of NMT and their concomitant infrastructure into technical, legal, and institutional mandates of transport agencies that will promote the development and usability of NMT facilities and infrastructure in tandem with urban design and planning principles. The Traffic Act 2015 provides the framework for the enforcement of traffic laws, including those relevant to NMT users. The Kenya Vision 2030 aspires for a country firmly interconnected through a network of roads, railways, ports, airports, waterways, and telecommunications. The vision 2030 aspires to set up a robust institutional framework for infrastructure development, implementation of infrastructure projects that will target increased connectivity and reduced transport, and other infrastructure costs. The Vision targets the development and maintenance of an integrated, safe, and efficient transport network.

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4 An ACT of Parliament to provide for the establishment of the Kenya National Highways Authority, the Kenya Urban Roads Authority and the Kenya Rural Roads Authority, to provide for the powers and functions of the authorities and for connected purposes. Find more on http://www.krb.go.ke/our-downloads/Kenya%20Roads%20Act%20of%202007.pdf
5 Kenya urban roads authority (KURA) is a state corporation under the ministry of transport and infrastructure established by the Kenya roads Act 2007 with the core mandate of management, development, rehabilitation and maintenance of national urban trunk roads. Refer to https://kura.go.ke/
6 Article 20 (2) of the Constitution of Kenya 2010
7 Article 36 (1) of the Constitution of Kenya 2010
8 Article 39 (1) of the Constitution of Kenya 2010
9 An Act of Parliament to consolidate the law relating to traffic on the roads. See more on https://infotradekenya.go.ke/media/Traffic%20Act%20CAP%20403.pdf
10 Kenya Vision 2030 is the country’s new development blueprint covering the period 2008 to 2030. It aims to transform Kenya into a newly industrialising, “middle-income country providing a high-quality life to all its citizens by the year 2030”. See more on http://vision2030.go.ke/inc/uploads/2018/05/Vision-2030-Popular-Version.pdf
1.2 Objective of the Baseline Assessment

The baseline assessment sought to ascertain the existence of the NMTs across the NCCG and also establish the status of NMT facilities, specifically, cycle paths, pedestrian walkways, and footbridges in terms of usability and safety. The assessment study provides the baseline information upon which decision and advocacy regarding investment on the improvement of the NMT facilities in Nairobi County. Further, the assessment proposes recommendations realigned to urban planning and integrating, security, safety, economic benefit, public health, and the environment as recommended in the NMT Policy launched in March 2015.

The baseline assessment was conducted in line with the scope of work and was aimed to achieve the following specific objective:

1. To conduct a comprehensive literature review to understand the current situation of NMT facilities in Nairobi and key players. Under this objective, the study established extent to which National and County Government Policies, priorities and objectives are aligned to NMT infrastructure and facility development; mapped out the key players of NMT facilities and assessed the extent to which the development of NMT has facilitated other legal requirements such as (development and adoption of urban street design manual and other regulations); assess the extent to which NMT components are integrated into national road infrastructure development.

2. To identify NMT facilities, assess their status and usability. Under this objective, the study assessed the extent to which NMT facilities and infrastructure have facilitated safety/security, mobility/accessibility for Nairobi residents paying attention to:
   a) the geographical location of the NMT facilities within Nairobi and type – pedestrian walkways, cycle paths.
   b) state of the facilities in terms of maintenance, security and their usability

3. Propose interventions to improve the status of the facilities and investment in NMT infrastructure in general. Under this objective, the study assessed the impact of institutional benefits such as (coordination of agencies resulting in the promotion of NMT infrastructure and operations/maintenance; integration of urban planning into the NMT policy and road safety design audits include NMT facilities.

1.3 Current Status

Currently, there is the ongoing implementation of the NMT Policy in Nairobi County. This provides baseline data for the justification for the sustainable systematic investment in NMT facilities by providing baseline indicators to demonstrate the percentage of trips made by pedestrians and cyclists (and other NMT users); showing the percentage of accidents impacting the pedestrians and cyclists to demonstrate safety of the NMT; accessibility that provides a further evidence base for the importance of providing and enhancing investment on NMT for Nairobi roads. However, currently there lacks a thorough tool to evaluate NMT infrastructure and facilities in terms of environment, road safety, accessibility, and thus this baseline assessment will provide the necessary evidence base for measuring the performance of the development of NMT facilities in Nairobi County. This NMT baseline assessment provides evidence baseline indicators to advocate for the development and full integration of NMT within the whole of the Nairobi transport system and scale to other urban centres in Kenya and beyond.
2 METHODOLOGY

2.1 Introduction

This baseline assessment was carried out in line with the set objectives and scope of the study, as indicated in the TOR. The development of baseline information on the status of NMT infrastructure, their usability and safety involved various data sources, both primary and secondary data informed this baseline survey. Secondary sources relied on published and unpublished documents while the primary data relied on the actual conducting of the focused group discussions, key informants interviews, direct observations, mapping and photography. The methodology accurately provided for the identification of targeted facilities and fact-checking on what has been presented in literature at both the National and County Government Records. The below steps provide a breakdown of the methodological approaches used during the study.

2.2 Stakeholders Mapping and Analysis

The study reviewed key actors in NMT sector. The stakeholder mapping entailed identification of possible stakeholders categorised as: National Government Actors; County Government Actors; Private Sector Groups; and Citizen Action Groups with interest in NMT system. The analysis of these actors was guided by level of influence and interest in the NMT ensuring that no user or interest is left out in the mapping. This data provided recommendation for sustainable institutional coordination for management and maintenance of NMT facilities and infrastructure in Nairobi County.

2.3 Quantitative Data collection

2.3.1 Participatory Mapping and Observation

Participatory Mapping in its broadest sense was employed in the assessment to create maps by NMT users derived from the local communities through FGDs to provide a valuable visible representation of what the NMT users perceive as best routes for missing links or detours with the significant features within the corridor to enhance usability of NMT facilities. In addition, the exercise ultimately empower the general public by raising awareness about the importance of using designated NMT facilities. This involved women, men, children and persons with disability who identified different land use and resource issues that affect the usability of the NMT facilities and infrastructure. The views were triangulated with the quantitative data collected from the field to come up with the best representation of the interests in terms of location of footpaths, zebra crossing, detour routes and other NMT facilities as will be guided by the discussions.

The following tools were used in data collection:

a) **Participatory Observation** - This involved star rating recording of observations made to NMT facilities by the research assistants such as pedestrian walkways, cycle paths etc. as well as have informal conversations with NMT facility users. Some of the key things observed and rated were recorded in the kobo collect for quantitative analysis:
i) Type of NMT existing or required;
ii) State of cleanliness and environmental grooming;
iii) Monitoring, Management and Maintenance;
iv) State Security, Signage, and perception on Safety;
v) Frequency of Use (Traffic per minute) at different times of day;
vi) Perception and Attitude of users of NMT facility at the time mapping.

The results of the ratings were presented in maps, tables and chart to communicate the geographical locations, NMT facility, status (in terms of conditions/maintenance, security and usability of the NMT facilities. Star Rating Score was calculated for each observed unit/parameter and entered into Kobo Collect database to produce meaningful results that can be easily analysed. The rating results for the different NMT facilities, their status/conditions or maintenance, security and usability were then analysed to provide quantitative report.

b) **Photography**- Digital, panoramic images or videos of all the identified NMT facilities was taken from different perspectives to provide evidence of status and conditions (maintenance condition, security and usability) of NMT facilities. The photographs were marked by place, day, time and where possible the GPS coordinates.

### 2.3.2 Sampled Facilities Areas

**a) Outsider Central Business District**

1. Technical University/Railway- to South B (through Mater Hospital) corridor through Railway Foot Bridge and Raised Footbridge at City Square KRA. (Serves students and walkers from South B to town;
2. Kariobangi (Nairobi River to Eastleigh) (Passing to Kiambio informal settlement) – walkers going to industrial area from Kariobangi-Korogocho-through Makadara into industrial area;
3. Upper Hill Community to Haile Salessie Avenue through NHIF and also consider side of Uhuru park;
4. From ABC place to Westlands walk way corridor;
5. From Ngara to CBD through Globe Cinema and walk on the overpass (flyover road on Muranga road;
6. Corridor from Kibera Chiefs Camp through Lang‘ata Road to Industrial Area (Mbagathi way);
7. Corridor from Nakumatt Prestige Junction through Yaya Centre and end at Lavington Mall;
8. Corridor from Parklands (Highbridge) through Aga Khan towards Pangani and end junction for Pangani Girls (Intersection between Juja road & Geoffrey Griffins road);
9. Imara Daima through industrial area and end at Unilever Junction.

**b) Within Central Business District**

1. NMT facility from Cooperative Bell bottom through Aga Khan Walk and Stanley Sarova and end at Bazaar Plaza;
2. Lithuli Avenue- Best Case;
3. Mama Ngina Road and Muindi Bingu Street (MacMillan Library-Base Case – Also consider corridor from City Hall to University of Nairobi Footbridge;
4. Harambee Avenue (NMT features)- Best Case;
5. Banda Street;
6. Moktar Daddah Road;
7. Uhuru Park and Central Park;
8. City Hall Way;
9. Landis Road.
2.4 Qualitative Data Collection

2.4.1 Focussed Group Discussions

The study targeted the following groups for discussions on NMT facilities, investments, and policy priorities, as presented in Table 1:

Table 1: Focus Group Discussion (FGD)

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<thead>
<tr>
<th>Groups</th>
<th>FGDs</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
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<tbody>
<tr>
<td>Skater/Board riders</td>
<td>1</td>
<td>5</td>
<td>5</td>
<td>10</td>
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<tr>
<td>Persons with Disability (PWDs)</td>
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<td>Residence Association Reps</td>
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</tr>
<tr>
<td>Business Community Reps</td>
<td>1</td>
<td>5</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Motorcycle Association (Boda Boda)</td>
<td>2</td>
<td>10</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>Bicycle Assorted Group of Riders</td>
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<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Children Representatives</td>
<td>1</td>
<td>5</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>10</td>
<td>50</td>
<td>50</td>
<td>100</td>
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The data on the state of NMT facilities in Nairobi; Challenges; and Recommendations was collected using the FGD Guide.

2.4.2 Key Informant Interviews (KII)

Table 2 shows a list of Key Informant comprising of community action groups, private sector, civil society and government who provided key data during the KII on NMT facilities, challenges, and recommendations.

Table 2: Key Informants

<table>
<thead>
<tr>
<th>KIIs</th>
<th>Description</th>
<th>Total</th>
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<tbody>
<tr>
<td><strong>Academia</strong></td>
<td>University of Nairobi-Rep of School of Built Environment</td>
<td>1</td>
</tr>
<tr>
<td>National Government</td>
<td>Representative of National Transport and Safety Authority</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Representative of Kenya Urban Roads Authority (KURA)</td>
<td>1</td>
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<tr>
<td></td>
<td>Representative of Kenya Police (Traffic Police)</td>
<td>1</td>
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<td></td>
<td>Representative of Min. of Transport &amp; Infrastructure</td>
<td>1</td>
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<tr>
<td></td>
<td>Representative of Engineers Registration Board/ Kenya Roads Board (Road Maintenance Levy Fund (RMLF)</td>
<td>1</td>
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<tr>
<td>County Government</td>
<td>Representative of Min/Department of Transport in Nairobi</td>
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<td>Representative of Nairobi Regeneration Project</td>
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<td>Representative of Sub-County/ward Administrators</td>
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<td>Representative of Traffic Marshalls</td>
<td>1</td>
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<td>City Engineer/Designated Representative</td>
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<tr>
<td>CSOs/Private Sector</td>
<td>Private Individuals with interest in NMT e.g. \NMT activist</td>
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<td></td>
<td>Representative of UNEP and UN HABITAT</td>
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<td>Usalama Watch Initiative &amp; Green Africa Foundation</td>
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<td></td>
<td>KARA designated member/leaders</td>
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<td>Representative of Disability Groups</td>
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<td></td>
<td>Representative of ITDP Africa</td>
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<td><strong>TOTAL</strong></td>
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<td>23</td>
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2.5 Data Analysis and Presentation

Data Analysis was done stepwise. The first report was the inception report that kicked off field work. The second report was preliminary report based on literature review and participatory observations. The report was subjected to the review and input by selected stakeholders and specific questions generated for specific target audience and focus group discussants. The method for data analysis was content analysis. The extracted quantitative data was presented in charts, tables, frequencies and percentages while the qualitative information is presented as text and verbatim. The study report was disseminated through a presentation of the study findings to the relevant stakeholders, KARA, UNEP and Nairobi County transport department officials and technical staffs for their input and
validation of the Baseline study findings. Input and feedback from the project staff was used to improve the study findings and finalize the report.
3 LITERATURE REVIEW ON NMT INFRASTRUCTURE AND FACILITY DEVELOPMENT IN NAIROBI

3.1 Introduction
This section addresses existing situation of NMT facilities and infrastructure for NCCG with reference to: analysis of Key players; policy landscape; Road infrastructure strategies for improving the NMT facility and infrastructure development.

3.2 Understanding the Policy and Governance in NMT
The Sustainable Development Goal (SDG) - Goal 11: Sustainable Cities and Communities; Target on Mobility aims that by 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons. The UN Decade of Action for Road Safety 2011 – 2020: This came up with action plans with targets for promoting safer road infrastructure and protecting vulnerable users such as pedestrians and cyclists. According to the 2002 World Bank and the Economic Commission for Africa Assessment of the Non-Motorized Transport Program report, the Sub-Saharan Africa Transport Policy Program [SSATP] emerged from a transport workshop convened in Norway in 1987 to review and set out an agenda for transport investments in Sub-Saharan Africa [SSA]. The workshop identified four core areas, which were to be addressed by the World Bank in its future transport investments in SSA: Transport policy reform; Non-motorized transport; Improved mobility using the integrated infrastructure approach and Transport data (Transport statistics and efficiency levels). The World Bank, with the support of the governments of France, Belgium, the United Kingdom, and the Economic Commission for Africa, conducted a major study on urban public transport in twelve cities of sub-Saharan Africa in 1990. The study examined policies, regulations, and management in the public transport sector. This provided a basis for a strategy paper of the World Bank, which finalized the first phase of the "Sub-Saharan Africa Transport Program Urban Transport Component (Wilson, 2002).

The 2018 UN Environments’ share the road annual report states that there can be no doubt about the scale of the global challenge of tackling man-made climate change, air quality issues and poor road safety; and in particular the role played by transport. With a global car fleet predicted to triple by 2050 (over 80% of that in the developing world) there is need to find a way to reconcile the need for increased mobility with an ambitious reduction in emissions along with improved air quality and road safety. NMT in particular walking and cycling is one of those ways which can contribute to reversing those negative trends and make rapid progress towards making transport more sustainable. This is because walking and cycling steers the transitioning to zero emission modes (UN Environment, 2018). The UN Environment Emission gap report (2017) clearly states the world must urgently and dramatically increase its ambition to cut roughly a further quarter off predicted 2030 global greenhouse emissions and have any chance of minimizing dangerous climate change (UN Environment, 2018). Meeting the needs of people who walk and cycle continues to be a critical part of the mobility solution for helping cities de-couple population growth from increased emissions, and to improve air quality and road safety. The UN Environment share the road project is focuses on achieving four objectives including, supporting development of NMT policies and initiatives at national and city level; building a knowledge base of NMT guidance and tools and provide access to this knowledge; leading on global advocacy, communication, and engagement relating to NMT and Prioritizing the needs of children and other vulnerable groups.

In the recent years Nairobi continues to experience upsurge of motor vehicles resulting to traffic congestion, deteriorating urban environment resulting to increasing air pollution. In order to address the consequences there has been more emphasis on expanding road infrastructure to accommodate the motor vehicles without putting into consideration the needs of non-motorized transport users in
terms of mobility and accessibility. With the population of Nairobi at 4.3 million and nearby Kiambu at 2.4 million, Machakos 1.4 million and Kajiado 1.2 million according to the 2019 National Census Report, there is expected high interaction for connectivity for employment, housing, education, market for goods and services between Nairobi and the surrounding counties that is likely to put pressure on the existing transport infrastructure of Nairobi City County. Consequently, there has been efforts by the Kenya Government to improve the urban transport facilities, infrastructures and services to afford the population to access the opportunities safely and efficiently.

In a bid to improve the capacity of the NCCG, and in response to the plight of NMT users within the city, the development partners including the World Bank have been supporting the city urban mobility projects through modest investments in NMT (Mairura O, 2011). Retrofitting of NMT infrastructure has been going on along major arterial roads, and pedestrian paths, expected to link areas where the urban poor live with locations where they walk to work. The NMT agenda is currently getting serious attention from both the national and county governments. This interest has been triggered by the development of INTP, the Nairobi NMT policy and the support of the development partners who fund most of the road infrastructure. Some development partners have made NMT a funding conditionality for road projects, albeit with minimal coordination. Pressure and conditions imposed by the development partners have created awareness among government ministries, related agencies and urban authorities. This has resulted in NMT provision being recognized as a standard feature of any road project in Nairobi, although the major challenge is that the provision is still limited to retrofitting of footpaths, except in cases where new roads are being developed. Furthermore, what is provided across the city is not standard due to an outdated national standard manual guiding the design of NMT provision. Existing infrastructure largely relies on the design skills of individual engineers carrying out the work. This has contributed to cases where many NMT facilities such as foot bridges, speed bumps, and pedestrian crossings exist but are not utilized due poor design and inappropriate location. There is hope that through the proposed Nairobi Streets and Roads Design Manual (NSRDM) this will change. However, these challenges to NMT have been met with mixed quality of infrastructure for active modes reflecting that walking and cycling and other NMT users are not supported in the urban environment. Yet according to the recent research noted that over 75% of Nairobi use NMT facilities either walking and cycling (Otieno & Mitullah, 2016)

3.3 Key players for NMT Infrastructure Development

Discussing the Kenya case, Asingo and Mitullah (2007) note the inefficient institutional and organisational structures of public transport stating that there are too many organisations and related institutions, which deal with public transport. The lack of coordination, overlap of functions and responsibilities, the lack of an Integrated Transport Policy, as well as bias towards motorised transport, continue to affect the efficient governance of the sector. According to Otieno & Mitullah, (2016), institutions that influence the transport sector include formal rules, such as policies, laws, regulations and other informal practices. It is these institutions that inform governance of the transport sector. Where such institutions are absent or incoherent, governance of the sector is bound to be problematic.

The response to public transport in Africa was triggered by the African Union’s (AU) initiation of a programme on Transport and Millennium Development Goals (MDGs). The AU recognition resulted in a number of development partners led by the World Bank forming a task force to address the transport challenge in Africa (Wilson, 2002). In Kenya, the AU initiatives and the World Bank-supported Sub Saharan Africa Transport Policy (SSATP) and studies influenced NMT concepts, embedded in the Kenya National Development Plans of 1997/2001, 2002/2008, Vision 2030 and related strategic plans. In terms of policy, the Kenya Vision 2030 highlights a strategy of developing a 50 year Integrated National Transport Master Plan (INTMP) which is linked to the National Spatial Plan (Kanyama, A. A and Goran C., 2009). The Master Plan is expected to ensure that investment
and location of transport infrastructure and services are consistent with other public policies (Government of the Republic of Kenya, 2007). The vision is complemented by the development of a Sessional Paper no. 2 of 2012 on Integrated National Transport Policy (INTP). One of the objectives of the Sessional Paper is to enhance road safety and cater for the needs of nonmotorized traffic (Republic of Kenya, 2010). The draft policy dedicates a section to NMT, acknowledging that NMT has not been given due attention, compared with roads for motorized transport (Otieno & Mitullah, 2016).

The study notes that the development and maintenance of infrastructure for NMT will be supported by county governments and other road agencies such as Kenya Urban Roads Authority (KURA) among others. In the urban areas, each county government or agency will provide and maintain adequate sidewalks and pavements for pedestrians, separate lanes, parking bays, bridges, footpaths, and other facilities for non-motorized intermediate means of transport (NMIMTs), including ramps for the physically challenged (Otieno & Mitullah, 2016). Further, Otieno & Mitullah (2016) argues that all road agencies shall make provision for NMT facilities in their planning and design programmes, irrespective of the use of those facilities by motorized vehicles. This national framework is expected to guide county governments, including urban authorities within their jurisdiction. This requires a fundamental change in urban governance, including financial commitments, and change of attitude and bias towards motorized transport (Otieno & Mitullah, 2016).

### 3.4 Institutional Development

Institutions and actors play a major role in the development and functioning of any sector. Otieno & Mitullah (2016) argues that NMT in Kenya and particularly in Nairobi are directly influenced by institutions and actors overseeing transport and road sectors. The major players in these sectors include local and international organizations guided by different mandates, interests and regulatory regimes. The local institutions include: several government ministries; quasi-government organizations, such as Kenya Roads Board (KRB) and KURA; National Transport and Safety Authority (NTSA), the NCCG; private organizations; and civil society organizations (Otieno & Mitullah, 2016). The international players are mainly the development partners such as World Bank, African Development Bank (AfDB), Swedish International Development Agency (SIDA), Japan International Cooperation Agency (JICA) and United Nations among others (Otieno & Mitullah, 2016). While it is not possible to comprehensively discuss all these actors in this paper, some of them are discussed in order to highlight their role in driving the NMT agenda within the city, as shown in Table 3.

#### Table 3: Institutions and actors overseeing NMT in Kenya

<table>
<thead>
<tr>
<th>Organization</th>
<th>Role in NMT</th>
</tr>
</thead>
</table>
| National Transport and Safety Authority (NTSA)    | • To advise and make recommendations on matters relating to road transport and safety;  
|                                                   | • To implement policies relating to road transport and safety;  
|                                                   | • To plan, manage and regulate the road transport sector in accordance with the provisions of the Act No. 33, 2012;                          |
| Ministry of Transport, Infrastructure and urban development | • Mandated for policy development; coming up with uniform standards for NMT facilities and infrastructure to be adopted by various agencies;   |
| Institute of Engineers                           | • Ensures the continued improvement of the performance in engineering service delivery;  
<p>|                                                   | • Promote and develop the engineering profession, best practices for sustained development and welfare of Kenyans;                           |
| Global Road Safety                                | • Funding infrastructural development;                                                                                                                                                                 |
| UNHABITAT                                         | • Seeks to promote walkable cities by ensuring NMT facilities are integrated with safe, reliable and affordable public transport;                |</p>
<table>
<thead>
<tr>
<th>Organization</th>
<th>Mandates and Roles</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNEP</td>
<td>Seeks to promote sustainable environments; investment; best practices and research;</td>
</tr>
<tr>
<td>JICA</td>
<td>Infrastructure development, traffic engineering and management; Investment and capacity building to NMT infrastructure authorities;</td>
</tr>
<tr>
<td>World Bank</td>
<td>Infrastructure development, traffic engineering and management; Investment and capacity building to NMT infrastructure authorities;</td>
</tr>
<tr>
<td>African Development Bank</td>
<td>Infrastructure development, traffic engineering and management; Investment and capacity building to NMT infrastructure authorities;</td>
</tr>
<tr>
<td>Kenya Urban Road Authority (KURA)</td>
<td>Mandated to manage, develop, rehabilitate and maintain all public roads in Cities and Municipalities in Kenya except where those roads are national or classified as county roads;</td>
</tr>
<tr>
<td>Kenya Rural Roads Authority (KeRRA)</td>
<td>Manage, develop, rehabilitate and maintain all public roads in Cities and Municipalities in Kenya except where those roads are national roads;</td>
</tr>
<tr>
<td>Kenya National Highway Authority (KeNHA)</td>
<td>Manage, develop, rehabilitate and maintain national trunk roads;</td>
</tr>
<tr>
<td>Kenya Roads Board</td>
<td>Advise the government, oversee the road network in Kenya and coordinate its development, rehabilitation and maintenance;</td>
</tr>
<tr>
<td>Nairobi City County Government</td>
<td>Manage, develop, rehabilitate and maintain national trunk roads;</td>
</tr>
<tr>
<td>Institute for Development Studies (IDS)</td>
<td>Carries out research on high priority areas on socio-economic development in Kenya;</td>
</tr>
<tr>
<td>School of built Environment (UoN)</td>
<td>Research; capacity building of planners and city land use designers;</td>
</tr>
<tr>
<td>Nairobi Metropolitan Area Transport Authority (NAMATA)</td>
<td>State corporation Mandated to oversee the establishment of integrated, efficient, effective and sustainable public transport system within the Nairobi Metropolitan Area, which comprises of the Counties of Nairobi, Machakos, Kiambu, Kajiado and Muranga; Ensures Integrated Mass Rapid Transit System (MRTS) encompassing but not limited to Bus Rapid Transit (BRT), Commuter train, Non-motorized Transport (NMT) and any other mode targeting Mass Movement of People; Effective Traffic Management as well as integration of Land Use and Transport planning;</td>
</tr>
<tr>
<td>Institute for Transportation and Development Policy (ITDP)</td>
<td>Develop bus rapid transit (BRT) systems, promoting biking, walking, and non-motorized transport, and improving private bus operators margins;</td>
</tr>
<tr>
<td>Association Persons with Disability of Kenya</td>
<td>Advocates for inclusivity of NMT designs to meet the rights of persons with disability within the urban space;</td>
</tr>
<tr>
<td>Muscular Dystrophy Society of Kenya</td>
<td>Provides support platform for people with muscular dystrophy and other neuromuscular conditions in Kenya; Advocates for inclusivity of PWD within the NMT infrastructure system.</td>
</tr>
<tr>
<td>Kenya Alliance of Residential Association (KARA)</td>
<td>Apex body representing the voice and pro-active action of resident associations on consumers and taxpayers’ rights countrywide on accelerated access to public service delivery;</td>
</tr>
<tr>
<td>Private sector</td>
<td>CSR, championing NMT use, investment</td>
</tr>
</tbody>
</table>

The mandates and roles of organizations charged with the responsibility of managing transport in Kenya for a very long time have been muddled with many organizations not clear of where their mandates start and end. However Sessional paper no. 2 on Integrated National Transport has partially rectified this challenge. Nevertheless, the challenge has been greater on provision of NMT.
infrastructure since attention has been directed towards motorized transport. The Ministry of Transport and Infrastructure is a key player in the formulation of transport policies aimed at guiding development of the sector. The ministry has realized major reforms which have led to major changes in the transport industry. The first reform in 1999 led to formation of the Kenya Roads Board, a body established to advise the government, oversee the road network in Kenya and coordinate its development, rehabilitation and maintenance (Government of Kenya, 2007). The ministry works in collaboration with agencies established through Acts of Parliament, namely: Kenya National Highways Authority (KeNHA), the Kenya Urban Roads Authority (KURA), the Kenya Rural Roads Authority (KERRA) and the National Transport and Safety Authority (NTSA) established in 2014. KURA and NTSA have a number of functions which are aimed at improving urban roads infrastructure and managing road safety matters in the country.

Analysis of KURA’s mandate reveals that the body does not have any specific mention of NMT. The provision on planning and operations in respect to roads includes NMT infrastructure and planning. Further research have revealed that the NMT facilities in Nairobi are provided along motorized roads which KURA and KeNHA oversee. In this case, these agencies advise both the ministry and the NCCG on how best to plan, ensure ample space for provision of NMT infrastructure and protect NMT from encroachment by motorized vehicles (Mairura O., 2011). The formulation of the above bodies ensures harmony and compliance with international standards and supervision of transport service delivery. Despite the progress in the institutional formation, the ministry has been struggling with this mandate with the support of international development partners, but with limited success (AINGO P and MITULLAH W., 2007).

According to Otieno & Mitullah (2016), the private sector has been very active in the city providing transport and supporting the city through corporate social responsibility (CSR). However, in the area of NMT, the sector has been more of a problem than a solution. The paratransit mode Matatu has been a major threat to NMT. Most matatus encroach on NMT facilities, especially during peak hours, causing serious conflict. Although the matatus are registered under Savings and Credit Co-operative Societies (SACCOs) and have three associations for owners, welfare and for drivers and conductors, they do not seem to contribute towards improving NMT within the city (Kanya, A. A and Goran C., 2009). Other private actors, in particular civil society are beginning to have an interest in NMT, as demonstrated in the collaboration of the Kenya Alliance of Residents Associations (KARA) with UNEP and the NCCG in developing the NMT policy (UN Environment, 2018). Development partners such as World Bank, Africa Development Bank, SIDA, Japan (JICA), European Union (EU), Canadian International Development Agency (CIDA), International Development Bank (IDB), the People’s Republic of China and Nordic Development Fund among others have committed financial and technical resources in commissioning studies and funding several projects in Kenya (JICA, 2013). Some of these studies, especially those by the World Bank, have contributed significantly to the visibility of NMT in various urban road projects and in the development of transport policies, regulations, by-laws and plans. The SIDA support facilitated the development of a National Road Safety Action Plan (2006/2010). The plan covers many aspects and addresses safety needs of NMT, including provision of infrastructure and enhancing national emergency capacity to deal with victims of crashes.
3.5 Legal and Policy Landscape Analysis

Transport policies in Kenya is beginning to recognize the integral role of NMT facilities and infrastructure in sustainable transport system. Increasingly, there are a number of laws and regulations as well as policies that facilitate the development of NMT infrastructure and facilities in Kenya that call for a safe, comfortable, and convenient environment for pedestrian, cyclists and other forms of active transport. Below is the analysis of the existing laws and policies and how they impact the NMT facility development and feed into the global agenda but there is no national policy on NMT to guide development of NMT infrastructure and facilities. NMT is an element in various transport laws and policies although Nairobi have developed one and 4 years down it has not been adopted by the county assembly to facilitate its full implementation. From the in-depth interviews, the key informants noted that Kenya has myriad of laws and policies that facilitate NMT facility and infrastructure use however, their enforcement is lacking. Both national and county government policies and laws focus on road safety and fails to take into account measures to secure the NMT users and worse for the persons with disabilities, elderly and children particularly below 8 years. Road budgetary allocation that should enhance the development and usability of NMT infrastructure is inadequate due to the perception and appreciation of the NMT by the relevant agencies.

The Constitution of Kenya 2010 – under Article 10 provides for human dignity, equity, social justice, inclusiveness, equality, human rights, non-discrimination and protection of the marginalized as national values and principle of governance. The Bill of Rights article 39 in the constitution guarantees all Kenyan citizens the right of movement including those vulnerable among the population (young and elderly, persons with disability). Article 27 guarantees equality and freedom from discrimination by providing for equitable and universal access. While Article 42 provides for the right to a clean and healthy environment. The constitution mandates the national government with construction and operation of trunk roads and formulating standards for construction and maintenance of the County Roads. The constitution provides for establishment of devolved systems of governance and formation of County Government with department for Roads and Transport responsible for planning, maintenance of county roads, street lighting and parking facilities.

Kenya’s Vision 2030 provides the appropriate base for formulation of the standards for transforming Kenya into a newly industrialized middle-income country by providing quality of life to all its citizens by 2030. This can only be achieved if the needs of NMT users are met to facilitate mobility, accessibility, safety and security in the transport and infrastructure sector.

NTSA Act 2012 – Although provides for road safety, however, has focused on the motorized road transport regulations. Yet in Section 4d stipulates that the NTSA is mandated to advise the government on national policy with regard to road transport systems; develop and implement road safety strategies; facilitate the education of the public on road safety; conduct research and audits on road safety and compile inspection reports relating to traffic accidents. With these functions, the Act has been interpreted to focus more on the motorized transport and safety concerns are within the road motorized transport. The Act also provides for the NTSA to compile inspection reports relating to traffic accidents. These are key functions that if implemented with focus to protect the NMT users will enhance a shift in development and management of NMT facilities and infrastructure.

Section 21 of the Act gives the Authority the mandate to establish a county transport and safety committee, while Section 22 spells out the function of the committee which shall among other things oversee the management and regulation of the road transport system by the Authority at the county level. These provisions provide hope for the public road sector, in particular pedestrian and cyclist safety. Prior to the establishment of county governments in 2013, the defunct Ministry of Local Government was responsible for facilitating Local Authorities (LAs) to achieve good governance and improved service delivery for enhanced socio-economic development. The LAs worked closely with
other ministries, urban authorities and development partners on a number of transport projects. The ministry in collaboration with other development partners has also supported the NCCG in provision of NMT facilities along 18 routes identified as missing facilities (Katahira & Engineers International, 2006). Further analysis of the act reveals that there is no direct or specific mention in the Act mandating the NTSA to facilitate mobility of NMT users but the NTSA’s mission concern on continually improve accessibility of Kenya’s road transport system for all users. However, it has given more emphasis to motorized transport and not NMT users except when there is compromised safety by the motorists.

**National Road Safety Action Plan 2018-2023**- The Share the Road team joined stakeholders from all over Kenya at stakeholder events in February and November 2018 to contribute to review of the National Road Safety Action Plan 2018-2023 (UN Environment, 2018). This is a critical step to achieving the goals of the Decade of Action for Road Safety which advises all countries to develop and implement a National Action Plan for Road Safety. This will also be necessary to help Kenya achieve the sustainable development goals and targets relating to road safety (SDG Goal 3.6 and 11.2). The need for NMT investment was discussed widely, particularly the need for ‘safe and inclusive streets for all’ and the role of land use planning in order for NMT infrastructure to be incorporated at the earliest stage. NMT is included in the action plan under thematic area 6 (safe roads and speeds). The Action Plan is expected to be fully signed off and approved by June 2019 (UN Environment, 2018).

**Traffic Act of 1953 (revised edition 2015)**- The Act consolidates the laws relating to traffic on the roads providing the speed limits and penalties for driving beyond the allowed speed limit on any road within the boundaries of any urban area. The Act, therefore, directs the Highway authorities to erect and maintain traffic signs and speed limiting road design features. The Act also ensures that traffic routes in the vicinity of educational institutions are equipped with safe and adequate NMT facilities and prohibits driving on pedestrian walkways as a measure to protect the NMT users. However, the focus is more regulating, restricting or prohibiting motor vehicles on the traffic routes but does not give emphasis to promote the usability of the NMT facilities and infrastructure. Therefore, enforcement of usability and safety of NMT facilities is not given priority by traffic officers.

**Street Adoption Act 1963 (Revised edition 2012)**- The Act aims to regulate the construction and improvement of streets in particular local authority areas including Nairobi City County. It provides for the adoption of individual local authorities of streets of a satisfactory standard. The Act also directs any intention for layout, form, construction, widen, extend or alter unadopted street on the requirements such as footpaths, the carriageway, landscaping, and other utilities to enhance the usability of the street.

**The Integrated Transport Policy**- The policy recognizes the important role of NMT facilities and public transport in responding to the mobility and accessibility needs of the majority population in cities and urban centers of Kenya and promoting quality of life and general well-being for the citizens. The Policy emphasizes the need to integrate NMT into the planning, design, development, and implementation of road infrastructure. The policy further aims at developing efficient, sustainable, and professionally operated public transport seamlessly integrated with NMT and land use planning. Nairobi city is characterized by inadequate supply of public transport and stiff competition of the limited road space for motorists, cyclists and pedestrians as well as other NMT users. Consequently, the policy proposes strict parking policies and restrictions for private motorists and road pricing to enhance demand for traffic management. The policy notes the inadequacy of NMT infrastructure and emphasizes the need to provide appropriate basic road infrastructure such as
walkways, pedestrian crossing and other complementary facilities for NMT users. However, the policy does not compel County government to increase the supply of NMT facilities and infrastructure to meet the mobility of the population. It also does not provide the appropriate standards for quality of and adequate NMT facilities and infrastructure to enhance their usability by all users. As such the authorities constructing or improving the road infrastructure has provided NMT facilities with no clear guidance on the standards and do so to meet compliance rather than intentions for enhancing usability and safety of the NMT users. In addition, mobility and accessibility of the vulnerable population such as young (below 8 years); elderly (over 70 years), persons with disabilities is not put into account.

**The Highway Code** - This offers guidelines on the use of roads by NMT users to enhance safety and usability of NMT facilities. The code directs all users to obey traffic signs and signals. The code directs pedestrians to cross the roads at designated locations, prohibits walking on the carriageway. It also provides for the safety gears for the cyclists such that they are advised to wear helmets and reflective clothing. However, does not provide special signs for persons with disability such as talking traffic lights. Most signs are placed near walkways that block the persons on wheelchair to manoeuvre freely.

**Kenya Road Act of 2007** - Provides for classification, management, construction and maintenance of public roads in Kenya and establishes KeNHA, KURA, and KeRRA and stipulates their functions. This is important in coordination and management of NMT facilities within the city given that they are developed by different agencies.

**Nairobi City County NMT Policy 2015**

In order to promote usage of NMT in Nairobi, the city has formulated NMT policy (NCCG, 2015) and by-laws which protect NMT users, including provision for observing traffic lights and zebra crossings. The formulation of the policy is expected to improve mainstreaming of NMT (Nairobi City County Government, 2015). The policy provides for the following:

- **Increasing mobility and accessibility** by increasing modal share of walking from 47 to 50% for trips up to 5 km by 2025; increased modal share of cyclists from 2 to 10% for trips up to 15 km by 2025; and increased modal share of public transport from 32 to 35% for all trips by 2025. Furthermore, all roads within the county shall fully comply with the specifications of the Nairobi Streets and Roads Design Manual (NSRDM) by 2025.
- **Increasing transport safety** by reducing pedestrian fatalities from 500 to 50 or less per year by 2025 and by reducing cyclist fatalities from 20 to 5 by 2025.
- **Improve amenities for NMT**: Level of Service 23 (LOS) rating of streets improves from D to B by 2025.
- **Increasing recognition and image of NMT in Nairobi County** by ensuring that diverse income groups use NMT as a mode of choice.
- **Ensuring that adequate funding/investment is set aside for NMT infrastructure** by creating a special NMT Fund to address the NMT provision backlog.

The policy recognizes NMT as a popular mode of transport in Nairobi requiring infrastructure and regulatory attention in terms of design and integration with other modes of transport. It further provides for the harmonization of NMT and related infrastructure into technical, legal and institutional mandates of existing road agencies, county governments and relevant government ministries; establishment of a NTSA, National Transport Research Institute, and National Transport Information Support Services among others (JICA, 2013). The policy envisions Nairobi to be a County where NMT is the mode of choice for short and medium trips (i.e. Pedestrian trips up to 5km; and cycling trips up to 15 km. Basically trips that can be made within one hour). The policy aims at increasing mobility and
accessibility, enhancing transport safety of NMT users, improving amenities along the NMT corridors, increasing recognition and image of NMT in Nairobi City County as well as ensuring adequate funding and investment is put aside for NMT infrastructure. Although the Nairobi County NMT policy has been in place since 2015, it has not been adopted. The policy is at the assembly awaiting to be passed by the County Assembly for adoption. This has derailed the gradual transfer to NMT use and enforcement. The delay in adoption has also resulted to inadequate investment by the County Government to develop adequate NMT facilities and infrastructure to enhance their usability (UN Environment, 2016).

The NMT policy advocates, among others, for development of adaptable and flexible long-term NMT plans which are data-led and result into dense network of streets and paths that meet NMT requirements. Such as pedestrian network that are denser with well-designed intersections per square km than cycling network. The pedestrian cul-de-sacs prohibited to ensure accessibility to the shortest path for all trips. However, this has not been implemented as the NMT facilities have been designed along the road network hence not enhancing shortest path for trips thus affecting usability of the existing NMT facilities. The policy proposes NCCG to review existing and proposed design manuals, universal access and technical design standards for NMT facilities (cycle and pedestrian paths) to produce appropriate one that will enhance mobility, safety and usability of the NMT facilities (Nairobi City County Government, 2015). However, the policy although is for NMT, it focuses alignment of the NMT facilities to the existing road motorized network rather than have the policy aligned to promote development and usability of NMT facilities. The policy proposes that NCCG will employ street designs that define clear boundaries through kerbs, open drains, bollards, and surfacing material differences instead of aligning to the NMT street design manual that will spell out the standards and size (Otieno & Mitullah, 2016).

According to the UN Environment, (2018) share the road report, following the development of Non-Motorized Transport (NMT) policy in 2015\(^\text{11}\), the government has made notable strides in implementing the policy in order to improve the walking and cycling environment and catalyze investment in NMT. The policy includes a first of its kind commitment in Africa - earmarking 20% of the city road construction budget to NMT investment. The NCCG has earmarked 200 million Kenyan shillings for NMT projects in 2019 and Governor of Kisumu County Government has committed to development of an NMT Policy in 2019 (UN Environment, 2018). With the support of the EU, the county government has also hired an NMT specialist to develop a walking and cycling network plan for Nairobi and identify what else is required to make the policy a reality (UN Environment, 2018). A multi-stakeholder steering committee was established in early in 2019 to drive the agenda of implementing the policy. The EU and the Government of Kenya have also jointly funded “The Nairobi Missing Link Roads and Non-Motorized Transport Facilities Project” which is being implemented by the KURA (UN Environment, 2018).

**The Nairobi Integrated Urban Development Master Plan (2014)**

The plan was developed by JICA for NCC to provide a comprehensive and integrated urban development framework that was missing with the expiry of the 1973 Nairobi Metropolitan Growth Strategy in 2000. The NIUMP proposes the development of a compact urban centers that is liveable, green, creative and competitive (JICA & NCC, 2014)). It proposes that Nairobi should be NMT friendly to ensure efficient, effective and inclusive transport system. The NIUMP provides for creation of safe and high mobility city centre with NMT zones where pedestrians and bicycles can move without obstacles by the vehicles. It also recommends a well-integrated public transport network to ensure

\(^{11}\) A joint initiative of UN Environment Share the Road Programme, the Kenya Alliance of Residents Association (KARA) and the Nairobi City County
connectivity and intermodal splits. However, the emphasis is on decongesting the traffic through expansion of road network rather than giving emphasis on development of NMT facilities and corridors to enhance use of NMT and ensure environmental concerns (JICA & NCC, 2014)

**Draft Street Design Manual for Kenyan Cities (2019)**

Street Design Manual for Kenyan Cities was developed and launched by the Ministry of Transport, Infrastructure Housing, Urban Development and Public Works (MoTIHUDP) as arising need to have standard street design manual for Kenyan Cities. It is yet to be made public and enforced. The draft street design manual recognizes that streets play critical role in enabling residents to move from one part of the city to the next, meet, conduct business, socialize and relax. Therefore, has a large impact on quality of life. Due to the influx of motorized transport in Nairobi city, once walkable places have been redesigned to prioritize personal motor vehicles, yet walking and public transport remain the dominant modes of transport in Kenyan cities. The manual aims to support the design of beautiful, safe, walkable and liveable streets that promote usability and safety of NMT infrastructure thus promote quality of urban environment and character of streets. The design manual seeks to mainstream best practice street designs that improve mobility and accessibility of majority road users (pedestrians and cyclists as well as vulnerable persons particularly the elderly, children below 8 years and persons with disability. This in turn will enhance access to employment opportunities, lower demand for travel by motorized vehicles and reduced air pollution. The design provides for a network of cycling lanes and footpaths alongside the main roads to improve safety for cyclists and pedestrians. According to reports by the Star Newspaper 2016, Nairobi transport system is basically road-based, and more oriented to private car use. Safety of pedestrians is a major challenge and account for 70 per cent of fatalities in the city. The policy will improve safety for all users by minimising conflict (Ndunda, 2016).

### 3.6 Challenges

**Non alignment to national and county policy priorities:** The development and use of NMT facilities and infrastructure is as a result of the urban infrastructure and not the policy. However, the existing policies give little priority to the NMT. Further literature reviewed showed that the national and county government policy priorities and objectives for improving the use of NMT in Nairobi are not aligned to the development of the NMT facilities in Nairobi. Although there are efforts noted depending on the corridor e.g., CBD, Mbagathi way, Juja road, Jogoo road, Outering road, but mainly those in high income residential areas. There was no report on the commitment to follow up to ensure they adhere to standards that facilitate their use.

**Enforcement of the policies:** One of the fundamental weaknesses of most policies is enforcement. The policy commits to improve enforcement of traffic violations that endanger NMT users by deploying County Traffic Marshals (CTM) to police NMT facilities, especially at intersections and along public transport routes (Aisingo P and Mitullah W., 2007). The Marshals should be able to arrest and prosecute both NMT and motorized transport that violate traffic regulations, and this is already being realized within a number of locations within the city. Although it is still too early to draw conclusions on the issue of enforcement, the policy has good objectives and if well implemented, it has potential of mainstreaming NMT in Nairobi in land use planning as proposed in the integrated development master plan for Nairobi City. The Kenya Police through their traffic department is responsible for safety compliance and enforcement of regulations for all modes of transport as enshrined in the Traffic Act, although the department has a bias towards motorized transport.

**The encroachment into NMT spaces by motorists and motorcyclists:** parking, hawkers and weak enforcement of traffic laws on NMT facilities as the major causes for the situation that has put the pedestrian and human-drawn carts in danger. Full implementation of the Nairobi Streets and Roads
Design Manual and NMT policy will ensure that NMT facilities and areas are not encroached by the motorised locomotives and other street users.

**Lack of policy implementation** continues to frustrate provision of a balanced transport system that includes NMT provisions. According to Ndunda, (2016), In Nairobi, 60 per cent residents move from one place to another by walking or cycling. Availing facilities for these two groups will increase mobility and accessibility and improve transport safety. Likewise, implementation of the policy will also raise awareness and change attitude towards NMT in Nairobi County. The County government should set aside adequate resources for development and maintenance of NMT infrastructure.

**Lack of parking facilities for bicycles and transfer** to motorised transport for cyclists is difficult because there are no provisions for storage in urban public transport. Further, lack of parking spaces discourages cyclists. Walking and cycling are the cleanest ways to get around a city, and both can have enormous benefits for health, greenhouse gas emissions, air quality, road safety and equity. Cities as diverse as Bogota, Copenhagen, Montreal and Barcelona are leading the way in encouraging walking and cycling – and experience from cities like Sevilla shows that this transition can be rapid (C40 Cities Climate Leadership Group, 2019).
4 FINDINGS OF NMT FACILITIES ASSESSMENT

4.1 Introduction
The observation was focused on three NMT target areas: a) Within Central Business District; b) Along main roads; and c) Within Estate Paths and Connectors.

4.2 NMT Facilities Assessment
4.2.1 Central Business District (CBD)
The choice of the roads was guided by key NMT corridors and the ‘Best Practices’ on NMT investments and installation. The research team focused on the following areas:
   i) Aga Khan Walk from Cooperative House (Bell-Bottom to Kencom) and included Aga Khan Walk Parking a specialised and designated area for training Skaters and Skater Boarders every Sunday;
   ii) Harambee Avenue from Electricity House to the State Law Office;
   iii) Mama Ngina Road (From Behind Hilton Hotel City Clock to City Hall Annex);
   iv) Lithuli Avenue and exclusive walk way (NMT facility);
   v) Muindi Bingu Street (City Hall through to University of Nairobi Concrete Footbridge);
   vi) Best Western Hotel through Moktar Daddah road towards Central Park;
   vii) Central Park and Uhuru Park;
   viii) Kenyatta Avenue (from Opposite All Saints Cathedral to Naivas Kenyatta Avenue-T-Junction with Moi Avenue;
   ix) Moi Avenue (From 7th August Memorial Park up to Moi Avenue Primary;
   x) Banda Street from Nation Centre to behind I&M plaza;
   xi) Webera Street (Supreme Court to McMillan Library);
   xii) City Hall Way (From Intercontinental Hotel to Kencom);
   xiii) Tom Mboya Road (From Globe Cinema to Afya Centre);
   xiv) Landis Road from Muthurwa to City Stadium Roundabout.

4.2.1.1 General Findings
Within the Central Business District (CBD), the County Government and the road agencies such as KURA and have made investments on NMT and infrastructure within the CBD streets. This investment model is categorised into two: i) Purely Public Sector, and ii) Private Sector Induced through Public-Private Partnerships. On safety, all the roads and NMT facilities observed passed as safe. The road areas were well lit with street lights and a high level of cleanliness maintained. Within the CBD, there are several CCTV cameras installed in designated areas. For instance, at Ambassadeur Hotel and Aga Khan Walk areas, the County Government has mounted a block CCTV system as well as more NMT activities. Secondly, there are more police surveillance, City-County law enforcers, and Traffic Marshalls within the CBD, however, this arrangement does not necessarily provide safety to the NMT users but general security and order to enhance business activities. Worth noting was the lack of disability-friendly NMT facilities in all these areas, and where exist it was an afterthought. The Muscular Dystrophy Society of Kenya shared similar thoughts during an in-depth interview on the plight of physically disabled people when using the NMT.
On inclusion, the city roads and streets are still not cycling friendly. There were no parking bays observed for the bicycles in the streets observed. Secondly, there were no marked roads for cyclist lanes. Even private motorcycles do not have designated parking areas — the Commercial Motorcycle Transporters park at junctions or roadside in anticipation of customers blocking pedestrian footpaths. The study observed several Bodaboda struggling to get parking space on Luthuli Avenue where they were displaced by NMT facility; the Small Junction Box at Hilton along the city hall walk; and others parked on the NMT walkway blocking pedestrians at Posta Bus Stop (near Kipande House).

The study observed that the parking spaces for people with disabilities are few and spread across different streets. One may go through 50 parking spaces before getting a disability designated parking space for cars. The study, however, found that the non-motorized spaces, especially the block streets that were extended to be walkways, provided persons with disability (PWDs) in small businesses with the opportunity to settle and ply their trade.
Plate 2 shows a parking area designated for PWD being used by a person with no disability. It is only one in this area with more than 50 parking slots. The other challenge is that it does not provide adequate space between vehicles for a person a wheelchair to alight and use it. Even though it is designated for PWDs, it may not be disability-friendly. Again, the parking area is used for unintended purposes shows the low level of enforcement and lack of apathy for the PWDs.

On conditions, the NMT facilities within CBD were generally well maintained. The conditions for NMT facilities in terms of usability was, however, assessed on a case by case scenario. It was not possible to pass an aggregate judgment. However, the study observed that there is a need for repair and maintenance of some non-motorized facilities such as benches. Some of them are now in bad shape though people still use it because they got no alternatives. During the data collection period along the Cooperative House Extended Walkway, the study team observed an NMT facility, as shown in Plate 3 below. There were two women seated on it, and the research team requested to take a photo of the facility. Asked why they were sitting on such a bench, the women responded that the other places were fully occupied, and also they had no choice as the benches in the area were in a deplorable state.
The contribution of Private sector in improving NMT facilities was not in some instances. For instance, Sarova Stanley Hotel has created a state of art walkway outside premise that does not allow for public to interfere with their business and as well feel valued, as shown in Plate 4. This was contrasted with Hilton that has since closed through chains the walkway that links Kencom to Norwich Towers on Kimathi Road. Laico Regency has a walkway maintained and lighting placed on the footpath to the hotel.

Nairobi County CBD has some of the best NMT crossing facilities, especially on areas that require high reinforcement. The study observed that the two crossings on Harambee Avenue had Puffin Crossing, as shown in Plate 5. At this point, the pedestrians approach the puffin crossing, press the button, and wait for the green person to appear. While pedestrians were not able to see the green person on the far side of the road, thanks to sensors, the traffic should not move until after everyone has completed the crossing. Pedestrians should only start to cross when a green person is showing.
At the time collecting the data, the button was deactivated, but the sensor automatically detects a pedestrian.

Plate 5: Puffin Crossing & Pedestrian Crossing Sign at Harambee Av Enforcement Zone

To improve recreation and promote the use of NMT facilities in exclusive areas, the NCCG has ensured that there are no motor vehicle vehicles into these spaces, as shown in Plate 6 below. Central Park is exclusively a NMT area. The observation found that the NCC had place signs for enforcement and also created Bollards for NMT roads in the Central Park that cannot be used by Motorcycles and even vehicles.

Plate 6: Enforcement Measures at Central Park for NMT Use Only

In the CBD, there are other non-motorized zones deliberately created; they include the Luthuli Avenue Exclusive Pedestrian Walkway, Mama Ngina Road, Kencom Area, Aga Khan Walk and Bomb Blast Area facing Railway. The study observed that these areas are well maintained, clean, and monitored for security. Plate 7 below shows some examples.
Plate 7: Designated Walkway in the CBD (Coop House and Kencom)

The walkways within CBD are usable and safe. They link one street to the next. Their safety is guaranteed because of the existing street lights especially at night and the existence of the CCTV cameras. They are accessible to most of the non-motorised users. The skaters, trolleys and the wheelchairs can comfortably use them. On maintenance, the walkways cannot be said to be usually maintained. The Aga Khan Walk and the Cooperative House are well paved and even, whereas the Kencom walkways is fast peeling off, as demonstrated in Plate 7. The study observed that NCCG was investing in NMT ways across the city, as shown in Plate 8 below.

Plate 8: Accountability Board for Construction of Walkways on Muindi Mbingu St.
The CBD was found to have some good practices for NMT infrastructure: the county government has supported youth and children to train on skating every Sunday. No vehicle is allowed at the Aga Khan Walk Parking facility. The second innovation is to designate Busstop attached to the veranda footpaths. This helps the NMT users to effectively access other NMT accompaniments.

Plate 9: Designated Busstop attached to Footpath(a) & Aga Khan Walk Skate Space(b)

4.2.1.2 Some of the Inhibitors for NMT Use in CBD
The study found that there were inhibitors for the use of the NMT facilities within the town. Footbridges are not well maintained, and the cleanliness is not frequent; others like the Muthurwa footbridges act as open defecation and urinal points making the footbridge potentially dangerous, not just hygienically but also security-wise.

One pedestrian asked why they would not use the footbridge said, ‘I used to use this footbridge in Muthurwa. I stopped because currently it is a place for people displaying the wares for business and has made it squeezed. It is also invaded by street children and homeless people who potentially make it dangerous to cross. And more importantly, you will find it filthy with urine smell and sometimes can meet raw excretion at any point. They could be weapons to coarse one to produce money to gangs in these areas. It is interesting that Governor declared all public toilets free but people do not use them.’

The study observed that the vandalism of the NMT support facilities was prevalent. For instance, the guardrails have been removed in the area near the Muthurwa market. Though this has made it easy for the pedestrians to cross the Haile Selassie Avenue, it poses a risk to both the people crossing as they are likely to be knocked or to the motorists as they risk getting whisked after knocking a pedestrian. In Landis Road, NTSA placed sheeted guard rails to prevent the haphazard crossing of the road. The area around NACICO plaza and Eastleigh has witnessed wanton vandalism of the metal and the sheets.

The poor state of some facilities is making them pose a danger to users. For instance, many road makings and zebra crossings are fading off, as observed in Plate 10. Motorists and NMT users cannot see them. Some of the automatic Pelican Crossing Lights are not working, and this makes it hard to know one has the right of way. There is also a general uncoordinated street lighting system was a green signal for the motorists does not imply stop for NMT users at cross points and vice versa.
The other inhibitor to use of the NMT facilities is the changed usage or encroachment by other priority activities. For instance, Anaya Lane was blocked by a building next to Church House serving as Dry Cleaners shop. This lane linked Moi Avenue and Tom Mboya, one is focused to go 300 meters to access Tom Mboya Street or go through the Development House throughway. On the second case, there is a designated walkway between Maendeleo House and Kenindia Plaza that goes to Alliance Francaise (AF) that acts as an extended walkway and recreation area. This has since been obscured by the people operating carwash and some businesses, as shown in Plate 11 below.
One of the main inhibitors of effective NMT within CBD is the people crossing the street from anywhere and anyhow. Plate 12 below was captured in the evening, where the pedestrians chose to use an undesignated area to cross the Kenyatta Avenue area around Sarova Stanley and T-Junction at Moi Avenue.

Interview with the Department of Urban and Regional Planning noted that there is no standard size or logic for NMT infrastructure in Nairobi although the policy was to facilitate the development
of urban street design manual to ensure uniform conditions and standards in developing NMT facilities. The interviewee also noted that the conditions of the NMT facilities are not up to the international design standards. Lastly, neglect and poor maintenance of established NMT facilities. The CBD has two underground tunnel ways at designated areas: One is the underground tunnel serving the University of Nairobi Students linking Main Campus and the hostels. This is in a good state and well maintained and with lighting but with poor security, especially at night, thus poses a threat to especially female students or first years who still not well adapted to town life. Also, the tunnel is invaded by beggars and small businesses, making it difficult to maneuver. The other underground tunnel is at Globe Cinema Roundabout, which is no longer usable by the public. One of the hawkers in the area said that it acted as a home to the homeless and the street families. Secondly, it is an open sewer where those who cannot access the toilets go, as observed in Plate 13. Thirdly, there was water clogging on end, which poses a challenge to users. One onlooker explained that since the Thika road overpass was built, people rarely use that tunnel. However, insecurity and untidiness are also posing a threat to its usage.

Plate 13: State of the Underground Tunnel at Globe Cinema Roundabout
Further studies indicate that the planning of NMT alongside motorized routes has proved dangerous in Nairobi. Motorized transport encroaches on NMT facilities and causes conflict often resulting in crashes and death of pedestrians. This falls within the NTSA mandate, which is ensuring road safety on all roads in Kenya. The passing of the Integrated National Transport Policy 2012 has been positive for interventions on public transport supported by a number of development partners. Although other laws such as the Traffic Act, Cap 403 which gave all former local authorities (LAs) the power to develop by-laws for managing traffic still exist, other complementary programmes are improving the situation. For example, the National Urban Transport Improvement Project is addressing challenges of NMT by “identifying dangerous spots mainly at major pedestrian crossings streams and/or major road corridors such as, Mombasa Road and Waiyaki Way and proposing specific and immediate actions to address them” (UN Environment, 2018). This has realized the construction of two footbridges on one of the major roads in the city (Mombasa Road), at Bellevue and General Motors crossing. These were previously dangerous spots for pedestrians and cyclists as many lost their lives along that road. NMT management has become quite necessary with increasing human population and non-motorized and intermediate means of transport (NMIMTs) modes such as motor cycles. The many modes intensify problems during peak hours, when almost all modes of NMT are operational. The modes struggle to share motorized infrastructure and limited space with little or complete lack of infrastructure and regulation. Although provisions of the Traffic Act, the bylaws of NCCG and the
recently developed Nairobi NMT policy recognize the use of certain NMTs, enforcement of the by-laws for the benefit of all users is still weak, although NTSA is struggling to ensure compliance. Such has resulted to motorist becoming unruly and mostly riding harphazardly all over Nairobi a case in Place 14 below.

Plate 14: A boda boda operator using a cyclists' path on the Thika Superhighway.

NCCG plans to build a network of cycling lanes and footpaths on main roads to improve safety of cyclists and pedestrians. According to an indepth interview with the Nairobi City County Ministry of Transport and Infrastructure, Integrated Transport policy has special place for NMT infrastructure as it puts pressure on the road development authorities to have NMT infrastructure integrated during road construction. The policy demands that any new road must have NMT infrastructure. However, the County Ministry representative noted the challenge in enforcement and implementation that facilitate the encroachment and grabbing by vendors or traders. “Development partners funding concern on the people right does not encourage removal of encroachers to pave way for development of NMT facilities.” Remarked the Nairobi City County Ministry of Transport and Infrastructure Representative. Thus ensure they are integrated into the existing road network which most often does not facilitate mobility, connectivity and usability. The representative noted affirmed that the ministry is currently reviewing the policy to include transport and climate change; electric channels and cable cars and more emphasis on NMT infrastructure, and that the ongoing discussion with World Bank emphases on mobility through NMT use.
4.2.2 NMT Facilities Along Main Roads

The roads targeted for mapping were busy highways that most prone to heavy traffic, and most people alight to walk or cycle. These roads included:

i) Jogoo Road from Buru Buru/Hamza Junction to City Stadium;

ii) Lusaka Road (Oil Libya-Dt Dobie to City Stadium);

iii) Lang’ata Road (From T-Mall to Nyayo Stadium);

iv) Spine Road from Kayole Junction to Bee Centre;

v) Thika Road from Temple Near Premier School to Pangani Interchange and back to Ngara;

vi) Uhuru Highway from Nyayo Stadium to Haile Selassie Roundabout;

vii) Haile Selassie (Muthurwa Market to Uhuru Highway Roundabout through to NHIF);

viii) Juja Road (Kariobangi to St. Teresa Girls);

ix) Mbagathi Way from T-Mall to City Mortuary;

x) Ngong Road from Daystar University to Prestige Plaza.

The study found that in all the roads observed; there were several NMT facilities. They were varied depending on usage. Some of the common facilities general to the roads mentioned above were: i) steel-concrete reinforced Bollards; ii) Zebra Crossing; iii) Footpaths (sometimes shared with cyclists; iv) Designated Waiting Bay/Bus Stages; v) Raised Footbridges; vi) Street Lights; and traffic lights.

a) Jogoo Road

According to the Makadara Subcounty Roads Board the recent past has seen commitment to enhance road network in Eastlands through the president’s office that has facilitated the improvement of the Jogoo road, Outering roads and Kangundo roads. However, the board noted that the national government fails to track and monitor the contractors especially where contractors begin the constructions and leave half way with no NMT facilities (case of road next to Deputy County Commissioners’ office along our lady of visitation road which was done halfway having moved people who had encroached out to pave way for expanding the road with no NMT facilities such as foot paths yet it connects to the residential estate. “Beautification and landscaping have been given more priority than NMT facilities. For example, along uhuru highway, there are signage prohibiting tampering with the flowerpots which attracts 6 months jail term yet uhuru Park as an NMT corridor is in poor state.” Claimed the Makadara sub county roads board.

Jogoo road stretches from Outering Interchange at Donholm to City Stadium Roundabout, covering a distance of 11 km. This road serves critical areas, the Makadara Railway Station, entry point to Mbotela, Makogeni, Kaloleni, Eastleigh, Buruburu, Bahati and Kimathi, Jerusalem, and Jericho Estates and other key government institutions such Makadara Law Courts and Makadara Sub-County Commissioner Offices. The data collection along Jogoo road made the following observations. Firstly, there is a railway wall built from Donholm to Easton Apartments and MOGAS Petrol Station. Along the wall, there exists a partly paved footpath with the paved part only at the entrance to the Makadara Petrol Station, as shown in Plate 15. The footpath is co-shared with cyclists who mostly ride the opposite direction. The study also observed that, as one move towards Donholm Estate, one might not cross the road to the other part because of the underground railway bridge. The street is generally clean, with a clear storm waterway created alongside the road. This footpath extends up to the roundabout of Posta (St. Stephen ACK church). Secondly, there were Zebra Crossings at designated points along the road from Buruburu Junction to Eston Apartments. The Zebra Crossings are, however, fading, as shown in Plate 16. Based on the observation made, people are crossing the road in areas they felt convenient and not at designated Zebra Crossing Points. The study also made some interesting observation regarding the choice of areas for placing the zebra crossing, areas, where the width of the road are narrower, might have influenced the placing of a zebra crossing either to reduce the distance covered by the pedestrian or cost of placing a zebra crossing. At the Makadara shopping
centre, there was an indication of people crossing the road haphazardly despite a footbridge being a few meters away.

Plate 15: Footpath on Railway Wall and Tree Obstruction

There is an overhead concrete footbridge near Makadara Law Courts. The study observed that those using the bridge were mainly children or people accompanying children. There are schools on the side of Mbotela that the bridge served and a Catholic Church below the Bridge. Most residents rarely use the bridge especially during rains as it holds water. The bridge, however, allows for the use of a wheelchair as it is well sloped and with excellent texture. Enforcement on the use of the bridge is low because of guard rails were vandalized and people who do use it, go through the road without risk of being hit. Bicycles can also be pushed to cross the bridge. Saddling is not possible because the width is just about 1.5 meters. According to the Government of Kenya (2007), footways and paths should ideally be at least 2000mm wide in areas with moderate to high pedestrian traffic. This width will allow two wheelchairs to pass each other comfortably. Where this cannot be achieved, or in areas with light pedestrian traffic, a width of 1500mm is regarded as the minimum acceptable, giving enough space for a wheelchair user and a walker to pass each other. At obstacles and pinch points, the absolute minimum width should be 1000mm. Where possible, the full path width should be maintained consistently, even behind bus shelters and in front of shop fronts. This clear space should be maintained free from traders and hawkers who will inevitably use the space for marketing foods and other goods and services and from street families using the footway as ‘home’. Where possible, Nairobi County governments should seek to find alternative locations for hawkers and street families while enabling all pedestrians to be mobile.

The study observed that the footbridge at City Stadium/Bama is busy and is used all the time; however, the study observed that the businesses stationed under the bridge footbridge obscured its usage. The bridge is also invaded by beggars who make it difficult to navigate. The bridge is raised high and thus people with load or porters do not like using it. Both Makadara and City Stadium Bridges are not well lit at night and thus not usable by majority. The concrete reinforced bollards on Jogoo Road are well situated. It was noted that some have been knocked by vehicles and are yet to be
placed while others were vandalised. The beautification gardens that ensured enforcement look neglected.

Plate 16: Zebra Crossing & Bollards at Hamza Jogoo & Bike Size at Nyasa Rd Junction
All pedestrians – and disabled pedestrians, children and elderly people in particular – can benefit greatly from well-marked and well-designed crossings. By channelling pedestrians into designated points, crossings make drivers more aware of the presence of pedestrians. Street crossings can be uncontrolled (with no traffic signal) or controlled (with a traffic signal). Signals are usually only warranted if vehicle and pedestrian volumes are high enough, such as on busy roads or near schools and hospitals. In all cases it is crucial to observe best practice to promote safety, accessibility and reliability.

b) Haile Saleesse (Muthurwa Market to Uhuru Highway Roundabout through to NHIF)
This is a major NMT corridor for majorly civil servants and the public accessing the government offices in upper. It is mostly used in the evening after work when the public vehicles are stuck on traffic. On usability, the Haile Sale Avenue is segmented into four: NHIF to Uhuru Highway/Ukulima SACCO; from Neno Centre to Railways Roundabout; and Easy Coach to Jesus Alive Ministry; and from Wakulima to the roundabout of OTC. One of the NMT users interviewed explained that the road is their gym. It enables those who sat in the office for period of 6-10 hours to stretch towards town. This walk way is fairly paved and is in good condition. It does not have mud even when there are heavy rains. Another NMT user said it lacks supportive NMT facilities such as the resting points that can used by people who going uphill. The walkways potentially risky because of the motorcycles that push themselves into pedestrian space. Previously, it was cooler during the day because of the trees that used create a cooling effect. A lady seller said that since the large trees were cleared to pave way construction of the tallest building in Africa, the area has lost its aesthetic value and it is hard walk. There is direct sunlight and no shelter. The walkway is accessible to all persons including persons with disability, children and the elderly. It was observed that the walkway from NHIF through to Uhuru Highway/Haile Selassie Round all the way to well paved, clean and enhanced mobility for all.

The segment that covers Easy Coach Station (Railways) to Jesus Alive Ministry is fast peeling off, encroached by hawkers and also is not well marshalled. The segment between Wakulima (Cooperative Bank) and the Muthurwa Market is not well maintained. Firstly, there is wet mad that easily make on side. Secondly, the toilet facility in the roundabout cannot be accessed by all because it is in a small roundabout and vehicles pass there. It is not easy for a PWDs to cross over to use the
ablation facility. At the Muthurwa Market is the raised footbridge. This footbridge is not used to its
capacity. One of the pedestrians asked explained that the footbridge has been captured by traders
who display their wares and the street families. The street families stay in this footbridge and pose a
serious danger to passers-by. They footbridge is littered with urine and human excretions. There is a
suspicion that street families use this footbridge at night for open defecation. One trader who
commented on condition of anonymity explained that the directive the Governor to have all public
toilets be freely accessed has not been adhered to. Most street families are unwilling to spend Ksh. 10
per call of nature.

c) Lang’ata Road (From T-Mall to Nyayo Stadium)
Lang’ata Road from T-Mall to Nyayo Stadium has developed NMT facilities. By Observation there
were no designated cycle paths. The bicycle riders were sharing the main road with the vehicles. The
footpaths were occasionally encroached by Motorcycles that would pose safety problems to the
pedestrians. There was extensive use of animal such as horses, dogs, and camels for recreation.
There is a raised footbridge at Madaraka Roundabout, that was well maintained and well lit. The
footbridge is however, neither disability friendly nor does it make elderly feel comfortable. The
roundabout is well marked for use by the pedestrians. The side walk around city stadium was left
incomplete by a storm water trench constructed. This may pose safety issue to children and PWDs.
In general, the footpath towards Nyayo Stadium Roundabout is well maintained and is usable by all
NMT.

d) Lusaka Road (Oil Libya-Dt Dobie to City Stadium)
Lusaka road to City stadium roundabout has a walkway on either sides of the road on cabros. They
can be used by the Cyclists though not designated for them. It covers all NMT users comfortably. It is
however important to monitor vandals who have knocked bollards to extract the metal reinforcement.
The roads had good beautification at the centre which could motivate to walk. There is police
enforcement at the roundabouts.

e) Spine Road from Kayole Junction to Bee Centre
The NMT facilities observe on the road include a footpath, bus stage and facilities for bicycles/tricycle,
wheelbarrow wheelchairs, trolleys, skates/boards. A lot of encroachment by hawkers was observed
on the NMT facilities along Spine Road. The NMT facilities were found to be poorly maintained and
with very poor state of cleanliness. Generally, the NMT facilities along Spine Road were found in a
dilapidated state. It was evident that the facility was not adequate considering the population that is
served by the same. Further, it was observed that there were no safety measures in place to
safeguard the users of the facility for instance the entire road had no crossing point thereby
endangering the lives of pedestrians who might get knocked down while crossing. The space for NMT
was found to be limited and with no enabling structures for access for persons with disabilities.
However, there was a small section of the facility that had a well maintained surface with adequate
streetlights. The footpaths were embedded in areas that already electricity poles and sewer-lines.
This may pose safety challenges especially for children, PWDs and other vulnerable NMT users such
as elderly persons.

f) Uhuru Highway from Nyayo Stadium to Haile Salessie Roundabout
This majorly covers NMT users who intend to access the upper hill through Bunyala road or mostly
those avoiding town and joining the Lusaka Road to the Estates of South B, Landimawe and industrial
area. On the right-hand-side towards town, there is a thin footpath and people are forced to move into
the parking area and walking space in front of Toyota Kenya and former Nakumatt Mega. As you
move towards town it is further narrow (1 meter) and most of the times, the pedestrians are risk of
being hit by motorcycles or being tripped by the wheelbarrows parked by hawkers to sell their wares.
On the left-handside towards the CBD, there is a spacious footpath that runs from Nyayo Stadium to
Haile Selassie roundabout. It is completely off the road. This is a good practice where there is space. The bicycle riders use it without posing dangers to the pedestrians. The footpath is convenient but insecure at night. One of the woman passer-by interviewed stated that at night, it is not safe walking on the path alone because, the WWII memorial cemetery harbours robbers and criminals who could ambush people. In general, the footpath from Bunyala Roundabout to Haile Selassie Round is in good shape and well maintained. The cabros put between Nyayo Stadium and Bunyala Roundabout on either side of the road are peeling off and creating potholes on the sidewalks that could pose danger. There is need to enforce rules so that the motorcycles not to encroach the NMT space and stick to the main mixed use highway.

g) Juja Road (Kariobangi to St. Teresa Girls through to Pangani Girls Bridge)
This area covers nearly the whole wall of the Moi Airbase and covers nearly 5km. It is an important NMT corridor that lacks most necessary NMT facilities. It covers people going to market in Eastleigh, those walking from the informal settlements of Kariobangi, Ngei, Huruma and Mathare to industrial area or CBD through Eastleigh. The observation made was there was no pavement or formally established footpath. It is dusty during the sunny times (dry season) and muddy during the rainy seasons. The road has faded zebra crossing in many parts targeted for pedestrian crossing. There is dumping of garbage in most parts of the road, reducing the width of the road and making it difficult for cyclists and pedestrians to effectively share the road, as shown in Plate 17. There may be need for the County Government of Nairobi to reach out to the Ministry of Defence and the Moi Airbase Management to create a footpath along the wall to make it better for walking. A number of pedestrians were spotted crossing the Juja road at different points not designated. The area has only a fading Zebra Crossing at Moi Forces Academy and a Footbridge that only serves the girls of Pangani High School. Most of the other schools such as Kiboro Primary, Ndururuno Primary and Secondary, and St. Teresa Girls do not have access to the necessary non-motorised transport facilities.

Plate 17: Passengers Crossing at Unmarked Points and Garbage on the Footpath

h) Mbagathi Way from T-Mall to City Mortuary
The Mbagathi way is a major NMT corridors that services the Ngong road especially for those from Kibera informal settlements to Kenyatta Hospital or Mbagathi Hospital and those going to industrial area from Ngummo and Kibera to Industrial Area through the Lang’ata Road. There are three main NMT features that define the road: One, the Raised Footbridge near DO’s camp that is not optimally used; two, the metallic bridge over River Mbagathi that is an extension of the walkway on the left-
hand-side towards Lang’ata road after Umash Funeral Home; and lastly, crossing lane for pedestrians accessing the Mbagathi hospital and Toi/Kenyatta Markets. On safety, the road is well lit both day and night. It is an open area that is clearly visible to everyone and nobody feels threaten using the road. It is convenient for those making short trips towards Upper Hill and community areas. This Zebra Crossing along the Mbagathi Road serves the general public and has a well-constructed footpath next to it, as shown in Plate 18. The crossing point has clear signs and there are also other safety features like steel reinforced bollards on both sides that protect NMT users from encroachment and therefore making the facility safe. The facility is managed and maintained by County Marshalls from the County Government.

Plate 18: Zebra Crossing Near Daystar Roundabout (Right) & Extended Metallic Bridge (Left)

i) Ngong Road from Daystar University to Prestige Plaza
This is the newest road built by the Japanese. It is a best case example of how to provide the cycle lanes, and the motorised transport also use the road. The footpath is 2 meters away from the road and is not encroached by the Motorcycles because the road has three lanes and widens at the points of junctions. The cycle path is used by both motorcycles and the bicycle riders. It also covers the people from Kibera informal settlements who access town through Kabarnet road and Nakumatt Prestige. Road was well marked for crossings. It had walking traffic lights though at major junctions such as the Nakumatt Prestige and Kilimani Ring road (Yaya) were manned by the traffic police.

4.2.3 Inter-Estate Connectors
Finally, the study considered the roads that link one estate to the next and which were considered key to NMT system. The areas included:

10. Likoni Road from House of Manji through BAT to St. Peters Anglican Church/ Posta Estate Mbotela
11. Technical University/Railway- to South B (through Mater Hospital) corridor through Railway Foot Bridge and Raised Footbridge at City Square KRA. (Serves students and walkers from South B to town).
12. Kariobangi (Nairobi River to Eastleigh) (Passing to Kiambio informal settlement) - Walkers going to industrial area from Kariobangi-Korogocho-through Makadara into Industrial Area.
13. Corridor from Nakumatt Prestige Junction through Yaya Centre
14. Corridor from Parklands (Highridge) through Aga Khan
15. Enterprise Road-Imara Daima through industrial area to Industrial Area Prison.
a) **Likoni Road**

The first point of observation was the Likoni Road. The road serves industries in the industrial area. Most of Pedestrians from Viwandani, Makogeni, Mbotela and Mukuru Sinai that are low income earners use this route going to walk. The road also links Jogoo to Mombasa road, it is a key transit corridor for vehicles avoiding town. The outstanding feature of this road is the non-motorised facilities made by British America Tobacco (BAT), as shown in Plate 19. The facilities are well designed for pedestrian protection through Steel-Concrete Reinforced Bollards. The BAT model provides for a Bus Stop that allows room for Bicycles and other pedestrians to use.

![Plate 19: NMT Facility Facilitated and Maintained by BAT at Likoni Road](image)

b) **Lavington Roads (Oloitoktok, Gitanga, Othaya and James Gichuru roads)**

These roads are found in the upmarket areas of Nairobi. The NMT facilities found along these Lavington Roads, serve mostly joggers in the morning and evening and the cyclists. There is footpath is located along Gitanga Road in Lavington which is used by a high population of NMT users mainly for general public use to facilitate movement from point A to B. The footpath is narrow in size and there is some visible encroachment by power poles erected and motorists who park temporarily at the path. The footpath is poorly maintained and has a couple of potholes making it difficult and unsafe for NMT users with disabilities to access. The footpath is not in good state, as shown in Plate 20.
The Zebra Crossing spotted along Oloitoktok Road serves as a crossing point for wider segment population of NMT users as a linkage to the surrounding residential estates and apartments, as shown in Plate 21. There are clear signs and traffic lights at the crossing point making it safe for accessibility by NMT users. The crossing point is large and wide enough to accommodate cyclists and it has some embedded posts on each side to limit and protect NMT users from possible encroachment by vehicles. The facility is well maintained and managed by County Marshalls who operate and control the traffic around the roundabout nearby. Additionally, there is a sidewalk along Oloitoktok Road heading to the roundabout serves as a linkage to residential estates and for general public use for NMT users. The sidewalk has clear signs making it easily accessible and it is large and wide enough to accommodate a large number of NMT users at a particular time. There are also visible street lights along making it safe for users to use it during the night and there are County Marshalls and Traffic Police officers ensuring that the facility is well maintained and serves its intended purpose.
On James Gichuru Road, it was observed that there were road signs showing a designated cyclist lane, as shown in Plate 22. They show that the designed points are used by cyclists and the pedestrians. They are a key safety feature.

Plate 22: Cyclist Lane Designated at James Gichuru Road Lavington

According to Khreis & Nieuwenhuijsen, (2018), Nairobi County proposed car free Wednesdays and Saturdays in two of the busiest parts of the city. The space that is freed up from vehicles, like roads and parking lots, could be used to create green areas – quality public spaces where people can congregate, socialise and relax. Research shows that cities benefit from car-free days in many ways. This includes traffic decongestion and reductions in time wasted, fewer car crashes and less noise and air pollution. Car free days also increase social interaction and physical activity. Overall the change will, if sustained, improve the health and well-being of the city’s residents (Khreis & Nieuwenhuijsen, 2018).

c) Foot Bridges Along the Railways NMT Corridor

There are two landmark footbridges on this NMT corridor. First, there is a linkage between Technology University of Kenya (TUK) and the Times Towers (Kenya Revenue Authority Offices-KRA) towards Harambee Avenue, as shown in Plate 22. It is very busy as the road below has metal barriers that one has no choice but to use the bridge. It is well maintained and cleaned. It has hawkers during weekday but it is spacious enough so pedestrians are not much affected. This Footbridge along the busy Haile Selassie Road is usually used as crossing point by NMT users and links the Post Office to the Kenya Revenue Authority Offices. It’s mostly used by students of Technical University of Kenya to cross from one side to the other and it is well maintained by the County Marshalls from the County Government of Nairobi. The facility has adequate lighting, smooth surface and a ram to facilitate safe access by people on wheelchairs, skate boards and trolleys.
Plate 23: Footbridges at Times Towers (Left) and Railways (Right)

In the second photo is the historical Railway Footbridge at Land Mawe which connects NMT users to the pathway along the Technical University of Kenya (TUK) towards Haile Selassie Avenue. The footbridge is wooden with old steel reinforcement. The wooden planks are in bad state and are likely to cave in when more people use at the same time. The Foot Bridge is a crossing point used by a high population of NMT users on a daily. There are no supporting features for access of NMT users who have disabilities and its narrow causing a lot of congestion especially by students of the TUK during the morning and evening. There are enforced laws on NMT use, for example, arrest, fines indicated on a signage at the entrance and exit of the crossing point. As explained by a user, the steps are not favourable and one can slide during rainy season. The facility has a public toilet at one end but lacks street lighting making it unsafe especially for women to use it during the late hours in the night.

4.3 Factors that promote or hinder gradual transfer to NMT use

Mobility for citizens across different transport infrastructures is challenging as such facilities are needed for interconnection and interworking for seamless mobility between different modes be it walking, cycling, bus-commuting, wheel-chair or motoring. Making NMT viable and convenient mode requires rebalancing street space to cater for all modes of transport.

The following factors were found to be promoting or hindering the gradual transfer to NMT use:

a) Designing for Safety

Safety is a key component for promoting use of non-motorized modes of transport. When people are assured of their safety, they will opt to use the facilities provided with confidence. This can be done using modal hierarchies (that places pedestrians, bicycles, public transport, freight and personal vehicles at the bottom) to promote safety to inform design and operation decisions.

i) Systematic traffic calming on smaller streets and residential areas to provide safe places for mixing of pedestrians, cyclists, and other modes (e.g shared lanes as in the cases of the CBD and should be replicated in the residential areas);

ii) Designated pedestrian and cycle infrastructure completely separated from motor vehicle traffic on larger streets. In addition, safe crossings should be provided at regular intervals.

b) Footpaths elements

ITDP and UNHABITAT publication (2018) on Streets for Walking and Cycling establishes that well planned footpaths provide continuous space for walking. As such design for a foot path depends
on the integration for multiple elements in a coherent design and also support other street activities such as vending.

i. **Footpath Zoning** - Governing criteria for zoning of the pedestrian facilities should uphold comfort, continuity and safety. As such should be in 3 zones: frontage zone, pedestrian zone, and the furniture zone with each playing important role in a well-functioning footpath. Pedestrian zone should provide continuous clear space for walking with atleast 2m width to accommodate two wheelchair users or prams at the same time and must be free of obstructions. When footpaths are designed per zoning system, it provides uninterrupted walking space for pedestrians, enhances comfort and safety. The absence of pedestrian zones forces people to walk in the carriageway. Most streets in Nairobi except within the CBD are poorly zoned and have trees or electric or street lighting poles obstructing the pedestrian zones. These trees and poles should be placed in the furniture zone away from the pedestrian walkways.

ii. **Footpath width** – this can vary according to the adjacent land use. Footpaths within residential areas require atleast 2m width as shown in Table X.

<table>
<thead>
<tr>
<th>Land use</th>
<th>Frontage Zone</th>
<th>Pedestrian zone</th>
<th>Furniture zone</th>
<th>Total width</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>At least 0.5m</td>
<td>At least 2.0m</td>
<td>At least 0.5m</td>
<td>At least 3.0m</td>
</tr>
<tr>
<td>Commercial zone</td>
<td>At least 1.0m</td>
<td>At least 2.5m</td>
<td>At least 0.5m</td>
<td>At least 4.0m</td>
</tr>
<tr>
<td>High Intensity Commercial zone</td>
<td>At least 1.5m</td>
<td>At least 4.0m</td>
<td>At least 1.5m</td>
<td>At least 7.0m</td>
</tr>
</tbody>
</table>

Adopted from UN-Habitat and ITDP (2018)

iii. **Footpath height** – Footpaths should be elevated above the carriageway separated with a kerb of about 150mm. The footpaths should be continuous at the property entrance for uninterrupted pedestrian movement but with ramps for vehicles. Bollards should be installed (atleast 900mm interval) to prevent vehicles from parking on footpaths but allow for wheelchairs. However Most of the streets in Nairobi have footpaths constructed on the same level as the carriageway or with step/steep ramp at property entrance make it difficult to use as such they are prone to accumulation of dirt and waterlogging especially in rainy weather making them unusable.

iv. **Footpath surface** – the surface of footpaths should be flat to enable walking with slight gradient towards the kerb to allow for proper drainage. To accommodate the persons with disability, guide tiles should be laid along the length to aid persons with visually impairment. Uneven footpath can make it difficult to use and force pedestrians to the carriageway or cycle paths.

v. **Shades for footpaths** – continuous shades from trees not only reduces street temperatures during the hot weather but also absorbs oil fumes from the motorized vehicles. In addition, people can comfortably walk, cycle, or gather for social activities thus improving community cohesion. Lack of shade contributes to poor quality walking environment especially in hot weather as such people may opt to alternative motorised modes of transport rendering the facilities unusable. Streets designs should take into account the position of existing trees so that they can be retained during construction.

“Ngong road construction cleared the existing trees which should not have been the case.” Remarked a respondent during the interview.

vi. **Lighting** – adequate lighting reduce the perceived and actual threat of harassment and criminal activities as such encourage walking trips. Continuous lighting along the footpaths improves safety and personal security.

vii. **Vending** – street vending provides supporting goods and services that are essential for the NMT users. They also make the public space safer by providing ‘eye on the street’ particularly those streets lined with walls. They can be designed properly to be
accommodated within the street space to without interfering with other NMT facilities. They can be placed on bulbout in the parking lanes or in the furniture zones leaving clear movement for pedestrians. Vendors appear to be attracted to the spots that are visible to passersby and under shades (trees or close to bus stops. As such footpaths should be designed to leave sufficient space for vending outside the pedestrian zones. But streets without designated zones for vending leads to encroaching of vendors to the pedestrian zones forcing pedestrians to walk on the carriageway or cycle paths.

c) **Pedestrian Crossings**

To ensure safety and usability of the pedestrian crossings, they should be located where there is concentrated need for people to cross (high traffic volume) e.g bus stops, at entrance to shopping mall/where paths intersect the streets) and aligned with desire lines. In dense area the crossings can be placed at regular interval. Pedestrian should be given shortest possible direct route to cross. Use of bulbout into the parking lane helps reduce the crossing distance. Formal crossings should be signalized or constructed as tabletop crossings with ramps for vehicles to slow their speed and emphasize the presence of pedestrians. At-grade crossings are superior to pedestrian over bridges or tunnels (underpass) given that they limit the usability as they lengthen the distance for the pedestrian and are likely to avoid it however will prefer to cross at-grade as they please. These preferences have rendered over bridges and tunnels unwise use of public resources. For persons with disability, tactile warning or audible switches should be placed at the edge of the footpath to warn those with visual impairments about the carriageway. The height of cross walks should be elevated with sloping ramps for vehicles to ensure pedestrians can cross safely.

In designing and developing NMT facilities and infrastructure, it is critical to avoid the footbridges and subways because they are inaccessible to many people. They also have the following impeding factors to use them:

- Increase travel time – the footbridges lead to circuitous walking routes that typically increase the travel distances and time as such discourages many people from using them. Pedestrians usually seek out short and direct routes to their destinations.
- Lack of universal access – footbridges are inaccessible and increase barriers to persons with disabilities, those carrying luggage and those with strollers. In Nairobi, extensive ramping has been installed to accommodate wheelchairs and cyclists but long crossing distances and steep slopes still render them unusable.
- Obstruction on footpaths – the footbridges often block or obstruct footpaths and cycle tracks as such making them completely inaccessible.
- Prohibitive costs – footbridges are known to cost 20 times as much as at-grade crossing. In addition acquiring land outside public right-of-way could be expensive to construct the footbridge.
- Harassment and other crimes – the walking environment is generally poor and potentially unsafe with regard to sexual assault and muggings during late evenings and at night since they are usually not well lit or removed from street level activity and security it provides.
- Increased vehicle speeds as such degrading the walking environment in the vicinity of the footbridges.

d) **Bus stops**

A well-constructed bus stops should offer a comfortable, weather protected waiting bay for public transport passengers and leaving clear spaces for pedestrian movement behind the shelter. (like the cases of GPO bus parks). Bus stops should be placed adjacent to the bus line so that buses do not have to pull over. However, bus bays should be avoided as they increase travel times for bus users who may be forced to stand at the streets as they wait for the buses. In Nairobi streets, most of the bus shelters occupy almost the entire footpath leaving little space for pedestrians to move through.
e) Cycle Tracks
Well designed and constructed cycle tracks make it possible for people to opt for cycling. Efficient cycle tracks should be safe, convenient, continuous and direct.

- **Alignment and width** - They should be placed between the footpaths and motor carriageway to minimize conflict with pedestrians and physically separated from the carriageway but not painted in order to enhance protection to cyclists. The cycle tracks should be wide enough for cyclists to overtake one another. Painted cycle lanes may not be clearly visible and do not provide safe riding environment for cyclists.

- **Height and surface** – Cycle tracks surface require smooth material to facilitate comfortable riding and encourage more people to cycle. It should not be paver blocks but of asphalt or concrete and constructed higher than the carriageway to allow for storm water runoff and not be prone to accumulation of debris and dirt. However most cycle tracks are afterthought and are not smooth forcing cyclists to use carriageway. At property access points, just like the footpaths, it should be at the same level but provide vehicle ramp in the buffer.

- **Cycle tracks and bus stops** – the tracks should be routed round the bus stop to limit pedestrians from encroachment. Use of bollards, tree pits, and vending stalls can be used to demarcate the boundary from passenger waiting area.

e) **Intersection geometry and NMT crossing**
The NTSA reports pedestrian deaths at the intersections. As such in order to improve safety and usability, intersections must provide direct and intuitive pedestrian crossing that reflect desire lines and avoid detour. Provide pedestrian refuges to give them a safe space to wait before crossing successive streams of traffic and reduce on the crossing distance for pedestrians. Raised table top crossing to be provided where there is slip road or turn pocket although should be avoided at intersections. Good example is at Ngong road and Ringroad Kilimani intersection. However it does not have pedestrian refuges making crossing distance longer.
5 CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

The study aims were to ascertain the existence of the NMTs across the NCCG and also establish the status of NMT facilities, specifically, cycle paths, pedestrian walkways, and footbridges in terms of usability and safety. The assessment study sought to conduct a comprehensive literature review on the current state of the NMT in Nairobi City County. Further, the study sought to identify NMT facilities, their status and usability then propose interventions to improve their status. As discussed in the findings section, the study suggested that there were many factors that influenced and affected the status, safety and usability of the NMT facilities in Nairobi. The study acknowledges progress made in mainstreaming of NMT in planning in Kenya and particularly Nairobi City County, by appreciating inherent institutional issues and opportunities. There are sufficient legislative and institutional frameworks recognizing NMT as an inclusive mode requiring linkage with planning policy and a legal framework. The Sessional Paper number 2 of 2012 on Integrated National Transport Policy, and Nairobi City County Government NMT Policy of 2015 are supported by transport friendly planning initiatives such as the Nairobi Metropolitan Area Transport Authority (NMATA), Integrated Development Master Plan for the City County of Nairobi (NIUPLAN) and the National Urban Transport Improvement Project (NUTRIP). Based on discussion of NMT drivers, institutional issues and opportunities, the study concludes that there is an emerging trend which bears hope for mainstreaming of NMT in Nairobi. Also, the study contends that there is emerging structured awareness among actors of the need to accommodate NMT into existing modes of transport and planning efforts. However, a number of institutional and implementation issues need to be addressed, such as inadequate NMT infrastructure (including for persons living with disability and cyclists), poor coordination of actors, poor enforcement of regulations, non conforming populace, biasness towards motorized transport, and poor inter-modal transfer status, for the NMT users in the City of Nairobi to fully enjoy the fruits of policies and planning.

The study has also demonstrated that NMT facilities in Nairobi city are not optimally designed for use by PWDs. Most footbridges are designed without due regard to their accessibility by PWDs, and where they are provided; they are more often poorly maintained and unsafe. The street crossings are also not designed with proper accessible specifications for PWDs especially those on wheelchairs. The most notable was the huge disparity in the provision of accessible footpaths within the city. In areas where they are provided, the designs were exclusively catering for only the needs ambulant pedestrians. This scenario was again notably due to lack of standard urban roads design manuals to guide the geometric designs of NMT facilities. An inclusive NMT policy guide is therefore a necessary tool if this is to be achieved. The study also noted that the national government and the Nairobi county government have also not strategically planned and invested adequately in the infrastructure developments that enable safety of th users of the NMT. The public transport sector which influences the NMT hugely is driven by the capitalist tendencies of profit maximization; market forces of supply and demand, as opposed to a socially driven public transport benchmarked with international best practices for access to all. Given these challenges, the levels of accessibility have not been achieved. Finally, it is worth noting that there are also capacity gaps for Key institutions charged with improving the NMT facilities. The institutional framework for transport related institutions is also not properly organized with most institutions such as NTSA, KEBS, KURA and NCC sharing mandates; this creates duplications, conflicts and competition especially for revenue. In conclusion, there may need to approach NMT transportation utility through a broaden advocacy campaign that amalgamates the NMT advocacy with lifestyle and environmental interests. This approach will fit into the SDG 2030 framework that works to reverse the negative consequences of suburban sprawl and auto dependency. Nairobi is suburbanized, automobile-dominated transportation environment where several issues have converged to call greater attention to the role of non-motorized transportation
(NMT)—walking and bicycling—in the residents and their daily lives. Aggressive advocacy and increasing public support should be for accommodating and promoting NMT.

5.2 Recommendations
5.2.1 Advocacy Actions
The study has found that there is considerable and visible investment in NMT facilities and infrastructure. County Integrated Development Plan (CIDP) 2018 – 2022 spells out clear roadmap to propel Nairobi towards being the green ‘City of Choice to Invest, Work and Live’. NCCG, however, need to increase budgetary allocation for development and maintenance of the NMT infrastructure. There is need to develop advocacy and lobbying strategy to NCCG to put more investment in terms of development NMT infrastructure, enforcement and public awareness. The demand for the NMT facilities far exceeds the supply of these facilities within Nairobi. More funding, in particular, is needed to provide more secure, sheltered bike parking with town centre. This advocacy must be alive to political economy arguments on transportation economics and what is fashionable in the context of infrastructure financing. If the arguments are in favour of NMT infrastructure, it should be in the context of creating mobility options, and notion of cost-effectiveness in multimodal comparisons.

Establish a framework for developing Complete Roads / Streets Standards, Design Manuals and Codes of Practice. These design manuals and codes of practice to be used by County Engineers in the design, construction and maintenance of complete urban roads and streets in Nairobi. “Complete urban road/streets” are defined as Roads/Streets that are designed and operated to enable safe access for all users, including pedestrians, bicyclists, motorists and bus transit riders of all ages, gender and persons with disabilities. It also incorporate tree belts (which serve to protect NMT users and also clean the air of fumes produced by vehicles), utilities co-location ducts and stormwater harvest drains. The complete road/streets improve safety and encourage walking and cycle busing for health including for school children and more importantly foster strong communities. It addresses climate change and oil dependence paused by the motorized transport. A complete street design will attract more investments opportunities for Nairobi City County.

Road/street ordinances – e.g., ban on boda boda in the CBD; high parking fees for private vehicles within the CBD should be accompanied by well developed NMT infrastructure and facilities as well as improved public transport to enhance connectivity and mobility. Such facilities will ensure that NMT ecosystem is upheld to include cycle parking facilities, repair hubs etc. All vehicles should have designated spaces for overnight parking away from roads and streets. Other ordinances should encourage a mix of landuse activities that keep the streets active for walking and cycling at all times. Ensure development control regulations demand buildings to have active frontages.

Mainstream principles of inclusive mobility in urban road and street infrastructure: Nairobi roads and streets serve multiple purposes and need to be designed accordingly. They are multimodal mobility corridors for walking, cycling busing, and motoring. They serve as utility corridors for water, sewers, electricity and telecommunications. During this era of climate change, trees are incorporated for air cleaning and underground aquifers recharging. The hard surfaces are also useful for rainwater harvesting and reticulating the reservoirs along riparian reserves.

Develop design guidelines and Codes of Practice for parking spaces and supporting facilities for NMT such as bicycles, scooters, skateboards etc. It is important to have designated parking spaces for full range of transport modes to advance safety and seamless mobility. For examples cyclists should have designated places to park their bicycles as they change modes of travel to other modes e.g. bus (BRT) commuting.
Establish a complete road/street advisory committee comprised of multi-modal mobility engineering and multidisciplinary panel to be tasked to produce a range of design manuals appropriate for specific roads/streets, multi-modal interchange design guidelines, bus/matatu terminals and route stops/stages as well as coordinate the maintenance and operations of the developed facilities. They shall address the challenge of mobility for citizens across different transport infrastructure.

Participation of all key players (residents, businesses and other stakeholders) in all the stages of design planning, and implementation process through sustainable urban mobility planning) will not only improve transparency, ensure sustainable mobility but also foster communities active use and sense of ownership of public NMT spaces. Regular consultations between government transport authorities and local stakeholders (both small and informal business) may result in constructive engagements and effective management of the NMT facilities.

Develop Sustainable Urban Mobility Plan (SUMP) addresses all modes and forms of urban and regional transport. It aims to provide sustainable and high-quality transport and mobility in the agglomeration and enhance its accessibility. Instead of addressing the needs of the administrative area only, a SUMP regards the entire urban area including its commuter hinterland. A SUMP integrates technical, infrastructure, policy, and soft measures to improve performance and cost-effectiveness. It also aims to meet the basic mobility needs of all users. The SUMP concept emphasizes aspects of participatory planning, vertical and horizontal integration, and mechanisms for monitoring, evaluation and quality control.

5.2.2 Coordination by Key Players
There is need to hold a Nairobi Stakeholders Conference on NMT. This will allow for design of sustainable transport in terms of non-motor vehicle for a city that promises a better world for future generations. It will also provide strategies to change the choice of transport modes to road users of motor vehicles to non-motor vehicles through integration of land use and transportation planning. Pro-cycling stakeholders need to engage the road authorities the developing cycling design guidelines and manuals that are responsive to Kenyan local travel conditions. The study recommends that the pro-cycling agencies endeavor to provision avenues for acquisition of cheap or affordable bicycles to improve cycling uptake. Lastly, NMT users especially organized associations such as residence associations, bicycle riders’ associations, Bodaboda association and skaters need to be sensitized to attend public participation in policy making processes.
REFERENCES


ANNEX 1: DATA COLLECTION TOOLS

Annex One: Tool 1: Key Informant Interview (KII) Guide For Stakeholders

TOOL 1: KII GUIDE FOR STAKEHOLDERS

Introduction

KARA in partnership with the Nairobi City Government launched the Non-Motorized Transport Policy in March 2015 and has been integrating the recommendations into land use planning. As such there is need to assess the baseline information on the usability. This process will provide the community and local leaders for public participation that will realize ambitions and make more the informed decisions regarding the land use and policy implementation that will inform future investments for NMT.

Questions

1. To what extent do you think the development of NMT facilities and infrastructure have met the needs of the NMT users?
2. Do you think the development of National and County government policy priorities and objectives for improving the use of NMT in Nairobi are aligned to the development of NMT facilities in Nairobi?
3. To what extent has the development of NMT facilities and infrastructure facilitated mobility/accessibility, safety/security for Nairobi residents?
4. What factors impede the use of NMT as preferable mode of transport in Nairobi?
5. What is the impact of the work of coordination agencies on promoting NMT as preferable mode of transport in Nairobi?
6. Has the development of the NMT facilities and infrastructure attracted any funding and investment opportunities? If not why?
7. To what extent has the development of NMT facilitated other legal requirements such as (Development and adoption of urban street design manual);
8. To what extent has NMT components been integrated into national road infrastructure development frameworks?
9. What factors have promoted or hindered gradual transfer to NMT use by general public of Nairobi and public investment?
10. Facilitating Management, Monitoring (through enforcement) and Maintenance of NMT facility.- Cleaning and renovations
11. Any recommendation with regard to strategies for full adoption of NMT infrastructure in Nairobi?
Appendix Two: Tool 2: Focus Group Discussion (FGD) Guide

TOOL 2: FOCUS DISCUSSION GUIDE

Location……………………………………………………………………..

Introduction

KARA in partnership with the Nairobi City Government launched the Non-Motorized Transport Policy in March 2015 and has been integrating the recommendations into land use planning. As such, there is a need to assess the baseline information on the usability. This process will provide the community and local leaders for public participation that will realize ambitions and make the informed decisions regarding the land use and policy implementation that will inform future investments for NMT.

Questions

1. To what extent do you think the development of NMT (Explain what non-motorised facilities are to the targeted audience) facilities and infrastructure have met the needs of the NMT users?
2. To what extent has the development of NMT facilities and infrastructure facilitated mobility/accessibility, safety/security for Nairobi residents?
3. What factors impede the use of NMT as a preferable mode of transport in Nairobi?
4. What factors that may promote or hinder gradual transfer to NMT use by the general public of Nairobi?
5. What strategies need to be put in place to promoting NMT as a preferable mode of transport in Nairobi?
6. How would you describe the condition of each of the NMT infrastructure along this area?
7. How have you benefitted from the development of NMT facility in the area and how can it be exploited to other areas?
8. What do you suggest the National and County Government can do to improve the NMT facilities within the area?
9. How frequent do you participate in management, monitoring and maintenance of NMT facility

5(Always) 4 (Often) 3 (Rarely) 2 (Once) 1 (Never)
10. Which locations are the potential areas for NMT facilities development (sketch or map out)
**Appendix Three: Tool 3 – Participatory Observation**

(To be used to assess the identified NMT facility already established to assess the safety, perception on safety, usability – Type of NMT existing or required; state of cleanliness and environmental grooming; perception on safety; Frequency of use at different times of the day- e.g 30 minute interval or 1 hour or selected time of observation)

Name of Facility ____________________________ (e.g Foot Bridge, side walk, Toilet, Cycle path, Furniture/bench etc)

<table>
<thead>
<tr>
<th>NMT Parameter</th>
<th>Indicator</th>
<th>Observation/score</th>
<th>Comment</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Demand for the Use of the NMT Facility</strong></td>
<td>1. Number of Users at a Particular time</td>
<td>1. (0 – 30), 2(31 – 60); 3(61 – 90) etc</td>
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<td></td>
<td>• Before 6.00am</td>
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<td>• 6.30 – 8am</td>
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<td>• 9am – 11 am</td>
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<td></td>
<td>• 12 – 2pm</td>
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<td></td>
<td>• 3 – 6pm</td>
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<td></td>
<td>2. Most predominant reason for demand</td>
<td>1 (High speed road), 2 (Bus station), (School), 4 (Market), 5 (Hospital), 6 (General public use), 7 (Linkage to residential estate) and 8 (Any other (specify))</td>
<td></td>
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<tr>
<td></td>
<td>3. Perception of users on safety – (scale of 1 – 5)</td>
<td>5 (Strongly Agree), 4 (Agree) 3 (Neutral) 2 (Disagree) and 1 (Strongly Disagree)</td>
<td>Give comments on the score</td>
<td></td>
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<tr>
<td></td>
<td>4. The facility is enabling access to (select all that apply): Wheelbarrow, Bicycle/Tricycle, Animal carts, Skates/Boards, Wheelchairs, trolleys, scooters</td>
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<td></td>
<td>5. Observed state of NMT facility in terms frequency of cleanliness, maintenance, (Always) 4 (Often) 3 (Rarely) 2 (Once) 1 (Never)</td>
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<tr>
<td><strong>Supply for the Use of the NMT Facility</strong></td>
<td>6. Is the facility adequate for the location (where it is placed) e.g - Size of the walkway - Parking bays for bicycles - Parking bay for hand carts</td>
<td>1. Yes …..Explain 2. No ……Explain</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
7. Standard of NMT provided- Size of the walkway or cycling path, parking bays for bikes, handcarts

8. Safety features and measures instituted County Marshalls, Police officers (patrolling) or Enforced laws on NMT use e.g arrest, fines etc

<table>
<thead>
<tr>
<th>NMT Facility / Infrastructure Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>9. Topography (general slope)</td>
</tr>
<tr>
<td>10. Encroachment by the motor vehicles</td>
</tr>
<tr>
<td>11. Size/width of the path</td>
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<tr>
<td>12. Coherence (visibility and flow)</td>
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<tr>
<td>13. Comfort of the users</td>
</tr>
<tr>
<td>14. Ditches and holes along the path</td>
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<tr>
<td>15. Encroachment of other land use (e.g hawkers, motorcycles, matatus and other motorists)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Opportunities for Use of the NMT</th>
</tr>
</thead>
<tbody>
<tr>
<td>16. Potential Areas for NMT facility development (e.g points for zebra crossing needed; Handcarts, speed bump etc)</td>
</tr>
</tbody>
</table>
Appendix Four: Tool 4 – Assessment of NMT Infrastructure and Facilities

Location (Indicate the road or corridor under observation e.g Jogoo Road, Uhuru Park, City Park Mama Ngina Street etc)

<table>
<thead>
<tr>
<th>No</th>
<th>Facility/Infrastructure</th>
<th>Availability</th>
<th>Condition</th>
<th>Comment</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Yes</td>
<td>No</td>
<td>Rate on scale of 1-5 where 5 (Excellent); 4 (Good); 3 (Satisfactory), 2 (Poor) &amp; 1 (Very Poor) 0 – Not available</td>
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<tr>
<td>1.</td>
<td>Bollard/ posts embedded</td>
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<td>2.</td>
<td>Street Benches</td>
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<tr>
<td>3.</td>
<td>Zebra Crossings</td>
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<td>4.</td>
<td>Street Lighting</td>
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<td>5.</td>
<td>Storm Water Drainage</td>
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<td>6.</td>
<td>Shops</td>
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<td>7.</td>
<td>Dustbins</td>
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<td>8.</td>
<td>Traffic Lights /Signal</td>
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<tr>
<td>9.</td>
<td>NMT Parking Spaces</td>
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<td>10.</td>
<td>Bumps</td>
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<tr>
<td>11.</td>
<td>Signage</td>
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<tr>
<td>12.</td>
<td>Vendor's Stall</td>
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<td>13.</td>
<td>Bus Stop Space</td>
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<td>14.</td>
<td>Raised Crossing</td>
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<td>15.</td>
<td>Road diets /Reduced Lane</td>
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<td>16.</td>
<td>Narrower traffic lanes</td>
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<td>17.</td>
<td>Roundabout/Traffic Circle</td>
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<td>18.</td>
<td>Speed Treatments/ Speed hump</td>
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<td>19.</td>
<td>Pedestrian railings</td>
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<td>20.</td>
<td>Enhanced bus shelters</td>
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<td>21.</td>
<td>Overpasses and underpasses</td>
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<td>22.</td>
<td>Street Closures</td>
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<tr>
<td>23.</td>
<td>Sidewalk</td>
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<tr>
<td>24.</td>
<td>Bicycle Box</td>
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<td>25.</td>
<td>Pavement markings</td>
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<tr>
<td>26.</td>
<td>Toilet</td>
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<tr>
<td>27.</td>
<td>Dedicated cycle lane</td>
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<td>28.</td>
<td>On Street Bicycle Pump</td>
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<tr>
<td>29.</td>
<td>Bicycle head start box at traffic signals</td>
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<td>30.</td>
<td>Any other</td>
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</tbody>
</table>
## Appendix Five: Tool 5 – Guide for Qualitative/Semi-Qualitative Level of Service (LoS) Assessment Matrix

<table>
<thead>
<tr>
<th>User</th>
<th>LOS Needs</th>
<th>LOD Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pedestrian</td>
<td>Mobility: Footpath congestion, grade of path, crossing delay or detour</td>
<td>Safety: Exposure to vehicles at mid-blocks; Exposure to vehicles at crossings; trip hazards</td>
</tr>
<tr>
<td></td>
<td>Safety: Exposure to vehicles at mid-blocks; Exposure to vehicles at crossings; trip hazards</td>
<td>Access: Crossing opportunities, level of disability access</td>
</tr>
<tr>
<td></td>
<td>Information: Traveller information available including signposting</td>
<td>Amenity: Footpath pavement conditions, comfort and convenience features, security, aesthetics</td>
</tr>
<tr>
<td>Cyclist/ NMT Wheeled users/ Operators</td>
<td>Mobility: Mobility Travel speed, congestion, grades</td>
<td>Safety: Risk of cycle-to-cycle/pedestrian crash</td>
</tr>
<tr>
<td></td>
<td>Safety: Risk of cycle-to-cycle/pedestrian crash</td>
<td>Risk of crash caused by surface unevenness or slippage</td>
</tr>
<tr>
<td></td>
<td>Risk of crash with stationary hazards</td>
<td>Risk of cycle-to-motor vehicle crash at mid-blocks</td>
</tr>
<tr>
<td></td>
<td>Risk of cycle-to-motor vehicle crash at intersections and/or driveways</td>
<td>Access: Access to and ability to park close to destination, cycle restrictions</td>
</tr>
<tr>
<td></td>
<td>Information: Traveller information available, including signposting</td>
<td>Amenity: Aesthetics, comfort and convenience, security, pavement ride quality</td>
</tr>
</tbody>
</table>

Source: Level of service metrics (for network operations planning), Austroads Ltd., 2015