



Photo: Flone Initiative

How to plan for inclusive and sustainable urban transport: A toolbox to conduct a safety audit

Flone Initiative¹

Creating inclusive, safe and affordable transport for all is one of the targets of Sustainable Development Goal 11. It requires to pay attention to the needs of vulnerable groups such as women, children, persons with disabilities and older persons. To achieve this goal local governments, need to understand the way vulnerable groups experience public transport on daily basis. This toolbox provides a guide for local government officials and politicians interested in designing and planning for inclusive, safe and sustainable public transport. The toolbox is based on the experienced of the city of Machakos (Kenya), but it can be applied in other contexts.

Flone Initiative is a women-led organization working towards the creation of safe, sustainable and accessible public transportation spaces for women and vulnerable groups in Africa by influencing behavioural change, generating knowledge and movement-building.

1. Introduction

Machakos is among the oldest towns Kenya and it was established in 1887 (before Nairobi city). Machakos Town's population was 206,419 in 2020. The town is well planned and has good road infrastructure. In middle of the town, there is a major bus terminus where buses and matatus operate within Machakos County and adjacent Counties such as Nairobi, Makueni and Kitui.. The transportation system in the town is facing problems resulting in heavy pressure on existing transportation infrastructure, poorly designed non-motorized transportation infrastructure, traffic safety issues, and coordination issues between various public agencies. Limited consideration has been given to special needs regarding gender, and vulnerable population groups such as persons with disabilities (PWDs), the elderly and children in the planning, design and usage of public transportation and associated facilities.

Walking in Machakos

Walking in the streets is hampered, as since the pavements either have problems (obstructed, too narrow, and dirty) or, in some cases, may not even be provided. Most busy streets in the town are characterized by uncoordinated parking on sidewalks, limited road signage and poorly maintained drainage that does not enhance the visual quality of these streets. While most places have good lighting, there is need to regularly repair streetlights.

Proper town planning and design is critical factor in not only making streets walkable but also safe and secure. It also results in more attractive,

¹ This toolbox was developed by the Flone Initiative and the County Government of Machakos. <https://floneinitiative.org/>

About ICLD

The Swedish International Centre for Local Democracy (ICLD) is part of the Swedish development cooperation. The mandate of the organization is to contribute to poverty alleviation by strengthening local governments.



convenient, healthier, and efficient streets (Quednau, 2018). A walkable street affords many advantages to citizens in terms of road and personal safety, convenience, accessibility to destinations, combined transport, and a higher level of health (Athanasios et al., 2016).

A Safety Audit

A safety audit may serve as a perception study about city streets and is particularly important in informing decision-makers on what residents think of streets in terms of safety, security, aesthetics and convenience. Improving foot safety, mobility, and convenience is an important step towards promoting sustainable mobility in urban areas. Better aesthetics also have the merit of attracting other activities, aside from being more attractive. (Cho, Rodríguez, & Khattak, 2009; Bahari, Arshad, & Yahya, 2013).

Flohe Initiative and the County Government of Machakos conducted a safety audit with the aim of establishing the general safety of Machakos town's public road transport system and associated spaces.

2. How to Conduct a Safety Audit?



Conducting the safety walk. Photo credits: Flohe Initiative Trust. September 13, 2021

The safety audit team was comprised of nine participants who reside or work within the town. They included young women professionals, a college student, a security guard, a person with disability, a motorbike rider, a town dweller, a senior citizen and two female county government officers. Before the audit, the team was briefed on the goals of the exercise and their roles. The exercise was carried out under the guidance of the lead investigator.

This exercise was conducted through a checklist and an evening safety walk in specific areas of interest, including streets and roads in Machakos town. The process entailed assessing participants' perception of street safety using a five-point rating scale based seven parameters namely: •

- First Impressions – first reaction to the area;
- Lighting – lighting availability and quality;
- Maintenance – the general state of maintenance in the area;
- Busy areas and isolated spaces – presence of people or empty and unsafe hideouts;
- Signage – road signs to guide motorists and tell where someone is or where to go;
- Intimidating groups of people –groups of people in the area that make one feel unsafe;
- Informal/formal surveillance – presence of security personnel or equipment in the area that make one feel safer.

3. Result of the Safety audit and Key Recommendations



Photo: Flone Initiative

Machakos Primary, Grogon	
Observations	Recommended Actions
<p>The area covers the road and street right after the school gate. There are fast moving vehicles with no speed limit sign. The pedestrian crossing marks are not visible and the bumps are unmarked. There are hideouts with intimidating groups of people and criminals that pose as mechanics have reportedly conned unsuspecting motorists in the area. There is an open drainage pipe and rubbish can also be spotted. There seems to be limited surveillance in the area.</p>	<ul style="list-style-type: none"> • Repaint the bumps • Speed limit or children crossing sign • Increased surveillance and police patrol • Repair drainage and collect garbage gathering in the area
Kitui Road, Kenol Junction	
Observations	Recommended Actions
<p>This is a busy junction heading to the main bus station and generally feels insecure and unsafe. Tuk-tuks are inappropriately parked on a large section of the road; hawkers are also crowded on the side of the road. There is no control of traffic during making the junction slow and unsafe. The area is crowded with hawkers, touts and pedestrians. The road is unmarked with no pedestrian crossing or signage for speed limit. The pedestrian walkways are narrow and cannot accommodate wheel chair users, carts or cyclists.</p>	<ul style="list-style-type: none"> • Traffic control during rush hour • Repair drainage and collect garbage gathering in the area • Abolish illegal parking by tuk-tuks or designate a parking zone • Control hawking and touting rates • Widen the pedestrian walkways
Machakos Level 5 Gate, Wote Road	
Observations	Recommended Actions
<p>The area is along the hospital likely to attend to weak and sick people. It is a busy road and street that generally feels unsafe due to fast moving traffic without speed limit sign, pedestrian crossing, fly over or bumps. The pedestrian passageway is too narrow to accommodate wheelchair users and is adjacent to a wide-open drainage. There is good surveillance from security guards in the hospital gate and business premises nearby.</p>	<ul style="list-style-type: none"> • Introduce pedestrian crossing or bumps • If possible, construct a flyover with a ramp towards the hospital gate • Speed limit sign • Widen the pedestrian walkways • Barricade the drainage next to the walkway

Sokoni Mjini Street	
Observations	Recommended Actions
<p>This street leads to the busy market area. There is a busy road that lacks a pedestrian crossing. The location has street lights but they are non-functional. The pedestrian walkways are very narrow and crowded. There are dark isolated spaces that may act as hideouts for intimidating groups of people. There is no formal surveillance but the large number of people in the area provides informal surveillance.</p>	<ul style="list-style-type: none"> • Improve surveillance for instance CCTV installation and regular police patrols • Regular repair and maintenance of street lights • Control hawking rates • Introduce a pedestrian crossing
Equity Bank, Standard Lane	
Observations	Recommended Actions
<p>The area is inside town and is well maintained and presentable. However, the street lights are non-functional and there are some dark isolated spaces that may harbor intimidating groups. However, there is good surveillance by security guards at the nearby banks. There is a big church nearby with no pedestrian crossing or bumps on the busy road leading to the church.</p>	<ul style="list-style-type: none"> • Improve surveillance for instance CCTV installation and regular police patrols • Regular repair and maintenance of street lights • Pedestrian crossing or bumps on the busy road near the church
Susu Centre, Mutituni-Kangundo Road Junction	
Observations	Recommended Actions
<p>It is a very busy junction with fast moving traffic and in need of pedestrian crossing or bumps since there is a public school and several business premises on both sides of the road. The drainage is wide open and rubbish can be spotted. Generally, the area needs regular maintenance.</p>	<ul style="list-style-type: none"> • Introduce pedestrian crossing or bumps • Speed limit or children crossing sign • Traffic control during rush hour • Repair drainage and collect garbage gathering in the area
Cooperative Mulei Junction, Mwatu wa Ngoma Street	
Observations	Recommended Actions
<p>It is a very busy street with hawkers and heavy traffic that lacks control or pedestrian crossing at the junctions and PSVs pick and drop passengers anywhere. There are very narrow pedestrian walkways that may not accommodate wheelchair users or carts. There some dark alleys so the street lights need repair and maintenance. The drainage also needs repair. Crowds of people and security guards in the surrounding business premises provide informal surveillance in the area.</p>	<ul style="list-style-type: none"> • Traffic control at junctions • Pedestrian crossing to be introduced • Designate PSV pick and drop off points • Widen pedestrian walkways • Repair and maintenance of street lights • Repair the drainage • Control hawking rates

4. Safety Audit Toolkit



Part 1: Planning

Step 1 - Select team: select a group of local residents who use a particular urban space. Ensure those selected represent diverse groups from a range of backgrounds. Groups should have between 3-8 participants in total. Identify one-two note takers notes of the observations and someone to take pictures.

Step 2 - Select leaders or facilitator: the leader/ facilitator can either be someone from the organizing team or an expert. They may need some separate training on their role, how the walk will take place and the information that needs to be collected.

Step 3 - Conduct briefing/training: the team should be given a brief training on the Safety Walk including its purpose, roles and responsibilities of group members, how the walk will take place, what they will need to observe during the walk and the follow-up meeting.

Step 4 - Plan the Walk: the route should be decided by the team to include areas considered unsafe or insecure for different categories of city residents. Make a rough map of the route to be covered and explain the issues and the route to the group. If the geographic area is large, the group can be divided into smaller groups.



Part 2: Conduct the Walk

Step 5 – (Optional) conduct street survey: either prior to the safety walk or after it, a survey could be conducted in the area to gain an in-depth understanding of how a number of residents feel about the safety of this area. This is intended as a complement to the safety walk and findings can be used as quantitative evidence to back up qualitative findings.

Step 6 - Conduct the safety walk: - at a time agreed by the team (usually after dark), participants will walk around specific areas about which they have safety concerns. The team should have with them a printed map or a copy of the map drawn at the earlier planning stage. On the map participants should mark where they feel very unsafe/quite unsafe/safe using colored stickers. They should also mark where there are lights; groups hanging around; isolated spaces; surveillance; poorly maintained areas; signage (see checklist in annex) which impact on how safe/unsafe they feel in a particular area. The team leader/facilitator can use the checklist to prompt questions about each area and why particular areas make them feel unsafe.



Part 3: After the Walk

Step 7 - After walk briefing; directly after the walk the group should hold a brief meeting where participants can discuss what they observed during their walk, identify key safety concerns and discuss how these can best be addressed and by whom. Note that sometimes people will not agree on the same solution. Be respectful and keep any additional ideas as future options.. After this meeting, the organizing team can prepare a written report and start to develop recommendations for changes that would make the area feel safer.



Conducting safety walk with study participants.
Photo credits: Flone Initiative Trust. September 13, 2021

5. Conclusion and Recommendations

Safe and secure streets with good walking space for people of different ages and classes serve as an alternative to driving. It also helps to reduce the town's vehicle congestion while also reducing greenhouse gases emission to mitigate climate change. The lessons from this audit are particularly important as they capture the needs and views of the people regarding safety and security of their streets and set a foundation for amendment and development of new county policies that promote safe, secure, just and inclusive transport systems in our local towns.

This safety audit was limited to a few earmarked streets of interest in Machakos town. It is advisable that a more comprehensive audit be done to ensure that a more holistic and comprehensive intervention is undertaken. The following are some emerging issues and key recommended areas for improvement:

- Machakos township is growing rapidly. Due to its proximity to Nairobi city, many people, especially business people, prefer to live or invest there. There is a need to introduce traffic control measures especially during peak hours.
- There is an urgent need to repair and maintain street lights, increase security surveillance and take action on criminal activities.
- It is necessary to improve road safety by expanding pedestrian walkways while making them friendly to PWDs, the sick and elderly especially on busy streets or near social amenities like hospitals, schools and places of worship. This could also entail improving on signage near schools and locations with fast moving traffic. 'Black spots' within the town and its environs should be identified and marked to reduce road carnage especially for road users who are new to the town.
- Road designs should also consider dedicating space to Non-Motorized Transport (NTMs), for instance cyclists and cart pushers. Good governance is also a critical issue of ensuring all these safety measures are taken while taking necessary measures to improve the situation.



Conducting the safety walk.
Photo credits: Flone Initiative Trust. September 13, 2021

6. Key Questions for Urban Planners and Policy Makers

1. How can we make public transport and associated spaces accommodative of all including vulnerable groups like children, PWDs and the elderly and women especially in matters of safety and security?
2. How can we make public transport infrastructure serve all and particularly non-motorized forms of transportation like walking, cycling and hand cart pulling.
3. How can surveillance and security in the town be improved for instance improved lighting, regular patrols and CCTV installation?
4. How can traffic congestion be reduced and especially traffic control and designating parking zones to facilitate convenient mobility?
5. How can the town's outlook and aesthetics be improved for instance better management of garbage and properly maintained facilities?
6. How can different departments or agencies in Machakos County collaborate to carry out related mandates like sanitation, road safety, security, infrastructure and design?

References

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Annex

Safety Walk Checklist

Purpose

1. To give everyone on the safety walk an opportunity to score the area individually.
2. Safety walk organizers can also collate responses to provide a numerical scoring of perceptions of safety and security in the area.

Name of Area:	
Date:	
Specific Location:	
Time and Day of Walk: Weather:	

Instructions

1. Where a neighborhood or whole area is to be covered, a sheet should be prepared for each street or sub area visited. Make sure you remember to number each street/area on your map and the accompanying report.
2. Ask the questions and use the rating scale and comments section to record views from participants during the safety walk. Each participant should score their overall experience on each area visited.

Key:

- 1 = Very unsafe
- 2 = Unsafe
- 3 = OK
- 4 = Quite safe
- 5 = Very safe

Issue	Guiding Questions	RATING SCALE					Comments
		1	2	3	4	5	
First Impressions	What is your first reaction to this place?						
	What three words best describe this area?						
Lighting	How well lit is the area?						
	Are there spaces which are poorly lit?						
	Does this make you feel safe/ unsafe?						
Maintenance	How well maintained is the area?						
	Is there rubbish lying about?						
	Does the general state of maintenance of the area make you feel safe/ unsafe?						
Busy areas and isolated spaces	Are there a lot of people using this area?						
	What are they doing (e.g. walking, working, meeting)?						
	Does this make you feel safe/unsafe?						
	Are there places that feel empty and unsafe?						
	Are there particular spaces where people could hide?						
	Does this make you feel safe/unsafe?						
Signage	Is it clear where buildings/ bus stops are?						
	Are there signs to tell you how to get to places e.g. bus stops, markets and buildings?						
	Does this make you feel safe/unsafe? Why?						
Intimidating groups of people	Are there particular groups of people hanging around who make you feel unsafe? Who are they?						
	What is their sex? (e.g. young men, drug users, gangs)?						
	Why do they make you feel unsafe? Why?						
Informal/Formal Surveillance	Can you see police officers patrolling the area?						
	Does this make you feel safe/unsafe? Why?						
	Where is the nearest police station?						
	Does this make you feel safe/unsafe? Why?						
	Would you know where to go for help?						
Other	Are there any other things about this space that makes you feel unsafe?						
Closing Question	How could women's safety and feelings of safety in public spaces be improved? This could be by changes of policy, changes in design, changes in services, changes in (men's) behaviour, etc.						

(Adapted from Jagori 2010, Cowichan Women Against Violence Society, 1998) and METRAC safety audit report card)