

Unlocking the potential of the Lotus River canal as a sustainable public open space



Supervisors: Dr. Kathryn Ewing & Hedwig Croijmans



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Christopher van der Walt | Urban Design Research Project

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UNLOCKING THE POTENTIAL OF THE LOTUS RIVER CANAL AS A SUSTAINABLE PUBLIC OPEN SPACE

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Executive Summary

Public open spaces are major environmental, social and economic resource, but, these spaces are depleting at an alarming rate and are often undervalued (Cilliers, 2015). Within a South Africa context there are many challenges that coincide with public open spaces especially in informal settlements and established townships where rapid urbanisation leads to increasing pressure to provide housing which often competes with these spaces (Cilliers et al., 2021). The challenges faced by public open spaces and the importance of protecting them will be explored. This research project lands within Gugulethu Township along the Lotus River canal and aims to explore how this public area along the river can be utilised as a sustainable public open space, designed for all role players within the Gugulethu community. The project seek to discover the role that an urban designer can play in highlighting the potential of such spaces and how urban design interventions can be used improve these open spaces.

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01 INTRODUCTION TO THE PROJECT

1.1 RESEARCH POSITION

My positioning is influenced by several factors that originates from when I was young. Firstly, growing up in the Middle East highlighted the power of public open spaces. When I arrived in Doha, Qatar as a young boy there were very limited public open spaces and specifically green open spaces due to the arid climate. Thank you to the financial position of the country, rapid development could take place which also meant several public open spaces and parks were being introduced like Aspire Zone illustrated in the figure 1.1. This quickly led to the creation of several economic activities in the form of pop up shops and restaurants, social activities like festivals, live shows and family gatherings and sporting activities of all sorts which was all a ripple effect of this public open space. Furthermore, from my experience working as a town planner I have noticed that the public open spaces are often the left over space, the awkward space in the corner that did not make the cut for another erf or the piece of land that is in a wetland that cannot be developed. As a person that enjoys spending time outdoors be that playing sports, going to outdoor markets or taking walks, the lack of public open space planned for people becomes evident. I am aware that Qatar and South Africa cannot be compared as the context completely differs, however, the services, experiences, quality of life and the sense of hope that can be created through such spaces remains similar. I recognise that I do come from a place of privilege, but I intend to approach this topic with sensitivity and use the potential that I have seen to encourage and highlight the possibilities for better public open spaces in South

Africa. The above summarises my positionality and highlights the passion I have for this topic which led me to undertake this issue.



Figure 1.1 - Transformation of Aspire Zone, Doha Qatar.
Source: Google Earth, 2022

1.2 INTRODUCTION

A public open space can be considered as publicly or privately owned land that is totally or partially accessible to the general public is referred to as public open space (Department of Human Settlements, 2019). According to UNESCO, public open space is generally accessible and open to all people and is often considered as a social space (Šuklje Erjavec & Ruchinskaya, 2019). These spaces are thought of as recreational areas where people form social bonds (Ahirrao & Khan, 2021). They serve as gathering areas and can encourage action, political mobilization, and the reduction of crime. They provide spaces for conversation and idea sharing that influence the urban environment's quality (Pacheco, 2017). Public open spaces include green spaces, playground, plazas, forests, golf courses, sport fields or other open natural surfaces in either urban or rural spaces (Koohsari et al., 2015) (Francis, 1987) (Cilliers, 2015). Public open spaces are critical for urban sustainability and resident's physical and emotional health (Shackleton & Blair, 2013). These spaces have been found to provide a variety of environmental and social benefits that contribute to people's improved quality of life (Kabisch & Haase, 2014). These spaces however face a variety of challenges in various areas, ranging from land transformation and development to inadequate upkeep and vandalism (Shackleton & Blair, 2013). Continuous urbanisation and densification policies results in the growth of urban space and the conversion of open land to residential erven, with no consideration given to open or green space development. As a result, residents have unequal access to public open spaces and the environmental and social advantages that such spaces bring (Kabisch et al.,

2015) (Kabisch & Haase, 2014). The loss of ecosystem services, such as the lessening of green space, is usually associated with urban growth. As a result of growing urbanisation, more individuals, particularly those from lower socioeconomic classes, are forced to live in residential areas with less green resources despite the fact that access to urban green spaces is important for increasing physical activity, public health and the socialisation of urban residents (Krellenberg et al., 2014). Poorer towns and neighbourhoods are frequently marked by a lack of public open spaces, green spaces and street trees. Due to high housing density, private green infrastructure per capita is limited. Furthermore, the limited number of public open spaces is usually neglected. As a result, a higher proportion of inhabitants in poorer neighborhoods express discontent with the lack of availability and quality of public open spaces than those in more affluent areas (Shackleton & Njwaxu, 2021).

Despite the huge differences on the ground, South Africa has a supportive national policy framework for public place making, urban greening and forestry, even if the relevance of urban green infrastructure has not yet been effectively included into urban planning regulations or processes. On a national and municipal level, a variety of non-governmental organizations advocate for and implement sustainable public spaces and urban greening programs (Gwedla, 2020). The non-governmental organisations and the government, occasionally assist by directing funding to local governments for ad hoc greening and public open space restoration programs. However, many programs are infrequently monitored, and the advantages and

outcomes are rarely appraised or shared between projects or municipalities due to their disorganised character. Furthermore, municipalities lack inventory and monitoring of open space development and urban greening (Shackleton & Blair, 2013). It's difficult to transform public spaces into effective ones, especially in Sub-Saharan Africa, where public open spaces compete with other pressing demands like basic services and housing. Public open spaces are frequently neglected, left without specific functions, and underutilized due to budget restrictions and limited capacity. As a result, potential economic, social, and environmental values are lost (Cilliers et al., 2021).



Figure 1.2 - Lack of public open space in townships compared to affluent neighborhoods.

Source: Sikhakhane, 2020

1.3 RESEARCH QUESTION

How can the Lotus River canal area be considered as a sustainable public open space that can be appreciated by the collective Gugulethu community?

1.4 RESEARCH AIMS

- To understand the current the situation of the public open spaces within Gugulethu.
- To highlight the potential of the Lotus River Canal area as a sustainable public open space.
- To explore possible urban design interventions that may guide the design of the lotus river canal area to create a sustainable public open space that is inclusive of the whole Gugulethu community.

02 METHODOLOGY

2.1 QUALITATIVE TECHNIQUES

The literature review followed a thematic investigation on the concepts of public open spaces. This research project followed a qualitative approach where data was collected in the form of mapping, interviews, case studies, desktop studies and a brief site visit. These approaches are summarised below:



2.1.1 MAPPING

This research project relies on visual representation, which was accomplished through utilising online GIS tools and open-source data platforms such as the City of Cape Town's (CoCT) data site. Mapping was also informed by Google Street View tours, aerial photography and site visit photographs. The mapping was used to inform the contextual analysis which is discussed in section 6 of this design project.



2.1.2 INTERVIEWS

Community members and a representative of a Non-Profit Organisation (NPO) was interviewed. Interviews were performed over a phone call or online due to Covid-19 and other safety concerns. The community members include Xolile and Nonsika. Xolile is a community activist and very well informed with regards to the needs of the community. Xolile is actively involved in community projects including urban design initiatives in the area. Nonsika is also a community activist and a facilitator for change within the community.

Nonsika is also actively involved in urban design initiatives in the area. Vivienne is an environmental practitioner with 23 years of experience. She currently works with The Umvoto Foundation with specific focus on the Lotus River Canal. This provides further insight into this area. The results of the interviews will be discussed in section 6 as part of the contextual analysis.



2.1.3 CASE STUDIES

Case studies were used to improve the design process through local and global best practices which further inform the design concepts. Section 4 observes the three case studies. An analysis of each case study is done to determine the best possible informants to inform the design process.



2.1.4 DESKTOP STUDIES

This research project made use of journal articles, internet articles, governmental publications and policies to better understand public open spaces and to inform the design guidelines and strategies to provide the best possible design framework and interventions.



2.1.5 SITE VISIT

A site visit was done by driving through the Gugulethu area to photograph the space and to get feel of the area in order to gain better context.

2.2 RESEARCH LIMITATIONS

A site visit was limited to a drive through in certain parts of Gugulethu which had restrictions on the places that I could see. This prevented me from spending time in these areas with a local knowledge or learning more important information. The site visits using a vehicle had limitations in terms of access to certain locations.

The interviews however made up for the lack of movement in this area and provided the local context and knowledge needed. My interviews included two community members and activists as well as a professional working in this area. Despite this not being many interviews the community members that were interviewed are both heavily involved in the community and the upgrading of Gugulethu with much knowledge of the needs and demands of the community which was very insightful.

03 LITERATURE REVIEW

3.1 INTRODUCTION

The literature review chapter attempted to understand the concept of sustainable public open spaces in order to gain a better knowledge of the important theories and themes that are associated with it. Key themes from the existing literature was identified and will be analysed and presented in this chapter. Some themes have been identified to help shape the research approach and questions whilst more themes will be identified throughout the literature review. The first theme explores the importance of public open spaces along with their contribution to the built environment, people and surroundings. The following theme highlights the challenges that are faced by public open spaces especially in townships. The last theme touches on the principles and guidelines of planning, designing, implementation and maintenance of a successful and sustainable public open space. These principles and guidelines that was identified will be used to inform the urban design framework and smaller design interventions. Overall this literature review contributes to a better understanding of public open spaces both internationally and locally in Cape Town and surrounding townships. This chapter concludes with a summary of the important findings from the literature review, as well as recommendations for further research.

3.2 IMPORTANCE OF PUBLIC OPEN SPACES

Public open spaces are the most important social areas for people to connect on a regular basis, and they are also regarded as a key contributor for preserving community well-being. The benefits of public open spaces for wellbeing are widely acknowledged and are being increasingly documented (Rao, 2021). Public open space value

must be established in order to underline the importance of designing the public realm. Public open spaces play a variety of responsibilities in ensuring the long-term viability of urban and rural communities. They are important locations in human settlements that require deliberate planning because they can improve sustainability and the appearance of environmental advantages (Cilliers, 2015). Some of the benefits of public open spaces, especially the green spaces within a urban or neighbourhood setting includes, microclimate management, resistance against natural catastrophes, improved soil fertility, support mental and physical health, maintained social cohesiveness and interactions, and improved social inclusion (Finaeva, 2017) (Kazmierczak & James, 2007) (Henderson, 2013). The relevance of these spaces in regulating urban health, supporting biodiversity, and boosting livelihood chances has been studied across urban parks in many cities (Basu & Nagendra 2021). Public open spaces are a valuable resource in terms of the environment, social, and economic aspect (Cilliers, 2015). Social benefits include, physical and mental health advantages, such as stress reduction and relaxation, are related with exposure to positive open and green spaces for city dwellers. Green spaces may also improve people's quality of life by providing recreational opportunities, both active and passive. Active exercises are associated with the ability to participate in physical activities such as sports, playing with children, or taking a dog for a walk. Relaxing, drawing, sunbathing, socializing, playing with your children, or simply experiencing nature are examples of passive recreational activities (Byrne & Wolch, 2009). Environmental benefits include local climate stability by air filtering or cooling through shade provision, which is especially essential for urban heat island mitigation strategies. Furthermore, it was discovered that the precise location of street trees and the associated shade reduced overall energy use. Green open spaces also mini-

mize noise, boost carbon storage, and improve rainwater infiltration, all of which contribute to water purification (Kabisch & Haase, 2014) (Cilliers, 2015). Green public open spaces can reduce local temperatures and thereby alleviate the impacts of heat on occupants, especially during hot weather (Kabisch & Haase, 2014). It is said that public open spaces provide several economic opportunities and services. These include the supporting the local economy and attracting business investment in terms of space for markets and informal trade. These spaces often attract tourist to these spaces which also boost the local economy. It has also been proven that some quality open spaces can increase the worth of surrounding properties (Project for Public Spaces, 2009).

3.3 CHALLENGE OF PUBLIC OPEN SPACES

By 2050, 68% of the world's population will be living in cities (United Nations, 2018). Rapid urbanization has resulted in a loss in public open spaces and places these spaces at serious threat in cities all around the world (Basu & Nagendra 2021). The loss of public open spaces and green spaces in cities is becoming a growing source of worry for urban ecology (Cilliers, 2015). Open spaces are a major environmental, economic and social resource, but these spaces are depleting at an alarming rate and are facing many different challenges (Mensah, 2014). Some of the challenges faced by these spaces in a African context include urbanisation, low resource base of institutions on public open spaces, lack of priority to these spaces, the influence of poverty, corruption, uncooperative attitudes of the local people, uneven distribution and political instability (Mensah, 2014). Urban areas are quickly expanding in South Africa, as they are in many other parts of Africa. This involves both urban sprawl and

densification, which occurs informally in unplanned communities and even more quickly through the construction of backyard houses. Densification frequently encroaches on existing public spaces and natural systems, putting the benefits of urban green infrastructure at risk (Hamann et al., 2018). Sub-Saharan Africa has some misconceptions about the importance and role of public open areas in the urban environment (Anguluri & Narayanan, 2017). Public open spaces are often categorised by concerns for the lack of safety and security, health concerns, low levels of social cohesion, historical exclusion and repression; homelessness, inadequate social provision, major poverty, large-scale informal settlement, inadequate bulk services and deteriorating natural resources. When compared to such serious challenges, public open spaces and associated ecosystem services are frequently regarded as unnecessary luxury items. As a result, these spaces are frequently, undervalued, underutilised and often omitted from spatial planning processes (Cilliers et al., 2021). The implementation and maintenance of public open spaces is difficult, especially in South Africa. While the government supports a public open space or green infrastructure plan and climate action, local governments play a critical role in putting the measures in place. Local government's perceptions of public open spaces often impact the implementation of these spaces (Pasquini & Enqvist, 2019). Public open spaces and green infrastructure development initiatives are generally given low priority by decision-makers in South African local governments (Culwick et al., 2016). Economic inequality, as well as the demand for housing and other developmental needs (such as roads, clinics, and commercial space), are frequently viewed as urgent, putting a strain on municipal obligations and funds. The apparent lack of market value for public open space's advantages sometimes pushes developers and landowners to convert po-

tential open spaces into land-use types that bring immediate economic benefits (Gwedla & Shackleton, 2015). Local governments experiences obstacles in implementing and operating open spaces and green infrastructure into current planning and practice as it differs from the conventional grey infrastructure that they are used to. Municipalities have tended to develop expertise and experience in this area because grey infrastructure has been the norm. Traditional techniques often have more clearly defined roles and duties than the public open space projects (Matthews & Byrne, 2015).

3.4 PLANNING AND DESIGNING FOR SUSTAINABLE PUBLIC OPEN SPACES

An open space cannot be considered a separate element or land use in an urban system. Open space is a crucial feature of public structure in good urban systems, and thus in positive urban design. In this case, the parts of public structure are linked together to form an 'accessibility network' or 'accessibility surface', which defines areas of higher or lesser accessibility. As a result, all types of open space must be structurally considered. They must be considered in relation to other structural aspects, as well as the other way around. Similarly, the supply of open space must be led by and contribute to the performance attributes that influence the overall settlement structure, such as efficiency, equity, balance and sustainability as well as integration (Dewar, & Louw, 2017). The following principles should be considered in the design and planning of any public space system. It is essential to produce a quality open space and is not to be seen as a nice to have. The first most important thing when you have a natural space is to ensure that nature is put first. One must view every open space as a positive space and not a leftover

or residual space. Maintain a healthy balance between the three landscape of society which is urban, rural and wilderness. Multi-functionality is a key part of any open space and should be implemented in a big or small space. The promotion of continuities should be perused as much as possible. It is a basic right of all people to have access to these open spaces, so it is important to promote equal access to all. The promotion of self-maintenance is essential to ensure that the space remains an asset rather than a liability. Ensure a clear edge between adjacent urban fabric and public open space. Ensure that permeability and integration is consciously addressed in the design. Human comfort should be an overarching concern when designing any public open space.

When designing a public open space, safety and security should be one of the key considerations. Promote sharing of public open spaces to ensure the sustainability of such space and to encourage social cohesion. Allow of partnership between public and private stakeholders in decision making to ensure maintained. Public works programs and community initiatives should be linked with maintenance initiatives (Dewar, & Louw, 2017). In order to create a sustainable open space it is important to include the users of the area in the process. Users are individuals or groups who visit and interact with a location on a regular basis or may do so in the future (Fors et al., 2015). Locals blamed the downfall of many open spaces and green spaces on a number of factors, the most prominent of which was a lack of community input, particularly on what the land should have been used for, the official opening ceremony, and care. The open spaces with the most community consultation usually has the best condition for the longest time (Shackleton & Blair, 2013). In order to reap the benefits of public open spaces it is vital to ensure

that the space is maintained and kept from deterioration. It is difficult to summarise the quality of a open spaces but it is important include both expert and the perception of the public especially the users of this space when evaluating the space (Dempsey, 2008). The public participation should not only mean the users get involved in one point but should rather involve them through the process which would ensure a sense of ownership and encourage the maintenance and end result of this space (Fors et al., 2015). Place making is a popular concept when creating a new space but it is just as important to ensure place keeping of a space. The place keeping idea stresses the vital, ongoing time-aspect of green space development. Place keeping should be considered in both the creation and maintenance of green areas to ensure long-term quality (Dempsey & Smith, 2014). In general, shorter distances between homes and green areas boost accessibility and the chance of people using the area. The government agency English Nature (EN) in the United Kingdom suggests that no one should live more than 300 meters from their nearest piece of natural green space of at least two hectares in size (Krellenberg et al., 2014). It was also found that larger green spaces between neighbourhoods of different socioeconomic status led to a greater social interaction and cohesion between different groups (Krellenberg et al., 2014).

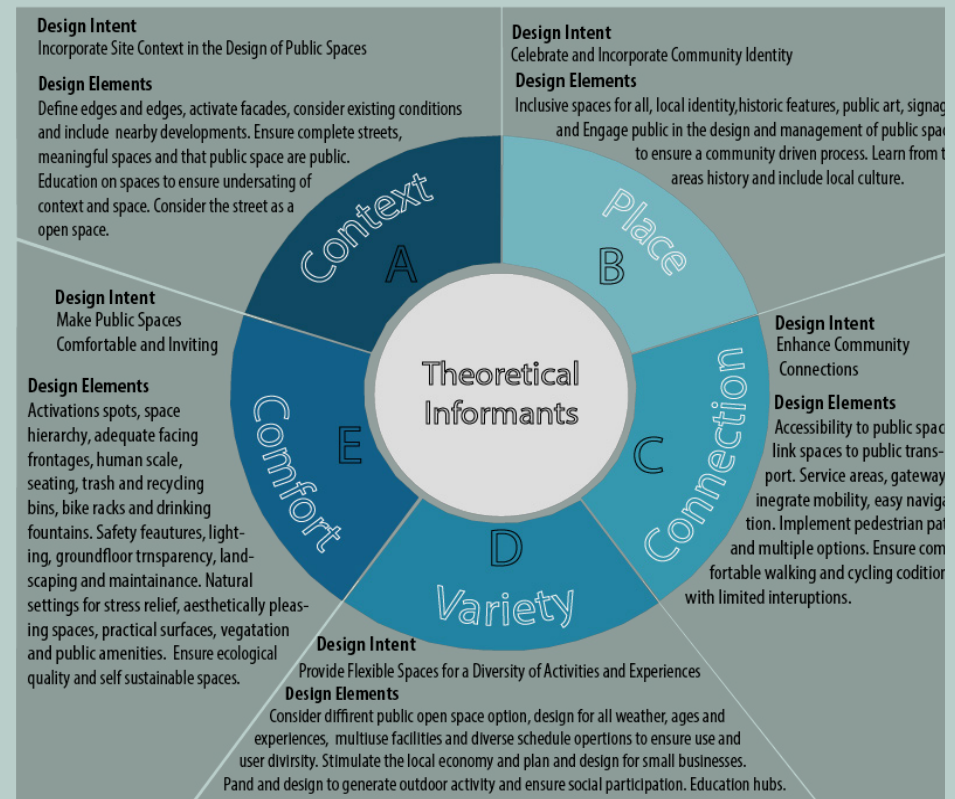


Figure 3.1 - Theoretical informants summary to guide design phase
Source: Author (using sources throughout theoretical investigation)

04 CASE STUDIES

4.1 INTRODUCTION

The case studies forms part the qualitative research presented in this design projects. The case studies displayed below serve as examples of river restoration, public open space upgrading, pedestrian orientated networks and design projects that provide solutions for situations similar to the research's topic area. An analysis of each case study is done to determine the best possible informants to inform the design process.

4.2 ACHIEVING SUCCESSFUL RIVER RESTORATION IN DENSE URBAN AREAS: LESSONS FROM TAIWAN

River management practices are undergoing a paradigm shift from an emphasis on hard engineering that aims to regulate water to one that emphasizes multi functionality and aims to restore a river's ecology, scenery, and ecosystem services. The Laojie River in Taoyuan City, Taiwan, where a channelized and piped urban river was recently converted into an accessible, linear green infrastructure feature, is widely regarded as the first extensive and successful river restoration project in Taiwan's densely-urbanized, flood-prone areas, despite the fact that its actual performance is rarely examined in detail (Chou, 2016).

Informants take from the case study:

- 1- Encourage ongoing, extensive public participation.
- 2- Improve the riverside landscape by allowing for footpaths, cycling lanes and green space as well as street lighting.

- 3- Encourage soft edges such as grassy gentle slopes, buffer strips with a natural appearance and meandering paths for pedestrians and cyclists.
- 4- Use natural filtration methods to clean the water.
- 5- Include spaces of natural landscape that can also be used for multi purposes like recreation and social facilities.



Figure 4.1 - The planting design map of the Laojie River.
Source: Chou, 2016

Figure 4.2 - Location of Taoyuan
Source: Author



Figure 4.3 - The Laojie River cross section with soft water edges.
Source: Chou, 2016

4.3 GUERRERO STREET, SAN FRANCISCO, CA

A group of activists banded together to make their neighbourhood streets healthier, safer, and more inviting to pedestrians. The community challenged the norms of planning and engineering by applying simple methods to make a public open space which in the case is the street area into a sustainable public open space (Project for Public Spaces, 2015).

Informants take from the case study:

- 1- Looking for chances to build new or improved public space attractions in the area, especially those that are conveniently located, close to transit stops, and allow for simple access by walking and bicycle.
- 2- Access to important locations in the community can be made easier by installing safe infrastructure, and crossings
- 3- Support traffic calming initiatives on local streets to create locations that are safer for people to walk and ride bicycles
- 5- Collaborating with locals to fix, green and beautify streets to make walking more pleasant and secure
- 6- Putting up navigation signs and maps in key locations



Figure 4.4 - Location of the project
Source: Author



Figure 4.5 - Redesigning the streets to encourage safer public spaces and increase walkability.
Source: Project for Public Spaces, 2015



Figure 4.6 - Creating pedestrian friendly spaces along streets.
Source: Project for Public Spaces, 2015

4.4 KHAYELITSHA URBAN UPGRADING & ACTIVE BOXES, HARARE PARK, CAPE TOWN, RSA

Harare is one of the areas identified as a priority by residents regarding crime reduction along the pedestrian footpaths. This project was the first to go ahead and involves creating landmarks along a safe pedestrian route. Violence Protection Urban Upgrading facilitated this project and is an organization which works closely with neglected and unsafe communities (VPUU, 2014).

Informants take from the case study:

- 1 - Incorporate landmarks (active boxes) that are visible both at day and at night.
- 2 - Link these landmarks with safe routes.
- 3 - Ensure multi-purpose public spaces.
- 4 - Incorporate public spaces that also functions as storm-water retention basins. Encourage permeable paving and a system that collects storm water that can be used as irrigation or other water related activities.
- 5 - The access to these areas are clearly defined and each of these spaces look different and can easily be recognised.
- 6- Removes any physical barriers that allows all citizens to partake in the public open space.
- 7- Ensure maintenance of these spaces.

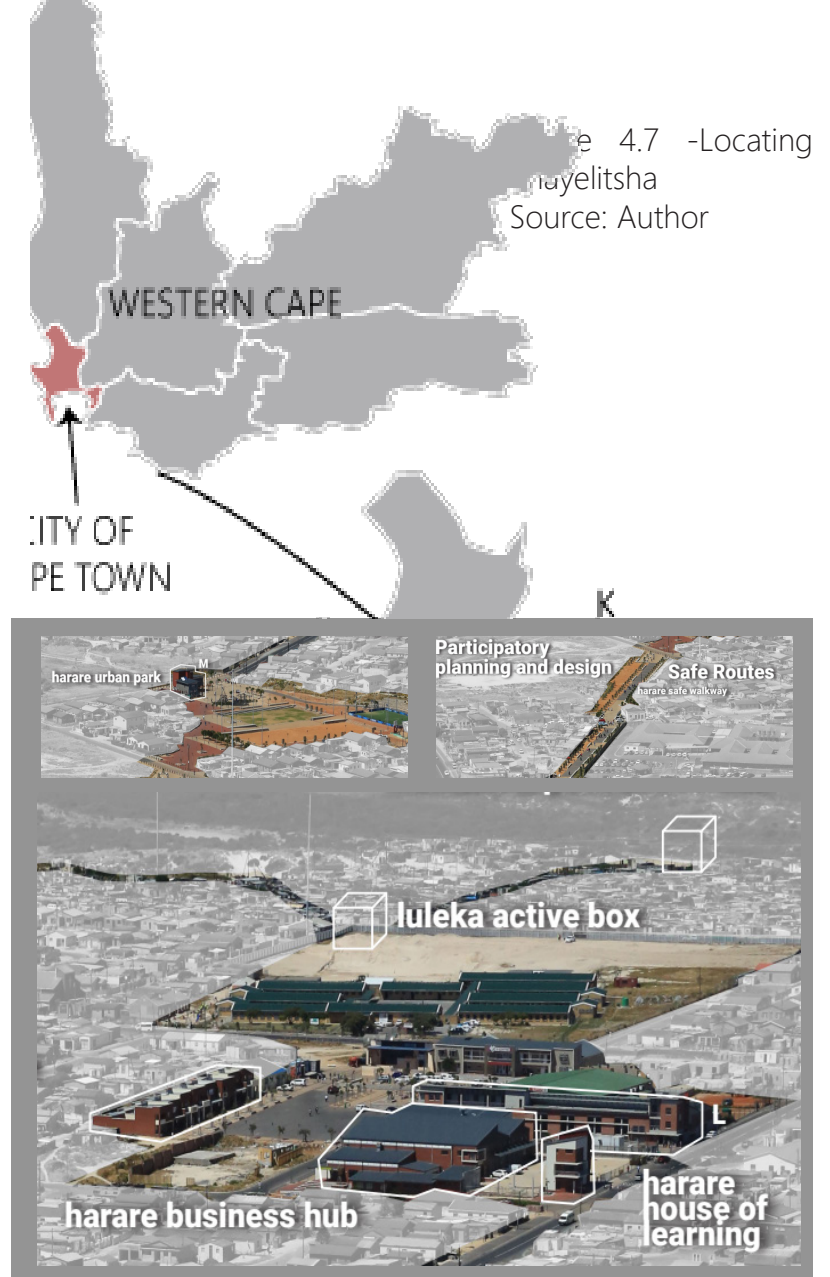


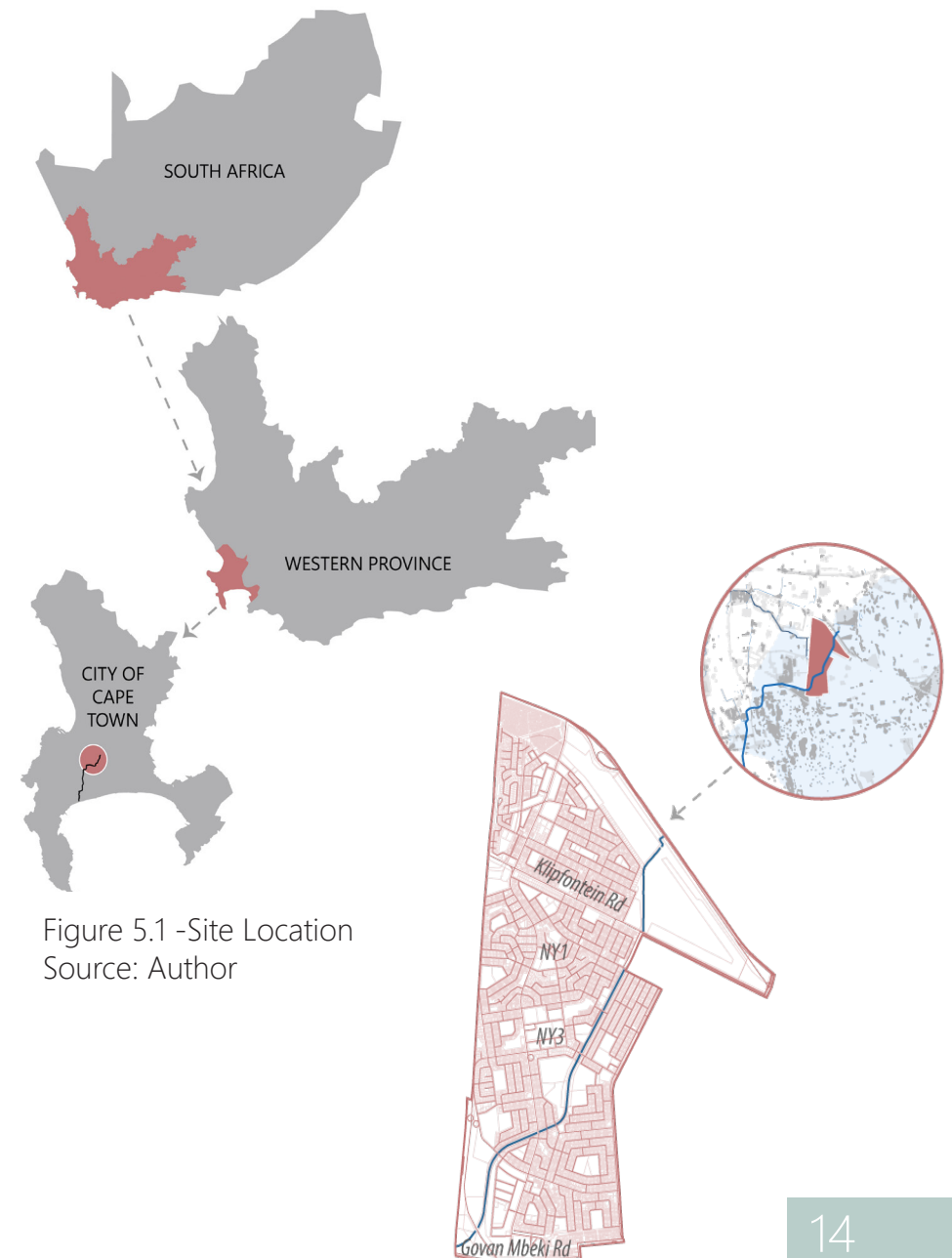
Figure 4.8 - Active boxes and safe routes connecting these spaces.

Source: VPUU, 2014

05 STUDY AREA

5.1 RATIONALE

The rapid urbanisation experienced in African cities including Cape Town creates massive pressure on local governments to provide housing and basic infrastructure and often leads to the neglect of other necessary and supportive infrastructure like open spaces (Cilliers et al., 2021). The high housing density and lack of private open spaces in informal settlements surrounding the cities causes a great discontent under the inhabitants of these poor neighbourhoods (Shackleton & Njwaxu, 2021) and this can be observed in townships in the Cape Flats District. This leads to greater calls to protect, preserve, plan and design for public open spaces. Despite efforts from government and non-governmental organisations to implement urban greening and restoration programs, these spaces are often vandalised, badly maintained and not sustainable (Shackleton & Blair, 2013). It is evident that there are several attempts of urban greening and restoration programs in and around Cape Town, however, through my research and design project I would like to contribute to the ever growing call to help plan and design sustainable public open spaces.



5.2 FOCUS AREA

The research project therefore lands itself in Gugulethu, along the Lotus River canal. The name is a contraction of igugu lethu, which means “our pride” in Xhosa. Gugulethu was founded in the 1960s as a result of the congestion of Langa, Cape Town’s sole black residential area at the time. During the Apartheid era, black South Africans were not allowed to dwell in Cape Town, and many residents were relocated to Gugulethu, Nyanga, and Langa from District Six. The Lotus River canal starts from a storm water retention pond alongside the N2 in the Cape Town Airport Industria neighborhood. The river travels south through Gugulethu, Ottery, and Grassy Park, ending at the Zeekoevlei Wetland, where it empties into False Bay. The canal is a dug waterway that was built in the 1950s to accommodate increased runoff as a result of post-war development on the Cape Flats, and has been formalised as a canal to a large extent (Singleton, 2013).

Taking a quick look at the map in Figure 5.2, it seems that there are several open spaces. But in reality many of these are enclosed school properties or sport fields. Figure 5.3 illustrates the true reality where only the spaces zone public opens space is illustrated.

Firstly, we have learned in this investigation that there is an immense pressure on public open spaces especially in poor neighbourhoods or townships like Gugulethu. Secondly, as previously mentioned, existing research illustrates that these spaces should not be isolated but from part of a network. The Lotus River canal is an open space network that runs through Gugulethu with the potential to become a sustainable public open space network. Thirdly, the canal area consist of green

and blue spaces which is complimentary to each other and further highlight the potential of this space. This is an underutilised space with great potential for urban design intervention hidden between high density housing in a poor neighbourhood that needs a social, environmental and economic intervention



Figure 5.2 -Aerial which shows what seems to be many open spaces
Source: Google Earth

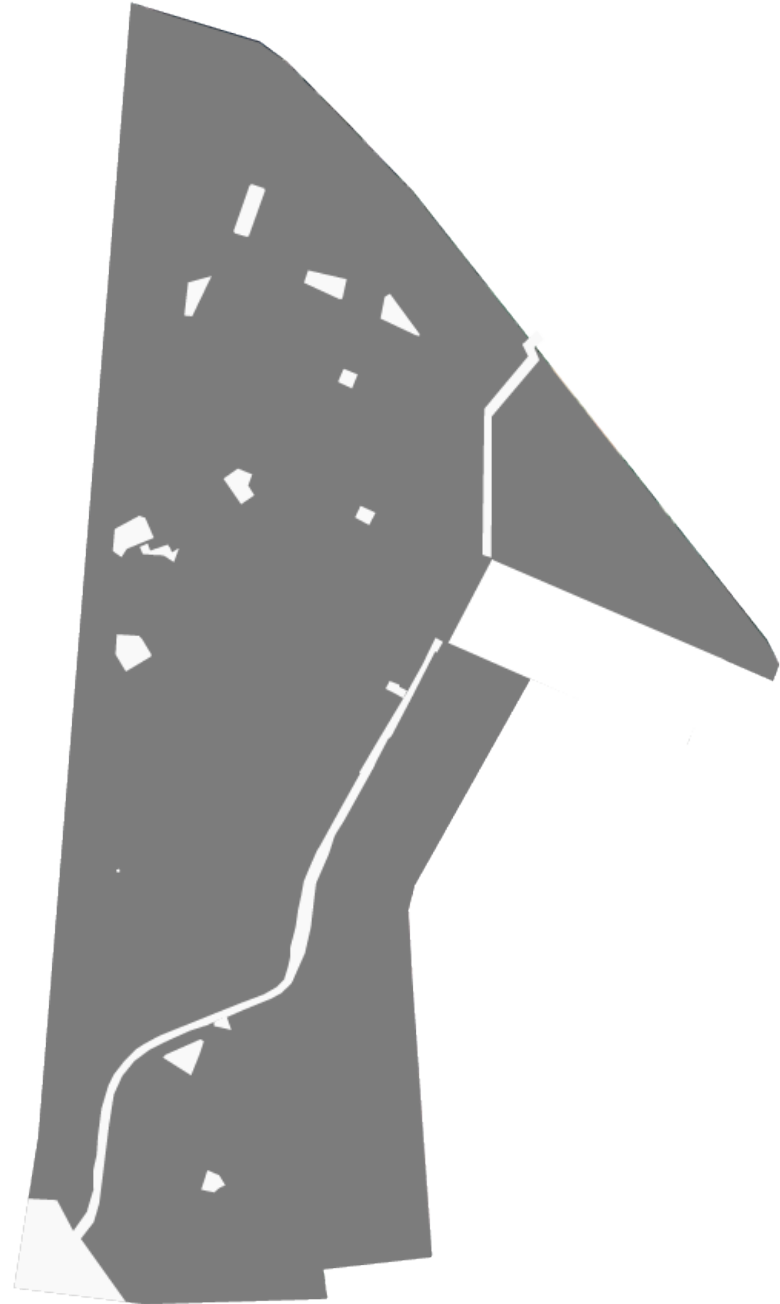


Figure 5.3 -Spaces actually zoned public open space
Source: Author

06 CONTEXTUAL ANALYSIS

6.1 INTRODUCTION

The contextual analysis was done to understand the context within which the Gugulethu Township is situated in. Additionally, the analysis was done at a metro scale to grapple with the concept of understanding public open spaces and why they might be under threat.

A more in depth analysis was done at the neighbourhood scale referred to as the Gugulethu scale in this project. At Gugulethu scale the analysis observed the public open spaces within the area, it observed the movement of people and their interaction with different activities within the space. This analysis was also done to understand the interaction of the community with the public space surrounding the canal and also the movement of the people in throughout the community.

Furthermore, interviews were conducted to understand the communities' view and needs for public open spaces in the area and the suitability of the space surrounding the Lotus River Canal and a sustainable public open space.

6.2 METRO SCALE

URBAN SPRAWL



Figure 6.2 - Urban Sprawl in rural areas
Source: City Alliance News, 2020



Figure 6.1 - Urban Sprawl
Source: Author

This maps illustrates how aggressively urban sprawl has progressed over the last 100 years. This sprawl often means less public open spaces are being left open. This also indicates how quickly a space can be occupied and highlights the importance of protecting these open spaces.

AGRICULTURAL AREAS

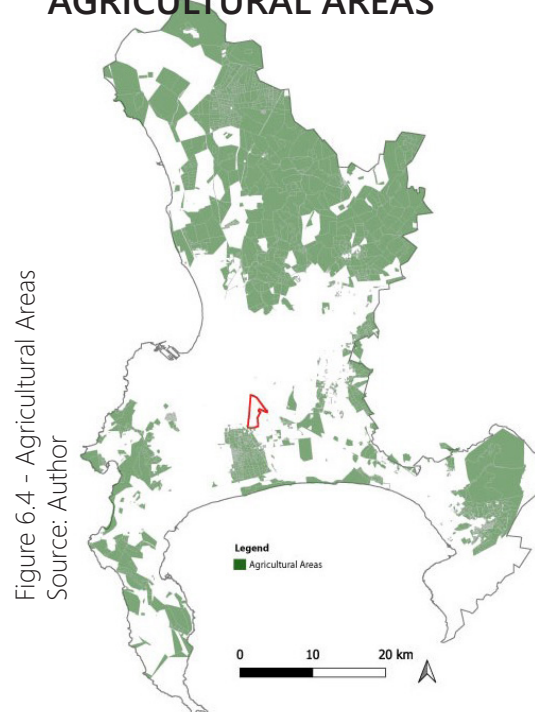


Figure 6.4 - Agricultural Areas
Source: Author

The agricultural map also talks to the urban sprawl map and further indicates of the sprawl has driven agricultural activities to the peripheries. This further strengthens the notion of protecting the open spaces within the city and clearly illustrates the impact of urban sprawl.

CONNECTIVITY

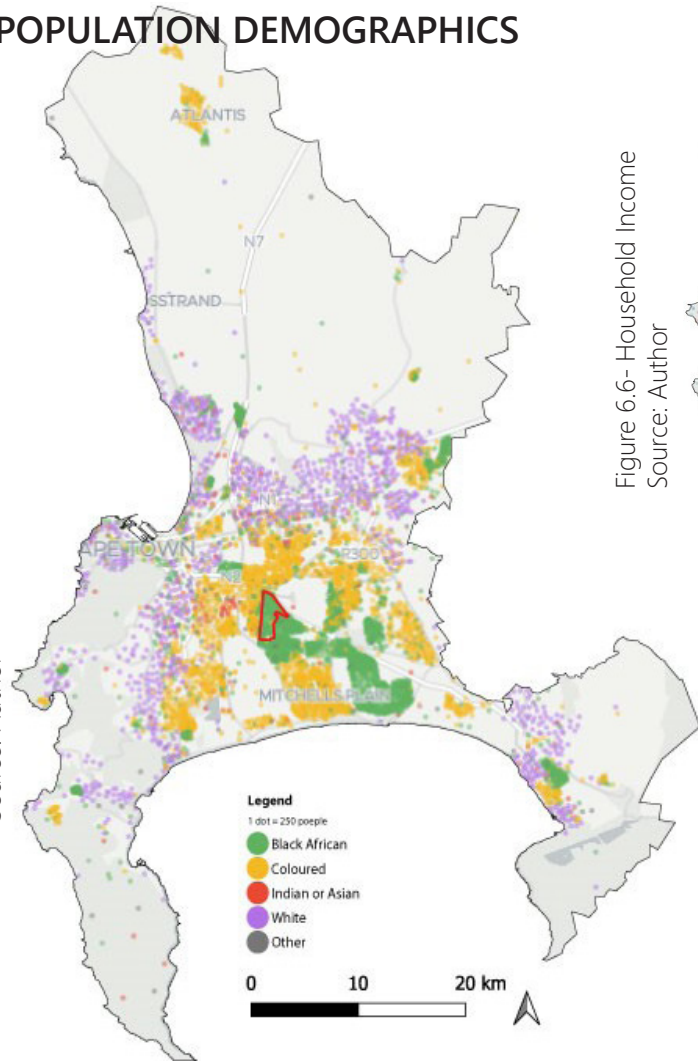


Figure 6.3 - Connectivity
Source: Author

Gugulethu is well connected at a metro scale in terms of road infrastructure. Mainly connected to the city centre by the N2 and also with the Klipfontein and Govan Bheki road. There is railway that runs down the edge of Gugulethu with two train's stops but currently does not operate.

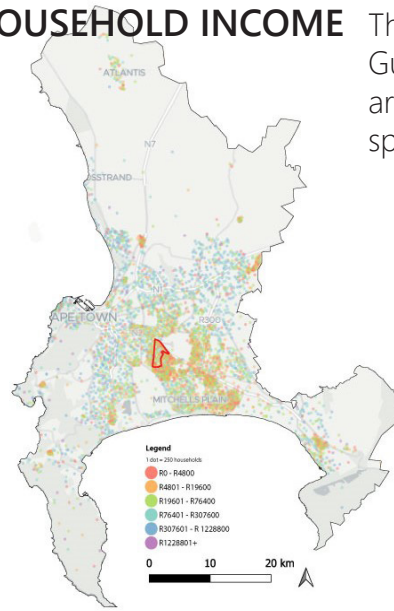
POPULATION DEMOGRAPHICS

Figure 6.5 - Population Demographics
Source: Author



HOUSEHOLD INCOME

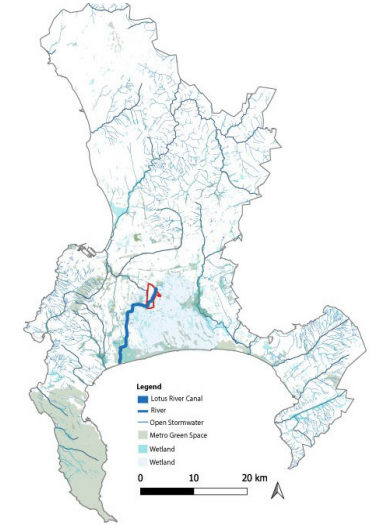
Figure 6.6- Household Income
Source: Author



The map illustrates that the general household living in and around Gugulethu is characterised by having a lower income. Lower income areas often have smaller properties which means small private open spaces which increases the dependency on public open spaces.

BLUE & GREEN SPACES

Figure 6.7 - Blue and green spaces
Source: Author



This maps illustrates less metro green spaces, open storm water and water bodies in the Gugulethu area which is expected from the high density areas. This illustrates the importance of protecting natural resources, open spaces and the cape flats aquifer within this area and why it is important to further investigate the open spaces in such area.

Gugulethu is occupied by a predominately Black African population. From this map is evident that the dots (each representing 250 people) are much more concentrated in the Gugulethu area than the purple dots in the more affluent neighbourhoods. The higher density neighbourhoods tend to have smaller private open spaces due to smaller back yards and are more dependent on Public Open Spaces.



Figure 6.8 - Open Space Inequality
Source: Unequal Scenes

Figure 6.7 - Blue and green spaces

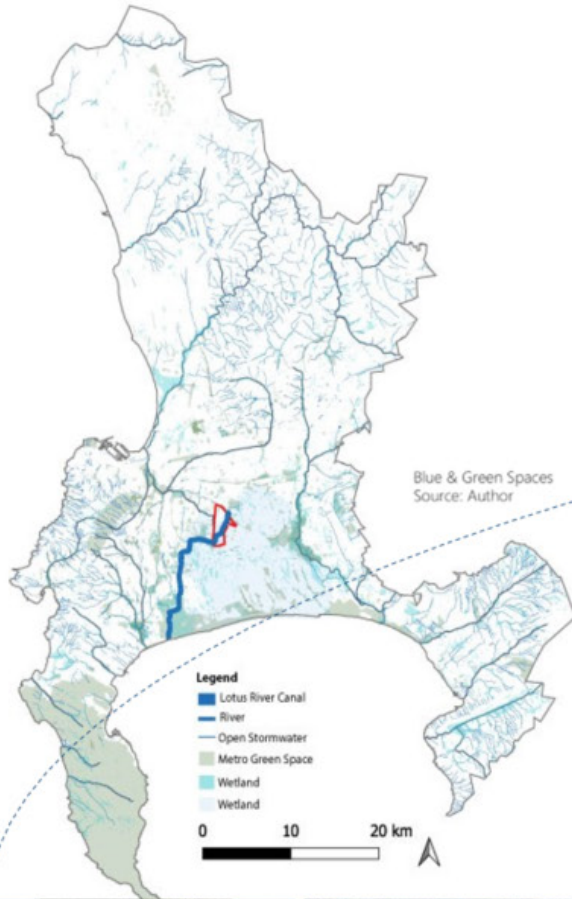


Figure 6.9 - Open spaces along Lotus Canal



Figure 6.10 - Source to sea

0 1 2 4 km

The Lotus River Canal starts just above Gugulethu and ends in the zeekoeivlei dam which runs into the Indian Ocean. Along this area there's lots of open space and potential public open spaces.

6.3 GUGULETHU SCALE



Figure 6.11 - Connectivity
Source: Author

As mentioned at metro scale, Gugulethu is well connected with the N2 passing through its Northern edge. The Klipfontein Road, NY 1 and NY 3 passes through this space and forms part of the structure of this area and can be identified as potential activity corridors. The Govan Mbeki Road also travels through the Southern Edge of Gugulethu. The railway through the western boundary of Gugulethu.



Figure 6.12 - Transport Routes
Source: Author

Golden arrow buses, taxis and amaphela operate in this area. Klipfontein Road, NY1, NY3, NY5 and Govan Mbeki Road are seen as the main routes with the most bus stops. Stops are often found near intersection with these roads as well as with the Lotus River Canal. This could contribute to the need for movement along the canal.

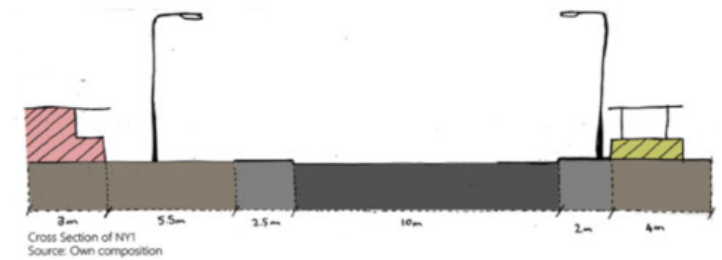


Figure 6.13 - Collage of street conditions



Figure 6.14 - Strava Heat Maps
Source: Author

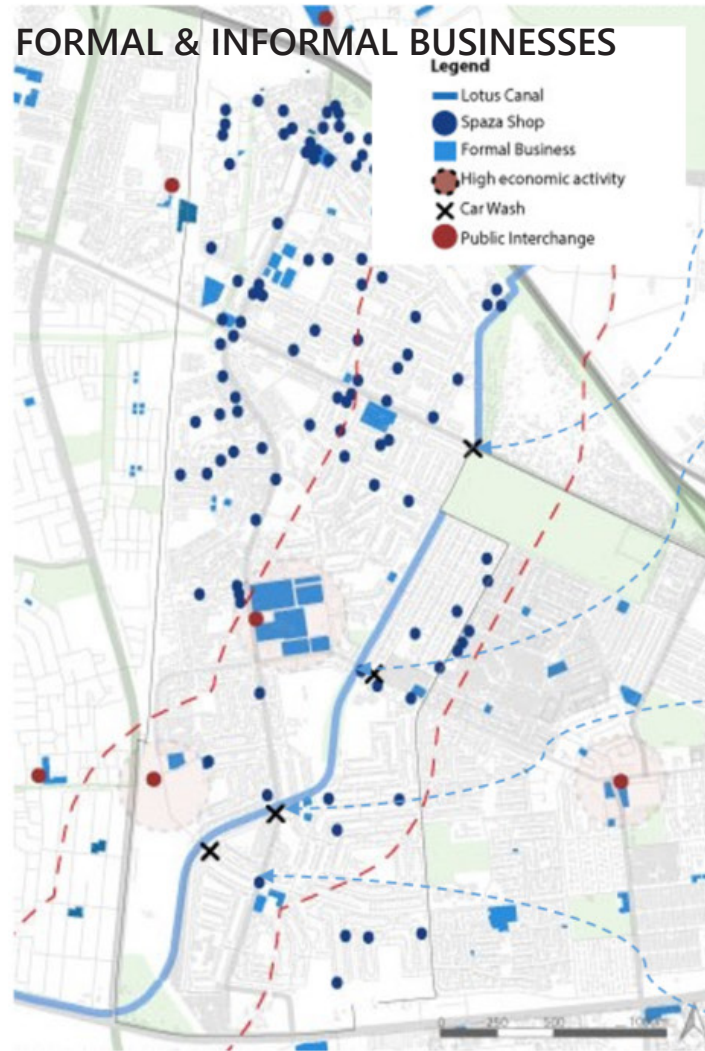


Figure 6.15 - Formal & Informal Businesses
Source: Author



Figure 6.16 - Business need identified along the canal area
Source: Google Maps

To try to understand the movement of individuals in this area it was important to map the economic activities. The Mall and surrounding informal businesses, the Nyanga Junction and the Nyanga Taxi rank acts as primary nodes of economic activity. The routes in between is therefore activated as activity corridors and causes lots of movement of people along the NY1 and NY3. Where many of the roads main road cross the Lotus River Canal there is also an activation in terms of businesses. This is also where the car washes are found which often acts as a pausing space and a place of economic activity. This highlights the Lotus River as a connector of these spaces and a possible movement corridor between these activity spots.



Figure 6.17 - Social Facilities
Source: Author

There are many social facilities scattered around Gugulethu with many schools situated along the Lotus River canal. Children walking to school are very likely to move across and along the Lotus River Canal to get to school. This highlights the potential of the Lotus River Canal as a mobility corridor and the importance of ensuring safe public open space especially for children.



Figure 6.19 - Context of these spaces
Source: Google maps & Author

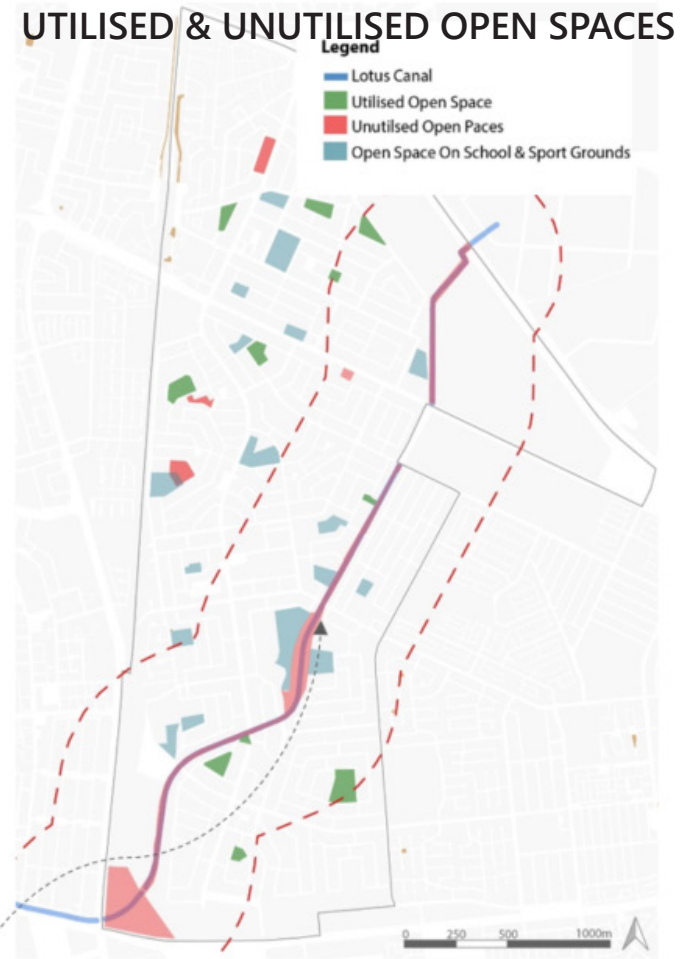


Figure 6.18 - Open Spaces
Source: Author

The map illustrates the various open spaces identified in Gugulethu. There are a few utilised open spaces but they are disconnected and often enclosed as indicated by green areas on the map. The red spaces are the only spaces that were identified as possible potential public spaces to be utilised. This highlights the potential of the Lotus River Canal as a potential public open space and a connector system throughout Gugulethu.



Figure 6.18 - Open Spaces
Source: Author

We drop down scale, to look at the Lotus Canal and how the space looks. It's quite a wide space, about 27 metres wide between the houses which opens up slightly along the fields. Very back ended, yet lots of potential for a sustainable public space.

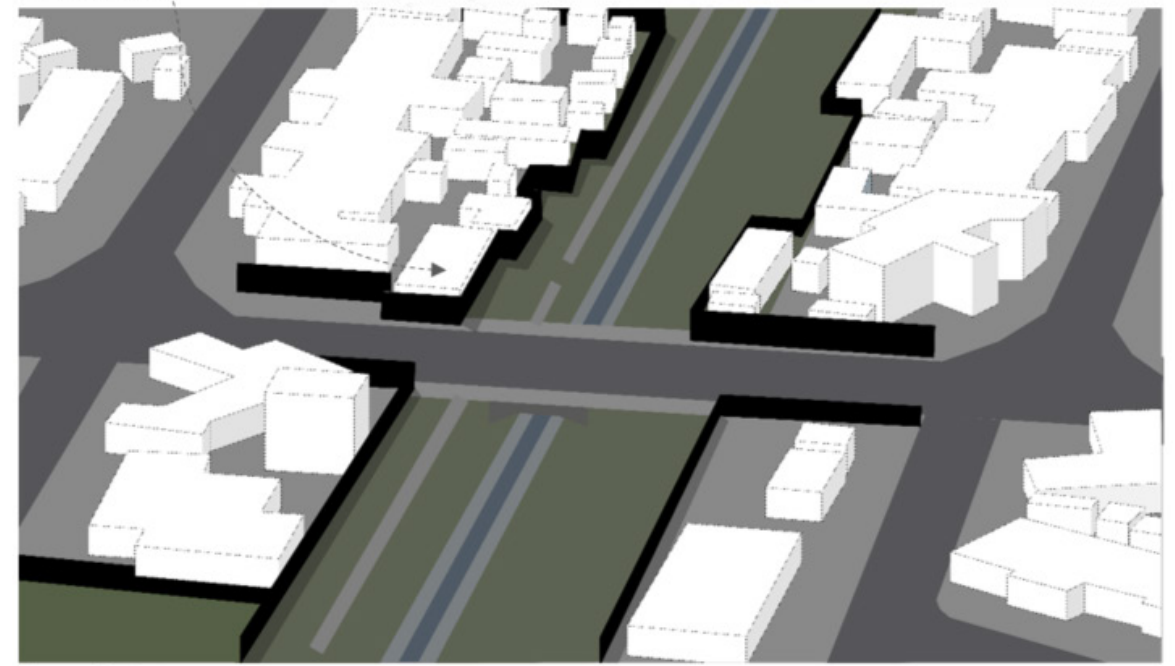
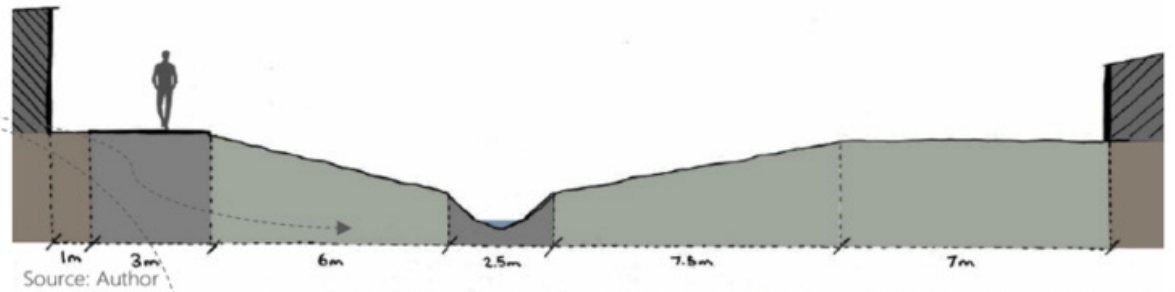


Figure 6.20 -Collage showing the conditions of the lotus canal and surroundings
Source: Author

6.3 INTERVIEWS

A - COMMUNITY ACTIVIST

Figure 6.21 - Community Activist
Source: Author



Xolile is an activist and community development member who participate in process which seek to empower and change the way of life and this township of Gugulethu.

B - COMMUNITY MEMBER

Figure 6.22 - Community member
Source: Author



Nonsika is a person who is passionate about her community, helping those in need and she advising people on the right channels specially women and kids. Her wish is to one day open a shelter to take care those are in need and give them skills so that they can take care of themselves in future.

C - ENVIRONMENTAL PRACTITIONER

Figure 6.23 - Environmental Practitioner
Source: Author



Vivienne Thomson is the founder and lead environmental consultant of Over the Moon Consulting. She holds a Bachelor of Science in Zoology from the University of Cape Town and is working towards her Master's in Environmental Science. Vivienne has over 23 years of experience as a environmental assessment practitioner. She has a passion for the environment and for people. She currently works with The Umvoto Foundation with specific focus on the Lotus River Canal.

The interviewees were asked seven questions to try understand the concept of public open spaces in this area. The interviews were also conducted to understand the current state of the public open spaces, the issues faced in public open spaces and the needs of the community. These are summarised below.

Key words and themes are highlighted below that will be used to inform the design process. Red words are issues identified and green words are possible solutions or strategies identified by the interviewees.

1. What do you think is the biggest issues with public spaces in this area?

A-Critical challenge of our public spaces are **lack of positive usage** (for opportunities), **waste dumping, crime high zones** and many more. B- **Dumping** is a biggest issue in our communities. C-**Ownership** is the biggest issue whether that being community taking ownership of the public spaces or the authorities. When you are in an impoverished community the **value of such spaces are not often realised** or understood by the community. How these spaces are **maintained** by the city of Cape Town are also not always consistent or doesn't happen regularly.

2. Do you have any recommendations on how these problems could be addressed in this area?

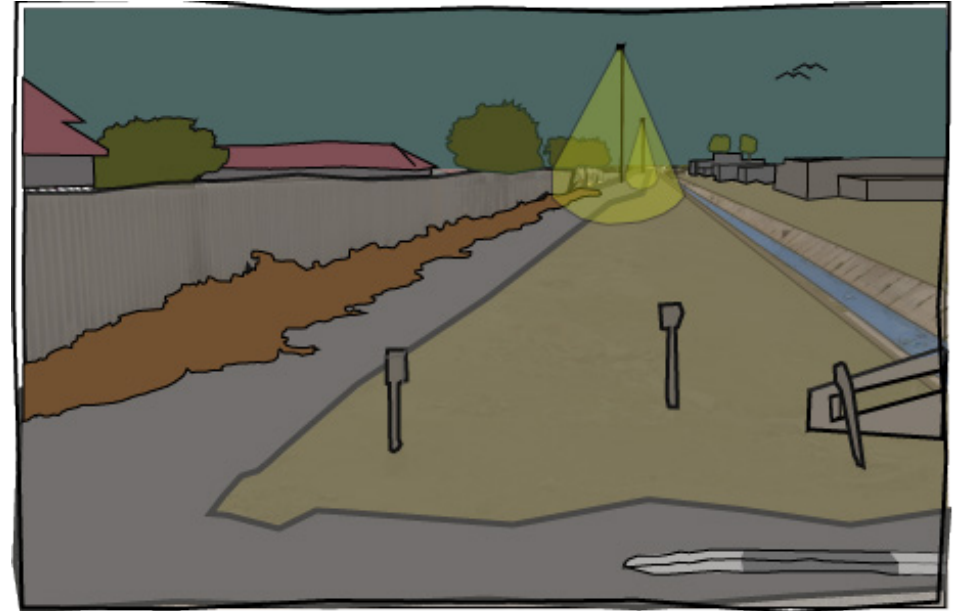
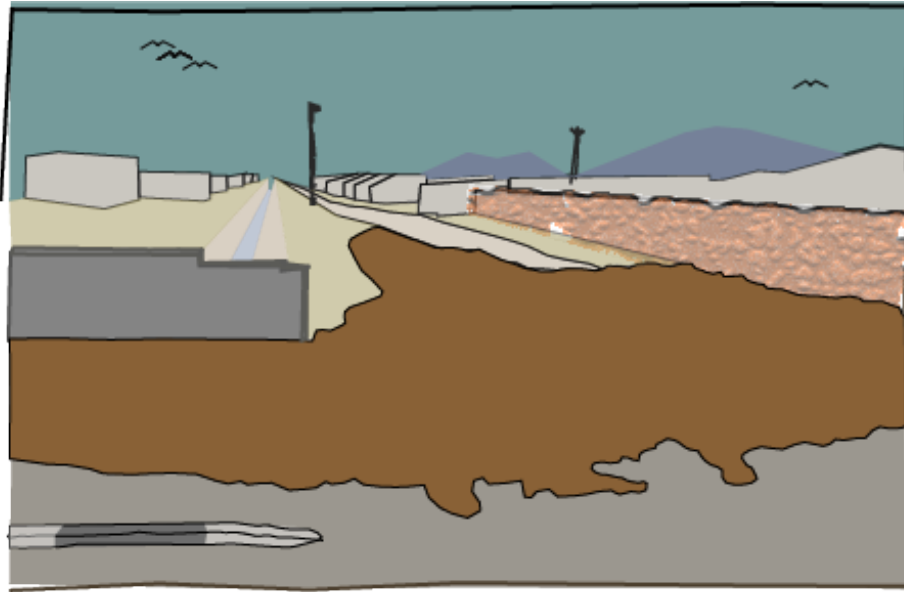
A-**Public education, multi purpose recreational facilities** and installation of **security systems** and modernize our public spaces. B- It can be addressed by people who stays around it that should be educated about the danger of dumping in a public space. C-Another issue is **education** of the community members and coordination with City of Cape Town, NGO and the community. This must happen not just when NGOs are currently operating but should happen along the length of the canal for a truly sustainable environmental option. **Education** in terms of what can be done, skills development, skill transfer, sharing of ideas.

3. Are you satisfied with the amount of public green spaces in this area?

A-I am not satisfied because we lack so much as we have huge **lack of greening** in our area, **No greening** in most many parts of Gugulethu. B- We do have some public spaces in Gugulethu. It gives our community places for adults and children to socialise. C-There seems to be a fair amount of open space that is being **underutilised** and should be utilised but also **re designed** and engineered to be more **resilient to flooding** (climate change resilience). If this space is re designed or engineered there would also be better **ground water recharge, storm water attenuation** and safety will improve for community members being expose to the canal.

4. Do you think a green space is a viable option along the canal area?

Yes, because it will enable the area or space to look more of a **healthy** and **empowering**. Yes it is that is where people can have **fun, kids play-ground**. We can also use it for **events** like **weddings** and funerals. As we do not have much spaces in our houses. C-Yes!



Lack of positive usage waste dumping High crime zones

Unutilised Lack of ownership Rubbish Unsafe Dirty

Dangerous Disregarded Polluted Water Dumbing

No greening not valued

Figure 6.24 - Collage summarising the issues identified through the interviews
Source: Athor

5. In your opinion, how can we maintain these areas effectively?

A-An ongoing sustainable investment and ongoing **public education**. B- The community and municipality must work **hand in hand** to ensure maintenance in these areas. C-There needs to be **collaborations** and cooperation between different parties. Some entities are already operational on section of the canal. There should be **training and awareness** so that there is buy in of the community so that people take **ownership** of it and actually maintain the area of the canal that is closest to them. Mobilisation of community **action groups** where there NGO may not be active along the canal in conjunctions with professionals, i.e. engineers, urban designers, town planners.

6. In your opinion, what makes a public open space work?

A - A space the provides dignity and **healing** to any area and also **beautifies** an area. B-A Space that is **well looked** after, **safe** and **clean all the time**. C-Public open space works when there is **pride** in that public space and the **value of that space is understood** by the community. In environmental management we call it **sense of place**. There needs to **ownership** and a **sense of place** that fits in with the whole environment and landscape of the community.

7. In your opinion, what elements needs to be included in a public open space?

A- **Technology, security system** and **fencing**. B- **Caretakers**, communities, ward councilors, work **hand in hand** to ensure that there is **no dumping** and to **keep it safe**. C-**Aesthetics**, potential for **vegetable gardens**, potential for **play areas, accessibility walkways** and **safe crossing**, areas for ground **water recharge, litter reductions** (possible nets – but then removal is crucial) and **recycling opportunities** along canal.

07 DESIGN DEVELOPMENT PHASE

7.1 DESIGN PRINCIPLES

The following design principles were derived from the theoretical investigation and will be used to guide the design strategies and interventions.



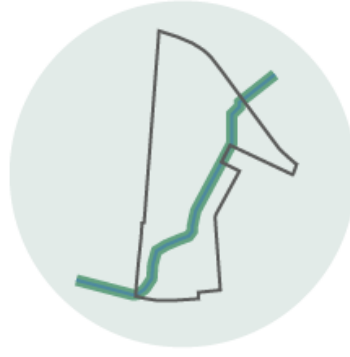
Inclusivity

Public opens spaces must be open and inviting to everyone. Infrastructure and facilities should also cater for all ages.



Access & Connectivity

Public opens spaces must be centrally located and easily accessible. They should be in 10mins walking distance and link street and open spaces. (Brown, Hanna & Holdsworth, 2017) (Montgomery County Department of parks, 2018).



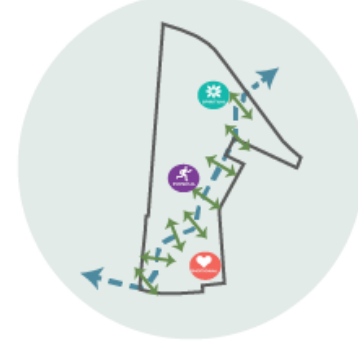
Urban Ecology

Public opens spaces must support the social and environmental well-being of the greater community. Encourage environmental stewardship.



Sense of community

Public opens spaces are the physical, social, cultural and environmental 'heart' of communities. They should be the places of community identity, value, pride and social interaction. They must be attractive, soft and engaging with a range of experiences for gathering, relaxation and recreation (Montgomery County Department of parks, 2018).



Healthy Living

Public opens spaces should encourage physical activity and wellbeing. These spaces should provide recreational opportunities to all members of the community.

Figure 7.1 - Design principles
Source: Author

7.2 DESIGN DEVELOPMENT

The concept diagrams highlights the key concepts identified in the contextual mapping exercise. These concept diagrams will inform the concept diagram that will inform the framework and neighbourhood scale.

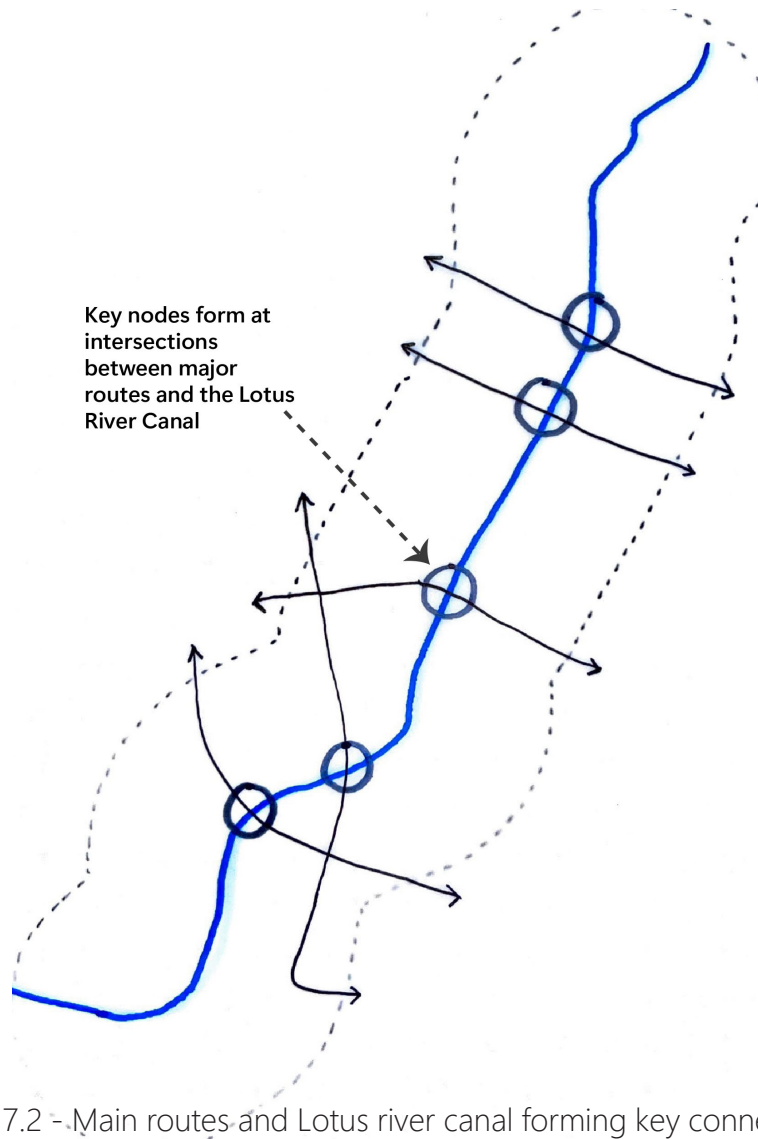


Figure 7.2 - Main routes and Lotus river canal forming key connectors
Source: Author

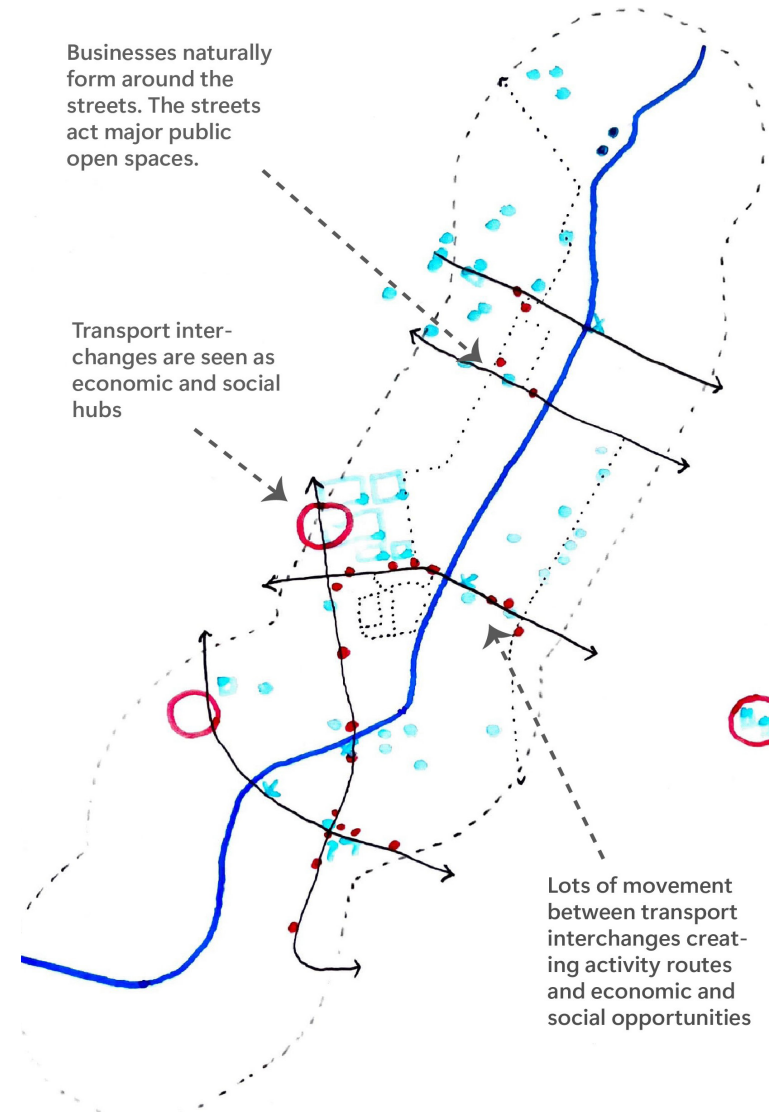


Figure 7.3 - Formal and informal business found within the area
Source: Author

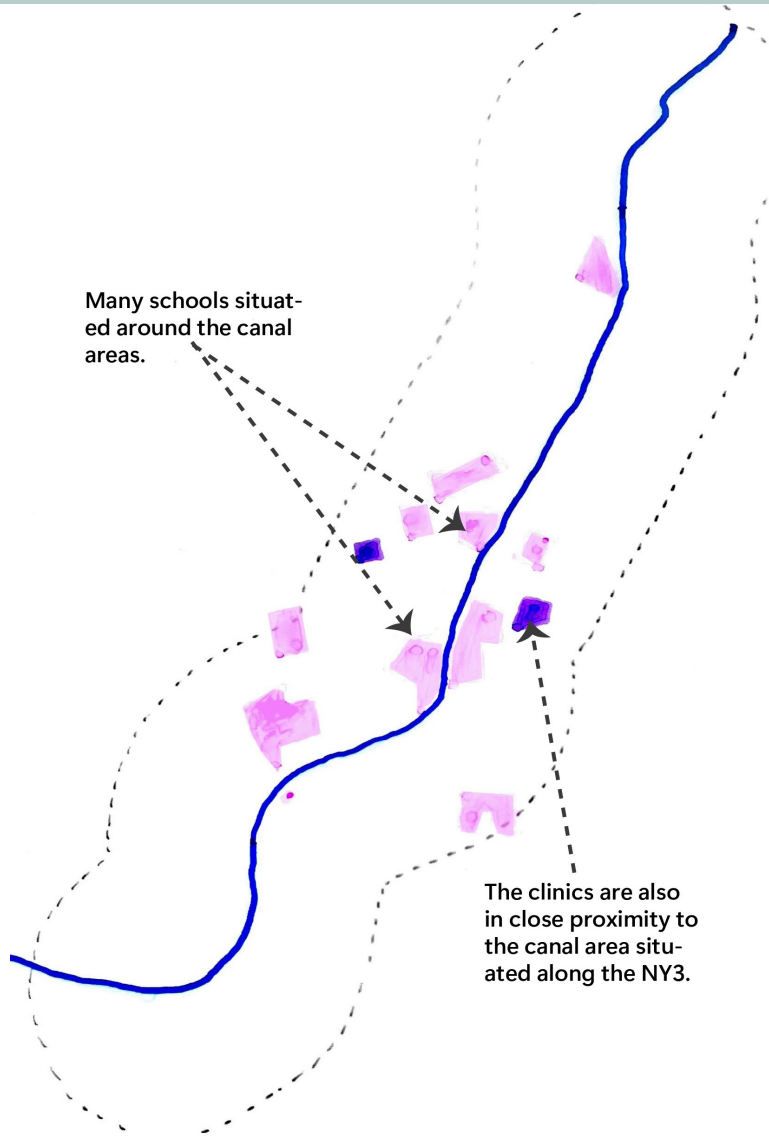


Figure 7.4 - Social Facilities
Source: Author

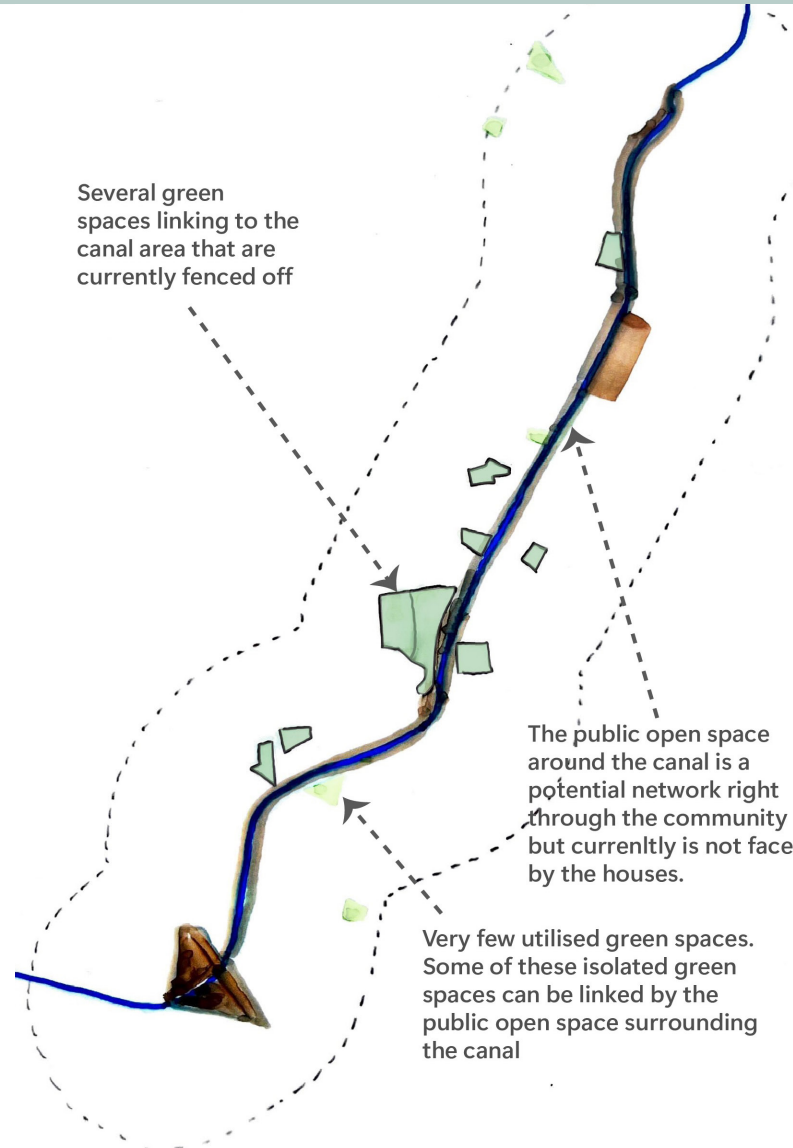


Figure 7.5 - Public open spaces
Source: Author

The concept diagram is formed by combining all the context mapping that was do which starts to highlight the opportunities and costs that informs the development of the design proposal. It starts to highlight major nodes, minor nodes and possible points of intervention.

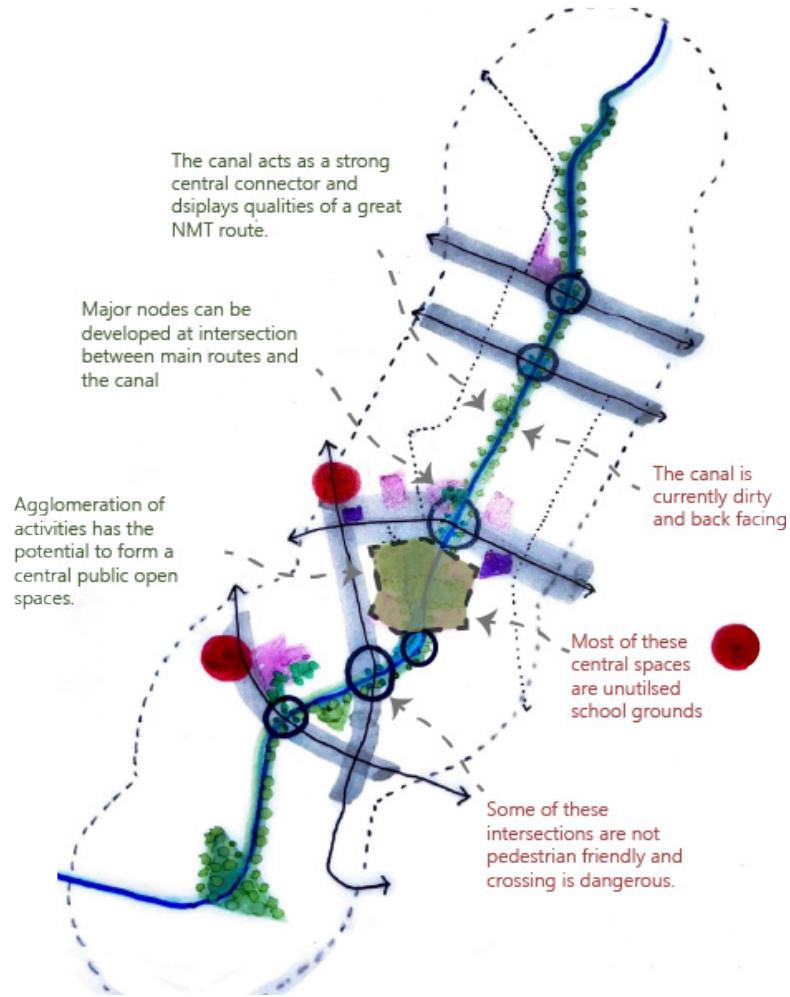


Figure 7.6 - Combining the concept diagrams
Source: Author

CONCEPT DIAGRAM

LEGEND

- Canal
- Major routes
- Open spaces
- Enclosed open spaces
- School
- Unutilised School Fields
- Clinic
- Node at Intersection with Major Road
- Node at Intersection with Minor Road
- Central Hub of Activities
- Activity Street
- Secondary Movement Routes



Figure 7.7 - Concept diagram
Source: Author

7.3 DESIGN STRATEGIES

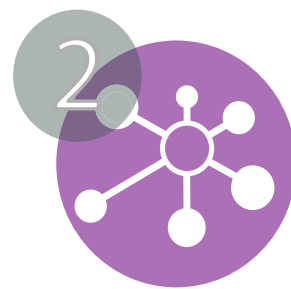
The strategies identified below will be implemented within the design proposal and includes activating the lotus river canal areas as a central non-motorised transport network, creating activity spots along this network, creating a central public space and the restoration of the Lotus River Canal to a more natural form.

The strategies used below was formed through the theoretical investigation as well as the contextual analysis which highlighted the opportunities and constraints in this area. Each strategy aims to follow the design principles identified in this project.



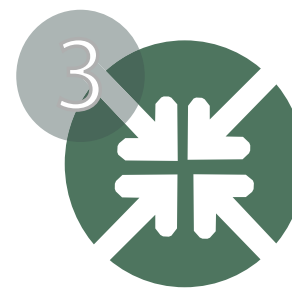
Canal as NMT spine

- Providing pedestrian and cycling infrastructure on both sides of the river throughout Gugulethu.
- Provide easy and safe pedestrian movement along the river with less obstacles and better safety from cars.
- Opening up residential living space towards the river
- Planting of trees to be incorporated to provide shade, beautification and safety.
- Lighting and public seating to be incorporated throughout river areas for safety, comfort and to encourage social interaction.
- NMT network to be used for local Gugs Park Run and to form part of the annual Gugs 10km road race.
- Use the river area as a network that connects several public open spaces and social facilities.
- Connect with safe routes to several schools that surround the canal area
- Allow crossings at least every 200m for accessibility and network capabilities



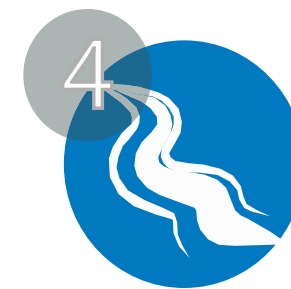
Activity Spots

- Develop nodes where the river is crossed by roads as needs for economic and social activities have been identified here.
- Creating active spots along the Lotus River to accommodate the needs of the community in a more formal manner whilst providing a sense of safety through gathering of people and activities along the way.
- Each node should be uniquely designed to relate to its surroundings, edges and needs.
- A cluster of activities will be encouraged in these spots.



Central Public Space

- Multifunctional and mixed use space that provides social, economic and environmental benefits to the community.
- Opening up spaces that are currently fenced in and underutilized.
- Creating a recreational hub for the whole Gugulethu community and also to attract outside economies in the form of visitors and tourists.
- A central landmark will be incorporated to be used to provide direction and a sense of safety. Recreational facilities will be provided to the public as well as the schools.
- Security measure will be put in place to allow for a safe public park.
- Activity nodes to feed the central park area.
- Afterschool clubs and urban agriculture will be encouraged.



Lotus River Restoration

- River restoration to be incorporated at all stages of strategies where possible.
- Bike a Bag and Living Lotus programs to collect rubbish and clean the river.
- Education will be provided by these programs at the Bike a Bag and Living Lotus sites as well as at schools and at the afterschool club.
- Restoring the Lotus River canal to a more natural state by opening up the canal area and slowing down the flow of water by incorporating and the rehabilitation of local biodiversity.
- Restoration by slowing down stream movements on points along the river.
- Planting natural vegetation to allow natural filtration, breeding space for animals as well as grazing for animals.
- Form Gugs Lake in the main park area where fish life can be introduced, water can be used for irrigation and allow for recreational activities.















Figure 7.8 - Design Strategies

Source: Author

7.4 FRAMEWORK

The framework allows for sustainable public open space network with a strong NMT backbone that feeds into several multifunctional spaces as shown below to ensure inclusive spaces, accessible spaces, healthy living, provide a sense of place and community whilst protecting the ecology of the natural system.

LEGEND

-  Canal
-  Primary NMT Route
-  Public Open Space
-  Activate Edges (Relaxed Zoning Regulation)
-  Secondary NMT Route
-  Safety Route
-  School Facility
-  School Fields
-  Activity Nodes
-  Secondary Activity Node
-  Public Transport Interchange
-  Major Node (Gugs Central Park)
-  Walkable Distance to Nodes
-  Bike a Bag Route

The framework proposes a sustainable public open space network. With a strong and NMT backbone along the canal area that feeds into the several multi-functional spaces in the form of activity nodes and secondary activity nodes and also propose a large major central node in the form of Gugulethu Central Park. Further proposals include a bike and bag route initiative along the NMT. The NMT link to the rest of the community by developing safe routes from the river NMT to the surrounding schools. As well as secondary NMT routes that were identified as needs in the context mapping.

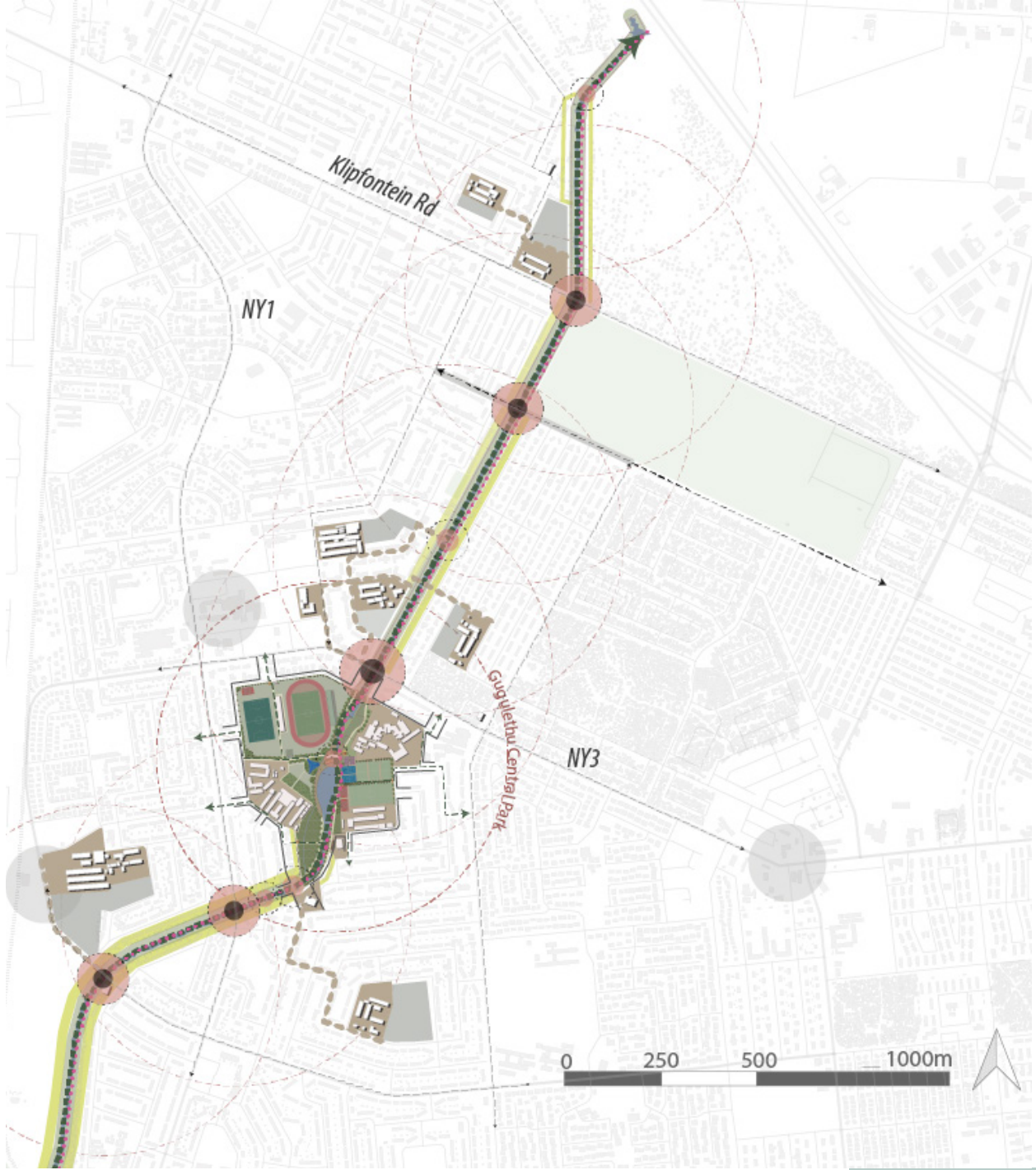


Figure 7.9 - Framework at neighbourhood scale
Source: Author

FRAMEWORK

Figure 7.9 - Framework at neighbourhood scale



In terms of the NMT network, it's proposed that pedestrian infrastructure is implemented with lighting trees, bins and then active edges in the form of backyard dwellers living towards the river as well as residential moving to the top and business to be located on the lower floor that opens up towards the river. And then also the Lotus River restoration by opening up the canal into its natural state. Implementing. Local plant species as well as rocks and soils to ensure natural flow and purification of the water.

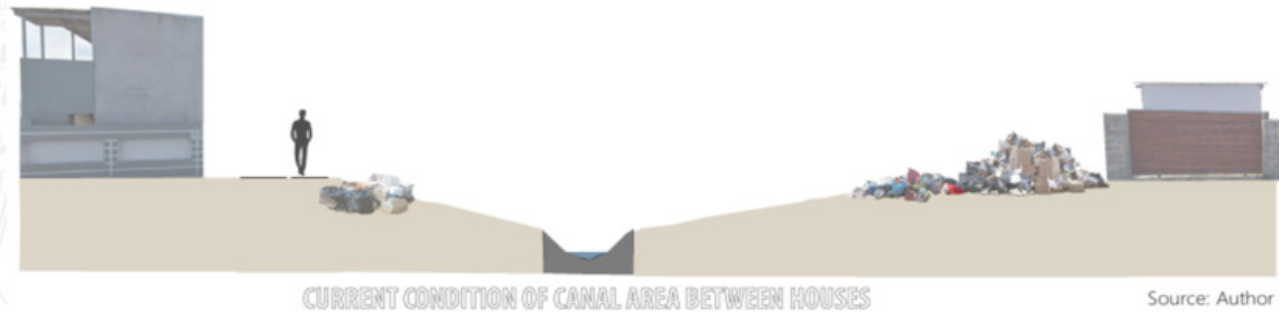


Figure 7.10 - Canal conditions before proposed interventions



Figure 7.11 - Canal conditions after proposed interventions

FRAMEWORK

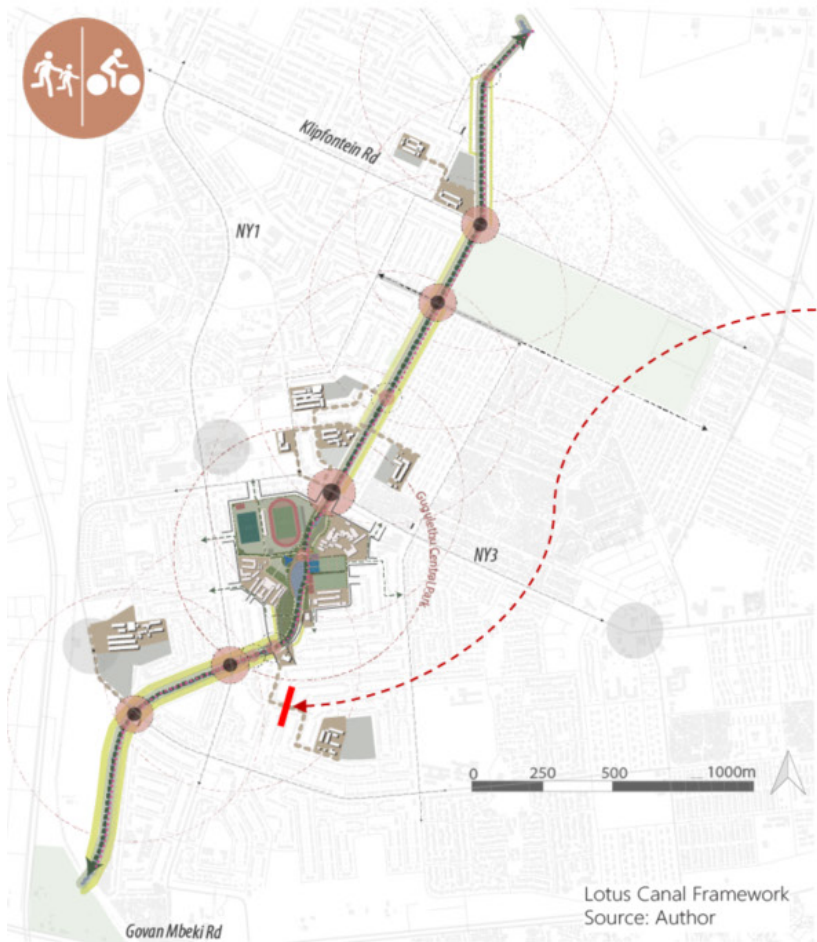


Figure 7.9 - Framework at neighbourhood scale
Source: Author

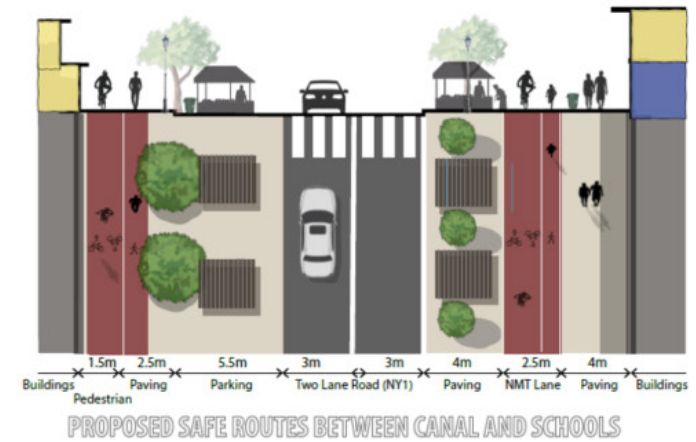
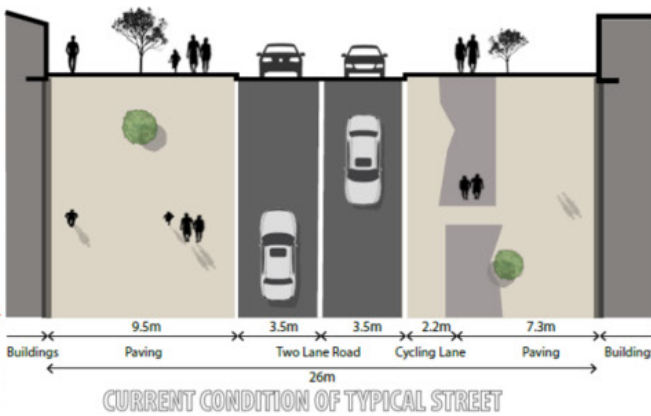


Figure 7.12 - Proposed safe routes
Source: Author

Source: Author

And in terms of the connection outward, the safe routes are proposed as follows. By also activating the edges, providing cycling and pedestrian paths, markets along the routes, and also lights and activation to allow the sense of safety in this area along with safe crossings.

7.4 PRECINCT PLAN

Dropping down a scale to the precinct or Central Park plan. The strong and empty backbone can clearly be seen with these activity nodes along the river that bleeds out into these spaces.

- | | |
|--|--|
| 1 NMT routes with trees and solar pedestrian lights | 17 Running Track |
| 2 Litterboom | 18 Cricket nets |
| 3 Active edges living on to the river | 19 School community gardens |
| 4 Information station, walking tours and bike rentals | 20 Central landmark - Gugs Park Library, after school club and computer hub |
| 5 Formal business space with temporary multipurpose space | 21 Gugs river broadwalk |
| 6 Taxi Stop with market spaces | 22 Gugs Market Bridge |
| 7 Security tower with free wifi and viewing deck | 23 Paddle courts |
| 8 Car wash Spaces | 24 Tennis courts |
| 9 Bike a Bag & Living Lotus initiative hub | 25 7 aside multipurpose courts |
| 10 Pedestrian bridge | 26 Urban agriculture |
| 11 Grass amphitheater and multipurpose retention pond space | 27 Tool Shed |
| 12 Netball & Basketball courts | 28 Safe crossings |
| 13 Astro pitch | 29 Park gateways |
| 14 Stadium administration & Gugs running club headquarters | 30 Safe Routes |
| 15 Gugs Stadium | 31 Informal market space or farmers market |
| 16 Seating stands with rear as wall art location | 32 Agricultural shop |

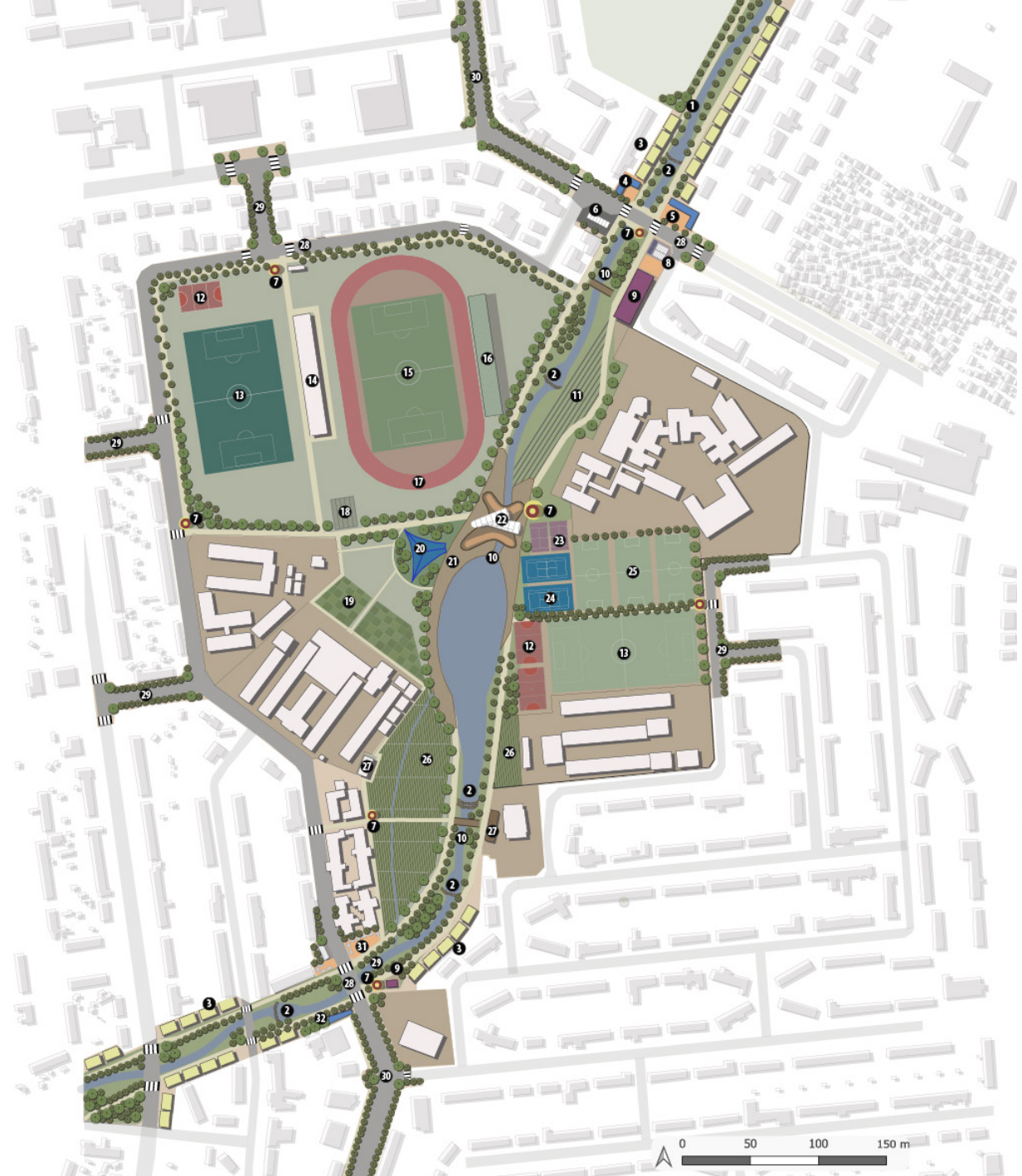


Figure 7.13 - Framework at precinct scale
Source: Author

The precinct plan was broken up into zones to structure this spaces, namely an NMT and River zone, Activity Spot zone, Gugs Stadium zone, Central node zone, school sports zone and Urban Agricultural zone, which are very much interconnected and speaks to the edges.



Figure 7.13 - Framework at precinct scale
Source: Author

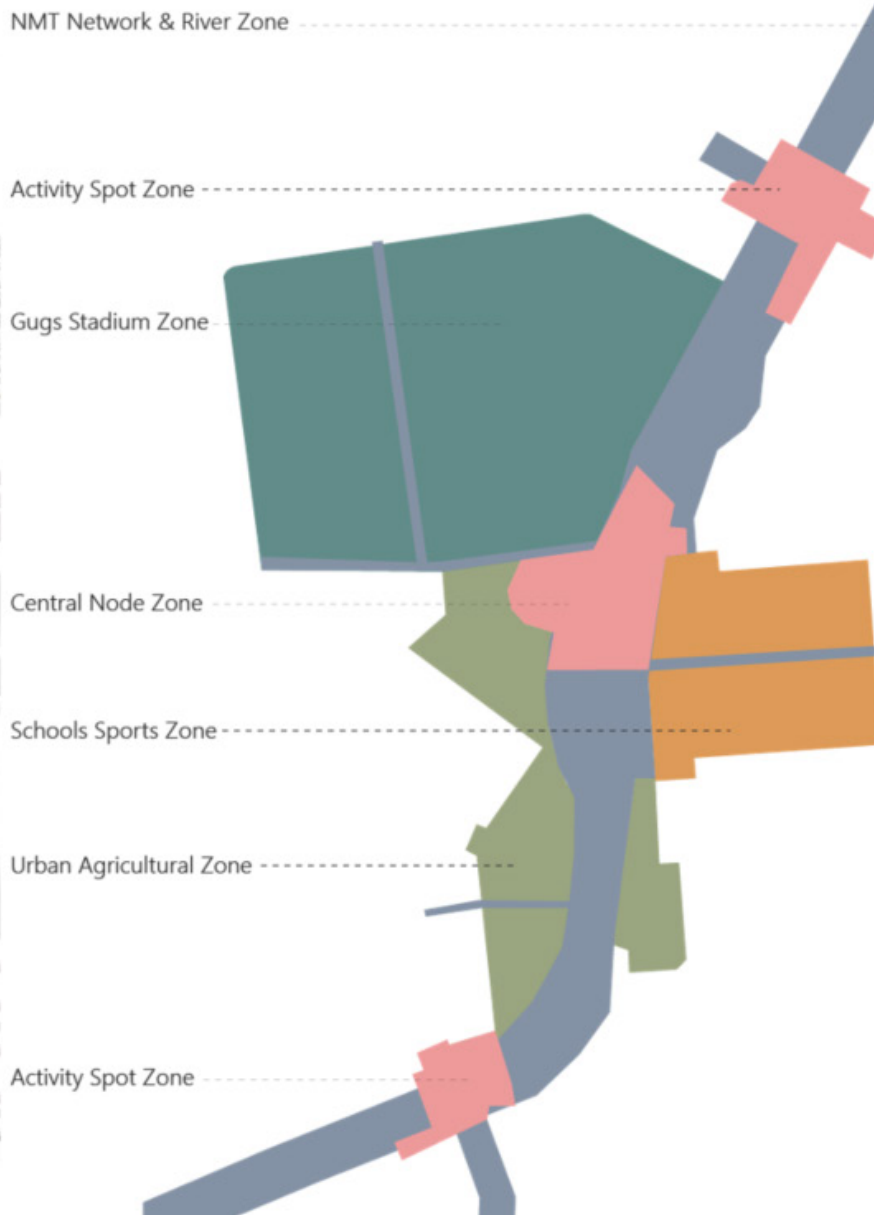


Figure 7.14 - Precinct zones
Source: Author



Figure 7.15 - Concept hand drawings
Source: Author

Central Park Zone

In terms of the main central node, a Central Park Market bridge is proposed. This acts as a central gathering point and anchor to the NMT network. Furthermore, the Park Library, which consists of an after school club as well as a computer hub safely nestled between all these activities, including the three schools. Further acts as a landmark or a central landmark. Security and a public viewing point is also included in this area. This includes opening up the river into a dam where by plastics and rubbish is caught under the bridge by a litter boom ensuring a clean recreational potential area.



Figure 7.13 - Framework at precinct scale
Source: Author

Figure 7.16 - Collage showing before, after and precedents of proposed interventions in the central park zone
Source: Author

Activity Spot Zone

It's quite clear that there is needs for this spots in these areas. If you look at the space below, the car wash is located next to the canal. In these areas I propose formal and informal business spaces, car wash spaces, secondary taxi stops, security viewing tower as well as bike bag Initiative. This initiative uses the NMT routes to collect bags and take it back to the hub where these recycled materials are used to make products and are sold at this shop indicated by the purple buildings.



Figure 7.13 - Framework at precinct scale
Source: Author



Figure 7.17 - Collage showing before, after and precedents of proposed interventions in the activity spot zone
Source: Author

Gugs Stadium Zone

The gugs stadium zone is the home of the gugs running club, where I propose A stadium with an athletic track and possible regional football location.



Figure 7.13 - Framework at precinct scale
Source: Author



Figure 7.18 - Collage showing before, after and precedents of proposed interventions in the gugs stadium zone
Source: Author

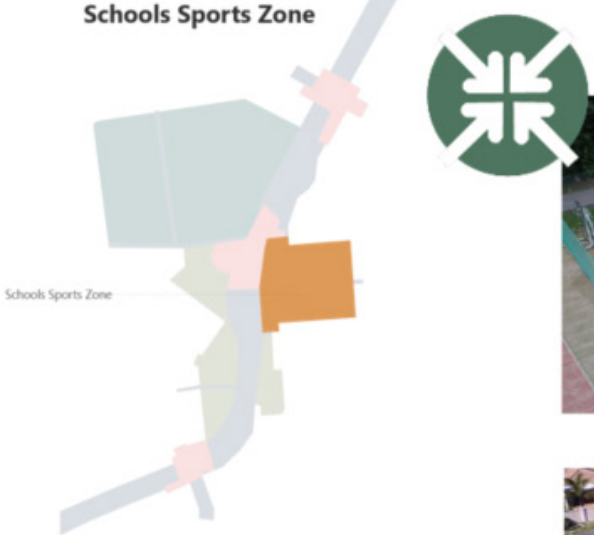
School Sport Zone

The school sports zone proposes a cluster of sports fields that can be used by the school during school hours and also by the public after school hours and has a central security access point. Which was previously completely closed off.



Figure 7.13 - Framework at precinct scale
Source: Author

Schools Sports Zone



Current



Figure 7.19 - Collage showing before, after and precedents of proposed interventions in the school sport zone
Source: Author

Precedent



Source: CIS Martin



Source: Syn Sports



Source: American Padel Pro

Urban Agricultural Zone

Urban agricultural zone includes urban farming as well as community gardens. Space for grazing is also allowed, which is a need in this community. This space also to allow schools to teach children about farming and planting. This need was identified by the existing gardens located next to the skills school.



Figure 7.13 - Framework at precinct scale
Source: Author

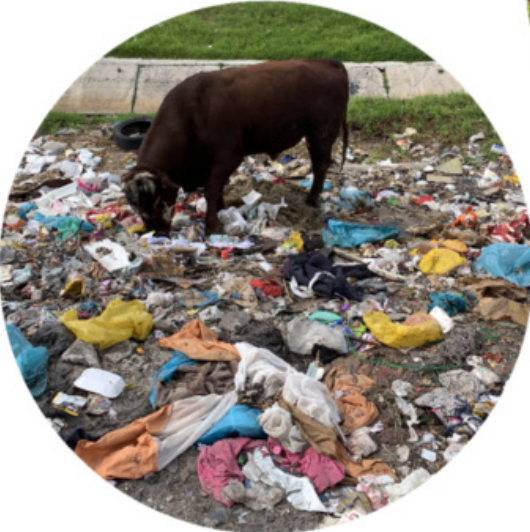
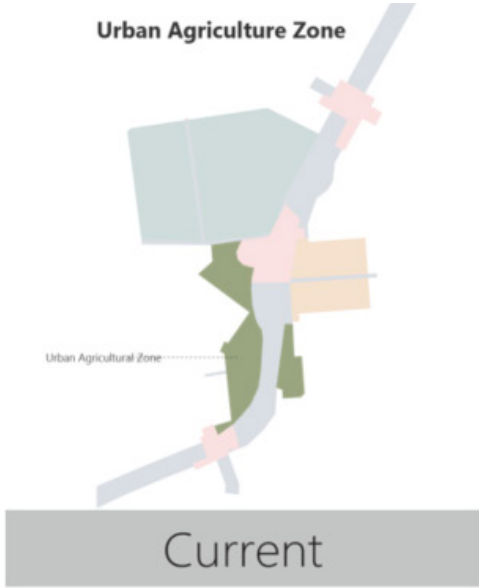


Figure 7.20 - Collage showing before, after and precedents of proposed interventions in the urban agricultural zone
Source: Author

Precedent



Source: Ecosystem United

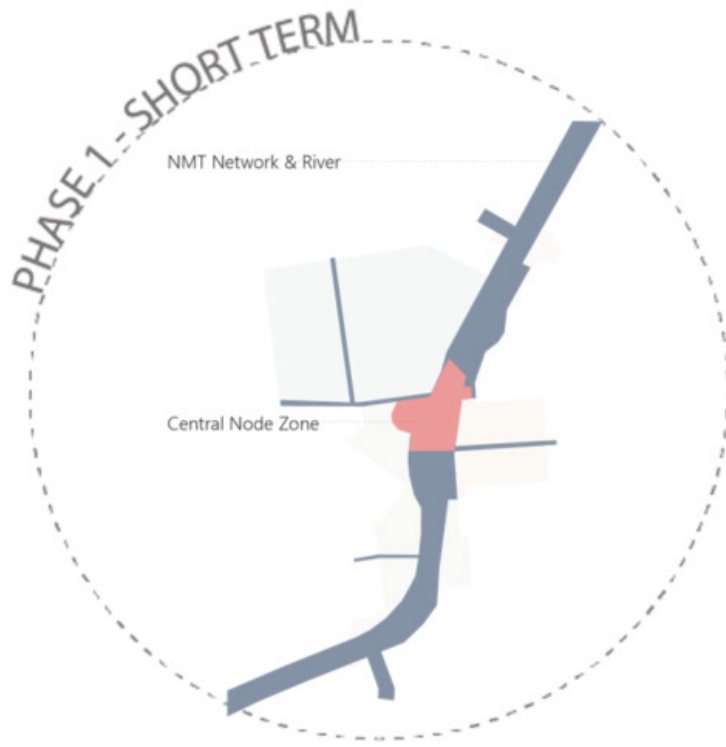


Source: Veg Growers News

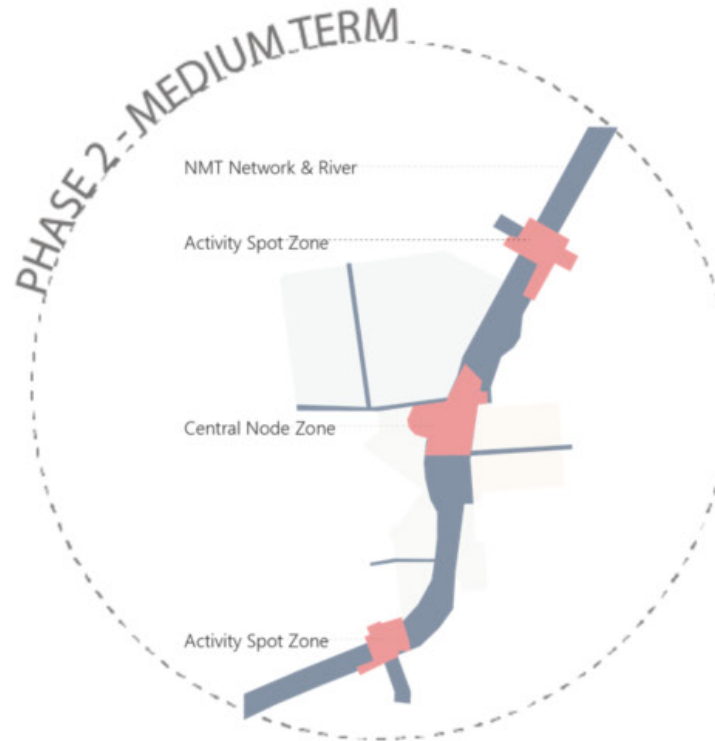


Source: Theran Times

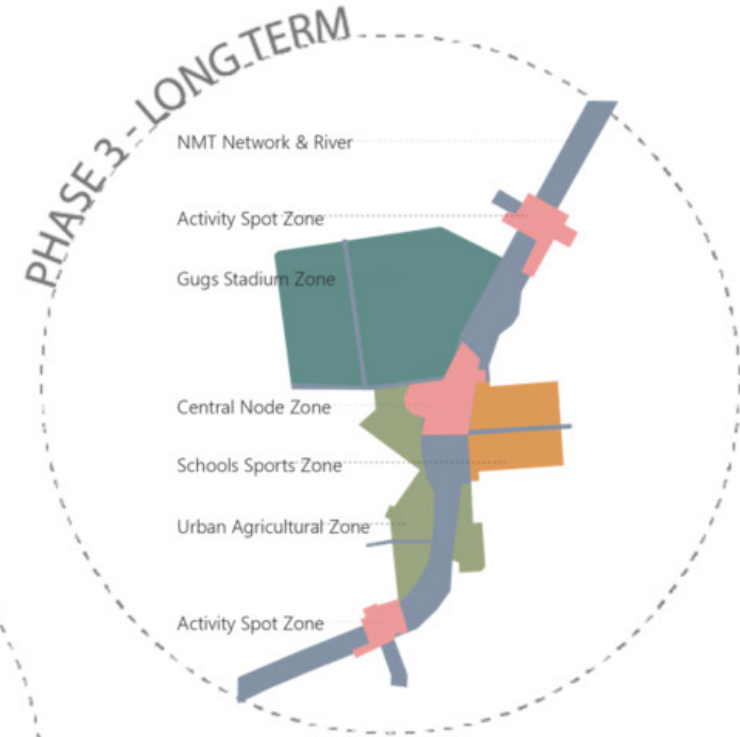
7.4 PROJECT PHASING



Phase 1 includes the NMT public open space network that connects the Gugulethu community. Activation of edges are also important at this phase. A central node is suggested at early stages to anchor the network and provide a landmark. This phase also includes the restoration of the Lotus river canal to its natural state.



Phase 2 includes the development of the identified activity spots. This phase takes into consideration the current needs of the community at these points along the river area. This further strengthens the Lotus River area as a sustainable public space.



Phase 3 consists of the established NMT network and the activity spots that start to bleed out toward the rest of the community. This should be done according to the needs of the community as well as complimentary to the existing edges. This should be connected with the Lotus River public open space at all times in order to ensure inclusive spaces, accessible spaces, healthy living, provide a sense of place and community whilst protecting the ecology of the natural system.

Figure 7.20 - Project Phasing
Source: Author

08 ETHICAL CONSIDERATIONS

The research in this project does not harm and third parties data, no participation or provision of services to communities will take place neither will there be any conflicts of interest. Interviews will be done with adult's community member and registered NPO's whereby a consent form will be presented to each person before interviewing them. All the necessary steps and documents will be followed to ensure there are no ethical issues

In this study, the spatial data and indicators was obtained through publicly available domains and repositories. During the non-participant observations, particular individuals were not distinguished or identified. Furthermore, all interviews that took place were done with the consent of the participants and they will have access to any results and findings of the study, if they so wish. All participants have the right to remain anonymous if they wish at any point of the process.

All site visits and photography were performed respectfully without compromising the privacy and dignity of individuals.

09 CONCLUSION

The Lotus River canal and surrounding open space acts as the last life line for a sustainable public open space network in this area.

By applying the identified strategies and policies one can ensure inclusive spaces, accessible spaces, healthy living, provide a sense of place and a community whilst protecting the ecology of natural system.

The dream is just that this bleeds down and out the canal and out towards the rest of the communities.

Thank you.

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QUESTIONNAIRE

These open ended questions were used in conversations between the researcher and participants to understand the issues and needs experienced in the space.

ANNEXURE A

Questionnaire

University of Cape Town - School of Architecture, Planning and Geomatics
Master's in Urban Design Programme – Design Research Project 2022

Project Title: Unlocking the potential of the lotus river canal as a sustainable public green space
Researcher: Christopher van der Walt

Information

Person/ NGO's Name: _____

I have read and understood the consent form (circle your answer please): **Yes / No**

Semi-Structured Interview Questions

1. What do you think is the biggest issues with public spaces in this area?
2. Do you have any recommendations on how these problems could be addressed in this area?
3. Are you satisfied with the amount of public green spaces in this area?
4. Do you think a green space is a viable option in this area?
5. In your opinion, how can we maintain these areas effectively?
6. In your opinion, what makes a public open space work?
7. In your opinion, what elements needs to be included in a public open space?
8. Can you recommend any other people that would be informative with regards to the above questions?

Thank you for your time,
Christopher van der Walt

CONSENT FORM

The consent form has been signed by all participants and copies can be viewed upon request from researcher.

ANNEXURE B

Consent Form

University of Cape Town - School of Architecture, Planning and Geomatics
Master's in Urban Design Programme – Design Research Project 2022

Project Title: Unlocking the potential of the lotus river canal as a sustainable public green space
Researcher: Christopher van der Walt

I volunteer to participate in a research project conducted by Christopher van der Walt from the University of Cape Town. I understand that this research project is designed to study the public open spaces within the surrounding local community.

I understand that I am being invited to take part in a survey and/or interview. I understand that in agreeing to participate:

- My participation is voluntary. I understand that I will not be paid for my participation.
- The survey will take approximately 2 minutes to complete.
- Notes will be written during the interview and/or an audio taped. I can decline to be recorded.
- I understand that if I feel uncomfortable in any way during the interview I have the right to decline to answer any question or to leave the interview session.
- I understand that the researcher will not identify me by name in any reports using the information obtained from the survey or interview. My confidentiality as a participant will remain secure. Subsequent uses of recordings and data will be subject to standard data use policies which protect anonymity of individuals and institutions.
- If I choose to be interviewed, I have the right to view and comment on the transcribed interview data before the findings are analysed.
- I have read and understand the consent form as well as the questions asked, and I voluntarily agree to participate in this study.
- I have been given a copy of this consent form.

I hereby agree / disagree (circle the applicable option) to participate in the interview for this study.

I hereby agree / disagree (circle the applicable option) to the audio recording of my interview for this study.

Name _____

Signed _____ Date _____

VWLCHR005 | UDRP 2022

Application for Approval of Ethics in Research (EIR) Projects
Faculty of Engineering and the Built Environment, University of Cape Town

ETHICS APPLICATION FORM

Please Note:

Any person planning to undertake research in the Faculty of Engineering and the Built Environment (EBE) at the University of Cape Town is required to complete this form before collecting or analysing data. The objective of submitting this application prior to embarking on research is to ensure that the highest ethical standards in research, conducted under the auspices of the EBE Faculty, are met. Please ensure that you have read, and understood the EBE Ethics in Research Handbook (available from the UCT EBE, Research Ethics website) prior to completing this application form: <http://www.ebe.uct.ac.za/ebe/research/ethics>

APPLICANT'S DETAILS		
Name of principal researcher, student or external applicant	Christopher van der Walt	
Department	Architecture, Planning and Geomatics	
Preferred email address of applicant:	townplannerchris@gmail.com	
If Student	Your Degree: e.g., MSc, PhD, etc.	MUD (Master in Urban Design)
	Credit Value of Research: e.g., 00/120/180/300 etc.	60
	Name of Supervisor (if supervised):	Dr. Kathryn Ewing
If this is a research contract, indicate the source of funding/sponsorship	N/A	
Project Title	Unlocking the potential of the lotus river canal as a sustainable public green space	

I hereby undertake to carry out my research in such a way that:

- there is no apparent legal objection to the nature or the method of research; and
- the research will not compromise staff or students or the other responsibilities of the University;
- the stated objective will be achieved, and the findings will have a high degree of validity;
- limitations and alternative interpretations will be considered;
- the findings could be subject to peer review and publicly available; and
- I will comply with the conventions of copyright and avoid any practice that would constitute plagiarism.

APPLICATION BY	Full name	Signature	Date
Principal Researcher/ Student/External applicant	Christopher Martin Van Der Walt		07/05/22
SUPPORTED BY	Full name	Signature	Date
Supervisor (where applicable)	Dr. Kathryn Ewing		16/05/2022
APPROVED BY	Full name	Signature	Date
HOD (or delegated nominee) Final authority for all applicants who have answered NO to all questions in Section 1; and for all Undergraduate research (Including Honours).	Nancy Odendaal		24 May 2022
Chair: Faculty EIR Committee For applicants other than undergraduate students who have answered YES to any of the questions in Section 1.			

PLAGIARISM DECLARATION

I know that plagiarism is wrong. Plagiarism is to use another's work and pretend that it is one's own.

I have used the APA convention for citation and referencing. Each contribution to, and quotation in, this project from the work(s) of other people has been attributed, and has been cited and referenced.

I declare that this project is my own work and I have not allowed, and will not allow, anyone to copy my work with the intention of passing it off as his or her own work.

Signature:

Christopher van der Walt

ANNEXURE D