

Transformation of Downtown Nairobi

Using Creative Methods To Rethink Streets As Public Spaces And Catalysts For Urban Regeneration

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Cover photo: [Luthuli avenue supporting mixed uses © UN-Habitat/Kirsten Milhahn]

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Chapter 1:

Introduction



1.1 Background



The state of our cities and towns is a determining factor of the health and wellbeing of most of the world's population in the twenty-first century. Today, more than half of the world's population (54%) lives in urban areas, and this is projected to rise to six out of every ten people by 2030 and further to seven out of every ten people by 2050. Moreover, it is in cities where the human creative flame has burnt and continues to burn most brightly. They are centres and drivers of commercial, scientific, political, and cultural life, tremendously influencing countries and regions far beyond them. The quest for healthier cities, towns and human settlements must therefore be an urgent development agenda.

A recent Royal Town Planning Institute report on promoting healthy cities indicates that the global economic impact of the five leading NCDs – cardiovascular disease, chronic respiratory disease, cancer, diabetes, and mental illness could total USD 47 trillion over the next 20 years. At the core of this is urban form, and how people live, feed, and move around cities, towns and villages.

Today, air pollution has become the 5th leading cause of mortality globally, causing the deaths of around 6.5 million people, including 600,000 children, annually. This represents 7.6% of annual global mortality. These deaths can be directly linked with exposure to fine particulate matter which can lead to strokes, heart disease, lung cancer, chronic obstructive pulmonary diseases and respiratory infections including pneumonia. Furthermore, ambient air pollution is estimated to have reduced life expectancy by an average of twenty months. 90 per cent of these deaths occur in low- and middle-income countries.

According to the 2016 data for Kenya, 743 in every 100,000 people are living with air pollution-related diseases. Some estimates suggest that 14,300 people die in Kenya every year as a result of air pollution. It is also noteworthy that ninety percent of urban air pollution in fast-growing cities like Nairobi is attributed to motor vehicle pollution.

Road traffic accidents are yet another wicked problem, responsible for 1.35 million deaths globally every year. They represent the leading cause of death for people aged 15-29 years. As with air pollution-induced deaths, 90 per cent of road traffic fatalities occur in developing countries. In Kenya, it is estimated that

Traffic fatalities in Nairobi by road user

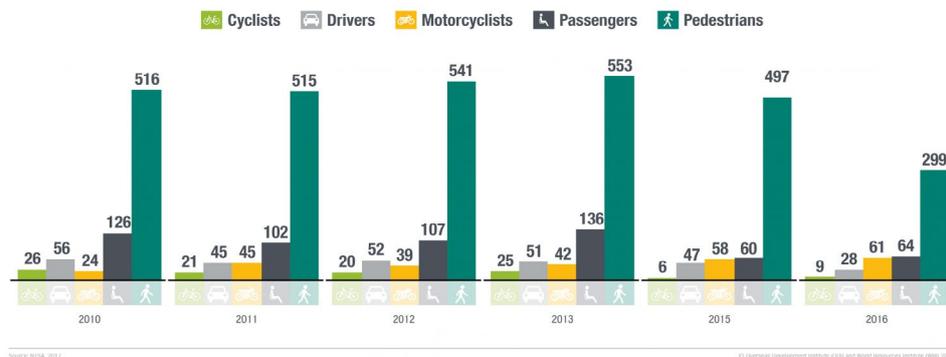


Figure 1: Impact of air pollution on children's health

Source: WHO



Figure 2: Comparison of traffic fatalities by different modes of transportation in Nairobi

Source: NTSA, 2017

3,000 people die annually as a result of fatal road traffic accidents. Out of this, 40 per cent of victims are pedestrians. This costs the economy around Ksh. 300 billion annually, which is equivalent to 5.6 per cent of the country's GDP. While the figures are troubling by themselves, the real pain is in the injuries, the health burdens, disabilities and long-term psychological effects and loss of breadwinners, often resulting in destitution. Nairobi City County has the highest number of fatalities in the country, amounting to 22 per cent of all fatalities in the country. In 2015, there were 668 deaths in the city alone, 497 of them being pedestrians.

Another issue in many fast-growing cities is the lack of active lifestyles. This has propelled obesity to become one of the key global urban health challenges of the 21st century, accounting for at least 2.8 million deaths annually. Studies show that physical inactivity is responsible for 6 per cent of coronary heart disease cases, 7 per cent of diabetes cases, and 10 per cent of colon or breast cancer cases. Physical inactivity has been largely attributed to the lack of walkable environments in cities, with poor street designs and poorly planned urban forms.

It is against this background that the Luthuli Avenue regeneration sought to demonstrate, measure, and document the co-benefits of walkability and bikeability as part of climate action. The design component further sought to optimize the public realm for better urban performance.

1.2 Nairobi in context

Nairobi is a national, regional, and international hub for commerce, transport, regional cooperation and economic development. Also known as Africa's innovation capital, it is one of the continent's key financial, business, transport, communications and diplomatic hubs, and a gateway to East and Central Africa. The city is home to the headquarters of two United Nations Agencies – United Nations Environment Programme (UNEP) and the United Nations Human Settlements Programme (UN-Habitat). It also hosts a number of other UN agencies' missions and regional offices. Furthermore, it accounts for 50 per cent of formal employment in Kenya and generates over 50 per cent of the gross domestic product (GDP).

Conversely, the city is facing complex and interconnected challenges attributed to uncontrolled urbanization and its associated impacts: vibrant street life is often choked by traffic congestion; economic opportunities are rife, but local resources and capacities are not always sufficient, and informal and private sector activities have outpaced planned development. This is exacerbated by a high urbanization rate of 4.1 per cent per annum. The current population of the city is estimated to be 4.07 million and is projected to rise to 7.14 million by 2030 (UN DESA, 2016).

1.3 Walkability and bikeability in Nairobi

In Nairobi, 40 per cent of residents make their daily trips on foot, 40 per cent by matatus (a type of public service vehicle) and 14 per cent by private vehicles (JICA, 2014).

In other words, most people living in Nairobi rely on walking, with an increase in the share for cycling. And even for those that use public transport or their private means of motorization, walking for short trips is still part of their daily mobility patterns. However, pedestrians in Nairobi do not necessarily walk because they want to walk, but because they cannot afford any other means of transport. In this perspective, the poor quality of the provided infrastructure for walking and cycling sends a message that these are the "past" modes of mobility in terms of transport planning, policies, and investments. Most roads in the city lack or have inadequate NMT (non-motorized transport) infrastructure, and in areas where these do exist, most of them have potholes and obstructions, lack protection from the sun, are not protected from speeding vehicles and lack the all-important continuity to link destinations.

There remains a disproportionate investment in the car-focused infrastructure that does not 'invite' people to walk and cycle when going about their errands in the city. On the other hand, considering that the majority of citizens are walking and cycling, the city has great cycling and walking potential, which, if tapped into, can revolutionize mobility.

It is against this background that the project sought to demonstrate the benefits and poten-

tial for walkability and bikeability in Nairobi, the relevance of creative methods in understanding the most pressing mobility challenges and the role of intentional design in getting people to walk and linger in downtown Nairobi. It was conceptualized as being both a baseline survey and a catalyst for transformative change.

1.4 Streets as public spaces: a driver for urban transformation

Since the beginning of civilization, streets have been the most important shared public space in cities and human settlements. Traditionally, they had three primary functions: connectivity, commerce, and social interaction. They were not just conduits for moving people and goods, but also public spaces in their own right. They were places for socializing, economic and social exchange, cultural expression, celebrations and speaking up against injustices. Even today, they provide opportunities for people to connect in a way that no other public space can. However, the advent of the car in the 20th century and its increased supremacy over the years had robbed the street of its importance in shaping the culture and history of cities, and of its role as a powerful symbol of the public realm. As a result, “streets” have been conflated with “roads.” There is, however, a clear functional difference between a street and a road. While roads typically connect different places/points, streets are more than functional channels. They are a destination for culture, a stage for creative and civic expression, and for social exchange. When it comes to streets, unlike roads, vehicle travel efficiency is not the supreme goal. These are public spaces. The supreme goal is for them to be truly inclusive

and welcoming to all, including pedestrians, vendors, cyclists, and motorists.

A street as a public space is both an outcome and a concept. As an outcome, it refers to more than the vehicular right-of-way. At a bare minimum, it includes sidewalks, the curb, trees, and street furniture that line it, plinths, and public art which punctuates it. More broadly, it also consists of the physical attributes that shape a path, social and economic interactions, and conceptions - civic definitions, walk appeal, perceptions of safety and memories it evokes. If it feels good and satisfying to walk along a path or a street, people will happily walk and stay longer.

As a concept, it is about helping people begin to see streets in their entirety, not just their function in transporting people and goods but also the vital role they play in animating the social and economic life of cities, neighbourhoods, and districts. It is also about communities taking ownership of and reclaiming their streets, participating in civic life, and having a direct impact on their public space look, function and feel.

Cities like Barcelona, Paris, London, Seoul, Kuala Lumpur, and Bogota have successfully reclaimed their streets from cars and transformed them into places which glorify people instead of cars, consequently using them as engines for urban regeneration. When streets are designed as public spaces, they are pleasant, have visual harmony, are safe and inclusive and have pulse points and a sense of completeness. They become community assets, compatible with the built and natural environments and reflect the balanced needs of the community and mobility systems. Streets in downtown areas can become destinations worth visiting - not just as through ways to other places, neighbourhood streets can become safe places for play, and commercial

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The street is the river of life in the city, the place where we come together, the pathway to the centre.
~
William H. Whyte

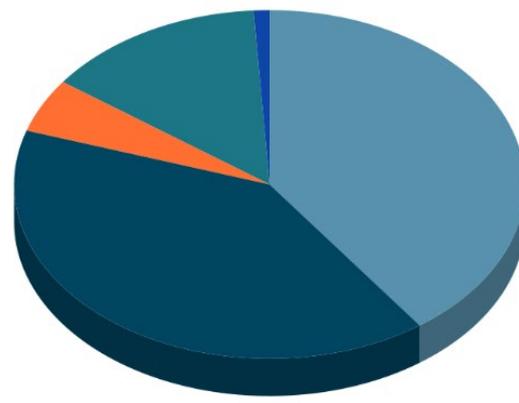


Figure 3: Comparison of use of different modes of transportation in Nairobi
Source: JICA, 2014

streets can become grand and welcoming boulevards safe for walking, cycling, resting, informal encounters, vending, and for allowing both local and through traffic. They are not just 'nice to have' but a 'must have' for cities to reach their full potential as truly prosperous, safe, inclusive and resilient places.

Making streets safe and inclusive for all - for motorists, cyclists, and pedestrians - is a good first step in turning them into public spaces. However, for them to truly fulfil their potential as public spaces, they have to do more than encourage walkability and bikeability. They need to encourage people to linger, stay, socialize, shop, and truly experience their character as places for performance, celebration and as markets.

1.5 Principles for streets as public spaces

1. Give priority to people and transit over cars

Streets that function as public spaces and cornerstones for Transit-Oriented Development give priority to people and transit over cars. Prioritize the street for pedestrians and transit by prohibiting motorists in the street or part of the city beyond limited deliveries and occasional permitted access. This also requires an equitable distribution of street space across various modes of mobility, with the establishment of an efficient and reliable public transport system as well as generous sidewalks which facilitate diverse activities for both movement and stay. Adopt the "Complete Streets con-

cept", which coordinates all street elements, such as sidewalks, bicycle lanes, driveway, street furniture such as signage, lighting, and trees, for the use and enjoyment of the public realm. Provide a high quality, efficient, safe, and reliable public transport system, accessible within a radius of 500 meters by foot or 2 kilometres by bicycle.

2. Plan and design for a rich mix of different uses

Ensure a diverse balance of complementary activities and uses at the street level, which stimulates life and interaction on the street and reduces the need for travel. An appropriate mix of uses includes commercial, retail, office, residential and institutional, all within proximity. This diversity should be replicated across various scales – at the city, neighbourhood, block and building scales. For optimal outcome, such integration is physical as well as functional.

3. Design streets with inviting and rich details at eye level

Develop active frontages and inviting building designs to create an interesting and welcoming public realm which offers opportunities for stay, social interaction and a more vibrant street life, lingering and surprise. Integrate streetscape elements including trees, seating, public art, human-scale lighting, landscaping and wide, high-quality sidewalks to create a pleasant pedestrian experience. Streets that are visually interesting make walking enjoyable and safe. Ensure active ground-floor uses, a continuous line of shops, restaurants, and street vending to support activities that activate streets and give life to a block both during the day and night.



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4. Plan for an adequate street network and permeable blocks

Ensure a dense network of pedestrian, cycling and transit streets. To encourage active travel, routes should be short, direct, safe and inviting. This calls for planning for an urban form with small, permeable blocks and a dense and interconnected network of a mix of street typologies including boulevards, transit streets, pedestrian-priority streets, pedestrian-only streets, service streets and pedestrian paths. UN-Habitat recommends a grid street pattern on a neighbourhood level, and the street network should have at least 18 kilometres of street length per square kilometre, with intersections at every 100 metre.

Ensure that walking and cycling routes are comparatively shorter than motor vehicle routes to encourage active travel. In existing cities, this may require introducing through-block pedestrian links to break down scale and improve the permeability of street blocks.

5. Create streets and places that are safe for all

Create an environment where everyone, especially the groups that may be in vulnerable situations, such as women, girls, children, and the elderly, feel safe and comfortable to walk through, get to and linger in, supporting both perceived safety and security, as well as road safety. Introduce at-grade crossings at appropriate intervals, signalized intersections, protected and dedicated bike lanes, curb extensions, and narrower carriageways to calm traffic, improving road safety.

Ensure visibility by providing appropriate public lighting, visual access between the public realm and adjoining buildings, and more eyes on the street by providing for diverse on-street activities such as street vending, outdoor eateries and performing arts.



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6. Design streets as multi-use places

Design flexible streetscapes that can be adapted to the changing needs at different times of the day. Flexible streets can be closed to vehicles and used to host activities such as street vending and flea markets in the evenings and weekends, exhibitions, festivals, and movies periodically.

Encourage active travel and enhance the quality of stay by providing a network of interconnected and mutually reinforcing pulse points along the street network. These can include plazas, parklets, public art installations and monuments among other interesting urban design features.

7. Design streets as inclusive places

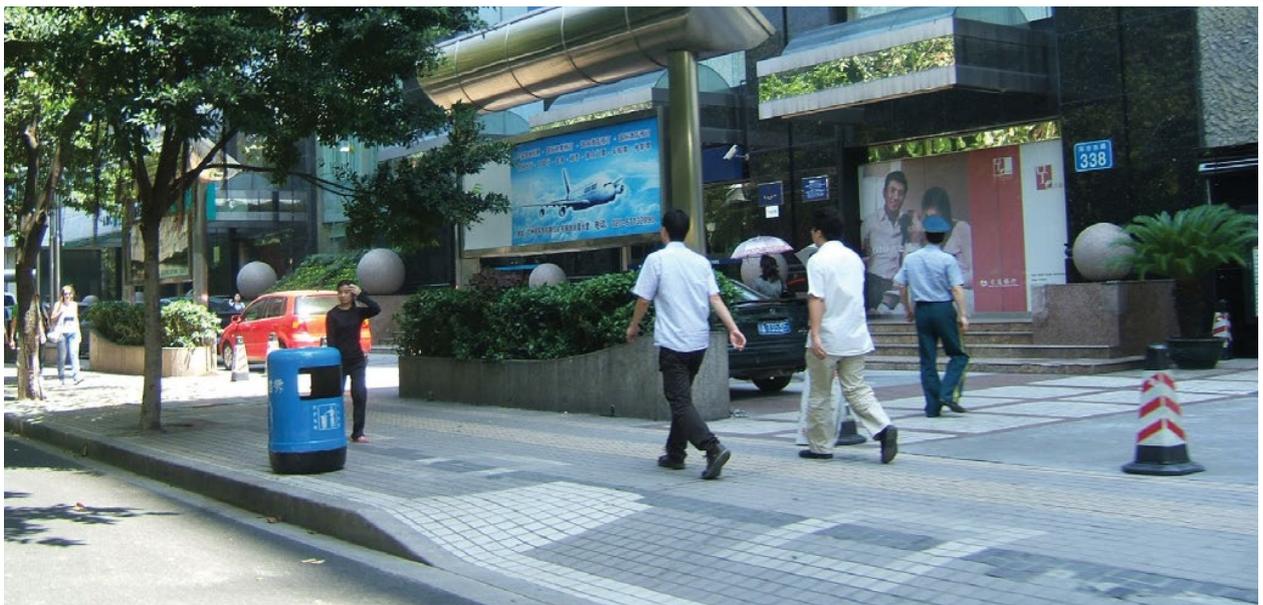
Mainstream gender-sensitive urban design, designing streets through the eyes of women and girls, children, the elderly, and persons with disabilities. Integrate universal design features such as safe at-grade crossings, ramps, and tactile paving. Provide clean, spacious, safe, and accessible public restrooms that facilitate privacy within a 500 metres radius, ensure adequate seating opportunities – these are an important need especially for women, elderly, sick people and people with children. Besides closing off tertiary streets for cars, reclaim street space for people – redistributing street space equitably.



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8. Incentivize a shift from car use



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Introduce a mix of strategies including raising parking fees, time-based street management and reducing the overall supply of on-street parking to progressively encourage a culture-shift from car-dependence to an embrace of walking, cycling, and using public transport. Simultaneously improve public transport – making it safe, reliable, and efficient in order to encourage the public to use it

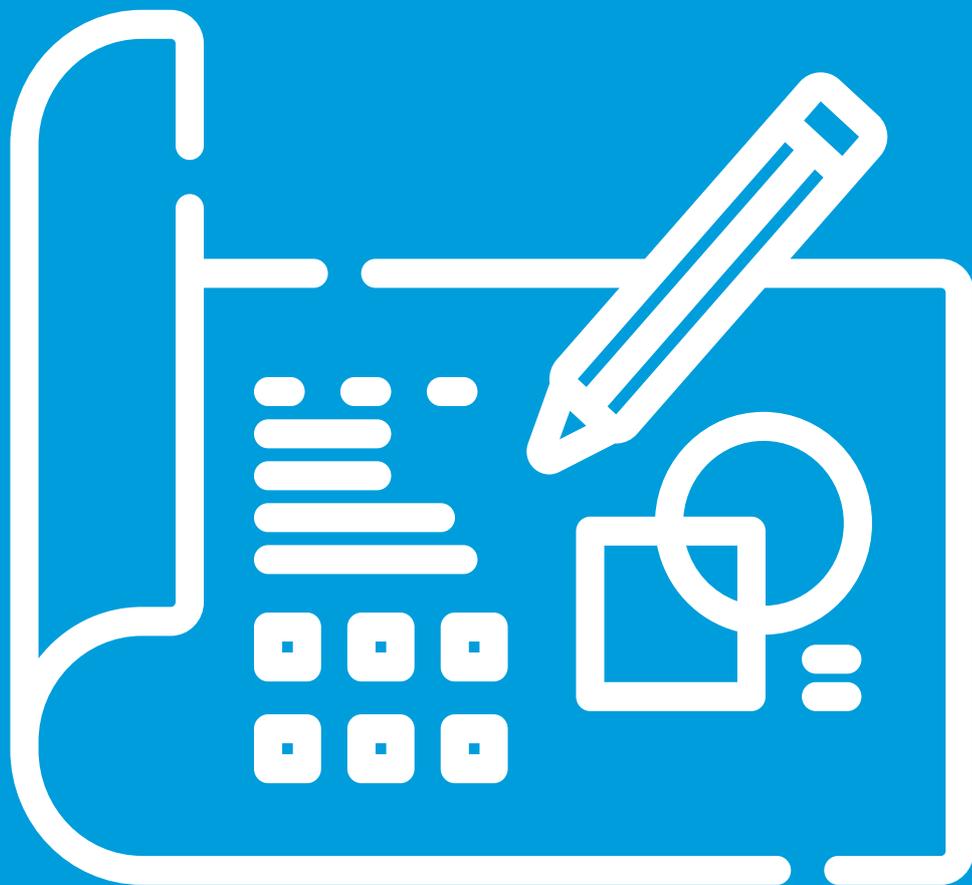


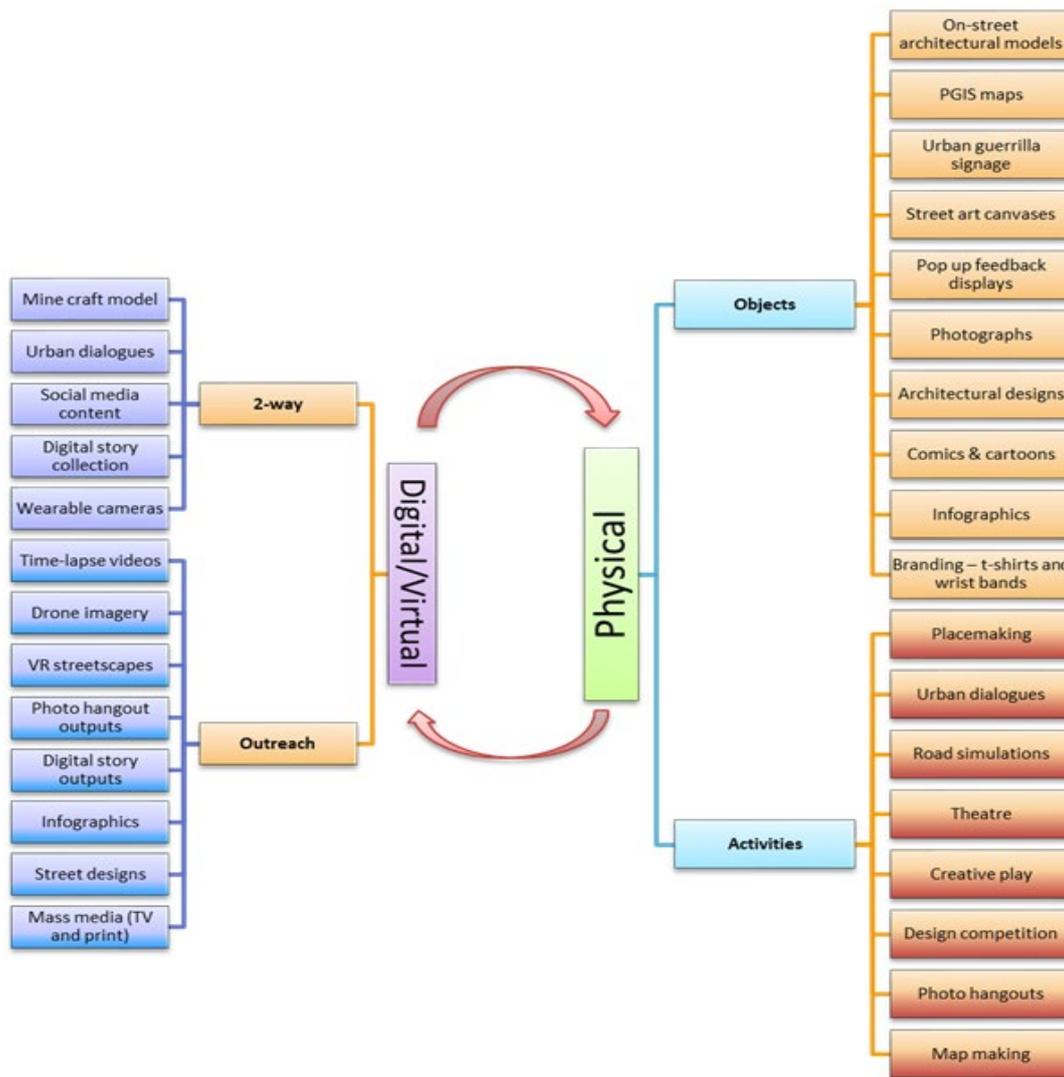
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Chapter 2:

Process and Methods





Implemented under the Implementing Creative Methods to Improve Inclusive Sustainability Transport (i-CMiIST), the project was modelled as both action research and an active demonstration project. It was anchored on the street as a living lab and adopted a mix of creative methods to understand the challenges faced by daily users of the street, and pedestrians. Creative Methods (CMs) involve using techniques such as storytelling, making videos, urban dialogue series, ideas charette, animation, art installations, music, crowdsourcing, theatre, and participatory map-making. They are useful ways of engaging and explaining issues as well as enabling people to contribute to local development.

Bringing together local organizations and UK counterparts working on transport issues to explore the usefulness of creative methods to respond to local transport challenges and implementation of the Sustainable Development Goals (SDGs), the i-CMiIST team led a rigorous

process involving over 40 stakeholders from different sectors including: creative individuals and organizations, transport planners, matatu operators, the Nairobi City County Government, Nairobi Metropolitan Area Transport Authority (NaMaTA), and the academia, among other learning and implementing partners, to develop, co-design and implement sustainable transport options using CMs that enable more people to make the journeys they need, safely and efficiently. At the centre of the process was the use of social media for crowdsourcing, outreach, and public engagement. During the process, the project through the SEI and the University of York, undertook monitoring and evaluation of how successful CMs were in engaging, communicating, and informing different stakeholders.



Figure 4: Creative methods used to engage the public in local development projects.

Source: iCMiist

2.1 Site inventory and analysis

Site-specific assessment

This methodology borrows and builds on research work by various experts and the work of the UN-Habitat Global Public Space Programme. It has been prepared to assist cities, local governments, and those with an interest in public spaces to support site analysis as part of a design process, to support political decisions and to measure the impact of interventions.

This mixed-methods approach comprises both quantitative and qualitative analysis. It employs an extensive use of unobtrusive observations, counting, mapping, in-depth interviews, photography, and videography to gain an in-depth understanding of public spaces and how people use and experience them.

Main guiding questions:

- 1. Who?:** Who are the users - children, elderly, men, women, persons with disabilities, youth, and or homeless people? Who manages the space?
- 2. What?:** What activities happen in and around the space – preaching, singing, group gatherings, couples relaxing, sleeping, smoking, waiting, meeting, vending? What are the unique features in the space?
- 3. Where?:** Where do activities take place - where do people walk, stand, sit, hold conversations, congregate, and gather to listen, children play, vendors sell? Where are the entrances, seating, play facilities, lamps, signage, pedestrian crossings, pedestrian desire lines, interesting views, trees, ablution facilities, water and drinking fountain among others?
- 4. How many/much?:** How many children, women, youth, elderly, persons with disabilities, elderly? How much seating, green space, hard-surfaced space is there?
- 5. How long?:** How long does it take to walk across the space? How long do people stay within a space? How long does an activity (preaching, street dance, business meeting, acrobatics) last?
- 6. When/What time?:** At what time do different activities take place? On which days, time of day and season do different activities take place?

2.2 Outreach and large-scale ideas gathering

1. Visual storytelling

Visual storytelling is the practice of making and telling stories primarily using visual media including still photography, time-lapse photography, illustrations and videos. It is a powerful tool for reframing the past, present and future, and understanding a space in time, with the help of stories. It offers new ways to gather and co-create stories as well as to experiment with methods that register multiple actors and narratives. Visual storytelling provides opportunities to generate new meanings and perspectives, reflect on our role and identity, and to examine the interplay between human-made and natural components in cities.

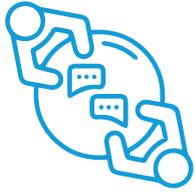
With support of partners from Loughborough University and the Invisible Flock, creatives from Hoperaisers Youth initiative organized a photography hangout bringing together over 20 photographers, both professional and amateur, to document public life, challenges, and opportunities in Luthuli Avenue. The hangout took creative photography a notch higher and looked to explore how creative photography could help bring out the issues and challenges facing the street, inspire unlikely alliances, and explore potentials for exchanges – of information, ideas, and experiences. The main idea behind the hangout was to mobilize local voices around critical issues including Road Safety, Urban Safety and Security, Social Inclusion, Walkability, Bikeability, Environmental Degradation, Air Quality and Congestion among others, and to explore how creative photography as a creative and innovative approach can support Sustainable Street Design, and indeed Sustainable Transport Planning.



Creative photography used as a tool to educate the community on the challenges and opportunities along Luthuli Avenue.

© UN-Habitat/Mark Ojal





Time-lapse photography was used to record how the street is used throughout both day and night. The results were mapped, and photographs analysed to build up a complete picture of use and movement during the public engagement process, and before, during and after the physical intervention to transform the space. This provided an important baseline to examine how behaviour in the street changes over time.

2. Urban dialogue series (Urban Enthusiasts Get-together)



The i-CMiIST project partnered with Naipolitans (a platform of urban enthusiasts) to host three urban dialogue sessions in May and October 2018, and in March 2019 to engage with and gather feedback from urban enthusiasts including professionals, students, the business community, and ordinary people among other interest groups who are simply enthusiastic about the city.

The ‘urban enthusiasts’ get-together’ is a way of hosting informal conversations in groups from 10 to 150 or larger and it evolves through several rounds in which one begins with a presentation about a core question or topic and talk about it for 20 minutes or half an hour, and then participants will begin to rotate to new rounds taking the critical ideas from the first round into the next. Over several rounds of conversation core ideas get created, patterns appear, and innovative possibilities become available. People can discover how to co-create not only their best ideas together through this network of conversations, but also how to build a critical mass of people who think about the quality of urban living and create a powerful voice in order to translate those ideas into concrete actions.



Urban enthusiasts taking part in an urban dialogue session.

© iCMiist/Chris Mosomi



Stakeholders sharing ideas during an urban dialogue session.

© iCMiist/Chris Mosomi



Word trees were used to map out key ideas. Urban dialogue get-togethers are designed to be accessible and inclusive, often open to people from all walks of life. The dialogues were held in central venues close to the site to enable more everyday users of the street to participate in the sessions. They were held after work hours to encourage more people to participate. They were also streamed live on Facebook to allow remote participation.

The Urban dialogue hosted discussions around the importance of streets as public spaces, walkability and bikeability, and their intricate link to quality of life in the city county. The series focused mainly on exploring the opportunities around partnerships for public spaces, and walkability and bikeability in the city. The method of Urban dialogues has proven to be an effective way to engage the general public on various issues affecting Nairobi streets and public spaces among other issues that affect quality of life in the city.

3. Participatory 3-D mapping and co-design

Participatory 3-D mapping and co-design used a physical model of the street to engage the people in re-imagining the street. Using participatory 3-D mapping and design for exploring urban development options is an effective, hands-on and meaningful method of engaging communities and producing viable schemes.

- A 1:100 scale model of the street.
- An opportunity to explore different streetscape schemes, ideas and opportunities.
- A hands-on approach to urban design and streetspace planning.
- An appreciation for the complexity, diverse interests and multiple approaches to participatory urban design and street space planning.
- Allowed opportunities to redistribute and reshape streetspace.
- An opportunity to incorporate street design elements and traffic considerations.



4. Ideas charette (on-location design workshop)

Ideas charette is a large-scale ideas-gathering process used during the Luthuli Avenue design process. It was conceived as a way of giving daily users of the street an opportunity to say how they thought the street should be transformed, identify problem areas, share their aspirations, exchange views and ideas with each other and feed into the vision for transforming Luthuli Avenue. It is a useful engagement model applicable to projects with a wide community/stakeholder base.

In August 2018, more than two thousand people including children, women, elderly people, and matatu conductors and operators received postcards with information about the Luthuli Avenue project. Social media was also used to build awareness and spread the word. During the on-site session, a range of methods and tools were used to encourage as many people as possible and as diverse demographic groups as possible to participate, including:

- Postcards and writing directly on an ideas canvas.
- Participatory mapping.
- Facebook, Twitter and Instagram pages.
- A physical model where passersby were encouraged to rebuild Luthuli Avenue.

Over two hundred ideas emerged from the exercise, making it one of the largest public space redesign initiatives ever seen in Nairobi. All the gathered ideas were read, digitized and classified. Photo analysis, text search and tag clouds were used to get an understanding of the key ideas, enabling the analysis of the results and development of design principles. The collaborative design competition brief was then shaped based on the outcomes of the community engagement process.

The following indicators were developed based on the outcomes of the ideas charrette done on-location, the urban dialogue sessions, site analysis and workshops involving daily users of the street.



Pedestrians taking part in a participatory 3D mapping and co-design activity. © iCMIist/Chris Mosomi



Community members sharing ideas for the transformation of Luthuli Avenue. © iCMIist/Chris Mosomi



Community members sharing ideas for the transformation of Luthuli Avenue. © iCMIist/Chris Mosomi

Indicators for a prosperous Luthuli Avenue:



- 1. Inclusive for all:** Luthuli Avenue should be welcoming for everyone to walk, spend time in and engage in public life and shop around. Improve the pedestrian environment and create adequate space for walking while protecting pedestrian space from matatus, motorbikes and private cars.
- 2. People feel safe:** The whole community, and especially women and girls, children, and the elderly should always feel comfortable and safe on Luthuli Avenue. People should not feel worried about matatus or boda boda knocking them, or experience threats to their personal safety and security both during the day and night.
- 3. Not too congested:** Reducing congestion would directly improve perceived safety and security, retail turnover and ultimately make Luthuli a place that people want to be in and linger. Reduce parking space for private cars and explore strategies to solve the matatu menace.
- 4. Not too noisy:** Reducing the noise impacts of motor traffic, and matatus in particular will directly benefit health, improve the ambience of the street and encourage active mobility and stay on Luthuli Avenue and downtown Nairobi at large.
- 5. Comfortable place:** A wider range of people will choose to walk or cycle on Luthuli Avenue if it is not dominated by motorized traffic – matatus and private cars, and if sidewalks are not overcrowded, invaded by hawkers and motorbikes, dirty, obstructed, cluttered or in disrepair. Widen the sidewalks and make them inclusive for everyone. Consider making it

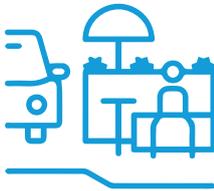


Figure 5: Indicators for a prosperous Luthuli Avenue gathered from the ideas charrettes.

Source: UN Habitat



- 6. Clean environment:** Improving environmental health delivers benefits for everyone and reduces unfair health inequalities. Improve the quality of air and introduce solid waste management strategies around Luthuli Avenue for health and wider benefits.
- 7. Places to stop and rest:** A lack of resting places can limit mobility for certain groups of people. Ensuring there are places to stop and rest benefits everyone, including local businesses, as people will be more willing to visit, spend time in, or meet other people on Luthuli Avenue.
- 8. Easy and safe to cross:** Making streets easier to cross is important to encourage more walking and improving road safety. Introduce safe pedestrian crossings and especially focus on treatments of the Mfangano, Munyu road and Tom Mboya intersections.
- 9. Beautiful and attractive:** People are more likely to enjoy their walk and stay on Luthuli Avenue when their journey is interesting and stimulating, with attractive views, buildings, planting and street art.
- 10. Improved local economy and livelihood opportunities:** Provide a flexible time-based street management to integrate intermittent and organized street vending and exhibition of wares and innovations.

5. Creative and Tactical Placemaking

The participatory design phase of the project employed a mix of creative and tactical placemaking to test the proposed ideas in a temporary way. Creative placemaking is a process where community members, artists, arts and culture organizations, community developers, and other stakeholders use arts and cultural strategies to implement community-led change. This approach aims to increase vibrancy, improve economic conditions, and build capacity among residents to take ownership of their communities. Tactical placemaking on the other hand is a process that employs temporary interventions to test various solutions using low-cost proxies to gauge the effectiveness and public support. Put together, they build connections between people and places by encouraging collaboration and visualization. While the approaches result in changes to physical spaces, they also offer an opportunity to build relationships between diverse partners and to build positive change.

These methods provided an opportunity for the project team to experiment with short-term action for long-term change. It leveraged low-cost, often immediate and temporary interventions that help plant the seeds for longer-term, more permanent physical interventions. The

approach is convenient for all urban stakeholders including the general public, the city government, academia, the private sector, resident associations, and nonprofit organizations to “hack the city” and “disturb the order of things” in the interest of change. This was done during the Placemaking Week Nairobi 2018, which was supported by the Urban Pathways project among others.



Former mayor of Nairobi interacting with community members during Placemaking Week Nairobi, 2018

© iCMiist/Chris Mosomi



Community members installing temporary street art during Placemaking week.

© UN-Habitat/ Mark Ojal



Pedestrians enjoying a pedestrian-oriented Luthuli Avenue during Placemaking week.

© UN-Habitat/ Mark Ojal



Community members undertaking tactical interventions along the street during Placemaking Week Nairobi, 2018

© UN-Habitat/ Mark Ojal

Leveraging crowd wisdom using Facebook

Led by UN-Habitat’ Urban Pathways project in partnership with Critical Mass Nairobi, the project team used Facebook to leverage crowd wisdom and gather thoughts and feedback from the general public, especially the cycling community, on the different design ideas for bicycle parking racks. The exercise sought to identify designs that would respond to the needs and aspirations of the cycling community while complementing the overall visual image of the street.

The wisdom of the crowd concept is based on the theory that large groups are collectively smarter than individuals, including experts. Through the collective thoughts of the crowd, more ideas and strategies can be generated to help urban planners and designers to better under-



stand the needs and preferences of the users of public space, infrastructure or furniture. This can lead to better problem solving, innovation and, consequently, better results.

A total of two hundred and twenty-one online users participated in the survey and provided feedback on the five different concept designs for bicycle parking racks. The concept designs were then ranked according to the approval rate. Out of the five concept designs, two received strong approval from the cycling enthusiasts. In first place was the '**Space-efficient rack design**', with the '**Car Bike Port**' a close second. Two key themes emerged from the responses of the public: security of both the bicycle and the parking rack, and efficient use of space. The other key theme emerging from the respondents was functionality and efficiency – the ability to hold more bicycles.

The wisdom of the crowd provided useful insights into the priorities, concerns and preferences of cyclists in the city. These were fed back into the design of the racks. While the **Space-efficient rack design** was the most preferred, the project team selected the second-best option, **the Car Bike Port**, which integrates the needs and preferences of the cyclists while also functioning as an advocacy tool in support of cycling.

6. Interactive public engagement website

The design team, led by UN Habitat, made use of various platforms to create awareness on the project within the general public, and to receive feedback on the proposed designs. This was achieved through an interactive webpage through which the public was able to review the designs, comment and give their suggestions. This exercise also made use of various social media platforms and public space networks to ensure the feedback received was cross-sectoral and highly effective.

The process of public engagement was pivotal in creating a sense of ownership within the general public, and enabling the design team to evaluate the proposed designs against the needs of the stakeholders that actively relate with the space.

See here: <https://nairobi regeneration.wixsite.com/initiative/jacarandapark>



Bicycle rack along Luthuli Avenue

© UN-Habitat



2.3 Capacity building

Collaborative design competition

Organized by the i-CMiiST project team led by Placemakers, Stockholm Environment Institute, and the University of York, and supported by UN-Habitat, the Architectural Association of Kenya, Nairobi City County and the Safer Nairobi Initiative, the 're-imagine Luthuli' competition was an idea-based contest to re-envision and re-engage Luthuli Avenue as a great shared street – a placemaking effort to improve urban safety and security, air quality, health and wellbeing, road safety, and to showcase the co-benefits of designing streets as public spaces.

The specific objectives of the competition were:

1. To explore whether more creative co-design methods can reveal alternative or more inclusive streetscape options that facilitate safer urban mobility.
2. To demonstrate the benefits and potential for walkability and bikeability in Nairobi.
3. To present creative industries students with an opportunity to contribute to the city-shaping process.
4. To advance the applied learning skills of the participants.

The Competition attracted a total of one hundred and seventy participants organized into forty-two transdisciplinary teams and eight individuals from diverse universities in Kenya, and one in Australia. The teams were distributed as follows:

The Technical University of Kenya - 12 entries, Jomo Kenyatta University of Agriculture and Technology - 19 entries, University of Nairobi - 8 entries, Kenyatta University - 4 entries, Maseno university - 1 entry, Moi University - 1 entry, Jaramogi Oginga Odinga university - 3 entries, Institute for Housing and urban debt studies - 1 entry, University of Western Australia, Academia di architectural do Mendrisio - 1, Trans-institutional - 8 and International - 1. The teams were transdisciplinary and cut across diverse disciplines including Urban Design, Architecture, Engineering, Quantity surveying, Arts, Photography, Food science and dietetics, Landscape Architecture, Urban Planning, Construction Management, G.I.S, Fine Arts, Urban management and development, Real estate development, Supply Chain Management and Broadcast production.

The entries were evaluated based on the ten indicators for Luthuli Avenue, which were generated from the preceding participatory process. Out of the forty-six entries, ten teams submitted their designs, six of which were shortlisted for consideration by the Jury. After careful consideration and deliberation, the Jury recommended that the teams be given feedback and added more time to improve their initial ideas. The teams were given two more weeks to refine their ideas. Five teams developed and submitted their ideas for final consideration.



Site inventory and analysis

Site-specific assessment



Outreach and large-scale ideas gathering



Visual
storytelling



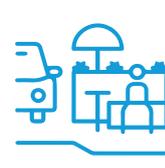
Urban
dialogue
series (Urban
Enthusiasts
Get-together)



Participatory
3-D mapping
and co-design



Ideas charette
on-location
design
workshop



Creative
and Tactical
Placemaking



Interactive
public
engagement
website

Capacity building

Collaborative design competition



Chapter 3:
Site Analysis



3.1 Neighborhood context

3.1.1 Circulation and access

The circulation of both pedestrians and vehicles remains one of the major challenges facing the Nairobi Central Business District and the East of Tom Mboya Street towards Nairobi River in particular. The East of Tom Mboya Street receives high pedestrian and vehicular traffic, especially along the primary corridors, including Haile Selassie Avenue, Harambee Avenue joining Ronald Ngala Street and down to the river, Accra Road down to the river, and University way to Slip Road.

Most primary routes are highly affected by congestion and vehicular-pedestrian conflicts attributed to minimal investment into NMT infrastructure as a result of the prioritization of motorized transportation during transport planning.

Moreover, most streets in the East of Tom Mboya Street, both primary and secondary,

are dominated by parked matatus, forming a barrier that impedes circulation. Most back streets, initially designed as service streets, have become informal and formal parking lots for both matatus and private cars, often parked for the better part of the day.

The matatu routes in the Nairobi CBD are mostly located in this part of town due to the close proximity to the formal and informal matatu stops, as well as the proximity to the adjoining road networks serving as access points to the CBD. The majority of matatu stops are informal and on-street, thus resulting in traffic congestion and safety concerns due to limited space for both vehicular and pedestrian traffic, especially along Accra Road, Ronald Ngala Street and Haile Selassie Avenue. However, the proposed plan to introduce designated bus termini at the periphery of the city center in place of the existing matatu stops is instrumental in decongesting the CBD and creating more opportunities for NMT infrastructure.

Figure 6: Hierarchy of circulation routes in Nairobi CBD
© UN-Habitat

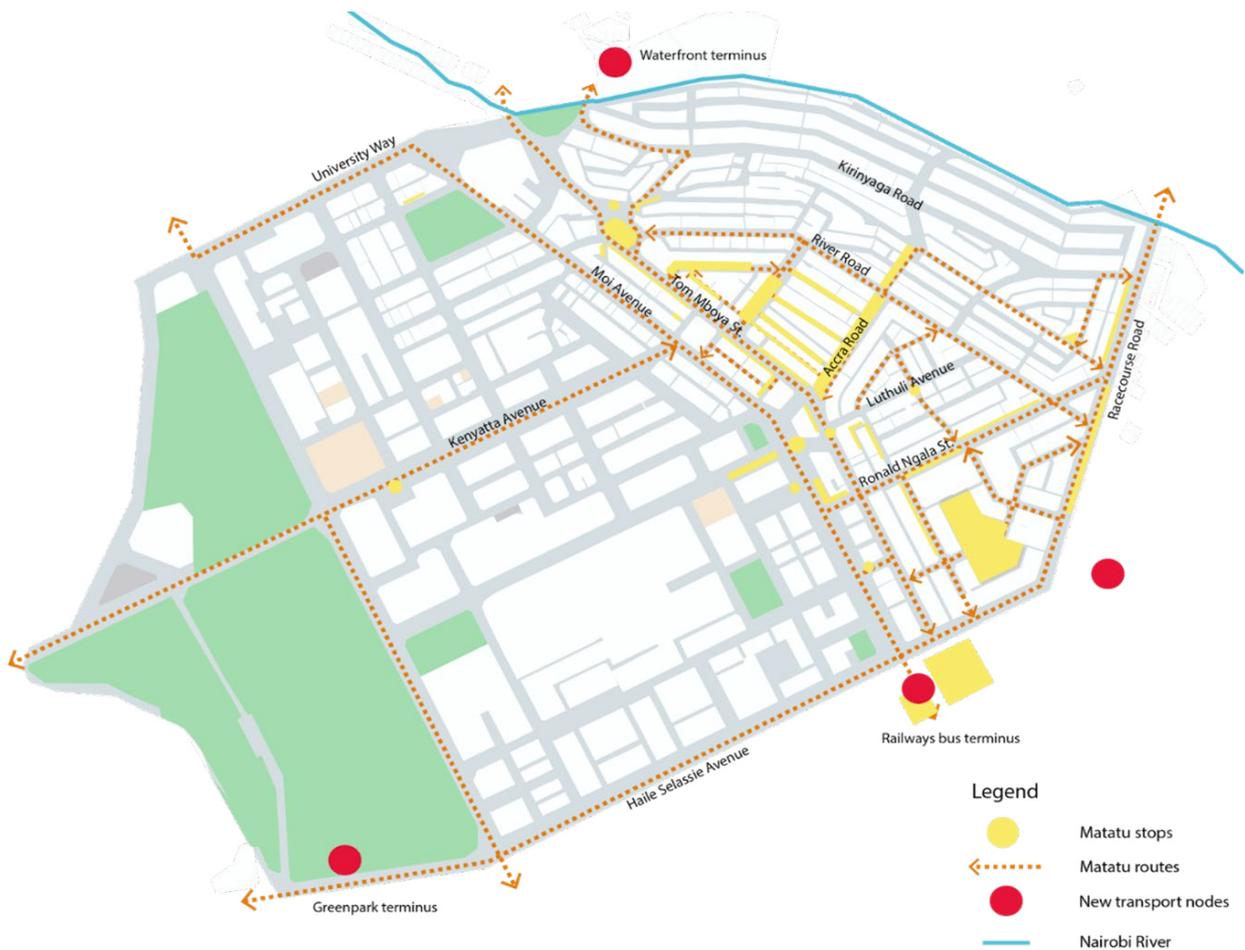




Figure 7: Matatu routes and stops in Nairobi CBD

© UN-Habitat



3.1.2 Walkability

Insofar as walkability is concerned, the East of Tom Mboya is the most pedestrian-unfriendly, with sidewalks as narrow as 1.5 meters. The majority of sidewalks in this part of town are in poor condition and characterized by discontinuity due to obstructions, encroaching on-street vending activities and on-street parking, thus impeding pedestrian circulation and posing safety risks to the pedestrians who often opt to use the carriageway. Notably, the condition of the sidewalks gets worse towards the river with some of the walkways adjacent to the river being as narrow as 1m.

The poor walkability status of most streets within the Nairobi CBD and particularly in the East of Tom Mboya Street is of great concern, as 40% of Nairobi residents make their way to various destinations on foot (JICA, 2014).

Within the Nairobi CBD, the streets are characterized by high pedestrian traffic due to daily commutes to various destinations including offices, businesses, transit areas, public green spaces and social areas. In the East of Tom Mboya Street, the major destinations include Odeon, Bus station, Khoja stage, Railways bus station, amongst others. The streets leading to such major destinations are often areas of conflict, especially during peak hours due to the limited pedestrian space.

There is therefore an opportunity to transform circulation in this part of town by designing main streets for transit and introducing diverse typologies of streets including transit streets, pedestrian-priority streets and pedestrian-only streets.



Figure 8: Condition of the streets in Nairobi CBD

© UN-Habitat





Figure 9: Major destinations
in Nairobi CBD

© UN-Habitat



3.1.3 SWOT analysis

The table below shows an overview of the strengths, weaknesses, opportunities and threats of the streets in the Nairobi Central Business District, and particularly in the East of Tom Mboya Street.

	S Strengths	W Weaknesses	O Opportunities	T Threats
1.	The vibrant nature of the streets in the Nairobi Central Business District.	Minimal consideration for non-motorized modes of transportation.	The walking culture of Nairobi residents creates the opportunity to develop an efficient street user hierarchy prioritizing pedestrians and cyclists over vehicles.	Institutional barriers - Lack of political will supporting complete streets and poor coordination among multiple agencies responsible for different aspects of street design.
2	Existing corridors linking the East and West of Tom Mboya Street. ie. Haile Selassie Avenue, City Hallway - Accra Road, Harambee Avenue - Ronald Ngala Street, University Way - Slip Road.	Majority of the streets are narrow and in poor condition, therefore resulting in congestion.	Development of a planned public transport system through the introduction of strategically located bus termini and BRT systems, as a strategy to decongest the streets.	The dominating unplanned public transport system in the East of Tom Mboya resulting in congestion and safety concerns for pedestrians.
3	The walking culture of Nairobi residents.	Minimal provision of key street amenities including street furniture, lighting, traffic calming features, landscaping and effective stormwater management features.	Regeneration of the East of Tom Mboya Street revitalizing the corridors linking the East and West of Tom Mboya Street.	Competing modes of transportation in the Nairobi Central Business District, thus minimal investment in NMT infrastructure.
4	Increased cycling activities along the streets	Minimal consideration for various groups of street users, including those living with disabilities.	Economic revitalization through regulated street vending activities.	
5		Encroachment of on street vending and parking, thus limiting space for pedestrian movement.	Opportunities to promote streets as public spaces through the introduction of interconnected social nodes.	

Chapter 4:

Luthuli Avenue Regeneration



This project was initiated under the C40's benefits program, which Nairobi participated in and focused on measuring and documenting the health, economic and wider benefits of walkability and bikeability as part of climate action. C40 provided technical support to the project, calculating the benefits of investing in walkability and bikeability. The street was selected by the city county team, considering Luthuli Avenue's potential role in accelerating the regeneration of East of Tom Mboya Street as envisaged in the Nairobi Integrated Urban Development Masterplan (NIUPLAN).

The design phase was implemented under the Implementing Creative Methodological Innovations for Inclusive Sustainable Transport Planning (i-CMiiST), a project funded by the British Academy under the cities and infrastructure program, and involving researchers, creative experts, transport professionals and policy makers from the UK and Africa. The project's primary goal was to explore whether more creative co-design methods can reveal alternative or more inclusive streetscape options that facilitate safer urban mobility, encourage lingering and connecting popular destinations in the city. This phase was led by the Stockholm Environment Institute, the University of York and Placemakers. It was further supported by Nairobi City County Government, UN-Habitat, Urban Pathways, the Safer Nairobi Initiative, the Architectural Association of Kenya, the Technical University of Kenya's Centre for Creative and Cultural Industries and the Critical Mass Nairobi among others.

During this phase, UN-Habitat provided technical support in the use of creative methods for the design of the street - the testing of the intervention and facilitating public engagement and feedback through tactical urbanism, supporting the evaluation of the designs coming out of the collaborative student design competition, providing technical support for the development of two final design concepts based on the outcomes of both the participatory process and the collaborative design competition. These included a pedestrian-only option and a pedestrian-priority option.

4.1 Luthuli Avenue regeneration: fixing the city, one street at a time

Luthuli Avenue is one of the most vibrant commercial streets in downtown Nairobi. The street is part of a larger pedestrian desire-line that runs from River Road and connects to Ambassador area then to City Hall-way, which links downtown Nairobi to Upper Hill, Nairobi's new financial district.

The street has had multiple identities since the founding of the city in 1899. Initially a mixed-use area, popular with Indian dukas, it has grown gradually to become home to wholesale and retail shops for various merchandise, particularly electronics. Previously, the street was known for hotels and restaurants as well as offices, photo studios and other commercial businesses.

Over the years, the street has degenerated into a congested space, polluted space, and contested space between pedestrians, matatus, trolley pushers and motorbike riders. It has become an unsafe space where one must dodge speeding and rowdy matatus, motorbikes maneuvering their way through the street and pickpockets and muggers preying on unsuspecting pedestrians.

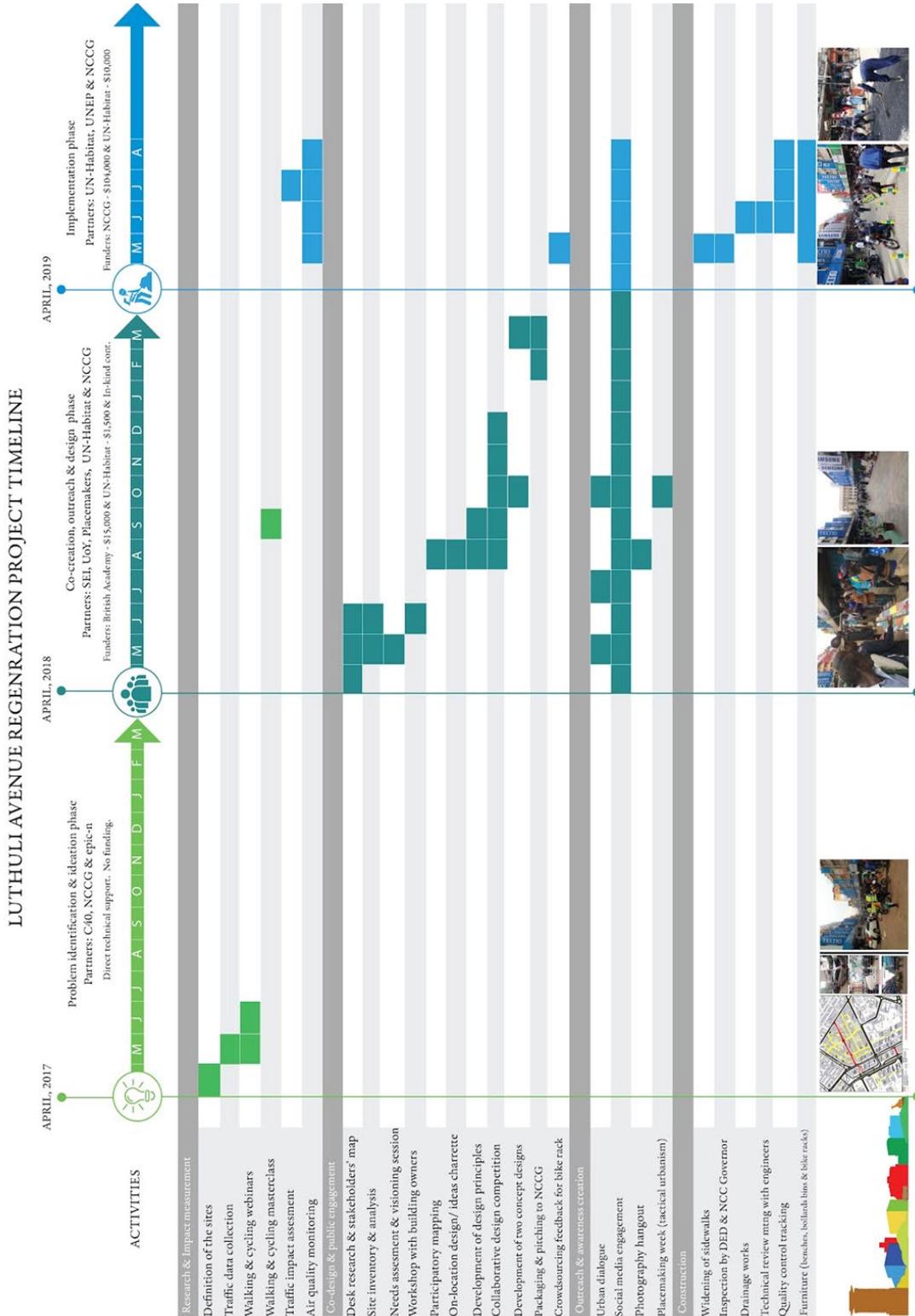
The regeneration has transformed it into a safe, inclusive and vibrant retail corridor that not only provides a unique and quality environment for the locals and visitors alike, but also provides creative features which promote the street as a public space and a driver for urban transformation. As an engine for regeneration of east of Tom Mboya Street, it has now become a catalyst for air quality action in the context of the wider climate action, a driver for economic revitalization and an example of sustainable urban and built heritage regeneration. The intervention has become a kick-starter for the regeneration of the East of Tom Mboya Street. It sought to demonstrate the benefits and potential for walkability and bikeability in Nairobi and the role of intentional design in getting people to walk, cycle and stay in downtown Nairobi. Some of the immediate outcomes of the interventions include improved urban safety, air quality, retail turnover, increased footfall and improved road safety.

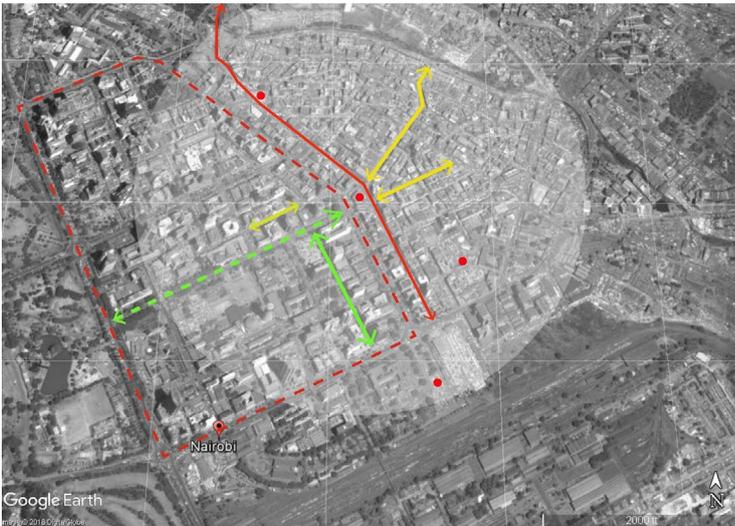
4.2 Concept design: pedestrian-priority Street

This design concept envisaged Luthuli Avenue as a safe, vibrant and welcoming pedestrian-priority street. The design distributed space more equitably, creating more space for pedestrians, introducing street trees, a two-way bike lane and seating among other street furniture. Overall, the design concept sought to transform the busy electronic street into a successful retail corridor that is welcoming and safe for all. It was envisaged to catalyze the regeneration of east of Tom Mboya Street by transforming the human experience, promoting innovation and mixed-uses, and adaptive re-use of empty floors by creative industries.

Figure 10: Luthuli Avenue regeneration project timeline

© UN-Habitat





Luthuli Avenue in its immediate context.

© Google Earth

Salient design features

- **Responsive and functional landscaping:** The concept placed special emphasis on improving the general aesthetic appeal of the street, introducing street trees to create a microclimate and ambience in order to create a sense of place.
- **Traffic calming features:** The concept introduced a mix of traffic-calming strategies including reducing the carriage way to a one way one 3.5 metres lane, reducing the turning radii at intersections to reduce speed and introducing a kerb-level crossing at the Tom Mboya Street junction. This tabletop pedestrian crossing was designed specifically to act as both a speed bump and a universal pedestrian crossing to enable persons with disabilities, the elderly and children to be able to cross the street with ease.
- **Careful intersection treatment & signaling:** In addition to the kerb level crossing, the design proposed traffic lighting at the Tom Mboya intersection to ensure easy and safe crossing for pedestrians and motorists. This is especially because the junction is a high-pedestrian volume junction, and a critical link to the National



Figure 11: Luthuli Avenue design concept illustration

archives which is both a landmark and a meeting point for people.

- **Street furniture:** The design introduces diverse street furniture including human-scale lighting, benches, bicycle parking racks, waste bins, road signage and bollards. The waste bins are designed to support waste separation. The waste bins are differentiated as both biodegradable and non-biodegradable.
- **Parklet:** The design introduced the first public parklet into the street. Parklets are public seating platforms that convert curbside parking spaces into vibrant community spaces. Also known as street seats or curbside seating, parklets are the product of a partnership between the city and local businesses, residents, or neighborhood associations. The Luthuli Avenue parklet has a distinctive design that incorporates seating and greenery. It is designed to accommodate unmet demand for public space in downtown Nairobi. The parklet will be administered through a partnership between the Nairobi City County and adjacent businesses. The local partner shall maintain and program the parklet, keeping it free of trash and debris.
- **Wide sidewalks:** Designed as a pedestrian-priority street, the concept design created more space for people to walk by removing on-street parking. The design reclaimed more than 100 per cent more pedestrian space from cars. This emphasizes the idea of the street as a public space, and invites Nairobians to walk, linger and window-shop on Luthuli Avenue without the fear of being mugged or hit by matatus.
- **A protected bike lane:** The concept introduced a two-metres wide, two-way dedicated and protected bike lane. The bike lane is painted to stand out and to send a clear message that the lane is strictly for cyclists, and that cycling is a mode of mobility.



4.3 Kickstarting change: construction

The regeneration of Luthuli Avenue is both a legacy project of the first session of the UN-Habitat Assembly and a signature urban project for the city. As part of the partnership with Nairobi City County Government to co-host the assembly, UN-Habitat lobbied the city county leadership to implement the Luthuli Avenue regeneration to showcase Nairobi's leadership in implementing the ideas contained in the New Urban Agenda. As the city agency of the United Nations and the custodian of the New Urban Agenda, UN-Habitat is keen to demonstrate practical solutions around air quality action and urban regeneration and using the planning approach as an entry-point for urban regeneration. The agency is also keen to work closely with the city as a laboratory for transformative and innovative urban solutions.

As part of the partnership, UN-Habitat provided technical support, supporting the development of concept designs for the transformation of the street, including the master plans, sections and 3D visualizations of the same. At the implementation stage, UN-Habitat provided quality control and strategic oversight in coordination with the County Government. This included a series of meetings to discuss progress, success and areas of improvement. In addition to the technical support, the agency made in-kind contributions including sponsoring street trees and select street furniture including ten street benches, one parklet and two bicycle racks.

The project is an example of a true cross-sectoral collaboration. Coordinated jointly by the County Executive Committee Members of both Roads, Transport and Infrastructure, and Environment and Natural Resources sectors, the project implementation team drew members from diverse departments including Urban Planning, Roads and Public Works, Environment, Security and Inspectorate, Communication and Public Relations, and the Safer Nairobi Initiative among others.

4.4 Quality control

Street and public space revitalization schemes are complex drawings with numerous technical details. The design details and drawings are developed through many integrated and interrelated processes. They require the input, advice and cooperation of transdisciplinary teams including engineers, urban designers, landscape architects and urban planners among others. As with any urban design projects, a well-executed design proposal can bring together diverse functions and users. On

the other hand, good intentions with poor design execution can end up not achieving any improvement and can even be a detriment.

A good pilot/demonstration project is a means of promoting innovation and capturing and disseminating best practice through the development and analysis of a live project. Obtaining a high quality outcome is a key success factor for scaling up from demonstration projects such as Luthuli Avenue regeneration. Such pilot projects are meant to set standards insofar as quality is concerned, inspire both the construction workers and the general public, and showcase possibilities. They are also meant to provide an opportunity for learning by doing, trial, error and improvement.

This Quality Control plan was developed as part of strategic technical support to provide guidance to the Nairobi City County Government, specifically the Luthuli Avenue task team, and promote communication between the design team, the policy makers and the construction team among others in the implementation of Luthuli Avenue regeneration intervention.

Purpose and objectives of quality control

Quality control (QC) is a process performed to ensure conformance to design requirements and attainment of the highest possible standard of quality. This process includes quality planning, training, providing clear decisions and directions, constant supervision, immedi-



Community engagement during the project.

© iCMiist/ Chris Mosomi



ate review of completed activities for accuracy and completeness, and documenting all decisions, assumptions and recommendations. In principle, QC aims to:

- Provide a mechanism by which all public realm interventions (streets and public open spaces) will be subject to a systematic and consistent review, to ensure that the project implementation is substantially error free.
- Provide for a well-documented project implementation process. A properly documented project file should support major decisions made during the project design and implementation, as well as provide a record of the quality control process.
- Provide feedback from the reviews and communication that will assist both designers and the construction team in improving the outcome of public space interventions, and future interventions.

Approach to quality control

An effective Project Quality Control is required for every public realm improvement project. Below are the components of the quality control process.

Data collection

Data collection is the most important component of the quality control process. It includes assembling all information including maps, plans, sections and detailed construction drawings associated with a project.

Quality standards must be well defined prior to the final design of a project and agreed upon by all parties ahead of the construction phase. Public realm improvement projects should have a process report describing both the process and outcome, and include approved drawings including the masterplan, architectural impressions (3-D renders), cross sections, lighting plans and detailed construction drawings. The site supervisor ensures that the scope is complete, and quality is appropriate. This data forms the basis of quality management.

For quality control of Luthuli Avenue regeneration, UN-Habitat conducted site visits twice a week to collect data, identify, document and flag gaps, and track progress in implementing suggested improvements. After every site visit, data collected was classified to indicate the status of the implementation and document both the results achieved and unsolved issues.

On-site field review

Regular on-site reviews were undertaken regularly to enable accurate observation and tracking of progress towards achieving a good quality outcome. Two field review meetings were organized with representation from relevant sectors particularly Roads, Transport and Public Works, Urban Planning and Environment to share the findings, jointly inspect the project and agree on problem-specific solutions. These reviews were led by UN-Habitat as part of strategic technical backstopping.

Meeting minutes were recorded and shared with the Nairobi City County Government in writing. This included pictures of both good practices and areas of improvement, sketches, feedback from the beneficiaries of the project and a matrix indicating what had been done.

Interpretation and communication

Ideally, all major project scope elements should be identified and agreed upon at the design phase. A scope history report should be developed and updated by the responsible project supervisor.

Common problems associated with street regeneration projects and Luthuli Avenue in particular include:

- Drainage and stormwater management
- Landscaping and amenities such as pavers and seating.
- Utility Work including telecommunication and water and sewerage lines.
- Overhead visual clutter including cables and signage
- Consistency in furniture, colours and amenities.
- Universal accessibility and the quality of the pedestrian space.
- Architectural quality and building for life

How quality control findings are interpreted and communicated to the relevant implementing partners is at the centre of successful project delivery and high-quality output. For implementing partners like Nairobi City County Government, such a report is meant to be a tool for supporting timely, cost-effective and high-quality delivery. The quality control report was communicated both in writing and discussed and agreed upon at meetings including both the UN-Habitat and NCCG teams. The documentation was simplified into a matrix and a timeline that is easy to understand and track.

4.5 Areas of improvements

Below are the six main areas of improvement for the Luthuli Avenue regeneration project.

Stormwater management

The ideal situation in managing stormwater in street retrofitting interventions such as Luthuli Avenue requires the introduction of new gradients that consider contours and levels. For Luthuli Avenue, sustainable water management requires a whole new paving from the facade to the curb. This would allow the creation of a new slope that would easily channel water into collection troughs and drainage channels. This should be preceded by a topographical survey to determine levels and existing drainage channels among other utility lines.

During site visits, it was observed that the carriageway and parts of the extended sidewalk were prone to water stagnation, creating an unpleasant walking experience and a risk to the surface quality.

As an immediate response, UN-Habitat suggested the following actions to fix the problem:

- Introducing one collector trough per block.
- Mapping all pipes/gutters channeling roof catchment.
- Introducing gulley troughs at the interface of the old and the extended sidewalks.
- Harmonize levels both on the sidewalk and the carriageway.
- Lowering the curbs around trees to be on the same level as the pavement.

Universal access and pedestrian safety

Streets should be accessible and safe for all users, including children, the elderly and persons with disabilities. A street is universally

accessible when the needs of all the users are included within the design and pedestrian movement is safe and prioritized. Pedestrian safety can be designed into a street using a mix of strategies including widening the turning radius at junctions, integrating at-grade crossing, and ensuring an appropriate gradient both on ramps and on the sidewalk.

Some observed problems insofar as universal access and pedestrian safety include the too high gradient on the sidewalk on the northern side of the street. This has inhibited access by people in wheelchairs and placement of seating furniture. Other key problems include wide curb radii at intersections and lack of traffic calming at the Tom Mboya/National Archives junction. Wide turning radii facilitates higher vehicular speeds and increases crossing distances.

UN-Habitat suggests the following interventions to improve universal access and pedestrian safety on the street:

- Redo the northern sidewalk, reducing the gradient to appropriate levels, preferably between 4 - 10%.
- Introduce at-grade crossing at the Tom Mboya/National Archives junction, and introducing a water collection trough immediately before the crossing to manage flash floods.
- Introduce ramps at intersections.
- Remove pedestrian islands at the River Road junction and instead channel vehicles using arrows.
- Consider introducing intelligent traffic lights at the Tom Mboya junction in order to improve pedestrian safety and create a seamless interaction between the street and the whole Tom Mboya/National Archives square area.
- Relocate matatus blocking the Tom Mboya junction and clear matatus parked on the side of the National Archives.



Drainage challenges along Luthuli Avenue

© UN Habitat/ Chiara Martinuzzi & Radu Macovei



Proposed drainage channels to prevent water stagnation along the street

© UN Habitat/ Chiara Martinuzzi & Radu Macovei



Unfavourable water collection traps

© UN Habitat/ Chiara Martinuzzi & Radu Macovei



Strategically placed water collection traps.

© UN Habitat/ Chiara Martinuzzi & Radu Macovei

Bad

Drainage system



Water collection traps



Good

External reference



Luthuli Avenue



Furniture and amenities

Street furniture and amenities should augment the visual character of the street. This includes the look and feel, style, colour, materials and placement of the furniture. Collectively, these help create a unique identity for the street. In addition, pay attention to ergonomics when installing furniture. Seating should keep to the recommended height of 450mm from the ground.

UN-Habitat suggests the following actions on furniture and amenities:

- Ensure that all furniture is placed within the furniture zone one metre from the kerb.
- Ensure that all openings to waste bins are facing shops to make it easy to drop waste.
- Remove the Mr. Bin dustbins installed at the Tom Mboya junction as it is both visually out of character and an obstruction to pedestrian movement.

- Colour code the dustbins to facilitate waste separation.

Workmanship and detailing

The quality of the public realm can be badly impacted by poor workmanship and inadequate attention to detailing both in terms of aesthetic appearance and functional accessibility. This occurred on Luthuli Avenue due to several factors including inadequate on-site supervision of construction workers and inadequate skilled expertise among others.

Detailing should be considered as an integral part of any public realm intervention, and should include the interface between different materials, kerbs and changes in direction of paving; furniture, poles and the design of paving around them; tree pits and their kerbs; and location and design of drainage gullies among others.

Bad

At-grade crossing



Kerb ramps



Good

External reference



Mama Ngina / Luthuli avenue



Most observed inadequacies are related to workmanship and detailing. They include poor placement/laying of cabro pavers, poor finishing at the interface between the old and the extended sidewalk, poor placement of kerbs around the tree pits - they were either sinking and or not aligned, poor patching of worn-out areas on the old sidewalk - irregular surface, and poor detailing and finishing around water collection troughs.

UN-Habitat recommends the following interventions to improve the detailing and quality of the streetscape:

- Re-construction of the kerbs around tree pits, coordinating with surface finish and aligning them with cabro pavers.
- Overhaul of the paving on the northern sidewalk from facade to the kerb in order to get a new and appropriate surface.
- Align water collection troughs to the surface of the paving to avoid accidents.

Buildings and visual clutter

The quality of a public realm is a critical determinant of the human experience at the

street level and walk appeal. This depends to a large extent on the visual attractiveness of the street and adjoining buildings, street design as a whole, clarity of facades, visibility, lighting and scenery. On Luthuli Avenue however, there is no visual decorum. Some of the weaknesses that have been observed include too much signages which have overwhelmed facades, concealed some beautiful facades and have become a major source of visual pollution; illegal data and power cables crisscrossing the street; lack of curated painting on the facades and poorly used terraces

UN-Habitat recommends the following interventions to improve the buildings and the overall visual unity of the street:

- Remove overhanging cables in partnership with property owners and the business community.
- Improve building facades by removing a substantial amount of signage.
- Paint all buildings using a co-created colour scheme.
- Trunk all data and DSTV cables coming from shops and manage them at the property level.
- Promote only LED signages to complement the street lighting.



Pedestrian Island

© UN Habitat/ Chiara Martinuzzi & Radu Macovei



At-grade crossing along Morogoro Road in Dar es Salaam.

© UN Habitat/ Chiara Martinuzzi & Radu Macovei



Poorly constructed kerb ramps inhibiting access at specific points along Luthuli Avenue

© UN Habitat/ Chiara Martinuzzi & Radu Macovei



Well-constructed kerb ramps along Mama Ngina Street and Luthuli Avenue

© UN Habitat/ Chiara Martinuzzi & Radu Macovei

Bad

Planters



Sidewalk



- Encourage restaurants to renovate their terraces that face the street.
- Enforce the outdoor advertisement act to limit the sizes and amount of signage on buildings.
- Open up and renovate the facades of buildings with architecturally pleasant facades.

Environmental quality

Clean, orderly, well-lit and well-maintained streets have multiple co-benefits including creating a sense of pride, fostering place-attachment and discouraging delinquent activities including vandalism and crime. They inspire moral rectitude and environmental responsibility. On the other hand, streets and public spaces that are disorderly and have garbage, give the impression that no one cares about the place, thereby encouraging delinquent activities including vandalism.

On Luthuli Avenue, some of the observed weaknesses insofar as environmental quality is concerned include poor disposal of construction materials and refuse, and poor and unsanitary conditions on connecting lanes.

Good

Mama Ngina Street



Luthuli Avenue



UN-Habitat recommends the following actions to achieve and maintain good environmental quality on the street:

- Cleaning up the site once all construction activities are completed.
- Cleaning and opening of all adjacent and connecting lanes including Daisy Lane.
- Allocating resources including dedicated human resources to clean up the street regularly.
- Closing the holding point for waste currently on Daisy Lane, and subsequent opening of the street for public use.
- Beautification of the lanes using mural and public art as part of the activation and reclamation.

Reflections on areas of improvement

The outcome of the Luthuli Avenue regeneration is not stellar, but it is a good step in the right direction. It certainly has a lot of room for improvement, especially on detailing and workmanship. To achieve high quality outcomes and sustainable processes, it is important to ensure a clear project scope with clear and agreed objectives. These need to be supported by a clear and coherent workflow



Poor workmanship during the planter construction.

© UN Habitat/ Chiara Martinuzzi & Radu Macovei



Well-constructed planters along Mama Ngina Street.

© UN Habitat/ Chiara Martinuzzi & Radu Macovei



Poorly aligned cobble pavers along Luthuli Avenue.

© UN Habitat/ Chiara Martinuzzi & Radu Macovei



Well aligned cobble pavers.

© UN Habitat/ Chiara Martinuzzi & Radu Macovei

Bad



Overhanging cables posing safety risks to the street users and reducing street aesthetics

© UN Habitat/ Chiara Martinuzzi & Radu Macovei



Well-managed electrical wiring along Mama Ngina Street

© UN Habitat/ Chiara Martinuzzi & Radu Macovei



Caption

© UN Habitat/ Chiara Martinuzzi & Radu Macovei



Vibrant restaurant terraces facing the streets

© UN Habitat/ Chiara Martinuzzi & Radu Macovei



Overwhelmed building facades resulting from excessive signage

© UN Habitat/ Chiara Martinuzzi & Radu Macovei



Appealing wall art in Dandora

© UN Habitat/ Chiara Martinuzzi & Radu Macovei

Cables



Good

Mama Ngina Street



Terraces



Luthuli Avenue / Mama Ngina Street



Building facades



Dandora



definition, with clear roles and responsibilities of each actor.

The quality of public realm interventions such as this can rise substantially if executed by skilled and dedicated expertise. While the city county did a great job mobilizing and engaging youth and women in providing casual labour to supplement the human resource gap in the city, there is a need to enhance the technical capacity of these individuals in order to rise to the challenge and deliver to the expected quality. The youths and women could be better placed to deliver high quality outcomes if trained and better equipped for the task.

Construction work such as this can be done more efficiently in the future. On this project, construction workers wasted a lot of time either on-site or away due to various factors including delay in the delivery of materials, lack of transport to ferry both staff and materials from the workshop to the site and lack of guidance on how to proceed. With everything working optimally and with support from all relevant sectors, it is possible to deliver high quality output on such a project within 30 working days. The onus is on the Nairobi City County Government to enhance the capacity of its public works department and better equip it to be fit for purpose. This would be the most sustainable way to implement public realm projects such as this. Alternatively, the city county should consider engaging a private contractor to do such work.

4.6 Outcomes, successes and lessons learned

4.6.1 Outcomes

a. Changes in attitudes and mindsets

- i. Diverse user groups have mixed reactions and attitudes. While pedestrians and business operators have been very optimistic and supportive of the project,

matatu operators have seen themselves as the target and have resisted the transformation.

- ii. The process has seen a change in the relationship between the general public and the city county government - from a combative relationship to a supportive and collaborative one. Importantly, this has inspired a mind-set change from 'it is the government's responsibility' to 'it is our collective responsibility.'
- iii. Participation has helped people take pride in their city, enquiring about how to be a part of the project and how to support the process. This is one of the very important success stories.
- iv. The process has seen business owners see the art of the possible, expressing willingness to be a part of the process and make contributions. The business community has welcomed the intervention and supported it in various ways, including volunteering to host workshops, installing dustbins and replacing vandalized trees.

b. Improved conceptual understanding

- i. There has been tremendous improvement in the understanding of the role of design in improving walkability, air quality, road safety and urban safety and security among others. This was clear from the number of ideas that came from the users of the street.
- ii. The project team observed a changing perception among government staff and urban and transport planners and engineers towards the added value of the knowledge and input of everyday street users.
- iii. There has been increased awareness on road safety and air quality action among the Luthuli Avenue traders, street users and the Nairobi City County government staff who before the project were oblivious of the air pollution challenges and the extent of the impact thereof in the city centre. The project provided a platform for storytelling and sharing experiences. The process has also advanced the benefits of air quality improvement along the street network that leads to improved health and safety for the residents.
- iv. The creative participatory approaches improved the conceptual understanding of the issues at stake and provided ordinary citizens with platforms to share their frustrations, visualize their ideas and discuss common issues. Participatory mapping in particular enabled the public to describe their journeys and point places that require specific interventions.
- v. The process, particularly the ideas charrette, helped demystify urban design,



Luthuli Avenue post implementation

©UN Habitat/ Kirsten Milhahn



and enabled other people to experience in part, how urban and mobility planning looks like in practice.

- vi. For practitioners, students and lecturers, the process helped them see the added value of placemaking in finding solutions to mobility and other urban challenges, and inspired them to start a course in placemaking.

c. Capacity building

- I. The process enhanced the capacity of the city county staff to experiment with ideas before making a final design, and to also engage the business community and residents in a meaningful way.
- II. The design process also enhanced the capacity of the Nairobi City County technical staff to develop a holistic design that includes all road users and prioritizes people over vehicles.

d. Trust building

- I. The process helped build trust in the system again, and gave hope that the city can be transformed for the better. It also brought stakeholders together around common agendas and concerns. This presented an opportunity for unlikely alliances, and is a continuous learning process for all the parties involved in the research, design and implementation phases.

4.6.2 Lessons learnt

The following lessons were documented throughout the process. They are categorized into two, lessons learnt during the design and public participation phase, and lessons learnt during the construction phase:

a. Lessons learnt during the co-design phase

- i. High quality materials and output are key to getting people involved and trusting the efficacy of the process and the expertise of the project team. This includes both the drawings and the graphics.
- ii. While statistics are important, they hide just as much as they reveal. Statistics need to be complemented with stories. Storytelling puts human faces into the discussion and makes the stories human and relatable. It is an effective way to get the public engaged in the conversation.

- iii. Some interest groups need to be grouped separately, and approached with tact i.e., matatu people, boda boda operators and street vendors. These are special interest groups and need careful management. They often have a preconceived opinion that they are the target of public realm improvement initiatives.
- iv. It is important to involve all relevant sectors in the government, and the business community upstream.

b. Lessons learnt during the construction phase

- i. Detailed construction drawings are fundamentally important for successful execution of street and public space interventions. In addition to the master-plan, sections, elevations and 3D visualizations, it is imperative to develop detailed construction drawings before starting construction. These should be supervised and approved by a qualified engineer.
- ii. From on-set, proper definition of scope is important for such street revitalization initiatives. To realize meaningful impact, the scope should not only be limited to the space between buildings but should also include the buildings abutting the streets.
- iii. To efficiently deliver quality outcomes, it is important to develop and adhere to a proper and technically coherent flow of work and or calendar of activities with ample timeframe to deliver the project.
- iv. It is important to ensure a good flow of information both internally and externally. Good communication can create ownership and pride, which would make people more likely to support the project and mitigate risks for failure. Without proper communication, especially with the media, projects can easily fall prey to misunderstanding, misinterpretation and misrepresentation.
- v. To achieve effective, timely and high-quality project delivery, there is a need to clearly define roles and responsibilities, with instructions coming from one overall technical officer who manages the site.
- vi. To achieve high quality outcomes in public realm projects such as streets, it is paramount to engage only expertise with experience on such civil works - road & street construction.

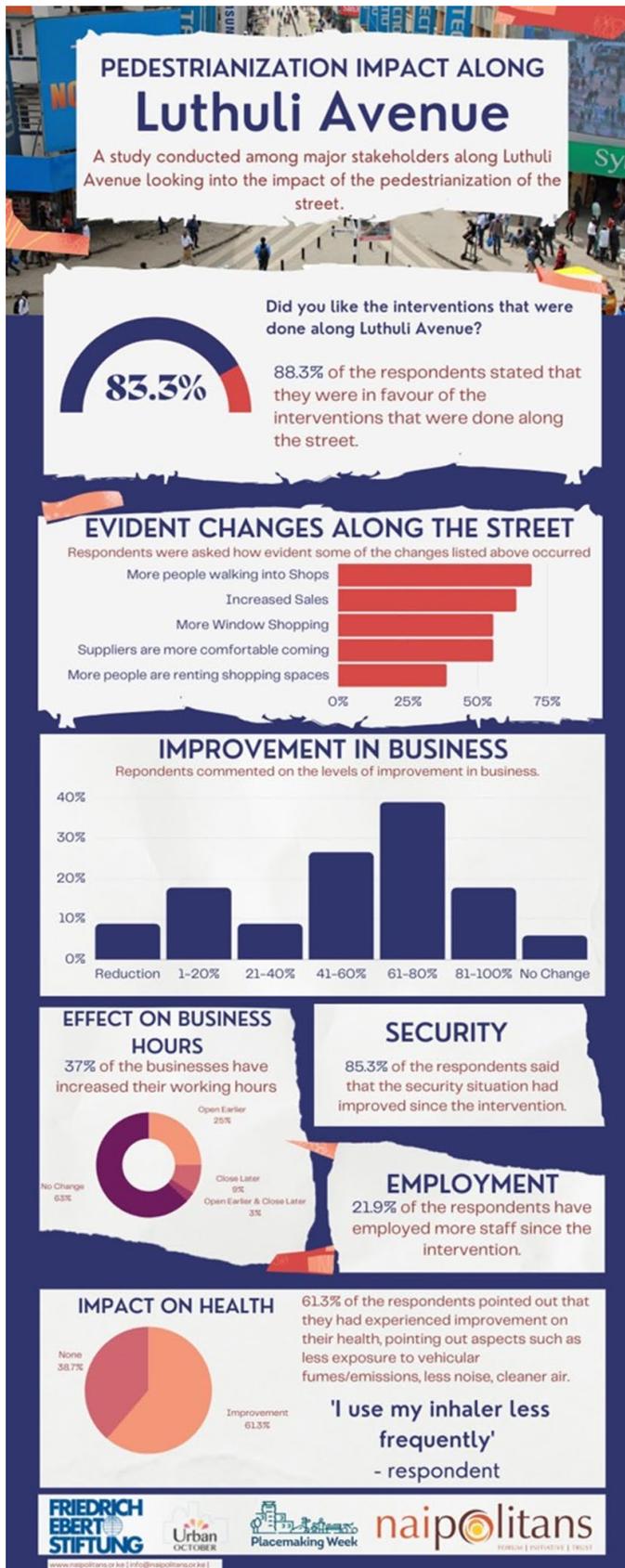
4.6.3 Successes

- i. **Innovative & diversified communication strategy** - The communication strategy had a strong social media presence with activity on Twitter, Facebook and Instagram. It also leveraged visual story-telling with a mix of statistics, infographics and digital stories. The mixed methods proved to work well to meaningfully engage the public, gather views and opinions on walking and cycling, and feedback and critique on both the process and outcome.
- ii. **On-location public engagement activities** - The rich mix of creative on-location co-creation methods such as ideas charette was very effective in reaching out to people who ordinarily would not attend a workshop. It also created an opportunity for passersby to get involved.
- iii. **Experimentation through tactical urbanism** - Tactical urbanism proved to be an effective tool for experimentation, public engagement, and gathering feedback and support for longer-term change. It proved to be convenient for engaging diverse stakeholders including shop owners, shoppers, city government, matatu operators and urban enthusiasts to “hack the city” and “disturb the order of things in the interest of change.” It prepared users of the street for what a transformation of the street would look like, meant for pedestrian experience, noise and air pollution, and allowed for public consultation and feedback.
- iv. **Anchorage on salient and relatable issues affecting ordinary people** - The strong linkage of the street intervention to agendas that people and leaders care about - air quality, health and wellbeing, road safety and urban regeneration, created empathy among different actors, both at policy and grassroots levels. This proved to bring diverse parties to a common understanding.

Chapter 5:

Impact Assessment





5.1 Stakeholder Survey

Naipolitans, in collaboration with Friedrich-Ebert Foundation, and under the framework of Urban October in 2021, have conducted a study among 60 major stakeholders (incl. shop attendants, Public Transport Operators, Fruit vendors, Shop owners among others) along Luthuli Avenue looking into the impact of the pedestrianization of the street.

The results have revealed interesting insights. A total of 88.3 % of the respondents stated that they were in favor of the interventions that were done along the street. A number of those who did not like the intervention were public transport operators who stated that the reduced space for motorized transport had led to a reduction in their business.

More than 50% of respondents said that changes were evident particularly with regards to more people walking into the shops, increased sales, more window shopping and supplies being more comfortable to deliver goods. This was very positive and proved that most clients actually walk into businesses and having on-street parking does not guarantee sales.

Business stakeholders also commented very positively about the levels of improvement in business with a majority of respondents saying that business improved between 61 - 80%.

The intervention also had a positive impact on security. A total of 85.3% of respondents said that the security situation had improved since the intervention.

With regards to the impact on health, 61.3 % of the respondents pointed out that they had experienced improvement on their health, in relation to reduced exposure to vehicular pollution and emissions, as well as less noise.

5.2 Air quality Improvements

5.2.1 Background

Challenges do exist in terms of continuous, large scale air quality monitoring in Nairobi. However, the ongoing site specific, low cost monitoring efforts can indicate the levels of air pollution and are a useful source for driving policy actions and advocating for improvements in the highly polluting sectors. Under the Urban Pathways project, UNEP in collaboration with its partner IQ Air, in 2020, using satellite modeled data and crowd sourced data estimated the average PM2.5 concentration in Nairobi at 14.7 µg/m³, which is about 1.5 times the recommend annual PM2.5 threshold concentration of the 2015 World Health Orga-

nization (WHO recommendations and the most polluted month in 2020 was July, with an average PM2.5 concentration of 22.6 µg/m33.)

The main sources of atmospheric pollution in Nairobi are vehicles, industries, emissions from use of charcoal and firewood, and other municipal sources such as open burning of waste. Improving air quality can deliver substantial health benefits; reducing air pollution levels means reducing premature deaths and diseases from stroke, heart disease, lung cancer, and both chronic and acute respiratory diseases, including asthma, the most harmful air pollutant.

5.2.2 Luthuli Avenue air quality monitoring

The Luthuli Avenue Air Quality Management Project (2019-2020) aimed to initiate the development of a monitoring system for Nairobi by co-creating a network alongside efforts of the wider Urban Pathways project activities in the same locality. The aim of this project was to build upon the initial work undertaken in 2016 alongside City Officials to reinforce the use of low-cost technologies to support evidence based monitoring.

This initiative, supported by the Urban Pathways project, aimed to support policy action by providing evidence on the reduction of pollution level. While coordinating with the Nairobi Environment department, the project assessed the impact of particulate matter in the atmosphere brought about by the greening initiative of Luthuli Avenue, which included redesign of Luthuli avenue to a one-way traffic and provision of wide pedestrian walkways. The approach of the air quality monitoring was done in a participatory manner, in collaboration with the Nairobi City, as well as business owners along the avenue that provided access to installation points, electricity and communication (via WiFi).

Three PM2.5 sensors were installed along Luthuli Avenue as shown in pictures where the redesign of the street towards a pedestrian-friendly realm took place. The installation of sensors along the avenue was designed to assess the impact of the rehabilitated avenue on pollution.



Figure 12: Map of air quality situation reported by IQAir Air Quality Sensors installed in Nairobi (2021)



Sensor installation in partnership with Nairobi County Government



Sensor installation in Luthuli Avenue



Sensor installation in Luthuli Avenue



The resulting map of the network along Luthuli Avenue



5.2.3 Results

- Luthuli Avenue Street Closure: May 2019 - March 2020
- Luthuli Avenue Street re-opening: March 2020 (One-directional traffic)

Luthuli Avenue Street Closure: May 2019 - Mar 2020

Figure 13 (below) illustrates the hourly summary of pollution along Luthuli Avenue during the period while there was on-going work. For the 6 month period of data coverage, measurements indicated higher pollution concentrations along Tom Mboya Street, particularly in the mornings and elevated concentrations at Tom Mboya Mboya and River Road proximations in the evening hours. The middle section of the avenue was significantly lower than the two corners of Luthuli Avenue, but appeared to have peaks that coincided with those of the two adjoining streets.

Tom Mboya attracts heavy “Matatu” (minibus) traffic and shows the highest peaks especially during morning hours as illustrated in figure 14. River Road, on the opposite side of the avenue, showed peaks similar to those of Tom Mboya street in the evenings. The middle of Luthuli Avenue followed the general lowest peaks with concentrations starting to elevate into the evenings. This could be due to influences from the on-going construction but also the dispersion of fine particulates from the traffic sources on River Road and Tom Mboya Street.

The weekly summary supported the hourly observations, clearly indicating the influence of pollution from vehicular traffic along Tom Mboya Street, especially during the morning hours. Mid-week pollution episodes were elevated along River Road in the evening hours with Saturday and Sundays showing the lowest concentrations.

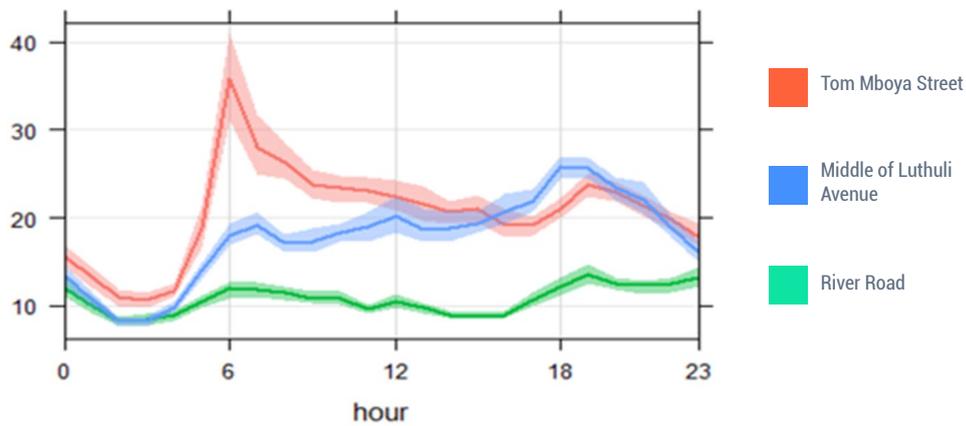


Figure 13: Map of air quality situation reported by IQAir Air Quality Sensors installed in Nairobi (2021)

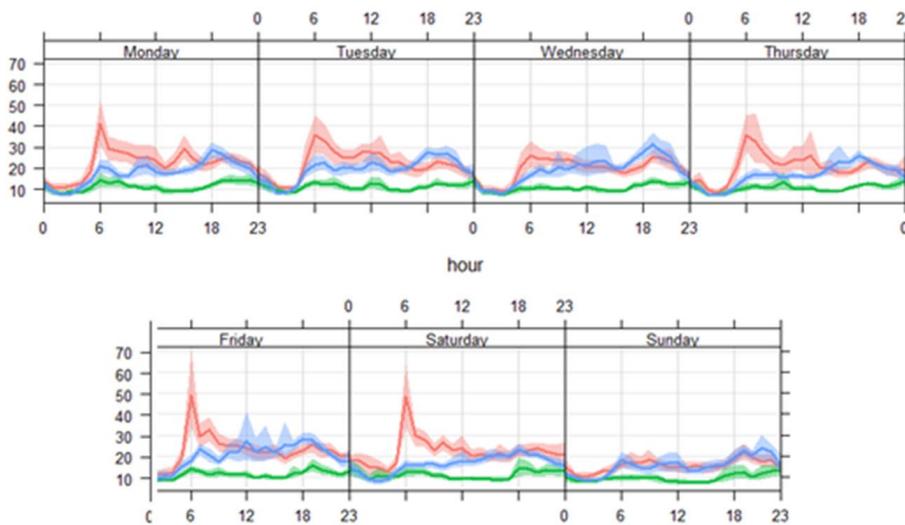


Figure 14: Weekly Summary 15 May - 15 October 2019

After reopening of Luthuli Avenue (March 2020)

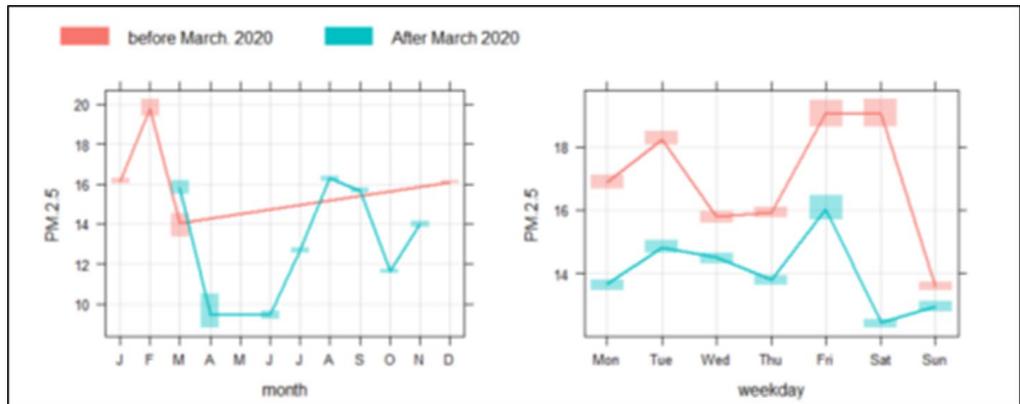
There were some data gaps during the period of study, mostly related to logistical challenges rather than measurement challenges. For instance, business owners that permitted the installation of sensors on their premises, often turned off power to the sensors. However, for the middle of Luthuli Avenue, sufficient data was collected and conclusions can be drawn.

Following the reopening of the rehabilitated avenue, observations using the available data illustrated reduced concentrations of pollution measured in the middle of Luthuli Avenue (see figure 15) between the two periods.

For the periods where observations were possible, PM2.5 concentrations were relatively low especially during off peak hours where motor vehicle traffic was low. From the above analysis of the Luthuli Avenue pilot project, a longer period of continuous monitoring is needed to account for overall pollution trends and seasonal variations including COVID lock downs which took place during the period of study.



Figure 15: Middle of Luthuli Avenue



5.3 Pedestrian flow Improvements

5.3.1 Background

Before the refurbishment of Luthuli Avenue, a pedestrian count was undertaken in 2019. This was to assess the inflow of pedestrians into the street.

In 2022 a similar count was done to see the difference in the street occupation.

5.3.2 Luthuli Avenue pedestrian flow assessment

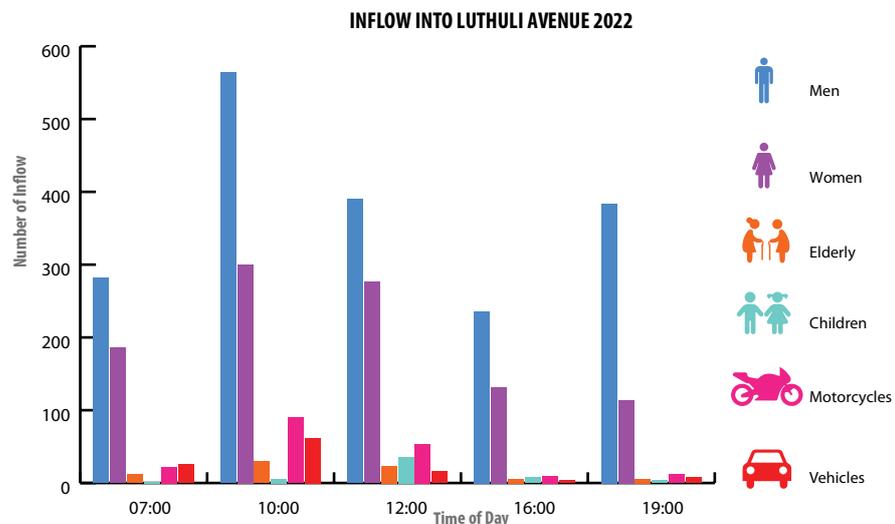
Figure 16 shows a huge inflow of people as we approach midday along Luthuli Avenue in 2022. The highest amount of people are seen at around 10am. This is highly due to people going into work and businesses opening in the area. There is a higher number of men compared to women. The street was transformed into a one lane, one directional street with an enlarged walkway for pedestrians and a

bicycle lane hence there is a lesser inflow of vehicles in comparison to the previous years. Due to lack of enforcement on the use of the streets, motorcycles encroach the space in large numbers. There is a lower number of children for most are home on holiday during the time of the count.

As in many streets in Nairobi, non-motorized transport is used by most people to maneuver through the CBD (see figure 17). Luthuli Avenue has always been one of the busiest streets as it hosts various electronic shops in Nairobi. It also serves as a link road between the CBD (Tom Mboya Street) and the busy downtown area (River Road). The revamp of Luthuli Avenue included a cycle lane and the provision of bicycle racks. During the count, a number of cyclists were observed to pass through the street as well as to park their bicycles safely at the provided racks. However, there is need for creating a complete network of bicycle lanes across the city to encourage more cycling and safe connections.



Figure 16: Graph of the inflow to Luthuli Avenue in 2022



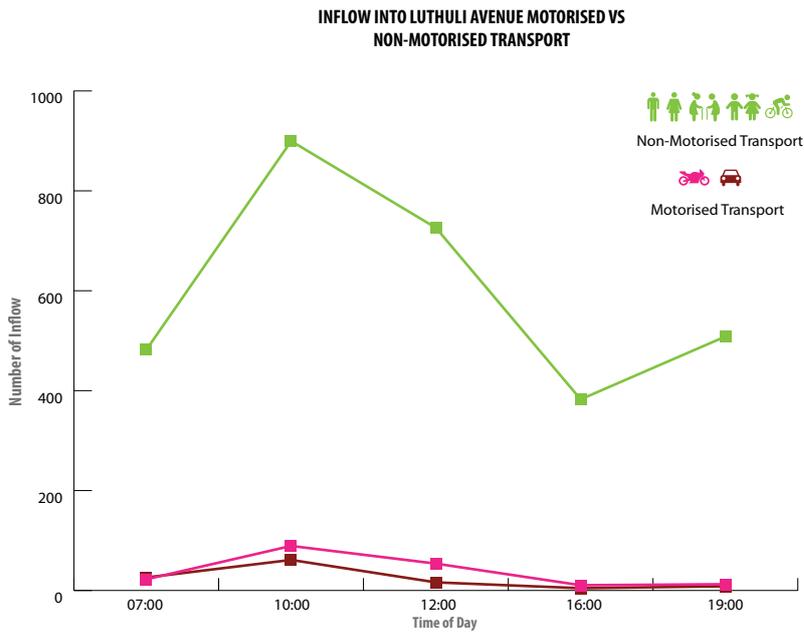


Figure 17: Graph showing comparison between non motorised and motorised transport in 2022

Motorcycles are frequently using the space, as they transport both people and goods through the street. The streets, particularly the pedestrian walkways, are filled with parked motorcycles who are awaiting clients for transport. Better enforcement would be needed to ensure that motorcyclists are not using the space demarcated for pedestrians and cyclists.

expansion of the space allocated to pedestrians, in combination with the introduction of public space facilities such as street furniture and inclusion of bicycle racks has contributed to the rise.

In comparison to the count done in 2019, there is a large increase in pedestrian inflow compared to 2022 as seen in figure 19 below. The

With regards to male pedestrians, the data reveals an increase of averagely 19%. The large number of men can be attributed to the economic nature of Luthuli Avenue, with electronic traders, hardware shops and the logistics of other goods.

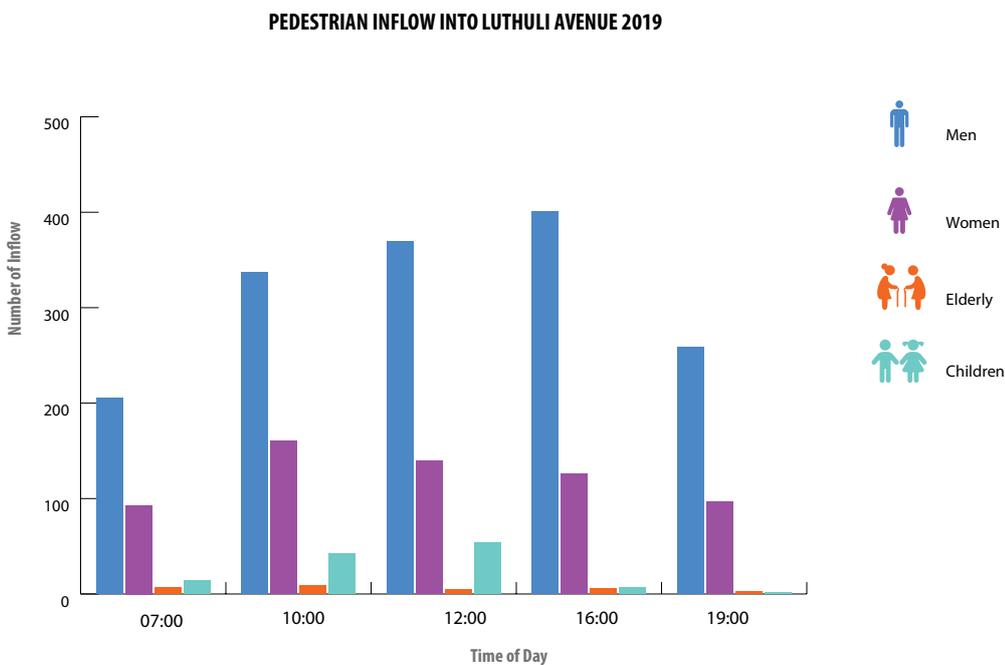


Figure 18: Graph showing Pedestrian inflow into Luthuli Avenue in 2019

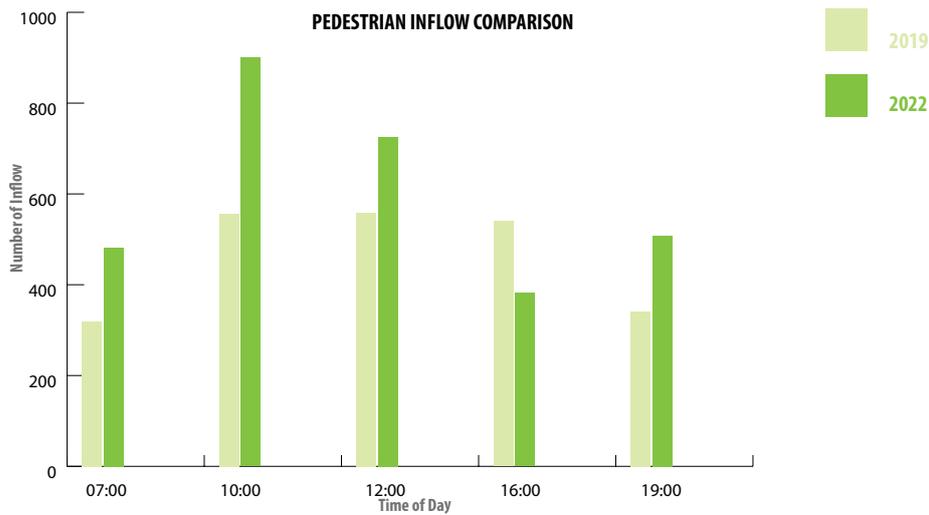


Figure 19: Graph showing Pedestrian inflow comparison between 2019 and 2022

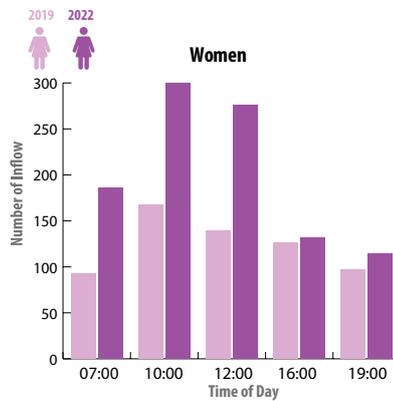
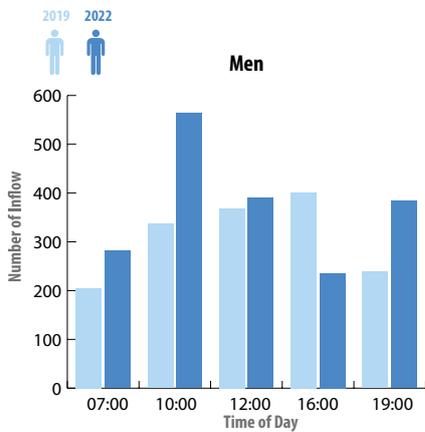


Figure 20: Graph showing Men inflow into Luthuli Avenue in 2019 and 2022

Figure 21: Graph showing Women inflow into Luthuli Avenue in 2019 and 2022

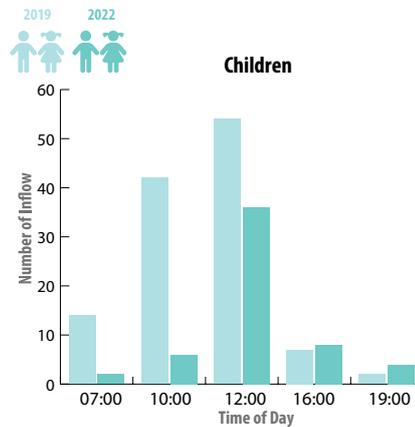
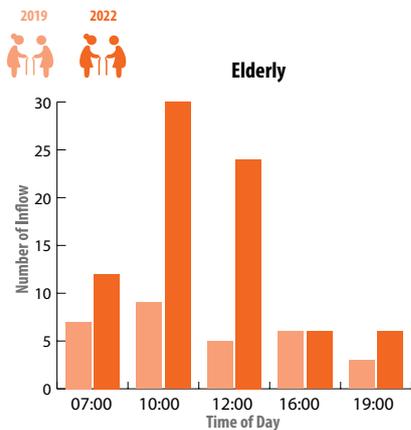


Figure 22: Graph showing Elderly inflow into Luthuli Avenue in 2019 and 2022

Figure 23: Graph showing Children inflow into Luthuli Avenue in 2019 and 2022

In comparison to 2019, the number of inflow of women increased by 61% in 2022, taking the average measure from the entire day. This increase can be understood as an outcome of the street that has become less chaotic and safer and easier to walk through as compared to 2019. The reduction of noisy matatus and clearer paths for walking might also be attributed to this huge increase.

The biggest increase is seen with the inflow of

elderly with a growth of more than 160%. The clearer and less busy streets in terms of motor vehicles makes it conducive for the elderly to navigate through.

The inflow of children has however decreased in 2022. This is likely due to the fact the count in 2022 was done during school holidays. Additional analysis would be needed to compare the data of 2022 with the results of 2019, when schools were open.

In average, we see a 29% increase of pedestrians into Luthuli Avenue. This shows the great impact that traffic calming can have on pedestrian flows due to improvements in accessibility, safety and comfort of the street design. At the same time, the following actions are essential to maintain a conducive environment for pedestrians and cyclists, and to even increase the numbers over time:

1. Enforce and regulate the use of private motor vehicles in the street (particularly motorcycles)
2. Continued maintenance of the street surface, drainage and street furniture
3. Cleanliness of the street and regular solid waste management
4. Provision of shade and greenery

Chapter 6:

Beyond the Pilot - connecting the city and the river



6.1 Unlocking the transformative potential for streets as instruments for urban regeneration



Figure 25: Illustration of the connection between the city and the Nairobi River through the proposed streets.

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Streets are being increasingly recognized as an important shared public space in cities and human settlements, serving three key functions - connectivity, commerce and social interaction, thus having the potential to spur development and urban regeneration. The transformation of Luthuli Avenue demonstrated this accurately as it not only contributed to better air quality and economic revitalization, but also kickstarted the regeneration of the East of Tom Mboya Street, therefore showing that there is urgent need to rethink connectivity within the Nairobi CBD area and particularly between the West and East of Tom Mboya Street.



Figure 26: The CityHall Way - Accra Road Corridor in the Nairobi CBD context

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Consequently, the Government of Kenya through the Nairobi Metropolitan Services and the Presidential Delivery Unit initiated the re-development of three select streets in the Nairobi Central Business District. The project was led by UN Habitat – through its Urban Pathways and Global Public Space Programme - and aimed to strengthen the connection between the city and the Nairobi River as part of the Nairobi River Regeneration Initiative. The designs were developed in partnership with the Technical University of Kenya and in consultation with communities that live and work in the vicinity of the spaces

The streets include City-Hall Way, Accra Road and the lower side of Haile Selassie Avenue. The interventions on the streets are envisaged to strengthen the link between the East and West sides of Tom Mboya Street, thus enhancing connectivity and creating opportunities for economic development, social interaction and overall urban regeneration.

6.2 City-Hall Way - Accra road – Nairobi River boulevard

6.2.1 City-Hall Way

City-Hall way is an important arterial street in the Central business district of Nairobi that gives access to County's headquarters and the Government Square – KICC while connecting Uhuru Highway and Moi Avenue. The corridor serves as a major connector for pedestrians between Upper Hill and the CBD through Uhuru Park, and has a major bus terminus at Kencom.

The function of the corridor as a connector is therefore emphasized by its proximity to key nodes and landmarks within the CBD area, including: The Parliament, Intercontinental Hotel, City Hall, The Supreme Court, Kenyatta International Convention Centre, Holy Family Basilica, Kencom Stage and the Nairobi Archives. However, City-Hall Way faces challenges that impede effective use of the space, including obstructions along the walkways due to invasive vegetation, uncontrolled parking along the entire length of the street, and lack of destinations and places for pedestrians along the street, thus minimal contribution to social interaction.

Project objectives:

The main objective of the project is to promote a safe and vibrant streetscape that serves as a major pedestrian corridor, linking the east and west of Tom Mboya Street hence promoting urban regeneration within the Nairobi Central Business District.

The specific objectives of the project include:

- i. To develop an approach that gives priority to pedestrians and cyclists, over motorists, by designing for pedestrians and cyclists, and allocating more space to them, as compared to motorists.
- ii. To ensure safety for all groups of people including people living with disabilities, women and children.
- iii. To create opportunities for economic development, social interaction and environmental sustainability for an integrated approach to urban regeneration through the corridor.

Concept design: Pedestrian-oriented Boulevard

City-Hall way is conceptualized as a pedestrian-oriented boulevard, a place for celebration, a place to see and be seen, a place with a high quality of stay, and multiple things to see and do. The corridor is envisaged as a grand, and welcoming pedestrian precinct.

The program divided the street into three distinct but complementary functional spaces: A multi-functional exhibition and performance area, a public market area and a landscaped area with interactive monumental features.

The design features for the corridor include:

- **Wide walkways:** City-Hall way is envisaged as a pedestrian boulevard. The design therefore proposes wide and well-landscaped walkways that are free of obstructions, to accommodate the high pedestrian traffic along the corridor. It greatly considers pedestrian safety and comfort, thus taking up measures to enhance user experience along the entire corridor through careful selection of materials and the provision of safe crossing points, shade trees, street lighting and street furniture.
- **Well-defined bike lanes:** The design introduces a two-way cycling lane as a measure to distribute traffic and serve as an alternative mode of transportation.
- **Traffic calming features:** The design proposes a reduction in the number of vehicular lanes to slow down vehicular traffic along the corridor.
- **Pedestrian safety features:** To enhance the safety of the pedestrians as the main users of the boulevard, the design introduces strategically located crossing points connecting walking networks, as well as the traffic calming features.



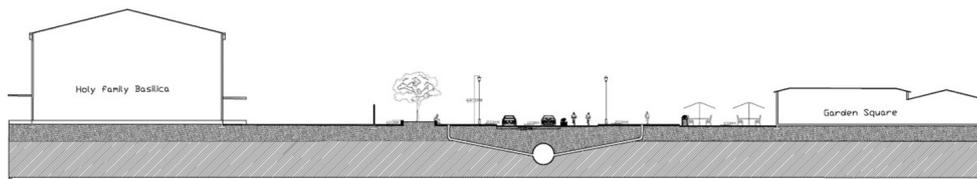
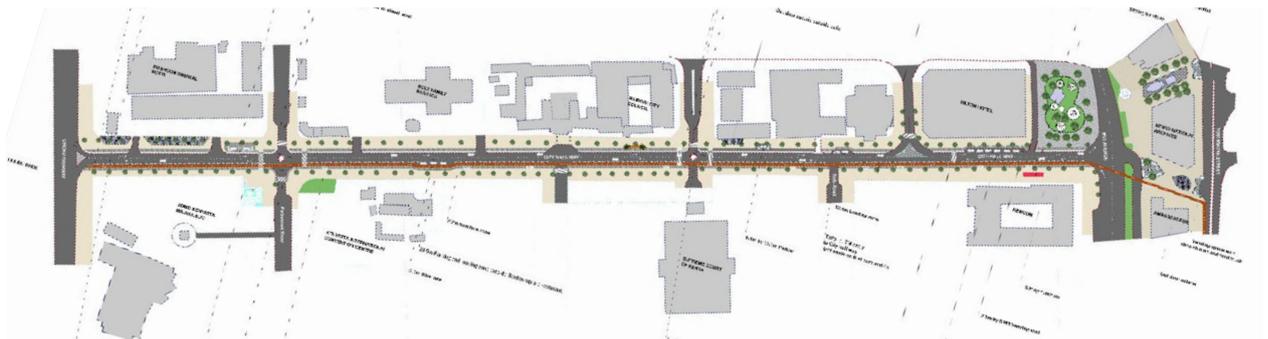
Figure 27: City-Hall Way design concept illustration



Figure 28: City-Hall Way Masterplan



Figure 29: City-Hall Way section



- **Functional and non-obstructive landscaping:** The design takes into consideration the importance of urban greening for aesthetics, as well as environmental and human wellbeing. It therefore proposes careful selection of functional and non-intrusive vegetation species along the entire stretch, to create a green transportation corridor for enhanced environmental sustainability in the central business district.
- **Parklets:** The design proposes the introduction of parklets at select points along the corridor to create opportunities for social interaction. The parklets will serve as public seating areas and enable the users to interact and relax, while enhancing the sustainability of the street through the integration of greenery.
- **Exhibition and Performance areas:** Nairobi has emerged as a creative hub owing to the city's thriving arts scene and particularly in relation to street art. The design therefore proposes a performance dias and exhibition spaces at Kencom area to activate the space while giving the artists more visibility.
- **Outdoor eateries:** To enhance the vibrancy of the street and the function of the street as a public space, the proposal sought to introduce opportunities for outdoor eating, promoting the city's vibrant restaurant culture. The opportunity for this is particularly identified in points adjacent to restaurants such as the Intercontinental Hotel and Garden Square, thus facilitating the activity.
- **Urban Park:** The design transforms the KTDA square, commonly referred to as the jobless corner, into an urban park. The proposal to transform the space which is popular among the residents of Nairobi as a seating and waiting area, aims to contribute to the city's goal to increase urban greening particularly within the CBD area. Moreover, this aims to enhance the function of the street as a public space through the introduction of new destinations for increased social interactions.
- **Monumental installations:** The design introduces sculptures and monuments at select points along City-Hall Way to enhance the aesthetics and identity of the boulevard.
- **Seasonal public markets:** To enhance the contribution of the boulevard to economic development within the CBD area, the design integrates seasonal vending areas at various points along the corridor, particularly at Kencom stage.



Figure 30: Proposed parklets at Short Street.



Figure 31: Outdoor restaurant at the Intercontinental Hotel for increased street vibrancy.



6.2.2 Accra Road

Accra Road, also known as Kenneth Matiba Road, joins the City-Hall Way at the heart of the Nairobi Central Business District, covering the stretch from the Tom Mboya intersection for a distance of 30 metres, going downwards past River Road for another 30 metres, joins the steep Voi Road covering a distance of 24 metres to Kirinyaga road and finally slopes downwards towards the river for a distance of 30 metres.

It is mostly characterized by a high influx of people and vehicles, often resulting in traffic congestion and safety risks to pedestrians due to low consideration for safe and inclusive pedestrian spaces. The street is commonly referred to as 'tea room' owing to its function as a bus stage and a node for vehicles veering the central part of the country. Majority of the buildings along the street are used for commercial purposes, thus making it a commercial street.

Concept design: Pedestrian-oriented Boulevard

The proposed design seeks to repurpose the corridor as an instrument of downtown revitalization to rediscover the downtown area as a



retail and entertainment district, giving pedestrians free reign of tranquil, well-designed environment. The design aimed to extend a functional landscape into the built environment, significantly enriching the user experience, and inviting Nairobians to explore the city's rich and diverse dining, entertainment and retail opportunities.

The design features for the corridor include:

- **Wide walkways:** Accra Road corridor is conceptualized as a pedestrian boulevard linking City-hall way to downtown Nairobi. The design proposes wide, obstruction-free and well-landscaped walkways to accommodate the high pedestrian traffic along the corridor. It prioritizes pedestrian safety and comfort.

 Pedestrians using the carriageway due to limited space on the sidewalks
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 Figure 32: Distribution of spaces along Accra Road

 Figure 33: Accra Road design concept illustration



Space Distribution along Accra Road

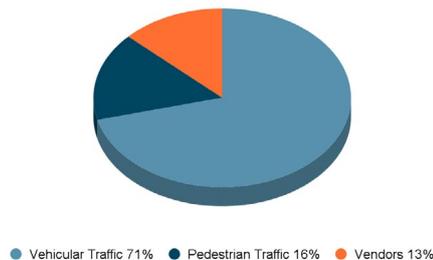




Figure 34: Accra Road Masterplan

- **Protected bike lanes:** The design introduces a two-way protected bike lane as a measure to distribute traffic and serve as an alternative mode of transportation linking the city to the Nairobi River.
- **Traffic calming features:** The design retains the median barriers along Accra Road and introduces obstructions at select points in the form of multipurpose bollards to control and direct vehicular traffic.
- **Pedestrian safety features:** The design introduces strategically located crossing points connecting high traffic walking networks to enhance the safety of pedestrians.
- **Functional and non-obstructive landscaping:** The design takes into consideration the importance of urban greening for aesthetics, as well as environmental and human wellbeing. It therefore proposes careful selection of functional and non-intrusive vegetation species along the entire stretch, to create a green transportation corridor for enhanced environmental sustainability in the central business district.
- **Street furniture:** To enhance user comfort, the design introduces street furniture made of appropriate material to ensure durability and effective use even during extreme weather conditions.
- **Public art plaza:** The design introduces a public art plaza for exhibitions and temporary installations to enhance the vibrancy of the space and create opportunities for creative expression.
- **Outdoor eateries:** The proposal offers opportunities for outdoor eating, promoting the city's vibrant restaurant culture.
- **Monumental installations:** The design introduces sculptures, monuments and water features at select points to enhance the aesthetics and identity of the boulevard. It proposes a Kenneth Matiba statue at the intersection between Tom Mboya Street and Accra Road, now known as the Kenneth Matiba Road, to serve as a way finding element. It also proposes additional monumental features, particularly at the intersections.



Figure 35: Accra Road design concept illustration



Figure 36: Street furniture for user comfort along Accra Road



Figure 37: Monumental installation along Accra Road



- **Seasonal strip mall:** To enhance the contribution of the boulevard to economic development within the CBD area, the design integrates seasonal vending areas along the median. It provides a 2m

wide stretch on either side of the median for the installation of temporary vending stalls to promote the Nairobi economic culture in a formalized and organized manner.

Figure 38: Sections illustrating how the street character changes along Accra Road



ACCRA ROAD MASTER PLAN AND SECTIONS



 Figure 39: Accra Road design concept illustration



 Figure 40: Accra Road design concept illustration



 Figure 41: Accra Road design concept illustration



 Figure 42: Accra Road design concept illustration



 Figure 43: Accra Road design concept illustration



 Figure 44: Accra Road design concept illustration



 Figure 45: Accra Road design concept illustration



 Figure 46: Accra Road design concept illustration



 Figure 47: Accra Road design concept illustration



 Figure 48: Accra Road design concept illustration



 Figure 49: Accra Road design concept illustration



 Figure 50: Accra Road design concept illustration

6.3 Haile Selassie Avenue

Haile Selassie Avenue is one of the major nodes in Nairobi CBD connecting the South and North of the CBD. The corridor has a right of way of 30 m, and roundabouts at the junction with Uhuru Highway, Moi Avenue, and Landhies Road. Major traffic generators along the corridor include Muthurwa market, Wakuli-ma market, Central railway station, Kamukun-ji, and Country bus terminus thus attracting a high volume of pedestrians. In addition, the proposed Nairobi BRT Line 3 is envisaged to run along the corridor.

However, the corridor is greatly affected by pedestrian vehicular conflict attributed to the prioritization of motorized transport and encroachment of on street termini and vending on the limited pedestrian spaces.

Haile Selassie Avenue is therefore conceptualized as a complete street designed to prioritize safety, comfort, and access to destinations for all the users of the street.

Project objectives:

The project aims to transform Haile Selassie Avenue into a safe and inclusive complete street that takes into consideration the needs of all the existing users of the space, through the provision of a mix of amenities including inclusive NMT infrastructure, green public spaces and commercial nodes. The specific objectives of the project include:

- i. To create opportunities for alternative and more sustainable modes of transportation to distribute the traffic along Haile Selassie Avenue, as a strategy to decon-gest the corridor.
- ii. To enhance the street's functions as a public space through the provision of supporting amenities such as street furni-ture and green open spaces.
- iii. To enhance the relationship between the street and its adjacent spaces, including the Nairobi River and other major desti-nations along the corridor.



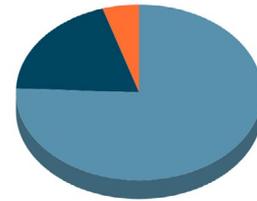
Figure 51: The Haile Selas-sie Avenue Corridor in the Nairobi CBD context



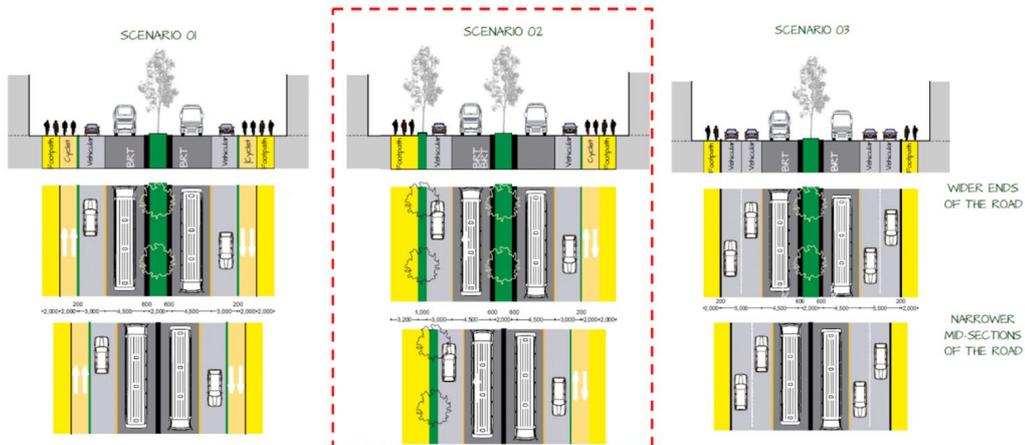
Figure 52: Distribution of spaces along Haile Selassie Avenue



Figure 53 : Haile Selassie Avenue concept design scenarios



● Vehicular traffic 75.7% ● Pedestrian traffic 19.5% ● Other activities 4.8%



Concept design:

The Haile Selassie Avenue design is centered around the safety of the users and measures to reduce traffic congestion for both the pedestrians and the vehicles. The design therefore prioritizes walking and other alternative modes of transport such as cycling. It also considers enhancing public transport as a possible measure to reduce congestion, through the introduction of a BRT system along the avenue.

These considerations resulted in three design scenarios that served as the guide in the development of the Haile Selassie Avenue Masterplan. Scenario 1 provides for footpaths and cycle tracks on both sides of the street and a single lane per direction for mixed traffic. Sce-

nario 2 proposes a two-way cycle track on one side and footpaths on both sides of the street. Scenario 3 provides a two-way mixed traffic movement and footpaths on both sides and leaves out the cycle track. In all three scenarios, 4.0 m wide BRT lanes are included with a 6 m verge separating the BRT lanes.

Scenario two was, however, selected as the most suitable as it promoted safe, comfortable and inclusive non-motorized transportation and provided adequate space for vehicular traffic through the BRT system and the vehicular lane. It also adequately addresses issues relating to human comfort and environmental sustainability through the provision of urban greening.



Figure 54: Haile Selassie Avenue Masterplan



The design features include:

- **Wide footpaths:** The design proposes wide and safe footpaths, free of obstructions, to serve the high pedestrian traffic along Haile Selassie Avenue, thus connecting the various destinations along the street which are often accessed on foot. The walkways are designed for maximum user comfort, integrating urban greening, safe at-grade crossing points, street lighting and street furniture. This is also envisaged to enable the pedestrians to engage in other activities along the street without impeding the flow of traffic.
- **Bike lane:** The concept introduces a two-way bike lane all through the corridor as an alternative mode of transportation aimed to distribute traffic, hence decongesting the corridor, and in turn contributing to environmental sustainability.
- **Bus Rapid Transit lanes:** Following the proposed Nairobi BRT plan, the design includes BRT line 3 with the lanes being 4m wide.

- **Functional landscaping:** The design introduces street trees along the entire corridor to serve several functions, including provision of shade for the street users, particularly the pedestrians and cyclists for enhanced comfort and improving the general aesthetics of the street. It therefore proposes non obstructive vegetation to ensure they do not interfere with the flow of both pedestrian and vehicular traffic.
- **Street furniture:** As part of the interventions to enhance the functionality of the street as well as user comfort, the design proposes street furniture made of appropriate material to ensure durability and effective use even during extreme weather conditions. This is also envisaged to create opportunities for social interactions along the corridor.
- **Riverfront Park:** The design not only aims to ensure effective flow of traffic along the corridor, but also aims to enhance the environmental sustainability of the adjacent public spaces for an integrated approach to urban development. It therefore introduces a riverfront park along the Nairobi River Section crossed by Haile Selassie Avenue as a new ecological and recreational destination for the residents of Nairobi, thus improving the state of the river while enhancing the quality of life for the people. This is also envisaged to create a remarkable impact as part of the regeneration of the Nairobi River, as the area serves a high number of users from...



Figure 55 : Haile Selassie Avenue design concept illustration



Figure 56 : Haile Selassie Avenue design concept illustration



- Vending areas: As a measure to accommodate the existing commercial activities along the corridor, the design proposes designated commercial zones at select points along the corridor in order to regulate the activities and to ensure they do not interfere with the smooth flow of traf-

fic especially along the footpaths. This is also an opportunity to enhance economic growth within the central business district and to promote the local economy through seasonal street markets and daily commercial activities.



Figure 57: Haile Selassie Avenue Masterplan



Figure 58: Haile Selassie Avenue Masterplan





Figure 59: Haile Selassie Avenue Masterplan



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