Makers of Mamelodi

Baetsi oa Mamelodi
Makers van Mamelodi

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Submitted in fulfillment of part of the requirements for the degree
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Project Summary

Projeke Kgutsufatso
Projek Opsomming

PROGRAMME:
Workshops and offices for the proposed guilds of Hector Pieterson Road. This would serve as a decentralized Technical Vocational Education and Training (TVET) College.

SITE LOCATION:
Corner of Hector Pieterson Road and Mathane Road, Mamelodi East, Pretoria, City of Tshwane. The area between Meetse-A-Bophelo Primary School and the pedestrian green route (unrealized highway).

GPS COORDINATES:
25°43'23.9"S 28°25'15.2"E

CLIENTS:
Proposed Skilled Labour Guilds
Department of Higher Education and Training (DHET)
Relevant Sector Education and Training Authorities (SETAs)
Small Enterprise Development Agency (SEDA)

RESEARCH FIELD:
Human Settlements and Urbanism

KEYWORDS:
Pendulum migration, African street market, Skills shortage, Skills development, Collaboration space.

In accordance with regulation 4[e] of the General Regulations [G.57] for dissertations and theses, I declare that this dissertation, which I hereby submit for the degree Master of Architecture [Professional] at the University of Pretoria, is my own work and has not previously been submitted by me for a degree at this or any other tertiary institution.

I further state that no part of my dissertation has already been, or is currently being, submitted for any such degree, diploma or other qualification.

I further declare that this dissertation is substantially my own work. Where reference is made to the works of others, the extent to which the work has been used is indicated and fully acknowledged in the text and list of references.

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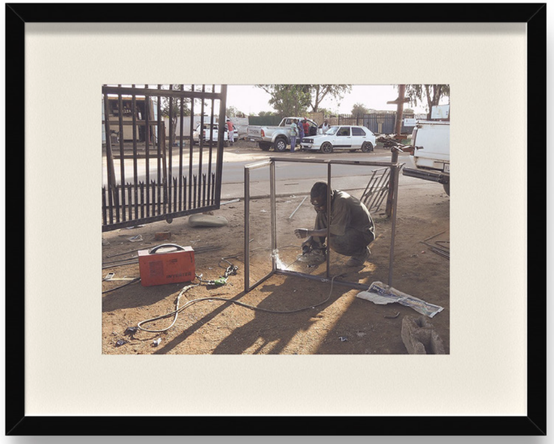
Petrus S. Wolmarans



Architecture is Public. It takes up space either by crushing out of existence what has gone before or it attempts to blend and harmonise with what is existing.

-Jo Noero-

Acknowledgments | Leboha Bedankings

Aan my ouers, dankie vir jul oneindigende ondersteuning.

Oupa, vir al die bou, peuter en maak op die plasie toe ek klein was.

Emmanuel, for your patience, advice and immense bank of knowledge.

Siya en die studio maats, dankie vir die lekker saamwerk en kameraadskap.

Juffrou Connie, vir die kunsklas-toevlug op skool.

Samevatting

Suid-Afrika ervaar huidiglik uitdagings soos hoë vlakke van werkloosheid, ongelykheid en armoede. Die vaardighede tekort in Suid-Afrika is een van die grootste struikelblokke om werk te kry asook om armoede te bestry. Volgens McGrath (2012), moet die TVET sektor versterk word om toegang te voorsien tot hoë gehalte tegniese beroepsonderwys vir almal.

Die verhandeling ondersoek die potensiaal van ‘n TVET kollege, as ‘n katalitiese openbare gebou, om sy gemeenskap op te hef deur beide sekulêre en opvoedkundige funksies.

Mense is makers, alles rondom ons is of deur die mens of die natuur gemaak. Deur die nodige vaardighede te hê om te kan maak, het ons ook die vaardigheid om ons toekoms te vorm. Hierdie projek-ondersoek sal spesifiek kyk na vaardighede as ontasbare erfenis en hoe samewerking gemeenskappe kan bemagtig in die vorming van hul eie toekoms in ‘n veerkragtige manier.

Abstract

South Africa currently faces challenges such as high levels of unemployment, inequality and poverty. The skills deficiency in South Africa is one of the biggest obstacles to finding employment and poverty reduction. According to McGrath (2012), the TVET sector needs to be strengthened in order to provide access to high quality technical vocational education for all.

This dissertation investigates the potential of a TVET college as a catalytic public building to uplift its community through both secular and educational functions.

Humans are makers, everything around us are either made by humans or nature. By possessing the necessary skills to shape things, we also have the skill to shape our futures. This project investigation will specifically look at skills as intangible heritage and how collaboration can empower communities in shaping their own futures in a resilient manner.

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Inhoudsopgawe

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introduction

1.1 Introduction

Pendulum migration is the daily journey that workers undertake to get to work and back home. By itself, pendulum migration is not necessarily a negative phenomenon and certainly not unique to South Africa. Coupled with poverty, failing public transport and a lack of economic opportunities, this however amplifies inequality and burdens the poorest of society the most. The current pendulum migration has left Mamelodi-East mostly empty during the day, but still there are pockets of economic activity, mostly situated on the routes serving this daily trek.

An applied research methodology and critical analysis of the immediate and national contexts have influenced design decisions. This dissertation will explore the role that architecture, as well as other skills of the architectural profession, can play in community development through elevating the ritual of the everyday.

The project aims to use local skills and trades to harvest the energy of daily pendulum migration in order to uplift the community and create a healthier work-commute relationship with the broader city.

"We do not need merely sustainable human settlements; we need communities that can actively participate in the regeneration of their environments and so enhance their own quality of life as well as their environments"

(Cronjé, 2013:15).

Figure 1.1 Map of Mamelodi in relation to Pretoria CBD (Author, 2016)

1.2 Pendulum Migration

In her blog entry for the Mail & Guardian, Koketso Moeti (Moeti, 2013) wrote about her experience on Pretoria's Metrorail;

"… the group of men playing cards, the elderly man preaching, the people enthusiastically discussing politics and the occasional young woman chatting about how her partner is eventually going to start cheating because she leaves so early and arrives so late. Like public hospitals, the train is where you get to hear the dominating narrative of ordinary people."

The seemingly never-ending expansion, together with Modern and Apartheid planning principles, has left Mamelodi reliant on neighbouring areas for income generation. The pendulum migration towards the Pretoria CBD and surrounding suburbs leaves Mamelodi almost desolate during working hours. Commuters waste a lot of time in transit and it is quite costly for a predominantly poor area.

Mamelodi has expanded greatly towards the East, but lack amenities in these new areas. This, together with the Spatial and Economic Legacies of Apartheid planning, has made it hard for Mamelodi to become a resilient community that can provide for itself.

Figure 1.2 8:45 pm on the Marabastad-Waterval bus. 45 minutes to the terminal. (Goldblatt, 1989)

Figure 1.3 Trainsurfing on the Kaalfontein-Tembisa route (Kritzinger, 2007)

Figure 1.4 Boarding the first bus at Mathysloop. It should reach the terminal at Marabastad, in Pretoria, two and a half hours later, at 5:15 am (Goldblatt, 1989)

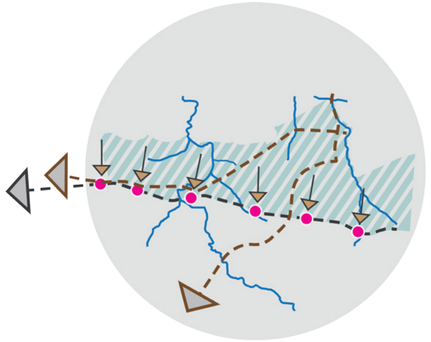


Figure 1.5 Current daily exodus in Mamelodi (Author, 2016)

Daily commute to work is not unique to South Africa but is a result of modern town and regional planning. This planning style was applied during the Apartheid era but, as can be seen from maps of Pretoria, traditional black neighbourhoods were situated further away from the CBD than traditional white neighbourhoods. Although the city centre has been democratised many of the traditionally black neighbourhoods still rely on the surrounding areas for economic opportunities.

This daily trek tends to have a bigger burden on lower income communities as the ratio between money spent on commute and income differs greatly from higher income communities. From observations these higher income areas also don't appear as empty during the day as lower income areas such as Mamelodi. This might suggest that there is a healthier balance between daily pendulum migration and local economic opportunities.

According to Dewar (1984) the creation of 'large dormitory townships', like Mamelodi, which lie on the urban edges of South African cities and towns, imposes substantial costs in terms of transport time and travel cost, which marginalises them from wider urban opportunities.

1.3 African Market Streets

In *Market streets in South Africa's informal settlements*, Gerald Steyn describes the African market street as one of the most contested spaces in the built environment. It is seen as a busy and crowded place that has to be shared by traders, pedestrians and vehicles, mostly minibus taxis. Hawkers often earn respectable incomes but small-scale trading is essential and often a desperate initiative for the very poor.

The formal economies of sub-Saharan African countries are unable to cope with the alarming rate of urbanisation and population growth, which has resulted in high rates of unemployment and poverty. The livelihood of many people depends on an informal economy such as hawkers and small traders in small sidewalk shops, and artisans and technicians in home industries. Steyn states that informal trading is an "economic exigency" and that the market streets of sub-Saharan Africa show how "Africans can adapt and shape an urban area in their innovative quest for self-sufficiency" (Steyn, 2008).

According to Mitullah (2003) street trade is a source of employment and income for many urban dwellers and has in the past, been viewed as an underground activity that undermines the healthy function of the formal economy. Mitullah (2003) also states that this perception has resulted in conflicts over licensing, taxation, site of operation, sanitation and working conditions with urban authorities.

The first urban appearance of market streets occurred in the first cities of the Middle East. Here the souq (bazaar street) has survived for more than 8000 years. The Muslim conquests spread this typology into North-Africa where the historic cores of these Islamic cities still have these souqs. The Arab souq is a significant typology and organiser of urban space (Steyn, 2008).

Figure 1.6 The Souq In Marrakech (Time Lapse HD, 2016)

Figure 1.7 Kariakoo market, Dar es Salaam (Tinning, 2013)

Figure 1.8 Accra-street market (Sanchez, 2013)

1.4.1 Real World Problem

Technical Vocational Education and training colleges (TVET), previously known as Further Education and Training colleges (FET), are at the centre of skills delivery to drive the South African economy. This can help reduce unemployment and improve the livelihoods of millions of South Africans. (South African Government, n.d).

In 2015, South Africa witnessed the #FeesMustFall protests that embodied the outcry for more accessible tertiary education. The protests united students from all socio-economic backgrounds and enjoyed major public empathy. The protests however turned violent, ranging from burning of university artwork to burning down buildings.

This destructive behaviour caused majority of students to distance themselves from the movement in 2016 and the public lost their empathy. The problem of access to education however still persists with government showing little to no leadership in attempting to solve the crisis.

The debates around the #FeesMustFall protests focused mostly on university degrees and neglected to address access to short-courses, technical qualifications and the overall employability of school leavers.

Figure 1.9 Bus set alight in Johannesburg CBD (Ngcobo, 2016)

South Africa currently faces challenges such as high levels of unemployment, inequality and poverty. Thus, the TVET sector needs to be strengthened in order to provide access to high quality technical vocational education for all, without losing sight of the TVET's special relationship with the worlds-of-work (McGrath, 2012: 627).
The skills deficiency in South Africa is one of the biggest obstacles to finding employment and poverty reduction.

According to Manpower Group's 2015 Skills shortage survey, 31% of businesses have difficulty filling jobs. Skilled trade worker vacancies are on the top of this list. South Africa's National Development Plan requires that at least 30 000 qualified artisans are produced a year by 2030. But South Africa is only producing around12 000 artisans a year.

According to the Human Resource Development Council of South Africa's report (HRDC, 2014)., Strengthening and supporting TVET colleges for expanded access and increased programme quality, a TVET policy has to be rooted within a sustainable livelihoods approach.

Figure 1.10 UCS illustration data (DHET 2013, adapted by Author, 2016)

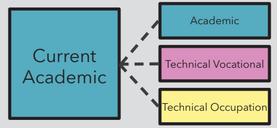


Figure 1.11 Proposed three stream schooling system (Author, 2016)

From 2017 on, the Department of Basic Education is implementing a 3 stream schooling system, which it hopes will eventually see about 60% of pupils completing technical qualifications. The plan is to split the current Academic schooling into; Academic, Technical Vocational and Technical Occupation. According to Mathanzima Mweli, director general at the Department of Basic Education, as part of the Technical Occupational stream, the department will introduce 26 subjects, which will include spray-painting, panel-beating, hairdressing, woodwork, glasswork, glazing, welding, upholstery, husbandry, farming etc. (News24 correspondent, 2016).

This proposal is however not accompanied by a plan to provide the required workshops, materials or infrastructure needed in order to teach these subjects.

1.4.2 General Intentions

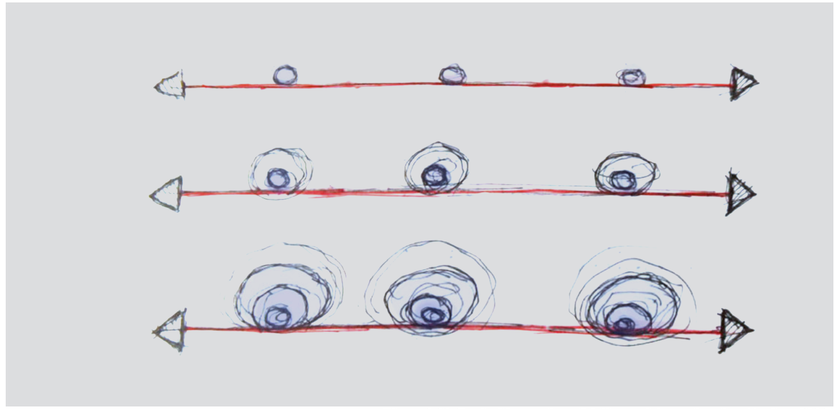


Figure 1.12 Gradual harvesting of daily pendulum migration (Author, 2016)

Mamelodi is still heavily reliant on pendulum migration due to it being segregated from the rest of the city because of Apartheid's spatial legacy. The intention is to harvest energy from this daily pendulum migration to create resilient nodes that would provide a platform for collaboration to local skills and trades. This platform would hopefully reduce the need to seek employment and education far away.

The project will also look at how training can be provided in a decentralised manner. This new type of educational institute should be able to grow over time and use the local people as resources.

1.5.1 Urban Issues

According to Vestbro (2012) South Africa faced a big housing problem due to rapid urbanisation, as a result of gold and diamond mines that were established at the end of the 19th century. The Land act of 1913 drove this urbanisation process even further. This law restricted 75% of the population to 7.5% of the land, that increased to 13% in 1936. The execution of this law led to forced removals of some non-white families and aggravated living conditions in rural areas (Vestbro, 2012)..

These laws resulted in Mamelodi having an unhealthy relationship of reliance with the broader city both in relationship and urban terms. Although relations have improved, Mamelodi-East still has many urban issues that are further worsened by urban migration. Streets, public places, parks and transport are not responding to the community's basic needs, while daily pendulum migration steals valuable time that could have been spent with family, socializing or further education.

The township features many characteristics of Apartheid planning, as identified by Franco Frescura (Frescura, 2000), which will be discussed later on.

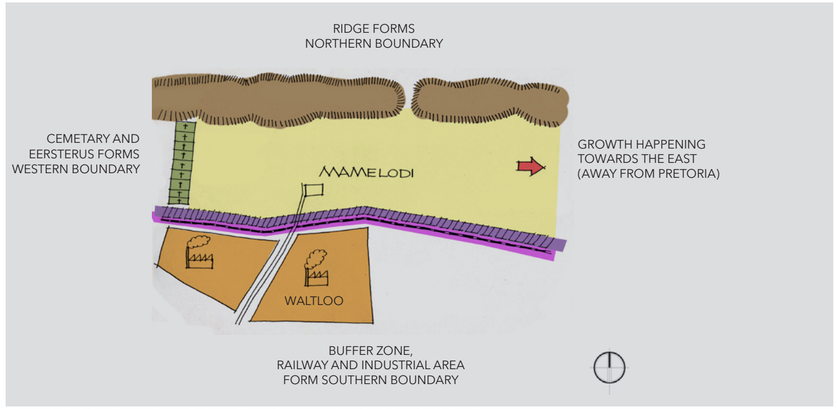


Figure 1.13 Adaption and translation of boundary map done by Mamelodi-Studie (Fortsh, et al., 1987)

1.5.2 Urban Intentions

The urban intention is to establish a better relationship, in terms of reliance and connectivity, with the broader city and Mamelodi with itself. Although many pockets of social vibrancy exist within Mamelodi-East, there is still a general sense of placelessness. The precinct proposal specifically looks at the establishing a node where the green route and Mathane road intersect.

Relph (1976:147) says that a deep human need for associations with significant places exists. If this need is ignored and the forces of placelessness allowed to continue, then the future can only hold an environment in which places are insignificant. But, as Relph (1976) states, if we choose to answer to that need and transcend placelessness, the potential exists for the growth of an environment in which places are for man. These places reflect and enhance the variety of human experiences.

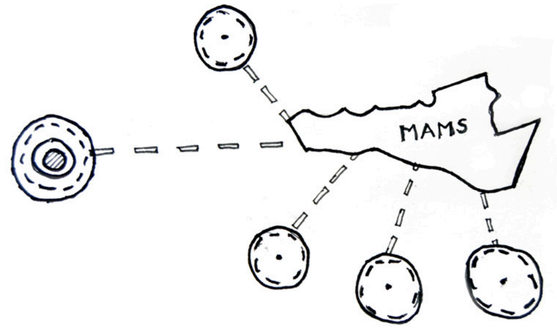


Figure 1.14 Reliant Mamelodi (Author, 2016)

1.6 Architectural Issue

The stalls of the vendors, and skilled trades have opportunistically appropriated the sidewalks along daily migration arteries as can be seen in Figures 1.15, 1.16 and 1.17. In the case of Hector Pieterson Road, the sidewalks are wide enough to accommodate these stalls. This has provided excellent exposure but the temporariness of stall structures has not added to a sense of place.

Steyn (2008) describes the stalls in Mamelodi as “truly makeshift and improvised, with no aesthetic concern”. He reasons that this could be because materials, that are in a good condition, would be quickly stolen at night. The study also explains that this is why all vendors stressed that they do not want to live behind or above their shops, as burglars from outside the area would then know where to break in and steal their stock.

Currently many of the stalls on Hector Pieterson road are not connected to any services. This, together with storage problems and occupational health hazards, make these enterprises vulnerable, limits their growth and in some cases pose physical dangers to both the owners and pedestrians.

The vibrancy of this street however masks the broader underlying problem of the lack of public space in Mamelodi-East.

Figure 1.15 Sidewalk stalls, Mamelodi (Author, 2016)

Figure 1.16 Sidewalk working conditions (Author, 2016)

Figure 1.17 Sidewalk as “welding booth”(Author, 2016)

1.7 Problem Statement

The void left by daily pendulum migration is a clear indication of the lack of economic opportunities in Mamelodi. The current street stall typology reflects the poverty in Mamelodi-East and does not visually contribute to a positive sense of public place or provide a safe working environment to skilled workers. The small scale of trades and lack of skills development restrict job opportunities, economic growth and local infrastructure development.

1.8.1 Research Question

What is the potential of a catalytic architectural intervention to support and strengthen the existing network of skills and trades?

How can the broader set of architectural skills, facilitate in providing a platform that allows for collaboration, skills transferal and economic opportunities?

Figure 1.18 Scattered skills and trades (Author, 2016)

Figure 1.19 Potential network of skills and trades (Author, 2016)

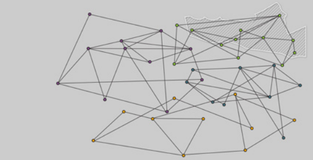


Figure 1.20 Potential linkages with other networks (Author, 2016)

1.8.2 Sub Questions

-How can the existing typology be adapted to be more conducive to collaboration?

-Which patterns, from A Pattern Language, are present in the informal settlement of Mamelodi-East?

-How can these patterns be used to fortify the livelihoods of the community?

1.8.3 Hypothesis

Architecture and the broader architectural skillset has the potential to fortify the livelihoods of existing networks and assist them in becoming resilient communities.

Figure 1.21 Daily exodus, missing catalyst and resilience through self-reliance (Author, 2016)

1.9 Project Intention

Through making the ordinary special and more accessible Hamdi (2004:xix) says that we can “liberate the latent potential of the everyday” . The project aims to create an improved balance between Mamelodi and the broader city in terms of daily pendulum migration and economic activities.

Relph (1976 defines placelessness as “the casual eradication of distinctive places and the making of standardized landscapes that results from an insensitivity to the significance of place”. The investigation focusses on the “leftover residents” and how their skills can be used to improve this local issues of placelessness, poverty and further education. By looking at the ritual of the everyday, the project aims to facilitate daily movement and encourage internal economic activity through collaboration.

The resourceful services and trades, that are scattered along the daily trek routes, could be used to kick-start economic activity as well as improve the experience of theses trek routes. Over time these small scale improvements could contribute to a better sense of place and dignity.

The proposed architectural intervention aims to resourcefully mitigate between the formal and informal by celebrating the everyday.

1.10 Research Methodology

Mapping

Intensive site investigation, together with mapping done during the urban framework, informed the development of the Mamelodi Urban Vision and Bophelo Precinct Plan. Multiple site visits will be made to help identify daily rituals and routes to better understand the experience of place. The mapping of existing skills and trades provided clues to the untapped possibilities.

Literature

Theoretical studies involving informal settlements and skills development will be investigated to inform conceptual arguments. Historical studies of context will be examined to better understand current situations and inform an appropriate programmatic response.

Applied Research

The data collected during the different mapping methods are applied to understand the requirements of the design and to develop a pragmatic response to the Architectural problem.

Precedent Studies

Precedents of similar situations are explored to further inform observations and intentions.

1.11 Theoretical Approach

The dissertation will investigate the role of the broader architectural skillset in transforming dependent people into resilient communities,

Building art is a synthesis of life in materialised form. We should try to bring in under the same hat not a splintered way of thinking, but all in harmony together. (Aalto, n.d,)
This investigation is greatly influenced by the livelihoods approach that considers people as active agents in improving their livelihoods.

I would like to use architecture to create bonds between people who live in cities, and even use it to recover the communities that used to exist in every single city. (Ito, n.d.).
Living networks can be strengthened by designing for interaction and collaboration. These networks can in return be used to create better public places and improve the resilience of a community.

To think that their present circumstances and their present societal arrangements might be sustained; that is an unsustainable thought for the majority of the world's people (Marcuse, 1998:103).
Humans are social creatures and have evolved to be part of a community. Many cities have difficulties with this "sense of community" as a lot of buildings and city layouts are not conducive to human interaction. There is a need for self-sustainable communities that can actively take part in the improvement of their own lives. Architecture can serve as a catalyst to activate and unlock opportunities within a community.

1.12 Programme

The proposed programme utilises left-over residents as a catalyst to create economic opportunity and improve the everyday experience of daily pendulum migration routes.

The intervention consists out of 3 fractal phases;
1. Network establishment
2. Street upgrade
3. Collaboration and skills developments

The project mainly focuses on phase 3 which proposes the formation of a decentralised TVET college by the proposed trade guilds.

The proposed guilds, made up of the skilled trade workers of Hector Pieterson road, together with the Department of Higher Education and relevant SETA's form decentralised owners of the proposed TVET college

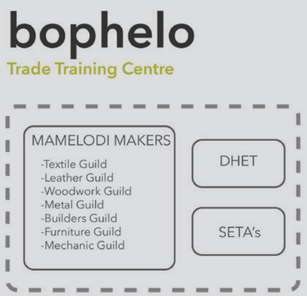


Figure 1.22 Decentralised owners of the proposed TVET College (Author, 2016)

chapter 2 | pedi twee
context

2.1 Mamelodi

Mamelodi is a suburb located North-East of the centre of Pretoria. It was originally laid out as a dormitory township under the Apartheid government. The Group Areas Act excluded non-Whites from living in the most developed areas. This caused many non-Whites to have to commute great distances to and from work.

Figure 2.1 School children protesting against the Group Areas Act, 1955 (South African History Archive, 1955)

The older parts of Mamelodi, to the west, currently have typical suburb characteristics with residents expressing their pride and aspirations in their kept gardens, house upgrading and elaborate steel gates. To the East however, areas such as Alaska and Phumolong showcase poverty, lack of services, makeshift housing and daily pendulum migration.

Figure 2.2 Mamelodi-West as a suburb of Pretoria (Author, 2016)

Figure 2.3 Mamelodi location maps (Author, 2016)

Chiloane (1991) argues that the aim for the establishment of Mamelodi was to serve as a labour reserve. It was planned in such a way that it should remain a satellite of Pretoria with no economic viability or industries so that it could not become and independent town but would exist only for the convenience of Pretoria's industries and White population.

The original farm Vlakfontein was renamed in July 1962 to Mamelodi after president S J P Kruger. He was known to the black population by this name for 'father of whistling' or 'man who can imitate' (Raper, 1987). By 1964 a population of 6 561, comprising of 744 families, were resettled in Mamelodi (Chiloane, 1991)

According to Dewar and Watson (1984:3) these types of settlements were designed to facilitate control. To do this the number of entrances were limited, buffer strips of land surrounded them and they separated African ethnic groups within the township. They were primarily situated a relative distance from the 'white' cities.

Figure 2.4 Cattle crossing Tsamaya Avenue (Author, 2016)

1861 - Vlakfontein 329 JR farm allocated to C. Jansen

1874 - Vlakfontein was devided into 3 parts

1883 - Hugo Nellmapius builds his first factory in Eerste Fabrieken area. The Hatherley Distillery produced gin and whisky on the farm Hatherley. It was opened by President Kruger on 6 June 1883 and named "Volkshoop".

1890- Delagoa Bay railway line built to transport goods to and from Lourenço Marques (Maputo).

1895- The South African Fruit and Meat Preserve Works established in Hatherley

1897 - Liquor law prohibiting the sale of alcohol to non-whites. This greatly affects the Hatherley Distillery.

1900 -Distillery closes due to proclamation issued by the British Military Forces that prohibits the sale and manufacture of liquor.

1945 - Pretoria City Council buys parts 2+3 of Vlakfontein farm to be laid out as a "Black Urban Area".

1948 - 'Mamelodi Rondavels' was the first educational institution established by the Transvaal College of Education for the Pretoria Normal Bantu College and associated with the Kolege ya bana ba Afrika. Struggle leaders Stanley Magoba and Archbishop Desmond Tutu received their eduction here

1948 - Pretoria City Council designed a Native Housing scheme called the Lapa Scheme. A large section of the scheme was rejected by the community as 'primitive kaffir housing' and demolished

1951 - The Group Area's Act was introduced.

1952 - First school built in Mamelodi.

1953 - First public library built in Mamelodi East.

1954 - 'Site and Service' scheme introduced as a owner builder scheme. Majority of Mamelodi was built in this way.

1954 - Vlakfontein Industrial School set up to train workers in skills needed to build these houses.

1955 - First clinic built in Mamelodi.

1958 - Majority of residents of Lady Selbourne forcefully moved th Vlakfontein

1960 - First police station and community hall built in Mamelodi.

1962 - Start of Putco bus transport

1962 - Vlakfontein renamed as Mamelodi

1964 - Cinema built through local initiatuve

1970 - Mamelodi Sports facility built

1974 - Private taxi system starts

1977 - Mamelodi Community Council was founded

1980 - UP Mamelodi campus built (Previously a Vista campus)

1980 - Public Library built in Mamelodi East.

1983 - SOS children's village built

1983 - Hospital and hospice built.

1985 - Dr. Nico Smit moves to Mamelodi

1987 - All formal houses supplied with electricity and sewerage systems.

1993 - Solomon Mahlangu Square dedicated to his memory

1994 - First democratic election

2012 - Vusi Mahlasela receives SAMA Lifetime Achievement Award

2016 - 22 Buses torched in unrest

Waveform of "Silang Mabele" by Vusi Mahlasela

1860 1870 1880 1890 1900 1910 1920 1930 1940 1950 1960 1970 1980 1990 2000 2010

Figure 2.5 Mamelodi timeline collage (Author, 2016)

Todes (2003:111) states that this separation has resulted in sterile environments with poor services and facilities and that it has undermined small-scale economic activity. Stals (1998: 4) notes that South African cities are often characterised by patterns of fragmentation and extreme low density sprawl, as is also the case in Mamelodi.

Stals (1998) also says that the displacement of the poor to the urban edges due to the legacy of the apartheid system together with the fact that the majority of new urban growth is happening amongst those who are most impoverished, results in increasing numbers of people living on the urban edges.

The average South African city has two separate social structures existing side by side. The spaces linked with these social structures also remain detached into their own "envelopes and enclaves" (Murray 2006:6).
The distance between the township and Pretoria greatly affected the social and political lives of the residents. The high cost of transport to town increased poverty and placed the residents under stress (Chiloane, 1991)

Mamelodi was founded with a buffer zone as a physical boundary between the White residential areas and the black residential areas that enhanced separation. In the case of Mamelodi, both physical and social boundaries exist. Mamelodi is bordered on the north west by the coloured township of Eersterus, the industrial area of Waltloo on the west, The Magaliesberg mountains on the north and a white farming area on the South and the White Franspoort farming area on the east. Mamelodi used to be fenced to facilitate control (Chiloane, 1991).

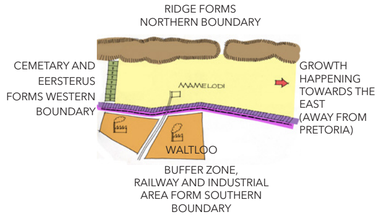


Figure 2.6 Adaption and translation of boundary map done by Mamelodi-Studie (Fortsh, et al., 1987)

In 1953 Mamelodi was rezoned based on ethnic groups. Different ethnic groups were consolidated under four main groups namely, Sotho, Nguni, Venda and Shangaan (Chiloane, 1991).

Figure 2.7 Illegal electricity connections in Mamelodi-East (Mamelodi Mappers, 2015, adapted by Author, 2016)

2.2 Skilled Trade Workers

In 1954, an industrial school, known as Vlakfontein Industrial, was opened in Mamelodi. The school served students from various language groups, environments and cultures (Chiloane, 1991)

Instruction at Vlakfontein Vocational School was given in:
- Bootmaking and Leatherwork (4 years)
- Bricklaying and Plastering (4 years)
- Electrical Housewiring (3 years)
- General Mechanics (4 years)
- Plumbing and Drainlaying (4 years)
- Cabinet-making and Carpentry (4 years)

(Southern Transvaal Regional Secretary and Research Assistant, 1960)

As can be seen in Figures 2.7, 2.8 and 2.9, the Vlakfontein workshops had a communal layout and students also collaborated on projects.

Figure 2.8 Shoe making class (Historical Papers Research Archive, n.d.)

Figure 2.9 Apprentices training as tailors (Historical Papers Research Archive, n.d.)

Figure 2.10 Carpentry students at work (Historical Papers Research Archive, n.d.)

Figure 2.11 Trained as a draughtsman (Historical Papers Research Archive, n.d.)

World shortage

It is worth noting, however, that the negative sentiments towards TVET colleges do not stem entirely from events that take place within a particular TVET institution; but rather they are rooted in the wider social opinions of vocational work (Winch, 2013: 93).

Skills in SA

A lot has been accomplished since the dawn of South Africa's democracy but a lot more still has to be done. Colonialism, Apartheid policy, current governmental corruption and lack of service delivery has not created conditions for the residents of informal settlements to flourish or just even to help themselves. Some policies, like B-BBEE and affirmative action has helped a small portion of the black population yet the majority of black people still live in poverty. The lack of employment opportunities together with conditions unfavourable for further education is detrimental to our South Africa's growth. Not only is it hampering South Africans from achieving their full potential but, as our previous minister labour minister Membathisi Mdladlana described youth unemployment in 2006, as a ticking time-bomb.

Majority of black people are still poor and they are still served by lower-quality public services and institutions (this include public educational institutions) than those of wealthier citizens. In some communities, patriarchy, which is also a legacy of our past, still makes sure that women and girls continue to experience a lower position in many areas of their lives, including the education and training system (DHET, 2014).

Richard Maponya, a South African entrepreneur and property developer, has been outspoken in his condemnation of Black Economic Empowerment (BEE), which he says has only served to enrich a "few connected" black business people. He states that the true solution to address the issue lies in training and education. He finds it frustrating that the country has the tools necessary to address poverty and unemployment, but we're stuck (Skade, 2014).

According to Statistics South Africa (2015), in 2015 as many as 3.6 million young people (15–34 years) were unemployed and actively looking for work, with adults (35–64 years) substantially lower at 1.9 million. Only 6.2 million youth had jobs versus the 9.2 million adults who were employed.

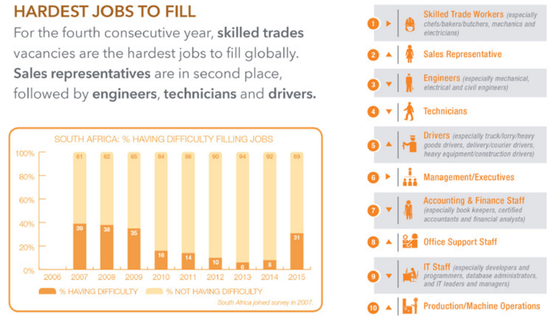


Figure 2.12 Hardest jobs to fill (Manpower, 2015)

Education has long been recognised as providing a way out of poverty and promotes equality of opportunity. The achievement of greater social justice is closely dependent on equitable access by all sections of the population to quality education. Widespread and high quality education and training will allow more rapid economic, social and cultural development for society as whole. Education will not guarantee economic growth, but without it economic growth is not possible and society will not fulfil its potential with regard to social and cultural development (DHET, 2014).

The teaching and learning in the TVET context requires the application of technical skills and knowledge. This type of learning is rooted in contexts, for example; the workplace or communities where livelihoods can be developed. The role of the lecturer is to facilitate learning environments that will develop students holistically (Lave & Wenger, 1991).

Currently there is a so-called "Pivotal" grant policy that industries can take advantage of that would fund for "professional, vocational, technical and academic learning" programmes that lead to qualifications or part-qualifications on the National Qualifications Framework. This policy prioritises scarce and critical skills and also include internships and learnerships. This can be seen as

an incentive for industries to provide workplace experience to TVET students and tax breaks for moving some of their workshops to rural areas (Jacobs, 2014).

A decentralised approach to skills training and TVET colleges might be more appropriate to informal settlements. This training facility will be started from the ground but should follow the decentralised approach in order to increase efficiency.

The DHET (2012: ix) is currently looking into the establishment of a new institutional type, provisionally called Community Education and Training Centres (CETCs), in order to meet the needs of out-of-school youth and adults (HRDC, 2015).

This new proposed decentralised, bottom-up approach of TVET colleges provide a great opportunity of investigation to what the contextual needs and opportunities are.

TVET

According to the report, Strengthening And Supporting TVET Colleges For Expanded Access And Increased Programme Quality (HRDCSA, 2014), both the TVET sector and South African society are confronted by challenges, that include:

- TVET colleges are perceived by society as the "weakest" in the broader education system
- Lack of a clear mission and vision in expressing the role of TVET colleges within the national education and training system
- Chronic unemployment and underemployment
- Rapid changes in the labour markets
- The increased demand for opportunities for education and training by young people and adults.
- Unclear relationship of TVET towards labour market demands, higher education and contributing to socio-economic development.

This study compared the South African TVET systems against working TVET systems of other countries. It found that the South African system was built around the notion of industrialisation while the working systems of other countries have been changed in line with their phases of economic development. A good example of successful vocational education is that of developmental states 1 (or the Asian experience). Their TVET system approaches were aimed at preparing for the country's next phase of socio-economic development. It also found that the demand-driven approaches to 'vocationalisation' need to be developed applicable to the stage of economic development and to the country's type of the economy.

The report also found that the recent increase in student enrolment was not accompanied by an increase in lecturer recruitment and that this has led to deterioration in lecturer-student ratio from 1:20 in 2002 to a national average ratio of 1:55 in 2012. The low skills level of lecturers and their lack of current industry knowledge have added to the challenges TVET colleges face (HRDCSA, 2014).

The goal of the Department of Higher Education and Training is to have, by 2030, head-count enrolments of 1.6 million in public universities, 2.5 million in TVET colleges, and 1.0 million in the proposed community colleges which are introduced in the White Paper (DHET, 2014).

In 2015 a total of 725 000 students enrolled at the country's 50 Technical and Vocational Training and Education colleges (DHET, 2014). If the goal of 2.5 million by 2030 is to be reached, it means that the system will have to expand 3.5 times it current capabilities, this includes facilities, lecturers and private partnerships.

Government imagines that TVET colleges will become the foundation of the country's skills development system. TVET college enrolments have increased over the past few years. Head-count enrolments increased from 345 566 in 2010 to an estimated 650 000 in 2013; enrolments are expected to increase to one million by 2015 and to 2.5 million by 2030. This growth is predicted to continue in order to address the country's acute skills shortages (DHET, 2014).

Government also aims to urgently re-establish a good artisan training system with a target to produce 30 000 artisans a year by 2030. It also deems it important to expand other forms of on-the-job training, including learnerships and internships in non-artisan fields. The SETAs have a crucial role to play in facilitating such workplace learning partnerships between employers and educational institutions (DHET, 2014).

According to von Kotze (2010: 7) a TVET policy built on the sustainable livelihoods approach would recognise that people, however poor, have developed and mobilise coping mechanisms, capabilities, knowledge and skills. People draw on local knowledge and locally available resources, including experts and people in positions of power, in order to make a living and deal with daily obstacles and uncertainties.
This would also;

- bridge disciplines and professions
- link training with working capital
- connect people with markets for both buying materials and selling products,
- create facilities to manufacture or provide services while respecting the necessity of local people to participate directly in ongoing negotiated decision-making

With this approach a TVET could contribute to a 'democracy we can eat'.

Community colleges

The White Paper for Post-School Education And Training (DHET, 2014) proposes a new type of institution to be established to cater for students who do not qualify to study at TVET colleges and universities, mainly youth and adults who did not complete their schooling or who never attended school. Community colleges will be multi-campus institutions which group together a number of existing public adult learning centres (PALCs).

The paper suggests that community colleges should draw on the strengths of the non-formal sector, in particular its community responsiveness and its focus on citizen and social education. Community colleges will be integrated with public programmes, such as the Expanded Public Works Programme (EPWP), Community Works Programmes (CWP), and others to provide appropriate skills and knowledge. These programmes can provide work-integrated learning opportunities, while the colleges provide classroom and workshop-based learning. SETAs can also play a vital role in facilitating such partnerships. The proposed introduction of community colleges should take a phased approach to help inform further development of the concept and its implementation throughout the country (DHET, 2014).

SAIVCET

The White Paper For Post-School Education And Training (DHET, 2014) proposes the establishment of The South African Institute for Vocational and Continuing Education and Training (SAIVCET) in order to provide the necessary and appropriate support to the college sector.

This proposal for such an institute shows the importance and need that exists but the fact that it does not yet exist also amplifies the dire current state of the TVET system.

A lot of research and experimentation has been done on the spatial requirements of academic education. However, Cutshall (2003) states that the spatial considerations for VET schools are not the same as conventional schools. Little research has been done on the spatial requirements of Technical and Vocational Education and Training, especially within the South African context.

2.3 Street as Public Place

Moughton (2003) states that the street is not only means of access but also an arena for social expression. This also the case for Gector Pieterson Road in Mamelodi-West.

People have always lived on streets. They have been the places where children first learned about the world, where neighbours met, the social centers of towns and cities.
- Donald Appleyard (Project for Public Spaces, n.d..)

According to Better streets, better cities (ITDP, 2011), streets occupy approximately 20 percent of the total land area in a typical city. They are also the most important and universal form of public space. It describes streets as "the stage upon which the drama of urban life unfolds every day". But recently, streets have been reduced to a more restricted role of serving as conduits for the movement of automobiles. The report states that the situation is getting worse every day as the number of private vehicles grows exponentially. As a number of cities around the world have realized, this has undermined quality of life and the character of public spaces. There is an urgent need to look at streets as places where people walk, talk, cycle, shop, and perform the multitude of social functions that are critical to the health of cities (ITDP, 2011).

The report states that streets are also vital to the identity of cities. Streets should be representative of the lifestyle and culture of the community. Their designs need to respond to the host of activities and functions that streets perform. Streets are one of the most valuable assets in any city. They not only ensure the community's mobility, but also are a place for people to meet, interact, trade, and recreational activities. Streets make a city liveable and foster social and economic bonds, bringing people together. (ITDP, 2011).

Mitullah (2003) observed that in all the cities covered in the Street vending in African cities report, street trade was rampant and a source of employment and income for many urban dwellers. It is unaccounted and unrecognised in national economic statistics in most countries however. Street trade has been viewed as an underground activity that undermines the healthy function of the formal economy and this perception has resulted in conflicts with urban authorities over licensing, taxation, site of operation, sanitation etc.. She mentions that it has been argued that vending attracts those who have limited opportunities for obtaining formal employment and/or prestigious business, thus minimizing the chances of social exclusion and marginalization.

In all of the case studies, women dominated street vending. She attributes this to the limited economic opportunities for women in both rural and urban areas, the gender bias in education, and the need to augment their husbands' income. Street vending also appeals for women due to its flexibility. Women can easily combine street vending with other household duties (Mitullah, 2003).

The study found that urban authorities in the cities view vending sites as temporary while the vendors view them as permanent. It is the urban authorities' perception of street trading as temporary that makes them not see the need to provide vendors with proper market facilities.
Traders were found to use different structures, including tables, racks, wheel burrows, handcarts, and bicycle seats to display their goods. Others display their goods on the ground over a mat or gunny bag, with some simply carrying their merchandises on their hands, heads or shoulders. Goods, such as clothes, are sometimes hanged on walls, trees, fences and an advanced group that constructed temporary shades with stands for display (Mitullah, 2003).

"If we can develop and design streets so that they are wonderful, fulfilling places to be community-building places, attractive for all people—then we will have successfully designed about one-third of the city directly and will have had an immense impact on the rest."
- Alan Jacobs (Project for Public Spaces, n.d.)

Masonganye, (2010) noted that the Tshwane Spatial Development Framework (SDF) does not address or include informal/street trading. Informal trading is still not given much acknowledgment because these spatial plans do not provide space for this activity. Street trade is not promoted and is not being effectively incorporated into the urban fabric. The city has been very conservative in exploring the possibilities of a well-planned informal trading mandate (Masonganye, 2010).

Trancik (1986) argues that in the past the street as public space, primarily the main street was viewed as the focus of community life and was maintained as a high-quality spatial experience. The diversified commercial activities and its closeness to residential neighbourhoods made it the physical and social centre of the community.

Carr et al (in Oktay, 2002:263) feels that public open space provides a fundamental place for people to carry out the functional and ritual activities that bind a community together. spaces "*…promote a sense of place, become a source of community pride, and offer opportunities for people to play an active part in caring for the local environment"* (Tshwane Open Space Framework, 2005).

2.4 Urban Intention

Most street traders have no lease for the sites/pavement they use and this can be assumed as the reason for the temporary nature of the structures.

According to Mittulah (2003) the South African National Government is committed to creating a conducive environment for small informal economic activities, including street trading. New laws are in place or about to be put in place. In order to realise this, at National, Provincial, and Local levels. She further states that he Business Act of 1991 changed the legal approach to informal trading.

The Act acknowledged street traders as business people who contribute to the economy. The Act has also provided the traders with the right to trade, whereby the Local Authorities merely regulate but cannot prevent traders from trading.

The South African legal provisions have enhanced the business environment of street vendors. In cases where vendors have not organised themselves, Local Governments have insisted on umbrella organisations to be formed to represent street traders organisations. In some cases street vendors have formed organisations for negotiation and lobbying. Associations such as SEWU, Queenstown Hawkers and Gompo Association in South Africa are serving these purposes (Mitullah, 2003) .

The White Paper on National Strategy for Development and Promotion of Small Businesses in South Africa of March 1995, commits the Government to the creation of an environment that encourages and assists the development of all categories of the informal economy. The 1998 White Paper on Local Government requires that Local Government be committed to `working with citizens and groups within the community to find sustainable ways to meet their social, economic and material needs and to improve the quality of their lives'. Street vending minimises the chances of social exclusion and marginalisation and has increasingly become an option for many citizens (Mitullah, 2003).

Our opportunity, as designers, is to learn how to handle the complexity, rather than shy away from it, and to realize that the big art of design is to make complicated things simple.
-Tim Parsey (Blender, n.d.)

Steyn (2008) describes market streets are crucial elements in informal settlements. Their function and typology does not only impact on spatial organisation, but also on the way they are used as social spaces and to create places for activities that are intrinsic to the coherence of the community. He suggests that since slums are never going to disappear, we must now devise a strategy for their sustainable future in environmental, social, and especially political and economic terms. Steyn further argues that there is considerable expertise available locally, but political will is essential to recognise shantytowns as an asset, their concomitant market streets as vital for income generation, before professionals and communities can start to collaborate on finding ways to transform the contested space in a convivial, supportive place.

2.5 Site Skills Analysis

Figure 2.13 Hector Pieterson Road - Street of Skills (Author, 2016)

Carpentry

-Cupboard makers

Welding

-Window frame and gate makers

Brick making

-Brick makers and building supplies

Recycling

-Metal, plastic, glass & cardboard

Ice-cream

-Ice-cream in the yard

Spaza shops

-Take-aways, fruits & vegetables

Mechanic

-Auto Mechanics

Zozo

-Steel sheet and wooden pallet Zozo makers

Tyre shop

-New tyres and repair

Tavern

-Sidewalk taverns focussing inwards

Butchery

-Fresh meat suppliers

2nd Hand clothing

-Informal shops selling 2nd hand clothing

Figure 2.14 Hector Pieterson Road - Legend (Author, 2016)

Shisa nyama

-Braai using sidewalk as social space

Upholstery

-Upholstering couches next to the street

Sewing

-Making dresses and fixing clothes

Internet shop

-Internet and ice-cream

Gymnasium

-Small gym with weight lifting equipment

Hair salon

-Salon social space next to building supplies store

Shoe repair

-Repairing shoes under a tree

Cell repair

-Repairs done inside house

Muti

-Traditional medicine sold as liquids and parts of plant

Informal settlements have a rich layer of social infrastructure informing the built form (Hamdi, 2010). This infrastructure should be utilised in the process of improving the physical built environment.

Frescura (2000) states in his paper, Deconstructing the Apartheid City, that although the Group Areas Act was repealed in 1991, the component elements of Apartheid planning have been indelibly etched into the urban fabric of our cities. Their effects will probably continue to be felt for many years to come, and that their traces may never be entirely expunged from the South African urban fabric (Frescura,2000).

Frescura (2000) looks at the identification of the Apartheid city which features' could be interpreted as part of a segregationist residential policy:

a. The Segregation of Residential Areas.
b. Use of Buffer Zones.
c. Use of Natural Features.
d. Industrial Belts as Buffer Zones.
e. Extended City Planning.
f. Extended Road Links.
g. Military Control.
h. Social Infrastructure.
i. Housing.

2.6 Possibilities

School system from 2017

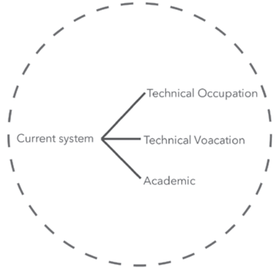


Figure 2.15 Three stream schooling diagram (Author, 2016)

A scholar's aptitude will be used to place them into one of three streams. Adequate facilities and resources have not yet been provided for these additional streams. Opportunities exist to expand current schools by using local skills and resources.

Skills revolution

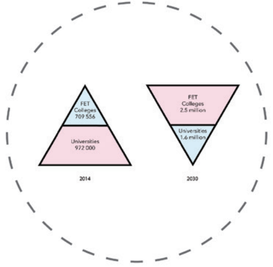


Figure 2.16 TVET college enrollment (Author, 2016)

The skills deficiency in South Africa is one of the biggest obstacles to finding employment and poverty reduction

Potential overlap

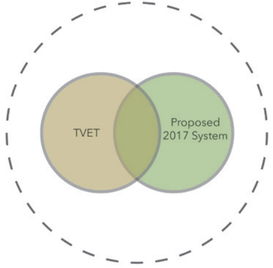


Figure 2.17 Potential overlap (Author, 2016)

Shared resources could lessen the burden on an already fragile system and provide new opportunities for collaboration.

Transport

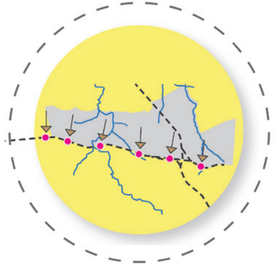


Figure 2.18 Daily pendulum migration (Author, 2016)

Improved access to transport would ease the burden of daily pendulum migration and could provide local job creation.

Networking

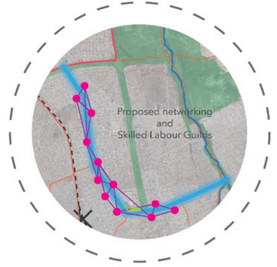


Figure 2.19 Proposed networking (Author, 2016)

Networking could help individuals to tender for bigger contracts that they would normally not be able to handle.

Guild Formation

Figure 2.20 Proposed guilds (Author, 2016)

Guild could provide a platform for individual tradesmen to expand their knowledge, share information and provide exposure. Guilds can also facilitate in the training of future artisans.

chapter 3 | tharo drie

urban vision

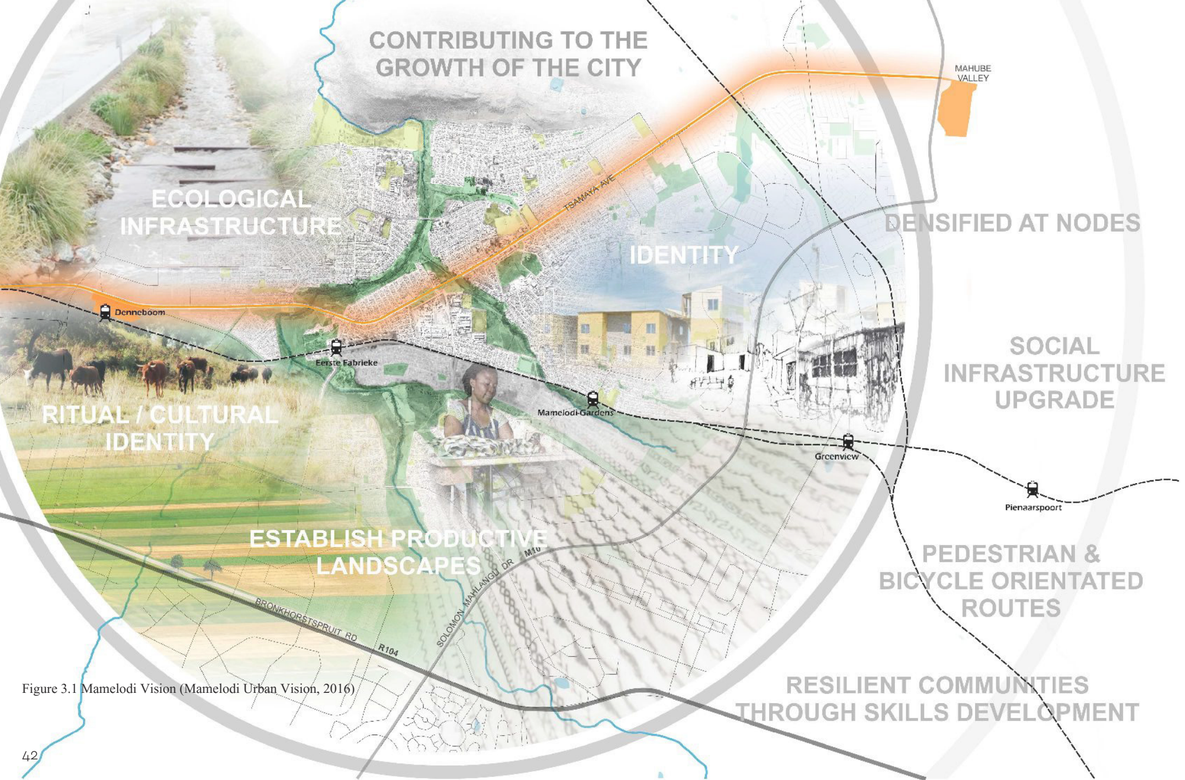


Figure 3.1 Mamelodi Vision (Mamelodi Urban Vision, 2016)

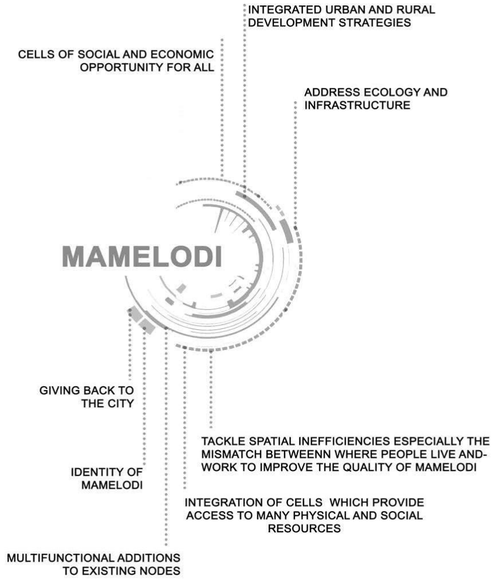
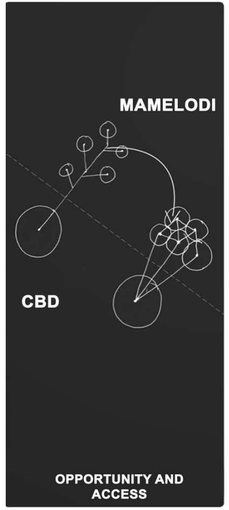


Figure 3.2 Mamelodi Diagram (Mamelodi Urban Vision, 2016)



The structural problems within the Mamelodi context arise from the issues surrounding the historical urban sprawl brought about by the apartheid regiem.

Presently the majority of residents commute out of Mamelodi into the CBD and surrounding area on a daily basis to access opportunity for income generation.

This commute is expensive, congested and counter-supportive to local development.

The broad objectives of the framework study were therefore not only to establish better **access** to the city, but also to generate **opportunity** within the Mamelodi context itself.

Figure 3.3 Tools used in analysing the Mamelodi urban fabric (Pieterse et, al, 2012)

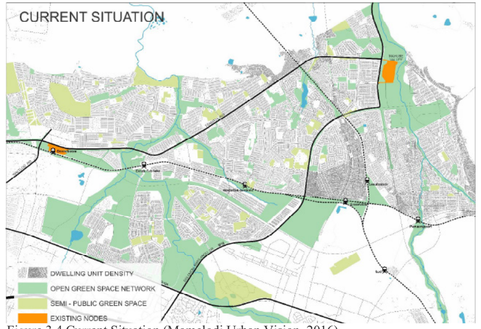


Figure 3.4 Current Situation (Mamelodi Urban Vision, 2016)

Mamelodi has grown steadily and is one of the biggest townships in Pretoria. Like many other townships, Mamelodi has been plagued by Apartheid spatial planning and as a result, the township is located 25km from Pretoria CBD. It is far removed from the financial and economic opportunities available in Pretoria. Even with this spatial disadvantage, Mamelodi is still the first port of arrival for those that are seeking employment and residency in Pretoria.

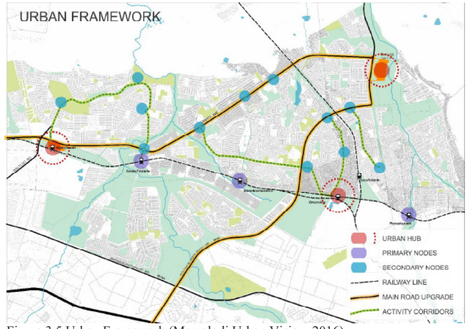


Figure 3.5 Urban Framework (Mamelodi Urban Vision, 2016)

Everyday a large number of people make their way out of Pretoria and towards the city. This leaves the township without much energy. This energy has been recognised as an energy that, if kept in the township, will help grow Mamelodi into a self-sustaining entity, an entity that once that can contribute to Pretoria in a positive way.

The broad objectives of this urban framework are rooted in the creation of opportunity within the context of Mamelodi, through the above-mentioned pointers as a guide. The generation of opportunity will be ensured by the integration of all the cells that make up the greater Mamelodi as a whole. Cells of social and economic opportunity will provide access to many physical and social resources that will result in the reduced dependency on the CBD.

Through understanding the energy that leaves Mamelodi on a daily basis through the daily exodus of people going to work in the CBD and other surrounding areas we have come up with a proposal to channel this energy back into Mamelodi. We begin to view Mamelodi as this cell that consists of various smaller cells that all work together in creating energy and opportunity in Mamelodi.

The proposed secondary transport upgrade for cyclists, pedestrians and tuktuks will facilitate quick access to the primary modes of transport, namely trains and taxis. This will facilitate movement within Mamelodi and hopefully stimulate economic activity along the routes between the identified nodes. Nodes will be linked to provide access to green spaces.

Urban development has not occurred next to the spruite or main river due to flood risk. These areas are however not fully utilized and, together with the unbuilt road land parcel, provide space and potential for the urban vision's STU as mode of transport and recreational activity.

The banks of the spruit has become a site to dumb rubbish, potential to become a recycling node.
Quite a few municipal pipes crossing the river. The vision proposes embracing this infrastructure to become part of public places. This great open space is underutilized and feels as if it divides the community. Through the proposed interventions we are hoping to create a better connected community with a stronger connection to the river and the ridge.

Human relationships are not limited by physical borders and Mamelodi can thus not be seen as an isolated entity. The roads, rivers and railway tracks extend far beyond the borders of Mamelodi. The vision subverts the initial intent of separation into one of inclusion. This idea can then later be applied to strengthen Mamelodi's connections to its neighbours

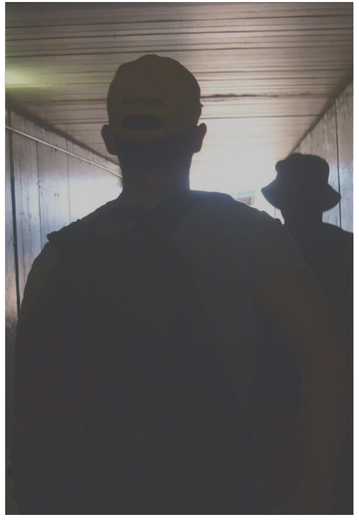


Figure 3.6 Daily commute (Mamelodi Urban Vision, 2016)

Figure 3.7 Existing and proposed urban cores (Mamelodi Urban Vision, 2016)

The initial step is identifying Mamelodi's urban core, Denneboom, and then proposing two more urban hubs (Mahube Max City Mall and Greenview train station), creating a triangle around the township. These cores are linked by Tsayama Road, which is the major road run east to west through Mamelodi, the commuter railway line and Solomon Mahlangu Drive which is the road into the east of Mamelodi (Figure 2).

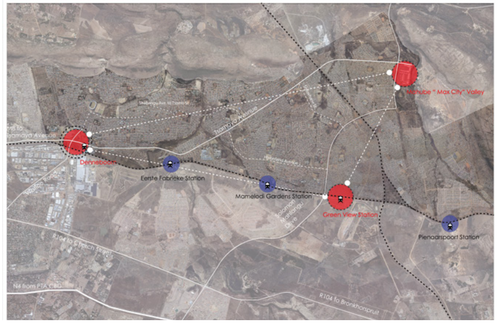


Figure 3.8 Primary nodes (Mamelodi Urban Vision, 2016)

The second step is identifying primary energy nodes, which have been identified as the train stations running on the southern edge of Mamelodi as shown in Figure 2. These train stations train station transport people and good throughout Mamelodi and then out towards the city.

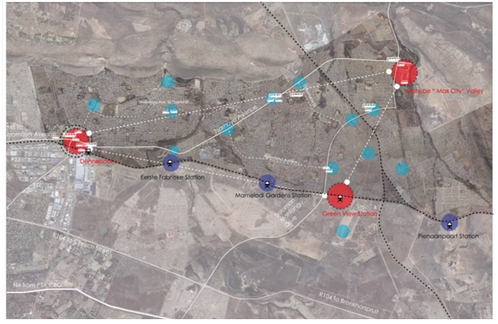


Figure 3.9 Secondary nodes (Mamelodi Urban Vision, 2016)

These primary nodes are then supplemented by the secondary nodes, which are public transport interchanges within the townships. These nodes are located in both the east and west of Mamelodi (figure 4).

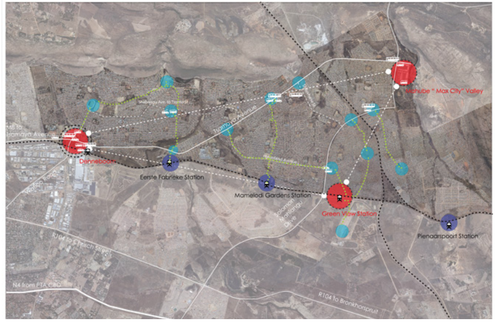


Figure 3.10 Activity spines connecting nodes (Mamelodi Urban Vision, 2016)

In order to achieve a greater distribution of energy within Mamelodi, the existing east to west movement will be disrupted by the implementing of north to south movement of people and goods through the activity spines we have proposed (figure 5).

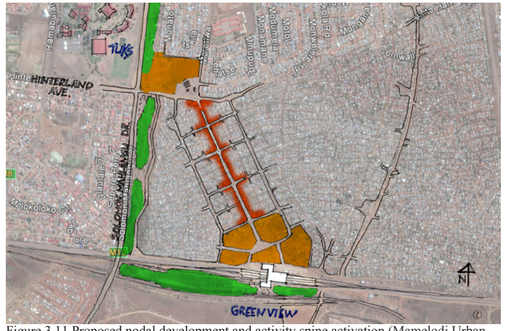


Figure 3.11 Proposed nodal development and activity spine activation (Mamelodi Urban Vision, 2016)

New developments will then happen at the identified primary and secondary nodes and gradually move along the activity spines ensuring the activation of the spines and allowing energy to move on the new north to south axes (figure 6).

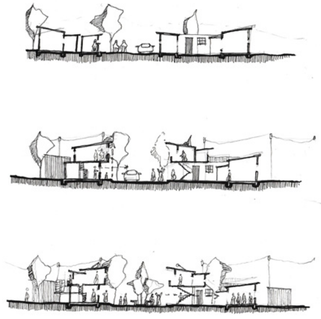


Figure 3.12 Phased growth of street (Mamelodi Urban Vision, 2016)

The proposed result of these interventions is the growth of smaller nodes within the activity spine. The hubs that will grow and house various activities and facilities, allowing Mamelodi to become a township with economic and financial opportunities within. The intention is that this revitalisation of Mamelodi will allow it to become an export of goods and services and not only labour as it currently does (figure 7).

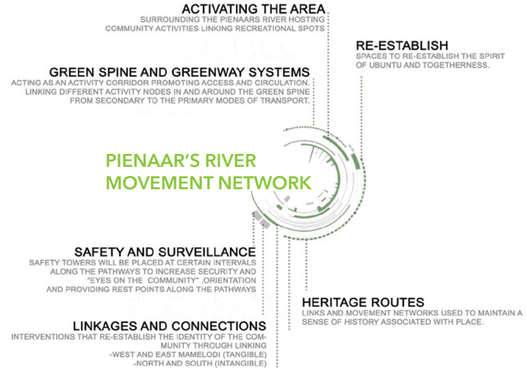


Figure 3.13 Pienaar's River Movement Network Diagram (Mamelodi Urban Vision, 2016)

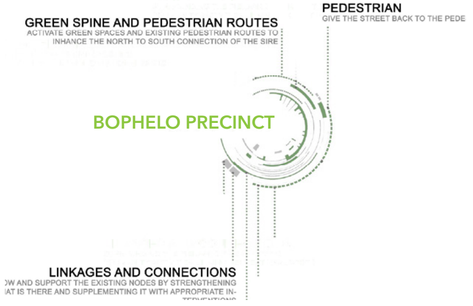


Figure 3.14 Bophelo Precinct Diagram (Mamelodi Urban Vision, 2016)

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Bophelo Precinct Proposal

Figure 3.15 Bophelo Precinct Proposal (Bophelo Precinct Proposal, 2016)

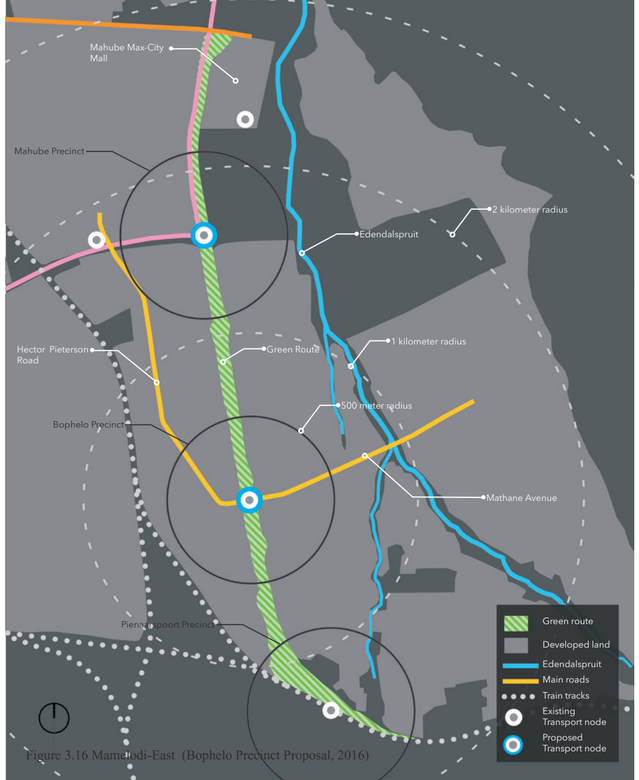


Figure 3.16 Mamelodi-East (Bophelo Precinct Proposal, 2016)

Figure 3.17 Mahube Precinct Proposal (Bophelo Precinct Proposal, 2016)

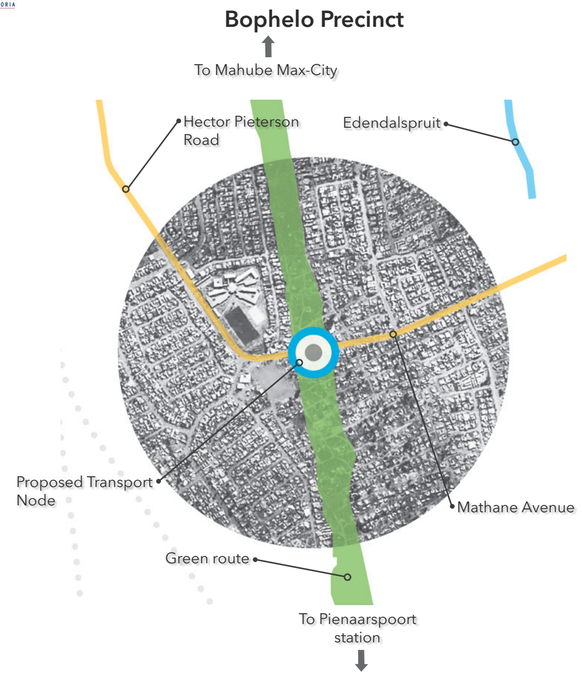


Figure 3.18 Bophelo Precinct Proposal (Bophelo Precinct Proposal, 2016)

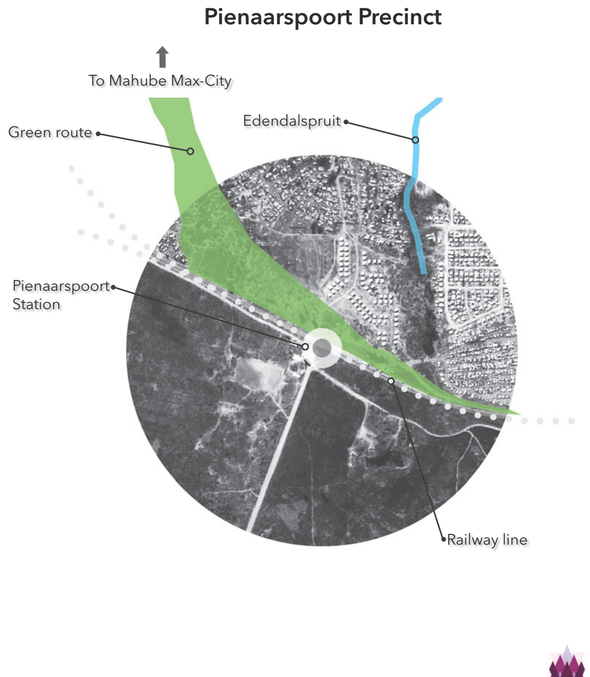


Figure 3.19 Pienaarspoort Precinct Proposal (Bophelo Precinct Proposal, 2016)

Existing routes

Figure 3.20 Existing routes (Bophelo Precinct Proposal, 2016)

Existing Zones

Figure 3.21 Existing zones (Bophelo Precinct Proposal, 2016)

Proposed Green Route

Figure 3.22 Proposed green route (Bophelo Precinct Proposal, 2016)

Proposed networks

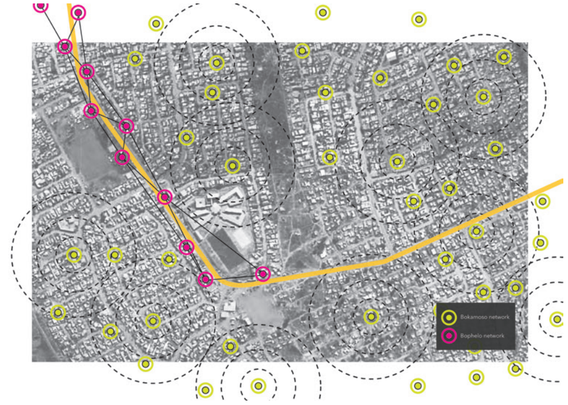


Figure 3.23 Proposed Networks (Bophelo Precinct Proposal, 2016)

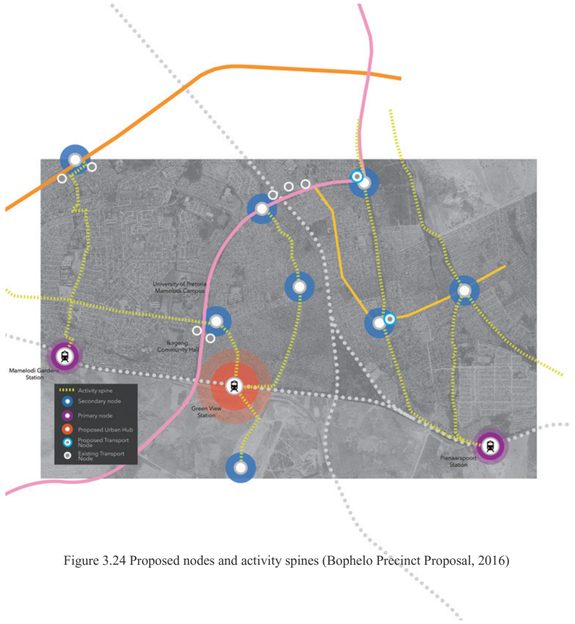


Figure 3.24 Proposed nodes and activity spines (Bophelo Precinct Proposal, 2016)

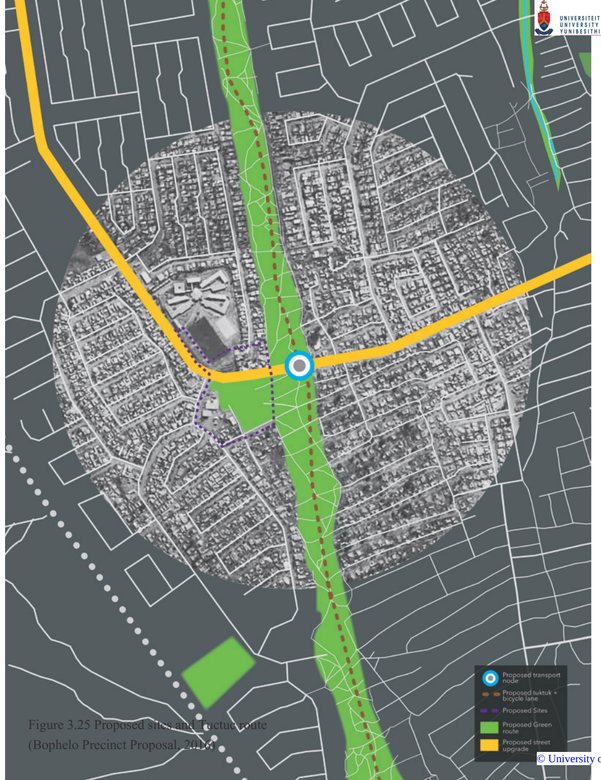
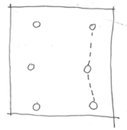
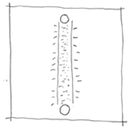


Figure 3.25 Proposed site, and structure route (Bophelo Precinct Proposal, 2016)



1. Improve connection between the nodes

The connection between an urban core (Mahube Max-City mall); the public transport interchange on corner of Hector Peterson road and Solomon Mahlangu Drive.; and Pienaarspoort train station. This is to strengthen the north to south axis within Mamelodi.

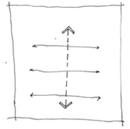


2. Activate the "green route"

The green route is an import route linking the various transport nodes to the urban core. The green route becomes a pedestrian route which will be activated at various points with commercial, agricultural and recreational activities. It also becomes a catalyst of reactivating green spaces in the community.

3. Promote pedestrian + cyclist movement

The public amenities, economical opportunities and public transports hubs within Mamelodi are far away from Lusaka. These social infrastructures will be implemented in Lusaka to give better access to these facilities and help promote a pedestrian oriented community.

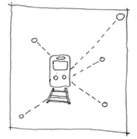


4. Connect existing east - west axis with a new north - south axis.

Movement of people and goods moves on an east – west axis. The green route and additional nodal activation strategies aim to fulfil a movement across the north – south axis to create a better network within Mamelodi.

5. Upgrading street edge

The street is identified as a valuable and contested space. The street becomes a catalyst to greater urban change through identifying the street as a valuable element in the community and then upgrading these edges.

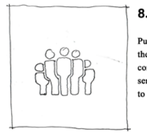


6. Improve access to public transport nodes

Public transport is an important component within the community as it connects them to the rest of Mamelodi and the city of Pretoria.

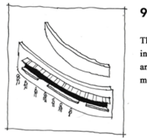
7. Improve safety within community

By improving the networks and relationships within Lusaka, there is an opportunity to improve the social cohesion and by doing that, a more healthier and more secure environment is created for the community



8. Increase access to public amenities

Public amenities are located far away from Lusaka thereby decreasing their access to basic services that a community needs. By increasing the access to these services, the community is better served and their right to the basic public services is addressed.



9. Improve the market edge

The street edge and the commercial activity identified in the main streets of Lusaka is an important element and presents an opportunity of identifying the informal market as an element of the culture of the community.

Figure 3.26 Proposal summary (Bophelo Precinct Proposal, 2016)

chapter 4 | nne vier
theory

4.1 Introduction to Theory

"A city, however perfect in its initial shape, is never complete, never at rest... more cities come about without benefit of designers or once designed, set about instantly to adapt themselves to the rituals of the everyday.
Spiro Kostof (1991)

The rapid organic urbanisation of informal settlements and edge cities has been seen as a negative phenomenon by many authorities, suburb dwellers and even residents of informal settlements themselves. The main problem is not that of rapid urbanisation but the clashes that occur between structured planning policies, that usually has an end goal in mind, and the unstructured urban growth, which uses resources more efficiently on an immediate time scale.

Design strategies could be adapted to move away from the idea of project as an isolated finished design to one of insertion, that better responds and adapts to the complexities of the everyday.

Steyn (2008) states that the imperative now is for architects, activists, planners and politicians to accept the informality that David Dewar is so passionate about, and to work with communities. He argues that *"if properly handled it could form the basis for prosperity and provide pleasant public spaces"* (Steyn, 2008)

Figure 4.1 African fractal geometry (Eglash, 1999)

4.2 Ritual of the Everyday

"... a belief in the genius of man; a belief in the creative ability of man and his ability to manage and mould his own environment. Not only does man have this ability, but it is essential that it be given rain. By definition, the process of human development involves self actualisation – the utilisation of an individual's own energies and talents to improve his condition. Good environment necessarily stimulates self actualisation. While maintaining overall environmental quality, it provides the framework within which the individual does those things he is best able to do. It enables and frees – it does not restrict." Dewar (1977).

Parvin (2013) believes that designers have the ability to notice lost opportunities and to synthesize how a countless of divergent elements could lend themselves to creating platforms for users
to activate space.

"In the field of architecture, public buildings have the ability to work both with the built fabric and the community as they are, communicating what they have the potential to become. The architect is also an interpreter of values and aspirations in a culture, and because of the life span of the built environment, thereby contributes in a significant way to a society's present and future self-perception. Holden (1995)

According to von Kotze, 2010 a livelihood approach deals with people as subjects and considers them as "active agents who draw on particular locally available resources in order to create the means for life and living". A livelihood approach recognizes that people, however poor, have developed and mobilise coping mechanisms, capabilities, knowledge and skills. People draw on local knowledge and locally available resources in order to make a living and deal with daily obstacles and uncertainties (von Kotze, 2010).

An architecture of the everyday is shaped by careful consideration of ordinary activities that form part of domestic rituals (Harris & Berke, 1997)

4.3 Living Heritage

In 2004 the Gauteng Department of Housing intends to eradicate all informal settlements by building 200 000 medium density, low-cost houses (Gauteng Department of Housing, 2004). This however was not achieved and completely ignored the heritage component of townships which has lately received a lot of tourism interest. The idea of clean slate housing for the poor is very noble but neglects to incorporate existing social networks, ingenuity of materials used and existing skills within the communities of informal settlements.

Marinelli (2015) explains that street markets and hawking played an organically constitutive part of Hong Kong's history, culture, and socio-economic development. Since the inception of the colony trading on riverbanks and around harbours, street markets always played an integral role in shaping the landscape for population growth and urban development of Hong Kong. He argues that they not only serve as localized and more cost effective alternatives to supermarkets for fresh produce, but that they also provide their local customers with the chance to interact directly with the producers, distributors, and ultimately, with one another. He describes markets are spaces of social inclusion, laboratories for collective experiences of public space and 'living heritage', and in addition to that, they have progressively become the testing grounds for bottom-up practices of democratization thanks to the community's battle to preserve this 'living heritage' against the profit-driven logic of domicide and memoricide (Porteous, Smith, 2001).

4.4 Education

The 2011 census recorded that 3.2 million young people between the ages of 15 and 24 were not in employment, education or training. Of these, 523 000 had only achieved a primary school education or lower, and nearly 1.5 million had less than a Grade 10 education (DHET, 2014).

The White Paper for Post-school Education and Training (DHET, 2014) calls for a new type of institution to be built that could offer a diverse range of possibilities to people for whom TVET colleges and universities are not desirable or possible.

As part of the technical occupational stream of schooling, 26 new subjects will be introduced, that includes spray-painting, panel-beating, hairdressing, upholstery, husbandry. There are immense possibilities of utilising existing skilled residents in informal settlements. The patterns of Alexander et al. (1997) could be used to identify and utilise existing networks within communities.

Alexander et al (1997) states that a university should be a collection of small buildings that are situated along a path. Each of these building containing one or two educational projects. The horizontal circulation between these projects should be in the public domain by opening directly to a pedestrian path. Like a marketplace, the paths should form one major pedestrian system (Alexander et al., 1997)

A network of learning in the community should rely on decentralised learning. Alexander et al (1997) argues that the fundamental learning situation is when a person learns by helping someone who knows what they are doing. If the educational system becomes radically decentralized it will become congruent with the urban structure itself. Alexander et al (1997) envisages that people of all walks of life could offer a class in the things they know and love and that professionals and workgroups would offer apprenticeships.

Ferrinho (1980) states that a school should not be divorced from the surrounding world of living reality because it does not solely exist to perform academic tasks, but also to meet the felt needs of a community.

Nafukho et al. (2005) states that it is possible that through mutual respect and trust, traditional knowledge experts can work with those from other knowledge systems to generate more effective
solutions for contemporary problems in Africa and the world.

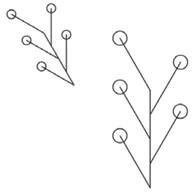
4.5 Conceptual

The concept is to address the void left by pendulum migration through skills development and platform provision. The abundance of informal shops and trades provide an opportunity to investigate potential network, collaborations, skills training and African market streets. Low-carbon input materials, that are locally sourced, and craftsmanship utilizing the local community are crucial in creating resilient communities. Skills development and pride in local materials and methods ensure the sustainability of future development.

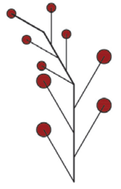
Alistair Parvin (2013) suggests that we should design for disassembly by not removing design from the cycle of alteration. He proposes that we construct using parts that are able to change the function of the design over time, thus allowing it to be flexible to the changes in culture and society.

"We want one man to be always thinking, and another to be always working, and we call one a gentleman and the other an operative; whereas the workman ought often to be thinking, and the thinker often to be working, and both should be gentlemen, in the best sense. As it is, we make both ungentle, the one envying, the other despising, his brother; and the mass of society is made up of morbid thinkers and miserable workers. Now it is only by labour that thought can be made healthy, and only by thought that labour can be made happy, and the two cannot be separated with impunity." - John Ruskin

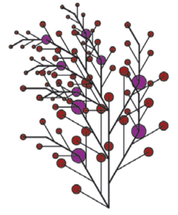
chapter 5 | hlano vyf
programme



Fractal 1



Fractal 2



Fractal 3

Phase 1 - Skills App

Phase 2 - Stall upgrade

Phase 3 - TVET College

Figure 5.1 Fractal design approach (Author, 2016)

Phase 1 - Skills App

Facilitate, inform and promote the local artisan.

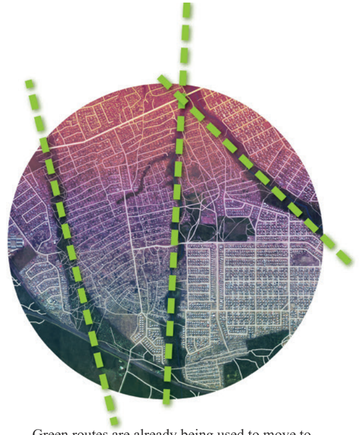
Phase 2 - Stall upgrade

Individual stalls to be upgraded by local artisans, providing skills exposure and improving the sense of place.

Phase 3 - TVET College

The training and examination can be structured around the production of tuktuks through collaboration between the different guilds.

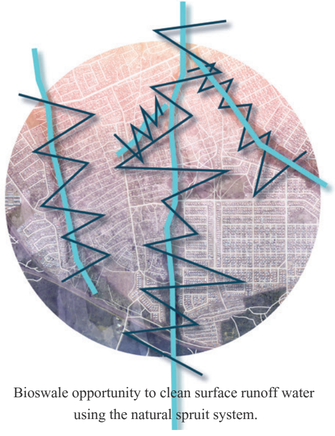
Figure 5.2 Fractal interventions (Author, 2016)



Green routes are already being used to move to and between transport nodes.

Ecology

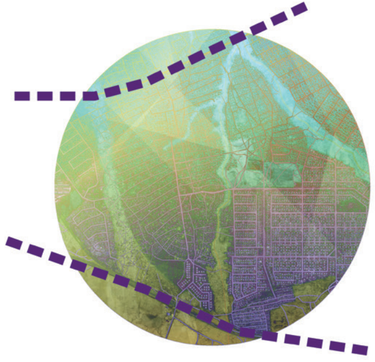
Street upgrade to encourage pedestrian and cyclist movement between green routes.



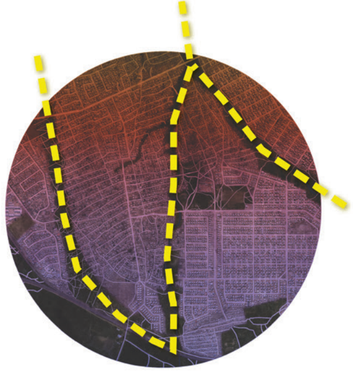
Bioswale opportunity to clean surface runoff water using the natural spruit system.

Figure 5.3 Ecological intention (Author, 2016)

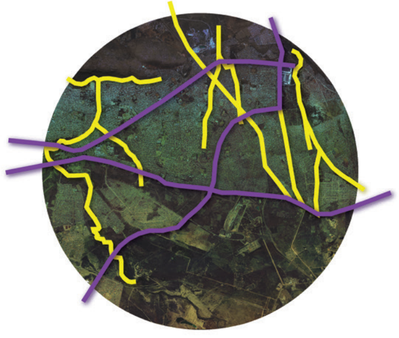
Transport



Improve pedestrian and cyclist experience on existing E-W routes.



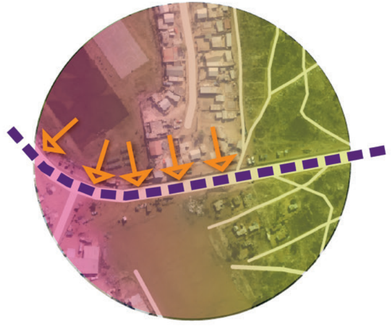
Improve access to transportation nodes through the proposed secondary green routes for pedestrians, cyclists and tuktuks.



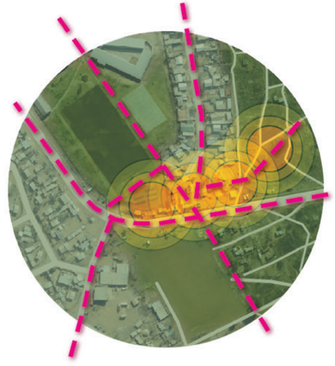
New routes connect the existing routes to form an integrated, multi-directional transport system.

Figure 5.4 Transport intention (Author, 2016)

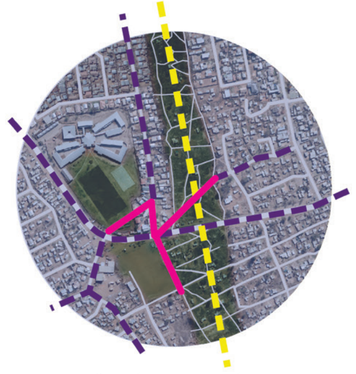
Programme



Elevate and utilise the existing street artisan culture.



Maximise skill exposure and provide a platform for collaboration.



Strengthen transport node.

Figure 5.5 Programmatic intention (Author, 2016)

chapter 6 | tshela ses
precedents

Phase 1 - Collaboration

Stephen Burks

Stephen Burks is an industrial designer that works directly with artisans around the world to create unique, high-end products. In 2005 Burks was invited by Aid to Artisans and Artecnica to visit South Africa. Since then he has been conducting an ongoing series of collaborations with artisans from Cebu to Senegal, Cape Town to Cuzco (Moreno, 2014).

Burks has been helping craftspeople make a variety of objects, ranging from furniture and lighting to baskets and fashion accessories. This has formed a practical synthesis of hand and industrial making. He has worked in ceramics, macramé, crochet, and topa wood. Burks applies what he learns from artisans in his Manhattan studio, Readymade Projects, to products he designs for European luxury brands (Moreno, 2014).

Figure 6.1 Wire worker at *Feeling African* (Old Mutual Foundation, 2011)

"Using [artisanal] techniques to add value and build brand positioning in the market is what it's all about. These are ways we can use design to extend craft traditions into the future." Stephen Burks

High-end brands consult Burks because he creates a contemporary hybrid of artisan and commercial products. He does this by transforming traditional materials, forms, and techniques, or finds new ways of expressing them. He continues to explore both artisanal and industrial production methods (Moreno, 2014).

For the artisans, the work can help drive local economic development, by working with Burks it shows them the possibilities of a wider market. This helps them develop their design skills and understanding of trends. When Burks leaves developing areas, he leaves behind a local organization that will continue to support small-business development (Moreno, 2014).

"The closer designers can get to the process of making," he says, "the more we can understand and create unique results." Stephen Burks

Figure 6.2 Wire working workshop *Feeling African* (Old Mutual Foundation, 2011)

Cape Town-based Willard Musarurwa was a street vendor that made wire souvenirs for tourists. He met Burks through a local design institute and together they created TaTu wire outdoor furniture, that was launched by Artecnica in 2007. Thanks to this collaboration, Musarurwa was able to start his own business, Feeling African, and employ nine people(Moreno, 2014).

"I saw the work with the artisans as a collaboration that gave a unique voice to the products I began making, a voice that was less interested in the end result and more interested in the story of getting there." Stephen Burks

Burks states that the best projects are those that leave space for the imagination of the artisans (Moreno, 2014).

Figure 6.3 Burks and Musarurwa (Moreno, 2014)

Phase 2- Street Upgrade

Hutong Infill, Beijing, China, by Standard Architecture

Micro-Hutong infill is a building experiment by standardarchitecture team on the Yang-Mei-Zhu street in the Dashilar area. The goal of the project was to search for possibilities of creating small scale social housing within the limitations of super-tight traditional hutong spaces of Beijing (ArchDaily, 2015)

The dynamics of the hutong revealed that even with the menacing grip of real estate development, the biggest problem of the hutong was of the continuing exodus of its occupants. Many residents are concerned with the lack of facilities and the absence of quality communal space, and decide to sell and move out to bigger apartments outside of the city centre (ArchDaily, 2015).

The architectural response is an intervention that brings back the courtyard as a generator of program. It activates the building by creating a direct relationship with its urban context, and drawing social activities to its interior.

Figure 6.4 Hutong infill (standardarchitecture, ArchDaily, 2015)

The courtyard acts as a flexible urban living room that forms a transition zone from the private rooms to the street. It serves as a semi-public space to be used by both the inhabitants of the Micro-Hutong and the neighbors of the community (ArchDaily, 2015).

The Micro-Hutong respects the intimate scale of the traditional hutong. This revitalizes its social condensing capabilities, while enhancing it with spatial improvements. By using light-steel structure and plywood panel cladding it allows for low-cost construction, while creating new possible reconfigurations for the future of the Hutong in Beijing (ArchDaily, 2015).

Figure 6.6 Hutong infill section (standardarchitecture, ArchDaily, 2015)

Figure 6.7 Hutong infill section (standardarchitecture, ArchDaily, 2015)

Figure 6.5 Hutong infill model (standardarchitecture, ArchDaily, 2015)

Figure 6.8 Hutong infill model (standardarchitecture, ArchDaily, 2015)

Phase 3- Educational Facility

Meetse-a-Bophelo Primary School, Mamelodi by Geldenhuys and Jooste Architects

In 2009, ArcelorMittal South Africa initiated a ZAR250 million school building project (about 17 mln EUR), through which ten schools are built in underprivileged areas around the country. In 2010, with the building of The Meetse-A-Bophelo Primary School, the Mamelodi Township in Tshwane was the first community to benefit from this multi-million rand project by ArcelorMittal South Africa Foundation and ArcelorMittal Construction (ArcelorMittal South Africa, n.d.).

The remaining nine schools are being built until 2016, with two schools scheduled for the Eastern Cape and one school each for the other provinces. All ten schools are built using light weight steel and Arval panels with the view to promoting the use of steel in domestic buildings (ArcelorMittal South Africa, n.d.).

Figure 6.9 Courtyard between classroom wings (Author, 2016)

Meetse-A-Bophelo Primary School was designed to accommodate 1 200 learners at any given time. The site where the new school was built previously accommodated 1 500 learners in classes made from prefabricated material. The nett area of the buildings constructed is 3 367m2 and has 1,400m2 of walkways and undercover seating areas (ArcelorMittal South Africa, n.d.).

The architect designed the classrooms in three wings around a central nutrition area in order to group the learning phases together, to maximise the area of north-facing facades to promote natural ventilation, heating and cooling. The gradient over the site is compensated for by the ramps and steps leading from the central core Nutrition centre. The ramps provide access to the different buildings for pupils in wheelchairs (ArcelorMittal South Africa, n.d.).

Figures 6.10, 6.11 and 6.12 Meetse-a-Bophelo Primary School (ArcelorMittal South Africa, n.d.)

chapter 7

design + technical development

supa sewe

Figure 7.1 App proposal 1 (Author, 2016)

Figure 7.2 App proposal 2 (Author, 2016)

Current stall condition

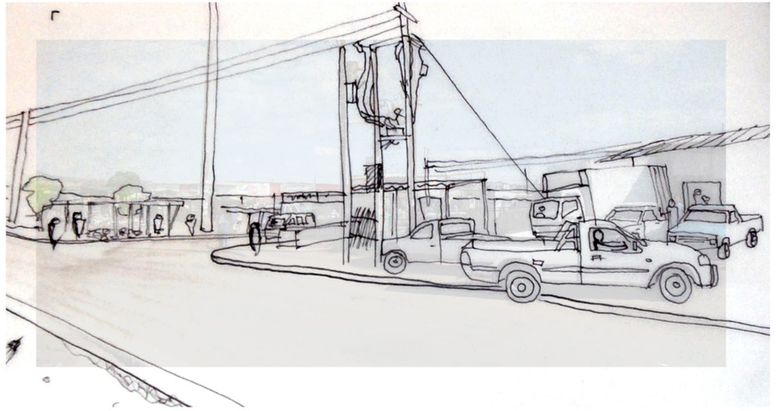


Figure 7.3 Current stall condition (Author, 2016)

PHASE 2

Proposed stall upgrade

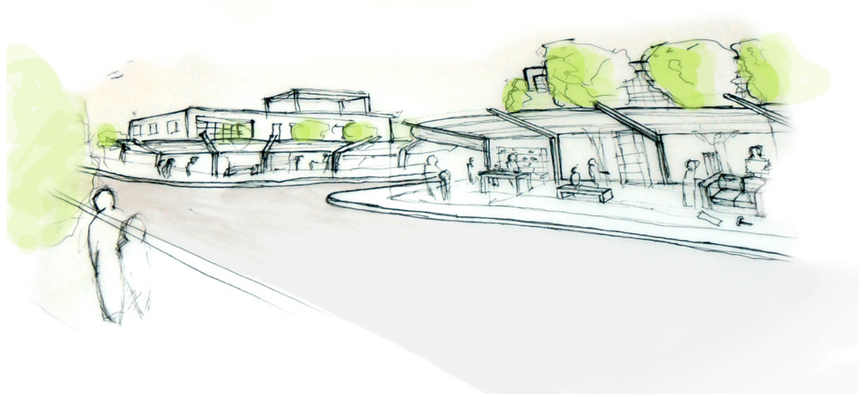


Figure 7.4 Proposed stall upgrade (Author, 2016)

Proposed infill-upgrade sites

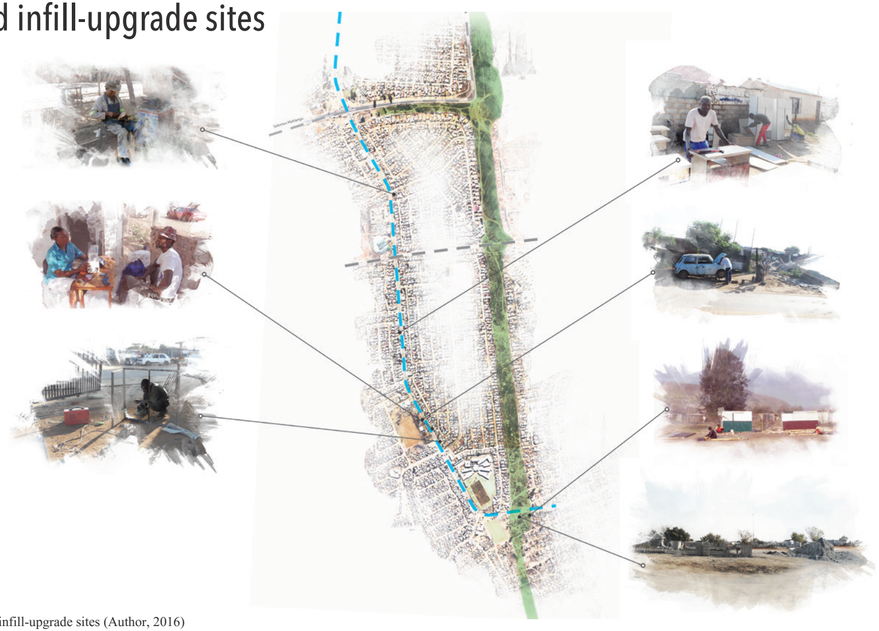
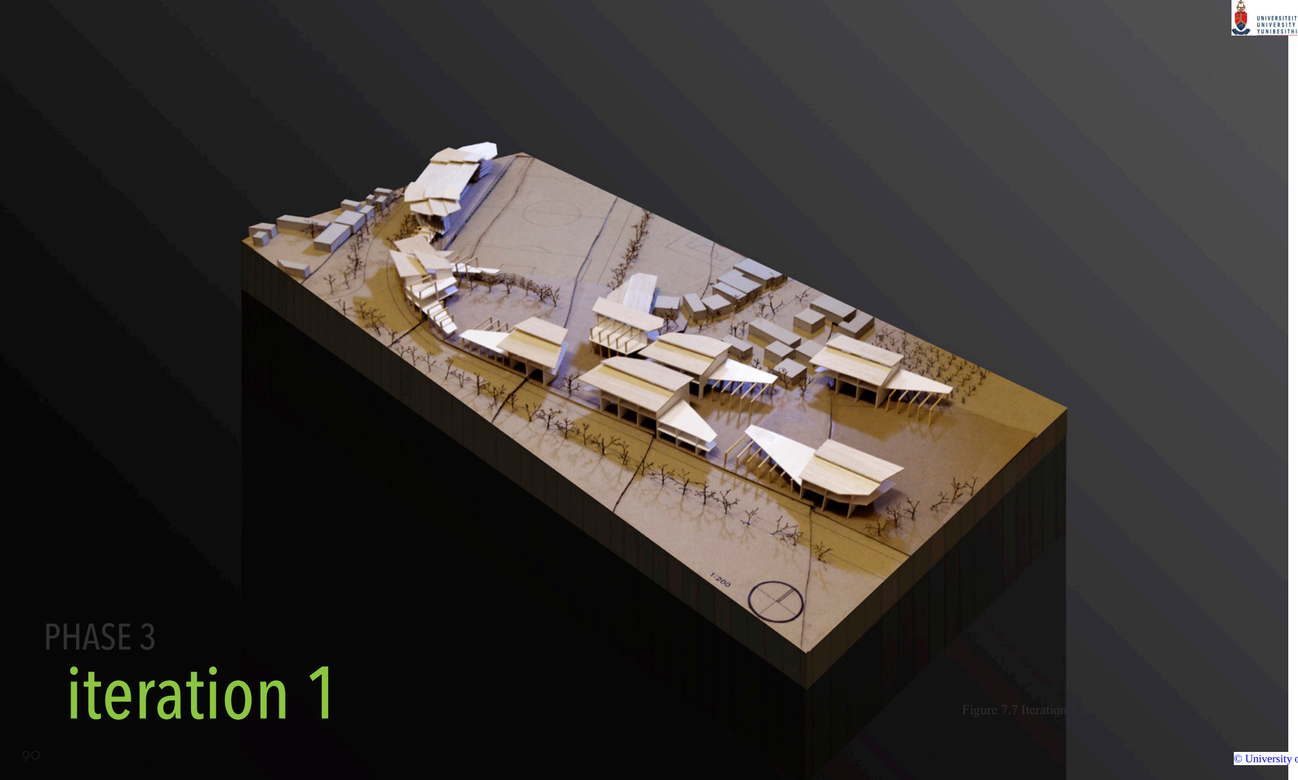


Figure 7.5 Proposed infill-upgrade sites (Author, 2016)

bophelo
Trade Training Centre

Figure 7.6 Bophelo Trade Training Centre Logo (Author, 2016)

PHASE 3



PHASE 3

iteration 1

Figure 7.7 Iteration 1 model (Author, 2016)

Figure 7.8 Iteration 1 plan (Author, 2016)

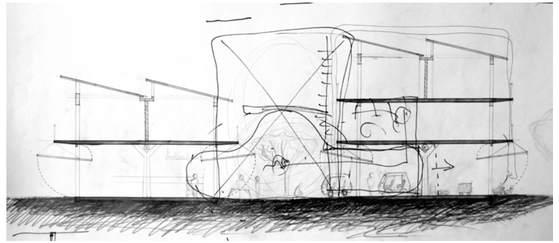


Figure 7.9 Collaboration corridor section (Author, 2016)

Figure 7.10 Edge condition plan (Author, 2016)

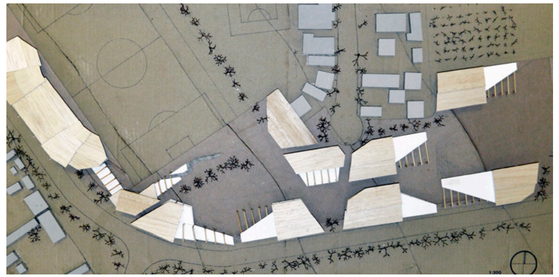


Figure 7.11 Iteration 1 model (Author, 2016)

Figure 7.12 Outside working space relationship (Author, 2016)

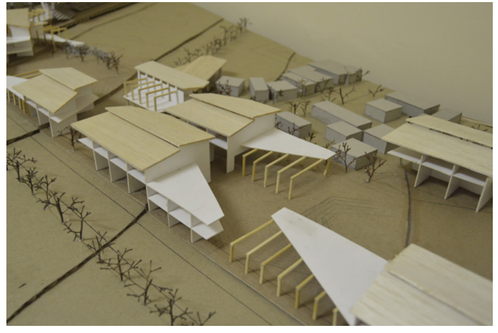


Figure 7.14 Iteration 1 model (Author, 2016)

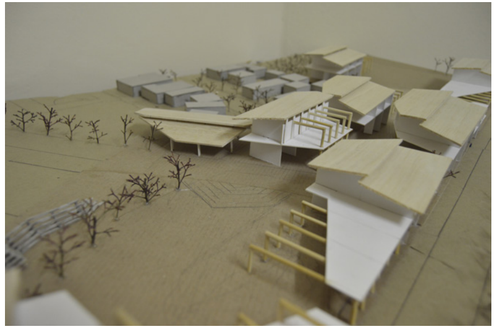


Figure 7.15 Iteration 1 model (Author, 2016)

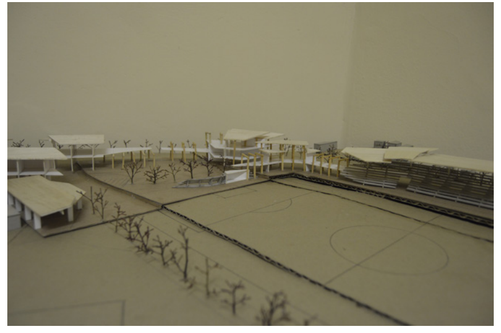
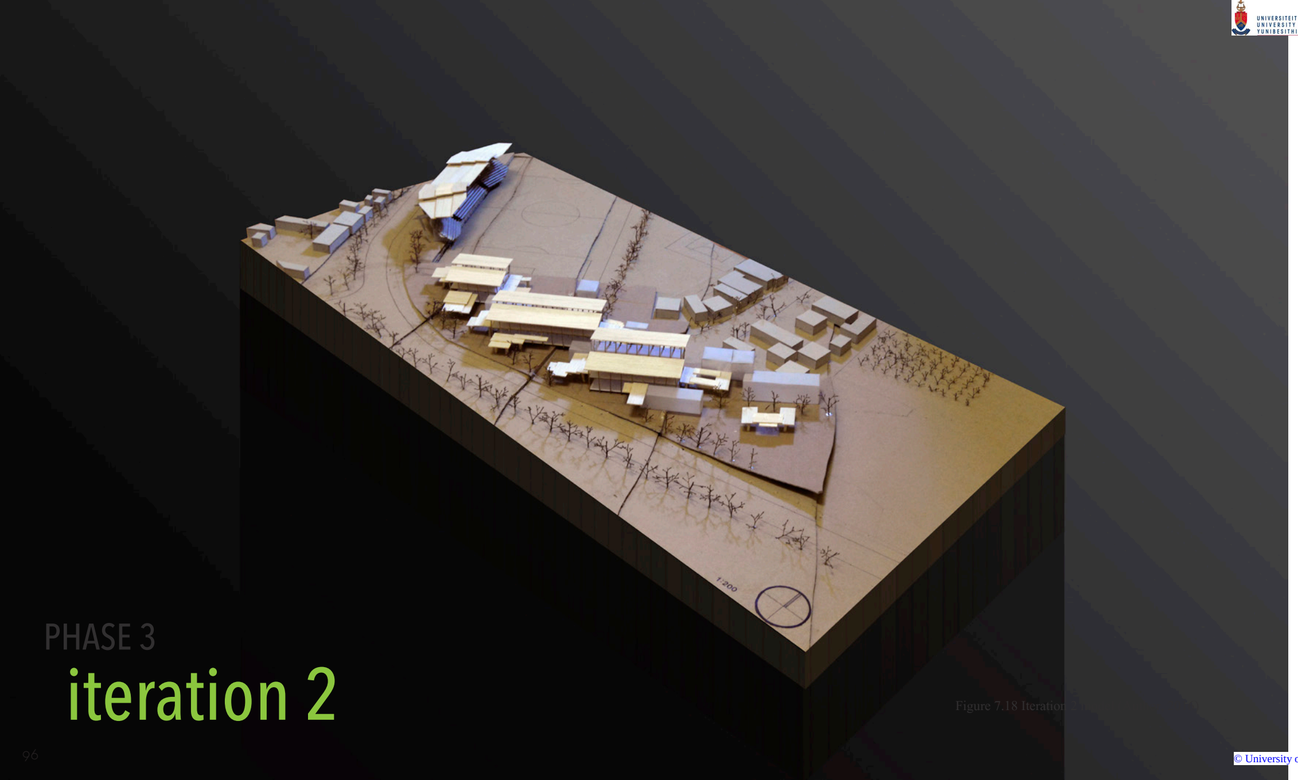


Figure 7.16 Iteration 1 model (Author, 2016)

Figure 7.17 Iteration 1 model (Author, 2016)



PHASE 3

iteration 2

Figure 7.18 Iteration

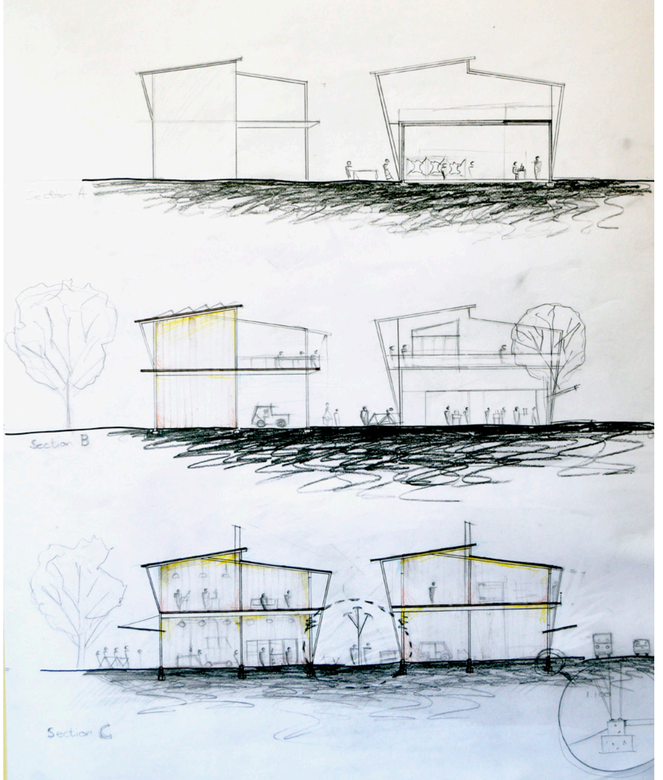


Figure 7.19 Section Development (Author, 2016)

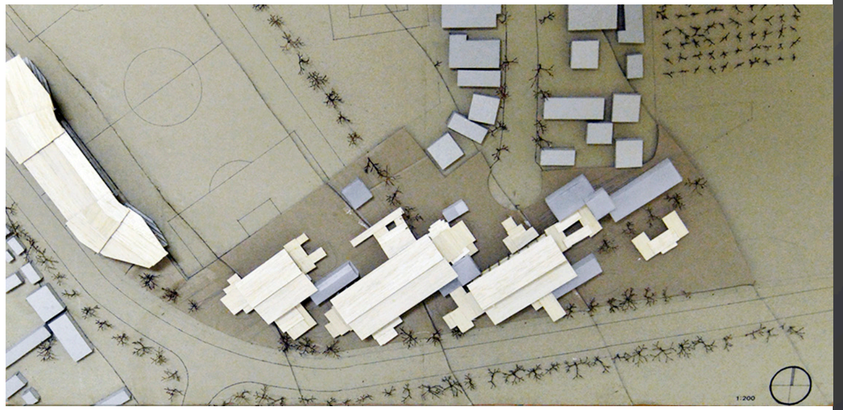


Figure 7.20 Iteration 2 model (Author, 2016)

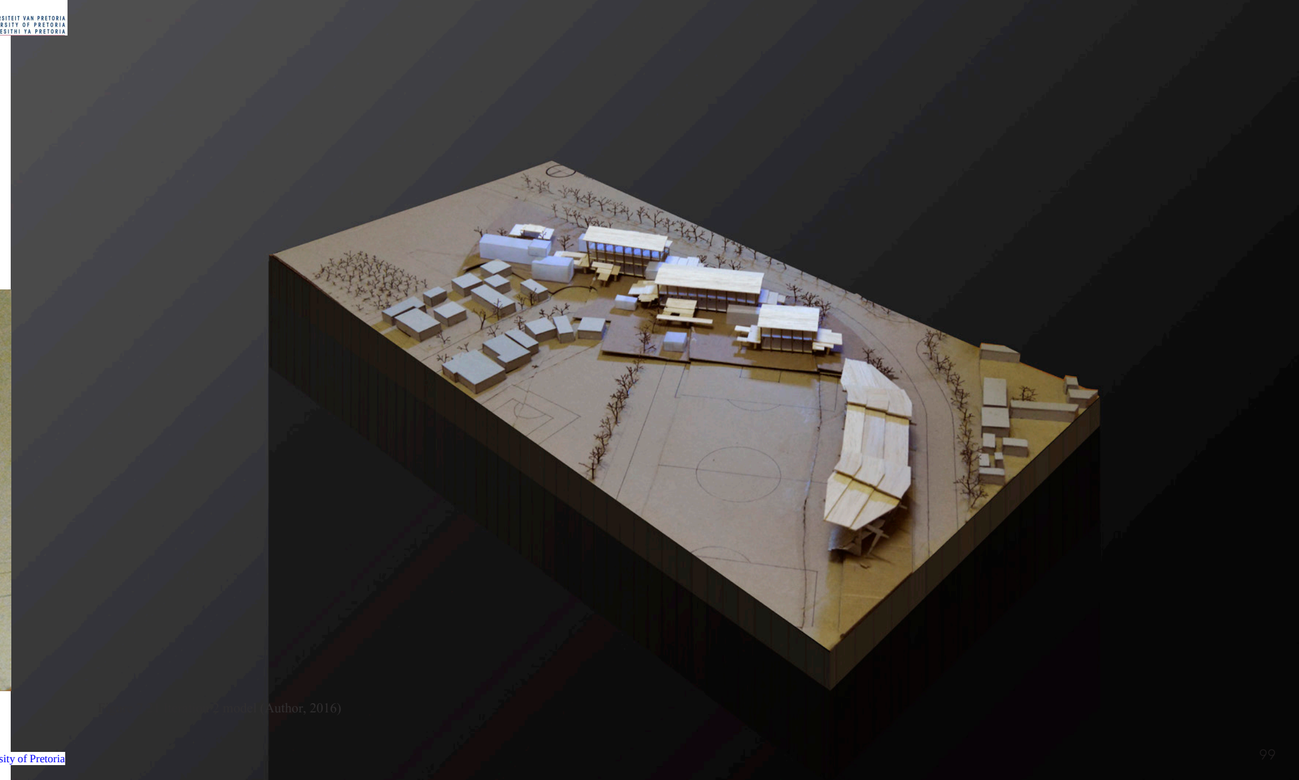


Figure 7.21 Iteration 2 model (Author, 2016)

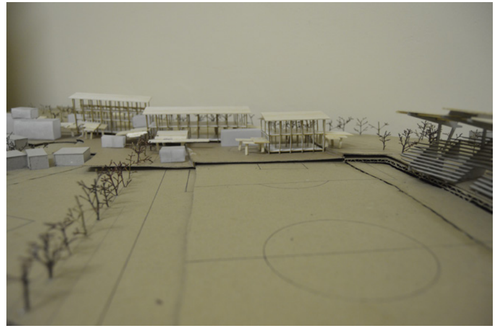
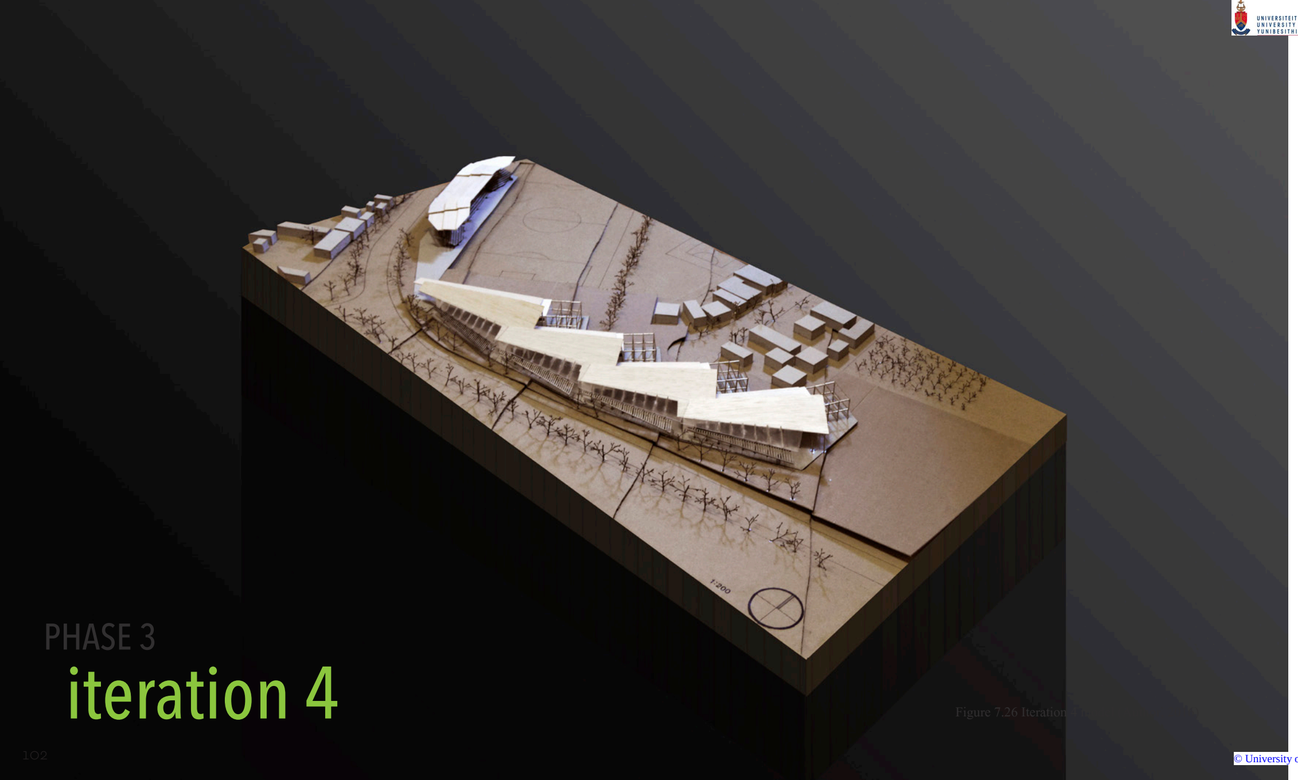


Figure 7.22 Iteration 2 model (Author, 2016)

Figure 7.23 Iteration 2 model (Author, 2016)

Figure 7.24 Iteration 2 model (Author, 2016)

Figure 7.25 Iteration 2 model (Author, 2016)



PHASE 3

iteration 4

Figure 7.26 Iteration

Figure 7.27 Ground floor plan (Author, 2016)

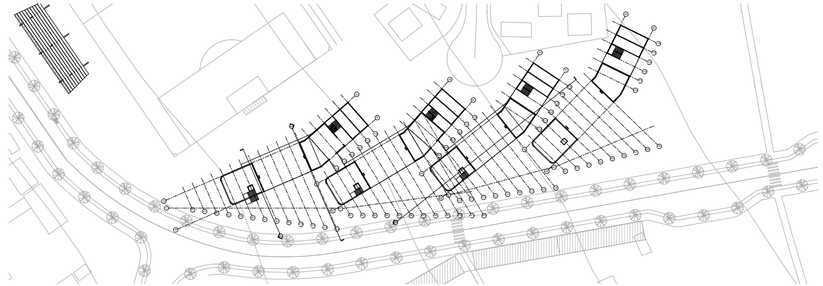


Figure 7.28 First floor plan (Author, 2016)

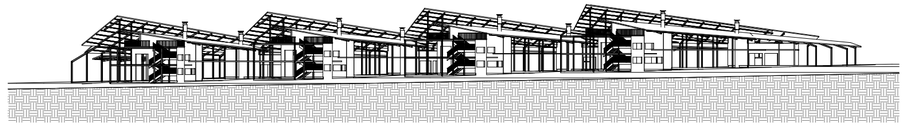


Figure 7.29 Northern Elevation (Author, 2016)

Figure 7.30 Southern Elevation (Author, 2016)

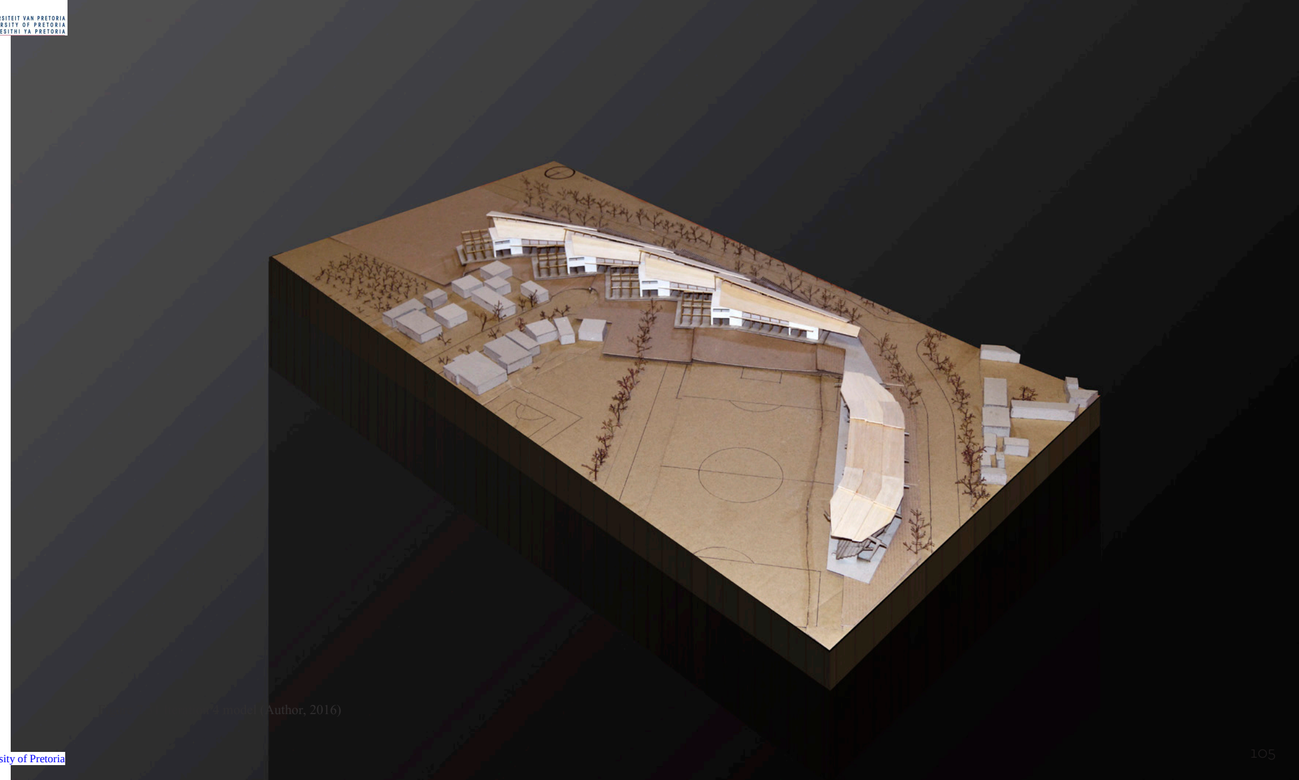


Figure 7.31 Model (Author, 2016)

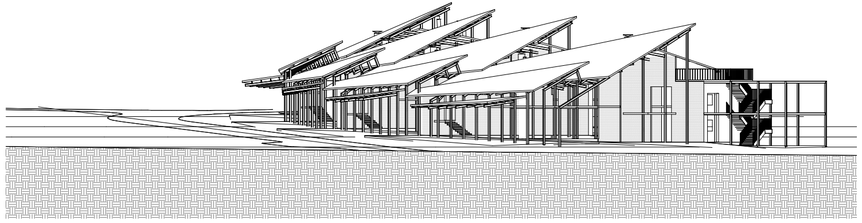


Figure 7.32 Eastern Elevation (Author, 2016)

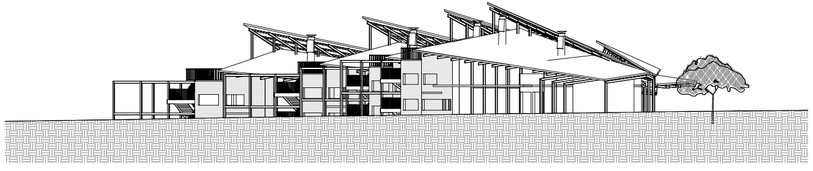


Figure 7.33 Western Elevation (Author, 2016)

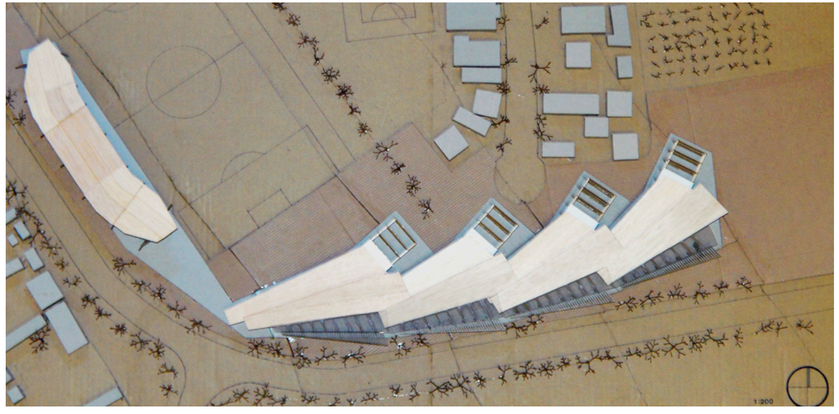


Figure 7.34 Iteration 4 model (Author, 2016)

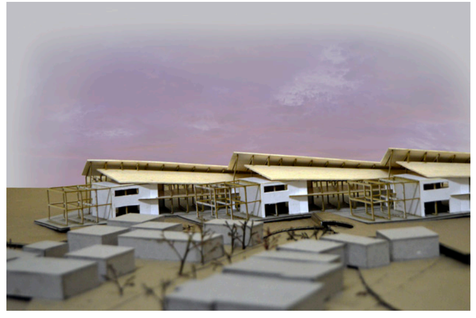


Figure 7.35 Iteration 4 model (Author, 2016)

Figure 7.36 Iteration 4 model (Author, 2016)

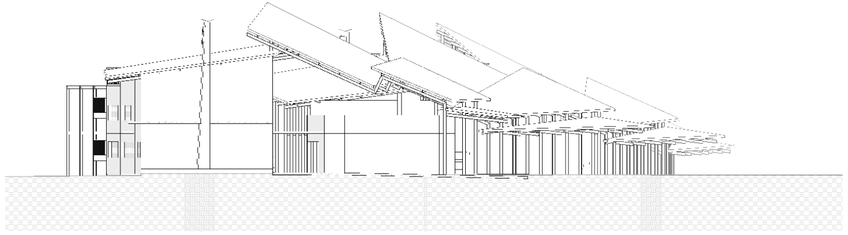


Figure 7.37 Section A-A (Author, 2016)

Figure 7.38 Section B-B (Author, 2016)

Figure 7.39 Iteration 4 model (Author, 2016)

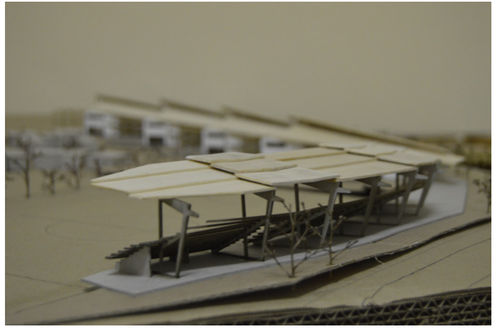
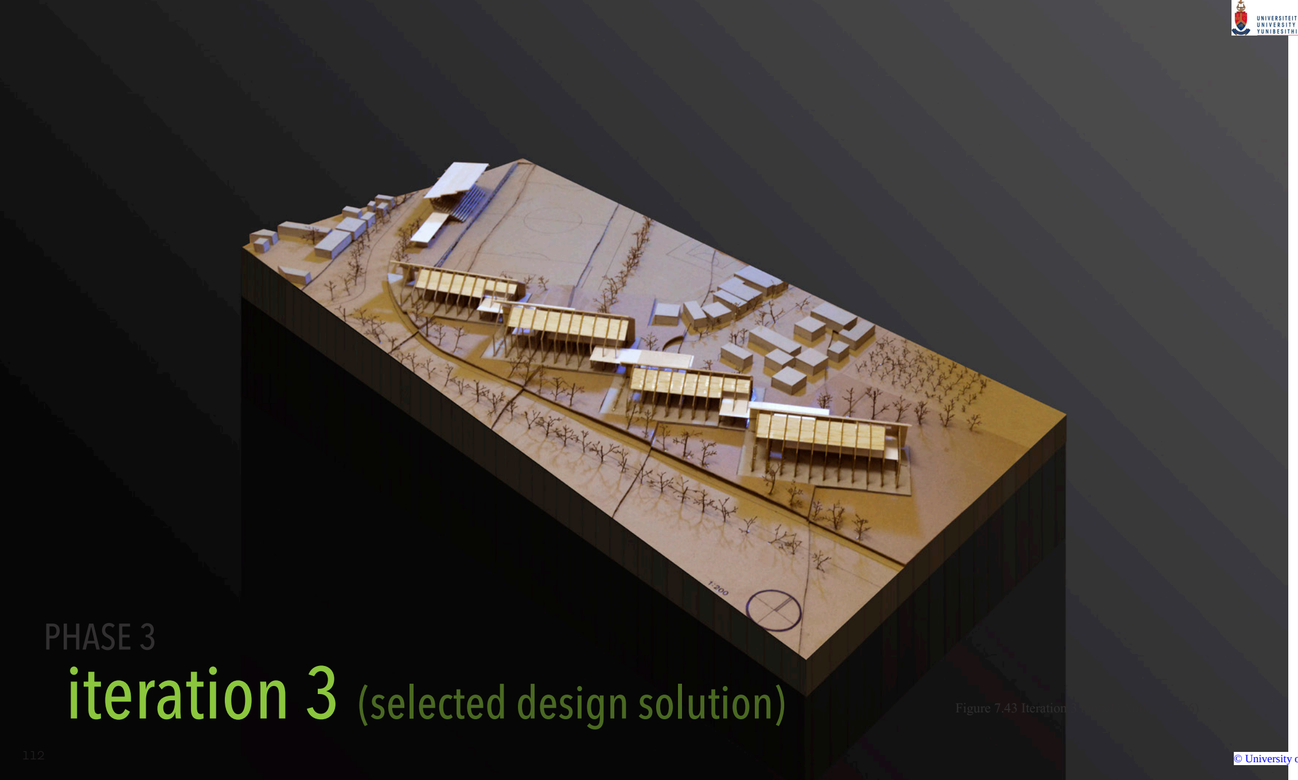


Figure 7.40 Iteration 4 model (Author, 2016)

Figure 7.41 Iteration 4 model (Author, 2016)

Figure 7.42 Iteration 4 model (Author, 2016)



PHASE 3

iteration 3 (selected design solution)

Figure 7.43 Iteration 3 (Author, 2016)

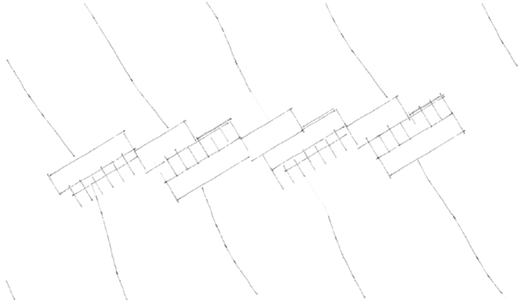


Figure 7.44 Iteration 3 site plan (Author, 2016)

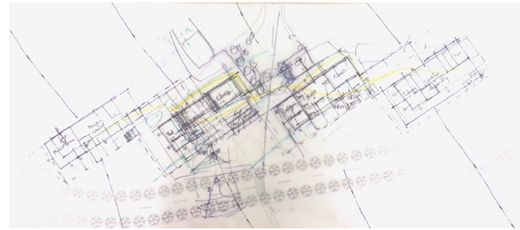


Figure 7.45 Ground Floor Development (Author, 2016)

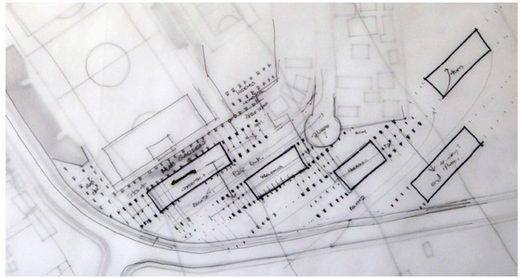


Figure 7.46 Expansion possibilities (Author, 2016)

Figure 7.47 Street edge (Author, 2016)

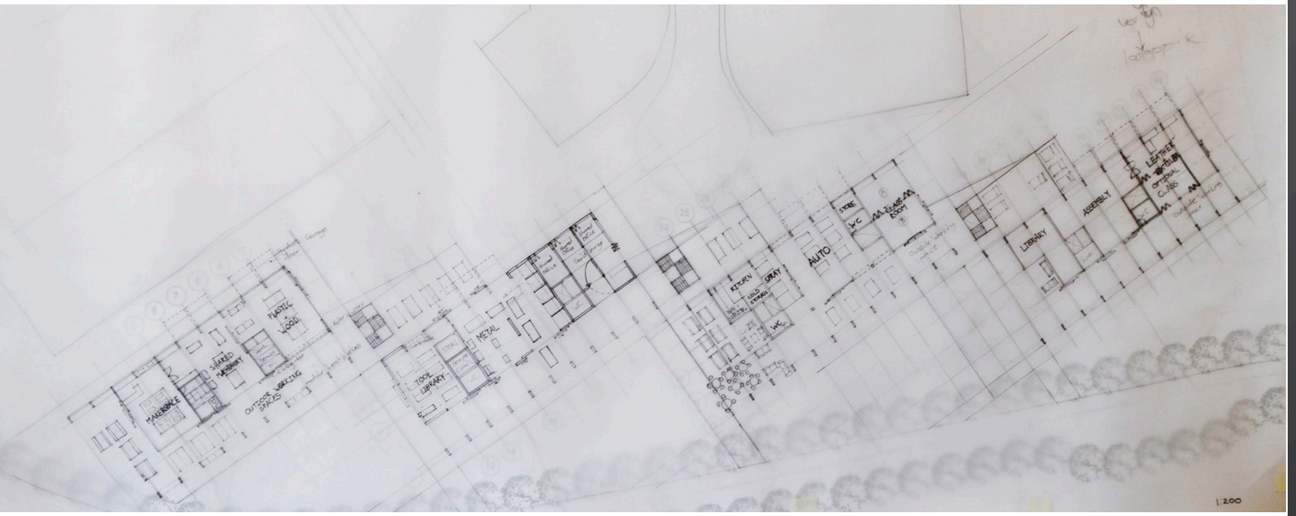
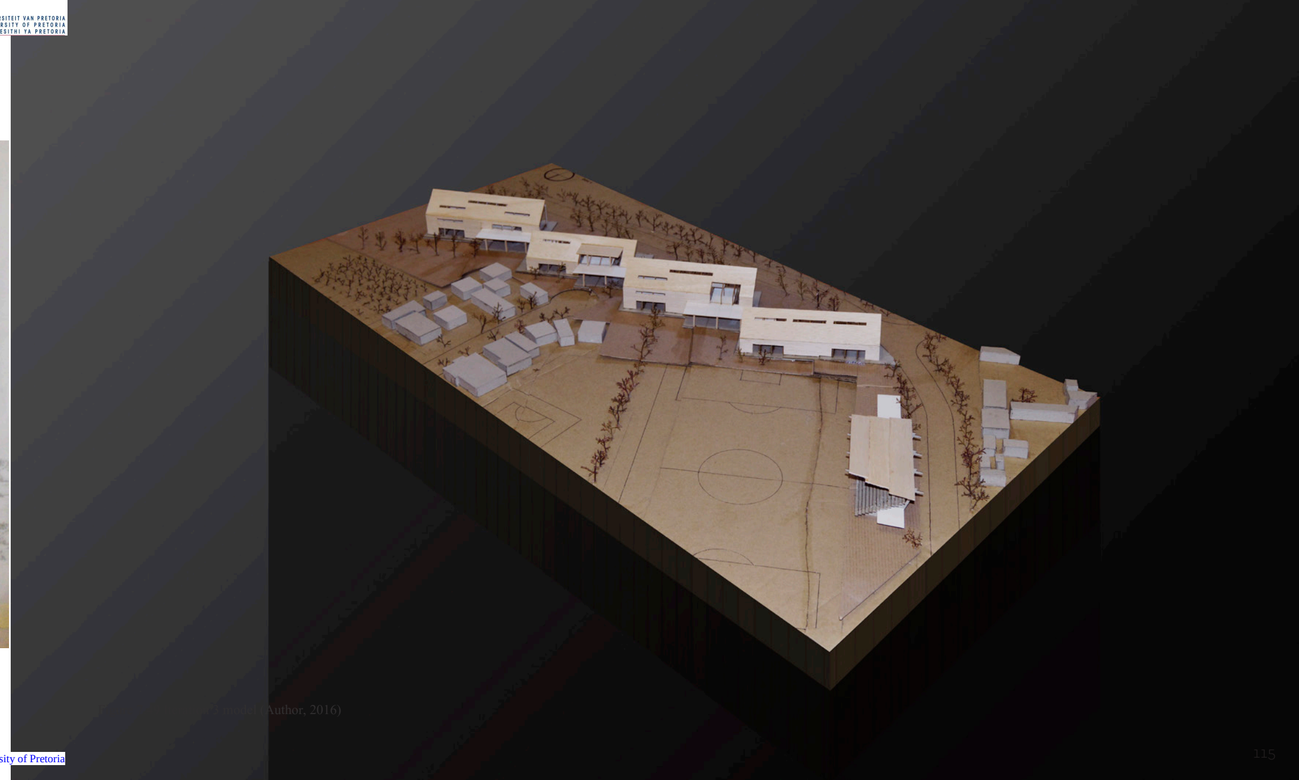


Figure 7.48 Ground Floor Plan (Author, 2016)



(Author, 2016)

Figure 7.50 Southern Elevation (Author, 2016)

Figure 7.51 Northern Elevation (Author, 2016)

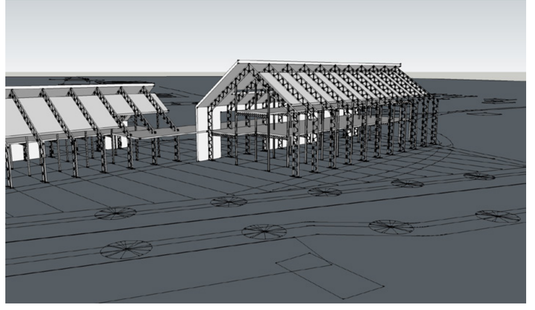


Figure 7.52 Modular Structure (Author, 2016)

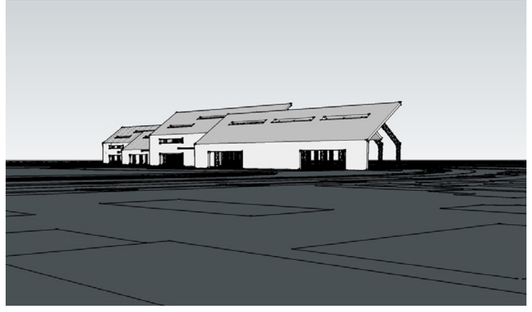


Figure 7.53 School edge (Author, 2016)

Figure 7.54 Iteration 3 model (Author, 2016)

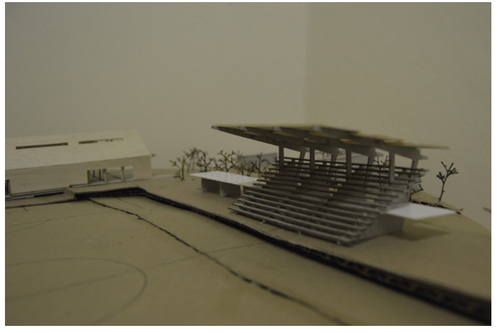


Figure 7.55 Iteration 3 model (Author, 2016)

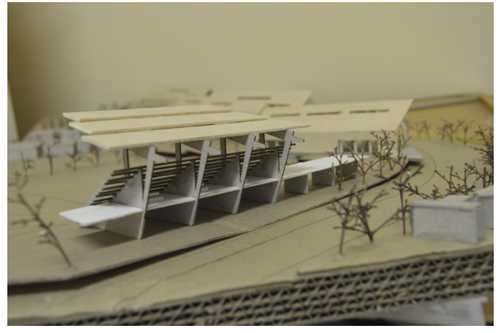
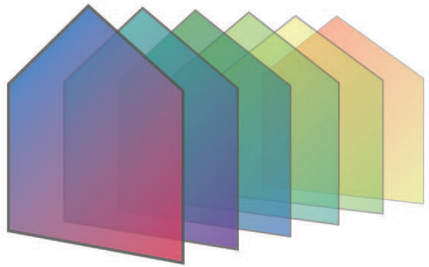


Figure 7.56 Iteration 3 model (Author, 2016)

Figure 7.57 Iteration 3 model (Author, 2016)

Figure 7.58 Iteration 3 model (Author, 2016)



"Another solution is to entrench technologies which should utilise local and readily available materials and be suited to self-help and semi-skilled labour. Construction must be versatile, economical and contextually responsive"
Steyn (n.d.)

Figure 7.59 Technical Approach (Author, 2016)

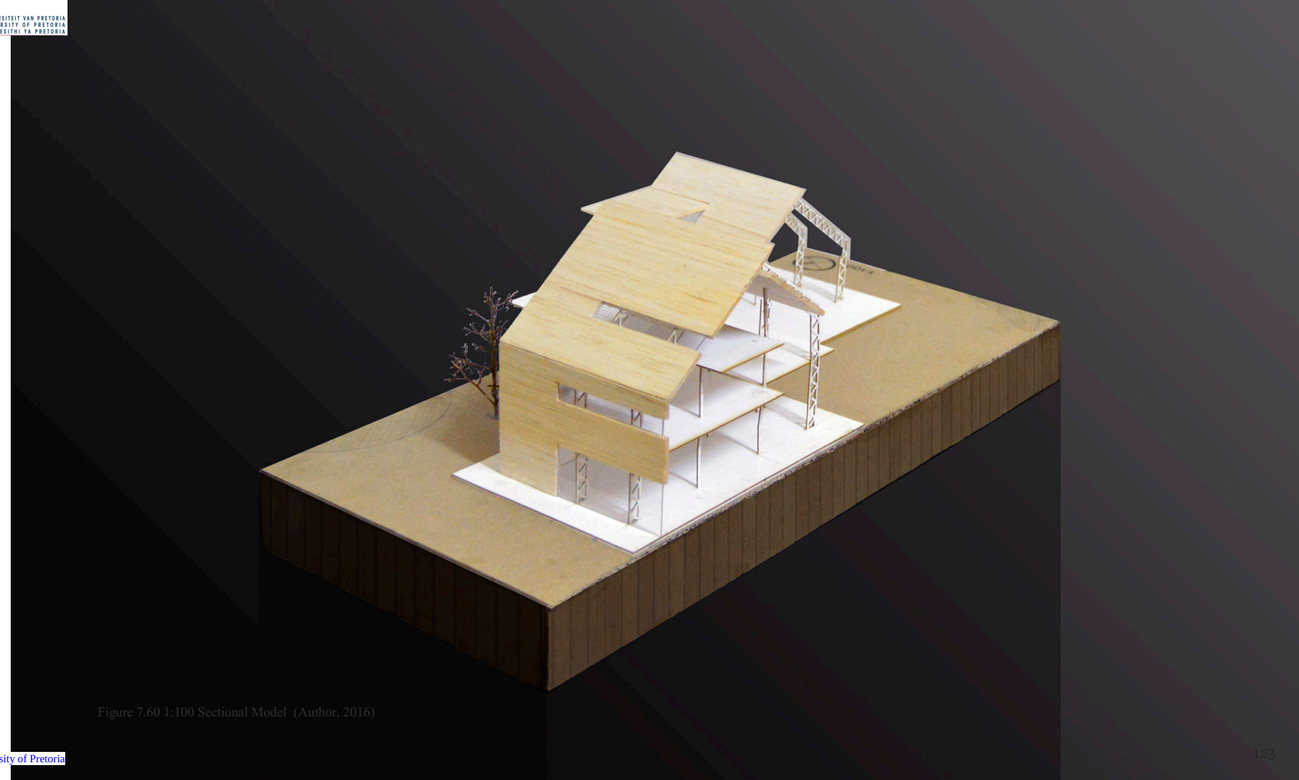


Figure 7.60 1:100 Sectional Model (Author, 2016)

Figure 7.61 1:100 Sectional Model (Author, 2016)

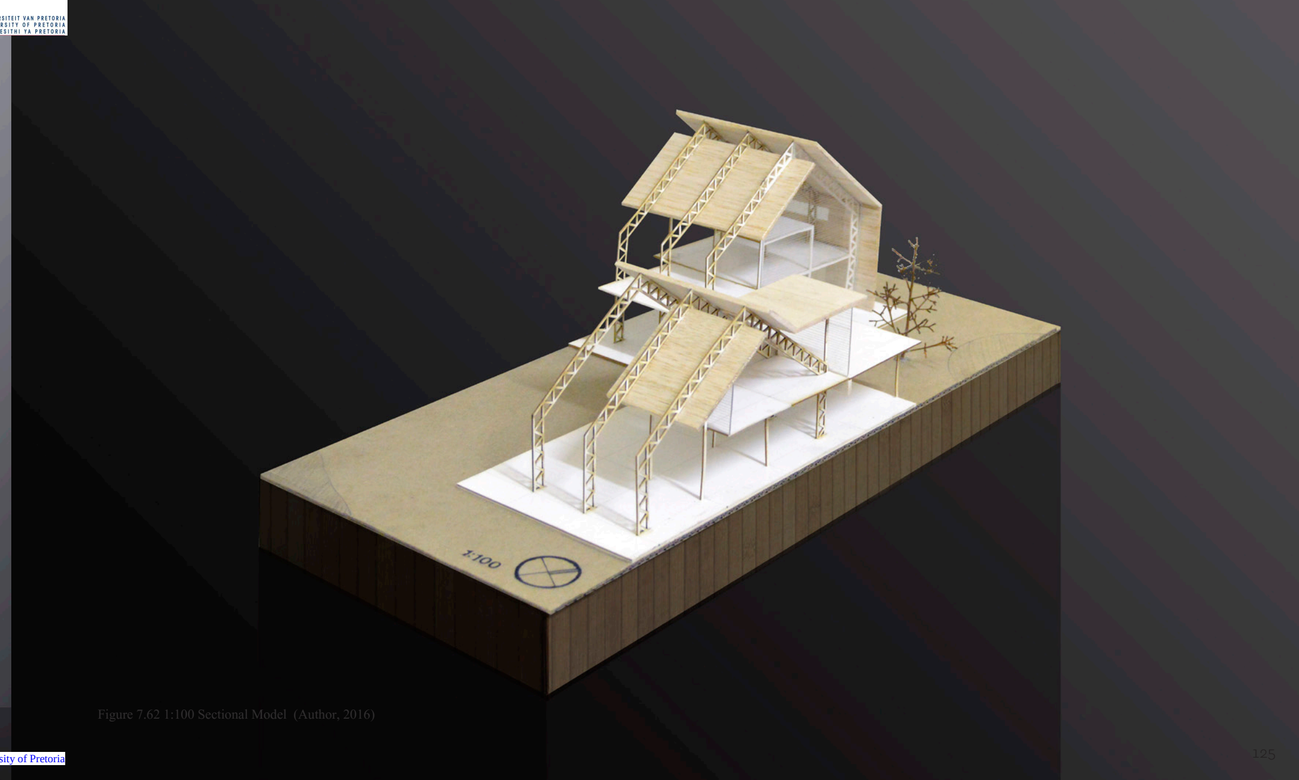


Figure 7.62 1:100 Sectional Model (Author, 2016)

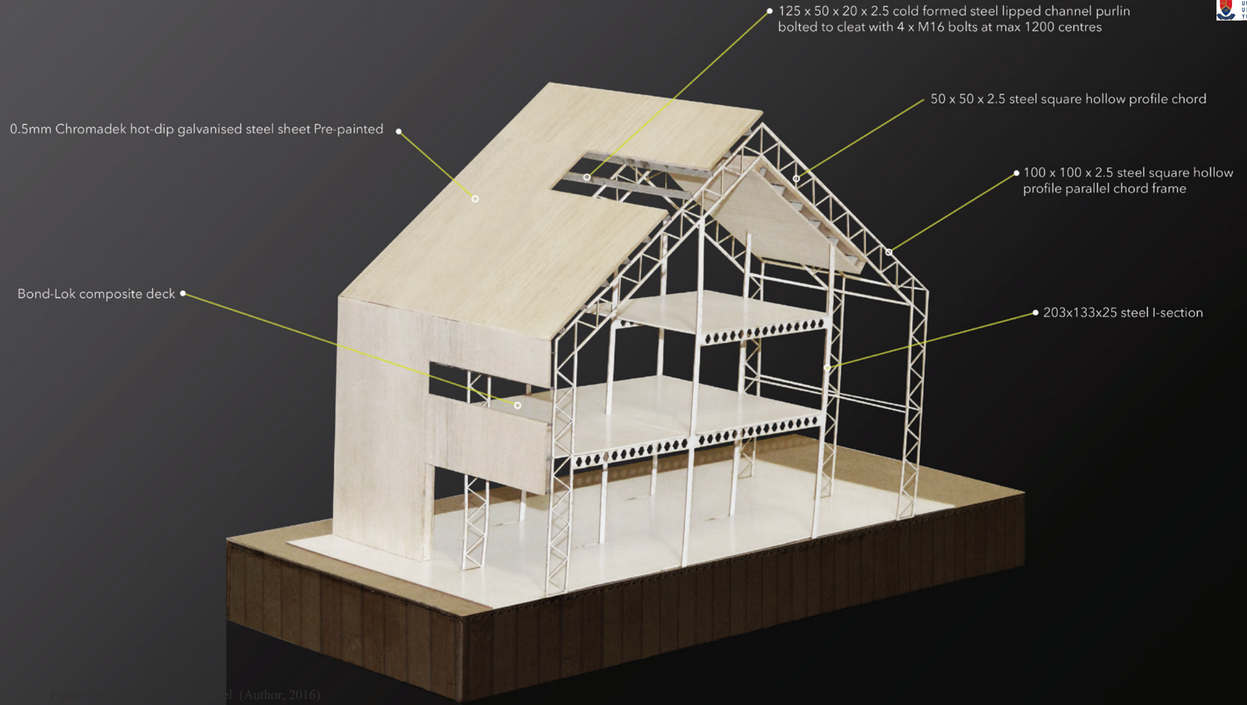


Figure 7.64 1:50 Sectional Model (Author, 2016)

Figure 7.64 1:50 Sectional Model (Author, 2016)

final presentation | nehelano voorlegging

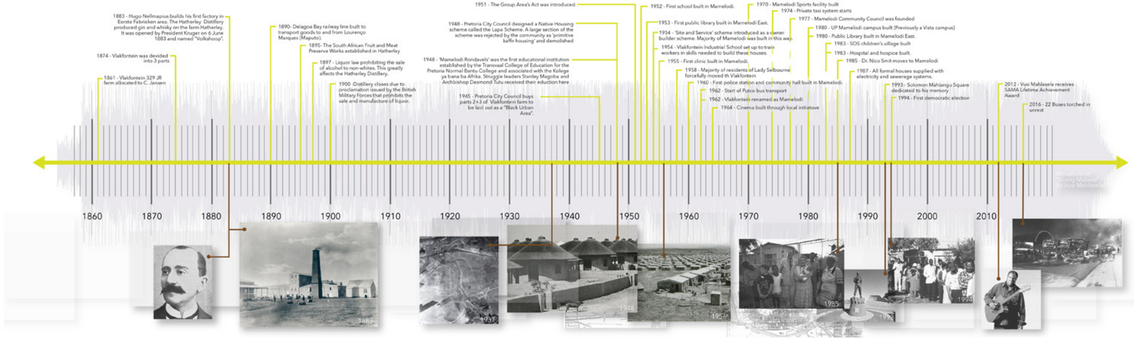


Figure 8.1 Context Poster (Author, 2016)

Figure 8.2 Context map (Author, 2016)

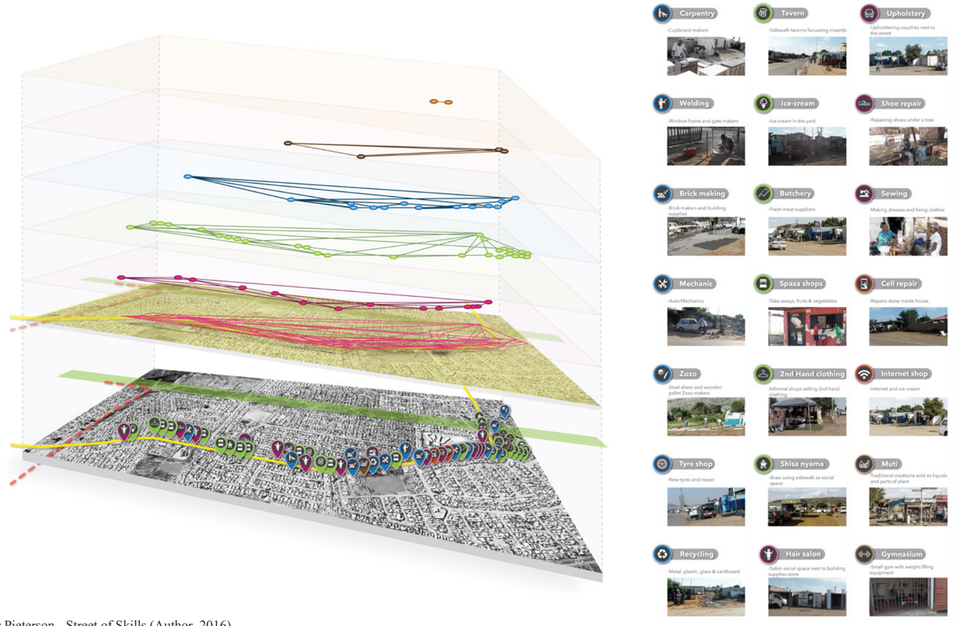


Figure 8.3 Hector Pieterson - Street of Skills (Author, 2016)

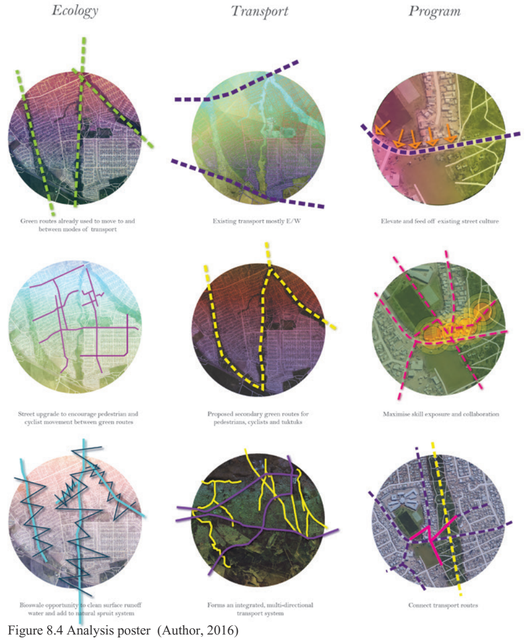


Figure 8.4 Analysis poster (Author, 2016)

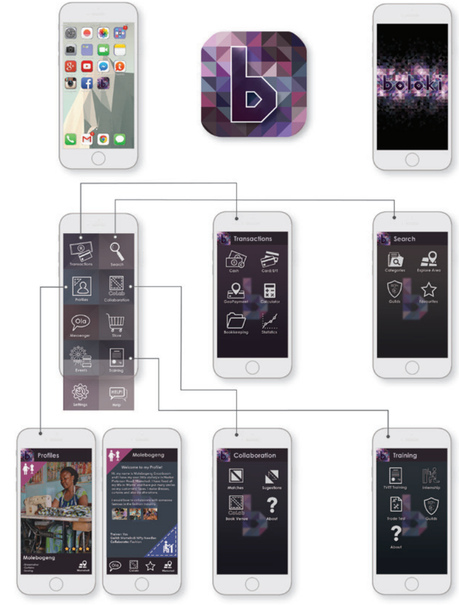


Figure 8.5 App proposal poster (Author, 2016)

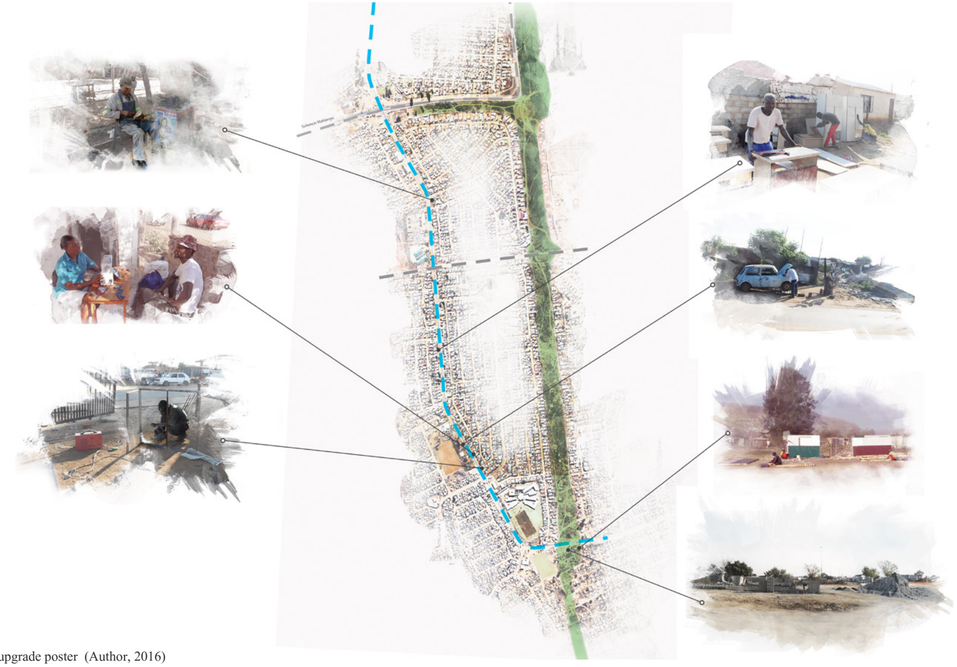


Figure 8.6 Infill-upgrade poster (Author, 2016)

Figure 8.7 Green route view (Author, 2016)

Figure 8.8 Residential street view (Author, 2016)

Figure 8.9 Collaboration corridor (Author, 2016)

Figure 8.10 Mathane Road perspective (Author, 2016)

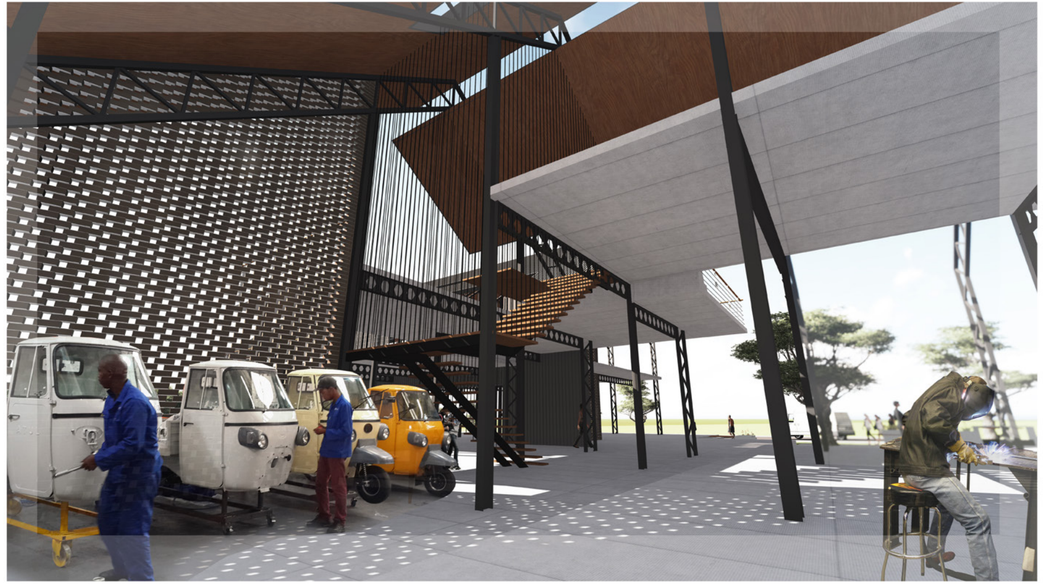


Figure 8.11 TVET-college as Tuktuk factory (Author, 2016)

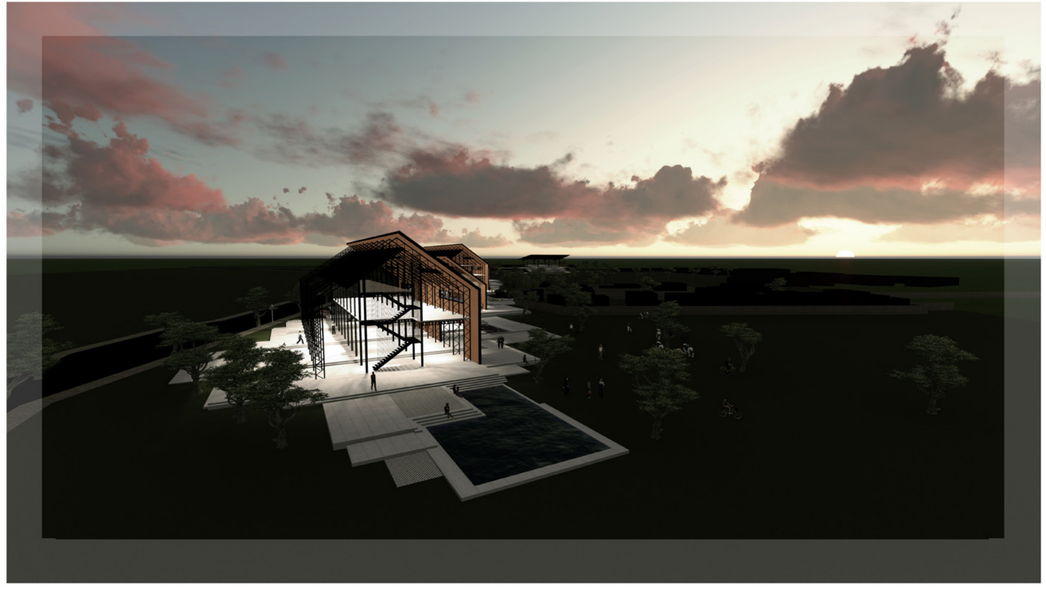


Figure 8.12 Light beacon (Author, 2016)

Figure 8.13 Outside Collaboration Spaces (Author, 2016)

Figure 8.14 Western Elevation (Author, 2016)

Figure 8.15 Northern Elevation (Author, 2016)

Figure 8.16 Axonometric (Author, 2016)

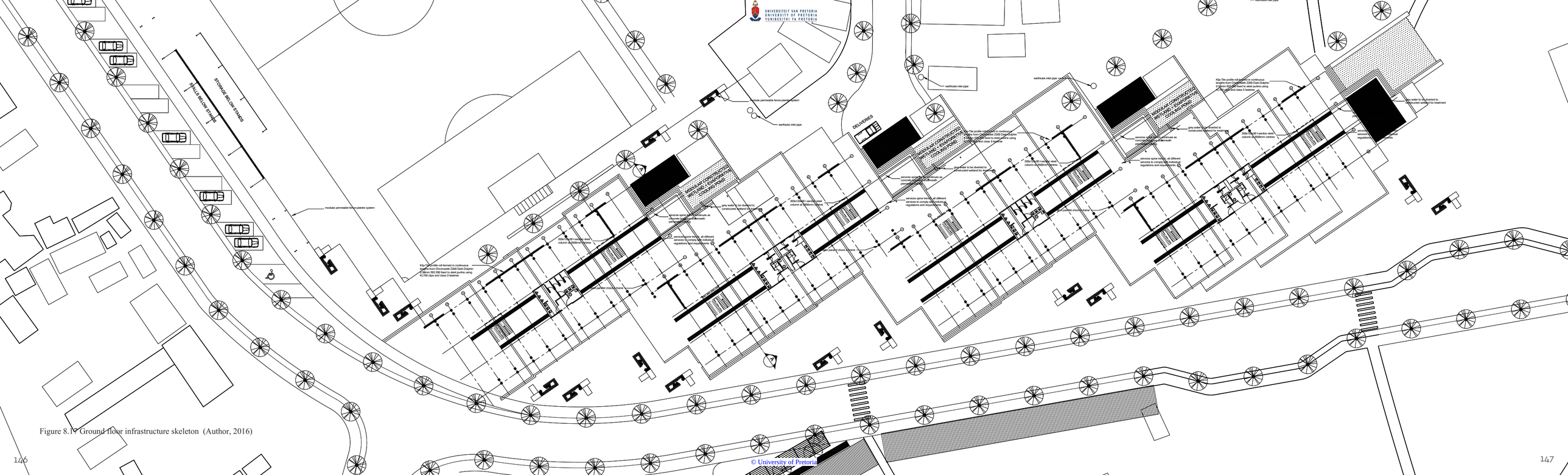


Figure 8.19 Ground floor infrastructure skeleton (Author, 2016)

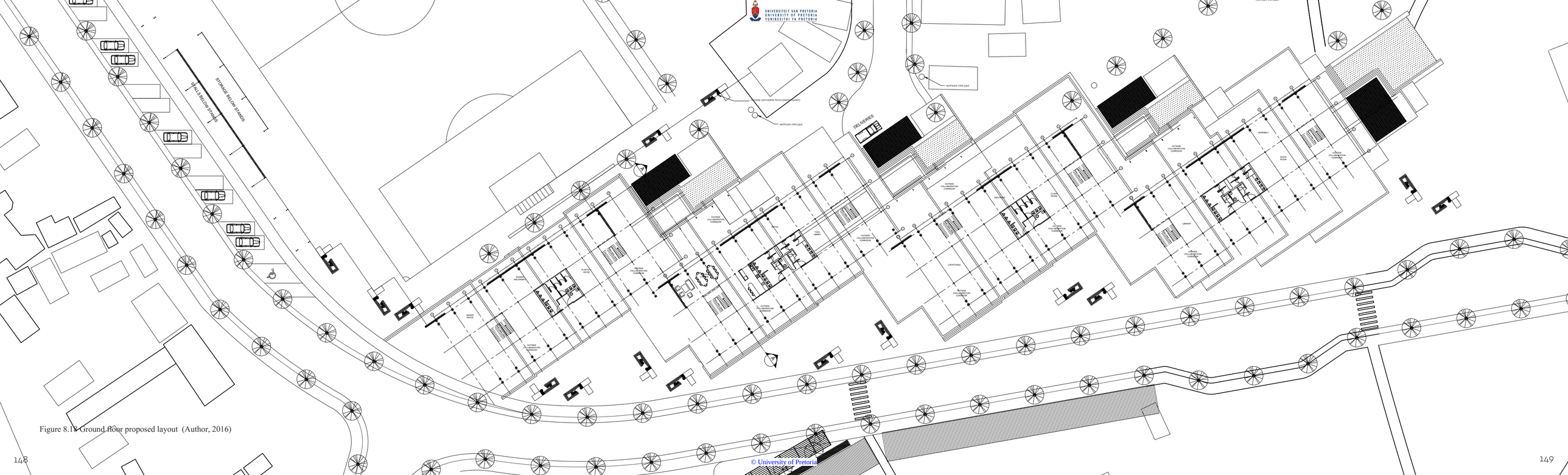


Figure 8.14 Ground floor proposed layout (Author, 2016)

Figure 8.19 First floor proposed layout (Author, 2016)

Figure 8.20 Second floor proposed layout (Author, 2016)

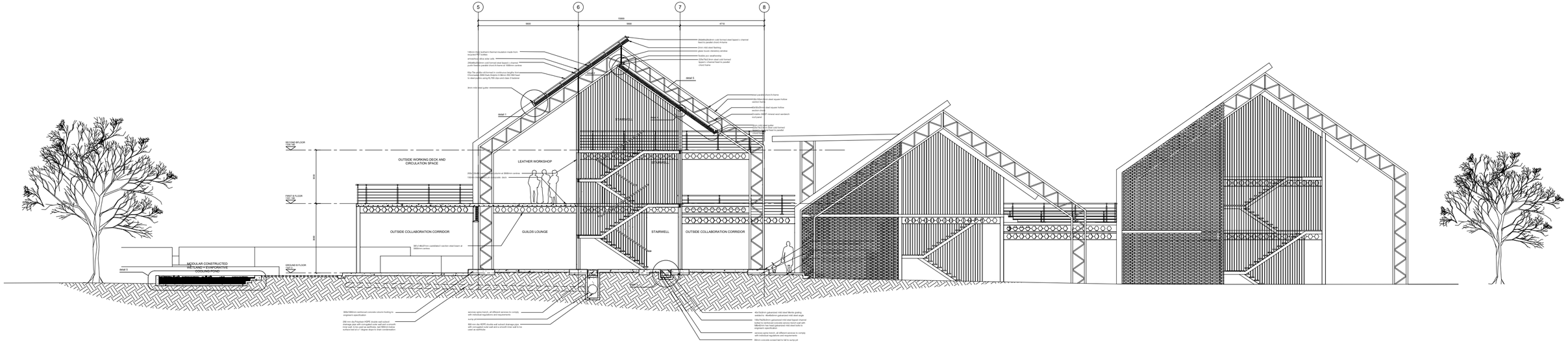
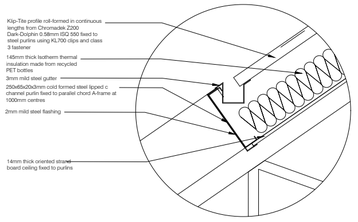
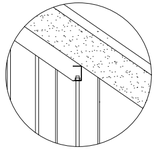


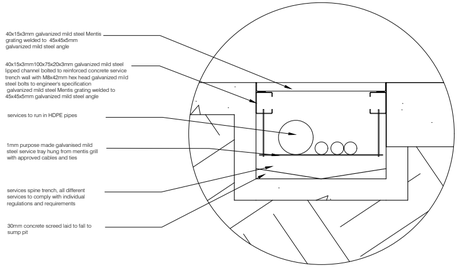
Figure 8.21 Section A-A (Author, 2016)



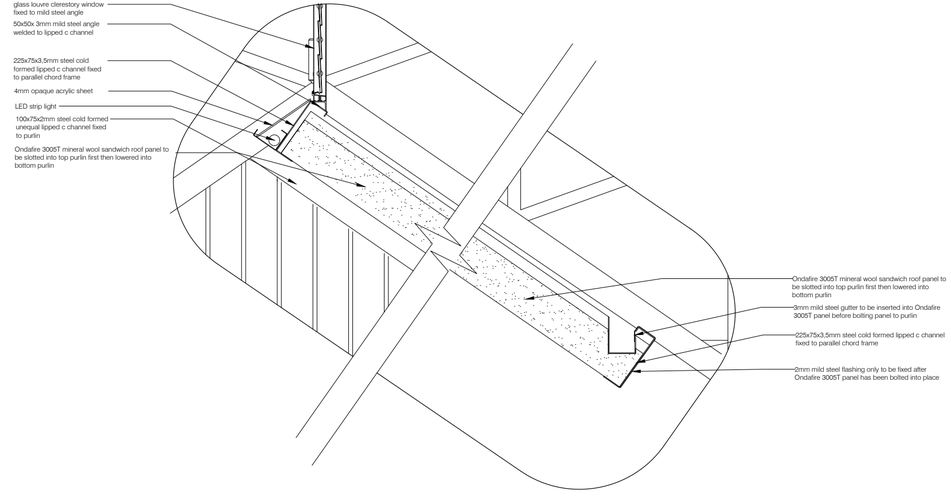
detail 1 1:5



detail 3 1:5



detail 2 1:5



detail 4

Figure 8.22 Details (Author, 2016)

Figure 8.23 Final Presentation (Author, 2016)

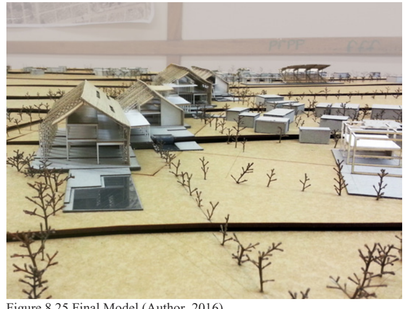


Figure 8.25 Final Model (Author, 2016)

Figure 8.24 Final Model (Author, 2016)

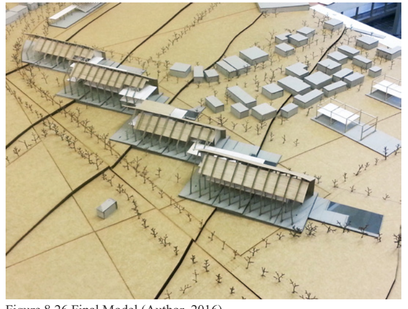


Figure 8.26 Final Model (Author, 2016)

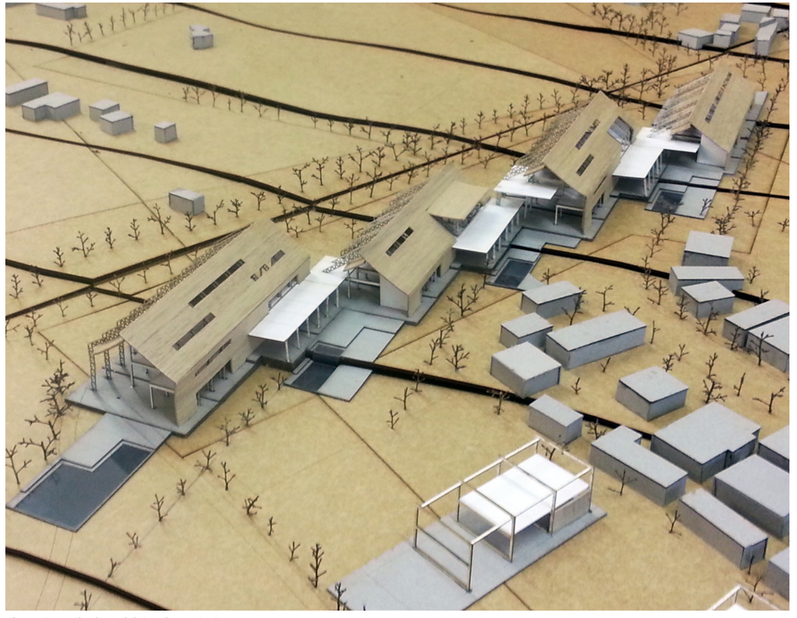


Figure 8.27 Final Model (Author, 2016)

conclusion | fihlela qeto e gevolgtrekking

critical reflection

Conclusion

This dissertation explored the potential of a decentralised TVET college as a catalytic architectural intervention. The proposed programme succeeds in strengthening the existing network of skills and trades by allowing for collaboration and skills development. The broader set of architectural skills was used to generate design solutions which did not always manifest as physical built forms. The virtual intervention did however lay the foundation for the 2 phases that were to follow. A fractal design approach can prove to be more in tune with the ever-changing conditions of informal settlements.

By focussing the educational component around collaboration, building components and tuctucs are by-products of education that have an added positive impact on the community. This improves both the issues of daily pendulum migration and placelessness.

A more thorough investigation could have been done on the long term negative effects of vocational workspaces. The adaptation of an industrial school typology into a more public market space has promising opportunities but special attention has to be given to the safety of children. Many patterns of Alexander et al.(1977) are already existing within the community and can further be strengthened to improve the quality of life of residents. These patterns prove to still be relevant.

The building's adaptability further strengthens its role as a catalyst in an environment of flux. This adaptability that is needed has shifted the focus from a final building design, to designing a system of building, catalytic spaces and positive edge conditions.

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