



# Ruiru Sustainable Urban Mobility Plan (SUMP)

**Ruiru on the Move**  
Promoting Walking & Cycling



**UN HABITAT**  
FOR A BETTER URBAN FUTURE

REPUBLIC OF KENYA  
  
COUNTY GOVERNMENT OF  
KIAMBU

  
UON  
University of Nairobi



## Background

UN-Habitat has been funded by DFID to support Kenya transition to a low carbon climate resilient development pathway reducing the country's vulnerability to climate risk and improving livelihoods while contributing towards the global efforts to reduce green-house gases emissions. The project under the name **Catalysing Low Carbon Transport in Kenya was implemented by UN-Habitat mobility unit and UNEP**. This work is premised in the context that Kenya is rapidly urbanizing, with the population of the Nairobi metropolitan region expected to reach 20.6 million by 2030. One of the significant consequences is increased transport related externalities. The country's urban transport sector is a key source of air pollution (small particulates) and climate emissions (CO<sub>2</sub> and black carbon). Better city planning, a systems approach, and introduction of proven approaches and technologies can significantly reduce these emissions and facilitate poverty reduction, economic growth and sustainable development, in addition to enhancing the resilience of transport in light of climate change adaptation.

The National Climate Change Action Plan recognizes Kenya's transport sector as a major climate change contributor. Current infrastructure is poorly integrated, overburdened and inaccessible to many Kenyans. Non-motorized transport facilities are inadequate despite the majority of trips in cities being on foot, estimated at 47% in Nairobi. Passenger cars represent a significant and rapidly growing segment of the transport sector; comprising of old and poorly maintained vehicles, coupled with poor fuel quality. Though carrying a mere 22% of travelers in Nairobi, they account for 64 % of traffic volume. Heavy-duty vehicles (HDVs) deliver the majority of freight across the country, further contributing to emissions. For Kenya, planning and implementing low-carbon transport strategies within the context of on-going urban planning processes is one of the most feasible means of reaching a low carbon climate economy while also addressing poverty and promoting development.

UN-Habitat has been supporting Kiambu County in this regard and has assisted the county to undertake a participatory process that has produced a sustainable urban mobility plan (SUMP) for Ruiru town. This supports the goal of adoption of the 2030 Development Agenda, goal (SDG 11) to 'Make cities inclusive, safe, resilient and sustainable'. In order to achieve SDG 11, concepts, experiences and approaches have to

be tested and applied in rapidly growing cities in developing countries. In addition, the New Urban Agenda instigates a departure from the supply-driven and car-based paradigm of transport. It articulates a new vision of sustainable urban mobility, "we envisage cities and human settlements that fulfill their social function including equal access for all to public goods and quality services in areas such as food security, health, education, infrastructure, mobility, transportation, energy, air quality and livelihoods".

## The Scope of SUMP

**A Sustainable Urban Mobility Plan (SUMP)** is a strategic plan designed to satisfy the mobility needs of people and businesses in cities and their surroundings for a better quality of life. It builds on existing planning practices and takes due consideration of integration, participation, and evaluation principles. It is thus, a complementary exercise (mapping out what is already existing and on-going efforts). Sustainable urban mobility planning contributes to the movement of people and goods within an urban region in a way that delivers the environmental, economic and social dimensions of sustainability. This is characterized by an integrative approach to the provision of competitive modes of transport; minimizing air pollution (including GHG emissions) and noise pollution; promoting the economic development of a city; and being affordable to users and taxpayers (ACOLA, 2015). **It is an approach to transport planning that prioritizes people rather than any particular mode of transport. Such an approach has the potential of making better use of existing transport infrastructure.**





The broad purpose of any mobility planning exercise is to identify how far the needs of existing and potential transport users are being met, and to close any gap between what is provided and what is needed. SUMP is the result of a structured process that comprises status analysis, vision building, objective and target setting, policy and measure selection, active communication, monitoring and evaluation – and the identification of lessons learnt. Thus there are two elements:

- Assessing what infrastructure and services are provided to support existing mobility demand.
- Deciding what infrastructure and services are needed to meet current and future demand or to meet policy objectives.

Sustainable Urban Mobility Plans cover all modes and forms of transport in the entire urban agglomeration, including public and private, passenger and freight, motorised and non-motorised, moving and parking. **The scope of the proposed Ruiru SUMP is NMT (walking and cycling planning) integrated with other modes and thus creating an effective model.**

### Ruiru SUMP Context

The Kiambu County Integrated Development Plan - CIDP (2013-2017) seeks to create and transform systems, structures and institutions based on five key pillars of security, employment, education, health and urban planning. The CIDP takes into account various roads related projects. For Ruiru Sub County, the plan lists construction of a 10km paved NMT infrastructure at a cost of Kshs. 100 million as one of the projects to be undertaken during the plan period. The CIDP transformation path is in line with Ruiru SUMP in as far as a well-organized peoples' mobility enhances the five pillars. Under the urban planning pillar, the department of roads and transport is charged with the responsibility of overseeing the maintenance





of the core access road networks in the County, development and implementation of an Integrated and Comprehensive Road Policy which shall inform a coordinated approach in the mobilization and utilization of resources for the construction of feeder roads. SUMP will facilitate better targeting of those walking and cycling in the new road feeder roads.

There are ongoing initiatives that are expected to significantly impact on the peoples' mobility in Ruiru. Under the Nairobi Metropolitan Service Improvement Project (NamSIP), Ruiru has received financial support to upgrade Hospital Road to bitumen standard with ample provision for NMT users. The road serves the market, the hospital and primary schools and connects the bus park and the commuter railway station. NamSIP is also financing the Ruiru Integrated Urban Development plan whose preparation was launched in January 2017. This plan will be harmonized with the SUMP.

### Setting and Methodology

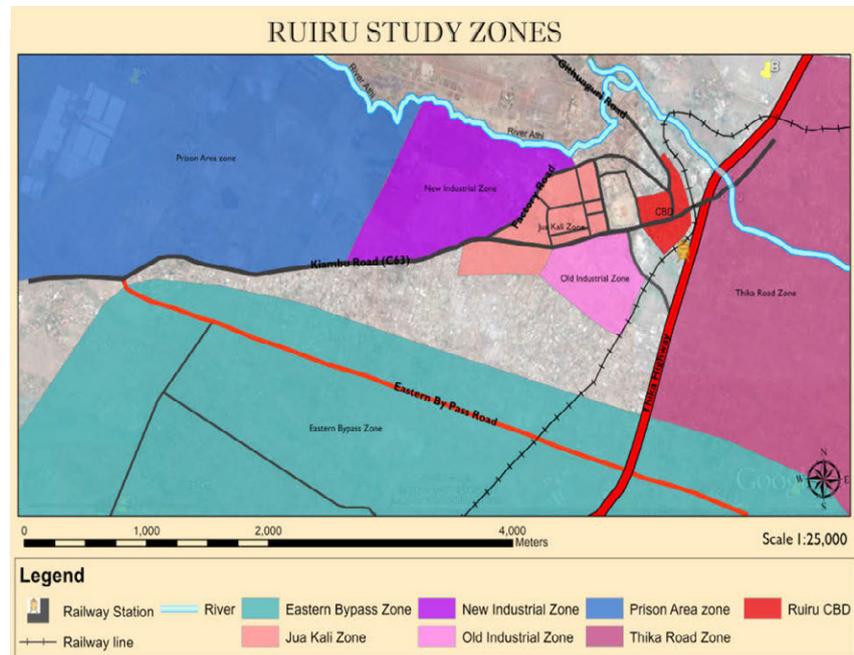


Table 1: Zones covered by the survey

| ZONE            | FREQUENCY | PERCENTAGE |
|-----------------|-----------|------------|
| CBD             | 32        | 12.0       |
| Old Industrial  | 32        | 12.0       |
| New Industrial  | 30        | 11.3       |
| Prisons         | 25        | 9.4        |
| Jua Kali        | 29        | 10.9       |
| Railway Station | 32        | 12.0       |
| Thika Road      | 31        | 11.7       |
| Eastern By-Pass | 55        | 20.7       |
| Total           | 266       | 100.0      |

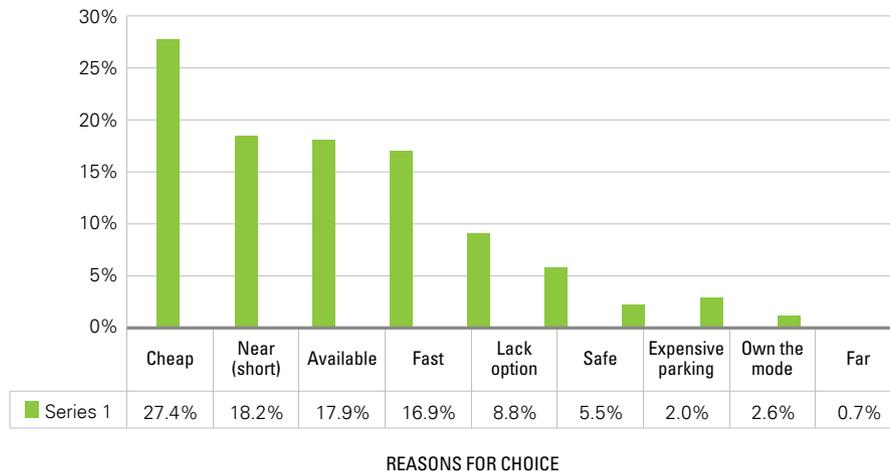
The SUMP was undertaken for Ruiru Town in Kiambu County. In developing SUMP, the exercise applied the Rapid Assessment Tool for Urban Mobility (TRAM) and Urban Poor Assessment Tool to ensure that pro-poor modes of transport mainly (walking and cycling) are given proper attention and well integrated with other modes.

The method benefited from both primary data collection and secondary data review which ensured that groups that might not be captured by a random survey such as People Living with Disabilities (PLWDs) are given voice through Focus Group Discussions (FGDs) and Key Informant Interviews. A Total of 266 travelers (table 1) were interviewed in the 8 traveling zones namely; Ruiru Prisons, Eastern By-Pass, Jua Kali Zone, New Industrial and Old Industrial zone, Thika Road and Ruiru CBD Zone. Two day 12 hours traffic count was also done. Several institutions and stakeholders including Kiambu County Government Officials and transport operators were also interviewed. The field work began on 10th of December 2015 to October 2016.

### Situational Analysis

Survey findings show that majority of travelers (86.3%) start their journey by walking from their points of origin to the first transfer point. This reduced to 51.4% for those who walk from their origin to their regular destination without changing to different modes. Cycling as a mode to regular destination registered 5.0%. Matatus as popular mode used from second transfer point to destination (56.3%) followed by motorcycle at 21.9 %. This implies that different modes play important functions at different levels, which justifies a case for modal integration in Ruiru.

Chart 1: Determinants of Mode of Transport Choice





### Travel Distance

Distance covered by most travelers was between 1-3km as reported by 62.9% and around 80% covering a maximum of 5 km all as shown in table 2. This is a distance which can comfortably be covered by bicycle given that the terrain of most parts of Ruiru is gentle, but the challenge remains the provision of cycling paths and parking facilities for bicycles.

Table 2: Regular Destination Approximate Distance

| REGULAR DESTINATION DISTANCE | FREQUENCY  | PERCENTAGE   | CUMULATIVE PERCENTAGE |
|------------------------------|------------|--------------|-----------------------|
| Less than 1 Km               | 70         | 26.5         | 26.5                  |
| 1-3 Km                       | 96         | 36.4         | 62.9                  |
| 3.1-5 Km                     | 45         | 17.0         | 79.9                  |
| More than 5 Km               | 53         | 20.1         | 100.0                 |
| <b>Total</b>                 | <b>264</b> | <b>100.0</b> |                       |

Table 3: NMT and Motorized Traffic for Weekday and Saturday

| CORDON POINT       |             |                     |                      |                 |                  |                  |                   |
|--------------------|-------------|---------------------|----------------------|-----------------|------------------|------------------|-------------------|
| Date/Traffic Type  | Plains view | Bogie View In Bound | Bogie View Out Bound | Police In Bound | Police Out Bound | Prisons In Bound | Prisons Out Bound |
| Weekday NMT        | 7%          | 22%                 | 16%                  | 32%             | 33%              | 35%              | 30%               |
| Weekday Motorised  | 93%         | 78%                 | 84%                  | 68%             | 67%              | 65%              | 70%               |
| Saturday NMT       | 6%          | 16%                 | 13%                  | 49%             | 25%              | 30%              | 24%               |
| Saturday Motorised | 94%         | 84%                 | 87%                  | 51%             | 75%              | 70%              | 76%               |

### SUMP Proposal Considerations

- Engineering Design Considerations** - General Design Principles in relation to- convenience, accessibility, safety, comfort and attractiveness; The need to achieve links with key destinations.
- Urban Planning Considerations** - Network profiling- mapping the main activity areas, the road/street network and connectivity, and street furniture and hardware.
- Institutional Considerations**- Institutional mandates and responsibilities- National and County governments, Roads and transport agencies, donor community Private sector and local actors; (Stakeholders Mapping), Ongoing possible complementary initiatives such as NamSIP.

### Proposed interventions

There are a number of strategic intervention and priority projects which can make a difference in mobility for Ruiru. The interventions are visualized in Map 3 among them, modal integration, network and connectivity enhancement, re-distribution of traffic, and decongesting the streets.

#### Enhance connectivity and integrate transport with land use:

This intervention addresses the aspect of missing links and additions to the existing networks to encourage better linkage of activity areas. Measures will look into more rational mobility patterns such as shorter routes, and provide appropriate transport networks for various categories of land uses.

**Provide dedicated lanes for NMT:** This is shown in green on Map 3. Interventions entail provision of separate lanes for the exclusive use by non-motorized transport modes. This will enhance the safety of NMT users and eliminate conflict between motorized and non-motorized transport.

**Improvement of informal business premises:** Informal business lining the pedestrian precincts should be improved in terms of site layout, construction fabric, and site management interventions. The resultant outcome will be business activities organized in a cleaner and aesthetically pleasant environment with adequate provision for pedestrian traffic.

**Redistribute/restrict light industrial activities to dedicated clusters:** Unlike informal retail businesses, light industrial activities will be relocated away from pedestrian walkways.

**Define and secure crossing levels:** Crossing levels should be synchronized with the traffic flow and will be clearly marked and accompanied by traffic calming interventions to reduce automobile-related accidents.

**Improvement of street infrastructure:** All worn out infrastructure should be revitalized or replaced in some areas. The layout of this infrastructure should be redesigned to accommodate sitting arrangements that are conducive for socialization.

**Physical design of key intersections:** All key intersections should be redesigned to clearly show the right-of-way and direction of traffic flow. This is meant to eliminate traffic gridlocks and congestion of such junctions. Such junctions will have clear lines of vision to avoid accidents caused by visual obstructions.

**Enhanced pedestrian safety:** Pedestrian safety should be enhanced by providing separate dedicated lanes demarcated by barriers such as bollards. Other measures will include traffic calming at strategic locations as well as human-scale lighting for use at night. Pedestrian network design should as much as is practicable benefit from natural surveillance as a crime-prevention strategy.

**Provide complementary human-scale lighting:** These should be provided to complement the full-height street lights to enhance lighting at the lower ground, where most of the activities happen. Such human-scale lighting can be camouflaged with hedges to filter the light.

**Provide parking lots at strategic locations:** Parking services should be upgraded by opening more parking lots at strategic areas based on traffic distribution and appropriateness of sites.

**Improve on provision of terminal facilities:** Existing terminal facilities should be improved and new ones provided at appropriate locations for motorized and non-motorized transport. New terminals for both commercial and public service vehicles should be located on outlying sites to avoid congestion.

**Provide variety of integrated signage at strategic locations:**

Different signage should be designed to enhance communication at different scales. Integrated signage should be explored to avoid clutter emerging from the indiscriminate location of different sizes and designs of signage. This will be implemented at major intersections and vantage points.

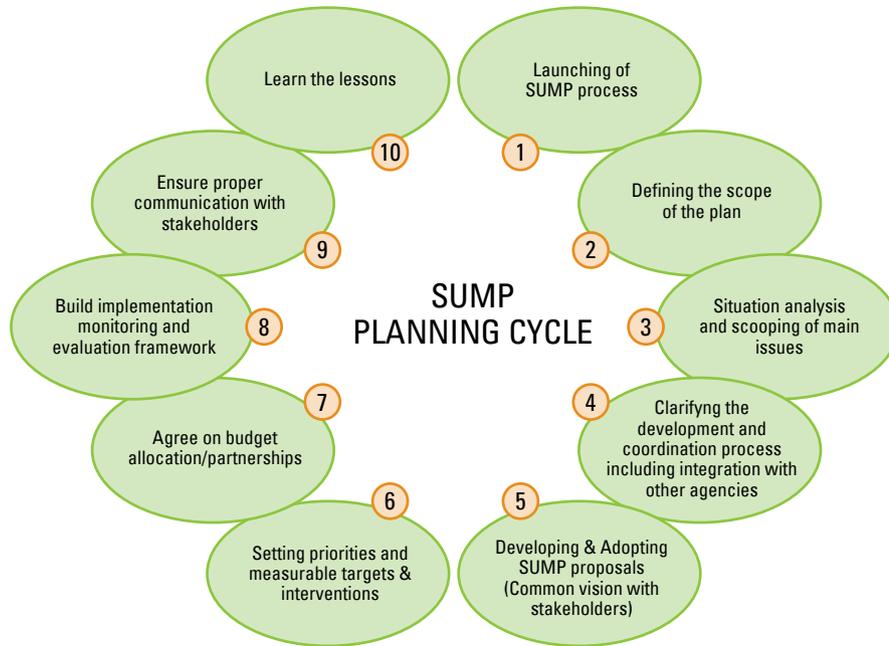
**Revitalize the boulevard for leisure and as a waiting area:** The green areas along the main spine (C63) should be revitalized through landscape design interventions in order to restore them for full public use. This will entail redesign of furniture, paving of walking areas, and traffic calming on the adjacent roads. Similar interventions should be executed at the proposed park near the railway station.

**(Re) Construction of pavements in pedestrian zones:** All worn out stretches along pedestrian walkways should be rehabilitated accordingly for continuity and seamless pedestrian movement. New pavements should also be introduced in areas whenever new links and connectivity are established.

## Strategic partnerships

The table below gives a summary of key partnerships in taking ahead the SUMP proposals:

| INSTITUTION   | MAIN AREA OF COLLABORATION   |
|---|--|
| <p><b>National stakeholders</b><br/>                     Ministry of Infrastructure, Transport, Housing &amp; Urban Development; Kenya Urban Roads Authority (KURA); Kenya Roads Board (KRB); Kenya Rural Roads Authority (KERRA); Kenya National Highways Authority (KENHA).<br/>                     National Transport and Safety Authority-NTSA, Traffic Police</p> | <ul style="list-style-type: none"> <li>• Policy Development on urban transport</li> <li>• Management, rehabilitation and maintenance of highways and some of the trunk roads which transverse counties.</li> </ul> <p><b>Action area:</b> Standards and design specification for urban roads; Catering for all road users - appropriate design of footbridges, and provision for persons with disabilities; Enforcement by police &amp; NTSA<br/>                     Management of termini along the Thika Superhighway and Eastern Bypass to ease congestion in Ruiru.</p> |
| <p>Nairobi Metropolitan Services Improvement Programme (NAMSIP)<br/>                     Rift Valley Railways (RVR), Kenya Railways Corporation</p>   | <ul style="list-style-type: none"> <li>• Market rehabilitation, improvement of Ruiru-hospital road; NMT infrastructure.</li> <li>• Nairobi Commuter railway development master plan Phase 1</li> <li>• Rehabilitation of the station.</li> <li>• Action area: Design of the intermodal terminal to link with the bus passenger transport.</li> </ul>   |
| <p>Nairobi Metropolitan Area Transport Authority (NAMATA)</p>   | <ul style="list-style-type: none"> <li>• Overseeing the establishment of an integrated, safe, efficient, reliable and sustainable transport system within the Nairobi Metropolitan area.</li> </ul> <p><b>Action area:</b> Harmonizing public transport (BRT) along Thika Superhighway with mobility plans for Ruiru Sub-County.</p>   |
| <p><b>County level stakeholders:</b><br/>                     Planning department<br/>                     Engineer’s department</p>  | <p>Overall planning and provision of the legal and regulatory framework – County Integrated Development Plan; County Spatial Plan;</p> <p><b>Action area:</b> Prioritizing space for NMT; Allocating more space for public utilities and controlled use of public spaces</p>   |



### Next steps in rolling out SUMP

Steps 1-5 are complete and form a critical part of the planning process. The SUMP proposals have been presented to the Cabinet and received endorsement with the recommendation that the plan be incorporated in the 2017-2018 County fiscal paper.

The immediate action is for the County to establish a committee to take up the activities outlined in steps 6, 7, 8 and 9. Planners, engineers and decision makers are exposed and equipped to undertake 'SUMP' which is a participatory planning approach. This process is expected to filter to other urban centres in the county. The next step in Ruiru involves further consultations with the various

road users – pedestrians, cyclists, para transit operators, business community towards implementation of the proposed interventions.

UN-Habitat is continuing support by helping in the preparation of street design standards and a comprehensive transport policy covering the entire County. The implementation of improved streets in combination with site-specific technical solutions will result in greater accessibility and a better urban environment. Other aspects of work by the County in rolling out SUMP will include:

1. Continuous stakeholder coordination and human resource capacity building.
2. Deployment of staff to beef up the existing portfolio

3. Close liaison between the transport and physical planning departments on land use.
4. Negotiation with different stakeholders through education, exposure and mutual agreements. Priority should be given to negotiating with public agencies including the Kenya Railways Corporation and Kenya National Highways Authority and some property owners. These agencies own public land in Ruiru, some of which should be reallocated for traders and parking by motor cyclists and vehicles.
5. Road safety campaigns towards an integrated access and mobility within Ruiru which promotes a hybrid system in which all users are considered and catered for.

## Conclusion and lessons learnt

The rapid and often unplanned and uncoordinated growth of towns and cities has seriously compromised existing transportation systems and increased the challenge of creating sustainable modes in developing countries. Planners and policy makers are often faced with conflicting demands; on the one hand providing an attractive environment for businesses and creating a high quality of life; while on the other hand restricting traffic movement in some areas while not curbing the necessary movement of goods and people. These conflicting priorities have brought about the need to address the mobility demands of such areas sustainably. The new paradigm is to have more sustainable and integrated planning processes as one way of dealing with these complexities. The SUMP introduced a new approach of local consultations that are well informed by good practices in other cities. The process initiated training and capacity building for staff in Kiambu County and promoted collaboration between the local and national authorities.

The institutional analysis and stakeholder consultations brought out the realities and challenges in implementing the SUMP proposals.

Most stakeholders desire to have an efficient transport system but have also highlighted challenges such as lack of walking and cycling infrastructure, parking spaces, land, and general congestion in the CBD. The key challenge for a small fast growing town - limited human capacity to plan and implement sustainable urban mobility measures, can be overcome by prioritizing budgetary inputs to support safer streets with walking and bicycle integrated with public transport.

An *important lesson* that emerged from the SUMP process in Ruiru is that local authorities not only need adequate human resource capacity and expertise in terms of improving conditions for walking and cycling. They also need to have a greater decision making role in projects financed by international financial institutions, such as NAMSIP.

A useful link in the future is with the "Nairobi Area Metropolitan Transport Authority". This authority in collaboration with the decentralized counties needs to make consideration to plan for smaller but fast growing cities in the periphery and how this impacts on sustainable transport in the metropolitan.

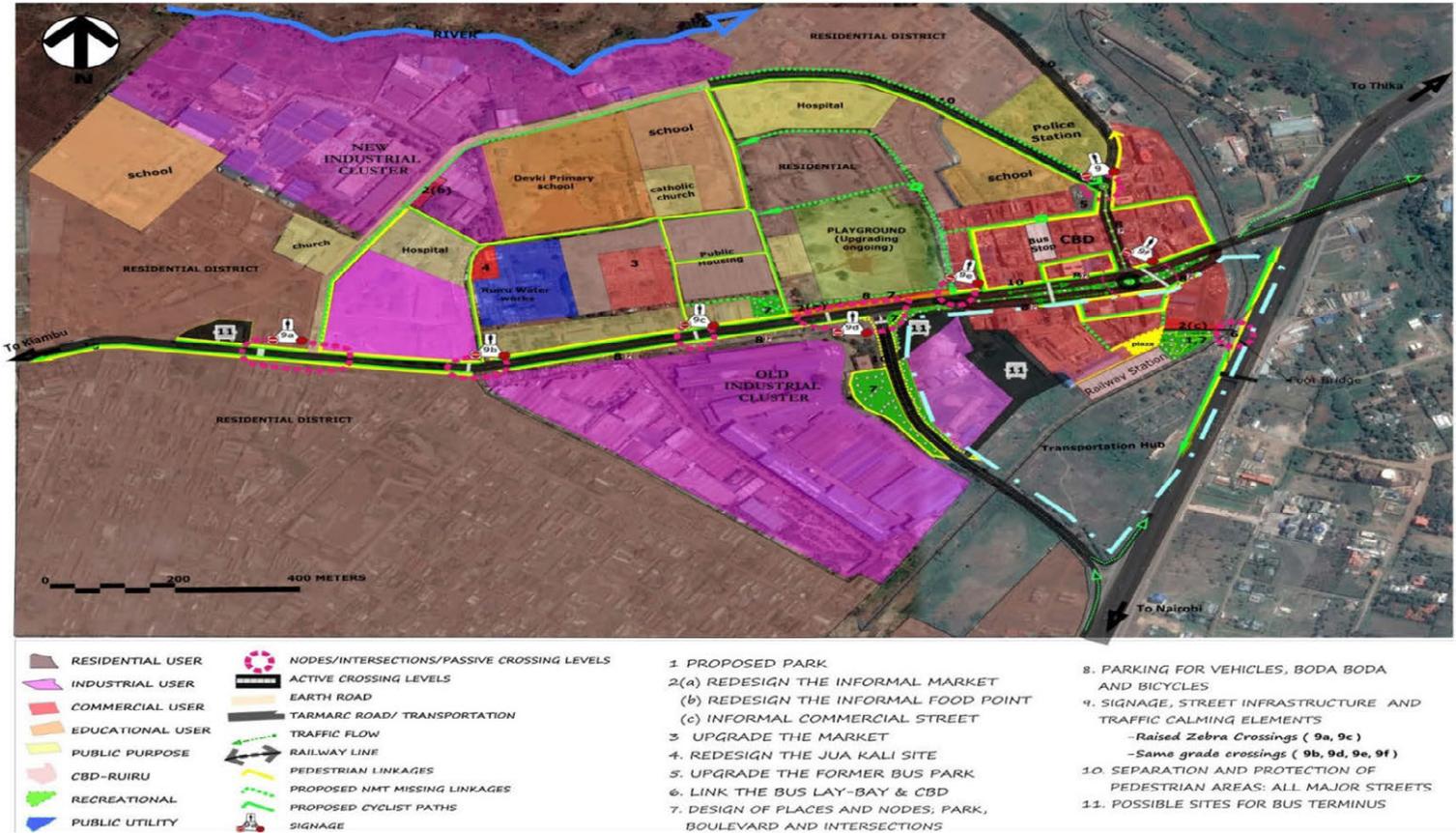


## Ruiru Problem Map Analysis (location areas)



Prepared by the **University Nairobi** team (Prof. Winnie Mitullah, Dr. Samuel Obiero, Dr. Romanus Opiyo, Arch-Planner Charles Karisa, Sharon Boit, Richard Otieno & Raphael Indimuli) with Assistance of **UN-Habitat** team (Debashish Bhattacharjee, Priscilla Muchibwa, Rahab Mundara & Stefanie Holzwarth) & **Kiambu County** Team (Eng. Njeri Mburu, George Kamau & Kenneth Kamumbu).

## Action Plans and Proposals



Prepared by the **University Nairobi** team (Prof. Winnie Mitullah, Dr. Samuel Obiero, Dr. Romanus Opiyo, Arch-Planner Charles Karisa, Sharon Boit, Richard Otieno & Raphael Indimuli) with Assistance of **UN Habitat** team (Debashish Bhattacharjee, Priscilla Muchibwa, Rahab Mundara & Stefanie Holzwarth) & **Kiambu County** Team (Eng. Njeri Mburu, George Kamau & Kenneth Kamumbu).



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