

4 / PRETORIA CONTEXT

5 / SITE CONTEXT

CONTEXT

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4.1 / PRETORIA FORMATION

According to Jordaan (1989: 26) an urban environment is successful when three conditions have been met. These conditions must consider the:

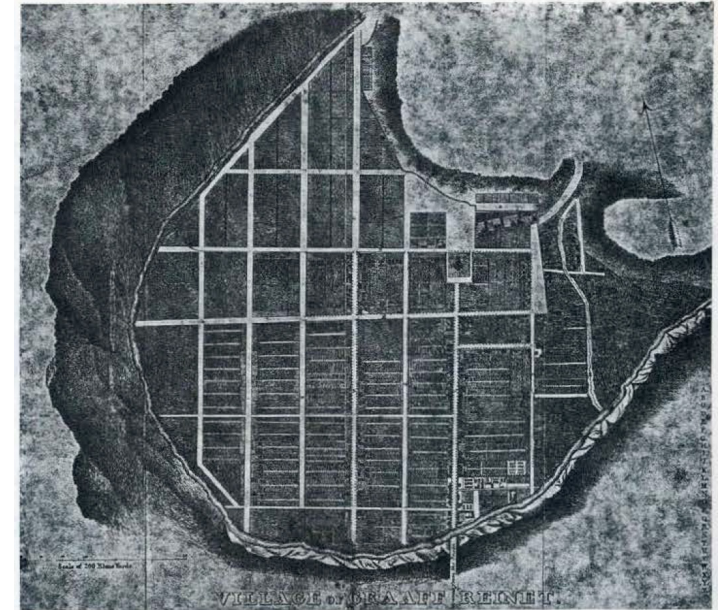
1. Natural context
2. Cultural choices
3. Universal city models.

If these three aspects are implemented in city planning, human requirements will automatically be satisfied. The city will become timeless because of its ability to withstand the development and changes that time brings about (Jordaan, 1989: 26).

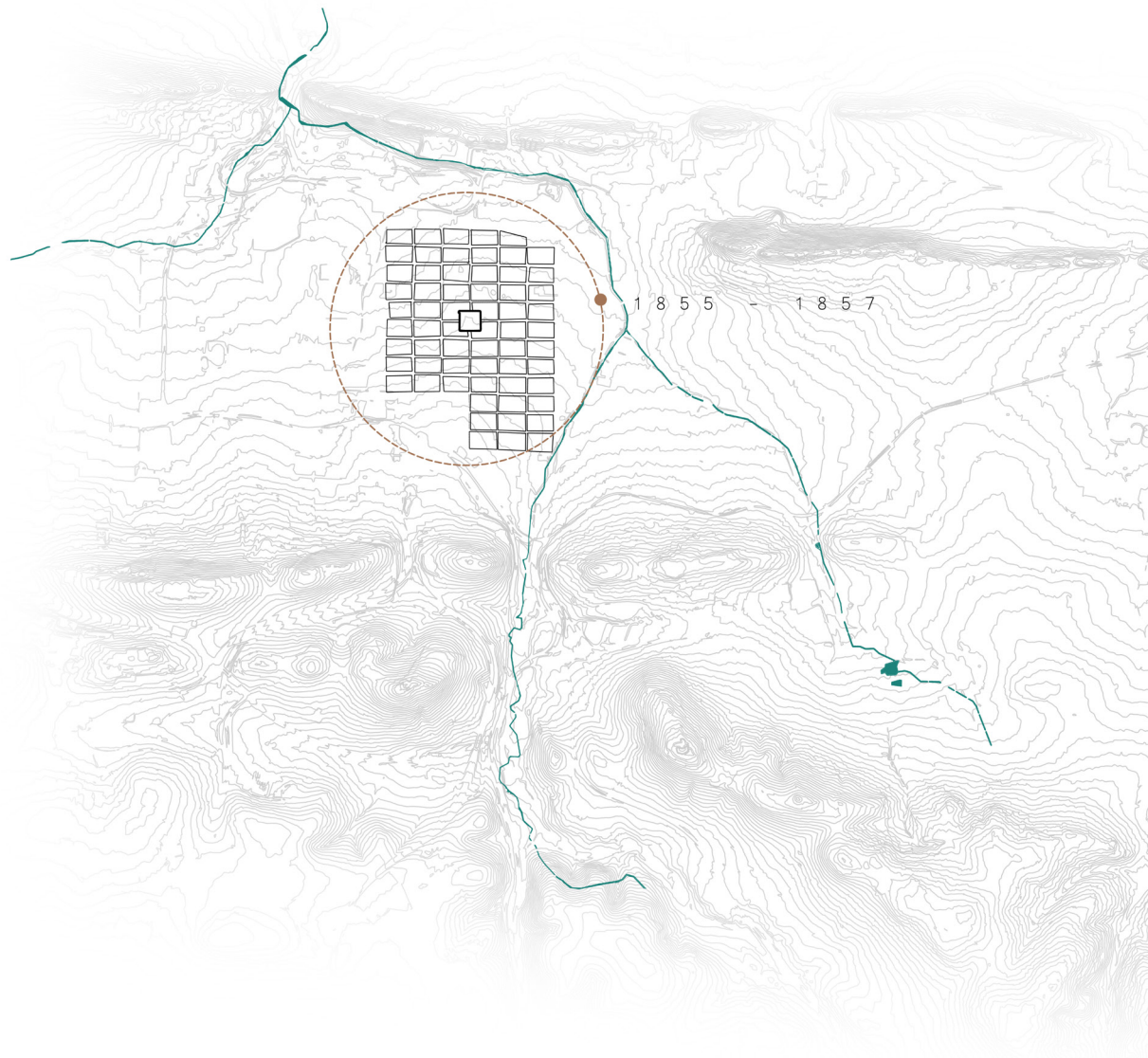
Pretoria was founded in 1856 when the Voortrekkers settled in east-west running valleys. The area is bordered by the Magaliesberg mountain range in the north; rolling hills to the south; and the Apies River to the east (Corten et al., 2014). A street grid pattern, with the eastern edge shaped by the Apies River, was implemented and can still be seen in present-day Pretoria.

The city's form follows the universal city model. It is static and of very simple geometry and was devised with prior knowledge, coming from South Africa's colonial background, of the need for social control over a settlement. The spatial organization of Pretoria is inspired by its street patterns, which is the most important element in how a city functions and also has visual implications (Jordaan, 1989: 26).

The city's gridiron street layout, between the mountain range and river, was a culturally accepted model copied from Graaff-Reinet's layout (Jordaan, 1989: 26). Pretoria's grid pattern is very strong and is considered to be one of its main historical features, as it stood the test of time through years of change and developments (Clarke & Corten, n.d.).



4.1_ Graaff-Reinet's city layout, the one on which Pretoria's layout is based on (Jordaan, 1989: 26).



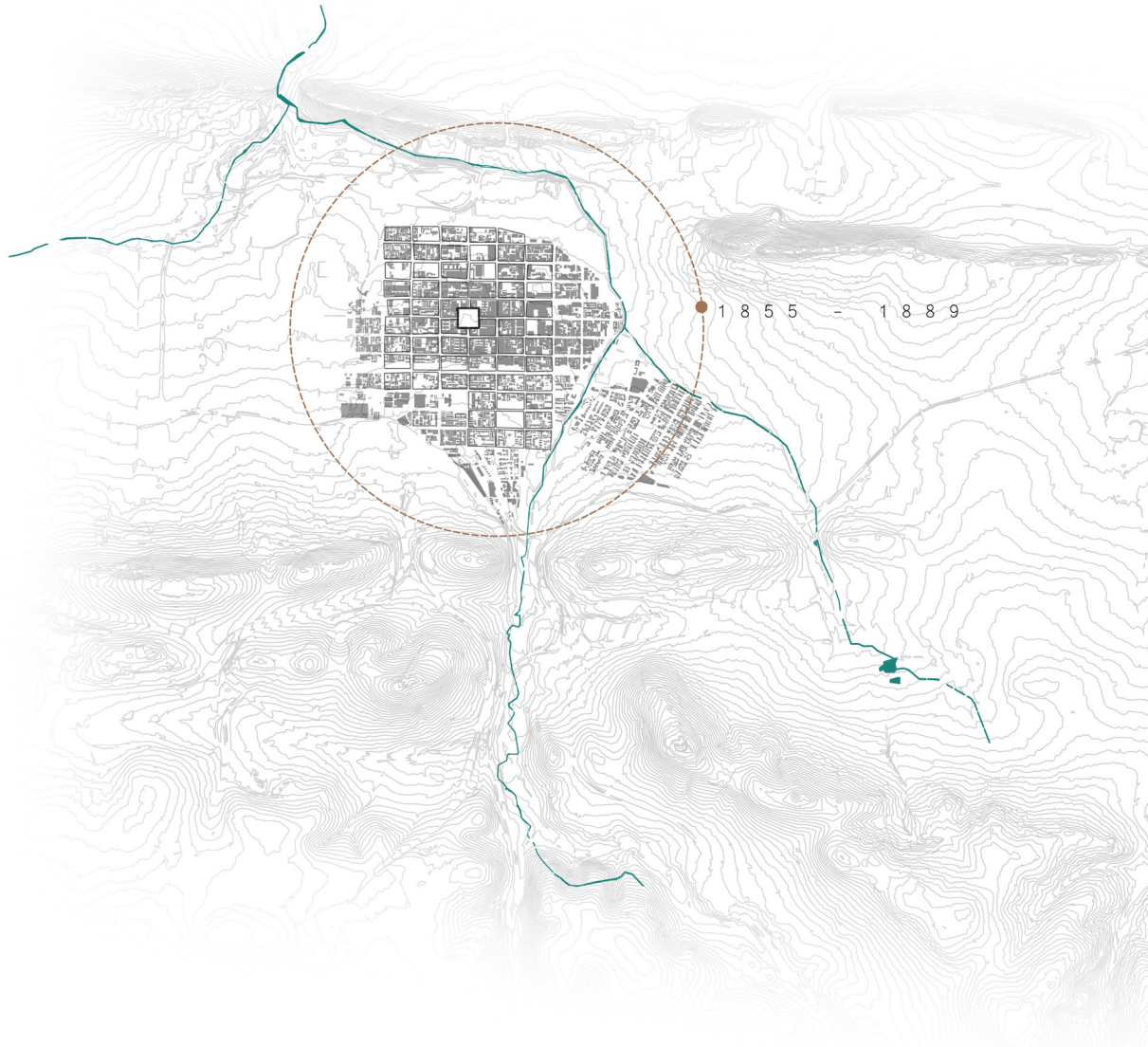
4.2 / PRETORIA DECENTRALIZED

Pretoria was planned and developed as a closed grid (Marcuse, 1987: 290-291). It was arranged with clear and visible limitations, for example, city walls, major outer termini for Central Street, and green belts. According to Rose-Redwood (2008: 52), Marcuse (1987: 290-291) refers to the “closed gridiron plan as a complete and encompassing plan for a physically defined and bounded area; the open gridiron is an initial step towards plotting an unknown and perhaps unlimited area capable of indefinite expansion.” Marcuse (1987: 290) views the layout of an open grid as the intention to expand. The grid pattern of Pretoria’s streets became the main axis around which the city expanded; from the closed grid to an open grid in the surrounding area.

The industrial era not only pushed the degeneration of natural resources to an elevated level but also sparked development in transportation. From about 1760 to 1840 the transition from hand-made production processes to machine driven processes took place and included a rapid conversion from burning bio-fuels to burning coal. The industrial era ignited the innovation of steam transport; increasing the technological and economic growth of cities (Gascoigne, B. 2015).

In the late 1800s, the discovery of gold at the Witwatersrand impacted the growth of Pretoria tremendously; changing it from a rural settlement to an urban society (Corten et al., 2014). The city expanded mainly towards the east (at the Apies River). Pretoria became disconnected from its natural environment; the expansion of the city resulted in enormous pressure on local water resources and on the management of waste water, and so the Apies River

4.2_ Pretoria’s First grid layout between 1855 and 1857
(Author, 2015)



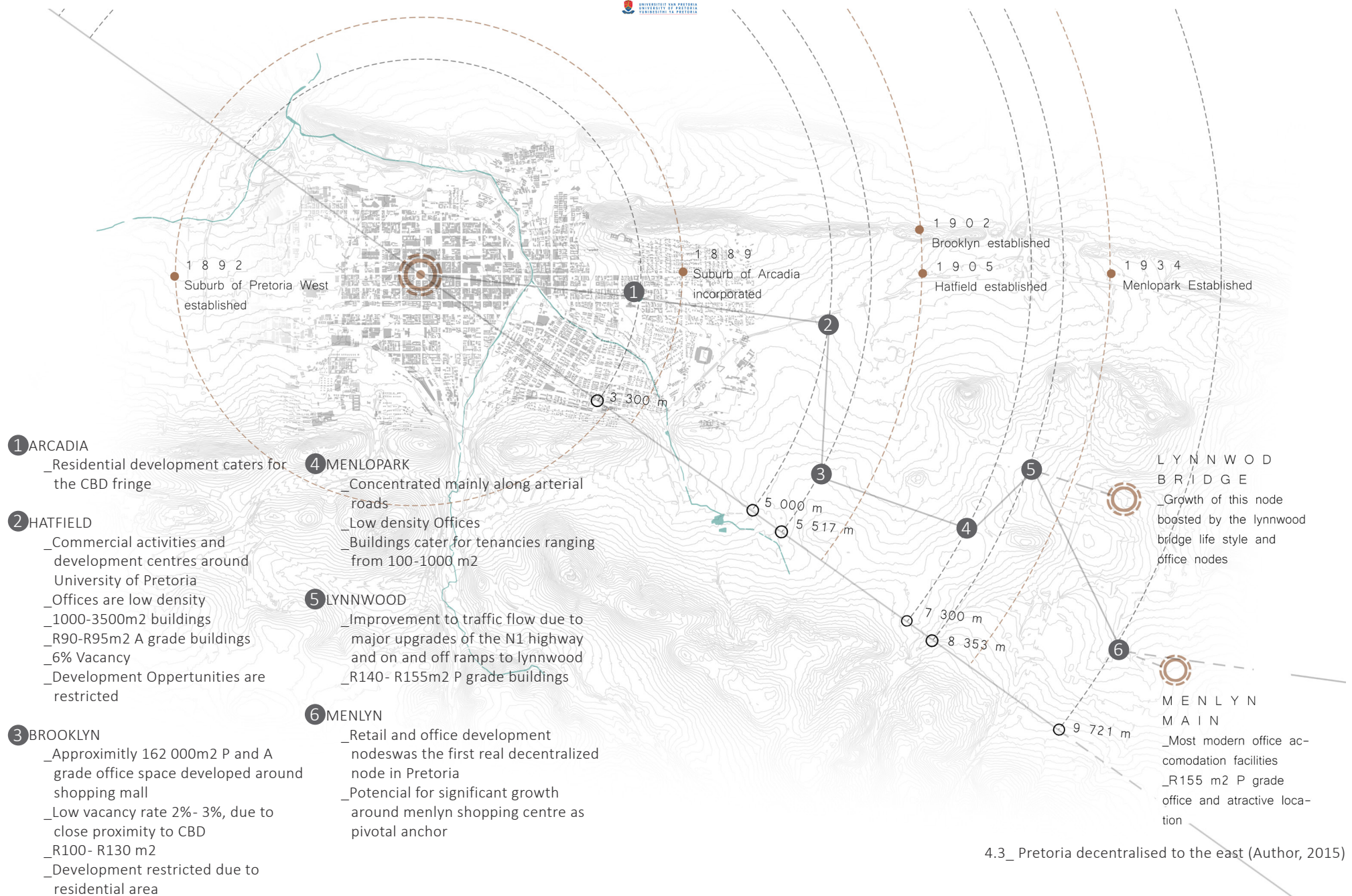
4.2_ Pretoria's layout developed beyond the Apies River 1889
 (Author, 2015)

became the quickest and easiest way to discharge the city waste. Disconnection between the natural- and built environment endangers the tangible functions of cities. It also threatens the physical well-being of the city's inhabitants (Peres et al, 2015: 40).

Pretoria also struggles with the problem of decentralization. As the CBD is dominated by offices and governmental precincts, the private sector moved towards the city border and formalized other office nodes, in effect decentralizing the inner city (Sacommercialpropnews.co.za, 2015). The formation of office nodes away from the CBD can be based on various factors (Sacommercialpropnews.co.za, 2015):

1. Pretoria was built on old town planning principles, which deprive the city of adequate parking space.
2. Buildings are inefficient according to modern designs and human needs.
3. There is poor public transport, which promotes the use of private transport; impacting traffic.
4. Maintenance is costly due to older buildings that are incompatible with modern technology.

The result of this sprawl and decentralization of the Pretoria CBD is undeveloped voids in the city fabric, which are decaying due to lack of ownership. They have been occupied by private owners, especially in the natural setting alongside the Apies River. One reaction that can restore the physical well-being (disconnect from natural environment, sprawl and decentralization, decaying voids in the city fabric) of the city and its inhabitants is to view the city as an ecosystem (Peres et al, 2015: 40).



1 ARCADIA

_Residential development caters for the CBD fringe

2 HATFIELD

_Commercial activities and development centres around University of Pretoria
_Offices are low density
_1000-3500m² buildings
_R90-R95m² A grade buildings
_6% Vacancy
_Development Opportunities are restricted

3 BROOKLYN

_Approximately 162 000m² P and A grade office space developed around shopping mall
_Low vacancy rate 2%- 3%, due to close proximity to CBD
_R100- R130 m²
_Development restricted due to residential area

4 MENLOPARK

_Concentrated mainly along arterial roads
_Low density Offices
_Buildings cater for tenancies ranging from 100-1000 m²

5 LYNNWOOD

_Improvement to traffic flow due to major upgrades of the N1 highway and on and off ramps to lynnwood
_R140- R155m² P grade buildings

6 MENLYN

_Retail and office development nodes was the first real decentralized node in Pretoria
_Potential for significant growth around menlyn shopping centre as pivotal anchor

1892 Suburb of Pretoria West established
1889 Suburb of Arcadia incorporated
1902 Brooklyn established
1905 Hatfield established

1934 Menlopark Established

LYNNWOOD BRIDGE
_Growth of this node boosted by the lynnwood bridge life style and office nodes

MENLYN MAIN
_Most modern office accommodation facilities
_R155 m² P grade office and attractive location

4.3_ Pretoria decentralised to the east (Author, 2015)

4.3 / IMPORTANCE OF THE APIES RIVER

“The River is soft, and flows with variable change and refers to a woman’s emotional support, which feeds and nurtures.”

Gerrit J Jordaan. 1989: 26

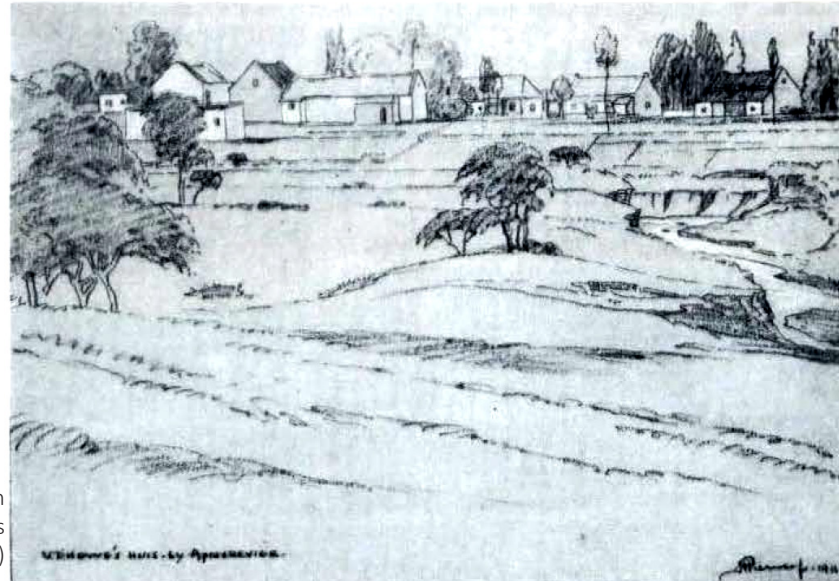
History has shown that food and water security are major aspects in the placement of cities and how they function (Falkenmark, 2014: 1). However, due to population increase (which affects urban sprawl, water and food demand); economic development; and climate change (due to human activities) the stress on food and water supply results in major environmental pressure (Pahl-wostl et al, 2013: 341).

The Apies River, which shaped the eastern boundary of the Pretoria CBD, is the district’s most valuable working natural resource (Jordaan, 1989: 28). In the early days of Pretoria’s formation, the Apies River was a life source for farmers, who led water in irrigation ditches from the river to their agricultural fields (Jordaan, 1989: 28). However, since the development of the city and the accrual of

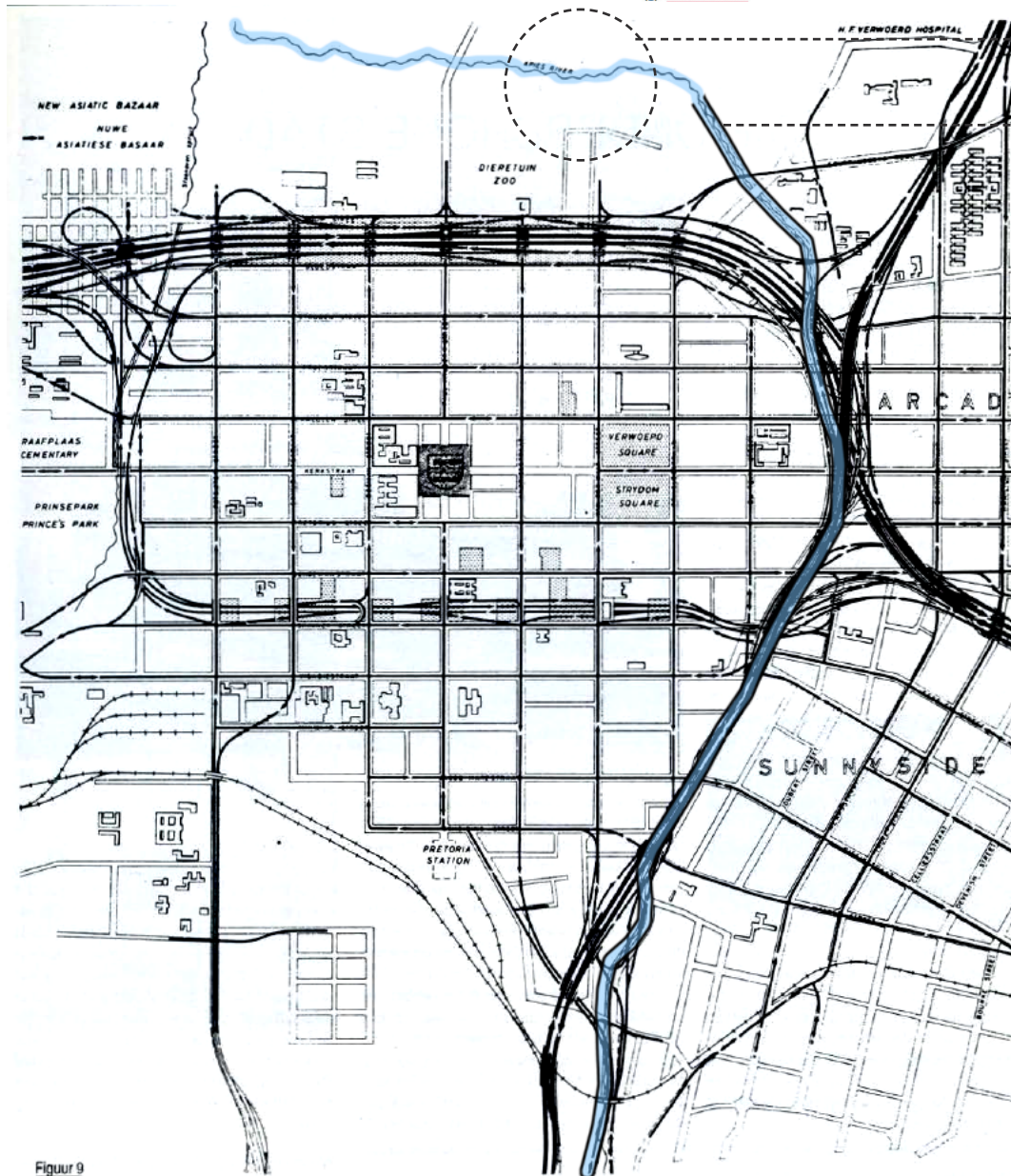
expansion pressures this once defining landscape border has been degraded to a waste water drain; it is neglected and forgotten.

The physical characteristics and hydrological patterns of the river have been altered through years of city development and extraction of water. This led to numerous ecological pressures, which include pollution;

disturbance of indigenous plant species; and physical disturbances (waste dumping, riverbed disruptions and embankments) (Rüde, 2006). It has ultimately affected agriculture activities located next to the Apies River to the north of the CBD.



4.4_ A painting by Jacob Pierneef of the Apies River in its natural state, 1911. Van der Hove’s farm house is situated in the background (de Villiers, 1989: 21)



Apies River maintains its natural state

Canalized Apies River

4.5_ The natural boundary of the Apies river was degraded to a storm water channel due to development that expanded creating pressure on waste and storm water discharge (Jordaan, 1989: 29) edited by (Author, 2015)

4.4 / URBAN VISION

4.4.1
LOCAL GOVERNMENT PROPOSAL

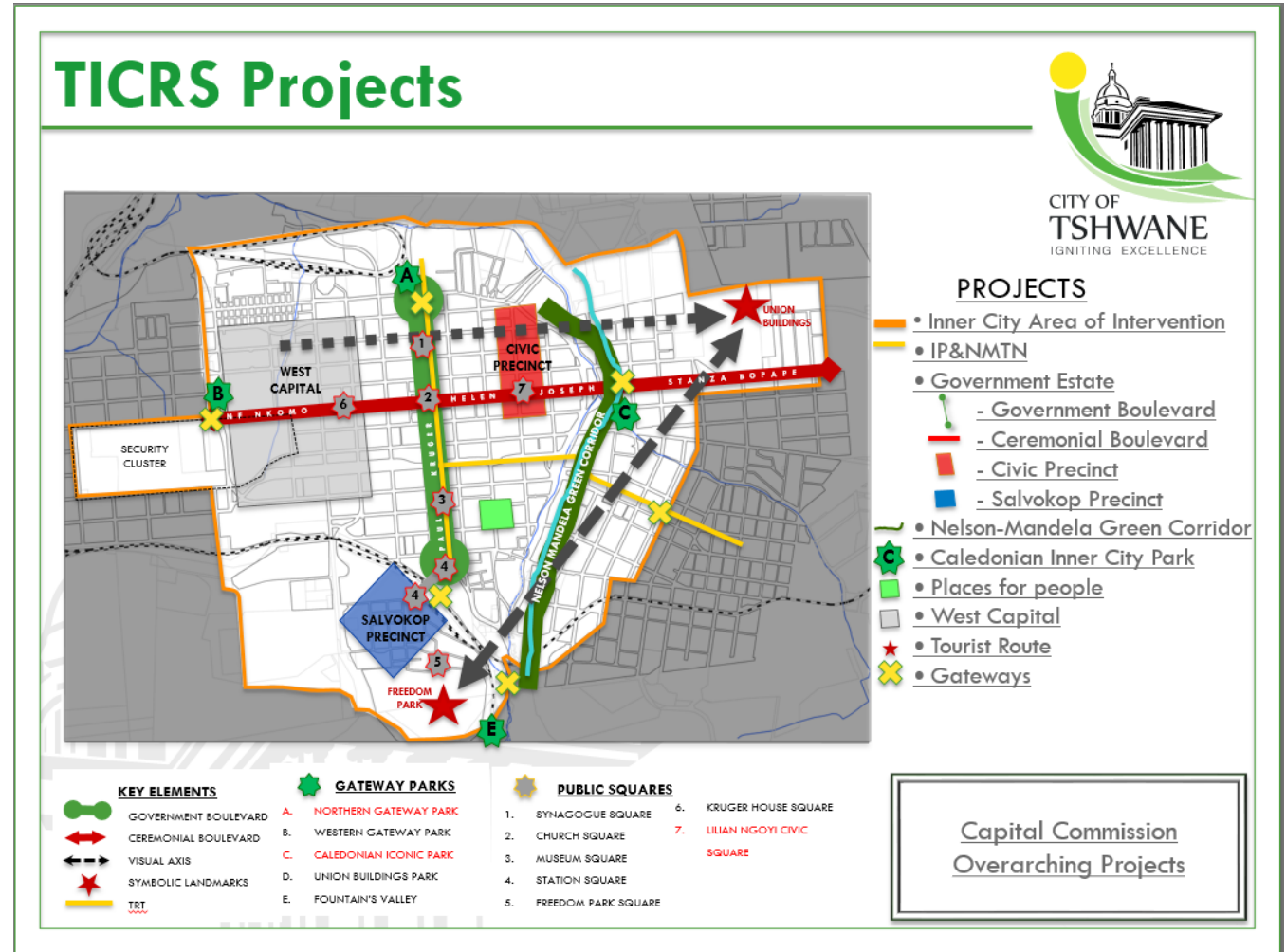
The urban vision focuses on the Tshwane 2055 city proposal. It is a possible development and works within the guidelines of the 2055 city proposal. In this dissertation, it is assumed that the Tshwane 2055 vision will be implemented. The group framework is a continuation of the Tshwane vision; the proposed development focuses on the north-eastern quadrant of the Pretoria CBD.

The city of Tshwane aims to create a high quality of life for its citizens, by developing a city that is inclusive, livable and resilient. The vision for 2055 strives to create a tangible socio-economic- and spatial transformation for all its residents through “game changing” interventions and strategic actions.

The strategic objectives include:

- 1- Define the capital core
- 2- Strengthen the government precinct
- 3- Support mixed-use private sector development
- 4- Develop cultural identity and tourism potential
- 5- Create a quality public environment
- 6- Provide for the integration of movement
- 7- Ensure effective city management

4.4.3
GROUP FRAMEWORK



4.6 _ Diagram illustrating the projects as a whole to be implemented by the year 2055 (Tshwane Vision, 2015).

4.4.2

NELSON MANDELA GREEN CORRIDOR / Green strip at the Apies River

The vision states the intent to create a resilient city. It describes resilience in a city context, “Urban resilience is both a city’s capacity to withstand and recover from an external shock and its ability to adapt and transform to changing circumstances” (Tshwane vision, 2015; 109). The purpose of the Tshwane vision is also to enhance quality of life in the city through the implementation of new urbanism and cradle-to-cradle (C2C) principles.

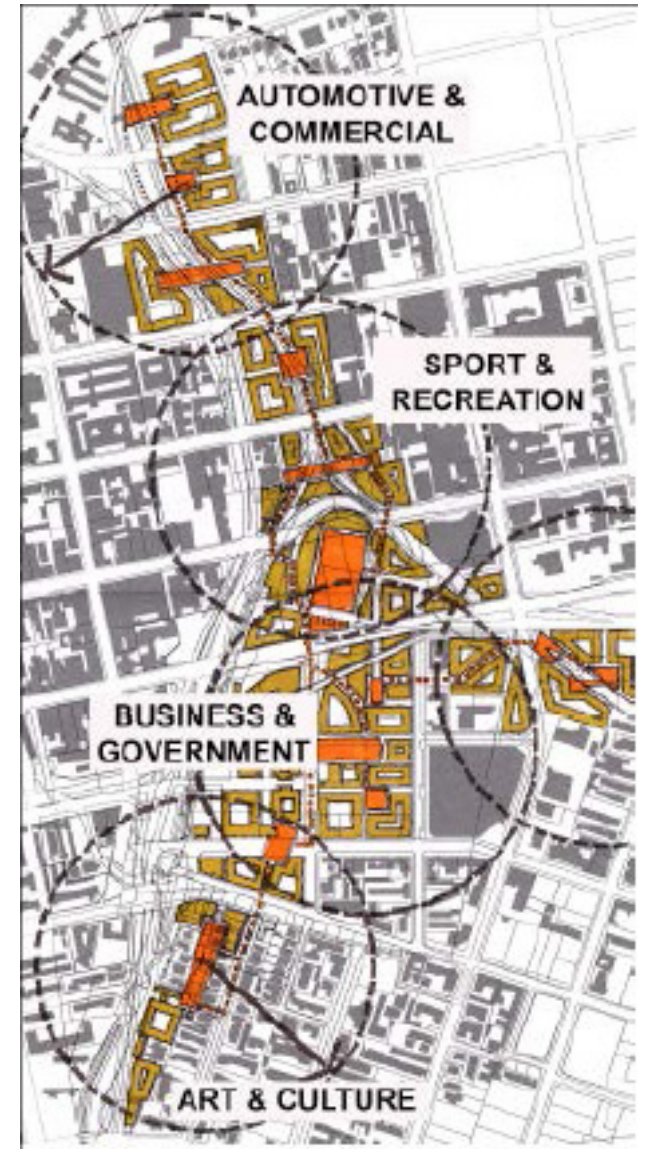
New urbanism principles are:

- 1- Walkability and connectivity; a high quality pedestrian network in the public realm with pedestrian friendly streets.
- 2- Traditional neighborhood structure
- 3- Mixed housing
- 4- Quality architecture and urban design
- 5- Sustainability: minimal environmental impact of the development and its operations, to thus promote efficiencies.

C2C focuses on eco-effectiveness. It calls for the way things are designed to be reconsidered (Tshwane vision, 2015; 110). This already constitutes an adequate step towards a more sustainable approach; unfortunately, it focuses only on improved energy efficiency, but lacks the

connection with nature. Sustainability is a main driver for innovation, creativity and prosperity (Tshwane vision, 2015; 110), but thinking should shift towards a more regenerative developmental approach, which includes the enhancement of natural systems.

The Nelson Mandela Green Corridor is part of the Tshwane Vision to incorporate the Apies River in its developmental strategy. The goal is to create different precincts (as seen in Figure 4.7) that activate the river bank as part of the livable city environment. These precincts include the Caledonian Stadium (at the junction of the Apies River and Walker Spruit); splash pools and a skate park; markets and restaurants; and finally the damming of the Apies River (Tshwane vision, 2015; 110). This forms the Nelson Mandela Green Corridor, which is limited to a certain part of the Apies River and does not utilize the full potential the river offers. Further investigation is therefore needed to create a more regenerative approach.



4.7_ Diagram illustrating the precincts developed as part of the Nelson Mandela Green Corridor (Tshwane Vision, 2015)

4.4.3 GROUP FRAMEWORK

As mentioned above, the group framework focuses on the north-eastern quadrant of the Pretoria CBD. Utilizing the neglected potential and missed opportunities in this quadrant that could be a great contribution to the future development of Pretoria as a city. The group framework focuses on neglected spaces that have been abandoned and then forgotten as the city developed; resulting in the decay of these in-between spaces.

4.4.4 FOCUS AREA / Micro urban framework

This dissertation focuses on the Apies River as part of the Tshwane 2055 development proposal. It emphasizes the importance of recognizing the Apies River as an important regenerative design driver. It proposes that life should be given back to the Apies River and advocates the construction of water channels and wetlands in walkways between the street and building edge of the CBD. This would create a Green urban strip condition that collects the surface run-off from the city's hardscapes, such as, roofs, streets and walkways.



4.8_ Group Framework focus area in the North-East quadrant of Pretoria's CBD (Author, 2015)



These water channels are to strategically lead towards the Apies River, in order to discharge filtered water back into the river. The exposed water channels, cultivated with reeds and plants, create awareness of the Apies River and bring nature into the city. They will not be placed throughout the city, but only where the ground contours allow water to flow towards the Apies River using only gravity. One of these water channels will lead into the proposed site where the new building is to be activated.

The evolution of cities and the modern way of shaping cities come from an enlightened world view, in opposition to previous beliefs that disconnected nature from humans and their habitats (Peres et al, 2015: 40). “The disconnection from natural systems in Pretoria is ironic, since its connection to water was integral to its establishment” (Peres et al, 2015: 40). Many are recognizing that a lack of water quality and quantity is an environmental problem; making the regeneration of this natural resource critical to the resilience of Pretoria (Peres et al, 2015: 40), (Wells et al, 2010: 130). For a city to become resilient in the face of environmental pressure it requires the complexities of ecosystems in a green infrastructure (Wells et al, 2010: 130).

4.9_ The implementation of the Green strip from the Tshwane vision, The group framework proposes the zoning continues (Author, 2015).





4.11_ Fig 1- 5 shows the existing condition of the Apies River, (<https://www.google.com/earth/> edited by Author, 2015).