

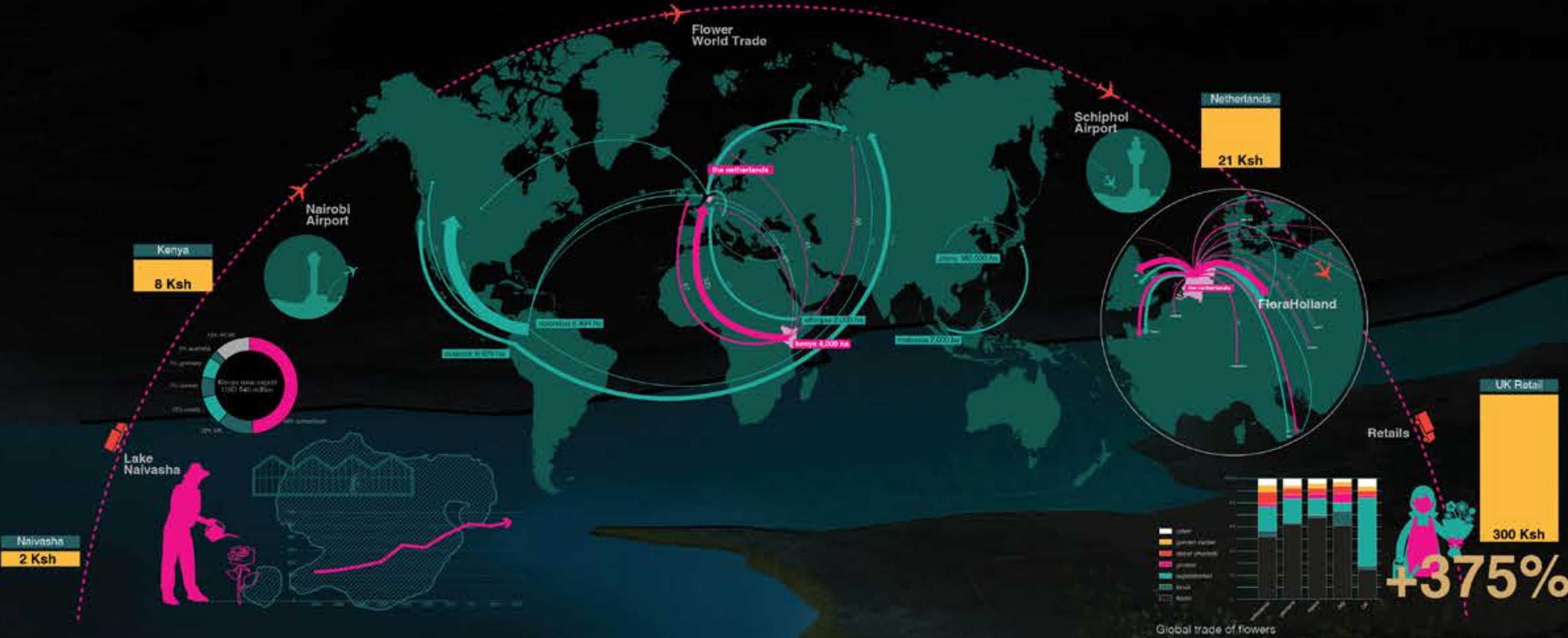
KENYA IN THE GLOBAL FLOWER MARKET

Kenya is the third largest exporter of cut flowers in the world, accounting for about 35% of all the flower sales to Europe. Due to its famous long lasting quality, the popularity of the Kenyan flowers is also increasing in the U.S. and Russia. The primary reason attributing to the high-quality blossoms all year-round is Kenya's tropical climate. With the strong transport links from Nairobi airport to Europe, from where it is transported to the rest of the world, the export of cut flowers is made smooth and

feasible. To further facilitate the transportation of the perishable flowers as swift as possible, there is a terminal dedicated especially for flower cargos.

Kenya's high stake in the global flower market is encouraging foreign direct investments, resulting in the booming flower sector alone contributing 1.3% to the national economy. In the process of transferring

these flowers from the grower to the consumer, the economic value of the flower increases by 375% when compared to its original worth in Kenya. However, the main beneficiaries of this operation are foreigners and the local economy of Kenya is still stagnant. There is a higher focus on meeting the global demands rather than catering to the local needs, and there is a rising need to relook at this form of economic development driven by global giants and steer it to promote the local economy.



LAKE NAIVASHA : THE FLORAL BASIN

Lake Naivasha is an important hub for flower farms, by virtue of its abundant freshwater reserve and fertile soil for agriculture. Its close proximity to Nairobi airport and skilled labor force in the region are advantages for the flourishing industry. The highest percentage of flowers grown in this region is roses. There are about 5,627,000 cubic meters of outdoor rose farms and 2,122,000 cubic meters of indoor rose farms around Lake Naivasha.

Though on the one hand the flower industry is increasing the economic opportunities for people in the region, it is damaging the environmental

quality of the lake basin. The extensive use of fertilizers and pesticides in order to enhance the flower yield is deteriorating the quality of the soil and water gradually. The groundwater extraction for irrigation is resulting in frequent fluctuations in the level of the lake affecting the biodiversity of the region adversely.

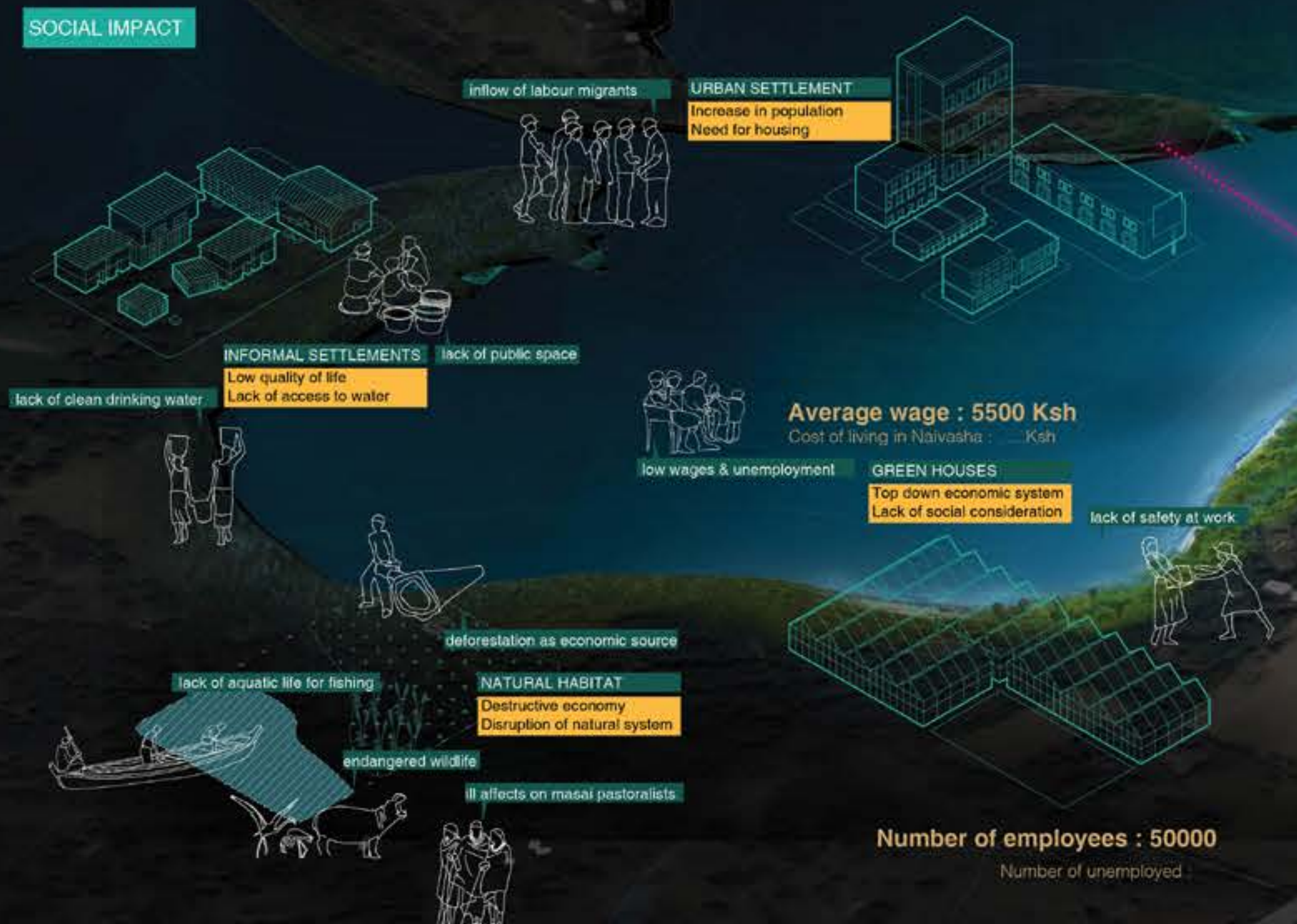
Moreover, the insensitive use of natural resources is having social implications on the settlements along the lake. The polluted water is no longer able to sustain the aquatic life in the lake, which was one of the main sources of employment and income for the local inhabitants. The

fresh water of the lake is also a source of water for drinking and domestic purpose, but now has become detrimental to the health of people. The monopoly of the large flower industries has led to the high dependency of the local inhabitants on the industry for employment. The low standard of working environment is a consequence of this powerlessness of the workers and the pressure of the global forces. The poor working conditions of workers and the lack of alternate sources of employment is compelling the local people to indulge in destructive and illegal activities like deforestation, overfishing, etc. These causing further damage to the environment.

ENVIRONMENTAL IMPACT



SOCIAL IMPACT



RAISE • RISE • ROSE

DIVERSIFYING NAIVASHA'S LOCAL ECONOMY THROUGH CIRCULARITY

The flower industry is the backbone of the economy in Lake Naivasha. Therefore, it is used as a basis for developing a strategic plan for the region. Inspired by the concept of metabolism, space for potential alternative economies is designed, which are derived from inflows and outflows of the existing industry.

The major inflows include pesticides and water, which are essential resources for the industry but are critical in maintaining the environmental quality of the Lake basin. The chemical pesticides, currently polluting the soil and water, could be substituted by natural pest control. The constructed wetland along the bank of the lake could provide an environmentally sensitive approach to filtering and recycling the water

back to the industry subsequently maintaining the level of the water in the lake. The largest outflow of the industry is the bio-wastes, which includes the cut stems and leaves. This could be used to produce bricks for construction, which could meet the demand for housing and public space. In this way, the flows of the industry could be circulated and the local economy could be diversified.



A harbor is designed as a public access for local residents and fishermen for an easier approach to the lakefront. The harbor deck offers space for fish markets where there could be a direct interaction between the fishermen and the local inhabitants. From the harbor, a canal is designed for the accessibility of boats from the lake to the inland. Besides this, the harbor also serves the boats for tourism which generates an additional revenue to the local economy.

Houses of ladybugs are extension of the existing farms, which cultivate the host plant for breeding the ladybugs. The ladybugs are grown to replace chemical pesticides, which are detrimental to the environment. This space functions as an atelier which integrates production, education and public engagement.

Countries in development share many issues. Large international companies (may it be in the service industry, manufacturing industry or in our case, floriculture) tend to exploit cheap labor force and restriction-free raw-material mining of the Global South. Competitions in the global private sector create a vicious circle, an ever increasing gap between what the locals give and what the locals get back in return.

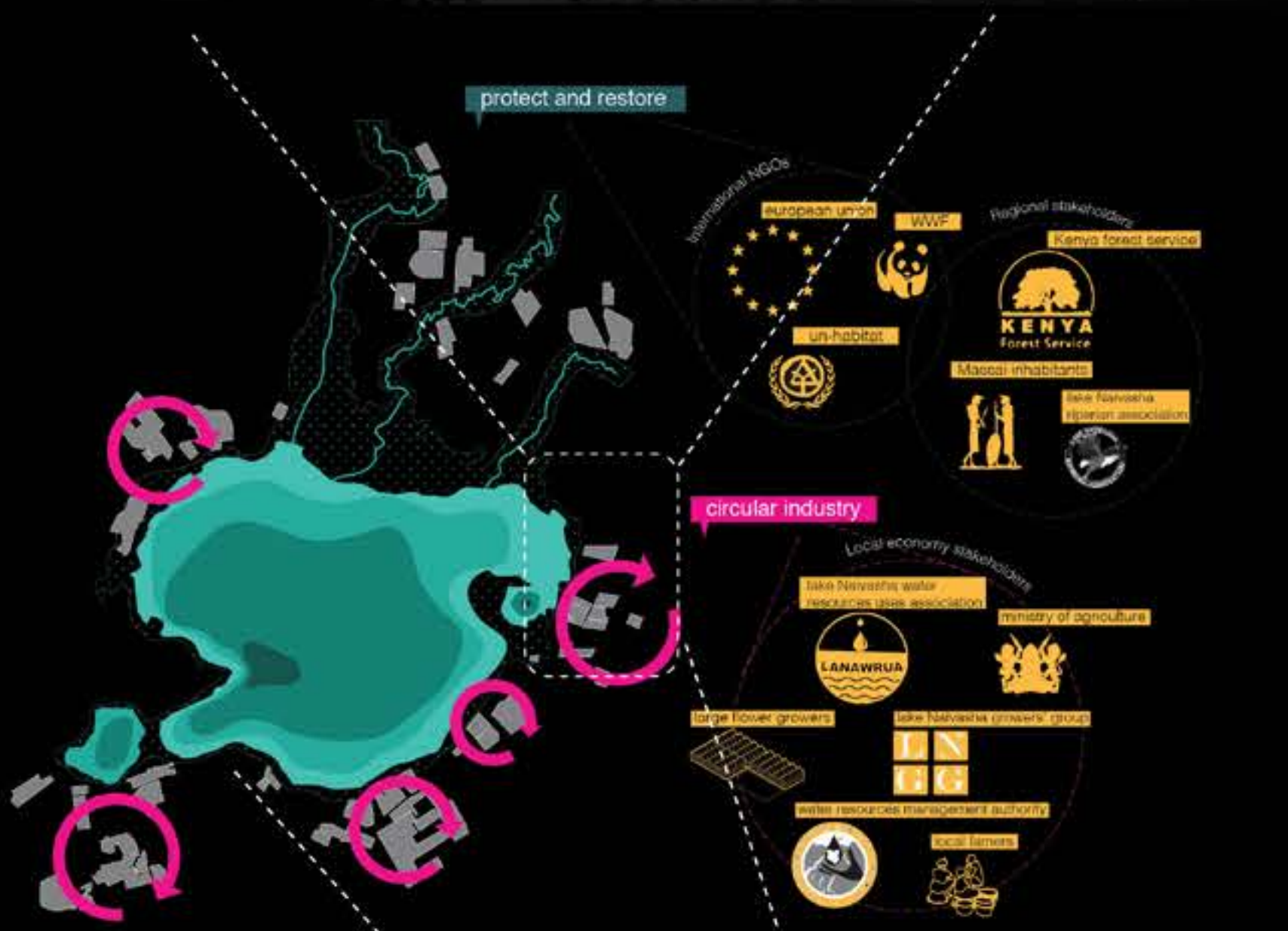
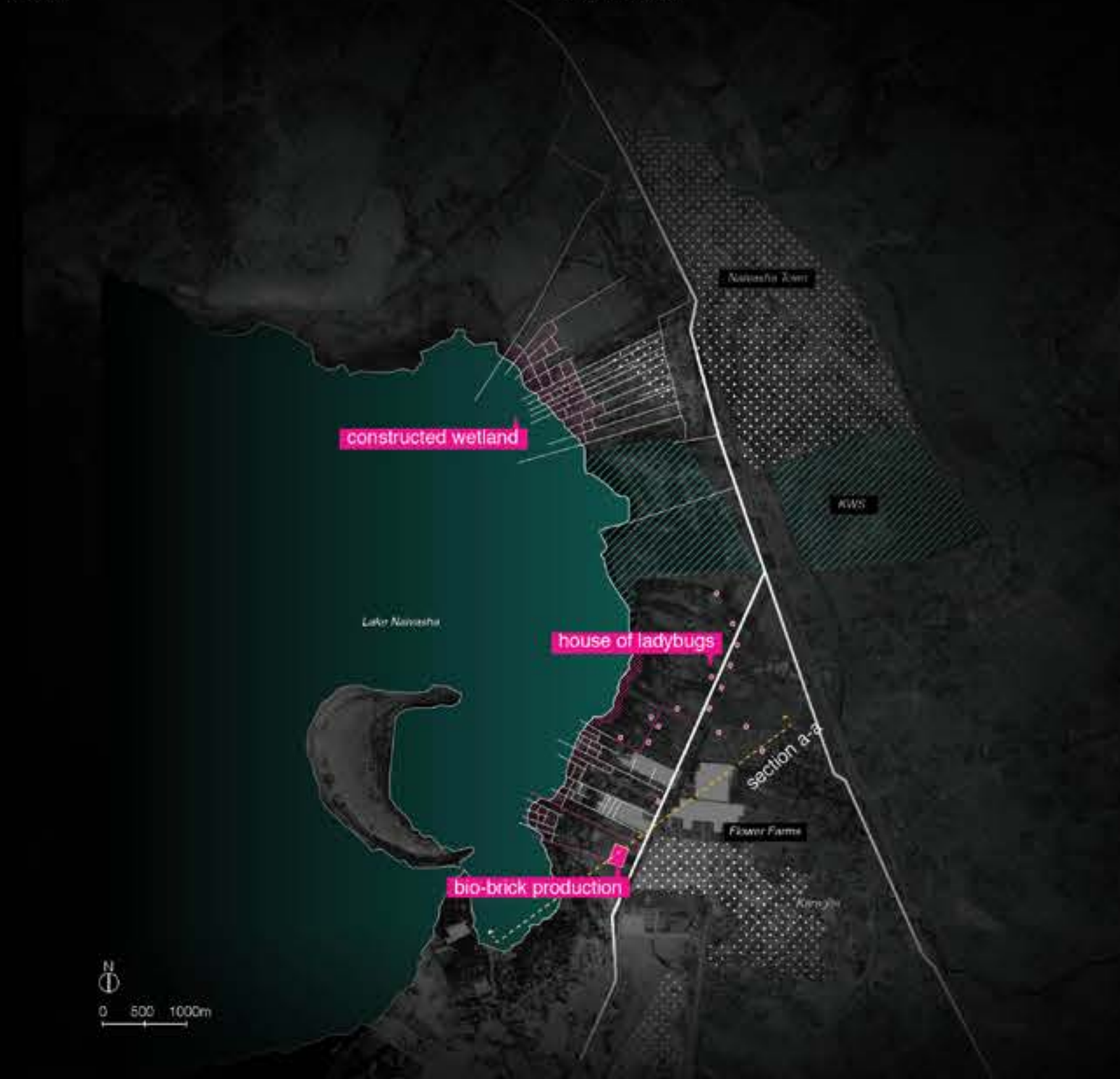
Our design focuses on providing Naivasha (its region, the lake as well as the city itself) a sustainable future with site-specific design elements.

Our methodology, however, is applicable, and could be replicated in any other location on the planet where fragile and precious local resources (soil, minerals, climate or workforce) are turned into profit for the welfare societies of the Global North.

REJUVENATING THE LAKE

The main goals of the project are the protection of the ecosystem and enhancing the urban vitality along the lakefront. The first spatial strategy incorporates the cordoning of the environmentally sensitive zones and re-stricting future development in these areas. These zones mainly comprise of the riparian area along the lake and the two estates of Giji and Malewa as well as the area around the Kenyan wildlife services. This would conserve the existing wildlife corridor and the ecological flows of the region.

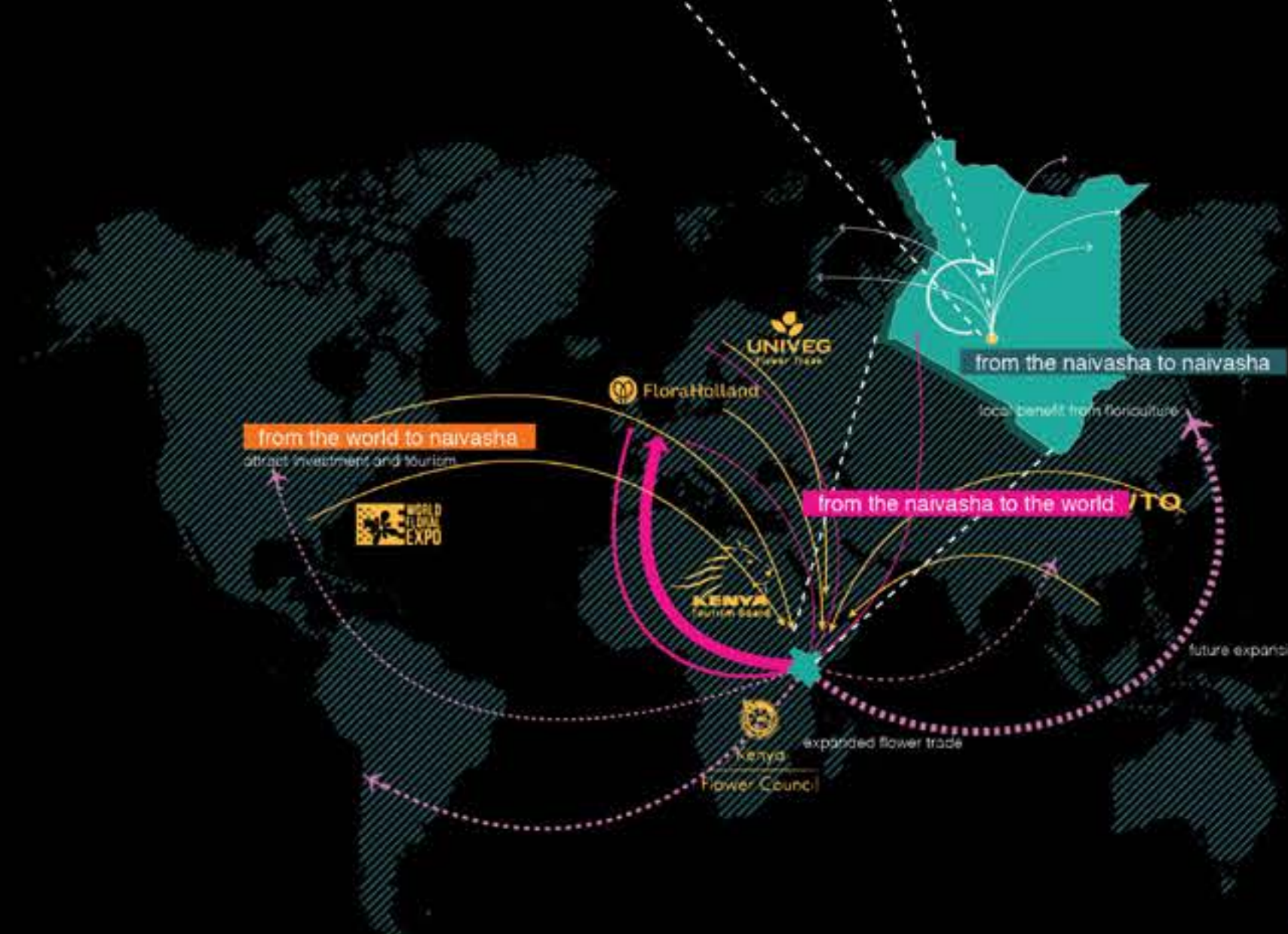
The second spatial strategy is a consequence of the spaces created by the circular flows of the flower industries. Additionally improving the accessibility to the lake and enhancing the spatial quality of the public space accomplish urban vitality. The circular industrial flows generate revenue at the local scale by engaging stakeholders at different scales. By redirecting the investments of international and regional stakeholders, environmentally and socially sensitive production of flowers can be made feasible.



REPOSITIONING OF KENYA

At the global scale, these local interventions would improve the credibility and quality of flowers exported from Kenya. This would further augment the Kenyan flower trade across the world, which would lead to the economy of the country to flourish. The increasing contribution of the flower business in the national GDP

could further trigger national and international investment in the business. This would lead to the overall development of the Naivasha lake Basin and facilitate the improvement in the quality of life of the local inhabitants.



CONCLUSION

The objective of the proposed design is to illustrate the approach that could be adopted to facilitate economic development with the conscious consideration of the social and environmental context. It taps the inherent potential of the site by presenting a platform for the local economy to flourish on the foundations of the industrial economy in spite of the rising pressure of the global market. It exemplifies the integration of industrial economy, environmental sustainability and social inclusion.



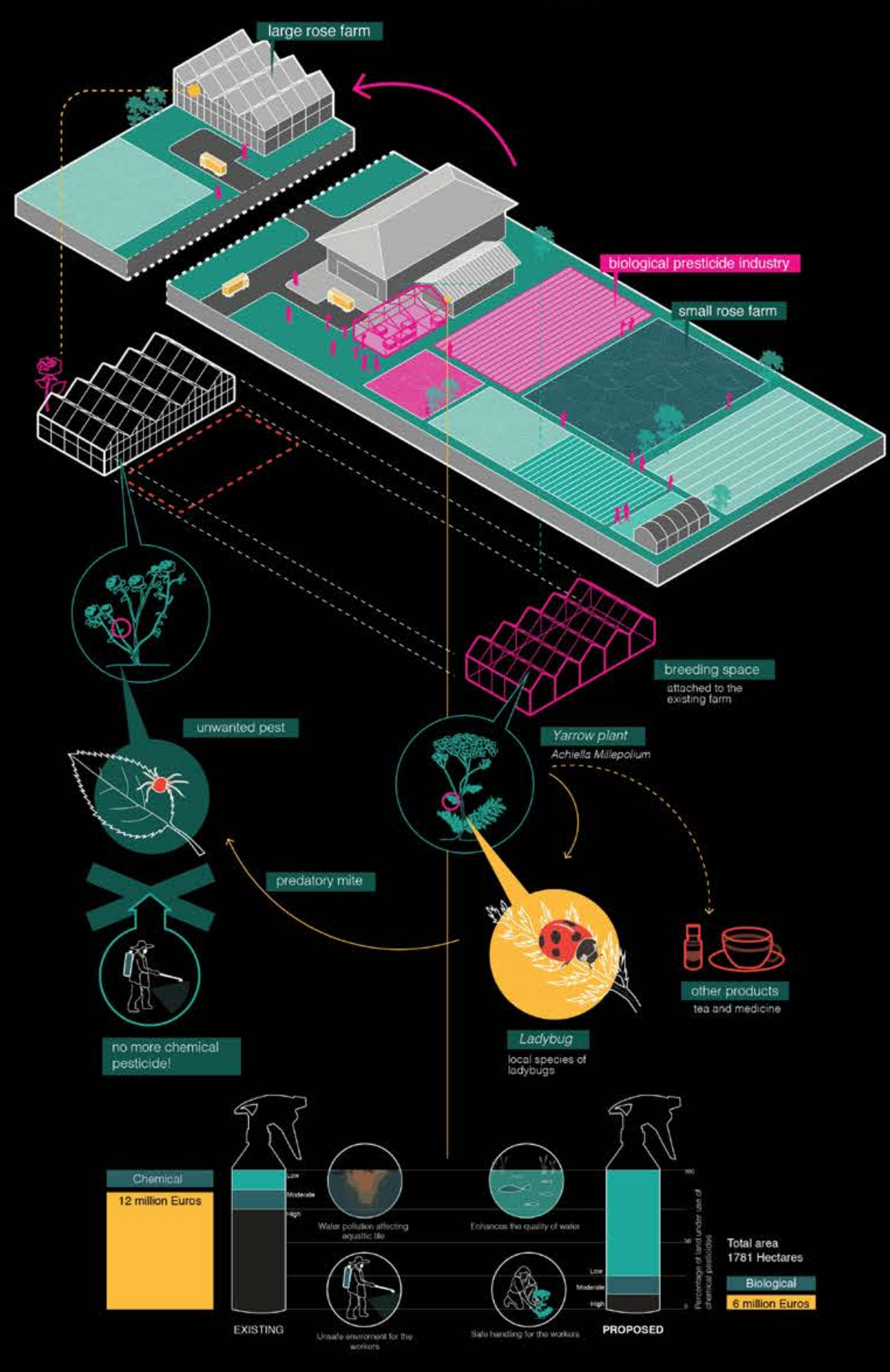
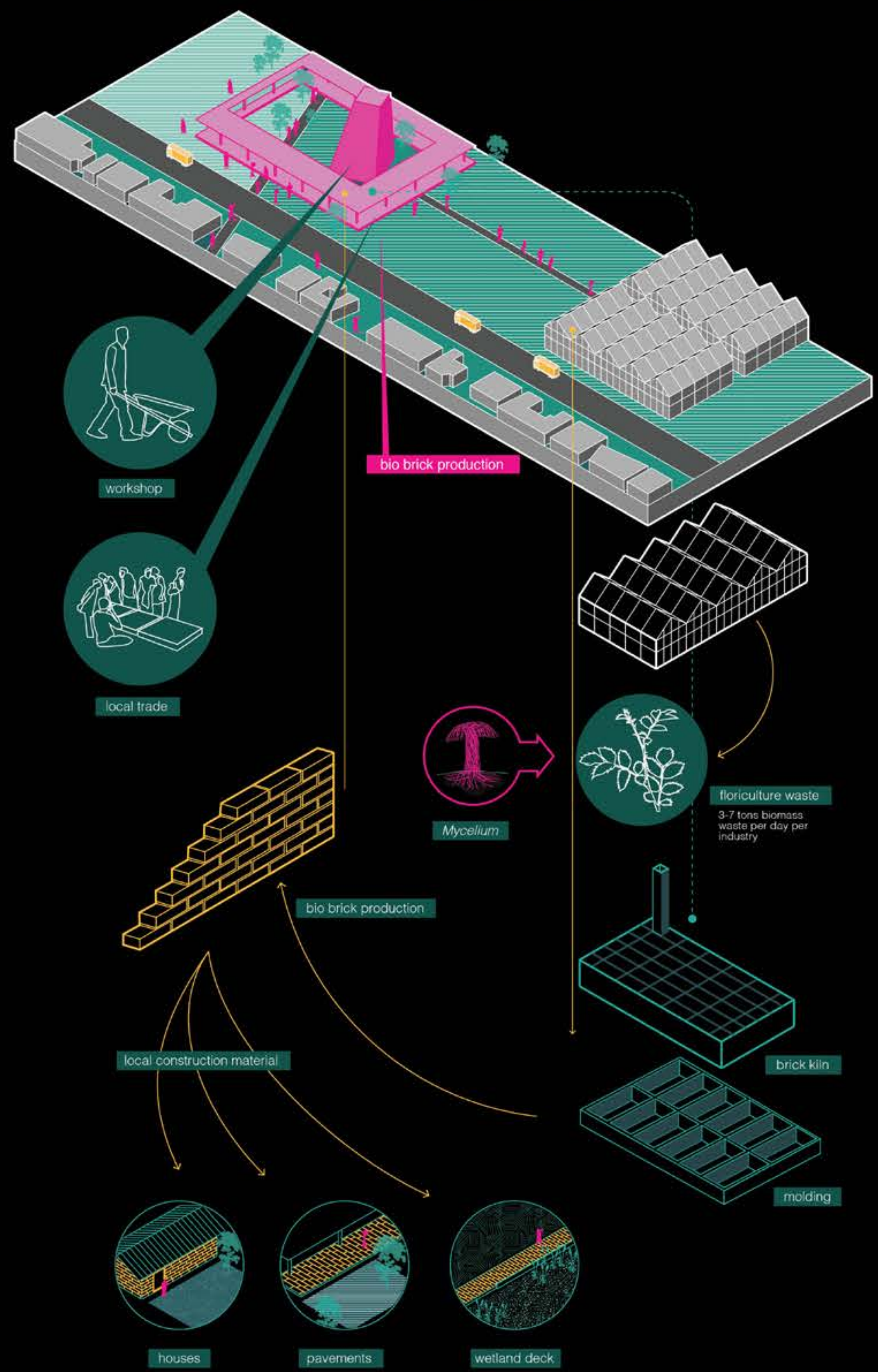
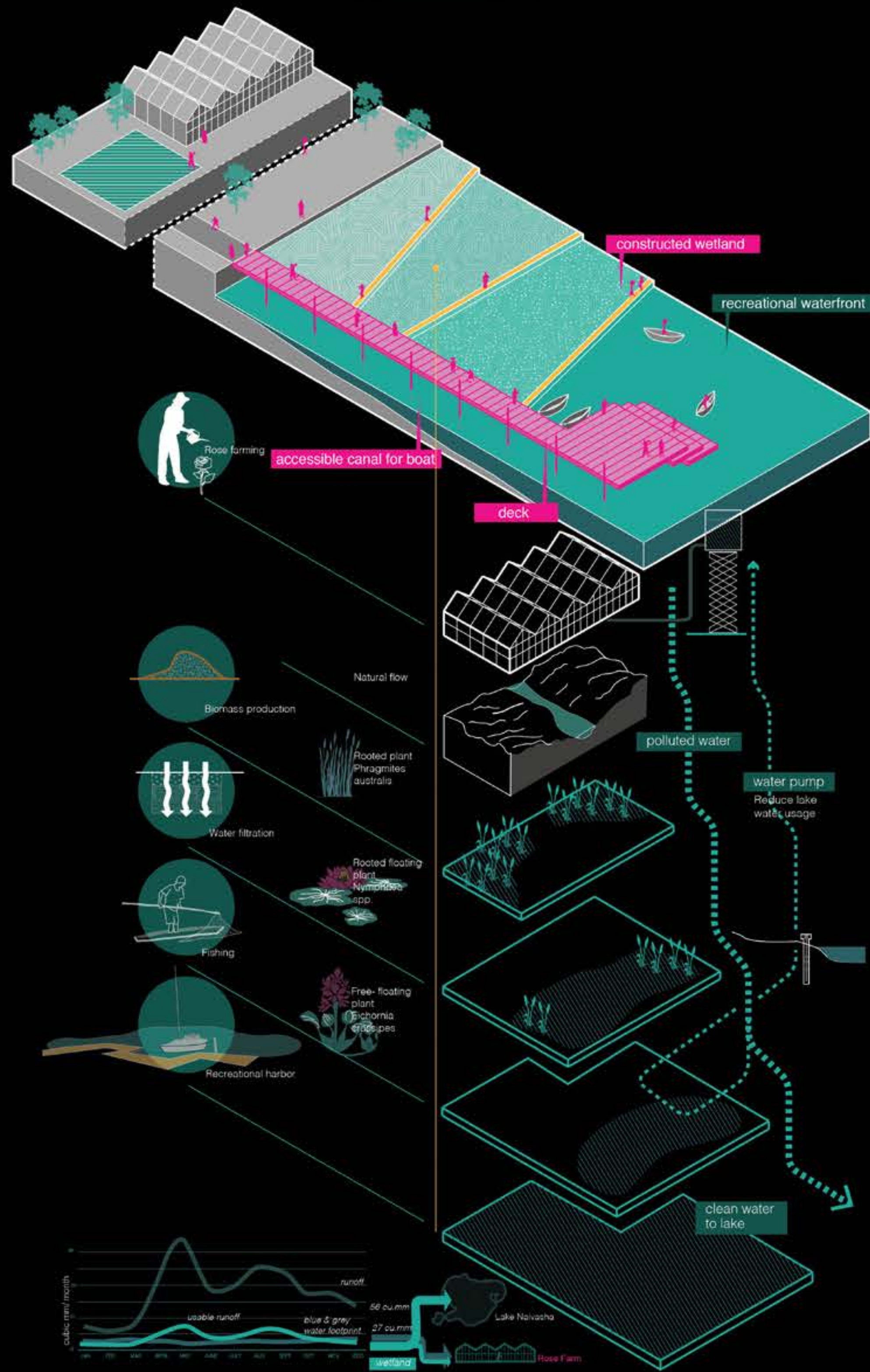
Constructed Wetland



Bio-brick Production



House of Ladybugs



This intervention is proposed to maintain the quality of water and to harvest the rainwater in the region. The constructed wetland is strategically located in the region where the quality of water is undesirable and needs to be filtered. In this case, the waterfront along the urban center of Naivasha and near the large flower farms of Karigita is the identified polluted area.

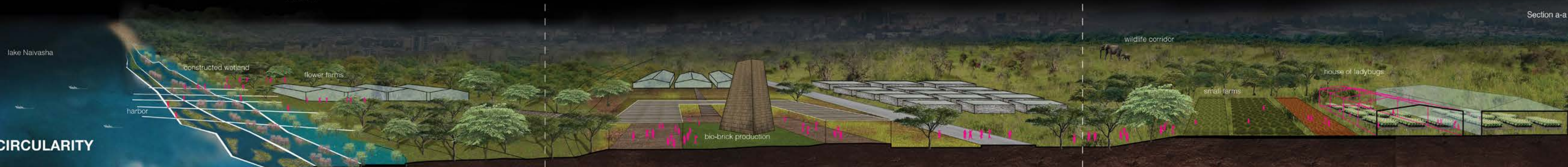
The constructed wetland is planted terraces, which have different functions. The first two terraces have plants, which naturally filter the water and also provide biomass for the production of bio-bricks. The lower terrace is used for cultivation of fish, which further filters the water. The constructed embankments of the terraces are constructed with the bio-bricks and provide public access to the lake. Besides the filtration and protection of the waterfront, the designed edge provides recreational spaces for the local inhabitants as well as tourists.

The abundant source of biomass provides a potential for a new type of construction material, bio-brick. The main ingredients of this bio-brick are the decomposed biomass from the industry and wetlands and the mycelium of the mushrooms, readily available in wet areas. These materials are added to brick molds and burnt to produce a sustainable construction material.

The bio-brick production industry also doubles up as a space for local markets and recreational spaces for the locals and tourists. It is located in the interspace between the flower industry, the urbanized area and the constructed wetland.

The intention of this intervention is to reduce the dependence of the flower industry on chemical pesticides. To control the pests on the rose plants, a practice called "seeding" is applied, which basically means relocating a branch containing the predatory mite from the host plant to the rose plant. The most common pest on the rose plant, the red spider mite or Tetranychus urticae is the prey for the predatory mite, here the ladybug or Coccinellidae, keeping it safe. The host plant chosen in this case is the yarrow plant or Achillea

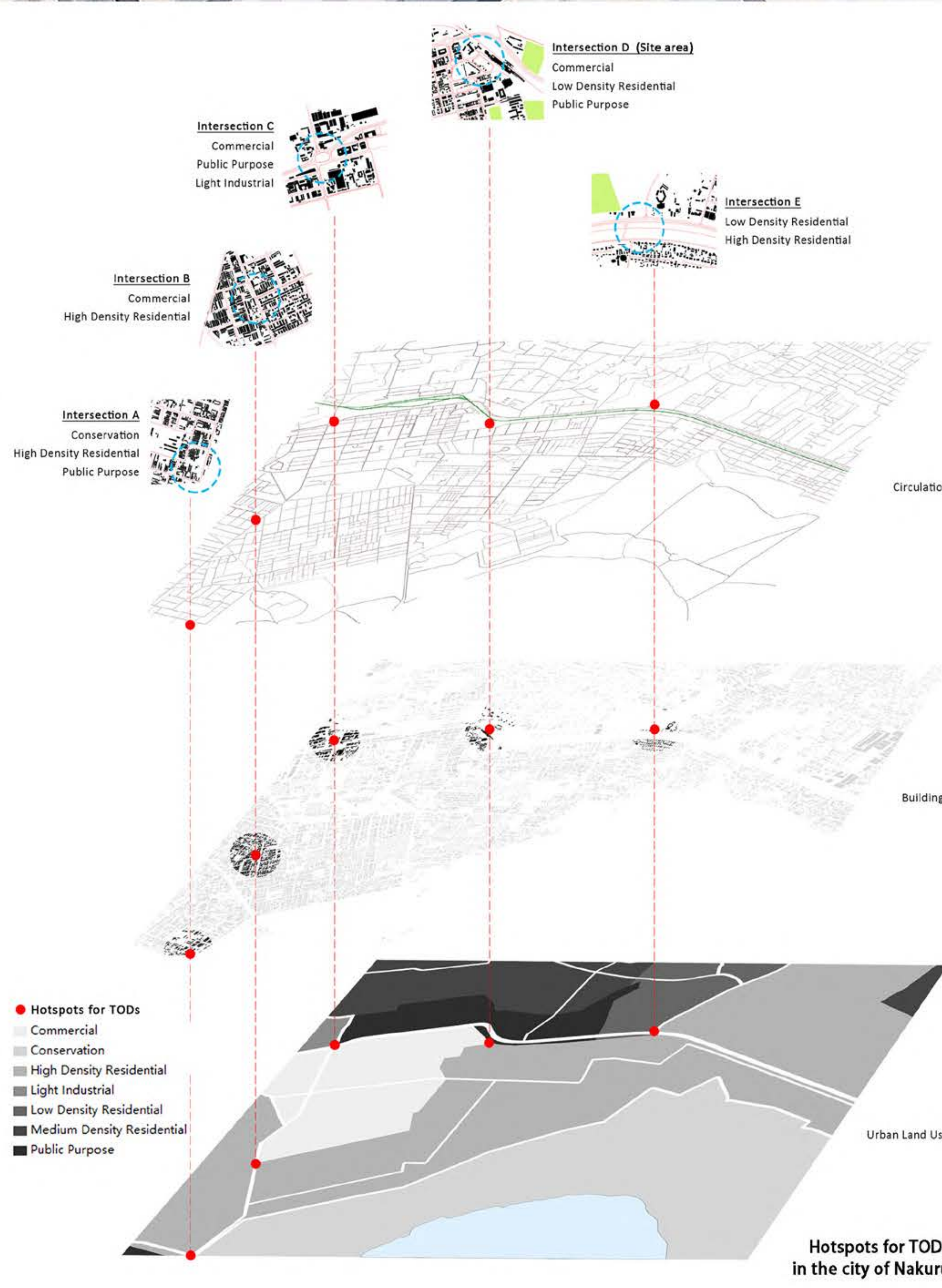
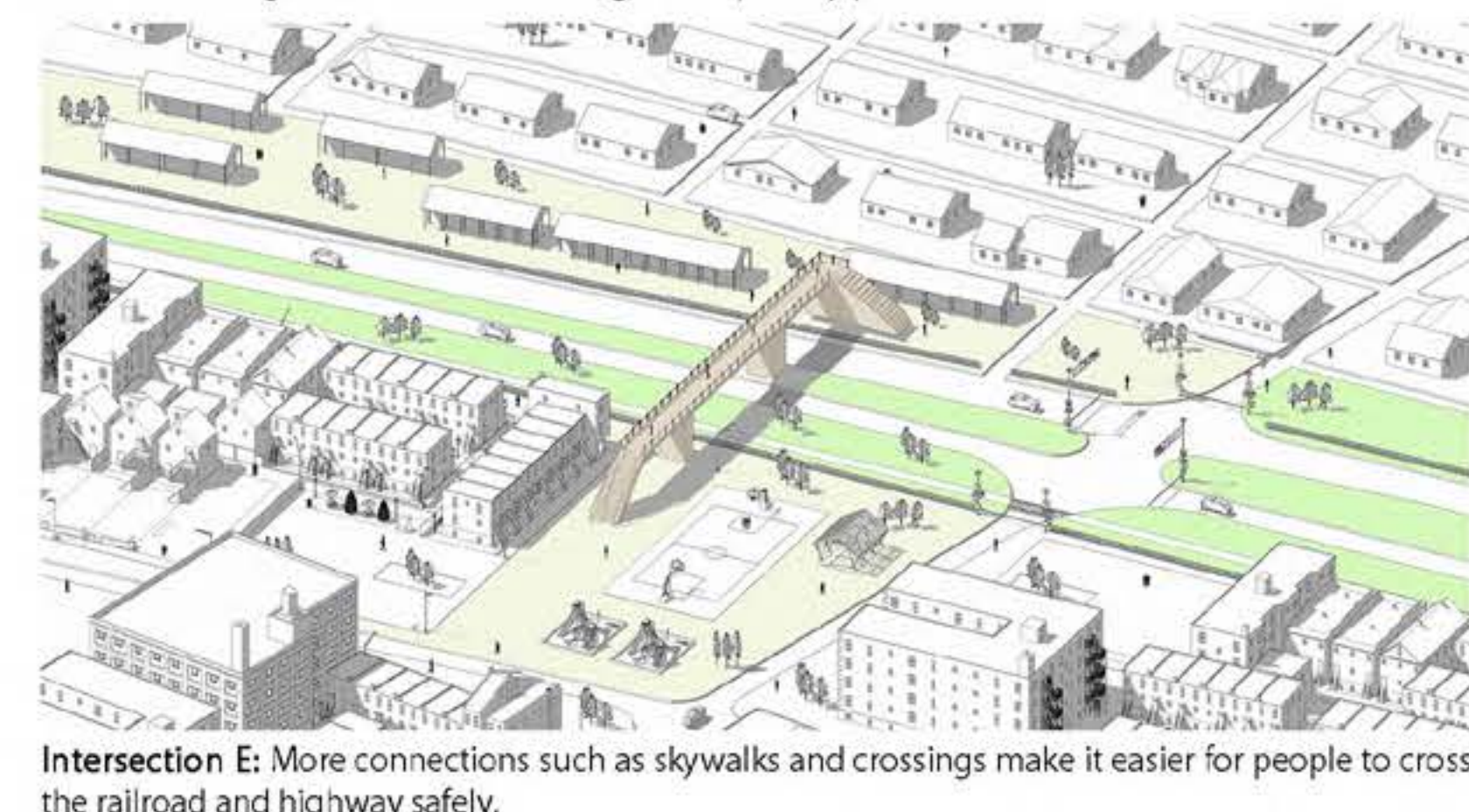
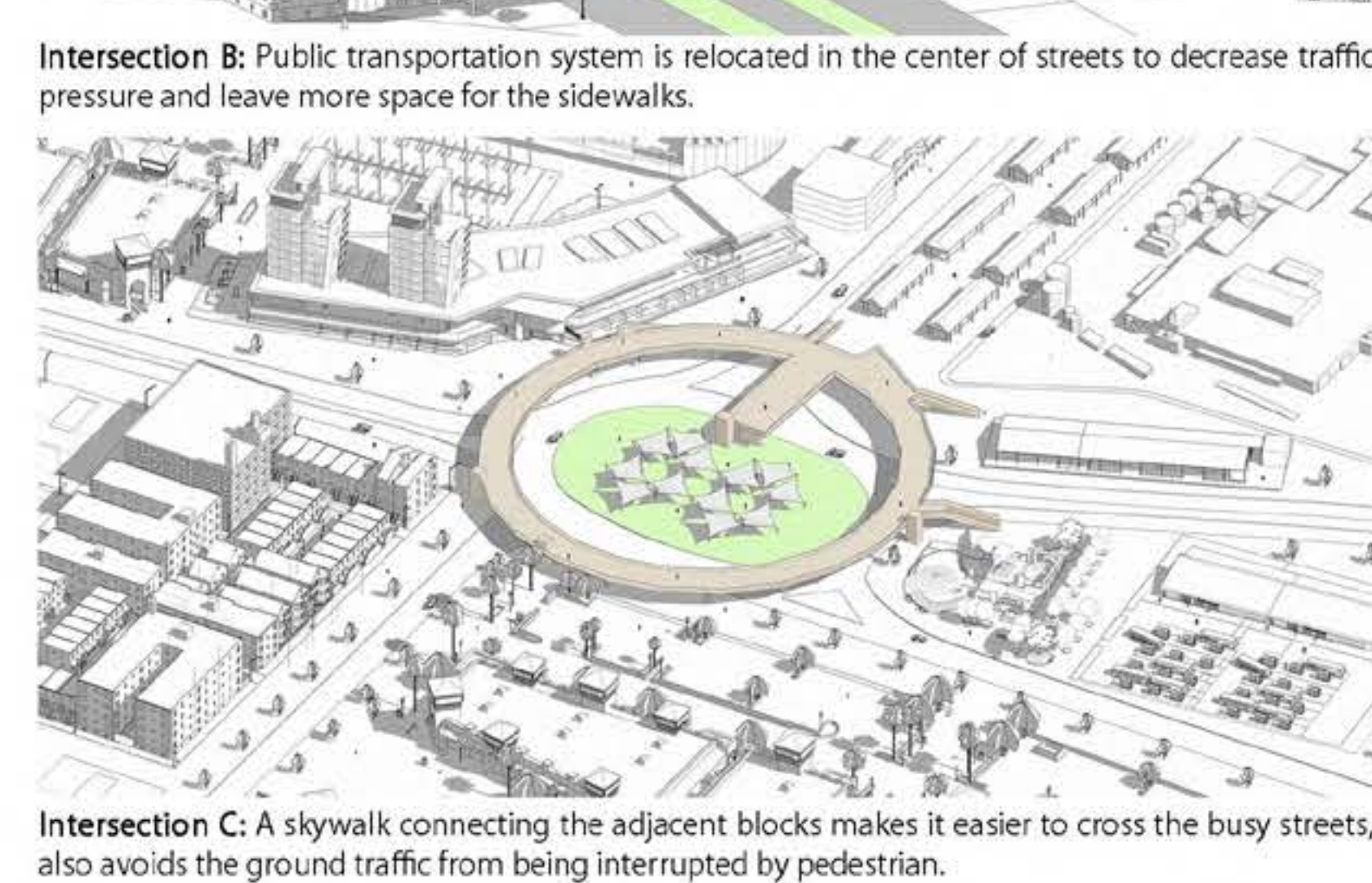
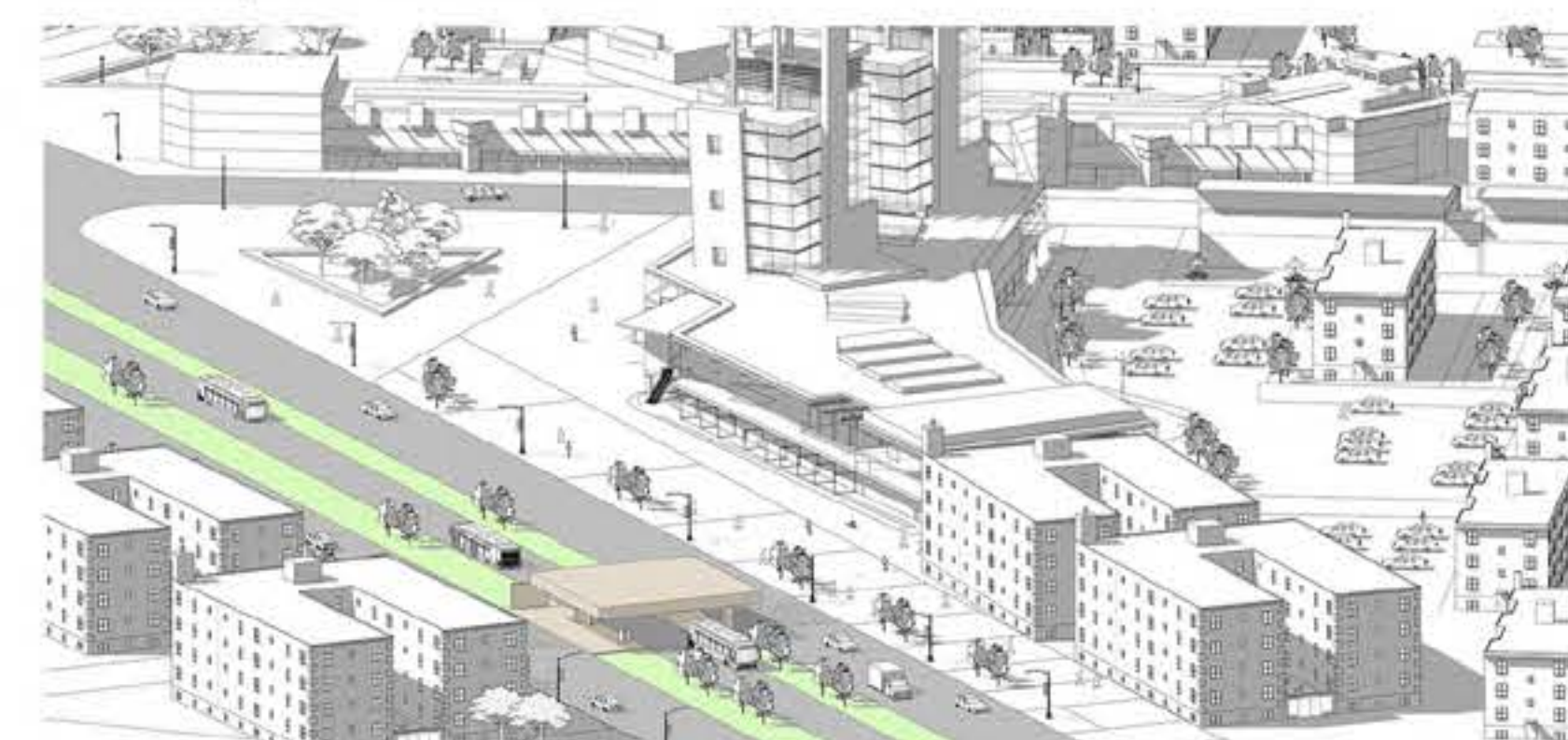
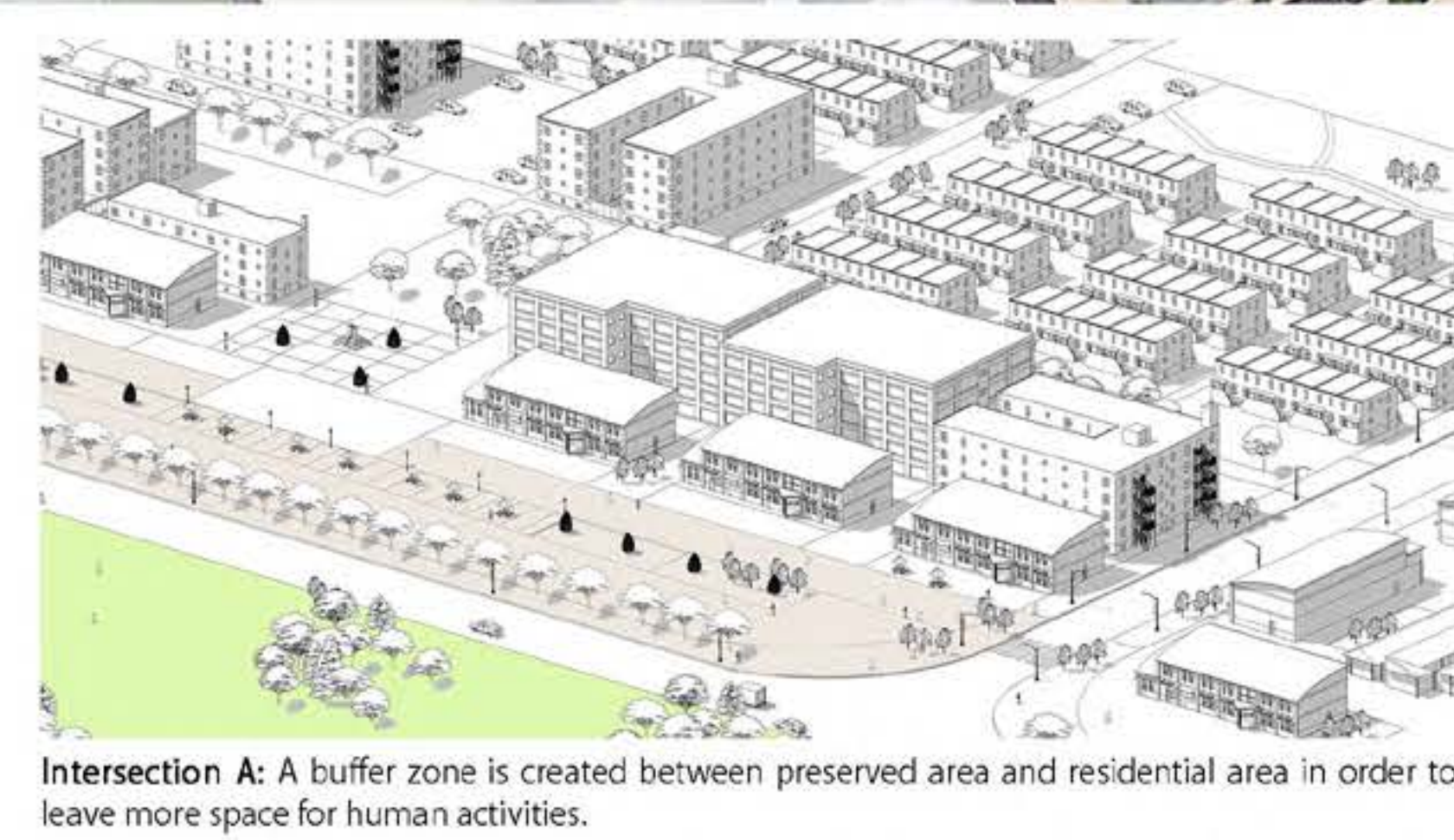
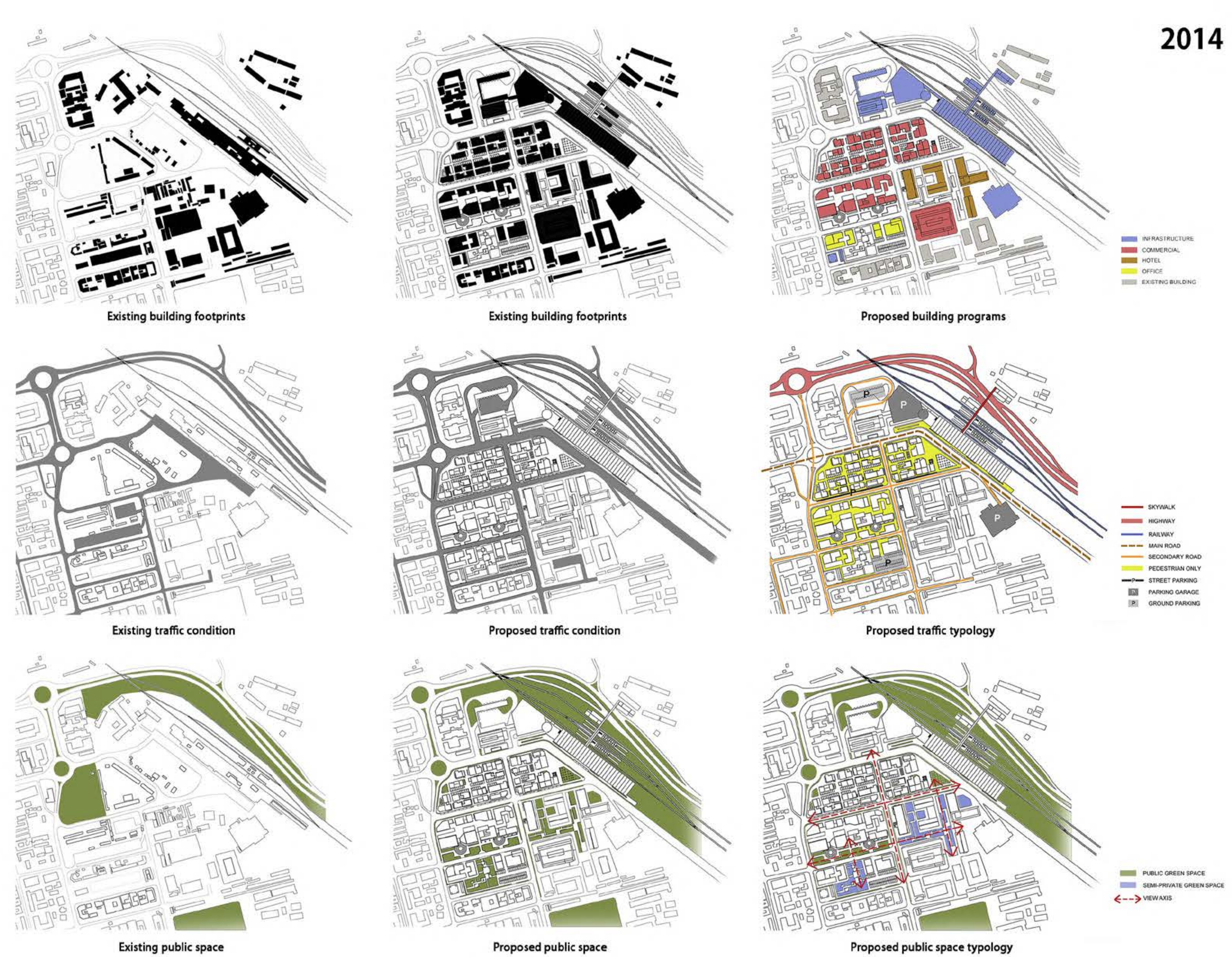
millefolium which attracts the ladybug by providing the pollen on the yarrow flower. The yarrow plant, native to Africa, has medicinal values and can be cultivated for economic benefits. This plant can be grown in farms as an outdoor extension to the existing small flower farms, which could enhance the spatial quality of the working environment.



URBAN NODES

TOD STRATEGY FOR NAKURU

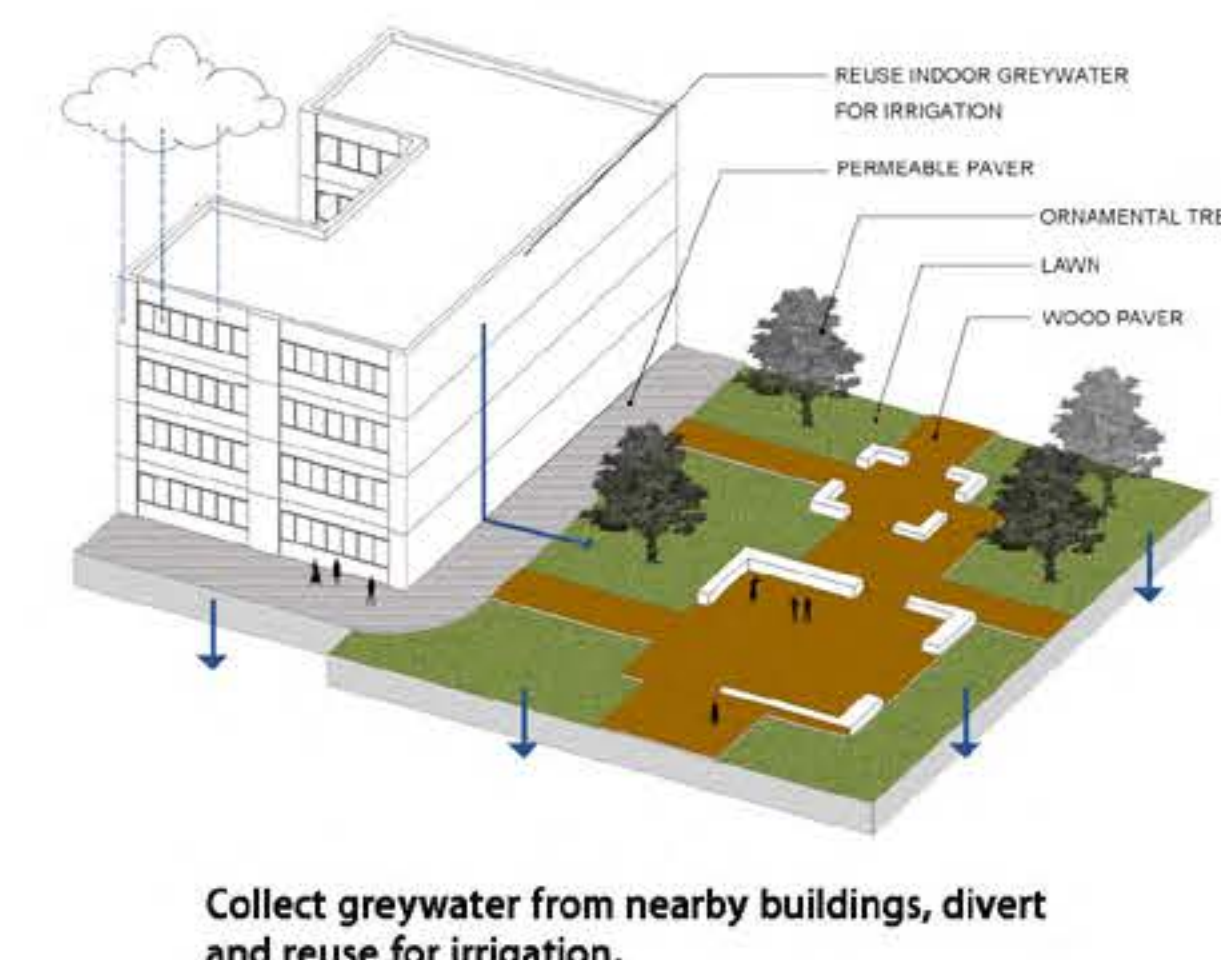
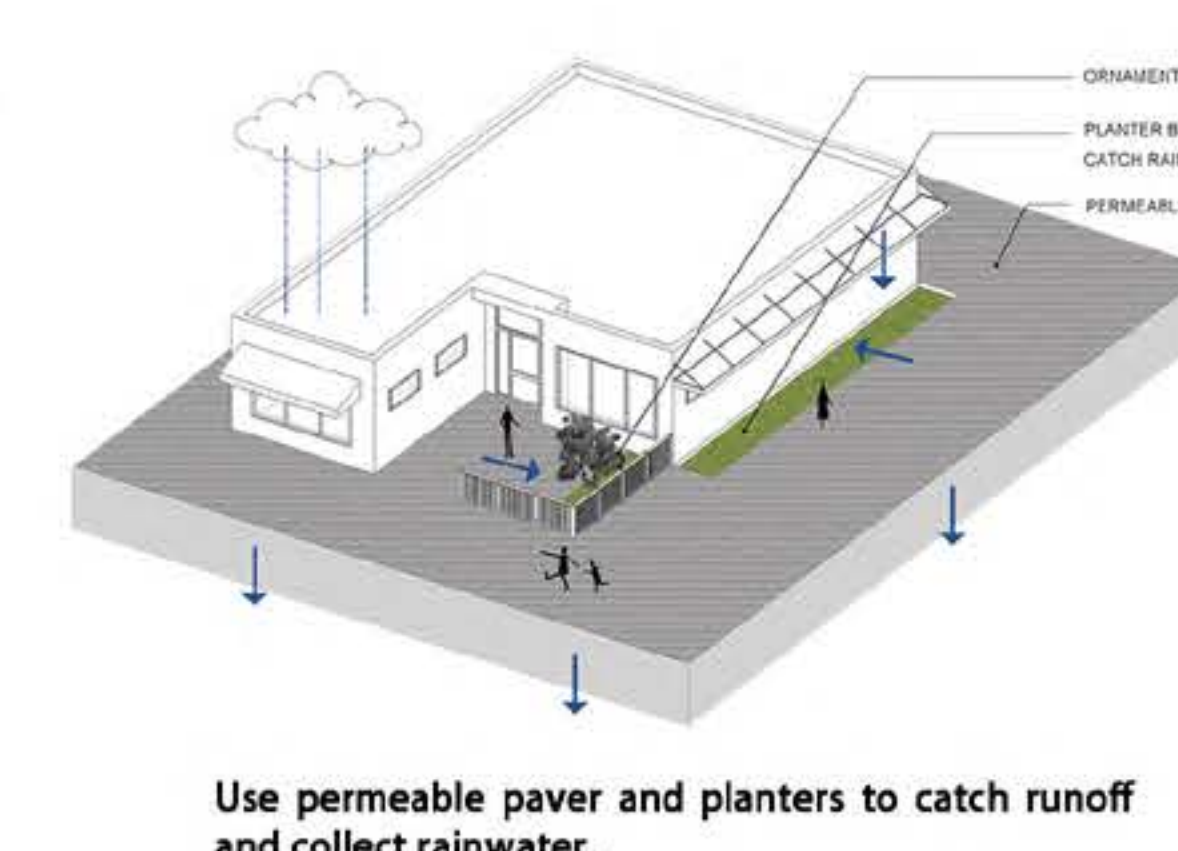
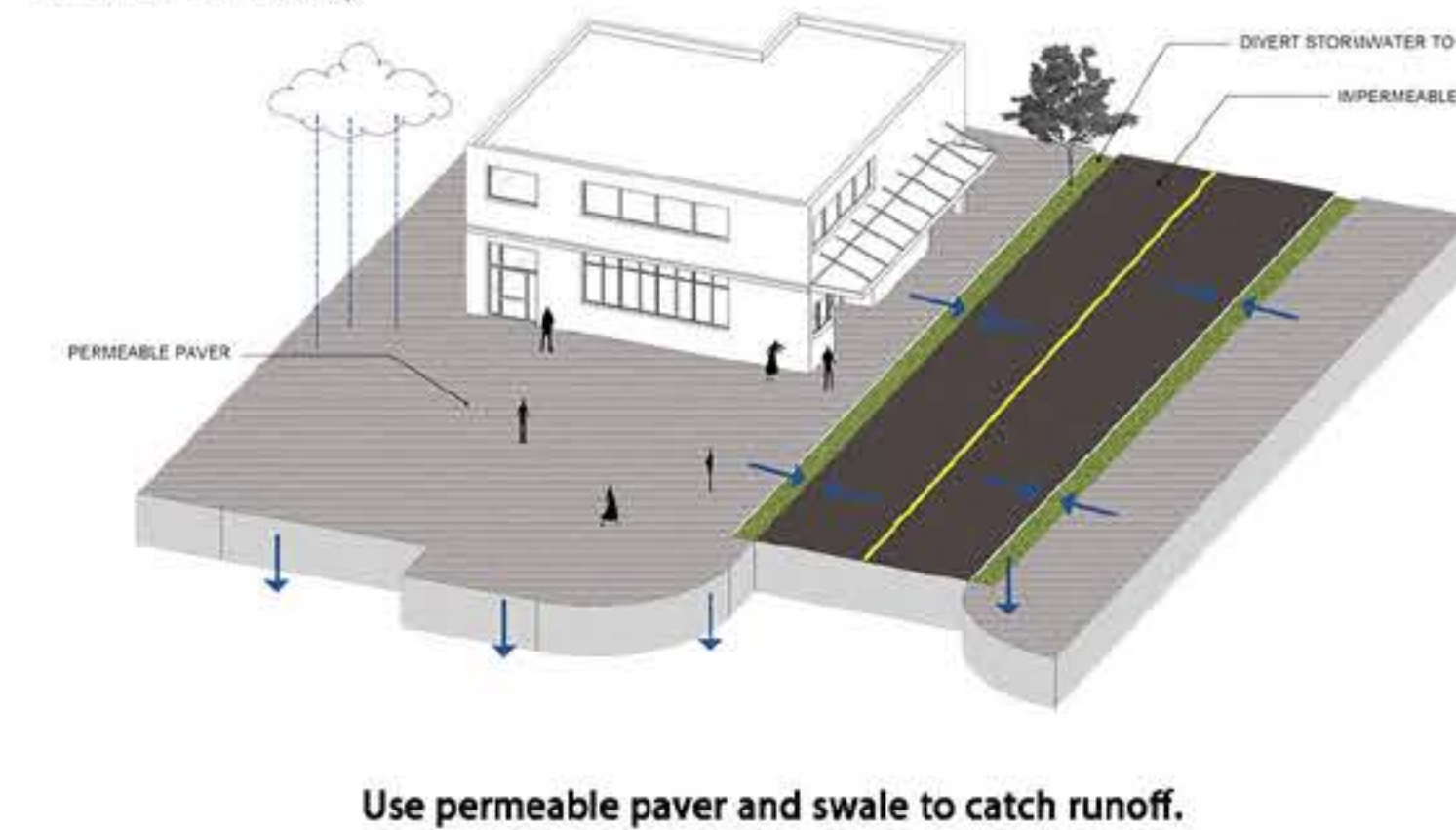
2014



Project Concept

Through this competition site development, our team aim to generate several typologies of TOD for all different situations exist in the development of the city like Nakuru in Kenya. From the land-use analysis, we divide the city to several different kinds of big district: commercial, light industrial, low density residential, high density residential, agricultural rural area, CBD, etc. By providing different but similar solutions towards each situation, the overall typologies can be used in every potential TOD in city Nakuru.

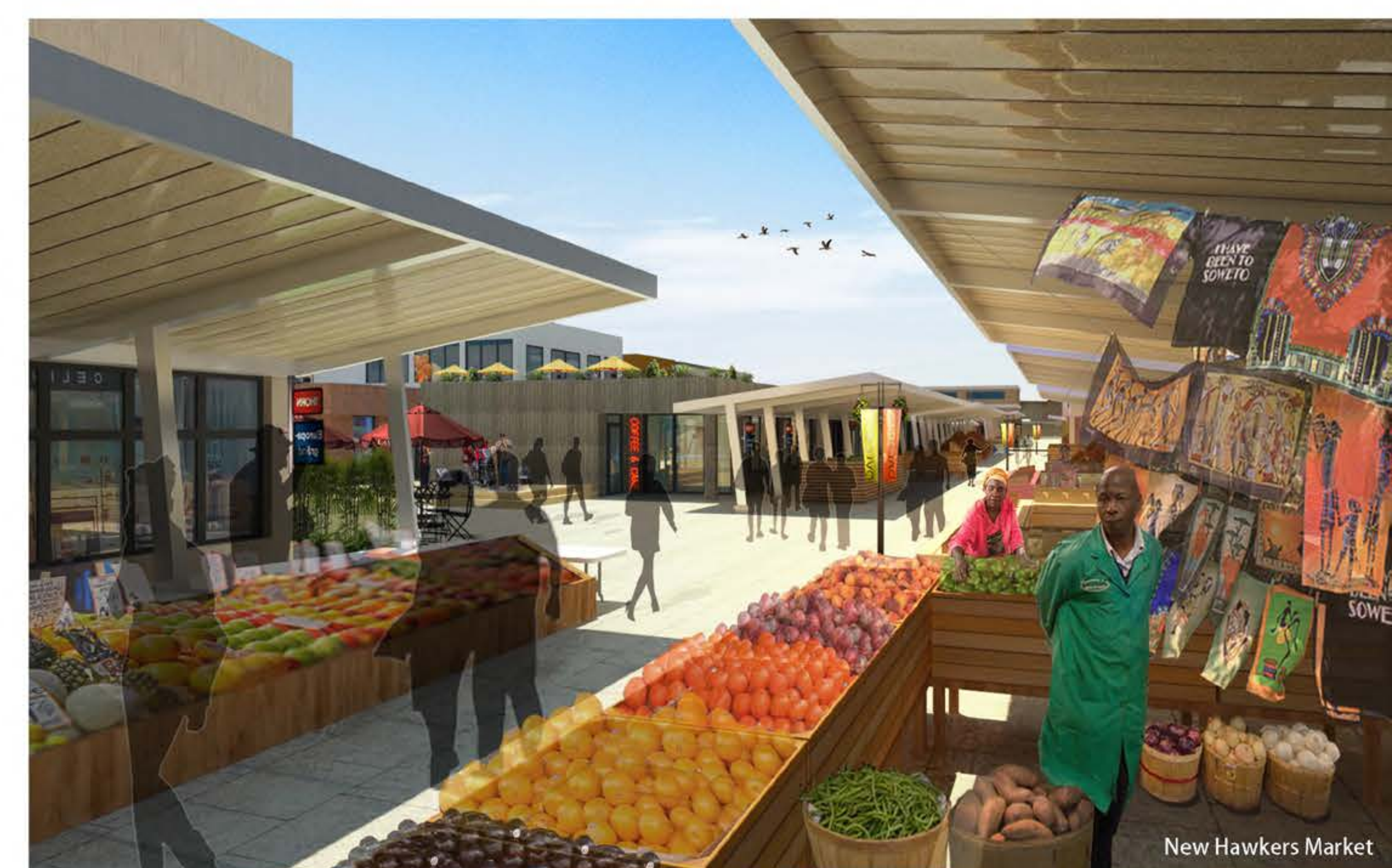
Water Strategy




Intersection D (Site area) Design Strategy

The first step will be merging the city bus terminal to the train station on the same location. The express bus terminal will be relocated to the outside of the CBD area along the highway, linking with the train station by a skywalk, which increases the connectivity. Sufficient facilities such as parking lots and hotels will be provided nearby. Later, the central area is designed as an commercial integration, which contributes to a celeb ration of pedestrian friendly community environment, not only creating convenient and organized urban fabric, but also making more connections between local and outside of the city. The linkage between green spaces and public plazas does improve the connectivity.

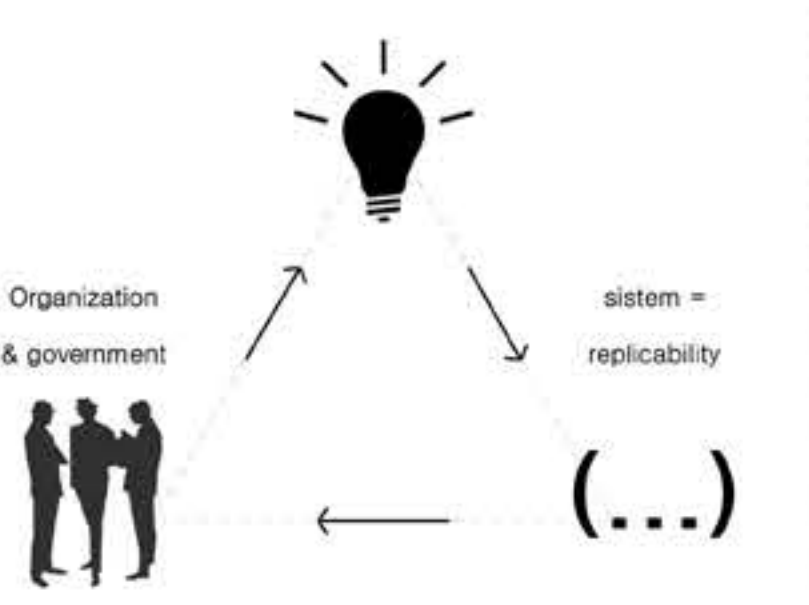






INTERNATIONAL DESIGN COLLABORATION FOR KENYA

UN-Habitat in collaboration with Ministry of Land, Housing & Urban Development (Urban Development Department, Kenya), is leading an international design competition for the Machakos Town.



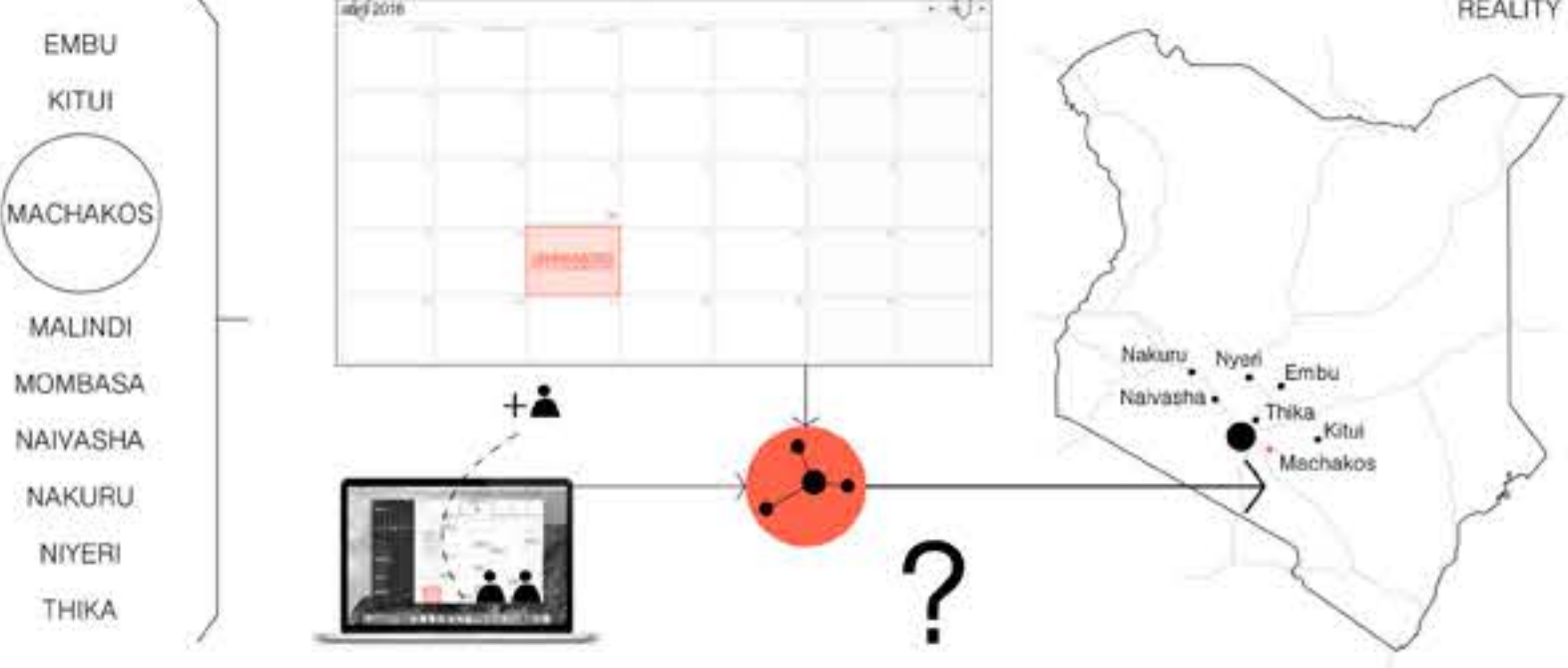
Organization & government

system = replicability

(...)

THE COMPETITION AS A PRETEXT

Un-Habitat organize a competition inviting students to generate IDEAS about urban planning and design, that complement the completion of the planning processes of nine towns in Kenya. But what if we go further? Can be, that proposal, more than a simple idea?



EMBU KITUI

MACHAKOS

MALINDI

MOMBASA

NAIVASHA

NAKURU


NIYERI

THIKA

Looking for more than a simple idea - REALITY


We found it interesting as we understand the competition as a pretext to exercise and rethink some of the lines of the current property urbanism and housing projects, in a REAL context. And that's the point, this competition is characterized by the fact that is a real demand. That's why we are ambitious in our approach: we are trying to START A PROCESS to amend the urban (and social) barriers existing now in the Machakos Town, providing a first scheme that sintetize the role of each of the agents involved. We are focused on designing a workable collaborative process for Machakos but, working with an objective and distant approach, we try to create a replicable system for other cities with similar characteristics.

CONTEXT



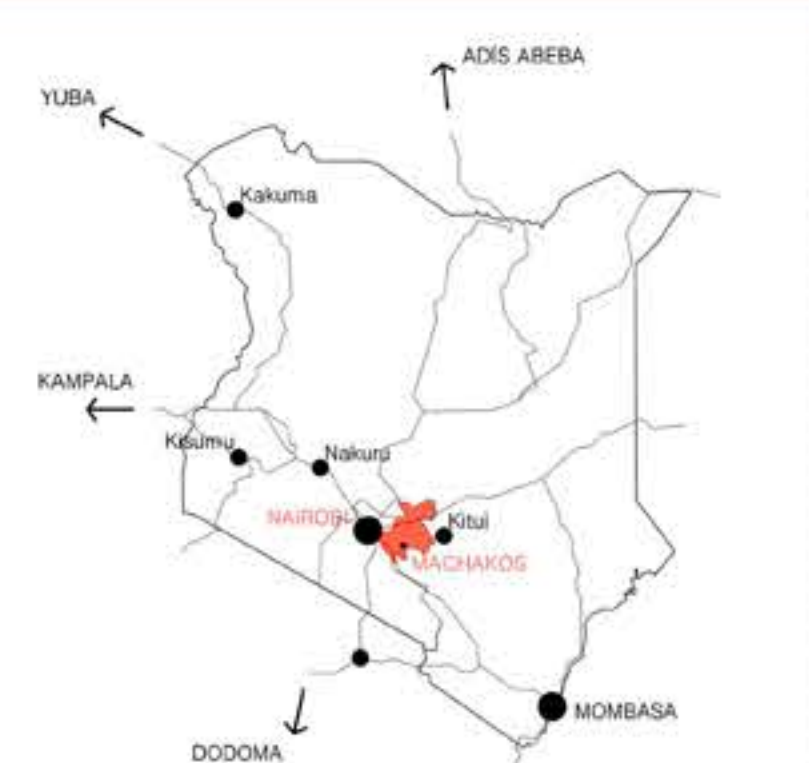
KENYA

A country in Africa and member of the East African Community (EAC). Its capital and largest city is Nairobi. Kenya covers 581,309 km² and had a population of approximately 45 million people [in July 2014].



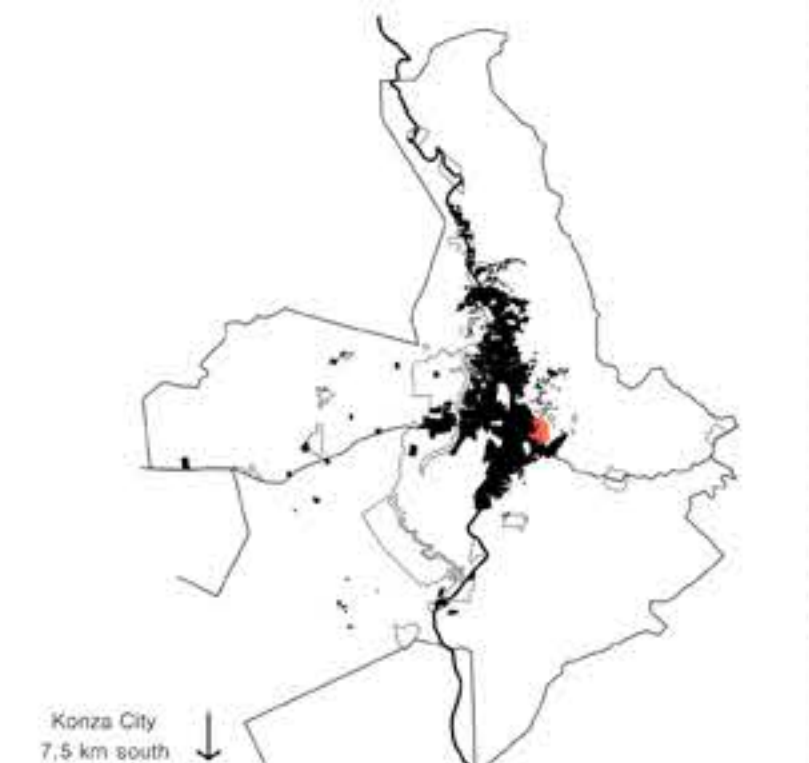
MACHAKOS COUNTY

A county of Kenya. Its capital is Machakos. The county has a population of 1,098,584. The county borders Nairobi and Kiambu counties [W], Embu [N], Kitui [E], Makueni [S], Kajiado [SW], and Murang'a and Kirinyaga [NW].



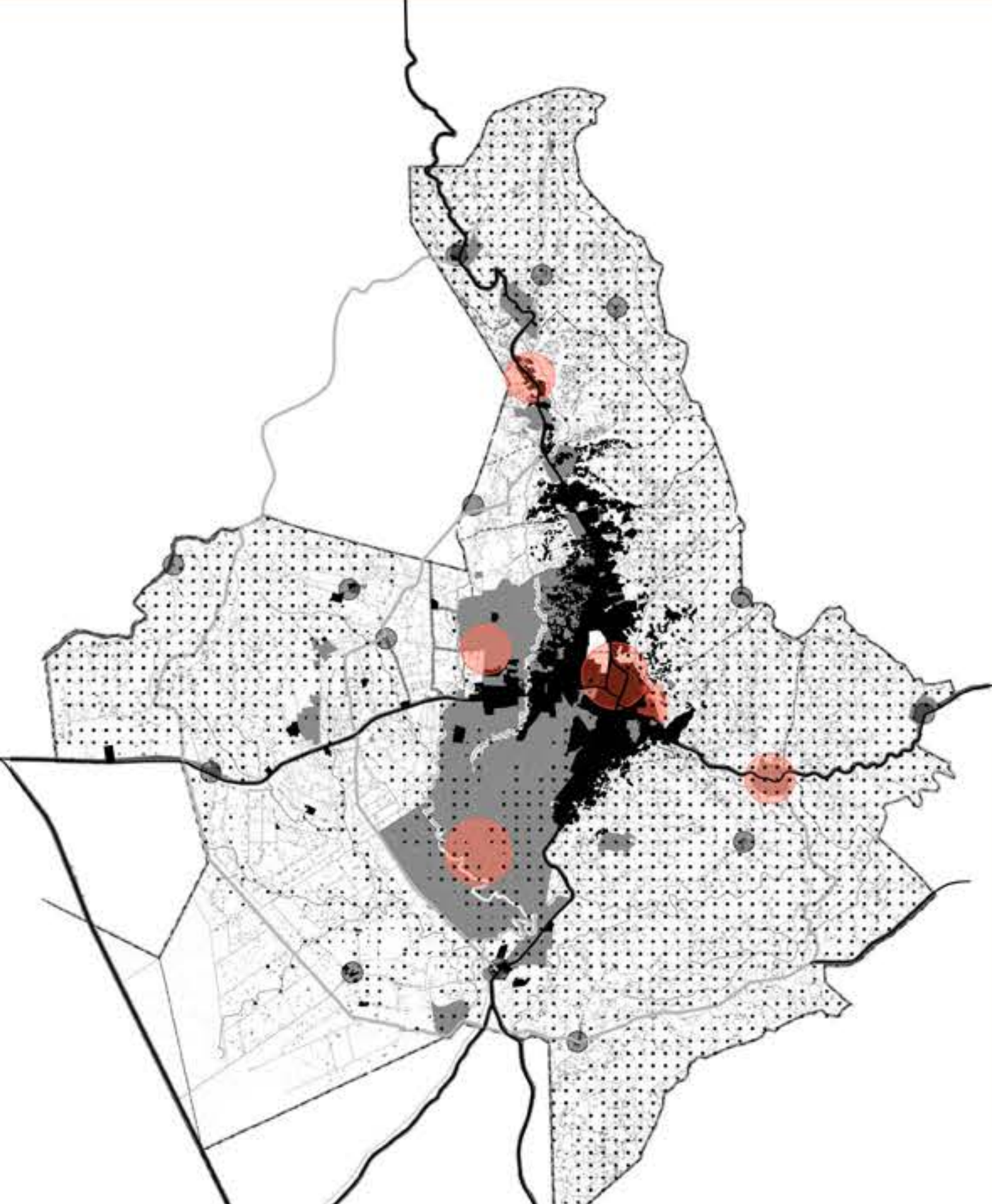
MACHAKOS / NAIROBI

Machakos town is situated 60km southeast Nairobi, the largest city of Kenya. The proximity to the capital and its situation to the south, makes Machakos an important satellite city.




MACHAKOS TOWN

A major urban centre, one of the largest towns in Machakos County. In 2009 had a population of 150,141 people, projected to grow to 350,000 in 30 years. Is surrounded by hilly terrain, with a high number of family farms.

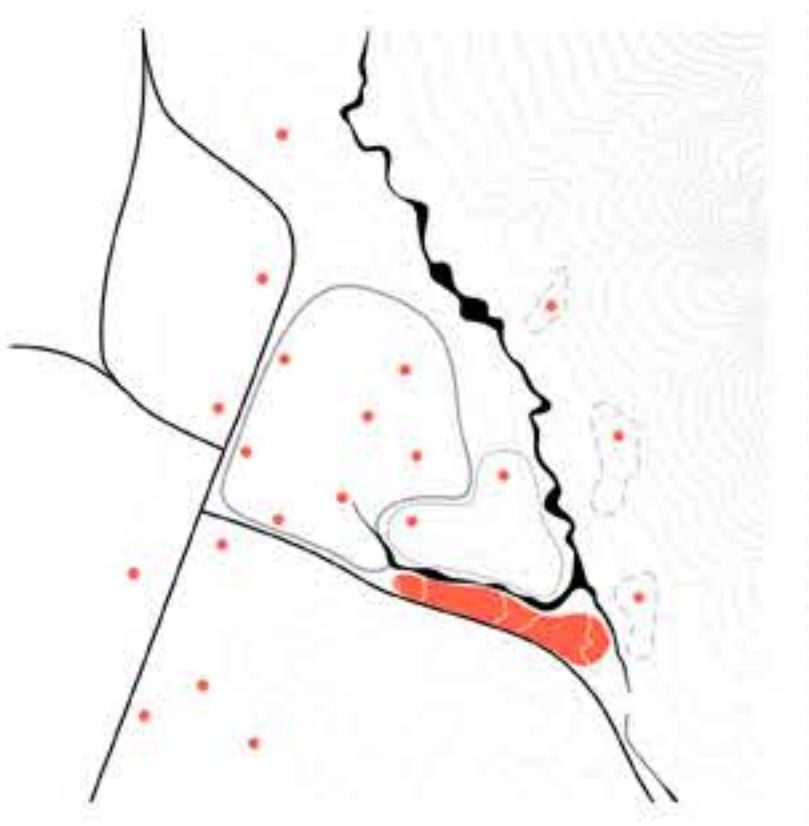


ANALYSIS




RELATIONAL ANALYSIS

Transport and communication network between the city and the area proposed.




ANALYSIS OF URBAN CENTRALITIES

Major urban centers with the possibility of being interconnected.




PRODUCTIVE SPACES + DEVELOPMENT OPPORTUNITIES

Development possibilities areas as productive spaces mainly engaged in agriculture.

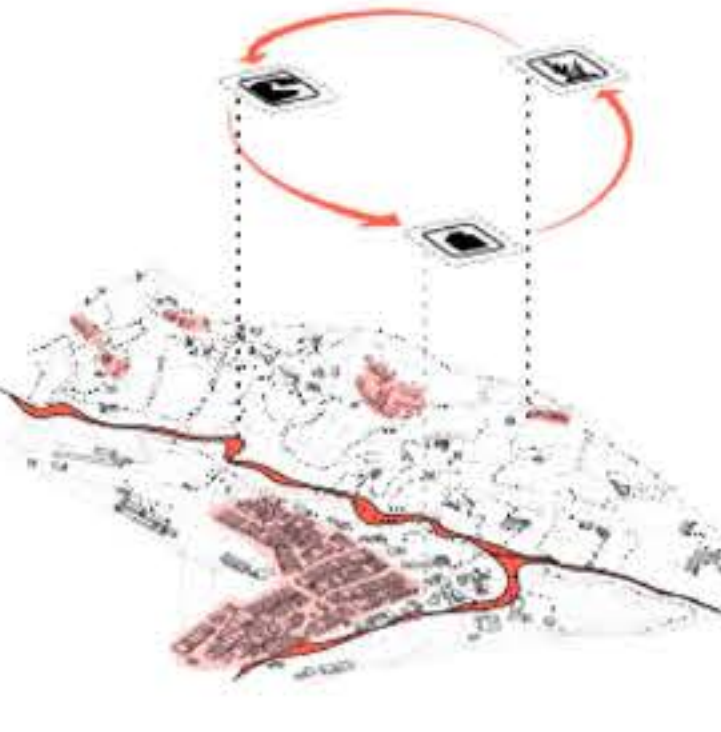


MAJOR URBAN FOCAL POINTS

Analysis of areas with potential to be developed in the proposed urban planning.



A. URBAN PLANNING

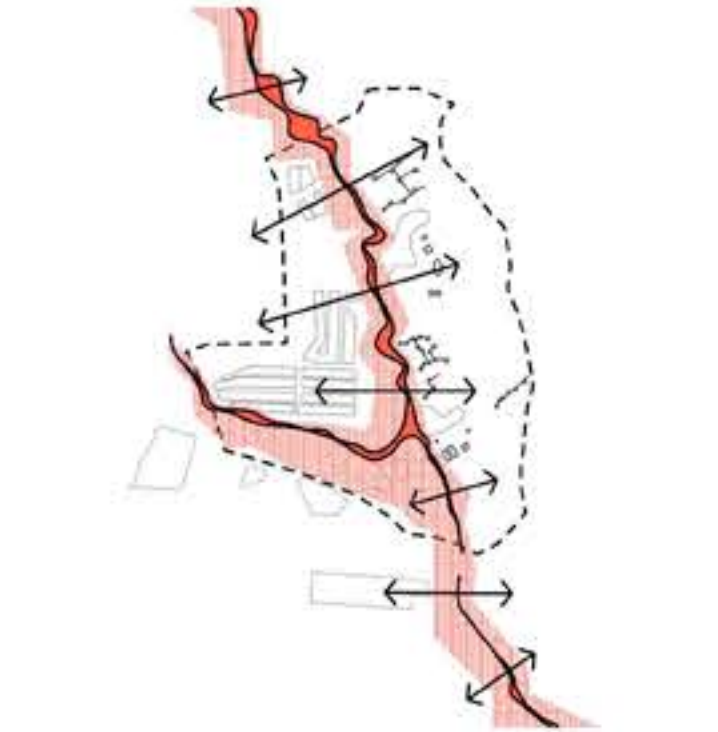


A1. THREE MAIN AREAS CONNECTION

[slum area, riparian corridor, and agricultural area.]

The propose has as it's aim to generate the dialogue between the 3 areas realised on the site. Do to the riparian corridor and the river's environment it is possible to engender a close relation between the slum's urban area and the rural area featured by it's agricultural use and it's possibilities to be urbanized.

B. ENVIRONMENT




B1. RIPARIAN CORRIDOR AS A GREEN INFRASTRUCTURE

[A great alternative for sustainable development]

The river as an element that allows the connection becomes urban green infrastructure. Improving the environment, preserve the environment and enhance natural areas in the city. The rural-urban interface generated may extend along the river, producing similar situations in other parts of the urban fabric.

C. INFRASTRUCTURE

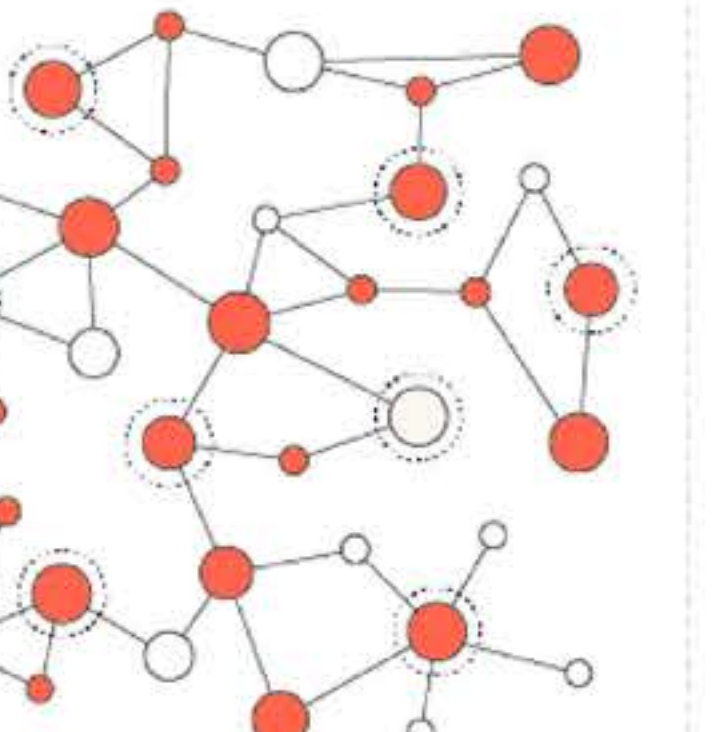


C1. CONNECTING WITH THE CITY

[infrastructures to connect up]

Inclusion of urban areas to the city through the connection to the main roads. At the meeting public spaces are created by modifying the border with the aim of establishing a dialogue between the two areas.

D. SOCIAL

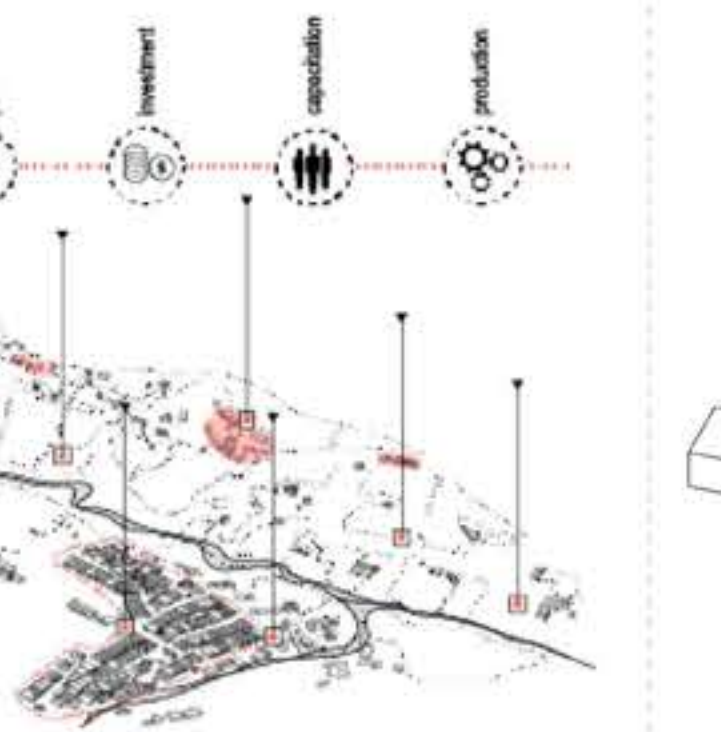


D1. SOCIAL NETWORK

[social connection between actors involved]

Networks. Contact between the social sectors that allow the activation of the city and the implementation of initiatives that promote the maintenance of the new urban model. The special relationship between the two riversides should produce a social connexion between the actors involved.

E. ECONOMY

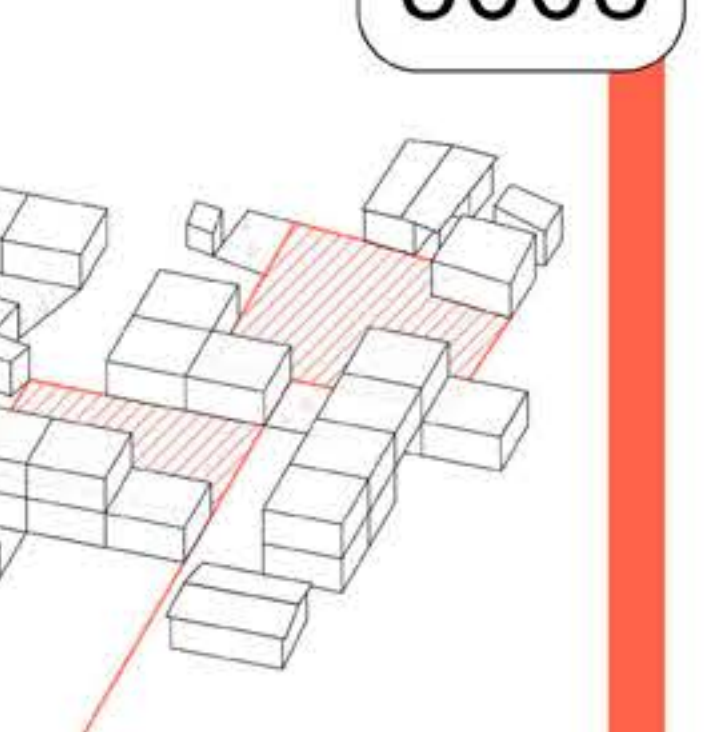


E1. INVESTMENTS FROM THE CITY

[looking for a competitiveness level]

Investment in this area of the city is essential for improvement allowing to place it on a competitiveness level with other neighborhoods. The inversions come from development plans, economic investment, community training and production of goods.

F. HOUSING

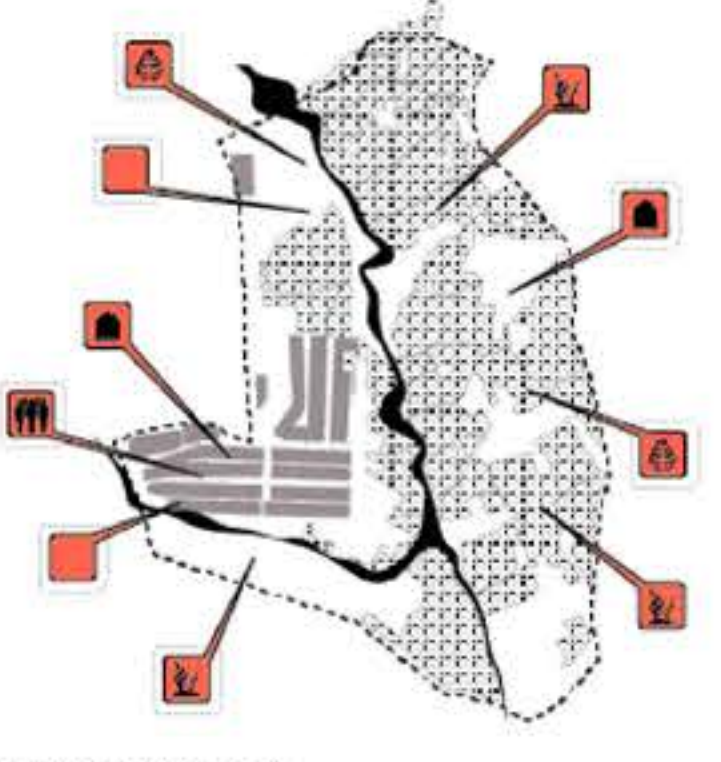


F1. PUBLIC SPACE USE

[city and interaction in the neighbourhood]

Production of public space can generate greater social interaction in the Kariobangi community. The free spaces are exploited to generate public and semi-private spaces that favor social contact and the consolidation of the urban interface.

1. CONNECTIVITY

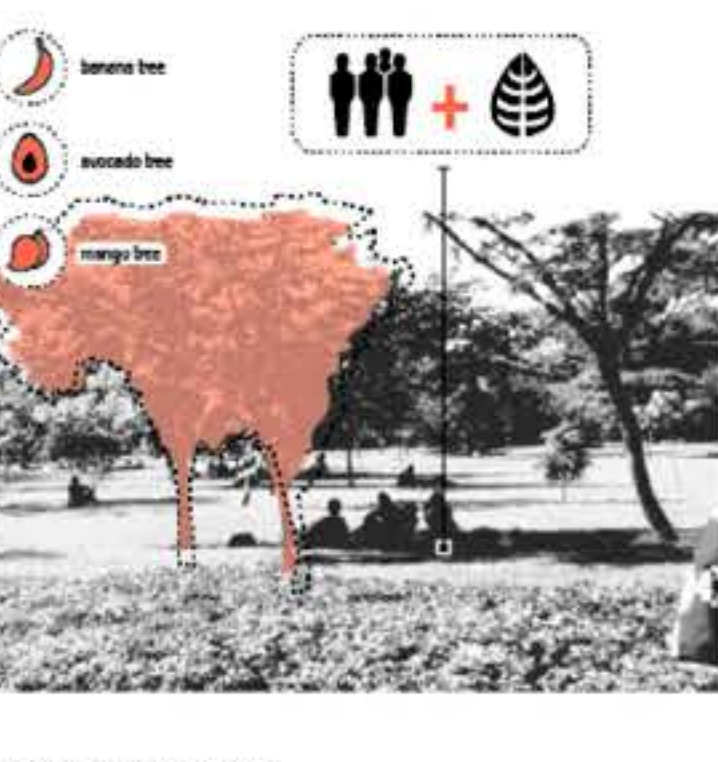


A2. DIVERSITY OF USES

[diversifying city. Producing city]

The revitalization of the urban fabric is given by a diversification in land use. The residential character of the urban area and the agricultural character of the rural area are modified intensifying existing uses of trade and production and implementing new applications.

2. REVITALIZATION

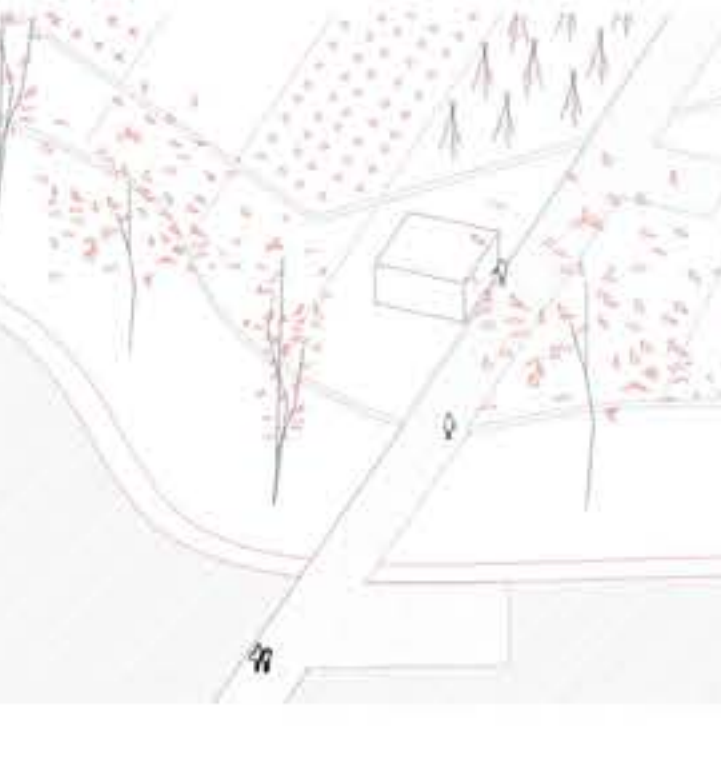


B2. TREES'S IMPORTANCE

[Green areas and its city benefits]

Promote the use and planting of fruit trees detected already on the site [mango, avocado, banana] in order to improve the environment quality, strengthen compacting soil, preserve native species, and promote as a meeting point and social activity in the community.

3. SOSTENIBILITY

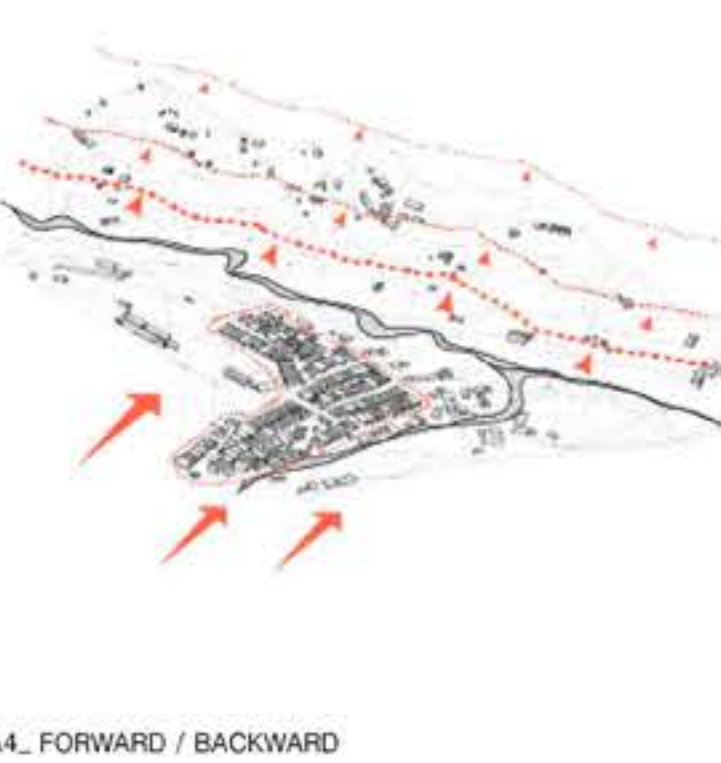


A3. RURAL-URBAN INTERFACE

[A new way of development]

The proposal includes the possibility of developing new urban models that allow the dialogue between the rural environment and urban land. The new rural-urban interface is based on sustainable production models which enable the preservation of the local but also promoting its development.

4. IDENTITY




A4. FORWARD / BACKWARD

[Re-thinking the city's border]

The current area corresponds to a degraded condition limit their area. The possibility of a new connection with the other riverside reinvents the position edge of the urban area.

5. PROCESS

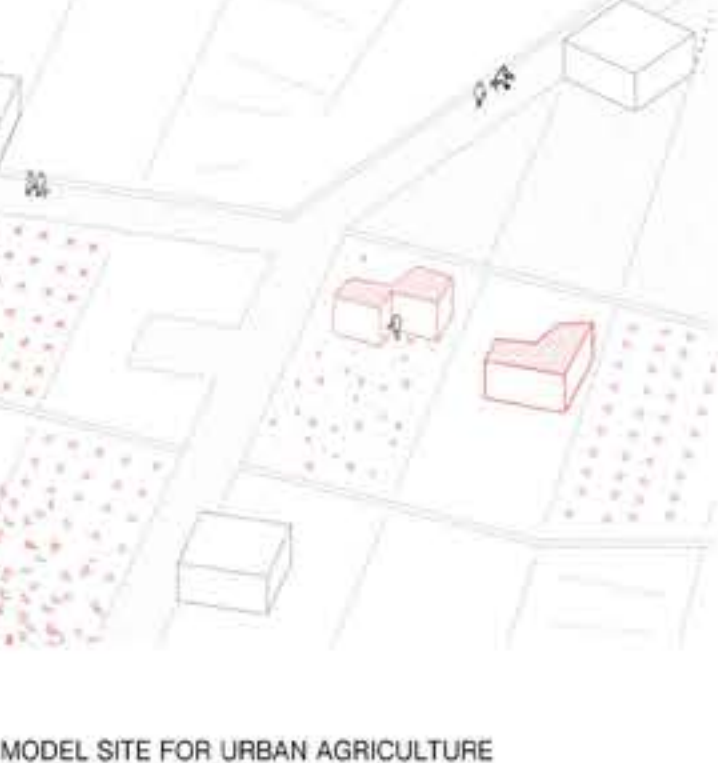


A5. COOPERATION AND NEGOTIATION

[Participative process and bottom-up initiatives]

Urban planning areas like this should not be done only from the institutions. The proposal should be realized based on cooperation and negotiation between agents and actors involved in the process in order to guarantee their viability and proper development.

6. SOSTENIBILITY

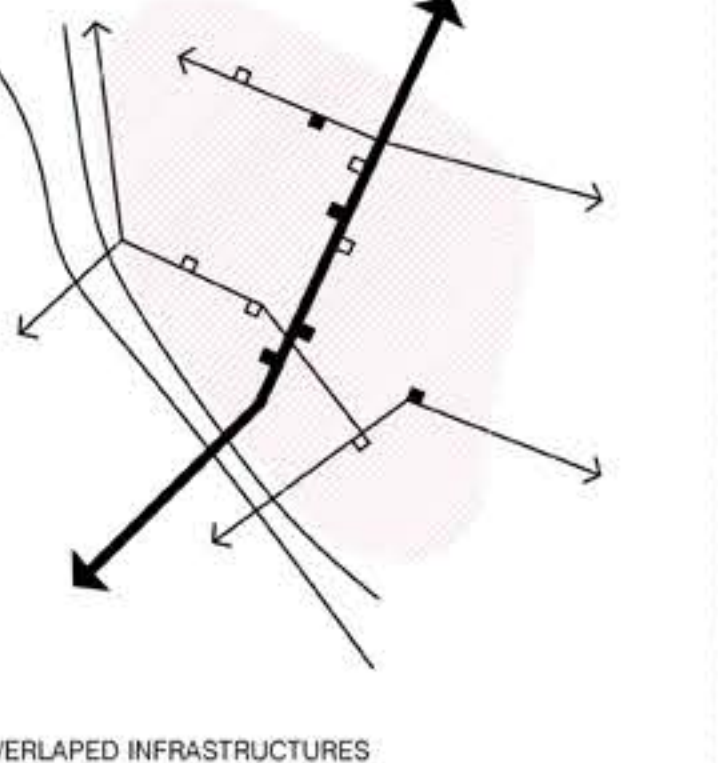


B4. MODEL SITE FOR URBAN AGRICULTURE

[New paradigms for sustainable urbanism]

A new paradigm that allows the preservation of the agricultural character of the rural area and its development unfold. The split is also reflected on the city that establishes a dialogue with the other riverside. You can replicate and succeed elsewhere as sustainable possibility for urban development.

7. SOSTENIBILITY

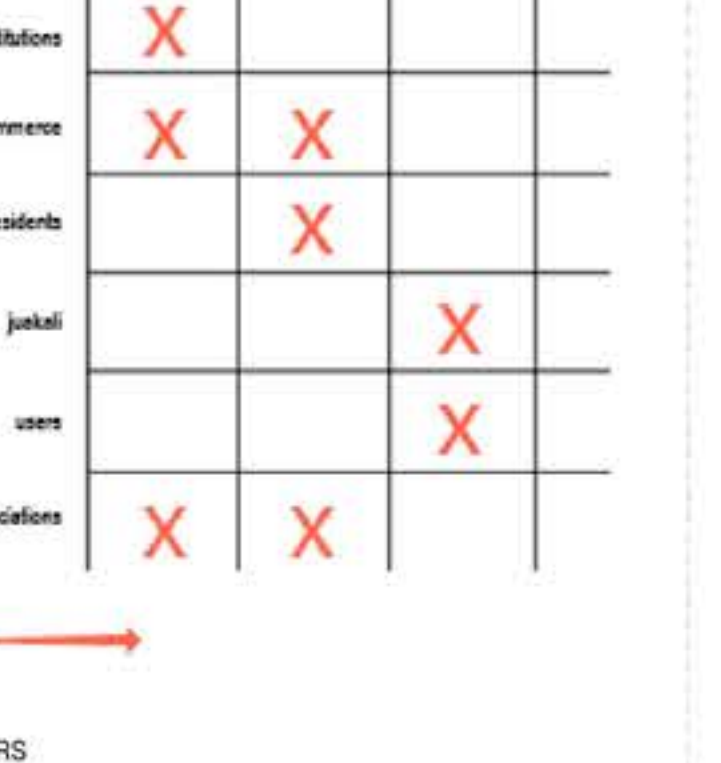


C4. OVERLAPPED INFRASTRUCTURES

[valuing the preexistence]

The proposal on urban infrastructure plan overlapps the existing infrastructure, trying to strengthen the networks that are configured with the passage of time. The proposed system is based on the improvement and enhancement of existing roads and urban networks supporting improvement.

8. SOSTENIBILITY

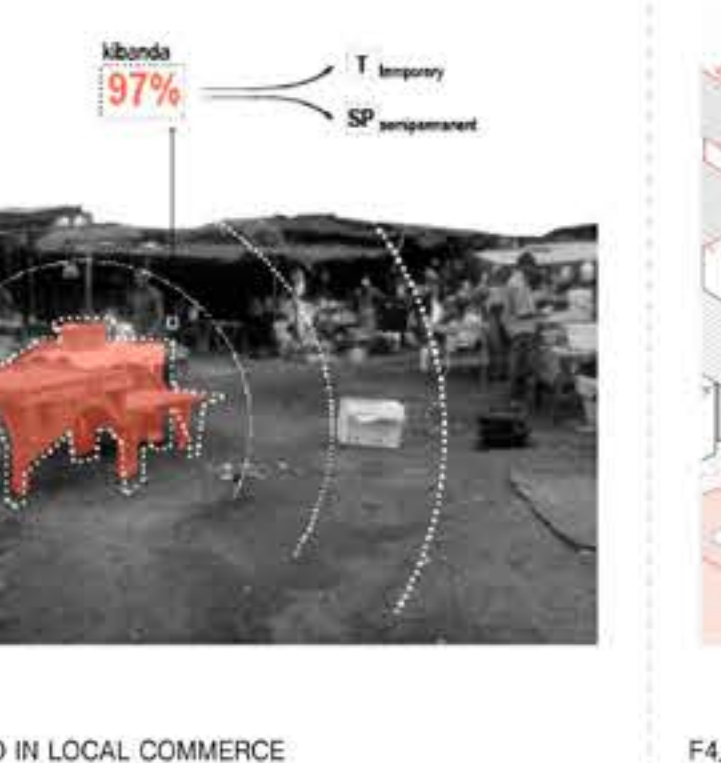


D4. ACTORS

[City, identity, Collectives]

Locate and empower stakeholders within the urban fabric can produce new possibilities for urban interaction (within the area and to the city). Institutions, businesses, residents, users, jubakali tenants, and community associations are actors involved.

9. SOSTENIBILITY




E4. ENGAGED IN LOCAL COMMERCE

[betting on local business]

Optimize traditional and local micro-enterprises in this urban area, creating public spaces for the trade and improving the conditions and job opportunities of these businesses.

10. SOSTENIBILITY

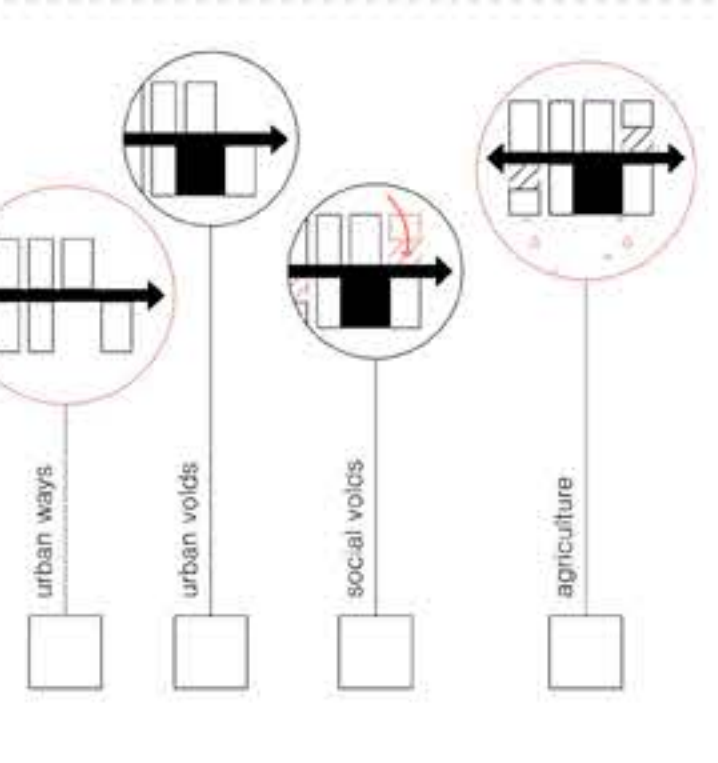


F4. COMMUNITY IDENTITY

[looking for new meanings]

The consolidation of the area proposal requires the creation of a defined community identity. The possibilities of the agricultural area and its link with the urban fabric are key to the development of the identity of Kariobangi and its surroundings as a whole.

11. SOSTENIBILITY

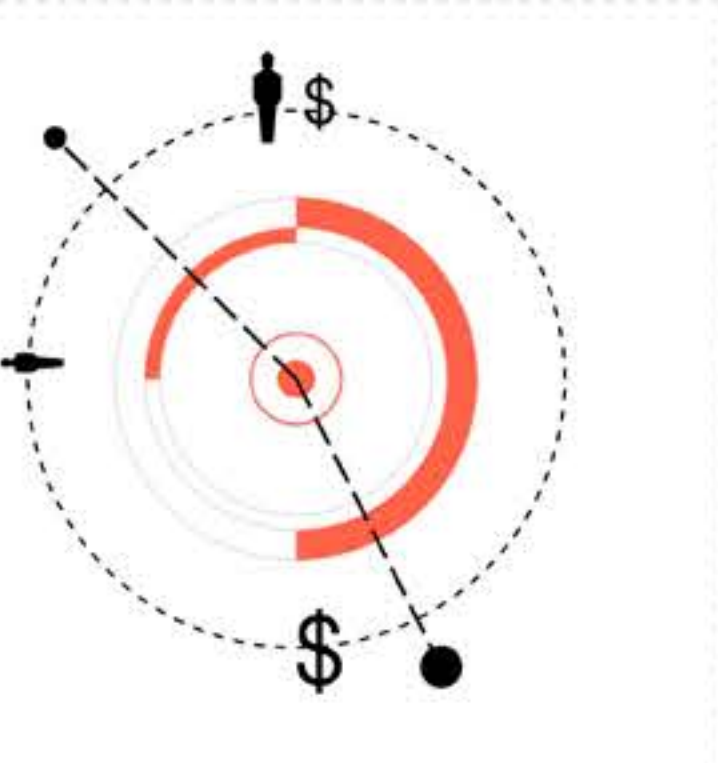


B5. TIME'S PROCESS: PRESERVATION AND EVOLUTION

[Environmentally friendly and sustainable city development]

That process should happen over time allowing the development of natural areas and the inclusion in the social sphere of green spaces. It is planned over time that allows the consolidation of new models of urban life actions, environmentally friendly and committed to a sustainable city.

12. SOSTENIBILITY

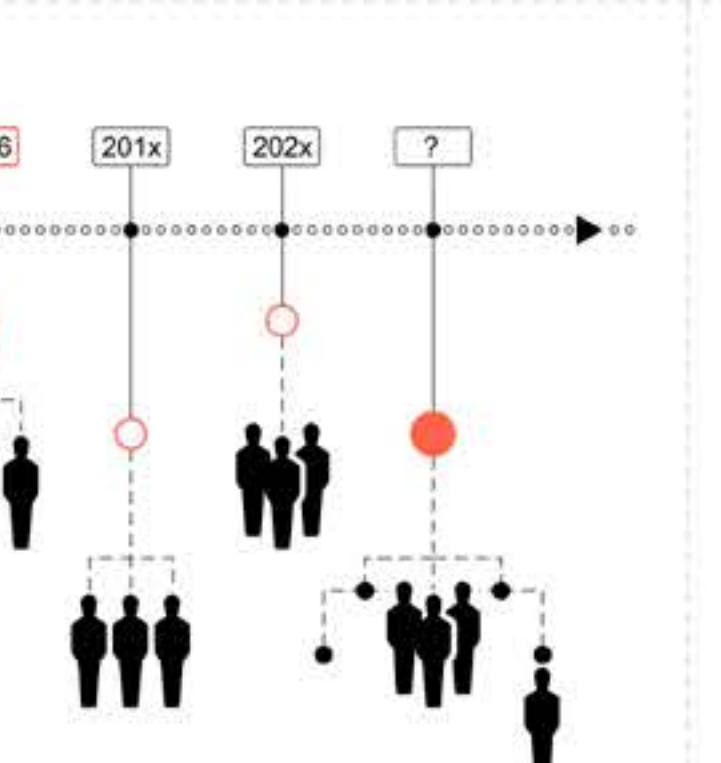


C5. PROJECT AFFECTED PERSON (PAP)

[trying to reduce the impacts]

The process of establishing the urban plan should produce minimal impact on the inhabitants. Project affected person (PAP) include business tenants, residents, landowners. It is intended in the urban plan generate the minimum displacements and maximum compensations.

13. SOSTENIBILITY

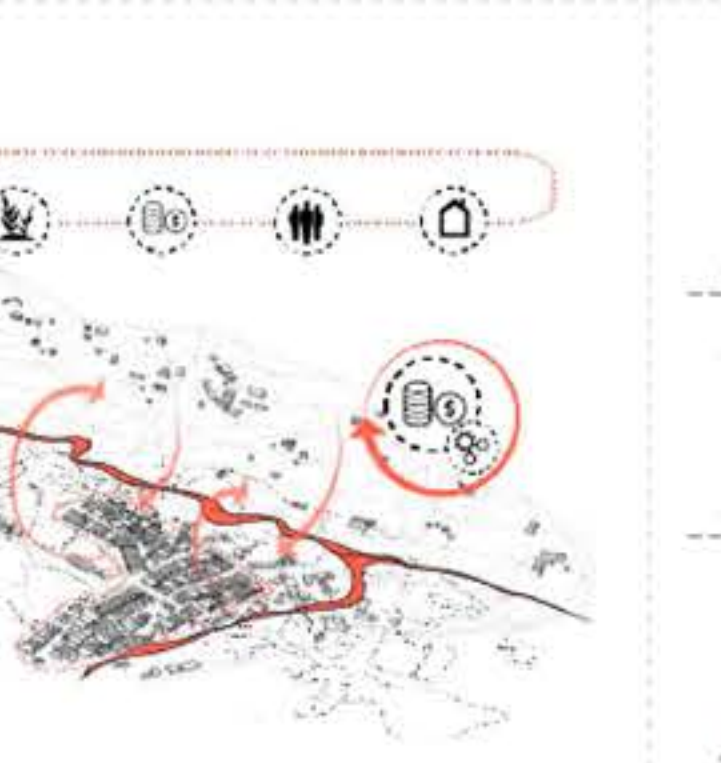


D5. SOCIAL ACTIVATION

[consolidate the urban interface]

The social activation over time allows create new networks. The empowerment of certain actors would produce new partnerships and possibilities to produce and consolidate the urban interface.

14. SOSTENIBILITY

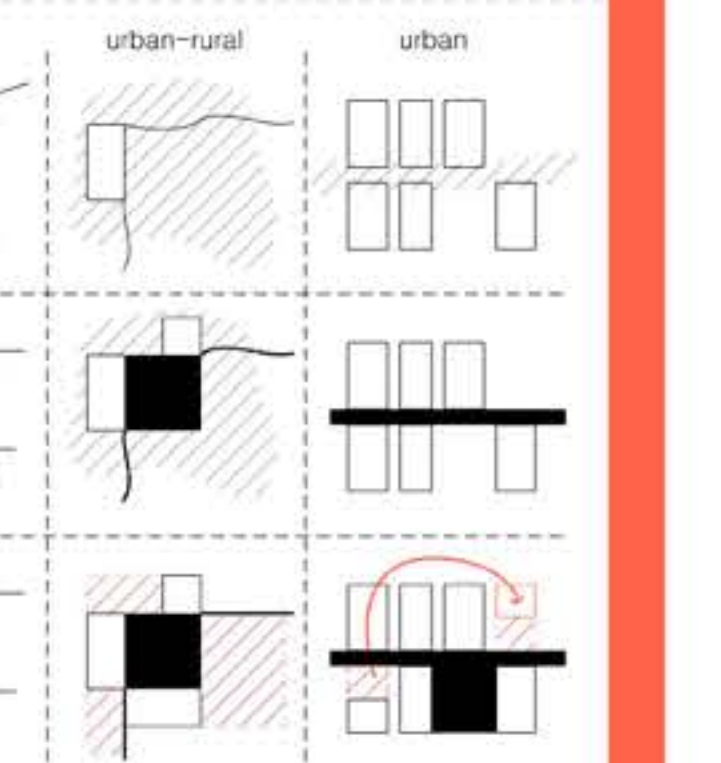


E5. SUSTAINABLE ECONOMIC CYCLE

[making a viable plan]

The spatial relationship established between the three main areas also allows the development of an economic cycle to ensure the viability of the whole area. Agricultural production could be absorbed by the urban centre which in turn will invest in the other side, maximizing the role of the riparian corridor.

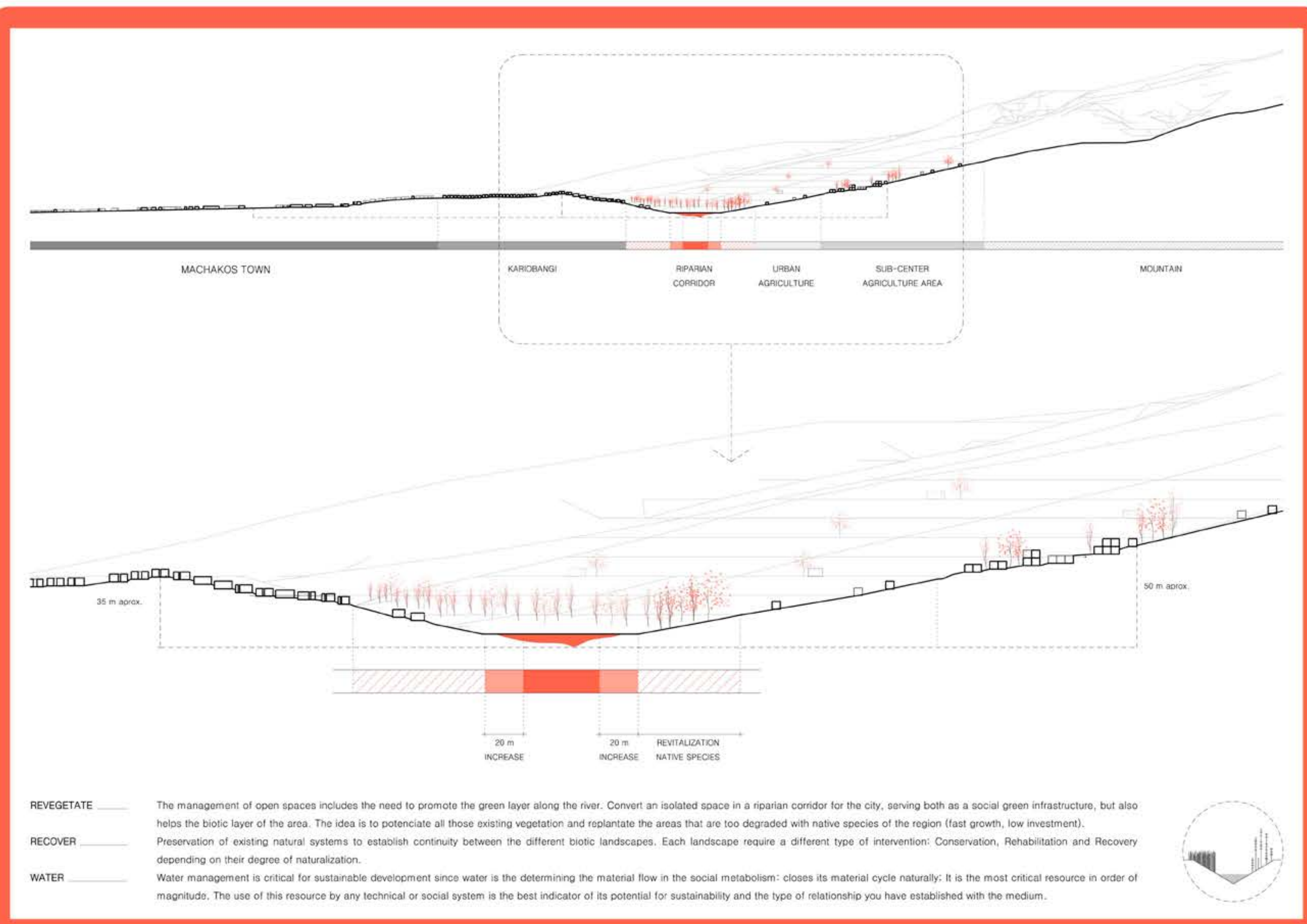
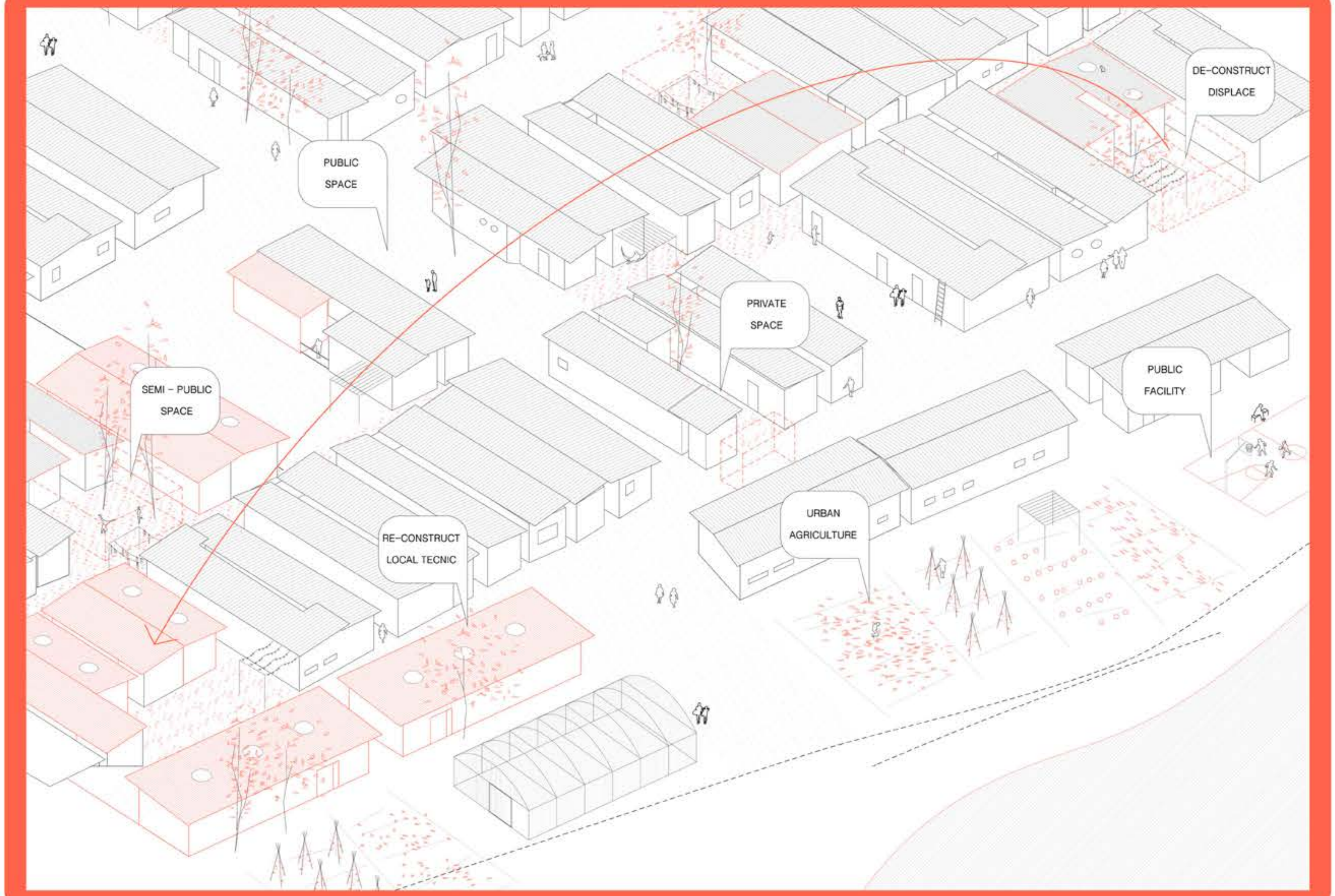
15. SOSTENIBILITY



F5. URBAN GROWTH + DENSITY

[how about the future?]

Urban planning proposes guidelines to guide future growth of Kariobangi settlement linked to agricultural area across the river. The public spaces are proposed as a cornerstone for the growth of the city while allowing reorganize urban density.




MACHAKOS

URBAN-RURAL INTERFACE


UNHABITAT

FOR A BETTER URBAN FUTURE


Concept of settlement upgrading

**Supporting communities**


- community centre
- incremental development
- community based organization
- cooperation with municipality

**Small businesses**


- active partner in new houses
- creation of local markets
- support of local craftsmen

**Gender equality**


- empowering of women
- women in charge of inc. dev.
- work with vulnerable groups

**Improvement of streets**

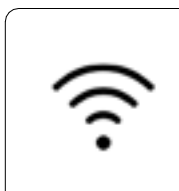
- paving of streets
- installation of light and water
- storm water drainage

**Urban agriculture**

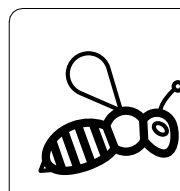
- roof gardening
- production of flowers
- creation of sustainable market

**Public hygiene**

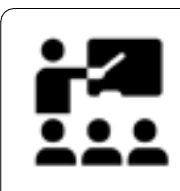
- baths and toilets
- located in community centres
- enclosed waste system

**Wi-Fi Hotspots**

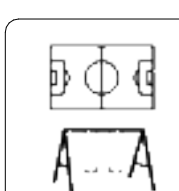
- 'right to be connected'
- better access to labour market

**Beekeeping**

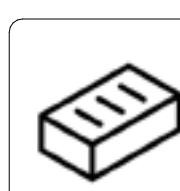
- support of urban gardening
- production of honey
- saving of planet

**Education**


- school
- skill improvement
- better access to labour market

**Playgrounds**


- children in spaces
- 'glue' form community

**Local materials**

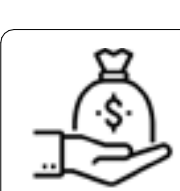
- self-help & participation
- wooden houses
- houses from mud and strowe

**Community canteen**

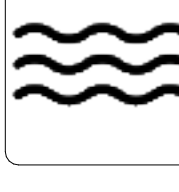
- support of communities
- public hygiene bio gases for heating
- work with vulnerable groups

**Recyclation**

- waste problem solution
- creation of recyclation hubs
- network of waste pickers
- economical improvement

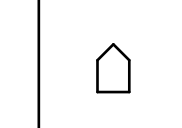


**Micro loans**

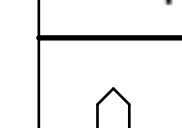
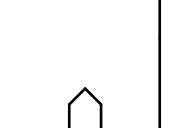

- support of communities
- public hygiene bio gases for heating
- work with vulnerable groups




**Waterfront**



- support the river
- preserve access

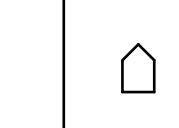
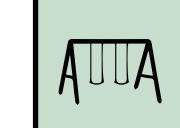

Urbanisim & Architectonical concept of settlement upgrading

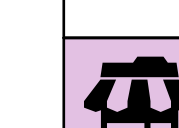
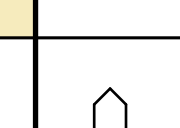
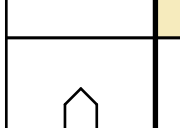











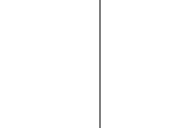

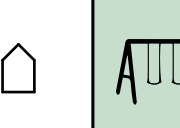


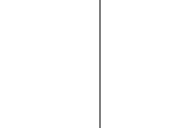

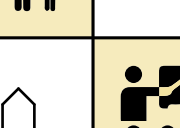


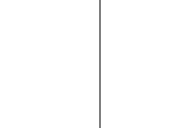



















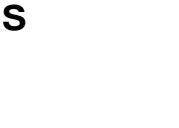





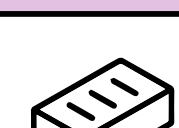

























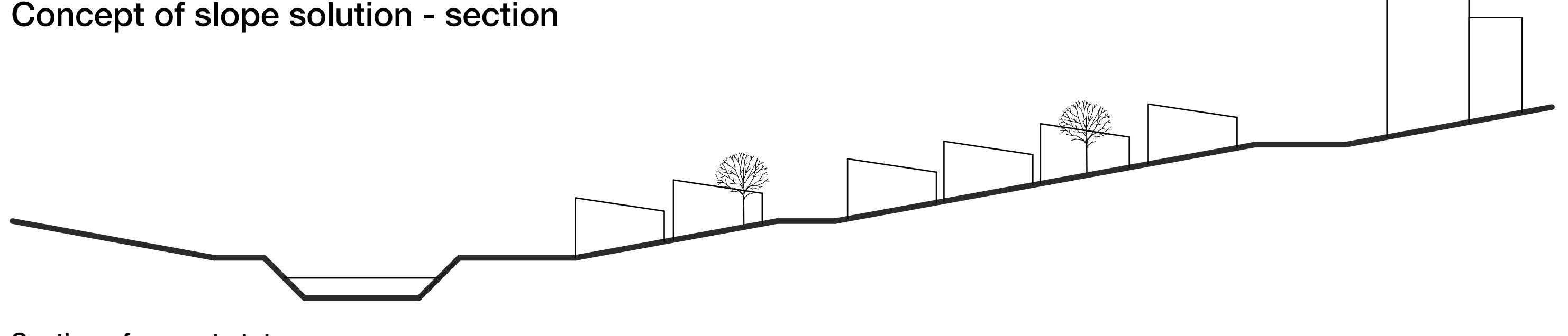




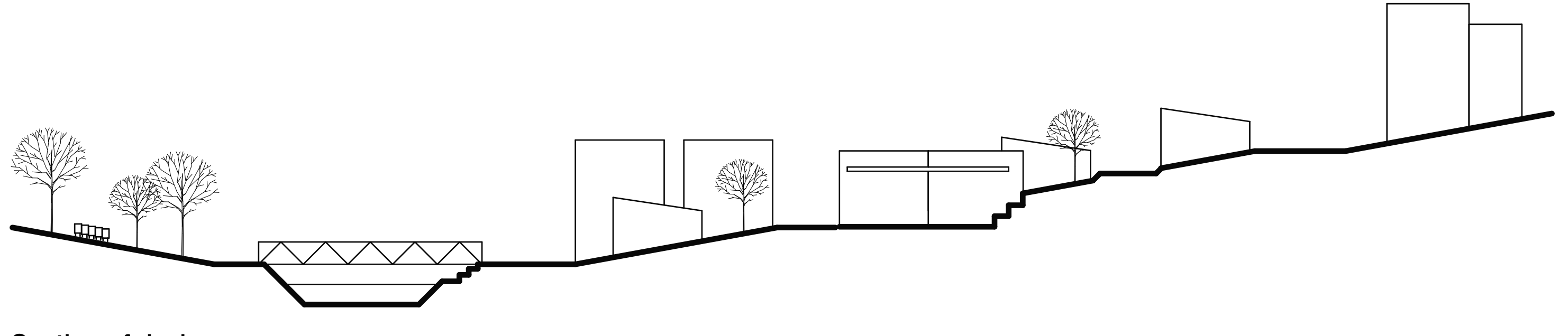


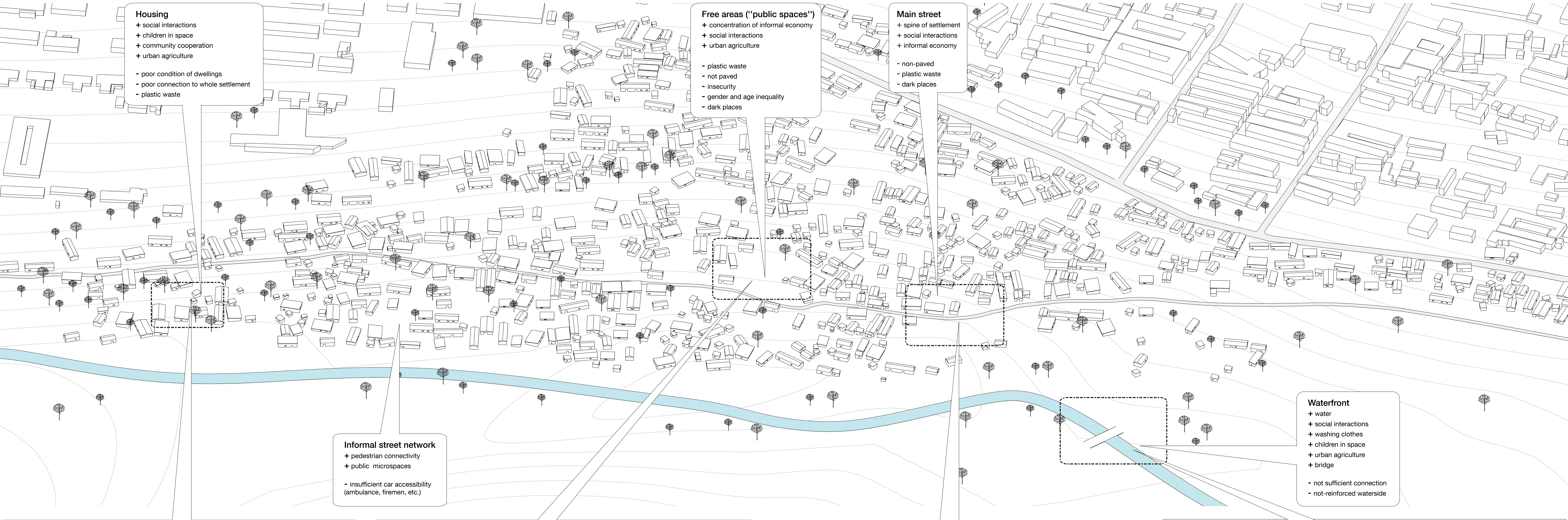


Section of current status



Section of design





Housing

- + social interactions
- + children in space
- + community cooperation
- + urban agriculture

- poor condition of dwellings
- poor connection to whole settlement
- plastic waste

Free areas ("public spaces")

- + concentration of informal economy
- + social interactions
- + urban agriculture

- plastic waste
- not paved
- insecurity
- gender and age inequality
- dark places

Main street

- + spine of settlement
- + social interactions
- + informal economy

- non-paved
- plastic waste
- dark places

Waterfront

- + water
- + social interactions
- + washing clothes
- + children in space
- + urban agriculture
- + bridge

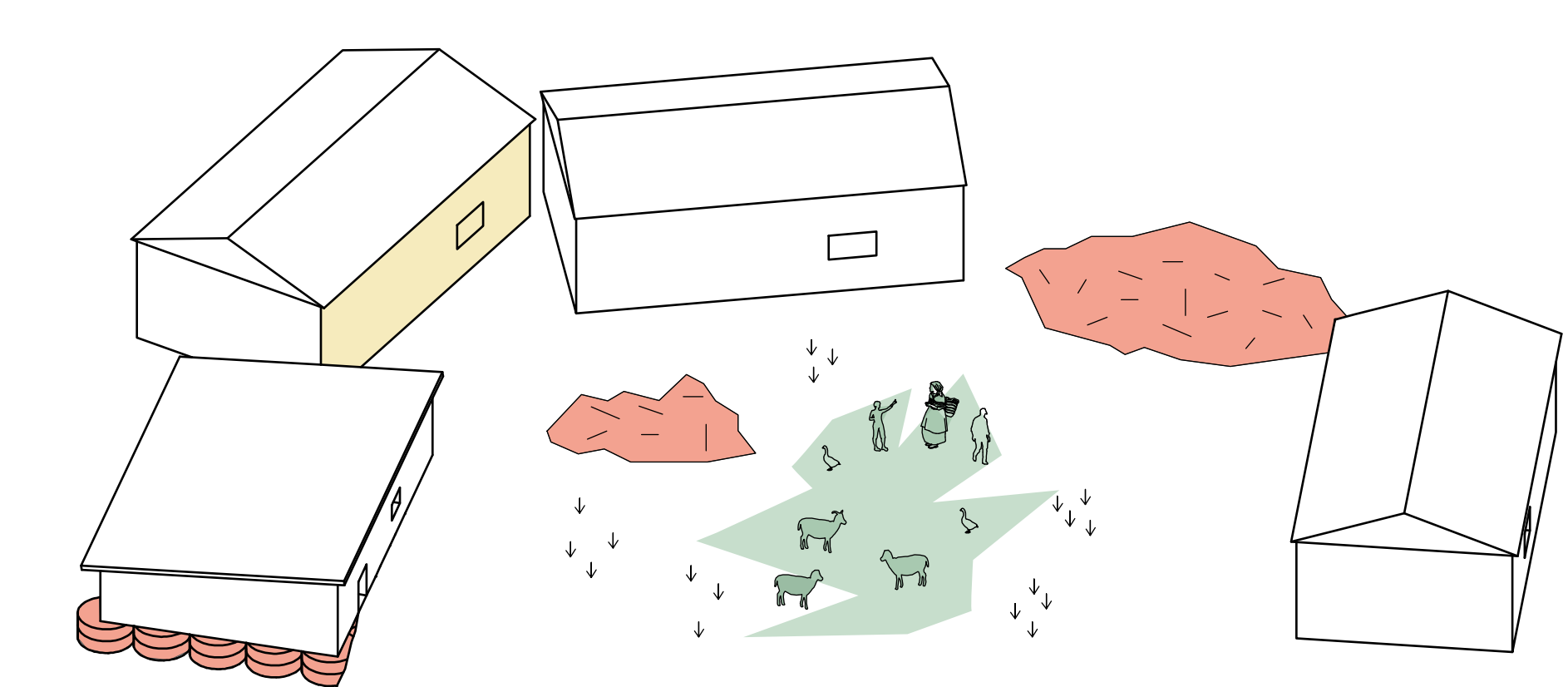
- not sufficient connection
- not-reinforced waterside

Informal street network

- + pedestrian connectivity
- + public microspaces

- insufficient car accessibility (ambulance, firemen, etc.)

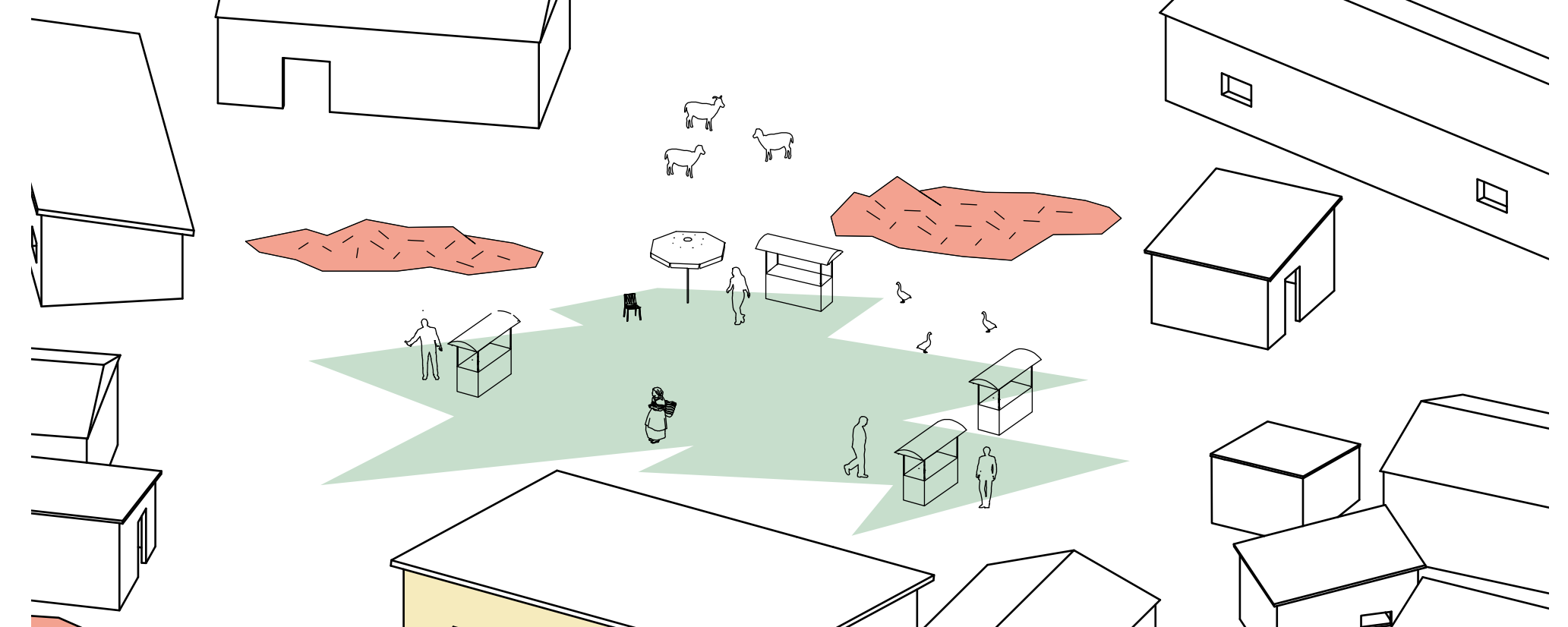
Housing - current status



First steps

- participatory mapping and planning
- picking and recyclation of plastic waste
- artistic workshops to improve visual quality of dwellings

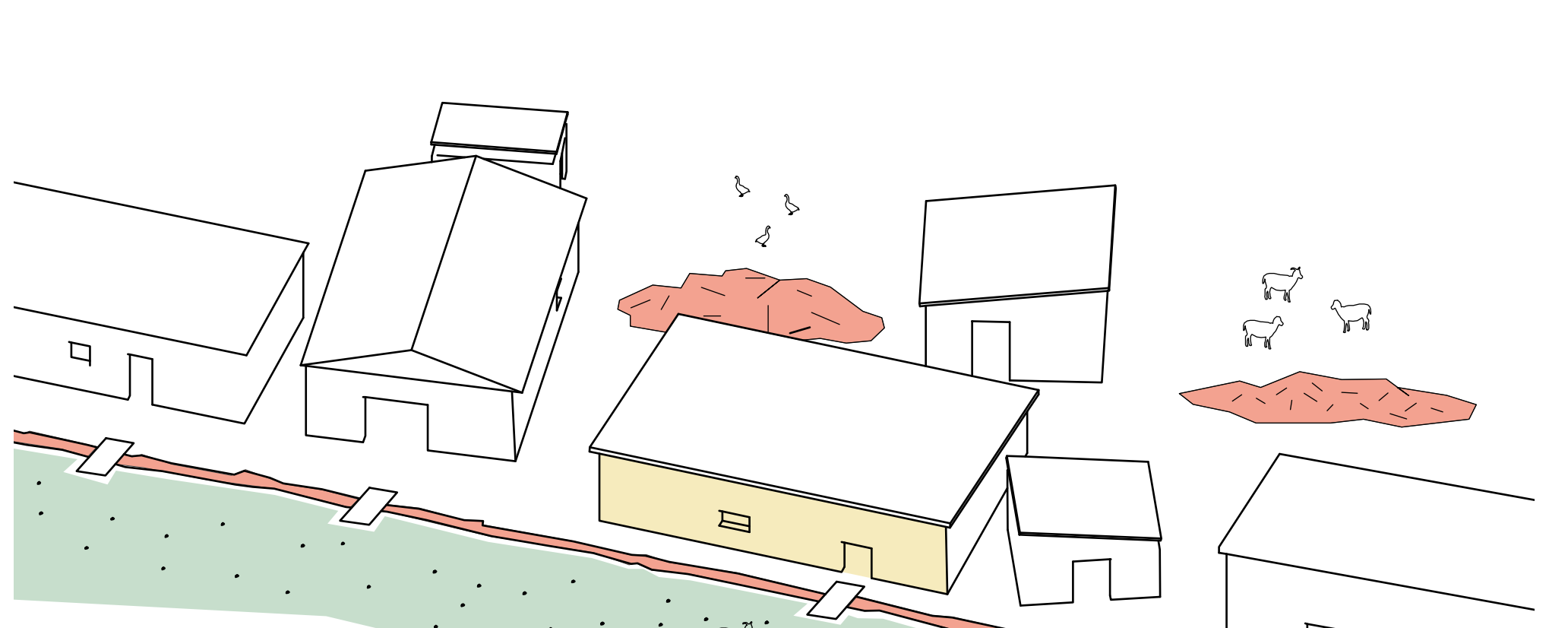
Free area (public space) - current status



First steps

- participatory mapping and planning
- picking and recyclation of plastic waste
- artistic workshops to improve visual quality of dwellings

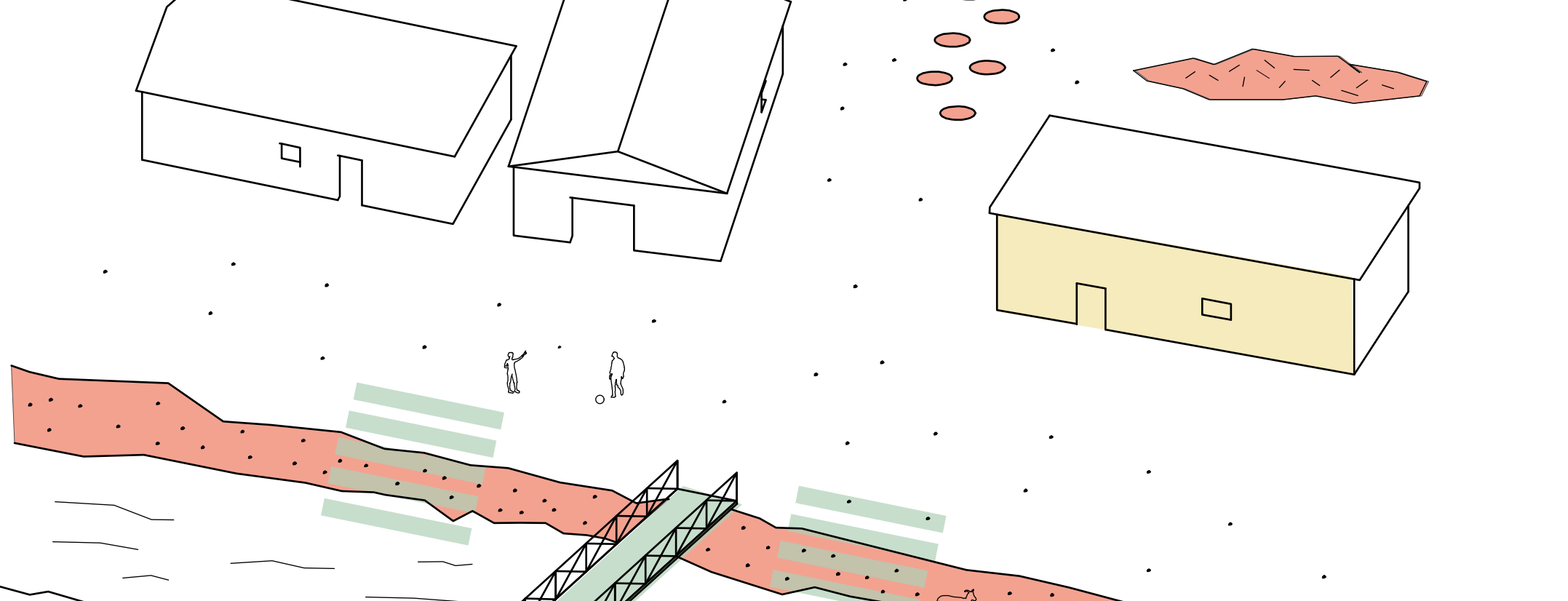
Main street - current status



First steps

- participatory mapping and planning
- picking and recyclation of plastic waste
- artistic workshops to improve visual quality of dwellings

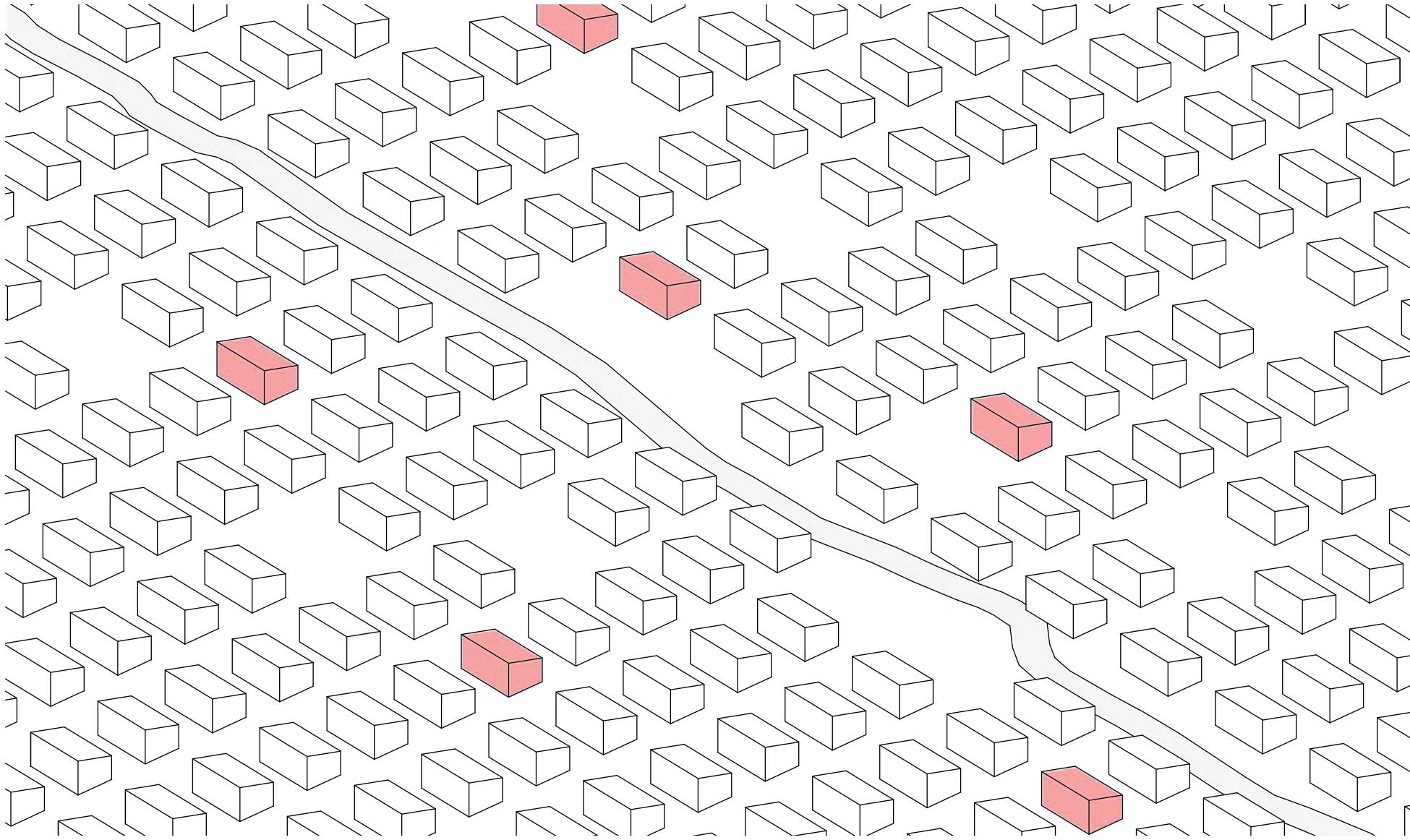
Waterfront - current status



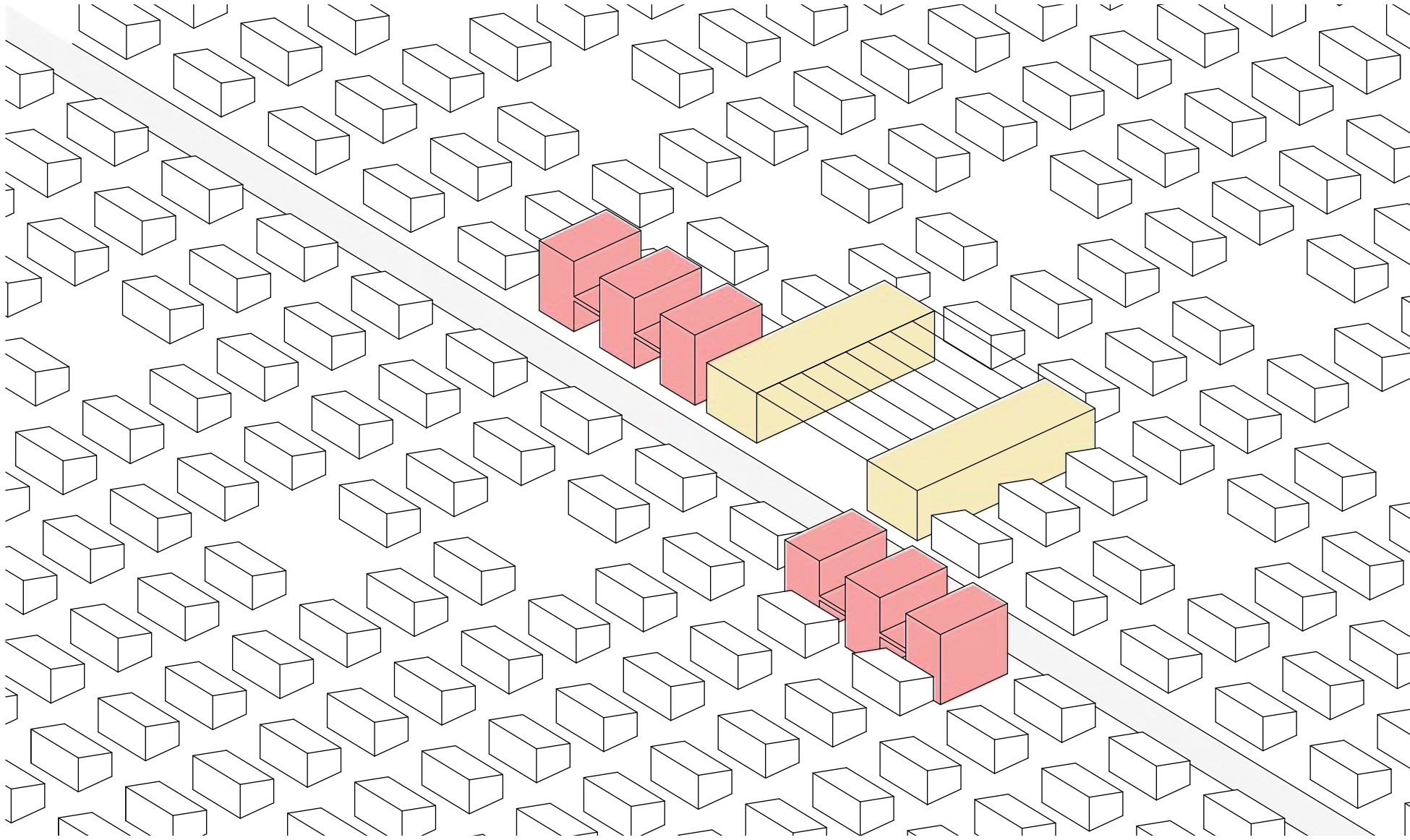
First steps

- participatory mapping and planning
- picking and recyclation of plastic waste
- artistic workshops to improve visual quality of dwellings

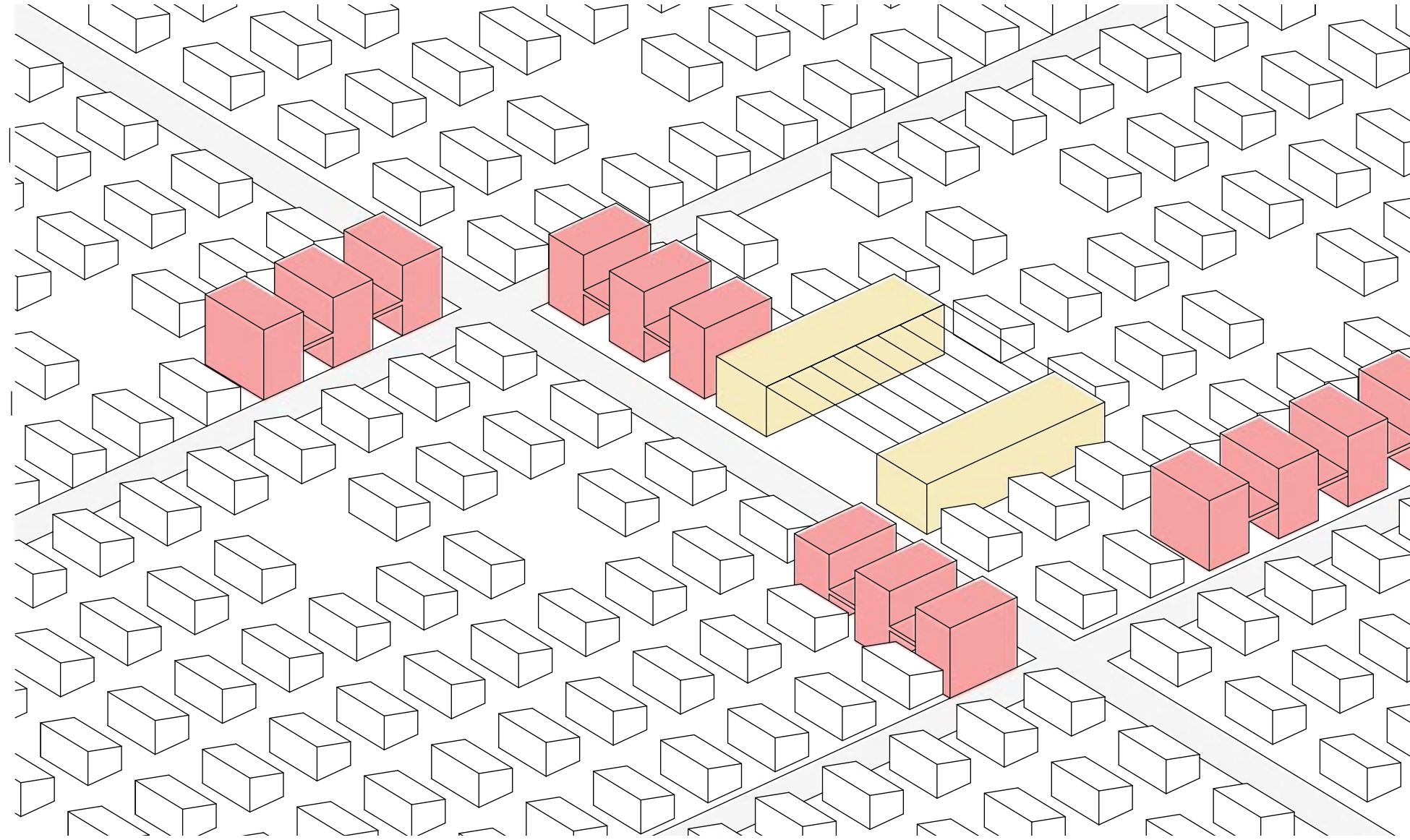
Phases of stettlement upgrading



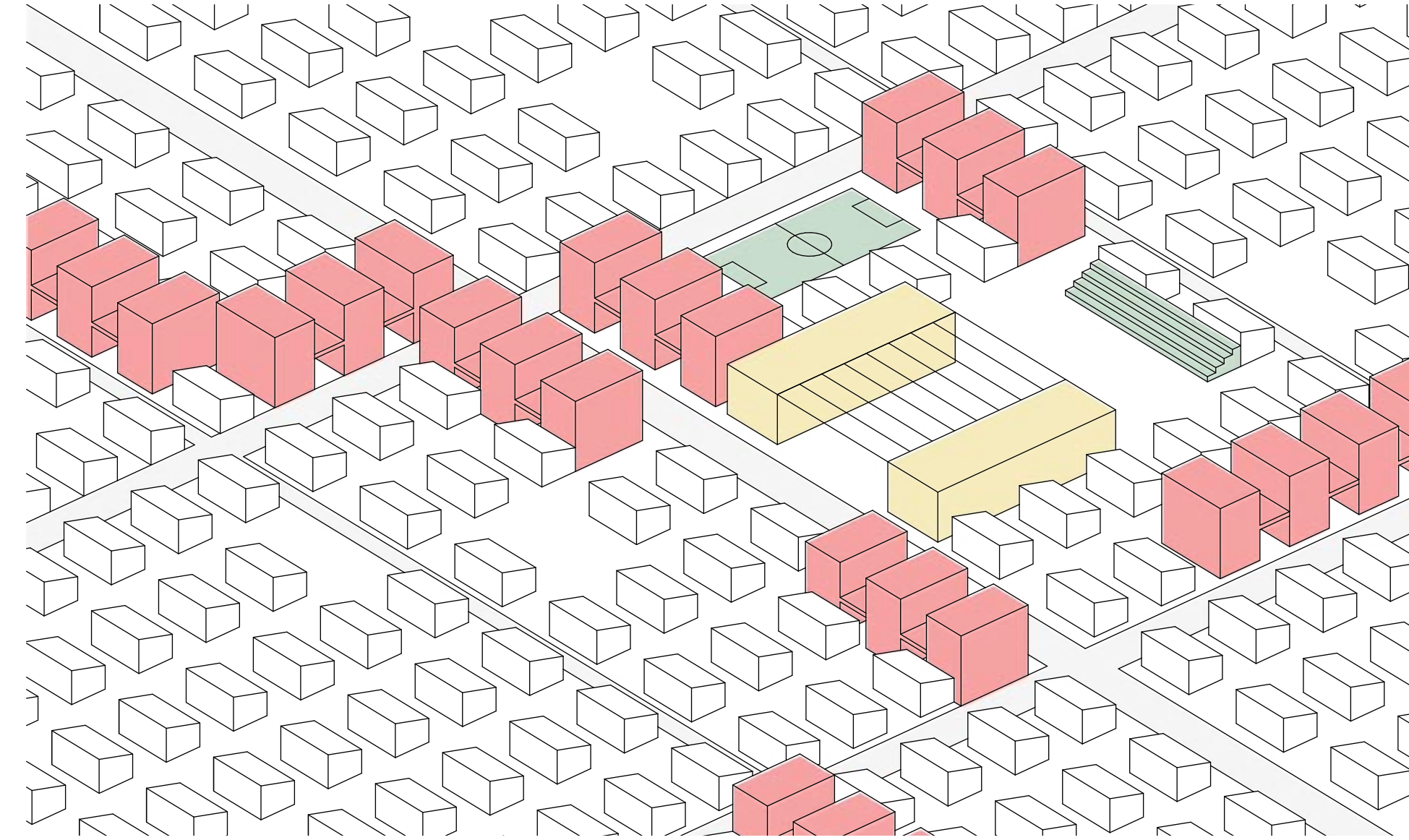
1. Phase - Participatory mapping and planning



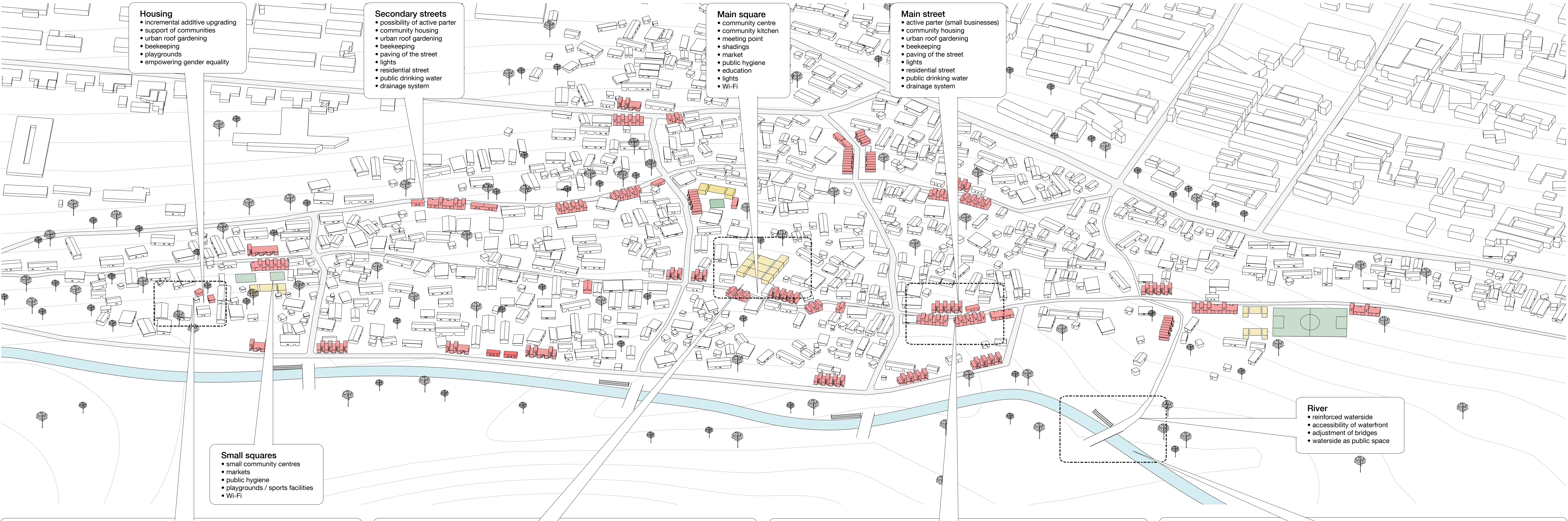
2. Phase - 'Spine improvement' of main street & incremental upgrading



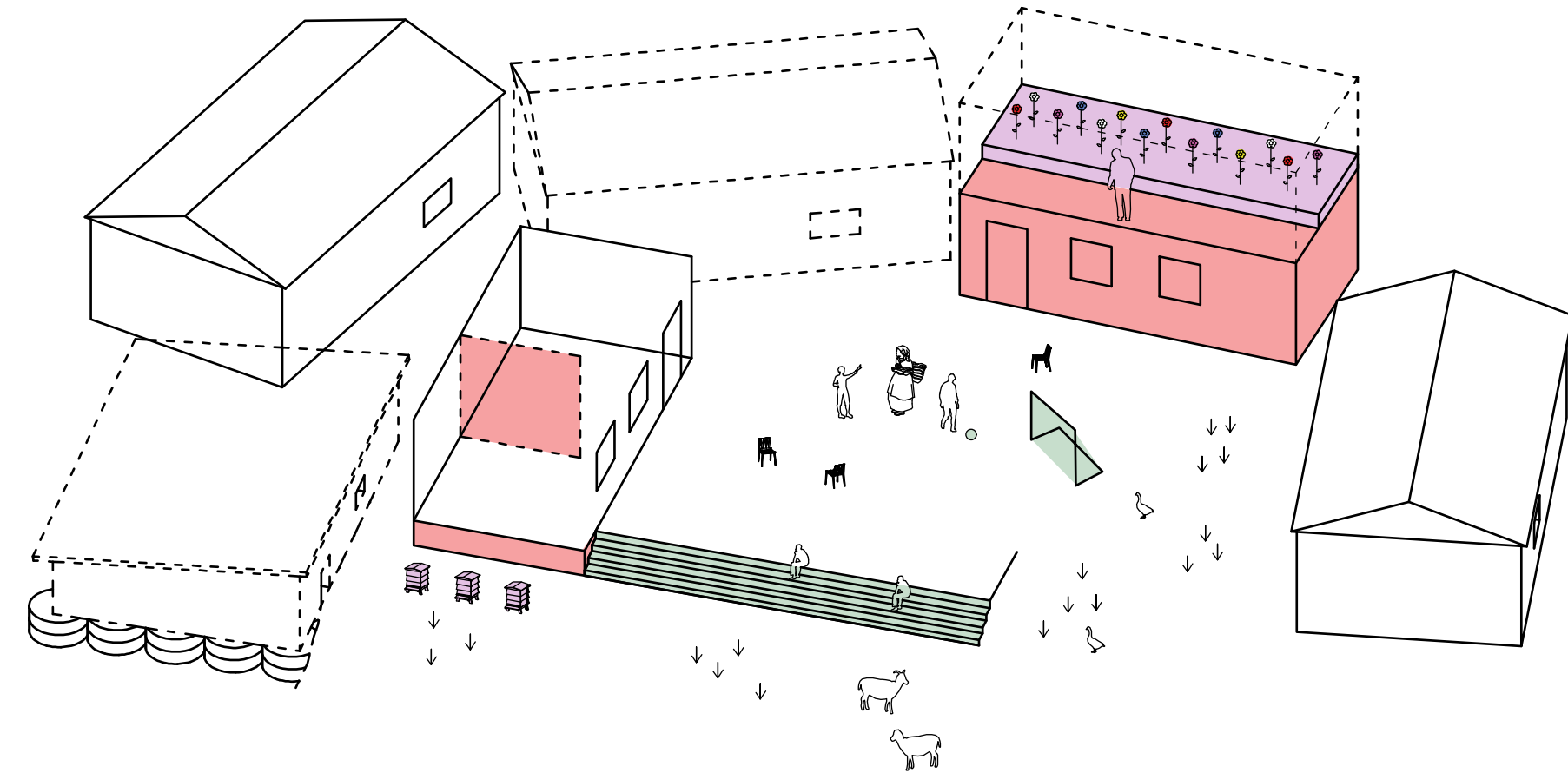
3. Phase - New street network and public housing



4. Phase - Leisure and economic facilities & spatial integration into city Nyeri

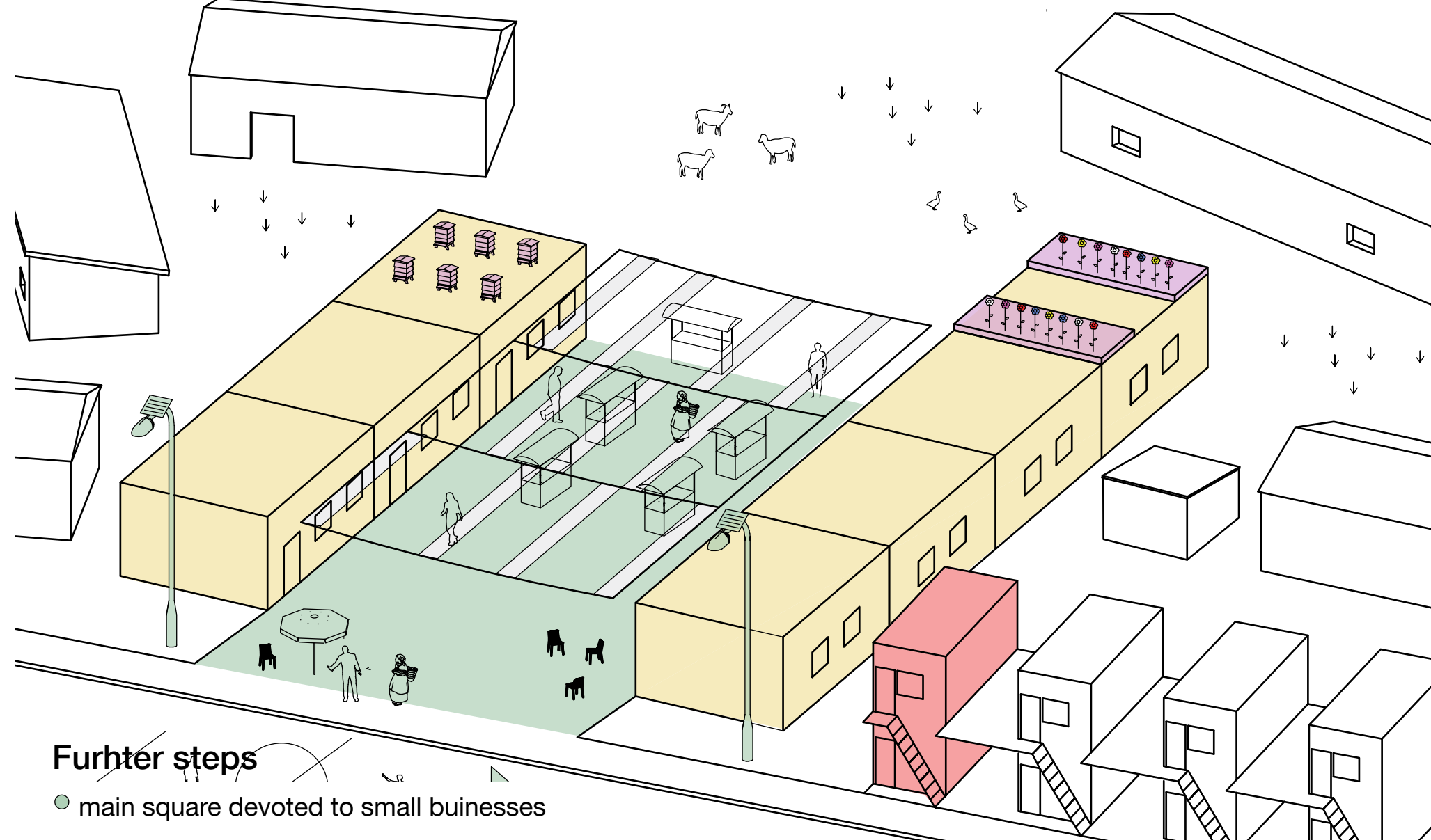


Housing - design



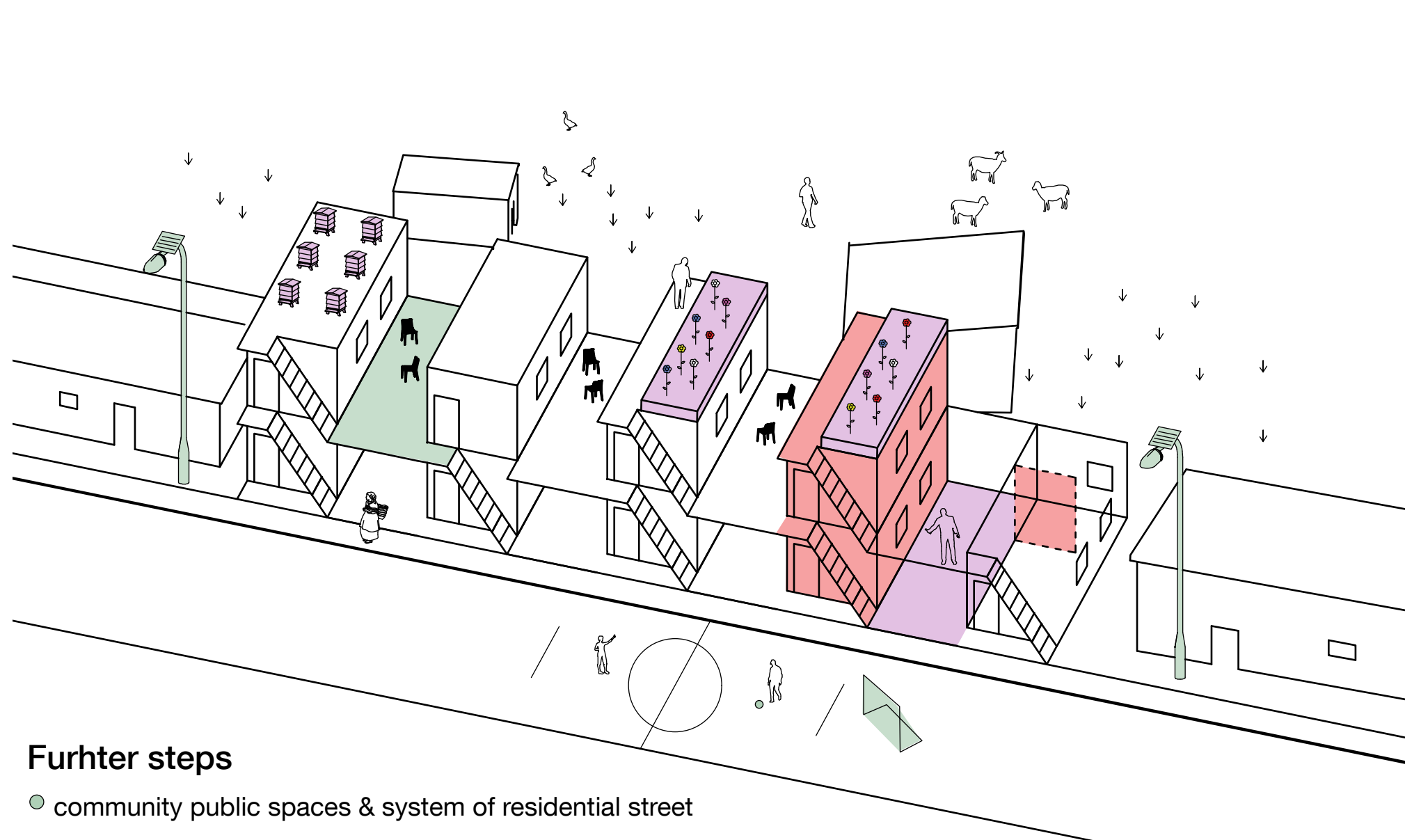
- Furhter steps**
- community public spaces e.g. stairs for sitting (also reinforcement of hill)
 - incremental development of houses, emphasis on self-help, local materials & flexibility
 - urban roof gardening (production of flowers) & beekeeping

Main square - design



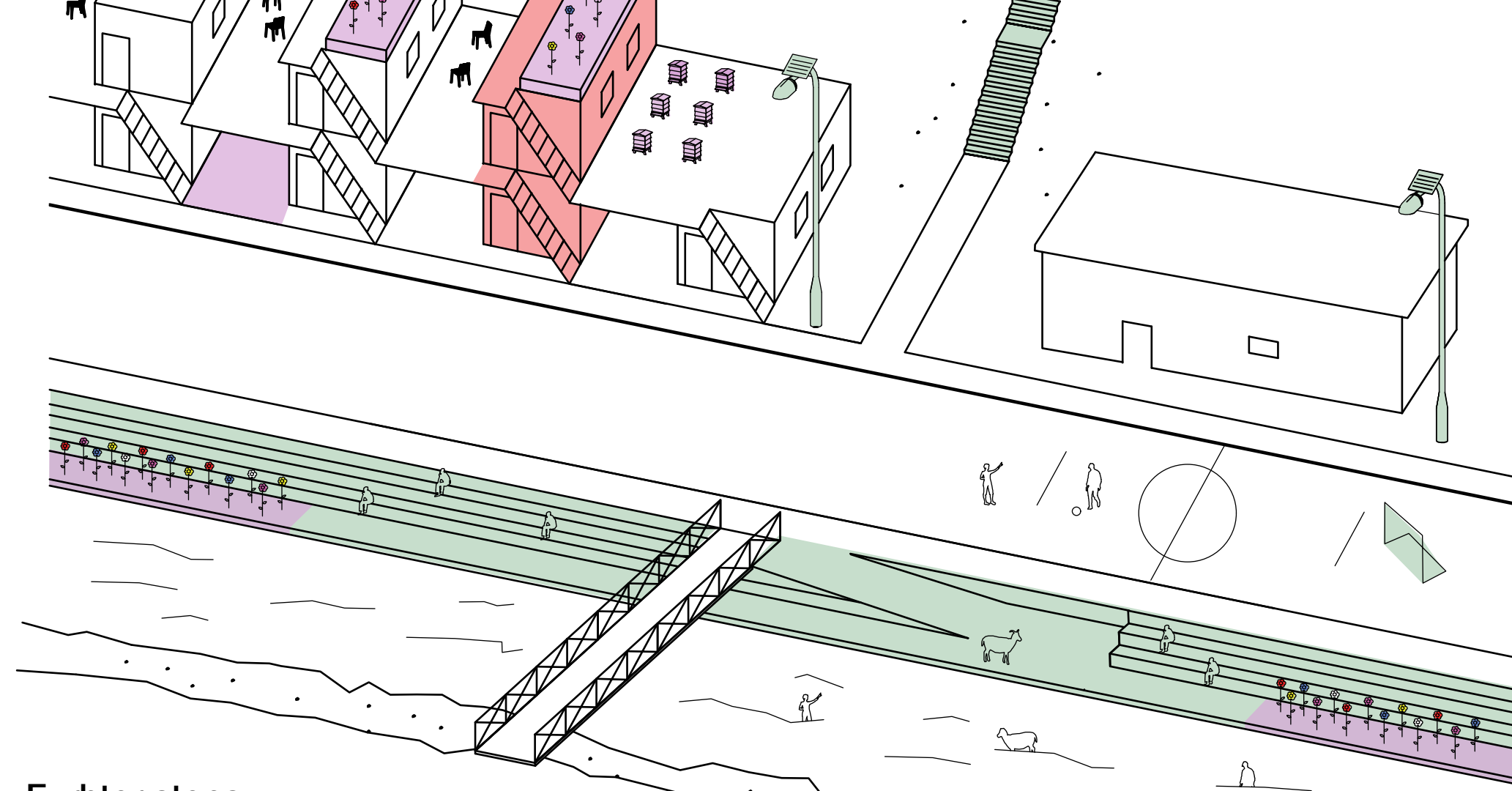
- Furhter steps**
- main square devoted to small businesses
 - social housing emphasis on self-help, local materials & additive development
 - community centre with public hygiene, school, Wi-Fi hotspots, etc.

Main street - design



- Furhter steps**
- community public spaces & system of residential street
 - social housing emphasis on self-help, local materials & additive development
 - active parter (small businesses), urban roof gardening (production of flowers) & beekeeping

Waterfront - design



- Furhter steps**
- revitalization of waterfront, stairs and platforms preserve access to the river
 - social housing emphasis on self-help, local materials & additive development
 - active parter (small businesses), urban roof gardening (production of flowers), beekeeping & hydroponic gardening

MASTER PLAN

5008



Nature Trail Park
Nature trail park with informal business spots and public sitting niche.
Also the park demonstrates the history of Mombasa through design, use of material and function.



Public Bath
A community initiative swimming facility for recreational for the public. This is to improve the community tranquility.



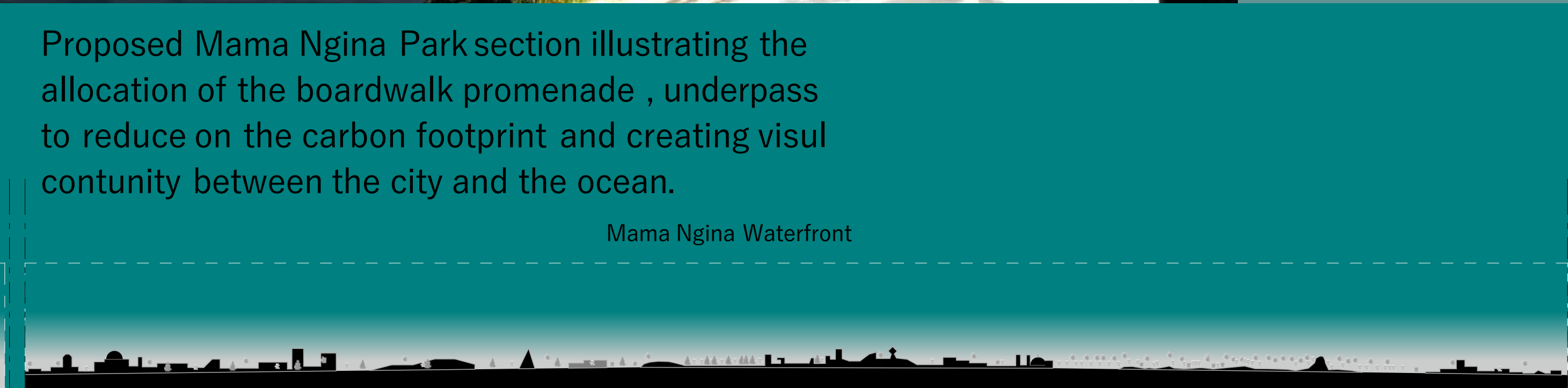
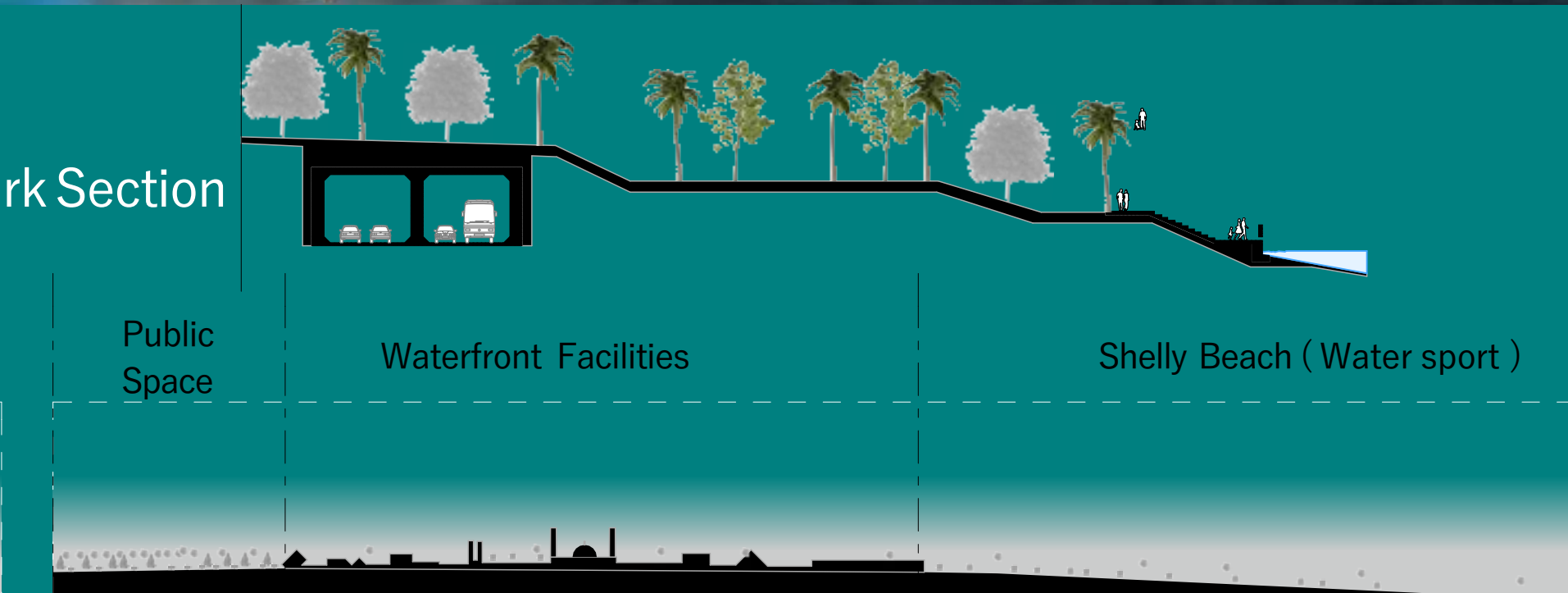
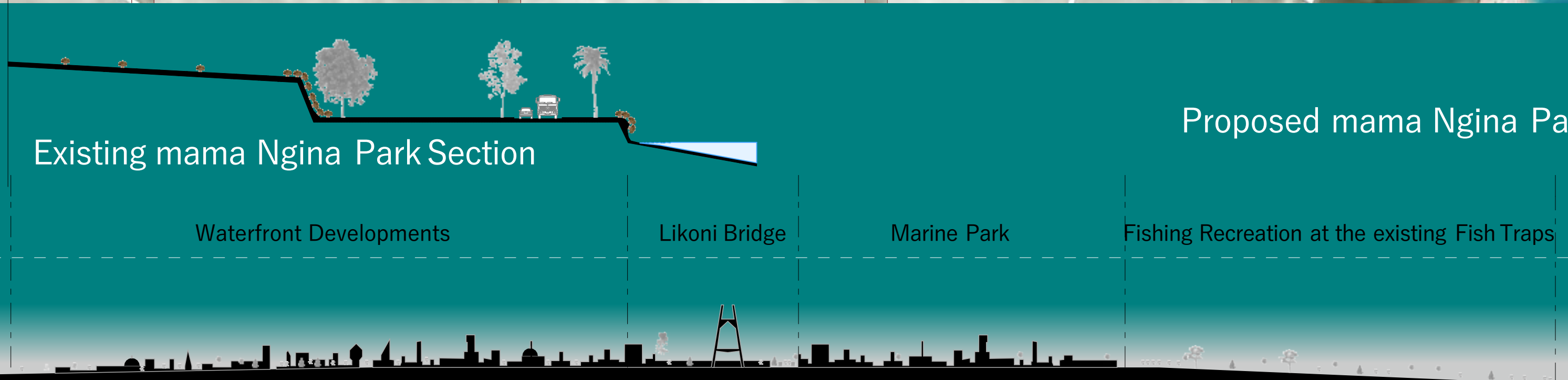
Public and Private sporting grounds
Alongside the existing Golf Course, the provision of public sporting facility and recreation along the waterfront. This is designed on the reclaimed land and above the underpass, this is to increase visual continuity and reduction in carbon footprint.



Promenade
The softened edge through sustainable control on the depleting cliff edge to create an active promenade with viewing decks, boardwalks and play area that can be accessed on both the Low tides and High tides.



Mama Ngina Park
The Mama Ngina Park with the aim to create a link between the land and the ocean. This is through the provision of public and private gardens, Ferry terminus for tourism tour, Monuments, jogging and cycling paths and Nature trails. Adjacent to it is a tourist Information centre for Mama Ngina.



Proposed Likoni waterfront Elevation from the Ocean

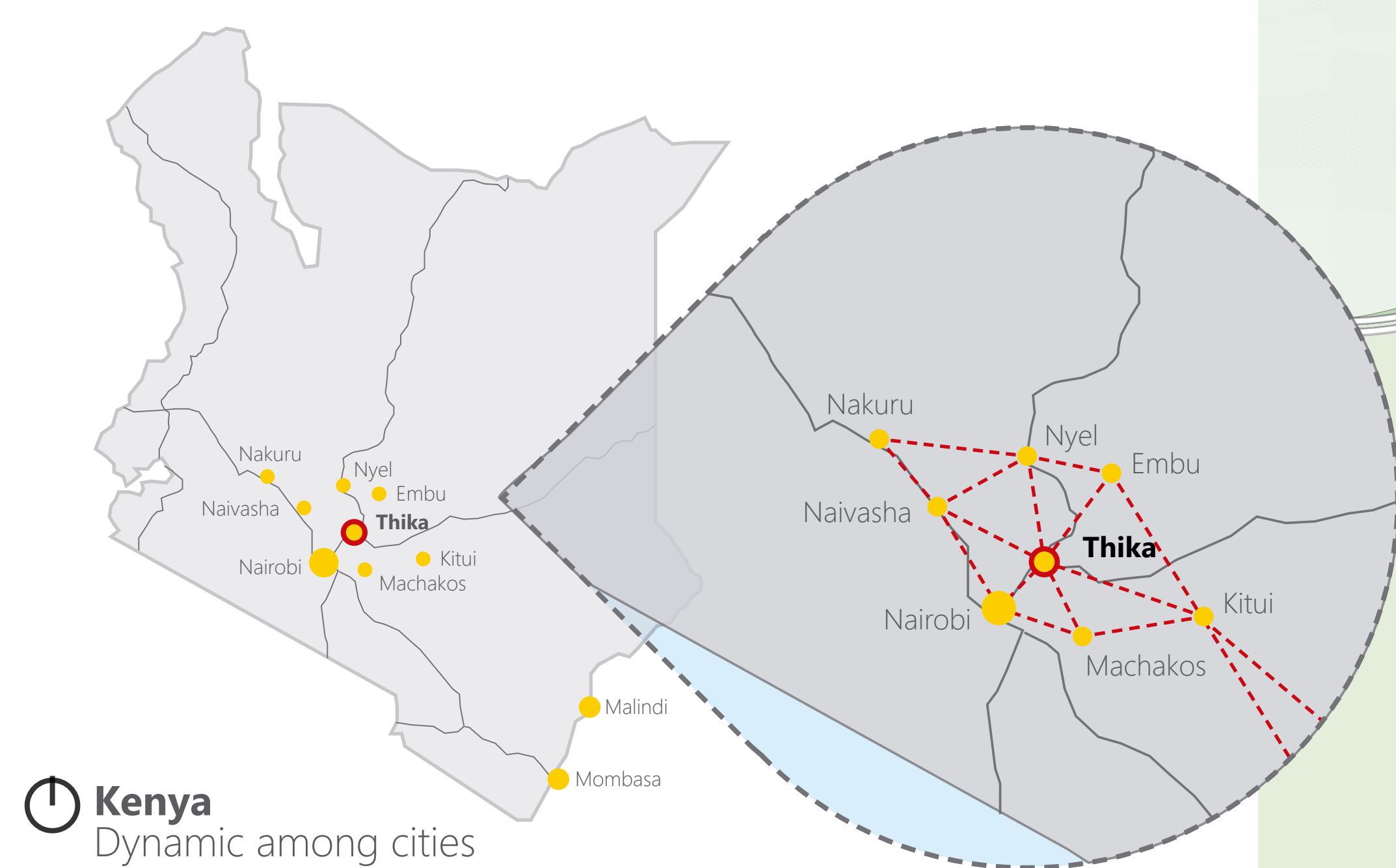
Proposed Shelly Beach Elevation from the Ocean

Proposed mama Ngina Park Elevation from the Ocean



Dynamic trade center

Kiang'ombe CBD



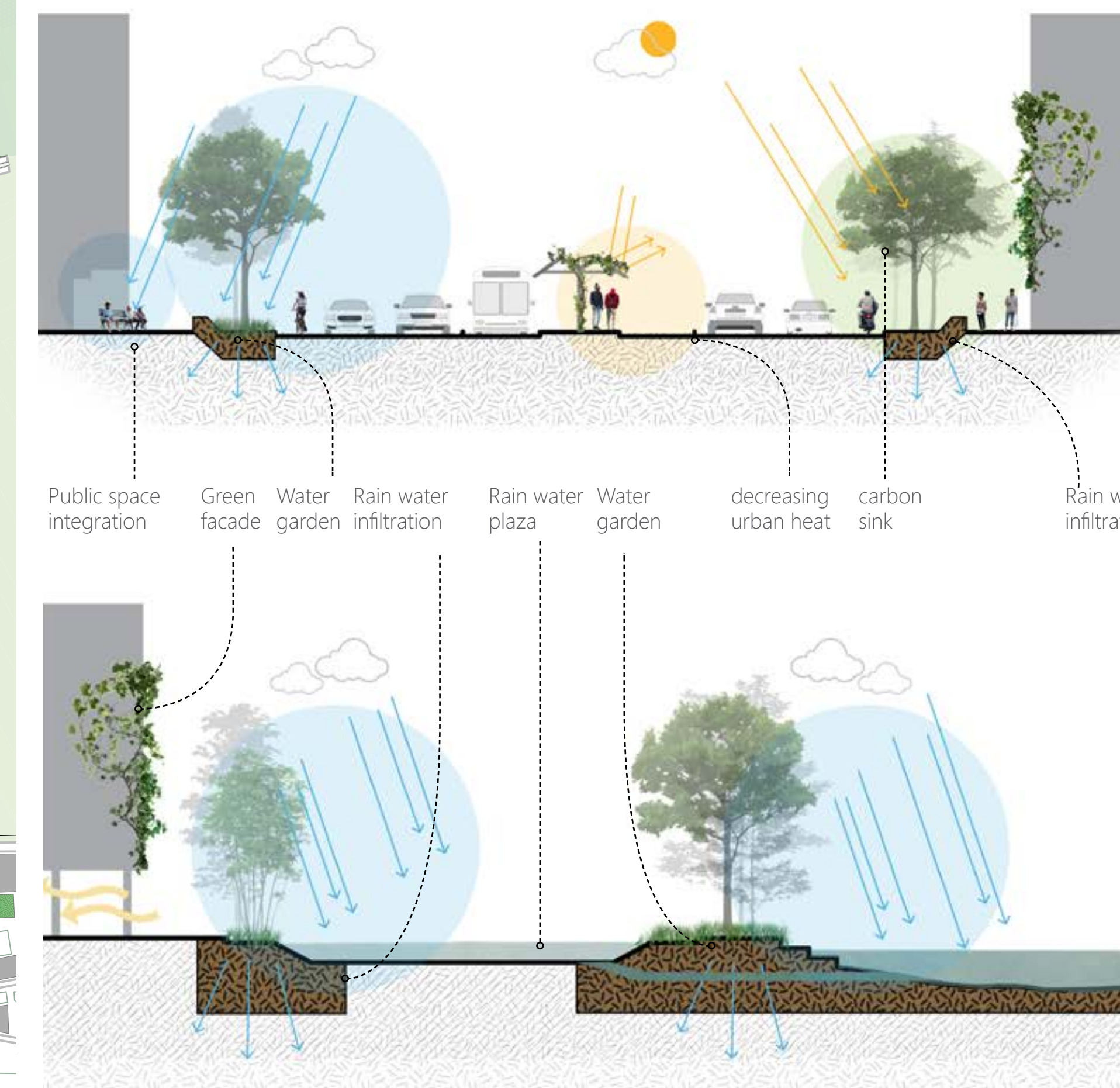
Thika has a strategic location for being in between trades and dynamics among cities



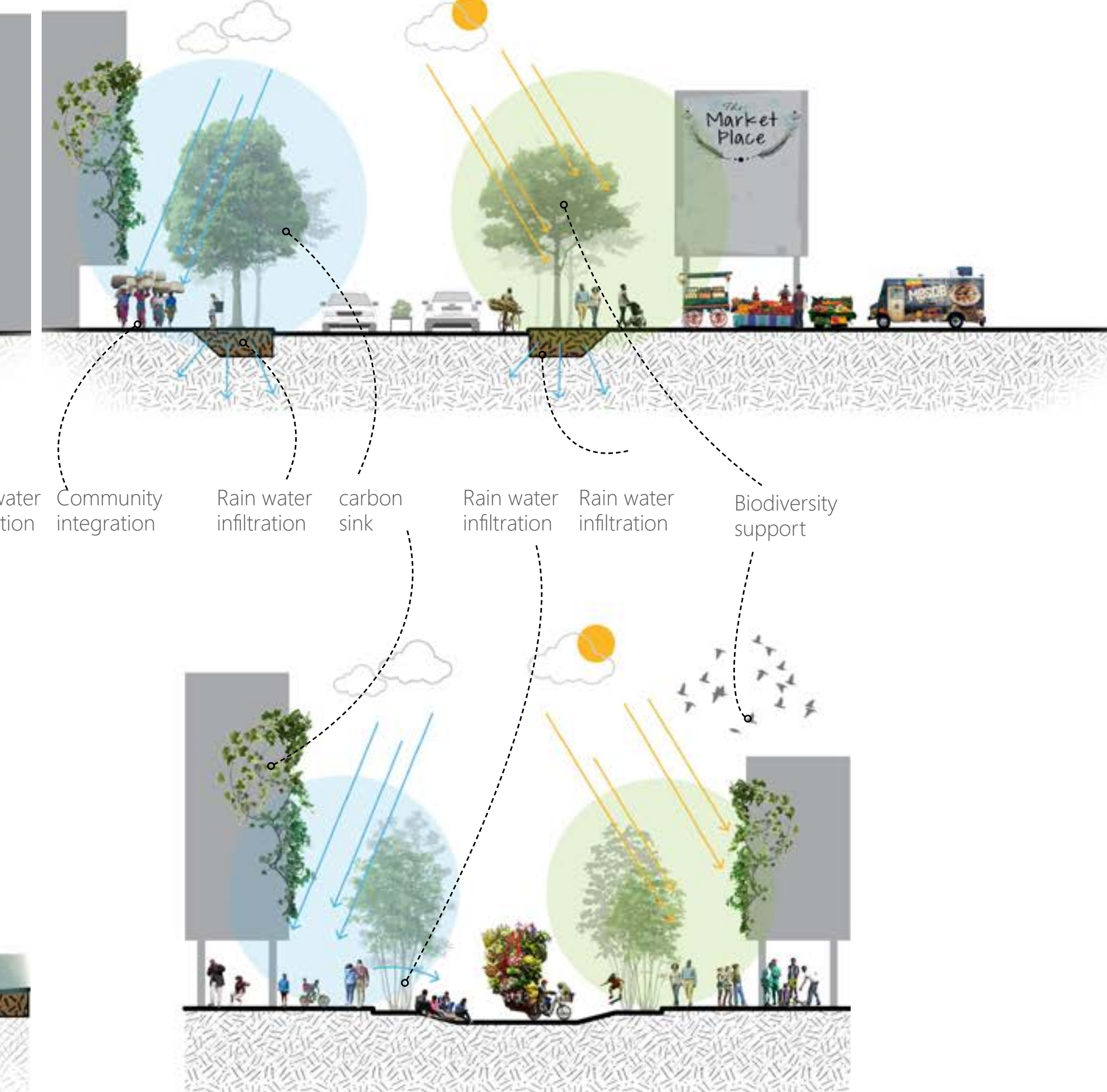
Kiang'ombe CBD general plan

To be a green, well-connected, financial and commercial hub that complements the main CBD; provides diverse opportunities for local and international businesses, housing for all social classes, and comfortable public space for social cohesion; and integrates well with the wetland.

Section A - Mayor avenues



Section B - Medium low traffic



Section C - Water plaza + Wetland integration

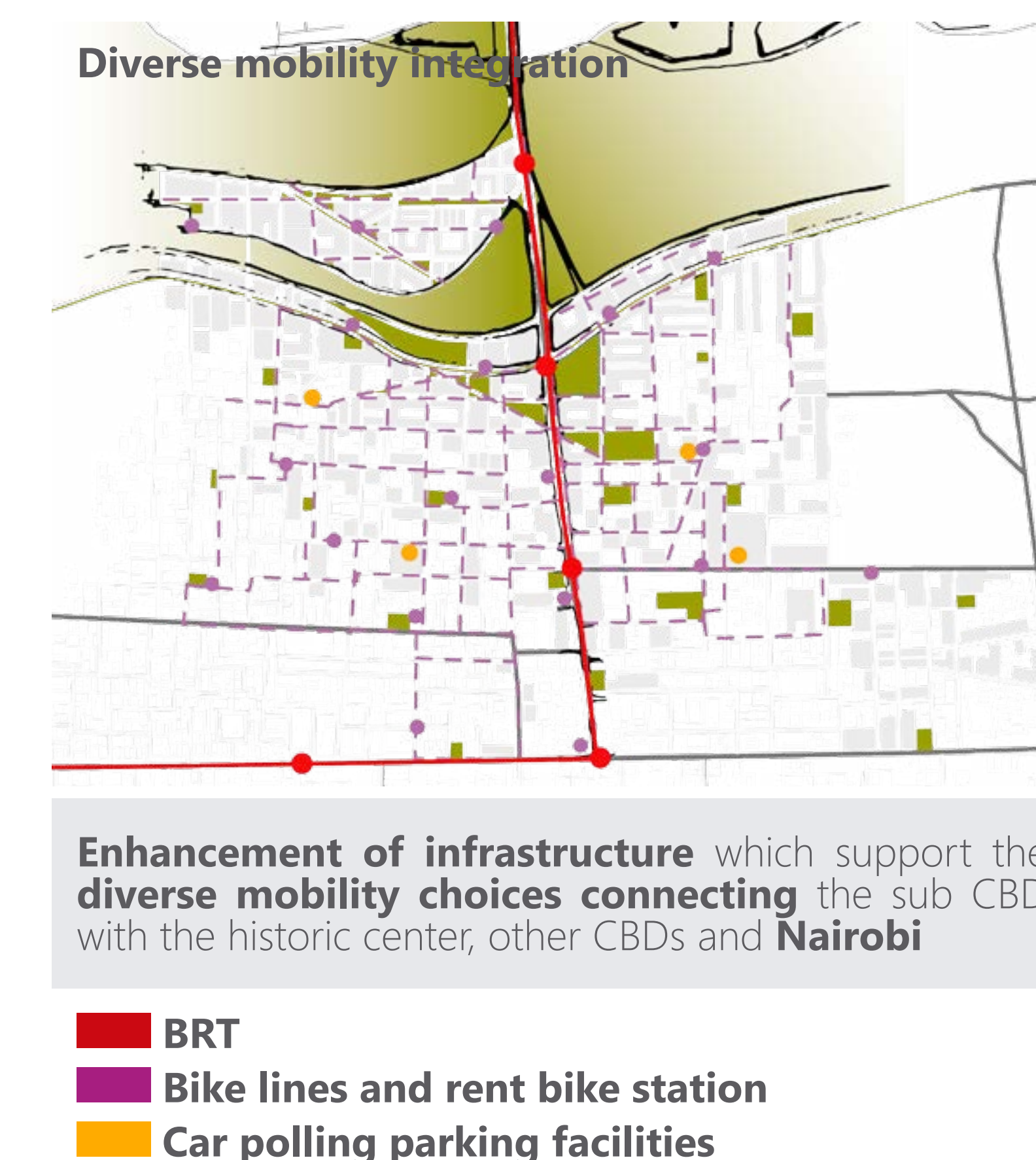
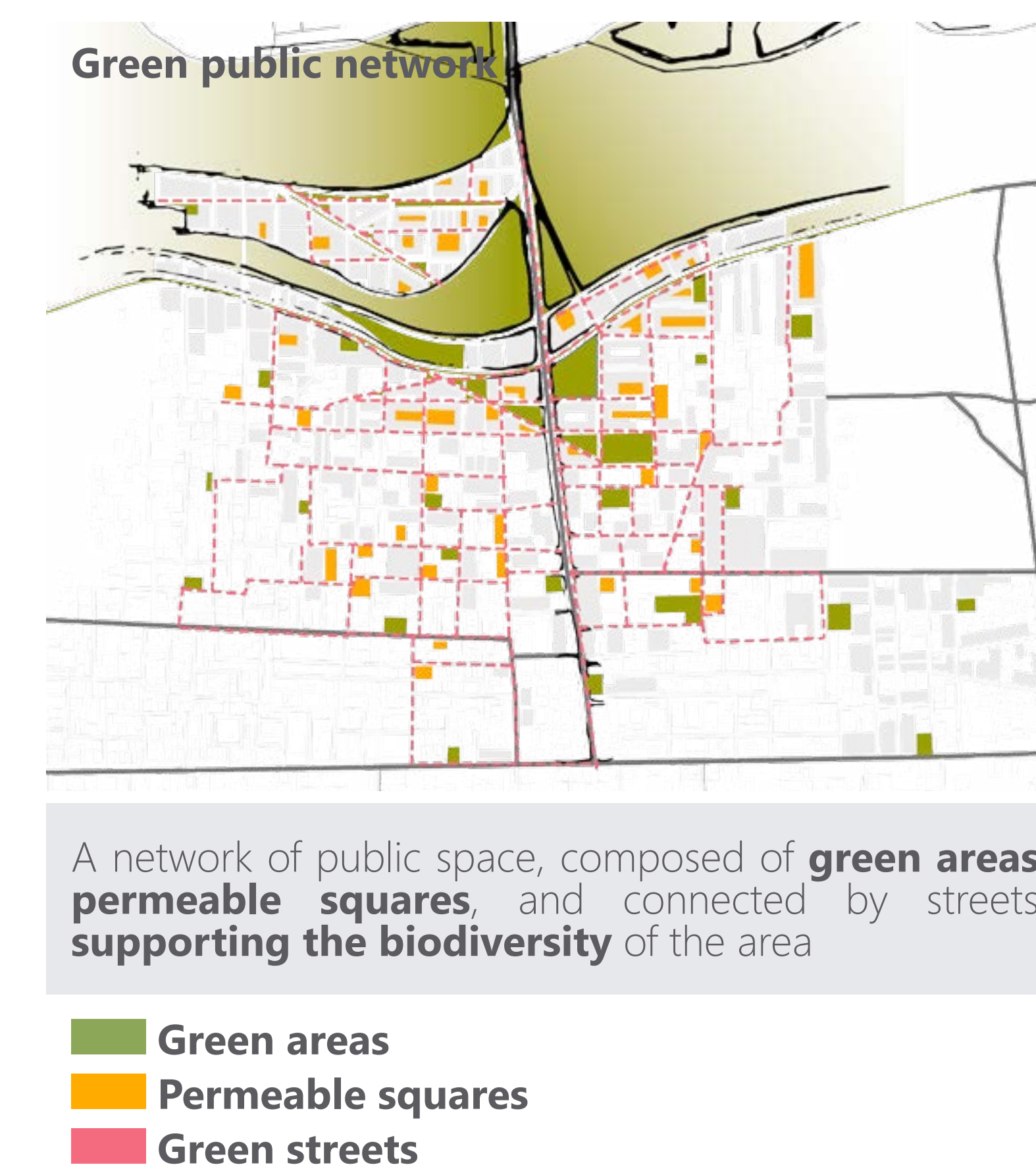
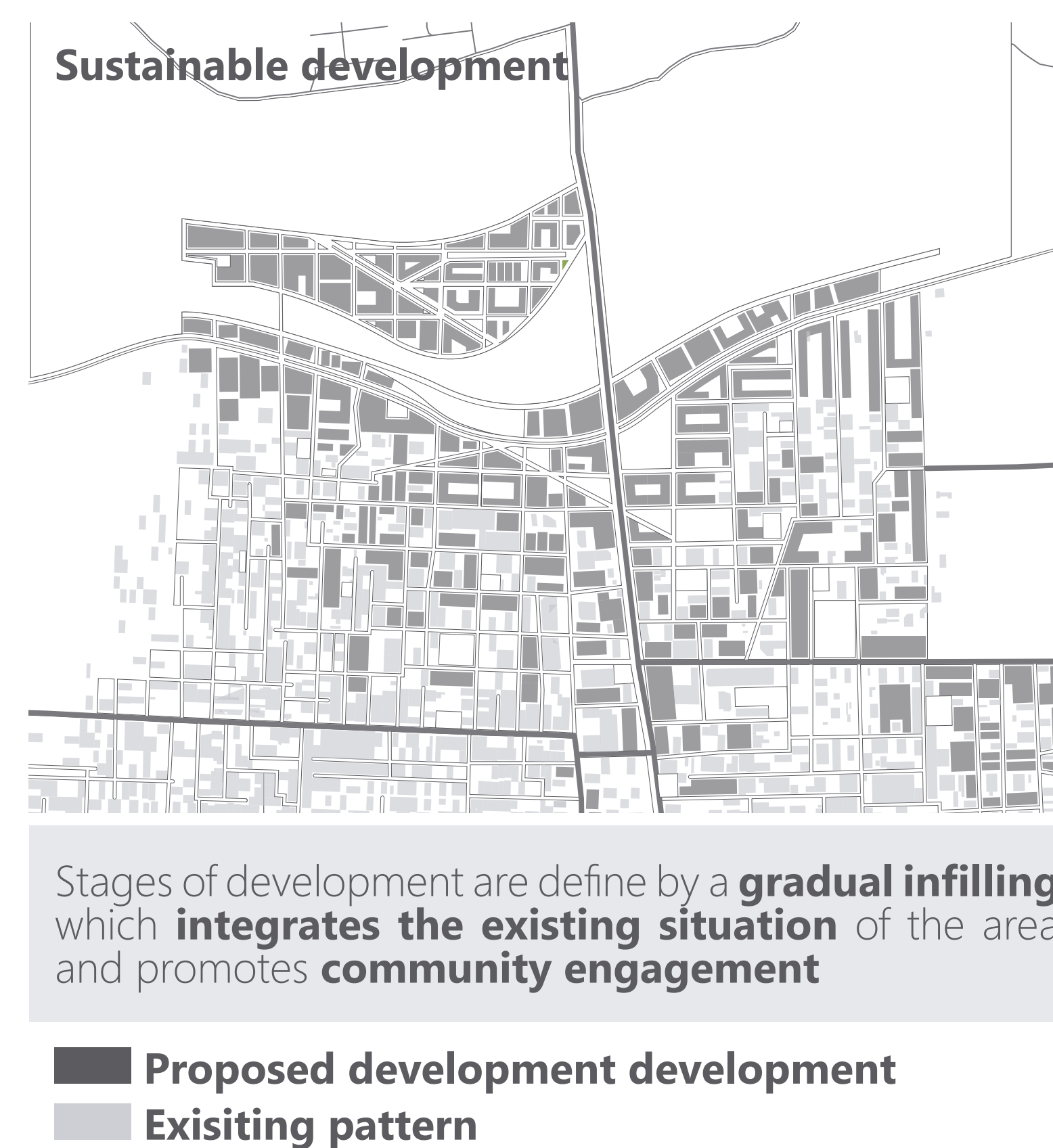
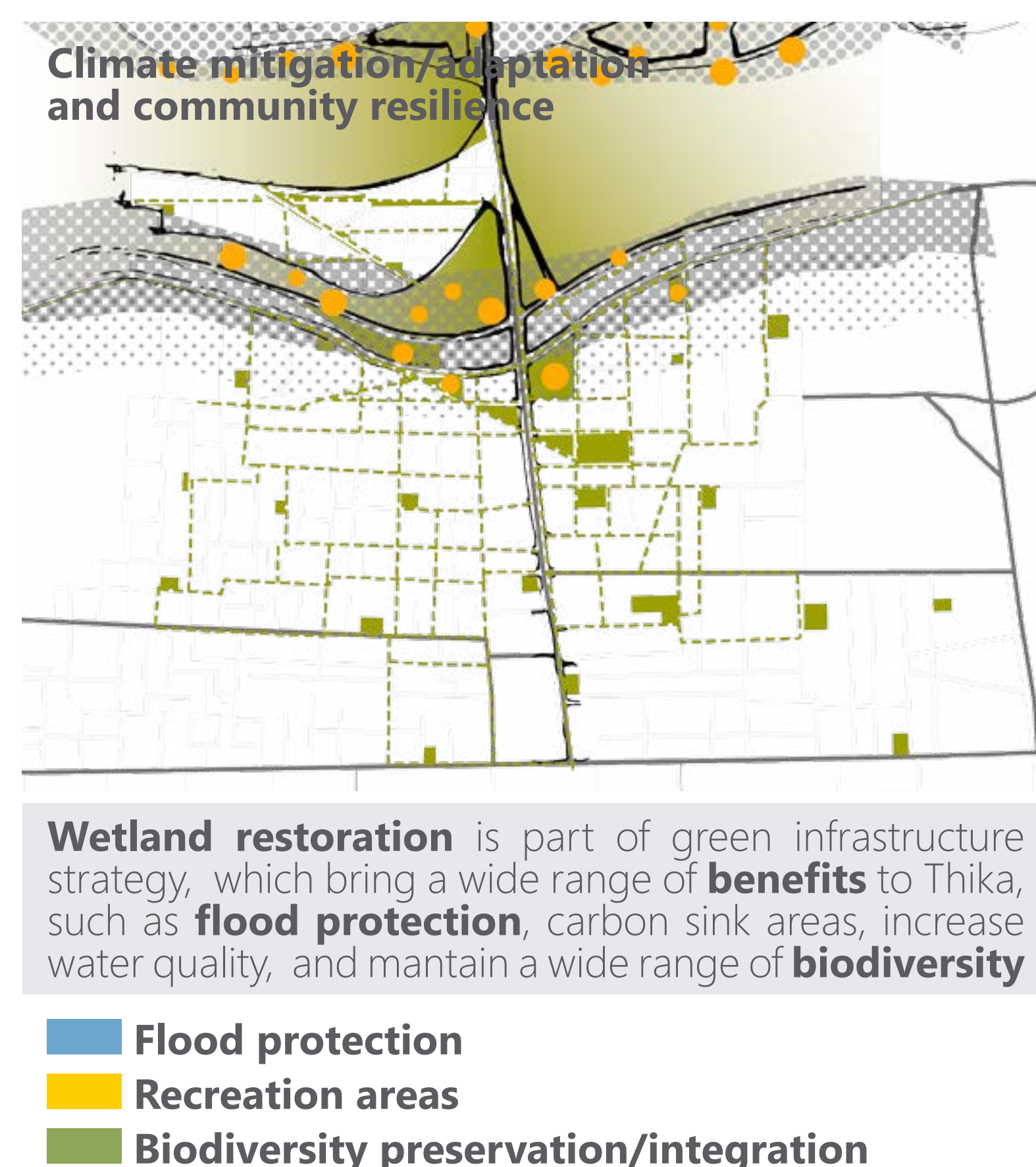
Sections
Esc 1 : 000

Section D - Pedestrian street

Objectives

The objectives for the King'ombe sub-CBD are to:

1. Establish **Green growth oriented** planning and development
2. Establish effective Environmental management to **preserve natural features**
3. Provide **diverse housing opportunities** for people with different income and different interests (students, young professionals, families, elderly)
4. Create **space for local economic** development
5. Provide **effective transport and storm-water Infrastructure**
6. Provide **integrated and green public space**



Restoring wetland

Aim

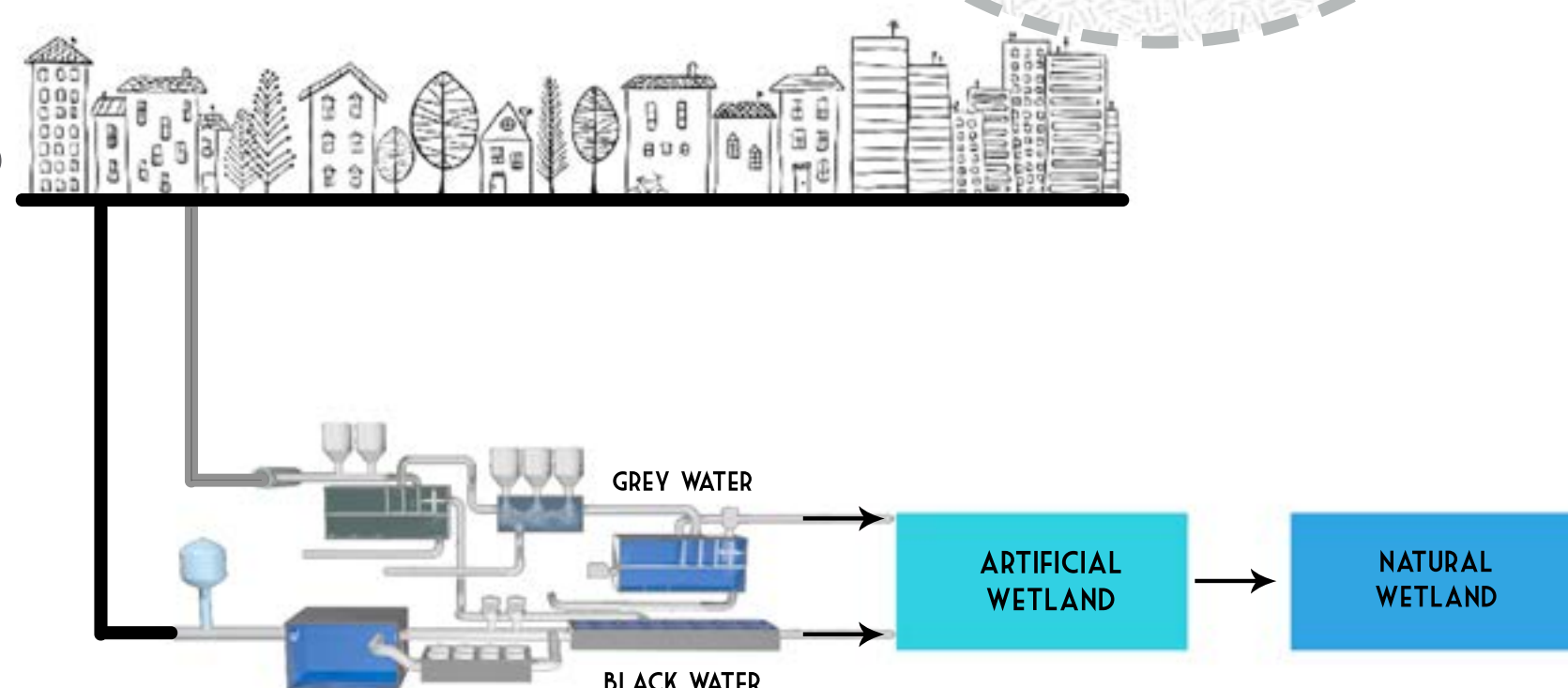
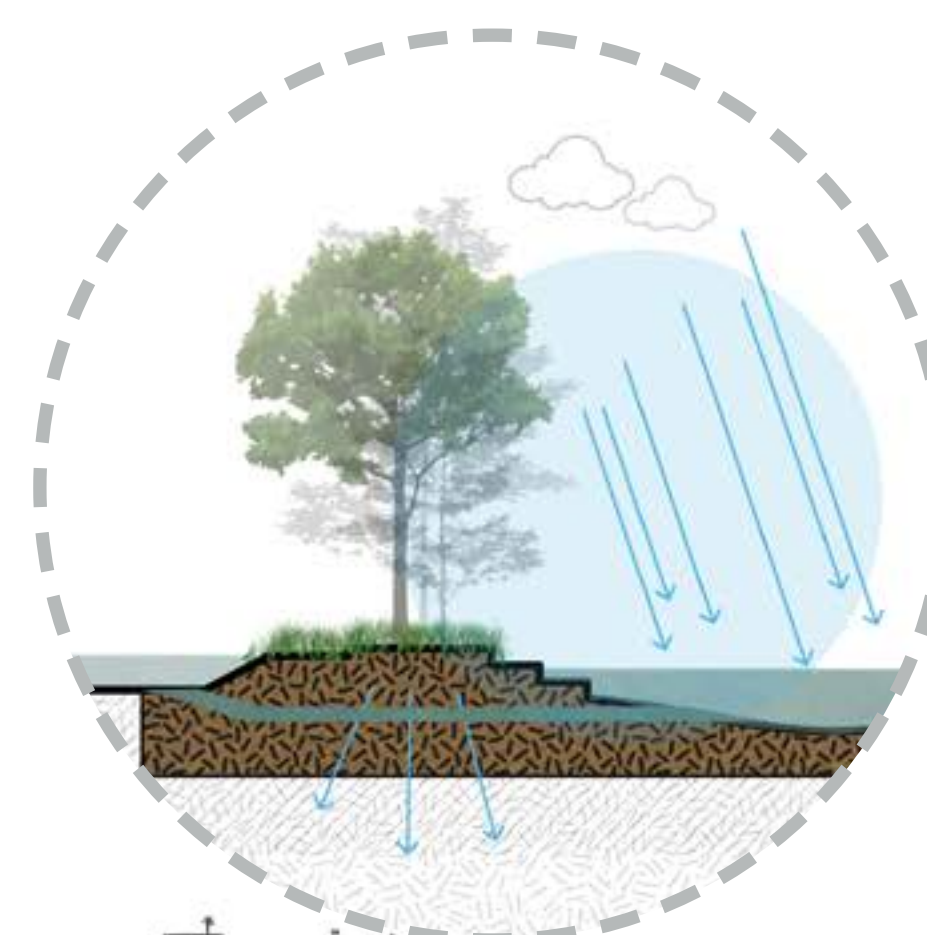
- Drainage systems and water networks for **environmental management**

Sustainable Urban Drainage Systems" (SUDS) are designed around three objective:

1. Control the quantity of runoff from a development
2. Improve the water quality of runoff,
3. Enhance the nature conservation
4. Landscape and amenity value of the site and its surroundings all storm water.

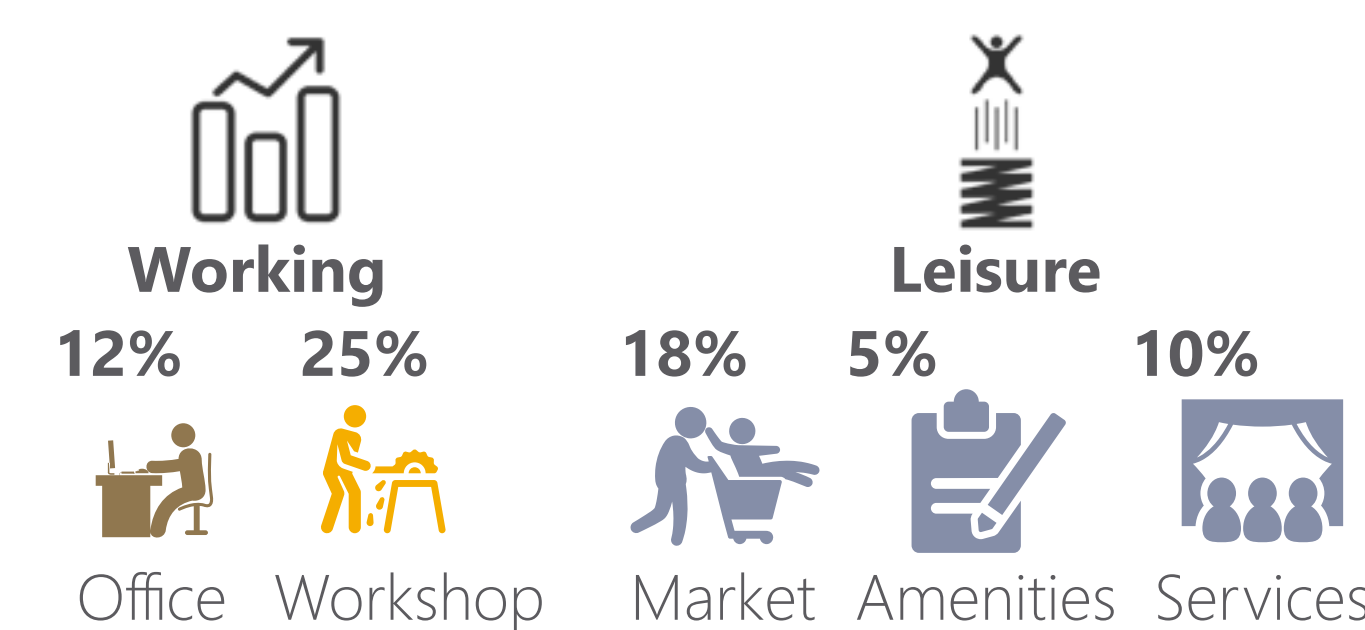
Components

- Wastewater treatment facilities
- Water ponds or basins around clusters to temporarily retain, filtrate, infiltrate and control urban storm waters to prevent flooding-

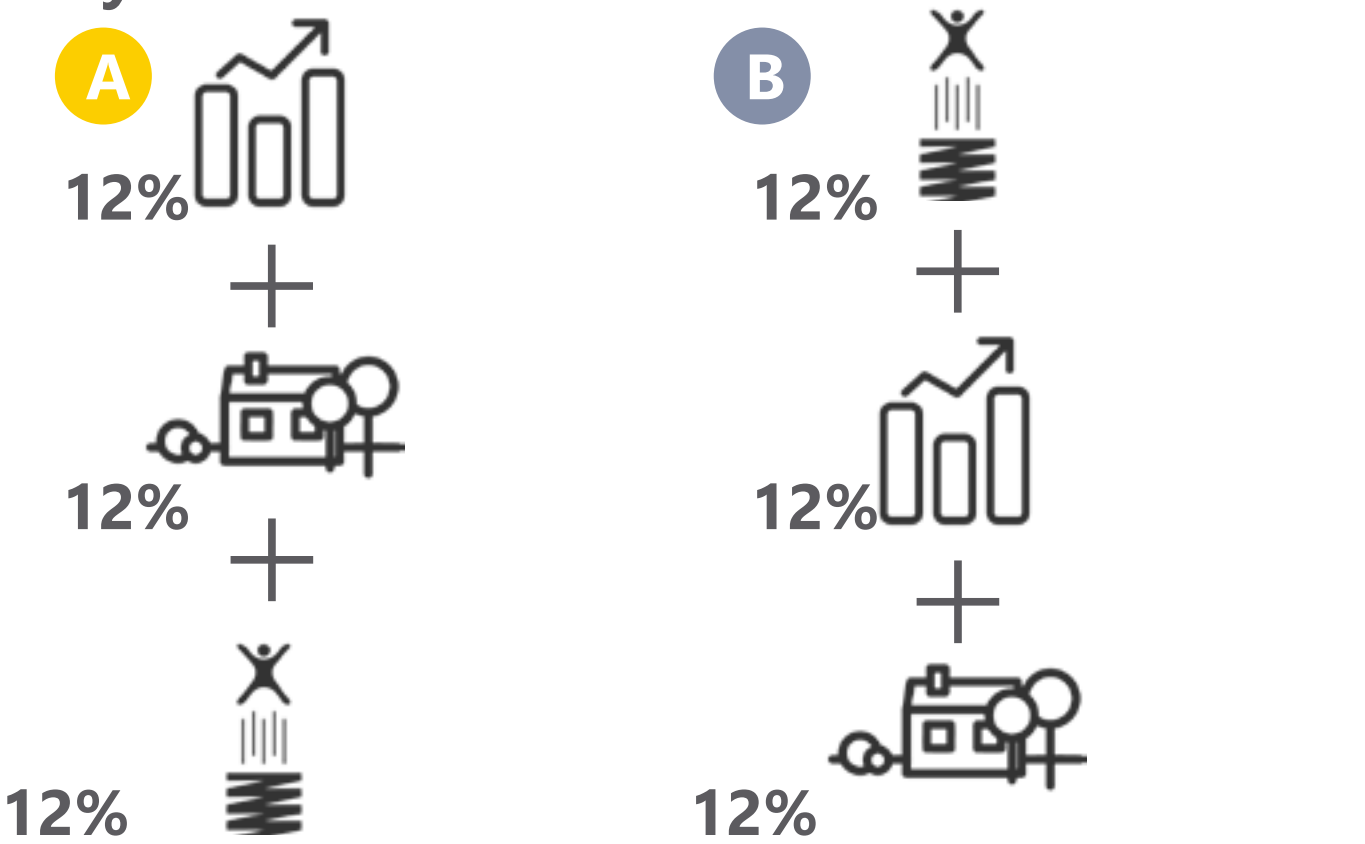


Urban infill

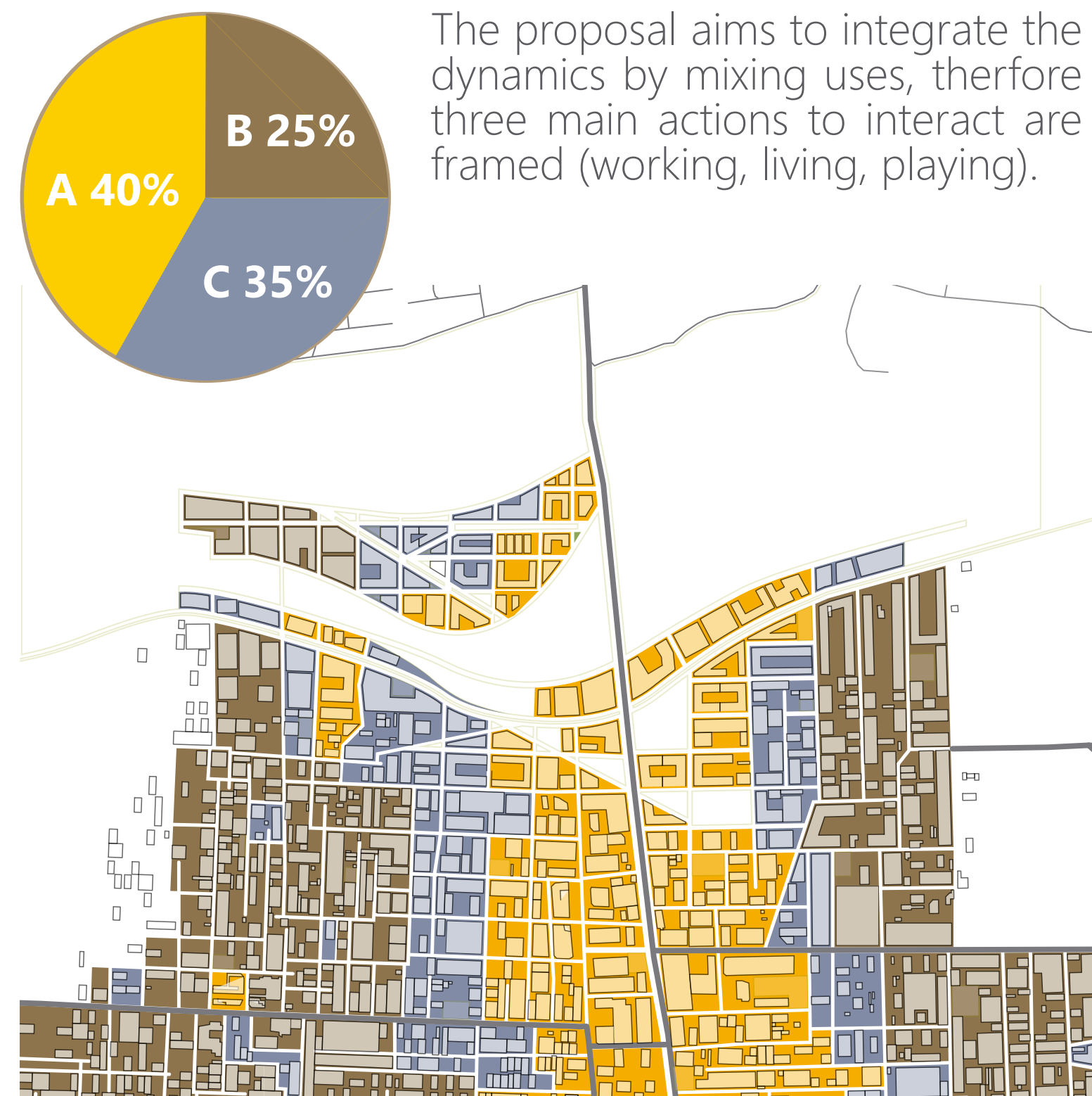
Actions integration



Dynamic combinations



Location of actions combination



Co-creation of public space

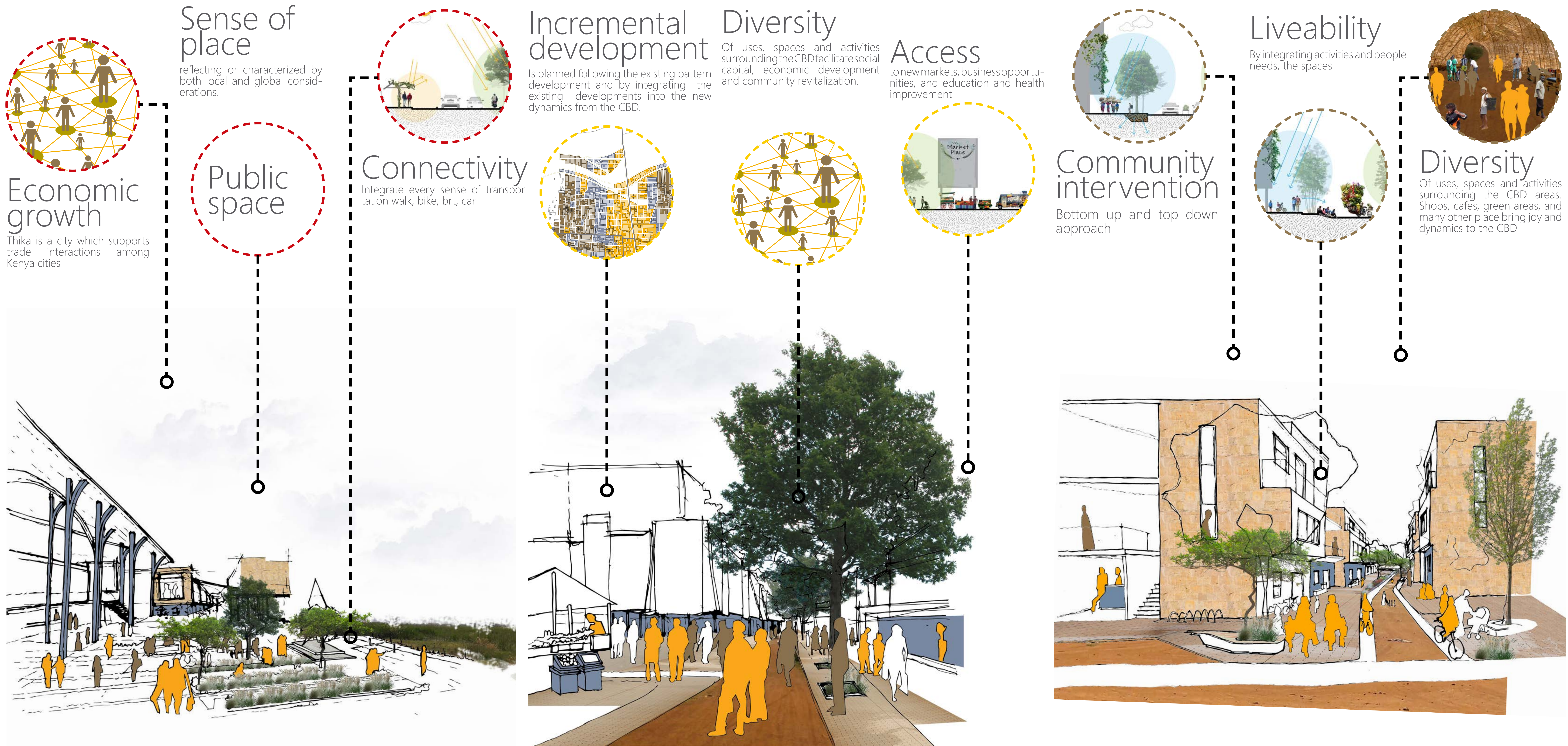
Aim

- Incremental cocreation of public spaces
- Diverse interaction in public spaces

Components

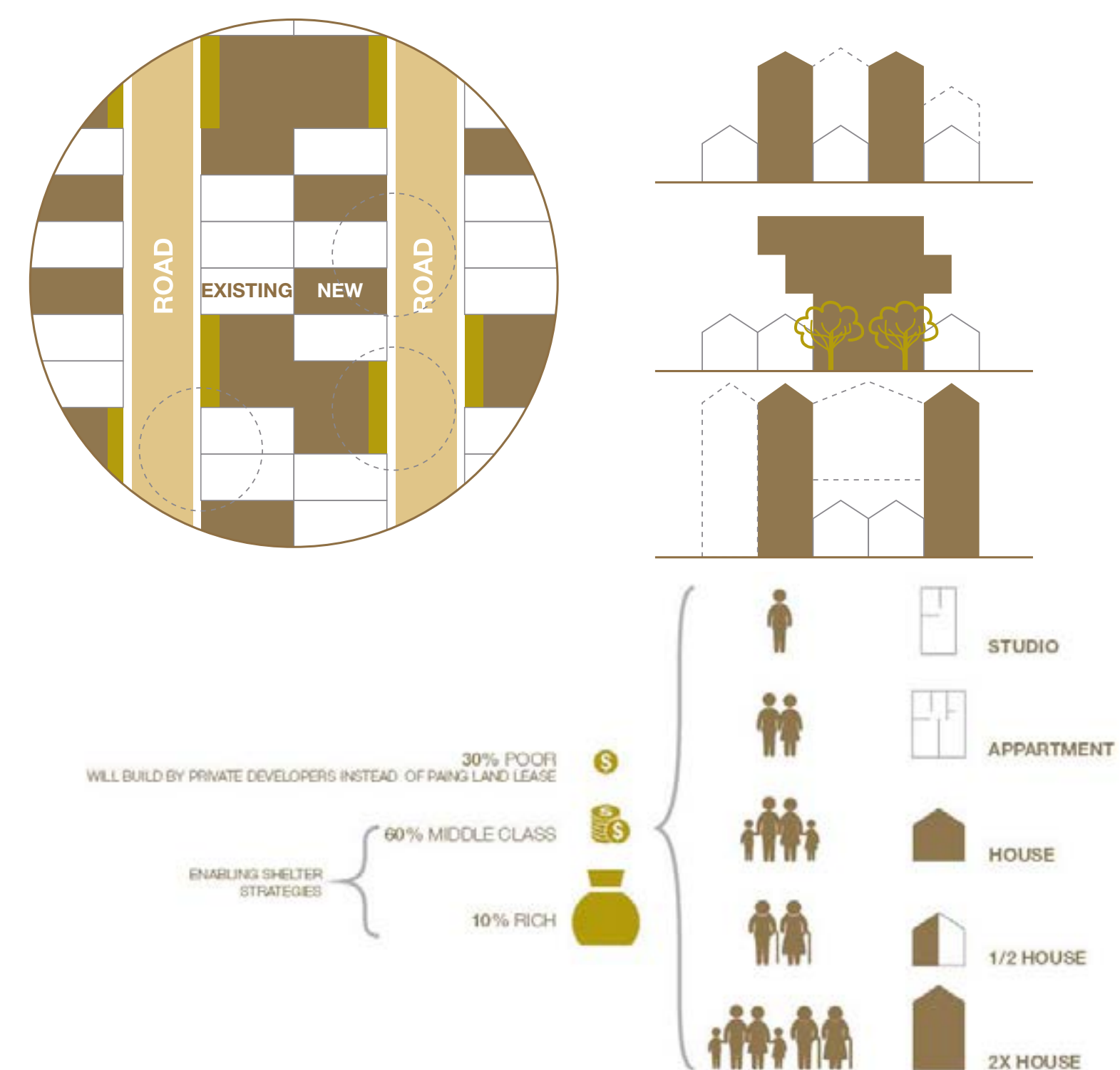
- Community centers are located next to parks, plazas and green spaces in order to integrate activities from the community
- Parks
- Community gardens in plots around
- Plaza





Gradual development

Infilling strategy



The proposal aims to integrate the dynamics by mixing uses, therefore three main actions to enjoy the space are framed (working, living, playing).

Project consists of three main actors i.e. government that has land, developers with adequate finance, as well as technology and community of Thika. The project should be self-financing project where the government provide affordable land and well connected and vibrant area.

Introduce a form of land sharing where business developers are conditioned to also construct low income housing instead of paying the government for land. This concept has been practiced in Faria Lima in Sao Paulo, Brazil. Based on calculations of the net present value (NPV) of lease payment and cost of constructing social housing as shown in the table below, the present value of annuity due is less than the cost of constructing social housing so it is better for the government to give whole land to the developer in order to meet partially the housing demand of poor class.

Mobility alternatives

Aim

- Disincentivise the use of private cars by introducing different options of transport

Components

- Walk, bike, public transport, car sharing
- Increase the quality of side walks
- Increase the amount of bike lines and improve the connections with relevant points in the city
- Rental bike system as a complement for the other transportation systems
- Bus with direct connection to Nairobi and Thika's main CBD
- Identify the strategic locations for BRT stations
- Parking facilities for private cars are located next to mix use zones and integrated with rental bike system
- Rotary carousel parking strategy is implemented for the parking facilities

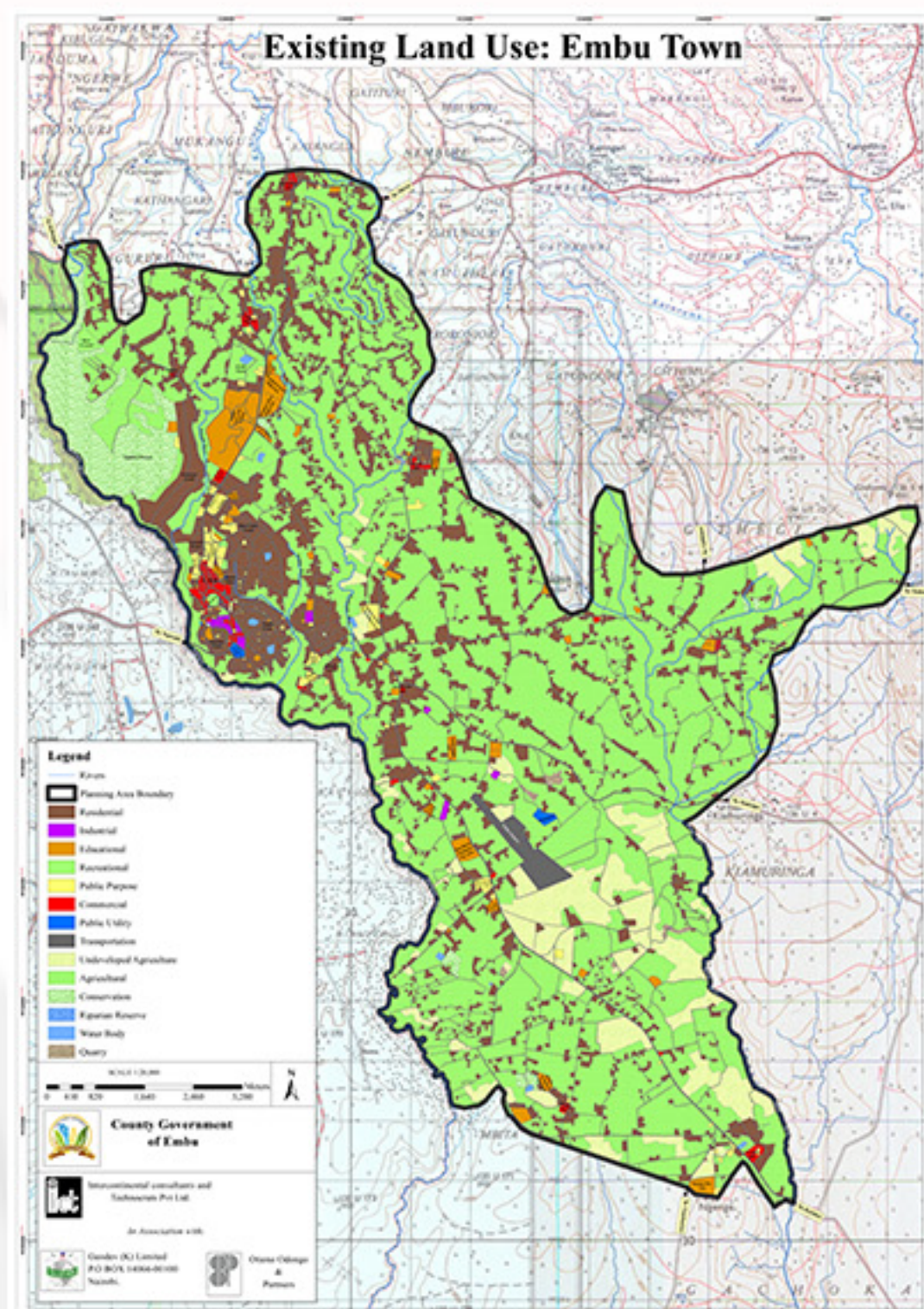
Benefits

- Rewards from companies to employees for using carbon free transportation systems
- More productive hours, by avoiding traffic congestion and saving commute hours
- Active population with less stress
- Less polluted environment



Embu is located approximately 120 kilometers northeast of Nairobi, on the foothills of Mount Kenya and along the major Nairobi-Meru highway. Currently the town serves as the county headquarters of Embu County. It had a population of 60,673 people in 2009, expected to increase to 144,000 people in 30 years. The town is located at the heart of a rich agricultural region; the town's economic activities are linked directly or indirectly to agriculture.

The total area of CBD is around 28.79 Ha. The main activities within the CBD include wholesale businesses, retail shops, restaurant, hotels, offices, matatu stages, stadium, etc. The CBD has numbers of informal commercial activities such as hawking of light commodities, sale of second hand clothes, food and vegetable kiosks, etc.



EMBU - CENTRAL BUSINESS DISTRICT (CBD)

The site selected in this town is a section of the CBD covering a part of the Meru-Nairobi Highway, Mama Ngina Street and the stadium area. The CBD of Embu is a commercial centre for the people of the town and surrounding hinterland. One of the major urban challenges in Embu has been inadequate infrastructure, and increasing congestion in the CBD area.

The CBD area is relatively small, but quite significant in terms of commerce and financial functions. As the town grows, the populations accessing the CBD has increased, and particularly during the daytime. The CBD is a compact area currently marred by conflicts between vehicular traffic, pedestrians, and hawkers, combined with inadequate parking arrangements and poor integration of the various uses of the streets.

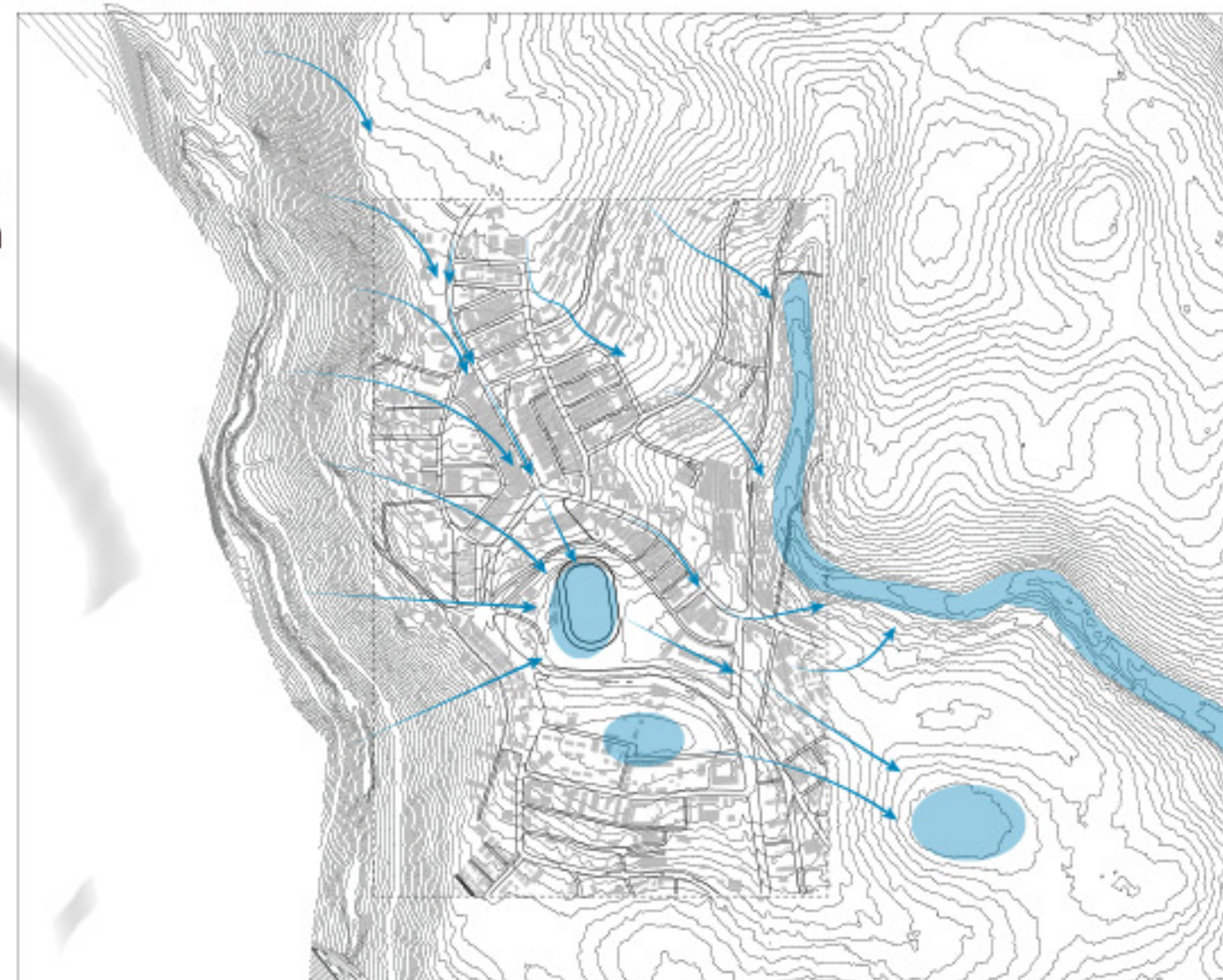
SITE ANALYSIS

Challenges

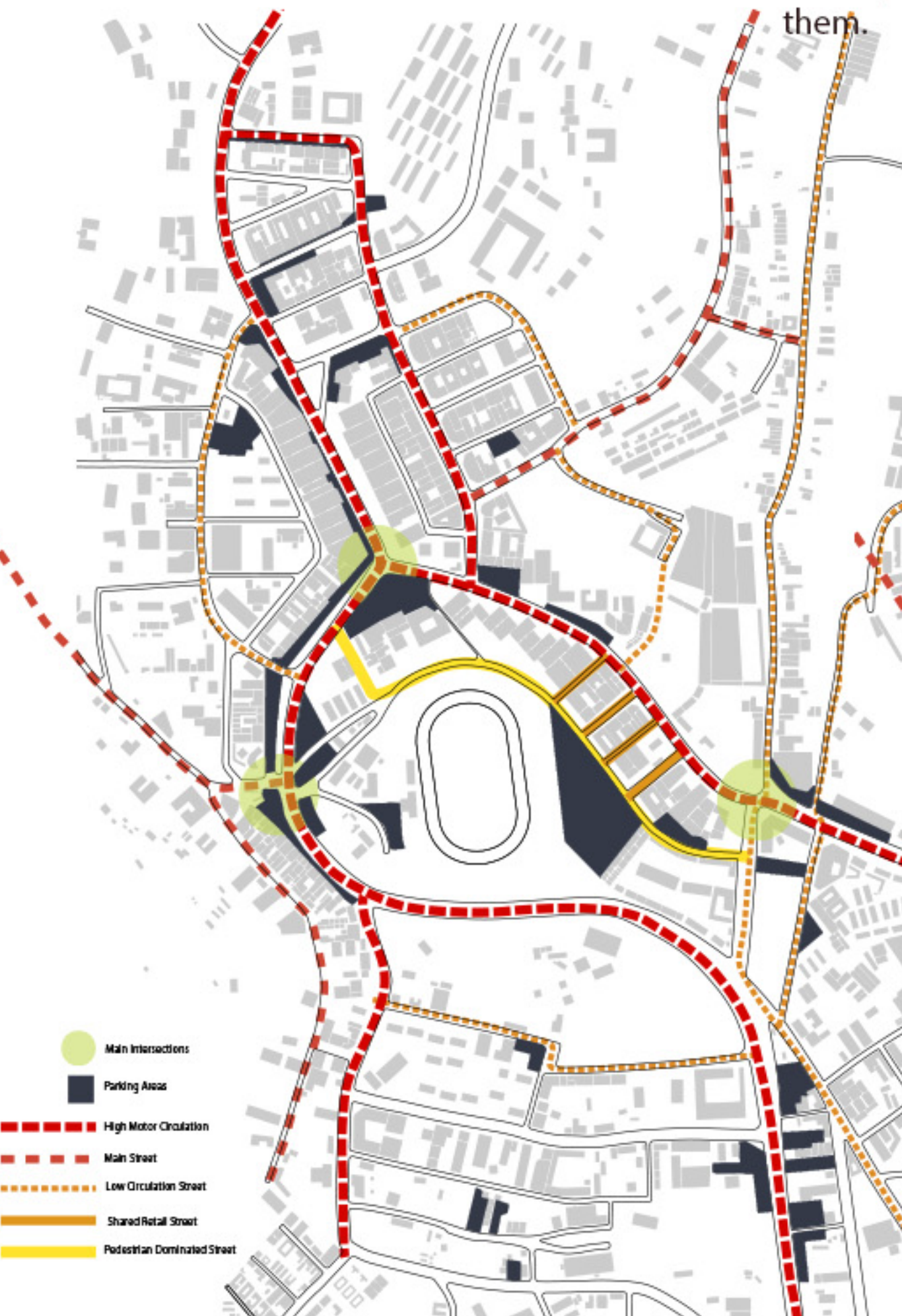
- Disconnected and lack of non-motorised transport (NMT) infrastructure negatively impacts pedestrian movement (w.r.t safety, comfort, accessibility)
- Open drains present health and injury hazard for pedestrians
- Poorly managed parking takes up a lot of public space
- Limited public spaces for recreation and leisure
- Informal economy poorly integrated

Opportunities

- Clear establishment of street hierarchies and NMT infrastructure improvements can better organise transport flows and connectedness of pedestrian routes
- Improved parking management can make more public space available for people
- Underutilised public spaces (e.g. area around the stadium and along the river belt) can be turned into green spaces for recreation and leisure



The topography of the CBD area is undulating with the stadium being at a lower level than rest of the area. There are two more such sunken areas, one at the south of the stadium and the other on the east near the stream. When it rains, these sunken areas get filled up with water and have natural drainage streams towards them.



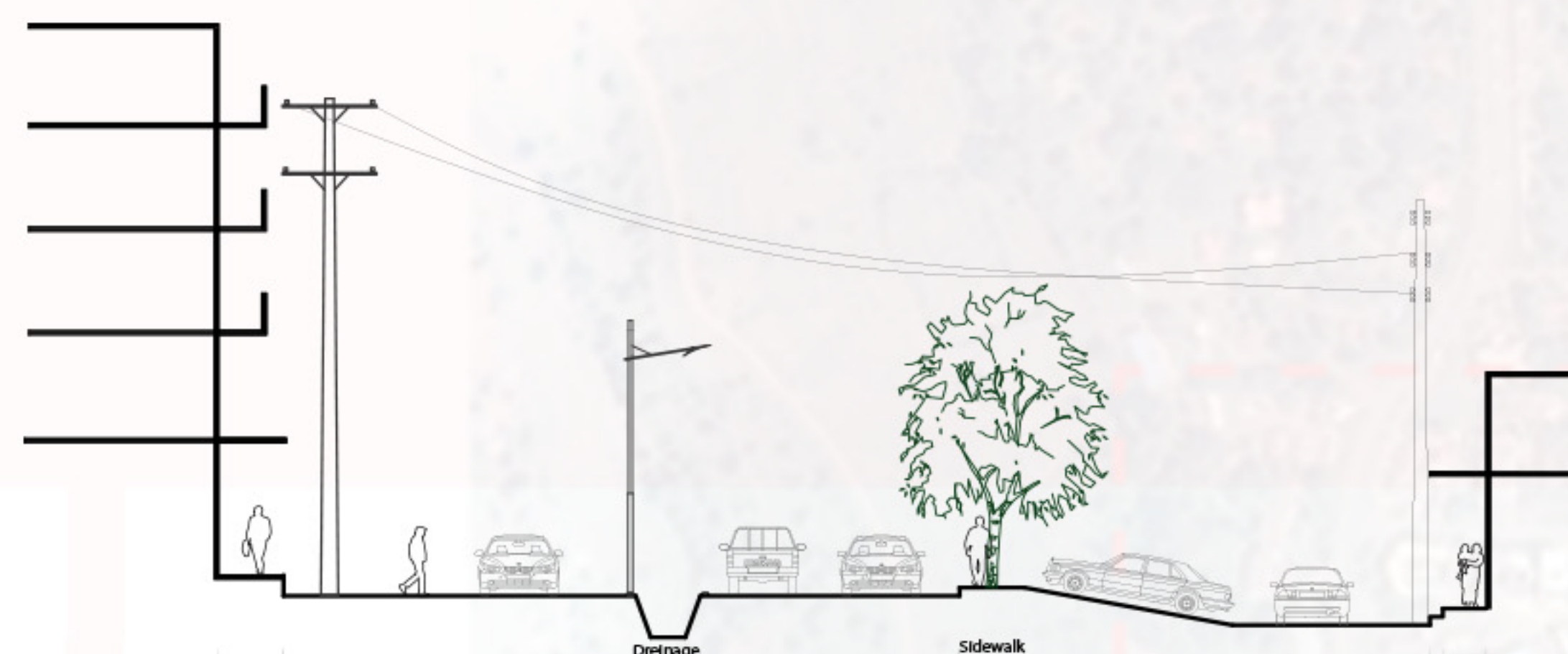
Street Hierarchy around the CBD area

Scale - 1:4000



Landuse in the CBD area

Scale - 1:4000



Section A
Current situation -

Scale - 1:100



Section B
Current situation -

Scale - 1:100

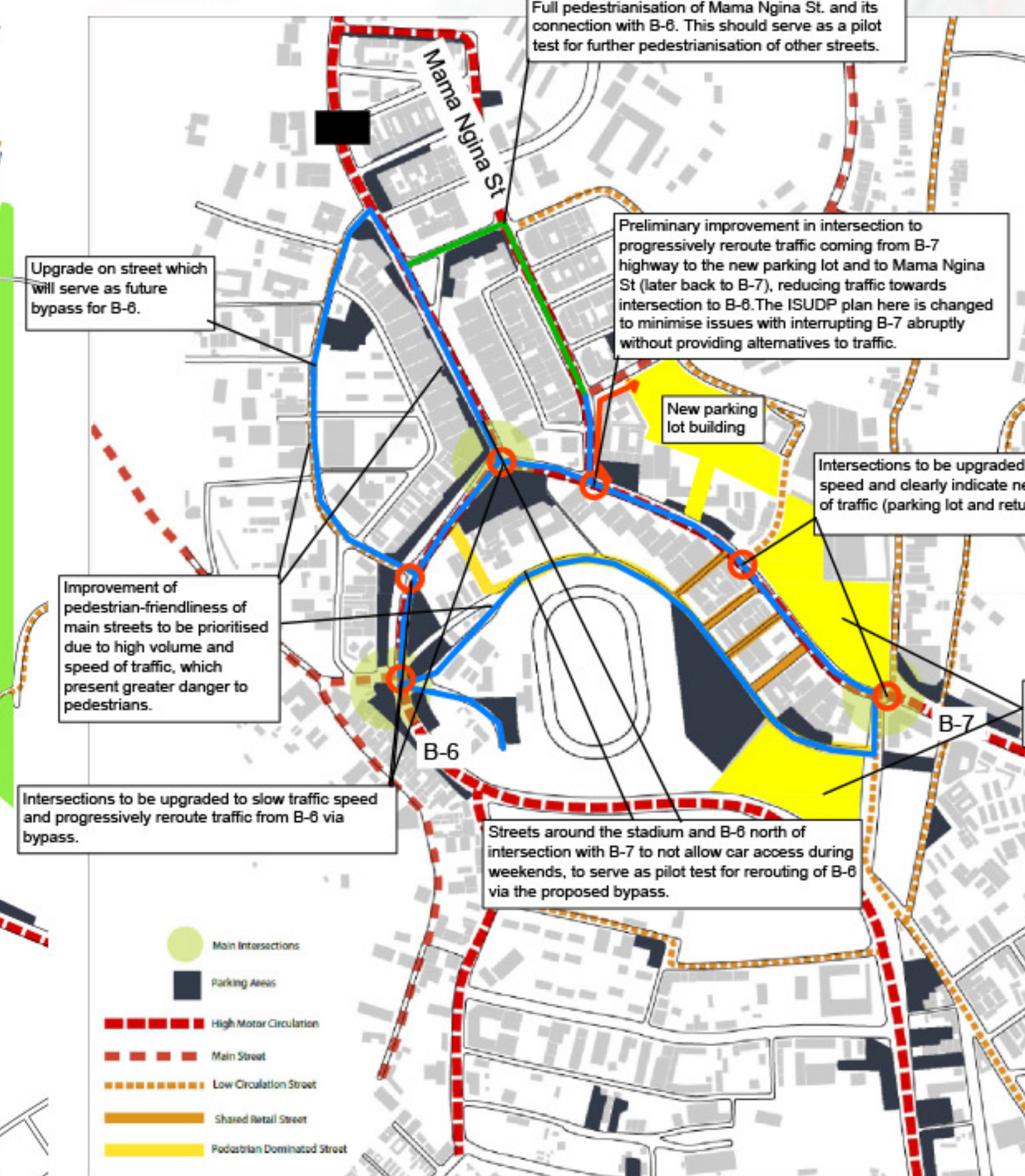


Section C
Current situation -

Scale - 1:100

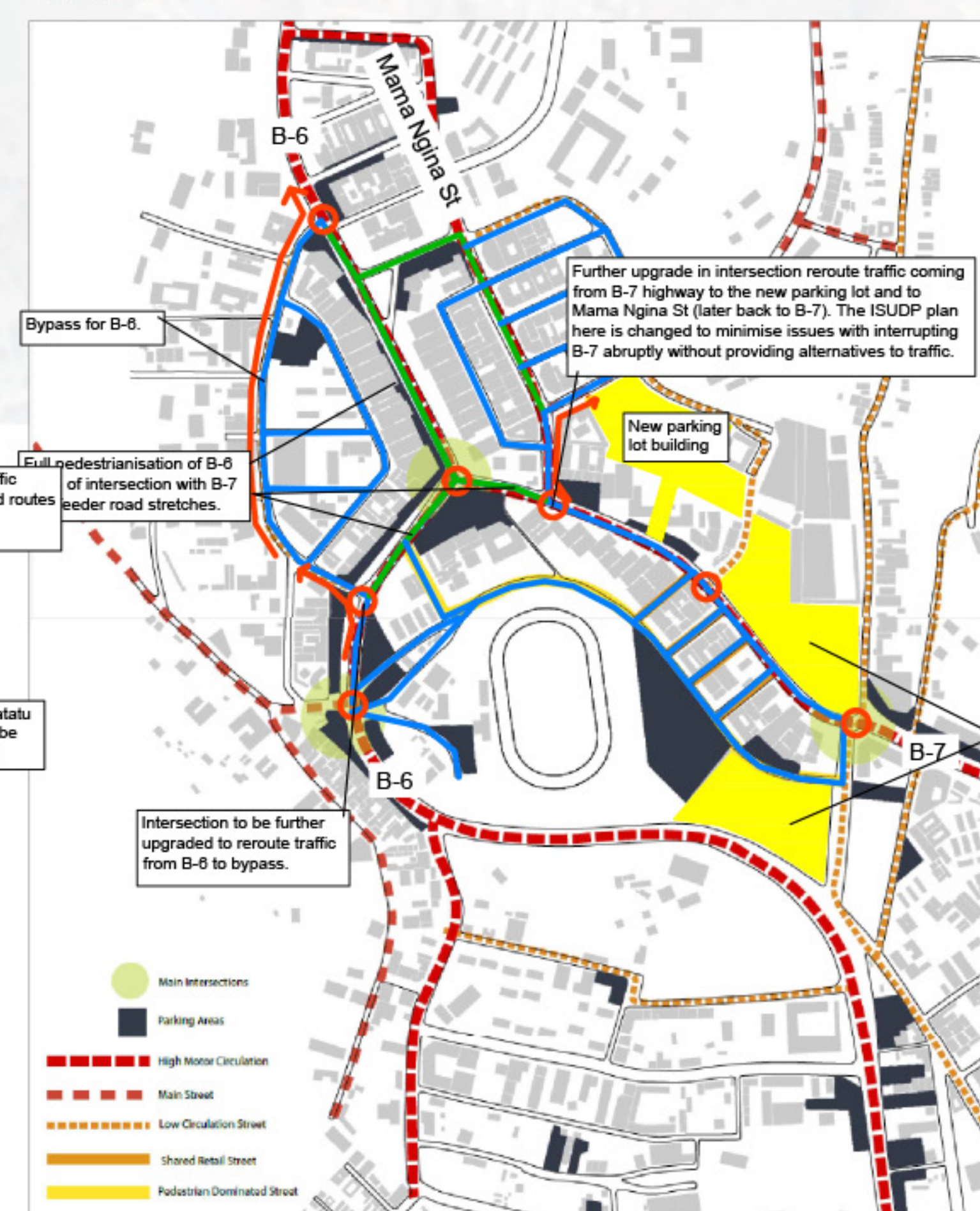
TRAFFIC MANAGEMENT PLAN

Phase I



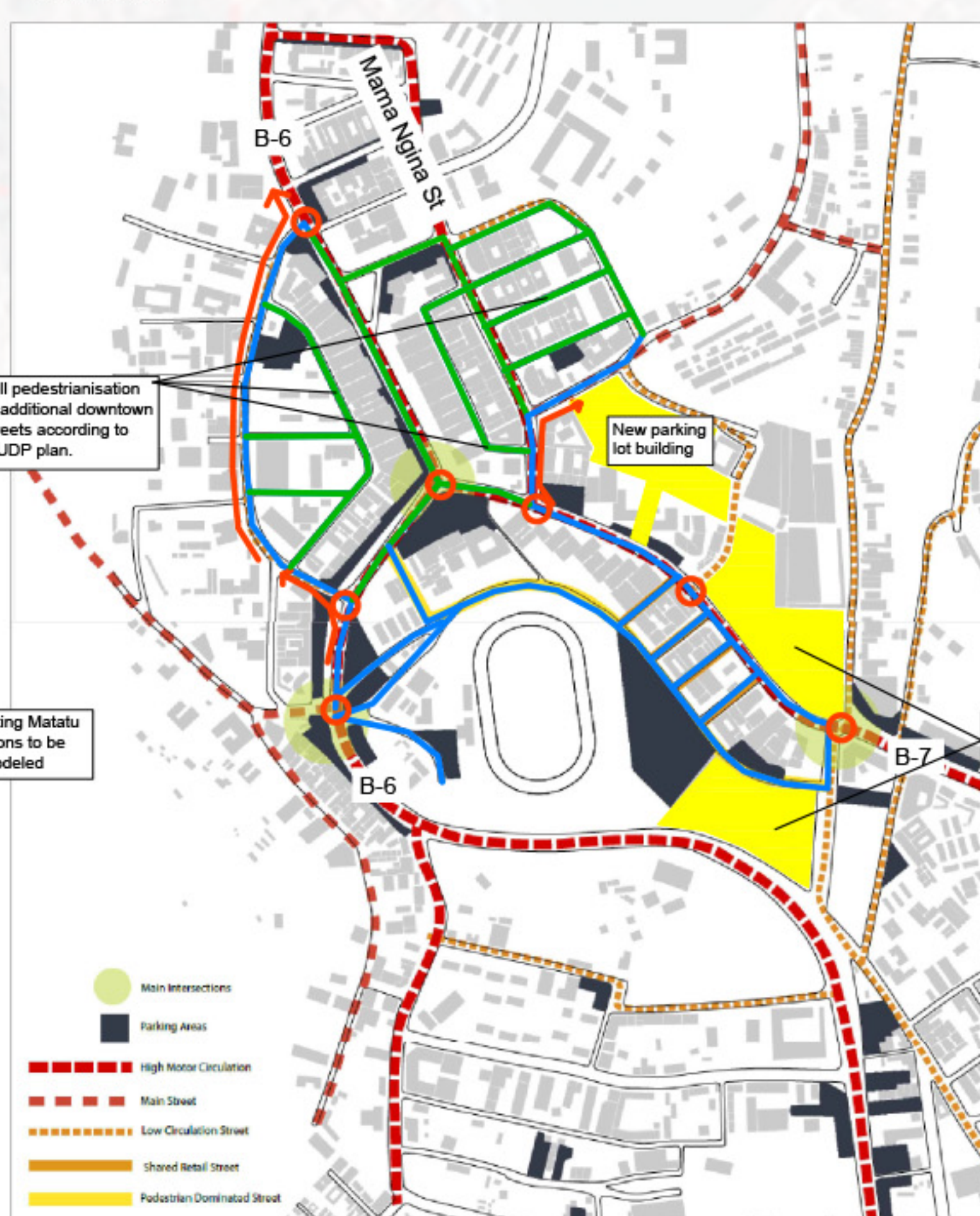
Scale - 1:5000

Phase II



Scale - 1:5000

Phase III



Scale - 1:5000



Key plan of CBD area.

Scale - 1:2500

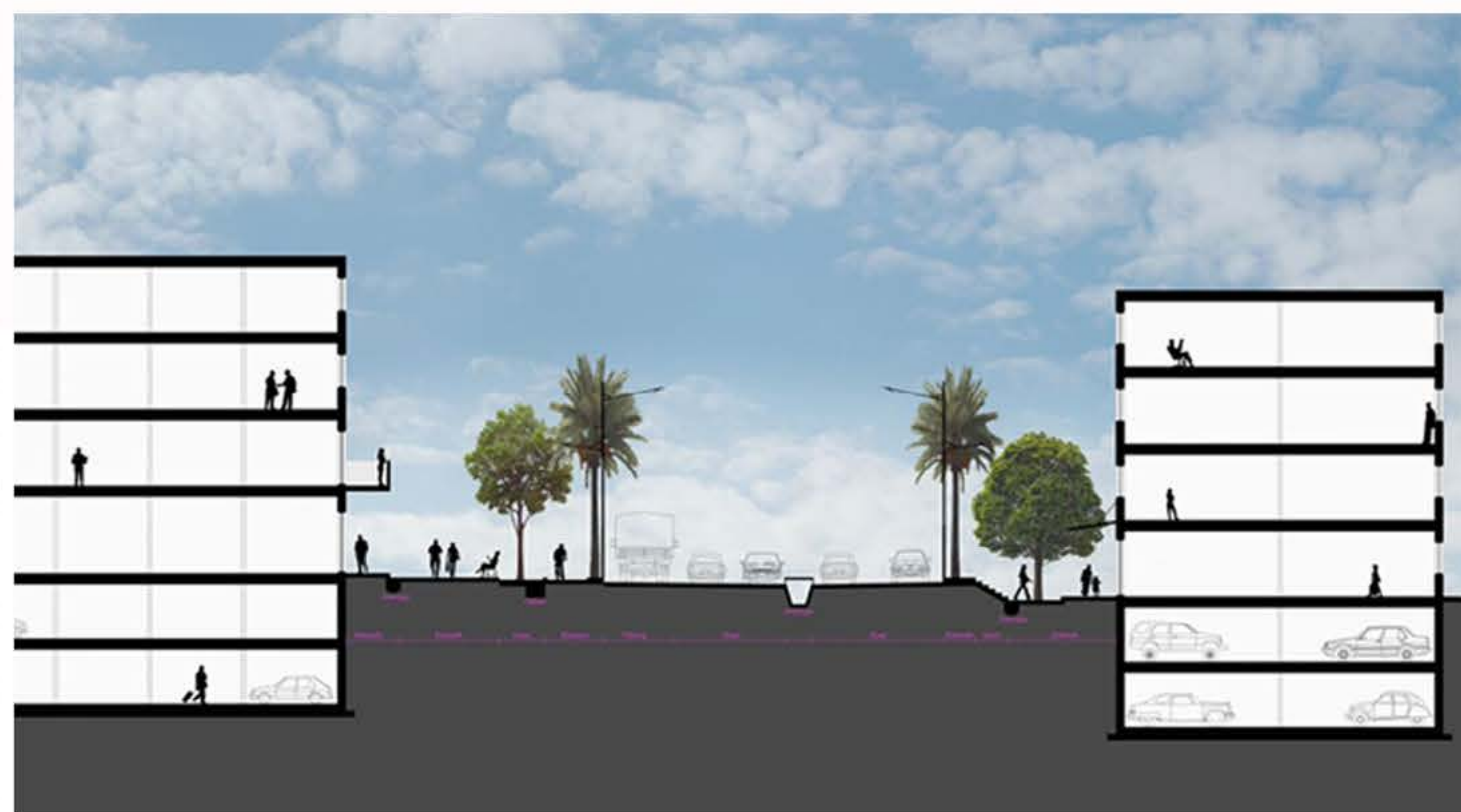
The current streetscape is dominated by cars and vehicles coming towards the CBD area with little or no space for pedestrians. There are no dedicated sidewalks in the entire zone which makes it difficult for pedestrians to walk or cross the streets. Parking of vehicles in haphazard manner along most of the main streets create congestion.

Hence managing traffic in order to avoid conflict was one of the primary goals of the design proposal. Below are the phase wise traffic management plan for the CBD area.

- Initially focus on on-site parking management than building off-street parking structures to have a better idea of the actual demand.
- Pricing of parking in busiest streets, initially in a simple manner (e.g. a once-off daily ticket), that can be later made more complex (e.g. per time). Include already-existing people collecting fees informally
- Definition of parking spaces in main streets and designed open spaces, whilst enforcing preservation of green spaces.
- Definition of Matatus stops for embarking/disebarking (per ISUDP).
- Installation of medians in main roads to minimise on-street parking in middle of highways (per ISUDP).
- Enforcement of law regarding parking in unallocated spaces, using graduating fines (e.g. just a warning for first-time offenders, and increasing price for recidivists).

- Pedestrian friendly CBD area
- Optimising traffic and parking
- Managing vehicular movement
- Integrating the stadium within the CBD

The vision for Embu in 2035 as laid out in the ISUD Plan guided the development of our proposal. The CBD was therefore specifically designed to be safe, accessible, well-planned, green and sustainable. Furthermore, the proposal was developed to help Embu reach a number of targets comprising Sustainable Development Goal (SDG) 11, especially those relating to transportation, inclusive and participatory development, environmental management, and access to green and public spaces.

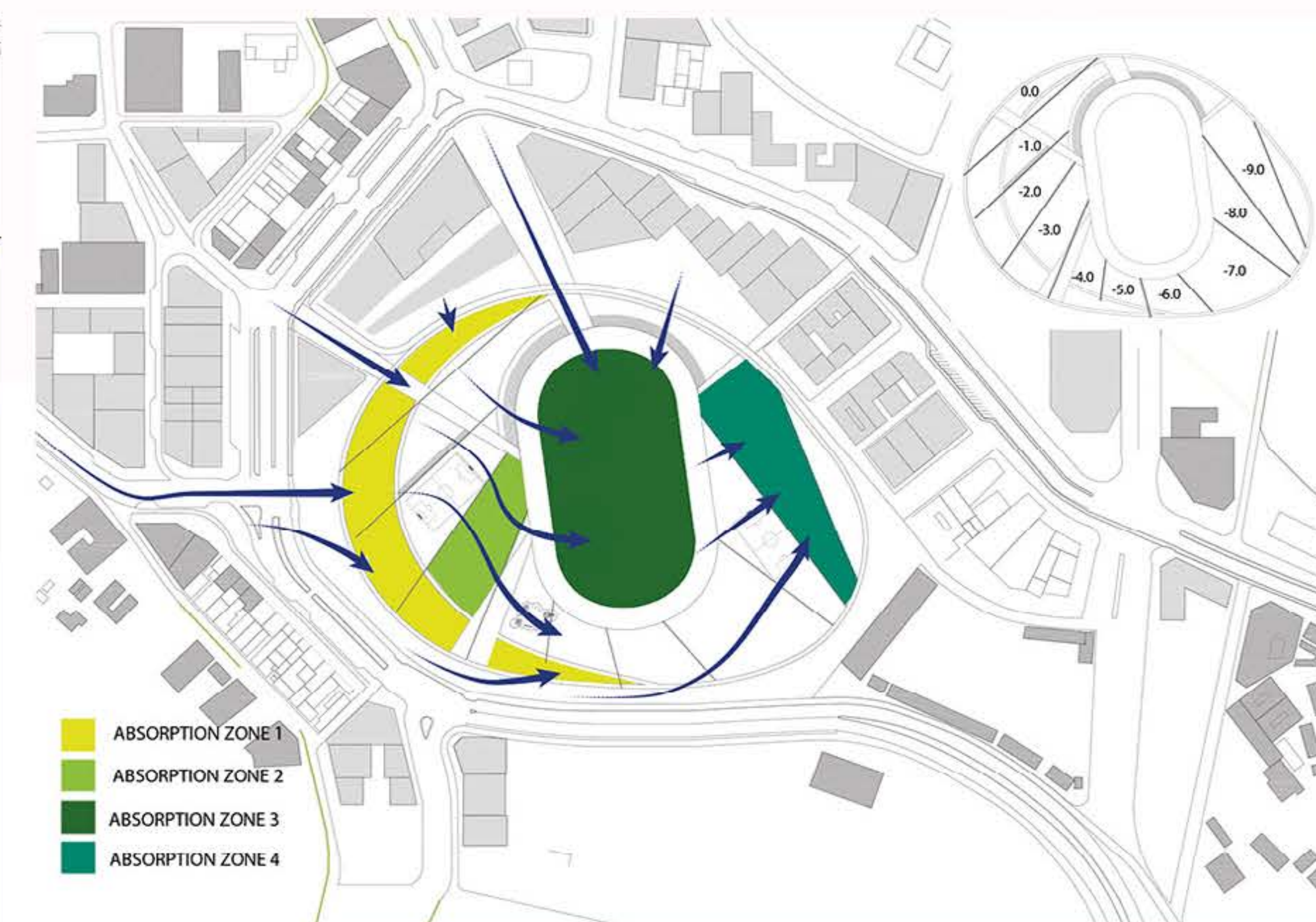


Final Street Sections and view



Final Plan of the CBD area with pedestrianised streets with integrated stadium

Scale - 1:500



Water Flow Management System around the Stadium area

Reference Image for the wholesale market area that would be an integral part of the redeveloped CBD of Embu



CODEPENDANT SYSTEMS IN DEVELOPING ECONOMIES



MASTER PLAN OF THE KITUI URBAN AREA SHOWING ZONING SCHEME

1: 2500



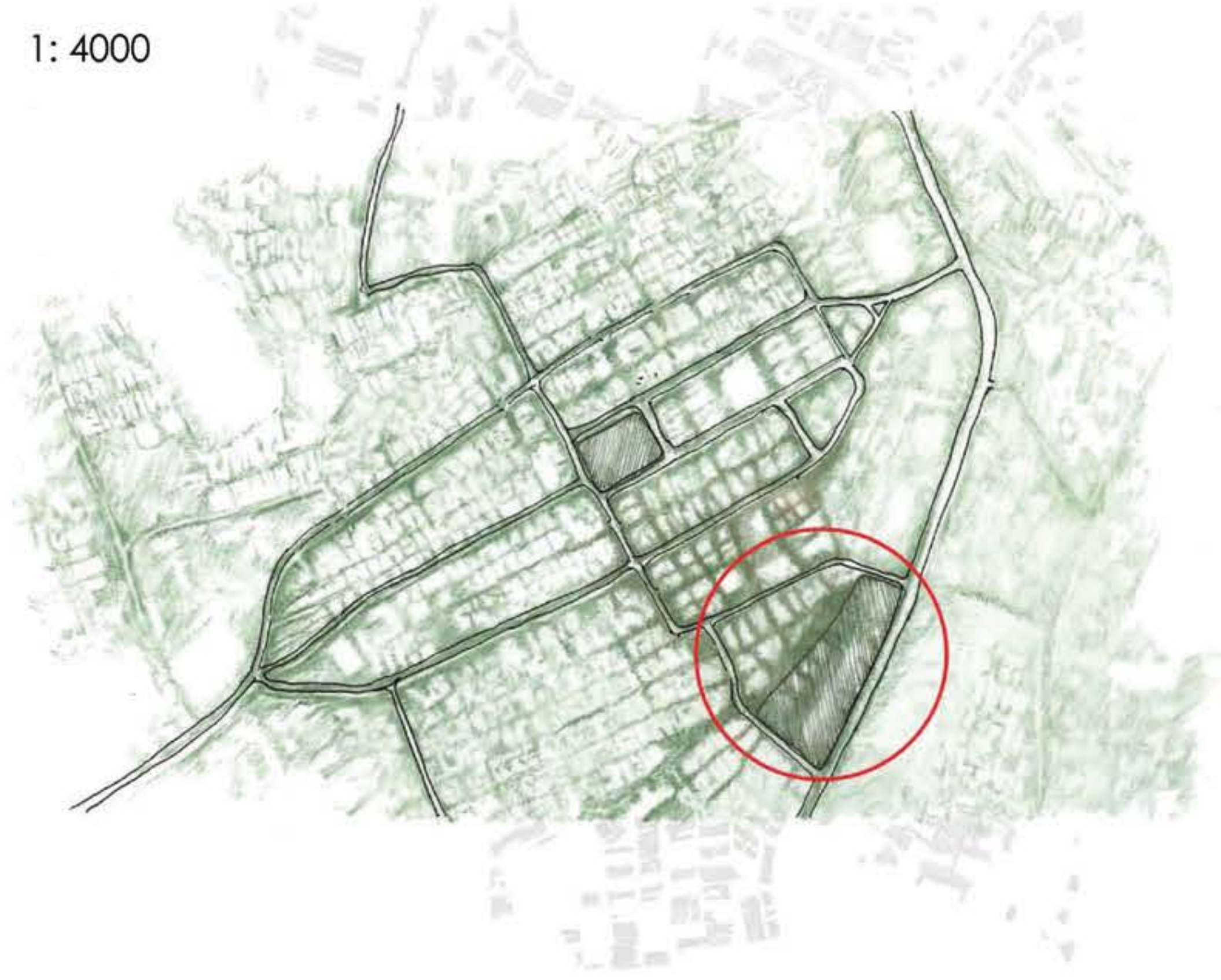
PROPOSED VEHICULAR MOVEMENT THROUGH KITUI

1: 4000



PROPOSED PEDESTRIAN PERMEABILITY THROUGH URBAN FABRIC

1: 4000



DIFFERENTIATION BETWEEN THE RESIDENTIAL PUBLIC AND PRIVATE REALM

1:500

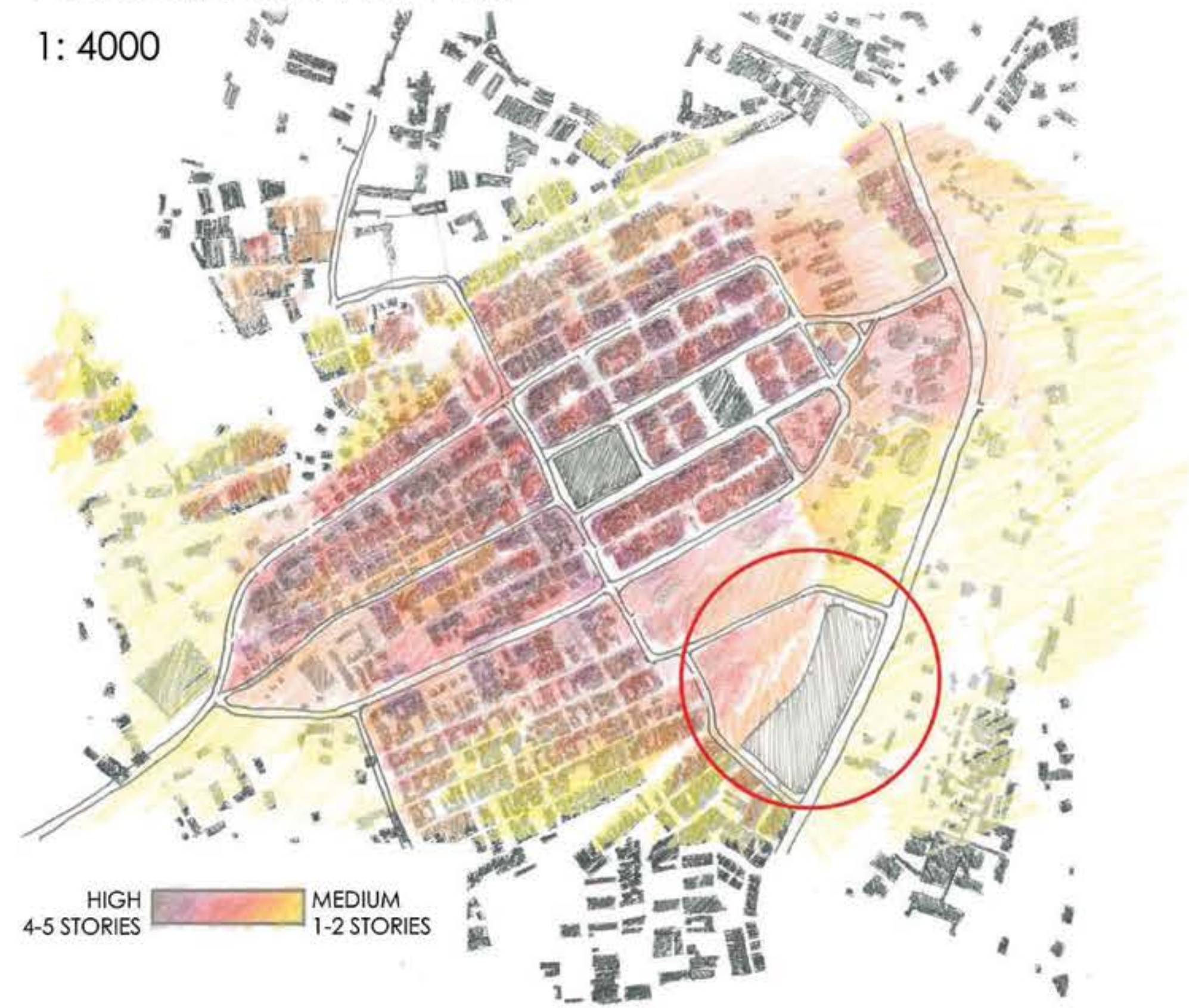
to CBD



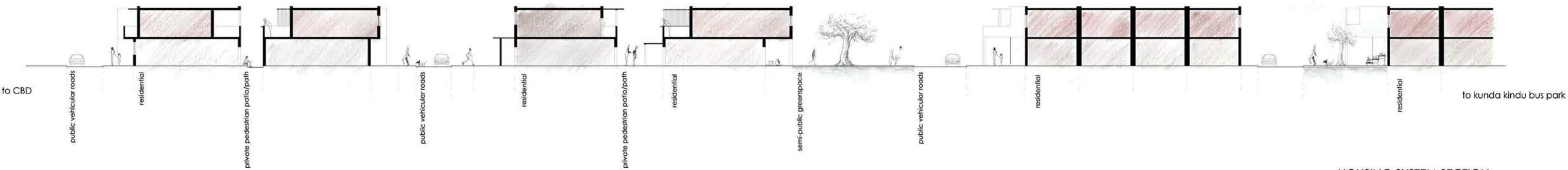
- COMMERCIAL
- INDUSTRIAL
- EDUCATIONAL
- PUBLIC PURPOSE
- RESIDENTIAL
- RECREATIONAL
- PUBLIC UTILITY

PREDICTED URBAN DENSITY

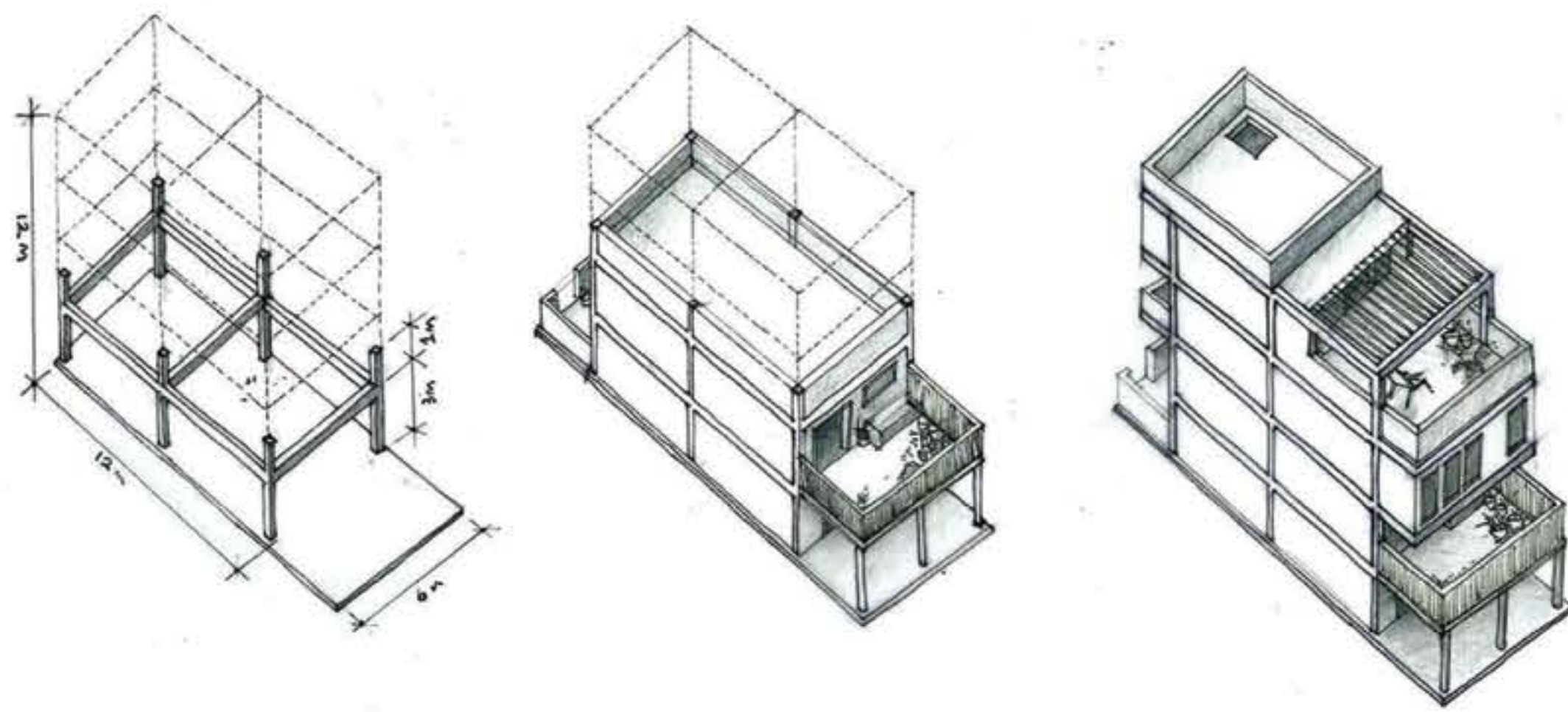
1: 4000



HIGH 4-5 STORIES
MEDIUM 1-2 STORIES



HOUSING SYSTEM SECTION
1:200



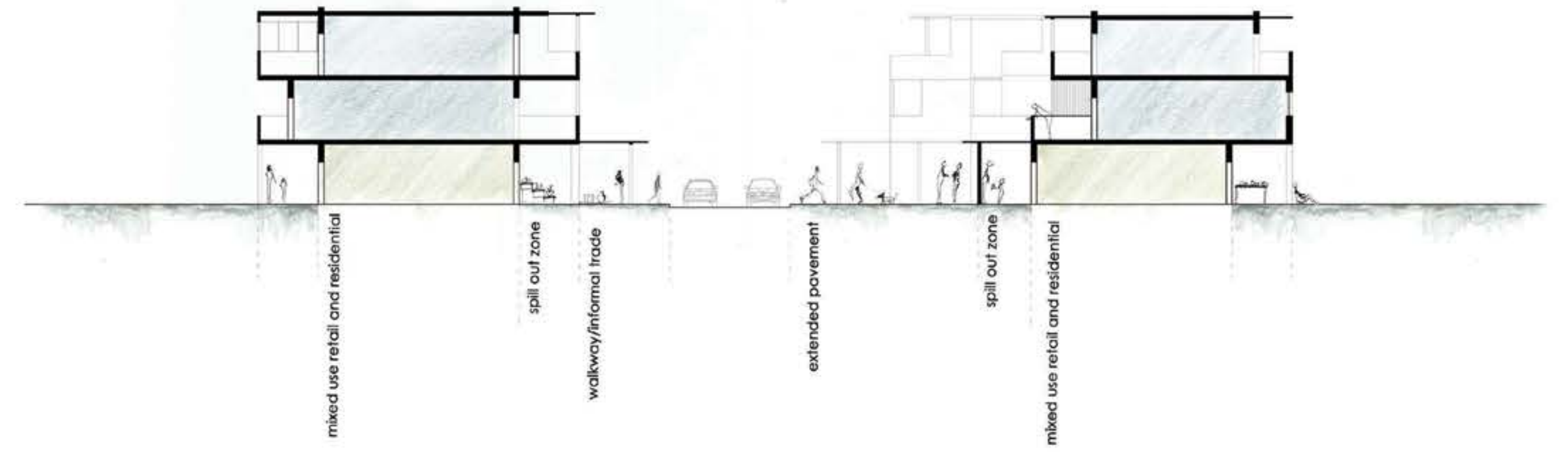
implementation of incremental housing through concrete frame structures that can be built upon in height over time.



Creating a corridor of economy and public space that links the Kunda Kindu transport hub to the CBD and the central bus station there. Promoting economic growth and activity along this connecting route will begin to stimulate a wide range of organic growth across the city.

Giving a portion of the bus park over to an industrial function and connecting it to the CBD via the industrial areas we begin to further develop the diversity of transport economies and the opportunity they create.

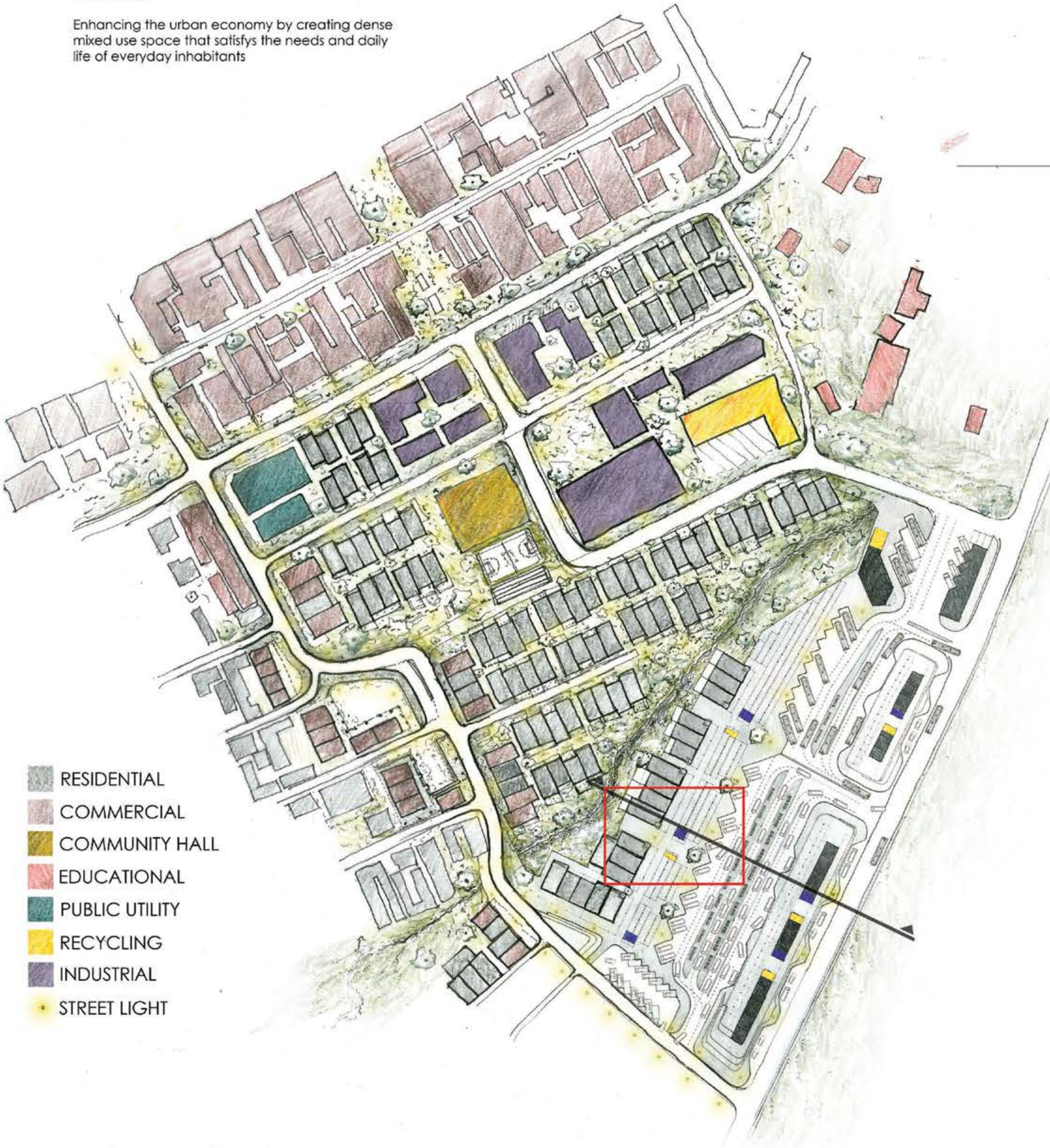
TRANSPORT CORRIDOR
INDUSTRIAL CORRIDOR



SECTION OF HOUSING AND PROPOSED ROUTE INTERACTION
1:200

KUNDA KINDU BUS PARK SITE PLAN
1: 1000

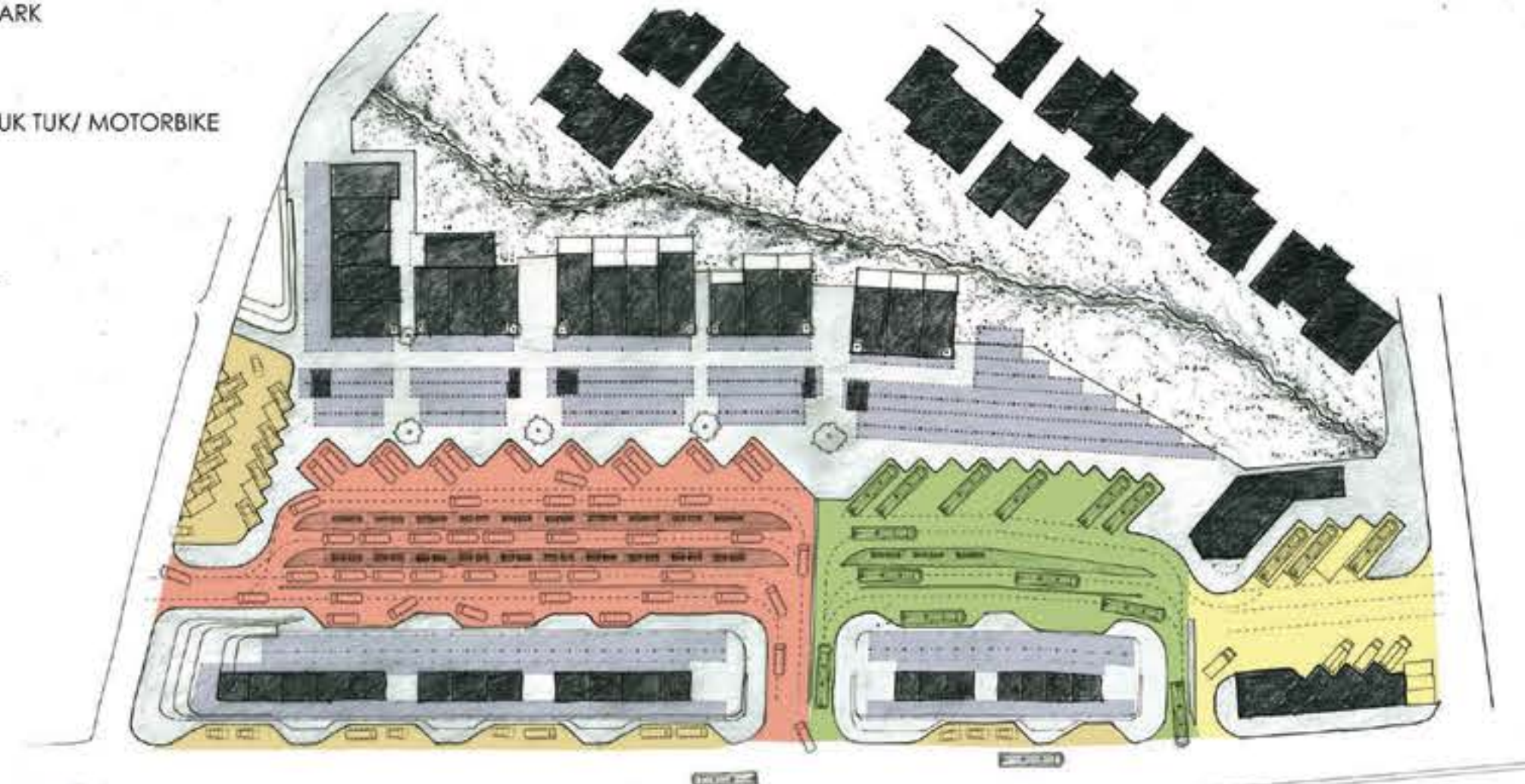
Enhancing the urban economy by creating dense mixed use space that satisfies the needs and daily life of everyday inhabitants



- RESIDENTIAL
- COMMERCIAL
- COMMUNITY HALL
- EDUCATIONAL
- PUBLIC UTILITY
- RECYCLING
- INDUSTRIAL
- STREET LIGHT

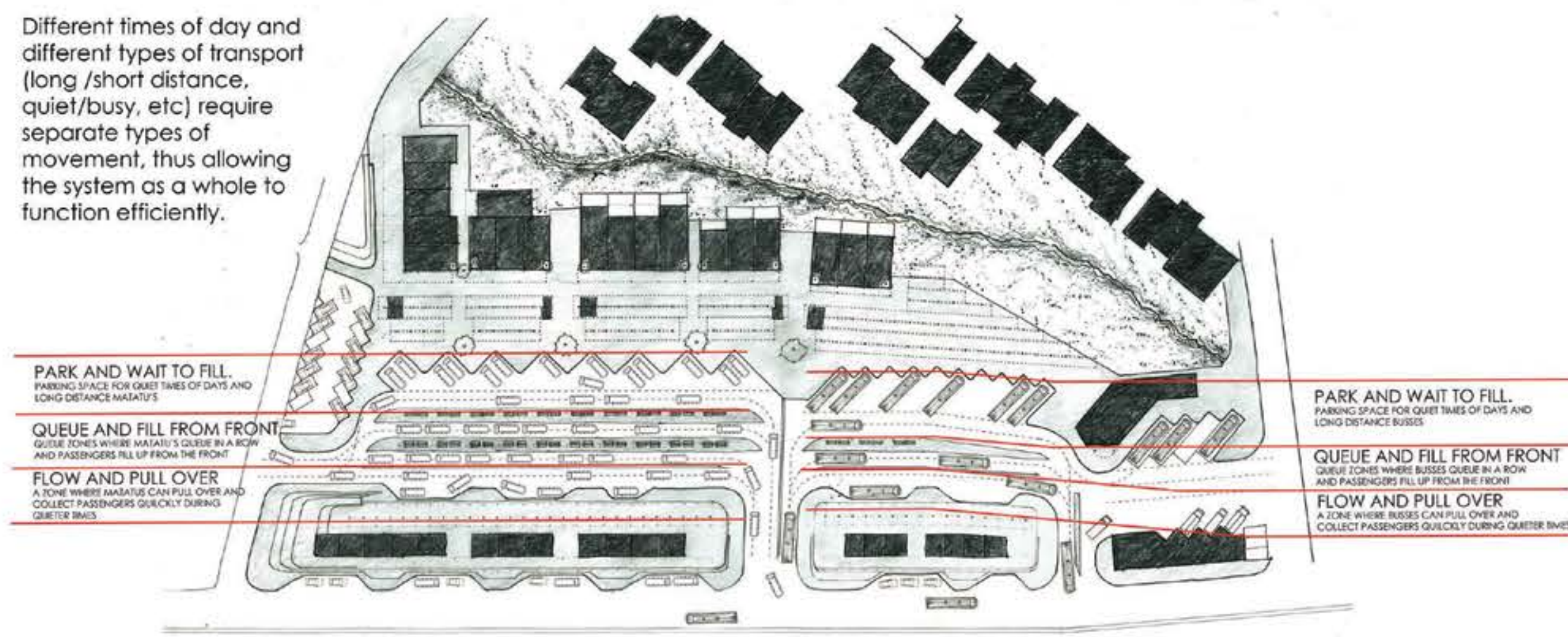
BUS PARK ZONING DIAGRAM
1: 1000

- KINDU KUNDU BUS PARK
- MINI BUS
- PRIVATE TAXI/TUK TUK/ MOTORBIKE
- TRADE
- BUS
- GOODS DEPOT



SYSTEM OF DIFFERENT TRANSPORT MOVEMENTS
1:1000

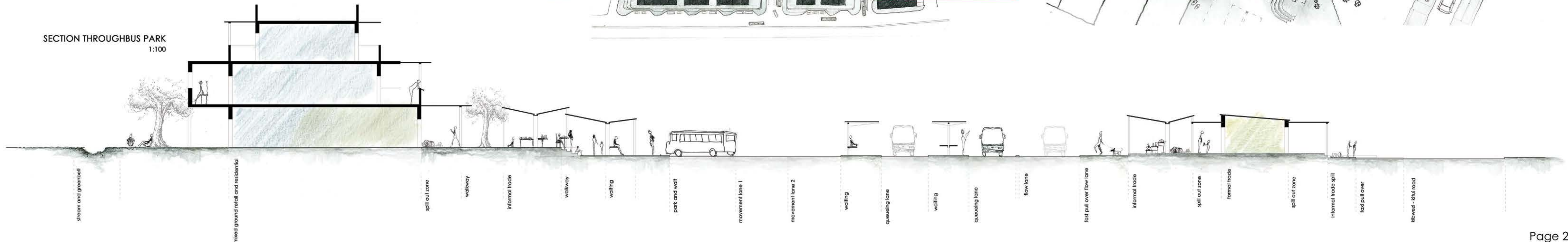
Different times of day and different types of transport (long /short distance, quiet/busy, etc) require separate types of movement, thus allowing the system as a whole to function efficiently.



PLAN OF ECONOMIC EDGE OF BUS PARK
1: 200



SECTION THROUGH BUS PARK
1:100



Districts

Strategies by Districts

D-1 Old Town

- Pedestrian walkway to link public spaces and attractions
- Rehabilitation of roads
- Corridors with mixed uses (residential and commercial)
- Commercial activities along pedestrian walkways in order to activate local economy

D-2 New Town

- Built heritage protection
- New commercial and public spaces

D-3 Urban Services

- Concentrating urban services in this district (Hospitals, schools, cultural house, etc.)
- Promote the use of these urban services, giving easy access to the area

D-4 Residential Low Density

- Conservation and restoration around the Vasco de Gama pillar
- Construction of a mirador in the base of Vasco de Gamma pillar
- Pedestrian walkways construction to connect the north coast to the south coast and highlight the beauty of the pillar

D-5 Ressort Zone Low Density


- Promotion of Housing developments on vacant land
- Neighborhood park implementation

D-6 Recreational District

- Recreational facilities (sports areas, cultural walks, outdoor activities)
- Reordering of informal trade
- Bandshell (Malini Bowl)
- Cultural tour for handicrafts and local art exposure

D-7 Ressort Zone High Density

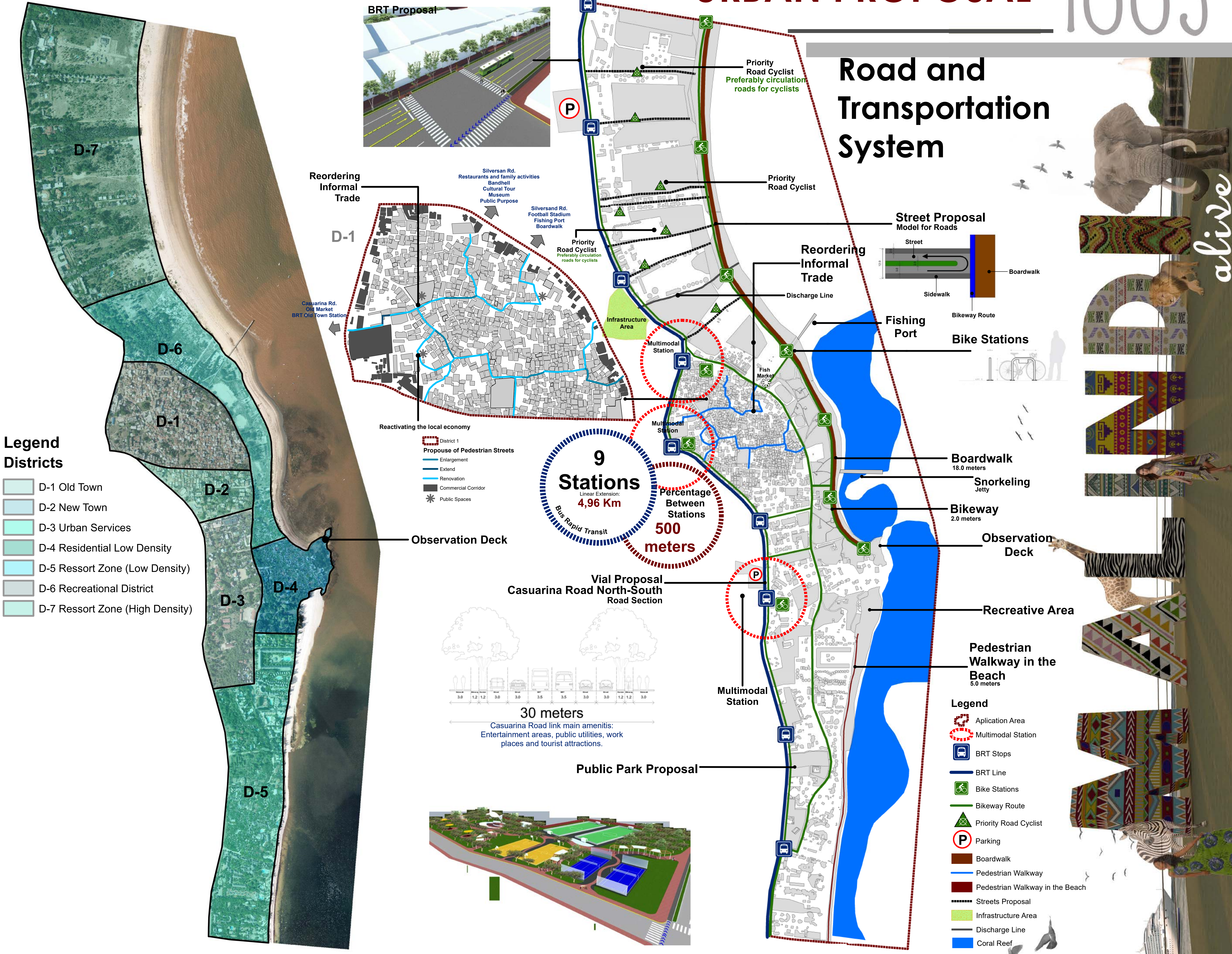
- Hotel boutiques
- Leisure and nightlife (casino area)

- BRT Stations**
Bus Rapid Transit
-  Kwa Ndomo Station
 -  Macaburini Station
 -  Malindi Cntral Park Station
 -  Malindi Town Station
 -  Old Town Malindi Station
 -  Vasco da Gama Station
 -  Health Station
 -  Silversand Station
 -  Muyeye Station



URBAN PROPOSAL 9003

Road and Transportation System



DESIGN PROPOSAL 9003

LEISURE AND NIGHTLIFE:
This space aims to generate an area in which the inhabitants of the coast and tourists can carry out nighttime activities. spaces needed to implement these activities are proposed to have a source of jobs and increase tourism in Malindi, areas such as bars, gardens, paths, social areas and multipurpose area ensure easy and enjoyable performance of such activities.



Rest Area

HOTEL BOUTIQUE:
This hosting area aims to increase tourism in Malindi, the spaces that make up this set as Deluxe rooms, large and modern pools as well as services that give the private club, are great attractions internationally with large capitals, which generate higher income for the inhabitants and the town of Malindi.



Green Infrastructure



RESTAURANTS AND FAMILY ACTIVITIES:
This area aims to create a space in which the family tourist can interact with each other throughout the day, and the same time enjoy Malindi gastronomy, also spaces are proposed for these activities are carried out with great comfort, such as: restaurants, sidewalks, terraces, gardens and playground, all with excellent views of the coast, the sea wall and great proximity to the fish market.

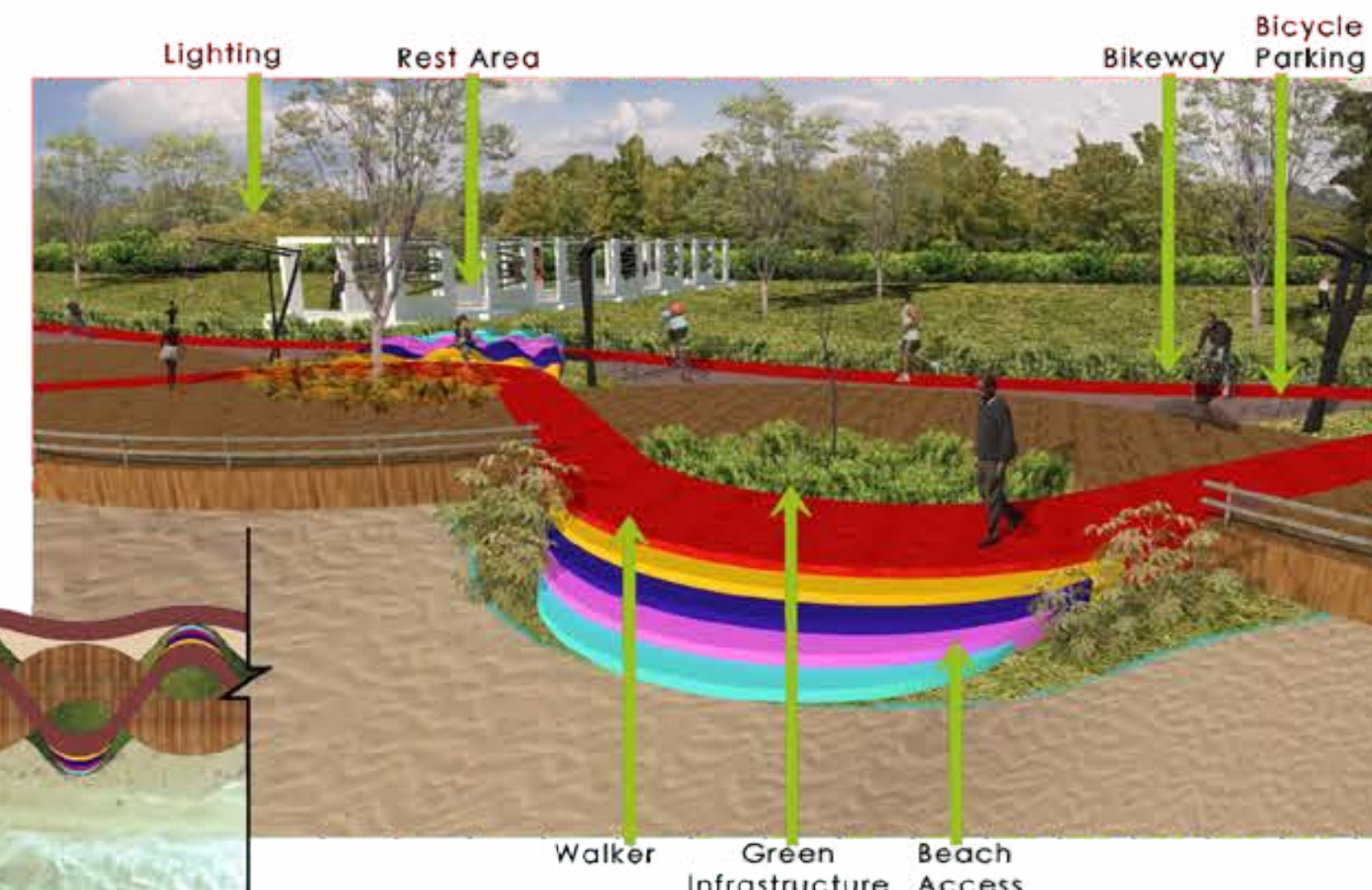


Playground

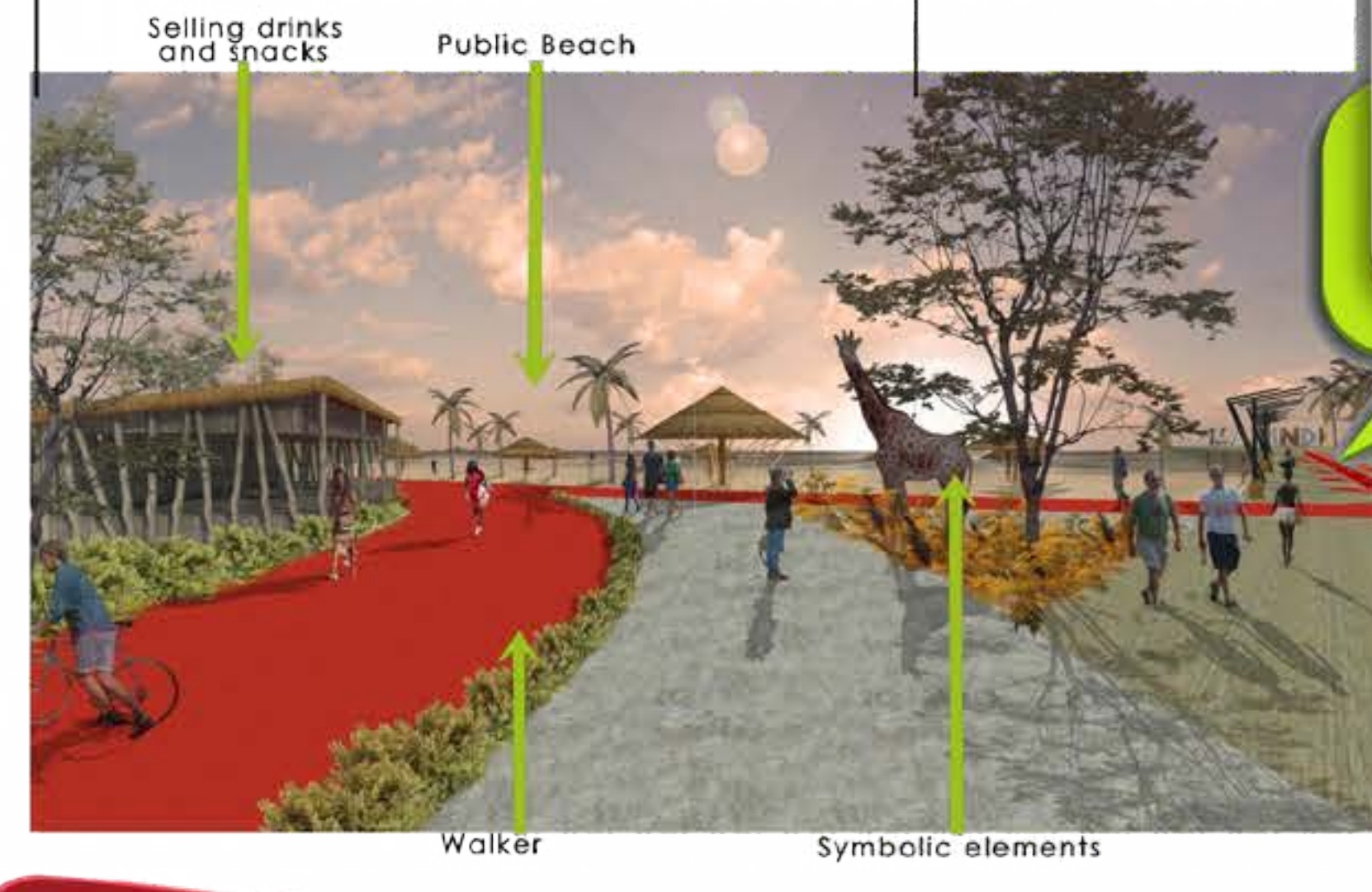
PUBLIC BEACH
Fishing, walking, swimming, beach gaming and rest area with parasols proposed. These light structures can be removed and inserted at any time.



BOARDWALK
The seawall is seen as a connection between the various activities to be undertaken in the coastal area of Malindi as a recreational area, cultural area, shopping and nightlife area. You can cross the boardwalk as you like, walking or cycling. Another reason for this intervention is to generate greater tourist attraction to boost the economy of malindi.



RECREATIONAL AREA:
This area includes recreational spaces that at the same time become generators of employment for the local population taking into account respect for existing green areas and creating harmonious spaces with the environment and that in the same time will achieve a major attraction for all tourists who visit it.

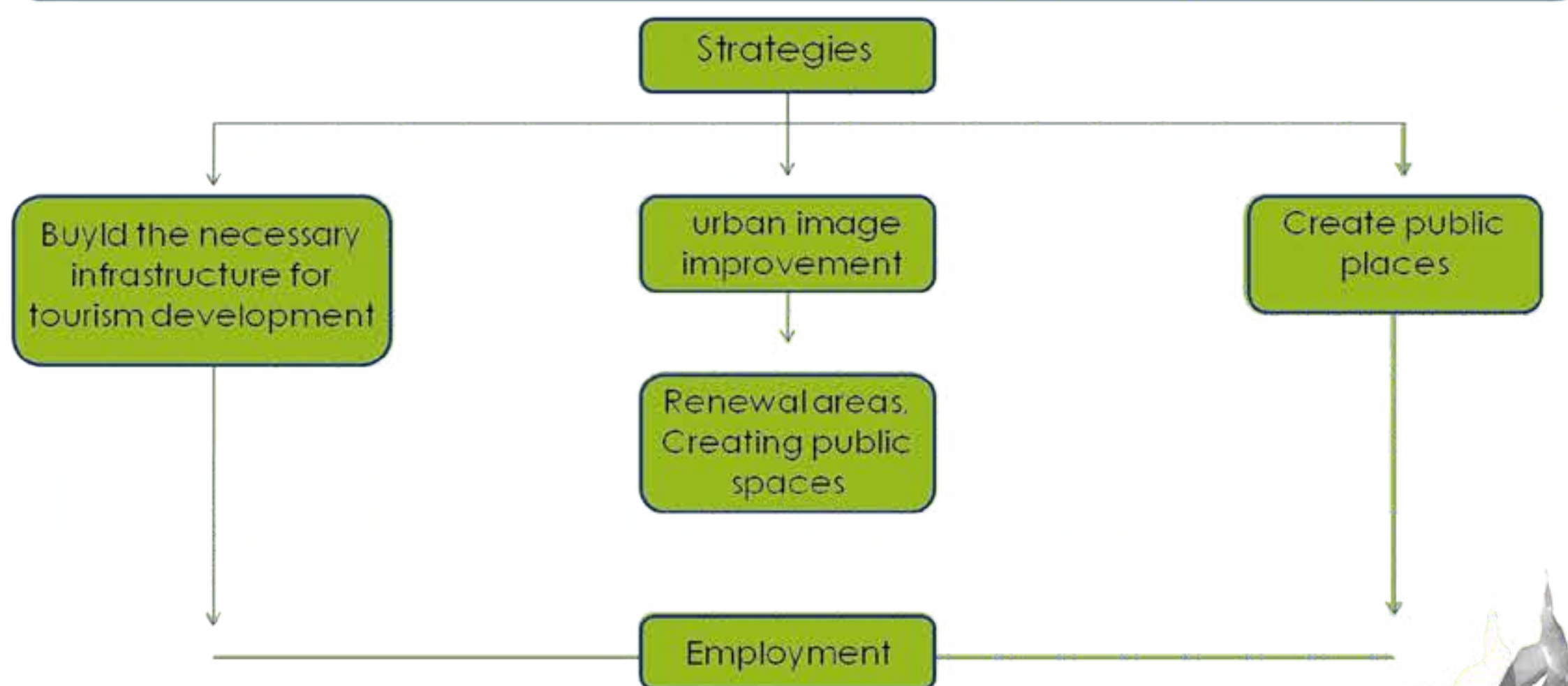


JETTY:
It's an area with great visual potential, a platform where people can take pictures, buy handicrafts, rest, walk and practice snorkel.



Local economic development through tourism activities

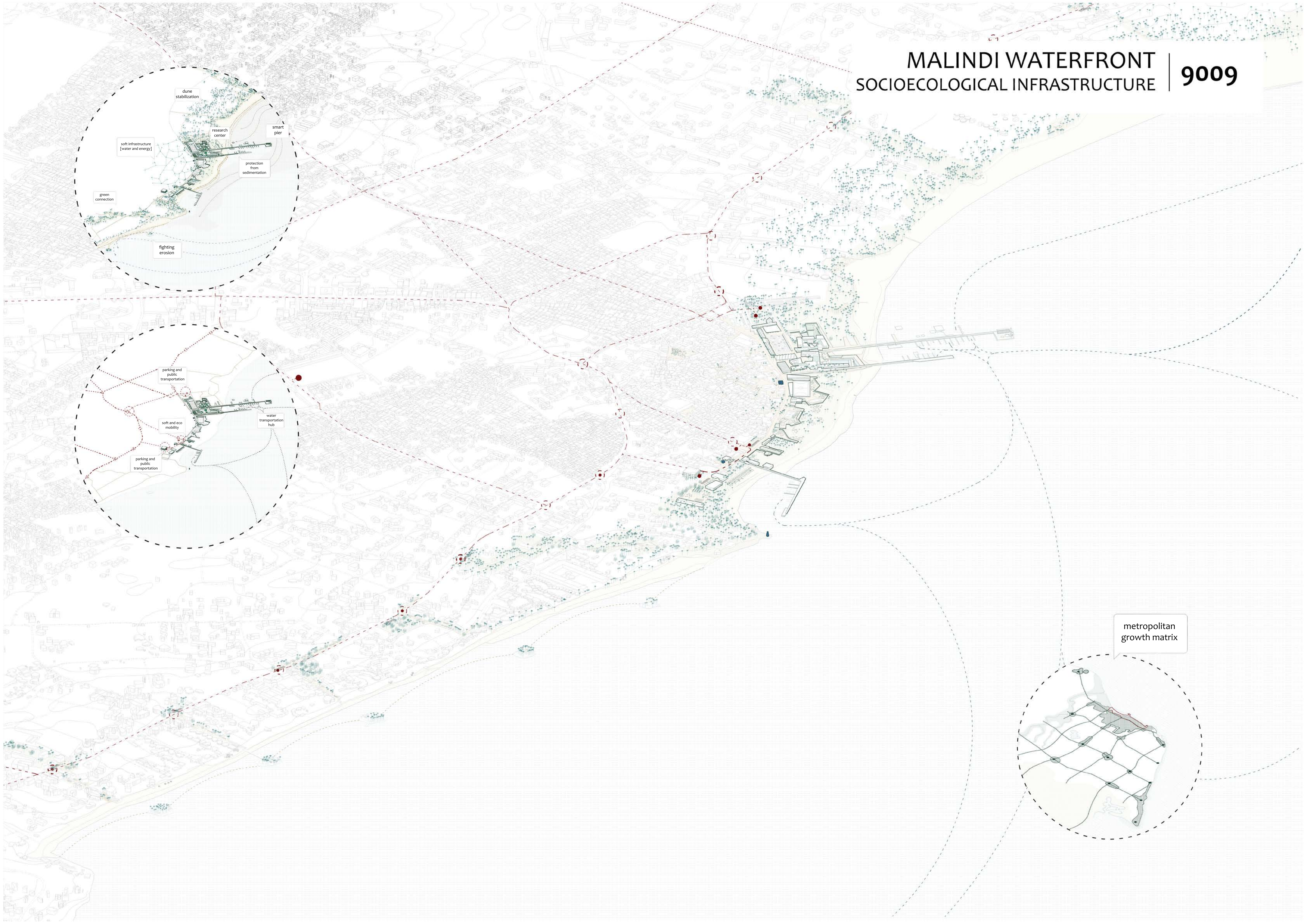
Tourism can be the source of development in Malindi. It may be a tourist destination in the region. It must have a valuable offer, something that on it's around is not available. It has to be an unrepeatable tourist destination.



MALINDI WATERFRONT

SOCIOECOLOGICAL INFRASTRUCTURE

9009

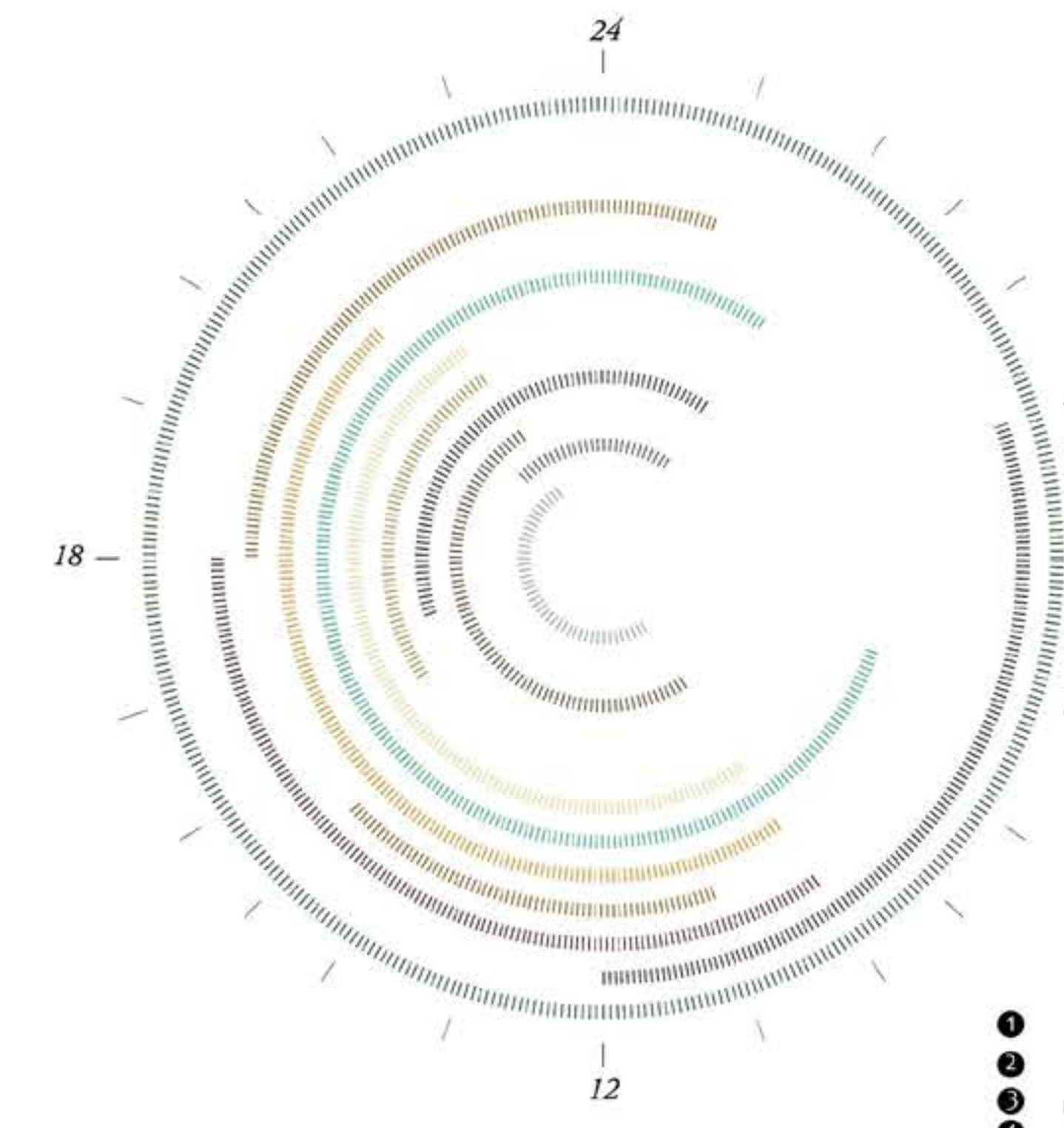


metropolitan
growth matrix

MALINDI WATERFRONT

SOCIOECOLOGICAL INFRASTRUCTURE

9009



a multiple pocket infrastructure, for a 24/24h public space!

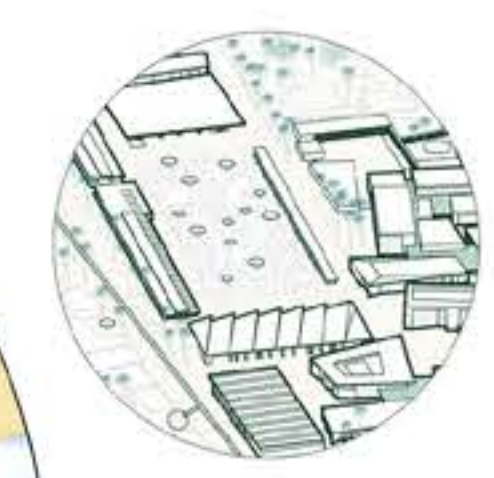
- 1 public space
- 2 market
- 3 research center
- 4 restaurant
- 5 sport
- 6 leisure
- 7 conference hall
- 8 media-art
- 9 cinema
- 10 exhibition area
- 11 local festival
- 12 centent area



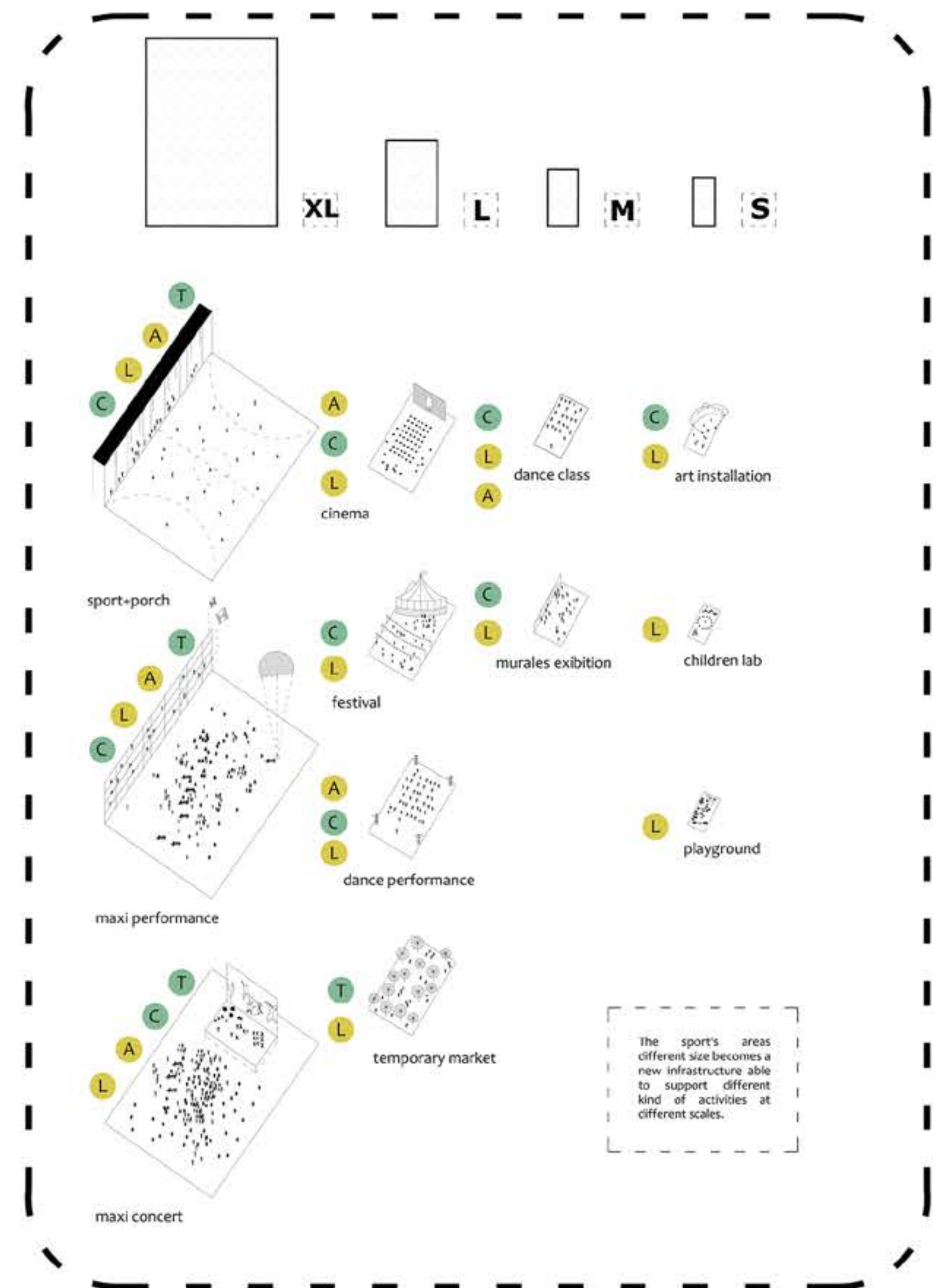
an amazing space for the Malindi cultural festival!



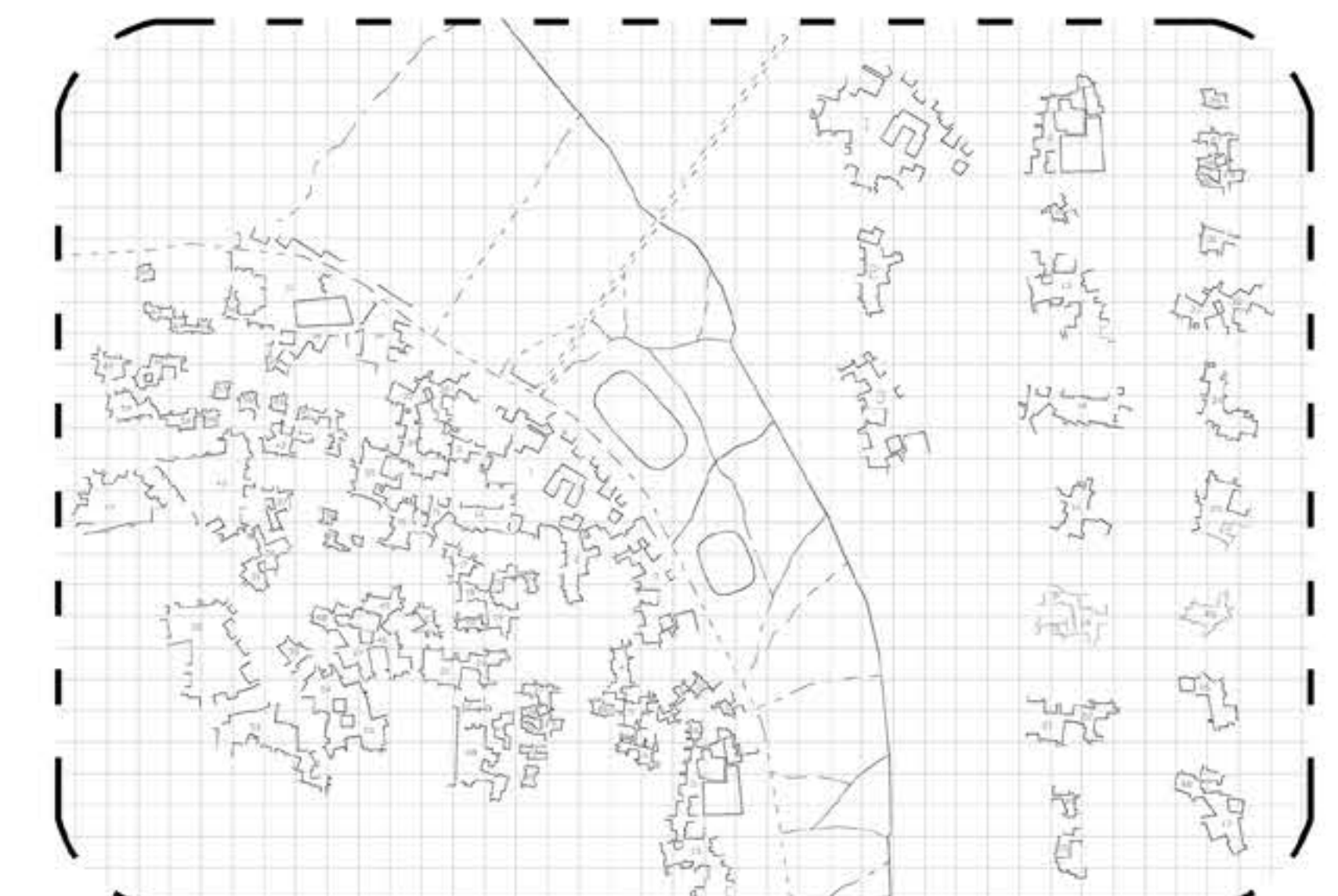
opening new perspectives



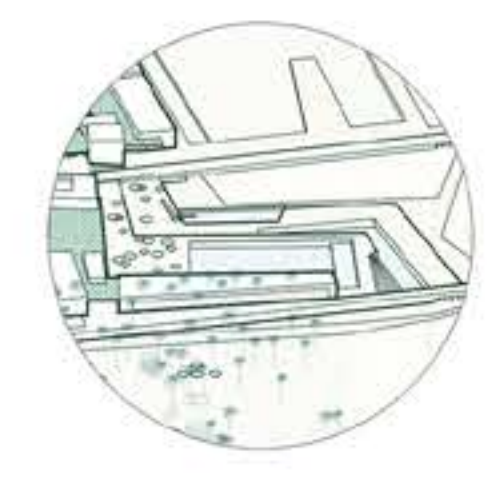
fostering local economies



open air rooms: different sizes and activities

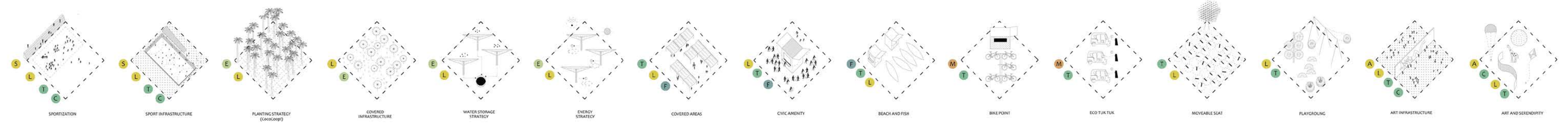


morphological studies on the Shella tissue



multiply your relation with the ocean!

IN/FORMALITY HYBRID PATTERNS



The pattern strategy is a tool to manage the gradient of formality. Each pattern mixed with the others is able to provide an infrastructure to the public realm and common space, with a different gradient of resilience and formality.