brief development

context analysis

precint design

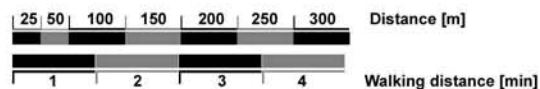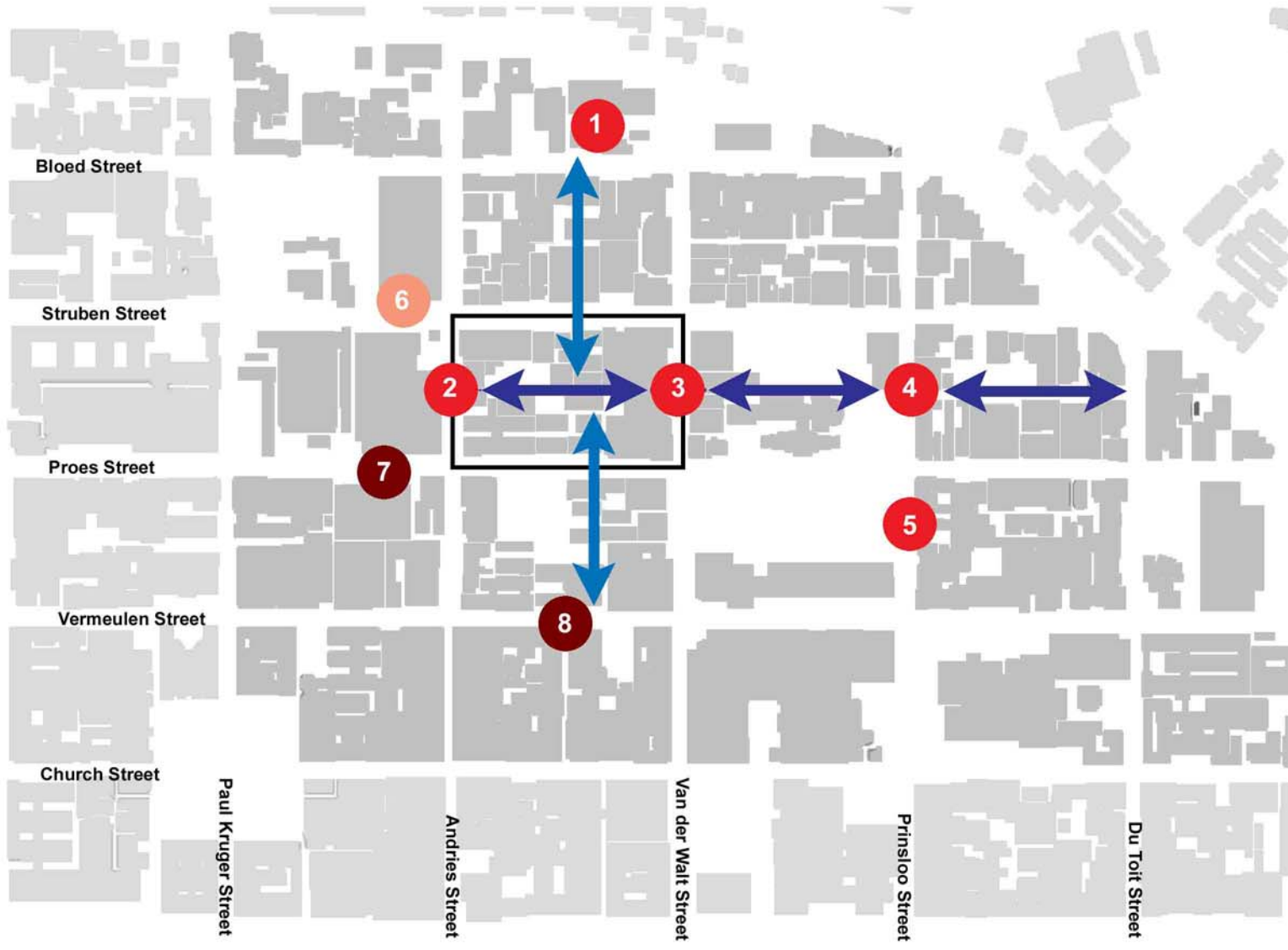precedents

design development

design clarification

design documentation

Precinct design

Bloed Street

Struben Street

Proes Street

Vermeulen Street

Church Street

Paul Kruger Street

Andries Street

Van der Walt Street

Prinsloo Street

Du Toit Street

Distance [m]

25 | 50 | 100 | 150 | 200 | 250 | 300

Walking distance [min]

1 | 2 | 3 | 4

Problemone

Pedestrians congregate in various areas in the study areas due to:

Taxi-related activity

1 Bloed Street Taxi Rank
05:30 - 08:30   15:30 - 19:00

2 Centurion Taxi Association Taxi Rank
07:00 - 09:00   16:00 - 17:30

3 Menlyn Taxi Association drop-off
15:30 - 18:30

4 Menlyn Taxi Association pick-up
06:00 - 09:300

5 Laudium Centurion Taxi Rank
06:30 - 09:00   16:00 - 17:30

Grouping
6 Department of Home Affairs
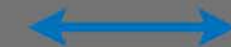09:00 - 12:30   13:30 - 16:30

Arcade activity
7 Hallmark Arcade entrance / exit
07:00 - 11:00   13:30 - 17:30

8 Queen Street Arcade entrance / exit
07:00 - 11:00   13:30 - 17:30

Solutionone

Linking the three taxi ranks to form the primary axis, starting at east entrance to Brown Street and terminating in the new State Library

Linking the Bloed Street Taxi rank with the entrance to Queen Street Arcade, to form the secondary axis

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Precinct design

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Problemtwo

Pedestrians congregate at the entrances to the block, as well as at the intersection of the primary and secondary axes

1 North entrance
Medium grouping due to pedestrian movement and brothel customers

2 West entrance
Lower density of pedestrians, periodical increase associated with taxi rank and throughfare to State Library

3 Intersection of axis
Pedestrian movement on primary and secondary axis cross, slowing movement in both directions.

4 East entrance
Highest pedestrian density on block, due to street pedestrian movement and pedestrians from Brown Street

5 South entrance
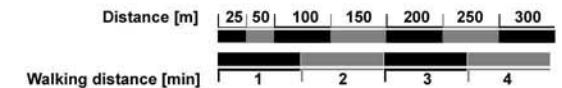Medium pedestrian movement density from Proes Street and Queen Street Arcade.

Solutiontwo

Building lines are set back in the centre of the block to allow an open arcade and public space to form.

Entrances to public space are scaled down to pedestrian level.

→ Primary axis

→ Secondary axis

Bloed Street

Struben Street

Proes Street

Vermeulen Street

Church Street

Paul Kruger Street

Andries Street

Van der Walt Street

Prinsloo Street

Du Toit Street

Distance [m]   25 50 100 150 200 250 300

Walking distance [min]   1   2   3   4

Precinct design

Bloed Street

Struben Street

Proes Street

Vermeulen Street

Church Street

Andries Street

Van der Walt Street

Prinsloo Street

Du Toit Street

Distance [m]

25 50 100 150 200 250 300

Walking distance [min]

1 2 3 4

Problem**three**

Select buildings to be removed to create pedestrian open arcade on the newly established axis

1 **Golden Motor Supplies**
2 level building, limted interaction with street.

2 **Pretoria Motor Glass**
2 level building, limited interaction with street, narrow building on street-line, private courtyard behind.

3 **Egoli pool house and *shebeen***
2 level building, medium interaction with street, empty.

4 **Tau-building storage**
Single storey warehouse, no street interaction, empty.

5 **Folio Stationers storage**
2 level warehouse, no street inter-action.

6 **De Kleine Admiraal - building**
6 level office tower, cut off from the street by wall and gate, no street interaction.

7 **The Universal Church of the King-dom of God**
2 level building, no interaction with the street, cut of from pedestrians by metal roller doors

Solution**three**

Place buildings in the block to create the pedestrian open arcade on the newly establidhes axis

1 Building with 4 floors, creating distinctive corner on Struben & Van der Walt Streets Commercial functions on ground floor [food outlets, furniture and other retail] Residential or office space on first and second floors.
Residential on fourth floor.

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Precinct design

Solution three [continued]

2 Building with 4 floors, creating rounded corner to place focus on west entrance to new pedestrian open arcade.
Commercial functions on ground floor [food outlets, clothing retail, music and entertainment].
Residential or office space on first and second floors.
Residential on third floor.

3 Building with 3 floor, creating the south entrance to public space, with corner that is visible from west entrance.
Commercial function on ground floor [restaurant with terrace on northern side to border on open arcade]
Residential function on first and second floors.

4 Existing building to be changed to create new east entrance to public space; roof material to be removed, exposing vaulted trusses, entrances to retail outlets to be moved to open arcade.
Commercial function on ground floor [anchor retail outlet, food outlet]

5 Infill building with 3 floors to continue the building-line on public space.
Small retail outlets on ground floor [cellular phone outlet, food outlets]
Residential appartment on first & second floor.

6 Building with four floors creating a focus corner visible from the north & west entrances.
Small to medium commercial functions on the ground floor [restaurant with terrace on public space, food outlets, furniture]
Residential and office space on first and second floor.
Loft-style appartment on third floor.

Bloed Street

Struben Street

Proes Street

Vermeulen Street

Church Street

Andries Street

Queen Street

Van der Walt Street

Prinsloo Street

Du Toit Street

Distance [m] 25 50 100 150 200 250 300

Walking distance [min] 1 2 3 4

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Precinct design

Bloed Street

Struben Street

Proes Street

Vermeulen Street

Church Street

Andries Street

Queen Street

Van der Walt Street

Prinsloo Street

Du Toit Street

Distance [m]

| 25 | 50 | 100 | 150 | 200 | 250 | 300 |

Walking distance [min]

| 1 | 2 | 3 | 4 |

Solutionthree [continued]

Insert new buildings to create the pedestrian open arcade on the newly established axis.

7 New glass circulation tower for Egoli Inn Hotel [brothel] & entrance on the open arcade.

8 Design project, properties discussed further in the chapter, forming north entrance to public space.

9 Existing parking garage, converted into roofed market forming part of the public space.

10 Building with four floors strenghening the street edge and continuing the north part of public space.
Large commercial function on ground floor [car dealership, furniture outlet]
Office space on first floor.
Residential on second and third floor.

11 Building with three floors, forming a courtyard with three entrances to the street.
Commercial functions on ground floor [food outlet, retail anchor store]
Small and medium apartments on first and second floor.

Precinct design

Solution three [continued]

Place in the block new buildings to create the pedestrian open arcade on the newly established axis.

1 New urban park, incorporating public walkway, lined with trees.

2 New *City Park*, with second entrance to the Munitoria complex, with a new monument.

3 Mixed-use building with 3 floors. Retail function on ground floor responding to street and new urban park. Commercial on first floor. Residential on second floor.

4 Mixed-use building with 4 floors, forming focus corner. Retail function on ground floor responding to street and new urban park. Commercial on first floor. Residential on second & third floors.

5 Commercial and retail building with 3 floors to define south-east corner of new urban park. Retail function on ground floor responding to street and new urban park. Commercial on first floor.

6 Mixed-use building with 4 floors to define west entrance to new urban park. Retail function on groundfloor responding to street and new urban park. Commercial and residential on first floor. Residential on second and third floors.

7 New modal interchange: public parking, tram station, taxi rank. Retail function on ground floor responding to street and new *City Park* [restaurants with terrace on park, food anchor store, clothing outlets]

Bloed Street

Struben Street

Proes Street

Vermeulen Street

Church Street

Andries Street

Queen Street

Van der Walt Street

Prinsloo Street

Du Toit Street

Distance [m] 25 50 100 150 200 250 300

Walking distance [min] 1 2 3 4

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Precinct design

Bloed Street

Struben Street

Proes Street

Vermeulen Street

Church Street

Andries Street

Queen Street

Van der Walt Street

Prinsloo Street

Du Toit Street

Distance [m]

25 50 100 150 200 250 300

Walking distance [min]

1 2 3 4

Solution three [continued]

Place in the block new buildings to create the pedestrian open arcade on the new axis.

8 New 4 floor addition to the Munitoria complex, replacing the section destroyed in fire and allowing for expansion.
Commercial and retail on ground floor.

9 New mixed-use buildings, 3 to 4 floors to define the street line infill gap, with private courtyards linked to public space.
Commercial, retail and residential on groundfloor.
Residential on upper floors.

New private courtyard

New public space

Tree lined routes

Existing arcades

New arcades, linking street and courtyards

New public amenities

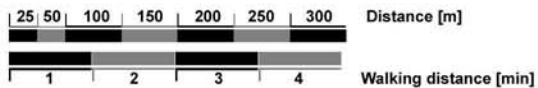**P** Police station

C Clinic

F Fire station

S Service station

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Figure ground study
before intervention

■ Existing buildings
□ Study area

Distance [m]
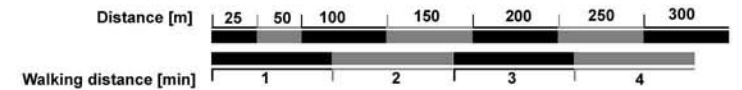25 | 50 | 100 | 150 | 200 | 250 | 300

Walking distance [min]
1 | 2 | 3 | 4

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Before intervention

Precinct design

Figure ground study after intervention

- ■ Existing buildings
- ■ New buildings
- □ Study area

Distance [m]: 25 | 50 | 100 | 150 | 200 | 250 | 300

Walking distance [min]: 1 | 2 | 3 | 4

After intervention

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UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA
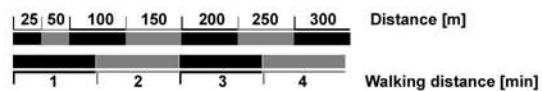
Residual space analysis
before intervention

Existing buildings

Study area

Distance [m]
25 | 50 | 100 | 150 | 200 | 250 | 300

Walking distance [min]
1 | 2 | 3 | 4

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Before intervention

Precinct design

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YUNIBESITHI YA PRETORIA

Residual space analysis after intervention

- Existing buildings
- New buildings
- Study area

Distance [m]: 25 | 50 | 100 | 150 | 200 | 250 | 300

Walking distance [min]: 1 | 2 | 3 | 4

After intervention

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Precint design clarification

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Centurion Taxi
Association

Menlyn Taxi
Association drop-off

5

1

New public space

4
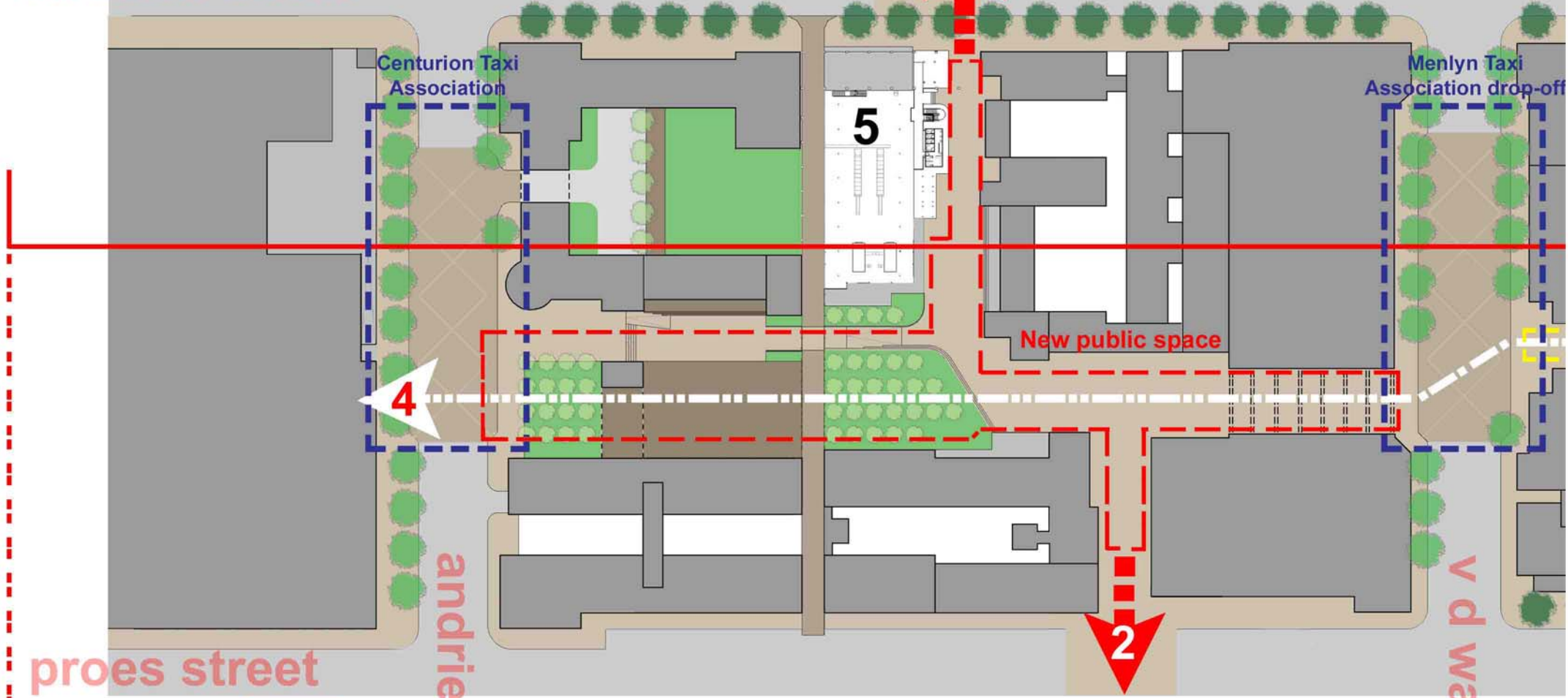
andries street

v d walt street

proes street

2

new urban laundry

private courtyard

private courtyard

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Menlyn Taxi Association pick up

New urban park

prinsloo street

4

3

New urban park
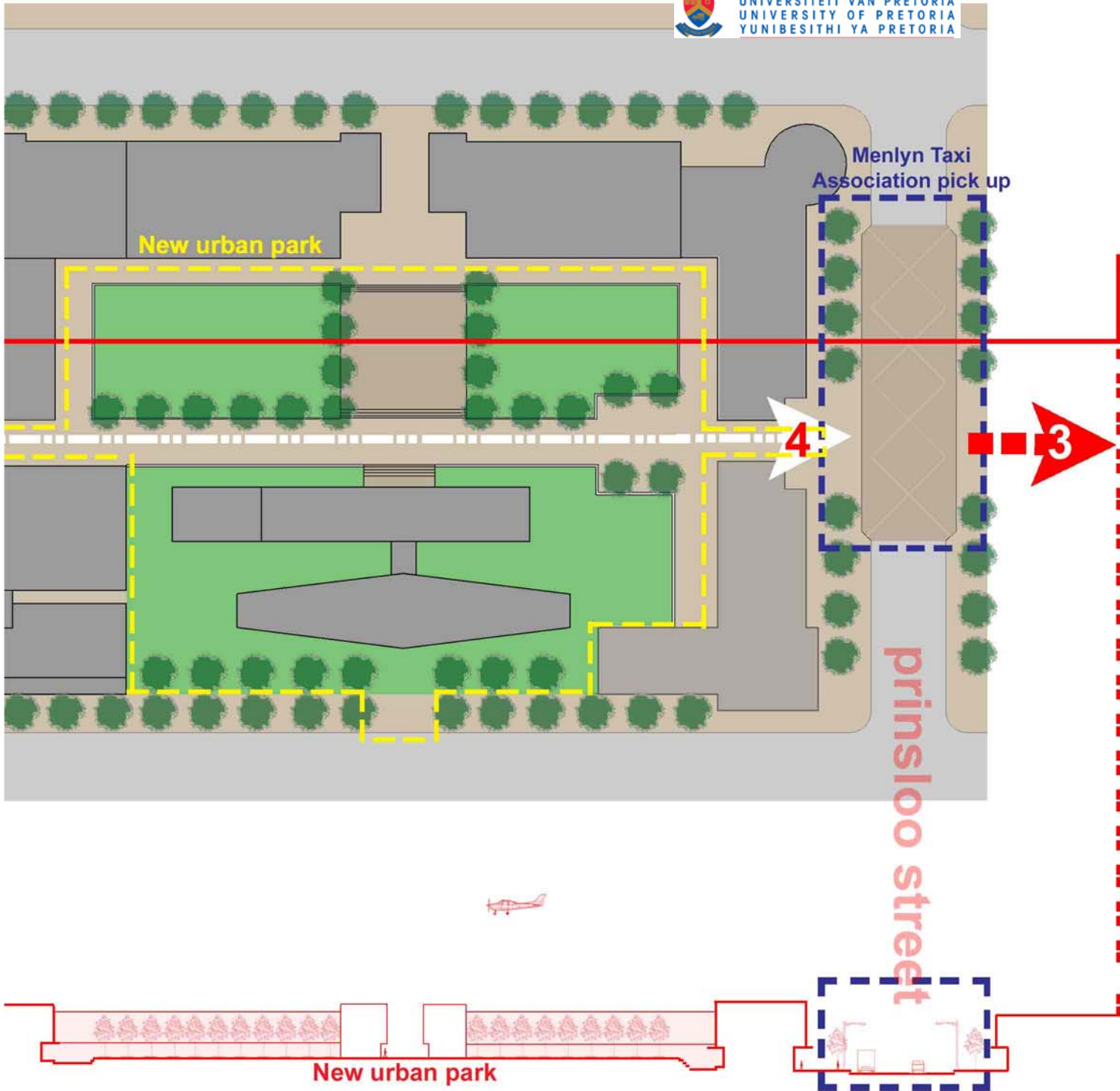
1 New connection to upgraded Bloed Street Taxi Rank

2 New connection to Queen Street Arcade and Church Street pedestrian walkway

3 Connection to Apies river and Nelson Mandela drive

4 Main axis connecting Menlyn Taxi Rank to new State Library

5 New Urban Laundry

Precinct design

"Cities are sites of interchange between various flows."
[Urry, 2003:36]

Cities have always been the meeting place for people. Users of the city relied on various systems to furnish their growing needs. Over time, with the gradual disappearance of the lag between space and time, these needs and their fulfilment turn out to be more complex, interrelated and intersecting.

In *A thousand years of non-linear history* [1997;36]Da Landa conceives cities as complex, dynamic and open systems containing exceptional flows and mixtures of the organic and inorganic, the living and the non-living, the human and the non-human, culture and nature, the risky and the risk free. It is these open systems, with their own feedback loops, that form the bulk of the theory for this dissertation.

Over the last few decades, South African cities have grown at exponential rates. The increase in the influx from rural communities and the flow from people from the rest of Africa, have seen city populations expand to their highest levels ever. This, coupled with the ever escalating use and need for the motor vehicle, lead to the widespread growth of sprawling suburbia.

Growing cities leads to growth in the complexity, number and size of the supporting systems that provide for the city. As an example, the movement of the wealthy towards the eastern part of Pretoria also displaced the workplace of hired domestic labour. However, these labourers still reside in the same places as before which lead to more complex, interdependent taxi systems. While existing taxi routes could only bring them into the city, new routes had to open up, connecting the city with suburbia. As users moved between the taxi stops of each route, sprawling informal traders developed on these connecting routes.

The response and feedback to the actions taken are almost immeasurable, to the degree that nobody can accurately predict them. Should we not take action or rather see the city as a controlled experiment? An experiment with its own feedback loops, that will enhance, adapt or destroy the action we take?

Attoe and Logan [1989:47] argue that an extremely comprehensive understanding of the problem and systems is needed to produce a good limited effect. Robust cities, such as Pretoria, will in the end decide on the fate of any intervention.

The cadastral pattern

Carmona et al [2003;63] defines the cadastral pattern as "the layout of urban blocks and, between them, the public space/ movement channels or 'public space network'" This implies that either the blocks define the space, or the spaces define the blocks. The public space network contains both movement space and social space, two overlapping spheres. While pedestrian movement is compatible with both of these notions, motor vehicle movement is pure circulation. Thus, the spaces formed by the city blocks should accommodate its primary users: pedestrians.

By reducing the size of city blocks [or allowing for cross movement within them], a fine urban grain is created. This offers pedestrians a greater choice of routes within the city and creates a more permeable setting. The reduction allows the users to see clearly from one route to the next, thereby increasing visual permeability. This enhances the pedestrian's understanding and knowledge of the available choices to get from one place to another.

Public space networks

The square

Squares can be defined as being static place with less movement, offering the pedestrian points of relief within the city. In Town and Square [1959], Paul Zucker defines the five typologies of urban squares:

1 The closed square – space self-contained: a square by building, interrupted only by the streets leading into it. [e.g. Strijdom Square]
2 The dominated square – space directed: some buildings create and own the space in front of them; all the surrounding structures are related to it. [e.g. Union Building's Garden]
3 The nuclear square – space formed around a centre: a central nucleus creates a sense of space around it. [e.g. church Square]
4 Grouped squares – space units combined: a series of linked spaces, where each space prepares the user for the next.
5 Amorphous square – space unlimited: spaces which does not fall within the above mentioned, but displays some of the other categories characteristics. [e.g. Trafalgar Square, Londo

Few squares embodies one pure typology, and often bear several characteristics. These squares may be designed to place focus on a public building, or a people places. They may also function as both of the above.

The street

Carmona et al [2003] defines the street as "three-dimensional spaces enclosed on opposite sides by buildings [while squares are enclose on all sides] and are dynamic spaces with a sense of movement". [Carmona et al, 2003:141]

Streets may contain roads, though a strong distinction is made between the two terms: the purpose of the latter used only as circulation for vehicular traffic.

Design intervention

This dissertation has as is goal the regeneration of the north-eastern section of the Pretoria CBD. While the intention is to place an architectural intervention into this part of the urban fabric, it forms only a small part of a much larger objective and program.

The objective is to create a master programme [as opposed to a master plan] for the area, in order to regenerate it. According to Attoe and Logan *"a master plan specifies and end condition in the future, [whereas] a master programme sets more general objectives and identifies ways of achieving them. In effect, a programme offers several ways to reach the objective – depending on circumstance. And it sets out intentions and methods but not solutions".* [Attoe & Logan, 1989:68]

Urban catalysts

Although the term catalyst has different meanings, in the context of urban design, it denotes a project that is *"a sequence of limited, achievable visions, each with the power to kindle and condition other achievable visions."* [Attoe & Logan, 1989:45]. This implies that an urban catalyst is the introduction of a new element into an area, which is responsible for the modification of some of the existing elements in. By defining it as limited, it is a reaction that is contained and its power harnessed. In order to achieve the predetermined objective, a comprehensive understanding of the problem is required. Each action [catalyst] lends momentum to the next action, forming as catalytic reaction. Each catalyst, however, needs to be contained and moderated to prevent it from destroying the city.

Proposed intervention to initiate an urban catalytic reaction ①②

Currently there are two large projects nearing completion in this district, both with the intention of stimulating growth. The first is the placing of the new State Library [1] on half of a city block, while the other is the upgrading of the Civitas building [2] that houses the Department of Home Affairs. Both of these developments can be seen as forming the start of an urban catalyst reaction. Together with the three existing, informal taxi ranks in the area, the number of pedestrians will increase in the area. This in turn leads to larger requirements of food outlets, entertainment and activities, while also attracting negative elements as crime and loitering.
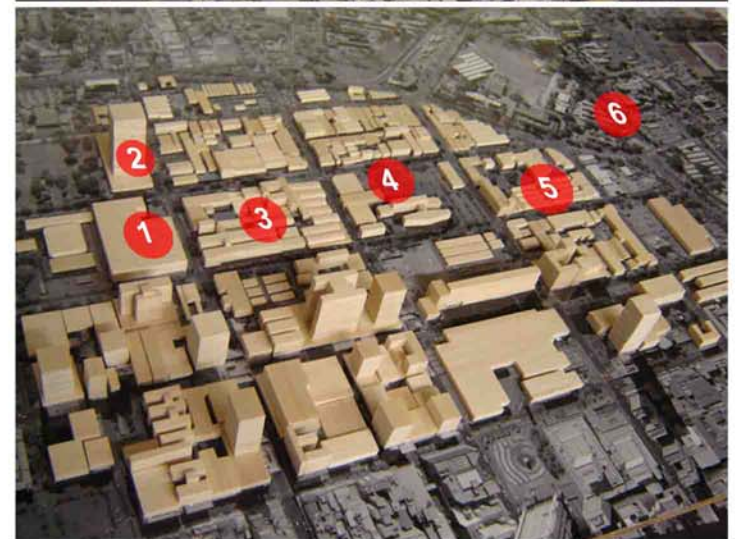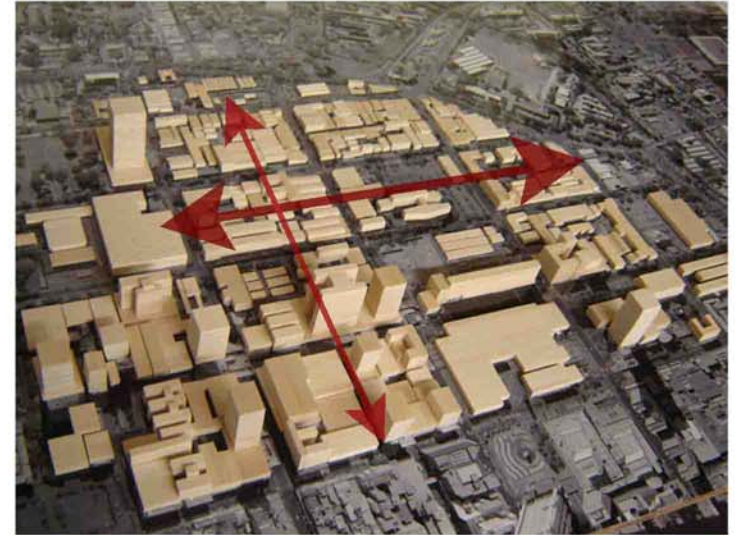
In order to curb the detrimental effects of the first two catalysts, while also allowing the regeneration to spread to the eastern part of the area, three catalysts are proposed:
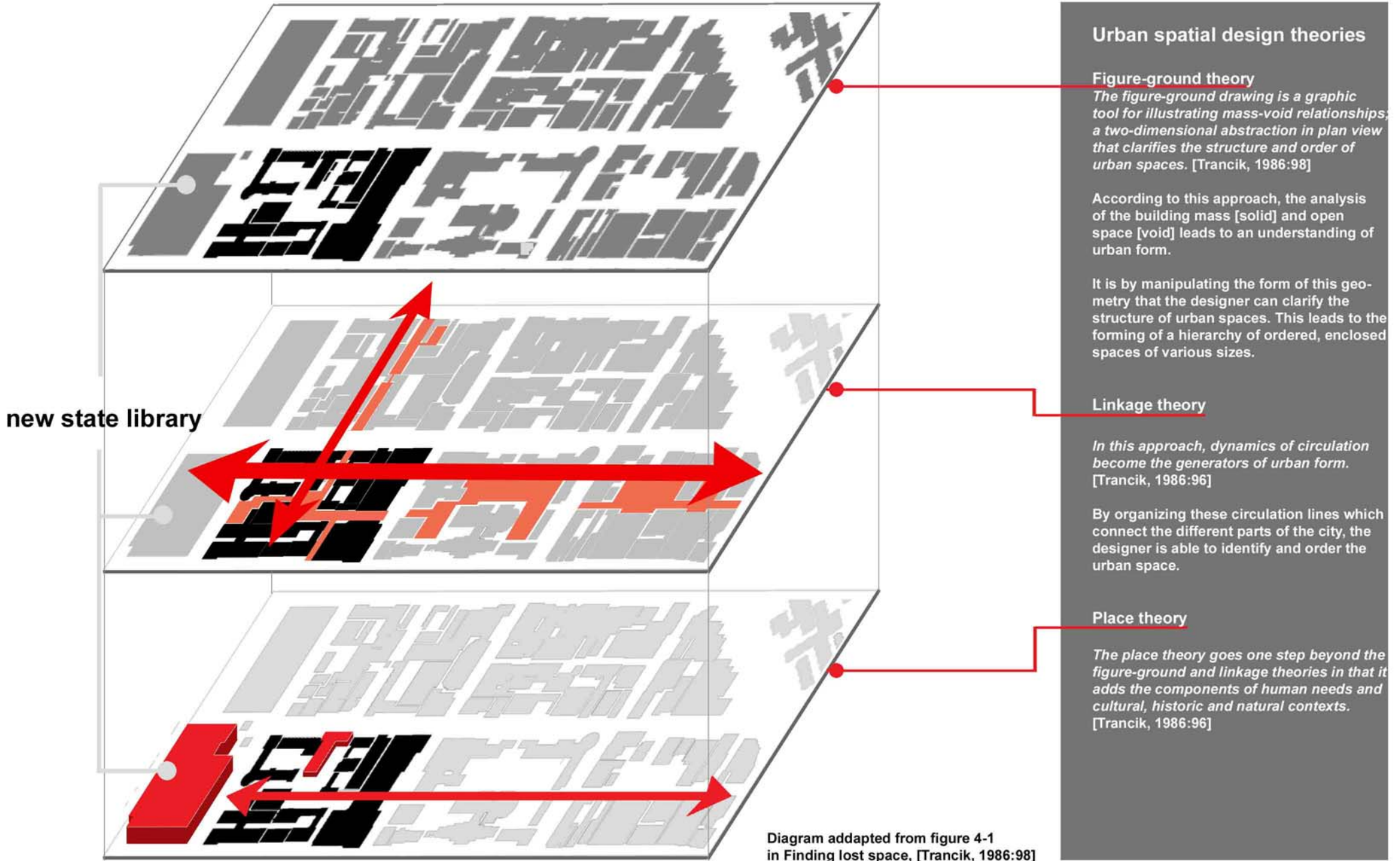
③ Create a public space in the centre of the city block, dissected by two axes which links it to the surrounding streets.

④ Create a civic square and urban park around the landmark civic building, encouraging spill-out from the residential functions in the area.

⑤ Re-programme the existing city block, place emphases on the east-west axis of Brown Street.

In all of these interventions the following guidelines : These public areas should be circumscribed by buildings, existing and new, in order to contain pedestrian, while keeping a very strong connection to the street. The intention is not to lure pedestrians away from the streets, but to offer another option within the city. The buildings forming the edges of these spaces should have a function that will allow passive surveillance and an active edge. These include residential and retail functions [mostly on ground floor] such as restaurants opening up towards the space, smaller sales outlets. Other crime deterring functions, such as a police station, may be considered.

These three catalysts will lead to a series of linked public spaces, connecting the three taxi ranks and terminating in the new State Library.

⑥ The upgrading of the Apies river system is proposed as the sixth catalyst. While forming the eastern terminal point for the public walkway, it has the possibility to become a link between the CBD and Arcadia to the east. This might include a promenade that intersects the proposed arcade system, offering pedestrian the option to link the Nelson Mandela corridor.

Precinct design

new state library

Urban spatial design theories

Figure-ground theory

The figure-ground drawing is a graphic tool for illustrating mass-void relationships; a two-dimensional abstraction in plan view that clarifies the structure and order of urban spaces. [Trancik, 1986:98]

According to this approach, the analysis of the building mass [solid] and open space [void] leads to an understanding of urban form.

It is by manipulating the form of this geometry that the designer can clarify the structure of urban spaces. This leads to the forming of a hierarchy of ordered, enclosed spaces of various sizes.

Linkage theory

In this approach, dynamics of circulation become the generators of urban form. [Trancik, 1986:96]

By organizing these circulation lines which connect the different parts of the city, the designer is able to identify and order the urban space.

Place theory

The place theory goes one step beyond the figure-ground and linkage theories in that it adds the components of human needs and cultural, historic and natural contexts. [Trancik, 1986:96]

Diagram addapted from figure 4-1 in Finding lost space, [Trancik, 1986:98]

Precinct design

	00.00	02.00	04.00	06.00	08.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00	24:00

Primary school
Police station
Community centre
Restaurant
Residental units
Brothel
Pathology laboratory
Retail outlet
Library
Liquor store
Public laundrette
Greenhouse
Church
Laundry
Municipal building
Commercial offices

Active times of functions in study area

■ Medium activity during weekdays

■ High activity during weekdays

— Activity during weekends

It is impossible to create a mix of activities on a city block which are all active during the whole of the day cycle. An optimal mix of function activity times will have to overlap in order to have surveilance on the public space during the whole cycle.

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