



Context

## 1.1 Project location



**001** ( [www.samaps.co.za](http://www.samaps.co.za) )  
South Africa with Pretoria as indicated



**002** (University of Pretoria:2009)  
The study area of Mamelodi and Nellmapius.

**003** (University of Pretoria:2009)  
The site near Eerste Fabrieke Station

## 1.2 Project overview

A survey by the Department of Health conducted among 1 to 9 year old children in townships like Nellmapius, revealed that their dietary intake was low in energy and poor in protein quality. These findings supported results from a study by the South African Vitamin A Consultative Group that 33% of all 6 to 71 month old children were vitamin A deficient. These children are more likely to die from infections and the condition may even cause blindness. An Integrated Nutritional Program was also implemented by the Department of Health in the early 1990's. The vision was to provide optimal nutrition and to reduce the number of vitamin A deficient children in South Africa. (Venter et al 2006:13)

Foods of animal and plant origin containing vitamin A are seldom consumed in resource-poor communities. Although foods of animal origin are the best sources of vitamin A, it is expensive and more people have to rely on orange-fleshed fruit and vegetables as sole source of vitamin A. High vitamin A rich cultivars include deep orange and dark green vegetables such as butternut, pumpkin, carrots, orange-fleshed sweet potato and spinach. (Venter et al 2006:14)

The Medical Research Council developed a home garden project during the 1990's in Ndunakazi, a rural town in Kwazulu-Natal. The focus of the project was to monitor the production and consumption of vitamin A rich fruit and vegetables. The project was successful and proved that vitamin A status of 2 to 5 year children can be improved by the necessary nutritional education and promotion. (Venter et al 2006:14)

By growing fruit and vegetables locally people will be able to see where, when and how crops are grown and awareness about food production techniques will be raised. Finally, urban food growing can also provide a basis for the amount of gentle and regular exercise that is necessary to stave off minor health problems. The people will also have direct access to fresh fruit and vegetables. (Viljoen 2005:59)

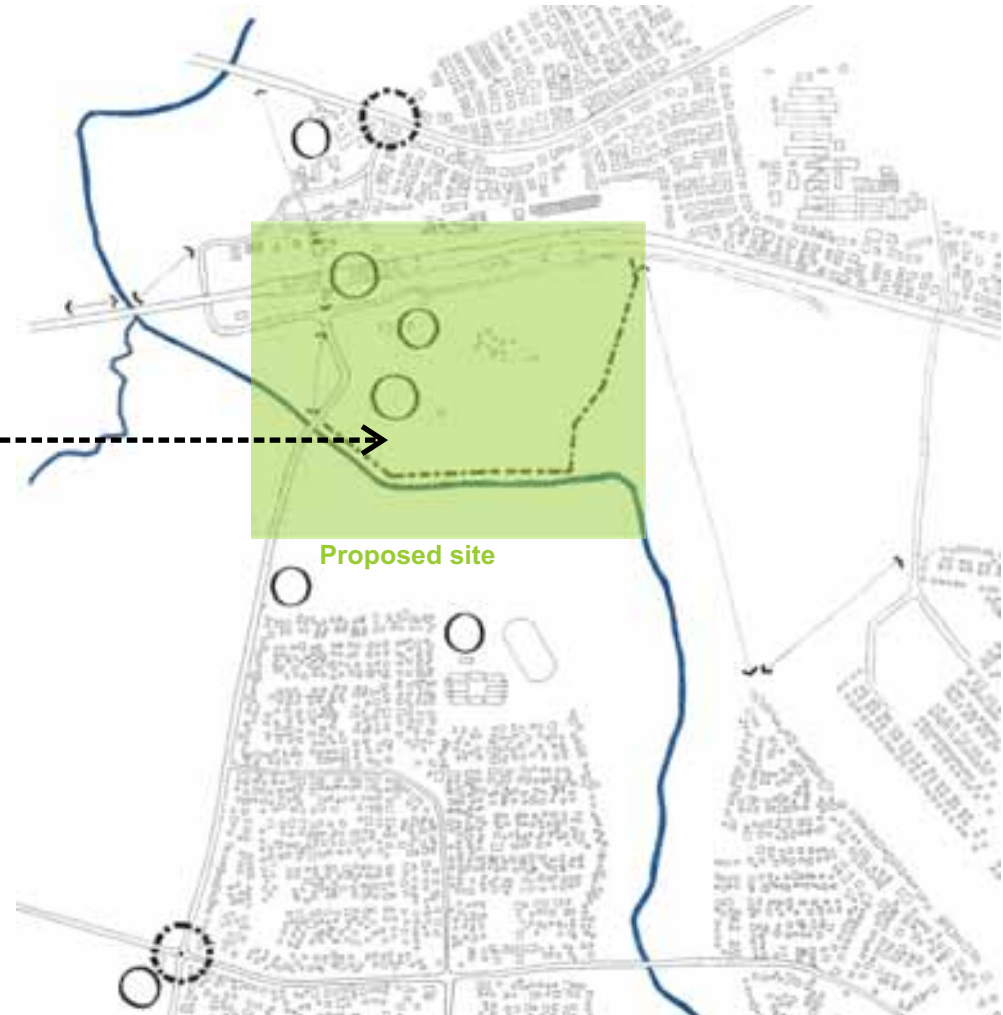
In the process, the community will be developed from the bottom up and this platform could possibly be implemented in townships across the country. The program takes the form of an urban agricultural centre. The centre is located near Eerste Fabrieken Station in Mamelodi and is used as generator for other business, commercial and recreational activities.



## 1.3 Analysing the site

### 1.3.1 Macro scale

The large pockets of open land between Mamelodi and the townships to the south act as a physical barrier. These cavities are legible in the figure ground study and could be filled with programs that support a process of generating urban fabric. The selected site and proposed program act as a catalyst for the connection process.



004 (University of Pretoria:2009)

Mamelodi and Nellmapius with the study area as indicated in light green

005 (Figure ground study by author)

Figure ground of the study area with the site as indicated in green



## 1.3.2 Meso scale

### Barriers within the study area

Eerste Fabrieke Station is situated to the north of the proposed site and the railway line acts as a boundary, prohibiting interaction with the urban fabric of Mamelodi. The Pienaars River forms a natural boundary on the southern and western edge of the site and separate Nellmapius from Mamelodi.



**006** (University of Pretoria:2009)  
Barriers within the study area



**007** (Photos by author)  
Urban fabric of Nellmapius

## Historical background of Mamelodi and Nellmapius

**1881**

Alois Hugo Nellmapius met Sammy Marks on a business trip to Pretoria. Nellmapius, in return for a large payment was granted the sole right to manufacture alcoholic beverages from grain and potatoes by President Paul Kruger. Nellmapius formed a syndicate with Barnett Lewis and Sammy Marks to establish a distillery to produce Whiskey and Gin.

**1892**

The concession for the manufacturing of alcoholic beverages is ceded and transferred to Eerste Fabrieke Hatherley Distillery Limited a public company.

**1883**

The Eerste Fabrieke Hatherley Distillery is opened on 6 June 1883 by President Kruger.

**1896**

The Pretoria Glass Works was established at the Hatherley complex.

**1899**

Eerste Fabrieke Hatherley Distillery won several diplomas at the Universal Exhibition in Paris. The Anglo Boer War broke out on the 11th of October 1899.

**1880**

**1882**

The construction of the buildings started. Bricks are made by hand on site whilst the machinery was imported from Germany.

**1891**

Eerste Fabrieke Hatherley Distillery is liquidated.

**1895**

The South African Fruit and Meat Preserve Works is established at Hatherley. Fruit was imported from the Cape because of better quality and lower prices.

**1897**

The new Liquor law prohibited the sale of Liquor to black people.

**1900**

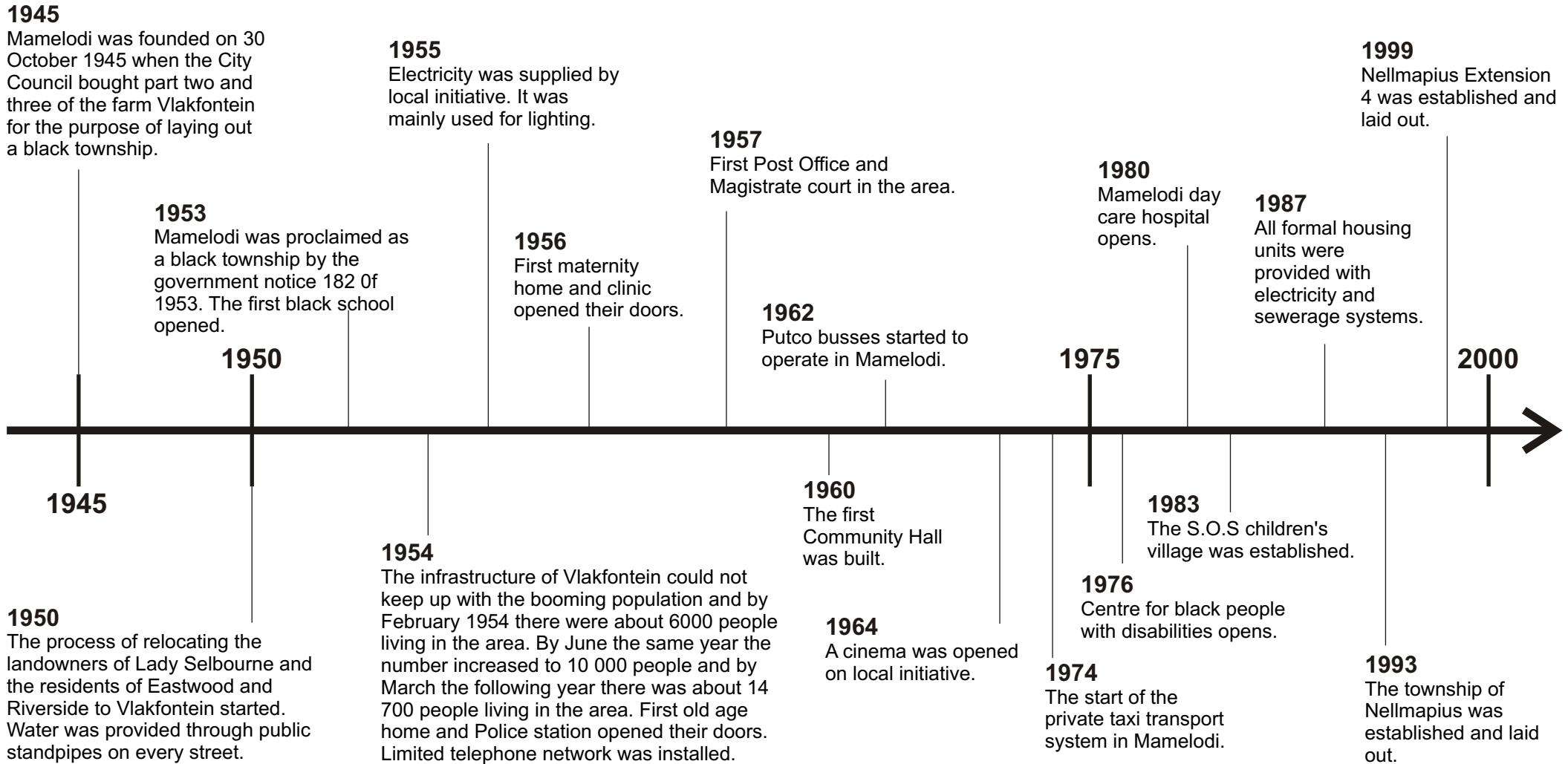
**1900**

The British Military Forces issued a proclamation that forbids the sale and manufacture of liquor and the distillery was closed down.

**1940**

Mamelodi is situated on the north-eastern part of Tshwane. The main axis of Mamelodi stretches between the Magaliesberg Mountain in the north and the railway line in the south. Pretoria was founded by the Voortrekkers in 1855 and from 1860 a significant number of black people started to live within the area and settlements near the town. The earliest proof of habitation in the current Mamelodi is to a farm Vlakfontein 329JR on 4 March 1854, when the farm was inspected. In 1874 the farm was divided into three parts, with the Pienaars River separating the area into two halves. (Melsons 2008:18)

# Historical background of Mamelodi and Nellmapius



## Eerste Fabrieke Hatherley Distillery

The founder of the Eerste Fabrieke Distillery was Alois Hugo Nellmapius, who arrived in South Africa in 1873, the same year that gold was found in the Z.A.R. Nellmapius was born in Budapest, raised in Vienna and later trained as an Engineer in Holland. (BURGER 2007)

009 (photos taken by author)



Caretaker's house

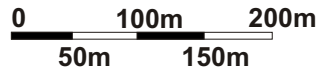


House dating back to the founding of the distillery

Underground tunnels where distilled whiskey and gin was stored

Historical outbuilding dating back to the founding of the distillery

008 (University of Pretoria:2009)  
Eerste Fabrieke Hatherley Distillery  
Heritage site



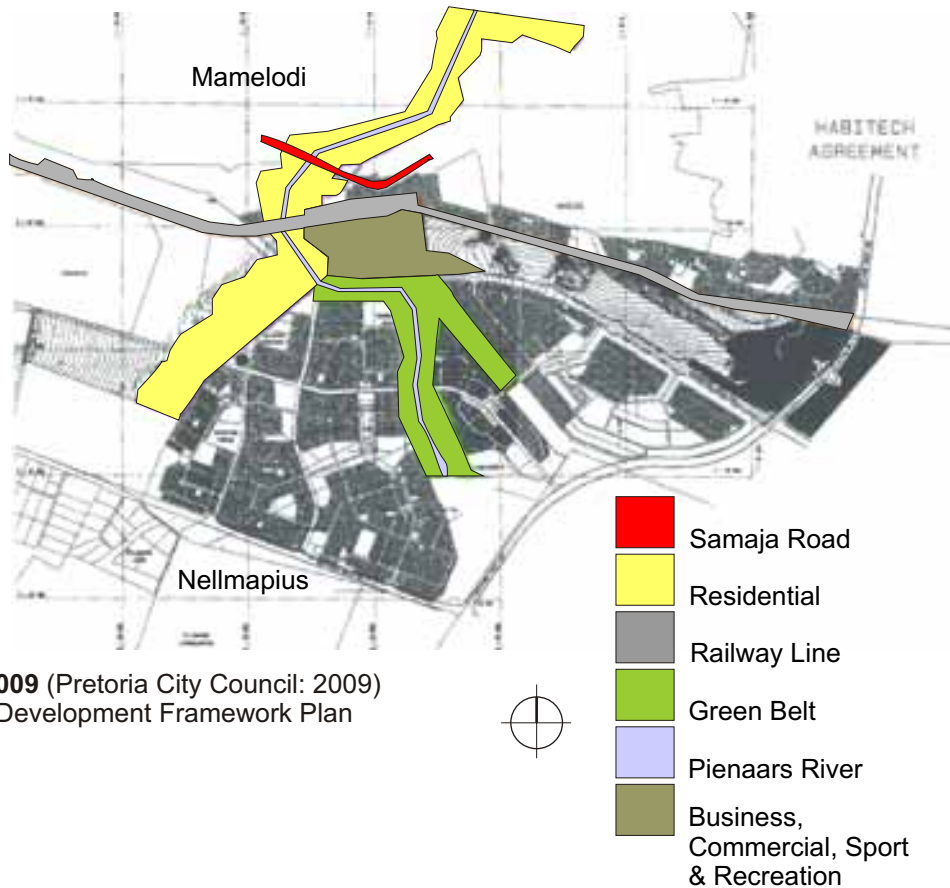


## Council's Development Framework Plan

According to the Council's Development Framework the area around Eerste Fabrieke Station is classified as a Restructuring Zone. Restructuring Zones are perceived to be critical areas in the city for restructuring and integration and will receive capital grants from Government as well as institutional subsidies.

The Development Framework Plan proposes that the area south of the station be developed into business, commercial and recreational facilities. The unutilized area north of the station will be developed into low to medium density residential areas.

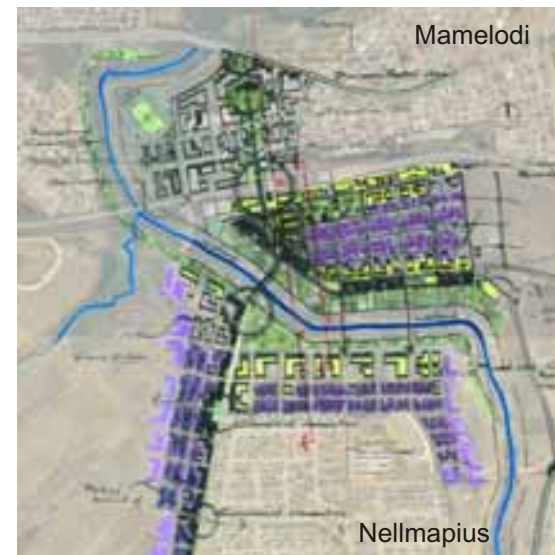
## City Council's Development Framework Plan



## Proposed urban framework of Mamelodi/Nellmapius

The Development Framework for this dissertation is a combination of the existing and proposed development in Mamelodi and Nellmapius, to form a network of much needed functions. The cavity of unutilized land between Mamelodi and Nellmapius needs sustainable development in order to weave together the strands of social, economic and legislative environments within the area. The urban agricultural centre is located between the Pienaars River and Eerste Fabrieke Station. The site is currently owned by Mr Aubrey Upton and utilized as a cattle farm. The Urban Agricultural Centre will be integrated into the larger metro area by creating activity spines across the railway line.

The transport infrastructure is adequate for the present circumstances but will have to be improved for the new development. At present the area in front of the station is transformed into a taxi-rank in the early hours of the morning and by late afternoon. Pedestrians move in and out of the area throughout the day with the train as main form of transport. The flow of pedestrians from Nellmapius across the railway line and into Mamelodi needs to be addressed by a well designed pedestrian crossing. A new bus and taxi rank north of Eerste Fabrieke Station will provide affordable and convenient modes of transport.



# The Proposed urban framework by author:



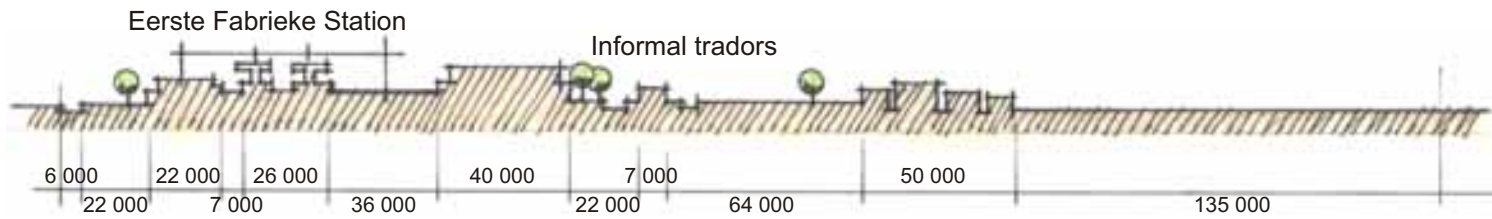
- A. Business and commercial node located at main gateway from Samaja Road.
- B. Office Park area.
- C. Recreation, Parks, Sports facilities and Eerste Fabrieke Heritage site.
- D. Main pedestrian walkway links important nodes within study area.
- E. Transport node at Eerste Fabrieke Station. (New Bus and Taxi rank)
- F. Government and Institutional Facilities. ( Police Station and Court of Law)
- G Tertiary Educational Facilities. (Technical College)
- H. Areas of mixed-use. (Commercial - Ground floor, Residential - First floor)
- I. Medium to low density housing.
- J. Areas for urban agriculture.
- K. Phase 1 and 2 of urban agricultural development.
- L. Social Housing as part of Phase 3 of urban agricultural development.



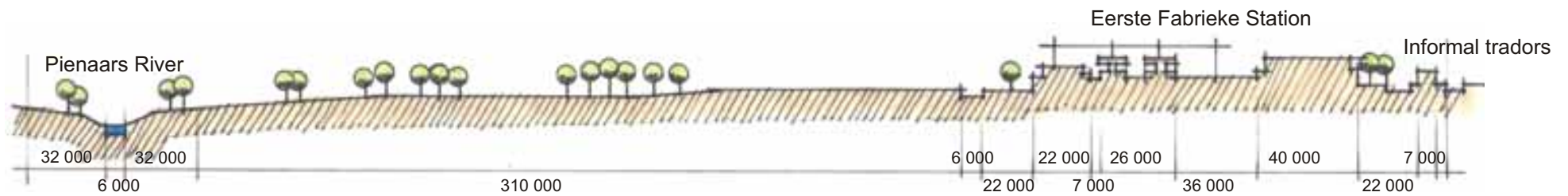
011 (Urban Framework: 2009)  
Proposed Urban Framework for study area



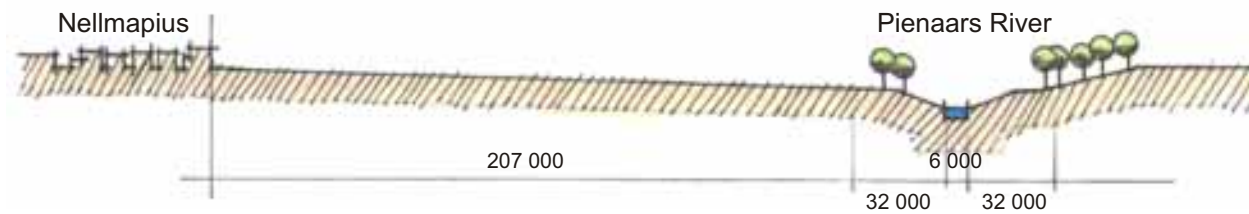
## Typical sections through site



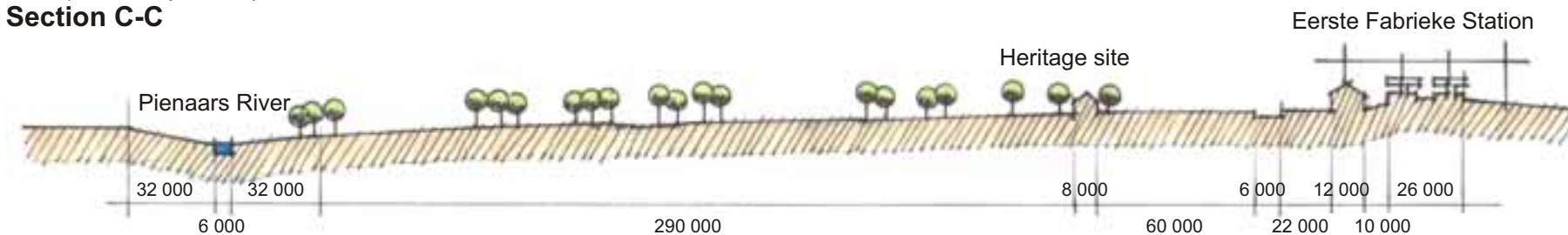
011 (Section by author)  
Section A-A



012 (Section by author)  
Section B-B



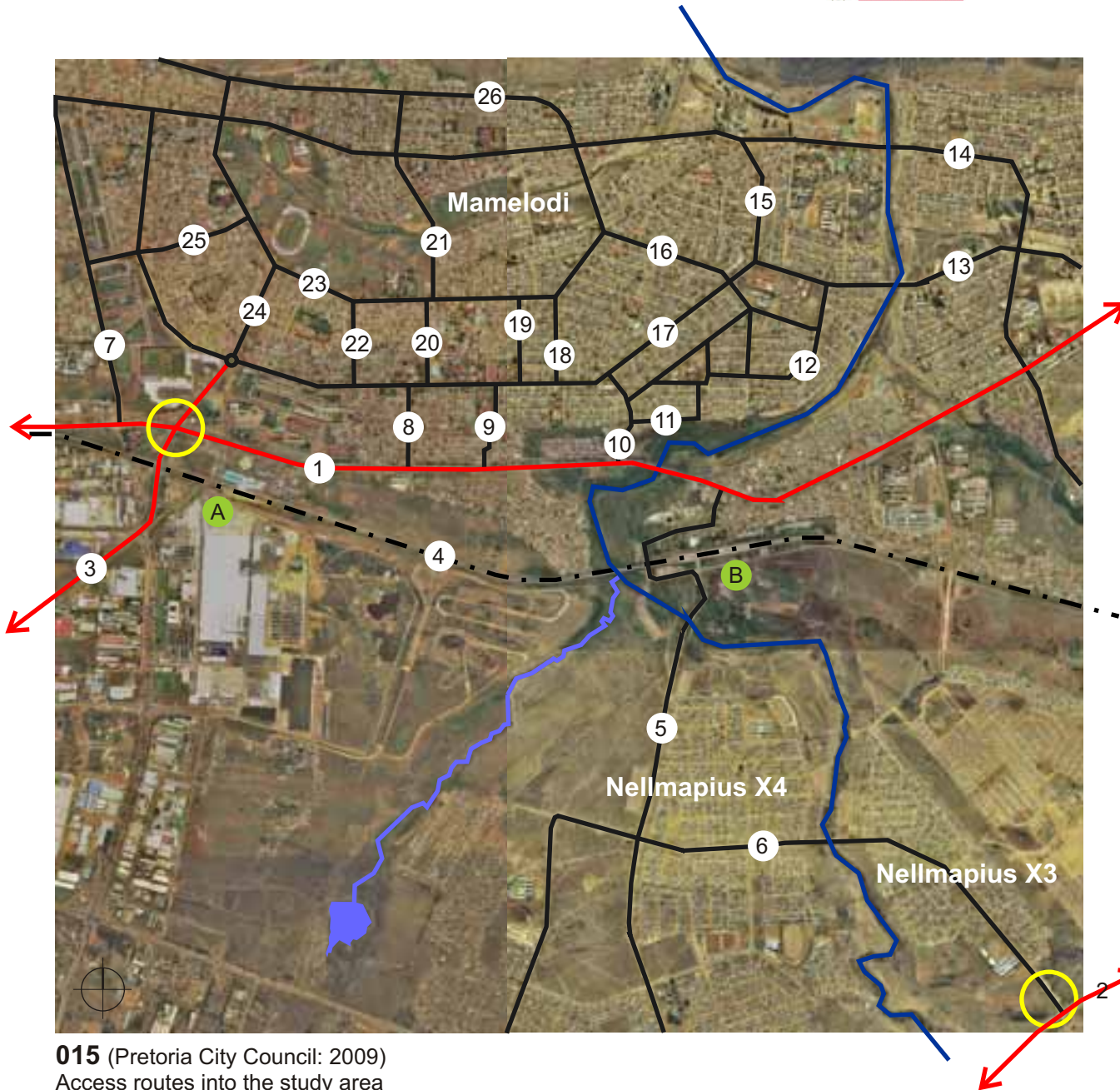
013 (Section by author)  
Section C-C



014 (Section by author)  
Section D-D

## Infrastructural analysis

Samaja road to the north of Eerste Fabrieke Station and Hans Strydom drive acts as the main traffic arteries into the study area and is indicated with red lines. The feeder roads through the urban fabric are indicated with black lines. Denneboom Station close to the corner of Samaja and Waltloo road acts as the main gateway into Mamelodi as indicated on the aerial photo. The corner of Hans Strydom and Alwyn Road represent the gateway into Nellmapius from the south. Samaja road is also the main bus route to and through Mamelodi and acts as transitional space for all commuters. The site for the proposed Urban Agricultural Centre is situated close to Samaja road and is conveniently accessible via Eerste Fabrieke Station.



- Main roads into study area
- Feeder roads into urban fabric
- - - Railway line
- Pienaars River
- A Denneboom Station
- B Eerste Fabrieke Station
- Gateway into study area

- |                       |                    |
|-----------------------|--------------------|
| 1. Samaja road        | 14. Sibande ave    |
| 2. Hans Strydom drive | 15. Shabangu ave   |
| 3. Waltloo road       | 16. Pitje str      |
| 4. Railway line       | 17. Shabangu ave   |
| 5. Love drive         | 18. Tjale str      |
| 6. Alwyn road         | 19. Khumalo str    |
| 7. Boundary drive     | 20. Mphaki         |
| 8. Dr Robeiro drive   | 21. Masethe str    |
| 9. Ntshabeleng drive  | 22. Kekana drive   |
| 10. Kgomo             | 23. Kubone drive   |
| 11. Motau str         | 24. Maphalla drive |
| 12. Mashishi str      | 25. Ntsieng drive  |
| 13. Tshomo drive      |                    |

015 (Pretoria City Council: 2009)  
Access routes into the study area



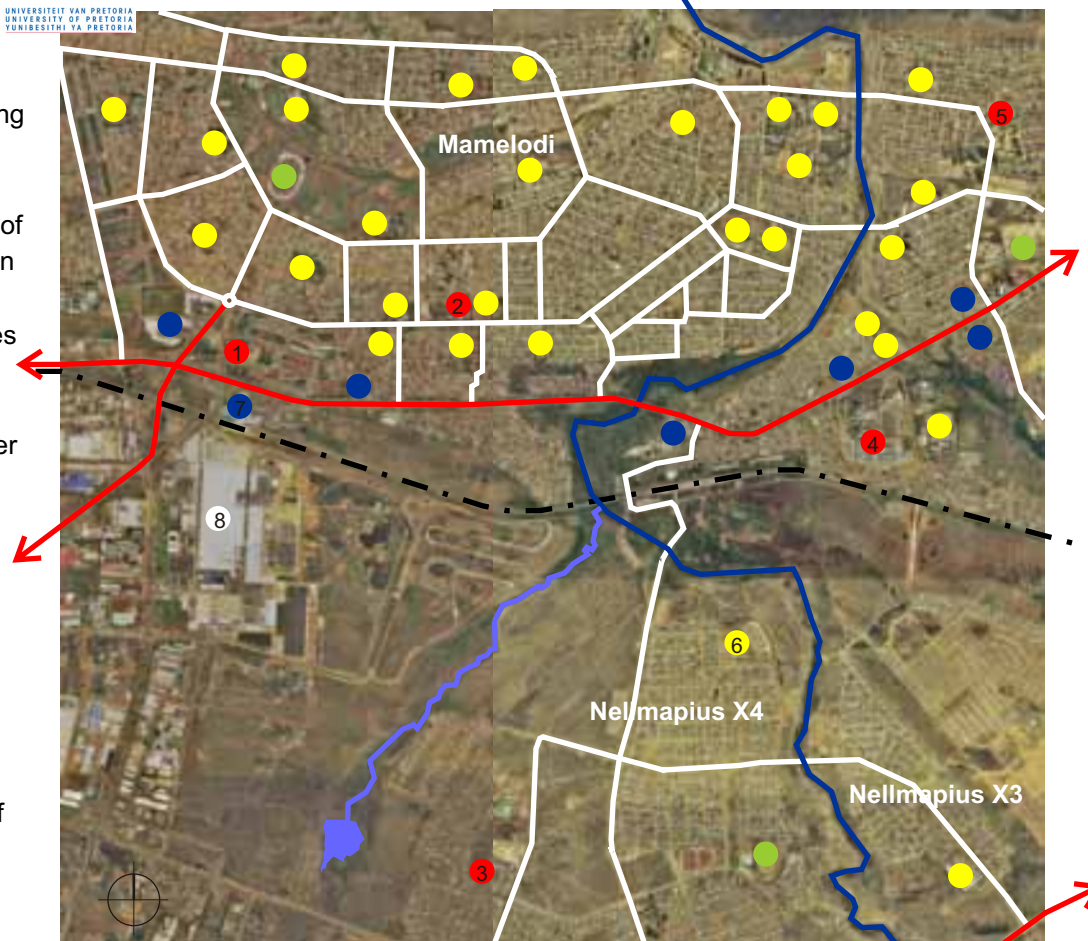
## Social and economical analysis

Mamelodi is isolated from the CBD of Pretoria and comprises of low quality housing and a large component of informal settlements. Today the whole dynamic of Mamelodi exist in the form of small scale formal and informal industries and markets. The population density of Mamelodi is high with more than forty percent of the population that fit into the age categories of between 15 to 34 years. More than fifty eight percent of the people of Tshwane have no formal income and rely on other sources of income to support their families. The majority of formal employees in Mamelodi have a monthly income of less than R3 200-00 a month.

(Melsons 2008:21)

In recent years public amenities like refuse removal, toilet facilities and piped water started to cover large areas of Mamelodi, but improvement is still needed. Almost one in every four households in Mamelodi does not possess a piped water connection. Public services like health care centres, schools, post offices and places of worship are not sufficient and also not equally distributed throughout Mamelodi. The current population of Mamelodi is in the order of 250 174 people, where more than thirty percent of the people have a low monthly income of between R1-00 and R 3 200-00. Only 4.3% of the population have a middle monthly income of between R 3 200-00 and R 25 600-00. (Melsons 2008:23). The average monthly income of the 164 800 economically active people in Mamelodi is R 2 045-00. (Department of Transport 2005). Because the majority of people in the study area are employed within Pretoria, they have to travel more than 18 kilometres to go to work. Less than 0.1% of households can afford a car and the people spend more than 10% of their monthly income on transport costs. (Department of Transport 2005).

According to Mrs Kgoadi, a social worker in the area, crime, poverty and unemployment is taking its toll, and more young people are becoming dependent on alcohol and drugs. Apart from school there are almost no recreational facilities available for the youth. With an unemployment rate of over 50%, many households are dependent on social grants from government. Social grants add to the high unemployment, because the people are reluctant to look for other means of income after receiving the money. Illegal immigrants from Zimbabwe and Mozambique also flock to the area in order to find work. These people are willing to work hard for minimum wages in order to stay alive and this also adds to the dilemma of unemployment. Mrs Kgoadi believes that bad management and corruption are the main reasons why government initiatives don't work in the township. Ongoing skills and capacity training is needed to support these initiatives. (Kgoadi 2009).



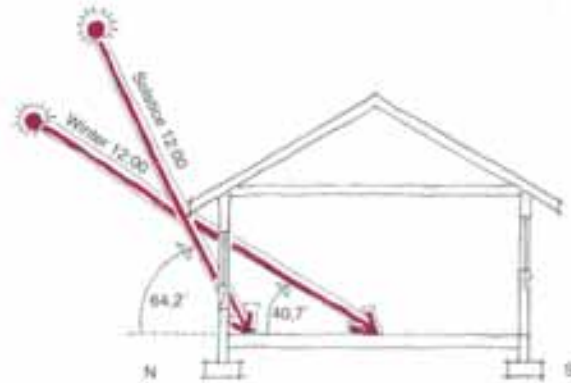
016 (University of Pretoria:2009) Social & economical analysis of study area

- Schools and Tertiary education
- Shopping / retail areas
- Hospital / clinic
- Sports ground

- |                      |                              |
|----------------------|------------------------------|
| 1. Mamelodi Hospice  | 5. Mamelodi East Clinic      |
| 2. Mamelodi Clinic   | 6. Jonkottolo Primary School |
| 3. Nelmapius Clinic  | 7. Denneboom Shopping Mall   |
| 4. Mamelodi Hospital | 8. Industrial area           |

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ave
Maximum average monthly temperature (°C)	28,8	28	27	24,1	21,9	19,1	18,6	22,2	25,5	26,6	27,7	28	24,81
Minimum average monthly temperature (°C)	17,4	17,2	16	12,2	7,8	4,5	4,5	7,8	11,7	14,2	15,7	18,8	12,13
Average monthly amplitude (K)	11,2	10,8	11	11,9	14,1	14,6	14,1	14,4	13,8	12,4	11,4	11,2	12,68
Average monthly relative humidity (%)	58,3	59,5	60,0	59,5	55,0	53,0	50,0	46,0	45,8	49,5	54,0	56,5	53,83
Average monthly rainfall (mm)	136	75	80	31	13	7	3	8	22	71	98	119	56,17
Wspan 72	14	29	28	28	25	21	24	31	34	38	35	25	20,75
Wspan 44	45	44	41	34	31	29	29	29	35	40	43	44	36,92

017 (Holm 1996)



018 (Holm 1996)

Climate: General high temperatures and moderate humidity levels characterises the climate of Mamelodi and Nellmapius. The monthly relative humidity is in the order of 59% and not considered problematic. Thunderstorms are fairly common in this area with precipitation rates of up to 100mm per hour. Due to the high average rainfall per year, rainwater can be harvested to provide irrigation for the agricultural activities. Mamelodi is situated in a climatic zone with large temperature variations and dry and rainy seasons. Because the daily temperature swing can be high during winter time, high thermal massing for walls and floors will be advisable. Provided that the walls and floors give thermal mass, lightweight insulated roofs may be used in this area. Precipitation occurs mostly during thunderstorms and entrances should be shielded. (Holm 1996:69)

Typography: Mamelodi is situated at the foot of the Magaliesberg Mountain Range, approximately 300 meters above sea level. The Magaliesberg Mountains forms the northern and eastern boundaries of the area and reaches a height of 200 meters above the surrounding area.

Wind: During summertime the winds are predominantly east-north-easterly to east-south-easterly and accompanied by turbulent wind patterns. In the winter the winds are predominantly south-westerly with a fair amount coming from the north-east. The structure of the building should be designed in such a way to maximise cross ventilation. (Holm 1996:69)



019 (Photo collage by author)

Photo collage of existing fabric of the study area



### 1.3.3 Micro scale



Eerste Fabrieke Station becomes alive in the early hours of the morning when commuters start to arrive at the station. Informal traders sell fruit, vegetables and other products from small tuck shops constructed from materials gathered in the area. Survival is the one thing that many of these traders have in common with no room for financial growth. The main pedestrian movement occurs along Love drive from the informal settlement of Nelmapius towards the station. The train is the main form of transport for thousands of people working in other areas around the city and informal activities emerges all around the station. The area in front of the station is transformed into a taxi-rank during peak hours and after school when school pupils move in and out of the area.

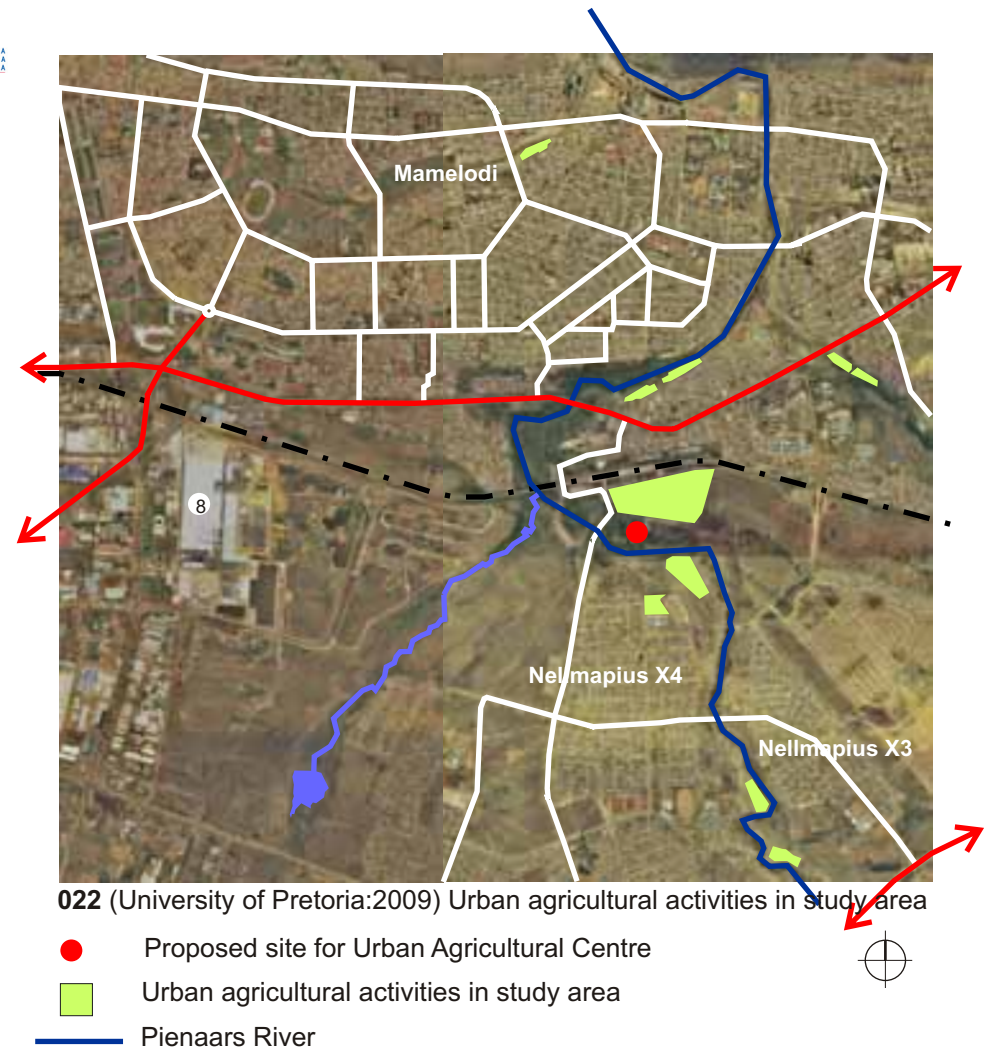
The heritage buildings from the Eerste Fabrieke Hatherley Distillery dates back to 1882 and are in a dilapidated state. This piece of land is owned by Mr Aubrey Upton and is utilized as cattle farm with cattle roaming between the station and the Pienaars River. At certain spots along the river subsistence farming are being practiced by people living in the area.

Although the people of Nelmapius are poor, the majority of houses are neatly constructed from concrete masonry blocks and corrugated iron. Small businesses like Spaza shops and hairdressers line the streets and form the main source of income for many people.

## Urban agricultural analysis

The vegetable gardens are mainly for the purpose of survival and not to generate an income. Due to theft and a lack of knowledge, these small scale farmers are fighting a losing battle. Women dominate urban agriculture in South African townships, and researchers estimate that over 80 percent of these cultivators are woman. In Kenya women constitute 64 percent of Nairobi's urban cultivators. Traditionally black men play a big role in the clearing of fields and other activities like chopping down trees, while the women are more likely to be involved in soil preparation, cultivating, planting, weeding and harvesting. Only about 10 percent of urban cultivators in Mamelodi are men. (Moloto 1996:95)

Jonkotlolo Primary School in Nellmapius initiated an urban agricultural program among the children for the benefit of orphans in the area. This initiative is supported by the Heartbeat Centre for Community Development. The mission of this organisation is to alleviate the suffering of orphans and vulnerable children. Other urban agricultural activities include a Horticulture site in the east of Mamelodi. This project is government sponsored and consist of six greenhouse tunnels. Unfortunately, due to a lack of knowledge and poor the management the full potential of this initiative is not reached. The proposed urban agricultural centre will provide a platform where vegetables can be produced and harvested in a more formal and productive way to relieve poverty and unemployment.



**021** (Photo collage by author)  
Photo collage of urban agricultural activities at Jonkotlolo Primary School