Place        Space        Movement
“Cities are composed of a number of networks, constituted of layers, of services, built environments, social infrastructure, cultural hubs, transport modes and economics systems.

Successful cities, have been able to combine the demands of people of increased mobility on those systems by effective and efficient transport systems; systems that work on a variety of levels.”

City Expert Witness, Dublin Public Hearing, January 2011
ARUP

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Willem van Rijn  Engineer  Infrastructure
Jaco Rossouw  Engineer  Infrastructure
Siloshini Naidoo  Environmental  Sustainability
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Ian Gardner
INTRODUCTION

Arup were appointed in 2011, by the Passenger Rail Agency of South Africa to investigate and develop an implementable framework and plan to rejuvenate the area and develop a strategy for realising the assets that exist in the area.

The first Workstream of that body of Work is the Status Quo Analysis and Literature Study. This summary report outlines the Status Quo undertaken by Arup to date.
Two ladies that prepare food at the traditional African Food Market south of Park Station.
Dedication

There are many contributors who make this commission possible, both in terms of appointment and execution, however the Consultants wish to acknowledge the work of all thought leaders and practitioners in the networks of cities from infrastructure, through transport to population movements and city making.

The authors wish to note the initial and passionate contribution of Robin Riddell prior to the commission.
‘...I sometimes live inside my car & buy my food from the Cook house’, Michak Phelane, Long distance taxi driver, Bok Street.
“It will cost you R18 for a return journey from here to Soweto.”

Khaya Manikwe
Taxi driver at the Bridge Shopping Centre Taxi Rank, 2011.
Movement & Transport

Chapter 1

The efficient movement of people & goods in a sustainable & integrated manner which supports a public transport network.
BACKGROUND

A number of sources have been synthesized and updated with new information to enhance understanding of status quo, including:

- 2002 CPTR
- 2006 Arup pedestrian surveys and public transport route documentation
- 2009 Arcus Gibb surveys
- 2010 Arup on-site investigations

Information is compiled to the degree necessary to understand how changes in land use and public transport facilities might alter movement in the area, and is key to understanding how the movement system can be harnessed to support planning objectives.

Context of the precinct

The precinct is part of what is effectively a wide-area transport interchange that is operationally integrated, but poorly integrated in terms of infrastructure. It is also an origin and a destination for trips, and thus accommodates a wide variety of movements by various modes of transport.

The catchment area of this precinct varies according to the mode of transport under consideration. Overall, its area of influence is metropolitan wide, and indeed international. Transport operations are influenced by significant historical decisions such as the lack of rail to the north, but also by the emergence of various commercial activities that serve local, national and international travellers.

There is a wide variety of travel markets in the precinct. Regular daily commuters; weekly travellers; occasional long-distance visitors from other countries (usually low-income); low- to middle-income travellers to other provinces (bus, taxi and rail); and tourists. These each present their own requirements and potential design responses.

Urban design and architecture can be used to support positive trends and discourage negative ones, by guiding movement and improving management of the system as a whole. For example, exemplary design and management could limit traffic growth while activity and residential density continue to grow.

Urban regeneration may alter movement patterns as well as volumes, and past interventions have had varying degrees of success. Metro Mall, for example, provides formalized space for small-scale traders, but is hampered by a surrounding environment that is incompletely developed and only partially supports small businesses. The design of Metro Mall itself, as with many other taxi ranks, does not fully address the needs of operators and passengers.
Transformation is underway in the public transport system, involving primarily the BRT system and the Gautrain. These present new opportunities for improving passenger services, and for the trading environment.

It is noted that all planning proposals to date consider alternative strategies for accommodating the implications of the current metropolitan-level public transport structure. No attempt has been made to investigate a realignment of the role of the CBD as a major transfer hub in the city.

**ROUTES**

**Pedestrians**

Pedestrian routes are determined by a number of factors, including:

- Time of day (darkness and commercial activity)
- Condition and design of pedestrian facilities
- Whether related to public transport or not
- Conflict with other modes
- Whether a multipurpose or single purpose journey

Some of these factors will alter what would otherwise be the desired routes of pedestrians, and the current state of infrastructure can have a negative impact on both movement and commerce.

Transferring passengers are essentially filling in the gaps in public transport service, while there are pedestrians also walking considerable distances to nearby residential and business areas such as Hillbrow and Braamfontein.

Pedestrian routes have arisen organically in response to demand, but are not formally planned as such, and in a number of locations are inadequate, resulting in lack of clarity for those unfamiliar with the area, and conflict between pedestrians and motorized vehicles. The general street grid is fine enough for pedestrian movement, but is interrupted by barriers such as the railway lines.

**Minibus taxis**

A number of formal routes exist in the CBD, but are influenced by the time of day and the demand for transfers between public transport services. There is a strong east-west movement on Plein and Bree Streets for boarding and alighting. Many of the routes in and out of the CBD also have an east-west orientation.

There may be a need to rationalize the location of ranks for various taxi routes, and data collected previously by Arup provides a tool to assess the impact that moving route termination points will have on pedestrian movements.
**Buses**

In contrast to minibus taxis, most Metrobus routes have a north-south orientation. The newer BRT routes establish a more integrated network, allowing for more opportunities for transfers between services than was the case in the past. This has implications for pedestrian patterns related to transfers.

Routes of cross-border bus services have not been mapped, and are dispersed (mainly to the north of Park Station).

**Rail**

As rail is oriented to the east, west and south – but not the north – there are built-in conditions that result in the need for passenger transfers between modes. The addition of Gautrain will not dramatically alter this pattern, as the travel markets for Metrorail and Gautrain do not significantly overlap.

**Private traffic**

Congestion in the CBD tends to limit choice of routes available to private vehicles, with certain streets avoided virtually altogether as a result of the high density of public transport vehicles. The theoretical level of service on many streets is acceptable, but the actual level of service is reduced by friction related to pedestrians, traders and public transport operations. Improved management of these activities can be expected to improve level of service for general traffic.

**INTEGRATED SYSTEM**

**Public transport Formal and informal transport:**

There are two key aspects to informality in the minibus taxi industry as it operates in this area:

- On-street boarding and alighting takes place in various informal locations, where drivers respond to demand from passengers for more convenient service, and where drivers prefer not to enter formal facilities in order to reduce delays.
- Certain services have no formal facilities at all, but are ‘tolerated’ in various locations in the CBD.

There is interaction between these informal activities and other formal activities, and the degree of integration of the system as a whole is affected by this interaction. Informal operations present challenges for planning, but also provide an indicator of real demand that may not be accommodated with formal facilities. One of the challenges in documenting the status quo is that data collection exercises such as CPTR surveys do not adequately account for informal and illegal activity.

This shortcoming introduces an element of unpredictably in attempts to plan for public transport.
Role of transfers

Transfers between services create inconvenience as well as opportunity for commerce. It is noted that integration of services can be achieved not only by reducing walk distances, but also by providing more convenient and safe walking environment. Currently there is not a good balance between transfer distance and efficiency.

It is noted that mode choice varies in the AM and PM peak commuter periods, depending on convenience for various trip purposes, origins and destinations. Transfer activity therefore also varies by time of day. This in turn affects the benefits of pedestrian footfall for informal and formal trade. The area lacks a coherent strategy for accommodating pedestrians and traders in a mutually beneficial arrangement.

Local and long distance

Long distance raises unique challenges related to transfers from local services, accommodation and facilities for those waiting for departures. Long distance bus services are distributed over a number of facilities, and their operational integration with the rest of the system is impacted by the poor quality pedestrian environment. The Park Station precinct plays a role in this, as the station is strategically located on pedestrian routes between long distance and local public transport facilities.

Suitability of facilities

Infrastructure does not fully support the optimal operation of public transport, particularly minibus taxis. Demand for each mode in the morning is different from the evening, and this variation needs to be considered in the design of facilities.

An important challenge in facility design is accommodation of fluctuations in demand. The Wanderers taxi rank, for example, experiences high demand levels on Fridays and Sundays. There is no comprehensive strategy for the management of public transport in the CBD, and this hinders effective operations related to boarding, alighting and transfers, as well as vehicle holding and maintenance. Suitability also relates to availability – certain facilities, such as Park Station, are not open 24 hours and present challenges for travellers who wait overnight for services.
Conflict and synergy

Potential conflict between public and private transport causes drivers to avoid certain roads, resulting in the creation of de facto public transport corridors with virtually no private transport. Conflict between pedestrians and vehicles at certain intersections reduces available capacity and reduces safety levels.

Land use

Location, mix and density of uses have an impact on movement and potential synergies. Planning of land use needs to be integrated with transport to optimise the system.

Continuity of the movement system

Poor urban design, maintenance and management have produced a situation where there are discontinuities in the system, which influences routes. Discontinuity can be physical, in the sense of missing or inadequate infrastructure such as sidewalks, street furniture, lighting and so on; it can also be operational, where conflict and safety influence users’ choices. Special needs passengers have not been considered explicitly in the design of the NMT system.

We have adopted ‘movement friction’ as a catch-all term to identify these issues of discontinuity. In many cases this friction occurs at the interface between different transport modes, such as at intersections or pedestrian crossing locations. Elsewhere it is a result of conflict between activities, such as where traders encroach on the movement of pedestrians.

Freight

Movement of goods in and around the precinct includes not only deliveries to formal businesses, but also to informal traders and the movement of luggage belonging to long-distance travellers.

Formal sector deliveries are hampered in some locations by on-street trading (notably in Noord St and other areas with a high concentration of informal trade).

In the informal sector, businesses have formed to meet delivery needs. Storage locations have emerged, and individuals deliver goods to traders, who must set up and close down each day. These deliveries use bakkies, cars and non-motorised transport, and there is no coherent strategy to accommodate this activity.

For both formal and informal activity, there are insufficient on- and off-street loading areas.
INFRASTRUCTURE

Parking

In general, parking is inadequate in the CBD, and this situation is exacerbated by other shortcomings in the system, for example taxis use parking bays as holding areas because their facilities are inadequate.

There are several notable aspects to the parking situation around the Park Station precinct.

One is the parking deck at the station itself, which is used to some extent for dropping off and picking up of long distance passengers (bus and rail) and for shopping in the area.

Another is parking garages. Some businesses have on-site parking, or use public garages. A key challenge for transportation is to provide a safe pedestrian environment for those walking between their parking and destination.

Taxi ranks

Ranking and holding capacities are insufficient at formal facilities; on-street taxi activity reduces road capacity; and enforcement is inadequate.

Signage

The various target markets for travel mentioned above have different signage requirements. Regular daily commuters generally know how to get around, but often have to do so by asking others. Weekly travellers may or may not understand the transport industry and the options available to them. Occasional long-distance visitors and tourists have the least understanding and require much clearer design responses. In the subject precinct, not only is signage generally of poor quality, but design of the urban space does not provide an effective wayfinding environment.

Maintenance

The condition of transport infrastructure is a direct result of maintenance activities, but influenced by informal activities that in many cases are in contravention of legal or regulatory controls. Enforcement (or lack of it) is a contributing factor to a degraded urban environment and the constraints this presents for extracting value from the precinct.

Street furniture

No consistent approach to design or to the accommodation of traders. In many locations, lighting is inadequate.
SUSTAINABILITY

Sustainability generally relates to environment, resources, economic and social conditions. In many respects these relate also to the institutional and political context, as these two factors are important for setting objectives and targets, and also determine the ability to maintain suitable conditions. More specifically in relation to this project, the following key factors impact on the sustainability of the transport system:

Design

Aspects such as surface treatment or the design of curbs can hinder mobility; sustainable design will allow for the movement of intended users of facilities. For example, people pushing trolleys or carts need free movement on designated routes. Such routes have not been identified for a review of design of surfaces, curbs and street furniture. Anything that hinders pedestrian movement will also have a negative impact on public transport.

Maintenance

Obstacles to movement include the quality of surfaces, so things like broken or missing surfaces will reduce the level of service and undermine the sustainability of the transport system. Institutional capability to maintain infrastructure therefore impacts on sustainability. Diversity and inconsistency of designs in the CBD make maintenance more difficult.

Enforcement

Management of traders, parking and other activities can affect movement on the street as well as the boarding and alighting of public transport passengers. There are locations where law enforcement officers find it difficult to carry out their duties, for example in the trading areas on Kazerne in the mornings and Wanderers in the evenings. Illegal activities of public transport operators also affect safety and the viability of operations. Currently, design of public transport facilities is not adequate for operational needs, and thus encourages inappropriate behaviour.

Operations

Illegal and inappropriate activity is usually an indicator of unsustainable design or maintenance. Traders crowding pedestrians, or taxis off loading passengers in the middle of streets, are examples, of behaviour that indicates shortcomings in the system that place stress on the financial sustainability of businesses.
Long Distance bus driver on a break after driving from Cape Town.

Buses: Bus company websites
Figure 1.2
Modal Split, 2010


- Rail: 15%
- Gautrain: 0%
- BRT: 1%
- Bus: 7%
- Taxi: 45%
- Cars: 32%
Figure 1.3

Walking Distances from Transport Hubs

<table>
<thead>
<tr>
<th>Number</th>
<th>Location</th>
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<tbody>
<tr>
<td>1</td>
<td>Metro Mall</td>
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<td>2</td>
<td>Kaserne</td>
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<tr>
<td>3</td>
<td>Noord Street</td>
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<tr>
<td>4</td>
<td>The Bridge</td>
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<td>5</td>
<td>Park Station</td>
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<tr>
<td>6</td>
<td>Wanderers</td>
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<td>7</td>
<td>Wanderers Street</td>
</tr>
<tr>
<td>8</td>
<td>King George Street</td>
</tr>
<tr>
<td>9</td>
<td>Gautrain</td>
</tr>
<tr>
<td>10</td>
<td>Cross Border</td>
</tr>
<tr>
<td>11</td>
<td>Noord &amp; Claim Street</td>
</tr>
</tbody>
</table>

- Transport hubs
- 500m walking distance
- 1000m walking distance
Movement of Vehicles: Typical Traffic Volume [AM peak]

Source: ARUP, May 2011, Typical Traffic Volume map [AM peak]

Note: The traffic data has been extracted from the City of Johannesburg SATURN traffic model & should be viewed as representative only of traffic volumes on the surrounding road network.
MOVEMENT & TRANSPORT  STATUS QUO

Movement of Pedestrians

Figure 1.5
SOURCE: ARUP, August 2006, JHB CBD Public Transport Interchange - Pedestrian Transport Report, JDA.
Pedestrian Movements – Morning peak exit Metro Mall in the morning peak period. The volumes at Jack Mincer are of CBD and Braamfontein. The strong taxi movement along Bree and Plein Streets, and north-east-west walking as some of the north-south routes between the streets such as Bree and Plein, and on north-south routes near the west on access routes to Metro Mall, Park Station and Jack Mincer.

In the evening two hour peak period around 57 000 passengers enter and exit Park Station. The volumes at Jack Mincer are of significantly lower in the PM peak at around 21 000 passengers entering and exiting. The volumes at Jack Mincer are of CBD and Braamfontein.

Movement of Pedestrians: Pedestrian Desire Lines

AM Pedestrian Desire Lines

PM Pedestrian Desire Lines

Figure 1.6
SOURCE: ARUP, August 2006, JHB CBD Public Transport Interchange - Pedestrian Transport Report, JDA.
MOVEMENT & TRANSPORT  STATUS QUO

Movement of Vehicles: Lane capacity & Direction

Figure 1.7
SOURCE: On site observations by ARUP & Google Streetview, April 2011.
MOVEMENT & TRANSPORT  STATUS QUO

Movement of Vehicles: Road Hierarchy

Class 3 roads
[mobility roads/collectors]
Connection between neighbourhood nodes & the mobility spine network.

Class 4 roads
[activity streets/local distributors]
Roads within defined residential areas or zones.

Class 5 roads
[residential streets]
Roads within defined residential areas or zones.

Figure 1.8
Figure 1.9
SOURCE: On site observations by ARUP, April 2011.
Figure 1.10
Congestion Points

-source: On site observations by ARUP, April 2011.
Figure 1.11
Figure 1.12


On site counts by ARUP indicate pedestrians per minute taken during one day of observations.
MOVEMENT & TRANSPORT  STATUS QUO

Key Pedestrian Movement around Park Station

Figure 1.13


On site counts by ARUP indicate pedestrians per minute taken during one day of observations.
A Greyhound station manager.
Figure 1.14

Destinations: Regional Rail Destinations

Figure 1.15

Destinations: Regional Bus Destinations

MOVEMENT & TRANSPORT  
STATUS QUO

Destinations: Regional Taxi Destinations

Figure 1.16
A lady waiting for a bus on the pavement.
On site counts by ARUP indicate pedestrians per minute taken during one day of observations.

**Figure 1.18**

**Source:** Arcus Gibb & ASM, 2010. Johannesburg Inner City Traffic & Transportation Study, JDA.

*On site counts by ARUP indicate pedestrians per minute taken during one day of observations.*
**Formal Minibus Taxis**

<table>
<thead>
<tr>
<th>Rank</th>
<th>Location</th>
<th>Commuter</th>
<th>Building</th>
<th>Holding</th>
<th>Activity</th>
<th>Holding capacity</th>
<th>Ranking capacity</th>
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<td>Metro Mall Rank</td>
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<td>4</td>
<td>Park Central (Jack Mincer) Rank</td>
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<td>5</td>
<td>Noord Taxi Rank (The Bridge)</td>
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<td>6</td>
<td>Corner Quartz &amp; Noord Rank</td>
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</table>

**Informal Minibus Taxis**

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<td>8</td>
<td>Gwugwi Mrwebi street Taxi Rank</td>
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<tr>
<td>9</td>
<td>Wanderers &amp; Wolmarans Taxi Rank</td>
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<tr>
<td>10</td>
<td>King George street Taxi Rank</td>
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</tr>
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<td>11</td>
<td>Plein &amp; Wanderers Taxi Rank</td>
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<tr>
<td>12</td>
<td>Von Wielligh &amp; De Villiers Taxi Rank</td>
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<td>Bok street [between Claim &amp; Banket] Taxi Rank</td>
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<td>Elloff &amp; Jeppe Taxi Rank</td>
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<td>Jeppe [between Rissik &amp; Joubert] Taxi Rank</td>
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<td>23</td>
<td>Rissik &amp; Plein Taxi Rank</td>
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<td></td>
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</tr>
</tbody>
</table>
Figure 1.19

Destinations: Local Taxi

1. Randburg
   - Stothynd Park
   - Honey Dew
   - Fourways
   - Craighall
   - Greymount

2. Baragwanath
   - Diepkoof
   - Dobsonville
   - Eldorado Park
   - Klerkendorp
   - Meadowlands
   - Orlando
   - Samaoma
   - Naledi
   - Zola
   - Protea Glen
   - Tahepaiong
   - Rockville
   - Pheteni
   - Dube
   - Chiawelo
   - Dimvile
   - Pinetown
   - Freedom Park
   - Lawley
   - Nancefield

3. Kagiso
   - Krugersdorp
   - Roodpoort
   - Westgate

4. Benoni
   - Brakpan
   - Springs
   - Imbalenhle

5. Orange Farm

6. Faraday

7. Yeoville

8. Nuturena
   - Southgate

9. Diepkoof (all zones)
   - Dube
   - Orlando
   - Rockville

10. Baragwanath

11. Booytens
    - Gold Reef City
    - Gold Sport

12. Heidelberg
    - Natalspruit
    - Rondebuf
    - Spruitview
    - Vosloos

13. Edenvale
    - Modderfontein
    - Eastgate
    - Eastleigh
    - Eastrand Mall
    - Everton
    - Leondale
    - Malula Park
    - Villa Liza
    - Windmill Park

14. Diepkoof (all zones)
    - Dobsonville
    - Dube
    - Eldorado Park
    - Orlando
    - Rockville

15. Halfway House
    - Kyalami
    - Midrand
    - Mabopane
    - Pretoria
    - Centurion
    - Alexandra
    - Bryanston
    - Fourways
    - Gallomanor
    - Highgate
    - Kelvin
    - Limbro Park
    - Lyndhurst
    - Lonehill
    - Morningside
    - Norwood
    - Parkmore
    - Rivonia
    - Sandton
    - Waterfront
    - Woodmead

16. Yeoville
    - Berea

Figure 1.20

On site observations by ARUP
<table>
<thead>
<tr>
<th>Informal Metered Taxis</th>
<th>Formal Metered Taxis</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Corner Smit &amp; Quartz Street</td>
<td>21 Corner Loveday &amp; Leyds</td>
</tr>
<tr>
<td>2 Corner Wanderers &amp; Wolmarans Street</td>
<td>22 Park Station</td>
</tr>
<tr>
<td>3 Corner Twist &amp; Loch Street</td>
<td>23 Wanderers Rank</td>
</tr>
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<td>4 Corner Twist &amp; De Villers Street</td>
<td>24 Corner Von Wielligh &amp; Bree Street</td>
</tr>
<tr>
<td>5 Corner Bree &amp; Von Wielligh Street</td>
<td>25 Corner Von Wielligh &amp; Jeppe Street</td>
</tr>
<tr>
<td>6 Corner King George &amp; De Villers Street</td>
<td>26 Corner Sauer &amp; Jeppe Street</td>
</tr>
<tr>
<td>7 Bridge Shopping Centre / Wolmarans Street</td>
<td></td>
</tr>
<tr>
<td>8 Corner Von Wielligh &amp; Bree Street</td>
<td></td>
</tr>
<tr>
<td>9 Small Street Mall</td>
<td></td>
</tr>
<tr>
<td>10 Corner Eloff &amp; Plein Street</td>
<td></td>
</tr>
<tr>
<td>11 Corner Joubert &amp; Plein Street</td>
<td></td>
</tr>
<tr>
<td>12 Corner Rissik &amp; Bree Street</td>
<td></td>
</tr>
<tr>
<td>13 Corner Rissik &amp; De Villers Street</td>
<td></td>
</tr>
<tr>
<td>14 Gwigwi Mrurloi Street</td>
<td></td>
</tr>
<tr>
<td>15 Corner Bertha &amp; Bree Street</td>
<td></td>
</tr>
<tr>
<td>16 Corner Von Brandis &amp; Bree Street</td>
<td></td>
</tr>
<tr>
<td>17 Corner De Korte &amp; De Beer Street</td>
<td></td>
</tr>
<tr>
<td>18 Corner De Korte &amp; Mete Street</td>
<td></td>
</tr>
<tr>
<td>19 Hospital Street</td>
<td></td>
</tr>
<tr>
<td>20 Corner Bertha &amp; Jorissen Street</td>
<td></td>
</tr>
</tbody>
</table>
Figure 1.21

Destinations: Local Rail

Figure 1.22
Position of Transport Hubs: Rail

On site observations by ARUP
Figure 1.23

SOURCE: Official websites: Putco, City of Johannesburg, Rea Vaya, March 2010
Position of Transport Hubs: Bus

Figure 1.24
On site observations by ARUP

1. Corner Biccard & Wolmarans Street
   Long Distance Bus Facility
2. Leyds Street
   Long Distance Bus Facility
3. Park Station
   Long Distance Bus Facility

Formal Bus Terminals
Informal Bus Terminals
MOVEMENT & TRANSPORT  STATUS QUO

Routes: Local Buses

Figure 1.24
On site observations by ARUP
1. Transport accommodation
   a. Accommodation list
   b. Destination
   c. Capacity of the location
   d. Occupancy of the location
   e. Conditions of the facility
   f. Supply
   g. Interdependency to other transport activities

2. Ownership
   a. Land Owner / Landlord
   b. Formal vs. informal

3. Operations
   a. Overall management body of the facility
   b. Quantity of tenants / associations
   c. Quantity of operators
   d. Vehicle seater types

4. Supporting activities
   a. Type of activities
   b. Operating hours
   c. Passenger numbers

5. Movement
   a. Movement of people
   b. Movement of freight & luggage
   c. Parking provision

6. Safety
   a. Security measures
   b. Perceived safety

---

**Wanderers Taxi Rank**

Transport Hub

Wanderers Taxi rank is located towards the south-eastern corner of Park Station & predominantly serves long distance & cross border travellers.

---

**Figure 1.25**

1. Transport accommodation
   a. Accommodation list
   b. Destination
   c. Capacity of the location
   d. Occupancy of the location
   e. Conditions of the facility
   f. Supply
   g. Interdependency to other transport activities

   Taxi Rank
   Soweto
   Ranking: 66 bays, Holding: 45 bays
   100%
   Fair
   Under supply
   [to be confirmed]

2. Ownership
   a. Land Owner / Landlord
   b. Formal vs. informal

   PRASA - long lease agreement in place with private entity
   Formal

3. Operations
   a. Overall management body of the facility
   b. Quantity of tenants / associations
   c. Quantity of operators
   d. Vehicle seater types

   [to be confirmed]
   [to be confirmed]
   [to be confirmed]
   [to be confirmed]

4. Supporting activities
   a. Type of activities
   b. Operating hours
   c. Passenger numbers

   Commercial
   [to be confirmed]
   [to be confirmed]

5. Movement
   a. Movement of people
   b. Movement of freight & luggage
   c. Parking provision

   Travelling home, Travelling to work, shopping
   Freight N/A - Luggage - Informal
   [to be confirmed]

6. Safety
   a. Security measures
   b. Perceived safety

   Private
   Fair

Figure 1.26
1. Transport accommodation
   a. Accommodation list
   b. Destination
   c. Capacity of the location: Ranking: 81 bays, Holding: 336 bays
   d. Occupancy of the location: 100%
   e. Conditions of the facility: Good
   f. Supply: Under supply
   g. Interdependency to other transport activities: [to be confirmed]

2. Ownership
   a. Land Owner / Landlord: [to be confirmed]
   b. Formal vs. informal: [to be confirmed]

3. Operations
   a. Overall management body of the facility: [to be confirmed]
   b. Quantity of tenants / associations: [to be confirmed]
   c. Quantity of operators: [to be confirmed]
   d. Vehicle seater types: [to be confirmed]

4. Supporting activities
   a. Type of activities: No other activity
   b. Operating hours: [to be confirmed]
   c. Passenger numbers: [to be confirmed]

5. Movement
   a. Movement of people: [to be confirmed]
   b. Movement of freight & luggage: [to be confirmed]
   c. Parking provision: [to be confirmed]

6. Safety
   a. Security measures: [to be confirmed]
   b. Perceived safety: [to be confirmed]
MOVEMENT & TRANSPORT

STATUS QUO

1. Accommodation (ranking, holding, facilities, activity)
   a. Accommodation list of the transport location
   b. Capacity of the location
   c. Occupancy of the location
   d. Conditions of the location & facilities
   e. Growth need of the location & facilities
   Taxi Rank with Shopping Centre above
   Holding: 500 bays. Maximum accumulation between 14:00 to 14:15 = 560 vehicles
   520 taxis
   Poor
   In Demand

2. Ownership
   a. Land Owner / Landlord
   CoJ
   b. Management & maintenance
   [to be confirmed]
   c. Formal vs. informal occupation / activity
   Formal

3. Operations & operating structure
   a. Overall management body of the location / activities
   [to be confirmed]
   b. Quantity of tenants / associations for the location / activities
   6 taxi associations
   [to be confirmed]
   c. Taxi operators
   [to be confirmed]
   d. Vehicle numbers & types
   [to be confirmed]
   e. Seats
   [to be confirmed]

4. Activities
   a. Interdependency to other locations / activities
   Ranking at Wanderers Taxi Rank
   Taxi holding
   Informal support - cooking / trading
   b. Purpose of the transport location (transport & other activity)
   Taxi holding
   c. Other activities - formal vs. informal

5. Activity Cycle
   a. Operating hours of respective activities
   [to be confirmed]
   b. Activity cycles (daily / weekly / monthly)
   [to be confirmed]
   c. Passenger numbers vs. visitor numbers & cycles
   N/A

6. Movement
   a. Movement of people to & from the transport location
   [to be confirmed]
   b. Movement & handling of Freight & luggage
   [to be confirmed]
   d. Parking provision
   N/A

7. Safety
   a. Security measures
   [to be confirmed]
   b. Perceived safety
   Not safe

ARCUS GIBB & ASM, 2010. JOHANNESBURG INNER CITY TRAFFIC & TRANSPORTATION STUDY, JDA.
On site observations by ARUP.
1. Transport accommodation
   a. Accommodation list: Taxi Rank
   b. Destination: Local
   c. Capacity of the location: Ranking: 241 bays, Holding: 1900 bays
   d. Occupancy of the location: 100%
   e. Conditions of the facility: Good
   f. Supply: Under supply
   g. Interdependency to other transport activities: [to be confirmed]

2. Ownership
   a. Land Owner / Landlord: [to be confirmed]
   b. Formal vs. informal: Formal

3. Operations
   a. Overall management body of the facility: [to be confirmed]
   b. Quantity of tenants / associations: [to be confirmed]
   c. Quantity of operators: [to be confirmed]
   d. Vehicle seater types: [to be confirmed]

4. Supporting activities
   a. Type of activities: Retail, trading
   c. Operating hours: [to be confirmed]
   d. Passenger numbers: [to be confirmed]

5. Movement
   a. Movement of people: [to be confirmed]
   b. Movement of freight & luggage: [to be confirmed]
   c. Parking provision: N/A

6. Safety
   a. Security measures: [to be confirmed]
   b. Perceived safety: Fair
1. Transport accommodation
   a. Accommodation list
   b. Destination
   c. Capacity of the location
   d. Occupancy of the location
   e. Conditions of the facility
   f. Supply
   g. Interdependency to other transport activities

2. Ownership
   a. Land Owner / Landlord
   b. Formal vs. informal

3. Operations
   a. Overall management body of the facility
   b. Quantity of tenants / associations
   c. Quantity of operators
   d. Vehicle seater types

4. Supporting activities
   a. Type of activities
   b. Operating hours
   c. Passenger numbers

5. Movement
   a. Movement of people
   b. Movement of freight & luggage
   c. Parking provision

6. Safety
   a. Security measures
   b. Perceived safety

On site observations by ARUP
1. Transport accommodation
   a. Accommodation list
   b. Destination
   c. Capacity of the location
   d. Occupancy of the location
   e. Conditions of the facility
   f. Supply
   g. Interdependency to other transport activities

2. Ownership
   a. Land Owner / Landlord
   b. Formal vs. informal

3. Operations
   a. Overall management body of the facility
   b. Quantity of tenants / associations
   c. Quantity of operators
   d. Vehicle seater types

4. Supporting activities
   a. Type of activities
   b. Operating hours
   c. Passenger numbers

5. Movement
   a. Movement of people
   b. Movement of freight & luggage
   c. Parking provision

6. Safety
   a. Security measures
   b. Perceived safety

On site observations by ARUP
Zimbabwe Bus Rank is located towards the north-western side of Park Station & predominantly serves long distance & cross border travellers.

1. Transport accommodation
   a. Accommodation list
   b. Destination
   c. Capacity of the location
   d. Occupancy of the location
   e. Conditions of the facility
   f. Supply
   g. Interdependency to other transport activities

2. Ownership
   a. Land Owner / Landlord
   b. Formal vs. informal

3. Operations
   a. Overall management body of the facility
   b. Quantity of tenants / associations
   c. Quantity of operators
   d. Vehicle seater types

4. Supporting activities
   a. Type of activities
   b. Operating hours
   c. Passenger numbers

5. Movement
   a. Movement of people
   b. Movement of freight & luggage
   c. Parking provision

6. Safety
   a. Security measures
   b. Perceived safety

On site observations by ARUP
King George is located towards the east of Park Station.

1. Transport accommodation
   a. Accommodation list: Taxi Rank
   b. Destination: Gauteng & Long distance
   c. Capacity of the location: Ranking: 15 bays
   d. Occupancy of the location: 100%
   e. Conditions of the facility: N/A
   f. Supply: Under supply
   g. Interdependency to other transport activities: Holding at Kazerne

2. Ownership
   a. Land Owner / Landlord: CoJ
   b. Formal vs. informal: Informal

3. Operations
   a. Overall management body of the facility: [to be confirmed]
   b. Quantity of tenants / associations: [to be confirmed]
   c. Quantity of operators: 8 taxi operators
   d. Vehicle seater types: [to be confirmed]

4. Supporting activities
   a. Type of activities: Street trading
   b. Operating hours: [to be confirmed]
   c. Passenger numbers: [to be confirmed]

5. Movement
   a. Movement of people: [to be confirmed]
   b. Movement of freight & luggage: [to be confirmed]
   c. Parking provision: [to be confirmed]

6. Safety
   a. Security measures: [to be confirmed]
   b. Perceived safety: Fair

On site observations by ARUP
Parking Facilities: Public & private

Figure 1.34

SOURCE: On site observations by ARUP
### MOVEMENT & TRANSPORT
#### STATUS QUO

**Parking facilities: Public & private**

<table>
<thead>
<tr>
<th>Name</th>
<th>Operator</th>
<th>Bays</th>
<th>Usage per day</th>
<th>Private/Public</th>
<th>Covered/not covered</th>
<th>Levels</th>
<th>Cost per hour</th>
<th>Activity cycle</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 De Villiers street</td>
<td>Interpark</td>
<td>165</td>
<td>135 [80%]</td>
<td>Semi public (131 bays)</td>
<td>Covered (Car ports)</td>
<td>Ground level</td>
<td>R8/hour</td>
<td>7 am to 5pm</td>
</tr>
<tr>
<td>Vuselela place</td>
<td>Interpark</td>
<td>105</td>
<td>77 [73%]</td>
<td>Private</td>
<td>Covered</td>
<td>Basement</td>
<td>R330/month</td>
<td>24hrs [access card holders]</td>
</tr>
<tr>
<td>Hedley Chilvers</td>
<td>Eskom</td>
<td>259</td>
<td>259 [100%]</td>
<td>Private</td>
<td>Covered</td>
<td>Ground level</td>
<td>R9/hour</td>
<td>24 hours</td>
</tr>
<tr>
<td>Park Station</td>
<td>Interpark</td>
<td>310</td>
<td>310 [100%]</td>
<td>Public</td>
<td>Not covered</td>
<td>Street level</td>
<td>R9/hour</td>
<td>24 hours</td>
</tr>
<tr>
<td>Interpark</td>
<td></td>
<td>140</td>
<td>60% Covered</td>
<td>Public</td>
<td>Covered</td>
<td>Ground level</td>
<td>R6/hour</td>
<td>24 hours</td>
</tr>
<tr>
<td>Parktonian Hotel</td>
<td>Interpark</td>
<td>400</td>
<td>292 [73%]</td>
<td>Semi public (199)</td>
<td>Covered</td>
<td>Parkade</td>
<td>R9/hour, R20 overnight</td>
<td>24 hours</td>
</tr>
<tr>
<td>Unknown</td>
<td>Universal</td>
<td>Not available</td>
<td>Full (church services)</td>
<td>Covered</td>
<td>Parkade</td>
<td>Free</td>
<td>During church services</td>
<td></td>
</tr>
<tr>
<td>Gautrain</td>
<td></td>
<td>[Still under construction]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**PRASA Asset Parking bays**

<table>
<thead>
<tr>
<th>Name</th>
<th>Bays</th>
<th>Usage per day</th>
<th>Private/Public</th>
<th>Covered/not covered</th>
<th>Levels</th>
<th>Activity cycle</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Umjantshi House</td>
<td>412</td>
<td>256 [62%]</td>
<td>Staff and visitors</td>
<td>90% covered</td>
<td>Basement &amp; ground level</td>
<td>Office hours</td>
</tr>
<tr>
<td>B Park Station</td>
<td>130</td>
<td>130 [100%]</td>
<td>Staff and Tenants</td>
<td>Not covered</td>
<td>Ground level &amp; Rissik street level</td>
<td>Office hours</td>
</tr>
<tr>
<td>C Bridge Shopping</td>
<td>80</td>
<td>80 [100%]</td>
<td>Tenants</td>
<td>Covered</td>
<td>Basement</td>
<td>Office hours</td>
</tr>
<tr>
<td>D Metro Park</td>
<td>168</td>
<td>168 [100%]</td>
<td>Staff</td>
<td>Covered</td>
<td>Ground level</td>
<td>Office hours</td>
</tr>
<tr>
<td>E Creche</td>
<td>67</td>
<td>67 [100%]</td>
<td>Staff of Shosholoza Meyl</td>
<td>Covered</td>
<td>Ground level</td>
<td>Office hours</td>
</tr>
<tr>
<td>F Shosholoza Meyl</td>
<td>119</td>
<td>119 [100%]</td>
<td>Staff</td>
<td>Covered</td>
<td>Ground level</td>
<td>Office hours</td>
</tr>
<tr>
<td>G Train simulator</td>
<td>[Still under construction]</td>
<td></td>
<td>N/A</td>
<td></td>
<td>Basement</td>
<td>Office hours</td>
</tr>
<tr>
<td>H South Station</td>
<td>No parking bays provided</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Basement</td>
<td>Office hours</td>
</tr>
<tr>
<td>J Rotunda</td>
<td>No parking bays provided</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Ground level</td>
<td>Office hours</td>
</tr>
<tr>
<td>K Lab Building</td>
<td>No parking bays provided</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>Ground level</td>
<td>Office hours</td>
</tr>
</tbody>
</table>
**TAXI RANK BUTCHERY**  
Mr. Martin Ferreira

**Key Facts**
- Delivery frequency: Daily, 5 - 6 trucks
- Freight origin: Alexandra, City Deep, Denver
- Type of goods: Variety
- Type of vehicles: Off street
- Delivery bay: Off street

**Boxer Superstores**  
Mr. Nathan

**Key Facts**
- Delivery frequency: Daily, busiest 15 trucks/day
- Freight origin: Durban & various Gauteng origins
- Type of goods: Variety
- Type of vehicles: 1 - 18 tons
- Delivery bay: Dedicated delivery area

**Cambridge Foods**  
Mr. Vuka Ngambosi

**Key Facts**
- Delivery frequency: Daily, 10 trucks
- Freight origin: Newtown Distribution Centre
- Type of goods: Variety
- Type of vehicles: 1 - 18 tons
- Delivery bay: Off street

**PARK CITY SUPERMARKET**  
Mr. Eduardo Defreitas

**Key Facts**
- Delivery frequency: Daily, 10 trucks
- Freight origin: Wynberg, Tembisa, City Deep, Denver, Springs
- Type of goods: Variety
- Type of vehicles: 1 - 18 tons
- Delivery bay: Off street

Figure 1.35  
SOURCE: On site observations by ARUP
**CHINESE DISTRIBUTION CENTRE**  
Mr. David Fu

**Key Facts**
- Delivery frequency: Daily, 2 trucks
- Freight origin: Various Gauteng origins
- Type of goods: Clothing & shoes
- Type of vehicles: 1-8 tons
- Delivery bay: Off street

**DE VILLIERS ST. BUTCHERY**  
Mr. Andre du Plessis

**Key Facts**
- Delivery frequency: Daily, 2 trucks
- Freight origin: Pretoria, Klerksdorp, Dundee
- Type of goods: Meat
- Type of vehicles: 6-12 ton
- Delivery bay: Dedicated delivery area

**BONGO WHOLESALERS**  
[not within our study area]

**Key Facts**
- Delivery frequency: 2-4 trucks per day
- Freight origin: Various location in JHB
- Type of goods: Chips, sweets, soft drinks
- Type of vehicles: 1-8 tons
- Delivery bay: Dedicated delivery area

**PARK STATION**  
Mrs. Lekwane & Mr. Van Renseburg

**Key Facts**
- Delivery frequency: Daily, 12 trucks
- Freight origin: Various Gauteng origins
- Type of goods: Bread, cool drinks, books, meat, vegetables & flour
- Type of vehicles: 1-8 tons
- Delivery bay: Dedicated delivery area

---

**Figure 1.36**
SOURCE: On site observations by ARUP
Freight Movement - Supermarkets & wholesaler

Figure 1.37
SOURCE: On site observations by ARUP

1. Park Station
2. Taxi Rank Butchery
3. Boxer Superstores
4. Cambridge Foods
5. Park City Supermarket
6. Chinese Distribution Ctr
7. De Villiers St. Butchery
8. Bongo Wholesalers
9. Noord Street Butchery

Supermarket/wholesaler
Park Station delivery
“I would like to live closer to work but I am finding it difficult to find affordable accommodation. I could afford between R700 to R1000 per month.”

Vusi Brown
Greyhound porter based at Park Station, 2011.
The assessment of land potential, economic & social conditions in order to select the best land-use options.
The character of the land uses are intrinsically linked with the role of the Sub-precinct as the biggest transport interchange in the country. Incorporating various transport modes such as rail, bus, taxi, car, it forms the heart to an intricate network of linkages, connecting with a wide range of local, national and international origins and destinations. Its strategic location also makes the Sub-precinct into one of the places of highest accessibility within the Gauteng City region.

Due to its central location at the heart of the Inner-city, the Sub-precinct also has a significant role to play in connecting the various Inner-city precincts with their own distinct identity, land-uses, socio-economic profile and role within Johannesburg.

The complexity of the Sub-precinct’s strategic nature is clearly visible in competing trends, fragmentation of functions, the continuous tension between formal and informal activities as it aims to respond to a wide variety of socio-economic factors.

This chapter provides an overview of the formal land uses only, however it needs to be considered within a broader socio-economic context (refer Chapter 5) to provide a more inclusive understanding of the dynamic and rich mix of the uses on this site.
Storage unit on wheels for a Hawker to keep and transport his goods.
CURRENT LAND USES AND TRENDS

Transport

The Sub precinct forms the heart to the Transport and Interchange Hub associated with Park Station. Therefore the land uses consist predominately out of transport or associated functions. Key facilities include Park City (Wanderers) Taxi rank, the Gautrain Station, the Park Station Long Distance bus facility, Shosholoza Meyi Rail Facility and the Park Station Parking facility.

Bus, taxi and train interchanges, ranks or stations are opportunities for economic activity. The informal trade has flourished as a result of this and has spread to such an extent that the trader’s activity interferes with other transport precinct demands.

On the other hand the integration between transport infrastructure and other formal land uses is minimal as transport facilities are planned and operated as separate entities and not as multi-modal mixed use environments.

The lack of integration is detrimental to the catalytic potential of the Park Station transport hub in unlocking opportunities for the broader Inner city.

The emerging improvements to public transport such as the introduction of the Gautrain and the Rea Vaya BRT, provides the opportunity to strengthen the trend towards more sustainable high density and mixed-use development, both of which support policies of various government sectors.

Education

There are significant trends visible in terms of educational facilities and associated services. The Study area is located in between two major institutional anchors of higher learning; the Witwatersrand University northwest of Braamfontein and the University of Johannesburg in Doornfontein.

The Braamfontein area demonstrates a growth in colleges and further education and training centres South of Park Station various schools (Junior, High-school) have been identified.

The growing number of students and school children in the area dictates the need for increased accommodation, social facilities, entertainment, public space and moreover improved connectivity with the Park Station Interchange Hub.
A general trading store on the western end of De Villiers Street.
LAND USE STATUS QUO

Introduction

**Retail and trading**

The wholesale and retail sectors are significant to Johannesburg’s economy with 20% of the City's gross geographical product, second to the financial and business services with 22%.¹

Historically the Inner City represented the centre of department stores and restaurants. Over years it has changed form and character towards spots niche retail, wholesale, personal services, restaurants, fast food outlets, small-scale and micro shops as well as large informal trade.

Johannesburg’s cross-border shopping phenomenon is significant with an estimated 1 million shoppers annually contributing an estimated R17 billion to the City's economy and another estimated R800 million is spent on formal accommodation.

As a transport hub, the Park Station sub-precinct is at the heart of both formal and informal economic linkages and performs a key role supporting the Inner City as a significant retail node for township and Inner City residents as well as cross border shoppers.

In terms of the study area, is the highest concentration of retail (formal and informal) located to the south east of park Station (corner Noord Street and Wanderers Street)? Other significant retails activity can be found spread across the Braamfontein area.

**Social infrastructure**

There is a significant lack of social amenities to support the substantial growth in residential accommodation. This includes a wide variety of land uses such as public space, recreation, child care and education, gathering spaces.

Existing community facilities are predominantly located on the South–East side of the study area with linkages to the northern residential hub of Hillbrow.

**Residential**

Due to the significant demand for lower to middle income rental stock, there is a growing trend within the Inner city to convert low grade commercial, light industrial and older residential hotel buildings into rental accommodation directed at the lower middle income and affordable housing market. This trend is tangible in the area immediately south form Park Station and in certain areas within Hillbrow.

There is further a growing demand for accommodation catering for both student and young professionals. High rise developments in Braamfontein are accommodating a growing student population, interspersed with apartments for young professionals in predominantly mixed use buildings.
Customers buying liquor from the Emerald Sports Bar in Koch Street.
Offices

Johannesburg Inner-city remains the largest single office node in the City as well as in the country. It provides more than double the A and B-grade office space area provided by the next biggest node, Sandton.

A decline has been noted in affordable office space as there is the current trend shows a growth in refurbishing C-grade offices into residential.

A new type of demand for office space has been predicted generated by an emerging market of smaller and newly established NGO’s, lawyers, accountants, private colleges and BEE companies, attracted to the affordability and accessibility of the Inner city node.

The Status Quo analysis has identified a large amount of existing low grade offices, which are predominately located to the north of Park station, within the Braamfontein area.

Governance

The Inner City of Johannesburg is considered as the seat of Governance and civic identity. The Sub-precinct study area incorporates various facilities of a civic/municipal nature and is within close proximity of the Johannesburg Civic Centre.

Vacant buildings

As significant amount of buildings is currently unoccupied or under utilised, gravitating towards the southern part of Braamfontein, along the railway corridor.

PRASA owned assets including the Rotunda Building, the Lab Building, the facilities associated with the Shosholoza Meyl Junction and the Blue room building form part of the vacant building stock and represent a significant potential for densification.

Land use mix

The existing land use activity pattern demonstrates an increased land use mix area around the Park Station Transport node. This refers to both the horizontal mix in plan as well as the vertical configuration of uses. Various mixed use typologies have been identified with the majority providing retail at grade.

Parking

For a Parking Status Quo assessment, please refer to Chapter 1 - Movement & Transport.
Formalised informal trading along a pedestrianised area south of Park station.
LAND USE  STATUS QUO

Figure 2.1
SOURCE:  Johannesburg Inner City Traffic & Transportation Study, Report 1, March 2010.
Braamfontein Scoping Study, September 2009, ARUP.
On site observations by ARUP during the beginning of 2011.
LAND USE  STATUS QUO

Land Use

Figure 2.2
SOURCE:
Johannesburg Inner City Traffic & Transportation Study, Report 1, March 2010,
Braamfontein Scoping Study, September 2009, ARUP,
On site observations by ARUP during the beginning of 2011.
LAND USE STATUS QUO

ON SITE OBSERVATIONS BY ARUP DURING THE BEGINNING OF 2011.

SOURCE: Johannesburg Inner City Traffic & Transportation Study, Report 1, March 2010.
Figure 2.4
SOURCE: Aerial Photo 2003 Johannesburg GIS Database.

Definitions:
General = Any use other than noxious industries, Canteen.
Residential 4 = Dwelling units, Residential Buildings excluding a hotel in respect of which an on-consumption licence is granted according to the conditions of the Liquor Act No 97 of 1989.

LAND USE
STATUS QUO

Zoning

Park Station Sub-Precinct
Prasa Assets
Business 1
Special
General
Municipal
Residential 4
Figure 2.5

SOURCE: On site observations by ARUP during the beginning of 2011.
Bustling informal trade between Park Station and the Wanderers Taxi rank.
LAND USE  STATUS QUO

Vacant Buildings

Figure 2.6

SOURCE: Johannesburg Inner City Traffic & Transportation Study, Report 1, March 2010.
On site observations by ARUP during the beginning of 2011.
LAND USE  STATUS QUO

Occupancy

(source: On site observations by ARUP during the beginning of 2011.)

Figure 2.7

On site observations by ARUP during the beginning of 2011.
**LAND USE STATUS QUO**

### Mixed Use Typologies

#### TYPE 1
Retail at Grade - Vacant Above

- **Average Floors**: 6 - 10 Floors
- **Basement Parking Trend**: 1 - 2 Floors
- **General Location Trend**: South Eastern & North Western Edge of Park Station

#### TYPE 2
Retail at Grade - Residential Above

- **Average Floors**: 4 - 10 Floors
- **Basement Parking Trend**: 0 - 1 Floor
- **General Location Trend**: South Eastern Edge of Park Station

#### TYPE 3
Retail at Grade - Office Above

- **Average Floors**: 4 - 10 Floors
- **Basement Parking Trend**: 0 - 1 Floor
- **General Location Trend**: Northern Edge of Park Station

#### TYPE 4
Retail at Grade - Place of Worship Above

- **Average Floors**: 1 - 3 Floors
- **Basement Parking Trend**: None
- **General Location Trend**: North Eastern Edge of Park Station

Figure 2.8
Mixed Use Typologies

**TYPE 5**
Retail at Grade - Hotel Above

- Average Floors: 4 - 6 Floors
- Basement Parking Trend: None
- General Location Trend: Close to Transport Hubs

**TYPE 6**
Retail at Grade - Educational Above

- Average Floors: 3 - 5 Floors
- Basement Parking Trend: None
- General Location Trend: Northern Edge of Park Station (Braamfontein)

**TYPE 7**
Recreational at Grade - Residential Above

- Average Floors: 10 - 12 Floors
- Basement Parking Trend: 1 - 2 Floor
- General Location Trend: Northern Edge of Park Station (Braamfontein)

**TYPE 8**
Retail - Transport

- Average Floors: 0 - 2 Floors
- Basement Parking Trend: None
- General Location Trend: Around Railway
- General Location Trend: Edge of Park Station

Figure 2.9

To see all the details that are visible on the screen, use the Print link next to the map.
“I usually buy my lunch and eat it at the Cookhouse outside Park Station.”

Jack Sekhukhune
Rank manager at the Wanderer's Taxi Rank, 2011.
CHAPTER 3

The physical layout & design of the city - density, layout, the public realm & urban design issues.
The Park station Sub-precinct comprises approximately 40 ha. at the heart of the Inner City, North of the Central Business District.

The site is dominated by the vast scale of the Park Station complex and is structured along movement routes and transport related linkages at a local, regional and cross border scale that underpin this multi-modal interchange. On the other hand the site marks the divide between the northern and central part of the city as the “river” of rail tracks generates a dramatic rupture of the city fabric which is stitched together occasionally at critical locations where major bridge infrastructure is straddling the vast railway lands.

These two elements reinforce the character of the precinct as being an isolated island within the city, chaotic and undefined in parts, a sense of forgotten wasteland in others, rigid and non-adaptable. However the precinct is also considered to be vibrant, dynamic and providing the city a continuous pulse of life and opportunity.

The site is in need of a framework that is flexible enough to incorporate the constant socio-economic changes but on the other hand provides a clear well-defined plan that enables integrated place making and future densification. Park Station Precinct is to regain a renewed urban identity that has the quality threshold and presence to reposition itself as an iconic symbol and gateway to Johannesburg and a contemporary Southern Africa.

By 1887, a year after the discovery of gold on the Witwatersrand, the Zuid-Afrikaansche Republiek (ZAR) government in Pretoria had planned a railway to Johannesburg. For this purpose it had set aside a strip of land about a block wide north of Noord Street, and the most northerly of the first stands surveyed by Jos. E. de Villiers and auctioned by Joost Heystek on 8 December 1886. A large portion of what was known as Kruger’s Park - at that stage an empty piece of land north of Noord Street - was to become known as the Wanderers’ Ground. By 1888, the railway line running between Noord and Hancock Streets was already bridged west of Park Station.

Park Station got its name from a tin shed in Noord Street which was known as Park, written across the top, because of its proximity to Kruger’s Park. The shed was constructed as a stop on the early railway line to Boksburg, and became known as Park Halt in 1889/90. The Rand Tram, carrying a few passengers but mainly coal from the Boksburg Collieries, used to stop at this station.
Passengers waiting for ‘City to City’ busses inside Park Station.
The Rail Barrier

The period 1900 to 1920 represented a transition of the fairly closed Johannesburg town core to the extended city area of 1920 and beyond, including the suburbs adjacent to the core. During this period the way was prepared for the expansion of the city centre by better connections between the areas north and south of the railway tracks. In 1906 a reinforced concrete bridge was built across Twist Street while a number of subways were also constructed, one of which was in Harrison Street, west of Park Station.

The Rail network - stages

Every year more trains conveyed ever more passengers along the railway lines to and from Johannesburg. In 1932 when the new Johannesburg Station was opened, the number was 16 million. Within then years it had trebled to 50 million! As a result the need for a bigger station became urgent long before the end of the 1930’s.

Seen from a historic contextual viewpoint, the Johan Rissik Bridge, together with the Queen Elizabeth Bridge to the west were the new routes that changed the map of Johannesburg in the period before the construction of the elevated M1 and M2 motorways in the 1970s. In the 1950s and 1960s the north was the ‘front door’ of the Central Business District, and the new viaducts, linking the Central Business District with Braamfontein across the tracks, transformed a reserve of railwaymen’s verandahed, semi-detached cottages, with small hotels, saloon bars, flats and shopping streets into a high-rise, high-density business area, the natural extension of the CBD.

The second stage meanwhile, of the new Station development – which entailed the lowering of the level of the old part of the station and the construction of more platforms and tracks - was completed in February 1954. The portion remodelled in the first construction phase then became the new main-line station and the ‘old’ portion the suburban station. The second and third stages involved the construction of a concrete cover over the platforms and the concourses on top of those. These stages would have been completed within a few years were it not for the fact that the station was still being used by a substantial number of steam locomotives and diesel units daily.

The slab over the suburban station was completed in 1965 and that over the main-line tracks only in 1961. The Station was finally completed in 1965.

A single railway track eventually became a ‘steel river’ -comprising a multitude of east-west oriented railway tracks to the north of Noord Street. By as early as the mid-1890s the phenomenal expansion of railway services in Johannesburg had already necessitated the lowering and bridging of the ‘steel river’ at various places east and west of Park Station.

The vestiges of this rich history are still present in numerous historical building and locations around Park Station however sometimes totally absorbed in the surrounding street activity. Some of the buildings are in a dilapidated state and require urgent attention, others have been changed to accommodate different functions throughout the years. The potential of the heritage patrimony in the area, is not maximised nor legible within the City context.
High density formalised informal trade along Wanderers Street.
The original station design of 1928 was build on the axis of Eloff Street, considered as the “Avenue la gare”. The town access to the new station was moved westwards to align with Joubert Street, creating a new north-south axis that sidelined the old concourse.

The axes of the architectural layout of the new station complex were predetermined by the established east-west axis of the main-line railway traffic and by the north-south axis of the vehicle routes elevated above the railway tracks. Up to today these N-S routes are framing the urban structure for Park Station Precinct developments.

A string of volumetric buildings reinforce the north south axis centred on Loveday Street to the North. Two detached administration blocks, the eleven-storey South African Airways building on the west and, the sixteen-storey Paul Kruger Building on the east – establish the counter-movements of the east-west axis. The Rotunda building, which was an Airways arrival point in the past, neatly occupies indeterminate space in front of the Airways Building, introducing spherical geometry into the overall layout.

At the time of construction, the station complex reintroduced the third dimension into Johannesburg’s townscape: buildings became visible as geometric entities that occupy space and not as infill facades in corridor streets – the Johannesburg norm.

The planning theory was based on creating unity in design; small and large contrasting masses; and pedestrian precincts that restricted motor vehicles to the periphery or to overpasses. The urban form didn’t change much since its conception. In reality the buildings are too scattered, read as separate entities and fail to balance their surroundings. The architecture is not designed to handle and contain the vast open space.

The parking area placed prominently between the main concourse building and Rissik Street bridge is a desolate, complicated civic platform. Although it is prominent in scale and location, it does not contribute in terms of marking or integrating the station within its context.

Due to its topographic location within the lower area of the city and due to the open vistas across the railway land, the station precinct is one of the most exposed locations within the city. Albeit its strategic location, the station precinct does not appear to contribute to the urban morphology as it fails to become fully anchored within its context.
A little boy playing outside his mother’s shop in Wolmarans Street.
Architectural typology and associated densities

The differences in grain and structure of the urban fabric surrounding the precinct, reveal the different time periods in which the various areas have been developed. Towards the south of Park station the “Working City Grid Typology”, refers to the typical rational Johannesburg Grid, densely filled in and with a perimeter facade of average 6 storeys high.

Towards the Newtown Area, West of the Precinct, the grid has been used as an underlying reference framework however it has been built up with much bigger city block of distinct shape and configuration of a medium height of 6 to 8 storeys.

The urban fabric in the Hillbrow area also follows the grid arrangement however with significantly higher densities and development heights of predominately residential towers between 10 and 28 levels.

The fabric immediately north of Rissik Street, underwent transformation between the 50’s and 60’s as a result of the new station development. Urban development principles of the modern Movement were adopted and created a grain of distinct building objects with higher allocation for public space within the city scape.

The Braamfontein area, North-West from the Sub-Precinct, transformed into a high density high rise (height of 6 to 8 storeys) business area during the Park Station redevelopment. However recently the area is going through a process of transformation and regeneration and smaller grain and more fragmented infill activities are changing the face of the area.

Public realm and Pedestrian connectivity

Accessibility and ease of pedestrian movement are critical to the success of the Park Station sub-precinct as a multi-modal transport hub. Albeit the importance of pedestrian connectivity, challenges have been identified and require solutions.

Challenges include: lack of sidewalks, sidewalks are used for holding purposes by minibus taxis, informal trading obstructs flow of pedestrian movement, lack of pedestrian signage to navigate the area, lack of legibility of pedestrian facilities within the urban context, lack of access to public transport, poor accommodation for movement of Special Needs Pedestrians and commuters.

Within the study area, the Public green and hardscaped spaces are functioning as isolated spaces. They are not or insufficiently integrated within a broader NMT network which limits their contribution to the overall public realm. The character and use of the spaces have been changing to respond to its mutating socio-economic context. Lack of upkeep, security
...and management made that certain spaces were overtaken by other functions such as informal parking and lost the essence of their existence which is to contribute to the liveability of the area.

The street network is a major contributor to the public realm. The streets within the study area have been assessed and categorised following specific typologies in terms of the predominant function of the road, the mix of use, pedestrian connectivity and character of the street. The following typologies were identified:

**Mobility spine**

- A mobility spine acts as a main arterial road, which encourages optimal mobility for through traffic.
- In order to facilitate continuously flowing traffic there is no direct access onto the mobility spine from abutting properties.
- A mobility spine does not encourage pedestrian movement.
- The flanking buildings normally accommodate mixed uses.
- The road will accommodate double lanes of traffic moving in both directions.
- Example: portions of Harrison Street and Rissik Street.

**Mobility road**

- A mobility road accommodates intra – regional traffic. The primary focus of a mobility road is to encourage movement linking neighbourhoods to the mobility spines.
- A mobility road encourages pedestrian movement.
- The pedestrian realm has an activated street frontage encouraging retail opportunities.
- Parking spaces flank the street edges of both sides of the roads.
- Example: Smit Street, Wolmarans Street.

**Activity Street**

- An activity street can otherwise be characterised as a traditional high street.
- This typology is ultimately pedestrian dominated with slow moving traffic; in certain situations traffic may be prohibited.
- The urban fabric is characterised by a fine grain with short blocks and low rise buildings.
- Activity streets move through the neighbourhood / districts and with holds a regional significance.
- The ground floor flanking the pedestrian edge will predominantly accommodate shopfronts and building entrances.
- Vertical mixing of uses should be encouraged (e.g. retail on ground floor with office/residential above).
- Pedestrian sidewalks should ideally include a continuous “walkable “ zone, uncluttered and free of obstructions (e.g. signage, street furniture, tables and chairs).
- Example: De Villiers Street, Plein Street.
Urban street

- The Urban Street accommodates residential development. It often accommodates a retail plinth ensuring that the lower level of the residential accommodation is situated off the ground. This ensures a greater level of privacy.
- The urban street has a direct connection to flanking properties.
- The urban street promotes low speed traffic and provides parking on either side of the street.
- The pavement is layered by, landscaping, street lighting and street furniture aimed at creating a vibrant public realm.
- Example: Bok Street, Leyds Street

A sense of place

A sense of place is informed by a number of aspects such as the grain and permeability of the urban fabric, the architecture, the height of buildings, open spaces and the natural features of the land however it is also informed by the local community and its visitors, the vibrancy, sense of unity and culture specific to the area. The site analysis highlighted the richness and diversity of the context surrounding Park Station. Certain areas have a very clear and defined role such as being mainly a conduit for transport, a vibrant retail hub, a community node or civic centre.

Other parts are less defined in terms of identity and sense of place as they currently form the transition between one area and another such as the area south of Braamfontein or the elongated land strip bordering the south of the railways.

Building Conditions

An inventory was set up of the PRASA Asset base within the precinct which details the provision, current use and state of the building stock. The condition of the buildings range from very good to a dilapidates state requiring immediate intervention to protect the building from further decay.
A spaza shop in an old building on Noord Street.
Figure 3.1
SOURCE: On site observations by ARUP during the beginning of 2011.
Figure 3.2
SOURCE: On site observations by ARUP during the beginning of 2011.
Urban Form: Significant Heritage

Figure 3.3

SOURCE:
Osmond Lange Architects & planners, Ikemeleng Architects, Henry Paine + Barry Gould, 2008,
Greater park Station Precinct: Urban design & Heritage management framework,
Interview with Ernst Swanepoel, PRASA, April 2011.
Buildings

1. Steel & glass structure: Original Park Station facility, 1897.
2. NHRA: SAR&H Offices [1939], The MOTH Memorial centre[1960].
5. NHRA: Historical residential area north of Joubert Park
7. NHRA: Variety of residential apartments, 1920 - 1940.
9. The New Station Building [Blue Room Restaurant],1930.
10. Witwatersrand technical Institute, 1909.

Public amenities

2. Kruger’s Park: One of Johannesburg’s first Sports clubs allocated by order of president Paul Kruger, 1890.
5. Plein Square: Lawn tennis square, 1891.
7. Vehicular bridge over railway lines, 1893.
Figure 3.4

SOURCE:
Source: On site observations by ARUP during the beginning of 2011.

Figure 3.5

Architectural Typologies

- Fragmentation
- Bespoke City Block
- Object in the City
- Working City Grid
- Living City Grid

Legend:
- Park Station Sub-Precinct
- Railway Lines
- Prasa Assets
- Study Area
- Out of Study Area
URBAN FORM STATUS QUO

Building Heights

SOURCE: On site observations by ARUP during the beginning of 2011.

Figure 3.6

SOURCE: On site observations by ARUP during the beginning of 2011.
Source: On site observations by ARUP during the beginning of 2011.
URBAN FORM  STATUS QUO

Identity: Visual Mind Map

Figure 3.8

SOURCE: On site observations by ARUP during the beginning of 2011.
Figure 3.10
SOURCE: On site observations by ARUP during the beginning of 2011.
URBAN FORM STATUS QUO

Legibility: Sight Lines

Figure 3.11
SOURCE: On site observations by ARUP during the beginning of 2011.
Figure 3.12
SOURCE: On site observations by ARUP during the beginning of 2011.
Figure 3.13
SOURCE: On site observations by ARUP during the beginning of 2011.
**URBAN FORM  STATUS QUO**

Street Typology Sections

- **Urban Street**
  - 4-6 Storey blocks with street entrance
  - Overlooking the street

- **Activity Street**
  - Active street frontage
  - Intensive informal trading
  - Pedestrian priority

**SOURCE:** On site observations by ARUP during the beginning of 2011.
Prasa Assets

Figure 3.15

1. Bridge Shopping Centre
2. Wanderers Taxi Rank
3. Park Station
4. Cook House
5. Umjantshi House
6. Metro Park
7. Rotunda
8. Corner Harrison & Leyds
9. Platform 19
10. Lab Building
11. Shosholoza Meyl
12. Driver’s Simulation

1. Park Station Sub-Precinct
2. Railway Lines
3. Prasa Assets
4. Study Area
5. Out of Study Area
The existing rail yard looking eastwards from Harrison Street bridge.
### Prasa Asset Conditions

#### PARK STATION

<table>
<thead>
<tr>
<th>Rate of Deterioration</th>
<th>PHYSICAL CONDITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOW</td>
<td>The current condition and supply of utility services is not meeting demand. Sewerage, stormwater &amp; drainage provision are insufficient.</td>
</tr>
<tr>
<td>MED</td>
<td>SECURITY CONCERNS</td>
</tr>
<tr>
<td></td>
<td>The security measures in place provide adequate protection inside the station. The periphery of the station near the entrance to platform 19 is being used by vagrants as sleeping quarters. Fires are being made on platform 19 which is causing smoke to rise into the main concourse of the station.</td>
</tr>
<tr>
<td>HIGH</td>
<td>OTHER CONCERNS</td>
</tr>
<tr>
<td></td>
<td>Fire escape routes are blocked in the Tippet Building. There is concern that utility services from neighbouring properties surrounding the station are routed through the site.</td>
</tr>
</tbody>
</table>

#### UMJANTSHI HOUSE

<table>
<thead>
<tr>
<th>Rate of Deterioration</th>
<th>PHYSICAL CONDITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOW</td>
<td>The building is an acceptable state with on-going refurbishment.</td>
</tr>
<tr>
<td>MED</td>
<td>SECURITY CONCERNS</td>
</tr>
<tr>
<td></td>
<td>The building has good security measures in place.</td>
</tr>
<tr>
<td>HIGH</td>
<td>OTHER CONCERNS</td>
</tr>
<tr>
<td></td>
<td>None</td>
</tr>
</tbody>
</table>

---

Aerial photograph

Image 1

Image 2

Axonometric

Figure 3.16

Axonometric

Figure 3.17
BRIDGE SHOPPING CENTRE

Rate of Deterioration

LOW    MED    HIGH

PHYSICAL CONDITION
The shopping centre is generally well maintained.

SECURITY CONCERNS
The management and private security personnel at the shopping centre provide adequate levels of safety and security.

OTHER CONCERNS
The basement level housing a polluted taxi rank is inadequately ventilated.

It was observed that the periphery of the site is highly polluted with debris, as a result this is blocking stormwater drains.

Manhole covers have been removed leaving hazardous openings in the pavements.

BLUE ROOM

Rate of Deterioration

LOW    MED    HIGH

PHYSICAL CONDITION
Stormwater discharge from the vaulted roof is blocked causing substantial ponding. Water ingress through the roof is causing damage internally. The lower levels are flooding. Concerns have been raised with regards to the structural integrity of the supporting frame holding up the water tanks.

SECURITY CONCERNS
The main hall and ancillary rooms are not secure and can be easily accessed by members of the public.

OTHER CONCERNS
A number of fire escape routes are blocked. A series of electrical distribution boards are damaged and exposed. Pests have infested the lower levels.
**URBAN FORM  STATUS QUO**

**Prasa Asset Conditions**

**ROTUNDA**

<table>
<thead>
<tr>
<th>Rate of Deterioration</th>
<th>LOW</th>
<th>MED</th>
<th>HIGH</th>
</tr>
</thead>
</table>

**PHYSICAL CONDITION**

The building is rapidly deteriorating due to the ingress of rainwater through the damaged roof. This is destroying the floors, walls, ceilings and surface finishes. This water penetration extends into the basement of the building and is causing substantial flooding and damage throughout. The concrete screed is crumbling and as a result a number of electrical cables and conduits have been exposed.

**SECURITY CONCERNS**

There are concerns that the perimeter of the building has been breeched after hours.

**OTHER CONCERNS**

Pests have infested the building throughout.

**METRO PARK**

<table>
<thead>
<tr>
<th>Rate of Deterioration</th>
<th>LOW</th>
<th>MED</th>
<th>HIGH</th>
</tr>
</thead>
</table>

**PHYSICAL CONDITION**

The Metro Park Building is generally in good condition. The training rooms located under Rissik Street are burnt out yet are in a stable condition.

**SECURITY CONCERNS**

Fires from vagrants occupying areas near Platform 19 below cause smoke to enter the Metro Park facility.

**OTHER CONCERNS**

None
Prasa Asset Conditions

LAB BUILDING

PHYSICAL CONDITION
The building is currently in a poor state with substantial flooding occurring in the basement.

SECURITY CONCERNS
The building is secure with security guards in attendance 24 hours a day.

OTHER CONCERNS
There is a large amount of debris being deposited around the periphery of the building. There are a number of dangerously exposed electrical cables. Pests infestation is evident throughout.

PLATFORM 19

PHYSICAL CONDITION
There is a substantial amount of water penetrating the concrete slab above platform 19.

SECURITY CONCERNS
Platform 19 has insufficient levels of lighting. The entry points to Platform 19 on the eastern, western and platform sides are not secure and do not prevent unauthorised access.

OTHER CONCERNS
There is a major build-up of debris. There are a number of open manholes running the length of platform 19 which pose a potential hazard to pedestrians.
Prasa Asset Conditions

**PHYSICAL CONDITION**
The building is currently under construction and therefore does not pose immediate concerns.

**SECURITY CONCERNS**
The building is currently well managed by security personnel.

**OTHER CONCERNS**
Concern has been raised with the current electrical supply that is coupled to the same supply used for the rail lines.
A view looking westwards from Park Station – the Lab Building & Shosholoza Meyl.
"We collect discarded cardboard from the shops in the area and take it to a recycling depot in Braamfontein. They give us 65c per kilogram of cardboard."

Recycled Cardboard Collector
With a trolley on De Villiers Street, 2011.
A material & spatial place that combines physical elements & energy in forms necessary for living, working & playing.
Pollution levels

Analysis undertaken of pollution levels in Greater Johannesburg show increased levels of pollution concentrated in a band from east to west through the Johannesburg Central Business District. Increased pollution occurs at different levels and is negatively impacting on the quality of life in terms of air quality, noise levels, land pollution and water quality.

Air Quality

The deterioration of urban air quality has an effect on human health, climate and the natural environment. Major contributors to air pollution within Johannesburg include emissions from domestic fuel burning, vehicles, industries, mining operations and waste disposal and incineration.

The ambient air quality of the City of Johannesburg is monitored from six monitoring stations. The nearest air quality monitoring station to the CBD is located in Newtown, situated south west from the Park Station Sub-Precinct area.

In poorer residential areas, coal and wood burning for space heating and cooking is a major cause of air pollution. For the CBD of Johannesburg, and similarly the more affluent residential areas around the city, pollution is caused mainly by vehicle emissions, windblown dust from the mining belt to the south and emissions from the large industrial areas also to the south. Another contributor to poor air quality in the City is the burning of rubbish.

Noise levels

Diverse sources of noise in the City of Johannesburg are generated by parts of the technologically advanced segment of the population. Contributors range from entertainment, to motor vehicles, heavy goods trucks and industrial machinery. The worst affected areas are around the CBD of Johannesburg but in particular towards it’s north where national and major roads are concentrated.

At the heart of the City, noise levels within the Park Station Sub-Precinct are further increased by CBD activities. These activities include nightclubs and leisure, factories, industries, and also religious ceremonies.

Land pollution

Poor waste management, illegal dumping and litter are some of the largest contributors to land pollution. Within the Park Station Sub-Precinct area, evidence of insufficient waste management is noticeable and in particular around high areas of concentrated activity and as a result areas where intense trading occurs.

Storm water drains are often blocked by rubbish and litter. Facilities provided for traders do not sufficiently provide for the preparation of food and drains often gets blocked from litter and fats produced through cooking.
A sunset over the Johannesburg skyline.
Water Quality

Unmanaged waste generated by activities within the CBD of Johannesburg and overflowing and blocked sewer infrastructure are both contributors to contamination of water affecting the Klip River catchment areas to the south east of Soweto.

Waste management of the Park Station Sub-Precinct area

Within the boundaries of the facilities owned and managed by PRASA, internal cleaning of the facilities and waste collection is outsourced to private service providers. Waste is collected from bins situated within the facilities and moved in mobile bins by cleaning staff to a central collection point at the eastern end of Platform 19. Waste is compacted and collected by an appointed private service provider at least three times a week. Although some of the waste is sorted for recycling at Platform 19, no formal policy or strict measures for quality control are in place to monitor and ensure the correct separation of waste. The majority of all waste is compacted together on site.

Waste management policy within PRASA is currently being updated to incorporate improved efficiency of responsible waste management. The plan is not finalised and therefore not yet implemented. Waste management of all areas outside the jurisdiction of PRASA is largely the responsibility of the City. The areas around activity are marked by insufficient management of waste and formal recycling and waste sorting facilities and infrastructure is not provided for within the Park Station Sub-Precinct area.

Natural light penetration and sun angles

The more dense urban areas within the Park Station Sub-Precinct area are situated towards its south eastern side. As a result, light penetration is less in these areas where streets are defined by high buildings on both sides. The identified street typology that illustrates this typical phenomenon is the urban street typology.

Multi-level road infrastructure and bridges contribute to dark areas of public realm below and in between structures, where light penetration is limited. This is demonstrated through the typical mobile spine street typology.

Towards the north western side of the Sub-Precinct area the more generous provision that exists for on grade road infrastructure, limits potential for natural shading of areas by means trees and structures (such as building overhangs and canopies). The Mobility Road street typology illustrates a typical scenario where shading is restricted.

Active retail street edges provide shading in summer. Subject to surrounding building heights, light penetration can penetrate buildings at street level even during winter. A typical example of this is illustrated through the Activity Street typology.
A bird’s eye view over Wanderers Taxi rank & the entrance to Platform 19.
Energy and water consumption rates

The monitoring of energy and water consumption rates for the PRASA facilities and assets is currently not in place. Municipal rates are based on larger areas that do not differentiate between various facilities and transport functions. This contributes to the difficulty of monitoring, and the identification of problematic energy consumption and water wastage within the Sub-Precinct area.

Climate

The City of Johannesburg falls within a summer rainfall region of South Africa, receiving an average annual rainfall of 849 mm. The rainy seasons are marked by frequent and short intervals of heavy rain storms.

The current average temperature of the City of Johannesburg ranges from between 5 degrees to 25 degrees. Low and extreme temperatures that go below the average 5 degrees during winter pose challenging conditions for long distance passengers that travel through the Sub-Precinct and interchange between informal transport modes overnight. Passengers often arrive late at night, and continue their journey during the early hours of the following morning. Waiting facilities are limited for informal long distance transport mode users when they cannot afford overnight accommodation within the Sub-Precinct area.
Historical apartment buildings opposite the Wanderers Taxi rank.
ENVIRONMENT

STATUS QUO

Natural Environment: Topography (5m Contours)

Figure 4.1

SOURCE: GIS Database ARUP
ENVIROMENT

STATUS QUO

Natural Environment: Climate

Figure 4.2

SOURCE: On site observations by ARUP during the beginning of 2011.
Figure 4.3
SOURCE: On site observations by ARUP during the beginning of 2011.
Figure 4.4
SOURCE: On site observations by ARUP during the beginning of 2011.
Figure 4.5
SOURCE: On site observations by ARUP during the beginning of 2011.
Introduction

Climatology and Climate Change

Temperature and rainfall trends for Johannesburg City

Expected increases for 2070-2100 indicate that minimum temperatures will increase by about 1 to 3°C in summer and 1 to 2°C in winter (refer to Figure 74). Maximum temperatures could see increases by about 3 to 4°C in summer and 2 to 4°C or greater in winter months (Engelbrecht, 2005).

Future temperature and rainfall changes for Johannesburg are likely to follow a similar pattern. Modelled data from three Global Circulation Models (GCMs) indicate daily minimum temperature changes for this period ranging from 2 to 2.7°C from January to March, with increases of up to 3.5°C maximum temperatures. Modelled climatic data from three Global Circulation Models (GCMs) was used to obtain past (1961-2000) and future (2046-2065) temperature and rainfall trends in the CoJ.

Expected increases for 2070-2100 indicate that minimum temperatures will increase by about 1 to 3°C in summer and 1 to 2°C in winter (refer to Figure 74). Maximum temperatures could see increases by about 3 to 4°C in summer and 2 to 4°C or greater in winter months (Engelbrecht, 2005).

In terms of temperature changes for the period 2046-2065, models indicate an increase in the daily minimum and maximum temperatures. Modelled climatic data from three Global Circulation Models (GCMs) indicate daily minimum temperature changes for this period ranging from 2 to 2.7°C from January to March, with increases of up to 3.5°C maximum temperatures. Modelled climatic data from three Global Circulation Models (GCMs) was used to obtain past (1961-2000) and future (2046-2065) temperature and rainfall trends in the CoJ.

Rainfall

Rainfall is expected to decrease in the western part of the country and in those regions that receive winter rains. The eastern part of the country is expected to experience increases in early summer rainfall, though this will likely be followed up by some drying in the late summer (Engelbrecht, 2005; Hewitson et al., 2005).

Expected increases for 2070-2100 indicate that minimum temperatures will increase by about 1 to 3°C in summer and 1 to 2°C in winter (refer to Figure 74). Maximum temperatures could see increases by about 3 to 4°C in summer and 2 to 4°C or greater in winter months (Engelbrecht, 2005).

The rainfall simulations for spring (September to November) show a mixed picture, ranging from an approximate 40 – 80% decrease in rainfall to an approximate 10% increase. The rainfall simulations for winter (June to August), there is likely to be either very slight increases of between 5 and 10 mm in the mean monthly precipitation or 15 to 25 mm (Hewitson and Crane, 2006). The early winter season (March to May) could result in a continuum of current rainfall conditions (Engelbrecht, 2005). The rainfall simulations for winter (June to August), there is likely to be either very slight increases of between 5 and 10 mm in the mean monthly precipitation or 15 to 25 mm (Hewitson and Crane, 2006). The early winter season (March to May) could result in a continuum of current rainfall conditions (Engelbrecht, 2005). The rainfall simulations for winter (June to August), there is likely to be either very slight increases of between 5 and 10 mm in the mean monthly precipitation or 15 to 25 mm (Hewitson and Crane, 2006). The early winter season (March to May) could result in a continuum of current rainfall conditions (Engelbrecht, 2005).

The simulated rainfall change for 2070-2100 is shown in Figure 75. Simulations indicate that summer rainfall (December to February) is likely to increase by about 20 to 30% over the present quantities of rainfall with possible slight (20 – 30%) decreases (Engelbrecht, 2005). During winter (June to August), there is likely to be either very slight increases of between 5 and 10 mm in the mean monthly precipitation or 15 to 25 mm (Hewitson and Crane, 2006). The early winter season (March to May) could result in a continuum of current rainfall conditions (Engelbrecht, 2005).

Climate change is the change in long term climate that are anticipated to result from the globally enhanced greenhouse effect caused by increased levels of anthropogenic greenhouse gases in the atmosphere. Greenhouse gases include carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O) and water vapour. Of these, CO2 and CH4 are the major contributors to climate change. Increased concentrations of these gases will result in global temperature changes which will influence rainfall patterns and sea levels. According to the Intergovernmental Panel on Climate Change (IPCC) the burning of fossil fuels for heating and cooking purposes in informal settlements in Johannesburg also generates CO2 emissions. The transportation sector sources, the cumulative impact of millions of vehicles on the roads makes this an important greenhouse gas source.

The National Greenhouse Gas Inventory compiled for the years 1990-1994 identified CO2 to be the most significant greenhouse gas for South Africa. CO2 contributed more than 80% of the total of the three main greenhouse gas sources, the cumulative impact of millions of vehicles on the roads makes this an important greenhouse gas source.

Within the CoJ, emissions of greenhouse gases, in particular CO2 emissions are mainly related to the energy and transportation sectors. The CoJ currently consumes 10% of the approximately 37 000 MW of electricity generated by Eskom and contributes significantly to overall CO2 emissions. In the smaller scale, the burning of fossil fuels for heating and cooking purposes in informal settlements in Johannesburg also generates CO2 emissions. The transportation sector is also an important source of CO2 emissions as vehicles are the main mode of transport within the City. Since 1999, the transportation sector has shown a decline in the use of public transport such as trains and buses and an increase in the use of private vehicles (State of Energy Report, 2008). Although emissions from individual cars are relatively low compared to industrial transportation sectors, the cumulative impact of millions of vehicles on the roads makes this an important greenhouse gas source.

Rainfall

Rainfall (mm)

Current and future rainfall trends for Johannesburg

Figure 75: Current (1960-2000) and future (2070-2100) rainfall trends (Engelbrecht, 2005; Hewitson and Crane, 2006)

Figure 4.6
SOURCE: State of the environment report - City of Johannesburg 2008
ENVIRONMENT  STATUS QUO

Sections 3 and 4 showing winter and summer sun angles

Figure 4.7
SOURCE: On site observations by ARUP during the beginning of 2011.
Sections 1 and 2 showing winter and summer sun angles

Figure 4.8
SOURCE: On site observations by ARUP during the beginning of 2011.
“I would be willing to pay R200 per month for a formal trading stall.”

Simon Villankulu
Informal trader selling vegetables on Wanderers Street, 2011.
Studying the reciprocal relationship between the economic & social philosophy, ethics, & human dignity.
INTRODUCTION

The precinct is also a local node and offers a diverse range of goods, services and amenities to the surrounding community.

The number of people living within a 1.5km radius (15mins walking time) from Park Station was estimated at 83,818 in 2009. (Joburg inner city urban design implementation plan, 2009), and with current demographic trends is conservatively estimated at 100,000 in 2011.

The improvements in the Public Transport infrastructure, such as the Rea Vaya BRT and the Gautrain aim to strengthen the Park station multi modal transport offer and ultimately attract the medium and higher income groups to public transport as a mode of choice. The key challenge for the Park Station sub precinct is to present the right proposition for these user groups whilst providing an inclusive solution for the most vulnerable communities within the city.

The precinct represents a complex dynamic system of disparate however strongly interwoven worlds, driven by their own social and economic dimensions, focused on specific income groups, integrating diverse cultural identities and led by creative entrepreneurship.

This rich and intricate network forms the platform to further strengthen and grow the Park station sub-precinct into a strategic destination and gateway at local and regional level and at an international scale.

CONTEXT

The Park Station sub-precinct (the area) plays a critical role in the context of a rapidly urbanising African environment, in terms of movement of people and goods. It is the first point of entry into the City of Johannesburg; for migrants entering into the country, for people migrating from rural areas and smaller towns within the country and, further commuters and workers from the surrounding city townships.

The precinct is a place of extremes.

As a multi-modal transport hub, it is the most accessible part of the urban system for people who rely on public transport, including the poor.

It is an environment where opportunities for livelihood can be pursued. The result is an accumulation of rural dwellers and cross border immigrants, resulting in an uncontrolled explosion of the informal economy that is geared to physical survival and poverty alleviation.

The Park Station sub-precinct is also deemed to be the logistic heart of the Johannesburg trading activities. It is a centre of freight, a centre of movement of goods (from large bulk to retail commodities) and a place of movement of finance (from physical money to barter goods). It enables the inner-city environment to be the continental shopping destination of choice for retailers and shoppers from other African countries.
"I would like to live in Braamfontein, the prices are cheap compared to Pretoria, but Pretoria is much cleaner and safe" Thembi Mhlongo, Hostess at Greyhound buses
SOCIO-ECONOMICS  STATUS QUO

Introduction

Employment varieties

The City of Johannesburg’s economy is driven by four economic sectors which are:

- Finance and business services
- Community services
- Manufacturing
- Trade

These four economic sectors collectively account for more than 82% of economic activity within the City. These sectors also account for the highest levels of formal and informal employment.

Employment rates

The number of economically active people in the City of Johannesburg increased from 1,993,373 in 1996 to 2,066,156 in 2008. Given the economic upswing experienced from 2002 to 2008, the unemployment rate in the City as per the official definition decreased from 25.3% in 2002 to 19.1% in 2008. This was in line with the national unemployment rate which declined from 29.7% to 22.8% over the same period.

However, as a result of the recession and the slow recovery thereafter, 2010 data from Statistics South Africa show that the official unemployment rate increased from 23.5% to 25.2% and from 21.7% to 27.1% respectively for the national and Gauteng Province. Given that the City also accounts for 17% of total national employment levels, the 21.8% unemployment rate for the City in 2009 would also have undergone a considerable increase, and is estimated in excess of 25%.

Income groups

The Park Station Sub-precinct consists mainly out of 4 dominant income group categories, being Households that have an average annual income in the categories:

- R19,201 and R 38,400 which counts for approximately 25% of the local population and forms the majority group.
- R 9,601-R19200 ( approx 20% )
- R 38,401-R76,800 ( approx 20% )
- “no income” ( approx 15% )

It is to be noted that due to the transient nature of the population of the area and its increased levels of illegal immigrants, the numbers are to be considered as an indication of trends only.
Small business enterprise: selling fruits on De Villers Street.
INFORMAL TRADE

Location

The transport hub located around Park Station provides for the conditions and opportunities for livelihood to be pursued. Considered to be a catalyst for entrepreneurial opportunities, it provides a foothold for the ever increasing informal economy. Due to its ongoing growth and its unmanaged nature, it has created a severe level of pressure to cope with the increase in demands on services and infrastructure.

In 2009 there were an estimated 1,749 informal traders active in the greater Park Station precinct, especially along De Villiers, King George, Noord, Plein, Wanderers, Hoek and Twist Streets. (Joburg inner-city urban design implementation plan, 2009)

Observations on site in 2011 indicate a focal point for informal trade activities around the south–east corner of the sub-precinct, on the corner of Wanderers Street with Noord Street. Towards the north of Park Station, informal trading is concentrated along Leyds Street, capturing the SE-NW pedestrian movement across the area, which includes the patronage for the cross border buses traffic.

Informal vs formalised Informal

As part of the Inner City Charter (initiated by the JDA) process and linear market was created along Hoek Street which provided pedestrianised access and formally structured informal trading stalls (including base services such as water and electricity). However, observations on site in 2011 have confirmed that the majority of the hawkers are trading along the streets without formalised infrastructure.

Managed vs illegal activities

The majority of informal trading activities are managed by the Metropolitan Trading Company (MTC), which is the City owned entity established to manage the facilities the City has set aside for micro retailers and taxi operators. The facilities monthly rental paid by the hawkers, vary from R50 to R150 per month, depending upon size and location of their trading area. It was identified during 2011, that illegal trading pockets were operating along Noord Street and De Villiers Street. These pockets of activity have created a high level of tension, being raided on a regular basis by the Metropolitan Police. It was also observed that Informal traders paying rental compete with traders not paying rent by differentiation of their product offering, such as an improved quality of products.
Informal traders: a gentleman and a lady selling freshly cooked peanuts and maize meal.
**Economic Progression**

The informal trading activities in the area provide for the various stages within the chain of economic progression. The variants in trading typologies demonstrate this progression as the trading stalls become more sophisticated and more localised as they progress on the economic value chain; starting from a totally mobile body as a shopfront, to temporary type structures. The permanent fixture and hawker stalls form the transition towards the formalised retail bracket. This progression has been comprehensively documented (Refer to Formal and Informal Trading Typologies).

**Patterns**

Conglomerations of similar trade and product types have been identified, specifically in concentrated trade of clothing, shoes, fresh produce, bags, sweet & snacks and fish as well as in services related to hair dressing and cooking.

It appears that these conglomerations have grown organically. On one hand it appears to reinforce a sense of destination and identity as the potential customer knows where to go for specific goods and has a bigger choice, and on the other hand the traders themselves are interested in attracting a larger audience and pool of people, and potential buyers and shoppers. This trend appears to be reinforced by operational impacts and spin-offs, such as shared storage facilities and locations, in creating a offering in itself.

**Product cycle and operations**

The analysis of the most common informal retail product cycles, demonstrates the broader impact of the informal trading routes as the products are bought and transported from major wholesalers outside of the immediate environs. These major wholesalers are located at; City Deep, south east of Johannesburg for purchasing dried fish and cellphones, Jumbo in Crown Mines for bags and then, China City in Crown Mines for clothing and toys.

The on site interviews in 2011 indicate that there is no integrated strategy between the informal traders in terms of delivery of goods.

There appears to be a serious lack of on street hawker storage facilities, with the majority of the traders renting storage space at Platform 19 at Park Station itself at R20/week for a pallet sized 889 x 1,156 mm.
Informal trading: a gentleman repairing shoes on Wanderers Street.
FORMAL TRADE

Location

As a local socio-economic node, the sub-precinct contains a wide range of formal shops and an diverse offering of services and community amenities.

It is of significance to note, that the highest concentration of formal retail corresponds with the highest concentration of informal trading. The majority of retail shopping and services are located in the vicinity of the corner of Noord Street and Wanderers Street, anchored by the Bridge Shopping Centre. The retail activity continues in a northerly direction along Wanderers Street and its side streets. Formal retail is also present within the Park Station building complex, focussed on convenience shopping for commuters. There is no provision for destination shopping.

Economic Progression

The economic progression chain is also visible in the physical permutations of the trading typologies from the start of a micro unit within another shop, to a street or corner shop, to the typology of retail within a shopping centre.

The micro-unit provides for unusual models of integration such as building an extended counter within a shop, ‘a shop within a shop’, activating the shop façade by other retail activities or retrofitting space which was initially not intended for retail purposes.

Patterns

Within the configuration of formal retail, the patterns are not as tangible as within the informal trade sector, however there are two patterns worthy of noting. Firstly, there appears to be an interdependency between a number of offerings; being, the liquor store, the tavern, the “buy and braai” shop and the butcher, as these outlets are always positioned in close proximity to each other.

Secondly, an unusual however frequently observed combination of goods retail is the sale of linen and cell phones by the same shop and retailer.

Product cycle and operations

Goods being traded in the Park Station sub-precinct originate from a wide range of locations being; food and fresh produce from Midrand and Soweto, furniture from Selby, clothing and pharmaceutical products from Durban.

These are directly distributed to shops, mainly by van or pick up truck. Delivery mainly occurs via secondary streets or in case of the Bridge Shopping area to a specific delivery area. There is currently no apparent formalised loading area for the retail activity within Park Station.
Informal trading: selling fruits, opposite Wanderers
Taxi rank along Wanderers Street
**Integration of formal and informal trading**

Both formal and informal trading streams demonstrate a great level of inventiveness and entrepreneurship to capture and maximise the commercial opportunities related to the pedestrian footfall to and from the various transport modes.

In certain locations there appears a symbiotic relationship between both as the informal trade activates and inhabits edges of retail hubs that are dormant.

**Quality, safety and liveability**

The observations in terms of quality, safety and liveability reflect key outcomes of interviews with, Metrorail Police, Metro Police and Prasa Cres Security.

**Dynamics**

Incidents of crime occur where in the main significant accumulations of people occur, creating areas of congestion as these areas are hard to monitor and patrol.

Illegal gambling and drinking occurs at and around taxi holding areas such as the Kazerne Taxi rank and the area to the North of Metro Mall.

**Locations of criminal activity**

Areas attracting criminal activity shift to other locations as the Metro Police and Prasa Cres security follow and respond to crime “hot spots”.

Liquor outlets are associated with criminal activity. Stolen goods are often found around these areas and the outlets are considered to be the rendezvous areas for criminals where potential crime victims, are identified and targeted.

Kazerne is a taxi holding facility associated with crime and a current location for criminals to conceal and hide stolen goods. Further, the areas below the two bridges close to Kazerne, being the Queen Elizabeth Bridge and Nelson Mandela Bridge are often locations for the further concealment by criminals of stolen goods.

At night-time all areas outside the station are perceived as unsafe, and in particular areas where lighting levels are either insufficient or not working or not provided for.
Five gentlemen selling bags and clothes at the informal Zimbabwean bus and taxi rank on Leyds Street.
Patrolled areas

The external areas to the north east of Park Station is patrolled, with security highly visible. Incidents of crime in this area are further less than elsewhere and the area is perceived as “safer”.

During the night, Park Station and the Cookhouse (an enclosed food court next to Park Station) is deemed to be a public “safe haven” for passengers. When Park Station closes, long distance bus travellers are still accommodated in specific waiting areas within the station building.

Other passengers have no allocated waiting facilities and use the Cookhouse, as an area of safety.

Wanderers Taxi rank is controlled and all activity other than taxi operations are not allowed in order to clear sight lines and improve visibility. Only registered porters are allowed within the boundary of the rank.

Types of crime

It is appears that the criminal activity in general is not violent, which is potentially as a result of the visibility and tangibility of security and police in keeping violent crime under control. The type of crime in the area was referred to as “common robberies”.

These included:

- Pick pocketing; targeting local South Africans
- Luggage theft; foreigners are targeted by criminals posing as Park Station registered porters or queuing marshals, leading foreigner passengers astray and robbing them from their luggage.
- Selling of counterfeit goods

Illegal trading activities

The illegal trading activities:

- Trading of goods that are illegal i.e. foreign cigarettes, pirate goods, stolen goods, counterfeit goods. It was noted that the Metro Police Officers’ street trading units does not have the mandate to enforce the Counterfeit Act.
- Illegal gambling - often associated with taxi holding
- Infringement of by-laws in terms of health and safety where cooking and selling of prepared food occurs.

Health and safety of people is at risk around areas where food is prepared. Often waste provision is not sufficient and where provided, drains get blocked. Contamination of areas poses a risk.

It was stated that food sellers need to show certificate of acceptability to health inspectors but that this is not currently controlled.
Informal trading: three ladies selling dried fish on Leyds Street, opposite St John’s Academy.
Resident employment varieties by primary sector, Johannesburg Metropolitan, 2007

Resident employment trends by primary sectors, Johannesburg Metropolitan, 1991-2007

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mining</td>
<td>11,144</td>
<td>12,218</td>
<td>7,961</td>
<td>13,188</td>
<td>2,044</td>
<td>18.3%</td>
<td>1.1%</td>
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<td>Manufacturing</td>
<td>122,512</td>
<td>109,794</td>
<td>129,687</td>
<td>199,434</td>
<td>66,922</td>
<td>50.5%</td>
<td>3.2%</td>
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<tr>
<td>Utilities</td>
<td>11,665</td>
<td>13,330</td>
<td>7,259</td>
<td>12,365</td>
<td>1,300</td>
<td>11.1%</td>
<td>0.7%</td>
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<td>Construction</td>
<td>47,714</td>
<td>65,346</td>
<td>64,239</td>
<td>79,173</td>
<td>31,459</td>
<td>65.9%</td>
<td>4.1%</td>
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<tr>
<td>Trade</td>
<td>178,190</td>
<td>149,950</td>
<td>201,869</td>
<td>220,759</td>
<td>42,569</td>
<td>23.9%</td>
<td>1.5%</td>
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<tr>
<td>Transport/Comm</td>
<td>45,196</td>
<td>60,622</td>
<td>60,052</td>
<td>63,049</td>
<td>22,913</td>
<td>50.8%</td>
<td>3.2%</td>
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<tr>
<td>FIRE</td>
<td>102,931</td>
<td>144,032</td>
<td>190,518</td>
<td>257,049</td>
<td>154,118</td>
<td>149.7%</td>
<td>9.4%</td>
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<tr>
<td>Comm Services</td>
<td>271,886</td>
<td>148,995</td>
<td>184,254</td>
<td>201,868</td>
<td>69,948</td>
<td>25.7%</td>
<td>-1.6%</td>
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<tr>
<td>Other</td>
<td>335,415</td>
<td>106,460</td>
<td>104,913</td>
<td>130,409</td>
<td>104,916</td>
<td>44.6%</td>
<td>2.8%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>1,036,593</td>
<td>810,824</td>
<td>957,442</td>
<td>1,183,054</td>
<td>146,461</td>
<td>14.1%</td>
<td>0.9%</td>
</tr>
</tbody>
</table>

* Finance, insurance & real estate

Figure 5.1
Figure 5.2
SOURCE: Johannesburg e-services website: eservices.joburg.org.za
Demographic, economic & social profile of Johannesburg City

<table>
<thead>
<tr>
<th>Demographic indicators</th>
<th>2005</th>
<th>2007</th>
<th>2009</th>
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<tbody>
<tr>
<td>Population</td>
<td>-----</td>
<td>3,668,060</td>
<td>3,668,180</td>
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<td>Households</td>
<td>-----</td>
<td>1,166,040</td>
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<tr>
<td>Average household size</td>
<td>-----</td>
<td>3.3</td>
<td>3.3</td>
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<tr>
<td>Gender female</td>
<td></td>
<td>56.4%</td>
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<tr>
<td>Gender male</td>
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<td>43.6%</td>
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</table>

Economic, social and human development

<table>
<thead>
<tr>
<th>Economic indicators</th>
<th>2005</th>
<th>2007</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>GVA</td>
<td>5.1%</td>
<td>5.7%</td>
<td>-1.3%</td>
</tr>
<tr>
<td>Unemployment</td>
<td>20.3%</td>
<td>18.9%</td>
<td>21.8%</td>
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<tr>
<td>Gini coefficient</td>
<td>0.65</td>
<td>0.64</td>
<td>0.63</td>
</tr>
<tr>
<td>Human Development Index</td>
<td>0.69</td>
<td>0.68</td>
<td>0.67</td>
</tr>
<tr>
<td>Literacy levels</td>
<td>85.6%</td>
<td>85.5%</td>
<td>87.3%</td>
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<tr>
<td>HIV</td>
<td>424,465</td>
<td>419,760</td>
<td>353,626</td>
</tr>
<tr>
<td>AIDS</td>
<td>26,555</td>
<td>31,644</td>
<td>33,146</td>
</tr>
</tbody>
</table>

Access to services (households)

<table>
<thead>
<tr>
<th>Service</th>
<th>2005</th>
<th>2007</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic water</td>
<td>93.3%</td>
<td>93.4%</td>
<td>96.0%</td>
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<tr>
<td>Electricity</td>
<td>90.0%</td>
<td>88.7%</td>
<td>91.2%</td>
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<tr>
<td>Sanitation</td>
<td>90.5%</td>
<td>92.0%</td>
<td>98.0%</td>
</tr>
<tr>
<td>Refuse collection</td>
<td>93.0%</td>
<td>92.5%</td>
<td>91.0%</td>
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</tbody>
</table>
### Residential Rental Rates

**Average rental rates, inner city, Johannesburg 2004-2008**

<table>
<thead>
<tr>
<th>Type</th>
<th>2004</th>
<th>2008</th>
<th>Change</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor Flat</td>
<td>1,200</td>
<td>1,388</td>
<td>188</td>
<td>16%</td>
</tr>
<tr>
<td>1 Bed Flat</td>
<td>1,600</td>
<td>2,039</td>
<td>439</td>
<td>27%</td>
</tr>
<tr>
<td>2 Bed Flat</td>
<td>2,600</td>
<td>2,607</td>
<td>607</td>
<td>30%</td>
</tr>
<tr>
<td>3 Bed Flat</td>
<td>2,300</td>
<td>3,201</td>
<td>801</td>
<td>35%</td>
</tr>
</tbody>
</table>

**Average rental rates per sub-market, central Johannesburg 2009**

<table>
<thead>
<tr>
<th>Area</th>
<th>Bachelor</th>
<th>1 Bed</th>
<th>2 Bed</th>
<th>3 Bed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Braamfontein</td>
<td>2,900</td>
<td>4,883</td>
<td>6,750</td>
<td>-</td>
</tr>
<tr>
<td>Cape Town</td>
<td>2,282</td>
<td>3,112</td>
<td>4,139</td>
<td>-</td>
</tr>
<tr>
<td>Doornfontein</td>
<td>1,700</td>
<td>3,200</td>
<td>4,700</td>
<td>-</td>
</tr>
<tr>
<td>Joubert Park</td>
<td>2,157</td>
<td>2,842</td>
<td>3,006</td>
<td>-</td>
</tr>
<tr>
<td>Fordsburg/Newtown</td>
<td>-</td>
<td>2,672</td>
<td>3,459</td>
<td>4,218</td>
</tr>
<tr>
<td>Highlands/Yoosville</td>
<td>2,152</td>
<td>2,942</td>
<td>3,251</td>
<td>3,878</td>
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<tr>
<td>Hillbrow/Berea</td>
<td>2,038</td>
<td>2,463</td>
<td>2,939</td>
<td>4,384</td>
</tr>
<tr>
<td>Jeppes Town/Troyeville</td>
<td>1,832</td>
<td>2,689</td>
<td>2,949</td>
<td>-</td>
</tr>
<tr>
<td>AVERAGE RENTAL</td>
<td>1,889</td>
<td>3,096</td>
<td>3,899</td>
<td>4,160</td>
</tr>
</tbody>
</table>

**Figure 5.4**

**SOURCE:** Financial & Business Model for Decking the Railway Lines in Central Johannesburg, Adoc, 2009
### Residential Purchase Prices

#### Sample purchase prices of developments within Johannesburg Metropolitan 2009

<table>
<thead>
<tr>
<th>Suburb</th>
<th>Development</th>
<th>No. of Beds</th>
<th>sq. m²</th>
<th>Price</th>
<th>Price per sq.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Braamfontein</td>
<td>100 Jorissen Street</td>
<td>1 bed flat</td>
<td>47</td>
<td>380 000</td>
<td>8 085.11</td>
</tr>
<tr>
<td>Braamfontein</td>
<td>100 Jorissen Street</td>
<td>1 bed penthouse</td>
<td>113</td>
<td>599 000</td>
<td>5 300.88</td>
</tr>
<tr>
<td>Braamfontein</td>
<td>100 Jorissen Street</td>
<td>2 bed flat</td>
<td>94</td>
<td>700 000</td>
<td>7 446.81</td>
</tr>
<tr>
<td>Braamfontein</td>
<td>100 Jorissen Street</td>
<td>Studio</td>
<td>24</td>
<td>320 000</td>
<td>13 333.33</td>
</tr>
<tr>
<td>Braamfontein</td>
<td>Bridgeview</td>
<td>1 bed flat</td>
<td>40</td>
<td>400 000</td>
<td>10 000.00</td>
</tr>
<tr>
<td>Braamfontein</td>
<td>Bridgeview</td>
<td>2 bed flat</td>
<td>74</td>
<td>850 000</td>
<td>11 486.49</td>
</tr>
<tr>
<td>Braamfontein</td>
<td>Bridgeview</td>
<td>Studio</td>
<td>32</td>
<td>409 000</td>
<td>12 781.25</td>
</tr>
<tr>
<td>Braamfontein</td>
<td>Times Square</td>
<td>1 bed flat</td>
<td>34</td>
<td>350 000</td>
<td>10 432.19</td>
</tr>
<tr>
<td>CBD</td>
<td>Station Lots</td>
<td>Studio</td>
<td>20</td>
<td>199 000</td>
<td>9 950.00</td>
</tr>
<tr>
<td>CBD</td>
<td>Station Lots</td>
<td>Studio</td>
<td>20</td>
<td>199 000</td>
<td>9 950.00</td>
</tr>
<tr>
<td>CBD</td>
<td>The Colosseum</td>
<td>Studio</td>
<td>28</td>
<td>250 000</td>
<td>9 057.97</td>
</tr>
<tr>
<td>CBD</td>
<td>The Colosseum</td>
<td>1 bed flat</td>
<td>36</td>
<td>550 000</td>
<td>15 363.13</td>
</tr>
<tr>
<td>CBD</td>
<td>The Liberty</td>
<td>1 bed flat</td>
<td>51</td>
<td>360 000</td>
<td>7 058.82</td>
</tr>
<tr>
<td>CBD</td>
<td>The Liberty</td>
<td>2 bed flat</td>
<td>94</td>
<td>800 000</td>
<td>8 556.15</td>
</tr>
<tr>
<td>CBD</td>
<td>The Liberty</td>
<td>Studio</td>
<td>36</td>
<td>299 000</td>
<td>8 305.56</td>
</tr>
<tr>
<td>Marshalltown</td>
<td>Dogon</td>
<td>1 bed flat</td>
<td>47</td>
<td>539 000</td>
<td>11 468.09</td>
</tr>
<tr>
<td>Marshalltown</td>
<td>Dogon</td>
<td>2 bed flat</td>
<td>69</td>
<td>805 000</td>
<td>11 666.67</td>
</tr>
<tr>
<td>Marshalltown</td>
<td>Dogon</td>
<td>2 bed penthouse</td>
<td>86</td>
<td>999 000</td>
<td>11 611.28</td>
</tr>
<tr>
<td>Marshalltown</td>
<td>Dogon</td>
<td>Studio</td>
<td>30</td>
<td>320 000</td>
<td>10 666.67</td>
</tr>
<tr>
<td>Marshalltown</td>
<td>Harrison House</td>
<td>2 bed flat</td>
<td>84</td>
<td>630 000</td>
<td>7 500.00</td>
</tr>
<tr>
<td>Melrose</td>
<td>Melrose Arch</td>
<td>1 bed flat</td>
<td>55</td>
<td>3 300 000</td>
<td>60 000.00</td>
</tr>
<tr>
<td>Newtown</td>
<td>The Newtown</td>
<td>2 bed flat</td>
<td>85</td>
<td>855 000</td>
<td>10 058.82</td>
</tr>
<tr>
<td>Sandton</td>
<td>Hydro Park</td>
<td>1 bed</td>
<td>57</td>
<td>1 000 000</td>
<td>17 543.86</td>
</tr>
<tr>
<td>Sandton</td>
<td>Hydro Park</td>
<td>2 bed</td>
<td>83</td>
<td>1 900 000</td>
<td>22 891.57</td>
</tr>
<tr>
<td>Sandton</td>
<td>The Emperor</td>
<td>2 bed penthouse</td>
<td>157</td>
<td>3 800 000</td>
<td>24 203.82</td>
</tr>
<tr>
<td>Sandton</td>
<td>The Westpoint</td>
<td>1 bed flat</td>
<td>80</td>
<td>800 000</td>
<td>10 000.00</td>
</tr>
<tr>
<td>Sandton</td>
<td>West Ferry</td>
<td>2 bed flat</td>
<td>127</td>
<td>1 800 000</td>
<td>14 173.23</td>
</tr>
</tbody>
</table>

#### Average freehold property prices, Johannesburg City 2004-2009

![Graph showing average freehold property prices](source: African Development Economic Consultants (ADEC).)

#### Average sectional title prices, Johannesburg 2004-2009

![Graph showing average sectional title prices](source: African Development Economic Consultants (ADEC).)

---

**Figure 5.5**

**SOURCE:** Financial & Business Model for Decking the Railway Lines in Central Johannesburg, ADEC, 2009
The purpose of this section is to provide critical evidence to inform the value of land and/or development bulk in the Sub-Precinct area. Establishing reasonably reliable values from existing material was not readily available, and a methodology was developed in order to provide rigour to the data available.

**Methodology : Objectives**

The valuation data analysed emanating from PRASA correspondence and also CoJ data, varied in statements from R 14,000 – R 10,000 /m². The purpose of the methodology was to establish a view ( based on empirical research and data ) of property values expressed as a rate per bulk metre square and as a rate per physical metre square in the immediate vicinity of Park Station Johannesburg, in the area ( being the, Park Station Sub Precinct Framework zone ).

**Methodology : The process**

The methodology used was to generate a representative sample of properties in the study area of actual recorded sales and to use such records to inform the present value of properties in the area. The methodology summary stages are outlined as:

- **Record data.** Through analyzing Windeed records of actual sales of properties in the study area, approximately 50 sales were established to have happened in the study area from the period 1928 through to 2010.

- **Sampling.** A representative sample providing relevance, was determined as being the most recent 30 of these sales, which stretched from 1992 to 2010.

- **Factoring.** These actual sales prices were then factored through to 2011 values through multiplying the values with the recorded CPI rates (as given by Stats SA) in a compounded manner.

- **Sample refinement.** Of the sample of 30 properties, there were 25 that had buildings and / or developments on them and 5 that were open and / or vacant plots. The present values of the 25 properties with buildings on were then divided by the actual bulk (gross leasable area of built form) on each property to obtain the rate of value expressed a rate per bulk meter square (R/Bm²).

Of the sample of 30 properties there were 5 that were open and/or vacant plots. The present values of these 5 properties were then divided by the actual property size to get the rate per physical meter square (R/m²).
Formule Inn hotel off Wanderers Street, opposite Wanderers taxi rank.
Outcomes and Results

The analysis demonstrated that the sample of 25 properties with buildings had an average sale value of R1683/Bm² and that the sample of 5 properties that were open and/or vacant plots had an average sale value of R7068/m².

There were naturally some ‘outliers’ in the study, for example a property that was a service station where the value of the property lies in the sale of petroleum products and not the actual building. In order to get a more representative indication of value and provide an element the two lowest and the two highest values were removed from the sample of 25 properties with buildings on. The result was that the average value dropped from R1683/Bm² to R1327/Bm².

While this research does make assumptions such as the method of present valuing property sales, using CPI, it does show that the market places a rather low value on bulk in the study area, which is reflective of values falling in the inner city due to inner city decay.

In contrast, the market does place a much higher value on buildings in nodes such as Rosebank and Sandton, were market values have not been adversely affected through decay and natural supply and demand factors.

While the market may place a degree of premium on built form immediately adjacent to or in the actual Park Station precinct, it is highly unlikely that such value would be close to the replacement cost of such bulk, unless factors on the ground were to change significantly.

It also is worthwhile reflecting that the sales in the area and sample of actual recorded sales, as shown by dates and prices, does not reflect the same degree of market positioning by developers and property funds for properties close to Gautrain stations, as happened in the case of other Gautrain Station areas such as Hatfield, Sandton and Rosebank.
A gentleman and lady selling fruits on De Villiers Street, opposite the South Station Building.
Figure 5.6

SOURCE: Windeed
Figure 5.7
SOURCE: Windeed

Major Ownership: More than 5 Erfs
Figure 5.8
SOURCE: Windeed
Figure 5.9
Public vs. Private Ownership

SOURCE: WindSeed
Figure 5.10

SOURCE: Winddeed
Figure 5.11
Criminal Activity and Patrolled Areas

SOURCE: Interviews with local police
Safety Perceptions

Figure 5.12
SOURCE: On site observations by ARUP during the beginning of 2011
Figure 5.13

Overview of Retail Activity

Source: On site observations by ARUP during the beginning of 2011.
Formal Retail Activity Zone Demarcation

Figure 5.14
Figure 5.15

SOURCE: On site observations by ARUP during the beginning of 2011.
SOURCE: On site observations by ARUP during the beginning of 2011.
FORMAL RETAIL ACTIVITY ZONE 1

**Goods**
- Liquor
- Take Away
- Wholesale
- General Dealer
- Furniture
- Electronics
- Clothing
- Fruit & Vegetables
- Pawn Broker
- Bookshop
- Butchery
- Dvd / Music
- Shoes
- Jewellery / Accessories
- Linen
- Bags
- Stationery / Gift Shop
- Supermarket
- Pharmacy
- Bakery

**Services [Professional]**
- Doctor/Dentist/Optometrist
- Banking
- Money Transfer

**Services [Daily]**
- Hairdresser
- Key Cutting / Shoe Repair
- Business Centre / Internet
- Cafe
- Laundry
- Computicket
- Restaurants
- Baggage Storage

**Mixed**
- Traditional Healer
- Tavern / Entertainment
- Public Phones / Spaza
- Motor Spares

**Ratios of goods versus services & mixed operations within the zone**

[Diagram showing ratios]

*Figure 5.17*

SOURCE: On site observations by ARUP during the beginning of 2011.
Formal Retail Activity Zone 2

Figure 5.18
SOURCE: On site observations by ARUP during the beginning of 2011.
Figure 5.19
SOURCE: On site observations by ARUP during the beginning of 2011.
Figure 5.20
SOURCE: On site observations by ARUP during the beginning of 2011.
Source: On site observations by ARUP during the beginning of 2011.
**SOCIO-ECONOMICS STATUS QUO**

*Formal Retail Activity Zone 6*

Figure 5.22

SOURCE: On site observations by ARUP during the beginning of 2011.
Formal Trading Typologies

**Active Shopfront**
Type 1

**Key Facts**
- On Grade: YES
- Operating Hours: 06h00 - 18h00 mon-fri
- Weekend Operation: YES
- Retrofit: NO

**Clip-on Shopfront**
Type 3

**Key Facts**
- On Grade: YES
- Operating Hours: 06h30 - 21h30 mon-fri
- Weekend Operation: YES
- Retrofit: NO

**Converted**
Type 2

**Key Facts**
- On Grade: YES
- Operating Hours: 06h00 - 18h00 mon-fri
- Weekend Operation: YES
- Retrofit: NO

**Internal Subdivisions**
Type 4

**Key Facts**
- On Grade: YES
- Operating Hours: 06h30 - 19h00 mon-fri
- Weekend Operation: YES
- Retrofit: NO
Internalised Activities
Type 6

Street Fronted Shop
Type 7

Corner Shop
Type 6

Shopping Centre
Type 8

Key Facts
On Grade
Operating Hours
Weekend Operation
Retrofit

Yes
No

Yes
No

Yes
No

Yes
No
JMPD and SARCC
security guards
make our lives hell,
say hawkers

De Ray Mashau
The Manager
for Hawkers
and Informal
Business (ACBHI) in
Gauteng said
in an interview:

The situation has
not improved since
our meetings with
JMPD.

ACBHI President
Mr. Xolani Gcina

SARCC security guards
make our lives hell,
say hawkers

MIKE MUTIMBANYOKA

VISION:
To express our feelings in art.

MISSION:
My mission is to paint a portrait of
the community. I want to show the
effectiveness of giving back to society.

HISTORY & BACKGROUND:
I was born in the year 1977. I
started painting at a very young age.
I moved to South Africa in 1998.

OBJECTIVE:
I am an artist who is passionate about
painting and creating art. My goal is
to bring joy and happiness to people
through my art.

MARKETING:
I focus on creating art that
resonates with people and
creates a connection with them.

RESOURCE:
I rely on my own resources,
including time and materials.

COMPLEMENTS:
I am an artist who
enjoys painting,
and I am passionate
about bringing joy
to others through
my art.

CONTACTS:
Mike 972 222 520
Email: mmutim@yahoo.com
75 Joubert Street
Cnr. Wanderer and Wolmarans
Johannesburg, 2001
A street beggar outside a shop in Hillbrow.
Figure 5.23
Informal Retail Activity Type Analysis

Source: On site observations by ARUP during the beginning of 2011.
**Informal Retail Product Cycles**

**Zone 1**
- Fordsburg
- Stall, 1 / week

**Zone 3**
- Eloff Street
- Stall, 3 / week
- Stall

**Zone 3**
- Main Reef Rd
- Stall, 1 / week
- Stall

**Zone 3**
- China City
- Stall, 2 / week
- Stall

**Zone 3**
- China City
- Stall, 1 / week
- Stall

**Zone 4**
- Fordsburg
- Stall, 1 / month
- Stall

**Zone 4**
- Crown Mines
- Stall, 5 / week

**Zone 6**
- City Deep
- Stall

**SOURCE:** On site observations by ARUP during the beginning of 2011.

*Figure 5.24*
Figure 5.25

**Socio-Economics: Status Quo**

**Informal Retail Activity Zone 1**

**Goods**

**Services [daily]**
- Hairdresser
- Tailor
- Traditional Healer
- Photography
- Public Phones
- Recycling
- Shoe Repairs

**Ratio of goods versus service operations within the zone**

**Location of zone**

SOURCE: On site observations by ARUP during the beginning of 2011.
Figure 5.26
SOURCE: On site observations by ARUP during the beginning of 2011.
Figure 5.27
Informal Retail Activity Zone 3

SOURCE: On site observations by ARUP during the beginning of 2011.
SOcio-Economics  Status Quo

Informal Retail Activity Zone 4

Figure 5.28

SOURCE: On site observations by ARUP during the beginning of 2011.

Goods
- Fresh Produce
- Mobile Phones
- Sweets/Snacks
- Clothing
- Hats/Caps
- Shoes
- Cooking/Take Aways
- Sunglasses
- Belts
- Cd/Dvd
- Toiletries
- Electrical Appliances
- Bags
- Cigarettes
- Stationery
- Toys
- Nappies
- Hardware/Tools
- Books
- Artwork
- Accessories
- Bedding/Linen
- Homeware

Services [daily]
- Hairdresser
- Tailor
- Traditional Healer
- Photography
- Public Phones
- Recycling
- Shoe Repairs

Ratio of goods versus service operations within the zone
NOTE: There was no informal trading found in this zone.

Figure 5.29
SOURCE: On site observations by ARUP during the beginning of 2011.
Socio-Economics  Status Quo

Informal Retail Activity Zone 6

Goods
- Fresh Produce
- Mobile Phones
- Sweets/Snacks
- Clothing
- Hats/Caps
- Shoes
- Cooking/Take Aways
- Sunglasses
- Belts
- CD/DVD
- Toiletries
- Electrical Appliances
- Bags
- Cigarettes
- Stationery
- Toys
- Nappies
- Hardware/Tools
- Books
- Artwork
- Accessories
- Bedding/Linen
- Umbrellas
- Homeware

Figure 5.30
SOURCE: On site observations by ARUP during the beginning of 2011.
Informal Trading Typologies

The Body as a Shopfront
Type 1

Key Facts
- Fixed or Mobile: FIXED
- Area: 1 m²
- Paying Rent: YES
- Site Storage: ON
- Services: Water, Gas, Electricity

Blanket as a Shop Floor
Type 2

Key Facts
- Fixed or Mobile: MOBILE
- Area: 2.5 m²
- Paying Rent: NO
- Site Storage: OFF
- Services: Water, Gas, Electricity

Semi-permanent Structures
Type 3

Key Facts
- Fixed or Mobile: FIXED
- Area: 0.5 m² - 4 m²
- Paying Rent: YES
- Site Storage: ON
- Services: Water, Gas, Electricity

Provide Temporary Shelter
Type 4

Key Facts
- Fixed or Mobile: MOBILE
- Area: 6.5 m²
- Paying Rent: YES
- Site Storage: OFF
- Services: Water, Gas, Electricity

R50 - 150 / month
Informal Trading Typologies

**Mobile Trading**
- Type 5

**Fixed or Mobile**
- Area: 1.5 m²
- Paying Rent: YES
- Site Storage: OFF
- Services: W (Water), G (Gas), E (Electricity)

**Permanent Structure**
- Type 6

**Fixed or Mobile**
- Area: 7 m²
- Paying Rent: YES
- Site Storage: OFF
- Services: W (Water), G (Gas), E (Electricity)

**Key Facts**

R150 - R300 / month

---

**Socio-Economics**

**Status Quo**
Figure 5.31

Informal Retail Activity: Mobile vs Fixed

SOURCE: On site observations by ARUP during the beginning of 2011.
Informal Retail Zones of Similar Product Types

Figure 5.32
SOURCE: On site observations by ARUP during the beginning of 2011.
Trolley Pusher Routes

Figure 5.33
SOURCE: On site observations by ARUP in June 2011
1. Name: Shaville Khoza
2. What do you transport? Luggage
3. What are your operating hours: 6am-5pm 7 days a week
4. When are you busiest? Friday and Sunday
5. Are you self-employed? Yes
6. What do you charge for your services? Between R5 - R30 depending on the distance

Figure 5.34
SOURCE: On site observations by ARUP in June 2011
1. Name: Katlego Legodi
2. What do you transport? Fresh produce, assorted goods and luggage
3. What are your operating hours: 5am-6pm 7 days a week
4. When are you busiest?: During public holidays and month end
5. Are you self-employed?: Yes
6. What do you charge for your services?: Typically I would charge R30 from Wanderers St. to Bree St.

SOURCE: On site observations by ARUP in June 2011

Figure 5.35
1. Name: Jabulani Mkhonazi
2. What do you transport? Fresh produce and assorted goods
3. What are your operating hours: 11am - 6pm 7 days per week
4. When are you busiest? Month end
5. Are you self-employed? Yes
6. What do you charge for your services? Between R20 - R50 depending on the distance

Figure 5.36
SOURCE: On site observations by ARUP in June 2011
1. Name: Tendai Madamombe
2. What do you transport? Recycled cardboard
3. What are your operating hours: 7am - 6pm 7 days a week
4. When are you busiest? Friday, Saturday and month end
5. Are you self-employed? Yes
6. What do you charge for your services? I get 65c per kg of cardboard. 1 trolley carries 700kg of cardboard and it takes me about 3 days to fill up one trolley load. I drop off my cardboard at the Newtown recycling depot.

Figure 5.37
SOURCE: On site observations by ARUP in June 2011
Name: Sipho Nkosi
What do you transport?: Luggage
What are your operating hours?: 5am-8pm 7 days a week
When are you busiest?: Friday and Saturday
Are you self-employed?: Yes
What do you charge for your services?: Between R10 - R35 depending on the distance

Figure 5.38
SOURCE: On site observations by ARUP in June 2011
1. Name: David Nzeku
2. What do you transport? Mostly meat and a small amount of luggage
3. What are your operating hours: 7am - 5pm 7 days a week
4. When are you busiest? Friday and Saturday
5. Are you self-employed? Yes
6. What do you charge for your services? Between R10 - R15

Figure 5.39
SOURCE: On site observations by ARUP in June 2011
1. Facility Type: Transport
2. What is transported: Passengers and Goods.
3. Frequency: Twice weekly
4. Facilities
   - Waiting Area
   - Offices
   - Ticket Office
   - 2 Rooms for drivers
5. Other Amenities:
   - Tavern with hotel above.
6. Known Issues:
   - Tavern playing music 24/7 and negatively affecting hotel guests
Trading activity on Noord Street
“There used to be a lot of crime on this street but this was greatly improved when the City installed CCTV cameras and put up the hijack hot-spot signs.”

Mohammed Ramel
Supermarket owner on Wanderer’s Street, 2011.
The basic physical & organisational structures needed for the operations & facilities necessary for an economy to function.
Introduction

This chapter investigates infrastructure that may be affected by development in and around the Park Station Sub-precinct site. The infrastructure covered is water reticulation, sewer reticulation, road network, storm water management, electrical distribution, telecommunication networks and gas reticulation for the area.

Scope of work

The Park Station Sub-Precinct Development will affect various services in and around the city centre study area. The scope of works for this study includes:

- An investigation of the existing infrastructure systems in the study area and a report on the available capacity.
- An investigation of planned future infrastructure systems from service providers in the area of the development as well as affected areas.
- An investigation of the flood plain of the study area.

The areas covered by the study are:

1. Braamfontein
2. Johannesburg City Centre

The specific buildings that are included in the study area are:

1. Park Station
2. Umjantshi House
3. Formula 1 Hotel
4. The Bridge Shopping Centre
5. Blue Room Building
6. Rotunda Building
7. Metro park and Training Facility
8. Corner Harrison and Leyds Street
9. Lab Building
10. Platform 19
11. Crèche
12. Shosholoza Meyl Junction
13. Train Simulator
Two gentleman selling braaied gizzards on the pavement at Corner Leyds and Harrison Streets.
Service providers in these areas are City of Johannesburg Metropolitan Municipality (COJ) which provides distribution networks for water, electricity and provides sewer and stormwater management systems for the area, Egoli Gas which provides gas reticulation, Johannesburg City Power which provides bulk electricity supply, Eskom which provides reticulation, Johannesburg Water Agency that supplies bulk water services to the area and Telkom and Neotel who provide telecommunications.

**Existing Infrastructure**

All existing infrastructure, pipe sizes and alignments are shown on the drawings.

It should be noted that the existing infrastructure has been investigated to the relevant site boundaries only, no internal reticulations have been investigated.

It should further be noted that the existing infrastructure can cater for the existing Nett Floor Areas of the study area since this is currently the status quo. Should the existing densities be increased, the existing infrastructure will have to be reviewed and possibly upgraded to accommodate the increased densities. If, however, the existing densities are maintained or even reduced, the current infrastructure can be kept as is, no changes would be required other than where services may have to be deviated to suit the new developments.

**Roads**

Roads fall under the jurisdiction of the Johannesburg Roads Agency and their norms and standards must be adhered to in future designs.

The existing bulk and link roads to the project area are in place and are adequate to cater for the future and existing density demands. The Bulk road infrastructure is the M1 to the West, the M2 to the South and the N3 to the East of the project area.

A historical restriction of the study area is the poor East – West movement which may have to be addressed in the later design stages.
Rubbish dumped on the pavement in Bree Street opposite Jack Mincer taxi rank.
INFRASTRUCTURE & SERVICES  STATUS QUO

Introduction

Stormwater

Storm water management also falls under the Johannesburg Roads Agency jurisdiction.

The proposed development area has already reached near maximum run-off capacity. Any increase in density would require the provision of attenuation structures in order to control the inflow of storm water into the bulk system, developments that provide suitable attenuation measures should be put in place, these measures may be in the form of retention ponds and storage ponds for storm water harvesting which could be used for irrigation purposes, thus reducing overall water consumption.

Disposal of sediments collected in these ponds or tanks will be a maintenance issue and will form part of the management of the future development.

It has been reported that a number of buildings are prone to flooding, this is a recent phenomenon and can be attributed to poor maintenance in the form of stolen or non-functional submersible pumps, blocked stormwater outlets and other damaged or non-functional stormwater structures, essentially due to a lack of maintenance.

Water Reticulation

Water and Waste water falls under the jurisdiction of the Johannesburg Water Agency and their design standards will be applicable to all future developments.

Bulk water supply to the area is at full capacity and no spare capacity is available, however, should future developments be designed to match the current densities, the capacity will be adequate.

If densification is increased it will result in further storage requirements which could be provided on site or by upgrading the existing reservoir capacity. In this proposal on site storage in conjunction with rain and storm water harvesting should be considered due to the sustainability opportunities presented by this project, but Bulk storage will be from the existing Yeoville reservoir system.

With water and storm water harvesting, water treatment plants and purification works should be considered, the purification and treatment works are very versatile and can be designed in package plants for ease of future upgrading. Implementation of greywater and Blackwater systems should be investigated nearer to the actual development taking place, these measures could substantially reduce the cost of the water consumption and may be a cost saving measure in the long term.
A gentleman sitting on the pavement, opposite lab building in Leyds Street.
Sewage Reticulation

No spare capacity exists within the existing Bulk and Link sewers within the proposed development zone. The proposed development zone drains towards the South of Johannesburg which is serviced by the Olifantsvlei treatment works South of Soweto.

Purification Package Plants should be investigated nearer to the actual start of the development. Should the current densities be maintained in the new developments, the existing sewage infrastructure will be adequate, any increase in densification over the current will require further upgrading or on site treatment plants.

Electricity

Electricity in the area is managed by Johannesburg City Power. Some spare Bulk capacity is available in the system but is variable and dependant on the rate of development of other areas around the proposed project area.

Sustainable opportunities exist for this development and may take the form of Solar Energy Harvesting, innovating environmental lighting systems and other forms of energy harvesting. Eskom Substations are indicated in the drawing.

Gas Reticulation

Bulk Gas reticulation in the area is managed by Egoli Gas and there is currently spare capacity available.

Telecommunications

Current Land Line Service providers in the project area are Telkom and Neotel.

There is no constraint on communications in the project area other than the provision of reticulation sleeves and manholes in street reserves, the material is normally provided by the service provider but must be installed by the developer at the time.

Opportunity exists to make extensive use of satellite technology on the communications networks.

Flood Plain

The flood plain of the study area is defined by three ridges in the area. The first being the Witwatersrand Ridge which runs from the Fort, north of the site along Hoofd street. The ridge to the east is defined by Jan Smuts Street and to the west the ridge runs down from the Fort along Hospital Street and then along King George Street until it finally connects to the south side of the site.
Ramps to access platform 12 to 16 from Harrison Street.
Figure 6.1
SOURCE: ARUP, March 2011, Infrastructure & services map.
Figure 6.2
SOURCE: ARUP, March 2011, Infrastructure & services map.
Electricity

Figure 6.3
SOURCE: ARUP, March 2011, Infrastructure & services map.
Source: ARUP, March 2011, Infrastructure & services map.

Gas supply

Figure 6.4
Infrastructure & Services: Sewerage

Figure 6.5
SOURCE: ARUP, March 2011, Infrastructure & services map.
Figure 6.6
SOURCE: ARUP, March 2011, Infrastructure & services map.
## Way Forward: Movement & Transport

<table>
<thead>
<tr>
<th>Theme</th>
<th>Criteria</th>
<th>Development Guidelines</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Modal Integration</strong></td>
<td>A lack of modal integration, coordination and efficiency of public transport</td>
<td>Implement and upgrade physical linkages between different transport modes</td>
</tr>
<tr>
<td></td>
<td>Lack of safe NMT connectivity between major transport hubs</td>
<td>Provide NMT infrastructure along major movement corridors</td>
</tr>
<tr>
<td></td>
<td>Modal conflict and congestion within certain areas</td>
<td>Provide physical delineation between different transport modes</td>
</tr>
<tr>
<td><strong>Integration with the city</strong></td>
<td>Park Station is a major international transport hub</td>
<td>Maximize the potential offered by Park Station sub-precinct being a major international transport hub</td>
</tr>
<tr>
<td></td>
<td>High volumes of pedestrian footfall are not fully capitalized</td>
<td>Capture the high volumes of pedestrian footfall particularly along the east - west corridors</td>
</tr>
<tr>
<td></td>
<td>Park Station and surrounding transport hubs are not well integrated within the city context</td>
<td>Implement and upgrade physical linkages between transport modes and their immediate surroundings</td>
</tr>
<tr>
<td></td>
<td>Heavy reliance on private vehicles for transport</td>
<td>Upgrade public transport facilities and discourage private vehicle use</td>
</tr>
<tr>
<td><strong>Transport Infrastructure</strong></td>
<td>The infrastructure for formal and informal public transport is insufficient or nonexistent</td>
<td>Provide sufficient public transport infrastructure</td>
</tr>
<tr>
<td></td>
<td>There are limited ablution facilities for passengers</td>
<td></td>
</tr>
<tr>
<td></td>
<td>There are limited waiting areas / seating for passengers</td>
<td></td>
</tr>
<tr>
<td></td>
<td>There are a limited number of lockers and storage facilities</td>
<td></td>
</tr>
<tr>
<td></td>
<td>There is a lack of overnight facilities</td>
<td></td>
</tr>
<tr>
<td><strong>Signage and Way finding</strong></td>
<td>There is limited signage and way finding</td>
<td>Implement a coordinated wayfinding strategy</td>
</tr>
<tr>
<td><strong>Management and Operations</strong></td>
<td>The prescribed road categories do not suit or accommodate the current street activity</td>
<td>Redefine road categories or modify street activity to create a synergetic configuration</td>
</tr>
<tr>
<td></td>
<td>Pedestrians and traders are not configured in a mutually beneficial arrangement</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Poor management has resulted in a lack of efficiency – leading to an imbalance between capacity and utilization</td>
<td>Obtain a balanced relationship between capacity and utilization through proper management procedures</td>
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</table>
### Way Forward: Land Use

<table>
<thead>
<tr>
<th>Themes</th>
<th>Criteria</th>
<th>Development Guidelines</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Adaptability</strong></td>
<td>The mixed use typologies in the sub precinct are the most successful land use model</td>
<td>To increase the application of the mixed use typology (horizontally and vertically)</td>
</tr>
<tr>
<td></td>
<td>There is currently a rich mix of activities onsite however it does not cover a 24-hour cycle</td>
<td>Extend the activity cycle</td>
</tr>
<tr>
<td></td>
<td>Buildings and spaces are underutilized due to a lack of flexibility and adaptability of use</td>
<td>Assign different functions to spaces and buildings at various times of the day</td>
</tr>
<tr>
<td><strong>Synergy and Activation</strong></td>
<td>There are a number of vacant or underutilized buildings in the sub-precinct</td>
<td>Intensify and activate vacant buildings</td>
</tr>
<tr>
<td></td>
<td>There is a need for additional retail space</td>
<td>Increase the provision of retail space</td>
</tr>
<tr>
<td></td>
<td>Conflict caused by incompatible grouping of uses</td>
<td>Apply a suitable mix of uses</td>
</tr>
<tr>
<td></td>
<td>Hijacked and illegally occupied buildings</td>
<td>Implement urban renewal projects &amp; management of urban decay</td>
</tr>
<tr>
<td></td>
<td>PRASA assets are underutilized</td>
<td>Rezone existing PRASA assets to unlock future development potential</td>
</tr>
<tr>
<td></td>
<td>Current zoning of PRASA assets are limiting</td>
<td>Create synergy between movement and land use</td>
</tr>
<tr>
<td></td>
<td>There is insufficient integration between pedestrian movement and land uses</td>
<td></td>
</tr>
<tr>
<td><strong>Amenities</strong></td>
<td>There is limited safe amenities for students after study hours</td>
<td>Provide amenities related to students</td>
</tr>
<tr>
<td></td>
<td>There is a lack of amenities for passengers waiting to connect or commute</td>
<td>Provide amenities for passengers</td>
</tr>
<tr>
<td></td>
<td>There is a significant need for low to middle income housing in the area</td>
<td>Provide social and affordable housing</td>
</tr>
<tr>
<td></td>
<td>The existing community lacks sufficient social amenities</td>
<td>Provide social amenities</td>
</tr>
</tbody>
</table>
## Way Forward: Urban Form

<table>
<thead>
<tr>
<th><strong>Theme</strong></th>
<th><strong>Criteria</strong></th>
<th><strong>Development Guidelines</strong></th>
</tr>
</thead>
</table>
| **Legibility** | A lack of legibility of significant buildings within the cityscape and their immediate context.  
Macro: scale, form, location, visibility  
Micro: clearly demarked entrances, signage, lighting, universal access for all | Implement a legibility strategy on micro & macro scale                                      |
| **Density**    | Availability of open land  
Lack of vertical density | Densification of city blocks  
Redevelop low density areas through vertical growth                                         |
| **Public Space** | Poorly managed informal trade and high pedestrian volumes causes congestion  
Public spaces are not integrated with the pedestrian movement network  
Public spaces are unsafe, unfriendly and not livable | Formalize the informal trade & implement a management strategy along major pedestrian corridors  
Integrate public space with the pedestrian movement network through the provision of sufficient and safe NMT infrastructure  
Create safe public space through community surveillance and activity |
| **Public Realm** | Current significant heritage buildings are not noticeable or capitalized on  
Existing heritage stock in a dilapidated condition  
Poor condition of the urban environment  
There is limited way finding and signage  
Lighting is limited  
Street furniture is non existent  
Pavements are in a poor condition and dangerous to walk | Market buildings and surrounding spaces of significant heritage by upgrading and implementing a linked pedestrian system  
Upgrade & maintain existing heritage stock  
Upgrade & maintain existing urban environment  
Implement a coordinated wayfinding/signage strategy  
Implement an energy efficient lighting strategy  
Introduce street furniture along high volume pedestrian corridors  
Upgrade and widening of pavements along high volume pedestrian corridors |
## Way Forward: Environment

<table>
<thead>
<tr>
<th>Themes</th>
<th>Criteria</th>
<th>Development Guidelines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Environment</td>
<td>Poor infrastructure within the existing environment encourages</td>
<td>Upgrade the public environment infrastructure</td>
</tr>
<tr>
<td></td>
<td>a lack of community, identity and responsibility</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Facilities below ground level are unsafe due to limited light penetration</td>
<td>Implement a energy efficient lighting strategy and restruct-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ure physical space to allow for natural light penetration</td>
</tr>
<tr>
<td></td>
<td>Limited provision of public space</td>
<td></td>
</tr>
<tr>
<td>Energy Resources</td>
<td>Sustainable energy use is non existent</td>
<td>Capitalize on sustainable energy resources</td>
</tr>
<tr>
<td></td>
<td>Increased pollution levels are negatively impacting on the quality</td>
<td>Implement pollution reduction strategy</td>
</tr>
<tr>
<td></td>
<td>of life in terms of air quality, noise levels, land pollution and</td>
<td></td>
</tr>
<tr>
<td></td>
<td>water quality.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lack of recycling facilities</td>
<td>Provide recycling infrastructure and management</td>
</tr>
<tr>
<td>Management and Waste Disposal</td>
<td>Waste recycling is not formalized</td>
<td>Encourage and formalise waste recycling</td>
</tr>
<tr>
<td></td>
<td>Public environment is in a poor condition due to dumping and</td>
<td>Provide additional waste collection points &amp; implement a</td>
</tr>
<tr>
<td></td>
<td>lack of waste management</td>
<td>waste management strategy</td>
</tr>
<tr>
<td></td>
<td>Insufficient environmental and waste management strategies</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Insufficient infrastructure related to waste disposal</td>
<td></td>
</tr>
</tbody>
</table>
## Way Forward: Socio-economics

<table>
<thead>
<tr>
<th>Themes</th>
<th>Criteria</th>
<th>Development Guidelines</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Trading</strong></td>
<td>High volumes of pedestrian footfall currently exist in the sub-precinct and are not capitalized on</td>
<td>Utilize the high volumes of pedestrian footfall to increase retail revenue</td>
</tr>
<tr>
<td></td>
<td>There are high levels of informal retail activity</td>
<td>Formalize the informal trade by providing sufficient infrastructure &amp; services</td>
</tr>
<tr>
<td></td>
<td>Insufficient provision for informal trading including: storage space, services, shelter and management</td>
<td>along with a management strategy</td>
</tr>
<tr>
<td></td>
<td>Inefficient and unsafe movement of goods into and out of the sub-precinct</td>
<td>Implement an efficient and safe freight system</td>
</tr>
<tr>
<td></td>
<td>There is a limited range of formal retail space as the existing formal retail inefficient and inflexible</td>
<td>Provide flexible retail space which can accommodate a wide range of trading typologies</td>
</tr>
<tr>
<td><strong>Transient Society</strong></td>
<td>Current amenities do not accommodate the constantly changing socio-economic conditions</td>
<td>Provide sufficient amenities such as accommodation, ablutions, safe waiting areas, storage etc.</td>
</tr>
<tr>
<td><strong>Socio-economic progression</strong></td>
<td>High levels of unemployment</td>
<td>Sustainable job creation</td>
</tr>
<tr>
<td></td>
<td>There is a lack of social amenities</td>
<td>Provide social amenities such as clinics, after school care, community centres</td>
</tr>
<tr>
<td><strong>Safety and Security</strong></td>
<td>There is a lack of balance and sense of community within the area</td>
<td>Creating a healthy community by addressing the safety &amp; security issues within the area, specifically around transport hubs</td>
</tr>
<tr>
<td></td>
<td>There are high levels of criminal activity around transport hubs</td>
<td></td>
</tr>
</tbody>
</table>
**Way Forward: Infrastructure and Services**

<table>
<thead>
<tr>
<th>Themes</th>
<th>Criteria</th>
<th>Development Guidelines</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Energy Resources</strong></td>
<td>There is limited use of alternative energy resources</td>
<td>Capitalize on sustainable energy resources</td>
</tr>
<tr>
<td><strong>Utilities</strong></td>
<td>There is no water recycling or water harvesting</td>
<td>Harvest and recycle water and storm water</td>
</tr>
<tr>
<td></td>
<td>There is spare bulk gas capacity which is underutilized</td>
<td>Make use of spare bulk gas capacity</td>
</tr>
<tr>
<td></td>
<td>Electricity, storm water, water, sewerage and waste disposal are at</td>
<td>Any increase in current densities will require substantial upgrading of bulk infrastructure</td>
</tr>
<tr>
<td></td>
<td>maximum capacity</td>
<td></td>
</tr>
<tr>
<td></td>
<td>There is limited use of alternative telecommunication technology</td>
<td>Opportunity exists to make use of satellite communication technology</td>
</tr>
<tr>
<td>**Maintenance and</td>
<td>Electricity, Storm water, Water, Sewerage and Waste disposal infrastructure are in poor condition</td>
<td>Upgrade the existing bulk infrastructure system &amp; allow for future capacity</td>
</tr>
<tr>
<td>Management**</td>
<td>There is a lack of maintenance and management of bulk infrastructure</td>
<td>Implement a maintenance &amp; management strategy</td>
</tr>
<tr>
<td></td>
<td>The sub-precinct is situated within a major watershed area &amp; results in extensive flooding</td>
<td>Upgrade existing storm water system &amp; implement the maintenance strategy</td>
</tr>
</tbody>
</table>
I have made missteps along the way. But I have discovered the secret that after climbing a great hill, one only finds that there are many more hills to climb. I have taken a moment here to rest, to steal a view of the glorious vista that surrounds me, to look back on the distance I have come. But I can rest only for a moment, for with freedom comes responsibilities, and I dare not linger, for my long walk is not yet ended...

Nelson Mandela, 1995
Summary

The purpose of the Status Quo and Literature workstream was to:

- Review previous studies and initiatives in the area in terms of urban planning, development and data research, covering the range from strategic through to detail.
- To identify, collate and review existing records from a variety of sources covering; infrastructure, operations, economic data and statistics.
- To identify knowledge and information gaps, and were possible to complete those gaps, by means of on-site research, interviews, observations and further analysis.
- To gain the most up-to-date picture of the current Status Quo in the Park Station environs.

Process

It was never intended to produce a publishable report that comprehensively documented the work undertaken, rather it was intended as a data bank for the further work to be undertaken.

The methodology undertaken by the research team, was internally discussed and challenged at several thought and topic workshops, in pressing to understand the essence of the issues at hand.

The range of activities from; interviews, caucus meetings, on-site investigations, surveys, documentation and investigations to accumulate this data is vast, and arguably now remains as one of the most comprehensive accounts of the status quo of life, in the one of Africa's greatest cities.

Way Forward

This workstream, has reached a stage (notwithstanding certain data that was either; commercially sensitive, confidential or either just unobtainable), where a significant enough body of evidence now exists in order to analytically inform the next stages of the Framework.

The material collated will now be reviewed, analysed and conclusions developed with the sole purpose of providing evidence based conclusions and more importantly prospective solutions in intelligently informing and guiding the Development Framework Guidelines.
**LEXICON**

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area</td>
<td>The area of land that constitutes the Park Station Sub-Precinct Development Framework in and around Park Station itself</td>
</tr>
<tr>
<td>CoJ</td>
<td>City of Johannesburg</td>
</tr>
<tr>
<td>MTC</td>
<td>Metropolitan Trading Company</td>
</tr>
<tr>
<td>PRASA</td>
<td>Passenger Rail Agency of South Africa</td>
</tr>
<tr>
<td>SANRAL</td>
<td>South African National Roads Agency</td>
</tr>
<tr>
<td>DoT</td>
<td>Department of Transport</td>
</tr>
<tr>
<td>GRO</td>
<td>Gauteng Regional Observatory</td>
</tr>
<tr>
<td>JDA</td>
<td>Johannesburg Development Agency</td>
</tr>
<tr>
<td>Metro Police</td>
<td>Metropolitan Police</td>
</tr>
</tbody>
</table>

**FOOT NOTES**

**Land Use**

1. Johannesburg Inner City Regeneration Strategy Business Plan, 2004
2. JICBC, 2005
4. JICBC, 2004

**Environment**

5. PRASA Corporate Real Estate Solutions Waste Management Plan, First Issue 2010-10-14.

**Socio-economics**

7. 2010 Data from Statistics South Africa
“I have traded for 16 years in Park station, City to City side. I store my goods at Platform 19.”
Deloris Beets, Informal trader, City to City side.
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Buses: Bus company websites
Note: The traffic data has been extract from the City of Johannesburg SATURN traffic model & should be viewed as representative only of traffic volumes on the surrounding road network.
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Official websites: Putco, City of Johannesburg, Rea Vaya, March 2010
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Greater park Station Precinct: Urban design & Heritage management framework.
Interview with Ernst Swanepoel, PRASA, April 2011.
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Financial & Business Model for Decking the Railway Lines in Central Johannesburg, Adec, 2009
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Draft 2011-16 Integrated Development Plan, City of Johannesburg, 2011
Windeed Program, 2011
A homeless gentleman living on Western end of Noord Street.
Leszek Dobrovolsky  Project Director  Strategy, Transit Orientated Developments, Interchanges, City Making
Caroline Sohie  Project Lead  Urban Planning, Interchanges, City Making, Architecture
Louis Oosthuysen  Project Co-Ordinator  Urban Form, Land Use, Socio-Economics, Infrastructure, Movement+Transport, Environment
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Marina Meyer  Architect  Urban Form, Land Use, Socio-Economics, Infrastructure, Movement+Transport, Environment
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Wynand Viljoen  Architectural Designer  Urban Form, Land Use, Socio-Economics, Infrastructure, Movement+Transport, Environment
Willem van Rijn  Engineer  Infrastructure
Jaco Rossouw  Engineer  Infrastructure
Siloshini Naidoo  Environmental Sustainability
Rory Williams  Transport Planner  City Making, Transport
Aidan Noble  Transport Engineer  Transport
Yolandi Oliver  Engineer  GIS
Justin Jones  Planner  Property Economics
Wayne Tweedle  Valuer  Property Valuations
Hausi Scherer  Engineer  Infrastructure and Networks

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Thembane Camane  PRASA
Sisa Mabose  PRASA
Leszek Dobrovolsky  Arup
Caroline Sohie  Arup
Louis Oosthuysen  Arup

PEER REVIEWERS

Ian Gardner
A woman selling cooked food on Noord Street.
<table>
<thead>
<tr>
<th>ISSUE</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>June 2011</td>
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</tbody>
</table>