

investigating layers [3]

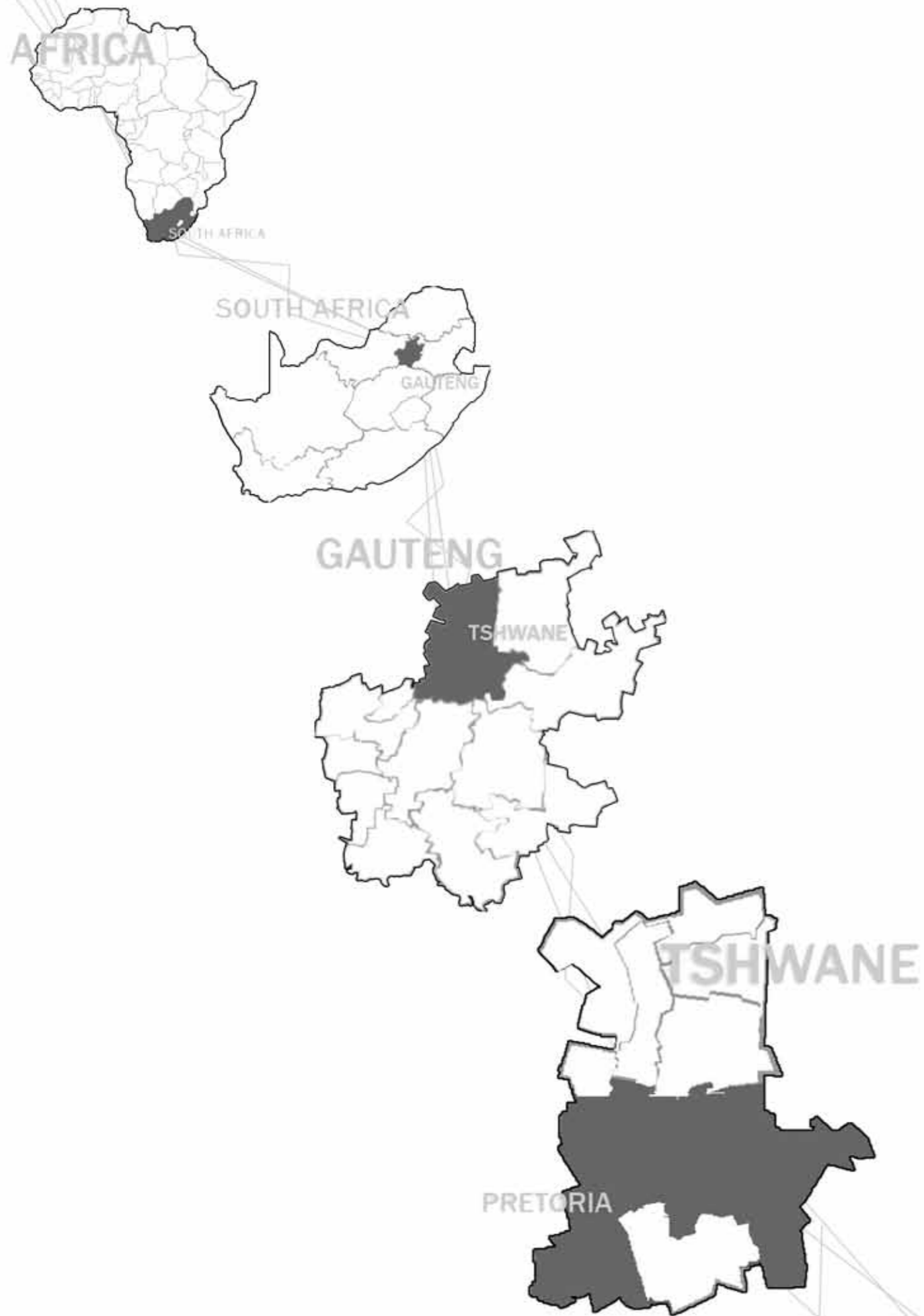
[Contextualizing]

[3.1] SITE SELECTION

[3.2] SITE INTRODUCTION

[3.3] INTERVIEWS, SITE ANALYSIS

[3.4] BCe1 FRAMEWORK



[3.1] SITE SELECTION

METHOD

The site was selected through a method of mapping certain criteria within the Pretoria **CBD**. The resultant information was then layered to determine where an optimal location for the project would be.

Although this is only a method to choose a site for this specific intervention, the initiative should be able to be implemented on any urban site. The **site as a whole is regarded as the problem area** and will be integrated with the intervention.

FOCUS

As the argument states, the focus is on aged, existing urban fabric which was not necessarily built with sustainability in mind. Thus in order to validate the experimental context of the intervention, four conditions were selected as **layers of complexity encompassing a 'typical' urban setting**. These four conditions are:

- _Area classified as **opportunity and risk area**.
- _High density built up area.
- _Aged fabric, built prior to 2000.
- _Diversity in block programme and users.

CONDITION MAPPING

CBD :

The Pretoria CBD is chosen as focus area because of several conditions which occur within this dense environment, most of the **energy supplied to Tshwane** is used by the city core because of the **density** (Ruano 1998 : 7), it is predicted that the current density will **double in ten years time** (Tshwane municipality 2009) thus the CBD's energy usage will double.

A city block:

When arguing that more **local smaller systems** is 'the way to go', a **sustainable scale** should be questioned to set parameters to the choice of site and intervention. As the argument states, it goes against the principles of a sustainable approach to harvest and produce resources **far-away** and then use a lot of energy to transport them over large distances to reach the user. Thus the smaller the distance, the smaller the cycle, the less obstructions, the better the efficiency.

The ideal would be if the intervention could be in **direct contact** with each building it serves for **maximum efficiency** (Marley 2003). Thus placing an intervention **in-between** a number of buildings which it supports would amount to a city block scale (or at least a portion thereof). In the Pretoria CBD the city blocks are **large** (240m x 150m) compared to the Johannesburg CBD (150m x 150m) which makes it more difficult to deal with the overall size and capacity of the block.

Another issue which should be considered is that part of a sustainable approach is that people in cities have to tie together and start functioning as **sustainable communities**. The scale of community formation is governed by **contact**, people join together as groups with other people whom they have something in common with (e.g. living in the same area) and even more so if they are familiar to each other (like **frequent passersby between buildings** and streets). A city block can thus easily start functioning as a community (Community scale, 2006).

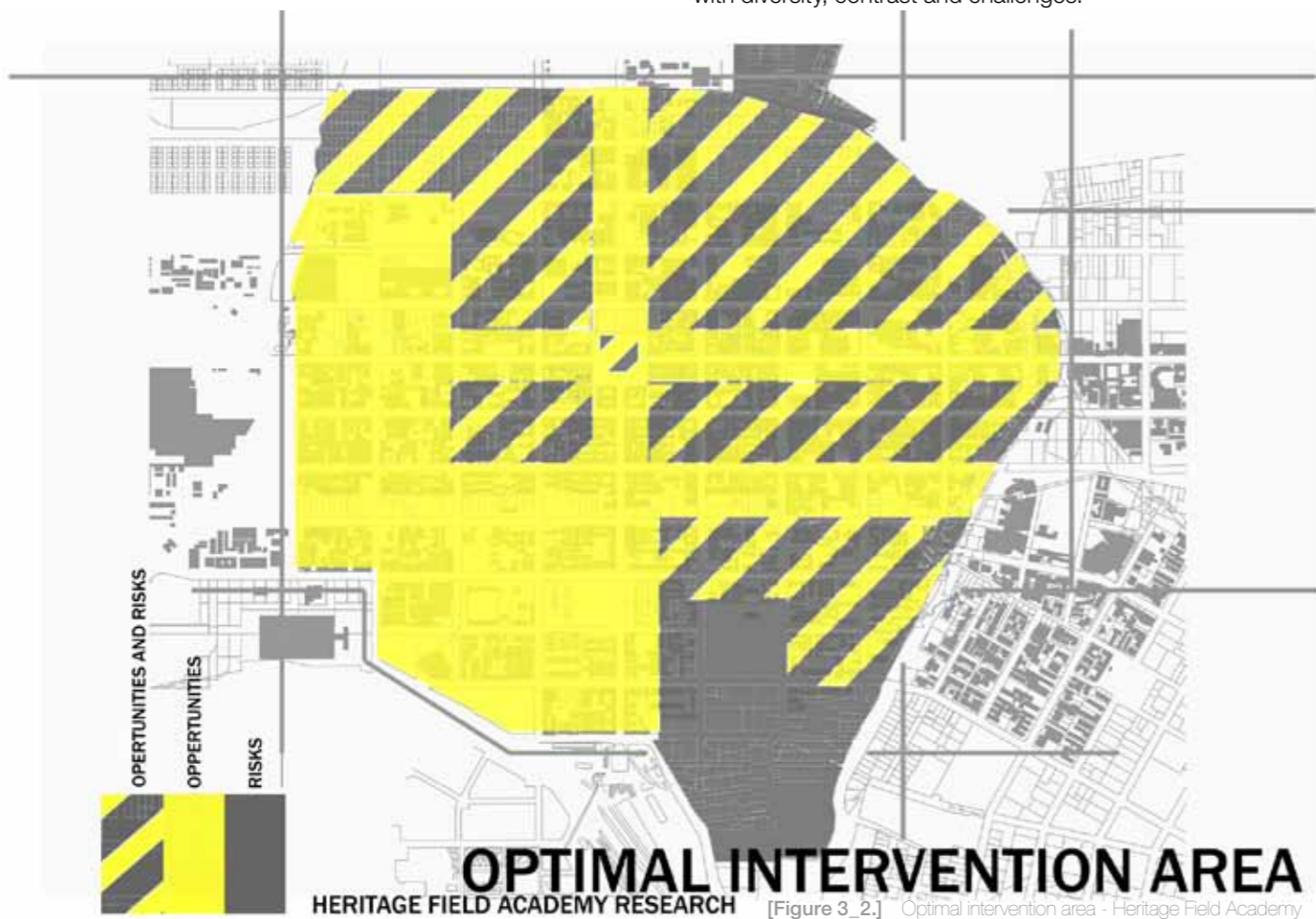
A city block would also be able to have a **high enough density** to justify the construction of the proposed intervention which on a smaller scale might be unfeasible and on a larger scale difficult to meet the demands of the high amount of users.

'Opportunity and risk' area:

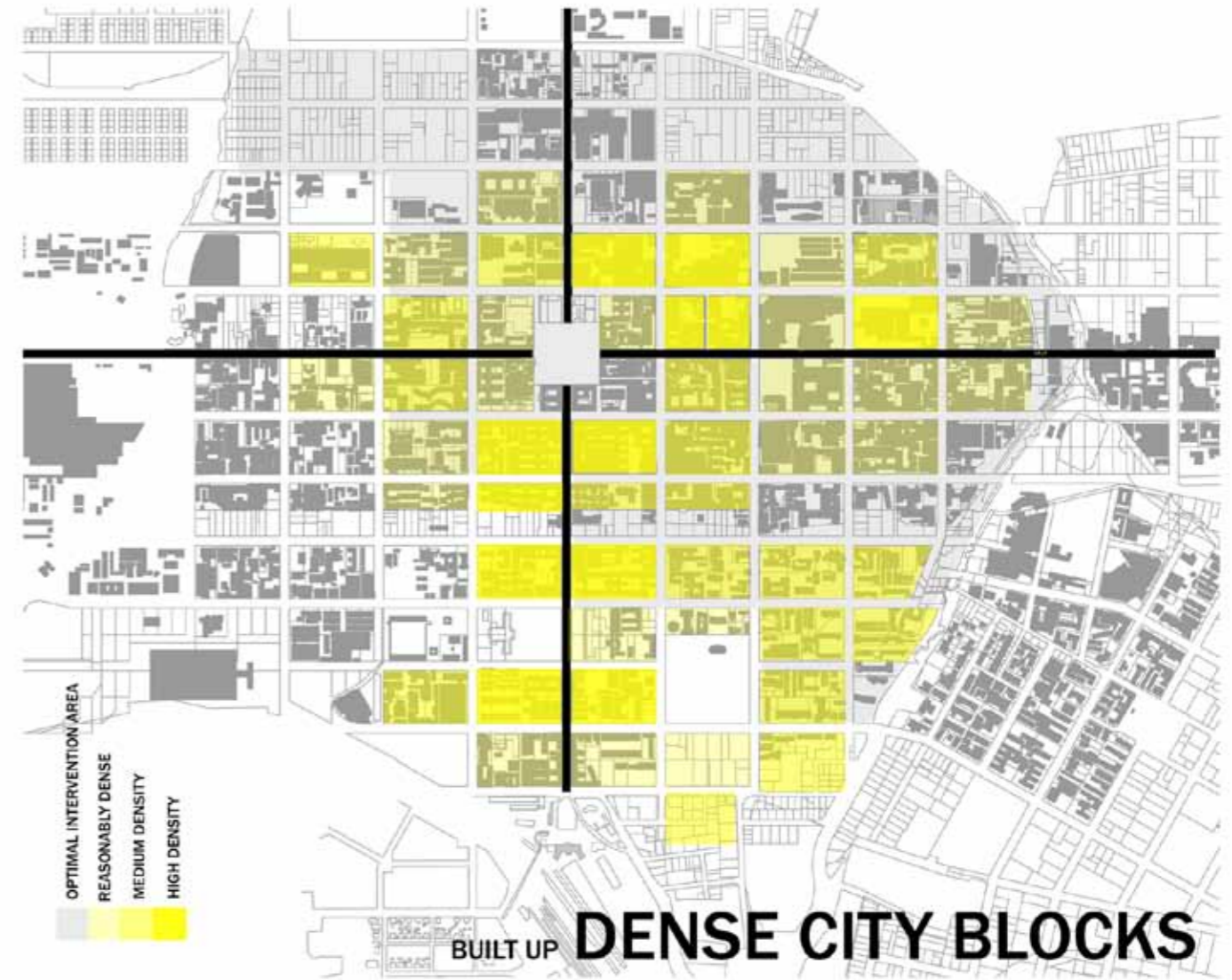
In 2009 a group of architecture students from the University of Pretoria did an in-depth investigation of the Pretoria CBD as part of a **'Heritage field Academy project'** (University of Pretoria 2009) in partnership with the University of Delft. During this investigation a SWOT (strengths, weaknesses, opportunities and threats) analysis of the CBD concluded that there are three distinct areas within the Pretoria CBD namely:

- _areas of opportunity
- _areas of risk
- _areas of risk and opportunity

The area of 'Risk and Opportunity' (fig. 3_2) was chosen as the focus area for site selection as this would be an area rich with diversity, contrast and challenges.



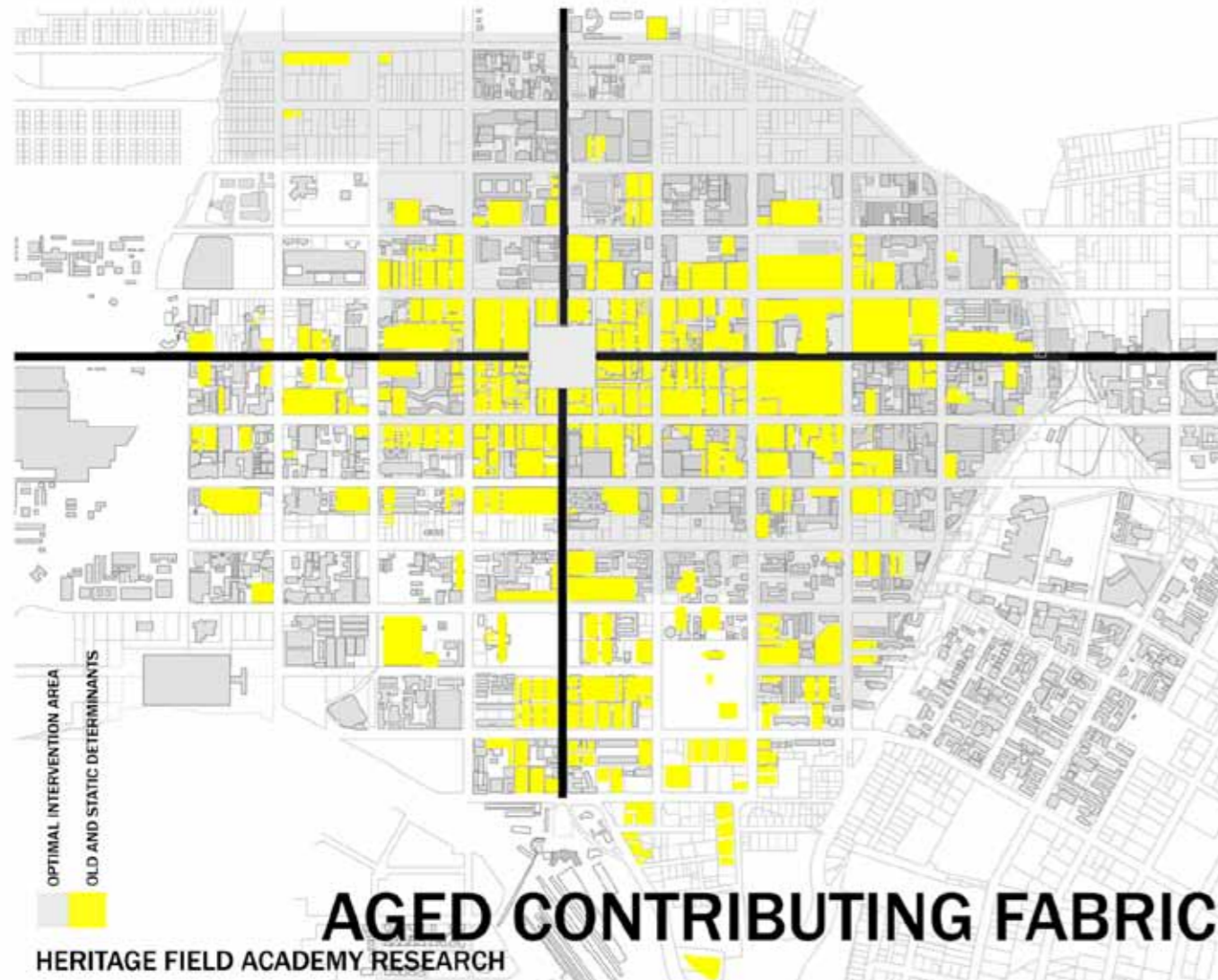
[Figure 3_2.] Optimal intervention area - Heritage Field Academy



[Figure 3_3.] Densely built up fabric.

High density urban fabric:

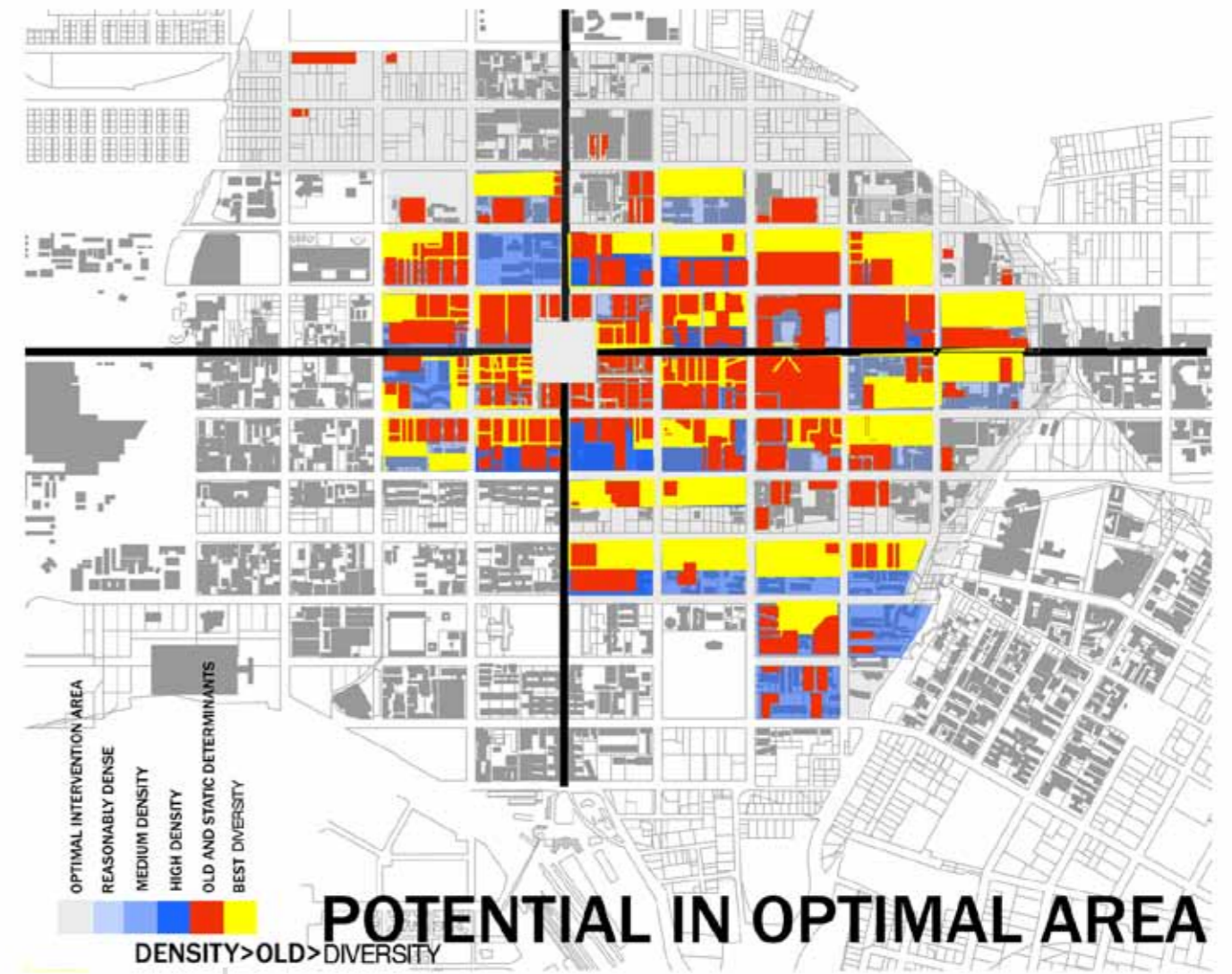
Within the city core **different intensities of need, usage and wastage** occur which differs from building to building in the flux of density. Thus dealing with **large inputs and outputs** should be addressed – something which on a residential scale might be much easier to solve.



[Figure 3_4.] Aged Contributing fabric.

Aged fabric:

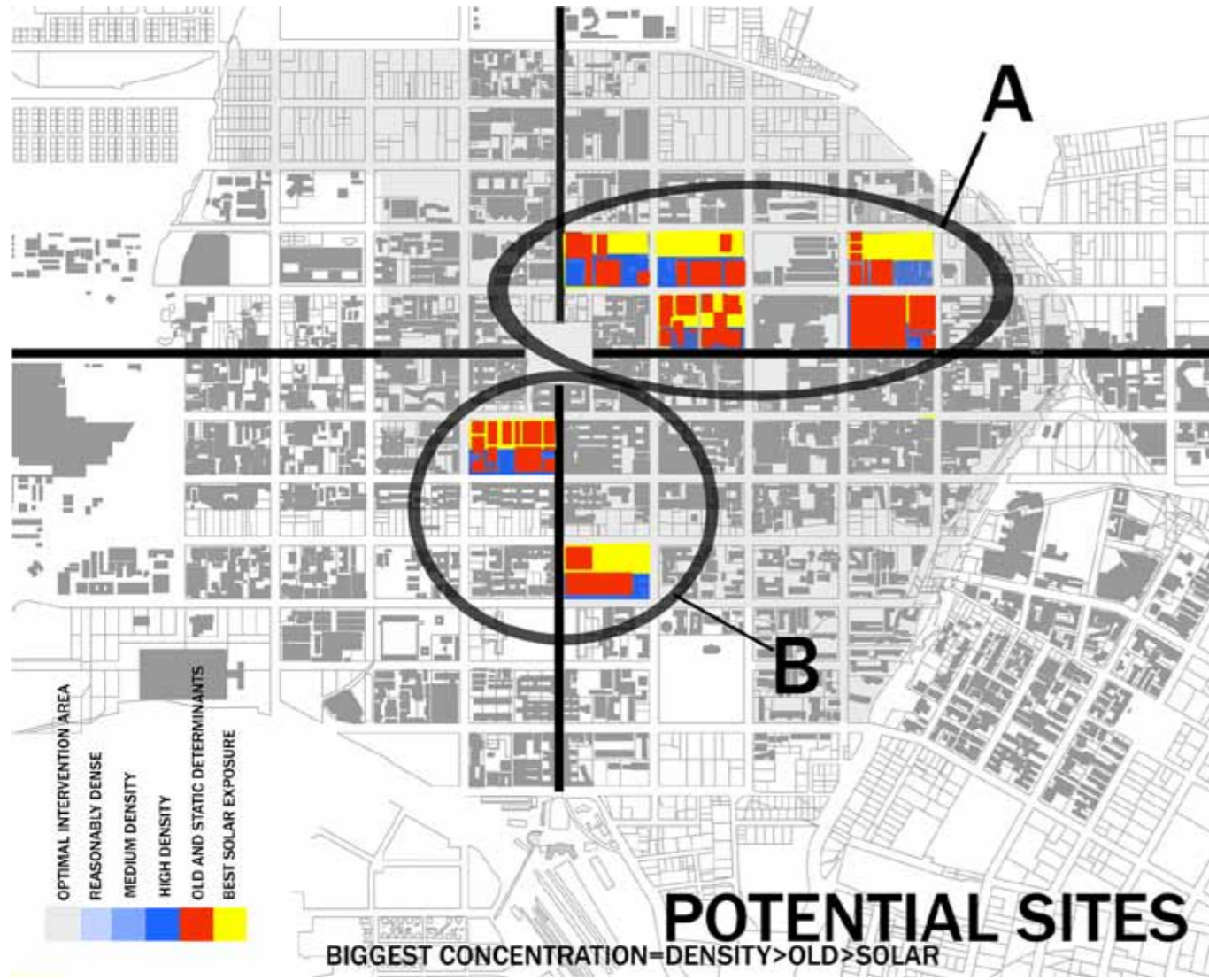
As the existing fabric of the CBD is much older and more rigid than newer developments outside the CBD, adaptation of these buildings and their systems are necessary, but will be a different approach than to refit a newer building.



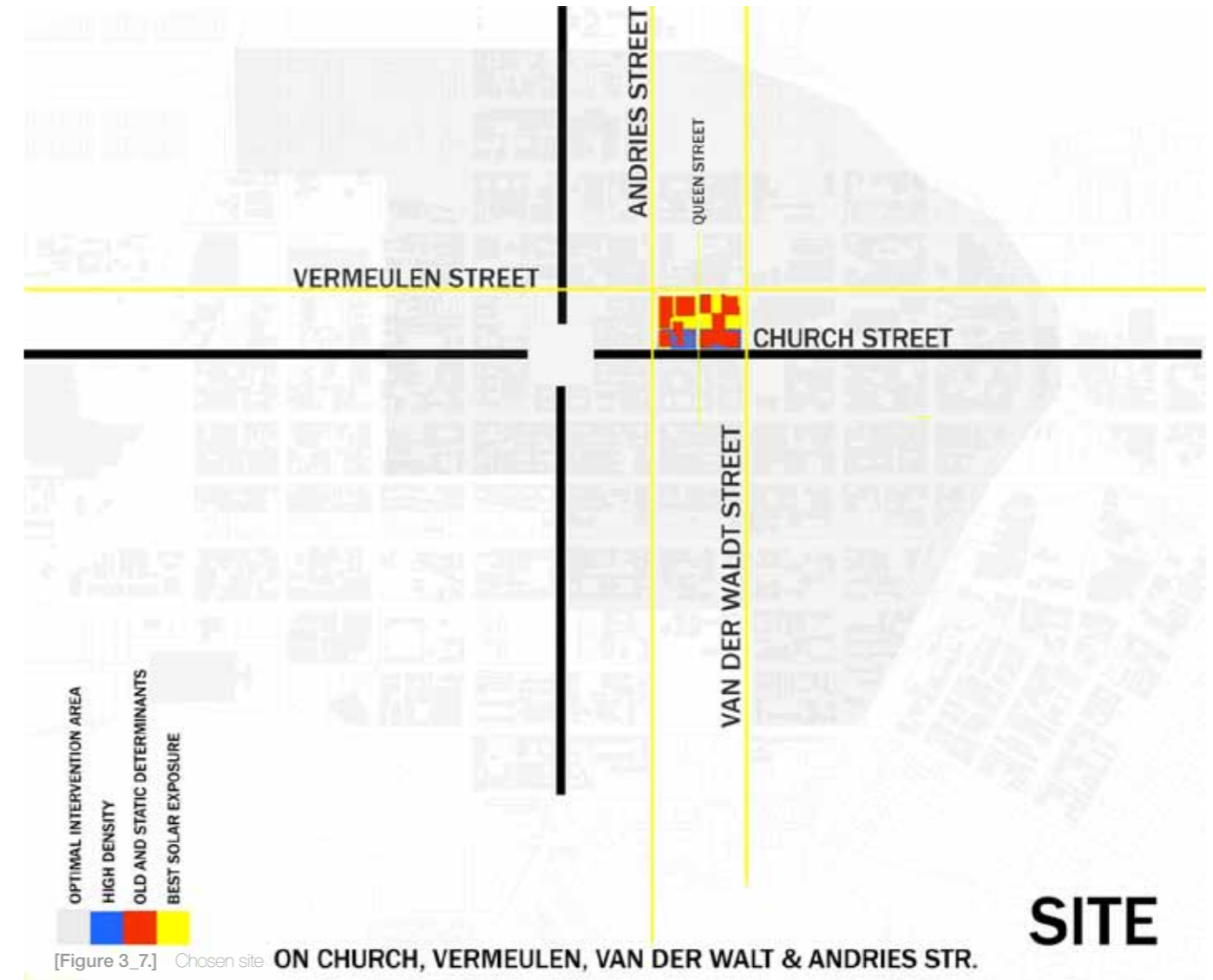
[Figure 3_5.] Data overlay

Diversity:

As cities evolve programmes and areas mix and change with time, city cores are an amalgamation of functions knitted tightly together. Different programmes, users and flux result in different demands and usage. Sites which consist of a wide range of diverse programmes for example religious institutions, public amenities, governmental departments, educational facilities, housing, commerce and offices are mapped.



[Figure 3_6.] Highest concentration of data overlay

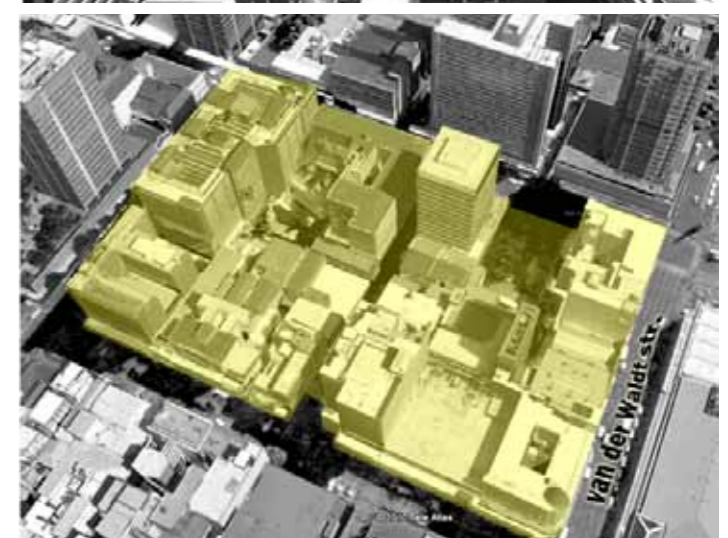


[Figure 3_7.] Chosen site

SITE INTRODUCTION LOCATION & DESCRIPTION

The site is located in the **Pretoria central CBD** east of Church square and north of the pedestrianised portion of **Church street**. With Vermeulen street on the north, the block is framed by Andries street on the west and van der Walt street on the east. The block is in a **high density urban setting** which is the old central part of the CBD. The area has high traffic volumes and mostly function as a **business and commercial zone**.

The site is a destination for Muslims coming to Queen Street Mosque, for shoppers going to Shoprite Checkers and many workers occupying the offices. The site is relatively **cluttered and dense** after years of additions and changes. A large portion of the site is owned by Shoprite who made huge delivery zones which results as **abrupt voids in public spaces**. Although the site is relatively aged and dense, its **diversity** is one of its main strengths and overall potential.



[Figure 3_9.] 3D Views of site in city context.



[Figure 3_10.] Aerial Photo of site.

STATEMENT OF SIGNIFICANCE

This earns its significance from **Queen Street** named after the Queen's Hotel. This narrow artery originally cut through two city blocks to create direct access from Church Street to Proes Street (Ploeger 1989: 54). The northern part of Queen Street was eventually closed down but the southern part remains intact with a few of the original small scale buildings still operating.

On the south west corner of the block is the **Bank of the Netherlands** designed by Sir Norman Eaton and A. L. Meiring in 1953. Eaton's dedication can be seen in the well executed contextual response and endeavour to create a building which is 'African' even to the extent of asking Alexis Preller for assistance, making this building a significant cultural heritage contribution in Pretoria (le Roux 1992: 7). This seven storey building is constructed with small custom made face bricks, steel frame windows deeply set back and framed by vertical brick fins. The ground floor is a white plinth level on which the rest of the building 'floats', a roof garden for the workers and the caretaker's quarters is on the south wing of the building. The ground floor entrance windows and doors are made with bronze and there is a public water fountain on the south east corner of the building.

Another significant but mysterious building is the **Queen Street Mosque**, built in 1928. The mosque has a copper dome roof, pressed steel ceilings, white plastered walls and wood frame windows with stained glass. The mosque is a good example of the Transvaal mosque typology in an urban context, it is an architectural landmark of historic and cultural importance (le Roux 1992: 38). In 1983 de Bruyn Park (named after one of Pretoria's wealthiest businessman in the 1980s) was built with a 'U' shaped footprint around Queen Street Mosque. According to Achass Suluima Alqufuf the janitor of the mosque, the construction of the building was part of an apartheid action commissioned to 'hide' the mosque from the public (Alqufuf 2010).



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Within Queen Street only two buildings are remnant from the original scale and spirit of the street. The oldest of the two buildings is **'Grossberg Traders and Military Outfitters'** (fig. 3_15). The building was originally constructed in 1906 as a house, the building was adapted to operate as many different businesses throughout the years, including a church, a bakery, a restaurant, a gymnasium and offices for real-estate agents (Grossberg 2010). The building is long, one storey (with a two storey addition to the back of the site) saddle roof structure, masonry walls and has large exposed timber trusses.

The other remaining building was originally the **Van Schaiks Stationary shop** (fig. 3_16) built in 1910, the building is currently operating as **Wanjacheng clothing store**. The building has a cape-dutch gable on the street edge side which has been covered with corrugated steel cladding to prevent pigeons (which Mr. Grossberg regularly feeds) from making a mess on the clients and the façade. The building has a concrete frame structure with masonry infill and a corrugated steel saddle roof.

Both these buildings are ± a hundred years old and although they are protected by SAHRA, their contribution to the urban fabric is negligible and their life span is nearing an end. **It would be better to transform the two structures into an integrated public space proposal than to keep them in their current deteriorating state.**

[Figure 3_11.] View of Queen street in the early afternoon.

[Figure 3_12.] View of the Bank of the Netherlands, corner of Church- and Andries Street.

[Figure 3_13.] View of Queen Street Mosque.

[Figure 3_14.] Significant places key.

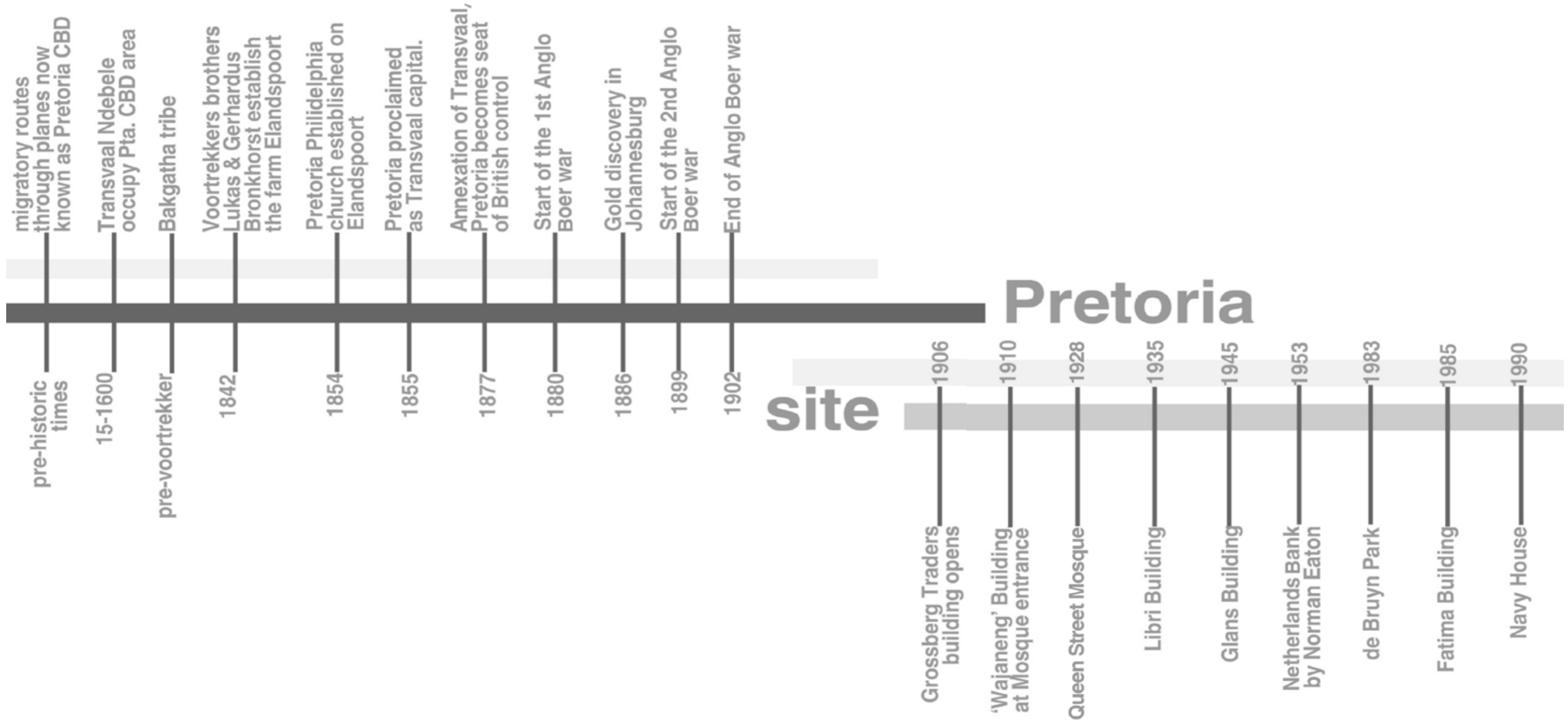
[Figure 3_15.] View of Grossberg Traders.

[Figure 3_16.] View of Wanjacheng.

SITE HISTORY

As a fraction of the Central portion of Pretoria, the site was once part of the farm Elandspoor established in 1842 (de Jong 1988: 62).

As the graph below indicates, many of the buildings on site are even as old as 100 years and more. The graph shows the development of Pretoria up until the time the site started developing and the eventual progress on site as time passed.



CONTRIBUTION

Buildings older than 60 years are classified as heritage buildings and are protected by SAHRA (indicated in yellow in fig. 3_17). Orange indicates renovated and new buildings – round about 15 years old.

Contributory fabric is indicated with blue and insignificant, demolishable and non-contributory fabric is indicated in red.



[Figure 3_17.] Significance. Illustrates where the weaknesses lie concerning contributory fabric. The block core has deteriorated because it has no street frontage and thus development didn't take place here.



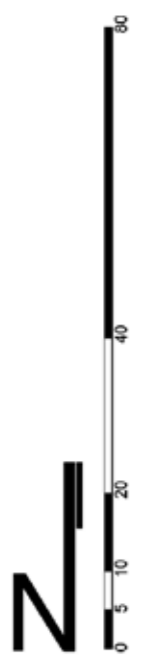
[Figure 3_18.] Filtered fabric. Illustrates that if the weak, insignificant, deteriorating or non-contributory buildings are cleared out, there would be a large open core where development can start taking place, working from the inside out.

EXISTING FABRIC
Building programmes and usage

- N1 De Bruyn Park Building - Occupied by STATS SA, Offices and commercial
- N2 Regend Place - Occupied by The Department of Sport and Recreation, Offices and commercial.
- N3 Navy House, Owned by City Properties, Education and commercial
- E1 Fatima Centre, Commercial ground floor, 3 floors offices, 3 floors accommodation.
- E2 FashionWorld, Commercial
- E3 Shoprite centre, Commercial
- S1 Salam Forum Building, Masters of the North High Court
- S2 Glans Building, Mogul Property Investments, Commercial
- S3 King Pie, Commercial
- S4 Camper Canoe, Commercial, Sports wear shop
- S5 Libri building, Commercial and residential
- S6 Mr. Price, Commercial
- S7 Bank Towers, Norman Eaton Bldg. Bank and offices
- S8 Shoprite, Storage and delivery
- Q2 Grossberg Civil and military outfitters, Commercial
- Q3 Al Shukran Investments, Commercial
- Q4 Wanjacheng, Commercial
- Q5 Sanjiv Investments, Commercial
- Q6 Yang Chang galore, Commercial
- Q7 Filkem Towers, Offices and commercial
- C1 Queen Street Mosque
- G1 Shoprite, Commercial

PLAN KEY

- Surrounding Buildings
- Buildings on site
- Demolishable buildings



[Figure 3_19.] Site plan communicating building functions.

There are 24 buildings in total on site. Interviews were held with **users** of each building, mostly to gain **technical data** but also to get an idea of the user's **perception** of the area and how they use it and what their needs are. Here follows some interesting facts and comments made during the interviews:

Winston Malebye, Managing Security Officer at Regend place, currently occupied by the Department of Sports and Recreation commented in his interview that the building's manual access has been changed to **electronic access** in preparation for the 2010 World Cup.

This access system is also installed in many other buildings on site as this area has a **high security and crime risk**. This new system causes a number of access problems especially during flux entry and exit times of the day. His comment was that the access system would have to be **redesigned** in order for the building to function efficiently (Malebye 2010).

Pieter Moalusi, a student at the Africa College of Excellence in the Navy House Building, commented that the building in which they are schooled is in actual fact an ordinary apartment block and **lacks basic facilities for an educational institution**. His main comment was there is **'nowhere to spend time'** as students in their break time are not allowed to leave the building, they stay inside all day (Moalusi 2010).

Mohammad Kumar, janitor of the Fatima Centre is very **positive** about the area and said his favourite thing about living there is that **everything he needs is so close** he can just **walk** all over the place. Even the building Mohammad works and lives in is so diverse; it has a commercial ground floor, three floors offices and three floors apartments-the only one of two apartment blocks on site (Kumar 2010).

Ashraf Docrat, manager of Fashion World, commented that the area is good for business because of the **high concentration of people**. But he says that he constantly has to complain to the municipality because of the **unpleasant smell in the street**. He says that the fruit and vegetable vendors who operate outside on the sidewalk, throw all of their rotten goods into the storm water drains on the edges of the street (Docrat 2010).

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Yusuf Dockrat, Shop Owner of Mogul Property investments says that 'this area is wonderful, it has a **rich history** and it is **close to the Mosque**. But I would not make so many inner-city buildings residential as the developers are currently doing because the **CBD infrastructure** was not designed for it, it is messing the city up' (Dockrat 2010).

Jack Grossberg, owner of Grossberg Military Outfitters and Camp Gear Traders, likes the area so much that his business has been there for a **104 years**, started by his father Steven Grossberg in 1906. Since he has been around all these years his comment on the change in the area was that there are **a lot more people** than what there used to be and since some of the streets have been pedestrianised and others made one-ways, **access has become a big problem** for shop owners and shoppers. He also commented that **parking** is a big problem in the area and every day is a battle to park and get to his shop (Grossberg 2010).

Jithen Govind, owner of Sanjiv investments states that he likes the fact that the streets are **pedestrianised**, it is very pleasant to walk around. But he is of opinion that the area's **servitude system** is not very efficient, because delivery trucks park in Queen street to deliver goods to various businesses and are constantly blocking shop entrances (Govind 2010).

Achass Suluima Alqufuf, janitor of the Queen street Mosque, shared the mosque's plans to **extend** their premises by building an extra wing for the women's mosque on the southern side of the building. He stated that the mosque no longer has to be **enclosed** (as the situation was during the apartheid years, according to him) so 'the time has come for them to **widen their doors**' .

[Figure 3_20.] Winston Malebye, Managing Security Officer.

[Figure 3_21.] Pieter Moalusi, student.

[Figure 3_22.] Mohammad Kumar, janitor.

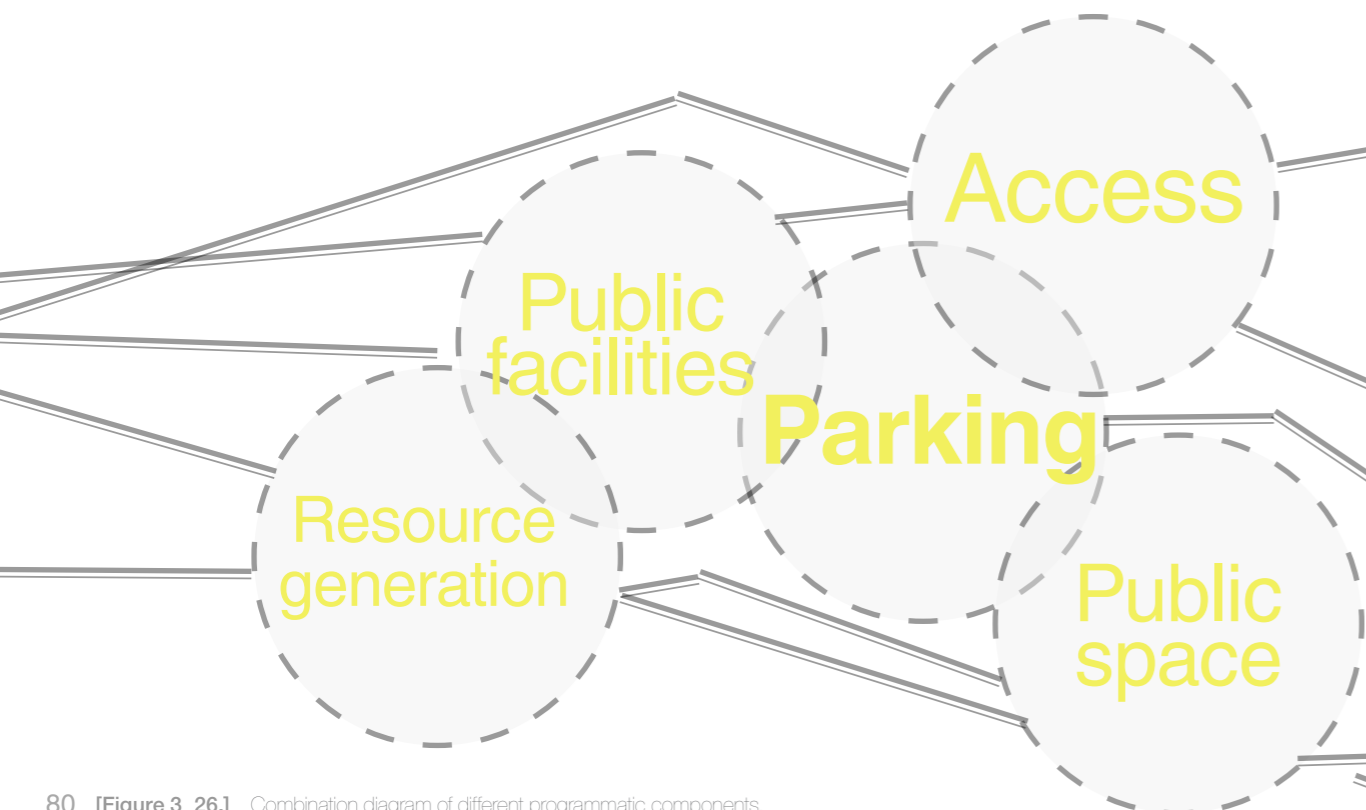
[Figure 3_23.] Jack Grossberg, shop owner.

[Figure 3_24.] Jithen Govind, shop owner.

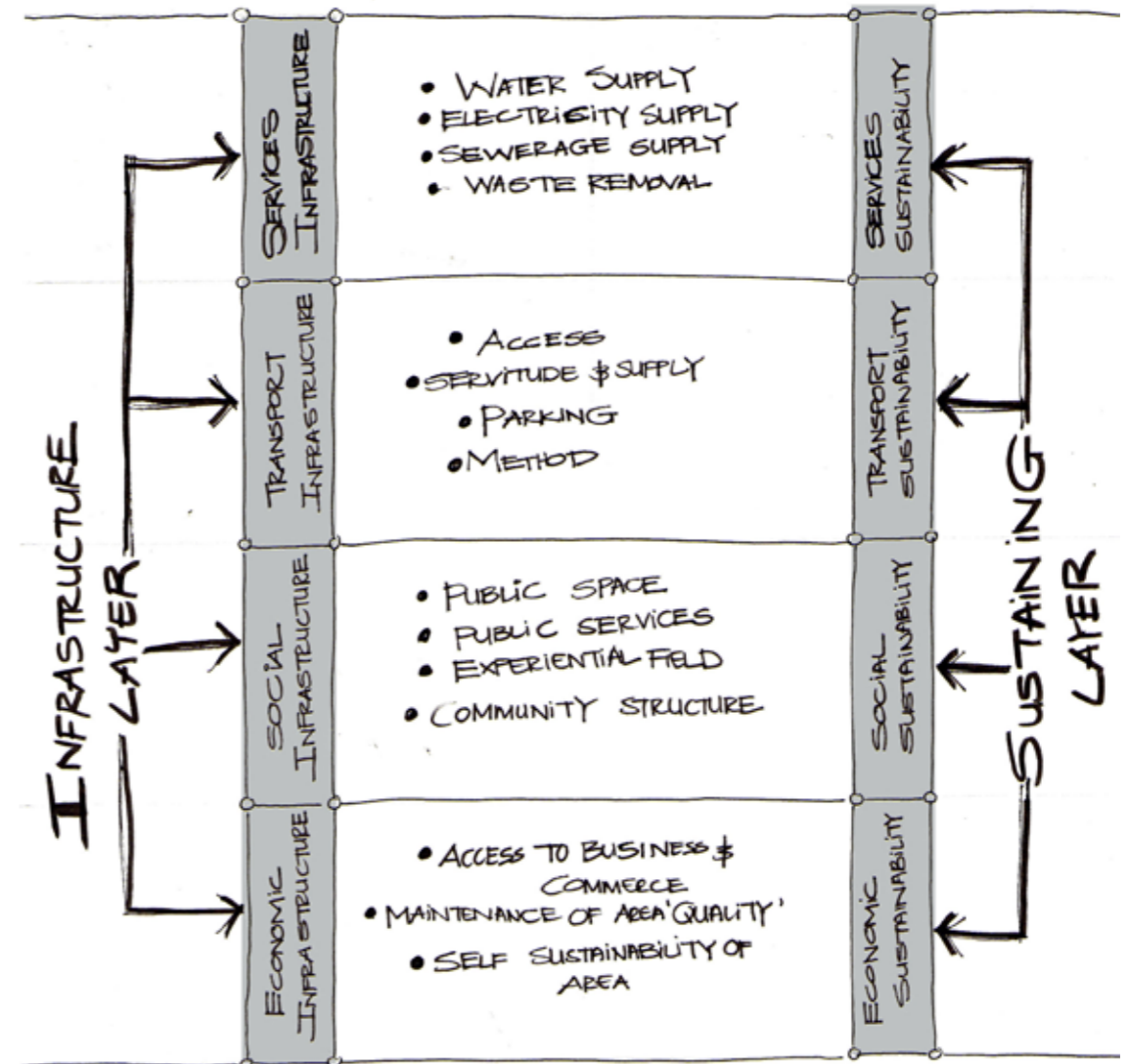
[Figure 3_25.] Achass Suluima Alqufuf, janitor.

CONCLUSIONS

- _ Safe access to buildings is a problem.
- _ The area needs recreational/ public space.
- _ The site has very little 24 hour surveillance because of limited residences.
- _ Informal trade is congesting and polluting the area.
- _ There is not enough on-site parking for occupants and customers.
- _ The site's servitude system congests the streets and inhibits the already limited public spaces.
- _ The mosque would like to become more visible and expand their facilities.
- _ Above stated needs becomes part of the block infrastructure and ultimately starts to give definition to the project programme.



LAYERING PROGRAMME STRUCTURE



[Figure 3_27.] Components of infrastructural and sustainable programming grouped and layered in order to function together.

PARKADE

NOTE: All climatic data is cited as presented by Dieter Holm in his book A Manual for Energy Conscious design. (Holm 1996 : 68 – 67)

Tshwane location :

25,8° to 30,7° East and 22,0° to 25,9° South

Description of zone climate:

Distinct rainy and dry seasons exist with a large daily temperature variation and strong solar radiation. Humidity levels are moderate.

Temperature:

The maximum diurnal variation occurs in July.
The average monthly diurnal variation is 13K.

Humidity:

The average humidity level is 59%.

Solar:

Vertical sun angle at 12:00 solar time:

Solstice: 64,23°

Winter: 40,73°

Temperature:

Summer temperatures extend approximately 3K above the comfort zone. Winter temperatures extend to approximately 15K below the comfort zone.

_Maximum average summer

temperatures: 28,6°C

_Minimum average winter

temperatures: 4,5°C

Average monthly rainfall (mm):

Jan.	136
Feb.	75
Mar.	82
Apr.	51
May	13
Jun.	7
Jul.	3
Aug.	6
Sep.	22
Oct.	71
Nov.	98
Dec.	110
Ave.	56.17

Wind:

Summer winds are predominantly east-north-easterly to east south-easterly . Winter winds are predominantly south-westerly with a fair amount originating from the north –east.



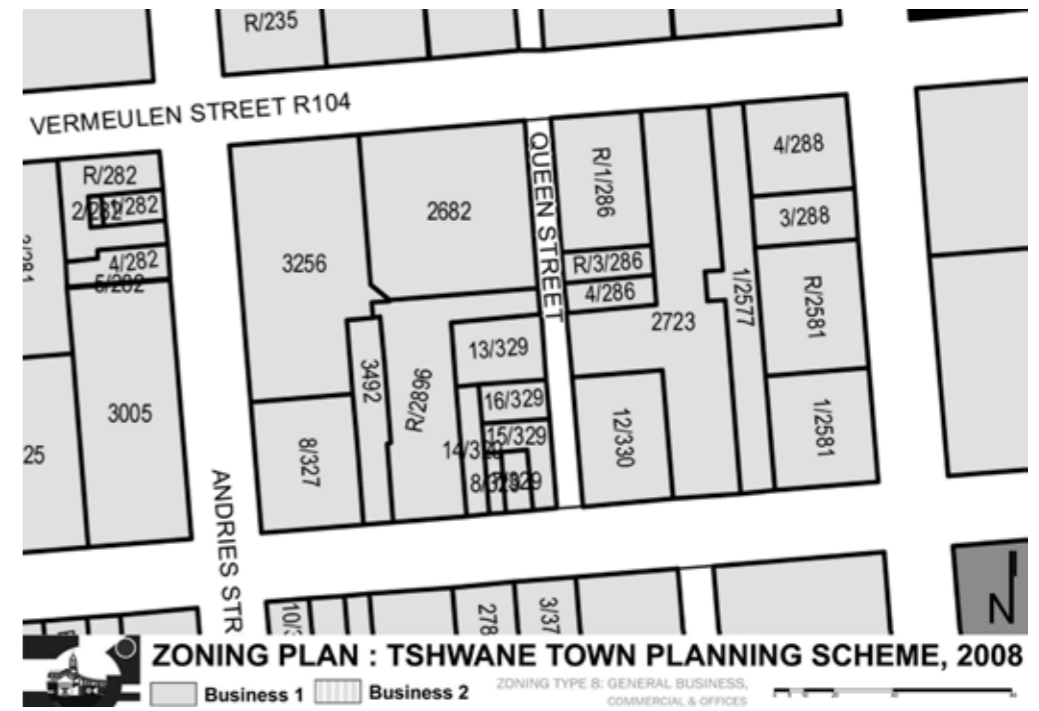
CONCLUSIONS

- In this climatic zone rain is an asset to take advantage of and the dry season is a disadvantage. Thus planning and provision should be made to harvest rain water for on-site use to counter the demand of the dry season.
- Buildings in this climatic zone are exposed to extreme heat and cold and should thus be designed to compensate in temperature flux but still act as energy efficient buildings.
- The shading devices should be designed according to the summer and winter solstice to keep out sun in the summer but let in sun in the winter.
- The prevailing wind directions should be taken into account in the planning of the building orientation for maximum cross ventilation. Tshwane also does not have extreme constant winds blowing throughout the seasons. Thus using turbines for wind power would not be a feasible option for energy production.

ZONING

The zoning document states that the whole block is zoned as 'General Business' which includes commercial and offices. This is indeed the dominant programmes on site, but there is also a wide diversity of services, institutions, departments and housing.

For this specific zoning purpose, the Tshwane Town Planning Scheme 2008 specifies in Schedule 10 that **parking garage facilities are permitted on site**, providing it has clear, organised, visual and safe entry and exit points.



[Figure 3_28.] Zoning plan of focus area.

MOVEMENT ON SITE

The area as a whole has a very **high concentration of pedestrians**. Many pedestrians walk along Queen Street taking shortcut towards the taxis in Vermeulen street. On both the eastern corners of the site pedestrians, taxis and vendors congest the street corners.

The Shoprite, which is one of the reasons why so many pedestrians are in this area, has entrances on both the northern and southern sides which creates another 'passage' through the site parallel to Queen street. Many of the pedestrians use public transport, taxis in van der Walt and Vermeulen and busses in Church Square provide cross circulation on people all day long.

The pedestrians in this area keep moving, there is nowhere to sit and relax except in Church Square, thus **people journey through and around the site but never stay long**.



[Figure 3_29.] Pedestrian circulation plan.

OWNERSHIP

The site ownership can almost be divided into four distinct quarters; Shoprite Checkers owns a large portion of the site indicated in yellow.

The south African Government owns another large portion of the site indicated in blue, as well as City Properties who owns another quarter indicated in red is privately owned.



[Figure 3_30.] Ownership diagram of the individual buildings on site.

PUBLIC PRIVATE SPACE



[Figure 3_31.] Spatial hierarchy diagram of the individual spaces on site.

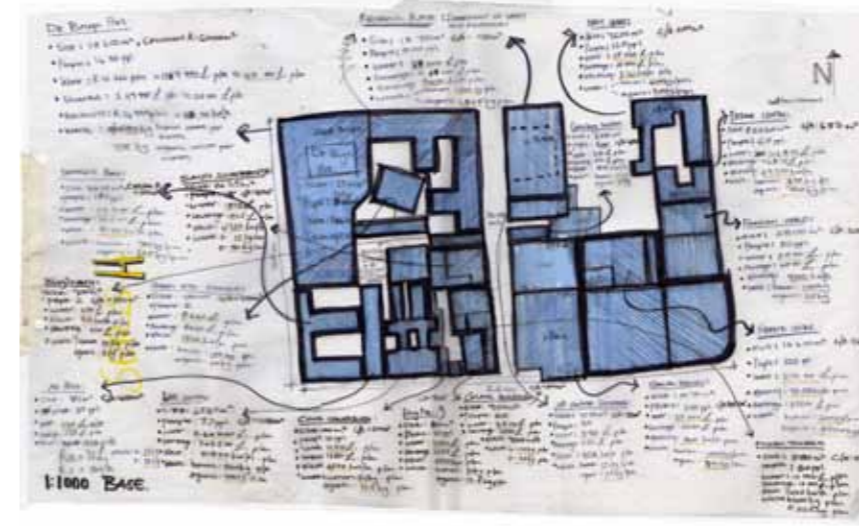
SERVICES



[Figure 3_32.] Existing Municipal services diagram.

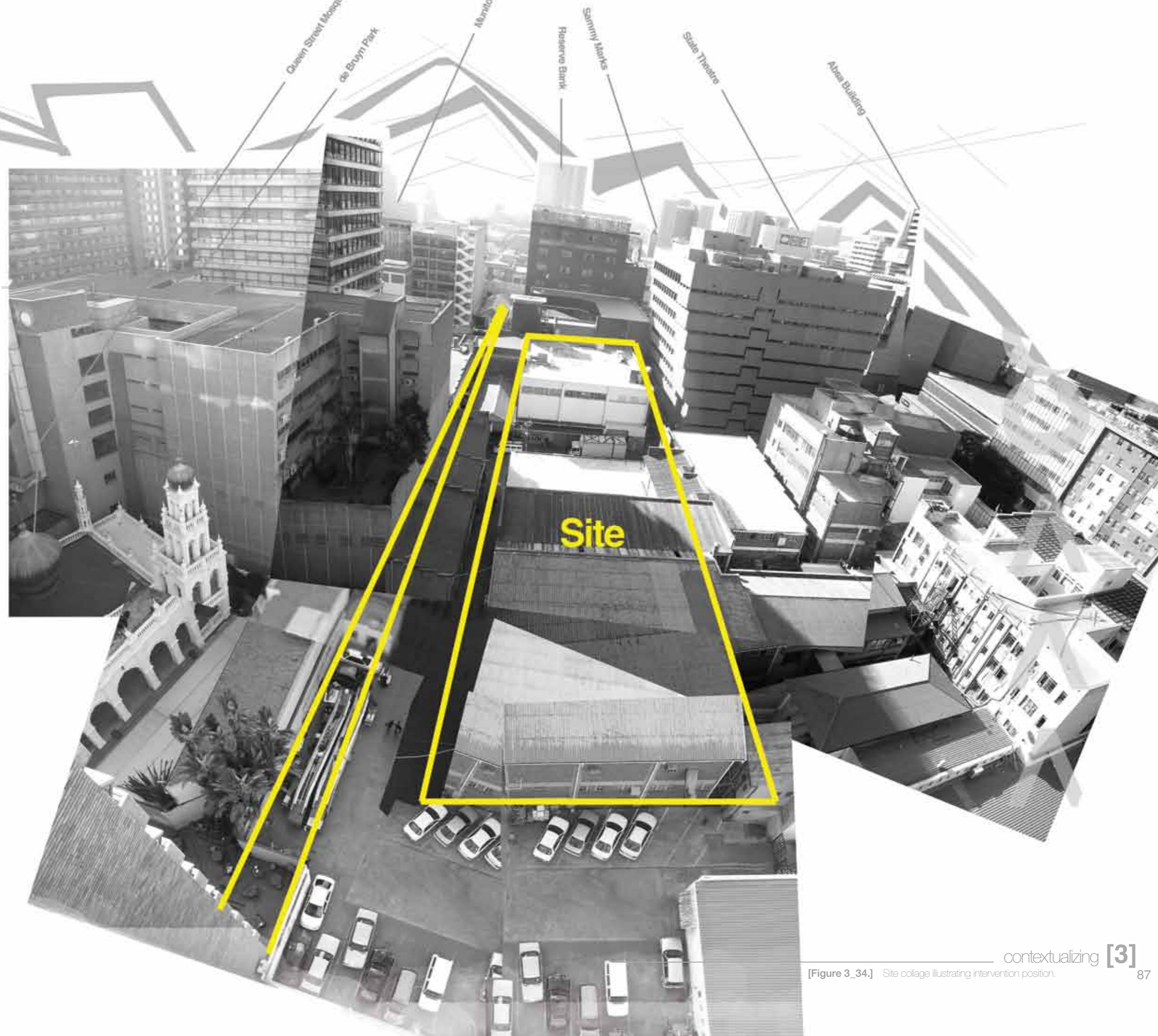
TECHNICAL DATA

The on-site technical data is needed to calculate what the resource consumption currently is and **how much the 'Infrastructure' for the site must produce in order to sustain the site.** After investigating every building's surface area, occupancy and in some instances their water and electricity bill, the on-site consumption was calculated.



[Figure 3_33.] Each building's technical data calculations.

_ Total buildings on site:	24
_ Total rentable space:	106 420m ²
_ Total occupancy (9:00 – 17:00):	2 680 people
_ Total water usage:	663 140L p/m
_ Total electricity usage:	334 600 kW/h p/m
_ Total effluent waste:	663 140L p/m
_ Total organic waste:	7 345 kg p/m
_ Total inorganic (recyclable) waste:	17 855 kg p/m



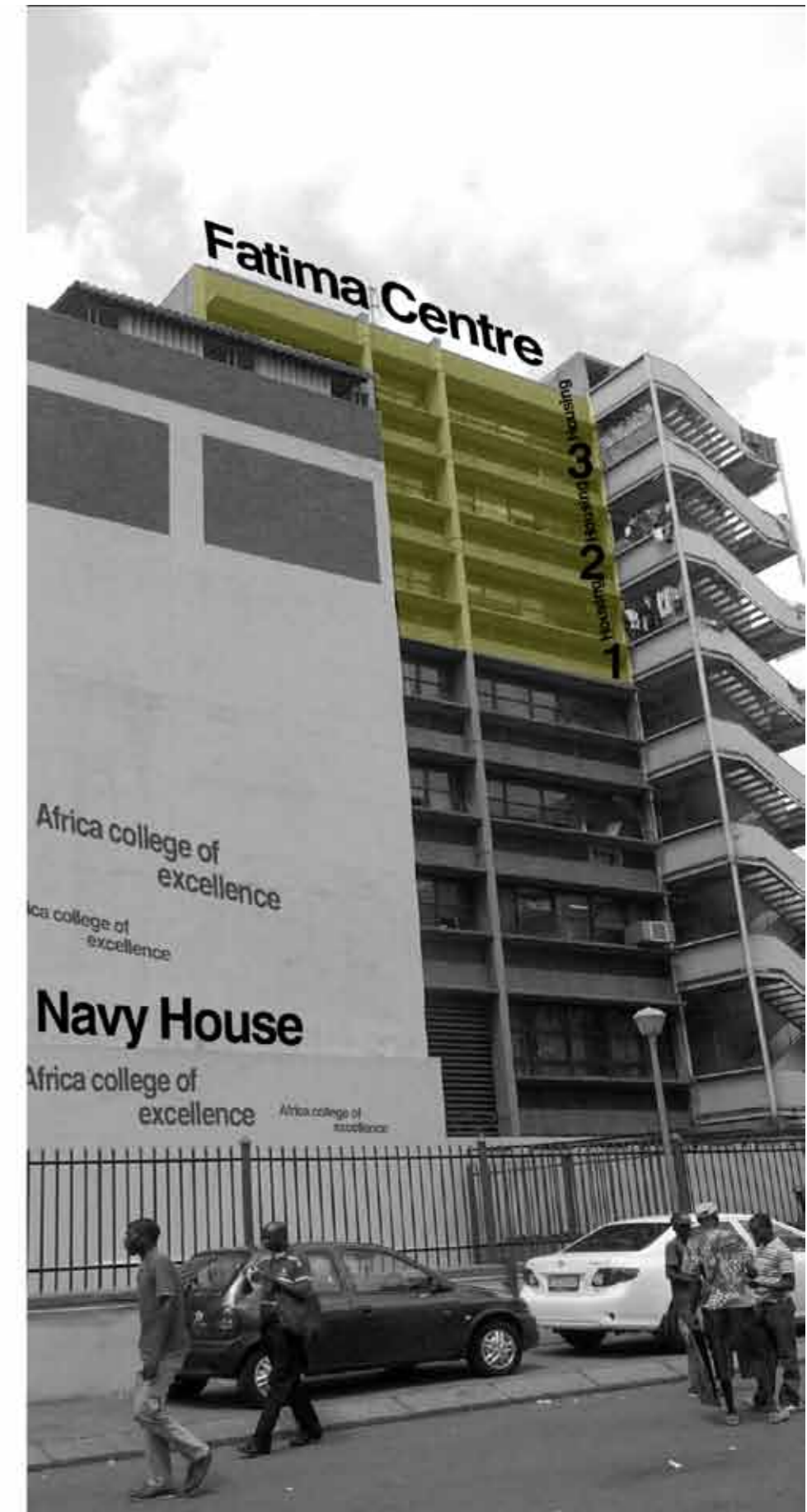
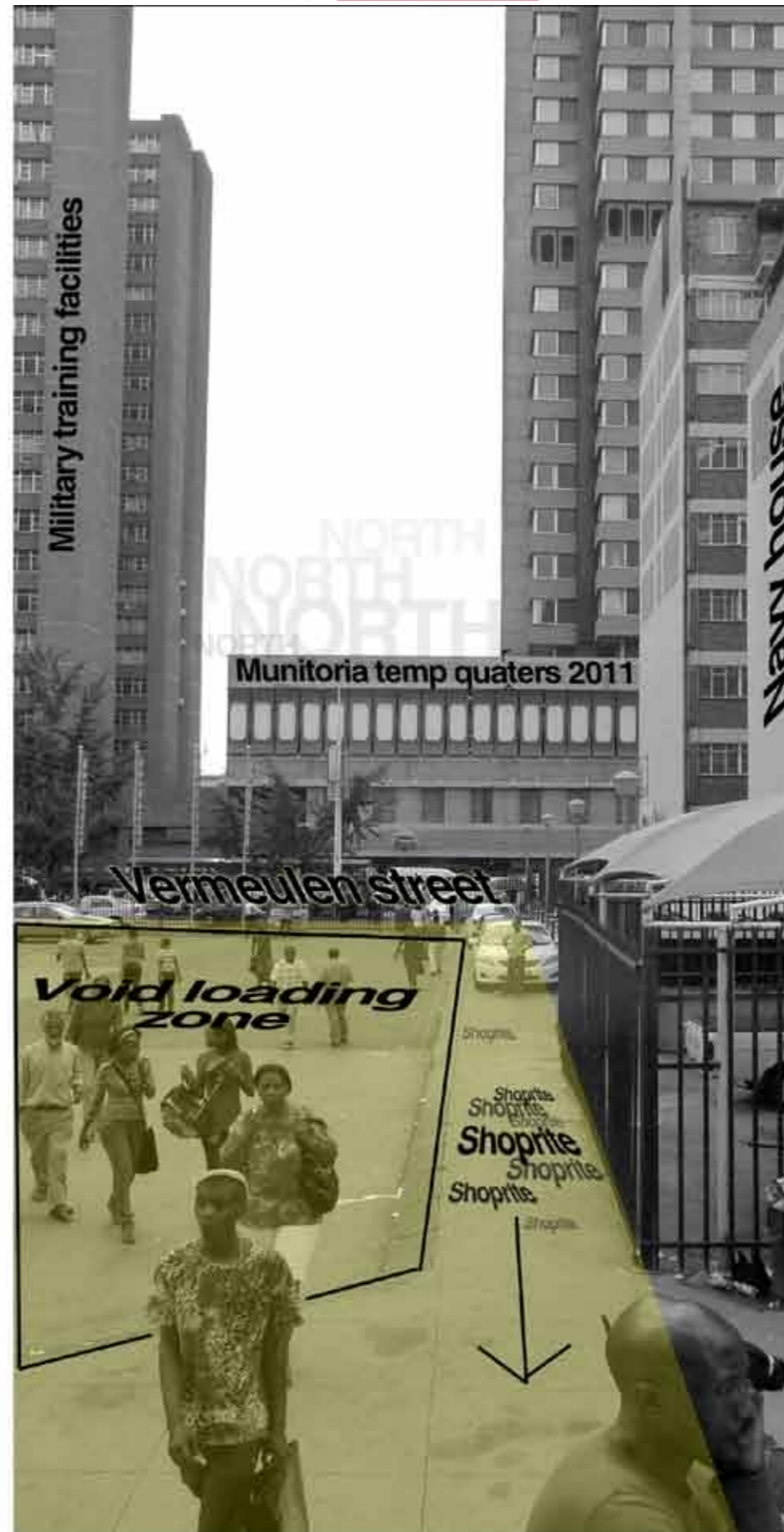
INTERVENTION AREA

After doing analysis of site activities, history and significance, resources, zoning, the surrounding fabric, needs, climatic conditions and programmes, the intervention area is chosen according to **theoretical criteria and site conditions**.

Because it is the main purpose of the intervention to **act as a host for the rest of the site**, the most economical and practical strategy would be to place the intervention in the block core in order to reach the surrounding buildings.

The non-contributory fabric which consequently is situated in the block core is then either demolished or redesigned to become part of the intervention.

Thus a linear east-west opening in the block core is identified as the intervention area.

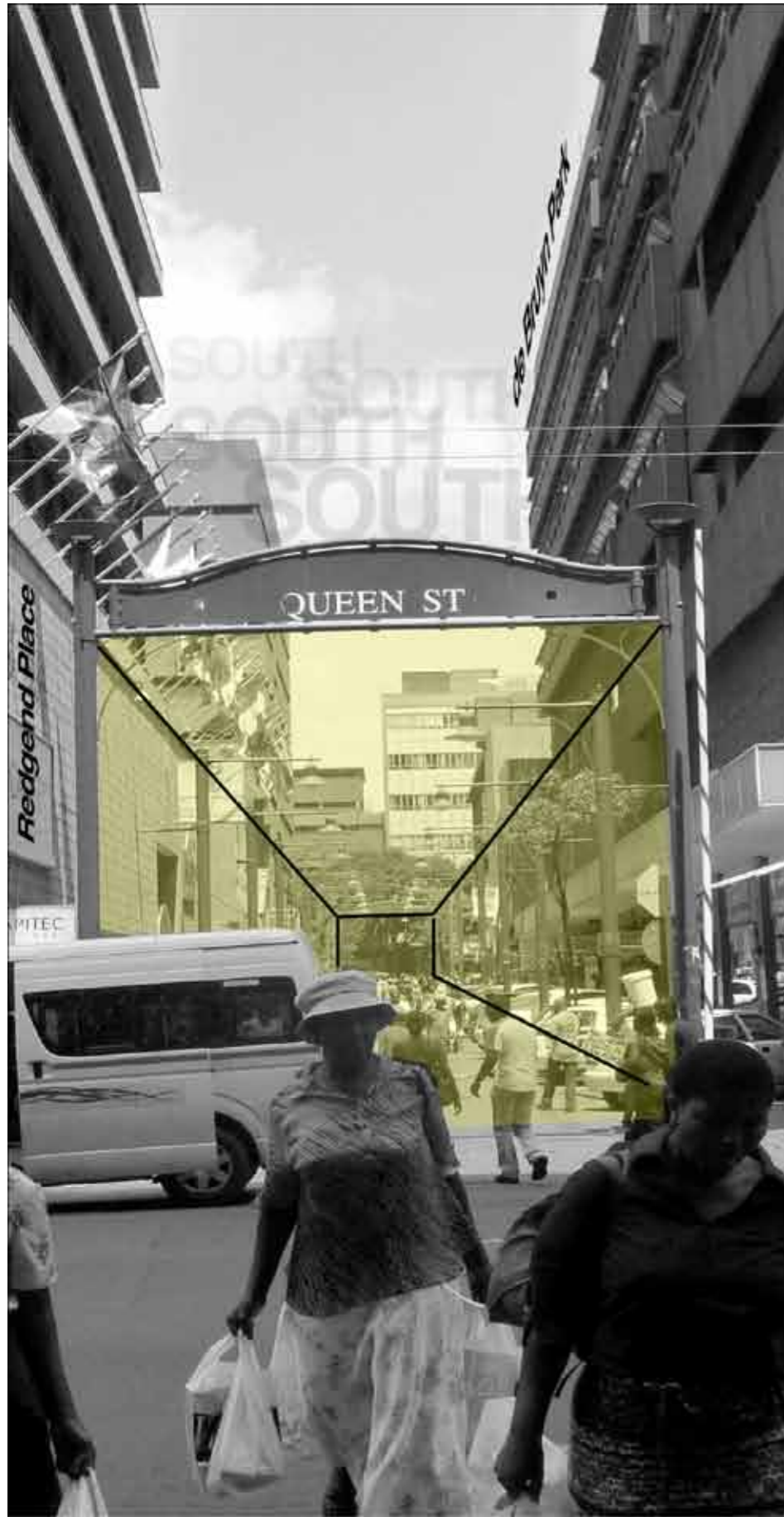


SITE SCENES

ACTIVITIES, PEOPLE AND PLACES

contextualizing [3]

[Figure 3_35.] Site photos illustrating activities on and around site.



SITE SCENES

ACTIVITIES, PEOPLE AND PLACES

contextualizing [3]

[Figure 3_36.] Site photos illustrating activities on and around site.



SITE SCENES

ACTIVITIES, PEOPLE AND PLACES

contextualizing [3]

[Figure 3_37.] Site photos illustrating activities on and around site.

In response to the failure of the Modern Movement to **affect social change** and the 'inhuman' urban environments it created, a new paradigm of **diversity and disorder** became the focus of urban design. Jane Jacobs was one of the first writers to celebrate the 'real' city.

A wave of theory concerning the expression of **complexity in the urban environment** followed, eg. 'Collage city' (Rowe) and 'Complexity and Contradiction' (Denise Scott Brown and Robert Venturi). Works such as 'The Image of the City' (Kevin Lynch) provided a new way of working with the city and was the first step towards the attempted **recreation of diversity in urban environments**.

More recently there has been a tendency to recall the **role of architecture**, both as **generator and defining element**, within the urban environment. The contemporary approaches to urban issues critically considers the three-dimensional space of the city, as well as accepting the need for picturesque composition as one element of the overall composition of the city, a 'holistic interaction of aesthetics, politics and finance' (Powell, K).

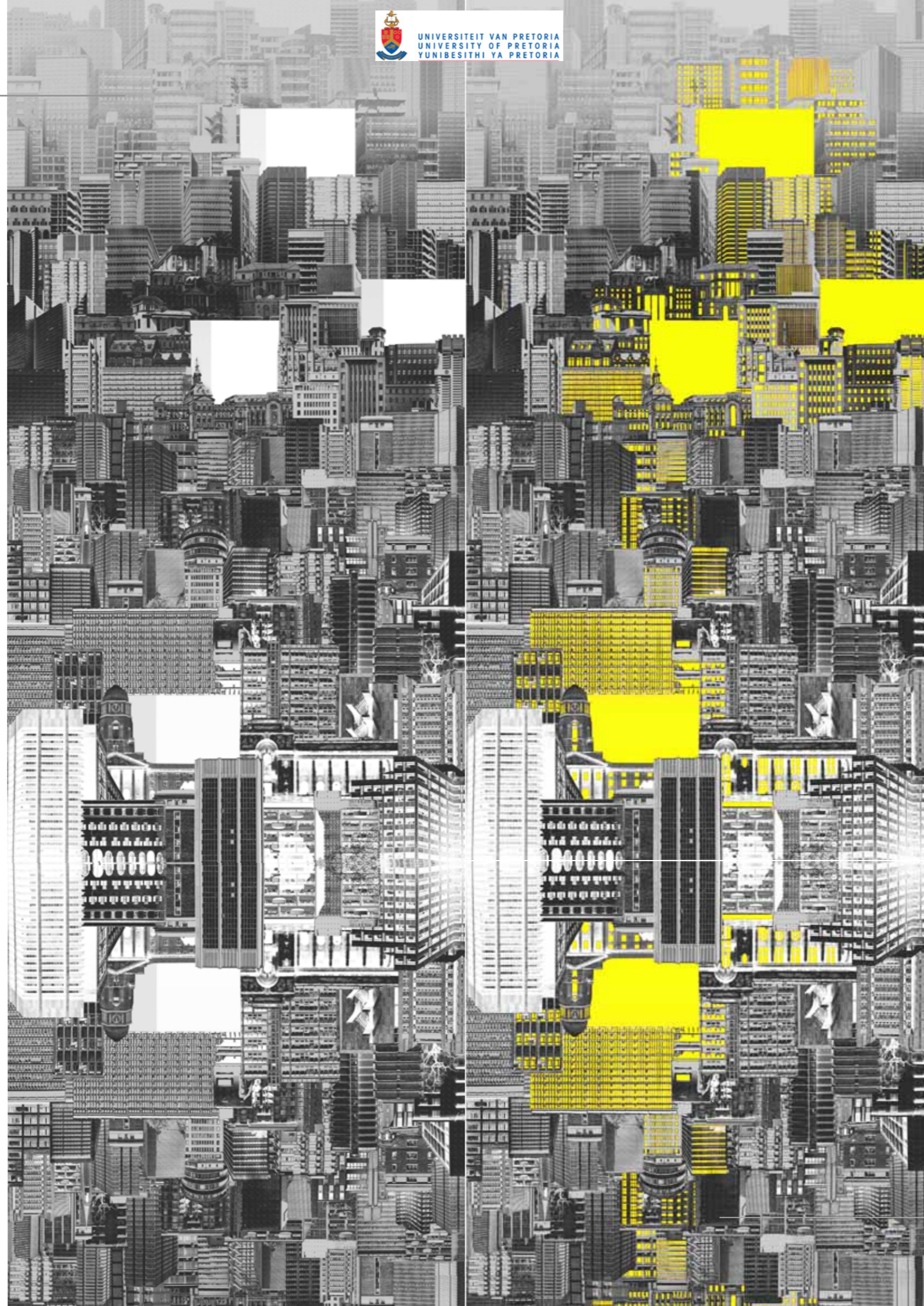
At the same time, there is an increasing despair concerning the **lack of ability of urban theory to date to construct or contribute to deal with the true complexity of the city**. Urban design often seems unable to create the richness, variety and diversity of that is now considered to be the ideal urban environment.

A PROBLEM IN THREE PARTS

When attempting to identify a problem statement in the context of urban complexity, it is crucial to understand that **no urban issue stands in isolation**. It would, however, be impossible to consider and unravel, in one attempt, the complete complexity of all things urban.

The identification of a problem statement therefore becomes a matter of **prioritising** that which one can change or, at the very least, attempt to affect in one attempt. The following issues have been identified:

- lack of capital city **identity**
- **ill-defined space**, overwhelming mix of meaningless information, non informative, unstructured
- mostly privatised built fabric with **abrupt thresholds**, little / no active interaction with space



A CAPITAL APPROACH

Within the current approach to the creation of frameworks, there is a lack of understanding and a disregard for the **functioning of space on a human scale**. Local complexity and **experience** of space is not interrogated. The proposed interventions therefore do not address these issues and are unable to contribute towards a constructive urban vision.

We acknowledge that it is not possible to build urban complexity with one spatial intervention. Therefore we want to **invert** our approach in order rather to determine those fixed elements that will essentially contribute to form the **base upon which urban diversity can grow**. These elements may include spaces of social, cultural, political or economic importance.

THE EXPERIENTIAL FIELD

Diversity cannot be created in **undefined** space, nor can it be created by a piece of architecture in **isolation**. It is the **relationship** between the space and the architecture, as well as the relationship between various elements of architecture or places with social, cultural, economic, or political significance, that creates **tension and fields of possibility** within which experiential space can develop.

Our framework is about the **relationship, the coexistence, and the threshold**. It is not about generating a prescriptive guideline for intervention at city or block level. The approach is that various architectures and physical interventions can still **contribute to the creation of the experiential field**.

THE EXPERIENTIAL SPACE

The system is created around **points of importance or significance** (social, cultural, economic, political) between which **movement tensions** develop. This tension creates the basis for the potential **development** of an experiential field.

Experiential space is **multi-faceted**; it includes elements such as enclosure, hierarchy, threshold, definition, meaning and symbol. Experiential space is sensory (perceptual) and may involve elements such as sound, colour and texture. It is rich with social, cultural and economic meaning and evokes **emotional involvement and response**.

Different combinations of perceptual / sensory elements, program and definitions of space will read as **different space** experiences and will lead to **different uses** of space. All of these elements will contribute to the **legibility** of spaces and ultimately to the **intelligibility** of the city.

