SOLVING RESIDUAL SPACES

by Azraa Rawoot

A template for cities in envisaging disregarded public space into places that encourage and promote socio-economic development and prioritise pedestrianism.

solving residual spaces

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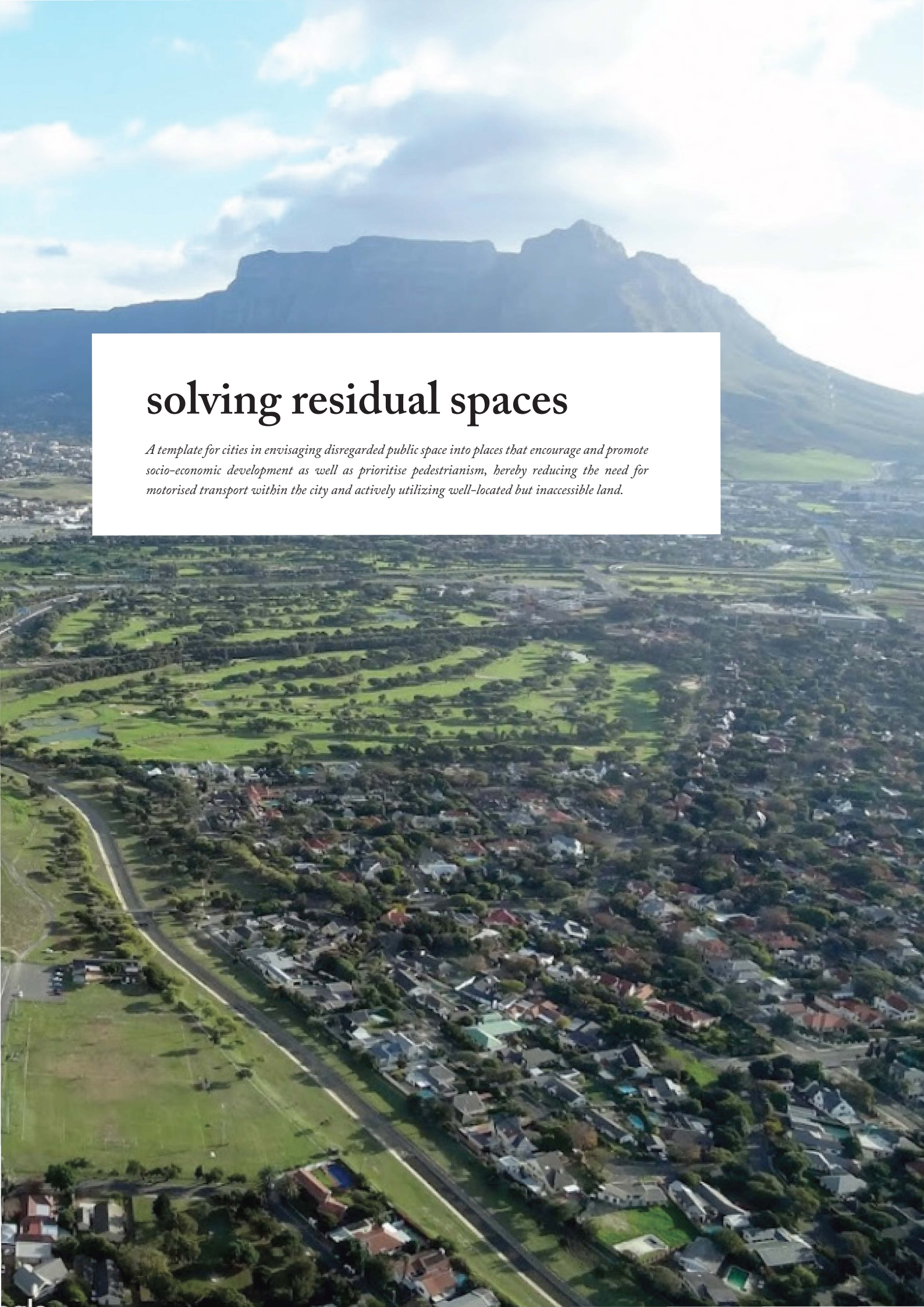

solving residual spaces

A template for cities in envisaging disregarded public space into places that encourage and promote socio-economic development as well as prioritise pedestrianism, hereby reducing the need for motorised transport within the city and actively utilizing well-located but inaccessible land.

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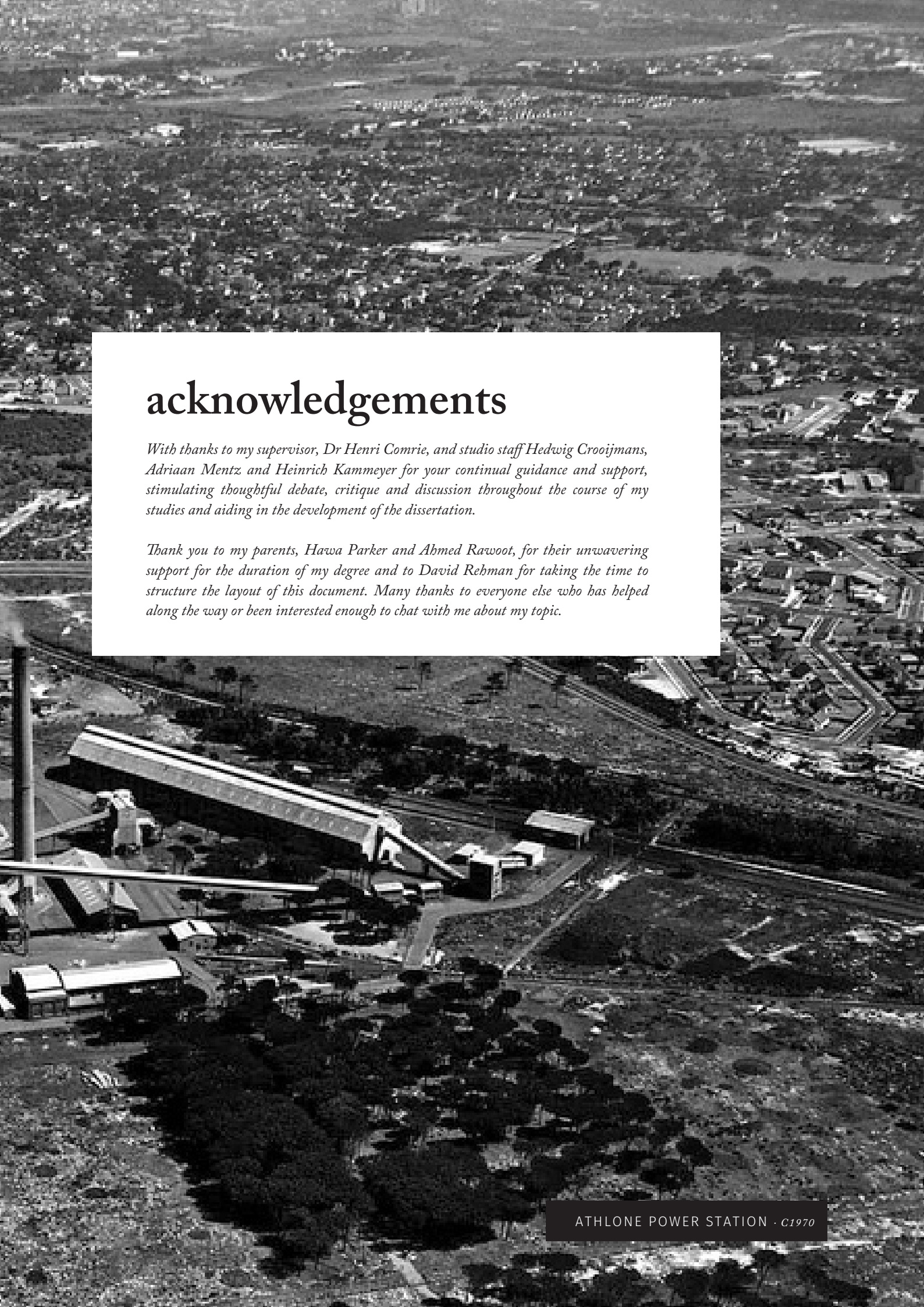

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ATHLONE POWER STATION · *C1970*

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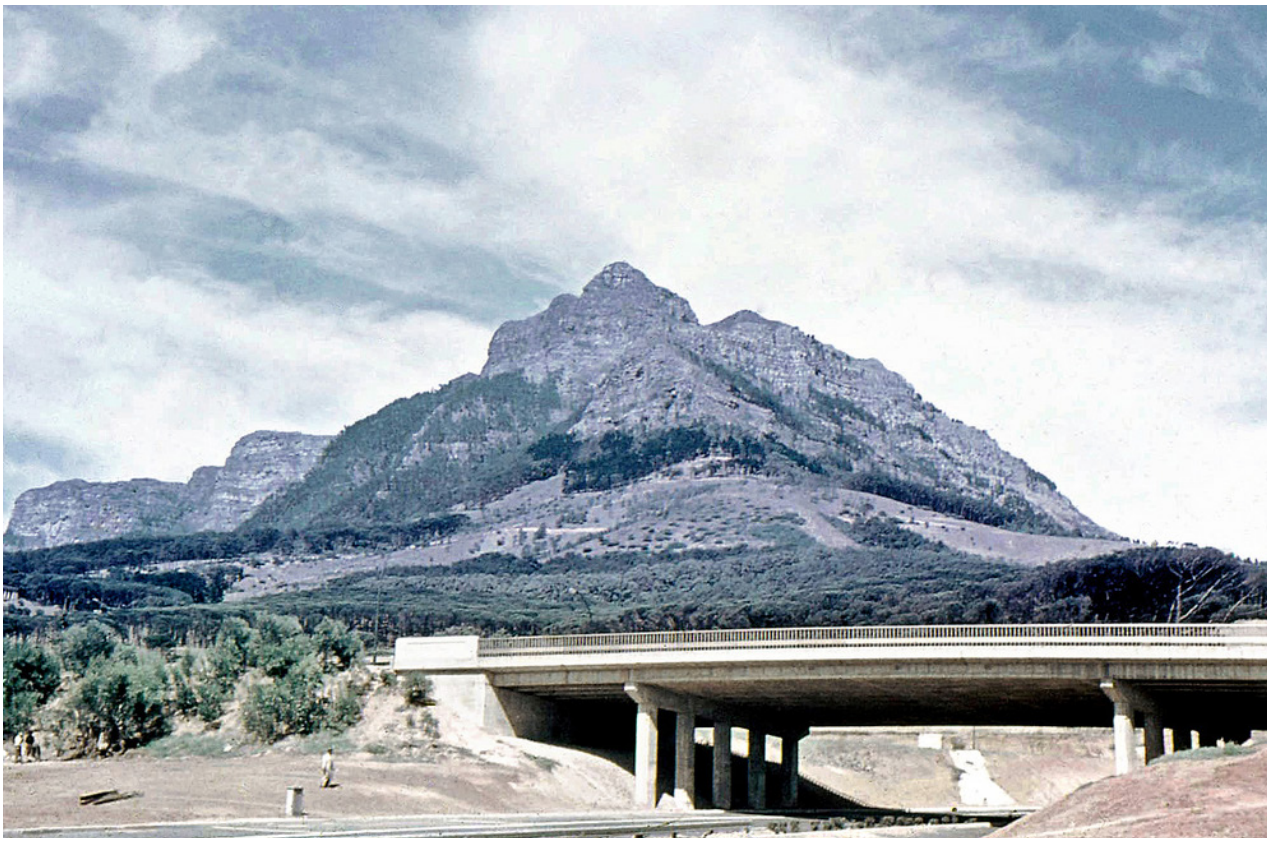


OPENING OF SETTLERS WAY

c1961

PREFACE

This document intends to chronicle a narrative working process which is the basis of this urban design project. The research involves a six-month investigation into current urban design theory and practice applied to the city as well as site scale.

The design commences with an intention which is informed by a combination of theoretical, surrogate, factual and contextualised factors. The process has been one of reconciling the blurred boundaries between conflicting ideas of a design that is economically realisable in the short term and experimenting with new and largely unexplored ways of city-making in radically changing cities in which urban land is scarce and increasingly valuable.

Parts One and Two of this document are intended to be independent of Parts Three and Four. The initial chapters are an investigation into challenges of any modern city and the final chapter is an illustration of a solution to only chosen site.

https://inarchitectureandurbanism.wordpress.com/2013/09/29/cities-highways/

PART ONE

http://www.landezine.com/index.php/2015/09/buffalo-bayou-promenade-by-swa/

INTRODUCING THE NARRATIVE

This chapter explains the intention and methodology of this document, setting the tone and extent of research and design resolution to be illustrated from he scale of the city to the scale of one strategically chosen site.

TURNING INTO DARLING STREET

c1900

INTRODUCTION

The future success of our society is inseparably linked to the quality of our cities. Urban environments that fail to meet the needs of an exponentially growing population will breed hostility and social disruption. In order to address this, the future of cities must foster compact and collective urban patterns that use resources sustainably and maximise the efficiency of urban space. The restructuring of vacant land and lost space within the urban edge will become one of the challenges of planning and urban design as density increases. Reinventing and restructuring the forms of lost space that already exists has the potential to respond to the needs of restoring the fragmented spatial and social fabrics that currently exists in Cape Town. Small scale infill projects that are adaptively reused will become the new urban movement toward preservation and the shaping of the city at a responsive scale to its context. Infill that occurs at the scale of the neighbourhood and in accordance with the existing urban pattern has the potential to become sites that foster social and physical interaction.

Understanding people and place in a city is salient in planning for the future. The growth of a city and pressure from developers is inevitable and it is the responsibility of the state to guide this change through adequate spatial planning practices with educated projections of the direction of the growth the city intends to move towards in order to ensure the highest quality of living for all its residents.

This document provides an argument for the long-term development of cut -off spaces which, as this document will investigate, will become significant spaces for dwelling as land becomes increasingly more scarce and valuable within the urban edge.

The spatial concept is intended to be implemented slowly over a period of time with the relevant revisions in strategies being made as they arise. The outcome of this document is to provide the best possible solution to the challenge of wasted space as a result of building vehicular oriented infrastructure within the modern city. These solutions integrate public transport, natural biodiversity and living environments, and economics, with the aim to benefit the population of Cape Town whilst placing specific focus on stimulating low-income areas, particularly in the metro south-east.

The proposal intends to promote economic prosperity and sustainable growth through equitable accessibility. Priority is placed on the provision of a network of public space across the city in order to enable socio-spatial justice which is currently lacking due to the country's history of apartheid planning. At the local scale, the plan directly promotes development of vibrant urban environments which is most directly accessible and tangible to the majority of the population.

The salient challenges which this document attempts to address are:

- inequitable spatial accessibility at the metropolitan scale
- socio-spatial fragmentation
- urban sprawl and insensitive urban development
- spatial connectivity for the pedestrian
- lack of access to dignified and integrated public space
- the degradation of the natural environment

The solutions to these challenges include:

- establishing an effective integrated public transport movement system
- promoting environmental and heritage conservation
- developing more people scaled-places
- proactively subscribing to the correction of historic spatial patterns of settlement and inequality
- providing a fair balance between urban development and environmental conservation

DARLING STREET, CAPE TOWN

c1964

VISION

The intention of this document is to guide the anthropocentric development of the city that is a socially and sustainably attractive place to live in. Effective planning of the city not only helps to deliver optimum public services, but is also the driver in making cities a model of sustainability, which in turn stimulates economic development, liveability and spur rejuvenation, particularly significant in the post-apartheid South African context. An exploration into the scale of lost space within built areas and then creating a conceptual urban design framework for one strategically chosen site within a surrogate context at the precinct scale, includes ways in which to bridge the spatial urban divide created by the injustices of the past and mass private vehicular infrastructure as a result of modernist city making.

A healthy city that serves its citizens is in need of usable public space as much as it needs any other kind of urban infrastructure, which not only includes parks and gardens but also pedestrian oriented streets, walkways, bridges, markets, plazas and ample public transport stops and options. Well-design precincts at the local scale are the most tangible spaces for the citizens of Cape Town and are central to unlocking physical focus sites with the potential to become valuable urban public spaces that are interconnected throughout the city via non-motorised transport routes. This has the potential to perform as a community connector and provide equality within the city, thus fostering social as well as economic development in its context. The current automobile orientated transport and road system combined with low-density suburban sprawling urban patterns, increases spatial inequality and traffic congestion, while an increasing population density is high enough to justify significant investment in public space and transport.

THE STRUCTURE OF THIS DOCUMENT

The ideas, theories and explorations in this document are structured initiating with an investigation of one of the salient challenges facing modern cities today. This broad scale speaks of some of the failures of planning in the 20th and 21st centuries. The narrative evolves from the macro scale: presenting challenges and illustrating conceptual alternatives to the micro scale: proposing solutions at the scale of the site.

The scale of the city comprises a broad and form based aspect of the research, speaking to general shortcomings and potential solutions for most modern day urban living environments within cities.

The urban scale considers a strategically chosen site in the Cape Town metropolitan area that encapsulates the challenge of cities discussed in this document and is also advantageously located as a connector between two future major destination places in the city with the potential to address the gross insufficiency of vertical development and lack of quality public spaces in the area.

The site scale explores ways in which a strategy can be developed that fosters quality living environments that are easily accessible, well-landscaped, dense and comprise a mix of uses.

The design and focus of this document begins to unpack a new typology of developing the built environment that has been overlooked in the design of major infrastructure of cities but will become increasingly valuable as cities densify and urban land prices increase.

1: PROCESS AND STRUCTURE OF THIS DOCUMENT

RESEARCH AIMS AND DESCRIPTION

Research Question

How can disregarded public spaces, created as a result of vehicular oriented space-making and sprawl, be reconsidered, through design, to promote socio-economic development that prioritises pedestrianism, further reducing the need for motorised transport and innovatively developing cut-off spaces in the contemporary city?

The root of the question

As a future City Planner and Urban Designer my foremost career intention is to create places and cities that are socially and sustainably attractive places to live in. Effective planning of cities not only helps to deliver optimum public services, but is also the driver in making cities a model of sustainability and significantly reduce antisocial and criminal behaviour, which in turn stimulates economic development, liveability and spur rejuvenation. This is particularly significant in the post-apartheid South African context. This work at a city and then local (precinct design) scale also includes studies of ways in which to bridge the urban divide, spatially, technologically as well a sustainably.

The research focus I intend to undertake has stemmed from a long-standing interest in the public life and dynamics of a city in social as well as sustainable terms. The investigating is based on finding existing public sites within the city that have been overlooked or overshadowed by its surroundings, most of which are undermined by its relative location as 'cut off space' created by highways and infrastructure that primarily supports motorised and rail transport exclusively, and then exploring design solutions to make these spaces accessible and usable at a human scale for the residents of the city.

The trouble with modern space making

The area of the research study is one that cannot only be applied to all South African cities, but to cities across the globe. As most major cities around the world have been designed as car-centric places, they all consist of 'cut-off', technically public, sites that are remnants of the design of highways and other motorized transport infrastructure but are in fact inaccessible to the pedestrian.

The trend toward non-motorised transport has significant positive environmental benefits and the increased need for public space for social interaction is particularly critical to all cities. With a rapid increase in population density, cities cannot afford to neglect these public sites that are often located in some of the most accessible parts of the city and holds significant potential for development into usable and sustainable human spaces.

The numerous potential public sites that are currently unusable are due to factors such as little to no pedestrian comfort in accessing and using the site; no comfortable places to sit, socialize or eat; and no symbiotic uses to complement the experience of and attract people towards the site.

The usefulness of this exploration

The physical design of the focus sites of this study has the potential to become valuable urban public spaces that are interconnected throughout the city via non-motorised transport routes, making them accessible for all community groups across the city, as well as not being reliant on motorised transport. This design hypothesis has the potential to perform as a community connector and provide social equality within the city, thus fostering social as well as economic development in its context.

The aim of this research is not only to identify these sites but also to investigate ways in which to develop them into working and productive landscapes, which holds the potential for small-scale developmental growth within the city. These critically located sites could become areas for storm water management and urban farms, etc. that citizens are able to take ownership of. This is a particularly well-precedented proposal for social collaboration towards sustainability and can be integrated into the urban ecological and economic system.

A secondary element of the research is to name these public sites in order to make it more psychologically accessible to people as well as give the space a tangible identity that people are able to relate to at a human scale.

The advantages of such a comprehensive unused urban land investigation are able to visibly identify public sites available to city residents and effectively respond at a local scale. This research also has the potential to create a dialogue between city stakeholders and the impacted community around consensus-based solutions, initiating an association between sustainability and the trend towards a pedestrian-oriented city. It places environmental issues as the priority towards the sustainable development of the city and serves as a platform to develop concepts and new models of mobility, energy and social structures within metropolitan areas.

The research plan

The new approach to urban research requires tools that consist of mapping, analysis and transformative theories. I intend to develop design strategies based on critical engagement with contemporary urban issues viewed through a sustainable, methodological, theoretical, and analytical lens. The ultimate objective of the design method is to extract key insights resulting in more practical solutions in order to achieve an improved experience of the city for its citizens, including the environment, services, and systems that are relied upon on a daily basis.

Phase 1

The research is initiated with a mapping exercise of types of typical cut-off spaces as a result of vehicular oriented infrastructure. With this information, one may calculate the average amount housing, food per family, electricity per family or soccer fields could be contained within the site. This information alone has

the potential to indicate the degree of the waste of space in building modernist infrastructure, as well as potential land for densifying and building within the bounds of the city's urban edge.

Phase 2

Redefining the specifications or initial intent (or lack thereof) of these spaces with the intention of creating better redesign and guidelines for the practical use of these spaces in a contemporary city context by prototyping the potential uses and scenarios inherent in the space in order to significantly improve it. This will be done with a coherent understanding of the history and heritage (where applicable) of the site and its surroundings; physical site visits in order to clearly understand and observe the current use of each site; and an exploration of relevant precedent and case studies.

This phase includes a mapping exercise (quantitative research) of the areas in order to design possible walking/non-motorised transport options between them and to other significant areas of the city in order to fully integrate the space into the public life of the city whilst exploring ways of sustainably managing these areas for their new intended purpose (e.g. urban agriculture, public park, storm water management, housing, harvesting solar energy). One of the objectives of the research is to clearly articulate the physical as well as visual relationship between these currently isolated areas and the city as a whole.

The cut-off spaces will be categorised into types (i.e. size, undevelopable as a result of high water table, developable for housing, vegetation, water infiltration, urban agriculture, sports facilities, etc.) and a variety of flexible design solutions will be proposed for each typology.

Phase 3

The final aim of the research is to be able to propose a phased implementation of a strategically chosen site that shows the most potential for practical development in the near future as well as serve as a model for similar sites at a national or international scale.

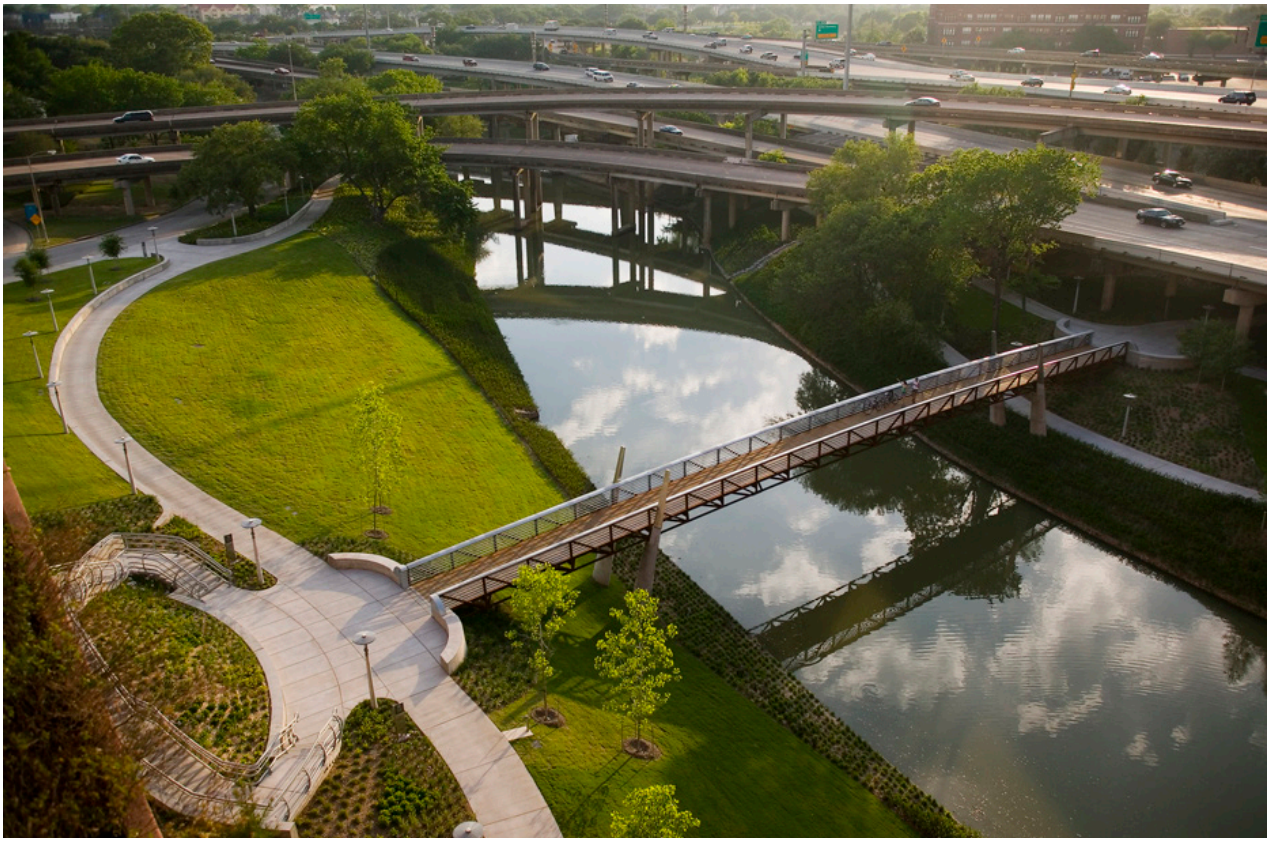
Why is this relevant?

In the context of Cape Town, there are few public spaces in which citizens are free to use recreationally. In a city with a steady number of school-going children which requires a multitude of diverse recreational facilities, coupled with an ageing population, it is imperative that there is a distribution of walkable public spaces across the city. The need for spaces that prevent de-humanisation and the rise of privatisation, social polarisation and segregation (Madanipour 2003); and encourage spaces in which people are able to interact in a public environment, coupled with an increasing trend towards pedestrianism and other forms of non-motorised transport, makes this study one that can be applied as a template not only to South African cities, but also to cities across the globe.

PHOTOGRAPHER: AZRAA RAWOOT

This research topic is of particular relevance to urban designers working in resolving some of the challenges of the contemporary city. Constant examination of the shifting nature of public spaces and ways in which realms of existence can be established that "caters to the needs of all members of a society" (Madanipour. pp 241), which is particularly relevant in post-Apartheid South Africa.

PART TWO



http://www.landezine.com/index.php/2015/09/buffalo-bayou-promenade-by-swa/

THE CHALLENGE FACING MODERN CITIES

This chapter explores the theory of lost space and the extent to which it affects our urban centres with the rising dominance of the private vehicle and the recession of traditional urban values. The examination of the crisis of the contemporary city, with focus on the context of Cape Town, an inclusive analysis of the two major influencers of the South African city today is explored, namely, the adoption of modernist planning and the rise of apartheid planning.

FINDING LOST SPACE

Theoretical explorations and underpinning thinking

'NEWLY' COMPLETED KOEBERG INTERCHANGE
c1966.

Trancik, Roger. Finding Lost Space: Theories of Urban Design. New York: 1986.

Finding Lost Space will be a primary text for delving into the content of this research. In this text, Trancik addresses one of biggest issues in urbanism we presently experience, the problem of re-imagining and re-occupying fragmented city spaces within the public realm that has the potential to firmly shape, coherently link and provide humanly meaningful urban spaces. The concepts laid out in the reading will be applied to fragmented lost spaces as a result of the modernist vehicular oriented city we live in today.

Lost spaces are unique and context based public spaces within the city which are significantly underutilised. They are typically physically degenerated or derelict and commonly the result of the South African history of segregation and sprawl in Apartheid planning and urban development, as well as the dominance of mass private vehicle ownership at the forefront of city space making. These lost spaces have enormous untapped potential to contribute positively to the unique built environment of Cape Town. The research holds the potential to shift the perceptions of the development possibilities of lost, underutilised and cut-off public spaces.

Trancik's reading provides a systematic and comprehensive exploration of this challenge of almost every contemporary city and provides guidelines for the ways in which these can be addressed. The reading explores prominent urban spatial design theories that have emerged during the past half century, these include: the reactions to and impact of the Functionalist movement; the principles of Howard and Sitte; and designs developed by Team 10, Fumihiko Maki, Robert Venturi and the Krier brothers, etc. In addition to discussions of historic precedents, contemporary approaches to urban spatial design are also explored.

What is Lost/Cut-off Space?

Trancik defines lost space as the unstructured landscape that severs the connection between land uses in the modern city. The most intriguing spaces from the reading are the 'no-man's land' spaces along the edges of vehicular oriented infrastructure that is inaccessible, unmaintained and underutilised but collectively consists of a large portion of urban land. These spaces emerge without notice and form as the result of over-engineering within the transport planning sphere and sorely lack experiential qualities of moving through the space from the point of view of the pedestrian. These spaces are in need of redesign and restructuring in order to integrate them back into the usable landscape, transforming 'anti-space' into a positive contribution to its context. Currently, these spaces are undefined and serve to fragment the city, yet they offer infinite opportunity for creative infill and urban development.

Trancik suggests that the most salient factors in creating cut-off spaces are:

(a) dependency on the automobile;
(b) the form of planning cities following the Modernist Movement of the 1920s;
(c) the implementation of zoning which served to fragment the city;
(d) a reluctance to assume responsibility on the part of public-private institutions for the public environment; and
(e) abandonment of heavy infrastructural sites within the city such as industry, military and transportation.

In the context of this research, all of the points above are applicable but one cannot omit the salient influence of apartheid planning on systematically fragmenting the city, leaving vast areas of open space between neighbourhoods.

The imposed zoning schemes in South Africa further serves to sanitise and promote spatial order and human welfare in the city through the separation of land use. This comes at the cost of functional order and a deterioration of social order. In the South African city, zoning legislation, together with apartheid fragmentation in planning meant that additional roadways and railways were needed in order to move around the city, further aggravating the cut-off space phenomenon within the urban fabric.

> ***"Modern space is, in effect, anti-space; the traditional architecture of streets, squares and rooms created by differentiated figures of volumetric voids is by definition obliterated by the presence of anti-space…[which] leads to the erosion and eventual loss of 'space', and the result of this can be seen all around us."***
> *- Steven Petersen, Harvard Architectural Review.*

Ideas of the 20th Century in Space Making

Space making in the 20th century has been almost universally established upon utilitarian functionalist principles. With regards to transport infrastructure, it translates to getting the masses from point A to point B as rapidly as possible, with little regard given to the experiential quality of the journey.

"Spatially the new settlements do not any more possess enclosure and density and usually consists of buildings freely placed within a park-like space. Streets and squares in the traditional sense are no longer found and the general result is a scattered assembly of units. This implies that a distinct figure-ground relationship no more exits; the continuity of the landscape is interrupted and the buildings do not form clusters or groups. Although a general order may be present, particularly when the settlement is viewed from a plane, it usually does not bring about any sense of place"
- Christian Norberg-Schulz.

The physical manifestations of 20th century planning have surely modernised the life of city dweller in terms of economics and development, but the cost of progress is paid for in social cohesion, in the disintegration of communities, and in costly sprawling cities.

The Capetonian Context

The exponentially increasing dependence on the automobile has become a way of life for most South Africans in the context of sprawling and of low densities cities. The need for mobility has dominated public space. The commencement of the foreshore reclamation scheme in 1936 (Rautenbach 2014) heralded the beginnings of the Modernist utopia intended for Cape Town. By this time, mass private vehicular ownership were the icons of progress and efficiency. This utopia included wide boulevards and traffic circles, flanked by tall buildings of concrete, glass and steel, following the Eurocentric planning movement of Le Corbusier's Modernism and Haussmann's Paris.

These influencers appealed to the Apartheid agenda of South Africa at the time as Le Corbusier's 'surgical' planning approach prescribed demolishing the city's less favoured neighbourhoods, and replacing entire areas. The same process was utilised by Haussmann in the replacement and demolishing of poor and derelict neighbourhoods in favour of pristine parks, boulevards and squares. These approaches were adopted by the city planners of Cape Town in conceiving of grand boulevards cutting across entire neighbourhoods such as Woodstock and District Six.

The 1970s heralded the introduction of the infamous raised flyovers in the city, creating a ring road around the city. These colossal forms of infrastructure, together with a lack of decent pedestrian walkways in the face of harsh winds, resulted in the non-existent street culture we experience today.

The city we are left with today consists of a physical atmosphere of dense and impermeable block of steel and tarred roadway, over engineered highways hovering, looping and unyielding to the pedestrian. The challenge planners and designers are left with today is transition towards a more responsive city to the citizen, downsizing to the pedestrian scale and reconnecting city dwellers to their physical environment.

Trancik proposes that the city dweller is compelled to creating a communal life within controllable grounds, leaving no need for investing in public space and an existence on the street, leaving South African cities with sprawling homes of individual and expansive plots, and radically altered perception of public space. The loss of societal collective within the public arena has led to buildings, as opposed to public space, taking authority of the public realm. It is, in part, the role of the urban designer, in partnership with all stakeholders of public space, to reincorporate the diversity and richness of activity back into public space.

Rethinking the way we regard cut-off space

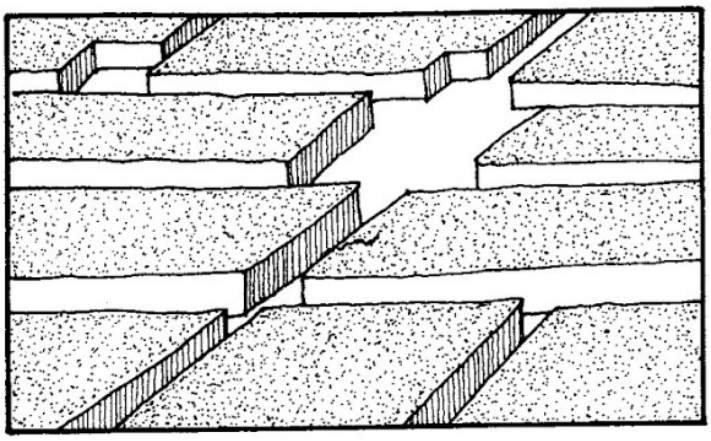
The intention is to reassess the ways in which cut-off spaces are perceived in order for them to be productively utilized and become a positive space in their context. In any city, well designed public spaces are salient to its success. People like rooms. To the urban designer this means creating continuous sequences of outdoor rooms across the city, as opposed to fragmented and isolated spaces. This can be done retroactively through reclamation of strategically selected cut-off spaces between neighbourhoods and land uses through infill on the horizontal plane.

The diagrams above illustrates the traditional spatial structure of city making, one which the urban blocks facilitate and direct movement whilst establishing orientation for the city dweller. The modern city form illustrates haphazardly placed urban blocks, sorely lacking in legibility and bearing no relation to its context. The third diagram conceptually illustrates ways in which this fragmentation of form can be solved through implementing the principle of enclosure in order to create connections and usable links within the voids. These diagrams illustrate the salience of built form in unifying a framework of open space. Enclosure is found in architectural form.

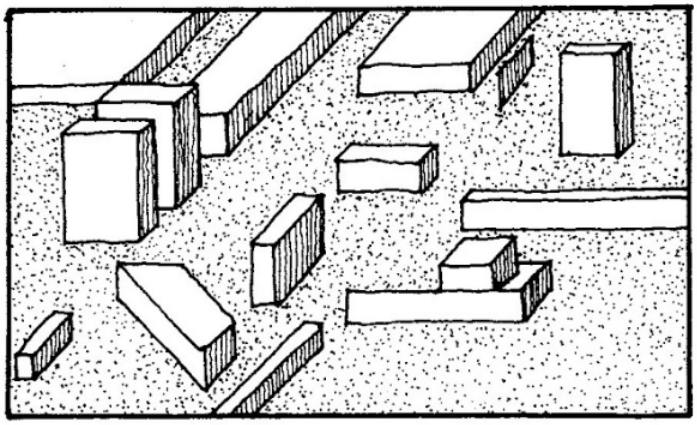
Learning from Trancik:

principles to apply

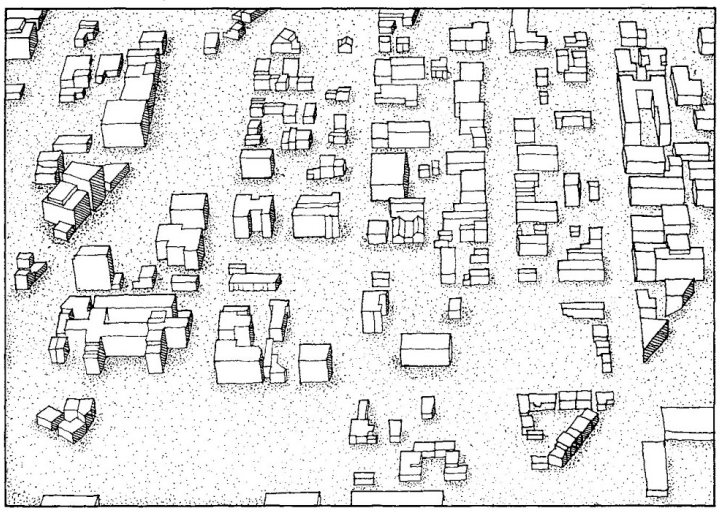
- re-assess the way in which cut-off space is perceived
- create a series of connecting outdoor rooms across the city
- reclaim strategically selected cut-off spaces for redevelopment
- create legibility and orientation for the city dweller
- minimise fragmentation through reclamation and enclosure



2: TRADITIONAL CITY FORM



3: MODERN CITY FORM



4: LOST SPACE BETWEEN
BUILDINGS IN THE MODERN CITY

"Urban voids are at once the vessel and symbol of human gathering, and represent the tension between the individual and the collective"
- Roger Trancik, Finding Lost Space, 1986.

Spatial Design Theory

Trancik describes three relevant theories in the exploration and application of this research, namely, (a) the figure-ground theory, (b) linkage theory, and (c) place theory.

Figure-ground theory

This element explores the ground coverage of the built form in plan in order to assess the relation between solids and mass and establish hierarchy of space. This is the starting point in understanding the urban form and is a robust method for visually illustrating patterns and textures, especially voids, for the research to be conducted in this thesis. Problems of spatial fragmentation can easily be identified within the two dimensional conception of space and possible solutions or strategic interventions can be proposed.

Linkage theory

This element is derived from lines of connection between the built form. These lines consist of roads and streets, linear open spaces, pedestrian pathways, etc. The application of this theory intends to create networks and connections across the urban area in order to attain structure and a legible circulation pattern. This theory, like the figure-ground theory, is explored in plan. This theory can be used to distinguish the pertinence or lack thereof of movement networks across the city, before strategically identifying cut-off spaces in the city for infill in areas that lack this connection. This theory has been applied by Edmund Bacon in the revival of Philadelphia as a tool to create metropolitan scaled connections with the intention to restore urban legibility and guide new development.

Place theory

This element incorporates a qualitative dimension to analytical research. The human and cultural features of cities within a historical and natural context is explored in order to integrate this into the proposed design. The social and cultural values of the users are the most salient element of creating an experiential city that serves the needs of its dwellers. Place theory is concerned with the genius loci, or spirit of a place, it involves the recognition of a distinct character and attaching meaning to place in order for man to dwell within the material world. This theory opposes the functionalist values within which it is placed.

These theories cannot be used in isolation, rather each theory, when layered will allow the proposed design to be well integrated into its context. Providing structure between solids and voids, constructing circulation networks across the city; and appropriately responding to the urban dweller, collectively create a unique and liveable human environment and a successful city. The intention is for the designer to create a balance between physical and cultural features in the urban landscape within the scope of the needs of users of urban space.

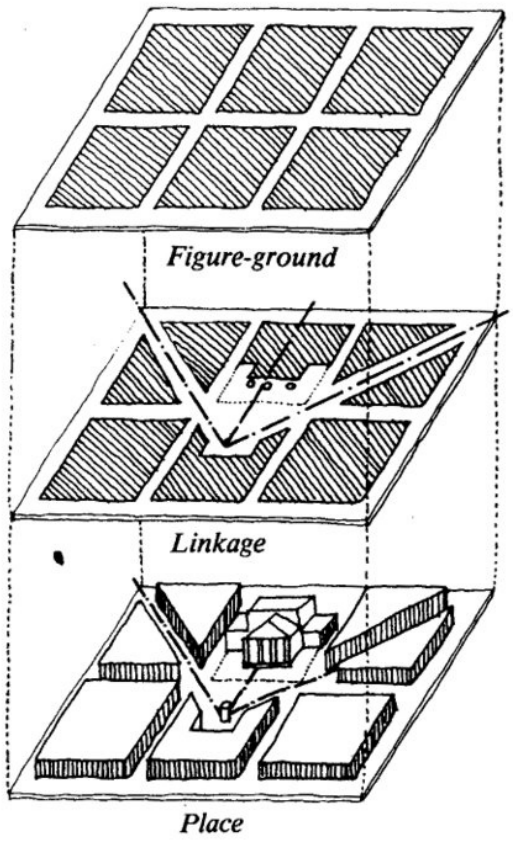
Peter Smithson of Team 10 argues that zoning and master planning of the modernist era will do little to create quality of place within cities and that the genius loci is only created if the place is embodied in its own being and character, guided by its own limits and potentials. This is reiterated by Kevin Lynch as he argues that each unique place should be perceived as a continuation of its neighbouring place, its recent past, and its near future. No place should be static in time, rather it should be continuously evolving and adapting, moulding itself to the arising needs of the citizens they serve. Time and place here, are of great salience, these two elements, he contends, structure our experiences within a framework of 'time places'.

In his work, The Image of the City (1960), Lynch describes his principle rules for designing a successful city: (a) legibility (the mental picture of a place as

"It is the articulation and differentiation between solids and voids that make up the fabric of the city and establish the physical sequences and visual orientation between places" - Roger Trancik, Finding Lost Space, 1986.

perceived by the city dweller); (b) structure and identity (the recognition of patterns and rhythms made by urban blocks, architecture and space; and (c) imageability: the experiential quality of space as perceived by the user. In combination with this, the five elements of city form making are overlaid in more detail, these consist of paths, edges, districts, nodes and landmarks.

Hans Hollein's work enriches Lynch's principles and elements of the city by attaching layers of contextual meaning. He asserts that urban spaces should be able to understood at various levels. He states that the city speaks from the ordinary scale of "small shops and coffee pots" to the "whole city where illusion and reality come into play", verbally illustrating that design is read for the everyday city dweller to the user intent on finding the deeper meaning of space.



5: DIAGRAM OF URBAN DESIGN THEORIES
(Finding Lost Space, pp 98)

Learning from Trancik:
principles to apply

- figure-ground theory: exploring the ground coverage of the built form in plan in order to assess the relation between solids and mass and establish hierarchy of space.
- linkage theory: assessing lines of connection between the built form.
- place theory: evaluating human and cultural features of cities within an historical and natural context

the three theories must be used collectively in order to propose a contextually appropriate design.

Integrated Urban Design

Integrated Urban Design, according to Trancik, is based on five primary principles that together, create a comprehensive spatial configuration of the city:

Linking Sequential Movement

This principle illustrates the salience of linking existing structures within the city in spaces that are unified and able to be moved through sequentially in order to solve the challenges that have arisen from modernist planning. An important element of this is connecting public space and the human experience of moving between neighbourhoods and buildings, which have been compromised by the over-accommodation of the automobile. The exterior landscape should be used as links and directing sequential movement through a series of spaces. The linkage theory can be applied here to knit and infill cut-off spaces and direct pedestrian space in order to facilitate transitioning across the city more experiential for the city dweller.

Lateral Enclosure and Edge Continuity

In the cities inhabited today, based on modernist planning techniques, urban designers are left with the challenge of infilling the gaps as a result of building vast expanses of transport infrastructure that fragment people and neighbourhoods with vast and placeless spaces. Continuity of an interactive wall is salient in creating the enclosure and street facing activity city dwellers require. The character of frontage and continuity of walls (urban rooms) are salient in creating successful places.

Integrated Bridging

This principle illustrates ways in which a physical bridge can also become a piece of functional and beautiful architecture by integrating the two typologies. This principle has the potential to be applied within the cut-off spaces researched in this thesis as a possible solution to bridging the divide between them and their neighbouring places. This will minimise fragmentation within the city's fabric and elevate the pedestrian circulation platform to one that is out of reach of vehicular movement and that enables activity within them, thus the existing spatial continuity for the vehicle is uninterrupted. This principle claims cut-off space that segregates communities and neighbourhoods through a design solution, transforming negative space (voids) into spaces of opportunity and connection that direct pedestrian flow. This tool has the potential to create an uninterrupted network of activity and public space, in which bridges become a salient element of creating coherency for the city dweller through the use of architectural and landscaped techniques.

Axis and Perspective

This principle aims to initiate a system of visual legibility within cities by connecting fragmented elements through lines of site. Axis and perspective are salient in structuring this intention in areas with undistinguished and unsystematically ordered spaces in need of order and legibility.

Indoor/Outdoor Synthesis

The transition between interior and exterior spaces are salient in creating successful city spaces. Threshold conditions should respond to the energy of both interior and exterior conditions, integrating the landscape with the built form.

The Design Process: a useful tool

The Study of Place
The evolution of structure of place over time is salient in understanding its present and potential future. Exploration into significant growth periods, planning and design policies that have influenced a place in guiding development, or lack thereof must be discovered. Historical maps will indicate previous relationships with streets and neighbouring sites, street and block patterns, districts and their edge, and natural systems. Historic images of a site and its surrounds, including images of buildings and spaces, considering mass, character and shape will assist in understanding activity of human patterns in the area. This information will do much in the way of recognising the shortfalls of the site in order to propose appropriate and useful solutions grounded in reality.

Spatial Analysis
This step includes analysing the existing structure of the site. In plan, urban solids and voids are explored through a figure-ground exercise within the urban landscape and reveal patterns and rhythms, or the lack thereof. Isolated and fragmented spaces will become obvious within its larger context. In addition to the figure-ground, cross-sections, axonometrics, topographic maps and aerial photographs are useful tools in revealing vertical dimensions of the area. Existing patterns of use should be recorded in addition to diagramatising open space systems and linkages at the scale of the site and its larger context. The quality of space within the frame of visual axes, corridors and views are also recorded in this step.

Identification of Lost Space and Restructuring Opportunities
This step aims to identify the typologies of the surrounding urban fabric in order to study the mix of uses to determine the structure of the area. Cut-off space is delineated and traffic patterns examined to determine existing pedestrian barriers and potential links into the site. Future development areas are included in this mapping as they will impact on the design proposal in time.

Design Intervention
This phase includes the strategic pinpointing of major gaps in the urban fabric in need of infill that will influence the spatial restructuring of the area. Priorities for the design should be established in accordance with the findings of the aforementioned steps. Urban design guidelines should be placed pre-design phase in order to effect an appropriate fit between the existing context and the proposal, within the frame of user needs.

Learning from Trancik:
principles to apply

- continuity with the street wall should be retained.
- the existing silhouette of the built fabric should be referenced.
- the scale of the proposal should be appropriate to its context.
- materials used should compliment its context.
- existing patterns and rhythms of façades and spatial elements should be referenced.
- the activity of public space should be intensified.

A salient challenge identified in Trancik's work is that of reclaiming lost space in the modern city. The intention of this resource is to advance the discussion from the realm of the academic to the realm of the physical, by identifying a common issue of cities across the world and proposing solutions that are distinctively contextualised. The potential of unlocking these sites has the potential to satisfy growth in cities without the need for extending urban edges or exacerbating sprawl. As urban land becomes ever more scarce and expensive, lost space within urban centres will become increasingly valuable, with creativity and innovation needed for developing these often challenging sites.

KOEBERG INTERCHANGE

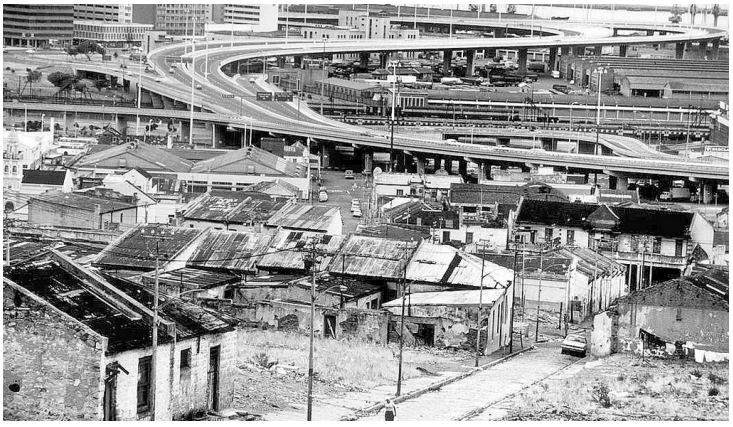
c 1967

BLACK RIVER PARKWAY INTERCHANGE

c 1967

EASTERN BOULEVARD

c1971



DISTRICT 6 TO HARBOUR

c1979

THE TROUBLE WITH MODERNISM COUPLED WITH APARTHEID PLANNING

A brief history of the South African context

KALK BAY HARBOUR

c1967

In the South African context, planning has long been employed as one of the primary tools for creating spatial segregation between racial groups. With the ushering in of high-apartheid post-1948, racial segregation became a government policy which signalled major new influences in the town planning sphere (Mabin and Smit 1997). The proposals adopted a broad range of settlement patterns, segregating districts by green belts (Wilkinson 1996), 'buffer zones', or major transport infrastructure (such as railway lines or highways) with limited connectivity in order to control movement and accessibility. This has resulted in South African towns having distinct spatial forms, segregated by race as well as income groups within races. These objectives mimicked the modernist planning movement of the time, conceptualising a new, more desirable future in which space can be manipulated to acquire particular economic and social circumstances.

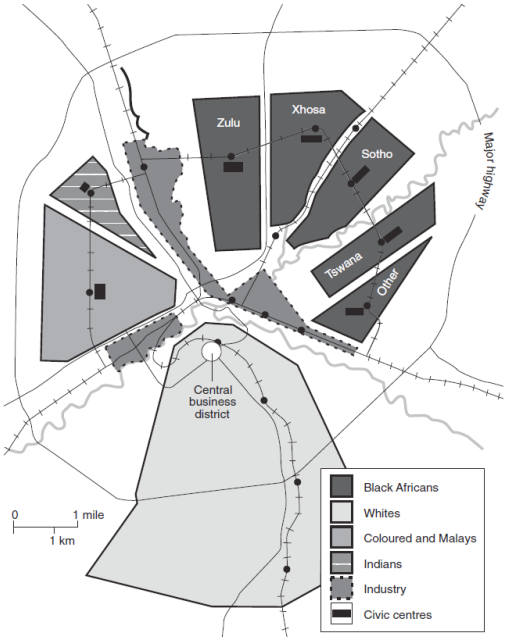
The apartheid era planning regime's objectives were further exacerbated with planners taking inspiration from avant-garde modernism, spearheaded by Le Corbusier and CIAM, reaching South Africa around the time of the implementation of the institution of apartheid.

The adoption of modernist planning resulted in South African cities that, on the most part, have become decontextualized and universal spaces, lacking in a tangible genius loci and a connection between the city and its inhabitants. An obsession with geometric form in the urban realm created districts that are beyond the scale of the human experience on the ground plane and read well only when viewed from above. The adoption of a zoning scheme which, over and above racial segregation as a result of Apartheid planning, further segregated the city through functional zoning. This homogenization into modules of uses has destroyed traditional urban life of complementary and mixed uses.

Successful urban networks are based on connections between spaces of daily habitation, such as between the home and school/work/store/recreation. Neighbourhoods encompass vitality when they are mixed in meaning, nodes and human activity with multiple links between them. This mix is what generates an urban web of functional nodes and social connections. The implementation of these mono-functional objectives kills the life of the city. Variety and density, well-connected with functional paths is what is needed (Salat 2011). Functional segregation as a result of modernism and racial segregation has destroyed the potential for a successful urban web within South African cities.

Emerging discourse of the late 1980s

An alternative discourse in planning emerged in the late 1980s which argued for cities that employed the principles of accessibility, compactness, high density,and spatial integration across all scales (Dewar and Uytenbogaardt 1991). This pre-empted the post 1994 planning renaissance and the transition into democracy. This new era of planning in South Africa was the heir to the remnants of Apartheid planning. Between the Development Facilitation Act No. 67 of 1995 and the most recent SPLUMA (Spatial Planning and Land Use Management Act, 16 of 2013), South African cities remain divided on the basis increasing economic inequality (Harrison et al.2008)



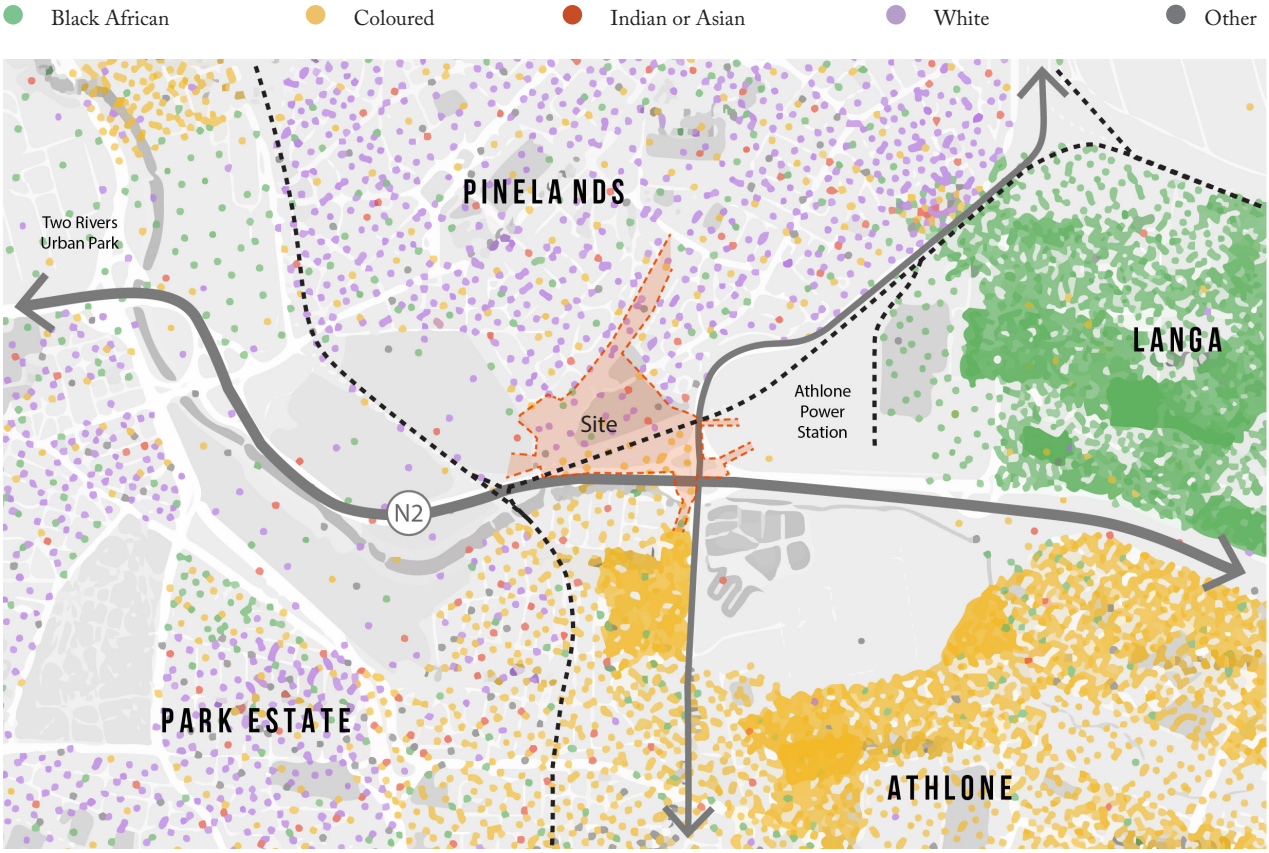
6: DIAGRAM SHOWING SEPARATION OF RACES THROUGH THE USE OF HIGHWAYS AND RAILWAY LINES.

N1 INTO CAPE TOWN

c1956

N1 INTO CAPE TOWN

c1966



7: ADAPTATION OF SITE CONTEXT WITH DOT DISTRIBUTION ACCORDING TO RACE.

(From self-identification in Census 2011. Adrian Frith. http://dotmap.adrianfrith.com/)

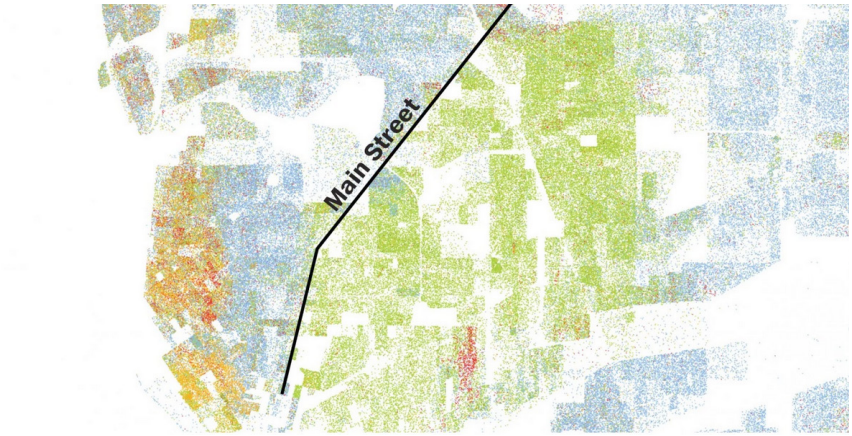
Dot distribution of racial segregation in Cape Town

The map alongside illustrates the racial divides perpetuated by apartheid planning and physically implemented through the strategic placement of infrastructure, in this case the N2 highway, Jan Smuts Drive and dotted railway running alongside both of these major roads reinforcing segregation. The racial divides are clearly fragmented into densely populated black African (green); coloured (yellow) and sparsely populated white (purple) areas.

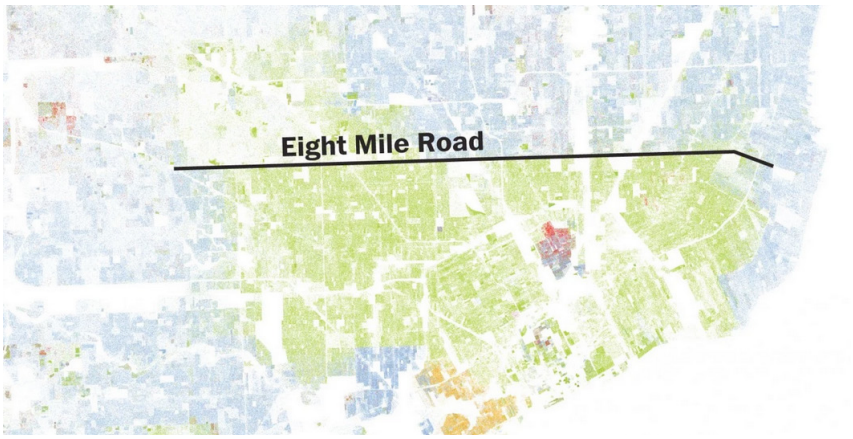
The focus site in combination with the strategically placed former Athlone Power Station and Athlone Sewerage Plant serve to exacerbate segregation and fragmentation landscaped with heavy infrastructure.

This map also demonstrates the critical potential of the underdeveloped and underpopulated area from the Two Rivers Urban Park to the Athlone Power Station (including the chosen focus site for a design) as an area of well located land within the bounds of the city and located at the confluence between economic and racial groups as a point of integration and densification.

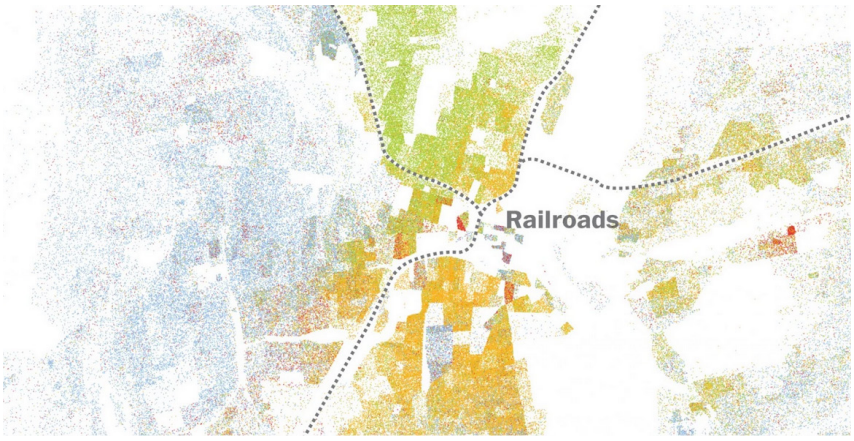
The maps on the following pages illustrate the way in which the modern planning systems of utilising vehicular and rail oriented infrastructure are used as a tool for racial and economic segregation.



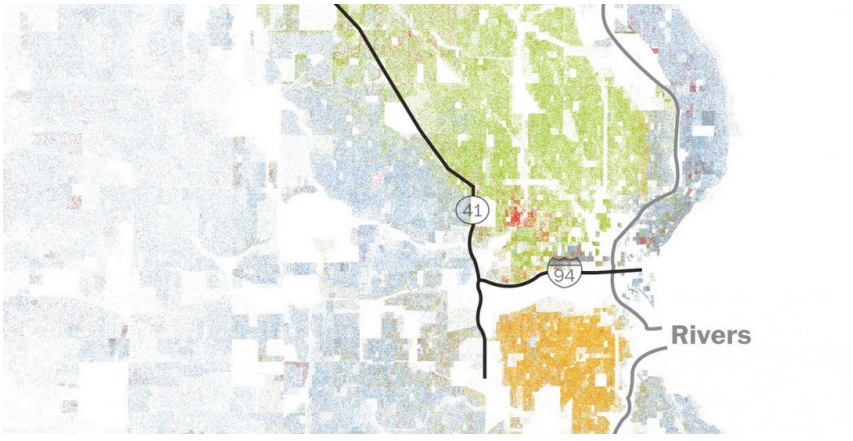
8: LINES OF SEGREGATION: BUFFALO, NEW YORK



9: LINES OF SEGREGATION: DETROIT, MICHIGAN

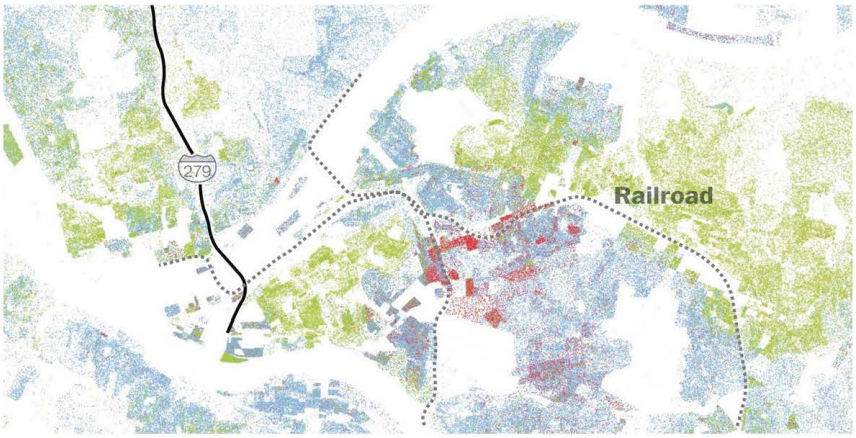


10: LINES OF SEGREGATION: HARTFORD, CONNECTICUT



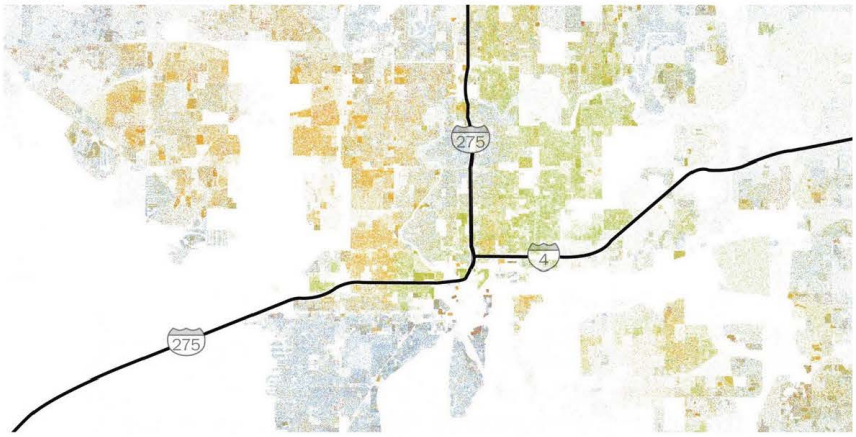
11: LINES OF SEGREGATION: MILWAUKEE, WISCONSIN

1 dot = 1 person Black Asian Hispanic Other White

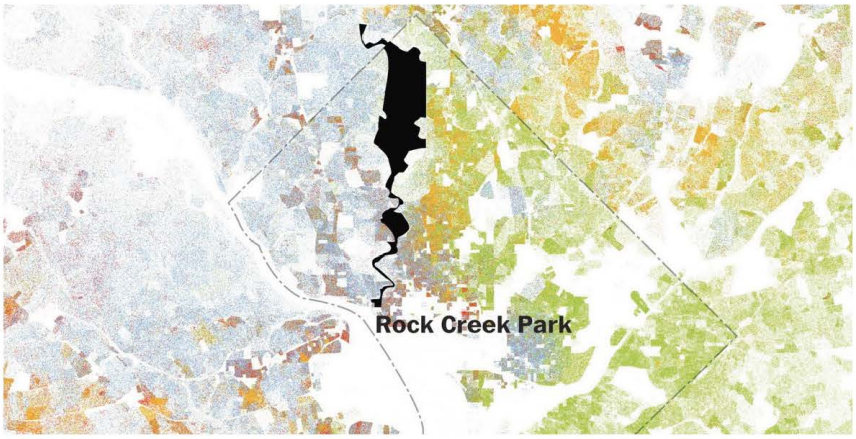


12: LINES OF SEGREGATION: PITTSBURGH

13: LINES OF SEGREGATION: SHREVEPORT, LOUISIANA



14: LINES OF SEGREGATION: TAMPA, FLORIDA

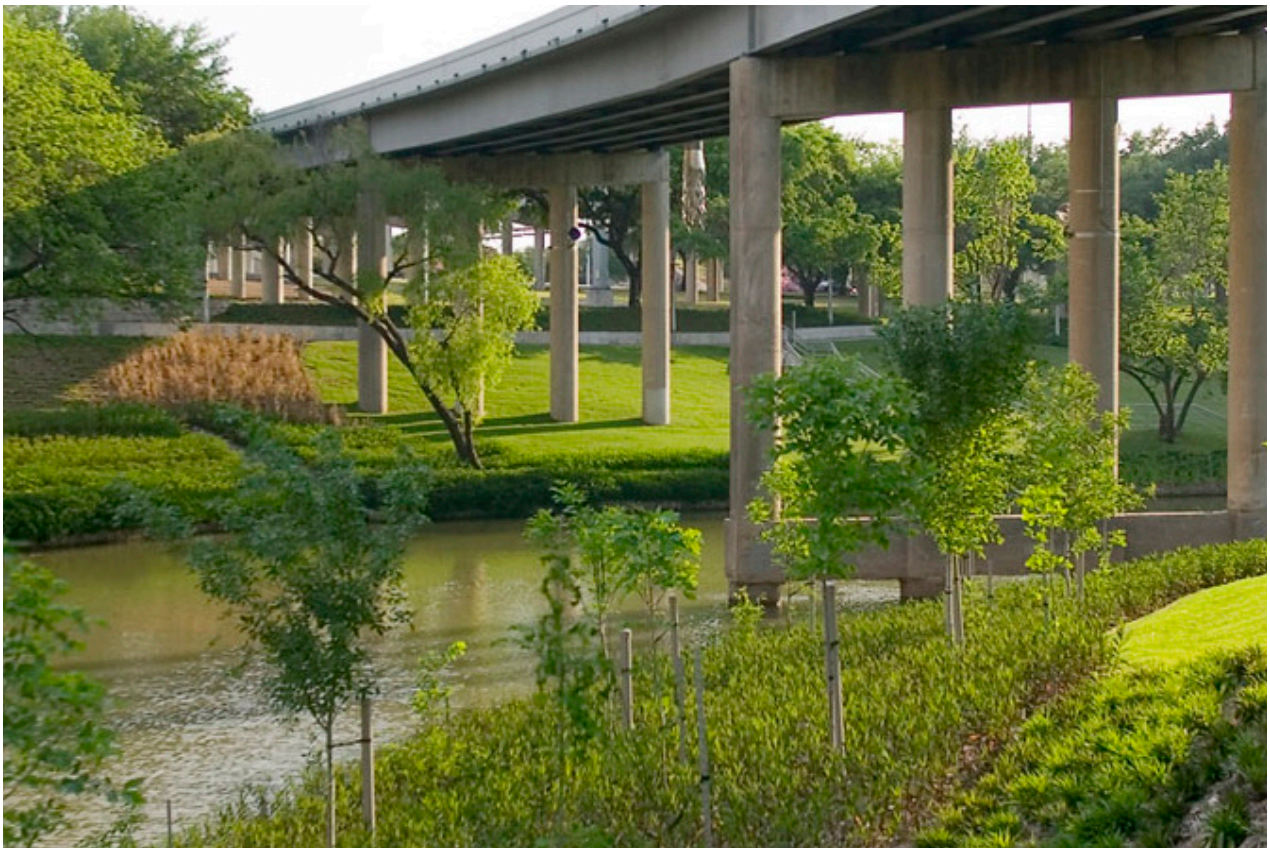


15: LINES OF SEGREGATION: WASHINGTON, D.C.

http://www.skyscrapercity.com/showthread.php?t=498231&page=11&langid=5

This chapter explored aspects of the origins of form of the South African city. The next step is to explore ways in which design based resolutions can reintegrate fractured and fragmented public spaces at the scale of the dweller with the intention of creating meaningful urban spaces that are connected across the city.

PART THREE



HTTP://WWW.LANDEZINE.COM/INDEX.PHP/2015/09/BUFFALO-BAYOU-PROMENADE-BY-SWA/

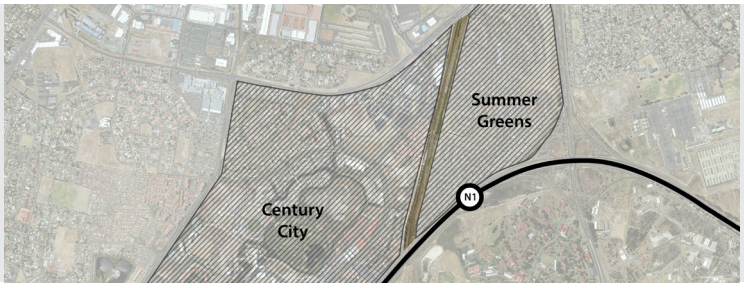
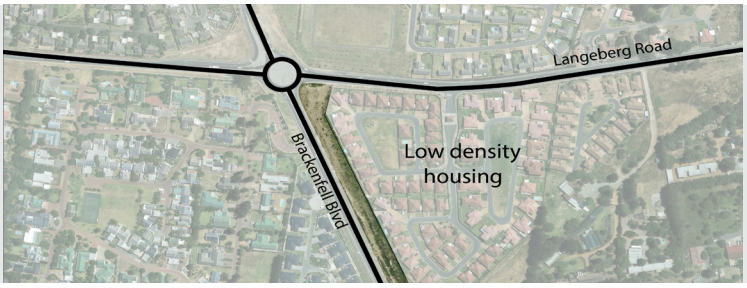
THE SCALE OF THE CITY

This chapter begins with investigating the scale of the problem of cut off spaces. Then case studies of cut of spaces will be explored that are formally and informally occupied through human intervention. These case studies will be analysed for lessons learnt that can be integrated into a coherent set of design principles and form based coding that will provide guidelines for the future development of cut off spaces in the city.

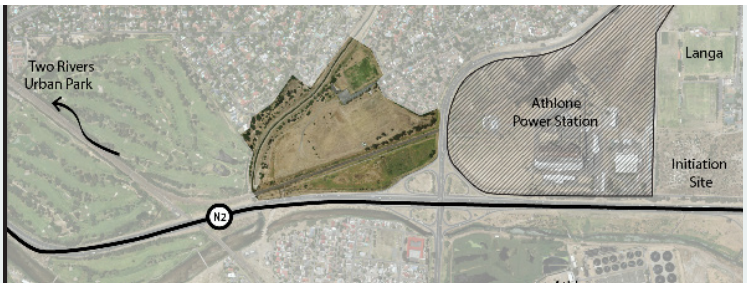
THE SCALE OF THE PROBLEM

The current situation on site

This section explores some of the main types of cut off spaces occurring in Cape Town. Conditions on site are investigated and tabulated.

	SITE	ZONING
between valuable natural resources		OPEN SPACE 2: PUBLIC OPEN SPACE
triangle off ramp		OPEN SPACE 2: PUBLIC OPEN SPACE
as a buffer between economic groups		UTILITY
as a buffer between land uses		OPEN SPACE 2: PUBLIC OPEN SPACE
over engineered roads		TRANSPORT 2: PUBLIC ROAD AND PUBLIC PARKING
between highways and townships		LIMITED USE ZONE

OVER ENGINEERED	PLACELESS	UNUSAL SITE SHAPE	GREENFIELD	SAFETY+SECURITY ISSUES	AIR POLLUTION	NOISE POLLUTION	INACCESSIBLE
●	●	●	●	●		●	●
●	●	●		●	●	●	●
	●		●				
	●		●		●		
●	●		●				
●	●	●	●	●		●	●

	SITE	ZONING
land-locked between highway, road and rail		OPEN SPACE 2: PUBLIC OPEN SPACE
turning circles		CITY
cloverleaf intersection		CITY
diamond off-ramp		CITY
road parting		OPEN SPACE 2: PUBLIC OPEN SPACE
between major roads and residential areas		OPEN SPACE 2: PUBLIC OPEN SPACE AND CITY
TOTAL		

OVER ENGINEERED	PLACELESS	UNUSAL SITE SHAPE	GREENFIELD	SAFETY+SECURITY ISSUES	AIR POLLUTION	NOISE POLLUTION	INACCESSIBLE
	●	●	●	●		●	●
							●
●	●	●	●	●		●	●
	●	●	●	●	●	●	●
●	●		●	●		●	●
●	●		●		●	●	

CONCEPTUAL ALTERNATIVES

The scale of the problem

Calculations are based on the following as desirable standards:

Housing
Using District 6 new houses as a base of 96 du/h (double storey with potential to vertically densify over time) one could fit 441,6 dwelling units on the Athlone Power Station site alone.

Vegetables
8 square metres per family of four for basic vegetables only (based on Soil for Life course)

Electricity
5 square metres of solar panels will provide enough electricity for one family for a year.

Soccer Fields
minimum FIFA regulation:
100 x 65 = 6500 sqm

This section conceptually explores some of the uses that can be occupied within the cut off spaces previously identified. The intention here is to illustrate the vastness of cut off spaces as wasted land in valuable urban areas.

SITE

AREA SQ/M
= 1 HECTARE

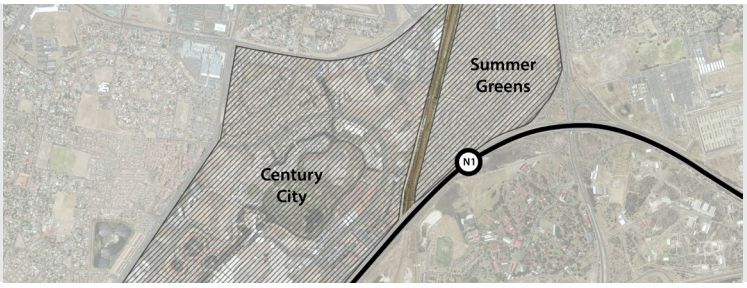
between valuable
natural resources

104 500

triangle off ramp

3 835

as a buffer between
economic groups

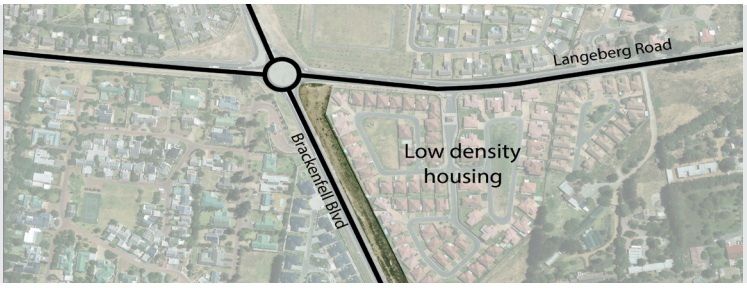


74 000

as a buffer between land
uses

203 600

over engineered roads

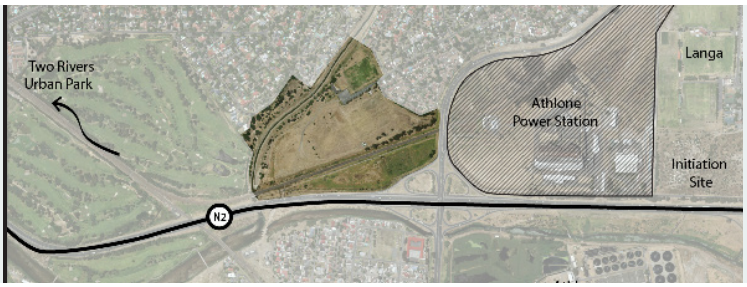


7 200

between highways and
townships

51 800

HOUSING (DWELLING UNITS)	ELECTRICITY (FAMILY OF 4/ANNUM)	VEGETABLES (FAMILY OF 4)	SOCCER FIELDS
= 50 DWELLING UNITS	= 10 FAMILIES OF 4	= 300 FAMILIES OF 4	= 1 SOCCER FIELD
960	2 310	14 928	16
0.3	66	547.8	0.6
710.4	1 628	10 571.4	11.4
1 920	4 466	29 085.7	35.5
0.7	1 584	1 028.6	1.1
489.6	1 122	7 400	7.9

	SITE	AREA SQ/M ● = 1 HECTARE
land locked between highway, road and rail		200 000
triangle of land		4 400
buffer between economic groups		120 800
buffer between land uses		2 100
road pairing		58 000
between highways and residential areas		33 200
TOTAL		

HOUSING (DWELLING UNITS) = 50 DWELLING UNITS	ELECTRICITY (FAMILY OF 4/ANNUM) = 10 FAMILIES OF 4	VEGETABLES (FAMILY OF 4) = 300 FAMILIES OF 4	SOCCER FIELDS = 1 SOCCER FIELD
1 920	4 400	28 571.4	30.7
0.4	968	628.6	0.7
710.4	2 640	17 257	18.4
201.6	1 800	3 000	3.2
556.8	1 276	8 285.7	8.9
288	726	4 742.8	5.1
8 201.8	**25 806** (KAROO PROVIDES 33 000 IN 105 HECTARES)	**126 046**	**139.5**

CUT-OFF SPACES IN THE WESTERN CAPE

Cut-off spaces being used

This section explores cut-off spaces in the Western Cape that are being used, either formally by way of built spaces with intentional access points or informally by way of their size or existing conditions that are favourable for human use.

Dunoon Informal Soccer Field

16: AERIAL VIEW OF DUNOON INFORMAL SOCCER FIELD

17: STREET VIEW OF DUNOON INFORMAL SOCCER FIELD

The informal soccer field occupies 7,171.8 sq metres of a 48,508.1 sq metre site. The sports area is informally demarcated and goal posts have been put in place. The site is located on the corner of Potsdam Road and the M7. The closest settlement is Dunoon to the south west. The rest of the site is surrounded by agricultural land.

Plattekloof Road
off ramp high water table

18: AERIAL VIEW OF PLATTEKLOOF ROAD OFF RAMP

19: STREET VIEW OF PLATTEKLOOF ROAD OFF RAMP

The circular site is located between the M7 and Plattekloof road and has a naturally high water table. The surface water on the 13,622.7 sq metre site is informally utilised by people for bathing and picnicing on hot summer days. The closest housing settlement is Bothasig to the south east, with an industrial area to the west of the site. It is assumed that people accessing the site are crossing the surrounding major roads.

Cecilia Street Office Precinct (opposite Paarl mall)

20: AERIAL VIEW OF CECILIA STREET OFFICE PRECINCT

21: STREET VIEW OF CECILIA STREET OFFICE PRECINCT

The 16,534 sq metre site is located within a clover leaf off ramp on the N1 highway in Paarl toward the regional Paarl Mall development. The site is accessed from New Eskdale Street by car and an attempt at placing bike lanes around the site are unintegrated with the surrounding roads. The site is surrounded by a mall, an agricultural area, a golf course with housing estate and industrial area nearby.

Beaufort West N1 circle

22: AERIAL VIEW OF BEAUFORT WEST N1 CIRCLE

23: STREET VIEW OF BEAUFORT WEST N1 CIRCLE

The site is located on the northern edge of the town of Beaufort West, along the N1 highway and adjacent to the Beaufort West Dam. The site is surrounded by medium density residential areas and is easily access by car and pedestrians.

Hex River agriculture

24: AERIAL VIEW OF OFF RAMP ALONG HEX RIVER

25: STREET VIEW OF OFF RAMP ALONG HEX RIVER

The site is located on to the north of the town of Worcester along the N1 highway and is bound by the Hex River, N1 and railway line. It has been adapted for agricultural use and is flanked by a mountainous region to the west and agricultural land to the east of the site.

DESIGN BASED RESOLUTIONS

Desirable Outcomes:
density, spatial connectivity, efficient use of resources

This section describes the overarching principles and guidelines that should be inherent in any successful city and relate to its society.

LIVEABILITY

All spaces should be designed with the overriding principle of liveability in mind.

Each space should be:

Vibrant and Diverse
There should be activity in the space for most parts of the day with attractive places to meet, play, explore, recreate and relax.

Welcoming and Comfortable
The space should be easily navigable, have comfortable and shaded seating areas and have areas of more activity and less noise. The space should not be unpleasantly windy, noisy, hot or polluted. One should be able to access the space freely and inclusively. The old, young and physically disabled should be accommodated in the design.

Walkable
The space should be easily accessible by foot or bicycle as far as possible. People should take priority over vehicles. Physical activity and interaction should be encouraged and facilitated through design.

Safe
The space should feel and be safe even if one is alone or using the space at night. The space should be free of litter, weeds, derelict buildings or any other signs of decay. Access into and paths within the space should be safe for both pedestrians and cyclists.

JUST BROWSING

undated

FRUIT STALLS ON THE PARADE

c1985

FRUIT SELLER ON THE PARADE

c1960

Connecting Modernist Cities

The mathematician and urbanist, Nikos Salingaros, argues that in order to create an accessible city certain objectives need to be applied, all speaking to the definition of elements of city such as: open, green and pedestrian space (the voids of the city); pedestrian connections; paths; buildings and a coherent and appropriately scaled architectural language.

Integration and treating isolated and fragmented spaces as part of the whole will generate pedestrian continuity across the city. Thus paths and connections must not end at highways or intersections with major infrastructure, rather it should continue through these currently inaccessible spaces in order to create a web of connection across the city that encompass spaces of varied scales.

Creating an Urban Web

In order to facilitate the decomposition of the spatial segregation we experience in most South African cities today, the adoption of Salingaros' three major structural principles should be employed to increase the number of connections across the city and between nodes of human activity.

Nodes

The concentration of human activity anchors the urban web at strategic points of interconnections. Nodes should be areas of intense and diverse activity and be well-connected via multiple points of access and well-defined by architectural boundaries.

Connections

Complementary nodes (as opposed to similar nodes) should be well connected. This stands in contrast to the modernist mono-functional zoning principle, isolating uses within the city, thus breaking connectivity through fragmentation. Repetition of the same use does not generate connection and human activity and is seen in the lack of a finer grained street and road connections between urban blocks. The consequence of this is weakened pedestrian activity. Pedestrian paths should be appropriately scaled within walkable distances and multiple connection options.

Hierarchy

In order to create a successful urban web within the urban realm a system of hierarchical connections and nodes at various scales should be established that is legible but not sterile. In designing the urban precinct for this research, the minimum framework of a hierarchical system should be established and allowed to develop incrementally as need arises and in direct response to economic and social needs.

The failure of modernist cities

The notion of the "ideal" as prescribed by the modernism has generated an urban realm of reproduction and carbon copies which has been created from the top down, thus decontextualised and unresponsive to the ground scale environment. Parts of the city become almost unrecognisable from one another and bear almost no relationship to one another. This is an experience exacerbated by the imposing structures of highways, railway lines and skyscrapers.

"The connectivity potential of an urban fabric is crucial to its living character. A highly connected city fosters human movement and interaction." – Serge Salat, Cities and Forms: On Sustainable Urbanism, 2011 (pp. 222)

The Street in a new relationship to society

Traditionally, the street spoke to the longing for neighbours to live together in the public realm, extending to the creation of a sense of community, one which is sorely lacking in most neighbourhoods in Cape Town today. Human activity within the street provided economic, political and religious value which has been eradicated with the increasing dominance and priority of the vehicle on the street under the guise of progress during the modernist era. Thus human encounters has been drastically diminished and the role of the street has been radically changed.

The intention of this precinct proposal will attempt to diminish the mechanical lifelessness inherent in most of our neighbourhood's streets and transition spaces reserved exclusively for rapid movement into outdoor rooms that foster human encounters and liveability.

The sensibility of finer grained cities

The contrast and nature between fine and coarse grained places is described by Yuri Artibise in his article Urban Fabric: The Form of Cities (2014). Coarse grained urban fabrics facilitate opportunity for interconnection as opposed to proclaiming control and inhospitable landscapes of the coarsely grained city.

Course and fragmented cities turn inward, begetting even more undesirability through creating barriers along street walls, creating uncomfortability and spending only as much time as necessary in the public realm. Artibise describes a fine grained urban fabric as an evolutionary manifestation of democracy in the public and social arena. A fine grained fabric consists of multiple small blocks that are placed close together, consisting of buildings of narrow façades, minimal setbacks and active frontages. Access routes are frequent which offers opportunity for exploration and intrigue as the user moves through the city. It is less imposing and limiting that a coarse grained fabric as it has evolved over time and is more easily adaptable. This creates spaces that are more dynamic and reflective of its context; is robust enough to evolve to suit changing needs and be incrementally densified. Thus these spaces are more resilient than mega projects created by master plans.

FORM BASED CODING AT THE URBAN SCALE

Objectives and principles for redesigning cut off spaces

The intention of this section is to provide a form based code in order to contextually and appropriately transform cut-off spaces into productive and usable landscapes. The redevelopment of cut-off spaces must regard and enhance any favourable qualities already inherent in the land. Consideration of usability and the pedestrian should be a priority and any adverse effects of development should be mitigated in order to protect surrounding communities.

URBAN DESIGN OBJECTIVES

The urban design vision for these cut-off spaces can be illustrated using these primary objectives and should form the foundation of design proposals and development. The objectives should be contextualised spatially, socially and economically for each site.

Objective 1
Provide redevelopment that is responsive and integrated with the existing landscape.
Redesign should flow respect the character of the landscape and respond to landforms, and natural vegetation accordingly

Objective 2
Provide a well landscaped, indigenous and low maintenance road reserve in areas that are unfit for human utilization.
Uninhabitable corridors and cut-off spaces should be lush and well-vegetated in favour of the road user, natural landscape integration and biodiversity integration. Tarring and cementing of the ground in uninhabitable areas should be mitigated.

Objective 3
Provide consistency-with-variety in built physical features and pedestrian links. Design consist physical features that unify pedestrian space and linkages in order to provide legibility. This will allow the user to orientate and transition through spaces easily and safely. This technique will allow for a more experientially comfortable and usable space. Within consistency, variety should be included that is inspired by the context and is responsive to the character of the site. This will keep the users of the site interested and aware of the uniqueness of the space.

Objective 4
Provide an aesthetically pleasing, engaging and varied views and vistas of the landscape and safe restful places for pause.
The aesthetic experience of the space should be considered in order to attract users to the space. Redevelopment proposals should be memorable and become destination places at various scales across the city.

Objective 5
Provide a pedestrian legibility and orientation across various scales. Design proposals should be simple and refined enough to provide legibility and orientation through design elements such as streets, bridges and pathway detailing. The built form such as paving and walls should be low maintenance and well-lit to provide safety and attract users to feel comfortable in the space.

Objective 6
Value the input and existing values of neighbouring communities. Site development should be sensitive and responsive to the social context within which it is located and should respond appropriately. Visual and aural noise impacts should be minimised and design proposals should integrate communities where possible and avoid detrimentally affecting the spatial, social or economic fabric of the area. Redevelopment should increase accessibility and respect established business, residential areas and boundaries. Important cultural aspects of the social context should be acknowledged and responded to appropriately in the design.

FORESHORE FLYOVERS TAKING SHAPE

c1976

KOEBERG INTERCHANGE

c1968

URBAN DESIGN PRINCIPLES

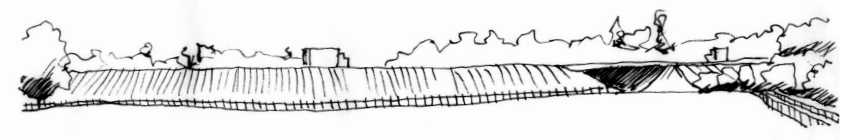
implementing the objectives

Principle 1
Provide redevelopment that is responsive and integrated with the existing landscape.

1.1. Proposed built elements and pedestrian walkways should respond to the grain and grade of the landscape. Existing earth mounds and hills should be integrated into the design.

1.2. Minimise deep cutting and excavation as far as possible whilst still responding to the existing grain of the landscape and road alignment.

26: ILLUSTRATION OF THE BUILT ENVIRONMENT RESPONDING TO THE NATURAL LANDSCAPE.



27: ILLUSTRATION OF THE BUILT ENVIRONMENT NOT RESPONDING TO THE NATURAL LANDSCAPE.

Principle 2
Provide a well landscaped, indigenous and low maintenance vegetation in areas that are unfit for human utilization.

2.1. Provide densely vegetated and well-designed landscaping that is indigenous and low maintenance as far as possible.

2.2. Vegetation should respond to views by planting low shrubs to accentuate favoured views and blocking certain unfavourable views such as highways and industrial areas.

2.3. Integrate the new vegetation with the existing road pattern and landscape. Continue existing bands of indigenous planting where appropriate and avoid linear strip planting.

2.4. Indigenous species should always take preference over foreign species and should be low-maintenance and water wise.

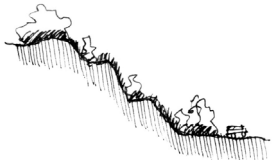
2.5. Vegetation and landscaping should perform ecological services as far as possible.

2.7. Ensure sufficient space at the base of planting to allow plant to establish itself, grow and seed. This is most salient in areas in which vegetation is used for slope stabilization. Ensure that plant growth will not impede pedestrian access and views.

2.8. Provide a combination of well-landscaped, vegetated areas and open space for rest and accessibility.

28: PRINCIPLE 2.1

29: PRINCIPLE 2.2



30: PRINCIPLE 2.3

31: PRINCIPLE 2.8

Principle 3

Provide consistency-with-variety in built physical features and pedestrian links.

Barriers

3.1. Use visually permeable fencing as far as possible, except in areas where noise or visual barriers are needed.

3.2. Use natural materials such as pine timber for fencing and noise walls.

3.3. Use appropriate planting or artwork on solid walls

Bridges

3.4. Adopt a consistent design scheme for bridges and over highways/rivers/landforms and integrate it into the surrounding context.

3.5. A occasional landmark bridge should be used in order to celebrate worthy spaces, in the appropriate context and should be distinctive in design and form.

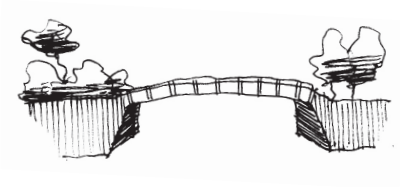
Landscape

3.6. Plant distinctive and indigenous trees at salient landmark points in the landscape such as in pause areas with higher activity in need of framed space.

3.7. Feature trees should be environmentally sensitive and low maintenance. For example: consideration should be taken for pine trees that drop large cones, Jacarandas are difficult to establish and fig trees can grow to large breadth.

3.8. The cost and time of maintenance of all landscape should be taken into consideration in the design phase.

32: PRINCIPLE 3.1



33: PRINCIPLE 3.4

34: PRINCIPLE 3.5

35: PRINCIPLE 3.7

Principle 4

Provide an aesthetically pleasing landscape, with engaging and varied views and vistas.

4.1. Take advantage of and design a sequence of varied views and vistas that respond to the existing landforms and attract visitors to the site.

4.2. Design for panoramic views and constant glimpses of the city and natural landscape.

4.3. Take advantage of existing views by planting indigenous low shrubs and grasses so as to not obscure views. Use transparent noise walls in areas that need noise mitigation and have a view.

4.4. Maximise panoramic views with physical safety challenges by implementing rope barriers or transparent fencing.

4.5. Use rail barriers as opposed to solid walls/parapets on bridges.

4.6. Ensure that salient views to the city, mountain, river or ocean are maximised and celebrated.

4.7. Locate activity spaces in areas that maximise views and vistas of the surrounding context.

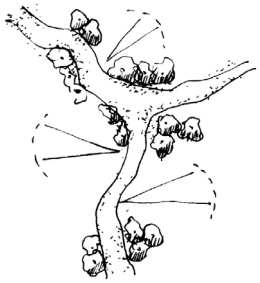
4.8. Activity and rest areas should be well-landscaped, incorporating some built form (where appropriate), grassy play areas and shaded trees.

4.9. If parking is required, ensure they are designed intermittently with the appropriate landscaping.

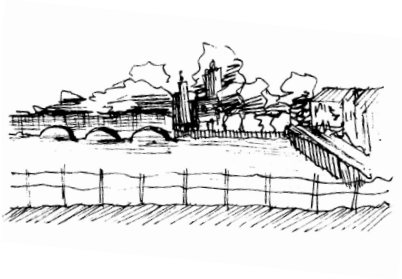
4.10. Earthwork cutting and embankments should have soft rounded edges.

4.11. In areas of human utilization, prevent steep embankments and landforms cutting. Land should be graded to slopes with a maximum steepness of 1(v):2(h).

4.12. Focus should be given to creating character to former characterless spaces.

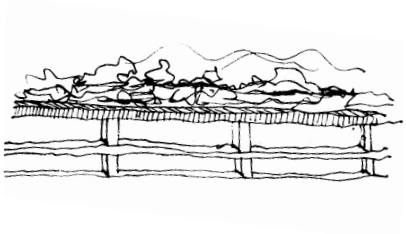


36: PRINCIPLE 4.1



37: PRINCIPLE 4.2

40: PRINCIPLE 4.4



39: PRINCIPLE 4.5

38: PRINCIPLE 4.10

41: PRINCIPLE 4.11

Principle 5

Provide a pedestrian safety, legibility and orientation across various scales.

Noise barriers
(for South Africa, also refer to Noise Control Regulations as contained in Environment Conservation Act, 1989, Act 73 of 1989)

5.1. Natural landforms and mounds should be used to mitigate noise and unfavourable views as far as possible in favour of synthetic construction. If natural landforms is insufficient, a combination of the two should be used and screened by vegetation and appropriate artwork.

5.2. Avoid obtrusive solid noise walls as far as possible, especially in scenic location and areas with views and vistas.

5.3. Ensure signage is kept to a minimum and is clear and unobscured and is not blocking views.

5.4. A basic visual impact assessment should be carried out prior to implementing signage.

5.5. Pedestrian and cycle paths should be clearly delineated, made of a suitable materials form part of a larger network connecting pedestrian public spaces.

5.6. Boundaries and enclosure at the appropriate scale should be carefully considered and incorporated into design proposals.

5.7. Activity nodes should be defined so as to prevent the dilution of human activity.

5.8. Landmarks should be clear and implemented in the appropriate spaces in order to create orientation in space.

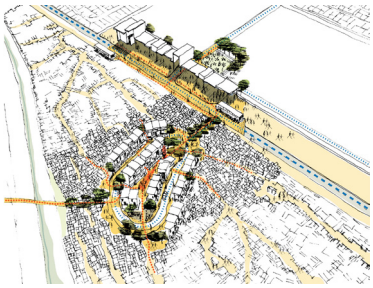
5.9. Activity should be inward-looking, away from noisy highways.

5.10. Entrances and gateways should be clearly marked and easily accessible to the pedestrian and cyclist.

5.11. Safe and reliable pedestrian and cyclist routes should be maintained and improvements made as the need arises.

42: PRINCIPLE 5.1

43: PRINCIPLE 5.5



44: PRINCIPLE 5.7

Principle 6

Value the input and existing values of neighbouring communities.

6.1. The local community and relevant stakeholders should be engaged with sufficiently. The design should acknowledge the creation of place for people and integrated the development of the community into a multi-disciplinary and collaborative design approach.

6.2. Unique local characteristics (culture, community, heritage, history) should be integrated into new design proposal and create a sense of contextualised identity.

6.3. Safe connections between cut off-spaces and their neighbouring sites should be considered and incorporated into the design.

6.1. Adverse impacts from neighbouring communities should be minimised as far as possible.

6.4. Access, amenities, built form and open space should be contextualised and scaled appropriately.

6.5. Design proposals should enhance the economy by creating employment opportunities and not hindering local businesses functions.

6.6. Environmental and social aspects should be enhanced and new design should be sustainable and integrated into the existing context.

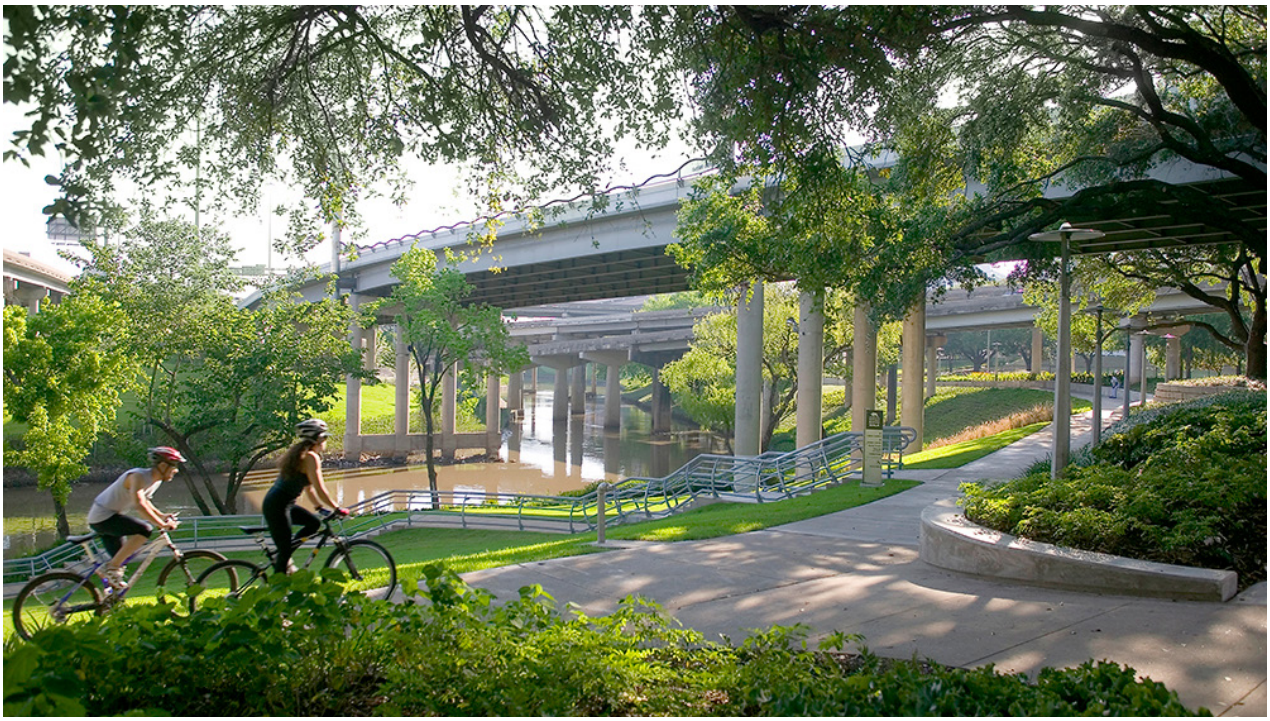
6.7. A wide range of activities and experiences should be available to the users of the space.

45: PRINCIPLE 6.2

http://readcereal.comcity-guidesnewyork/

This chapter has illustrated the scale of the problem facing modern cities through the use of strategically chosen sites in Cape Town. The conceptual alternatives tables illustrates the vast amount of land being wasted and the form based coding resolution proposed can be applied to most modern cities facing this problem. This section concludes the research applicable to more than just the chosen focus site for a more rigorous design output.

PART FOUR [A]



http://www.landezine.com/index.php/2015/09/buffalo-bayou-promenade-by-swa/

THE SCALE OF THE SITE

This chapter explores the rationale grounding the strategically chosen site, analysis of the site and conceptual intervention at the urban scale integrating the site to its context.

THE STRATEGIC LOCATION OF THE CHOSEN SITE

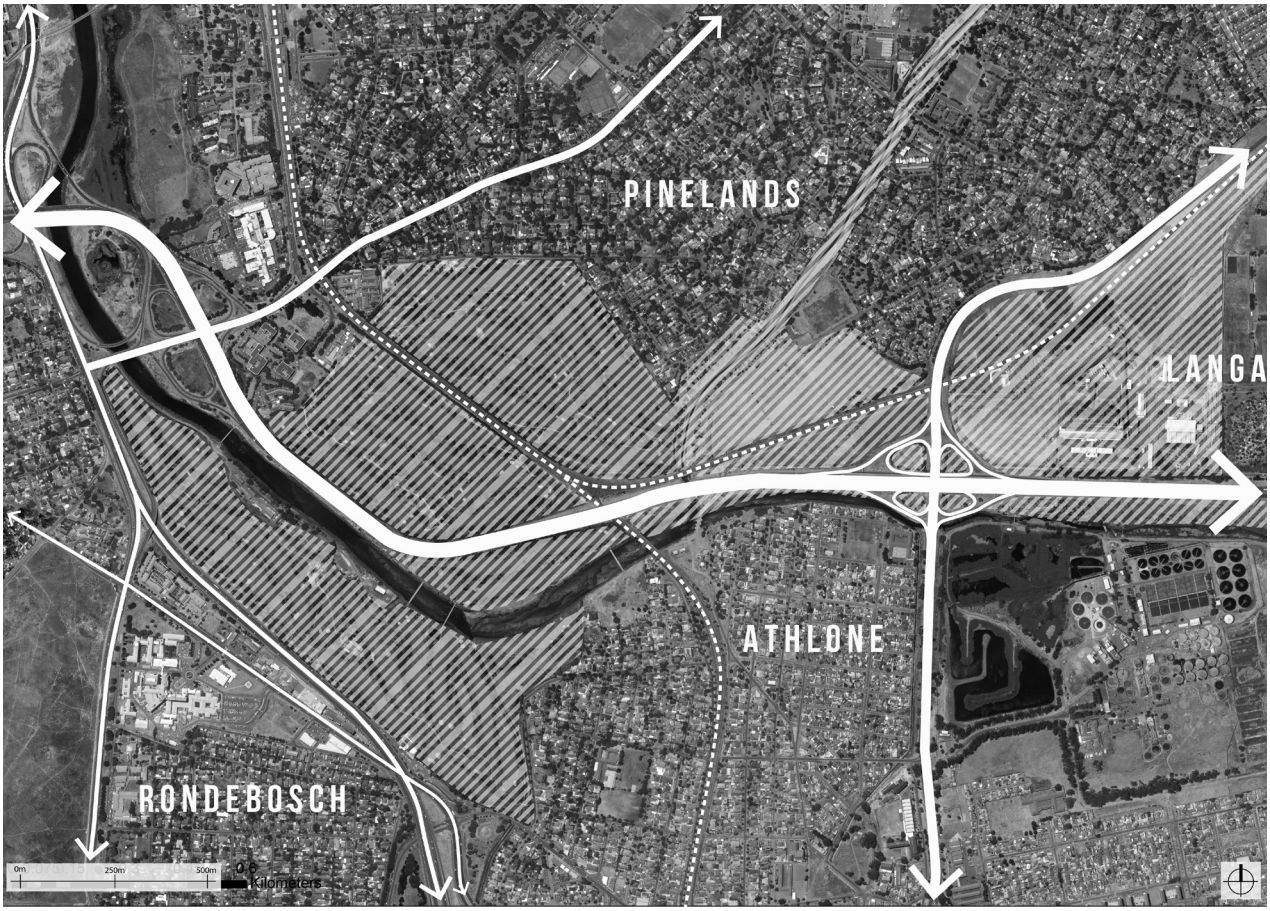
The Development Challenge

46: MAP SHOWING FOCUS SITE FOR REDEVELOPMENT PROPOSAL IN THE METROPOLITAN CONTEXT.

The site was chosen for two reasons, both stemming from research explored in this document:

a) the site as a cut-off space as a result of building vehicular oriented infrastructure;

b) the site as having a crucial location as a pedestrian connector for two future major destination places in the city.



47: MAP SHOWING STRIP AREA OF VACANT LAND FROM THE WEST (TWO RIVERS URBAN PARK) TO THE ATHLONE POWER STATION, FRAGMENTED BY HIGHWAY AND RAIL INFRASTRUCTURE.

a) The site is vacant, underutilised and developmentally constrained by its location to the north of the N2, adjacent to Jan Smuts Drive and a canal, and a railway line running across the site, severely limiting access to the site. A new way of seeing the problem is needed as it becomes a key site in linking the Two Rivers Urban Park and Athlone Power Station projects. A solution is required that enables development and access across the scales. The site needs to link into the vision of Two Rivers Urban Park as South Africa's first sustainable neighbourhood that explores and implements green technologies and innovation in design thinking. The site is located within in a larger area of currently neglected, polluted, inaccessible and underutilised green network, and as the land around this site increases in value as investment in the area increases, this site will function as a salient point of connection that should be developed to the same standard.

48: MAP SHOWING PROPOSAL FOR THE TWO RIVERS URBAN PARK REDEVELOPMENT SHOWING A CONTINUATION OF GREEN AND PEDESTRIAN MOVEMENT ACROSS MULTIPLE SITES.

b) The cut off space for development is located between two future major destination places in the city, these being the Two Rivers Urban Park and Athlone Power Station redevelopments.

The 'From borders to bridges' vision for Two Rivers Urban Park imagines an area at the meeting of the Swart and Liesbeeck Rivers in which multi-functionality, accessibility and density are integrated within a well-landscaped and liveable area. The site is to become an area of aesthetic and economic value, enriching the adjacent neighbourhoods and offering a multitude of attractions. A biobased employment economy is to be created that enhances public urban spaces within the area. The density of the envisioned project offers an alternative to sprawl that is an inherent characteristic of Cape Town today.

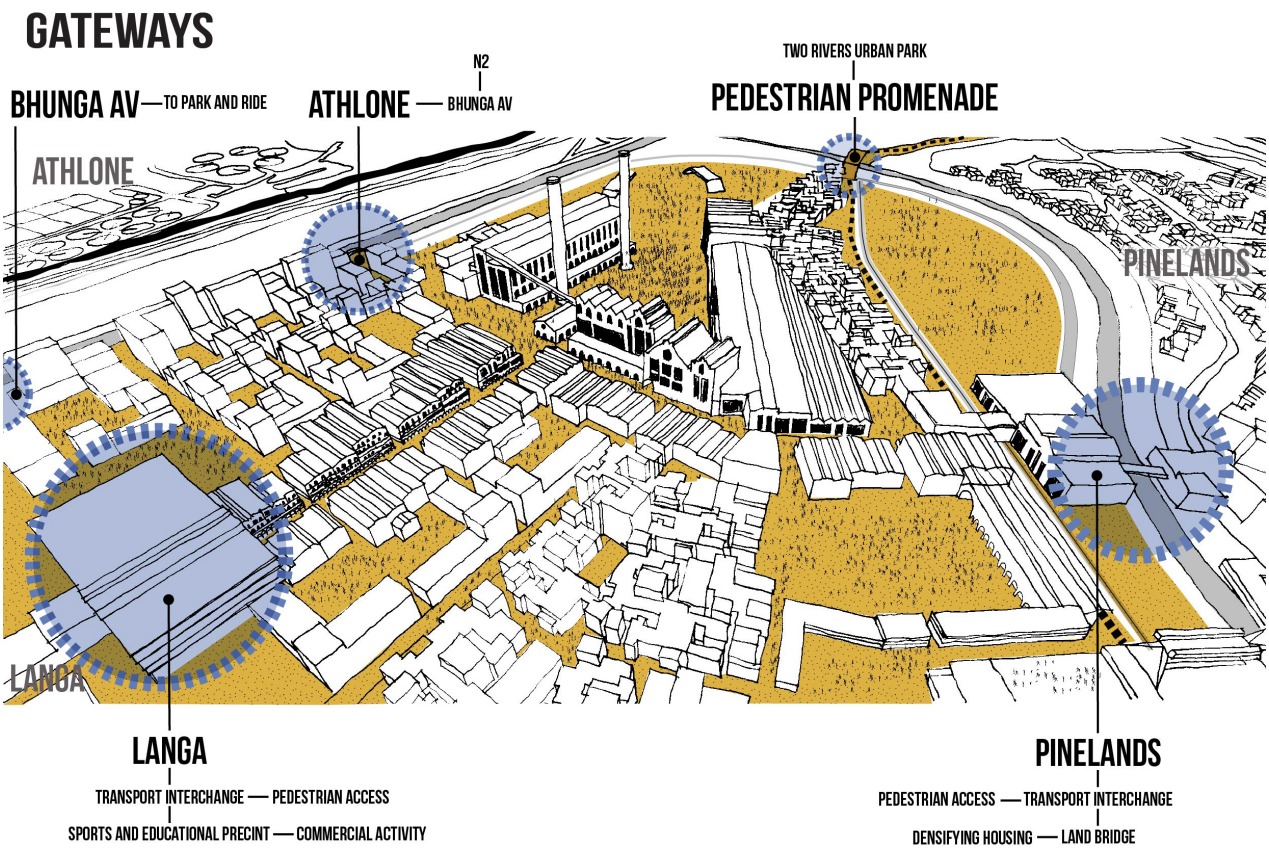
The Athlone Power Station, located 11km from the CBD, to the east of the chosen site, forms part of the Two Rivers Urban Park redevelopment area and will become a mixed use urban district with opportunities for commercial, retail, housing, light industrial and educational facilities.

The combination of the proposed Two Rivers Urban Park redevelopment to the west of the site, done by The Department of Public and Transport Works and City Think Space in 2012 and the Athlone Power Station redevelopment done by myself in April 2015, will form the surrogate context for the development of the chosen site.

49: PRECEDENT IMAGE FOR THE REDEVELOPMENT OF THE ATHLONE POWER STATION SITE.
WESTERGASFABRIEK, AMSTERDAM

50: ILLUSTRATION BY AUTHOR FOR THE REDEVELOPMENT OF THE ATHLONE POWER STATION

51: ILLUSTRATION BY AUTHOR FOR THE REDEVELOPMENT OF THE ATHLONE POWER STATION



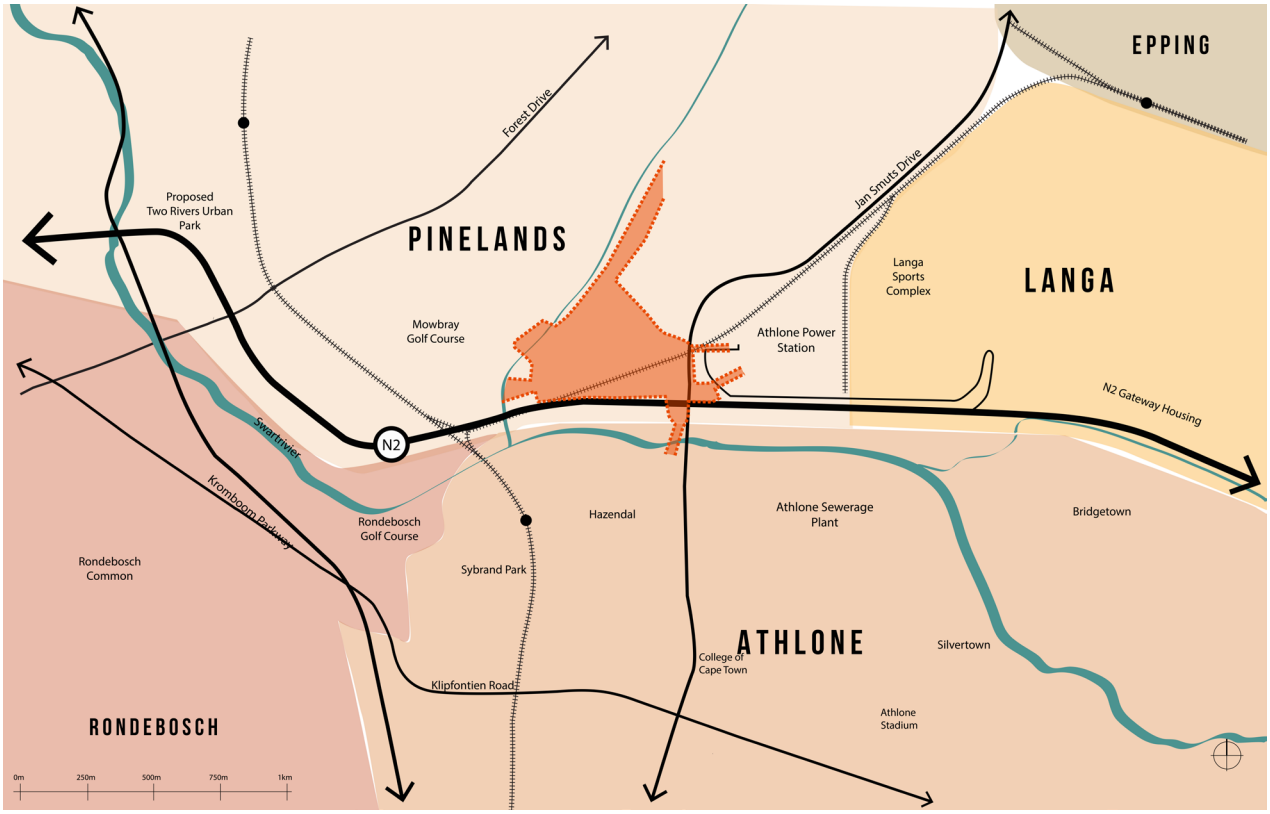
52: ILLUSTRATION BY AUTHOR FOR THE REDEVELOPMENT OF THE ATHLONE POWER STATION

Athlone Power Station Surrogate Context

Figures 49- 52 illustrate a few images and precedent of the surrogate context of the redevelopment of the Athlone Power Station as a new major destnation place. The site consists of a mixed use development including, event space, offices, commercial and retail areas, residential buildings, parks and recreational space. The area is well connected to the surrounding context via a new train station and transport interchange on the Langa edge of the site; a new station on the Pinelands edge, including a pedestrian bridge into a densified Pinelands precinct; vehicular access from the N2; and a pedestrian bridge into the site to be developed in this dissertation. The focus site of this document links this major destination place to the Two Rivers Urban Park.

THE STUDY AREA

Site Analysis of Existing Conditions



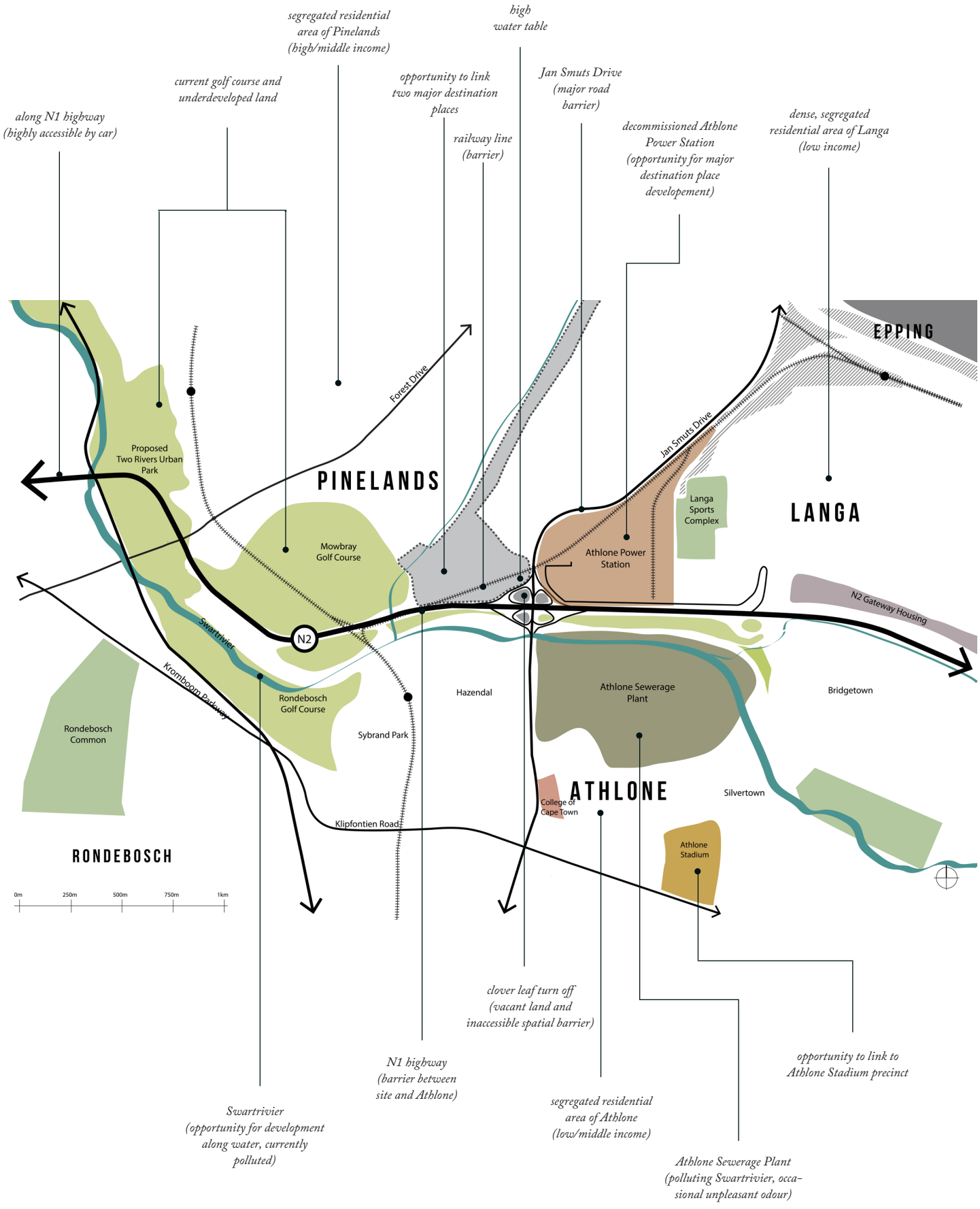
53: ILLUSTRATES THE SITE WITHIN ITS NEIGHBOURHOOD CONTEXT.

54: MAP SHOWING SIT IN THE CONTEXT OF THE CAPE TOWN METROPOLITAN AREA AND GREEN OPEN SPACE SYSTEM

55: SHOWS AN AERIAL PHOTOGRAPH OF THE SITE EDITED TO HIGHLIGHT THE SITE IN CONTEXT WITH A VIEW OVER THE ATHLONE POWER STATION TOWARDS TABLE MOUNTAIN AND THE CBD.

OPPORTUNITIES AND CONSTRAINTS

Barriers, Linkage and Densification



56: DIAGRAMMATIC MAP SHOWING ILLUSTRATING OPPORTUNITIES AND CONSTRAINTS WITHIN THE CURRENT, UNDEVELOPED CONTEXT.

57: VIEW FROM JAN SMUTS

58: CLOVER LEAF FROM N2 HIGHWAY

59: JAN SMUTS DRIVE BETWEEN SITES

60: VIEW OF CANAL BETWEEN SITE AND TWO RIVER URBAN PARK FROM N2 HIGHWAY

61: VIEW TOWARDS TABLE MOUNTAIN FROM N2 HIGHWAY OFF RAMP

62: CLOVER LEAF ADJACENT TO N2 HIGHWAY

63: TRIANGLE CUT OFF SPACE ADJACENT TO JAN SMUTS DRIVE FROM N2 HIGHWAY

64: VIEW OF SITE FROM FROM N2 HIGHWAY TOWARDS ATHLONE POWER STATION

65: EDGE OF SITE TOWARD TWO RIVERS URBAN PARK FROM N2 HIGHWAY

66: PEDESTRIAN BRIDGE FROM PINELANDS ONTO SITE

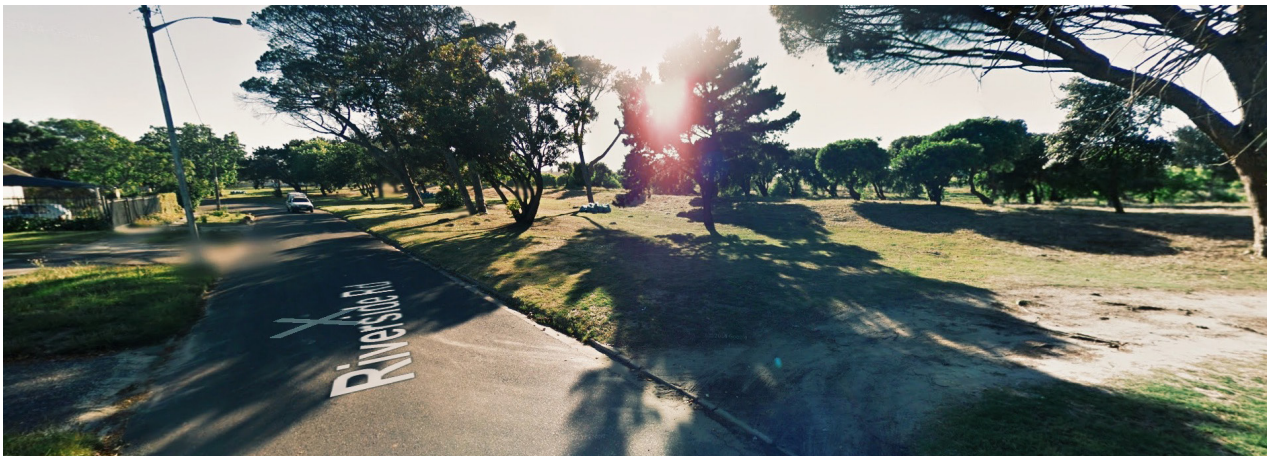
67: VIEW OF CANAL FROM NIGHTINGALE WAY BRIDGE

68: VIEW TOWARDS ATHLONE POWER STATION FROM N2 HIGHWAY OFF RAMP

69: RIVERSIDE ROAD BETWEEN SITE AND PINELANDS

70: VIEW FROM RINGWOOD ROAD

71: LINK BETWEEN ATHLONE POWER STATION AND CLOVER LEAF



72: VIEW FROM RIVERSIDE ROAD

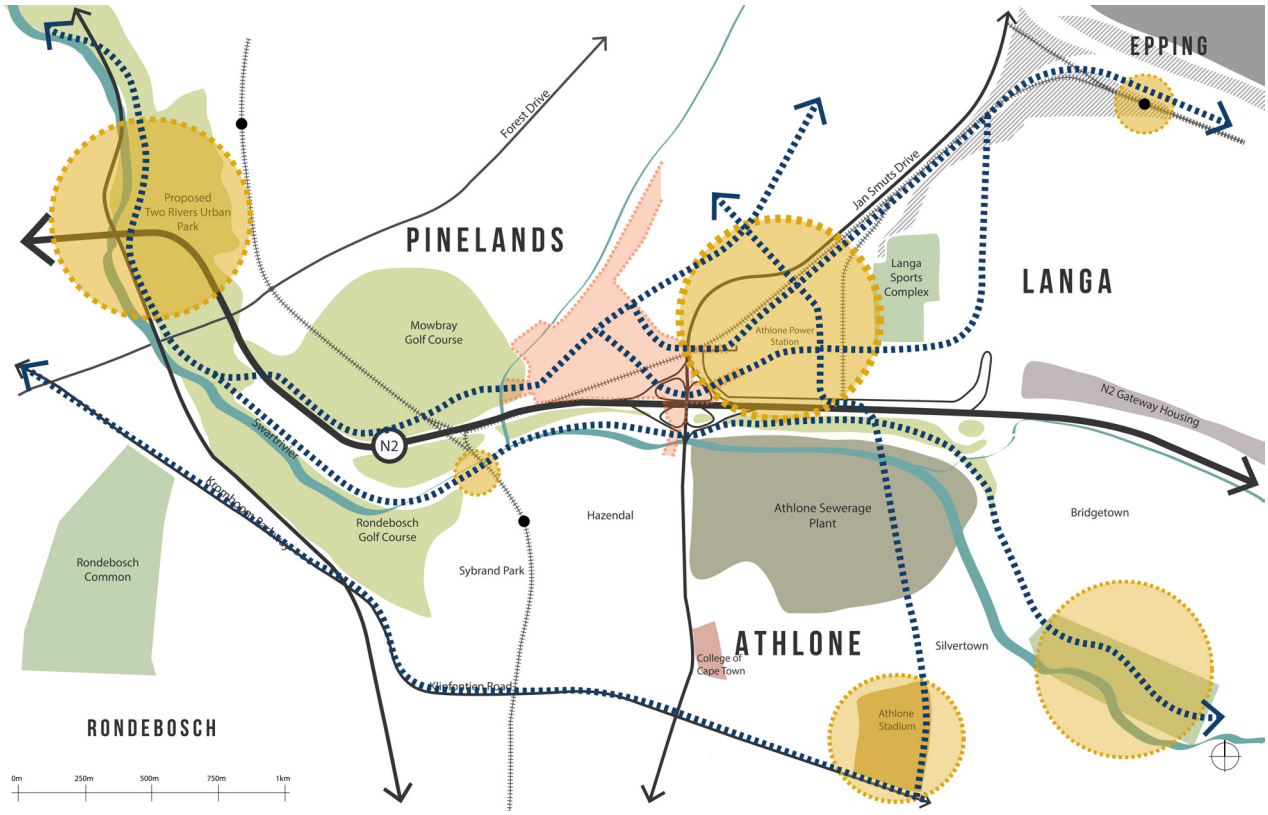
73: TRAIN RUNNING THROUGH SITE

74: VIEW FROM JAN SMUTS OVER CLOVER LEAF TOWARD ATHLONE POWER STATION

THE URBAN DESIGN CONCEPT

The Precinct Scale

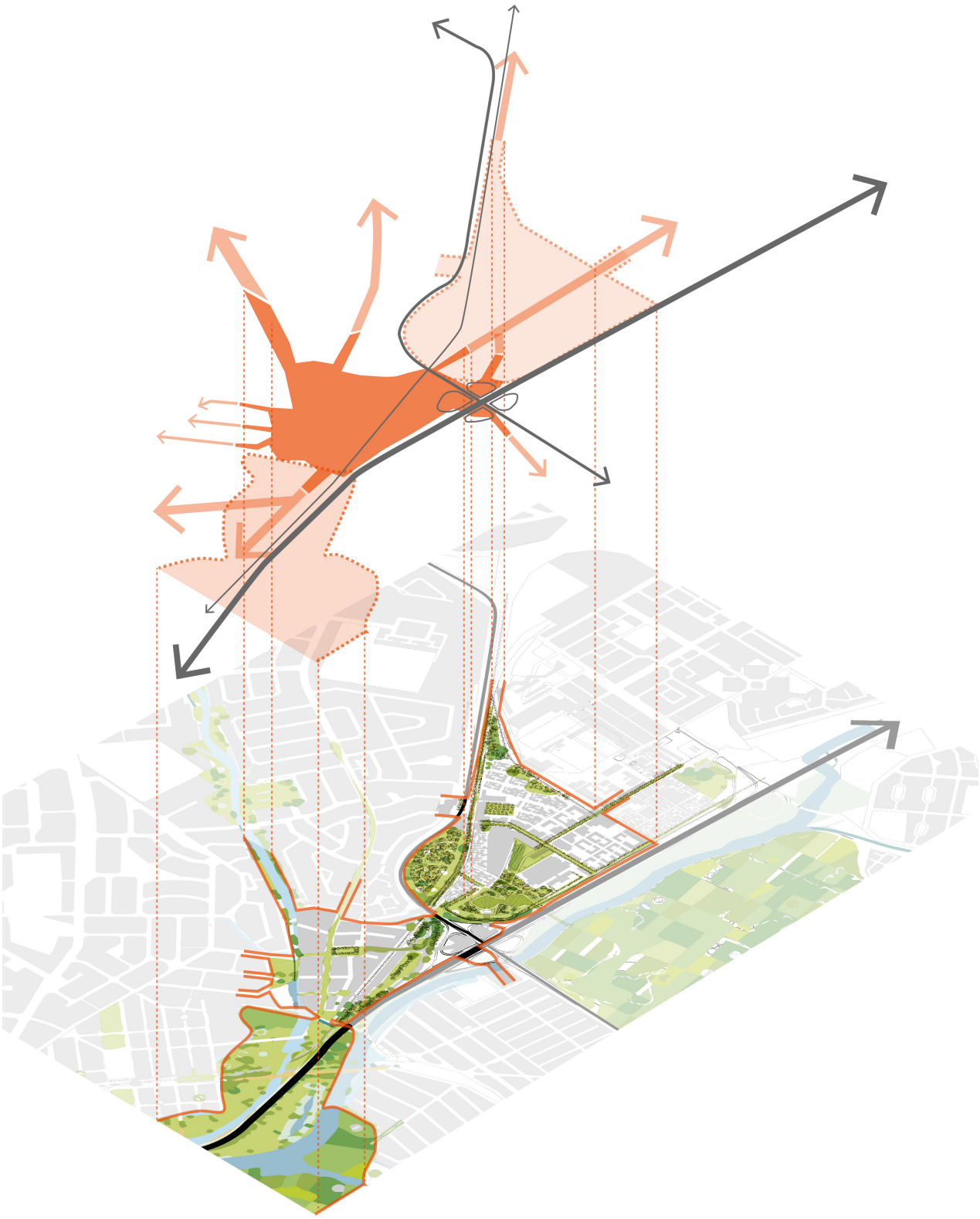
The urban design concept for this stems from a shift in thinking about cut-off spaces in cities as presented in this paper and goes beyond the individual location to consider a broader contextual framework. A salient element of the design is a priority on pedestrianism, a minimal car environment and high access for public transport such as BRT lanes a train station on site. The site is designed with a network of pedestrian and cycle dominated spaces and networks across the site, linking the Athlone Power Station to Two Rivers Urban Park via an activated and mixed-use clover-leaf and across Jan Smuts Drive for the pedestrian.



75: PEDESTRIAN PROMENADE CONNECTING ACROSS THE SITE AT A NEIGHBOURHOOD SCALE.

The map alongside is a conceptual design of the way in which the pedestrian promenade system across the focus site, the Two Rivers Urban Park and the Athlone Power Station has the potential to be extended across these site boundaries, integrating the area into an even broader content across the city.

The yellow nodes highlight key destination places the promenade system will connect by foot, with a view that this could be ungraded to a light rail or tram system in future as density and economy allows.



76: AXONOMETRIC DIAGRAM OF URBAN CONCEPT: USING THE FOCUS SITE TO BRIDGE THE SPATIAL DIVIDE BETWEEN THE TWO RIVERS URBAN PARK AND ATHLONE POWER STATION, ACROSS VEHICULAR ORIENTED INFRASTRUCTURE, PRIORITISING THE PEDESTRIAN.

Jan Smuts Drive will continue to function as a higher order vehicular road but will be upgraded with a widening of the road at the intersection of the cut off space to include a BRT stop that leads directly into the new development on site. The built form of the new development will include land uses that encourage active interface conditions and promote pedestrianism through active edges and well-lit, landscaped hard and soft spaces within a comfortable and a safe walkable environment. Public squares are located at strategic points such as the intersections of streets that link to the neighbouring areas beyond the borders of the site. These spaces are accentuated with landmark buildings and on the axes of salient movement routes.

The new development will be integrated with the currently underutilised canal on the north edge of the site bordering Pinelands by encouraging canal facing buildings and a pedestrian and cycle landscaped promenade. This will encourage activity along the canal and encourage activity and a positive recreational interface condition with the existing bordering neighbourhood.

The medium density, mixed-use development advocates for a 'live-work-play' ethos to facilitate self-reliance and encourage economic opportunity coupled with affordable housing and recreational space on site or within walking distance. The main road of the site and area around the station is earmarked for intensified development of commercial and retail ground floor activity with offices and apartments on the floors above to encourage a vibrant, active and safe environment in the most active areas.

PHOTOGRAPHER: TOBIAS DAISENBERGER

The design analysis presented here aims to illustrate only the formal theoretical aspects of the design and is somewhat isolated from its context. The intention of this is to allow the user foundational knowledge of the structure of the precinct and that a comprehensive understanding of the project is envisaged in combination with the presentation and poster element of the design to come.

PART FOUR [B]

http://www.landezine.com/index.php/2015/09/buffalo-bayou-promenade-by-swa/

SITE DESIGN

This chapter analysis's various aspects of the precinct design through a diagrammatic technique. Elements such as movement, hierarchy, access and density are explored and illustrated.

DESIGN APPROACH AT THE PRECINCT SCALE

Analysis of design

Generating meaning in urban space

"Generating meaning" refers to the facilitation of constructing significance for strategic sites with reference to the district in which it is located and the streets, spaces and building that are flanked by it. The facilitation of festivals, celebrations and ceremonies within these spaces have the potential to create human emotion and connection to space that was not inherent in the site before. This can be implemented by the design of visual perspectives, streets, orientation and space making through architecture (entrances, doors, windows, stairs) that evokes emotion and creates a unified human-scaled environment that activates the senses.

The majority of cut off spaces explored in this research are completely void of positive cultural or social meaning, thus mean little to the residents around them. The guidelines in this document attempt to generate principles and objectives that generate an appropriate genius loci and use for cut off spaces.

The memory and perspective of space contribute to its genius loci and should be taken into account by generating powerful visuals and sensations to varying degrees. The creation of this phenomenon has the potential to generate meaning, shifting formless and unstructured cut-off space to places filled with positive human movement, activity and energy and become a truly living space.

77: ACTIVE AND PEDESTRIAN FRIENDLY CHARACTER

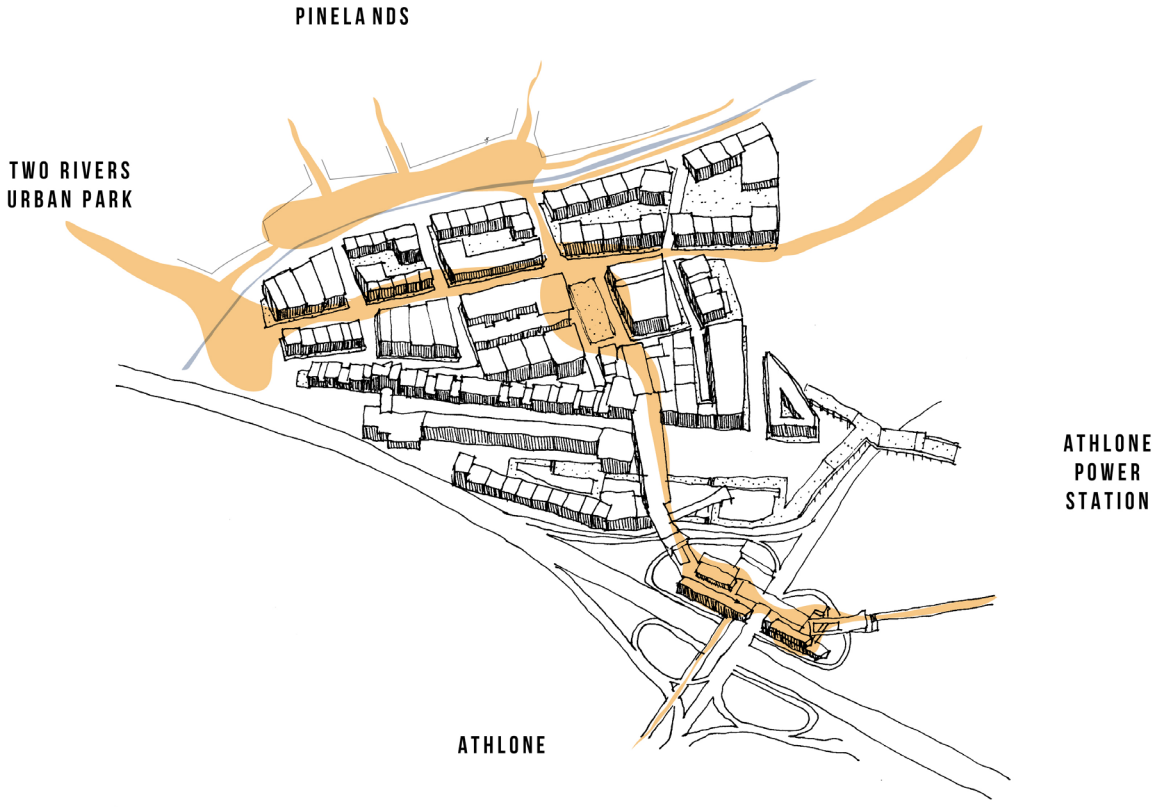
The Neighbourhood Character

The neighbourhood is designed as a medium-density mixed used area. The promotion of pedestrianism will be prioritised by designing walkable blocks of an average of 65m, with exclusively pedestrian walkways and public squares. The main street is wide enough to facilitate a BRT lane with potential for an implementation of a tram line in the long term that services the areas between Two Rivers Urban Park and Athlone Power Station as density increases. The intention is to reduce travel distance and times between various home, work, shops, etc.. The human-scaled main street will also include wide pavements that are able to accommodate pedestrians and cafe/restaurant spill out onto the street, encouraging vibrancy and life on the street on the ground floor, with balconies on the floors above to encourage passive surveillance.

78: APPROPRIATELY SCALED BUILT ENVIRONMENT.

79: MIXED-USE STREETS FOR PEOPLE.

80: PEDESTRIAN ORIENTED STREETS.



81: DIAGRAM ILLUSTRATING HIERARCHY OF MAIN PUBLIC SPACES AND MOVEMENT AREAS

Hierarchy of Space and Nodes

In order to create a successful web within the urban realm a system of hierarchical connections and nodes at various scales should be established that is legible and not sterile. In designing the urban precinct for this research, the minimum framework of a hierarchical system should be established and allowed to develop incrementally as need arises and in direct response to economic and social needs.

The concentration of human activity anchors the urban web at strategic points of interconnections. Nodes should be areas of intense and diverse activity and be well-connected via multiple points of access and well-defined by architectural boundaries.

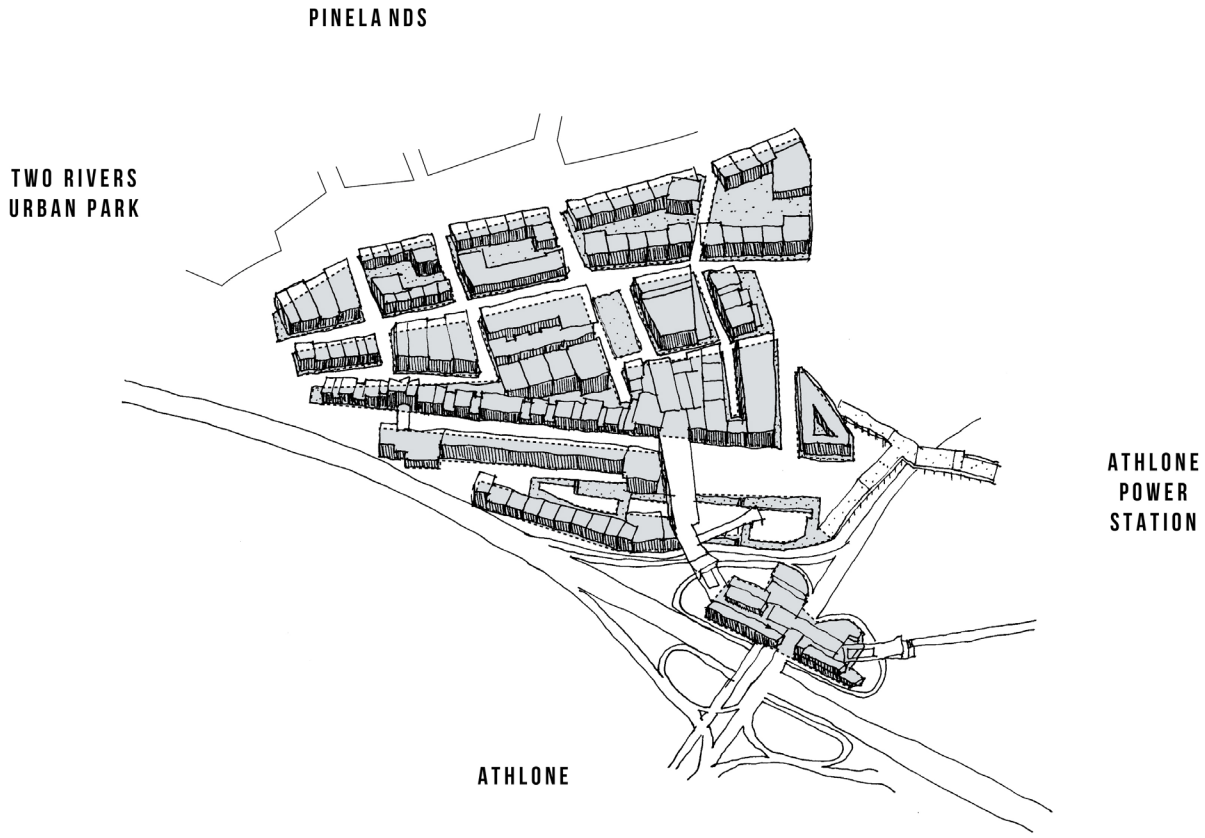
The intent of this site development is to be the link between two future major destination places (Two Rivers Urban Park and Athlone Power Station), thus it does not consist of many large scaled public spaces. The highest order public space is located at the confluence between the major movement routes leading into the site from the adjacent neighbourhoods, with smaller scaled public spaces located on wide pavements along activity routes. The south-east portion of the site consists of a wetland with minimal intervention pedestrian boardwalks and a public open space framed by mixed use buildings on the south-west portion of the site.

Almost all of the urban blocks are designed as perimetre blocks to allow for smaller scaled public spaces within each block. This allows more light into buildings and safety within smaller courtyards as there are more eyes on public spaces providing a level of surveillance and positive interface conditions between buildings, streets and public spaces.

82: SMALL, INTIMATE COURTYARDS.

83: ACTIVE STREET LIFE.

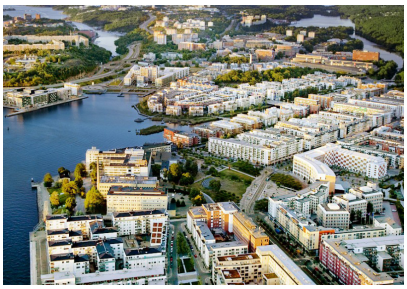
84: HARD AND SOFT, SHADED SPACES.



85: DIAGRAM ILLUSTRATING URBAN BLOCKS

Urban Blocks

The atypical shape of the site provides challenges and variety in designing the urban blocks. The blocks are determined by the dimension of the surrounding urban form and in response to linkage routes and street configurations into the site from adjacent neighbourhoods. The block dimension is based on a comfortable walking distance of an average of 65m. The average gross density of each block is approximately 400 dwelling units per hectare (du's / ha), up to 7 storeys, which creates a sufficient threshold for human settlement and public transport.



86: MEDIUM DENSITY PRECINCT.

87: MEDIUM DENSITY BUILDING FRAMING SPACE.

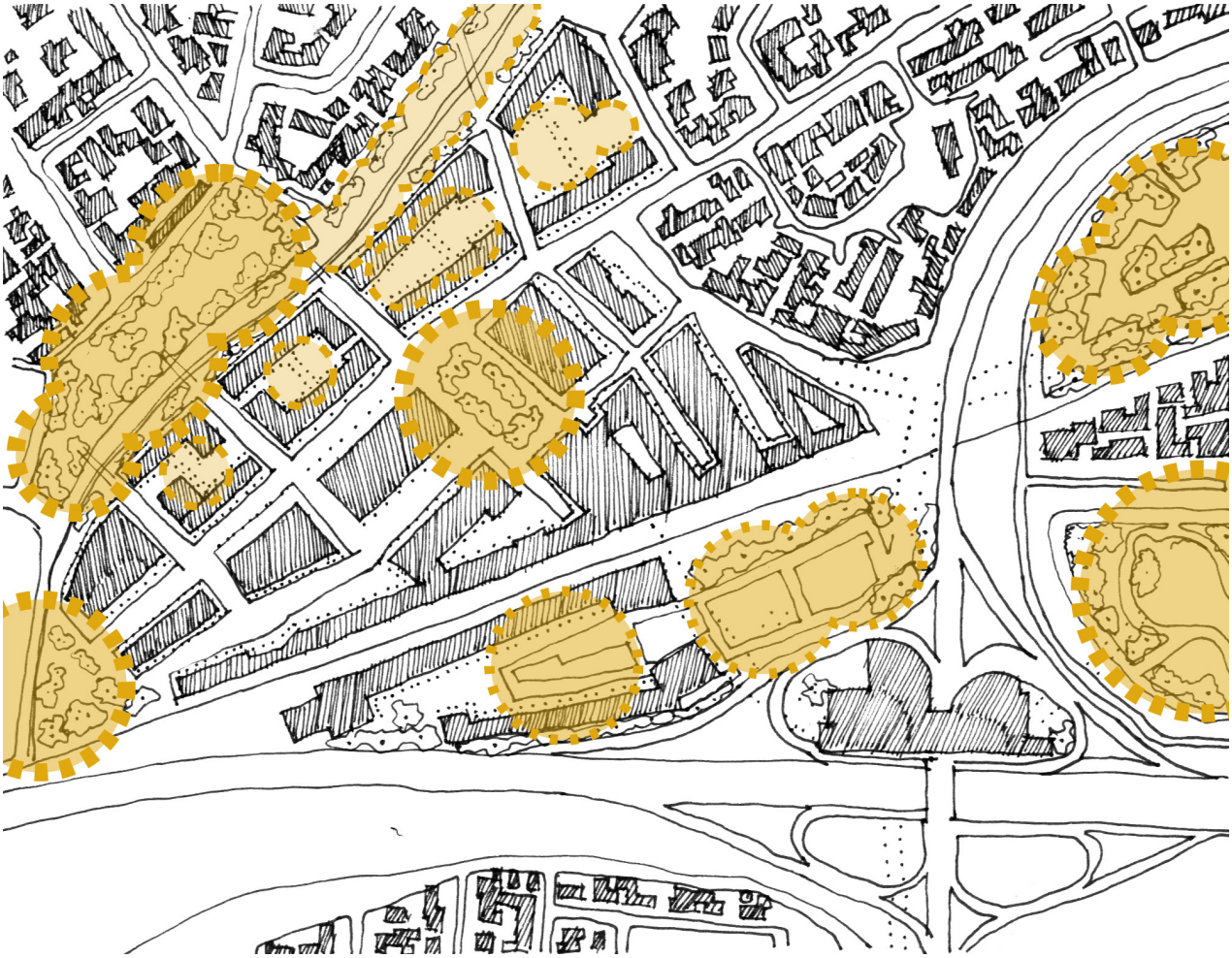
88: APPROPRIATE FENESTRATION AND BALCONIES FACING PUBLIC SPACE.

89: DIAGRAM ILLUSTRATING THE FUCNTIONAL COMPOSITION OF THE PRECINCT

Buildings and Functional Composition

The buildings and architecture within the area are a salient element in determining its character, the open spaces they frame and relationship with the rest of the city in an existing context.

The area will consist of a mixed use array of building uses, including housing, retail, offices, restaurants, civic, health and education which will be designed with salience placed on robustness, flexibility and future incremental development. The architecture and style of buildings should always reference one another, not only in its function, as exclusive functional definition has the potential to render the building obsolete as use changes over time. This references sustainable development and prevents buildings from being demolished once it has served its original functional purpose.



90: PLAN ILLUSTRATING HIERARCHY OF PUBLIC SPACE FRAMED BY ARCHITECTURE

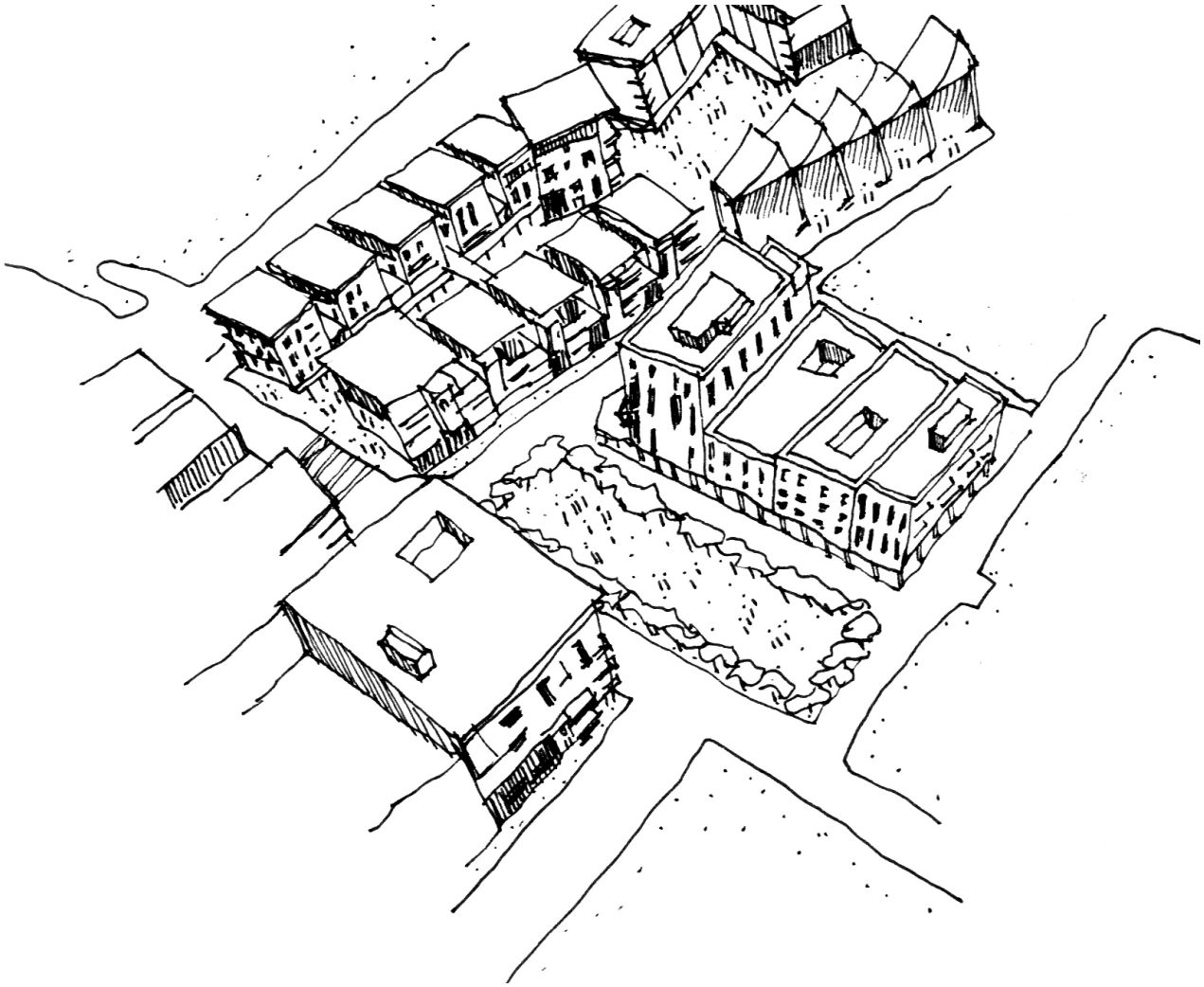
Architecture framing public space

Architecture should be deeply rooted in the creation of public space and be contextualised according to the region or district. The establishment of scale, character and social context has the potential to be expressed through architecture. Buildings, together with the public spaces they frame, actualize social settings and give legibility and hierarchy of public institutions by providing symbolic and functional anchors in space. Thus buildings should be designed with quality in mind so as to achieve longevity and robustness in a consumer driver urban environment.

91: BUILDINGS FRAMING CORNERS OF PUBLIC SPACE.

92: BUILDINGS FRAMING PUBLIC SQUARES.

93: BUILDINGS FRAMING PUBLIC SQUARES.



94: ILLUSTRATION SHOWING MIX OF BUILDINGS

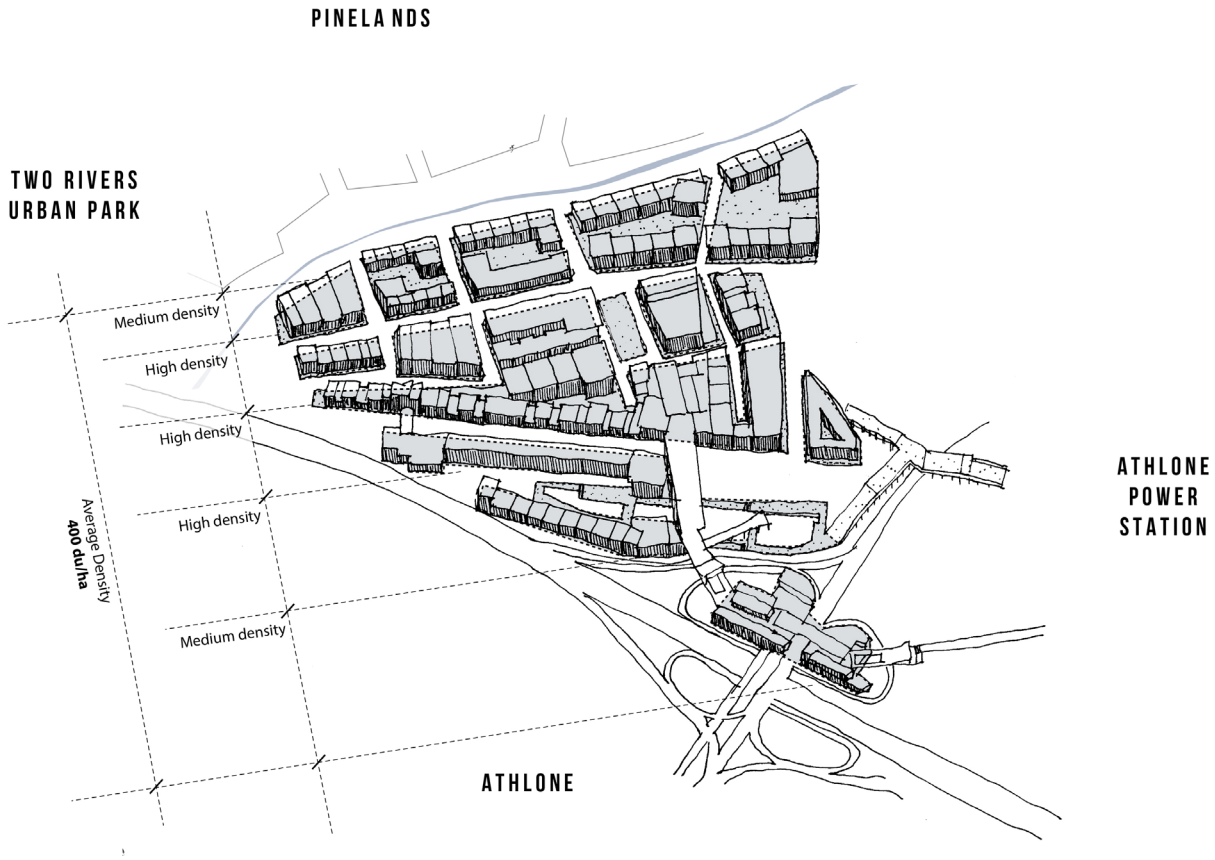
Urban Mix

The buildings comprising the urban fabric should be of a range of scales and hierarchies in response to need and a framework of legibility set out in this proposal. This should lend itself to accommodating a range of incomes and uses, fostering social and functional integration. The entire site should be public and open and green spaces be inviting and safe for all residents of the city. Space should be created at an appropriate human scale and facilitate human interaction and occupation.

95: HAMMARBY SJÖSTAD, SWEDEN.

96: BRIGHTON, ENGLAND.

97: ISTANBUL, TURKEY.



98: DIAGRAM ILLUSTRATING MIX OF DENSITIES

Density

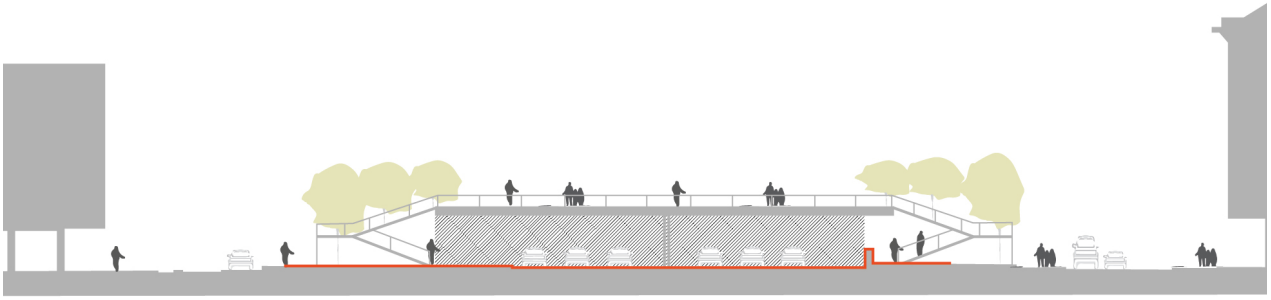
The densification of Cape Town is crucial to its sustainability in the long term. It has the potential to improve the lives of the city's dwellers by bringing vitality to districts with increasing population, economic opportunities and development increases in strategic areas and make the city more accessible as public transport options increase, become safer and more reliable with increased population thresholds and minimising private vehicular dependence.

The ideal density for this precinct mimics that of the suburb of Claremont, with a dwelling unit density of 403 made of mixed use buildings with an average maximum height of 10 storeys. The precinct will include mixed income and types of housing to accommodate the needs of residents with varying economic backgrounds, tenure options and housing types. The Cape Town Densification Policy (Feb 2012) has been consulted to ensure the proposals are in alignment with or improve the city's densification and housing vision.

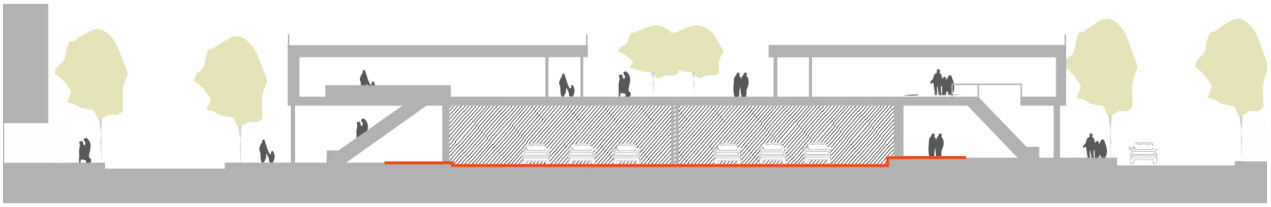
99: PAISANO GREEN COMMUNITY, US-MEXICO BORDER.

100: PERTH COMPACT LIVING.

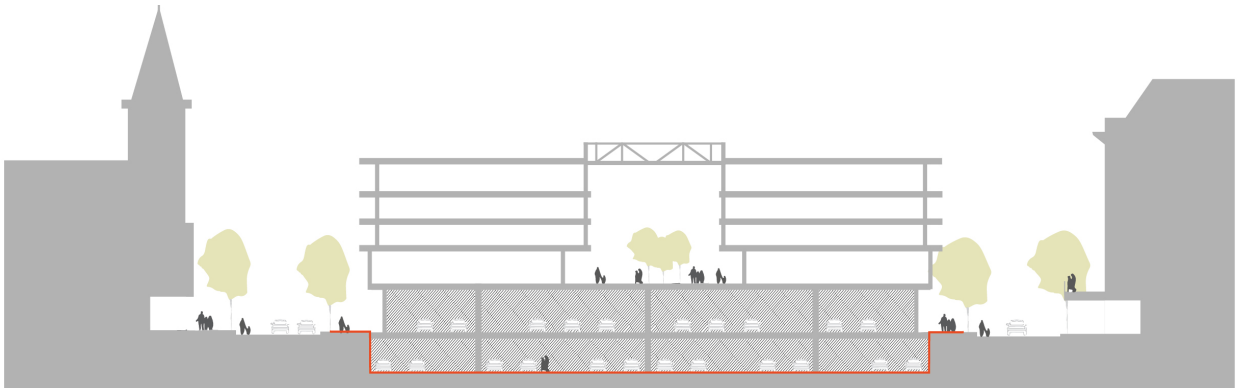
101: ANCHOR PARK HOUSING.



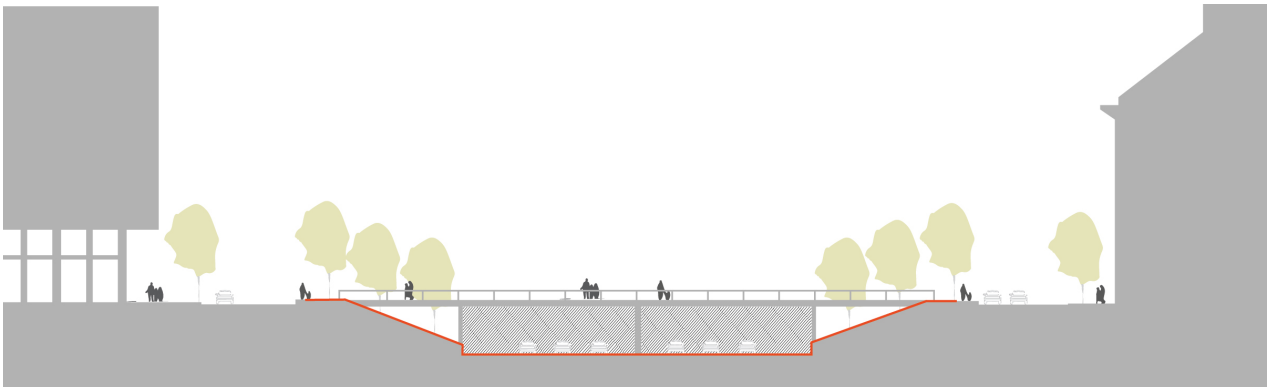
102: OVERHEAD PEDESTRIAN CROSSING



103: OVERHEAD PEDESTRIAN MIXED USE



104: MULTI STOREY COMMERCIAL ABOVE PARKING

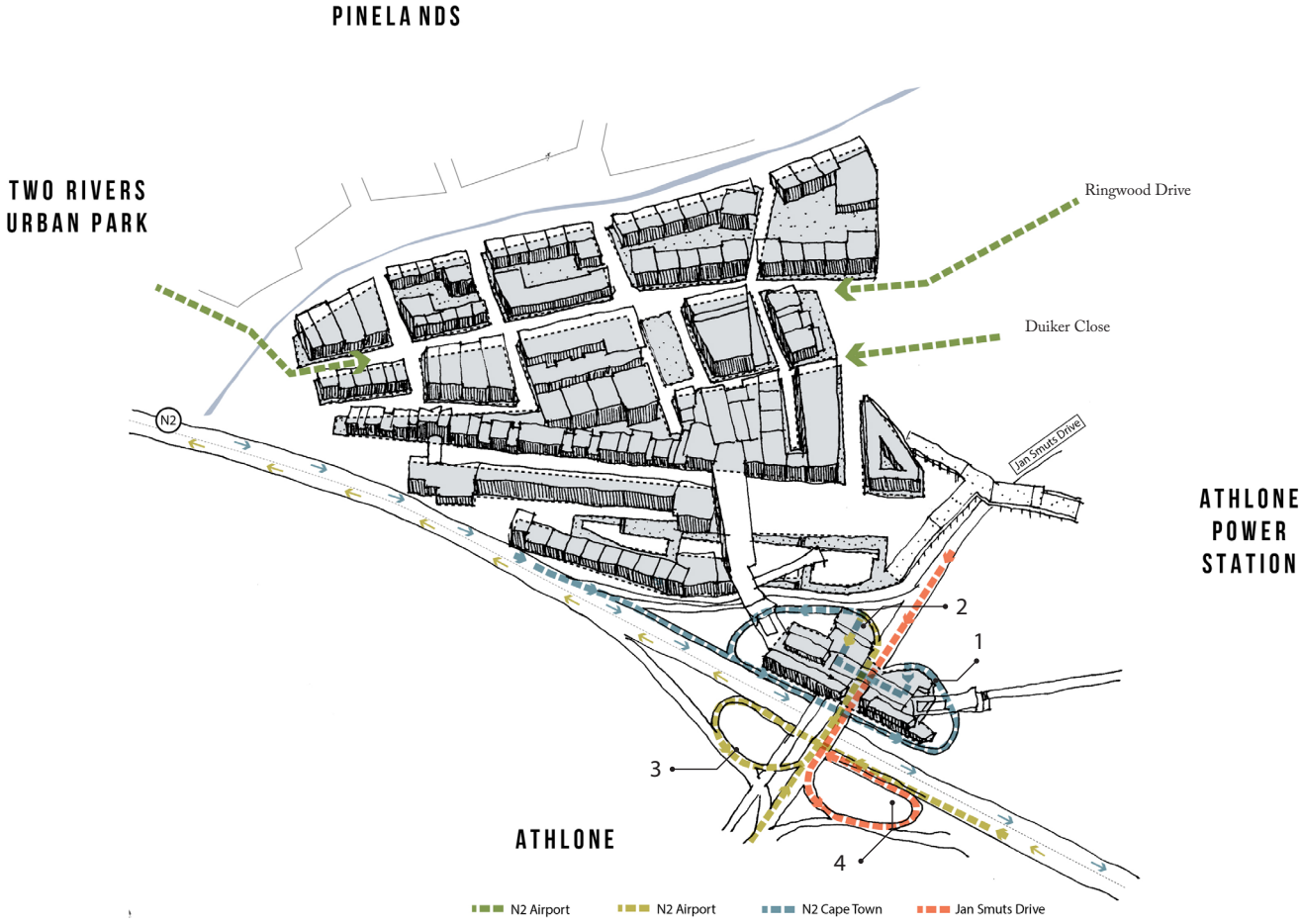


105: PEDESTRIAN BRIDGE AT GRADE

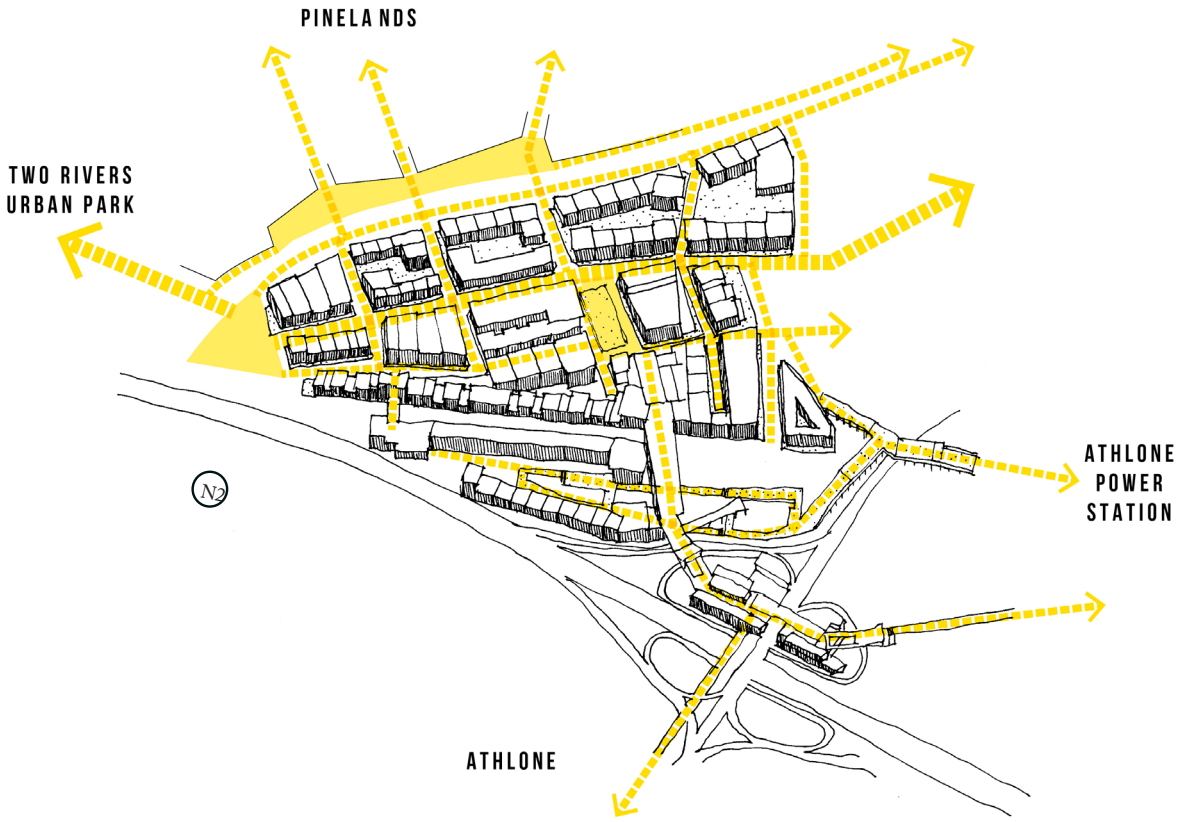
Vehicular Access and Parking

The precinct is most accessible by foot although certain, limited access points for cars have been made available. Access from the N2 highway from Cape Town is into the cloverleaf 1 into a parking lot which runs underneath Jan Smuts Drive to the parking lot in cloverleaf 2. Access from the N2 highway from the airport is off cloverleaf 3, onto Jan Smuts Drive and into the parking lot in cloverleaf 2. Access from Jan Smuts Drive from Pinelands is off clover 4, through cloverleaf 3, onto Jan Smuts Drive and into the parking lot in clover leaf 2. Access from Jan Smuts from Athlone is straight into the parking lot in cloverleaf 2.

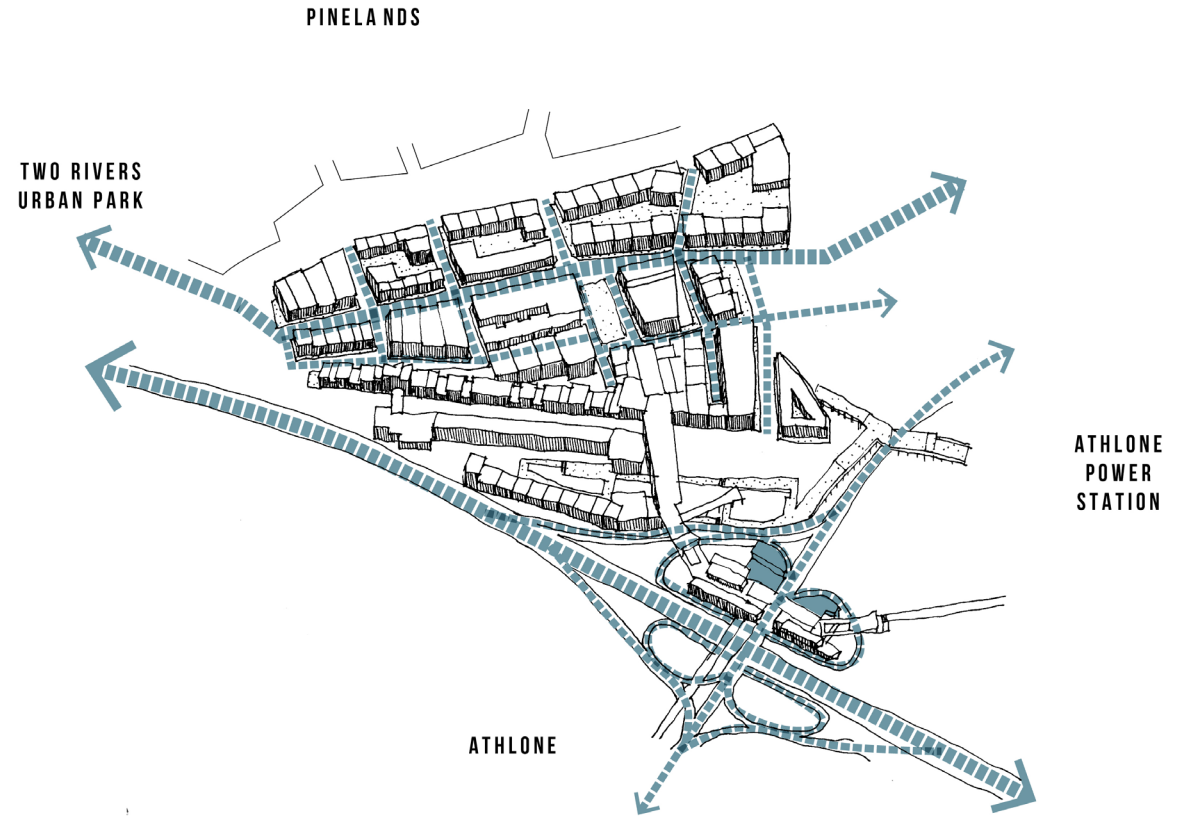
The site is also access from a new road between the site and the Two Rivers Urban Park development, across the existing canal and from Ringwood Road and Duiker Clove.



106: DIAGRAM ILLUSTRATING VEHICULAR ACCESS



107: DIAGRAM ILLUSTRATING PEDESTRIAN ACCESS AND MOVEMENT



108: DIAGRAM ILLUSTRATING VEHICULAR ACCESS AND MOVEMENT

Movement and Connections

Salience is placed on the safety, pedestrian-orientated and vibrant movement routes through the site and between Two Rivers Urban Park and Athlone Power Station. Non-motorised access routes are provided throughout in combination with public transport system. Private motor vehicles are allowed limited access to the site. A main street runs through the site, linking the Athlone Power Station to the Two Rivers Urban Park and to various destination points in the area. A variety of street scales exist to create a movement structure with a predominantly lower order pedestrian and fine-grained movement system allowing maximum accessibility throughout the site via a range of movement routes. The main street of12m allows for a BRT and cycle route with generous pavements of 7m.

Complementary nodes (as opposed to similar nodes) should be well connected. This stands in contrast to the modernist mono-functional zoning principle, isolating uses within the city, thus breaking connectivity through fragmentation. Repetition of the same use does not generate connection and human activity and is seen in the lack of a finer grained street and road connections between urban blocks. The consequence of this is weakened pedestrian activity. Pedestrian paths should be appropriately scaled within walkable distances and multiple connection options.

109: CYCLING LANES, ZWOLE, NETHERLANDS

110: ONE WAY LANES SLOWING TRAFFIC.

111: PEDESTRIAN-FRIENDLY STREETS.

112: DIAGRAM ILLUSTRATING LANDSCAPING ON SITE IN ITS BROADER CONTEXT OF GREEN SPACE

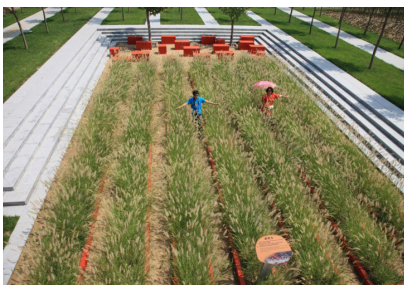
Landscaping and Green Network

The presence of the canal as a subsidiary of the Swartrivier on the north-south edge of the site along Pinelands is an underutilised asset that should be activated. The canal should be animated by creating a pedestrian and cycling environment along the canal with buildings facing onto it and working in relation to the street network as an alternate source of movement. The creation of a well landscaped promenade should be realised as a green-way in the city, optimising the potential for cycle lanes away from the street, biodiversity and recreation. In order to achieve the vision, the canals should be filtered and kept clean and suitable for human use. A navigable connection of waterways can be created in this way if the water is properly cleaned and preserved.

The Athlone Power Site adjacent to the site proposal contains a wetland filtration system to prevent harmful organisms from entering the canals and river system within the Two Rivers Urban Park redevelopment zone. A usable water system has the potential to create a human centred and cultural context. The creation of a safe and active recreational area for residents will increase property values and reduce unfavourable behaviour.

There is much need for connection to nature within the metro south east region of the city, which is generally lacking in landscaping and quality public spaces. The needs of residents for recreational space is paramount and should take into account the desire for continuity and activation of open space as movement routes for the pedestrian and cyclist, defining the build and natural environment, and for biodiversity and urban agriculture where contextually appropriate and hierarchically ordered according to scale and privacy.

113: NATURAL BIO FILTRATION SYSTEM.



114: PRODUCTIVE LANDSCAPING.

115: MIXED USE DEVELOPMENT ALONG THE CANAL.

The tangibly quantifiable vs. the unmeasurable

The process of analysis of context, form, street patterns, density, hierarchy, etc.. and applying urban design theory as explored in this paper does little to explore the human connection to land and space at an emotional level. The urban realm as a collective of multi-layered element frame our relationship between the built environment and heritage and the natural landscape. They form the protective envelope of space in which everyday life is performed and experienced in a living organism that lives, ages and dies.

Thus the most tangible element of the design and experience of an urban space is located at the intersection between the 'logical' (quantifiable, analytical, material, tangible form) and the 'emotional' (non-quantifiable, human connection to space) in which we find the 'genius loci' (human experience of the spirit of place).

The concept of designing for dwelling in urban design

The concept of "dwelling", the most simplistic basis upon which the endeavour of urban design rests, cannot be broken down into the limited urban design theories currently available. The creation of a human environment has the possibility to tend towards an infinite complexity, to such a degree that the application of urban design theories can only hope to comprehend (Tibbalds, 1992). The role of the urban designer is to plan the physical construction of place, but this cannot be isolated from the resultant social construction as a reaction to the human landscape. Fostering recognition for the traditions and rhythms of a community, even a single human being, are critical to structuring the urban environment. The application of existing urban design theories can only attempt, albeit incompletely, to facilitate this and generate a tangible genius loci and human experience of dwelling.

The critical consideration of the response to opportunities and constraints of dwellers on their own environment (Groth & Bessi, 1997; Jiven & Larkham, 2003) should always be salient in the process of designing human settlements. The element of time should be factored into the initial production of the physical environment, allowing dwellers to modify their surroundings as they see fit (Knox, 2005). This allows the built environment to accommodate the attitudes, values and lifestyle of the residents inhabiting the area (Soja, 1980). This facilitates the social construction of a place to be created post-construction, further reinforcing the relationship between dweller and environment. Thus I would argue that an allowance for incrementalism and the recognition that no single entity, whether it be planner, architect or urban designer, can wholly design a town or place, is the most salient.

FORM BASED CODING

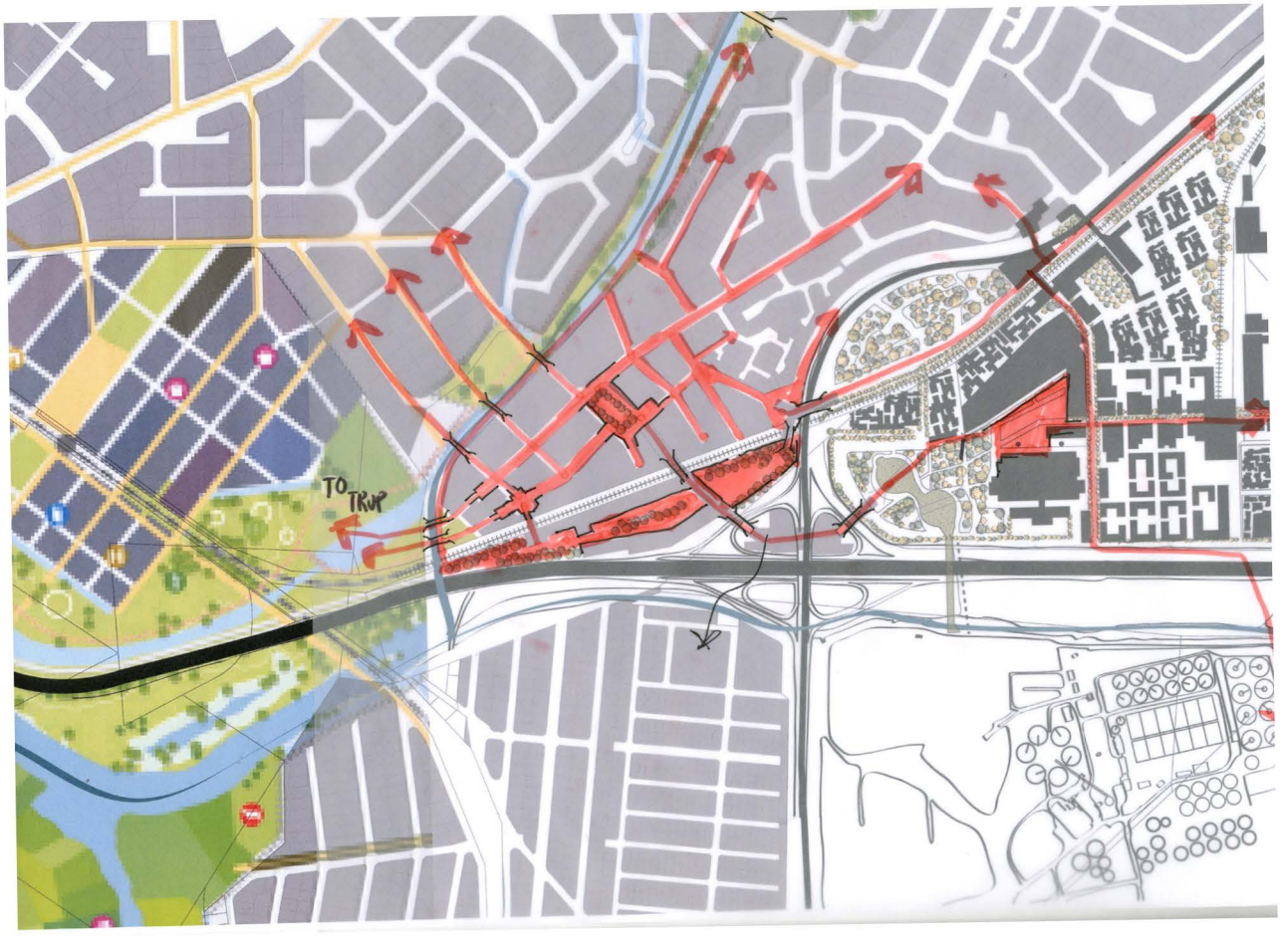
Edges and interfaces

- Active ground floor across the development.
- Minimal building setbacks from the erf boundary (excluding development along the canal: 5m building setback from erf boundary to create a landscaped transition including pedestrian and cycle paths along the canal. All landscaping to be indigenous or edible)
- No solid wall boundaries. If necessary, visually permeable fencing only.
- No visible parking allowed along the canal - parking to be internalized within the perimeter of building courts.
- Terraces and balconies on upper stories in all buildings of the development.
- All streets are designed as shared spaces, with a single surface as far as possible that allows for sustainable storm water collection.
- Indigenous tree planting and permeable surface materials should be used on internal access routes as far as possible.
- Development should face away from the railway line with a 10m landscaped buffer zone between the centre of the railway line and the building edge. Indigenous, appropriate and low maintenance landscaping should be planted.
- Block with internal courts should be multi-purpose and paved and landscaped appropriately. The ground floor of buildings should open onto the courtyard with balconies and terraces overhead to ensure passive surveillance.
- Buildings on the main road and public square should be 5-7 storeys.
- Buildings in the rest of the development should be 3- 5 storeys.

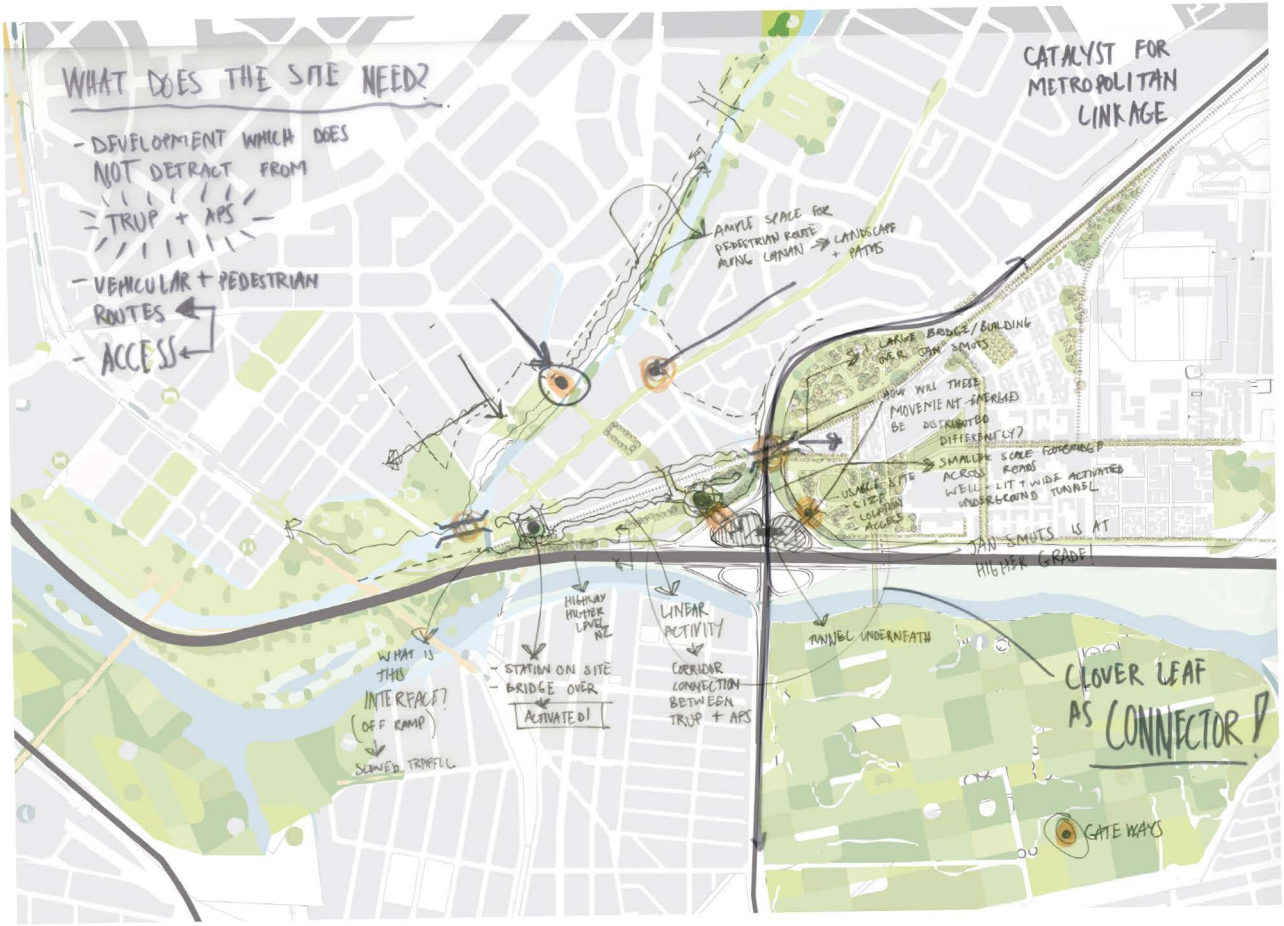
DESIGN DEVELOPMENT

Process drawings

116: PHOTOGRAPH OVER SITE SHOWING PRELIMINARY SITE DESIGN IN PLACE



117: PROCESS DRAWING: STREET CONNECTIVITY



118: PROCESS DRAWING: WHAT DOES THE SITE NEED?

119: PROCESS DRAWING: ENERGY AND GATEWAYS

120: PROCESS DRAWING: NEIGHBOURHOOD SCALE INITIAL ANALYSIS

SHANGHAI ELEVATED HIGHWAY

(http://photography.nationalgeographic.com/wallpaper/photography/photo-tips/city-photos/elevated-highway-shanghai/blethou)

The design analysis presented here aims to illustrate only the formal theoretical aspects of the design ans is somewhat isolated from its context. The intention of this is to allow the user a basic understanding of the structure of the precinct with the knowledge that a comprehensive understanding of the project is understood in combination with the presentation and poster element of the design to come.

CONCLUDING THOUGHTS

End

The intention of this research was undertaken in order to further understand the challenges affecting urban anthropology as a result of the phenomenon of the modernist cities in which we inhabit. I wanted to uncover the true scale of land waste in the modern way of city making and the intricacy of affect the urban environment has on the experience of the city dweller.

The investigation has initiated an ongoing attempt to engage , dispute, debate and negotiate the current forms of accepted city planning and building, and the way in which users is able to interact with their urban fabric. By engaging with the spaces creating fragmentation and land waste in the city, a new way of living in the public realm can be formed, from inhabiting to transitioning through and across space. Unlocking cut off spaces explores the current and new relationships we have to exiting structural grid of the city which is largely geared towards the automobile as opposed to the pedestrian and its design resolution subscribes to the palimpsest of the city's built environment.

In intensely engaging with the contemporary epoch with the intention to understand what creates its genius loci in the 21st century, one begins to unpack the paradox of the creating for the car over the pedestrian. The design output presented here should not be seen isolation or as a completed form, but rather as an expression of 'the art of the possible', an attempt at generating a space in which access to public space and existing structure is questioned and ultimately disregarded in favour of design that facilitates a place in which city dwellers want to be public and cut across barriers.

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