CHAPTER 4
CASE STUDIES & PRECEDENTS

"Insanity: doing the same thing over and over again and expecting different results." - Einstein (Brainyquote, 2011)

In this chapter existing projects that relate to the design proposal will be investigated. These investigations will contribute the design guidelines of the project. The projects were chosen on the basis of their functional, geographical and theoretical relevance.

The initial precedent study related to intermodal transport exchanges and taxi ranks. The scope of the final design proposal evolved to a Platform Building for the Gautrain stop at Menlyn. New precedents were selected and investigated. The initial precedents are presented Appendix A (page 102).

In this chapter, the Sandton Gautrain Station and the manner in which it permits the Gautrain to interface with its surroundings is firstly presented. The station building is also discussed as an underground station and platform building.

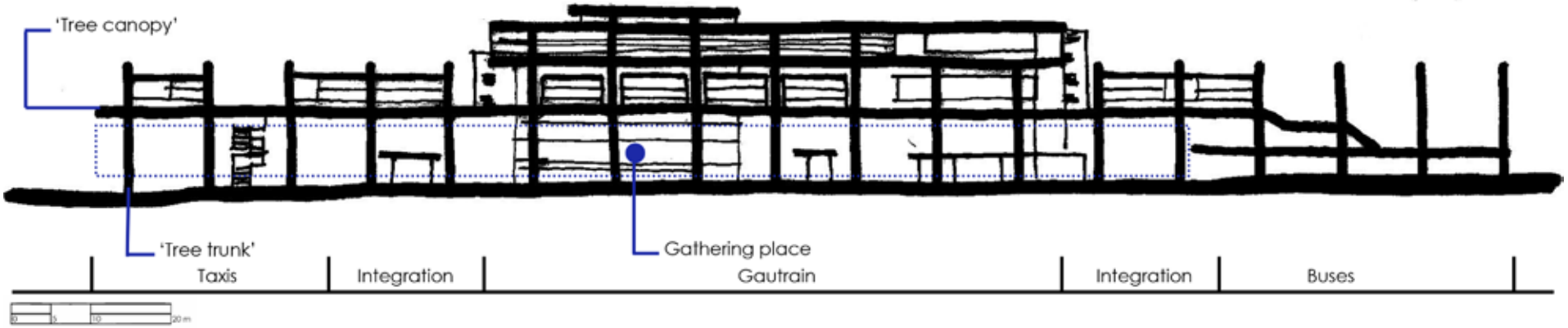
Secondly, the Sandton Convention Centre will be investigated as a precedent of a public building where people congregate.

Lastly, the Palais de Justice in Nantes, France will also be investigated as an example of fractal geometry applied in architecture.

ILLUS. 4.1: Signage outside the Gautrain Sandton Station.

ILLUS. 4.2: Exterior of the Sandton Convention Centre.

ILLUS. 4.3: Interior of the Palais de Justice.



ILLUS. 4.4: Design application of Gautrain Sandton Station to the Platform Building at Menlyn. .

4.1 GAUTRAIN SANDTON STATION

At present, the Sandton Station is one of three Gautrain underground stations. Gautrain stations are designed in accordance with the Gautrain corporate brand and concept. This will now be explained in brief:

The idea of an African rural village forms the core concept of the station buildings. Communities and villages, just like individual stations, are linked by different paths. Along these paths, trees become important nodes and landmarks. They provide protection from the sun and are places for gathering (Gautrain, 2011d). For this reason the tree is an important symbol in the design of the different Gautrain stations. The column structures represent the tree trunks and support the 'wave'-like roof structure or 'tree canopy' (Bombela, 2008: 11).

The Gautrain Sandton Station is formed by a 48m deep rectangular shaft and 'cavern' on platform level. The shaft is covered by a triple volume glass and steel roof structure. This strucure allows natural light to enter and is meant to attribute a sense of transparency to the station building (Bombela, 2008: 12). Whether this has been achieved is debatable. The approach of ground level from below ground is met with natural light, but the exterior of the building is not visible. The shaft is also not visible from the exterior of the building.

The exterior of the building is lightweight and glazed and is contrasted with a robust interior. The architects maintain a sense of diversity and modernity through the use of cleverly designed architectural details throughout the building (Gautrain, 2011d).

LOCATION:
Johannesburg, South Africa
COMPLETION:
2010
PROGRAM:
Gautrain Rapid Rail Link station
GROSS FLOOR AREA:
Unknown
ARCHITECTURAL TEAM:
Gautrain Architects JV
ARCHITECT(S):
Gautrain Architects JV

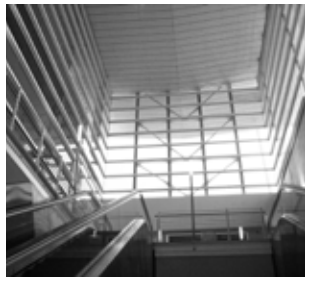
Transition space: Space that embodies two different conditions; a space that separates and connects different spaces and events. (Porter, 2004: 155).

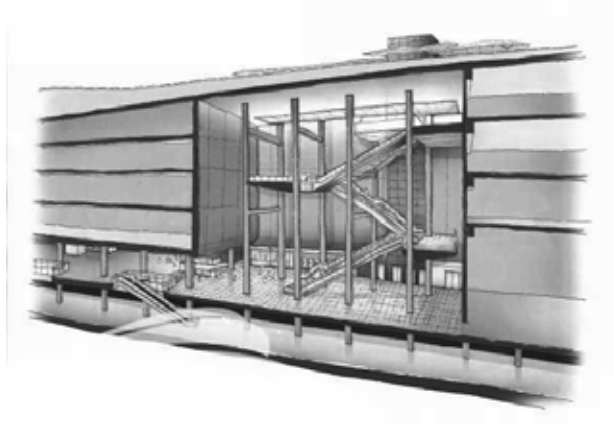
The entrance of the building is welcoming and spills the users out into the streets of Sandton. It has been observed that it is difficult for users to orientate themselves upon exiting the station building. As a platform, the Gautrain Sandton Station only caters for Gautrain users as a 'transition space'.

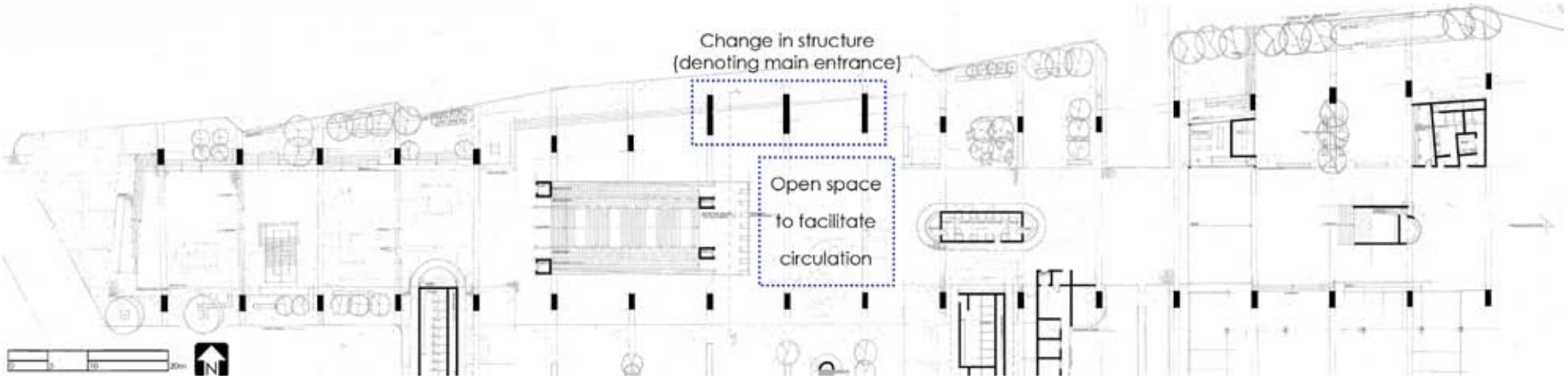
DESIGN APPLICATION

The Platform Building at Menlyn will not directly make use of the Gautrain corporate identity, but will make use of the concepts of Gautrain in a different manner. The building will be more than just a functional platform for the Gautrain. It will be a platform for connection between users of different modes of public transport as well as become a place of gathering such as the tree of the rural African village.

ILLUS. 4.5: Photo collage of Gautrain Sandton Station. (Below)







4.2 SANDTON CONVENTION CENTRE

The Sandton Convention Centre is an example of a public building and platform able to cater for various events. The building is unique and different from other convention centres due to the manner in which the centre is spread and layered over several floors instead of one large area. The building is well integrated with the Sandton area; it is connected to Sandton City and is accessible from the street, in close range of many hotels and offices.

The facades of the building are designed in a form-follows-function manner. "Air grilles are air grilles, vertical strips in the facade are stairs towers and blank walls are blank walls" (Rasmuss, 2001: 20). It is a building with little pretence and everything is what it seems.

The front door and street entrance of the building is given its due importance with large but simple canopies. The entrance is large, visibly open and transparent; a true public entrance.

The building interior is open, functional and designed with minimal clutter. The architects and interior designers seem to have resisted the temptation to give the building a theme and this resulted in a restrained but simple and elegant landmark. The architecture and interior design work together seamlessly. Details are simple and understated, but remain interesting

Public building: Any structure used in whole or in part as a place of resort, assemblage, lodging, trade, traffic or occupancy by the public. (Berres, 2001).

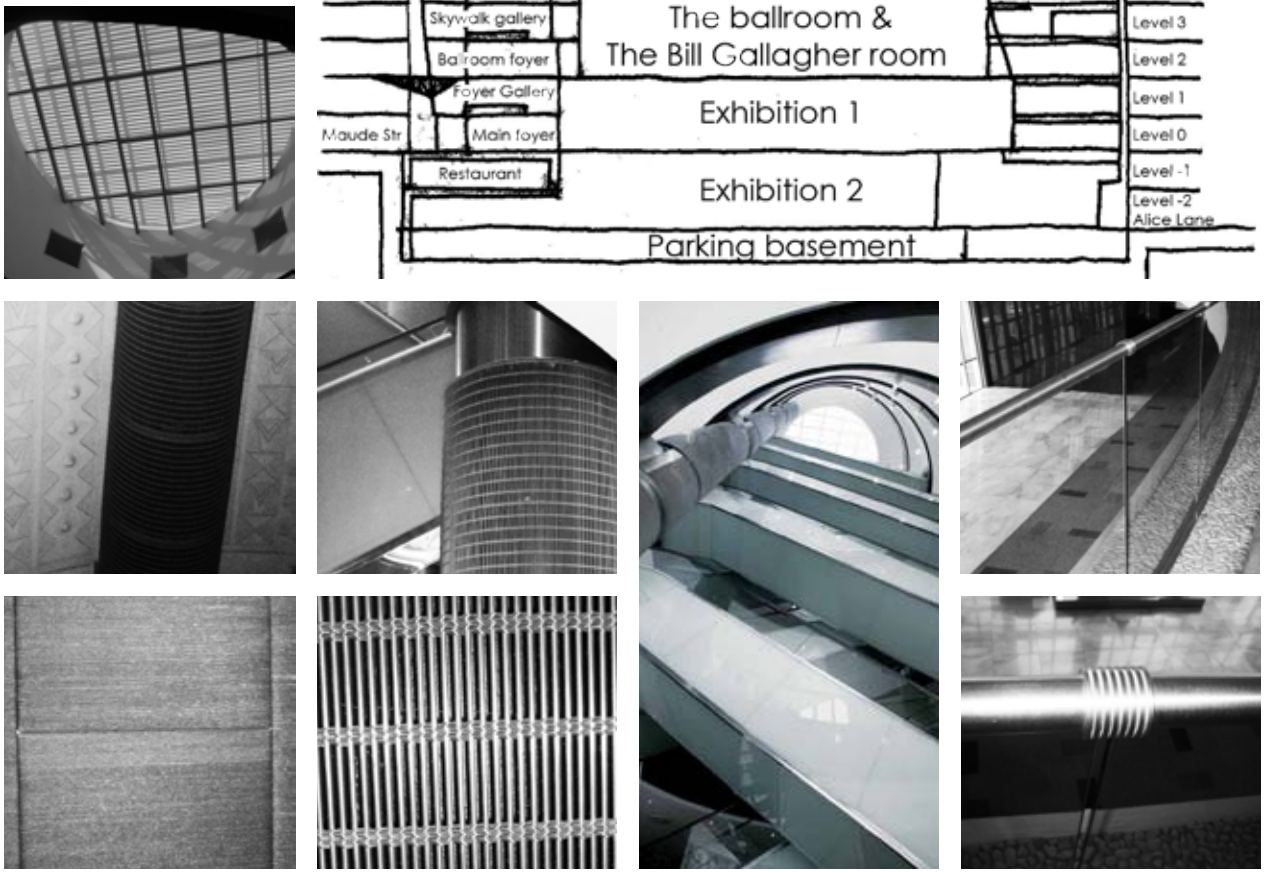
LOCATION:
Johannesburg, South Africa
COMPLETION:
2000
PROGRAM:
Convention, exhibition and special event space
GROSS FLOOR AREA:
65 000 m²
ARCHITECTURAL TEAM:
Louis Karol Architects
ARCHITECTS:
Michael Scholes, Louis Karol, Yvonne Smuts
INTERIOR DESIGNER:
Julius & Company

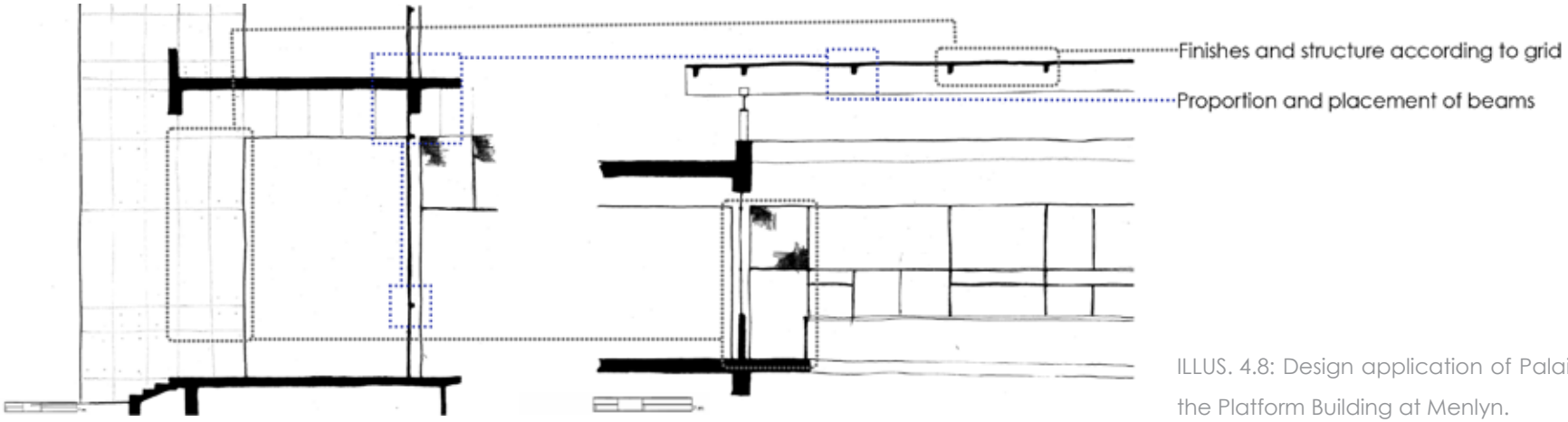
ILLUS. 4.6: Design application of Sandton Convention Centre to the Platform Building at Menlyn. (Opposite)
ILLUS. 4.7: Photo collage of Sandton Convention Centre including diagrammatic section. (Right)

throughout the building. This building is an example of a platform building that can be the backdrop of any event, but is an event in itself.

DESIGN APPLICATION

One of the focus areas of the design proposal will be the functional aspects of what a platform building should be. The Platform Building at Menlyn should act as a backdrop to emergent activities and an event in itself. The design details and material use of the Platform Building should be understated, yet interesting. The entrance of the building will be accentuated by an exception in the regular column-and-beam structure (illus. 4.6) which characterises the building. This break will establish a new rhythm and vast open space, making the building accessible from the street.





ILLUS. 4.8: Design application of Palais de Justice to the Platform Building at Menlyn.

4.3 PALAIS DE JUSTICE

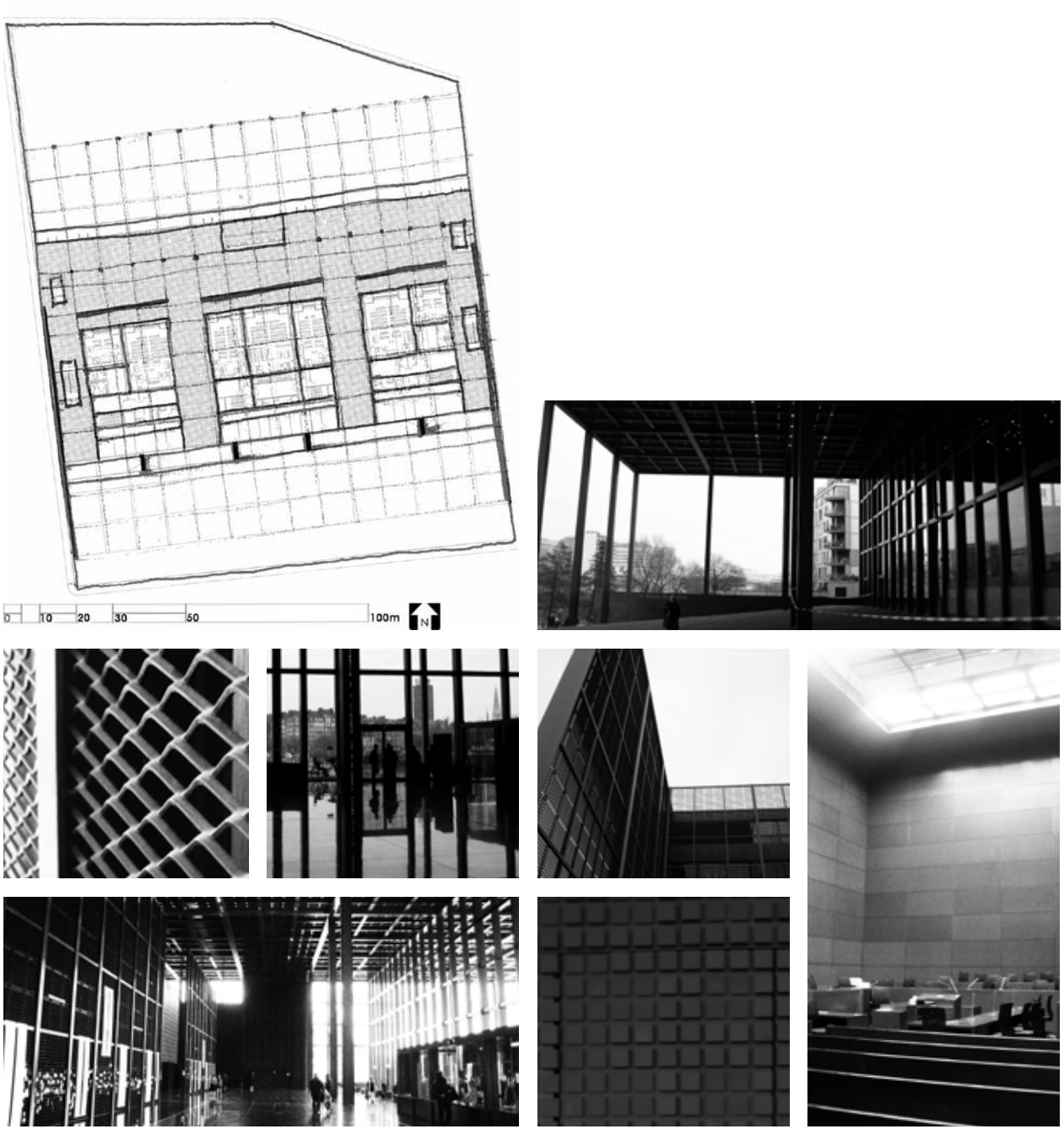
The Palais de Justice in Nantes, France is an example of fractal theory in architecture. The building is used as a court of law and was designed to represent justice and power in the form of architecture. Ateliers Jean Nouvel tried to reflect the concept of justice and "fairness" throughout the entire design of the building.

Fractal geometry and design was thought to be an appropriate tool for conveying this concept. With the use of fractals, the same attention to detail could be given to all scales of the building; from the exterior, to the façade and to the interior. All scales are addressed in the same manner, symbolising equality across all income groups, races and classes. All scales and thus 'all people' are treated equally.

In design, fractals are applied at all levels, from the design grid through to signage. The use of highly reflective and polished surfaces, seemingly extends the dimensionality of the interior space. A sensation of the fourth dimension, time, is felt when one is suspended between the ceiling and its mirror reflection beneath one's feet.

While it is debatable that fractal principles embody the building's essence, the architectural experience as a whole evokes feelings of power and justice. The fractacality of the project makes the building legible and tangible as a whole. The application of fractals at all levels is truly experienced and renders the building interesting and less intimidating despite its massive scale.

LOCATION:
Nantes, France
COMPLETION:
2000
PROGRAM:
Law court including crown court, magistrates' court and criminal court
GROSS FLOOR AREA:
20 000 m²
ARCHITECTURAL TEAM:
Ateliers Jean Nouvel
ARCHITECTS:
Jean Pierre Bouanha, Anne Favry, Hafid Rakem, Gaston Tolila



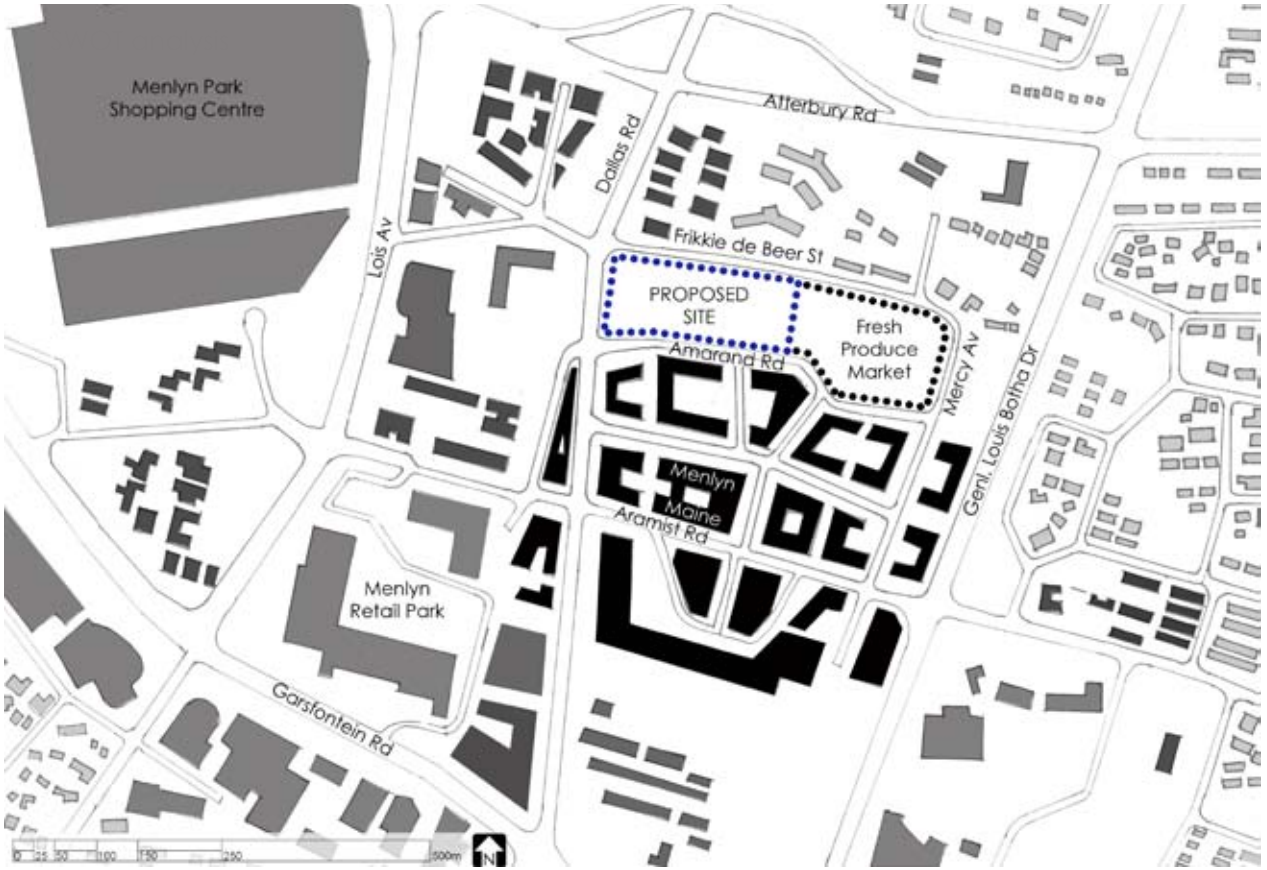
ILLUS. 4.9: Photo collage of Palais de Justice, including ground floor plan.

DESIGN PRINCIPLES

The application of fractals and self-similarity to the Platform Building at Menlyn could contribute to the legibility and experience of the building as a whole. Fractals will not be applied to the same extent as at the Palais de Justice. It is believed that a level of self-similarity will aid in rendering the large structure of the Platform Building at Menlyn less intimidating and more inviting to the human scale.

CHAPTER 5
URBAN FRAMEWORK

ILLUS. 5.1: Current land use of Menlyn node.



The purpose of an urban framework is to outline the vision and development principles for an area. It guides and informs development in order to achieve a unified vision and goal for the area.

The New Menlyn Node framework was developed through documentation (illus. 5.11 on page 42) of the existing conditions in the area, observation of successful public spaces and the consultation of existing frameworks in the vicinity.

5.1 MENLYN NODE ANALYSIS

The following aspects of the Menlyn Node are analysed and documented:

- Current land use
- Green structure
- Existing vehicular movement

ILLUS. 5.2: Menlyn square as example of commercial use. (Far left)

ILLUS. 5.3: Old Mutual Office Park as example of business use. (2nd from left)

ILLUS. 5.4: Damelin College as example of educational use. (2nd from right)

ILLUS. 5.5: Litter in Menlyn node. (Far right)

ILLUS. 5.6: Green structure of Menlyn node. (Below)

KEY

Open Green Spaces

Abandoned Green Spaces

Moreleta Spruit

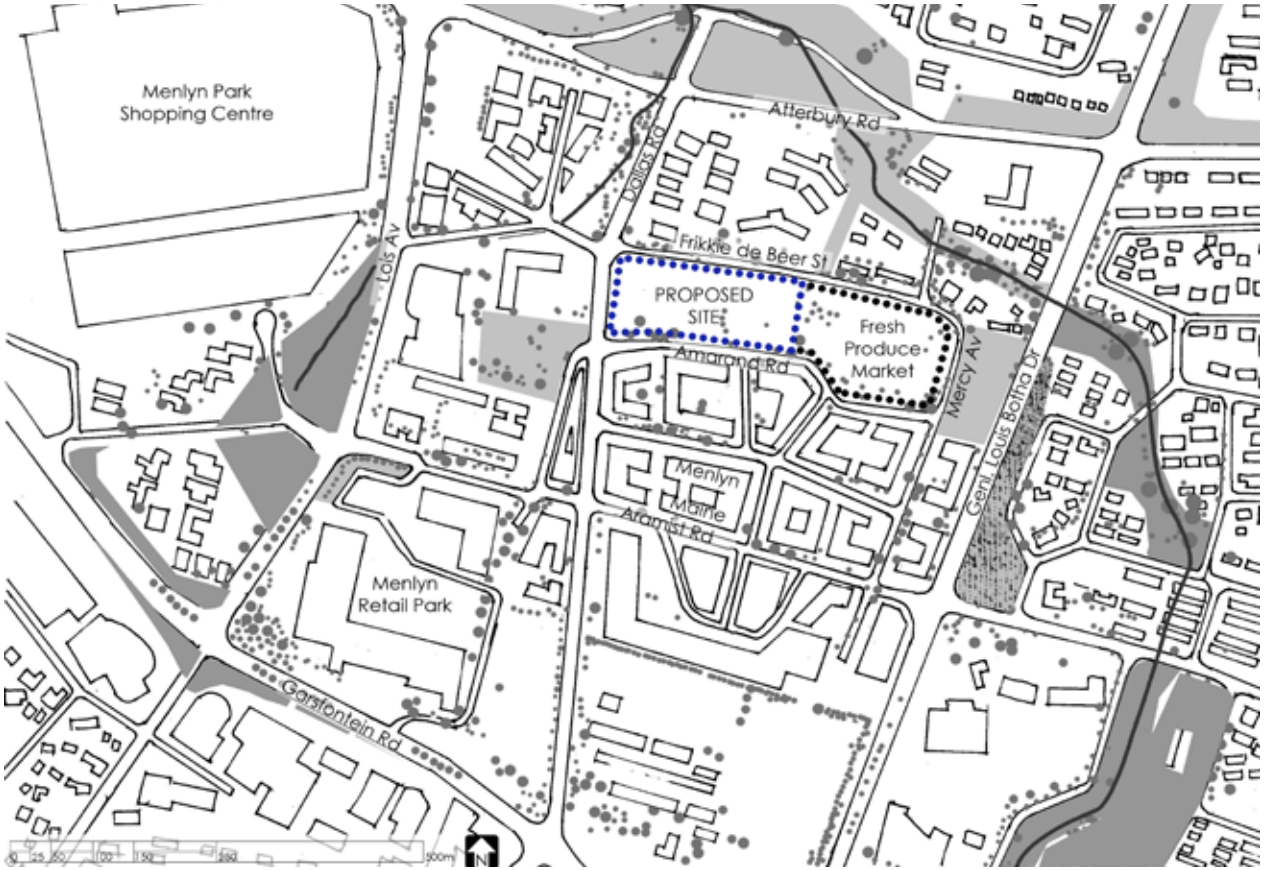
Existing Trees

5.1.1 CURRENT LAND USE

The node is currently focussed on commercial, business and educational use (illus. 5.2, 3 & 4 respectively). The Menlyn Maine development is mixed use (business, commercial and residential use). The area is entered for work and shopping on a daily basis. The surrounding low density residential neighbourhoods indicate that many people also travel from the area on a daily basis. There is thus a constant flow of traffic into and away from the area.

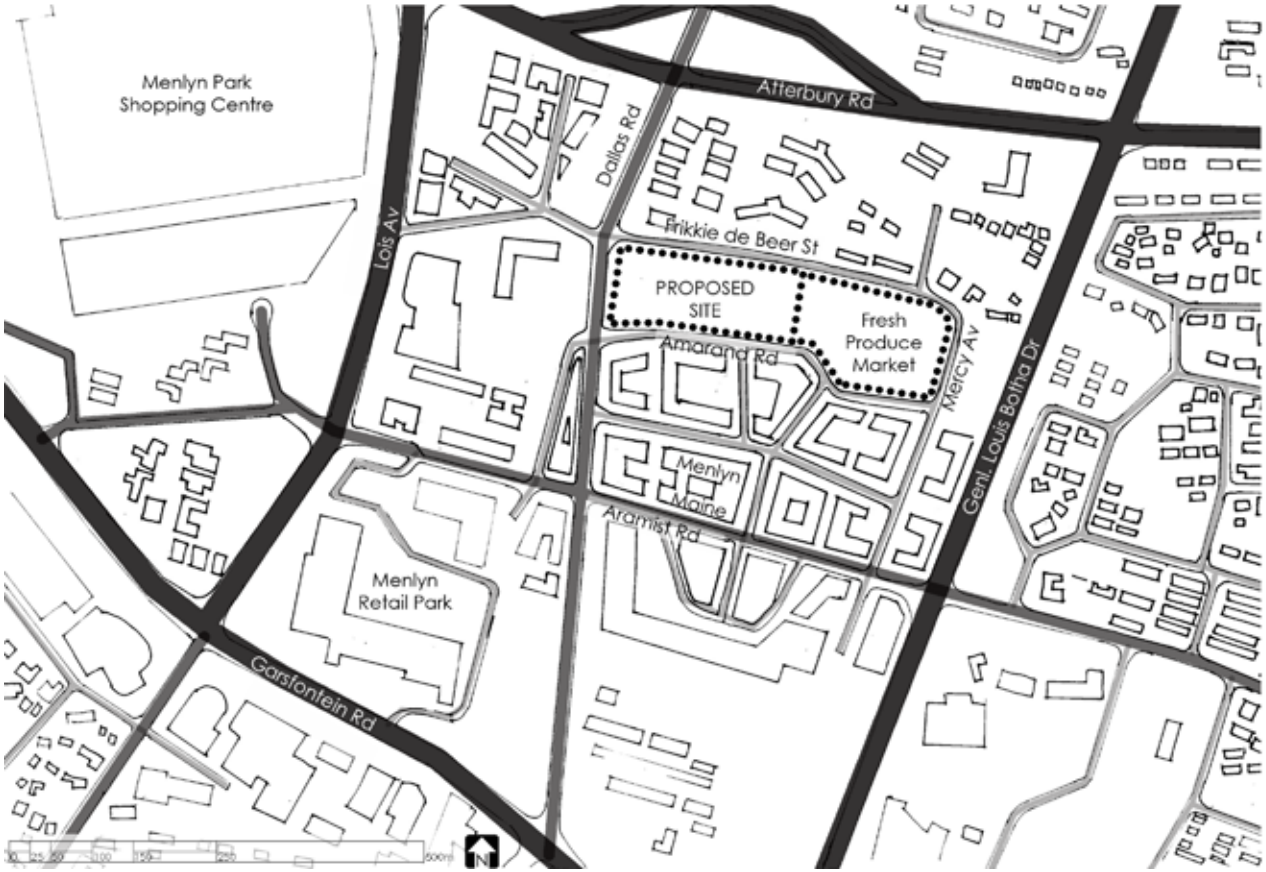
5.1.2 GREEN STRUCTURE

The Moreleta Spruit river runs across the Menlyn node, surrounded by open green spaces. Some of these green spaces are in a state of neglect, littered (illus. 5.5) and considered unsafe (City of Tshwane, 2007: 22), yet some are well used and maintained.



Pretoria CBD
Johannesburg (N1 Highway S)
Polokwane (N1 Highway N)
Emalahleni (N4 Highway)

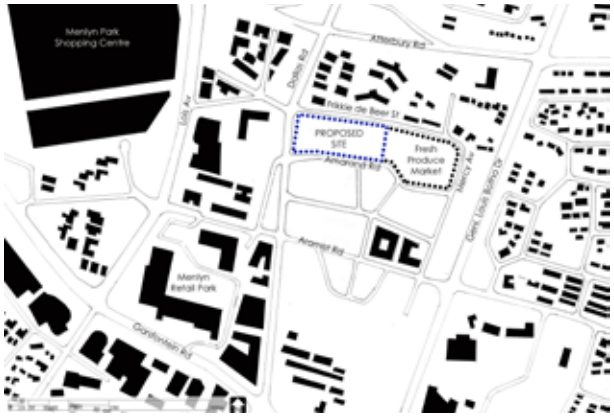
KEY
Heavy Traffic
Medium Traffic
Light Traffic



Mamelodi
Eersterust
Far Eastern suburbs

ILLUS. 5.7: Vehicular movement in Menlyn node.

ILLUS. 5.8: Traffic congestion on Atterbury Road.



ILLUS. 5.9: Development in Menlyn node - 2010.

ILLUS. 5.10: Development in Menlyn node - 2020.

5.1.4 VEHICULAR MOVEMENT

The Menlyn node is not only a destination. It is also a place of transition between the Pretoria CBD, its suburbs and surrounding cities.

Poorly developed transport facilities, weak links to the rest of the city and traffic congestion threaten to choke the area (illus. 5.8). This could force development to migrate away from the region to less congested regions (City of Tshwane, 2007:26).

5.1.3 SWOT ANALYSIS

Strengths

- Large user base (±20 000 people per day)
- Mixed use zoning
- Development currently taking place (150 000m² in 2010; 425 000m² in 2020)(illus. 5.9-10)
- Ample green/open space

Weaknesses

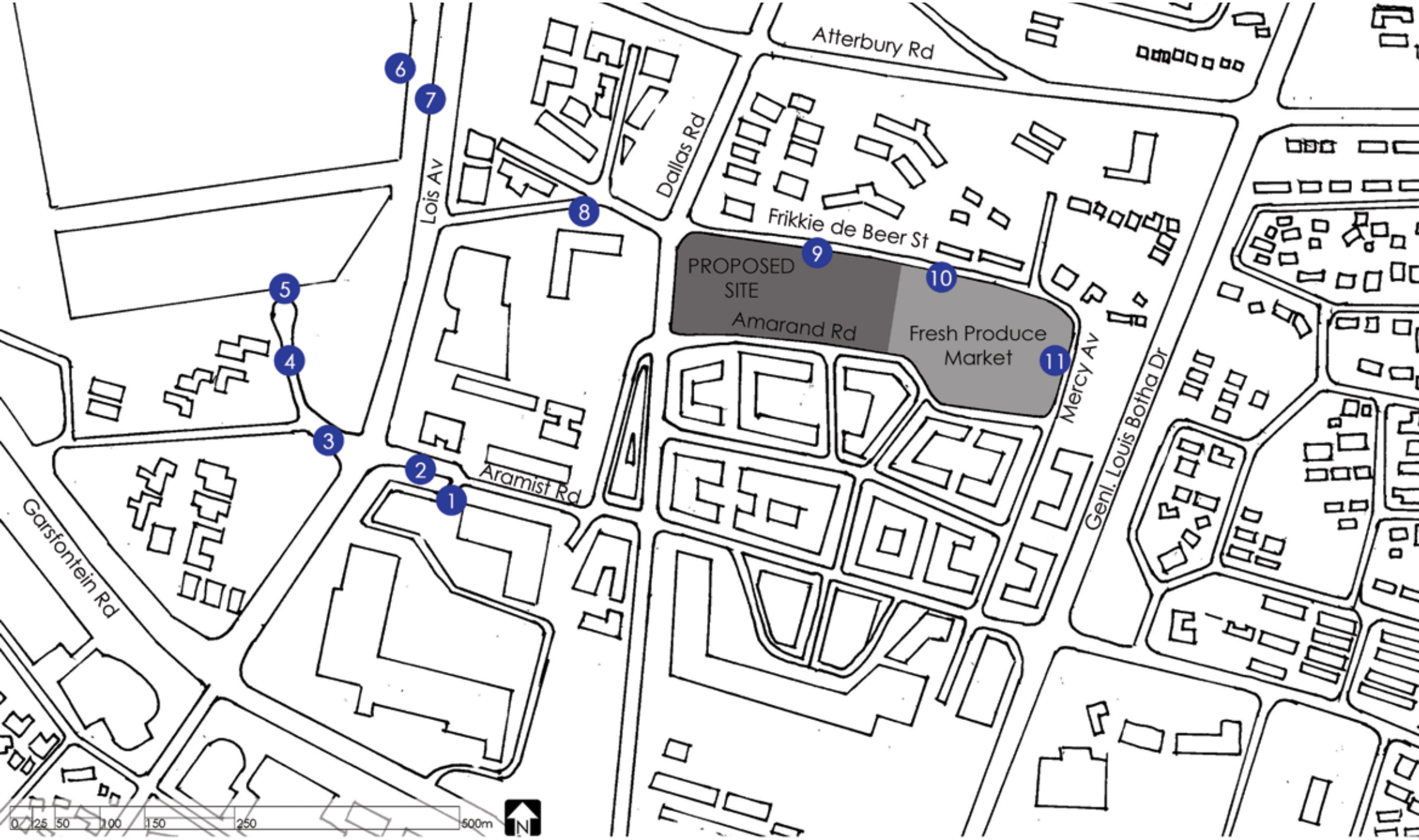
- Low density
- Little/inefficient public transport infrastructure
- Introverted, disconnected public spaces
- Beggars are present in the area, especially at the large intersections
- Pedestrian unfriendly

Opportunities

- Increase density
- Provide public transport infrastructure
- Create outside public spaces
- Connect public spaces
- Create upliftment opportunities
- Use abandoned spaces for productive landscape
- Create pedestrian friendly infrastructure

Threats

- Crime
- Boundaries (arterial roads) difficult to bridge
- Taxi industry might not adhere to new transport infrastructure



ILLUS. 5.11: Visual context of precinct.

5.2 EXISTING FRAMEWORKS

Currently, a number of frameworks relevant to the Menlyn node exist. The frameworks, relevant to the NEW MENLYN NODE FRAMEWORK will be discussed in this section. The frameworks are:

- Tshwane Regional Spatial Development Framework: Eastern Region (TRSDF)
- Menlyn Node Urban Development Framework (MNUDF)
- Menlyn Node Spatial Development Framework (MNSDF)

The frameworks listed below were also taken into account for the NEW MENLYN NODE FRAMEWORK. For the sake of brevity they are not discussed here because they are less relevant:

- Metropolitan Spatial Development Framework
- Pretoria East Mobility Study
- Tshwane Open Space Framework

5.2.1 TSHWANE REGIONAL SPATIAL DEVELOPMENT FRAMEWORK: EASTERN REGION (TRSDF)

The TRSDF makes use of the principles laid out by the *Tsošološo* programme (Quality Public Spaces Programme). This programme encourages investment in nodal areas, activity spines and intermodal transport exchanges. This investment takes place in the form of public, squares and markets, pedestrian walkways, public transport routes and stops, public art and green structure (Illus. 5.6 on page 39).

The TRSDF is in favour of nodal development over and above linear development as "energy potential contained in lines of movement is released through stopping, not through movement" (City of Tshwane, 2007: 39). The Menlyn node is identified as a major metropolitan node that should be developed into an area with mixed land uses surrounded by high density housing. The framework takes the different movement systems of Tshwane into account and states that "new large-scale development initiatives should be planned around the public transportation facilities" (City of Tshwane, 2007:17).

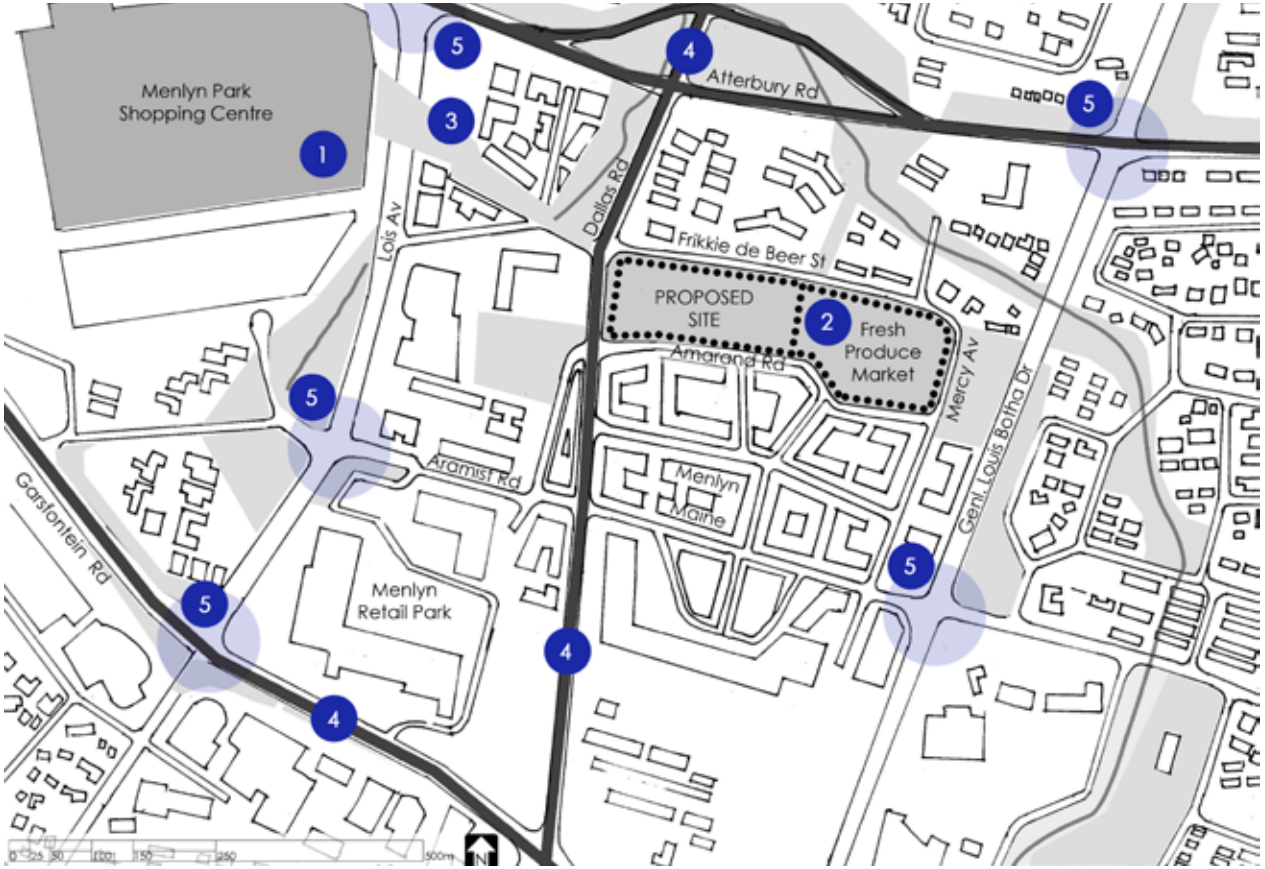
The NEW MENLYN NODE FRAMEWORK regards the following aspects as relevant:

- Development should take place around public transport facilities in the form of TOD.
- Development should take place in nodal areas and along activity spines.

KEY

1. Town square
2. Public square and community facility
3. Green zone and pedestrian walkway
4. Activity spine
5. Significant intersections

ILLUS. 5.12: *Tsošološo* programme principles applied to NEW MENLYN NODE FRAMEWORK.



5.2.2 MENLYN NODE URBAN DEVELOPMENT FRAMEWORK (MNUDF)

The MNUDF proposes the following development objectives relevant to the NEW MENLYN NODE FRAMEWORK and the Gautrain Platform Building at Menlyn:

- Upgrade and maintain the movement network to facilitate the efficient movement of various modes of transport within the Menlyn node, other activity nodes in the City of Tshwane and Gauteng Province.
- To enhance public transport facilities, and services and provide for easy and safe pedestrian movement in and around the Menlyn node.
- To minimise horizontal expansion of economic activities into surrounding residential areas by increasing the density of the Menlyn node.
- To enhance the economic viability and sustainability of the public transport system in the area as a result of more people residing within walking distance from these facilities and services.
- Retain, protect, formalise and upgrade green spaces within the Menlyn Node. Public-private partnerships are encouraged.

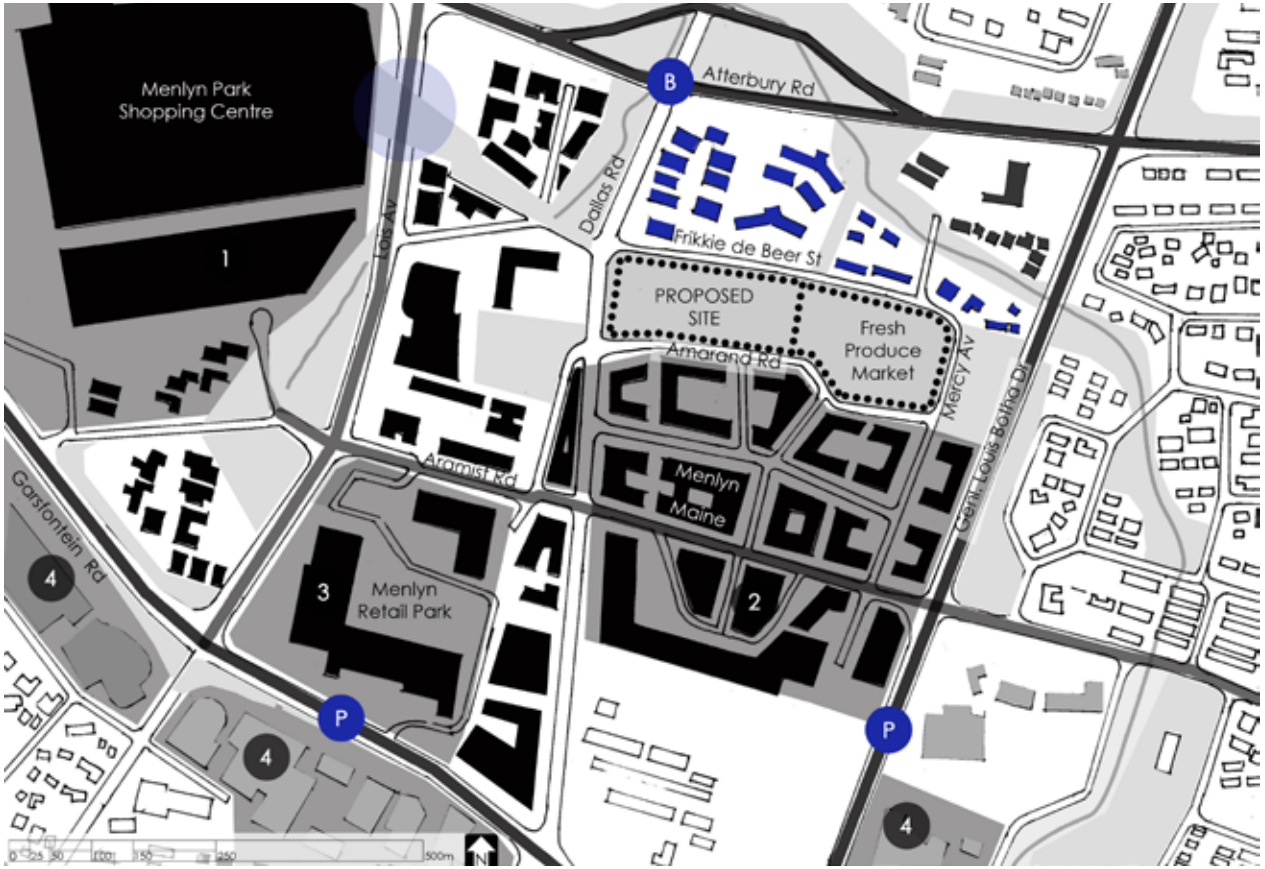
5.2.3 MENLYN NODE SPATIAL DEVELOPMENT FRAMEWORK (MNSDF)

The MNSDF proposes the densification and development of the Menlyn node. The framework proposes detailed performance criteria pertaining to vegetation, site boundaries, stormwater run-off, delivery areas etc. Where appropriate, the criteria defined for the MNSPD are incorporated in the NEW MENLYN NODE FRAMEWORK.

KEY

Up to 4 storeys high
Up to 6 storeys high
Up to 10 storeys high
Up to 24 storeys high
Proposed sites
Major Arterial
Minor Arterial

Pedestrian bridge
'Green lungs'
Public transport route
BRT stop
Super regional commercial >100 000m²
Small regional commercial 35 000m²
Community commercial 12 000 - 25 000m²
Motor trade and dealership



ILLUS. 5.13: Menlyn Node Urban Development Framework.

5.3 PROPOSED TRANSPORT FRAMEWORK

The various frameworks investigated strongly support the development of an intermodal transport exchange in the Menlyn node. The location of such an exchange will impact the transport routes of the area. The transport routes as proposed in the NEW MENLYN NODE FRAMEWORK are illustrated in illus. 5.14-18.

ILLUS. 5.14: Proposed underground Gautrain route.

ILLUS. 5.15: Proposed bus routes.

ILLUS. 5.16: Proposed taxi routes.

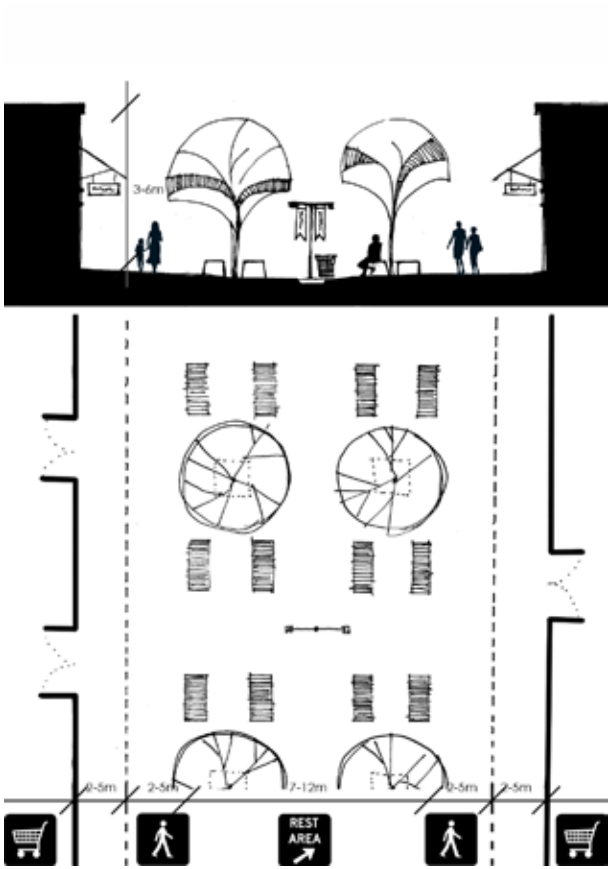
ILLUS. 5.17: Proposed motor vehicular routes.

ILLUS. 5.18: Proposed pedestrian routes.

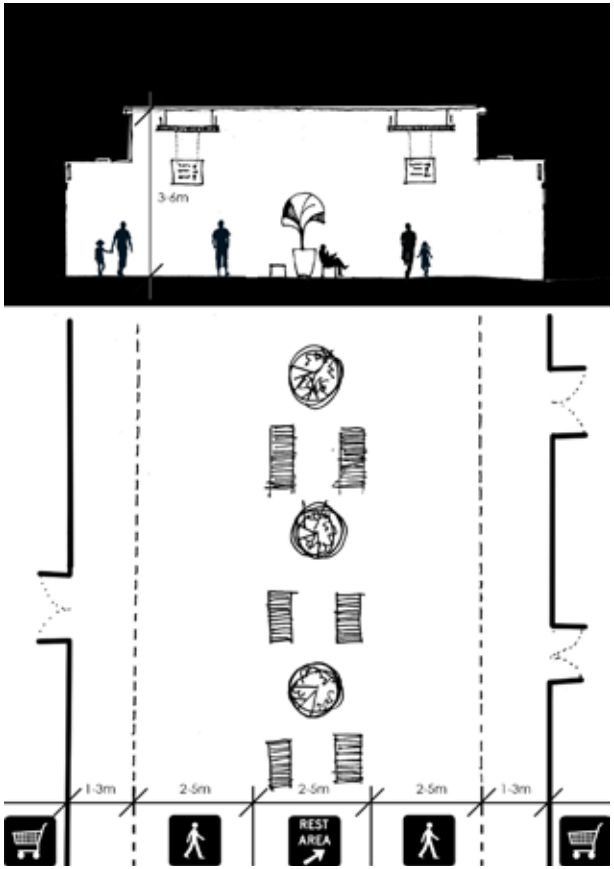
5.4 DESIGN PRINCIPLES APPLIED TO NEW MENLYN NODE FRAMEWORK

The similarities of pedestrian boulevards and passages in shopping malls may be discerned by comparing and contrasting illus. 5.19 and 5.20. In illus. 5.21, the similarity between the framework layout at the smaller scale of a mall passage is likened to that of the larger scale small world network existing between itself and the proposed intermodal transport exchange. In illus. 5.22-23 the more formal event space is juxtaposed against the less defined public square. The NEW MENLYN NODE FRAMEWORK takes into account the popularity of malls and merges it with the existing development guidelines for Dallas, Frikkie de Beer and Aramist Streets.

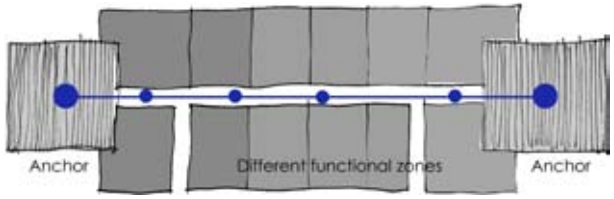
ILLUS. 5.19: Plan and section of a typical pedestrian boulevard.



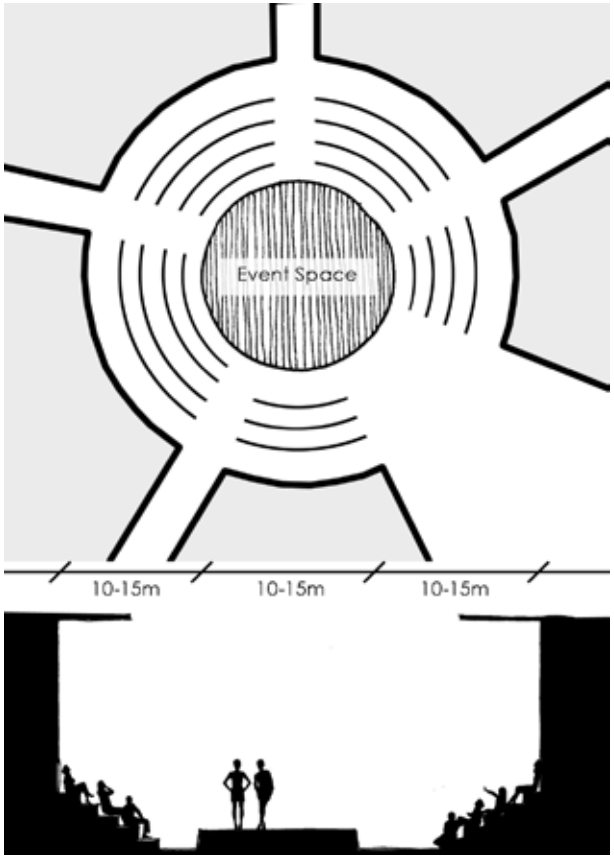
ILLUS. 5.20: Plan and section of a typical mall passage.



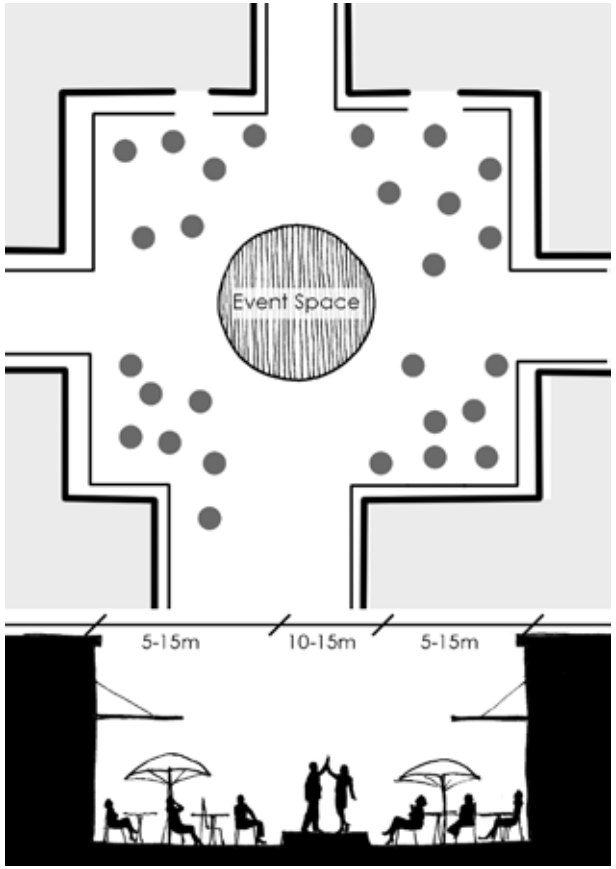
ILLUS. 5.21: Comparison of mall and framework layout.



ILLUS. 5.22: Plan and section of event space.



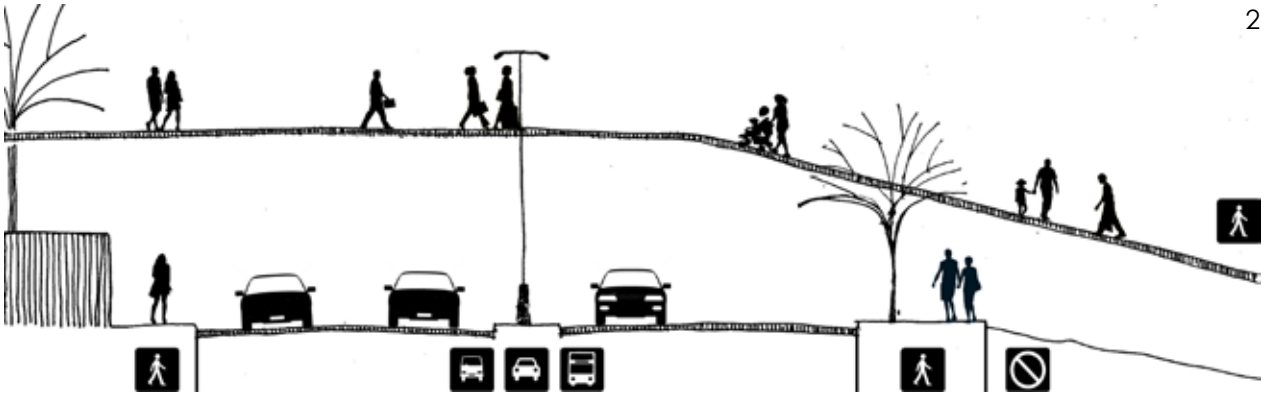
ILLUS. 5.23: Plan and section of public square as event space.



1

ILLUS. 5.24: Pedestrian crossing Genl. Louis Botha Drive.

2



ILLUS. 5.25: Pedestrian bridge at Lois Avenue.

5.5 NEW MENLYN NODE FRAMEWORK

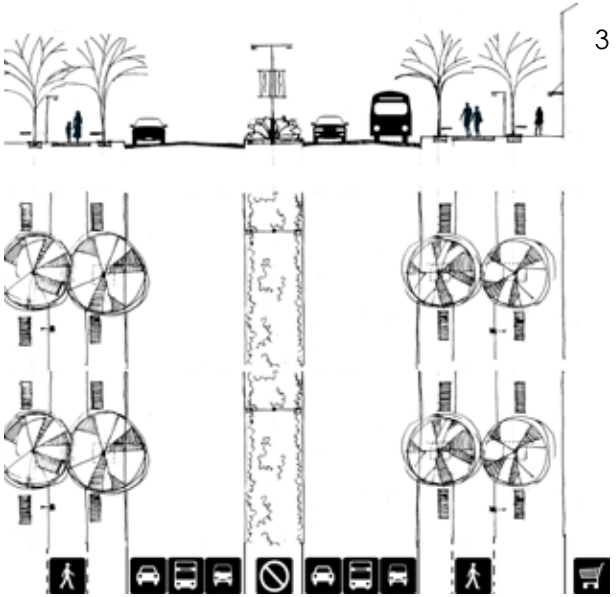
The NEW MENLYN NODE FRAMEWORK (illus. 5.28) represents a refinement of the existing area frameworks. The main objective is to create a node that is integrated with the larger Tshwane. However, the proposed framework should not compete with the Pretoria CBD, but should rather strengthen the connection of the Menlyn node with the CBD, the rest of Tshwane and Gauteng.

The framework aims to:

- improve the accessibility of the Menlyn node for both vehicular and pedestrian traffic. A pedestrian walkway will be created between the proposed site and Menlyn Park Shopping Centre. An improved pedestrian crossing at Genl. Louis Botha

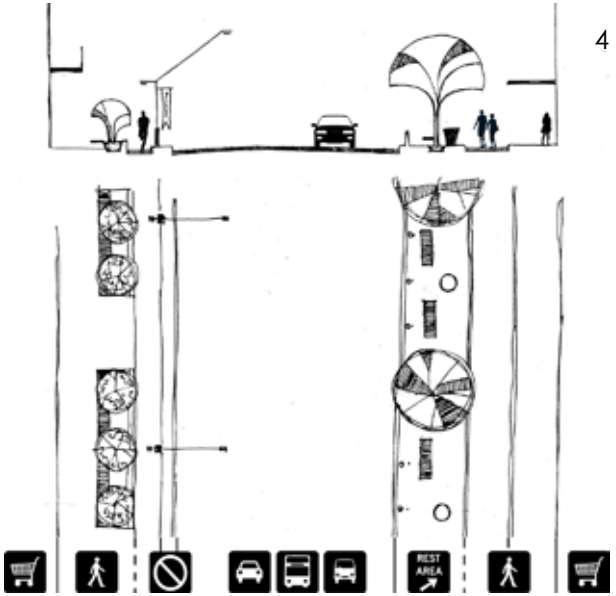
ILLUS. 5.26: Section of Dallas Road. (Below)

3

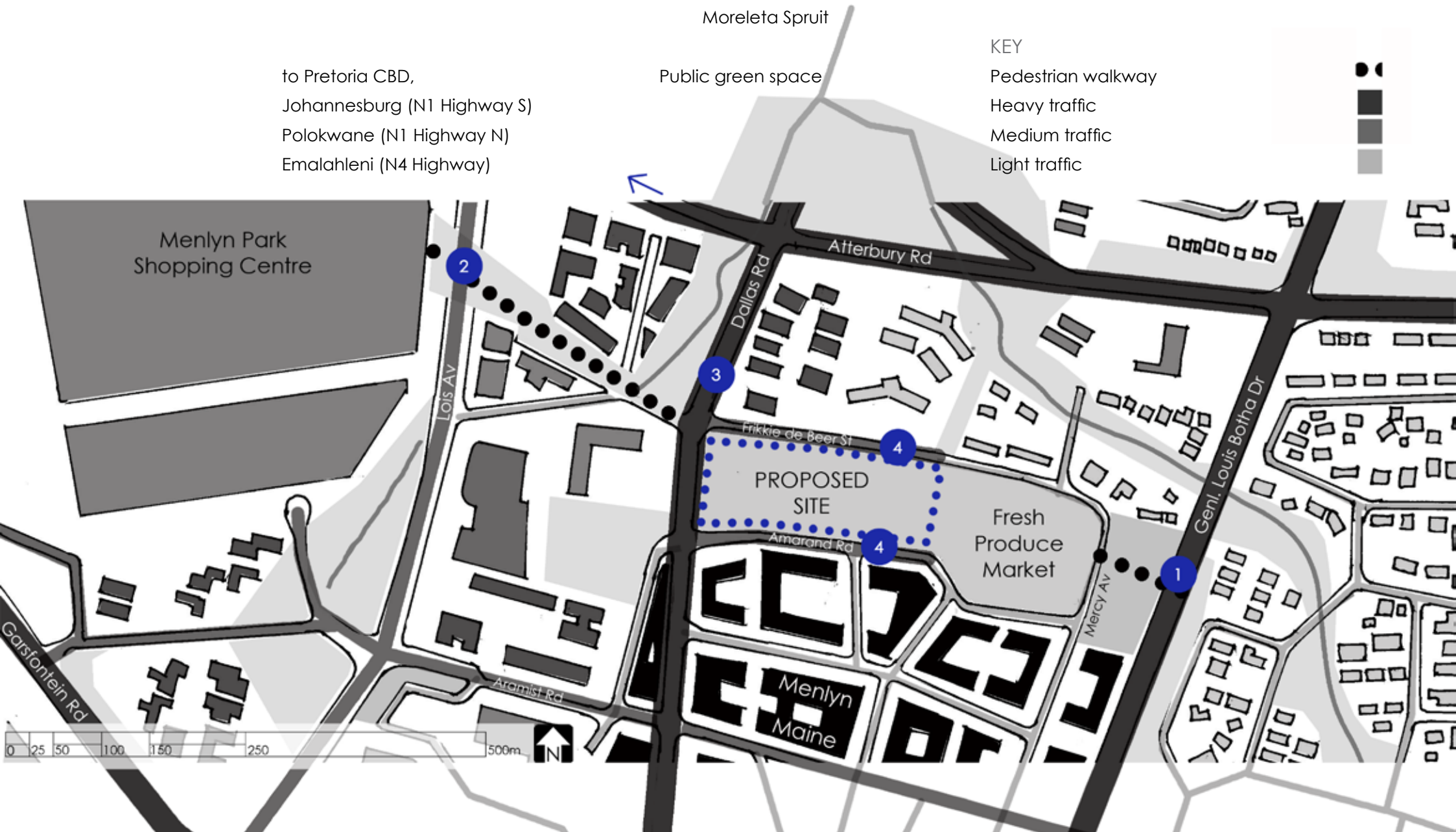


ILLUS. 5.27: Section of Frikkie de Beer Street and Amarand Road. (Below)

4



ILLUS. 5.28: NEW MENLYN NODE FRAMEWORK.



Drive will connect the Menlyn precinct with surrounding suburbs (illus. 5.24) and a pedestrian bridge at Lois Avenue should separate pedestrian and vehicular traffic (illus. 5.25).

- develop the node as an identity within Tshwane by implementing uniform street edges throughout the area (illus. 5.26-27)
- take pressure off the urban sprawl by increasing the density of the area and increasing development heights (illus. 5.29).
- extend its accessibility by reworking bus routes and introducing the Gautrain station to the precinct (illus. 5.30).
- emphasise the role of the Menlyn node as a destination rather than focussing on its transitional capacity (illus. 5.30).

ILLUS. 5.29: Proposed precinct development heights. (Below)

ILLUS. 5.30: Precinct plan. (Opposite)