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4.2.1. The development of Pretoria

1855-1930

Pretoria was established in 1855 and was laid out by the Voortrekkers on a Cartesian grid, centred around Church Square. Its development was dictated by prominent natural features such as the ridge and the river systems with large erven and tracts of farmland in between residential developments.

1930-1960

The majority of development up until the 1930s occurred within inner city areas such as Pretoria west, Hatfield, Silverton and Moot area. Then urban areas became more fragmented, moving beyond the ridges, with the development of new 'white' residential areas. Black people living in areas earmarked for white people were resettled in townships on the urban fringe, such as Atteridgeville followed by the dormitory townships of Mamelodi, Eersterust and Laudium, established in the late 1940s and 1950s.

1960-1990

The cities growth accelerated after 1960, with sprawling low-density residential areas to the south-east of the city, and new urban growth centres in Centurion and Akasia. The grid pattern gave way to a curvilinear pattern as the city became more car and less pedestrian orientated. During the late apartheid era (1960 to 1990) this pattern of fragmented urbanisation and separate development was reinforced through development of Soshanguve and Mabopane to the north.

Growth of Pretoria 1900 - 1939



Growth of Pretoria 1900 - 1959



Growth of Pretoria 1900 - 1999

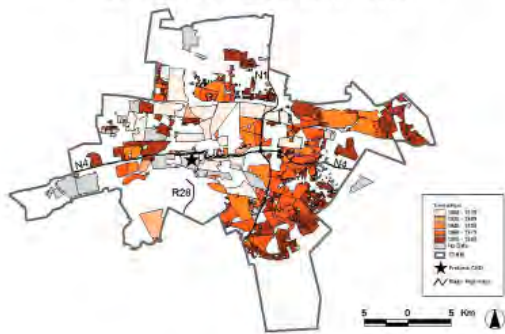


Fig:13. Series of maps showing the growth of Pretoria between 1900-1999 (TOSF vol I 2005: 20).



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01 introduction



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Fig.2. Railway in Pta west (Author 2010)



The landscape of the contemporary horizontal city is no longer a place making or a condensing medium. Instead it is fragmented and chaotically spread, escaping wholeness, objectivity, and public consciousness – terra incognita (Berger 2005: 209).



2. Introduction

2.1. Problem in context

2.1.1. State of the city

Pretoria, a modernist industrial city, experienced its heyday under the rule of the apartheid regime in the early 70s. It was during this time that the CBD became synonymous with work and commerce while the tree-lined suburbs were thought to be the ideal living environment. It offered the best of both worlds. Functions were separated in order to perform optimally. The focus was turned to infrastructure and away from people. The city thus became a mono-functional, harsh, static and sterile environment, lacking a sense of place and belonging. Today, like many other modernist cities, Pretoria suffers from large-scale urban decay that can be attributed to a number of factors such as low density, decentralization and sprawl.

The city became subject to decentralization of industry and commerce as well as sprawl caused by low suburban density and a vehicle centred lifestyle. The emphasis shifted from public to private in both infrastructural and social spheres.

The effects of modernist city planning principles coupled with the aftermath of apartheid planning, left Pretoria with a fragmented, uninviting and decaying urban environment. It has become associated with pollution, poverty, crime and congestion. Negative perception hinders development within the CBD as residents perceive it to be an unfavourable living environment. They relocate to the suburbs in search of more favourable conditions in which to live and raise children.

2.1.2. Moving to the suburbs

Man is always in search of the most favourable conditions. If one were to give the average aspiring Pretorian resident the choice between a house in a golf estate in the eastern suburbs of Pretoria, and an apartment in the CBD, the choice would most probably lean towards the golf estate. Why is that?

The reason is what these estates have come to represent. Where the one has gained a negative perception, the other has become the embodiment of affluence and success. Could it be that the suburbs seem to offer something that the city-centre cannot, the promise of the idyllic? This promise comes in the form of space, countryside, community and safety. It represents the ideal healthy and productive lifestyle, closely linked with nature.

The perception is that in order to live this ideal lifestyle one needs to live in the ideal landscape. This has become the dream, the ideal we all strive for.

Developers exploit humankind's desire for the idyllic by creating the perception, through clever marketing, that security estates, complexes and suburbs offer this productive landscape-centred lifestyle.

Let's look at names of some developments in Pretoria east: Woodhill Golf Estate, Silver Lakes, Mooikloof, and even some of the older suburbs such as Faerie Glen and Waterkloof. What these names have in common is that they all represent images of nature.



People buy into these estates because of the image and ideals they stand for and the lifestyle they promise. There is no fault in wanting to live in a healthy and positive environment as this has a direct impact on one's quality of life. However, there is often a gap between the signifier (the housing estate) and the signified (escape from the troubles of urban life and a landscape centred lifestyle). These developments seldom offer the lifestyle they promise and ironically, more often than not, come at a cost of the very images they represent.

They are usually of a low density and located on the outskirts of town where land is readily available. Large tracts of productive farmlands and natural areas are consumed in order to build these estates. They are far from existing infrastructure and require new roads, pipelines, schools and hospitals. Because of their low density these suburbs produce little revenue in relation to the amount of infrastructure and service requirements, thereby placing exceeding strain on already overstretched municipalities. High-density developments require fewer infrastructures to service the same amount of people (TOSF 2005:1).

Large malls and office parks develop at major transport junctions, eliminating the need for most people to ever enter the city. This factor is bleeding the city dry.

Residents are living in small security estates with soaring levies. The high walls isolate them from both the community and nature they so desire.

The perception is that one can escape crime, pollution and harsh environments of the city by moving to the suburbs; however in return this perpetuates urban problems. Ironically it causes further sprawl and decentralization, increasing the cost of energy, infrastructure and commuting distance.

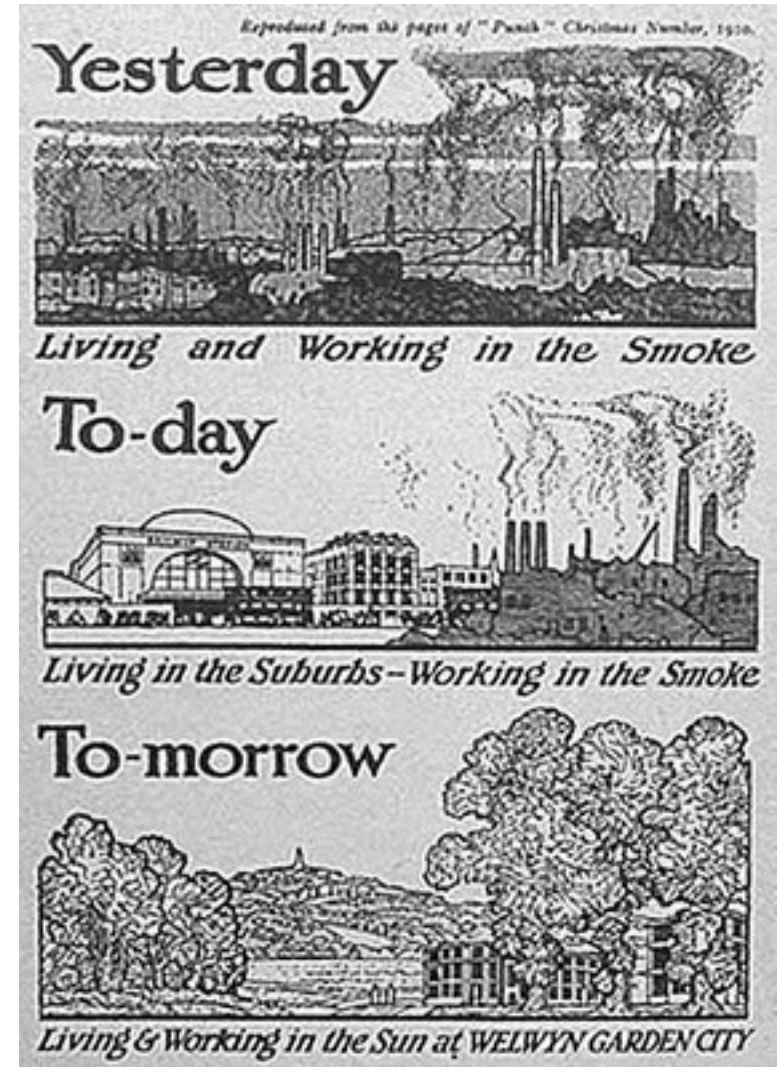


Fig.3. Garden city cartoon by Ebenezer Howard (Ward 1992: 147)



2.1.3. The urban reality

Due to global warming and the global population boom it is becoming increasingly evident that man is living beyond his means. At the Second International Earth Summit held in Johannesburg the progress and implementation of the Agenda 21 protocol was discussed. Among some of the pertinent issues raised was that of food security, protection of natural resources and bio-diversity as well as the reduction of greenhouse emissions and consumption patterns.

In order to reduce carbon footprints and protect valuable productive land, cities need to limit sprawl through densification. This will invest in public transport and protect natural resources. Urbanism is becoming the undeniable way of the future.

2.1.4. Landscape + urbanism = landscape urbanism

There appears to be a two-fold problem: on the one hand we have humankind's desire to live an ideal landscape-centred lifestyle and on the other hand we have issues of urban densification and long-term sustainability. How can the need be addressed for landscape within a high-density urban environment without perpetuating urban problems?

How can one marry the ideal of landscape with that of urbanism?

The theory of landscape urbanism is a fusion of these two widely opposing ideas, creating a comprehensive and mutually beneficial whole.

It argues that landscape should be the primary component of the urban environment. By first creating a healthy landscape, ultimately a healthier urban fabric will be generated.

Through the course of the thesis, this theory and its application on the urban fabric of Pretoria will be investigated. By using landscape urbanism principles one can consider a less desirable area in the city such as Pretoria west, and systematically alter the perception.

Through the study of precedent and appropriate landscape theory, an approach to staging, design and development of the landscape can be initiated in order to create new communities and networks. These will eventually become a catalyst for future development as well as provide more productive, healthy and sustainable living environments within its urban context. Hopefully then people might return to the city.

How can one, through the discipline of landscape architecture, begin to address such complex and far-reaching urban problems in order to instigate urban renewal?

2.2. Study area

Pretoria west has become one of the least 'idyllic' or desirable locations in Pretoria. This industrial sector of the city has long been subject to scorn and neglect from both government and the general public.

Can one through the principles of landscape urbanism transform this fragmented and decayed area, systematically altering perception and ultimately turning it into a desirable location? The need and desire for landscape must be addressed in a sustainable, genuine way that draws people back to the city.



2.3. Problem Statement

The city centre of Pretoria has immense development opportunity within its CBD however despite of this it is decaying due to sprawl and decentralization. This is caused by unfavourable living conditions and a negative perception of the CBD. This development trend is unsustainable and perpetuates urban problems.

2.4. Hypothesis

By using landscape, not urban form, as the departure point one can create healthy living environments the city that will systematically alter perception and encourage people to live in the inner city. This will lead to regeneration and densification of the city and ultimately a more sustainable urban form.

2.5. Research Questions

How can one turn Pretoria west into a healthy and productive environment in a sustainable manner?

What is landscape urbanism and how does it differ from conventional urban design?

How can landscape urbanism along with additional theory and precedent inform an approach?

How can one through analysis, identify problems and development opportunities within the urban fabric?

2.6. Methodology

The thesis will explore this normative position through the study of theory and precedent; through analysis identify problems and opportunities at a range of scales. The potential of landscape architecture will be explored to address issues and unlock inherent and innovative possibilities. These will explore different aspects of landscape architecture from strategic planning and ecological processes to spatial quality and tectonics.

2.7. Limitations

This thesis covers a broad theoretical base across a range of scales; therefore it is not possible to cover all aspects at every scale. The issue of urban renewal is a complex matter comprising of socio-economic, environmental and political issues. As this is a landscape architecture thesis I will focus primarily on the issues that fall within the realm of landscape architecture.

“Human beings are at the centre of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature (Agenda 21, Principle 1: 1992).”



- 1 Background
- 2 Four themes of LU
- 3 Conventional Urbanism
- 4 LU not a new idea
- 5 Disciplinary realignment
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landscape urbanism 02



Fig.4. A former neighbourhood in downtown Detroit (<http://www.jamesgriffioen.net/index.php?/prairies/lost-neighborhoods>)



3. Landscape urbanism

3.1. Background

3.1.1. Mass decentralization of Detroit

During the first half of the twentieth century the city of Detroit was regarded as the automotive capital of the world. During this time the city experienced immense growth and prosperity and quickly became the fourth largest city in the USA with its population peaking at 1,849,568 in 1950.

Its success could be almost entirely attributed to the economic input of keystone automotive giants such as Chrysler, General Motors and Ford, the latter being the first and largest motor manufacturer in Detroit. In its first phase it comprised of multi-story factories in the inner industrial belt of the city.

In 1928 it relocated to the River Rouge Plant on the outer edge of the city, becoming the world's largest industrial complex. This, coupled with the focus shifting to private modes of transport, resulted in large-scale urban sprawl.

The 1960s saw Ford relocating its operations both nationally and then internationally, therefore downsizing its interests in Detroit. This dealt a massive blow to the city as it formed the basis of its economy. The decentralization of the city's largest industry set it on a downward spiral. Economic, social and urban decay ensued causing many people to leave the city in search of jobs and more favourable living conditions.

Over the next 50 years the city would effectively lose half its population, having receded to only 951,270 by the year 2000. Between 1970 and 2000, over 161,000 buildings were demolished, with thousands more razed every year. The city lost an additional 1% of housing stock per year due to

arson. Every year city officials organise the burning of vacant buildings as part of the Halloween celebrations. This has become known as "Devils Night".

Today the city grid lies deserted with virtually no homes or buildings lining the streets. "Nature is reclaiming many of these empty blocks, with native grasses and trees thriving and turning these once dense inner-city neighborhoods back into greenfields (Schroeppel 2008)."

Detroit, arguably the most thoroughly modern city in the world, was built to service the single-minded imperatives of automobile production. In the first half of the twentieth century Detroit served as an international model for industrial urbanism arranged to optimise profits. In the second half of the twentieth century, the city became one of the greatest examples of sprawl and urban decay (Schroeppel 2008).

It is in this apocalyptic yet mysteriously haunting scene that landscape urbanism found its beginnings.

3.1.2. The emergence of landscape urbanism

Charles Waldheim coined the phrase landscape urbanism [LU], a concept he developed along with fellow landscape architect James Corner and architect Mohsen Mostafavi during the 1990s. It was first publically introduced during the LU conference and exhibition held at the University of Illinois in 1997 (Bouras 2010).

The exhibition featured a number of international projects framing new ways of dealing with contemporary urbanism. Exhibitors included among others, Adriaan Geuze from West 8, Michael Van Valkenburgh, Enric Batlle, Joan Roig, Mapillero/Pollack and Omar Perez. It featured three projects specifically dealing with Detroit.

One of these was a project by Waldheim and Marli Santos-



Munne called “Decamping Detroit”. In this scheme they proposed a four-stage decommissioning of the land in municipal control:

1. “Dislocation”; referring to the disconnection of services.
2. “Erasure”; the demolition of remaining structures and the jump-starting of the native landscape ecology by dropping appropriate seeds from the air.
3. “Absorption”; ecological reconstruction of part of this zone as woods, marshes, and streams.
4. “Infiltration”; the re-colonization of the landscape with heterotopic village-like enclaves (Shane 2004: 59).

The project offered a rather controversial perspective in completely reversing the idea of contemporary urbanism. Here the city is deconstructed in order to give natural process the opportunity to heal the landscape. Only once the landscape has been healed are people placed back into the equation. However this time in a way that respects ecology, giving landscape the highest priority.

Subsequently this theory has gained widespread support not only among students but also among prominent architects such as Rem Koolhaas, and Alvaro Siza. Important projects include Fresh Kills Park, the Toronto waterfront and the much talked about High Line in New York.

LU can be traced to post modern critiques of modernist architecture and planning, condemning it for its inability to produce a “meaningful” or “liveable” public realm, for its failure to come to terms with the city as an historical construction of collective consciousness, and for its inability to communicate with multiple audiences (Waldheim 2005: 38).

It has, over the past decade developed into a new model for contemporary urbanism, one aimed at addressing the relative inadequacy of architecture, urban design and

planning to appropriately deal with the problems our cities are facing. Reuse is proposed and regenerate decaying urban fabric by identification rather than architecture; landscape as the “primary element” or form giver. Landscape can better define urban forms and experiences by widening its focus to include ecological, social and infrastructural programmes (Waldheim 2005: 16).

“So it seems that certain elements within each of the design professions - architecture, landscape architecture, urban design, and planning - are moving toward a shared form of practice for which the term landscape holds central significance, as described though the formulation of landscape urbanism (Corner 2005: 23).”

3.2. Four themes of landscape urbanism

Corner, in the article, Terra Fluxus (Corner 2005: 23), identifies four themes within landscape urbanism:

- 1 Processes over time
- 2 Staging of the surface
- 3 Method of working
- 4 The imaginary

3.2.1. Processes over time

Corner argues that cities are created over time by various cultural and economic processes that are both multi-dimensional and dynamic. He refers to cultural geographer David Harvey, when stating that both modernist and new urbanist planning fail in the sense that they presume that spatial order can control history and process. They created fixed, rigid, spatial frames neither derived from nor redirected by any of the processes moving through it. By



virtue of restricting these processes conflict was caused between cities and their natural and social environments. “New possibilities for future urbanism must derive less from an understanding of form and more from an understanding of process (Corner 2005: 29).”

Landscape urbanism recognises the integration and fluid exchange between social, economic, environmental and infrastructural processes (Waldheim 2005: 43). These processes form part of an infinitely greater system of nature and therefore cannot be treated in isolation. “We have yet to understand cultural, social, political, and economic environments as embedded in and symmetrical with the “natural” world (Corner 2005: 30).”

3.2.2. Staging of the surface

Staging of the surface is concerned with how one deals with the horizontal surface or the field of action in a way that will allow the process to take place over time. These horizontal surfaces include everything from sidewalks and streets, plazas roof space, and constitutes a wide range of scales. Surface is understood as urban infrastructure (Corner 2005: 30).

Where architecture consumes the potential of the site, the urban infrastructure should sow the seeds for future possibility, thereby unlocking the inherent potential of a site as well as supplying it with new possibilities. Rem Koolhaas refers to this concept as “irrigation of fields with potential”.

“Surfaces should be open-ended, permitting a vast range of accommodations and is indicative of an urbanism that eschews formal object-making for the tactical work of choreography, a choreography of elements and materials in time that extends new networks, new linkages and new opportunities (Corner 2005: 31).”

“This attempts to create an environment that is not so much an object that has been designed as it is an ecology of various systems and elements that set in motion a diverse network of interaction (Corner 2005: 31).”

Therefore sites are open to a range of programmatic configurations depending on season, needs and as the desires of residents change. “Design anticipates change, open-endedness and negotiation, strategically preparing the soil for future appropriation (Corner 2005: 31).”

3.2.3. Method of working

LU suggests a reconsideration of traditional techniques and methods of working. (Corner 2005: 30). Any given project should function across a range of scales and involve a variety of professionals, each offering their unique expertise. It calls for a combination of various approaches such as scientific, mathematical, engineering, as well as artistic, poetic and intuitive. It acknowledges the complexity of the urban environment and therefore promotes a complexity in approach (Corner 2005: 30).

A site exists at an unlimited number of scales. The French philosopher Henri Lefebvre in his book *The Production of Space*, developed a diagram of nested scales to analyse space in the formulation of cities. It deals with three different scales: global, private and transitional. Each of these scales is integrated within the other two. Thus there are traces of each scale at every scale and it can support a dynamic and multidimensional differentiation of space (Pollak 2005: 128).

3.2.4. The imaginary

Imagination should still be the primary generator in any creative endeavour. “In many ways, the failing of twentieth century planning can be attributed to the absolute



impoverishment of the imagination (Corner 2005: 32).”

Public spaces are firstly containers of people’s memory and desires, and secondly are places of interaction with people and place. These spaces should capture the imagination and provide opportunity for meaningful interaction. These are the places where people spend their lives, come to relax, to recreate and be inspired.

“Public space in the city must surely be more than mere token compensation or vessels for this generis activity called recreation (Corner 2005: 32).”

Designers should invest in new ways of creating and representing public space, create new ways of interacting and experiencing, imagining new possibilities inspired by the workings of both nature and society.

3.3. Conventional urbanism

“The contemporary city seems to be positioned in a deadly crossfire between nostalgic New Urbanism, Koolhaasian bigness, neo-liberal sprawl and hardcore late modernist segregated planning (Andersson 2010: 83).”

How does LU differ from the conventional urban practice?

The modernist city is usually associated with technology, high density, revenue producing development and infrastructure as well as negative impacts such as congestion, pollution and stress. On the other hand landscape is seen as a means to mitigate the negative impacts of the city, usually in the form of parks, greenways, esplanades, gardens and street trees that offer relaxation, stress relief and recreation (Corner 2005: 23).

Traditionally there has also been a distinct disciplinary categorization, where architects were responsible for buildings. Architects along with planners and engineers were responsible for urban design and landscape architects were usually called in last, to fix what was left through vegetation, earthworks, and site-planning.

Architects = Buildings

Architects + Engineers + planner = Cities

Landscape Architects = Landscapes [Earthworks, planting, open space]

These cities are a product of architecture urbanism where buildings were considered the primary building blocks, woven together by a network of mono-functional infrastructure. The cities displayed both an ignorance of natural ecology and a rigid illiberal urban space system often in conflict with the natural and social environments. Public open space was a product of the left-over pockets of space. LU is the inverse of architecture urbanism. Here landscape is at the forefront placing the primary focus on the public open space network and merging it with urban and ecological infrastructure. Buildings take second priority and are informed by the landscape.

LU also offers an implicit critique of architecture and urban design’s inability to offer coherent, competent, and convincing explanations of contemporary urban conditions (Waldheim 2005: 37). It highlights a new direction within the profession of landscape architecture, one that moves beyond the masking of urban ills through vegetation and earthworks to a broadened focus that includes landscape’s conceptual scope; its capacity to theorise sites, territories, ecosystems, networks, and infrastructures, and to organise large urban fields (Corner 2005: 23).



For Corner, the narrow agenda of ecological advocacy that many landscape architects profess to is nothing more than a rear-guard defence of a supposedly autonomous “nature” conceived to exist as priority outside social and cultural spheres. He considers current-day environmentalism and pastoral ideas of landscape to appear naïve or irrelevant in the face of global urbanisation (Waldheim 2005: 38).

“Landscape is no longer the innocent and idyllic antithesis of the city. Landscape is the arena in which natural and cultural forces of all sorts enter into confrontation (Palmboom 2010: 44).”

3.4. Not a new idea

Waldheim states that landscape urbanism puts forth a “new object” and a “new language”. However, many have opposed this notion that many of the underpinning principles refer to what landscape architecture has been saying all along.

In the article, “Traditions of landscape urbanism”, Bruno De Meulder and Kelly Shannon argue that LU has at least two roots: the heritage of many ancient civilizations in creating settlement structures and the history of both landscape architecture urbanism (De Meulder & Shannon 2010: 69). They refer to various historical entities to support their claims.

3.4.1. Incan empire

The Machu Picchu ruins in Peru, built around 1450 by the ancient Incan empire are an excellent example of landscape urbanism principles. The landscape was the primary generator of form in that the spaces were arranged to best utilise the land. It displays advance human engineering working together with nature in order to best utilise the challenging terrain.



Fig:5. Machu Picchu famous Incan citadel



Fig:6. Olmsteads Emerald Necklace in Boston



3.4.2. Olmstead

The profession of landscape architecture was founded on many of the principles that lay claim to it. For example, Frederick Law Olmstead, the father of American landscape architecture, and Boston's Emerald Necklace (1878-96). It displays the integration of landscape, infrastructure and architecture in the juxtaposition of vehicular, subway, sewer and water infrastructure with that of recreation. "The Emerald Necklace is simultaneously a tidal mitigation system, an automobile parkway, a real estate development project, a public park and a site for urban gardens - all related to an even larger metropolitan system of parks and parkways (De Meulder & Shannon 2010: 70)."

3.4.3. McHarg

It was on these principles that landscape architecture was founded. We cannot deny the contributions of landscape architects such as Ian McHarg; his book *Design with Nature* (1969) underpinning today's ecological approach to planning and design. These pioneers treated landscape as an infrastructure to define urban forms and to meet people's demands for recreation and living.

3.4.4. Contemporary projects

Even projects that claim to fall under the mantle of LU, such as Parc de La Villette (1987) in Paris, Nudo-de-la Trinitat Cloverleaf park in Barcelona (1992) and Landschafts park (1994) in Duisberg Nord, all precede its conception.

It is evident that LU is not a new idea. It does however group together and reiterate a number of otherwise scattered ideas creating a new and relevant agenda for dealing with contemporary urbanism. It brings to light ideals and practices that have been largely forgotten or neglected

over time. These principles have found a renewed urgency in response to the global issues we face today. It is a model for contemporary urbanism, one perhaps uniquely capable of dealing with current issues of radically decentralized urbanisation.

LU has caused controversy and debate within the fields of urbanistic design. This has served both to highlight current urban issues as well as question the theoretical underpinnings of these fields. This has caused a period of intellectual and cultural renewal within the landscape discipline (Waldheim 2005: 37).

3.5. A disciplinary realignment

"Landscape urbanism does not lead to a conflation of the disciplines of landscape architecture and urbanism, as James Corner would argue. They must indeed be redefined with respect to one another, but each retains its own temporal and architectonic dimension. It is precisely the differences between the disciplines and their layerdness that are essential in order to be able to come to grips with the tasks of today (Palmboom 2010: 48)."

Whether or not LU is a discipline on its own has also been a question for much speculation and debate. However, Alan Berger among others, is of the opinion that LU is not a discipline on its own but rather falls within the fields of planning, urban design, architecture and landscape architecture. It has the potential to coexist with the big four, by working within their knowledge structure while constructing a radically different agenda. It utilizes the resources and expertise of these professions to start networking to promote a new agenda. There is no need to develop an entirely new design discipline in order to rethink landscape's relationship to urbanisation (Berger 2005: 209).



The newfound prominence and relevance to discussions of the city - of landscape architecture - can be partly attributed to a global increased environmental awareness. But more importantly landscape has emerged as the most relevant disciplinary locus for discussions historically located in architecture, urban design, or planning (Waldheim 2005: 37).

Berger is also concerned about the fact that landscape architects, architects, and urban planners often lag far behind the processes of urbanisation, scavenging commissions from their jetsam as they change course. It is time for designers to find opportunities within these processes by advocating more ambitious ways of challenging urbanisation, such as landscape urbanism (Berger 2005: 214).

3.6. Conclusion

The landscape urbanism bullshit generator web-based program designed to generate LU phrases: It constructs these phrases by randomly stitching together LU jargon. The irony is that it could slip phrases into just about any of Waldheim or Corners' writings and the reader would be none the wiser (www.ruderal.com/bullshit/bullshit.htm).

The bullshit generator is a comical reference to complex jargon and ever illusive principals of LU. It has been marked by much theorising, much talk and much debate, little of which has filtered through into built projects. The theory is often contradictory and difficult to grasp, even more so its physical application. The theory is far from mature and its argument needs testing and practical evaluation (Yu 2009).

This being said, LU is an exciting and developing field that suggests solutions to current urban and environmental problems. Bridging the gap between man and his environment, it offers insight into ways of creating healthy and sustainable high-density urban environment while regenerating decayed

urban fabric and reusing post industrial sites.

LU has proven itself for large-scale strategic planning and regeneration, yet offers little in terms of small-scale design guidance. How does LU translate into design where theory meets form?

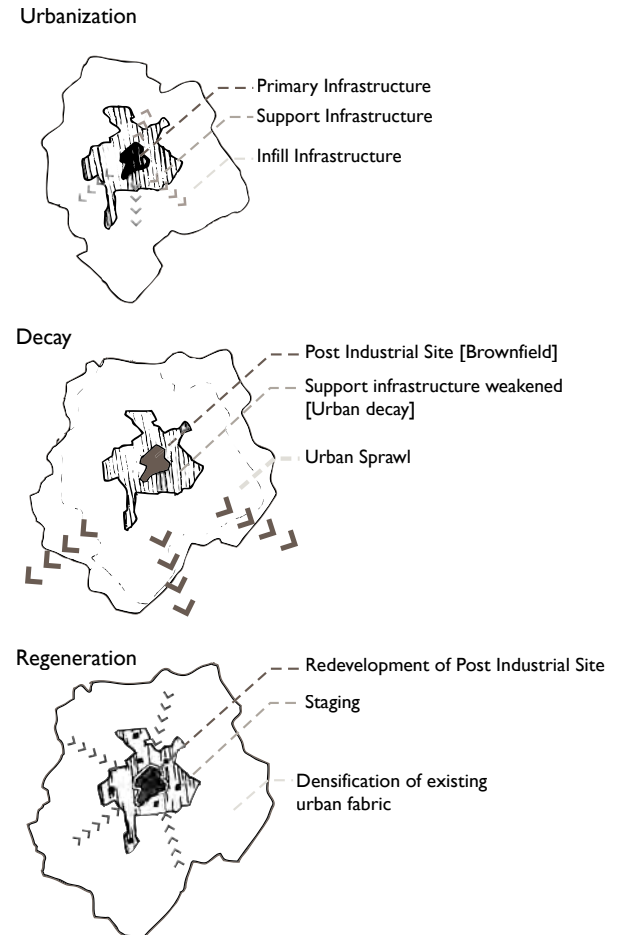


Fig.7. Diagram the urbanization, decay and then regeneration through landscape urbanism



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03

regional scale



Fig:8. Map of the Pretoria West and CBD. showing the study are for the regional scale.



4. Regional scale

4.1. Introduction

In this chapter the problems and opportunities in the central and western districts of Pretoria are analysed in order to develop an approach to dealing with its complex urban fabric.

4.2. Background

Pretoria is situated within the greater city of Tshwane and is South Africa's capital city as well as its centre of government, with a population of approximately 2.3 million. It has a cross-border municipal area located in both the North-West and Gauteng provinces, the latter being one of the wealthiest and fastest growing economic regions in Africa. The city is said to boast the highest per capita income per individual in South Africa and is especially known for its high concentration of educational, research and foreign institutions (TOSF Vol I 2005:2).



Fig:9. Map of South Africa (Author 2010)



Fig:10. Map of Gauteng (Author 2010)



Fig:11. Map of Tshwane (Author 2010)



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Fig.12. Panorama of the Pretoria CBD looking south (Author 2010)



Adaptively reusing this waste landscape figures to be one of the twenty-first century's great infrastructural design challenges (Berger 2005: 199).





1990-1995

The most rapid urban growth took place after 1990. Pretoria's population doubled from 890 000 to 1,76 million between 1991 and 1995. The tremendous growth could be primarily attributed to the abolishment of the "pass laws" regulating access of non-whites to the city.

Many people migrated from the nearby homelands closer to their jobs in the urban areas, causing areas such as Soshanguve to grow from 200 000 people in 1991 to almost 490 000 in 1995. Simultaneously, extensive high and middle income suburban development took place on the south-eastern periphery. Ridges were developed and rivers and streams canalised, destroying vast expanses of the endangered Grassland Biome and devastating Pretoria's environmental resources.

1995-2000

The latter half of the 1990s saw the inner city decay. This was prompted by the relocation of capital to new urban centres in the south-east and north. Large shopping malls and business centres developed further away from the inner city, giving Pretoria a multi-nodal character.

"New suburban development increasingly took the form of walled estates, privatising public space and streets. This phenomenon also took place in more centrally located areas where residents, legally and illegally, erected booms to close off neighbourhood public roads, all in the name of growing crime. Increased 'lifestyle' development, such as golf estates, took root, cutting off public access to Open Space and creating fragmented, isolated 'green pockets' (TOSF vol I 2005:21)." Greenfields and productive land on the south-east periphery of the city experienced increased development pressure, being cost effective and readily available.

2000 and beyond

During the early 2000s more people started moving into the inner city, occupying vacant or converted office buildings and overcrowding existing apartment buildings. This has highlighted the lack of sufficient open spaces within the inner city (TOSF vol I 2005: 21).

In December 2000, 13 municipalities were amalgamated to form the City of Tshwane Metropolitan Municipality, enlarging Pretoria's local government's jurisdiction to 220 000 ha and thereby making it one of the largest in the world. However this was without a significant increase in its city's tax base as some of the poorest and least developed areas in Gauteng and North West have been incorporated into the city (TOSF 2005: 1). Between 1996 and 2001 it experienced a population growth of 20% - 30%. This can be attributed primarily to migration from rural areas, other cities and SADC countries into the province. At the current growth trend Gauteng is said to become the twelfth largest mega city in the world by 2015 (TOSF vol I 2005: 15).



4.3. The problem

The complex urban environment of Pretoria was shaped by a number of unique environmental, social, economical and political influences over an extended period of time. However, the problems it faces are not unique.

The current development trend is perpetuating urban problems such as sprawl, decentralization, low density, fragmentation, pollution and threatened environmental resources. They are in no way as extreme as in the case of the city Detroit (See 2.1.1). However if the current growth rate were to continue and Gauteng were to become the twelfth largest mega city in the world without these issues being addressed, we could expect a similar catastrophic scenario. In light of this, it is time that we take a more aggressive stance towards addressing these problems, such as landscape urbanism.

4.4. Existing frameworks

The municipal authorities are not unaware of these problems. They have commissioned a number of frameworks such as the Tshwane Inner City Development and Regeneration Strategy 2006 Rekgabisa Tshwane Framework, City of Tshwane Spatial Development Strategy, Regional Spatial Development Framework (RDFS) and the Tshwane Open Space Framework (TOSF). These frameworks all have similar goals and strategies and paint a vision for Tshwane as “An internationally acclaimed African capital city that empowers the community to prosper in a safe and healthy environment (TOSF vol I 2005: 15).”

This vision also highlights the following goals for the city:

- It has to be of international standard and contribute to the competitiveness of the city.

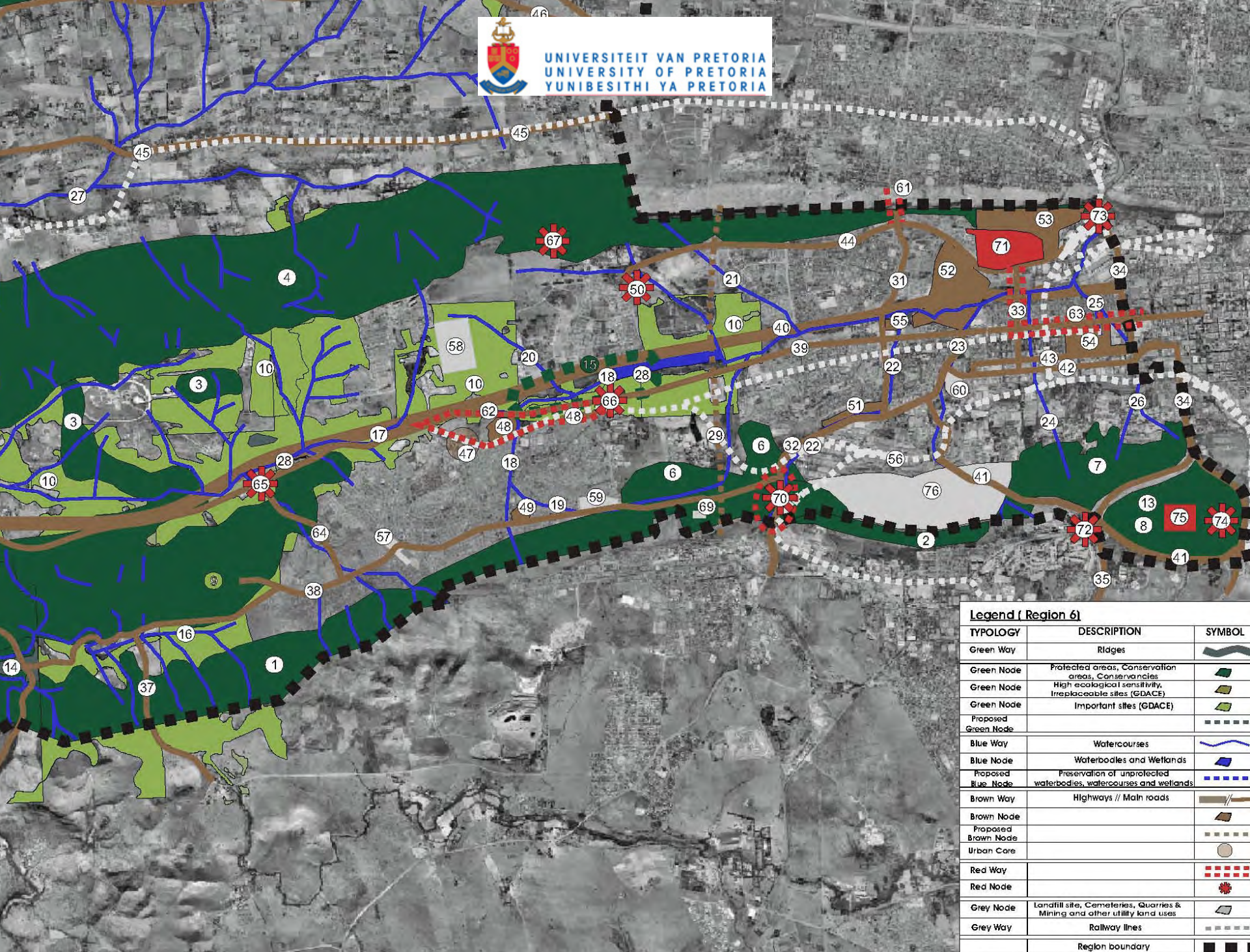
- It has to address the African context.
- It has to be suitable for a capital city and contribute to the image of the city.
- It has to contribute to the social and economic wellbeing of the residents.
- It has to create a safe environment.
- It has to create a healthy environment (TOSF Vol I 2005:5).

These ideals sound good. However most of these frameworks after repeated revisions have still not been implemented and where some components are implemented, they do little to address urban issues, such as the new Department of Education in Paul Kruger Street. This building formed part of the Rekgabisa Tshwane Framework, where it was placed on the important axis forming part of a public boulevard. However the building was designed in isolation and does not relate to its urban context as it is completely fenced off creating sterile environments along its edges. The same applies to the New Foreign Affairs building in Soutpansberg Road. These projects are object driven and do not contribute to the urban fabric of Pretoria.

4.4.1. Tshwane open space framework

The primary objective of the TOSF is the creation of an exceptional Open Space network for the city and its people (TOSF Vol I 2005:2).

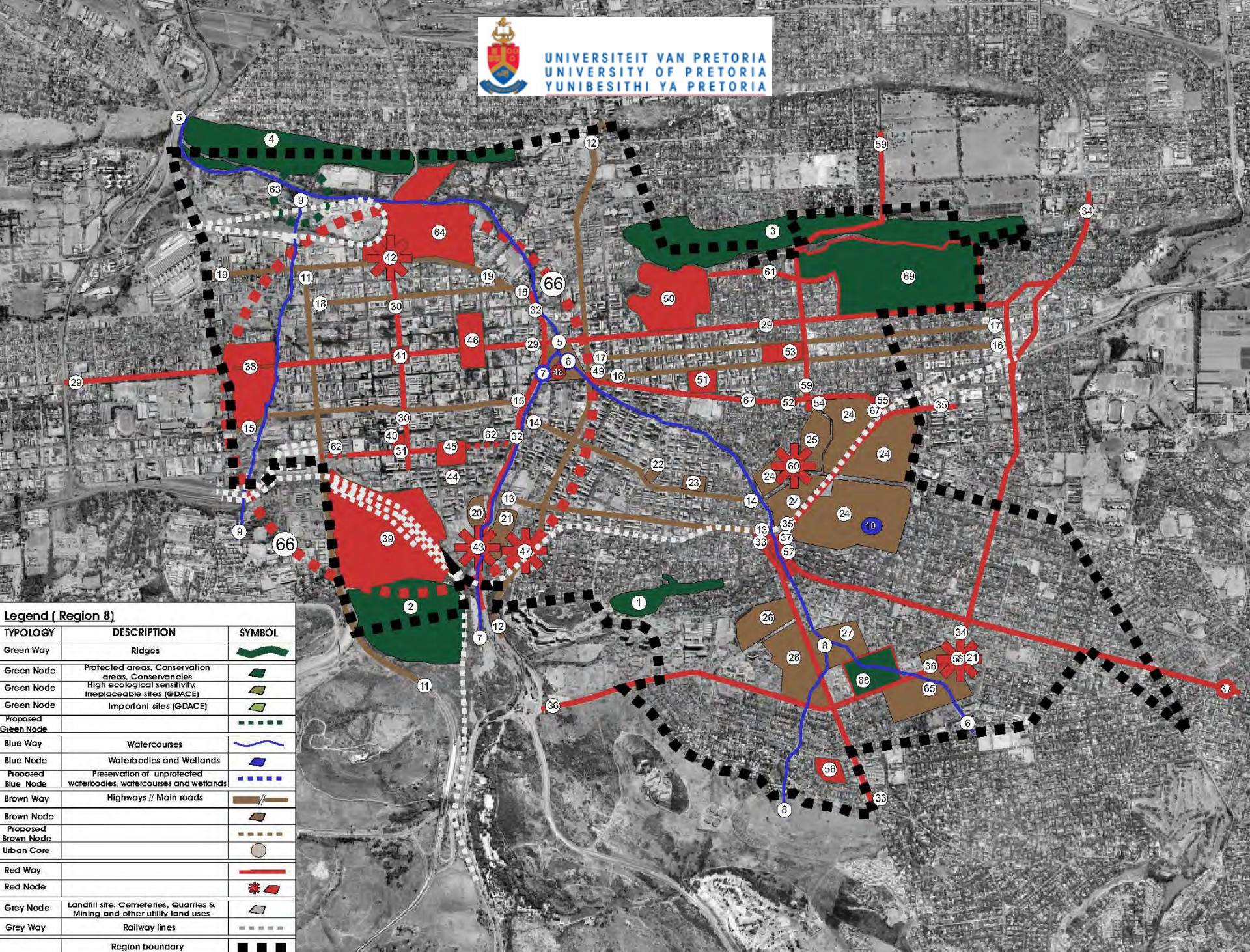
The Tshwane Open Space Framework in my opinion is one of the more successful frameworks because it highlights the importance of open space both from an ecological and social perspective. It is one of the first frameworks that incorporate



Legend (Region 6)

TYPOLOGY	DESCRIPTION	SYMBOL
Green Way	Ridges	
Green Node	Protected areas, Conservation areas, Conservancies	
Green Node	High ecological sensitivity, Irreplaceable sites (GDACE)	
Green Node	Important sites (GDACE)	
Proposed Green Node		
Blue Way	Watercourses	
Blue Node	Waterbodies and Wetlands	
Proposed Blue Node	Preservation of unprotected waterbodies, watercourses and wetlands	
Brown Way	Highways // Main roads	
Brown Node		
Proposed Brown Node		
Urban Core		
Red Way		
Red Node		
Grey Node	Landfill site, Cemeteries, Quarries & Mining and other utility land uses	
Grey Way	Railway lines	
	Region boundary	

Fig:14. Proposal for western district of the TOSF (TOSF vol 2 2005:98).





PTA West. It has made progress in creating awareness and protecting Pretoria's natural resources through legislation and conservation guidelines and proposes a series of 'green', 'blue', 'brown', 'grey' and 'red' nodes and lines. The colours refer to their individual functions; Ecological (green and blue), Socio-economic (brown and grey referring to social and civil infrastructure), and Placemaking (red referring to those with cultural significance.)

4.4.2. Critique

- The TOSF in my opinion takes a far too conservative stance based on conventional planning practices there fore the landscape still subservient to architecture.
- It does not aggressively promote regeneration of the urban fabric by actively addressing urban issues.
- It focuses primarily on land in state control, therefore fails to recognise the vast potential of fragmented and post industrial brownfields sites and therefore cannot accurately address the open space network as a whole.
- Does little to address major rifts within the urban fabric
- It still separates ecological, infrastructural and social functions



4.5. Alternative approach

How can one approach the planning of an open space framework differently? The Milan's PGT or "Green Plan" is an example of a more aggressive approach to open space planning that falls in line with landscape urbanism thinking.

4.5.1. The Milan PGT

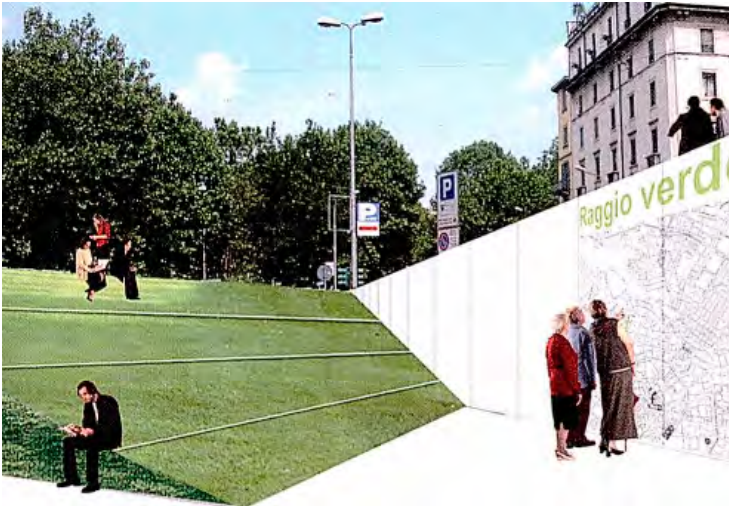
Description

The city of Milan, Italy, has been selected to host the 2015 Universal Exposition; its theme: Feeding the Planet, Energy for Life. In light of this city is rearranging its open space to promote the green potential and together with new existing open space, create a green network in order to promote itself as a more healthy and liveable city. The project forms part of Milan's PGT (Plan for Governance of the Territory) (Kipar 2007: 44).

The Green Plan was commissioned by the city of Milan. The framework was drawn up by the landscape architecture firm LAND. It consists of 1600 hectares with 72 km walking and cycling routes connecting the open spaces and places in the inner city to large metropolitan parks and open spaces on the periphery of the city (Kipar 2007: 47).

The objective was to create a greener city and enhance quality of public open space and urban lifestyle by connecting all the existing and new open spaces, green fields, parks and gardens, public areas, pedestrian and cycling routes, to new open spaces, large metropolitan parks and cultivated fields.

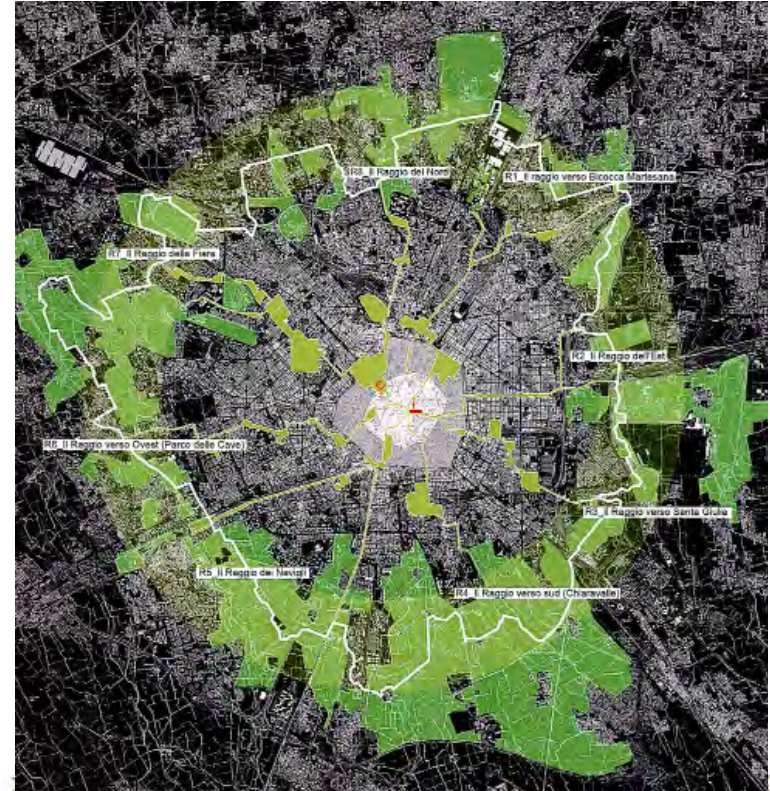
The network also incorporates various modes of transport and other civil infrastructure (Kipar 2007: 48).



Remarks:

- Its core themes are sustainability, regeneration and healthy urban environments.
- A healthy open space network will be able to support a greater density, improved living conditions will positively alter the general perception of the city leading to urban renewal. The city is developing internally and not expanding outwards.
- The landscape connects scattered points of interest and integrates public services of the core with environmental resources of the outskirts. Integrated infrastructure and open space become part of a network of services.
- It pull nature into the city and urbanity into nature there by maximizing the effect of the green areas.

Fig:16. The Milan “Green Plan“, a network of open spaces connected by 72km walking and cycling routes. (Kipar 2007)

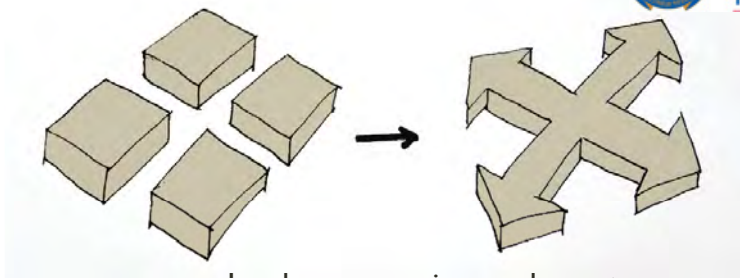


4.6. Approach

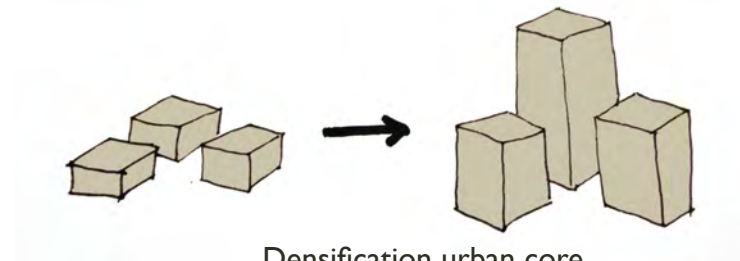
My approach will be to start at a large scale by analysing problems and identifying opportunities then developing and developing a landscape centric approach to dealing with the urban fabric of PTA West.

4.6.1. Objectives:

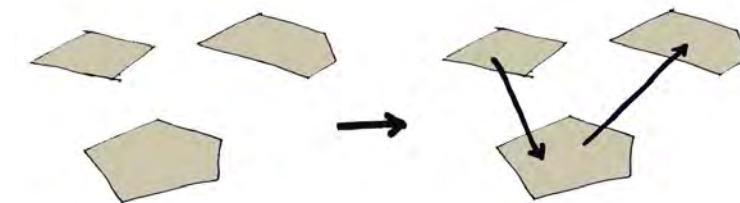
- Connect man to his natural surroundings by creating a network of attractive, sustainable and healthy liveable outdoor living environments with strong identity and spatial quality.
- Catalytic urban regeneration.
- Promote density
- Integrate fragmented sites
- Make use of existing infrastructure and opportunities
- Address negative perception of urban environment.
- Protection and rehabilitation of valuable and irreplaceable environmental resources
- Redevelopment of post-industrial brownfield sites.



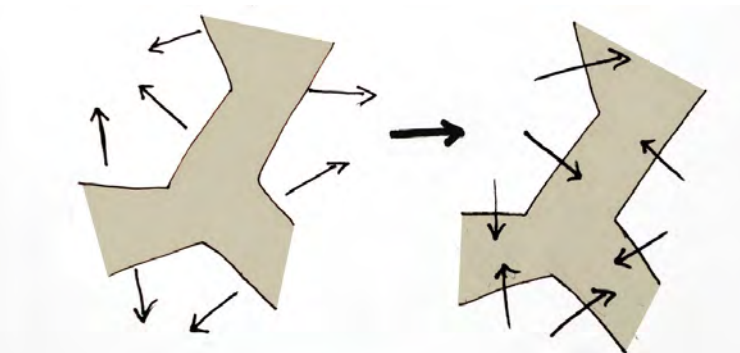
Landscape as primary element



Densification urban core



Stitch fragmented sites



Regenerate urban fabric

Fig.17. Diagrams showing objectives (Author 2010)

4.7. Analysis

4.7.1. Urban Sprawl

A dual action of formal (suburbs) and informal (townships) sprawl is taking place. New low density urban development takes place on the periphery of the city which leaves large sections of under developed land to the city centre and consumes productive farmland and ecological habitat in its wake. These new areas are usually only accessible by private car which in turn release greenhouse gases and require paving that contributes to the creation of heat islands (TOSF vol I 2005: 17).

4.7.2. Low Density

Most of the areas in Pretoria has a very low density of under 20 persons per hectare (p/ha) or ± 4 dwelling units (du/ha). The Highest density is found in inner city areas such as Sunnyside and Arcadia and on the outskirts in the Mamelodi and Soshanguve areas with a density of between 55 and 80 p/ha or $\pm 11 - 40$ du/ha. The highest density occurs in Atteridgeville with a density of up to 160 p/ha or ± 55 du/ha. There is no relation between density and access to public transport or distance from the inner city nor is there a relation between urban form and density. Nowhere in Pretoria is the recommended nodal density of 80-100 du/ha met. Because of this low density public transport is not viable except through high subsidies (TOSF vol I 2005: 23). For example Cairo has a surface area of 780km² with a population of over 8 million. Tshwane on the other hand has a surface area of over 2,200km² with a population of 3, 4 million.

In the western part of the CBD the overall density is very low, despite having a very good existing infrastructural grid that could maintain much higher densities therefore has large infill potential.



Fig:18. Diagram showing density (TOSF vol I 2005: 20).



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Fig:19. Pedestrian bridge to Salvokop. An example of a rift within the urban fabric of the CBD (Author 2007)

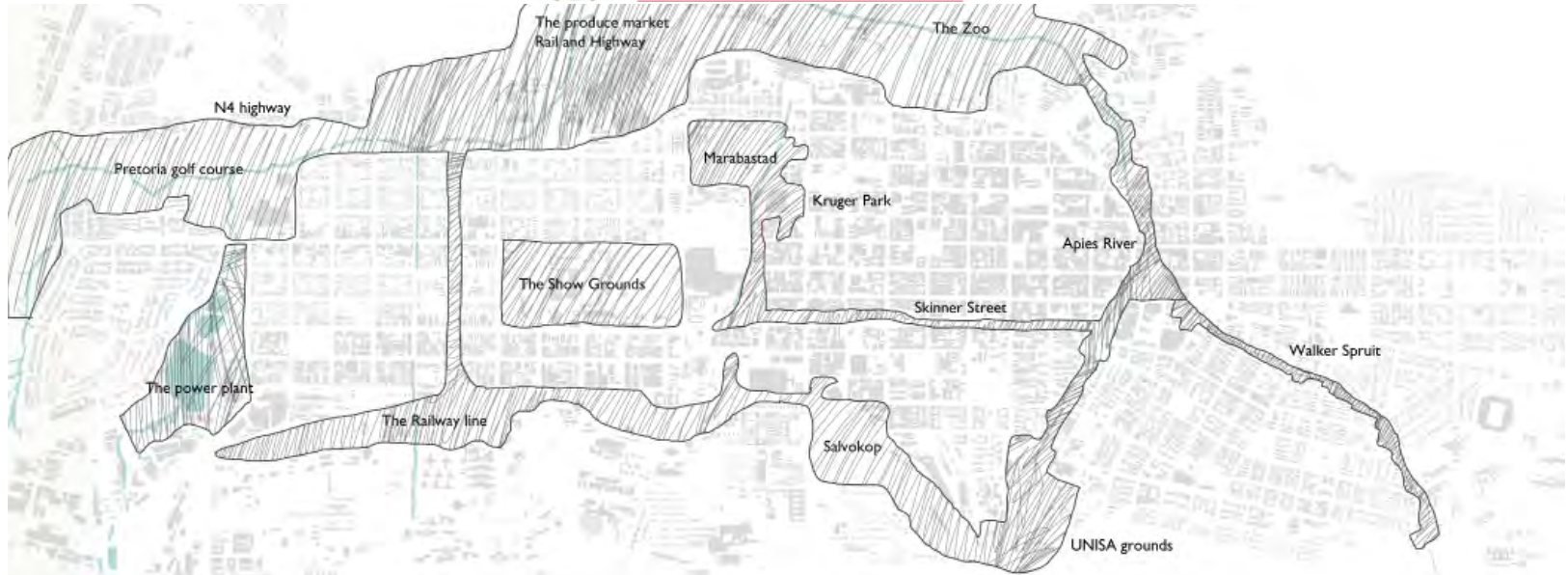


Fig:20. Diagram showing fragmentation (Author 2010)

4.7.3. Fragmentation

The historic urban growth pattern has produced a highly fragmented metropolitan area. The urban fabric is fragmented by the natural ridge and river lines that cut across it as well as large infrastructural schemes such as roads and railways. Vast areas are owned by institutions and therefore not available for development. Other rifts in the urban fabric were caused by politically driven urban planning such as, Skinner Street and large parts of the western CBD. The forceful removals that took place in the CBD during apartheid regime have left large areas of barren land that were earmarked for social housing schemes such as Shubert Park.

Furthermore the zoning practices that separated residential, commercial and work areas, has produced an “inefficient urban structure with long commuting distances and inefficient infrastructure provisioning” (TOSF vol I 2005: 26).

4.7.4. Decentralization

In Pretoria West there has been much decentralization of large business enterprises and anchor industries such as Iscor and Spoornet that have subsequently relocated to other areas on the periphery of the city or to other industrial areas across the country. Pretoria west power plant, one of most iconic industrial strongholds of the west, is set to be decommissioned within the next ten years. The decentralization and decommissioning of these industrial sites leaves behind large tracts of derelict and contaminated land.



4.7.5. Roads and rail

Major roads such as the R21 and N4 link this area to the broader region. It also has a rail system running through it with numerous stations including that of the Gautrain and established bus routes with the addition of a BRT system. The CBD and western Pretoria is well connected through public transport as well Private transport nodes. (TRSDf 29

4.7.6. Services

The west is on the same infrastructural grid as the CBD, however has a much lower density. Thus infrastructure can support a far greater density.

Adaptively reusing this waste landscape figures to be one of the twenty-first century's great infrastructural design challenges (Berger 2005: 199).

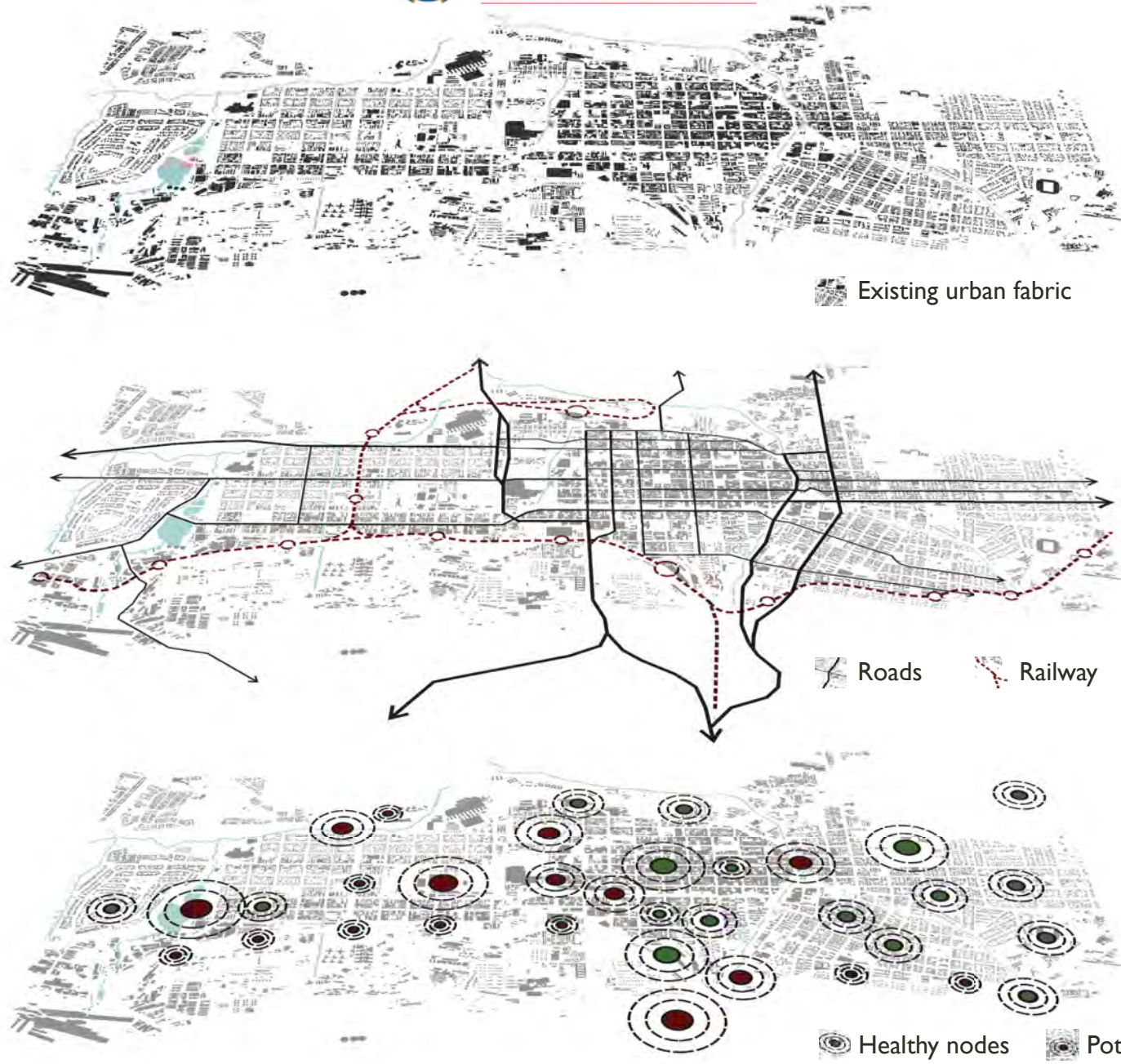


Fig.21. Diagram showing existing infrastructure (Author 2010)



Public open space



Private open space



Lightly disturbance



Fig:23. Analysis of Pretorias open space (Author 2010)



4.7.7. Open space

Only 27% of the 220 000 ha that constitutes Tshwane's municipal area is built-up, leaving 73% as some form of Open Space (TOSF Vol I 2005:30).

Of this 4.97% or 11 890 ha is managed by Parks and Horticultural Services. However only 13% or 1 596ha of that is zoned as parks. This means that only 0.73% of the total open space of Tshwane developed public open spaces, such as parks and plazas (State of the environment report 2002: 38).

This highlights the lack of public open space within the city. Areas to the east of the CBD seem to have a healthier open space system. However, to the west there is very little to no well developed public open space (Tshwane 2007: 12).

Public open space has a direct impact on the quality of life of urban residents and is essential for mental, spiritual and physical well being. It fulfils relaxation, recreation and placemaking needs. Open space is necessary in order to give coherent structure and beauty to our cities and should guide urban growth. Open space is also important in maintaining vital ecological services such as air and water purification and the maintenance of biodiversity.

“Quality of life improvements, through the development of parks, recreation facilities and Open Space systems, are critical components of any strategy to attract new economic development, as well as to assist business retention and expansion efforts (TOSF Vol I 2005:58).”

4.8. Concept

Create a public open space network that incites urban renewal. Create a positive living environment providing both safety and opportunity. Creating an ideal urban living environment that can support a greater density

Landscape architects and other designers of the urban realm should shift a good amount of attention away from small-scale site design in order to consider how we can improve regional landscape deficiencies of the urban realm. (Berger 2005: 209).

Designers must identify opportunities within the production modes of their time to enable new ways of thinking about the city and its landscape (Berger 2005: 211).



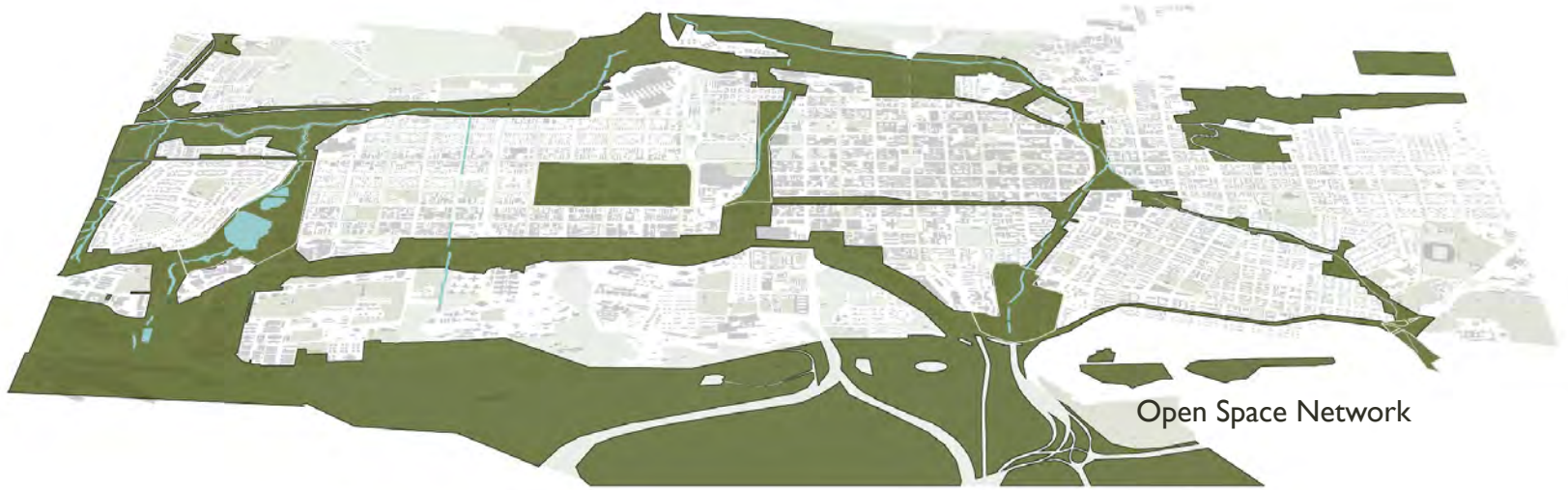
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Major landscape nodes



Boulevards



Open Space Network

Fig.24. Diagram showing existing infrastructure (Author 2010)



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Fig:25. Open space network (Author 2010)



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Railway



Boulevards

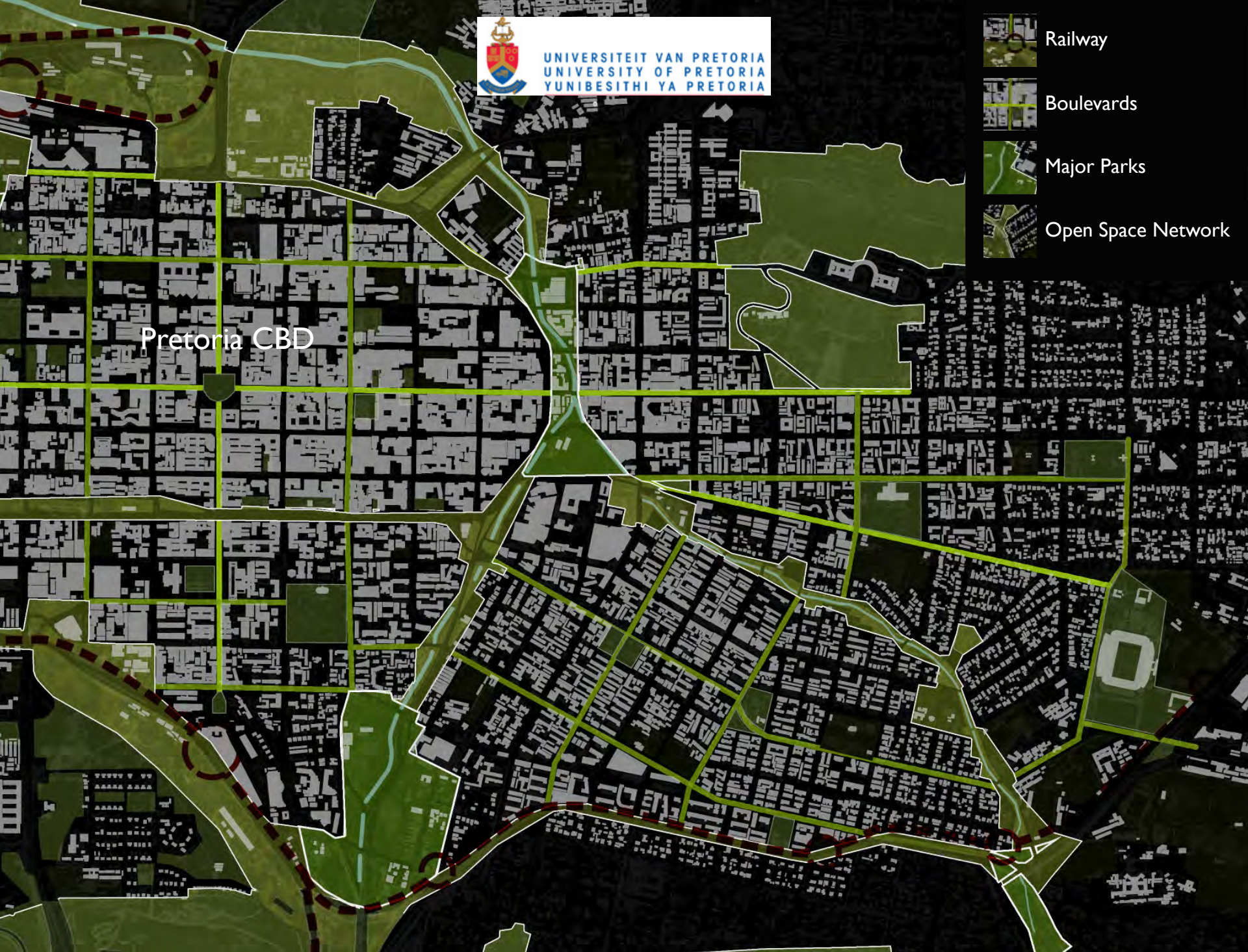


Major Parks



Open Space Network

Pretoria CBD





- 1 Site selection
- 2 Why the west?
- 3 Vision for the west
- 4 Why the power station?



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vision for the west

04



Fig:26. Man walking next to railway (Author 2010)

5. Vision for the west

5.1. Site selection

Of the new 5 major nodes within the open space framework, I have selected the power plant site in Pta West to further my investigation. LU theory suggest a co-operation between the major design fields of the urban realm, therefore West I joined up with a team of 6 architects in order to develop a vision and a broad framework for Pta West.

5.2. Why the west?

Pta West forms part of the sub-support system of the city. It is Pretoria west forms part of the sub-support system of the city. It is significant for both its production and employment functions. These are threatened due to sprawl and decentralization.

The original infrastructural grid of the CBD extends into the west, therefore it is an excellent network of existing infrastructure that can support a much greater density than it currently is. It is well located in terms of major roads and highways and has major railway connections running through. It offers excellent opportunities for public transport.

The area is well connected both provincially and nationally, offering opportunity for trade. It has the potential for mixed use development, therefore offers the opportunity for sustainable social and economic growth.

The area is one of the oldest areas in Pretoria and is significant for both its architectural and industrial heritage.

In the past this area has been severely neglected due to the perception of crime, poverty and pollution that it has gained over time. This negative perception hampers development opportunities within the area.

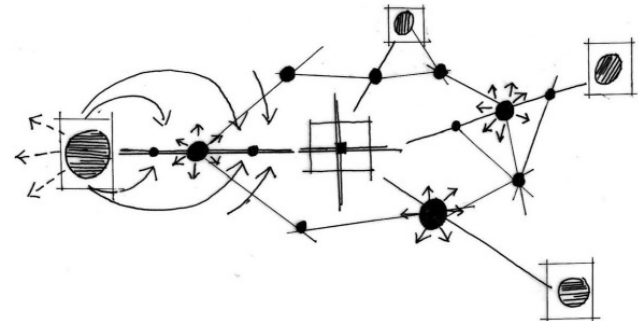


Fig:27. Diagram showing Pretoria West as sub-support cell for the CBD (Group framework 2010)

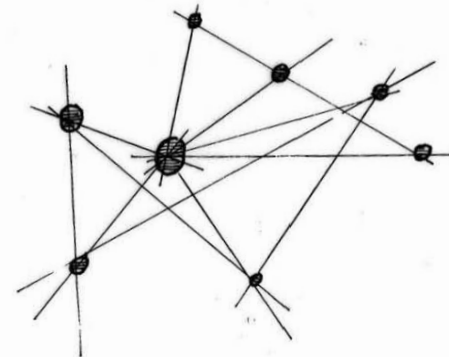


Fig:28. Regional connectivity (Group framework 2010)

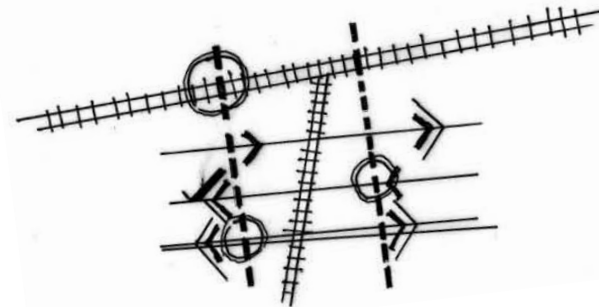


Fig:29. Existing Infrastructure (Group framework 2010)



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Fig:30. Vision for PTA West (Group framework 2010)



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5.3. Vision for west

Develop the west as a high density, mixed use sub-support cell for the city that will encourage growth and investment within the CBD of Pretoria. This is aimed at addressing urban sprawl through the regeneration and densification of areas within the city centre, thereby making use of existing infrastructural opportunities.

Create a healthy, sustainable living environment that will systematically alter negative perception and thereby unlock existing opportunities and allow people to interact with the rich industrial heritage of the area.

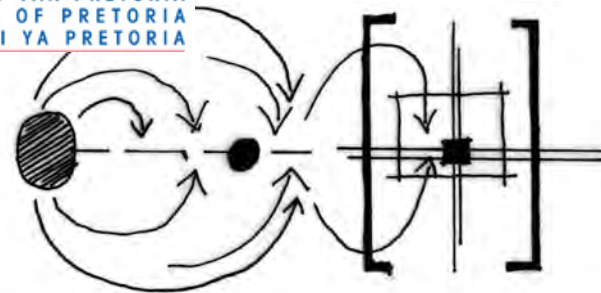


Fig:31. Diagram showing densification of Pta West whilst addressing sprawl (Group framework 2010)



Fig:32. Industrial heritage(Group framework 2010)

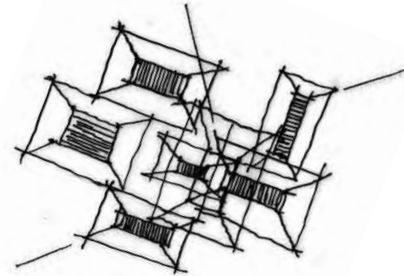


Fig:33. Addressing negative perception affecting development opportunity (Group framework 2010)

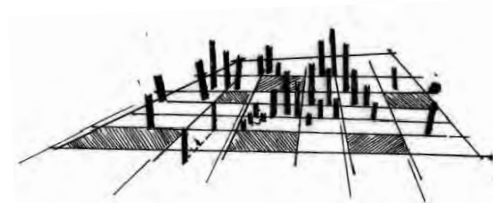


Fig:34. Mixed use development (Group framework 2010)

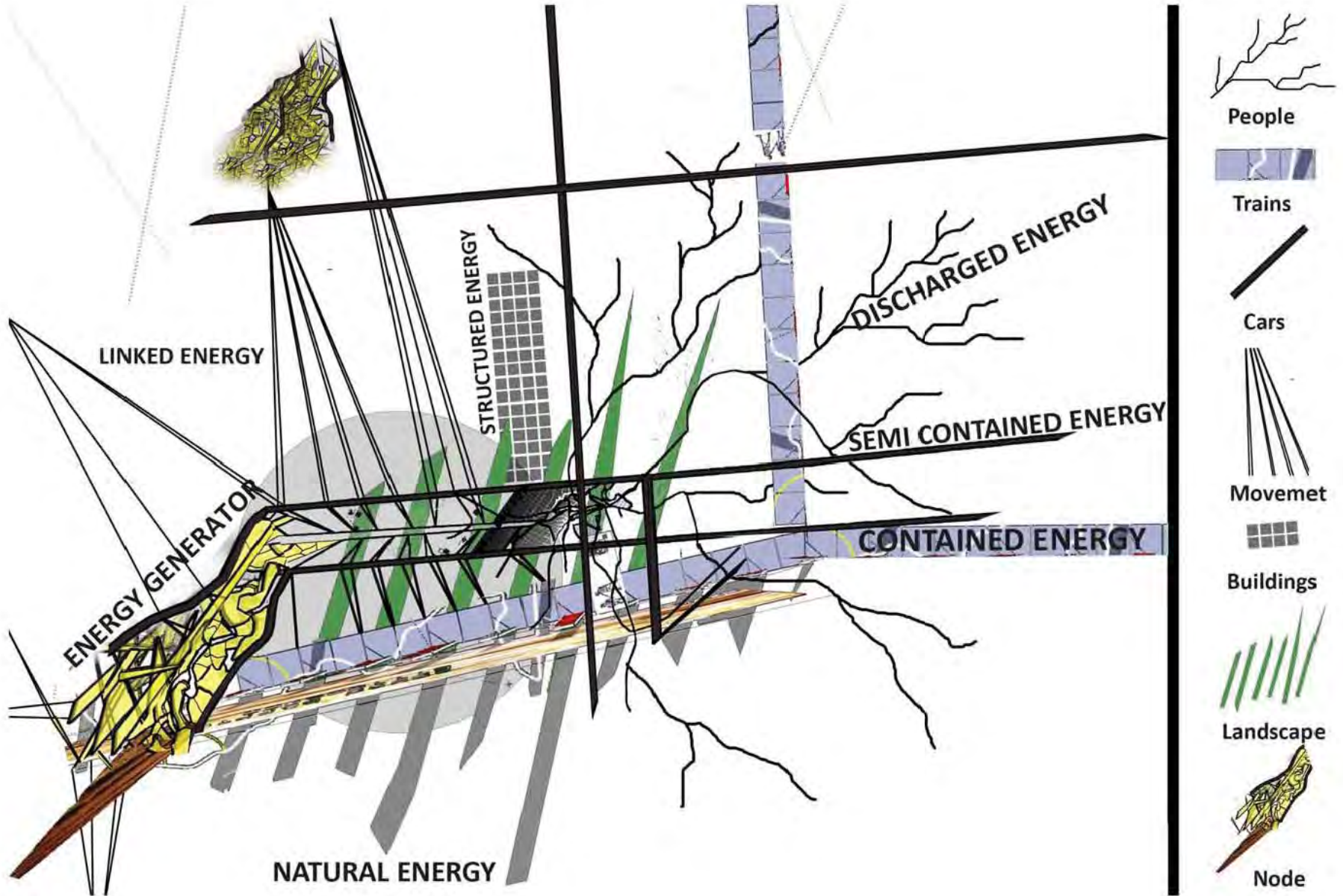


Fig.35. Vision for PTA West (Group framework 2010)



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Fig:36. Vision for PTA West (Group framework 2010)



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5.4. Why the power station?

The power station is one of the oldest and most iconic landmark sites in the west.

It a large portion of undeveloped land that borders a number of major roads and is located next to the railway line, therefore offering excellent access to the site.

It offers opportunity for a vast range of accommodation such as tourism, recreation, housing, agriculture, as well as commerce and production.

The power station will form a node on the activity spines of Mitchell and Souter Street in the west and will act as a catalyst for urban regeneration.

The power plant is set to be decommissioned in the next 10 years because it is no longer economically viable to maintain it. This will lead to the site being abandoned. Without intervention the site will lead to further job loss and decay in the west.

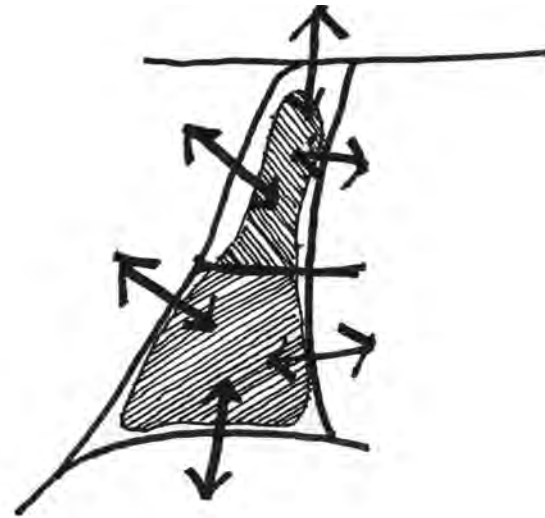


Fig:37. Connection site to its surrounding fabric (Group framework 2010)

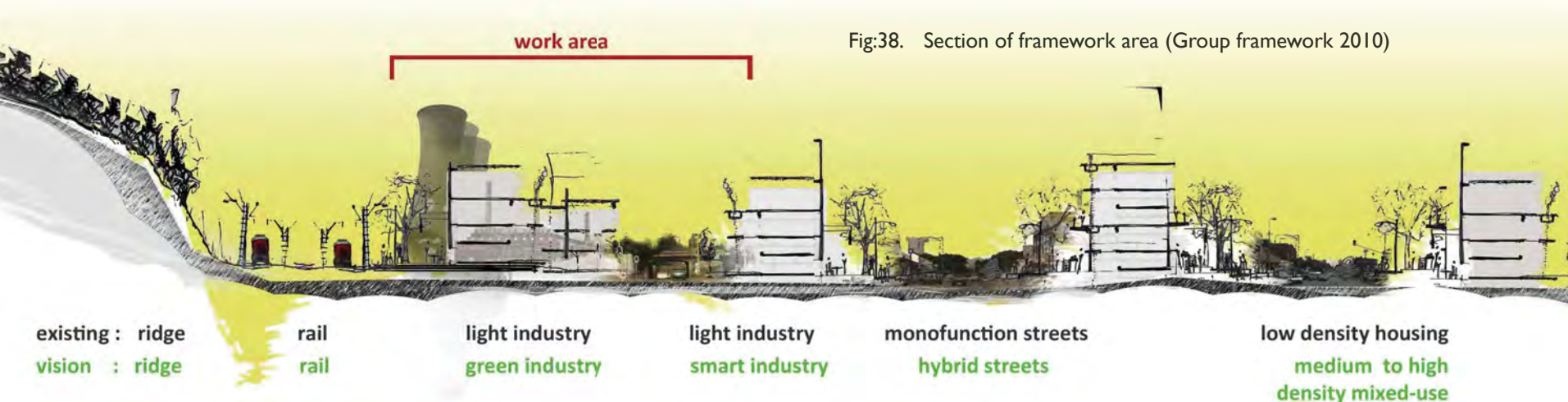


Fig:38. Section of framework area (Group framework 2010)

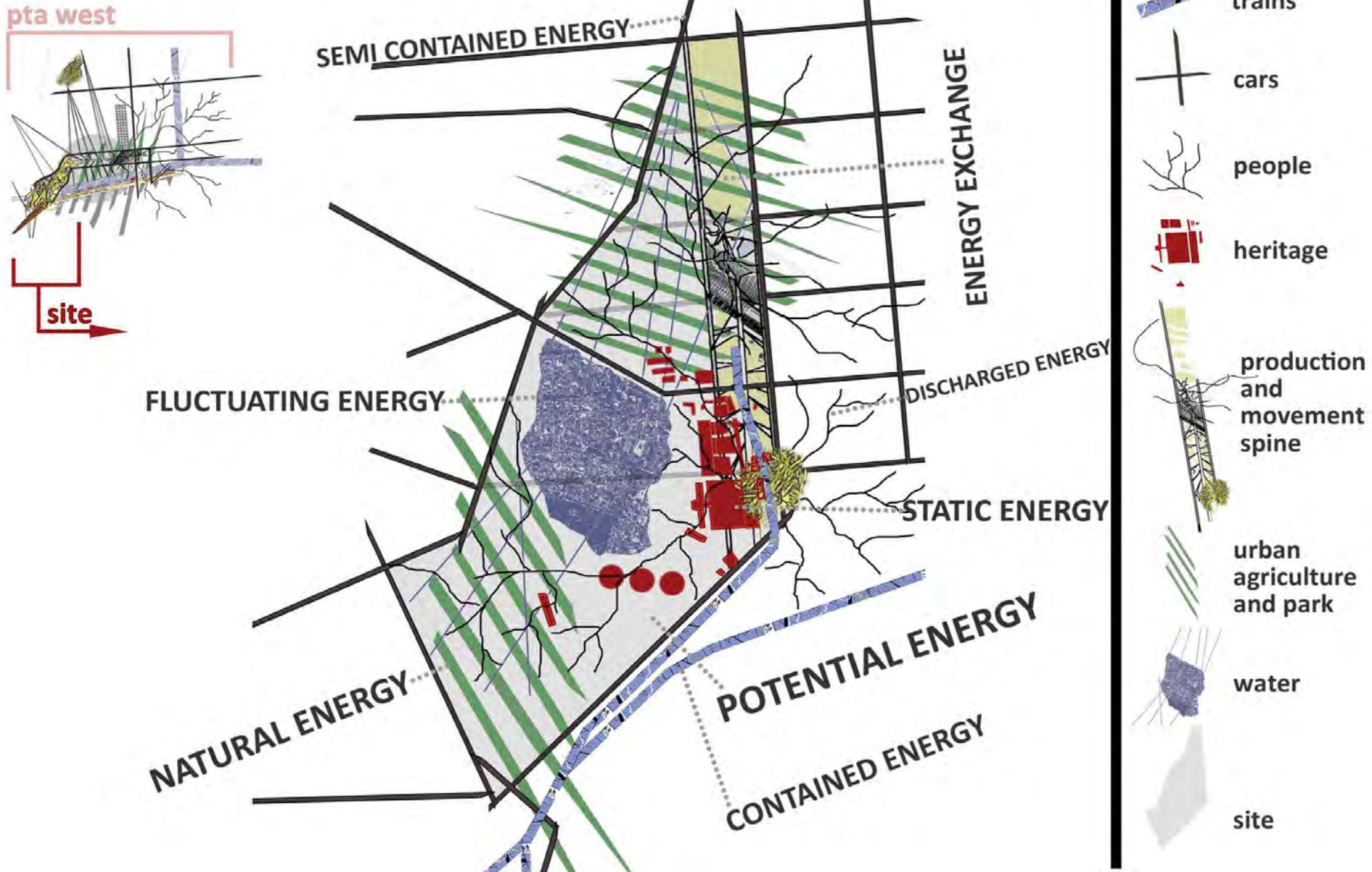


Fig:39. Vision for powerplant site (Group framework 2010)