NAIROBI CITY COUNTY GOVERNMENT

NON MOTORIZED TRANSPORT POLICY

"TOWARDS NMT AS THE MODE OF CHOICE"

March 2015

FORWARD BY THE NAIROBI CITY COUNTY GOVERNOR, DR. EVANS KIDERO

By 2050, two thirds of all humans will be living in cities. Urbanization is happening at a rate never seen before. In 1993, participants in the 'Nairobi We Want' Convention expressed desire to have a non-motorised transport facilities incorporated as part of the urban fabric. Tremendous opportunities therefore exist within Nairobi City County, for creation of complete Non-Motorized Transport (NMT) systems.

For decades, plans throughout the city for new roads construction and upgrades have only partially provided physical infrastructure for NMT users. Users of non-motorised modes are at greater risk of accidents as they share a common right of way with motorized transport.

Having attended the African Sustainable Transport forum in October 2014, in Nairobi, I realize that NMT is of significant importance to Nairobi, more particularly as they can be used as an effective form of mobility for short trips and for last mile connectivity to the proposed mass transportation systems such as the Bus rapid transit systems. There is clear evidence that NMT provides efficient mobility with substantially low investment, improves access, creates livelihoods and is a low carbon emitter.

With the above I felt that there was a need to develop a policy for NMT in Nairobi and hence the Nairobi City County Government entered into a partnership with UNEP and KARA.

This Non-Motorized Transport policy strives to facilitate a mobility environment where all transport modes are of equal importance. This is indeed a turning point in our country, particularly in our efforts to include NMT within our Integrated Transport System. Improving walking environments and facilities is important in ensuring equitable transport access.

This NMT policy covers critical areas and it is important to plan for and manage NMT more effectively. The policy is accompanied by a set of objectives and strategies to realize an improved NMT environment and culture in Nairobi, for a better city, a better life.

I congratulate the project team members, the consultant and thank the city county officials who participated in the assessment and subsequent discussions for supporting the preparation of this policy document. I feel this NMT policy document is only a step in the right direction, I hope that all actors and stakeholders will use the policy document and findings to support and promote NMT initiatives in our city.

Dr. EVANS KIDERO
GOVERNOR
NAIROBI CITY COUNTY

FORWARD BY NAIROBI CITY COUNTY EXECUTIVE COMMITTEE MEMBER, ROADS, PUBLIC WORKS & TRANSPORT, MR. MOHAMED ABDULLAHI

The Non-motorized transport (NMT) policy is a joint initiative of UNEP and the Nairobi City County to improve the transport sector performance by promoting the Non-motorized transport mode. To take a more sustainable mobility path, the significant role of NMT needs to be recognized and factored into public transport and road infrastructure investments. The Governor and I share a determination to ensure that NMT policy document is implemented.

Over the next five years, the transport sector is set to undergo the most significant change in its history. With the planning of mass transport systems implementation, NMT is a key intervention close to sustainable urban mobility loop. It is important to understand that mobility access challenges are not only solved by construction of good roads but also by the implementation of an effective public transport system with adequate NMT linkages.

The NMT policy prepared today outlines the county's objective of increasing the role of NMT as a transport mode, integrating NMT as an essential element of public transport, providing safe NMT infrastructure & allocating adequate and sustainable funding for the development & promotion of NMT.

With pleasure, I confirm that the NMT policy document before us, has taken consideration of all stakeholders views during several consultative forums.

I therefore call on all parties, fellow government agencies, the private sector entrepreneurs, the young and old & development partners to support this initiative for the benefits of a greater number of our people.

MOHAMED ABDULLAHI
COUNTY EXECUTIVE
TRANSPORT, ROADS & PUBLIC WORKS

ABBREVIATIONS AND ACRONYMS

CBD	Central Business District
GDP	Gross Domestic Product
GHG	Green House Gases
INTP	Integrated National Transport Policy
JKIA	Jomo Kenyatta International Airport
KeNHA	Kenya National Highways Authority
KeRRA	Kenya Rural Roads Authority
KNBS	Kenya National Bureau of Statistics
KRB	Kenya Roads Board
KHPC	Kenya Population and Housing Census
KURA	Kenya Urban Roads Authority
LOS	Level of Service
MOTI	Ministry of Transport and Infrastructure
MT	Motorized Transport
NCC	Nairobi City County
NCCG	Nairobi City County Government
NMT	Non-Motorized Transport
NTSA	National Transport and Safety Authority
NUTRIP	Nairobi Urban Transport Improvement Project
PT	Public Transport
PWD	Person With Disability
ROW	Right Of Way
UN	United Nations
US DoT	United States, Department of Transport

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CHAPTER 1: NON MOTORISED TRANSPORT IN NAIROBI

1.1 NMT users

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 wheelchairs, skate-boards, and strollers

The 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. Wheel barrows and trolleys are also used but to a limited extent.

1.2NMT use

Transport services are mainly road-based. Railway transport is limited to services during peak hours between the CBD and the eastern and southern parts of the City.Although there is widely varying data, walking and public transport are the main means of transport in Nairobi (Table 1). The private car only accounted for about 15% of all trips, but dominates in numbers on Nairobi roads and streets.

The public passenger transport is operated by the private sector, mainly low-capacity mini-bus vehicles (*matatus*). The *matatus* were estimated to be more than 60,000 in number and moved about 3 million passengers per day in 2004[1]. Competition among operators is very stiff as there is over-supply of vehicles and delays due to congestion. There is no reliable data on fares in Nairobi but indications are that they are high because all public transport routes terminate within the CBD, and trips across the CBD are made by using more than one vehicle.

Table 1.1: Modal split in Nairobi County

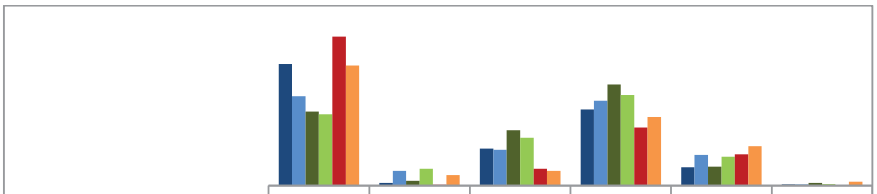
Study	Public Transport (%)	Walking (%)	Cycling (%)	Private car (%)	Train (%)	Institution bus (%)	Others
Ref. 1[2]	32.7	47.1	1.2	15.3	0.4	3.1	0.2
Ref. 2[3]	36	47		16.5	0.4		
Ref. 3[4]	51.5	41.2	3.0	7.0			
Ref. 4[5]	42	47	1	7		3	

Source: Various studies

Figure 1.1 shows that walking is an important means of transport for trips to school and work as it accounted for over 85% of all walking trips in 2004 and 2013.

Figure 1.1: Means of transport by purpose in 2004 and 2013

[1]NUTRANS, 2005
[2]JICA: The Study on Master Plan for Urban Transport in the Nairobi Metropolitan Area (2006)
[3]NUTRANS, 2005
[4]Travel Behaviour in Cape Town, Dar es Salaam and Nairobi Cities, July 2011
[5] Scoping Study,TRL Nairobi Field Surveys, May 2002.(WB)



	Walking	Two wheeler	Private car	Matatu	Bus	Rail & Others
Home Trips (2004)	47.3	1.1	14.4	29.6	7.1	0.5
Home Trips (2013)	34.8	5.8	13.9	33	12	0.5
Work Trips (2004)	28.8	1.9	21.5	39.3	7.4	1.1
Work Trips (2013)	27.7	6.6	18.6	35.2	11.3	0.6
School Trips (2004)	58	0.4	6.6	22.6	12.2	0.2
School Trips (2013)	46.7	4.1	5.7	26.7	15.3	1.5

Source: NIUPLAN, 2014

The actual contribution of NMT to transport in Nairobi is not well documented as already shown by varying modal splits in Table 1 above. However, whichever data one looks at, it is still the dominant transport mode in Nairobi accounting for over 40 % of the total trips made per day.JICA found in 2004 that, out of 4.82 million person trips per day 2.32 million trips per day were made by walking and bicycles. An earlier study also revealed that 64 % of all the trips originating from Eastern Nairobi along the Jogoo Road corridor and terminating in industrial area and CBD were made by walking and 0.8 % by cycling[6]. These data may be considered out-dated, but give some indications on the order of magnitude of the importance of NMT in Nairobi.

The increase in two wheelers for all trip purposes (Table 1.1) can be attributed to the rise of motorcycles use in the city for public transport. Motorcycles offer flexible and faster public transport compared to other motorised transport on the congested Nairobi road network.

The main characteristics of transport in Nairobi are summarised below:

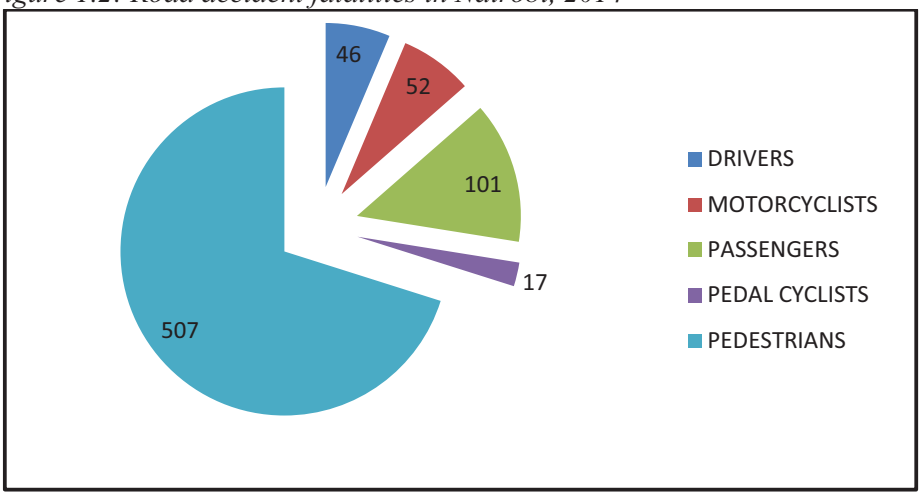
1. **Traffic Congestion**: Over the last 10 years, traffic congestion has worsened, during peak and off-peak hours, and in many parts of the city. Congestion is mainly due to rapid increase in car ownership and use. A study[7] undertaken in 2013 established that the total traffic flows increased by 1.69 times between 2004 and 2013, and car ownership rate increased to 0.290 from 0.233. The private car measured by volumes on the roads increased by 106,000, accounting for 63% of total vehicle population increase. Over the same period, motorcycles flows increased 9.4 times and light truck flows increased 3 times. Lack of traffic management and poorly organized public transit further contribute to the congestion problem.
2. **Radial Network System**: Transport is mainly road-based and the road network is radial towards the Central Business District (CBD). Heavy transit goods vehicles pass through the CBD and cause problems with the local traffic. However, progress is being made in building circumferential network that is expected to be used by transit traffic.
3. **Inefficient Public Transport**: There is poor network coverage and no dedicated facilities for PT so they compete for the same congested road space with other vehicles.

[6] De Langen and R. Tembele, 2001
[7]Integrated urban development master plan for the City of Nairobi (NIUPLAN), 2014-2030, JICA

PT travel times are long and unpredictable. Stiff competition among public transport operators creates unsafe and aggressive driving behaviour that is dangerous to NMT users. In general, there is poor public transit regulation, planning and management. There are plans to provide Bus Rapid Transit along some nine corridors and also to expand commuter rail services within the Nairobi metropolitan region.

4. **Inefficient Traffic Management**: Control of traffic is mainly manual, and where traffic signals are operational, they are interrupted by the traffic police. Many roads still have the same layouts while the existing traffic volumes now call for a change in their shape to ensure their function in the network is performed.
5. **Lack of Non-Motorised Transport Provisions**: NMT users are exposed to fast, aggressive and high MT volumes with the consequences of high traffic accidents. Encroachment of NMT spaces is rampant and vulnerable road users, women and children have difficulties travelling without assistance. High accident rates among pedestrians may be a good indicator of how it is unsafe to use NMT in Nairobi. Road accidents data for 2014 (Figure 1.2) show that out of 723 fatalities, some 507 (70%) were pedestrians, followed by passengers at 101 fatalities (14%).

Figure 1.2: Road accident fatalities in Nairobi, 2014



Source: Transportation Unit, Nairobi City County, 2014

6. **Land use planning and development control is weak** and do not encourage compact land use that is supportive to better transport provisions, especially for NMT users. The current land use encourages increasing trip distances making the use of NMT and public transport less attractive. A high density of development (population and built environment) like in Chinese cities, creates a favourable condition for NMT use, since travel distances are generally short[8]. Average travel distance in big cities of over 2 million inhabitants in China is around 3.3 kilometres.

The Nairobi County brief is provided in Appendix 1.

[8]The significance of non-motorised transport for developing countries: strategies for policy development, i-ce, interface for cycling expertise, Utrecht, the Netherlands, December 2000

CHAPTER 2: NON MOTORISED TRANSPORT SURVEYFINDINGS AND MAIN CHALLENGES IN NAIROBI

2.1NMT Issues on Jogoo and Juja Road Corridors

This section provides findings from a survey of NMT issues along two road corridors[9]. Tables 2.1, 2.2, and 2.3 contain issues of pedestrians, cyclists and hand-carts, respectively.

Table 2.1: Main pedestrian characteristics and issues along Jogoo and Juja road corridors

1. Most pedestrians (70 %) were male and most trips were home-work trips. Reasons for being attracted to NMT modes were noted mainly as cost (52.9%) and convenience (32.2%).
2. Majority (58.8 %) of the pedestrians earned less than KSh. 20,000 (US$225) per month, and walking seemed to decline sharply with increased income.
3. Few pedestrians (14.4%) owned some form of Non-Motorised Vehicle (NMV). The types of NMTs owned were specified as bicycle, wheelbarrow and handcart, and were used for both commercial and personal purposes.
4. Trip purposes among pedestrians were listed as going to: work (71.5%), home (12.7%), school (7.6%) shop (4.4%) and for recreational purposes (2.5%).
5. Reasons for using NMTs owned were given as affordability, speed and recreational. Reasons for not using NMT owned were mainly due to lack of NMT supportive infrastructure, hiring of the NMT to other users for commercial purposes and safety concerns.
6. Many pedestrians (96.3%) noted that they use NMT to their regular destinations, with majority (96.9%) preferring to walk, while very few either cycle or use wheelchair mode of transport to their regular destinations. A sizeable percentage (35%) of the pedestrians used NMT to transport goods. The types of NMT used to transport goods were listed as bicycles, handcarts and wheelbarrows.
7. Majority (80%) gave route directness as their reason for preferring the route frequently followed. Other reasons given included safety (8.1%), less traffic and paved condition of the route accounting for (4.4%) and (3.1%) respectively.
8. Apart from preference for directness, pedestrians and NMT infrastructure seemed to be not respected by motorists. The motorists do not give way along pedestrian crossings, do not respect traffic lights and often encroached on pedestrian facilities. Other road users who were interfering with pedestrians were listed as bicycles (37.6%), traders and handcarts each accounting for (24.5%) and motorcyclists (5.5%).
9. Usage of existing NMT facilities were found to be fairly low as only 27.2 % were using pedestrian crossing regularly, 23.5 % using overpass regularly and only 13.2 % were using assisted crossing regularly. The reasons for not using the facilities were listed as unmarked (42.6%), indirect (30.1%), non-existence of the facility (19.1%) and the unsafe status of the facilities (5.9%).
10. Other factors making walking unpleasant were noted as motorist and human traffic congestion (21.3%), insecurity (22.9%), air and noise pollution from vehicles (15.4%), insecurity (13.6 %), poorly maintained roads (11.8 %) and obstruction of walkways (7.1 %). Reasons for using the NMT facilities were given as safety and directness.
11. Monthly accident occurrences involving NMTs were noted to be frequent (34.8%), very frequent (25.9%), infrequent (27.2%) with only 12 % noting that there were no cases of accidents involving NMTs.
12. Pedestrians were noted to be the major casualty of accidents (71.7%), followed by cyclists and handcarts at 10.7 and 6.9 % respectively. The explanations for accident incidences were indicated as poor crossing behaviour of pedestrians due to carelessness (29.9%), recklessness on part of the motor car drivers (10.4%) and speeding motorcars (7.1%).
13. Accidents involving pedestrians and cyclists were the most common (36.7%), handcarts and pedestrians (12.7%) with very few incidences involving handcarts and cyclists (1.9%). Accidents involving NMT to NMT were attributed to; usage of the same path/walkway by different modes of NMT (24.1%), ignoring of users rules e.g. cycling on the wrong side of the road (6.1%) and misbehaviour and drunkenness status of most handcart operators (5.1%).

[9]Planning, infrastructure and travel patterns among pedestrians, cyclists and handcart pushers in Nairobi City County, Kenya, by Winnie V. Mitullah; Romanus Opiyo & Patrick Asingo, Working draft, October, 2013

14. The general public perception on pedestrians was that they are poor (22.6%), and belonged to low income group (14.4%). The same case applied to cyclists and handcart operators who are also viewed as poor accounting for 11.9 % and 21.9 % respectively. A substantial portion of 21.7 % and 15 % respectively perceived walking and cycling as a normal activity.
15 The motorists perceived pedestrians as low income earners (11.8%), cyclists as poor (21.9%) and handcart operators as a nuisance (35.1%). Motorists perceive cycling (16.4%), and operating handcarts (11.9%) and walking (9.4%) as risky.

Pedestrians proposed several facilities to be given priority to promote walking along various routes. Some of the key facilities proposed were; speed bumps (29%), pedestrian crossing (21.7%), overpass (18.3%), dedicated walking paths (12.4%) and street lights (12.1%). The reasons for prioritizing the facilities were given as: need to lower motorized transport speeds (57.9%), blocking encroachment of pedestrian areas (12.5%), reduction of accidents (9.9%) and enhancement of visibility and security (7.9%). Services needed to be given priority were listed as security (47.2%), shopping (20.8%), and shoe repair services (18.3%).

Table 2.2: Main cyclist characteristics and issues along Jogoo and Juja road corridors

1. The majority of the cyclists were male (96.9%) and a large number of them were within the age brackets of 18-45 years.
2. A majority (92.3%) of the cyclists interviewed owned a bicycle. Most of those who owned bicycles or tricycles (61.5%) used them to run personal errands, although an equally significant number (32.3%) used them for commercial purposes.
3. Although several reasons were mentioned by cyclists as to why they preferred cycling, the major motivations for cycling were: low cost/cheaper (47.4%), convenience (28.4%) and speed/faster (17.9%).
4. Despite their preference for cycling as a mode of transport, 67.7% of cyclists felt that cycling was not safe at all along the two corridors (Juja and Jogoo road).
5. Cycling routes: 81.5% observed that the main criterion for selecting a route was its directness to the destination. Only 4.6% considered the safety of the route, while another 6.2% considered the existence of cycling-friendly infrastructure.
6. In the absence of cycling facilities, 63.2% cycled on the MT carriageway; 34.5% cycled on the sidewalks (34.5%), and 2.3% manoeuvred through obstacles on their way.
7. Among the most common purposes for cycling included attending personal business (28%), going to work (28%), and taking children to school (8%). The results also showed very limited use of cycling to the central business area.
8. Nearly all those who cycled to their destinations (98.5%) covered the entire distance cycling without shifting to any other mode of transport.
9. Up to 89.2% of the respondents observed that there was no supportive infrastructure for cycling along the respective corridors that they used. A small number of the respondents indicated that the cycling infrastructure they used was either tarmacked (26.2%) or paved (17.5%). The rest complained of cycling infrastructure that is congested (11.7%), rugged (7.8%), narrow (13.6%) and unfriendly for physically challenged people (7.8%).
10. A large number of cyclists (78.5%) felt that motor vehicle drivers did not respect them on the road and 73.8% of cyclists felt that available NMT facilities were not maintained.
11. Cycling was made less enjoyable by constant interferences from other road users, especially handcarts, pedestrians, vendors selling their merchandise along cycling paths, motor cyclists, and even fellow cyclists.
12. Most accidents involved cyclists and pedestrians (70.8%) and cyclist and fellow cyclists (21.5%).

Cyclists considered that their safety needed to be enhanced through: creation of cycling paths (27.3%) and walkways (14.3%), expansion of the road space (14.3%), erection of speed bumps (7.8%), and the installation of street lights (6.5%) along the respective transport corridors. Some 72.7% of the cyclists interviewed felt that the development of dedicated bicycle lanes would ease cycling by minimizing the contact between the cyclists and motorists. The cyclists also identified certain services that need to be provided along the corridors in order to encourage cycling and to make it more enjoyable and pleasant. They include: the need to enhance security, have more shopping services, as well as bicycle repair services along the routes.

Table 2.3: Main hand cart pusher characteristics and issues along Jogoo and Juja road corridors

1. Hand cart pushers/pullers were dominated by young men falling within the age bracket of 18-24 years with over 65% falling below 30 years of age.
2. The findings revealed that those pulling hand carts had comparatively low levels of education. Majority of the sample (30.5%) had only completed primary level education with only 13.4% having completed secondary education, with very few (6.1%) having gone through tertiary education.
3. The hand-carts were predominantly for commercial purpose (61.4%), with a reasonable percentage (9.9%) for personal purposes.
4. Handcart operators gave several problems encountered when using the route. These included: impeded mobility due to traffic congestion (29.2%), involvement in accidents (24.7%), hooting by PSV motorist (9%), and insecurity (5.6%). Potholes, pedestrian, and lack of respect towards handcarts each accounted for 3.4%. Poor maintenance of roads/poor drainage and abuse from motorists each accounted for 2.2%. Health complication such as chest pain caused by pulling heavy loads, seasonality of work and lack of NMT provision each accounted for 1.1%.
5. Reasons for NMT being prone to accidents were listed as lack of traffic calming measures (63.4%), pedestrians ignoring road signs at crossings (8.5%), motorists ignoring road signs at pedestrian crossing (6.1%), lack of pedestrian facilities (4.9%), poor road design and recklessness each accounted for 1.2%.

The main facilities proposed by handcart users were; dedicated handcart lane (33.3%), speed bumps (17.3%), and streetlights (14.8%). Others were: parking for handcarts and expansion of roads each accounted for 8.6%; sitting benches (7.4%), putting high pavements along walk ways (4.9%), public amenities like public toilets (3.7%) and storage facility for goods (1.2%).

2.2NMT Issues from Stakeholder Consultations

This section summarises findings from NMT users and stakeholders consulted during the preparation of this policy document. Boxes 4 and 5 contain problems and challenges, and suggestions. The issues and suggestions are grouped into various policy areas

Table 2.4: NMT Problems and Challenges from the perspective of stakeholders

Policy area	Issues
Institutions	• Motorcycles providing public transport and cyclists have no training; flout traffic rules • NMT do not use zebra crossings and MT do not give way • NMT problems created by both NMT & MT, because of indiscipline • NMT do not use their facilities or do not use them correctly • Driver training is poor and spot checks on competence required • Infrastructure should be those that cannot be easily violated • Demarcation of lanes for NMT disappears quickly due to poor quality materials and lack of maintenance • There is need for "NMT Police" to provide security to NMT and address NMT user issues. • Poor transport planning: No plans for NMT or NMT considered last in planning & design stages • Recognition of cyclists is often poor and they are normally not involved when new roads are being opened/launched • Decision making in Kenya is more political than technical, which is a major challenge • Some bicycles imported into the country are sub-standard
Mobility/ Accessibility	• Roads are congested and there are no spaces for NMT users: spaces taken up by kiosks sanctioned by NCC. Therefore, MT and NMT using the same space resulting into many accidents. • Dust and pollution are also problems

Policy area	Issues
	• Sewerage on walkways reduce space and encourage conflicts between NMT and MT • Walkways may be there but not cleared like MT lanes: walkways should be attractive • NCC may not be able to cope with NMT in future as the volumes are growing very fast • Bumps are very bad for cyclists • Traffic jams make MT and cyclists to sometimes use the walkways • Confusion occur near markets because Pedestrians cross everywhere and congestion caused by motorcycle taxis. • Bikeways not marked and sometimes used by motorbikes • Traffic signs and advert poles are sometimes located in the middle of cycle lanes • Traffic signal alert for the blind are not provided - need to be audible • Space between MT carriageway & private property ("contested space") is often not designed at all. It is this space that should accommodate services, NMT, hawkers, street traders, etc. Policy should address this space to make it a "dignified space". Convert the "contested space" into a "dignified space" for attitudinal change • Foot bridges do not cater for the elderly and MT do not stop/give way to the elderly • Road drainage is an issue that concerns NMT: inspection chambers; flooding; erosion of paths
Safety/ Security	• Tolerance for pedestrians is lacking: capacity building of MT drivers required. • Children and other vulnerable road users are not taken into account during design • Inappropriate infrastructure that is not easy to negotiate especially by people with disabilities. • Street lighting not functional. • Location of footbridges are improper and security is a problem in using them: they are not lit and ramps are too steep for the disabled • Rules for safety are lacking- everyone tries to stay alive on the road • No protective gear for motorcycles/cyclists.
Amenities	• Garbage/trash in drainage facilities, bins are required along NMT routes. • There are many people who own bikes in Nairobi but there are not enough repair shops along the routes, which makes a broken bike a bother during a trip.
Education and Public Awareness	• Attitude that NMT modes are for the poor • Poor relationship between NMT & MT resulting in road rage

The following suggestions were made to address some of the issues in Table 2.4 above.

Table 2.5: Stakeholders' proposals on how to address the challenges and problems

Policy area	Proposals
Institutions	• Responsible authority for NMT issues should be known to the community to enable reporting of issues of concern. • Policy should be driven by community to ensure implementation • "Without proper road design, you are looking for chaos". Guidelines for proper urban design required • Skating needs to be regulated as usage is growing among the youth • Organized joggers can also be a source of financing of NMT facilities. • Opportunities for provision of NMT facilities exist in large projects • We need to transform our minds and encourage a sense of belonging: professionals; users; and policy makers should interact in the provision of transport facilities • Hand cart regulation required • Licenses for opening bike repair shops should be issued by NCC • Vandalism of transport infrastructure should be addressed through enforcement • Bicycle should be registered and should have insurance • Establish a special court to deal with NMT cases

Policy area	Proposals
Mobility/Accessibility	• Encourage cycling to reduce congestion • Land use should support NMT - short distances between activity areas should be encouraged. Compact land use planning should be encouraged. Physical planning act should be made friendly to NMT • Landscape architects should be involved in the design of the "dignified space" • Conduits for services under walkways should be provided and can generate income for NCC • Make walking/cycling attractive through provision of continuous and coherent routes with direction signs • Design should be based on road hierarchy/class: convenience is the first priority to eliminate risk taking behavior; design for NMT first, car second; and NMT-only routes should be provided • Bicycle insurance cover can encourage cycling • Provision of elevated NMT facilities should be explored as they may be cheaper than elevated MT facilities • Facility providers need to provide user-friendly and convenient NMT facilities • Educate all road users on the benefits of walking and cycling, e.g. health, safety etc • Cyclist & pedestrian conflicts can be solved through separation of space • Pedestrian crossings should be raised and in different color to clearly indicate right of way for pedestrians • Car-pooling should be encouraged • Develop neighbourhood cycling routes
Safety/Security	• Appropriate facilities for NMT are required to reduce conflicts between NMT and MT. • All road users should be exposed to the Highway Code to ensure safety for all • Separate facilities for vulnerable NMT users are required • Respect of the traffic act should be encouraged/ road safety training of users is also required • Visibility of cyclists – create a culture of safety on the roads • There should be standard kiosks to ensure security and safety of pedestrians especially at night • Kiosks are a security risk – proper planning required - better ways of doing business required for these people • NMT needs to be trained and should use protective gear
Amenities	• Toilets should be provided along NMT route. Walking is slow and need convenience facilities for dignity • Provide secure bicycle parking • Bike shops /clubs should be provided along cycle routes – can also be used as parking places; educating users on how bikes should be used • Bike hire schemes for short distances within the CBD should be initiated • Convenience facilities like bathrooms at work places can encourage cycling and should be included in conditions for development plan approvals
Education and Public Awareness	• Use media for education and then enforce use of NMT facilities • Address attitude through providing "dignified spaces" for NMT • Closing roads for NMT can help in changing attitudes • Roadside education of NMT users • Children should be educated and encouraged to use NMT as they are the future users • NMT should be promoted as part of an integrated transport system • Provide NMT facilities, monitor benefits then publicize encourage their use and change attitudes • Bicycles for policemen /law enforcement agencies can change the image of cycling. • Celebrities should be used in public awareness campaigns to promote the use of NMT modes, and to address the negative attitude to the use of NMT • Children should be encouraged to use bicycles to school • An interactive on-line cycle route map and web-site should be developed where public can provide their comments on the condition of cycle infrastructure at specific locations

Some statement from those consulted are captured below

Cyclists: *…… As I already wrote, open construction sites are a huge problem. I fell into a 3meter deep construction whole along the street a while back, light was dim, a car approaching and blinding me so didn't see it, stepped aside to avoid that car and bam...got hurt pretty badly, but of course no help from people. The construction site and construction hole wasn't marked in any way...as usual!*

I am a Nairobi resident who's been cycling around for over three years now. I cycle to work every day from Umoja to Spring Valley, approximately 15km one way. Each day that I get on the bike to or from work, I'm never sure of what I would encounter on the roads. The crazy drivers do scare me and often people have asked why I even dare to cycle on the Nairobi roads.

Well, my main reason (besides my undoubted love for bicycling) is because it saves me time. Often by bus or matatu it takes me close to 3 hours to get to work. But on my bike 1 hour is enough, though that's still too much time given the short distance. Why does it take me longer? Because as a cyclist, I have to scramble for space on roads that were primarily built for motorists. I have to be extra careful and cycle slower than I would under normal circumstances do because a matatu or a tuk tuk or a motorbike or someone's saloon car could carelessly swerve right in front of me.

Yes there are numerous cyclists and cycling enthusiasts who are dying to cycle to work and beat the traffic, but they are scared for their lives. And they are scared of the safety of their bikes (where to lock them?). They are scared for their health because the emissions from our cars are not regulated. They are in need of a place to shower and freshen up once they get to the work place.

Pedestrian: *It never ceases to amaze me how in a country where the vast majority of people walk or cycle, the roads are built with no provision at all for them. The newly-constructed Lavington by-pass is one of the few places currently where a person can safely walk, cycle or jog. It's properly paved, which means that I don't have to walk looking downwards, to avoid injuring myself on an uncovered manhole, pothole or mysterious iron bars randomly jutting out of the ground, as I must do in the in the city centre.*

Motorist: *I have resorted to driving, even short distances, in order not to have to inhale car exhaust blowing into my face every time a car passes and to avoid competing for space with large trucks on the road. Even when I go jogging, I drive to a safe location like the Jaffreys Academy, jog then drive home.*

2.3NMT Issues from Policy makers Consultations

This section summarises findings from policy makers on NMT from consultations during the preparation of this policy document.

Table 2.6: NMT Issues and Suggestions

Policy Area	Issues/ Suggestions
Institutions	• Coordination of agencies important for promotion of NMT – infrastructure and operation • Urban planning should be part of the policy • Road safety design audits required to ensure NMT facilities are included in all projects, and are safe, direct, comfortable, etc • Funding of NMT facilities is very important and should be addressed • Urban streets road design manual exists as a draft – need to be further developed and adopted • NMT issues are national issues and therefore all road development must have an NMT component
Mobility/ Accessibility	• Some questions should be addressed by policy: why do people use private cars? Why do people walk? … how do we design for usage? • Integrate NMT with PT, and providing dedicated lanes for PT will encourage the shift from private car to PT. Allocation of road space critical

Policy Area	Issues/ Suggestions
	• The policy should also focus on those that are driving so that they can also relate to the problems that NMT users face • Accessibility key to people with disabilities and the right to access to social and economic opportunities in enshrined in the Constitution of Kenya • Promotion of NMT important to the environment, and should be subject to environmental audit (public participation) • BRT network designs include NMT provisions • Space should be taken from motor vehicles to NMT through a programme of retro-fitting of street space • Active and social walking need to be differentiated and facilities provided that address each group's needs
Safety/ Security	• Motor cycle/pedestrian accidents on the increase on pedestrian paths • Safe crossing at intersections important
Education and Public Awareness	• Buy-in of the NMT policy required – traffic police; street traders; etc – and how they will be affected when the policy is implemented
Implementation	• Pilot projects approach – as a way of learning – should be adopted before rolling out large projects • "Quick wins" should be part of the policy. • Policy targets need to specified for specific users: e.g. walking trips with specified distances; cycling trips for what distances; PT for what distances • Baseline data of the current conditions important for monitoring and evaluation of policy implementation

2.4 Summary of Key NMT Challenges

Lack of policy implementation continues to frustrate provision of a balanced transport system that includes NMT provisions, despite the existence of an Integrated National Transport Policy (INTP)passed in December, 2012.The INTP recognizes that over the years, transport development has focused attention mainly on roads for motorized transport basically because NMT was not fully recognized by transport professionals, and hence by national road design standards, to qualify for the Government's financial support.

In terms of policy direction, the INTP states that the development and maintenance of infrastructure for NMT will be supported by all local authorities[10] and road agencies.The NMT national policy guideline is basically in place, but there are no champions at both national and county levels for universal implementation. Without clear NMT national and county policies, it will be unlikely that appropriate laws and regulations will be in place to guide planning, resource allocation and implementation of NMT facilities. However, it is worth noting that since the enactment of 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 urban areas is still a problem as guidelines still do not exist.

The institutional setting is key to success as it includes people, policy, laws and regulations that might foster (or hinder) the use and purpose of NMT[11]. It also includes funding and active promotion campaigns, and comprises politicians, planners and

[10] Under the current Constitutional dispensation of devolved units of government, local authorities no longer exists and in their place there are cities and other urban areas under the County Governments.
[11]The significance of non-motorised transport for developing countries: strategies for policy development, i-ce, interface for cycling expertise, Utrecht, the Netherlands, December 2000

transport engineers (supply side) as well as advocacy groups, and NMT-representatives. The attitude and perspective of these groups, as well as their own capacity and that of their institution is a decisive factor as well that influences use and purpose of NMT.

The Nairobi transport system is basically road-based, and more oriented to private car use**.**Thetransport system does not fully take into account the contribution of all modes and offer users affordable practical choices. It does not offer practical and convenient alternatives to the private car. To discourage Nairobi residents from using private cars, the public transport needs to be efficient and attractive, and integrated with NMT. It should be noted that the problem in the city of Nairobi is not the reluctance of residents to use public transport or walk but rather, the inefficient public transport and lack of safe and convenient NMT infrastructure.

The infrastructure required by the many NMT users is lacking, or in very poor state and incompletewhen provided. Owing to motor vehicle orientated engineering and planning, NMT facilities do not always receive the attention that they deserve. NMT networks should ideally be planned together with the MT modes but taking into account their main requirements of directness; safety; coherency; and comfort.One of the main problems is that NMT facilitiesare often provided alongside motorised transport roads which sometimes do not offer good permeability and the most direct route. Part of the problem is that NMT-only (stand-alone) facilities are uncommon because of the wrong belief by supplier of transport infrastructure that NMT facilities cannot be justified without provisions for MT. Manoeuvring narrow road shoulders with high volumes of pedestrian and MT traffic, crossing busy highways, foot bridges with steep ramps are other problems faced by NMT users.

Encroachment into NMT spaces and lack of enforcementis another major challenge to efficient movement of pedestrians and cyclists. Parked vehicles, hawkers, motor-cycles and *matatus* often take over footways (road shoulders) and become obstacles to NMT movement. Pedestrians have no right of way at signalised crossings, marked zebra crossings, and even on shop verandas. All these violations of NMT areas are not penalised as the law is silent.

Safety of pedestrians is a major concern in Nairobi. There are several dimensions related to safety, such as risk of injury, which is related to road and traffic conditions, behavior of other road users, as well as lack of enforcement of traffic laws. Cyclists and pedestrians are the vulnerable primarily due to large MT speed differences and absence of protection from MT users.

From the survey along the Jogoo and Juja road corridors[12], pedestrians proposed several facilities to be given priority to promote walking along various routes such as; installation of speed bumps (29%); provision of good pedestrian crossings (21.7%); overpasses (18.3%); dedicated walkways (12.4%) and street lights (12.1%). The reasons for prioritizing the facilities were given as: need to reduce MT speeds (57.9%);protection of facilities from encroachment (12.5%); reduction of accidents (9.9%) and enhancement of visibility and security (7.9%).

Priority interventions above indicate that issues related to safety are given prominence by users. It is worth noting that most of these safety issues can be improved by better

[12] These two corridors are heavily used by NMT modes and serve densely populated part of Nairobi

enforcement, investment in improved NMT infrastructure, education and publicity that also involves MT drivers.

Fear of being robbed and harassed is a security concern for many pedestrians and cyclists, especially women and girls during the early and late hours of the day. The elderly, children and PWDs are other vulnerable users to criminal attack and anti-social behaviour.

Participants consulted during the preparation of this report attributed underutilisation of pedestrian facilities such as foot bridges and underpasses to lack of security especially after hours of darkness as such facilities have poor lighting. Theft and lack of proper storage facilities for bicycles in the city to secure against theft and vandalism was one of the reasons that inhibit cycling in the city.

Accessibility problems include: lack of parking facilities for bicycles at many destinations; transfer to motorized transport for cyclistsis difficult because there are no provisions for storage in urban public transport; the gradients of the footbridges are often too steep and do not allow continuity of movement.

In addition, people with disabilities require larger dimensions to accommodate wheelchairs and crutches, continuous sidewalks and way finding options for the blind or visually impaired.

Comfort in usage of pedestrian and cyclist facilities is an important factor. Some NMT users consulted during the development of this policy observed that walkways are not properly maintained; those with tarmac had potholes and ponding water during the rainy season. They also observed that maintenance-works contractors leave debris and mounds of earth piled on the walkways and cycle lanes after road works.The NMT routes should be supplemented with amenities such as ablution facilities, shelters, bicycle repair and spare parts shops, and street lighting.

CHAPTER 3: NON MOTORISED TRANSPORT USER CHARACTERISTICS AND SUPPLIER REQUIREMENTS

3.1 NMT User Characteristics

The following are some general characteristics of NMT users that planners and designers should consider when making transport provisions:

1. Walking, cycling and drawn carts are powered by muscle, and energy is limited and gets depleted during the trip. The provided facilities should therefore keep energy loss to a minimum by having walkways with fair gradients; limiting detours that cause increase in distances; providing comfortable and smooth walkway surfacing; and providing amenities where, if necessary, one can rest, where lost energy can be replenished (hotels and kiosks), and where one can shop for basic items.
2. Pedestrians and cyclists are vulnerable as they are exposed to harm/greater risk in a motor vehicle dominated transport system. In such situation, they should either be provided with their own space (safety-zone) to operate or the motor vehicle speeds and volumes should be reduced through traffic management measures to ensure their safety; protection from sun, rain and wind; and their facilities need to be protected from encroachment by motorised modes through by-laws and regulations.
3. Bicycles and carts used on Nairobi roads are basic in construction, and slower than the motor vehicle. The users are therefore intolerant to delays; require smooth and comfortable spaces to move faster; and, try to use direct and short routes. Users require more tolerant, forgiving, flexible and simple designs that can be used with minimum of fatigue.
4. Cycling and pulling/pushing hand carts are multi-tasking activities so the designers should respect this fact and avoid complex situations that over-load the mental capacity of the riders. They need simple road lay-outs; quiet and separated spaces to concentrate on the riding task; designs that are simple and can be used intuitively.
5. NMT users are not required by Law to learn the Highway Code before using the road. It is therefore expected that a large majority of NMT users have basic or no knowledge of the Highway Code and are not experts in using the road. They therefore require simple designs that are easy to understand regardless of user's knowledge or experience; and designs that accommodate a wide range of individual abilities.
6. NMT users are in general quite healthy and physical strong but also include children, the elderly, and people with disabilities. The facilities should therefore be designed for equitable use, flexibility, simple and intuitive use, require low physical effort and have the appropriate size and space for approach, reach, manipulation and use regardless of users' body size, posture and mobility status.
7. Pedestrian and cycling traffic have a lot in common but differences also exist. The most important one is that cyclist should not share the same space with pedestrians along roads outside residential neighbourhoods with transit functions. This is because cyclists often move at about two to three times faster than pedestrians and in case of a conflict a pedestrian can easily get injured. In addition, cyclists find it difficult to avoid pedestrians on a mixed track.
8. However, cyclists can share the same carriageway with motorized traffic if motor vehicle speeds and volumes are low to medium. In this respect, mopeds and low

engine capacity motorcycles can also share space with cyclists if the volumes are low. Ideally, hand drawn carts should share the same space with pedestrians if cart sizes are less than 1.5 m wide and pulled/pushed at normal walking speeds.

9. Human/Animal-drawn carts provide affordable means of transporting bulky goods. However, making provisions for them is a challenge because their sizes vary from about 1 m to as wide as 3 m (in Nairobi), and they move slowly when carrying loads. Regulations are required to standardize their construction (size and control devices); where and when they should be used; and control overloading.

In summary, planners and designers should as much as possible use design principles that cater for all users, NMT and MT[13].

3.2 NMT User Requirements

Based on international experience[14], it can be concluded that there are five main requirements that NMT users would like met: (1) Safety (and security); (2) Directness (3) Coherency; and (4) Comfort; and (5)Attractiveness is considered as the fifth requirement by those who have other modal choices, like private car users. It refers to conducive surrounding environment such as shades; landscaping; clean streets; and parks along routes.

Safety is a key requirement to the use of any transport mode, especially for pedestrians[15] in Nairobi who have to share the same space with fast moving motor vehicles at crossings.

Directness means that the route or crossing provides the NMT user with the shortest and less cumbersome link between his/her origin and destination. Delay at signalized and un-signalized crossings due to waiting for pedestrian green phase/adequate gaps in the MT traffic stream are elements of directness.

Coherency means that the NMT route/lane must have no gaps or missing links between the origin and destination. Missing links can be unpaved and muddy sections; lack of a bridge; dug up lanes due construction works; and lack of facilities along the route (repair chops, convenience facilities).

Comfortable NMT movement means minimal hindrance by other users (less congestion); smooth and stable and clean road surface; fair gradients; proper waiting areas at bus stops and crossings; and convenience facilities along the route.

Findings of recent study[16] in Kibera and Mathare in Nairobi confirm that most NMT users (78.9%) chose routes that are direct to save on travel time. For a few others (10.9%) safety; (2.3%) quality of infrastructure; (2.3%) human traffic were other main concerns.

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[13] One such principle is that which is referred to as "Principles of Universal Design", which tries to ensure**:**Equitable use; Flexibility in use; Simplicity and intuitiveness; Perceptible information; Tolerance for error; Low physical effort; and,Adequate size and space for approach, reach, manipulation and use.
[14]CROW, 1993, de Langen M and R. Tembele, 2001;GTZ, I-CE, 2009
[15] 84 % of all people killed in Nairobi in 2014 were pedestrians (507) and passengers (101).
[16] IDS, 2012

3.3Gender Dimension in NMT use

As can be found in many statistics, including in Nairobi, women are using far less the bicycle as means of transport in developing countries as men do. Statistics from India (New Delhi), Ghana (Accra), Peru (Lima) and Nicaragua (Leon) show clearly that there is a strong gender bias in the use of the bicycle. Men's share is 100%, 99%, 84.6% and 90% of all users for the aforementioned cities[17]. However, China and Vietnam are exceptions to the overall picture elsewhere.

Possible reasons[18] why women are not using bicycles in many developing countries in Africa may include, but not all of, the following:

1. Safety and social security along the roads and streets. Women generally rank these two issues higher than men, who rank speed and cost of travel higher.
2. Affordability/ availability can also be an impediment especially in poor households where the main bread winner is a man. The default user of the bicycle is the man in such cases, while the woman will have the option of being a passenger on NMT or MT public transport. In many urban areas in western Kenya, like Kisumu and Busia, there are many women passengers on bicycles.
3. Cultural and community attitudes to cycling.
4. Low comfort and great effort in using the bicycle on poorly designed roads can be other factors.
5. Lack of cycling skills among women is also a factor, although this could be minor.

These issues that may be of concern to women should be researched so that data-led strategies to overcome the gender bias can be formulated.

3.4Supplier Requirements

It is important to understand supplier (the County and National government) requirements as their decisions will foster or hinder the provision of NMT infrastructure and options available to NMT users. From experiences in Kenya and Tanzania[19], the following requirements are important:

1. NMT infrastructure should be designed using accepted standards and should require low maintenance. Many design guidelines exist in Kenya, but none of them have been adopted for universal use by planners and designers. NMT infrastructure is therefore based on personal preferences, experiences and "rule of thumb" that decision makers sometimes find difficult to implement. A national NMT design manual is urgently required.
2. Given that Kenya has no long historical tradition of providing and maintaining NMT facilities (at national level), it is not surprising that there is reluctance and incompetence among professional and decision makers to provide appropriate NMT infrastructure in large scale. It is therefore necessary to progressively build the required confidence and capacity through pilot NMT projects. Pilot projects will help in finding out what the best solutions are that fit existingtravel demands, road user behaviour and conditions ofthe County, and Kenya. Pilot projects should

[17]The Significance of Non-Motorised Transport for Developing Countries – Strategies for Policy Development, I-Ce, 2000.
[18] There is no local data to support these reasons
[19] De Langen M and R. Tembele, 2001

involve implementation of a large number of small-scale interventions on existing roads but covering a large section of the County. They can also incorporate "temporary treatments" that can be tested and easily adjusted to meet objectives if necessary.The "before" and "after" conditions should be objectively analysed and results publicised and, if necessary, the interventionsrefined for better results.

3. Like other public investments, NMT infrastructure should be subjected to basic economic analysis to determine its feasibility and help in ranking the projects in terms of internationally accepted economic indicators[20]. Pilot projects in Kenya and Tanzania showed that NMT infrastructure, especially spot improvements, had high Benefit – Cost ratios compared to many transport projects.

3.5Benefits and Opportunities of NMT

Walking and cycling provide numerous benefits and opportunities. They include in broad terms: environmental sustainability; employment generation opportunities; public health improvements; reduction in household travel costs; increased time savings for productive use, like studying for school children; and use of less land space compared to other modes of transportation.

High NMT use can contribute to reduction of negative effects of motorised transport pollution (and noise) and help in achieving "clean air" initiatives and reduction of GHG emissions. Public health benefitsdue to regular physical activity reduce risks of coronary heart disease, stroke, diabetes, and other chronic diseases, and lower public health care costs. Reduced fatalities and injuries among pedestrians due to generally uniform and lower motorised vehicle speeds is a major motivation to addressing NMT needs.

Lower journey times through provision of smooth and comfortable walkways (or through shift to cycling), and reducing trip distances by removing detours can substantially reduce household and city transport costs. Such interventions can also contribute to poverty alleviation among the poor.

When integrated with public transit, NMT can contribute to reduction in congestion by encouraging shift from the private car to public transit, and lower transport investment and maintenance costs. Other benefits include employment opportunities in construction and maintenance of NMT facilities which are largely labour-intensive construction; business opportunities in bicycle spare parts, repair shops; and creation of opportunities for hawkers to sell their wares alongside dedicated NMT facilities.

[20]Net Present Value (NPV), Benefit Cost Ratio (B/C), and Internal Rate of Return (IRR), based on not only operating cost savings but also on equity, access, loss of life and liveability.

CHAPTER 4: NMT POLICY STATEMENTS

4.1National Policies and Plans

NMT is supported in national as well as local policies and development plans. The Constitution of Kenya, 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. It states that every person has the right to freedom of association and freedom of movement. It is on this basis that this NMT policy proposes 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.

The Integrated National Transport Policy (2012)recognises the importance of NMT in addressing the needs of the poor as well as in promoting the health of the population. The policy also recognises that transport policies have largely supported motorized transport at the expense of non-motorised transport and have denied the poor and disadvantaged benefits inherent in NMT leading to marginalization of NMT users in the urban areas. The policy strongly recommendsharmonisation of NMT and their concomitant infrastructure into technical, legal and institutional mandates of transport agencies.

The Traffic Act provides the framework for the enforcement of traffic laws, including those relevant to NMT users. The Kenya Vision 2030aspires for a country firmly interconnected through a network of roads, railways, ports, airports, water ways, and telecommunications. It aspires to setting up a strong 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.

The Study on the NairobiMaster plan[21] proposes the development of a compact urban centre that is creative, liveable, green, and competitive. It proposes that the urban centre should bepedestrian friendly for an efficient, effective and inclusive transport system. This NMT policy however advocates for the development and full integration of NMT within the whole of the Nairobi transport system, not just the urban centre.

4.2Vision and Objectives

This NMT policy aims to develop and maintain a transport system that fully integrates NMT as part of the Nairobi transport system.This Policy will help in creating a safe, cohesive and comfortable network of footpaths, cyclinglanes and tracks, green areas, and other support amenities. Further, it will put in place laws and regulations to ensure that NMT facilities and areas are not encroached by the MT modes and other street users.

The Vision of the NCCG with thispolicy is: **to be a County where NMT is the mode of choice for short and medium trips[22].**

[21]The Study on Master Plan for Urban Transport in the Nairobi Metropolitan Area in the Republic of Kenya, Japan International Cooperation Agency (JICA), 2013.
[22] Pedestrian trips up to 5km; and cycling trips up to 15 km. Basically trips that can be made within one hour.

The Objectives of this policy are to:

1. Increase mobility and accessibility;
2. Increase transport safety;
3. Improve amenities for NMT;
4. Increase recognition and image of NMT in Nairobi County.
5. Ensure that adequate funding/investment is set-aside for NMT infrastructure.

The expected **output indicators** are: increased NMT space coverage; increasedservices along NMT facilities; safe NMT crossings (street signals, footbridges, underpasses, marked crossings); better designed streets and improved NMT user satisfaction.

The expected **outcome indicators**include: increased modal share of cyclists and public transport; reduced NMT accidents; Improved multi-modal network that includes pedestrian walkways and cycling lanes.

Table 4.1: Outputs and Outcomes of the Policy

Objective	**Output**	**Outcome**
1. Increase mobility and accessibility;	Safe and cohesive pedestrian facilities (footpaths, etc) from 500. km to 1,500 km by 2020	Increased modal share of walking from 47. to 50for trips up to 5km by 2025;
	Cohesive cycle network of lanes, tracks and destination facilities from 50km to 1,000km by 2020.	Increased modal share of cyclists from 2% to 10% for trips up to 15km by 2025;
	NMT facilities along and at major PT routes and terminals from 500to 1,500By 2020.	Increased modal share of public transport from 32to 35for all trips by 2025;
	Nairobi Streets and Roads Design Manual (NSRDM) is developed by 2017.	All roads within the County shall fully comply with the specifications of the NSRDM by 2025.
2. Improve transport safety and security;	Safe NMT crossings: Pedestrian signals from 185to 500. Footbridges and underpasses from 27 to 50. Marked and visible crossings from 150to 500 by 2020; Working street lights from 30,000to 65,000by 2020.	Reduced pedestrian fatalities from 500to 50 or lessby 2025. Reduced cyclist fatalities from 20to5by 2025.
3. Improve amenities for NMT;	No of benches, No of repair shops; No of stores; etc	Level of Service[23] (LOS) rating of streets improves from D to Bby 2025.
4. Increase recognition and image of NMT in Nairobi	Percentage of road users considering NMT as a mode for the poor reduces by 40% by 2020.	Diverse income groups using NMT as a mode of choice.

[23] See Appendix 4 for an example of LOS rating that can be adapted for Nairobi.

4.3NMT Policies

Policies that encourage, sustain and expand the use of Non-Motorised Transport modes consist of high-level declarations on leadership and priorities and their enabling policies, and, supporting policies[24]. Enabling policies include: funding; planning; engineering and design; and maintenance policies, while supporting policies address elements that are not directly related to street/road facilities or road improvements, but are critical for improving pedestrian and bicyclist safety and mobility. Supporting policies include those that address: motor vehicle parking and restrictions; traffic calming measures; convenience facilities to support NMT; integration of NMT with other means of transport; education and promotional activities; regulation and enforcement; and monitoring and evaluation of the policy.

4.4Leadership and Priorities

The NCCGwill:

.1 Provide the necessaryleadershipby championing fora shift from the current car-oriented urban transport planning and development toanincreased focuson NMTand public transport. This is in order to provide tangible options and opportunities for people to choose among different means of transportation rather than relying exclusively on the private car, which only caters for about 15% of the Nairobi's travel demand.

.2 Collaborate with all national agencies responsible for law enforcement, road safety, transport policies, education, and communication of government policies to ensure that this policy achieves its set objectives.

.3 Adapt the universal design principles for streets that provides for all user needs, roads and highways within the County for retrofitting of street space, and in green-field projects. Application of the principles will require that all streets, roads and highways in Nairobi are designed/re-designed to be usable by all people, to the greatest extent possible.

.4 Develop a Nairobi Streets and Roads Design Manual (NSRDM)[25] to guide planning, design and managementof all transport facilities and amenities within the County, in line with the adapted "Complete Streets" principles.

.5 Classify all streets and roads in the County according to desired function in the whole network, and design their layouts into shapes that ensure their correct use. In principle, pedestrians, cyclists, and publictransport should have priority over private cars and trucks on streets and roads within the commercial and residential districts and those with access as their main function. Private cars and trucks should have priority on roads with flow/transit as the main function. The NSRDM shall specify priorities of allocating space within the Right of Way (ROW) for all road classes.

.6 Routinely cause to, plan, fund, design, construct, operate, and maintain streets and roads within its jurisdiction with the goal of creating an attractive connected multi-modal network that balances the needs of all users, including NMT. The transport system will include intermodal facilities to promote the use of two or more different means of transport (modal integration) within a single trip. In particular, NMT will be incorporated into the design of all public transit facilities and parking provisions in order to provide seamless movement from one mode to another.

[24]Public Policies for Pedestrian and Bicyclist Safety and Mobility: An Implementation Project of the Pedestrian and Bicyclist Safety and Mobility International Scan, International Technology Scanning Program, 2010

[25] See Appendix 2 for the draft Table of Contents. Several guidelines exist and should be the starting point.

.7 Collaborate with other institutions[26]with responsibilities for provision and regulation of transportwithin the County to prioritize NMT and public transport means in their investment plans.

.8 At the outset of all road programmes and projects, including routine maintenance, the County Planners and Engineers shall evaluate existing, latent, and projected access and mobility needs of NMT users, and integrate or ensure the developer integrate the identified needs into all phases of the project cycle. The public will be consulted on projects and programmes to be implemented through an official platform.

.9 Collect transportation NMT data to help in identification, prioritisation, appraisal and post-intervention evaluation.

.10 Develop a monitoring and evaluation system that involves public participation to monitor the implementation and regular review of this policy.

4.5Funding

The NCCG will:

.1 Encouragethe use of NMT and PT modes andwill provide sufficient budgetarysupportto build and maintain the necessary transport infrastructure and amenities.NCCG will ensure that at least**20%**of its existing and future transport budget is allocated to NMT and PT infrastructure and services. Annual road and transport improvement project estimates shall include costs related toplanned NMT interventions covering both development and maintenance and available to the public.

.2 Integrate NMT requirements early in the project development and programming process and apply funds in the most effective way to develop a transport system that will ensure achievement of the vision of this policy. Investments will focus on interventions that increase safety, mobility and access of NMT while at the same time ensuring integration of NMT with other means of transport. Roads with highPT and cycling potential[27] will be given priority so that the desired modal shift from walking and private car to cycling and PT can be realised.

.3 Pass by-laws that require private developers of large commercial, industrial and residential estatesto make appropriate provisions for NMT modes to connect to existing/planned networks. Such provisions will include, but not limited to, NMT lanes inside and outside of the development, bicycle parking, street lighting, PT provisions, tree shades, and benches. It will be illegal for gated communities, private developers and others to block/restrict movement of pedestrians and cyclists on public streets.

.4 Explore opportunities of mobilisingprivate sources of funding to fundpublic transportandNMTimprovementsthatsupport meeting the goals of this policy.

4.6 Planning

The NCCG will:

.1 Undertake NMT project planning and implementation in a consultative and transparent way to send a clear message that NMT policies are implemented in close consultation with users, key stakeholders and broad citizen participation.

.2 Requirethat NMT[28] user and stakeholder participation is included in all transport – related planning processes to help in identification of user needs and

[26] Road agencies (KeNHA, KURA, KeRRA) and the NTSA.
[27] High pedestrian volumes, flat/rolling terrain, low MT volumes, and many trip destinations.
[28] There will be equitable representation from all NMT users: pedestrians, cyclists, cart pushers, and so on.

minimiseimplementation problems later on. Based on experience, the NCCG will consider creating neighbourhood NMT user and stakeholder advisory committees to help in undertaking comprehensive reviews of physical barriers, missing links to NMT routes, NMT Master Plans and implementation of NMT interventions.

.3 Require that all developers undertake studies on how NMT users will be affected by such developments and include in the designs how those impacts will be mitigated. These will form part of documents to be submitted to the NCCG for review before development approval is granted. NCCG will ensure that all new construction and re-developmentlimit the longest block face to less than or equal to **150**m.An audit shall be undertaken by the NCCG at the end of the developments.

.4 Develop adaptable and flexible long-term NMT plans, which will be updated regularly. The plans will include reporting on an evaluation of progress, the existing conditions, current initiatives, appraisal of available funding sources, and defining future interventions. The plans will be data-led and should eventually result into a dense network of streets and paths that meet NMT requirements as much as possible. The resulting pedestrian network should be denser than the cycling network and the pedestrian network should have more well-designed intersections per square km than the cycle network. Pedestrian *cul-de-sacs* shall be prohibited to ensure that pedestrians have access to the shortest path for all trips.

.5 Encourage mix of land uses and densities, high-quality design of the built environment, and NMT – friendly roads to enhance NMT comfort and create a more NMT – orientedenvironment. This will be ensured through better land use planning and development control, and financial incentives.

.6 Apply the following instruments in planning as strategies to reduce household transport costs:

- .1 Increase walking and cycling speeds through provision of smooth paths at level to rolling grades; provide adequate spaces to reduce congestion.
- .2 Reduce journey times through giving priority at intersections and reducing waiting times, where appropriate (using push buttons at signalised intersections); and remove obstacles on NMT paths;
- .3 Reduce trip distances through elimination of detours, creation of NMT-only short-cuts, and mixed land uses;
- .4 Make PT attractive and efficient to attract private car users;
- .5 Restore cycling by improving on road safety, providing a coherent cycling network, encouraging women and school-going children to cycle.

4.7 Street Design and Maintenance

The NCCG will:

.1 Design attractive and comfortable walk-able and cycle-friendly streets by including features such as trees, plantings, landscaping, benches for resting, convenience facilities, and street lighting to create “dignified spaces”.

.2 Classify all roads in the network according to their desired distinct functions and design them accordingly. A hierarchical road network is essential to set priorities and maximise road safety.

.3 Ensure that the designed width of carriageways and other street elements is based on the desired function of existing and new road instead of the available Right of Way (ROW).

.4 Review existing and proposed urban design manuals, universal access and technical design standards for NMT cycle and pedestrian paths and produce an appropriate

onefor use within the County. In principle, existing roads/streets will be retrofitted to allocate road space equitably for all users, while NMT facilities shall be provided on all new and streets under rehabilitation. NCCG will employ street designs that define clear boundaries through kerbs, open drains, bollards, and surfacing material differences.

.5 Routinely ensurethatthedesign of NMT paths[29] guarantee comfort, directness, convenience, coherence and safety. All designs shall include statements how these requirements have been incorporated into the designs.

.6 Ensure that drainage and utility inspection chambers, and deep side drains adjacent to NMT lanes are covered.

.7 Prioritise space allocation to NMT and PT within the County. The existing paved spaceis enough to allow thesafe and efficient movement of NMT and PT if on-street private car parking is reduced or eliminated altogether. The NCCG will review space allocation and use the following strategies to free space for NMT and PT:

.1 Progressively remove on-streets and give space to cyclists and pedestrians or planted or open public space areas;

.2 Consider providing space for bicycle parking at existing public transit termini.

.3 Rationalize the number of termini within the CBD and define new PT routes along that pass through the CBD.

.7 Provide safe and accessible crossings as follows:

.1 At appropriate intervals depending on the street function and pedestrians flows;

.2 Reduce crossing distances where pedestrians cross a maximum of two lanes before reaching a refuge (sidewalk or median)

.3 Use of appropriate traffic control and signalswhere more than two lanes exist and MT traffic speeds and volumes high;

.4 Reduce motor vehicle speeds at mid-block using traffic calming measures, such as raised flat-topped speed humps.

.5 On unidirectional (single) motorized lanes, provide designated crossing points for NMT users, including proper signage on the direction of flow of vehicles.

.8 Abide by the following criteria whendesigningandretrofitting intersections and crossings:

.1 Provide at-grade crosswalks as much as possible instead of over-bridges and subways, in accordance with the function of the road.

.2 Providecrosswalks (raised zebra crossings) of at least 2 m widthat allintersections (signalized and uncontrolled) andatfrequentintervals in midblock locations.At locations with either high motor vehicle speeds or heavy pedestrian volumes, such crossings will be elevated to the height of the adjacent footpath (100 – 150mm) with ramps for motorized vehicles to mount the crosswalk.

.3 Provide continuous medians with at least 1 m clear width that are mountable by pedestrians on all streets with carriageway widths of over 5.5 m per direction.

.4 Pedestrian crossingswill not have steps. Crossings will have appropriately sloped level changes, providing seamless access for all users. Adequate waiting areas at official crossing locations will be provided.

[29]See Appendix 2 (Draft Table of Contents for NSRDM) for some NMT requirements

.5 Redesign intersections to accommodate NMT volumes safely by minimizing crossing distances, reducing motor vehicle speeds, simplifying signal cycles, or through other means.

.9 Implement and maintain landscaping for NMT paths as follows:

.1 Street trees, sheds with benches, orotherappropriate techniques will be provided at frequent intervals to provide continuous protection of NMT users from sun, rain and wind.

.2 Maintainlandscaping sothatvegetation and trees do not block visibility at crossings.

.10 Implement and maintain street lighting for NMT paths as follows:

.1 Provide appropriate street illumination through proper street light spacing, street light heights and lamp brightness, etc.

.2 Coordinate the placement of streetlightingwithother user amenities (especially advertising panels and utility boxes) to maintain adequate width for transit travel and so that shade structures, trees, or advertising panels do not impede proper illumination.

.3 Provide additional lighting at identified conflict points like black spots[30], areas of violence, and isolated areas.

.4 Provide maintenanceservice plan to ensure that all street lighting elements receive planned regularupkeep.

.5 Use solar panels to light the streets.

.11 Ensure that appropriate diversions and facilities for NMT users are provided during construction and maintenance. NMT traffic management plans incorporating considerations for safety, directness and comfort shall be submitted to the NCCG for approval by the concerned professionals and utility companies before works commence.

.12 Review existing by-laws to ensure that every trader or owner of private property maintains his/her property free of litter and prevent litter from getting from his property to the NMT ways. Every owner or occupant of private property bordering on an NMT path will be required to keep the path and the adjoining gutter to the centre of the road free of litter. NMT users will be made responsible to keep their spaces clean by using the provided trash baskets.

4.8 Motor Vehicle Parking and Restrictions

NCCGwill:

.1 Combine incentives for NMT and PT with disincentives for private car use to make NMT and PT trips competitive.One of the strategies will be to progressively make parking expensive and scarce within commercial districtsto make cycling, walking and PT tripsmore feasible and cheaper. This strategy will also reduce unnecessary private car trips to the CBD and reduce congestion.

.2 Develop, publicise and enforce a Nairobi County Highway Code (NCHC) that outlines motor vehicle restrictions and priorities where NMT users are likely to come into conflict with MT users[31].Alternatively, NCCG will collaborate with the National Government to produce and adopt a national Highway Code that emphasises the role and accommodation of NMT in the whole transport system.

[30] Black spots are road locations that have a chronic history of traffic accidents. These will be identified from accident data and through road safety audits of existing and planned roads

[31] See Appendix 3 for an example of content.

.3 Develop a street and traffic managementsystem to improve traffic circulation, enforcement of NMT priority areas and no-parking zones, and keeping all motorized vehicles (including PT and motor cycles) from obstructing NMT paths. Cyclists will not be allowed on pedestrian facilities.

4.9 Traffic Calming Measures

The NCC will:

.1 Review speed limits with the view of lowering speeds on roads that provide important connections in the NMT network to below 50 km/h, and creating 30 km/h within heavily pedestrianized areas like the CBD and residential areas. Motor vehicle speed is one of the main factors influencing NMT users' safety perception of a road/street. Appropriate limits will be set in accordance with road functions, in consultation with the National Transport and Safety Authority (NTSA) and the relevant Road Authorities.

.2 Demarcate, provide appropriate provisions, erect and maintain appropriate signage and enforce the proposed[32] 30 km per hour speed limit within the boundaries of a nursery, primary and secondary schools within the County.

.3 Apply traffic calming[33] tools and methods widely to create and maintain sufficiently low motor vehicle volumes and speeds on NMT priority areas to ensure comfortable and safe traffic conditions. A variety of traffic calming techniques, including reduced carriageway widths and speed humps[34], will be applied at frequent intervals to reduce motor vehicle speeds.

4.10Cycling Facilities

The NCCG will:

.1 Explore ways of providing incentives for its employees to cycling to work-related purposes. Incentive will include: free bicycle parking and convenience facilities along cycling routes and at major destinations; bicycle racks and lockers at major transit connections; shower rooms at its premises; bike/bus passes; convenient and free bike parking locations; bicycle sharing programmes; and flexitime for employees who come to work cycling. The NCCG will also make bicycle parking available at private properties through a public/private partnership arrangement.

.2 Encourage PT operators to make provisions for cyclists to be able to take their bicycles on board so that journeys can be continued by cycling to the final destination.

.3 Provide and maintain clear and consistent signage to guide NMT users to destinations and to other NMT routes, at route beginning, end and intersections. Additional pedestrian signage and bicycle route maps will be provided on approved kiosks and bicycle repair shops along the routes. Information to include: distance to destinations, and transfer opportunities along cycle routes.

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[32] The Traffic (Amendment) Bill 2014.

[33] Traffic calming: physical design and other measures, including narrowed roads and speed humps, put in place on roads for the intention of slowing down or reducing motor-vehicle traffic and speeds as well as to improve safety for pedestrians and cyclists.

[34] *Speed humps* should be placed so that vehicles do not approach NMT crossings and areas at high speeds. They should also be placed on side roads and near street lights. To be effective, speed humps should be placed in series at 60 – 180 m intervals. Speed humps should not be placed on curves, public transport routes, or major emergency responseroutes. They will be designed and spaced to ensure uniform flow as much as possible.

.4 Strategically allocate space to cyclists- repair shops along cycle routes and provide other support to create employment and securityto cyclists.
.5 Promote cycling for public health, sport and tourism.
.6 Partner with investors to set up a bicycle manufacturing/assembly company in Nairobi to make quality and more affordable bicycles.

4.11 Integration of NMT with PT, Private Cars and Street Trading

NCCG will:

.1 Effectively integrate NMT with other modes to promote intermodal[35] transport and improve mobility at a city-wide level. NMT improvements will be included in on-going transit and other green-field transport projects like the planned Bus Rapid Transit (BRT) corridors and hubs. NMT facilities will be integrated with "kiss and ride" provisions.
.2 Regularize the street trading because they: (i) play a crucial role in the economy of Nairobi, particularly for the low-income households, and also help improve safety as "eyes on the street.", and (ii) cancause congestion on verandahs and streets by taking up pedestrian space.
.3 Explore new and innovative approaches for creating vibrant public spaces for street life, specifically targeting NMT users. They will include accommodation of: street vendors (food and general retail kiosks, bicycle repairers, internet cafes, etc.); *boda-boda*[36] operators; pocket parks along NMT routes; electricity connection points; public washrooms; along streets, at Mass Rapid Transit (MRT) stations, railway stations, market areas, and commercial centres.
.4 Form partnerships with vendors to keep vending areas clean and well maintained, and *boda-boda* operators to keep clear of transit NMT facilities.

4.12 Education, Awareness and Promotion

The NCCG will:

.1 Develop and roll-out basic NMT education and awareness programmes for local neighbourhoods and public schools, and provide targeted educational and awareness opportunities for existing and potential cyclists and motorists. The NCCGwill specifically develop awareness information targeting private car users on the individual and social benefits of using NMT modes.Modal shift from private car use to cycling and PT will free road space and reduce congestion and GHG emissions. Cycling education and training curriculum will be introduced in County schools to create a cycling culture among school going children.
.2 Advocate for an extensive and thorough cyclist training course that includes:defensive cycling, anticipatingdangeroussituations,and reacting appropriately; drivers being aware of NMT user's rights; the need to pay special attention to avoid collisions with pedestrians and cyclists even if they are ignoring traffic regulations; and so on.
.3 Develop and publicize a programme to provide important instructional and informational brochures and safety literature, including guides that will expand knowledge of laws relating to NMT and the safe operation of motor vehicles.

[35] Use of more than one mode in one journey.
[36] These are pedal- and motor-cyclists offering public transport to pedestrians and goods.

.4 Advocate for integration of NMT modes traininginto tertiary education curricula and national transport projects and programmes to ensure implementation of nation-wide NMT interventions that are properly designed and subjected to detailed reviews.
.5 Sponsor regular cycling programs/workshops (e.g. local riding clubs or cycle racing teams) at neighbourhood and city levels in partnership with other road agencies, stakeholders and non-profit organizations.
.6 Contract a public relations firm to develop a comprehensive traffic safety and bicycle promotion campaigns for the County to be regularly rolled out throughout the year.
.7 Utilise transport logistics and courier services that are NMT-based.

4.13 Regulations and Enforcement

The NCCG will:

.1 Adopt long-term development plans that encourage a diverse mix of uses, including employment, housing, regional attractions and public spaces to create a high quality compact urban environment, especially near Mass Rapid Transit (MRT)stations.
.2 Adopt a zero toleranceapproach in managingencroachmentson NMT facilities, andremove all temporary and permanentobstructionsthat force NMT out of their facilities.
.3 Improve enforcement of traffic violations that endanger NMT users by deploying County Traffic Marshalls to police NMT facilities, especially at intersections and along PT routes. The Marshals should be able to arrest and prosecute both NMT and MT that violate traffic regulations.
.4 Enact by-laws that:
  .1 Define NMT users as "vulnerable users" so that they can be protected with an enhanced penalty for careless driving. Like in both Germany and the Netherlands, the civil law will place". . . *the presumption of blame against whoever was driving the most powerful vehicle involved in an accident, so they or their insurers would be liable for costs or damages. If a cyclist were hit by a car, the presumption of blame would fall on the driver, while a cyclist would automatically be blamed if he or she knocked down a pedestrian*."
  .2 A motor vehicle may only pass a person operating a bicycle next to the road edge by driving to the right of the bicycle at a safe distance and returning to the lane of travel once the motor vehicle is safely clear of the overtaken bicycle;
  .3 At a pedestrian and cycle crosswalks, vehicles must give way to pedestrians and cyclists to exercise the right-of-way in a marked crosswalk or with a walk/cycle signal if the pedestrian/cyclist is in the lane or next to the lane of travel. And all overtaking vehicles are to stop and remain stopped if one vehicle stops to allow a pedestrian/cyclist to cross.
  .4 Bicycles used for public transport should have proper reflectors and be in good mechanical condition. In addition, the NCCG will keep a register of all operators; the operators will be required to wear reflective vests. These measures will be necessary to protect the operators and the public; avoid over-supply of bicycles that may cause congestion; prevent theft and other illegal activities.

4.14 Monitoring and Evaluation

The NCCG will:

1. Develop appropriate Level of Service (LOS) measures for pedestrian, cyclist, human-drawn cart, and other NMT user requirements, including standard methods of NMT facility evaluation and prioritisation. The LOS should include measures of mobility, safety, security, accessibility, amenities, and information from the perception of the NMT User.
2. Undertake regular pedestrian and cyclist traffic surveys (behaviour, socio-economic status, gender, volumes, trip rates and purposes, etc)at specified locations and times, including bicycle parking counts at transit stations, to aid in planning pedestrian and cycling projects and evaluating their benefits. Regular counts would also improve NCCG's ability to address safety problems. Collecting data on inventory and condition of NMT facilities will help in keeping track of implementation progress and achievement of development of priorities.
3. Establish and keep updated comprehensive NMT crash data system and use it to prepare annual reports onthe type of crashes, persons involved, the main casualties, users responsible for the crashes, and identification of black spots. The system will help in design of counter-measures, and knowledge building.
4. Ensure that NMT modes are included in all urban transport system studies, transportinvestment proposals, and that all reports generated will be freely available (open) for public scrutiny and used to improve NMT travel conditions.

CHAPTER 5: IMPLEMENTATION ACTION PLAN

5.1 Introduction

Based on the information provided above, the long term travel conditions for NMT users can be improved and sustained through better transport planning, construction and maintenance of infrastructure and facilities that meet the five NMT user requirements as much as possible, improving traffic safety through traffic calming, and enforcement of traffic laws and regulations. Other interventions include providing NMT users with information on how to safely use the roads, integration with motorised means of transport, and management of mortised vehicles to release space for NMT in selected areas. However, without visionary leadership/champion, a committed team of professionals and stakeholders from responsible institutions, and adequate funding, the policy will not be fully implemented and the objectives set out will not be met.

This section therefore sets out the key success factors including, but not limited to, the above factors.

5.2 Implementation Committee

After the launch of the Policy, the NCCG should immediately take up the responsibility of setting up a "Steering Committee" to implement the policy. Ideally, the Committee should bring together professionals from relevant departments of the NCCG, National Government agencies, Development Partners, private sector and civil society representatives. The broad terms of reference for the Committee will include, but not limited to:

1. Advocacy activities and road shows to popularise the Policy and to further seek contributions on the Action plan. This will be required to ensure wide buy-in from key stakeholders (especially private car users) for effective partnership during implementation;
2. Create a Management Information System (MIS) platform for informationsharingon implementation of the Policy, challenges and successes, and for wider public participation. Also to use the MIS as amonitoring and management tool containing current, accurate, and accessible database;
3. Propose changes of laws, regulations, and plans to promote NMT modes of transport;
4. Undertake investment round table for resource mobilisation with partners and donors;
5. Work with the institutions professional staff to prepare projects and package them for financing;
6. Review activities and outputs through (i) publishing and distributing regular progress updates; and (ii) conducting mid-point reviews of progress;
7. Identify projects for private sector participation; and,
8. Improve stakeholder communications through better information and support including (i) establishment of a statistical portal; (ii) establishment of regular forums for dialogue with users and stakeholders; and (iii) strengthen civil society participation.

The following Nairobi County Ministries and National Government Agencies shall constitute the Steering Committee.

NCCG: (1) Physical Infrastructure and Transport will chair SC; (2) Finance, Administration and Economic Planning; (3) Urban Planning, Land and Housing;(4) Environment, Water and

Energy; (5) Information, Communication and e-Government; (6) Legal and Enforcement departments; (7) Health services; and, (8) Trade.

National Government Agencies shall be represented by: (1) The Treasury; (2) MOTI; (3) KeNHA, KURA, KeRRA and KRB, NTSA; and (4) the National Police Service.

Other members of the Committee should be the chair of the transport sector working group of Development partners and users and stakeholder representatives.

It is proposed that the Governor becomes the Champion for the implementation of this policy.

5.3 Funding arrangement

Recent and on-going road improvement projects in Nairobi have included Non-Motorised Transport provisions to cater for existing users. However, there is still a lot of scope to be covered as far as NMT provisionsare concerned. It is therefore proposed that a special NMT Fund should be created to address the backlog until such time that NMT becomes an integrated part of the Nairobi transport system.The Fund will help to shiftthe attention of transport planners and engineers to the specific needs of NMT-users, and to catch up with the existing arrears in provision of facilities.

Like other modes of transport, the special NMT Fund should be financed from the public sector through taxation and long term loans from international development banks. Public sector funding should be generated from County service fees, annual business licences and land rates, and property development levies.Maintenance funds should come from the Road Maintenance Levy Fund (RMLF) managed by the Kenya Roads Board (KRB).

Among the existing revenue sources at the County, infrastructure development fees, property rates, and business licences are the most justified sources for funding NMT provisions. This is because as they are related to land uses that generate traffic, including NMT, and therefore revenues from these sources should be used to improve transport conditions. Other potential sources includefunds raised from: (1) trade licences for businesses along proposed NMT streets; (2) rent from businesses on existing on-street parking spaces; (3) direct developer construction and maintenance; (4) community contributions in form of labour or materials for construction and maintenance; (5) parking fees and fines in the short term as collections should reduce if objectives on car restriction measures are realised in the long term.

5.4Priority Policy Actions

After adoption of the Policy, and formal launch of the SC, implementation of the following policy actions is considered to be of priority as they are essential to the overall implementation of the Policy. The following list of actions should therefore form the Short Term Action Plan (STAP):

1. Development of a Nairobi Streets and Roads Design Manual (NSRDM) to guide planning, design and management of all transport facilities and amenities within the County, in line with the adapted “Complete Streets” principles;
2. Data collection to help in identifying problems, designing interventions, prioritising projects and monitoring progress. Data should include: accidents; NMT volumes and

travel patterns (Origin -Destination); User perceptions/views; inventory and condition of NMT infrastructure; MT volumes and speeds;
3. Development of master plans for pedestrian, cyclists and human-drawn carts;
4. Development of the Highway Code and other materials for education and publicity campaigns;
5. Passing the necessary by-laws to enable proper planning, effective enforcement, adequate funding and effective land use planning and control.

Implementation of a "Quick Wins" package and pilot infrastructure projects should also be part of the STAP and undertaken in parallel with the actions above.

5.5"Quick Wins" Package

The "Quick Wins" package may be described as interventions that can be implemented in a short time using existing general information, using small investments at many locations, and having high easily measurable immediate impacts. For Nairobi, the package should include interventions that address safety of NMT users (especially pedestrians and school children); security along the routes; and elimination of missing links (detours) and barriers.

Safety and Security: Interventions meant for improving safety and security of NMT users will focus on arterial roads because they have higher pedestrian and cyclist volumes, high speeds, and high NMT accident rates. Priority will be given to sections where school children cross. Candidate roads include: Jogoo, Juja, First Avenue Eastleigh, Thika superhighway, Limuru, Waiyaki/Chiromo, Ngong, Mbagathi, Langata, Uhuru, Haile Selassie, Mombasa, Lusaka,Likoni, Enterprise, and Lunga Lunga. The NCCG has already set-up an accident data collection and analysis system which can be used to identify and prioritize spots for intervention. Spots with high fatal and serious NMT casualties along any given road should have the highest priority. Road section with high incidences of robberies and harassment in the early and late hours of the day should be prioritised for installation of street lighting.

For example, Table 5.1 shows that improvement of the Kenya Railways crossing (Rabai road to Industrial area) on Jogoo road should be prioritised as it had the highest fatal and serious casualties in 2013.

Table 5.1: Accident Black Spots along Jogoo road (2013)

Rank	**Junction/Section**	**No. of accidents**				**No. of casualties**		
		Vehicles only	Vehicles and Pedestrians	Others	Total	Fatal	Serious	**Total**
1	Railway crossing	7	13	15	35	7	24	**31**
2	Nyasa Rd	5	15	1	21	11	18	**29**
3	Rabai Rd	6	10	5	21	5	22	**27**
4	Outer Ring Road	8	15	2	25	4	17	**21**
5	Stadium area/Burma Market	2	18	1	21	9	11	**20**
6	First Avenue Eastleigh	4	11	2	17	5	14	**19**
7	Hamza Rd East	1	13	1	15	4	11	**15**
8	Nile Rd		12	2	14	6	9	**15**

9	Likoni Road	2	6	4	12	4	9	**13**
10	Dr. Kraft Rd	3	7		10	5	7	**12**
11	Hamza Rd West		9	1	10	6	4	**10**
12	Un-specified location	2	5	1	8	2	4	**6**
13	Landhies Rd/Lusaka Rd.		3	1	4	2	4	**6**
14	City Stadium	1	4		5		5	**5**
15	Kilimambogo Rd		7	1	8	1	3	**4**
16	Buru Buru Area	1	2	1	4	1	2	**3**

Source: NCC and Kenya Police.

Accident data for the other roads can be obtained and analysed in a similar manner and improvements designed and implemented. Interventions will basically consist of traffic calming measures, decent crossings, and public education on proper use of roads.

Barriers and missing links: Barriers that cause significant detours in Nairobi include rivers and drainage channels, major highways, railway lines, and wide buildings. The major ones include rivers such as Ngong, Kirichwa, Nairobi, Gitathuru, and Ruaka. Major highways creating significant barriers to NMT are Thika and Mombasa roads. The Kenya Railways line is a barrier between the main industrial area and the residential estates in the eastern parts of Nairobi, and in the western parts of Madaraka and Kibera estates. Buildings are major barriers in the CBD and industrial areas, where NMT-only way leaves have been blocked for reasons of security or simply annexed by neighbouring property owners.

Prioritisation of interventions to elimination of barriers and missing links should consider the following factors: (1) routes to main public transport routes; (2) connections between low income areas to social and economic areas (e.g. CBD, high income neighbourhoods, markets, schools, and industrial area); and, (3) blocked/grabbed NMT-only way-leaves in CBD, industrial and gated communities.

The interventions package will include measures such as: (1) opening up blocked NMT-only way leaves; (2) construction of NMT-only bridges across rivers and drainage channels; (3) modification of crossings to allow for comfortable use by cyclists and pedestrians; (4) widening of NMT spaces to create space for cyclists; and (5) modification of bridges to allow for all NMT users to cross major highways.

5.6 Pilot Projects Package

Pilot projects package should contain high visibility projects to “test” and evaluate impacts and to generate public support for larger projects.They should be designed based on international best practices to generate information on “what works” and “what doesn’t” in the local environment and circumstances. Ideally, pilot projects should form part of planned long-term interventions so that funds are not wasted in isolated experimental projects.

The starting point for the pilot projects should be to develop quality NMT routes that are integrated with the public transport system. The Mass Rapid Transport Study (MRTS) study[37] identified the following nine (9) MRT transport corridors:

These corridors are: 1. Nairobi Railway Station (NRS) – Ruiru – Thika; 2. NRS – Juja Road – Kangundo; 3.NRS – Jogoo Road – Komorock; 4.NRS – Jomo Kenyatta International Airport – Athi River; 5.NRS – Langata Road – Karen; 6.NRS – Upper Hill – Ngong; 7.NRS – Kabete – Kikuyu; 8.NRS – Gigiri – Limuru and, 9.Outer Ring Road

Based on the list above, the following two NMT route pilot project packages are proposed, one in the east and another in the west part of Nairobi where NMT volumes and accidents are high:

1. Package No. 1 (**Total length 36 km**):
   - .1 Jogoo road corridor to the CBD (10 km) from Outer Ring – Jogoo – Landhies – Haile Selassie, with bicycle parking at the KR station (100 slots capacity).
   - .2 Juja road corridor to the CBDfrom Outer Ring – RingRoad Ngara – Races course and terminates at Landhies round-about (10 km).
   - .3 Mumias South road, through Rabai road, across KR lines to Tanga road to Lunga Lunga road (6 km).
   - .4 First Avenue Eastleighfrom Juja across Jogoo road to Likoni up to enterprise road (6 km).
   - .5 Lunga Lunga road from Likoni to Outer Ring Road (4 km).
2. Package No. 2 (**Total length 55 km**):
   - .1 Kibera to industrial area: Mbagathi – Langata – Lusaka – Jogoo road round-about (7 km).
   - .2 Enterprise from Lusaka to Likoni road intersection (3 km).
   - .3 Kibera – Kilimani – Westlands: Kibera drive – KR crossing – James Kangethe – NMT-only route – Ring Road Kilimani – Kitale lane – Githunguri (15 km)
   - .4 Kawangware – Kilimani – CBD: Gitanga – Ole Dume – Argwings Kodhek – Valley road – Kenyatta Avenue (15 km).
   - .5 Kawangware – Westlands/Waiyaki Way: (1) Chalbi drive – Isaac Gathanju – Mugumo – Olenguruone – Ring road Kileleshwa – Ring road Westlands (15 km)

In addition, pedestrianization of the CBD should be in thepriority package. The following two routes are proposed: (1) Harry Thuku – Muindi Mbingu – Mama Ngina – Wabera – Taifa – Harambee – Tumbo – City Square Post Office – Workshop – Industrial area; (2) Upper Hill (community) – Uhuru park – City Hall way – Luthuli/Ronald Ngala – River Road – Landhies – Jogoo. Aga Khan Walk, part of Harambee Avenue, Parliament road, and around the Holy family Basilica should be NMT priority areas. The total length is approximately **25 km**.

5.7 Investment Matrix for the STAP

The time frame for implementation of the STAP is 2 years starting in 2015. The investment matrix in presented in Table 5.2.

[37] Feasibility Study and Technical Assistance for Mass Rapid Transit System for the Nairobi Metropolitan Region, Final Report, June 2011, Ministry of Transport, GoK.

Table 5.2: Implementation matrix for the STAP

Package		Projects	Estimated Cost	Year	
			KSh (million)	2015 - 2016	2016 - 2017
1	Development of a Nairobi Streets and Roads Design Manual (NSRDM)	Consultancy	50	50	
2	Traffic data collection	100 counting points	10	10	
3	Development of NMT Master Plans	Consultancy	100	100	
4	Development of the Highway Code and other materials for education and publicity campaigns	Consultancy	50	50	
5	Development and implementation of education and publicity campaigns	Consultancy	50	50	
		Implementation (2 years)	200	100	100
6	Passing of necessary by-laws to enable proper planning; enforcement; funding and land use.	In-house	5	5	
7	"Quick Wins" Package	200 accident black spots	100	50	50
		100 missing links and barriers	100	50	50
8	Pilot Projects Package				
	Package 1 - Eastern Nairobi	36 km	180	90	90
	Package 2 - Western Nairobi	55 km	275	137.5	137.5
	Package 3 - CBD pedestrianisation	25 km	62.5	31.25	31.25
9	Capacity Building of the NCCG Steering Committee members	20 officers	5	2.5	2.5
10	Contingency (10%)		118.75	72.625	46.125
	TOTAL		**1306.25**	**798.875**	**507.375**

APPENDICES

APPENDIX 1: NAIROBI COUNTY BRIEF

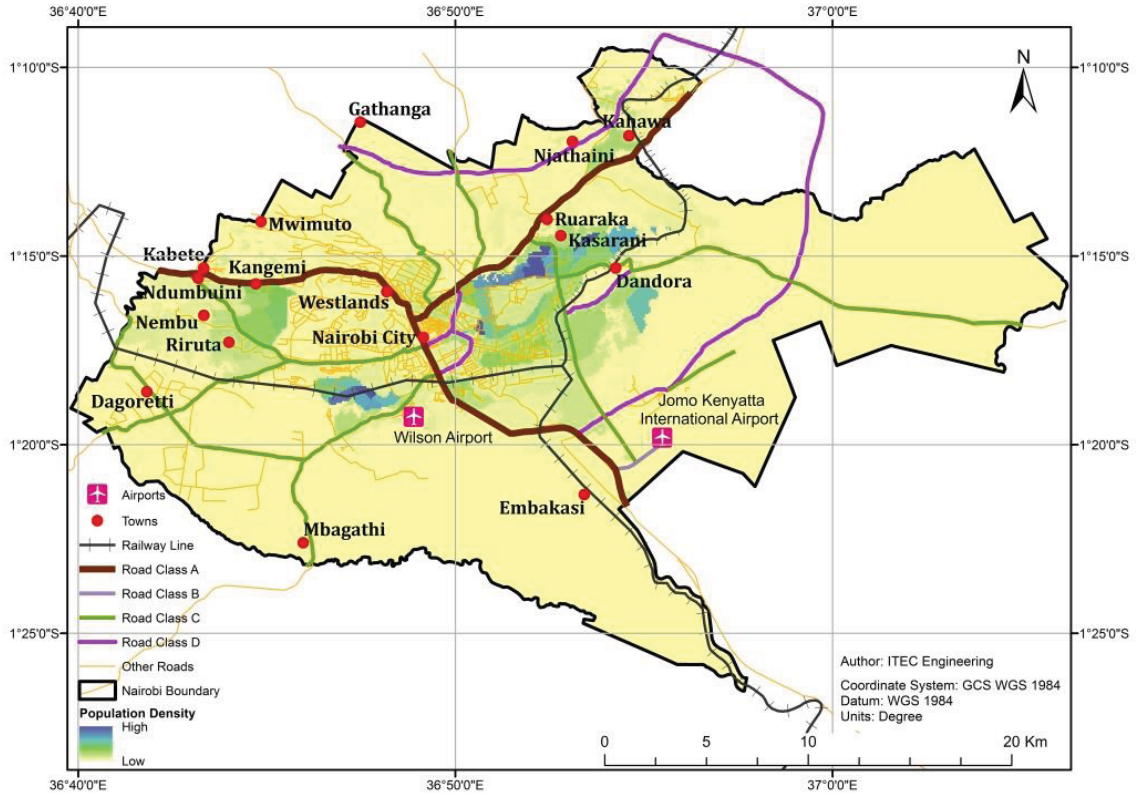
Indicator	YEAR	NAIROBI	KENYA	SOURCE
Basic Indicators				
Area ('000 Km^2)	2014	0.703	580	World Development Indicators, WB
Total Population (millions)	2009	3.138	38.610	KPHC
Urban Population (% of the total)	2013	100	24.8	World Statistics Pocket Book Survey- UN
Urban Population Growth Rate	2010-2015	3.92	4.4.	World Statistics Pocket Book Survey- UN
Population Density (per Km^2)	2009	4.515	71.7	KPHC
Labour force participation – Total %	2013	68.3	44.7	World Development Indicators, WB, Society for International Development
Labour Force Participation- Informal sector (%)	2009	-	76.5	World Development Indicators, WB
Labour Force Participation – Female (%)	2012	-	62.0	World Development Indicators, WB
No. of Refugees ('000)	2010	100	370	World Development Indicators, WB
Demographic Indicators				
Population Growth Rate	2009	3.92	2.68	KPHC, World Development Indicators, WB
Population < 15 years (%)	2009	30.3	42.92	KPHC
Population ≥ 65 years (%)	2009	1.02	3.59	KPHC
Population $5 \leq x \leq 39$ years (%)	2009	73.85	68.13	KPHC
Dependency Ratio (%)	2009	0.465	0.873	Nairobi County Report
Sex Ratio(per 100 female)	2009	104.70	98.84	Nairobi County Report
Economic Indicators				
GDP (US $,billion)	2010	12.0	32.19	World Development Indicators, WB
GDP per Capita (US $)	2010	7070	942.5	Cities In Africa, UN Habitat

Indicator	YEAR	NAIROBI	KENYA	SOURCE
GDP per Capita (US $ PPP)	2010	-	1646	World Development Indicators, WB
GNI per Capita (US$)	2012	-	938.6	
GNI per Capita (US $ PPP)	2012	-	1760	UNICEF, Dec 2013
Human Development Index	2008	0.653	0.561	World Development Indicators, WB
Annual Growth Rate GDP (%)	2014	-	6.3	IMF World Economic Outlook,2014
National Poverty Level (%)	2009	21.8	45.2	World Development Indicators, WB
Gini- Coefficient	2009	0.341	0.445	Nairobi County Report, Society for International Development
Transportation Indicators				
Roads Total Network (km)	2011	3023	160886	World Development Indicators, WB / KIPPRA for Nairobi data
Road density (km of road per 100 sq. km of land area)	2011	430.0	27.7	Kenya economic Report 2013 KIPPRA (for Nairobi data)
Roads, paved (% of total roads)	2011	Data Unavailable	6.95	World Development Indicators, WB
CO2 emissions from transport (million metric tons)	2011	Data Unavailable	4.71	World Development Indicators, WB
CO2 emissions from transport (% of total fuel combustion)	2011	Data Unavailable	40.46	World Development Indicators, WB
Car Ownership	2013	60% of national		
No of Registered Vehicles (‘0000)	2010	-	139	WHO
Number of Road Traffic Fatalities	2014	723	2907	NTSA, NCCG
Number of Pedestrian Fatalities	2014	507	1342	NTSA, NCCG

Nairobi's Transport Infrastructure

Nairobi's transport infrastructure includes: (i) the Jomo Kenyatta International Airport and the Wilson Airport; (ii) the railway line from Mombasa to Kampala (Uganda), and to Thika; and (iii) international Northern Corridor road, national and urban roads. Urban transport is basically undertaken on roads. The infrastructure map is shown in Figure 1 below.

Nairobi's Transport Infrastructure map



Source: NMT Policy Study

The road network system in Nairobi is mainly composed of a radial pattern focusing to the Central Business District (CBD). Moreover, most radial roads also function both as international transport axes and for local traffic flow (JICA, 2009). This network structure reinforces the requirement to get into the CBD before travelling from one side of the city to the other.

Infrastructure for pedestrians and cyclists is generally lacking in Nairobi, and when provided are poorly designed and maintained, often taken over by street traders and parked vehicles. Nairobi has experienced rapid urban sprawl. In 1970, the average commuter distance was 0.8 km and this increased to 25 km in 1998. The long commuting distances and heavy traffic congestion on the roads have led to long travel times.

APPENDIX 2: DRAFT TOC FOR THE NAIROBI STREETS AND ROADS MANUAL (NSRM)

1. Street design principles
   1.1. Safety
   1.2. Mobility
   1.3. Accessibility
   1.4. Live-ability
   1.5. Creative use of street space
2. Priority networks
   2.1. Modal hierarchy
   2.2. Public transport network
   2.3. Cycling network
   2.4. Pedestrian network
3. Design templates for streets of various widths and a multi-dimensional classification system (including factors such as land use, street character, access to public transport, etc.) to ensure that street design templates are appropriately applied.
4. Minimum standards and design guidelines for footpaths, cycle tracks, BRT, and other street elements
5. Minimum standards and design guidelines for intersections.
6. Material guidelines to ensure that NMT elements are constructed using appropriate and consistent materials.
7. Signage and road marking guidelines so that NMT elements are consistently branded to make the network of NMT facilities legible to all users.
8. Spaces for street vending; Street furniture and amenities; On-street parking; Service lanes; Traffic calming elements; Street lighting; Storm water drainage; Other underground utilities
9. Design process
   9.1. Surveys
   9.2. Design preparation
   9.3. Design review
   9.4. Implementation oversight
10. Monitoring and Evaluation

In general, it should be based on The Universal Street Design Guidelines will include, but not limited to:

1. Design templates for streets of various widths and a multi-dimensional classification system (including factors such as land use, street character, access to public transport, etc.) to ensure that street design templates are appropriately applied.
2. Minimum standards and design guidelines for footpaths, cycle tracks, BRT, and other street elements.
3. Minimum standards and design guidelines for intersections.
4. Construction material guidelines to ensure that NMT elements are constructed using appropriate and consistent materials.
5. Signage and road marking guidelines so that NMT elements are consistently branded to make the network of NMT facilities legible to all users.
6. Every street will have a slow zone where pedestrians have priority.
7. Footpaths where there are none, and increase the width of footpaths where pedestrian volumes are high in order to prevent pedestrian overflow onto the carriageway and to ensure continuity.
8. Guidelines for shared and separated space designs; traffic calming measures; and parking.
9. Creation of pedestrian-only zones, park streets, or other non-standard street conversions that prioritize NMT users.
10. Guideline on providing alternatives to footbridges, elevated roads, and other infrastructure that prevents parallel pedestrian infrastructure from meeting the standards in the NMT Policy

APPENDIX 3: PROPOSED HIGHWAY CODE CONTENTS

1. One can only drive on an NMT lane if crossing when turning or when entering or leaving a side street.

2. Motorists must yield to bicycles in a bicycle lane or on a sidewalk before you turn across the lane or sidewalk.

3. Park a vehicle is prohibited on an NMT path or lane.

4. One must yield to cyclists at intersections, the same as they do for other types of vehicles.

5. Do not drive next to a cyclist unless overtaking. Wait for a clear stretch of road before passing a cyclist that is moving slower than your motor vehicle in a lane too narrow to share. The greater the speed difference between you and a bicyclist, the more room you should allow when passing.

6. Do not hoot at a cyclist unless you have good cause to warn them you are close by. The loud noise could make the cyclist scared and waver into your way.

7. Pedestrian and cyclists are defined as “vulnerable users” in the law, which are protected with an enhanced penalty for careless driving.

8. The driver of a motor vehicle may only pass a person operating a bicycle by driving to the right of the bicycle at a safe distance and returning to the lane of travel once the motor vehicle is safely clear of the overtaken bicycle.

9. Crosswalk Laws: The pedestrian crosswalk law requires that vehicles allow pedestrians to exercise the right-of-way in a marked or unmarked crosswalk or with a walk signal if the pedestrian is in the lane or next to the lane of travel. If the intersection has a traffic control device, the vehicle must yield if the pedestrian is less than 6 feet from the lane into which the vehicle is turning. If the roadway has a safety island, then the vehicle must only yield when the pedestrian is on the vehicle’s side of the island. And all overtaking vehicles are to stop and remain stopped if one vehicle stops to allow a pedestrian to cross. On a street without a signal, the driver may proceed only if the lane involved in a turn and the adjacent lane are clear of pedestrians.

10. Cyclists’ right-of-way in crosswalks like a pedestrian at set speed limits for cyclists.

APPENDIX 4: AN EXAMPLE OF LOS FRAMEWORK

Qualitative/semi-qualitative LOS measures

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

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

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