



5.1 Introduction

The City of Tshwane was chosen as the setting for the new centre of the SAMF.

This chapter provides a description of the factors that influence the development of the design proposal on a macro-, meso- and micro-scale. It is the intent to align the design proposal with the spatial development frameworks of the City of Tshwane, while at the same time, presenting the urban dweller with a snapshot of the contemporary urban condition as manifested through the design process.

5.2 Macro-scale analysis

Factors that influence the design on a macro-scale generally refer to natural environmental aspects, such as geographical setting, topography, climate and biological factors.

Due to the anthropogenic nature of the urban environment, these factors do not necessarily persist on the project site, but should be taken into consideration in an attempt to integrate the city into the surrounding natural landscape.

5.2.1 Climate

The City of Tshwane falls within the summer rainfall region of South Africa and is characterised by intense thunderstorms in the afternoon, often accompanied by hail. The climate is warm and moderate, with a mean daily sunshine factor of 8.7 hours per day (Bolwheki, 2002:4).

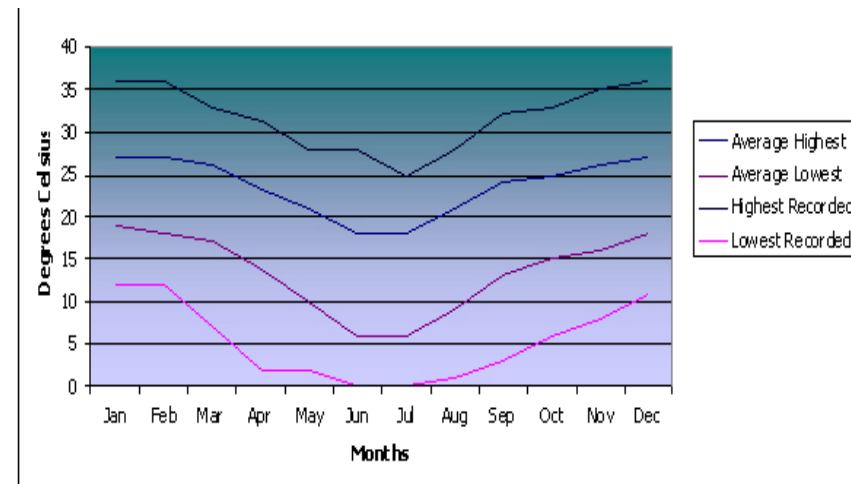


Figure 5-1: Average Air Temperatures for Pretoria
(Source: Adapted from Weather SA, 2003)

The climate makes the city an ideal location to live and work, as well as a popular tourist destination (CTMM, 2007).

Table 5-1: Climate of City of Tswane, 1961 – 1990 (Source: Weather SA, 2003)

Month	Temperature (° C)				Precipitation (mm)		
	Highest Re-corded	Average daily maximum	Average daily minimum	Lowest re-corded	Average monthly	Average number of days with >1mm	Highest 24- hour rainfall
January	36	29	18	8	136	14	160
February	36	28	17	11	75	11	95
March	35	27	16	6	82	10	84
April	33	24	12	3	51	7	72
May	29	22	8	-1	13	3	40
June	25	19	5	-6	7	1	32
July	26	20	5	-4	3	1	18
August	31	22	8	-1	6	2	15
September	34	26	12	2	22	3	43
October	36	27	14	4	71	9	108
November	36	27	16	7	98	12	67
December	35	28	17	7	110	15	50
Year	36	25	12	-6	674	87	160

As seen in Table 5-1, maximum daily air temperatures range from 19°C in June to 29°C in January. The average annual rainfall is 674mm and the wettest month of the year is January with an average monthly total rainfall of 136mm. During winter months, less than 17mm rainfall occurs (Weather SA, 2003). The dominant wind direction is from the northeast, with an average wind speed of 2m/s. The strongest winds occur during September to December as can be seen in Figure 5-2.

5.2.2 Topography

The City of Tswane is situated on the central Highveld plateau of South Africa at an average altitude of 1 500m above sea level. The topography can be described as rolling hills with scattered rocky outcrops and quartzitic ridges, intersected by small streams and rivers.

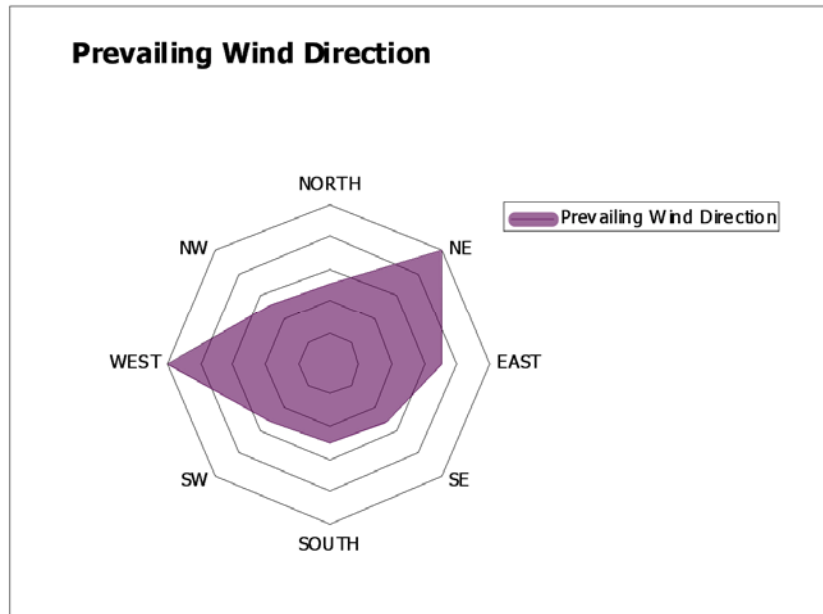


Figure 5-2; Prevailing Wind Direction (Source: Adapted from Weather SA, 2003)

On a regional scale, the City of Tshwane lies within a shallow valley that is framed by quartzitic ridges to the south and the Magaliesberg Mountains to the north. The valley topography is of special significance in that it has directly resulted in the development of a limited number of access routes leading from the north and south of the city. The project site is situated directly north of Fountains Valley, which is a regional topographical low-lying area and therefore, one of the limited and most important access points to the city.

5.2.3 Geology

The City of Tshwane is underlain by four major geological units, including:

- Basement granite/gneiss;
- Witwatersrand Supergroup;
- Malmani Dolomites; and
- Pretoria Group.

The southern part of the City of Tshwane consists of dolomite and chert which are prone to the formation of sinkholes and dolines. More specifically, the dolomites in the Fountains Valley area are a strategic groundwater resource for domestic water supply to the city (WRC, 1995).

5.2.4 Surface hydrology

The most prominent surface water feature in the City of Tshwane is the Apies River, which flows approximately 400m to the east of the project site. The Apies River forms part of the greater Crocodile River Catchment which drains large parts of northern Gauteng and the Mpumalanga Province.

As the Apies River enters the City of Tshwane, storm-water is added to the natural river flow and the river is largely canalised. Due to runoff from the street network, the water quality in the Apies River canal is generally of poor quality (Bolwheki, 2002:4-7).

5.2.5 Biomes

Due to the lower temperatures within the winter months, tree species in the City of Tshwane are restricted to kloofs and rocky areas, which are sheltered from the frost. These areas are therefore dominated by herbaceous species and grassland vegetation as the most important ecological drivers within both these biomes are fire, frost and grazing (CTMM, 2007).

The city further contains exceptional natural features within its boundaries, including ridges, wetlands, a meteoritic crater and ecologically sensitive areas. Only 27% of the municipal area is built-up, leaving 73% in some form of open space (CTMM, 2006).

5.2.6 Protected and sensitive areas

There are several protected and sensitive areas in the City of Tshwane, of which the Groenkloof Nature Reserve, Fountains Valley Park, Salvokop, Burgers Park and Magnolia Dell are all located within a 5km radius of

the project site. As mentioned earlier, Salvokop is a prominent quartzite ridge situated only 1km to the southeast of the project site. Salvokop used to be a lookout post for hunters during the Stone Age and Iron Age (Bruwer *et al.*, 2003).

Salvokop is currently home to Freedom Park, which was designed as monument to commemorate the lives of men and women who sacrificed their lives during the struggle for a democratic South Africa (Freedom Park, 2009).

The vision of the park is...

“To provide a pioneering and empowering heritage destination in order to mobilise for reconciliation and nation building in our country; to reflect upon our past, improving our present and building our future as a united nation; and to contribute continentally and internationally to the formation of better human understanding among nations and peoples...” (Freedom Park, 2009).



5.3 Meso-scale analysis

The vision and mission of the City of Tshwane Metropolitan Council (CTMM) is...

“To be the leading international African Capital City of excellence that empowers the community to prosper in a safe and healthy environment,” and “To enhance quality of life of all people in the City of Tshwane through a developmental system of local government and the rendering of efficient, effective affordable services.” (CTMM, 2007).

In order to realise their vision and mission, the metropolitan council defined the following objectives as part of the *City of Tshwane Metropolitan Spatial Development Framework (MSDF)*:

- To achieve shared and accelerated growth;
- To determine the City’s contribution towards the Provincial economic growth target of 8% economic growth;
- To reduce unemployment by 50% by the year 2014;
- To create an environment that will ensure a more balanced and equitable sharing of benefits of economic growth between the first and second economies; and

- To address gender focused issues in the economy by dealing with the inequalities and mainstreaming women, youth and the disabled (CTMM, 2005a).

In recent years a number of developmental frameworks have been developed for the City of Tshwane. The two frameworks that have received the most attention are the Salvokop and Re Kgabisa inner city frameworks within which the new Gautrain Rapid Rail Link (GRRL) will be situated.

5.3.1 Re Kgabisa Framework

One of the key frameworks within which the design proposal will be developed is the Re Kgabisa framework which focuses on the upliftment of existing government buildings along the Paul Kruger and Church Street spines. The proposed site for the new SAMS centre is located at the end of the Paul Kruger spine and therefore, an important beacon in the urban landscape.

Although the Re Kgabisa SDF focuses on the development and rejuvenation of government buildings in the inner city, other objectives include:

- Incorporate cultural and heritage sites;
- Integrate with municipal initiatives, e.g. Mandela Corridor; housing, transport planning and open space developments; and
- Allow for flexibility, possible expansion to include other government entities and multilaterals.

This design proposal will be done in line with the cultural and heritage objectives of the Re Kgabisa SDF and simultaneously, become an integral part of an existing transport and educational hub.

5.3.2 Salvokop Framework

Although the design proposal is not situated directly in the Salvokop area, the Salvokop SDF focuses on the area directly to the southwest of the site. The framework therefore has a great influence on the development of the site itself and in addition, aligns itself with the objectives of the city-scale framework. The site therefore becomes both an extension of and a catalyst for certain elements within the Salvokop SDF.

Some examples that are part of the broad scale proposal that are deemed to be imperative to the site in question are:

- The Creation of a unique re-development area that builds on the assets of the Inner City and contributes to the progressive revitalisation of the area;
- Focusing, within the establishment of a mixed-use area, on heritage tourism, festival retail, commercial, housing and recreation activity to establish a new living cultural precinct for the Inner City;
- Creating a core exemplary heritage and environmental conservation area that provides a tourism and educational attraction to the area supporting the location of Freedom Park and the National Legacy Site; and
- Creating a new civic cultural and tourism spine that links the Central City system, Museum Park the Pretoria Station and through the re-developed Salvokop Village to Freedom Park (GAPP/MMA, 2003).

As can be seen from the broad outlines of the framework, there is a distinct intention to establish a cultural and educational area that will stimulate tourism development and act as a feeding ground for revitalization of the city. It is also the intent of the Salvokop SDF to revitalise the area on the northern side of the railway line around the Pretoria Station and strong emphasis is given to the Paul Kruger arterial line.



It is important to note that the Apies River is currently the subject of redevelopment planning and a consortium of designers has been appointed to investigate the proposed upgrading of this spine. The following initiatives are of relevance:

- Apies River Open Design Framework;
- Rainbow Junction; and
- Apies River Development Corridor (Bruwer *et al.*, 2003).

5.4 Micro-scale analysis

5.4.1 Site selection

25° 45'31.01"S

28° 11'28.67"E

The choice of the site for the design proposal was influenced by a number of factors, of which the most important was the architectural programme and its contextual significance. The site therefore had a few prerequisites that are listed as:

- Distinct urban characteristics;
- Easily accessible by pedestrians and motor vehicles;
- High degree of visibility;
- Reclamation of 'lost' space.

A decision was made to make use of an *underutilised* site in the area of the future Gautrain station in Pretoria (Figure 5-3, Figure 5-4 and Figure 5-5).

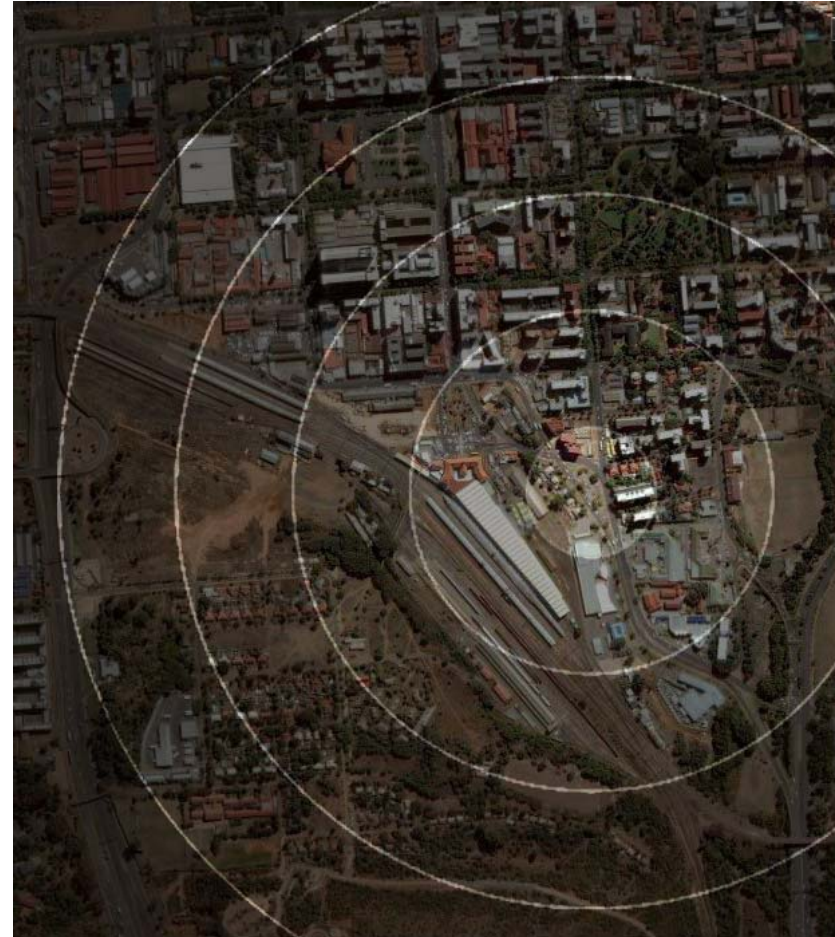


Figure 5-3: Site location (Source: CTGIS, 2009)



Figure 5-4: Aerial view of site (Source: Railways Africa, 2009)

In the *City of Tshwane Densification and Compaction Strategy* (CTMM, 2005b), reference is made to a few enemies of densification, of which at least four will be directly addressed by this project namely:

- Shortage of functional and attractive communal open space and recreational facilities in strategic areas to support higher density housing;
- Inefficient use of valuable land by large parking areas around commercial developments;
- Pedestrian unfriendly nodal areas; and
- A lack of emphasis on redevelopment and regeneration, with a strong emphasis on Greenfield developments.

The City of Tshwane also stated in its Integrated Transport Plan, 2004-2009 (CTMM, 2008) that...

"...the GAUTRAIN will have a major impact on the demarcated destinations in Tshwane (i.e. Centurion Station, Pretoria Station and Hatfield Station) in terms of future development of these areas. To ensure the viability of these stations, the areas around the stations will have to comprise a specific land use mix ... at a specific intensity and density with a strong focus on pedestrians and inter-modal transfer facilities. They will also have to comply with specific urban design requirements." (CTMM, 2008:4-15).



Figure 5-5: Overview of the site (Source: CTGIS, 2009)



Figure 5-6: View from Northwest (Source: Own Image)



Figure 5-7: View from East (Source: Own Image)



Figure 5-8: View from South (Source: Own Image)

It is clear that The City of Tshwane will be greatly transformed by the Gautrain and will trigger a whole range of development and renewal through its implementation. This has been one of the key considerations in the choice of a site for the design proposal. The proximity to the Gautrain station is of great significance.

5.4.2 Land tenure

Currently the site consists of four stands that would need to be consolidated. Three of the sites are currently owned by the Metropolitan Council of the City of Tshwane, and the fourth is owned by the Muslim Educational Trust (see Table 5-2 and Figure 5-6).

Table 5-2: Ownership of the land in question (Source: Compiled from WinDeed)

Stand no.	Address	Area	Owner	Purchase date	Purchase price	Registration date
2275	562 Andries Street	907 m ²	Pretoria Municipality	Unknown	Unknown	1973/10/08
2276	48 Railway Street	760 m ²	Pretoria Municipality	Unknown	Unknown	1974/01/15
2282	52 Railway Street	858 m ²	Pretoria Municipality	Unknown	Unknown	1976/12/09
43	N/A	1288 m ²	Muslim Educational Institute Trust	2003/10/07	R900 000	Unknown

5.4.3 Palimpsest and Architectural Character

The Paul Kruger Street Spine Development Framework (2001) identified the precinct surrounding the Pretoria Station as a very important node in the city. This is mainly due to the station's landmark and in particular, the imposing visibility of the main station building at the southern end of Paul Kruger Street. The aesthetic importance of the station precinct at the end of the Paul Kruger spine is of especial significance (Bruwer *et al.*, 2003).

The palimpsest and architectural character of the site will be described with reference to the station precinct and the areas immediately surrounding the precinct.

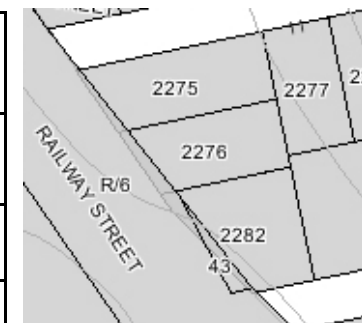


Figure 5-9: Stand numbers (Source: CTGIS, 2009)



5.4.4 Pretoria Station Precinct

The Station building is the well-known Herbert Baker designed design, which was completed in 1912. The building was partly gutted by fire in 2002 but has since been restored. To the West of the main building is the former station for “non-whites” and according to Bruwer *et al.*, “...a near forgotten relic from the days of apartheid,” (2003:14). The station precinct, shown in Figure 5-7) further consists of the sheds and annexes to the main building and the landscaped open space between the main building and Scheiding Street. The building was never afforded permanent protection status under the former National Monuments Act, 1969 and is not a provincial heritage site in terms of the National Heritage Resources Act, No. 25 of 1999 (NHRA).

In the days of the former Transvaal Republic, the Pretoria Station was the point of connection of the capital city with the gold mining industry of Johannesburg. In addition, it was the only station in the interior of the country from where Lourenço Marques (now Maputo) in Mozambique could be reached.



Figure 5-10: Pretoria Station Precinct (Source: Own Image)

Located in the area surrounding the station is a mixture of apartment blocks, office, retail as well as residential dwellings of which many date back to the days of the 'old' or historic Pretoria. Many of these buildings are older than 60 years and thus protected under the NHRA.

5.4.5 Berea Park

Continued expansion of the railway operation resulted in the construction of houses for railway employees in the area east of the station. This also led to the development of a recreational facility for white railway employees of the former Central South African Railways (CSAR). The area became known as Berea Club or Berea Park, as it is currently known. The Club used to be frequented by white railway employees and public service officials who lived in apartment buildings in Sunnyside and the suburbs of Arcadia and Muckleneuk.

The buildings of Berea Club date from 1906 to 1927 and are thus considered a national heritage in terms of the NHRA. In fact, the Berea precinct is currently the oldest recreational facility of its kind in the City of Tswane. Unfortunately, the facilities are no longer in use and the former club grounds are in a state of neglect.

5.4.6 Muckleneuk and Lukasrand

To the east of the Station lie the suburbs of Muckleneuk and Lukasrand. The area is well defined by its topography, location and street grid. The residential character of the area has been maintained since it was laid out before the turn of the 19th century. In fact, Muckleneuk is currently one of the three Jacaranda routes in Pretoria. Also to the near east is the UNISA Sunnyside Campus. Following the Second Anglo-Boer War (1899-1902) the site was used for the former Pretoria Normaal College. Most of these buildings dating from 1910 to 1965 have been taken over and extensively renovated by UNISA (Bruwer *et al.*, 2003).

5.4.7 Salvokop

Salvokop was established by the Nederlandsche Zuid-Afrikaansche Spoorweg-Maatschappij (NZASM) in 1892 as a permanent railway village for employees. During the past 110 years, Salvokop developed as a typical semi-isolated, self-contained railway township.

The architecture of Salvokop is significant in that it displays a range of architectural styles dating back to the 1980s. Every ten years, another architectural style was adopted by the various railway administrations.



5.4.8 Summary

Important historical buildings in the vicinity of the project site include the old mill building in Andries Street and the Berea Park recreational facility. As stated earlier, the Berea Park recreational facility could again become an integrated part of the Pretoria Railway Station precinct. Other important buildings within the area include Victoria Hotel (formerly the Hollandia Hotel), the Belgrave Hotel (1929), the historical coach washing shed, the Audit building 1928, as well as the railway-associated houses previously known as Du Preez's Hoek (Bruwer *et al.*, 2003).

5.5. Proposed urban framework

The proposed urban framework is not only a combination of the Salvokop and Re Kgabise SDFs, but also an extension thereof.

Some of the challenges facing this area of Tshwane are:

- Uncontrolled development;
- Rapid growth and change;
- Congested circulation;
- Uneven accessibility;
- Unbalanced use of facilities;

- Restricted choice of residence typologies;
- Unstable pattern of activity;
- High running cost of the City as a whole;
- A visually characterless and confused landscape;
- Alternative land uses disturb the residential character of established residential areas;
- Decline and negative changes are taking place in the character and function of the Inner City;
- Little or no night-time activity, leading to unsafe areas;
- Under-utilisation of space; and
- Low variety in density.

Some of the strengths of the area include:

- An established Inner City and suburbs;
- A radial road system with arterials converging on the Inner City;
- Nodal development along the arterials;
- Rapidly growing areas on the periphery;
- An open space system comprising of space that can become parks and existing water-courses ridges etc;
- Established Infrastructure;
- Proximity to the inner city and other nodes and modal interchanges;

- Good views of the city-scape;
- Cosmopolitan demography; and
- Ample recreational facilities.

5.5.1 Objectives

In view of the above mentioned challenges and strengths, the objectives of the proposed urban framework are to:

- Make efficient use of land;
- Discourage urban sprawl;
- Promote the extension of the already efficient transport system;
- Enhance environmental protection;
- Manage open spaces effectively;
- Make efficient use of urban and regional facilities, including bulk infrastructure;
- Reduce existing infrastructure and service disparities;
- Encourage affordable growth of local economies;
- Improve the quality of the urban environment; and
- Establish safe and secure living and working environments.

5.5.2 Preliminary design guidelines

In order to achieve the objectives of the proposed framework, the following design guidelines have been formulated:

- Variation in the alignment of roofs;
- Variation of façade treatment in order to promote diversity and individuality, as well as to eliminate monotony;
- Screen walls are to be staggered or otherwise articulated;
- Hard landscaping should be restricted to vehicle parking and access zones, essential pedestrian pathways and private patios so as to reduce storm water runoff;
- Paved areas must not hamper the efficient management of storm water;
- A minimum of one tree for three open parking bays to be planted;
- Car parking facilities should not dominate the development or street frontage;
- Landscaping should not detract from lines of vision and hiding places should not be created;



- Compatibility of densities is a key consideration in restructuring the city and in the urban design of local areas;
- Transitional zones can be established where appropriate, so that there are gradual increases and decreases in density;
- Variation in scale through height difference is encouraged;
- Street frontage should suit the efficient use of the site, the residential amenity and the character of the precinct;
- The placing of individual buildings should avoid long rectangular footprints, while utilising setbacks, preferably not positioning buildings at right angles to the street boundary;
- Layouts should respond positively to site features, e.g. topography, drainage, vegetation. Good lighting, visibility and surveillance with perimeter lighting on the street frontage are encouraged. Lighting of common spaces such as the perimeter, pathways, and entrance halls are imperative;
- The placement of windows on the façade of buildings to allow for surveillance from the building onto the street and other public spaces is strongly advisable;
- Spaces around buildings should be designed to relate to the built form, so that the land owner can take ownership of the space;
- Pedestrian paths, particularly along mobility spines and roads and along public transport routes, should be articulated;
- Specific provision need to be made for pedestrian routes in strategic areas, particular from residential areas to nodes, amenities and public transport points. These paths must include clear signage, street lightning, managed vegetation and pedestrian crossings;
- Property enclosures, if really deemed necessary, should be permeable to allow for visual surveillance onto and from the street;
- The access must be in line with mobility policy requirements and the access way must be sited so that cars entering the development will not hinder the vehicle movement in the public streets surrounding it; and
- Residential developments along mobility spines and roads should have a strong edge with the road. Perimeter block courtyard buildings as well as linear buildings along the street edge would be appropriate.

5.5.3 Continuation of Urban Fabric

One of the problems with the area in question is that it does not integrate very well with the rest of the city. It is therefore the intent to integrate the area surrounding the Pretoria Station with the urban fabric by densification around the site of the new Gautrain Station, shown in Figure 5-8. The Berea Park sports facility will also be re-evaluated as a residential or commercial entity. In fact, the Heritage Impact Assessment for the new Pretoria Gautrain Station states that;

“From the viewpoint of historic context, the Berea Park recreational facility should again become an integrated part of the Pretoria Railway Station precinct and its heritage importance.”

(Bruwer *et al.*, 2003:30).

It is also deemed necessary to continue densification into the Salvokop Precinct, as the new vehicle and pedestrian bridges that are planned will enable better integration into the city as a whole. The continuation of urban fabric is illustrated in Figure 5-9.

5.5.4 Districts

It is envisaged that the area should be conceptually divided into three districts.

To the West are the station and all its amenities with a proposed foyer building as an ‘entrance’ from Salvokop. In the area directly to the west of this to the South of Burgers Park there is a proposed Hotel and Public facilities area.

On the western side there is a designated precinct for residential, retail and office developments that tie in with the UNISA Sunnyside campus as part of an educational precinct. It is also proposed that an iconic gateway building is placed at the southern entry point into Pretoria. The locations of the proposed districts are shown in Figure 5-10.



Figure 5-11: Rendering of the new Gautrain Station in Pretoria (Source: Africa Railways, 2009)

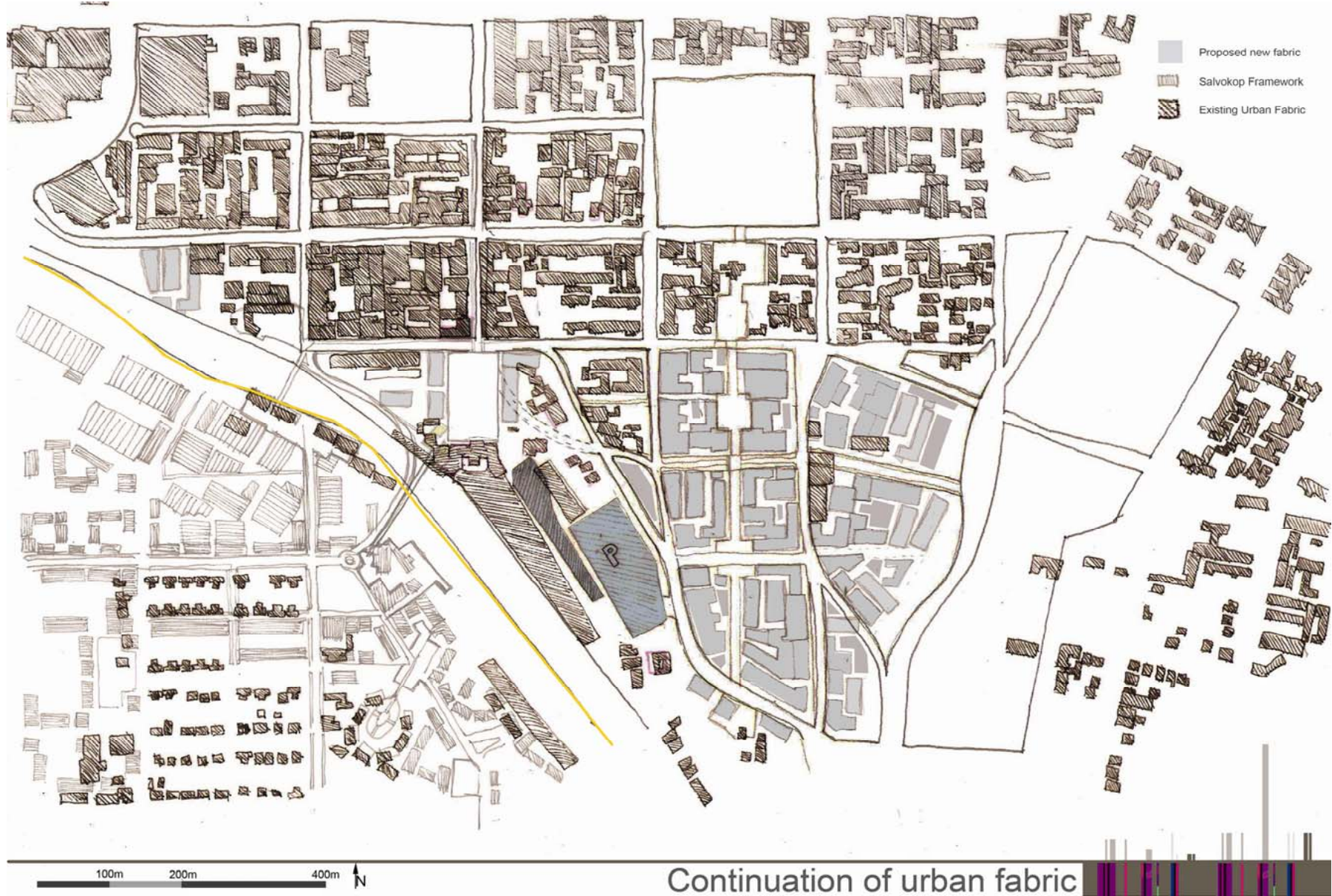


Figure 5-12: Continuation of urban fabric (Source: Own Image)

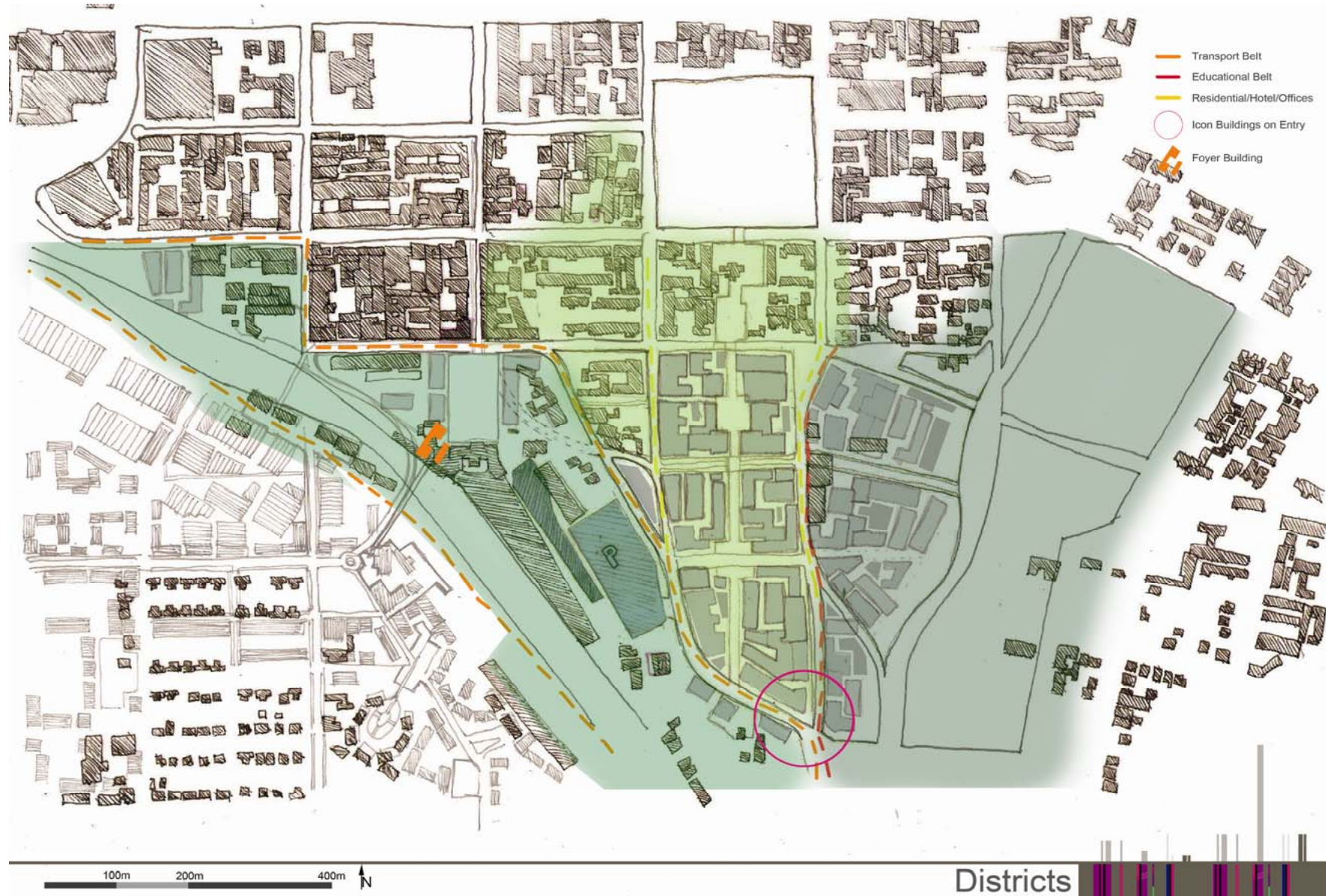


Figure 5-13: Districts (Source: Own Image)



5.5.5 Public open Space

An important part of the proposed design framework is its focus on public open space as a part of future developments. A green belt is proposed from Burgers Park to the South terminating close to the Pretoria Station, as shown in Figure 5-11.

Another noteworthy aspect is intensive intervention along Scheiding Street to enable pedestrian traffic from the UNISA Sunnyside Campus to the Pretoria Station. The pedestrian link to Salvokop is of paramount importance.

It is also suggested that a green open space be provided at the new Gautrain Station as their proposals do not make provision for such spaces.

Lastly, it is important to re-establish the square to the North of the Station as an urban green space. It is deemed necessary to define the square better through the use of perimeter buildings and densification.

5.5.6 Links

As stated earlier, important frameworks that were considered included the Paul Kruger Spine framework. This axis needs to be strengthened intensively.

It is suggested that in the future the link between the UNISA Sunnyside Campus and the Pretoria Station will become increasingly important.

It is also important to establish a link through Burgers Park to the south. It is also envisaged that the link to Salvokop will become increasingly important as it forms the threshold to Freedom Park from the station (see Figure 5-12).

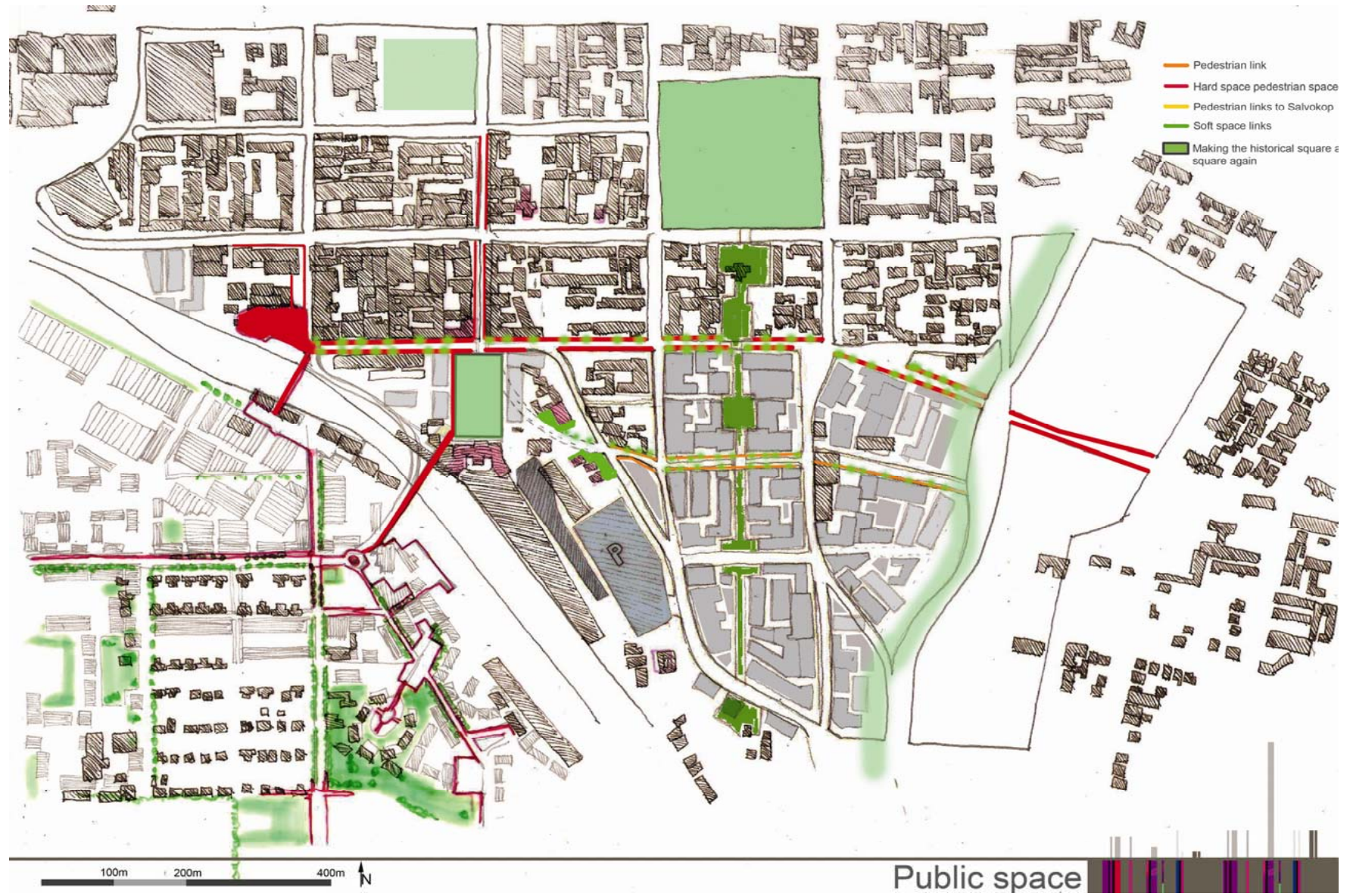


Figure 5-14: Public space (Source: Own Image)

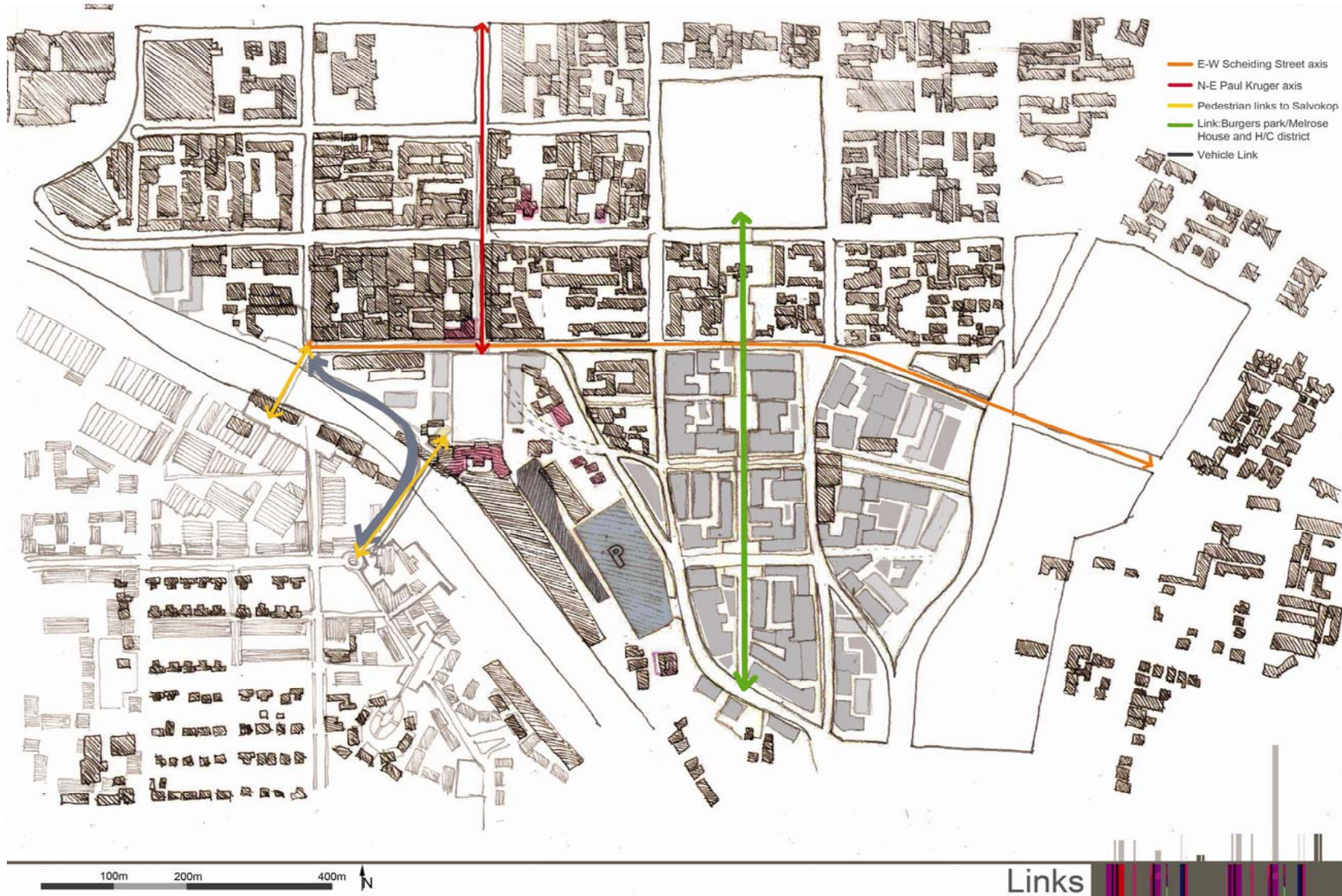


Figure 5-15: Links (Source: Own Image)

5.5.7 Circulation

The most important adaptation to the existing circulation in the area is that of the closure of the extension of Tulleken Road. The author is of the opinion that this road no longer serves any purpose as it was originally developed when the Nelson Mandela corridor was under construction. The removal of this road re-integrates the site to the north of the station and restores it as a pedestrian-friendly legible entity.

The proposed ring road flow of traffic is a slight adaptation to what was proposed by the Gautrain development (see Figure 5-13). It is the opinion that the secondary ring-road should be utilised only for drop-off and pick-up and should not be of such significance that it segregates the existing Pretoria Station building from the public space to the north.

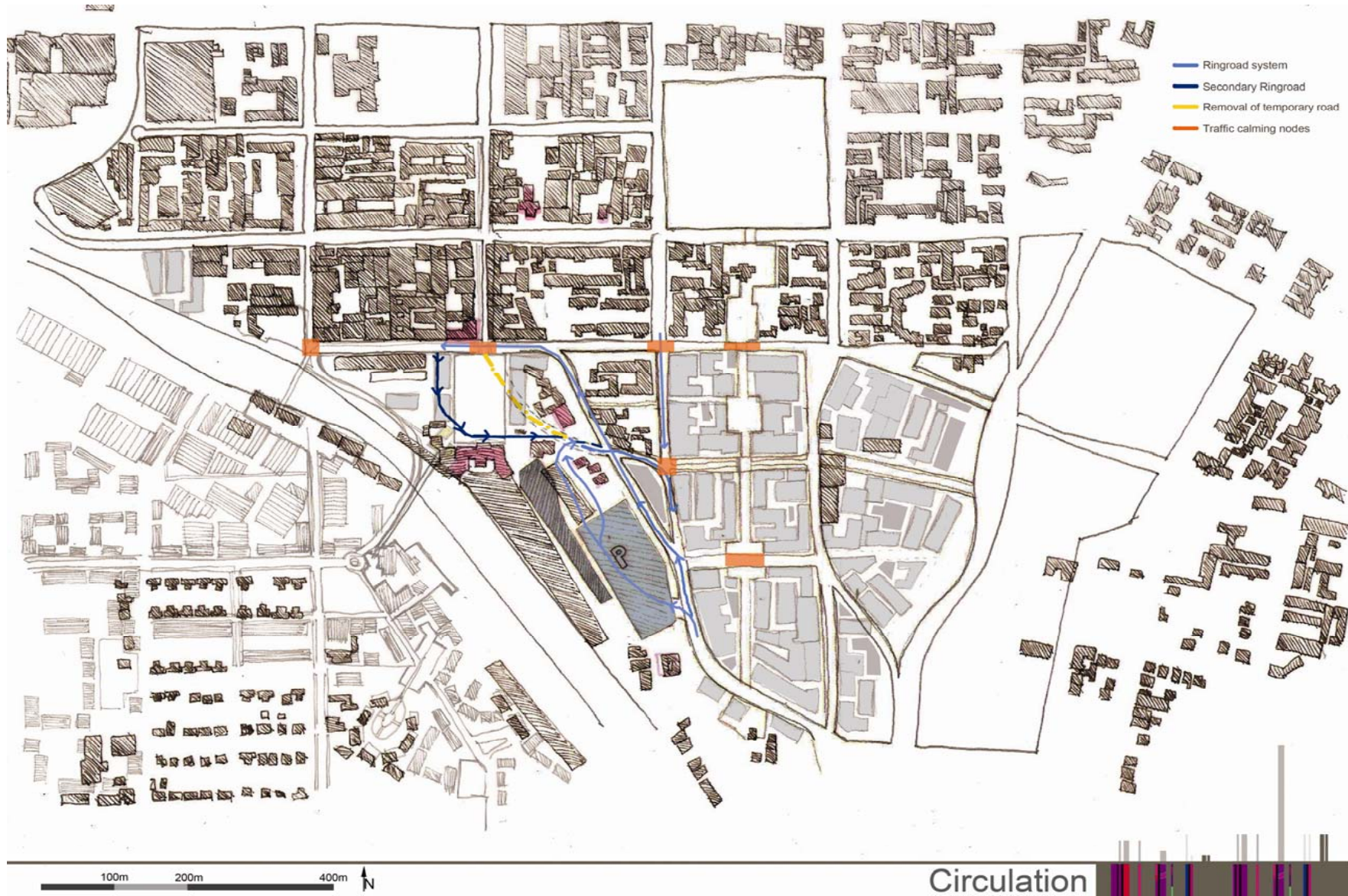


Figure 5-16: Circulation (Source: Own Image)



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