

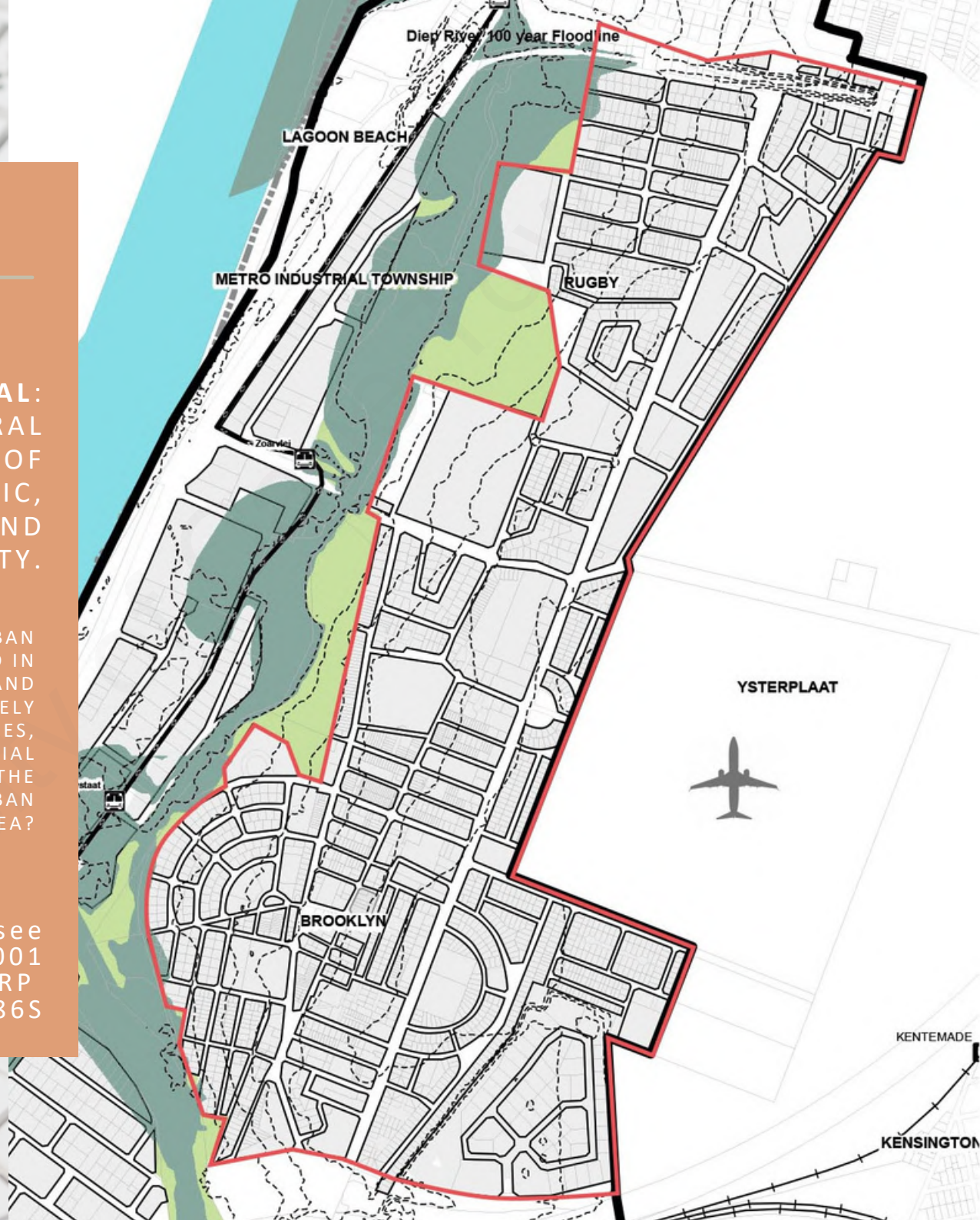
UNLOCKING BROOKLYN'S FULL POTENTIAL


2023

UNLOCKING POTENTIAL:
INTEGRATING THE NATURAL
AND URBAN CORRIDORS OF
BROOKLYN FOR ECONOMIC,
ENVIRONMENTAL, AND
SOCIAL PROSPERITY.

HOW CAN A UNIFIED NATURAL AND URBAN SYSTEM BE STRATEGICALLY INTEGRATED IN THE ISOLATED NEIGHBOURHOOD AND WETLAND OF BROOKLYN TO EFFECTIVELY BALANCE ECONOMIC OPPORTUNITIES, ENVIRONMENTAL PRESERVATION, AND SOCIAL INCLUSION, WHILE MAXIMIZING THE POTENTIAL OF BOTH NATURAL AND URBAN CORRIDORS IN THE STUDY AREA?


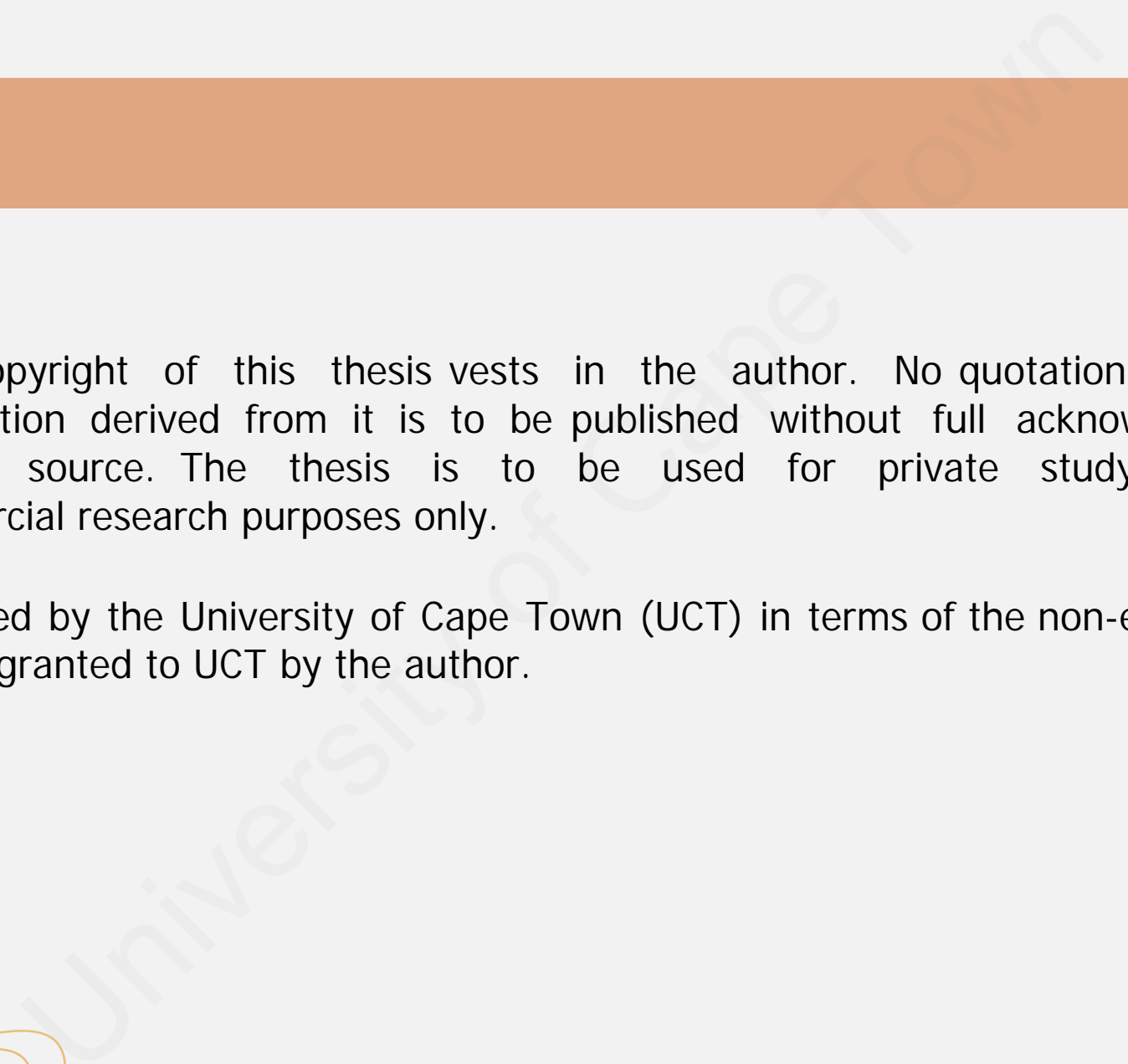
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UNIVERSITY OF CAPE TOWN

UNLOCKING POTENTIAL: INTEGRATING THE NATURAL AND URBAN CORRIDORS OF BROOKLYN FOR ECONOMIC,
ENVIRONMENTAL, AND SOCIAL PROSPERITY.

Hanno Coetsee

CTSHAN001 Submitted

in partial fulfilment of the Master of Urban Design Degree'

60 Credits

30/11/2023

Kathryn Ewing

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research'.

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ABSTRACT:

The urban landscape of Brooklyn presents a complex challenge in the form of an isolated neighbourhood and wetland, which demand innovative approaches for their integration into a unified natural and urban system. The heart of the issue is about striving for economic growth, preserving the environment, and promoting social inclusivity. This research project aims to address these challenges by: Planting seeds of development across boundaries that's feed back into Koeberg corridor. Investigating the integration of the Zoarvlei wetlands. Providing equitable housing solutions to the residents of Brooklyn. The theoretical framework of the research is shaped by the concepts of densification and activity corridors, emphasizing the optimization of land use and the creation of vibrant, multifunctional spaces.

The findings of this study will contribute to the field of urban design by providing insights, recommendations, and strategies for promoting sustainable urban development, enhancing community well-being, and creating inclusive neighbourhoods that are integrated into its bigger urban and natural systems.

TITLE:

Unlocking Potential: Integrating the Natural and Urban Corridors of Brooklyn for Economic, Environmental, and Social Prosperity.

RESEARCH QUESTION:

How can a unified natural and urban system be strategically integrated in the isolated neighbourhood and wetland of Brooklyn to effectively balance economic opportunities, environmental preservation, and social inclusion, while maximizing the potential of both natural and urban corridors in the study area?

INTRODUCTION:

In Brooklyn, we face a significant challenge that calls for creative solutions. This challenge involves integrating an isolated neighbourhood and a neglected wetland into our urban system while striking a balance between economic growth, environmental preservation, and social inclusion. My research focuses on two key objectives: first, to harmonize the natural and urban elements within Brooklyn's isolated neighbourhood and wetland to create economic opportunities, environmental sustainability, and social cohesion. Second, I aim to explore the potential of the natural and urban corridors to bring economic, environmental, and social prosperity not only to the neighbourhood but also to the surrounding areas. By examining various strategies, best practices, and engaging the community, I seek practical insights to help us build a sustainable and prosperous future for Brooklyn.

Additionally, I address the global challenge of affordable housing and sustainable growth, inspired by the work of Nicola Sasman and Liza Cirolia. I investigate how social housing and densification intersect in Brooklyn, particularly through strategies like densification and activity corridors. My research aims to uncover ways these strategies can effectively support social housing in our neighbourhood. Together, these themes guide my research as I aim to strike a balance between urban and environmental considerations while unravelling the complexities of social housing and densification in Brooklyn. My goal is to provide a vision for a sustainable, inclusive, and prosperous Brooklyn



BROOKLYN

THEORETICAL FRAMEWORK:

This study has been framed by social housing, densification, social polarization, and activity corridors. Social housing is examined as a potential solution to address the housing needs of low-income populations and promote inclusive urban development. Densification is explored regarding its implications for urban growth, land use, and community dynamics. Social polarization will be considered in relation to the potential impacts of densification and social housing on social inequalities and spatial segregation. Activity corridors refer to transforming urban arterial roads into vibrant spaces that encourage active transportation, social interaction, and economic vitality.



FIGURE 1 BY AUTHOR

SOCIAL HOUSING & DENSIFICATION:

SOCIAL HOUSING:

What is Social housing?

"It is a RENTAL housing option for low income persons at a level of scale and built form which requires institutionalised management and which is provided by accredited social housing institutions ..."

Social Housing Policy – Part 3 of the National Housing Code 2009

It is a crucial aspect of promoting social equity and addressing housing challenges faced by vulnerable populations. This concept highlights the importance of affordable housing as a means to achieve inclusive and sustainable urban development. The study will explore the challenges and opportunities associated with implementing social housing programs in Cape Town, considering factors such as policy frameworks and community engagement.

Sasman & Cirolia (2019).

DENSIFICATION:

Densification refers to the strategic increase in population density and building intensity within existing urban areas. It involves optimizing land use and promoting compact cities by utilizing available space more efficiently. Densification can occur through various means, such as infill development, redevelopment of underutilized areas, or the intensification of existing neighbourhoods. The focus is on accommodating a growing population within existing urban boundaries rather than expanding outward through urban sprawl. Densification has several potential benefits, including:

- **Efficient land use:** By maximizing the use of available land, densification helps preserve valuable green spaces, protect agricultural land, and limit urban sprawl.
- **Improved resource efficiency:** Concentrating populations in denser areas can lead to more efficient use of infrastructure, transportation networks, and public services.
- **Enhanced social interactions:** Denser neighbourhoods can foster social interactions, community cohesion, and a sense of place by bringing people closer together.
- **Accessible amenities:** Densification often leads to the development of mixed-use neighbourhoods, where residents have easy access to a variety of amenities, such as shops, services, and public spaces.

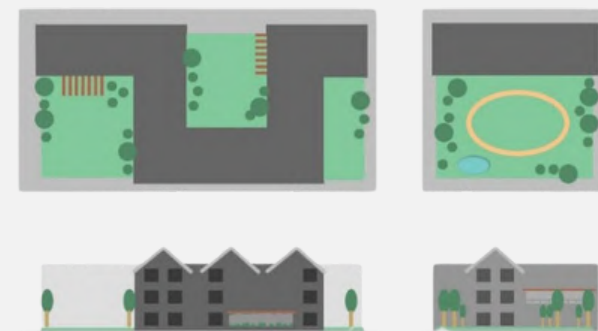
Yunda & Sletto (2020)

REAL



LOW RISE; LOW DENSITY; LACK OF SOCIAL INTERACTION & AMENITIES

IDEAL



HIGH RISE; HIGH DENSITY; PROVISION OF SOCIAL INTERACTION & AMENITIES

ACTIVITY CORRIDORS:

ACTIVITY CORRIDORS:

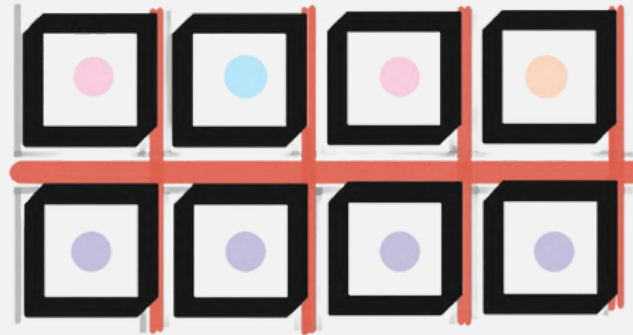
Activity corridors are a concept that emphasizes the transformation of urban arterial roads into vibrant and multifunctional spaces. Traditionally, arterial roads have been primarily designed for vehicular traffic, often leading to the fragmentation of neighbourhoods and hindering pedestrian and cyclist mobility. Activity corridors seek to re-envision these roads as active and people-centred spaces that prioritize non-motorized modes of transportation, enhance social interactions, and support economic vitality.

Key aspects of activity corridors include:

- **Pedestrian-friendly design:** Activity corridors prioritize the safety and comfort of pedestrians by providing wider sidewalks, pedestrian crossings, and other pedestrian-oriented infrastructure.
- **Cycling infrastructure:** The corridors accommodate dedicated cycling lanes or paths to promote active transportation and reduce reliance on motor vehicles.
- **Green spaces and public amenities:** The corridors incorporate green spaces, public plazas, seating areas, and other amenities that encourage social interaction and create inviting public spaces.
- **Mixed-use development:** Activity corridors promote the integration of residential, commercial, and recreational spaces to create vibrant and liveable environments.
- **Economic vitality:** By creating attractive and accessible spaces, activity corridors can support local businesses, attract investment, and stimulate economic activity.

Curtis & Tiwari (2008).

REAL



CURRENTLY IN THE BROOKLYN CORRIDOR THE USES ARE ONLY MIXED ON ONE SIDE OF THE ROAD

IDEAL



TO ACHIEVE A MORE ACTIVE CORRIDOR THE CORRIDOR SHOULD HAVE HIGHER DENSITY AND MIX USES MORE, WHICH WILL ALLOW GREATER ACCESS TO PUBLIC AMENITIES AND GREEN SPACE. THIS WILL IN TURN SLOW DOWN CARS AND ALLOW FOR A MORE PEDESTRIAN FRIENDLY CORRIDOR

FIGURE 3 BY AUTHOR

SOCIAL POLARIZATION:

SOCIAL POLARIZATION:

Social polarization refers to dividing and segregating different social groups within urban areas based on socioeconomic factors such as income, education, and ethnicity. It often results from uneven development patterns, spatial segregation, and the concentration of resources and opportunities in specific areas. The study will investigate how the interplay between social housing and densification influences social polarization in the context of urban development. It will analyse the potential impacts of these dynamics on social cohesion, community well-being, and the equitable distribution of resources.

Yunda & Sleto (2020).

SOCIAL POLARIZATION IS THE SEGREGATION WITHIN A SOCIETY THAT EMERGES WHEN FACTORS SUCH AS INCOME INEQUALITY, REAL-ESTATE FLUCTUATIONS AND ECONOMIC DISPLACEMENT RESULT IN THE DIFFERENTIATION OF SOCIAL GROUPS FROM HIGH-INCOME TO LOW-INCOME.



FIGURE 4 BY AUTHOR

PROBLEM STATEMENT

The isolated neighbourhood and wetland in Brooklyn represent an urban development challenge, as they require effective strategies for integration into a unified natural and urban system. The problem at hand is the need to balance economic opportunities, environmental preservation, and social inclusion while harnessing the combined potential of the natural and urban corridors in Brooklyn and its environments.

CONTEXT

Brooklyn is a suburb located in the city of Cape Town, South Africa. It was established in 1931. It was originally a semi-rural area with a few scattered farms and small settlements. However, with the growth of Cape Town and the increasing demand for housing, the area gradually became more urbanized. In the early 1900s, developers began subdividing the land and building homes for middle-class families.

Today, Brooklyn is a diverse and vibrant neighbourhood with a mix of residential, commercial, and industrial areas. It is home to several schools, community centres, and parks and is close to major transportation routes and the Cape Town CBD. Brooklyn remains essential to Cape Town's cultural and social fabric.



FIGURE 5 BROOKLYN AND KOEBERG ROAD CORRIDOR FRAMED BY BOUNDARY ROAD ON THE NORTH, YSTERPLAAT AIR FORCE BASE ON THE EAST, N1 ON THE SOUTH AND THE SWARTRIVIER AND ZOARVLEI ON THE WEST. BY AUTHOR

METHODOLOGY:

METHODOLOGY:

The study will employ a mixed-methods approach to gather relevant data and insights. Qualitative methods, such as semi-structured interviews, will be conducted with key stakeholders, including government officials, residents, NGOs, and developers, to gather their perspectives on the challenges and opportunities associated with social housing and densification. The data collected will be analysed using thematic analysis to identify recurring themes and patterns. A literature review will be conducted to examine existing research and theories on social housing, densification, and social polarization in urban development.

This research will also use fieldwork, data analysis (through GIS), desk research where appropriate, and non-participant observations.

THEMATIC_ANALYSIS

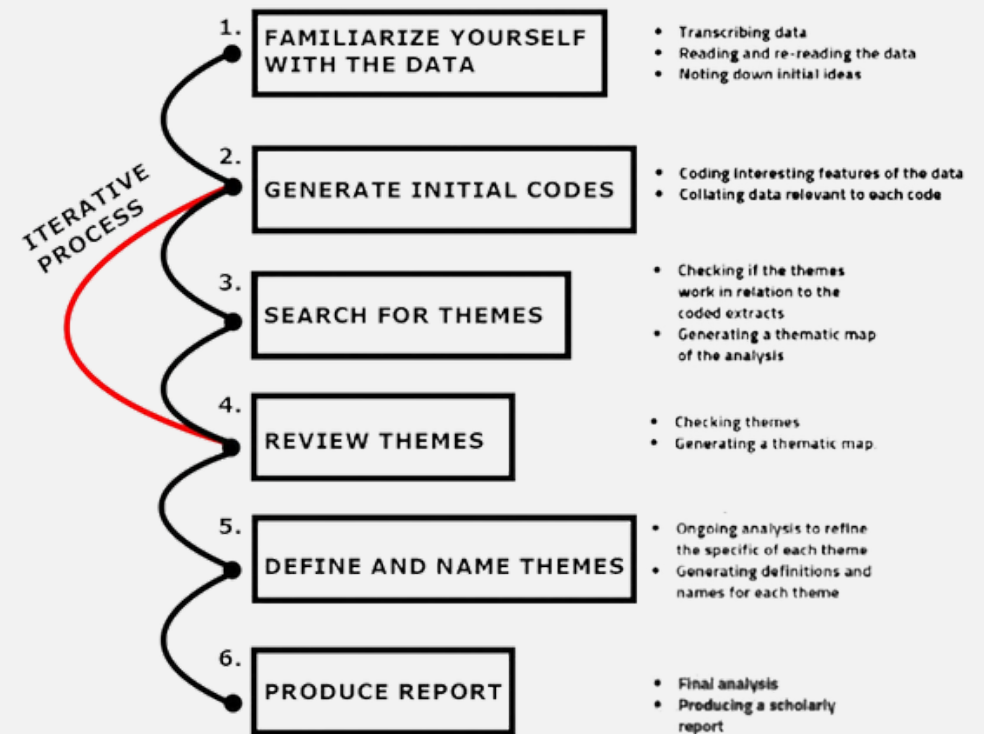


FIGURE 6 BY AUTHOR

METHODOLOGY:

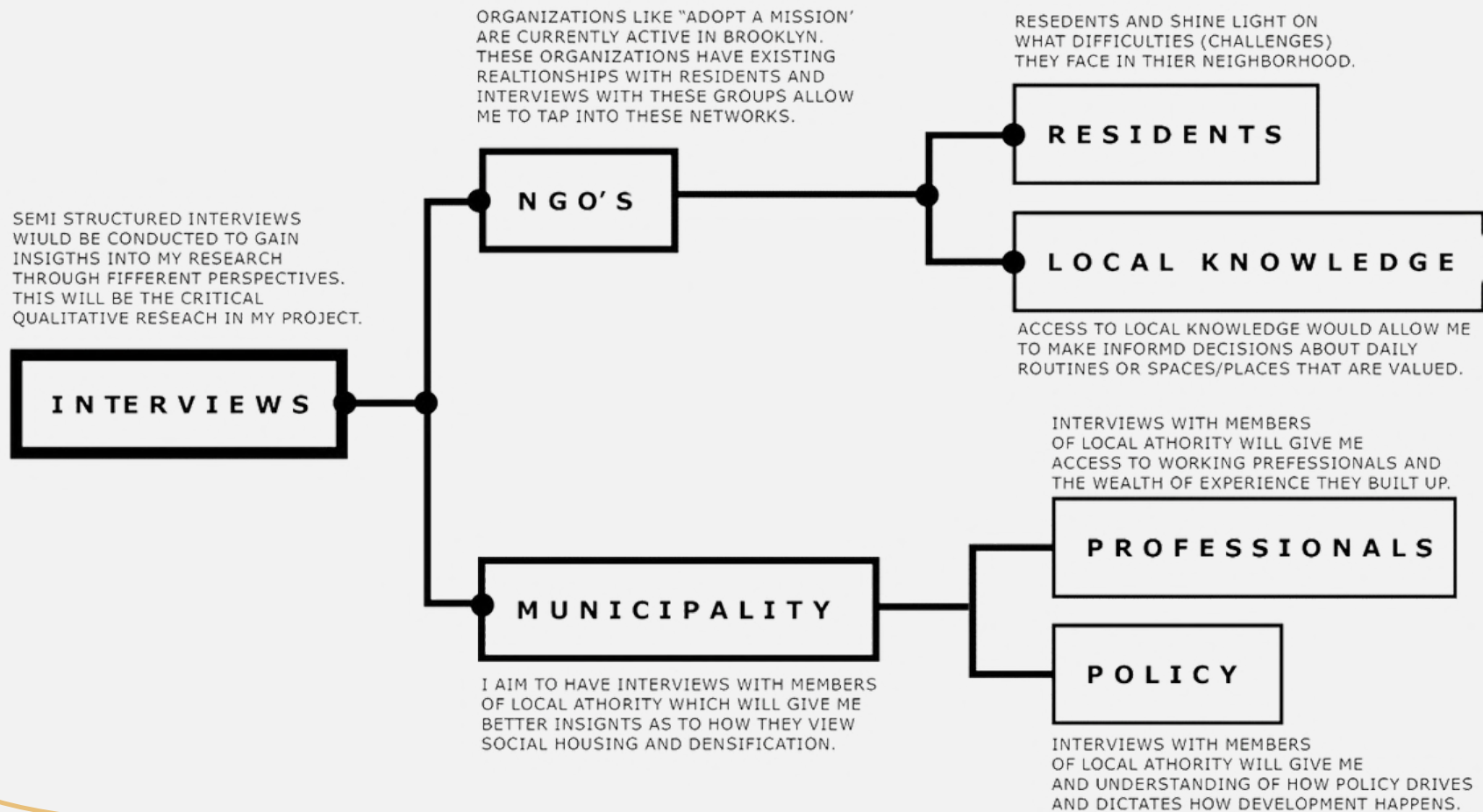


FIGURE 7 BY AUTHOR

METHODOLOGY:

REFLECTIONS:

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FIGURE 8 BY AUTHOR

METHODOLOGY:

I acknowledge the gap in my research, that I have not directly engaged with the community myself. Here is what I have managed to build into my project: I have scheduled an informal meeting with Cleo Mazover, a planner that works for the city of cape town. She assisted my research by pointing out which planning documents produced by the city would provide me with background information. City of cape town documents Cleo referenced:

- Blauwberg_DSDF_EMF_Vol2, 2023
- Koeberg Road Management Strategy, 2000

Then she was also shared with the following document specifically about my study area:

- Brooklyn_Regeneration_Report_SML-compressed draft, 2019

Figure 8 Community engagement meetings, maps and important spatial information - form the Brooklyn regeneration report 2019 pg 86-89

This document has engaged the community of Brooklyn and I managed to learn form it and is included in my study area analysis.

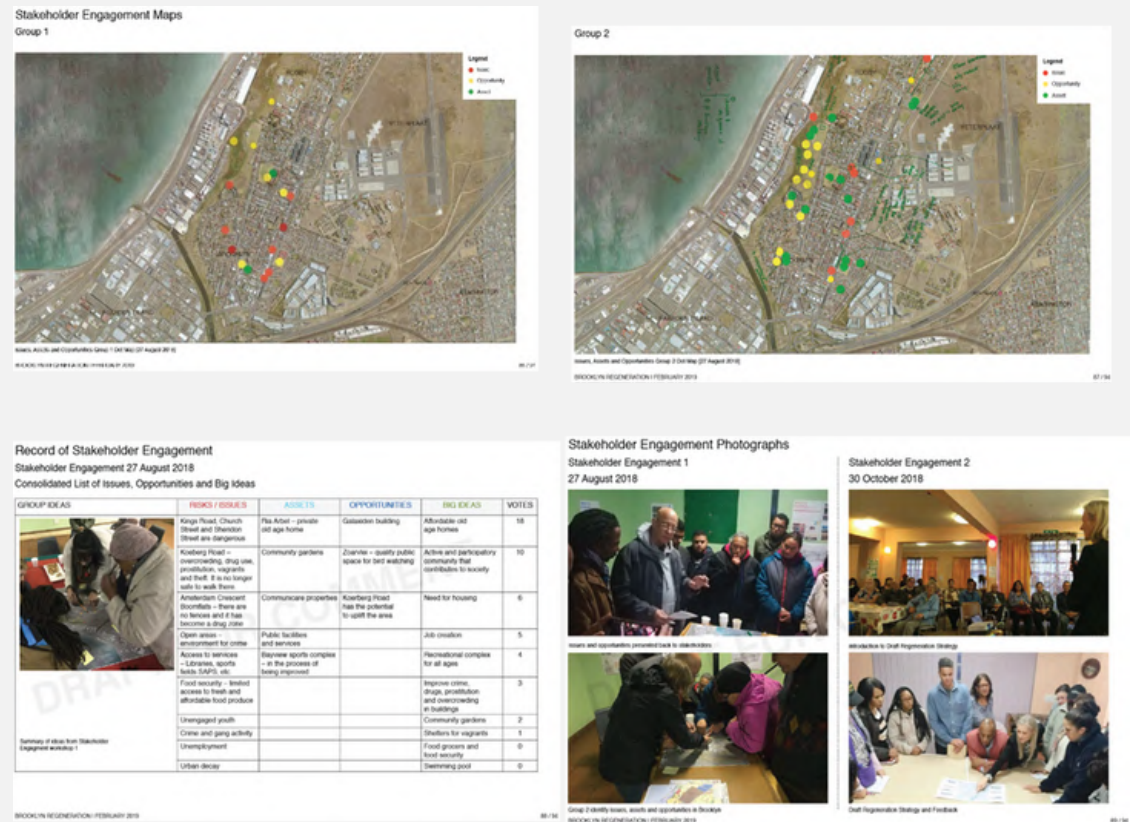


Figure 9 Community engagement meetings, maps and important spatial information - form the Brooklyn regeneration report 2019 pg 86-89

ETHICS:

Ethical considerations are crucial in maintaining trust, respect, and fairness throughout the research journey. When conducting research, it is essential for me to prioritize and adhere to ethical considerations to ensure participants' well-being and rights, the research process's integrity, and the data's responsible use. Here are some key ethical considerations that I am taking into account:

INFORMED CONSENT:

I must obtain informed consent from all participants involved in the study. This includes providing clear and understandable information about the research's purpose, procedures, potential risks, and benefits. Participants should be free to ask questions and make an informed decision about their involvement, and their consent should be voluntary, without any form of coercion.

PRIVACY & CONFIDENTIALITY

Respecting the privacy of participants is of utmost importance for me. I shall ensure that all collected data is handled confidentially and stored securely. Identifiable information should be anonymized or pseudonymized to protect participants' identities unless explicit consent has been obtained for its disclosure.

PROTECTION OF PARTICIPANTS

I shall prioritize the safety and well-being of participants throughout the research process. This includes minimizing any potential physical, emotional, or psychological harm. I shall anticipate and mitigate any risks associated with the study and provide appropriate support and resources to participants if needed.

INTEGRITY & TRANSPARENCY

Integrity and Transparency: I shall maintain the highest standards of integrity and honesty in my work. This includes accurately representing the research objectives, methods, and findings, as well as appropriately acknowledging and citing the work of others.

EQUITY AND DIVERSITY:

I shall strive for inclusivity and diversity in participant selection, avoiding discrimination or bias. It is crucial to ensure that the research process and outcomes are accessible, relevant, and respectful to all individuals, regardless of gender, ethnicity, age, socioeconomic status, or other characteristics.



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INSTITUTIONAL & LEGAL REQUIREMENTS:

Institutional and Legal Requirements: I shall adhere to all relevant institutional policies, guidelines, and legal regulations related to research ethics. This may include obtaining necessary approvals from ethical review boards or committee, complying with data protection and privacy laws, and ensuring the responsible use and storage of data.

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DISSEMINATION & PUBLICATION

I shall responsibly disseminate my findings and ensure they are shared with transparency, accuracy, and clarity. It is important to respect intellectual property rights, provide proper attribution, and avoid misrepresentation or misinterpretation of data.

ONGOING ETHICAL REFLECTION

Ethical considerations shall be an ongoing reflection throughout the research process. I shall regularly review and reassess my ethical practices, seek feedback from colleagues or ethical review boards, and be open to addressing any ethical concerns or issues that may arise.

By adhering to these ethical considerations, I aim to uphold the principles of integrity, respect, and responsibility, contributing to advancing knowledge while safeguarding the rights and well-being of participants and the broader community.



SCHEDULE:

SCHEDULE

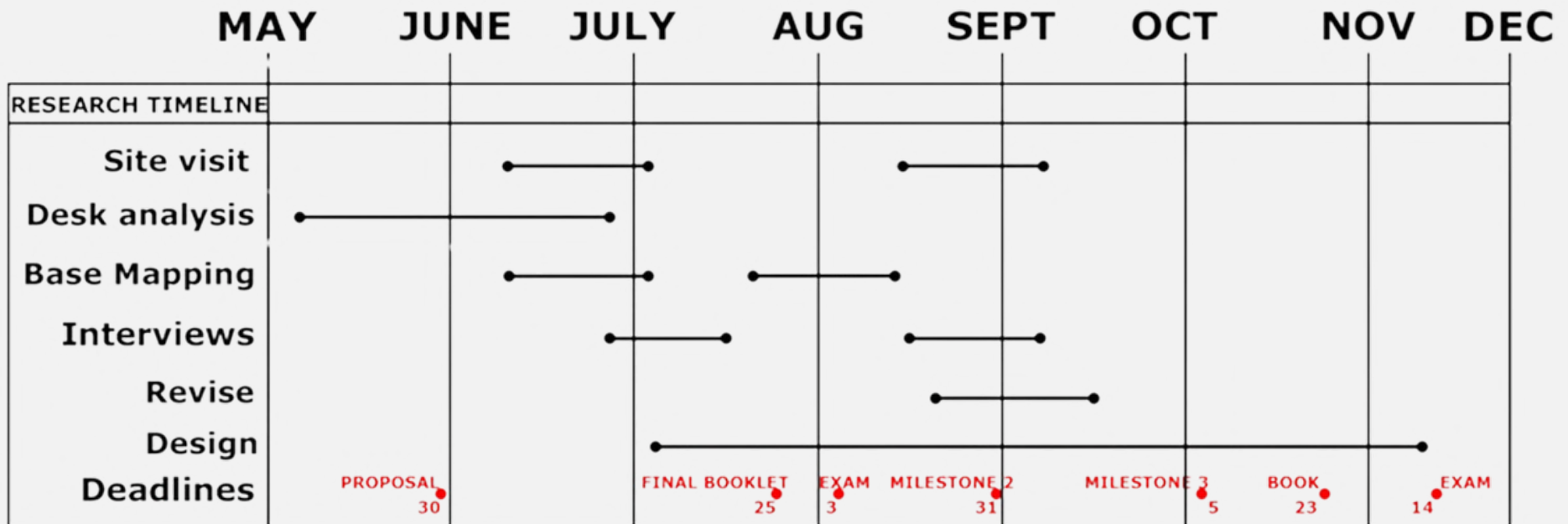


Figure 10 Gant chart by Author

MY ROLE:

I will unpack my perspective and understanding of the role of an urban designer in social housing. To me it refers to the provision of affordable housing options for individuals and families with lower incomes or special needs within a city or urban area. Urban designers are crucial in shaping the physical environment and creating inclusive and sustainable communities. Here are some key points that I am considering:

DESIGN QUALITY AND AESTHETICS:

Urban designers strive to create high-quality, well-designed social housing developments that contribute positively to the overall urban environment. This includes attention to architectural design, urban form, and landscape design. Design excellence can enhance the sense of pride and well-being among residents, challenge negative stereotypes associated with social housing, and help create a positive image of the community.

INTEGRATION AND INCLUSIVITY:

Urban designers aim to integrate social housing seamlessly into the urban fabric, promoting social inclusion and avoiding the creation of isolated enclaves. This involves designing mixed-use neighbourhoods that combine different housing types, including social housing, with market-rate housing, public spaces, amenities, and services. Integrating social housing with other housing types helps to foster social interaction, reduce stigmatization, and promote economic diversity.

INTEGRATION AND INCLUSIVITY:

Social housing should be located in areas that provide reasonable access to transportation, employment opportunities, schools, healthcare facilities, and other essential services. Urban designers consider proximity to public transit and the overall connectivity of the neighbourhood to ensure that residents have convenient access to amenities and opportunities, reducing dependence on private vehicles and promoting a more sustainable and equitable urban environment.



Figure 11 Render illustrating various elements that can enhance aesthetics of the building, different materials, textures, presence of trees, depth in the façade. By Author

MY ROLE:

URBAN REGENERATION AND COMMUNITY DEVELOPMENT:

Social housing can be a catalyst for urban regeneration and community development. Urban designers consider the wider context of the social housing project, looking for opportunities to revitalize underutilized areas, improve infrastructure, create public spaces, and enhance the overall urban fabric. By fostering community engagement and participation, urban designers can help create a sense of ownership and pride among residents, strengthening social cohesion and creating a sustainable and vibrant community.

SUSTAINABLE DESIGN AND RESOURCE EFFICIENCY:

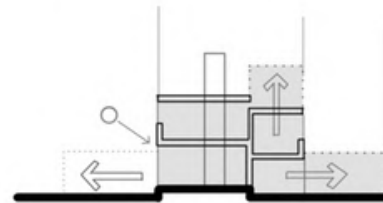
Urban designers prioritize sustainable design principles when planning social housing developments. This includes incorporating energy-efficient design, utilizing renewable energy sources, promoting water and resource conservation, and integrating green spaces and sustainable mobility options. Sustainable design not only reduces environmental impact

FLEXIBILITY AND ADAPTABILITY:

Urban designers recognize the importance of designing social housing that can adapt to changing needs over time. Designing flexible spaces that can accommodate different family sizes, promoting universal design principles for accessibility, and creating adaptable building systems enable social housing to be responsive to evolving demographics and household requirements.

EXTENDABLE HOUSES IN NETHERLANDS 1963

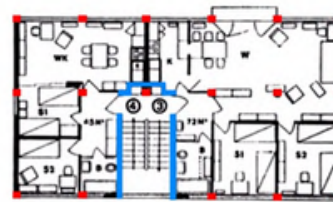
House similar to british terraced house.
The smallest functional unit is designed to be expanded vertically as well as horizontally



H J Van Den Broek, J B Bakema.

MODEL HOUSING IN GERMANY 1927

Simple framed structure design.
Allows for maximum freedom in configuring the interior. Only simple columns and circulation to limit flexibility.



Mies Van Der Rohe

Figure 12 Exploring flexibility through precedent, by Author

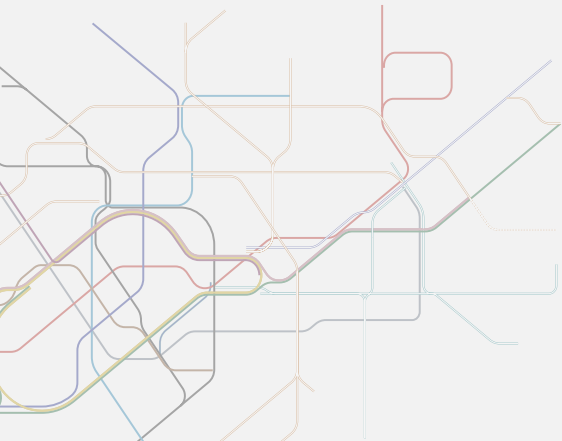
METRO ANALYSIS:

IN RELATION TO BROOKLYN:

Brooklyn has various components which would signify its desirability as a neighbourhood in the context of Cape Town: Proximity to major economic nodes (illustrated in figure 13) is the major influence being analysed here.. Access to both citywide and local economic areas means that residents and businesses have much better chances of securing sustainable livelihoods and reducing their costs compared to more remote and disconnected suburbs.



Figure 13: Economic opportunities and distances to site. By Author



STUDY AREA ANALYSIS:



STUDY AREA ANALYSIS:

LAND USE AND ZONING

There is a big overlap between land use and zoning. What I find the most surprising is that still today only the Eastern edge of Koeberg corridor is zoned for commercial activity and the western edge is purely residential. I would imagine in the future that this would change. Towards the southern end there are a few residential buildings with business signage, I am unsure how “official” these businesses are, but they are around and they prove my thoughts on how this edge might change in the future.



Figure 14: small businesses at the southern end of Koeberg road.



Figure 15 Land Use & Zoning plans (Images from Brooklyn regeneration report)



STUDY AREA ANALYSIS:

CHALLENGES:

Brooklyn, Cape Town, faces several challenges in social dynamics, access, economy, community services, natural systems, green open space, and land, infrastructure, and buildings.



Figure 16 Open spaces with bad interfaces lead to crime hotspots.



Figure 17 Areas of concern for Brooklyn residents, Edges, Open spaces and Roads, by Author



STUDY AREA ANALYSIS:

SOCIAL DYNAMICS:

- Crime and domestic violence are prevalent challenges.
- Drug trade and gangsterism are also significant problems.
- Causes include lack of parental engagement and inadequate alternatives for youth.
- Vulnerability of the elderly is a concern.

ACCESS:

- Brooklyn's location is excellent, close to employment, services, and retail centres.
- However, it is landlocked between an industrial area and an airbase, leading to limited access to facilities like a police station.
- Pedestrian access is restricted, and there are difficulties accessing the railway line.
- High crime on key routes hinders mobility and safety.

ECONOMY;

- Unemployment is high (37.9%), despite the proximity to employment centres.
- Low-population densities and lack of local employment opportunities limit sustainable livelihoods within Brooklyn.
- "Crime and grime" contribute to urban decay and deter investors.

COMMUNITY SERVICES::

- Brooklyn has schools in relatively good condition, but maintenance investment is needed in the future.
- A significant percentage of residents have a matric or higher education, offering potential for improvement.
- Some social facilities such as clinics and libraries may be too far for elderly and vulnerable residents to access on foot.

NATURAL SYSTEMS AND GREEN OPEN SPACE:

- The Black River system is polluted, and the Zoarvlei Wetland is stagnant and contaminated.
- Natural systems' recreation amenity for the community is low-functioning.
- Crime compromises the amenity of green open spaces and parks, especially those with low visibility.

LAND, INFRASTRUCTURE, AND BUILDINGS:

- Unmanaged land faces issues like squatting, illegal dumping, vandalism, and criminal activities.
- Aging infrastructure requires maintenance or upgrade, leading to backlogs.
- Residential properties are overcrowded, often with disinterested landlords, contributing to degeneration. Limited development rights uptake, and many low-rise single developments lead to blank street interfaces, promoting crime and anti-social behavior.



STUDY AREA ANALYSIS:

OPPORTUNITIES

Brooklyn, Cape Town, has several assets and opportunities in social dynamics, access, economy, community services, natural systems, green open space, and land, infrastructure, and buildings.



Figure 18 Community buildings such as Ysterplaat primary and Brooklyn churches



Figure 19 : Land use, economic opportunity, community buildings, and public open spaces in Brooklyn. By author

STUDY AREA ANALYSIS:

SOCIAL DYNAMICS:

- Well-established community with long-time residents (third generation).
- Cultural, religious, economic, and racial diversity.
- Strong community engagement and support between different groups.
- Active involvement of residents in neighbourhood watch and Adopt a Mission.
- Community volunteers supporting safety, healthcare, elderly care, and youth activities.

ACCESS:

- B-Excellent access to public transport, including MyCiti routes.
- Proximity to employment centres, industrial complexes, services, and retail centres.
- Attractive location for investment and growth.
- Potential to provide housing opportunities and retail across income bands.

ECONOMY;

- Surrounding areas offer various employment opportunities (industrial, recreational, commercial, retail).
- Presence of house-shops and entrepreneurial spirit.
- Potential to support and increase local sustainable livelihoods.
- Favourable location for new livelihood opportunities with access to suppliers and customers.

COMMUNITY SERVICES::

- Presence of 2 clinics, 3 schools, and religious centres.
- Public hospital and high-quality library nearby.
- Some service gaps filled by community-based organizations (Neighbourhood Watch, elderly support).

LAND, INFRASTRUCTURE, & BUILDINGS:

NATURAL SYSTEMS & GREEN OPEN SPACE:

- CommuniCare provides rental housing for diverse tenants, including social rentals.
- Large plot sizes offer flexibility for various uses (shops, extra rental rooms).
- Opportunity to optimize abandoned and underutilized land and buildings in Brooklyn.



URBAN SYSTEMS ANALYSIS:

KOEBERG CORRIDOR:

The study area sits within a bigger urban system. The most important part is the Koeberg road corridor. This is the main urban arterial that connects people from Blaauwberg-North into the city. There are 7 neighbourhoods that sit on this corridor 2 light industrial areas 2 heavy industrial areas as well as a big sports park.

The important structuring element along the corridor is the east west roads that intersect with Koeberg road. They seem to divide land use and neighbourhoods along this road.

The economic opportunities along this corridor are developed differently. To the north of my study area there are some commercial/retail nodes, but what makes my Study area exciting is that it has the potential to operate like an activity corridor. The buildings are closer to the street and at a more human scale.

The rhythm of east-west connections seems to be interrupted by the natural system (Zoarvlei wetland) as well as the Ysterplaat Airforce base. Which creates an exciting constraint to work with.

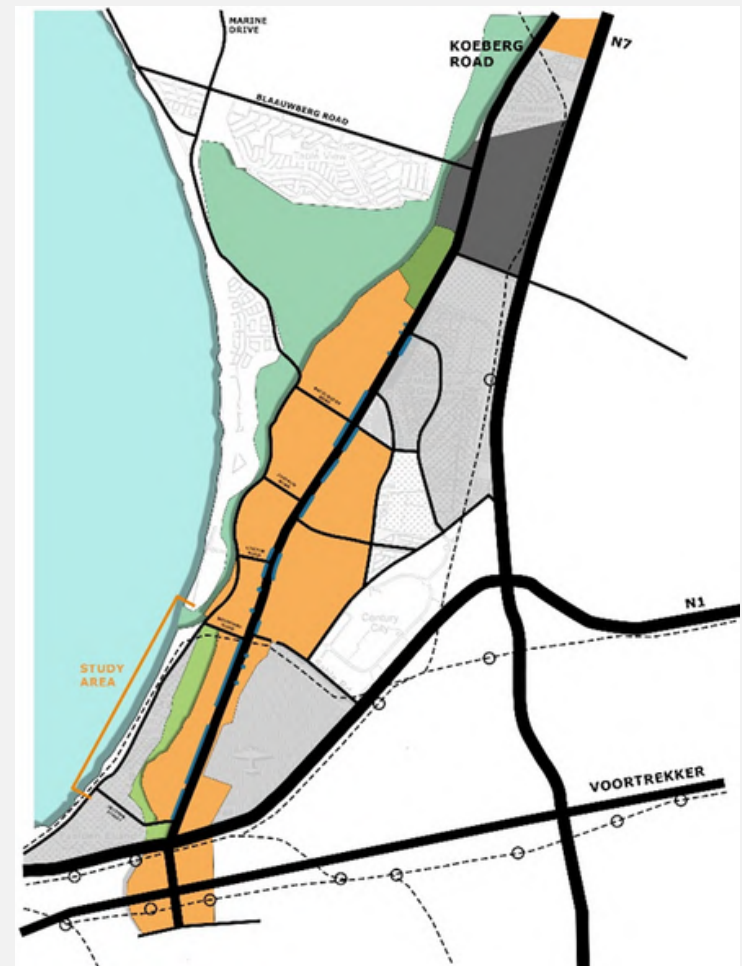


Figure 20: Koeberg corridor and land use, by Author

URBAN SYSTEMS ANALYSIS:

KOEBERG CORRIDOR:

This diagram aims to simplify the different important aspects of Koeberg corridor. The clear rhythm of east west connections is illustrated, and the “missing link” is indicated. Wemyss road is the exiting street in the context that runs from Zoarvlei to Ysterplaat but does not cross these buffers/boundaries.

This diagram also illustrates the clear economic zones and how they differ. On Loxton and Racecourse Road we have bigger economic nodes, which are big investment high density nodes. Where along Koeberg road in the study area we have the economic zone on the western edge of Koeberg road. The retail/commercial edge is low rise and consists of smaller businesses

This creates the case of establishing the study area as an activity corridor.

A key design informant would be the role of Wemyss street in allowing more traffic through the study area and to

develop that link. Not only would the Brooklyn, Rugby and Ysterplaat neighbourhoods benefit from better connection and access to its surrounding neighbourhoods and the economic opportunities associated, but also assist in activating the corridor

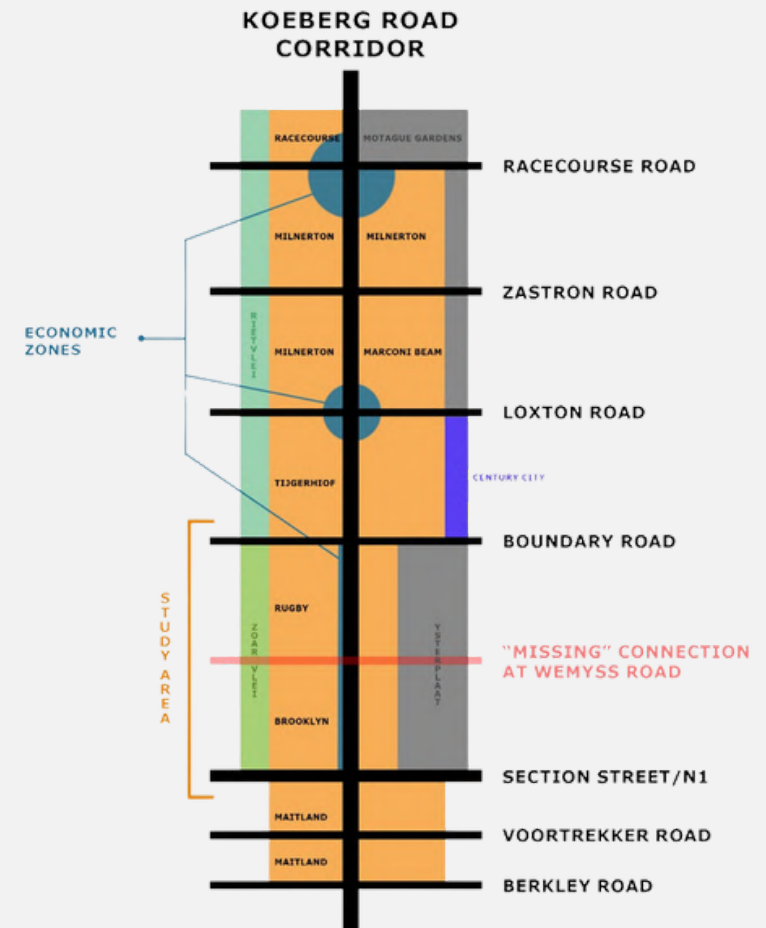


Figure 21: Koeberg corridor and land use diagram, by Author

URBAN SYSTEM ANALYSIS:



URBAN SYSTEMS ANALYSIS:

KOEBERG ROAD:

The character and function of the road changes depending on the different sections of the road. I have identified three different conditions along koeberg road

In the industrial zone there are big setbacks to structures and a wall/fencing which they hide behind (condition 1).

In the middle portion we have koeberg road, service roads and only then the residential neighbourhood and/or the the bigger retail/commercial buildings (condition 2).

Lastly in the brooklyn examples commercial buildings come right up to the street and sidewalk (condition 3).

This diagram also illustrates the clear economic zones and how they differ. On Loxton and Racecourse Road we have bigger economic nodes, which are big investment high density nodes. Where along Koeberg road in the study area we have the economic zone on the western edge of Koeberg road. The retail/commercial edge is low rise and consists of smaller businesses.



Figure 22 Condition 1



Figure 23 Condition 2



Figure 24 Condition 3



URBAN SYSTEMS ANALYSIS:

CONSTRAINTS:

The images below illustrate the issues the neighbourhood faces with a bit more context. The 4 boundaries are illustrated through aerial perspectives highlighting how vast they are. Koeberg road's poor urban image is highlighted; from informal housing on the sidewalk to black facades of warehouse typology buildings as well multiple car dealership businesses that do not contribute to a positive active corridor.



BROOKLYN BARRIERS: WEST ZOARVLEI IN NOT INTEGRATED INTO THE NEIGHBORHOOD THROUGH EAST WEST CONNECTIONS TO BROOKLYN, CURRENTLY ACTS AS A BARRIER ON THE ESTERN EDGE



BROOKLYN BARRIERS: NOTH RAILWAY AND ROAD RESERVES TAKE UP MORE THAN A NEIGHBOURHOOD BLOCK



POOR URBAN IMAGE: CAR DEALERSHIP TYPOLOGY WITH BIGGER SETBACKS FROM KOEBERG ROAD DETRACT FORM ACTIVITY SPINE PRINCIPLES



POOR URBAN IMAGE: WAREHOUSE/SHED BUILDING TYPOLOGY WITH BLANK FACADE DETRACT FORM ACTIVITY SPINE PRINCIPLES



POOR URBAN IMAGE: HOMELESS PEOPLE OCCUPYING PARTS OF THE SIDEWALK



POOR URBAN IMAGE: LACK OF LANDSCAPING AND PEDESTRIAN SHELTER CONTRIBUTES TO POOR URBAN IMAGE



BROOKLYN BARRIERS: SOUTH MASSIVE INTERCHANGE IN BLOOKLYN SOUTH INTERSECTS KOEBERG ROAD AND DISCONNECTS IT



BROOKLYN BARRIERS: EAST YSTERPLAAT AIRFORCE BASE IS FENCED OFF WITH ONLY 2 ACCES POINTS IS A BIG BARRIER ON THE EASTERN EDGE

URBAN SYSTEMS ANALYSIS:

OPPORTUNITIES:

The biggest opportunities for the study area is the potential of the exiting east west roads. The roads highlighted connect across Koeberg Road to Zoarvlei. They are:

- Farnworth road
- Drommedaris road
- Wemyss road
- Poole road
- Justin road
- Fenwick road

These roads also link with multiple positive community building land uses such as churches, social housing, hospitals, and schools.



Figure 27 Opportunities diagram of the Brooklyn/Rugby neighbourhood, by Author

URBAN SYSTEMS ANALYSIS:

OPPORTUNITIES:

The figures below illustrate the positive aspects in the neighbourhood faces with a bit more context. There are stretches along Koeberg road that has a positive interface onto the street and sidewalk with active fronts as well as protection form elements for pedestrians. These areas tend to become quite lively and because of this even if there are short stretches in between with a blank façade, informal traders set up stalls to tap into this economy which adds to the “buzz” on the street. There are also community facilities such as Adam Tass hall, Ysterplaat primary school and Albow gardens social housing that feeds into the corridor.



HERITAGE:
JUSTIN STREET ROW HOUSES



RETAIL:
INFORMAL TRADE SETTING UP INFRONT OF INACTIVE/DEAD FACADES



SOCIAL HOUSING:
ALBOW GARDENS - A VERY SUCCESSFUL HOUSING PROJECT ON KOEBERG RD

COMMUNITY:
MAARTIN ADAMS HALL AN IMPORTANT COMMUNITY NODE AT THE TOP OF JUSTIN STREET - AN IMPORTANT EAST-WEST ROAD



COMMUNITY:
YSTERPLAAT PRIMARY SCHOOL - ONE OF THE FEW PLACES FOR CHILDREN ON KOEBERG ROAD



RETAIL:
RETAIL WITH ACTIVE FRONTAGES AND SHADE/SHELTER CONTRIBUTES TO A POSITIVE PEDESTRIAN EXPERIENCE



VIEWS:
GLIMPSES OF TABLE MOUNTAIN ALL ALONG KOEBERG ROAD



COMMUNITY:
MAARTIN ADAMS HALL AN IMPORTANT COMMUNITY NODE AT THE TOP OF JUSTIN STREET - AN IMPORTANT EAST-WEST ROAD



HERITAGE:
KLEIN ZOAR PROVIDES HERITAGE SIGNIFICANCE TO WEMYSS STREET WHICH COULD BE A POTENTIAL MAJOR EAST WEST LINK ROAD

URBAN PERFORMANCE ANALYSIS:



URBAN PERFORMANCE ANALYSIS:

Public spaces in urban environments play a pivotal role in shaping the quality of life for city residents. In Brooklyn streets mainly act as these public spaces. To evaluate and improve these spaces, I turn to Gehl's Twelve Quality Criteria for Public Urban Spaces. This framework categorizes the criteria into Protection, Comfort, and Amenities, providing a structured approach to assess urban spaces' safety, user comfort, and overall functionality. In this section, I utilize this framework to analyse the important streets that run east-west, connecting Zoarvlei with Koeberg road.

This street network is the foundation for future development and connections. As such I need to understand how they perform as public spaces and how to improve what is lacking.

P R O T E C T I O N	1. Protection against traffic & accidents <ul style="list-style-type: none"> - traffic accidents - fear of traffic - other accidents 	2. Protection against crime & violence (feeling of safety) <ul style="list-style-type: none"> - lived in/used - streetlife - streetwatchers - overlapping functions in space & time 	3. Protection against unpleasant sense experiences <ul style="list-style-type: none"> - wind/draft - rain/snow - cold/heat - pollution - dust, glare, noise
	4. Possibilities for WALKING <ul style="list-style-type: none"> - room for walking - untiring layout of streets - interesting facades - good surfaces 	5. Possibilities for STANDING / STAYING <ul style="list-style-type: none"> - attractive edges - »Edgeeffect« - defined spots for staying - supports for staying 	6. Possibilities for SITTING <ul style="list-style-type: none"> - zones for sitting - maximizing advantages primary and secondary sitting possibilities - benches for resting
	7. Possibilities to SEE <ul style="list-style-type: none"> - seeing-distances - unhindered views - interesting views - lighting (when dark) 	8. Possibilities for HEARING / TALKING <ul style="list-style-type: none"> - low noise level - bench arrangements - »talkscapes« 	9. Possibilities for PLAY / UNFOLDING / ACTIVITIES <ul style="list-style-type: none"> - invitation to physical activities, play, unfolding & entertainment - day & night and summer & winter
C O M F O R T	10. Scale <ul style="list-style-type: none"> - dimensioning of buildings & spaces in observance of the important human dimensions related to senses, movements, size & behaviour 	11. Possibilities for enjoying positive aspects of climate <ul style="list-style-type: none"> - sun/shade - warmth/coolness - breeze/ventilation 	12. Aesthetic quality / positive sense experiences <ul style="list-style-type: none"> - good design & good detailing - views/vistas - trees, plants, water
A M E N I T I E S			



Figure 29 Key east-west connections & Koeberg road, Brooklyn to be analysed, by Author

URBAN PERFORMANCE ANALYSIS:



Figure 30 Street analysis applying Gehl's Twelve Quality Criteria for Public Urban Spaces, by Author

URBAN PERFORMANCE ANALYSIS:

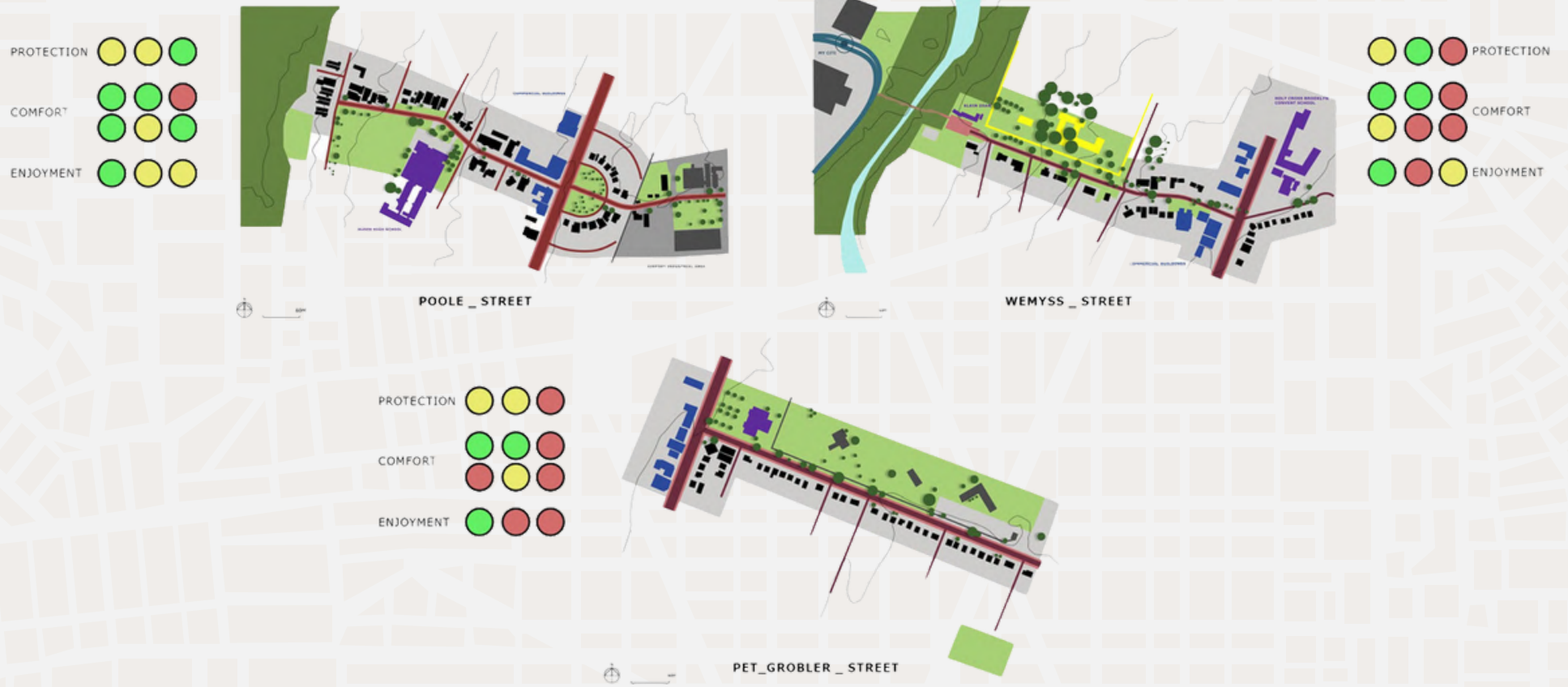


Figure 31 Street analysis applying Gehl's Twelve Quality Criteria for Public Urban Spaces, by Author

URBAN PERFORMANCE ANALYSIS:



Figure 32 Street analysis applying Gehl's Twelve Quality Criteria for Public Urban Spaces, by Author

NATURAL SYSTEMS ANALYSIS:

HISTORICAL WATERWAYS

HISTORICAL WATERWAYS

The present condition can be discerned by examining my tracing over a 1932 Aerial Photograph, which shows that the Salt and Black River Canals converged, encircling Paarden Eiland, connecting through Zoarvlei, and passing through a sequence of wetlands until reaching the ocean.

Figure 27 Historical waterways, by Author

We can see how channelizing the Black River would impact the connection between the two waterbodies. The developing urban fabric around voortrekker and Koeberg road will put further pressure on these systems. Not to mention the future development of Paarden Eiland industrial zone to the west of Zoarvlei.

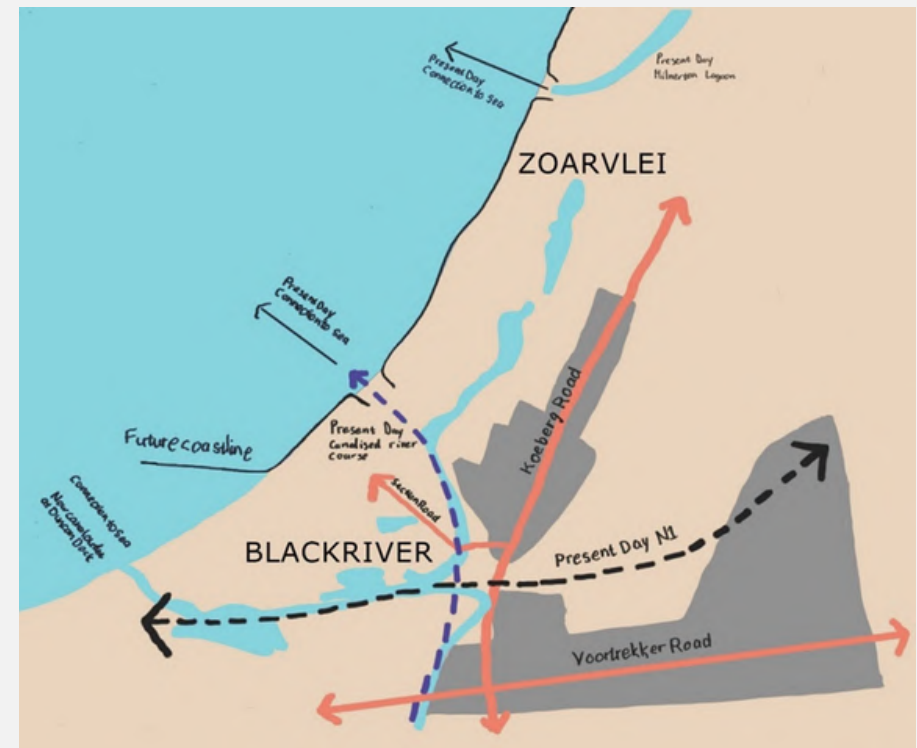


Figure 34 Historical waterways, by Author

NATURAL SYSTEMS ANALYSIS:

ISOLATED ZOARVLEI (PRESENT DAY)

TPRESENT DAY ISOLATED ZOARVLEI

Over the years a few interventions isolated Zoarvlei, resulting to its current state.

The interventions:

- The construction of Marine Drive,
- The N1 Freeway and the railway lines
- canalization of the Salt River.

At present, it constitutes a completely freshwater ecosystem nourished by stormwater and natural water levels, ultimately flowing into the ocean through a conduit beneath Marine Drive.



Figure 35 Present day isolated Zoarvlei, by Author

NATURAL SYSTEMS ANALYSIS:

CONTOURS & FLOODING:

In the summertime, the southern aquatic area dries up, experiencing minimal water movement, which leads to stagnant water conditions. Consequently, water quality deteriorates, resulting in decreased biodiversity, and the water bodies become congested with *Typha Capensis*.

The figure on the right illustrates the areas in the study area that are vulnerable to flooding. As large portions of the study area are on reclaimed land, these portions are particularly vulnerable to flooding as a result of sea level rise and storm surges.

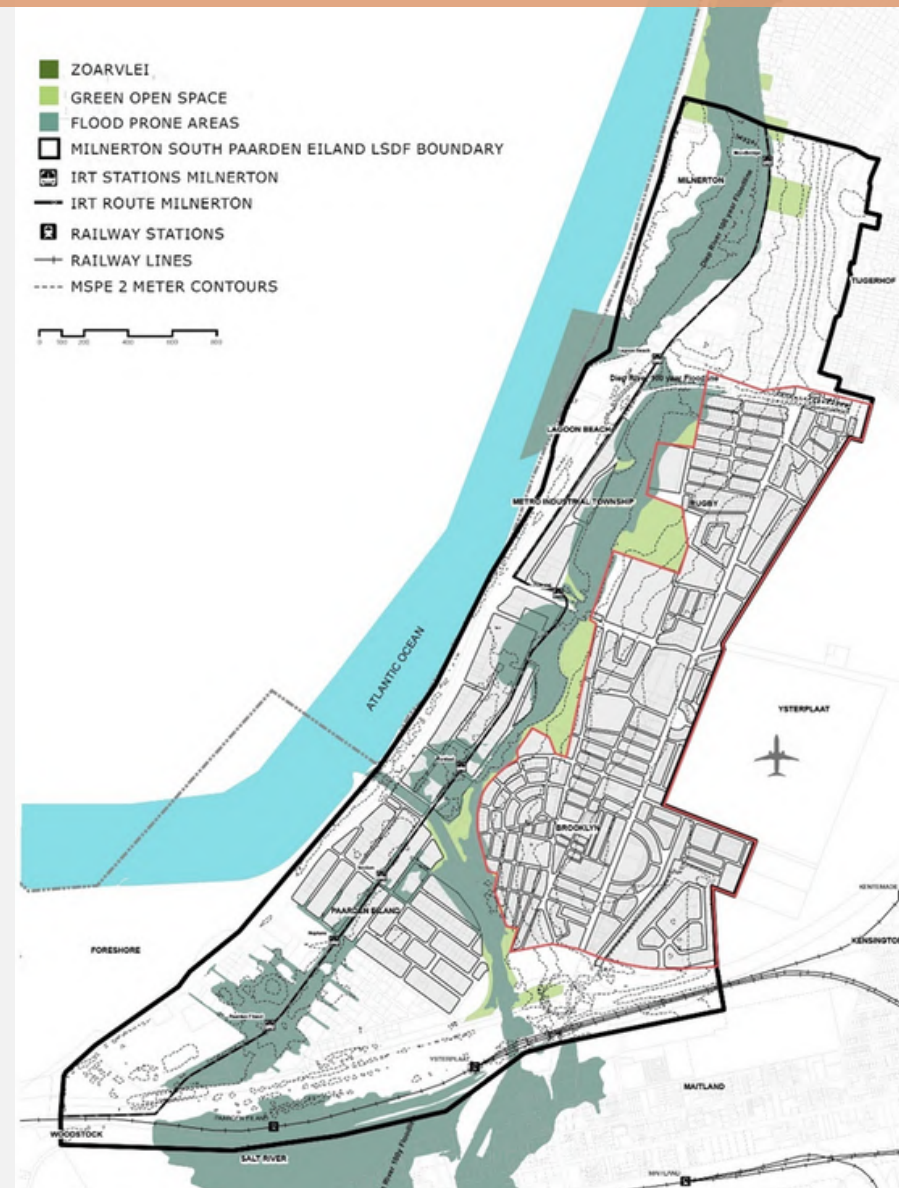


Figure 36 Flooding happens in 2 particular areas on the western edge of the Zoarvlei, by Author

RE-DEVELOPMENT FRAMEWORK:

KOEBERG CORRIDOR & ZOEARVVLEI RE-DEVELOPMENT FRAMEWORK

- LINKING EAST WEST PEDESTRIAN ROUTES TO GREEN SPATIAL SYSTEM.



- ENCOURAGING DEVELOPMENT OF STRATEGIC PARCELS OF LAND, ESPECIALLY AROUND PUBLIC TRANSPORT STATIONS (TOD) IN METRO INDUSTRIA AND PAARDEN EILAND.
- ENCOURAGING DENSIFICATION OF ERVEN IN SPECIFIC AREAS.

- RE-LINK ZOARVLEI TO SALT RIVER CANAL SYSTEM THROUGH WALKWAYS AND BICYCLE PATHS.
- INCREASE SURVEILLANCE ALONG EDGE OF VLEI THROUGH INCREASED DENSITY AND OVERLOOKING FEATURES.
- CREATE AN URBAN PARK TO SERVICE THE LARGER CITY AREA.

- URBAN DESIGN UPGRADE INTERVENTIONS AT SPECIFIC NODES ALONG KOEBERG ROAD THAT COINCIDE WITH THE EAST WEST LINKAGES (SEE BELOW) TO INITIATE UPGRADING BY PRIVATE SECTOR.
- DEVELOPING KEY PUBLIC LAND WITH PRIVATE SECTOR AT STRATEGIC POINTS IN THE AREA.
- IDENTIFICATION OF STRATEGIC PRECINCTS / CHARACTER AREAS

NATURAL SYSTEM FRAMEWORK:

NATURAL SYSTEMS FRAMEWORK:

This framework is a response to the natural systems analysis and form the base for the urban framework as well. Design strategy explained:

Integrate Zoarvlei into the bigger natural systems. Create two precincts, one in the North and one in the South. These precincts are key to achieve this integration.

These precincts will deal with how water is introduced into Zoarvlei. The proposal is to canalize the first portion of the system at inflow precinct. Then to continue with a hard edge to the water towards the middle of the system on the western edge. This is to mitigate periodical flood on that edge.

The water will flow South to North as the contours allow towards outflow precinct where the system meets the mouth of Milnerton lagoon.



NATURAL SYSTEM FRAMEWORK:

NATURAL SYSTEMS FRAMEWORK:

Seeds of development to cross boundaries and unlock Brooklyn and Koeberg corridor.

New mixed use precinct in Paarden Eiland connected to Wemyss road (Wemyss road precinct). Transforms the light industrial zone to strategic land for development at a My Citi bus stop.

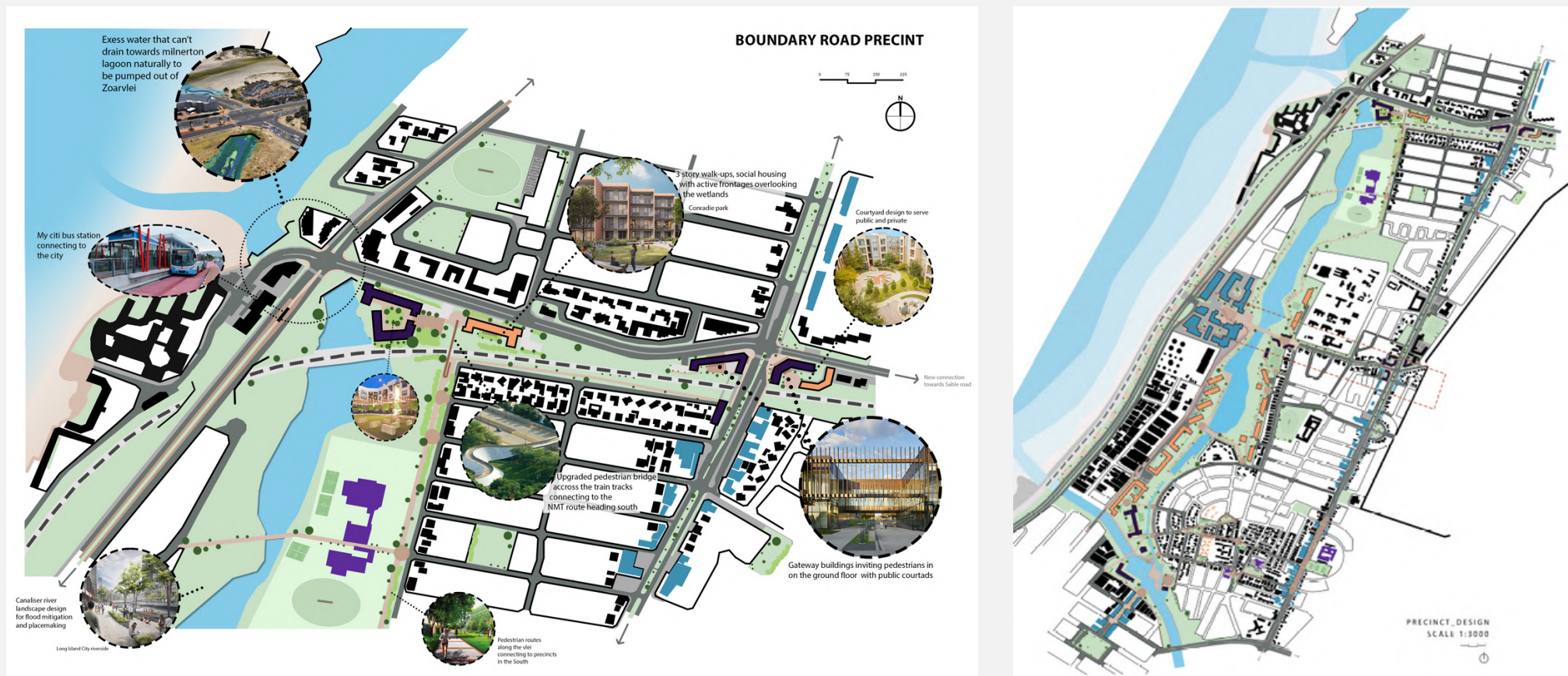
Infill housing on both sides of the wetlands to densify the neighbourhood, provide affordable housing as well as activate the wetlands with positive edges and thresholds that encourages interaction with the wetlands.

New pedestrian bridge at the Church road precinct, links My Citi stop (section stop) in Paarden Eiland to Brooklyn. Unlocks new strategic land for development and opportunity to be integrated with the natural system.

New strategic land unlocked between the railway and Boundary Road to be developed as part of integration with natural precinct



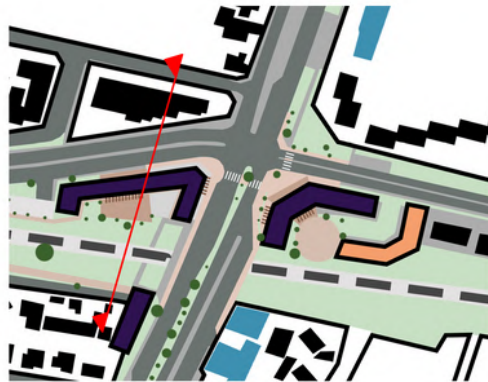
BOUNDARY ROAD PRECINCT PLAN



BOUNDARY ROAD PRECINCT GUIDELINES

GUIDELINES FOR NODES IN BOUNDARY ROAD PRECINCT

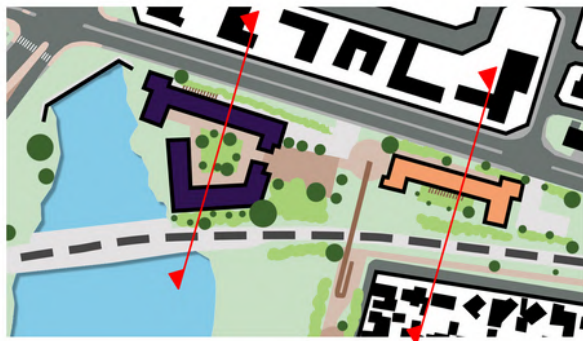
INTERFACE _ EDGES _ SCALE _ BUFFER



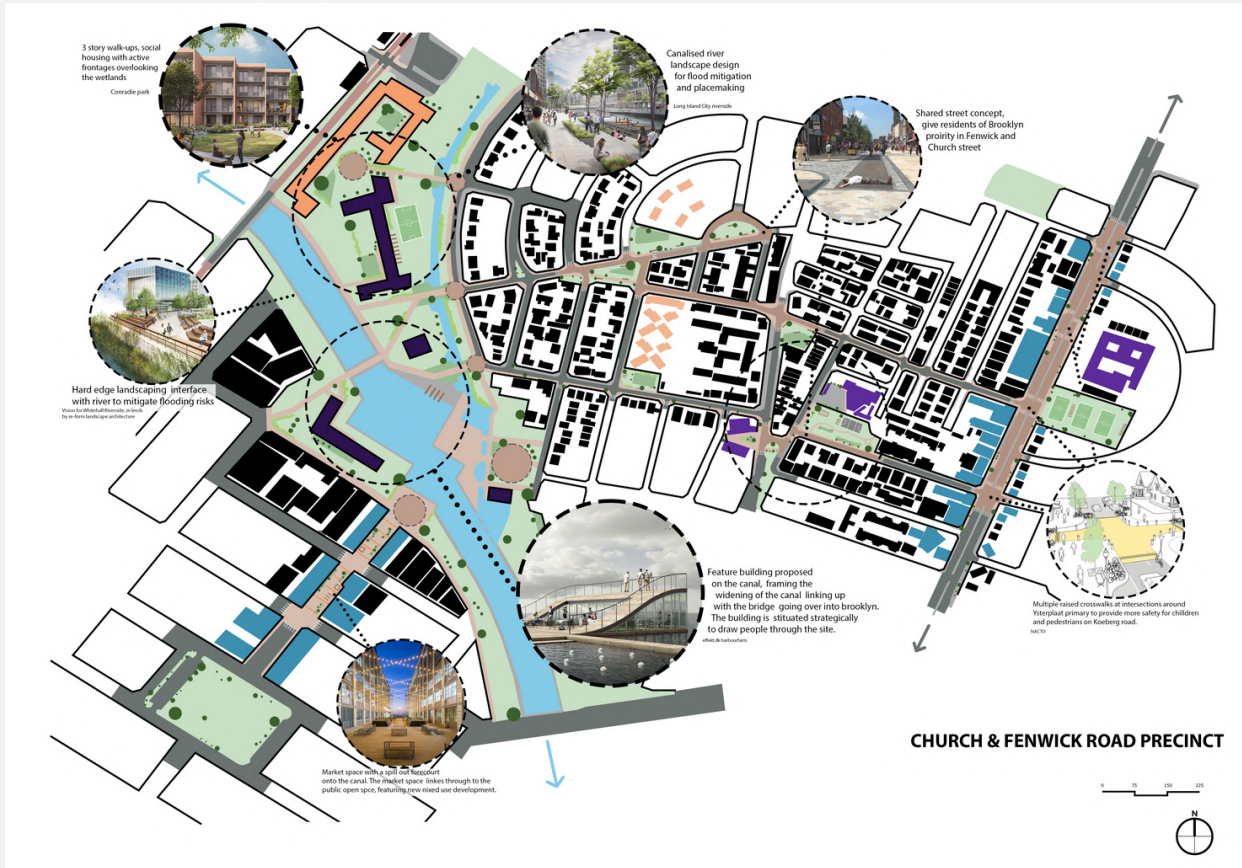
Boundary node gateway
 Key mixed use buildings to feature and active and open ground floor to draw people in and promote a positive, pedestrian friendly environment.
 Development to be 3-4 stories to match development scale on the opposite side of boundary road.
 Landscaping to be used as a buffer between development and



Zoarvlei development node
 Proposed buildings to feature an ornithology research center as well as an water quality science center. Visitors center and open ground floor to draw people in and promote a positive, pedestrian friendly environment.
 Development to be 3-4 stories to match development scale on the opposite side of boundary road.
 Landscaping to be used as a buffer between development and train tracks, to reduce noise.



CHURCH ROAD PRECINCT PLAN

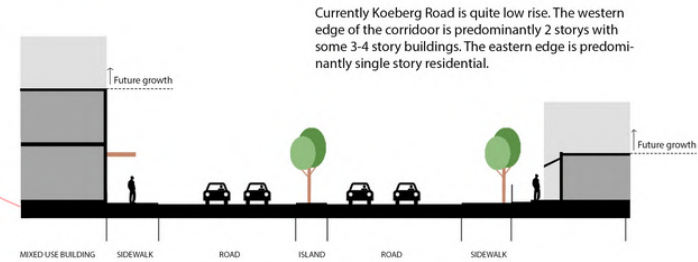


CHURCH ROAD PRECINCT GUIDELINES

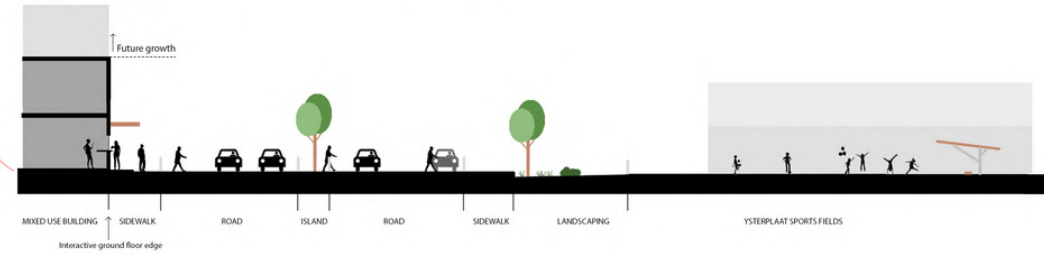
KOEBERG ROAD PEDESTRIAN PRIORITY AREA



This section of Koeberg Road has specifically high pedestrian traffic. This is due to the fact that Ysterplat primary school is located here, along with Koeberg Road Mall and some other bigger commercial/retail buildings. It is proposed that this section of Koeberg Road should slow down traffic significantly through the use of raised intersections, a change of road finish as well as increasing the amount of trees along this portion of the road. This in turn will also address the need for shelter from the elements and resting spots.

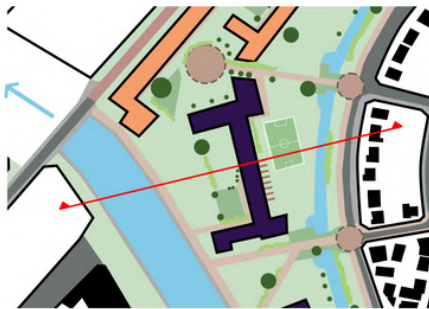


The two sections illustrate the proportions of Koeberg Road to its buildings. The proposal accounts for the increased population in Brooklyn showing how an extra story would impact the corridor. Currently the proportions of the corridor does not feel comfortable, as it has a weak sense of enclosure. Adding an additional story or 2 will bring the height to width ratio closer to 1:2.5 which would increase the sense of enclosure.

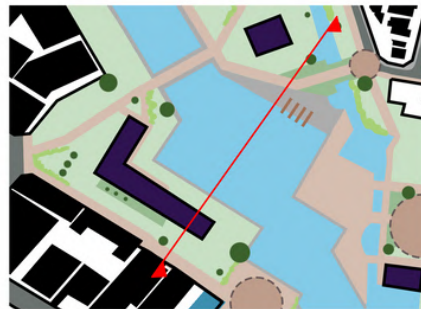
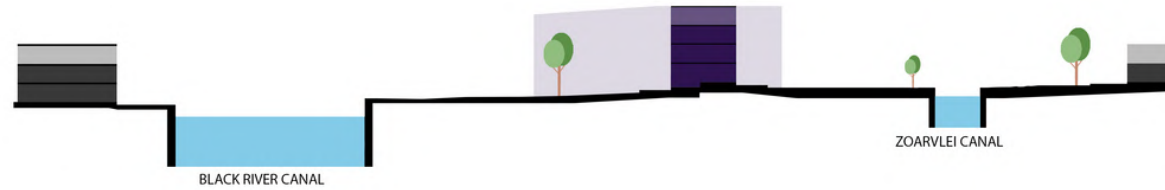


CHURCH ROAD PRECINCT GUIDELINES

GUIDELINES FOR NODES IN CHURCH & FENWICK ROAD PRECINCT



Zoarvlei-West housing and mixed use node. this node sits in between Brooklyn and Paarden Eiland, providing the necessary density to this area of the precinct.



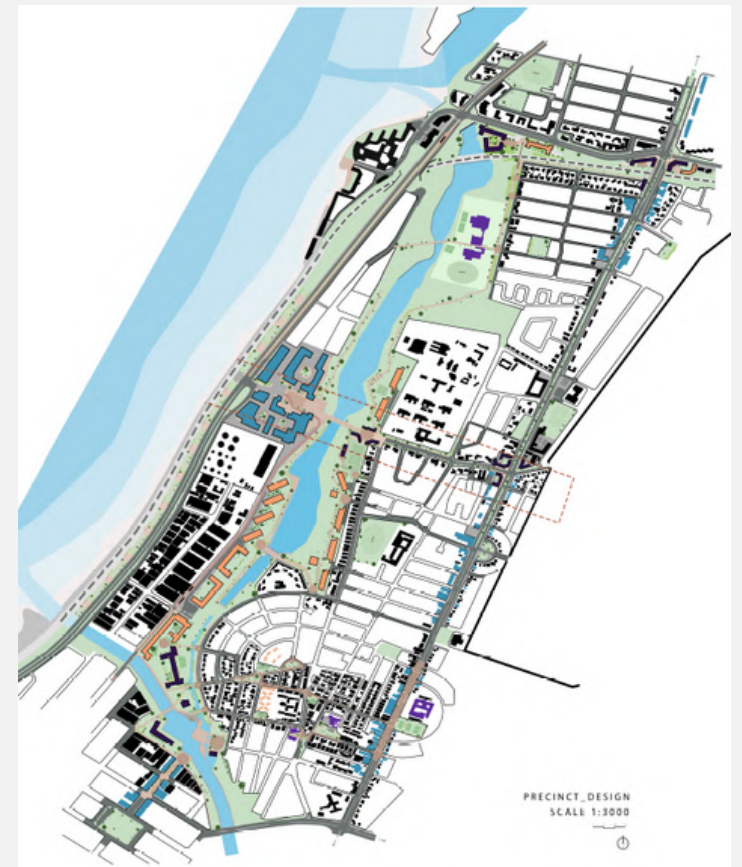
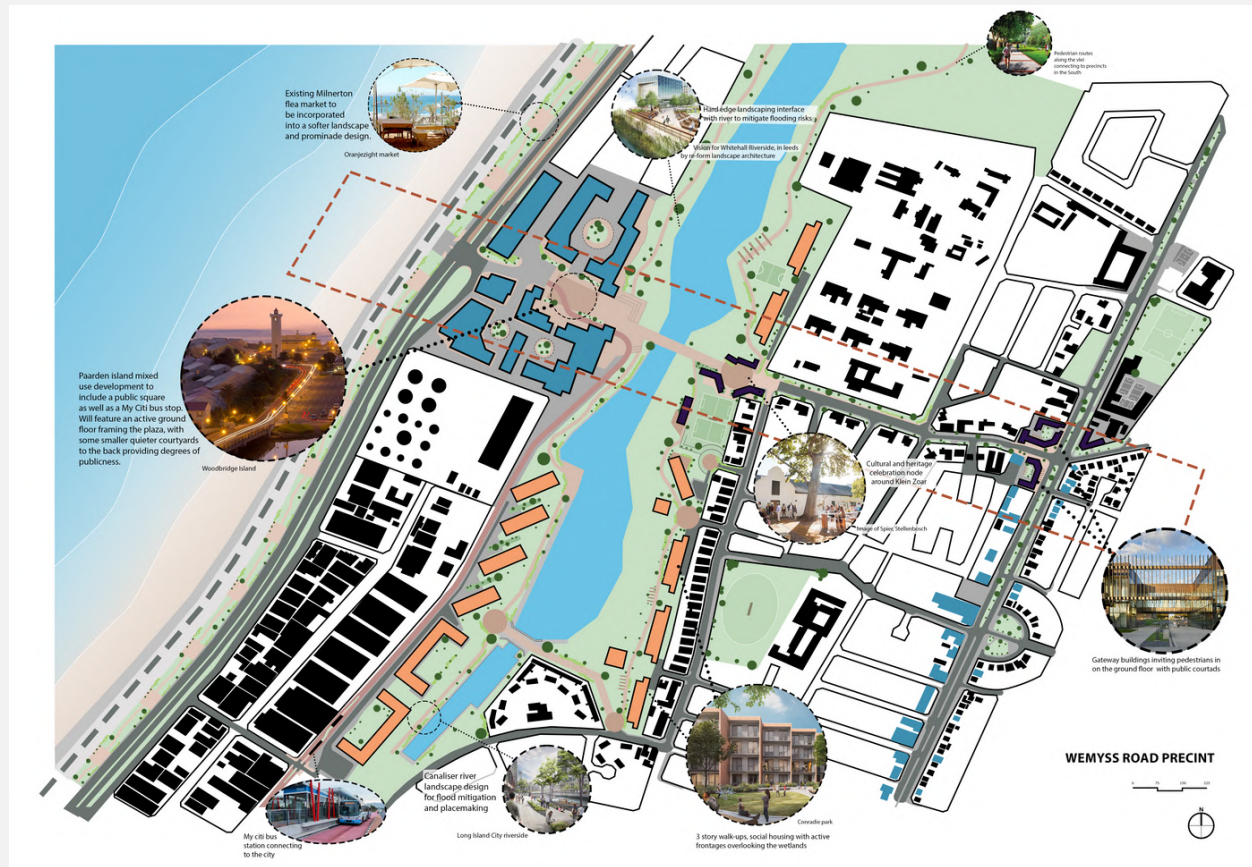
Canal widening node
The Blackriver canal is widened in order to create a space to pause along the long and linear canal.
At this node an entertainment building is strategically introduced to draw people across the site.
The new Zoarvlei canal is also at this node which will filter water from the blackriver to provide a constant source water to Zoarvlei all year long.



Church street node
Church street is a narrow street with little to no shelter from the elements. Traffic slowing strategies are used such as: raised intersections, pedestrian crossings and trees.
Fenced off and derelict open space is opened up as well as upgraded to better serve the public and provide some much needed place to rest on this important pedestrian route.



WEMYSS ROAD PRECINCT PLAN



WEMYSS ROAD PRECINCT RENDER



WEMYSS ROAD PRECINCT RENDER



ZOARVLEI HOUSING PROPOSAL
3 STORY WALK UP TYPOLOGY
48 UNITS



CONCLUSION:

My project titled:

Unlocking Potential: Integrating the Natural and Urban Corridors of Brooklyn for Economic, Environmental, and Social Prosperity.

Has set out to explore the potential of the neighbourhood of Brooklyn.

My research and design proposal were an attempt to answer the question:

*How can a unified natural and urban system be strategically integrated in the isolated neighbourhood My research and design proposal were an attempt to answer the question:
and wetland of Brooklyn to effectively balance economic opportunities, environmental preservation, and social inclusion, while maximizing the potential of both natural and urban corridors in the study area?*

I found this problem very exiting and challenging to grapple with. The study area has these two corridors that run parallel to each other and seemingly, in the current context, wants nothing to do with each other. The project explores how the two can leverage the best parts of each other bring out the best in themselves.

The design opportunity within that is to serve the bigger systems (linking and integrating) by unlocking the smaller systems and planting the seeds of development – on the framework level.

What this allows then in turn on the study area level and precinct design scale, is to allow for the type of housing and the mix of uses that best serve the community.

That is where the success of my project lies.

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ETHICS APPROVAL:



2023/06/06

CHED/00191/2023

RE: Research Ethics Committee Project Approval Letter

Dear Hanno Coetsee,

Your application for ethics review of your project titled

Social Housing, Densification, and Social Polarization: Exploring the Complexities of Neighborhood Dynamics in Cape Town.

has been reviewed and evaluated by the

APG: School of Architect, Planning & Geomatic Research Ethics Committee (REC).

Based on the information supplied your application has been successful and is approved.

You may proceed with your research project titled:

Social Housing, Densification, and Social Polarization: Exploring the Complexities of Neighborhood Dynamics in Cape Town.

Please note that should:

- (i) any serious or adverse effects to participants occur and/or,
- (ii) aspect(s) of your current project change and/or
- (iii) any unforeseen events that might affect continued ethical acceptability of the project occur then you should immediately report this to the approving REC. You may be required to submit an amendment to this application, in order to determine whether the changed aspects increase the ethical risks of your project.

Please note the following additional conditions associated with this approval:

- (i)

Regards,

APG: School of Architect, Planning & Geomatic

Research Ethics Committee

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:

Signed by candidate