319 DIEPKLOOF, IQ, P:159 (PRETORIA)
Deeds Office Property Farm

Suite G01, Waterview 2, Waterview Close, Century City
Tel: +27 860 340 000
Website: https://www.searchworks.co.za

SEARCH INFORMATION

Summary

Search Type	DEEDS OFFICE PROPERTY FARM
Search Description	319 DIEPKLOOF, IQ, P:159 (PRETORIA)
Reference	JHB/DEVS/ILZA/
Date	11/12/2018

FARM INFORMATION

Summary

Deeds Office	PRETORIA
Property Type	FARM
Farm Name	DIEPKLOOF
Farm Number	319
Portion Number	159
Previous Description	-
Registration Division	IQ
Municipality	CITY OF JOHANNESBURG
Province	GAUTENG
Diagram Deed	T169982/2007
Size	30.5292 H
LPI Code	T0IQ00000000031900159

OWNER SUMMARY

Owner Name	ID / Reg. Number	Purchase Price	Purchase Date
CITY OF JOHANNESBURG METROPOLITAN MUNICIPALITY	-	CCT	UNKNOWN

OWNER INFORMATION

Owner 1 of 1

Owner Name	CITY OF JOHANNESBURG METROPOLITAN MUNICIPALITY
ID / Reg. Number	-
Owner Type	COMPANY
Title Deed	T169982/2007
Purchase Date	UNKNOWN
Registration Date	18/12/2007
Purchase Price	CCT
Multiple Owners	NO
Multiple Properties	NO
Share	-
Microfilm Reference No.	2008 0111 0739

ENDORSEMENT(S)

Document Number	Microfilm Reference Number	Institution	Value
CONSOLIDATE FROM	-	IQ , 319 , 108	UNKNOWN
CONSOLIDATE FROM	-	IQ , 319 , 158	UNKNOWN

HISTORY INFORMATION

Document Number	Microfilm Reference Number	Owner	Value
No information available.			

INTERNAL ENQUIRY HISTORY

Company Name	Contact Person	Contact Number	E-mail Address	Enquiry Date
No information available.				

REPORT INFORMATION

Date of Information	11/12/2018 12:59
Print Date	11-12-2018 13:38
Generated By	ILZA ENGELBRECHT
Reference	JHB/DEVS/ILZA/
Report Type	DEEDS OFFICE PROPERTY FARM

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FEATURE & UTILITY SURVEY

PORTION 159 OF THE
FARM DIEPKLOOF No.319-IQ
PROVINCE OF GAUTENG

BENCHMARKS

CODE	Y	X	Z	DESCRIPTION
BM4	-94872.000	2906030.507	1679.543	GPS
BM3	-94882.872	2906121.377	1656.142	VPS
BM7	-94599.439	2906665.059	1651.515	NIC
BM1	-95020.970	2906045.674	1683.699	NIT

SCALE 1 : 1000 (ON A0)

SURVEYED BY : MM	DATE : JANUARY 2019
DRAWN BY : MVDQ	SYSTEM : WG 27
DATUM : Trignet M.S.L	HEIGHT CONSTANT : 0m
CONST : Y 0 X 0	CONTOUR INTERVAL : 0.50m
FILE REF. : 2147	DRAWING No : CD-WG-2

SURVEYED IN ACCORDANCE WITH THE PROVISIONS OF THE LAND SURVEY ACT NO 8 OF 1997 AND THE REGULATIONS FRAMED THEREUNDER

J.C HUGHES (PLS 1121DI)
PROFESSIONAL LAND SURVEYOR

DESCRIPTIONS

UTILITY REFERENCE COLORS AS PER INTERNATIONAL STANDARDS

NOTES

GEOMETRIC SURVEYS
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TEL: (011) 462 2304 FAX: (086) 511 4180
CELL: 082 925 8114 / 082 510 4898

FEATURE & UTILITY SURVEY

PORTION 159 OF THE FARM DIEPKLOOF No.319-IQ PROVINCE OF GAUTENG

BENCHMARKS

NAME	Y	X	Z	DESCRIPTION
BM4	-94672.000	2906038.587	1675.543	GPS
DK1	-94982.672	2906121.377	1686.142	IPS
BM7	-94599.439	2906665.089	1681.515	NIC
BM1	-95330.970	2906045.674	1683.695	NIT

SCALE 1 : 1000 (ON A0)

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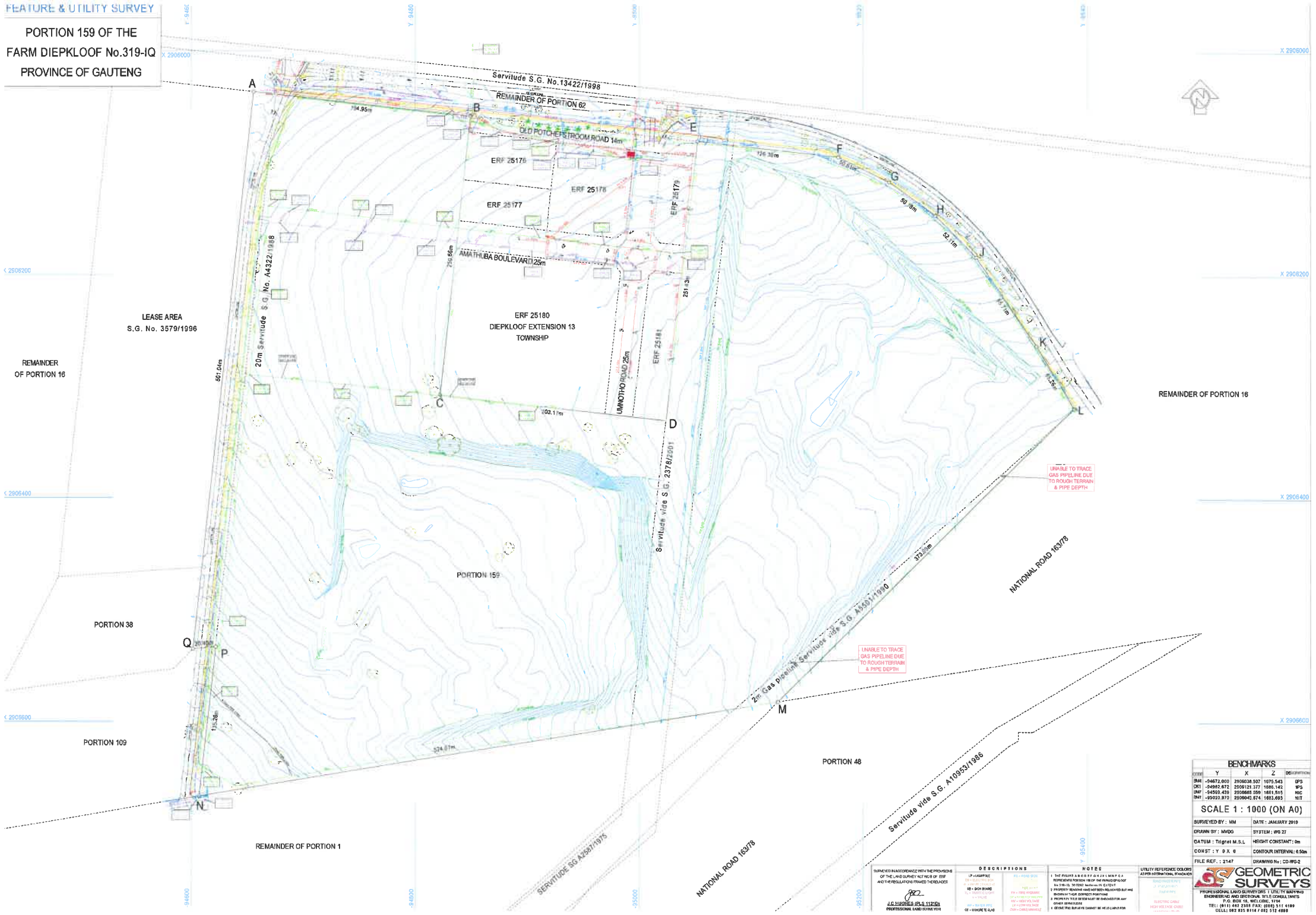
PORTION 159 OF THE FARM DIEPKLOOF No.319-IQ PROVINCE OF GAUTENG



BENCHMARKS

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FILE REF. : 2147	DRAWING No : CD-WG-2

SURVEYED IN ACCORDANCE WITH THE PROVISIONS OF THE LAND SURVEY ACT NO.8 OF 1997 AND THE REGULATIONS FRAMED THEREUNDER

J.C HUGHES (PLS 1121D)
PROFESSIONAL LAND SURVEYOR

DESCRIPTIONS

NOTES

1. THE FIGURES A,B,C,D,E,F,G,H,J,K,L,M,N,P,Q,A REPRESENTS PORTION 159 OF THE REMAINDER OF No 319-IQ, TO BE SUBDIVIDED IN EXTENT
2. PROPERTY BEACONS HAVE NOT BEEN RELOCATED BUT ARE SHOWN IN THEIR CORRECT POSITIONS
3. PROPERTY TO BE SUBDIVIDED MUST BE ENCLOSED FOR ANY OTHER SERVITUDES
4. GEOMETRIC SURVEYS CANNOT BE HELD LIABLE FOR

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DK5	-95020.873	2906548.874	1683.695	NIT

SCALE 1 : 1000 (ON A0)

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Gauteng | Western Cape | Free State

Diepkloof Mixed Use Market Study

MARKET RESEARCH FINDINGS & RECOMMENDATIONS

Main Report

April 2019

PREPARED FOR:

Turning Point Project Managers

PREPARED BY:

DEMACON
market studies

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SOUTH AFRICAN COUNCIL OF SHOPPING CENTRES (SACSC)

South African Council
of Shopping Centres

The information contained in this report has been compiled with the utmost care and accuracy within the parameters specified in this document. Any decision based on the contents of this report is, however, the sole responsibility of the decision maker.

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Executive Report

April 2019

PREPARED FOR:
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PREPARED BY:
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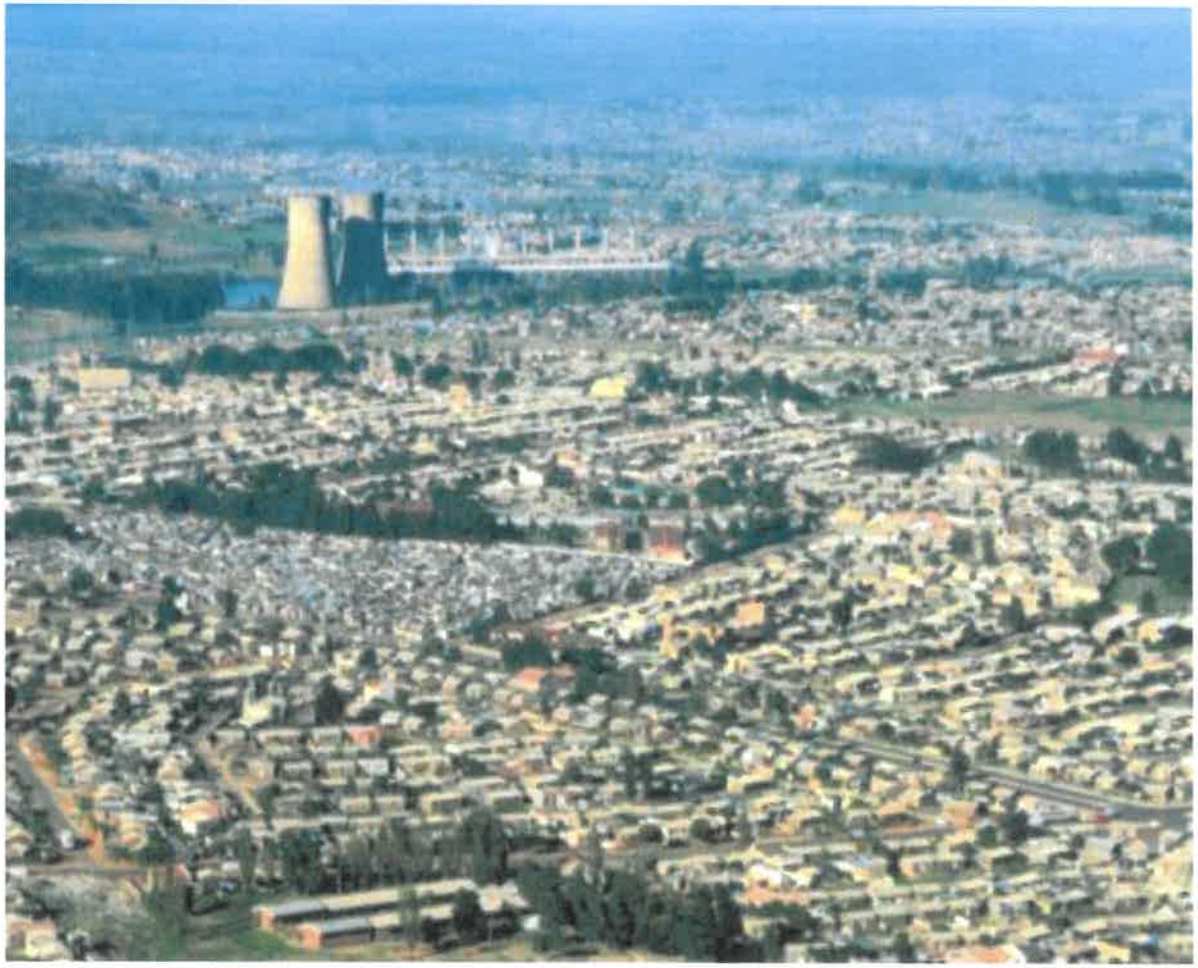
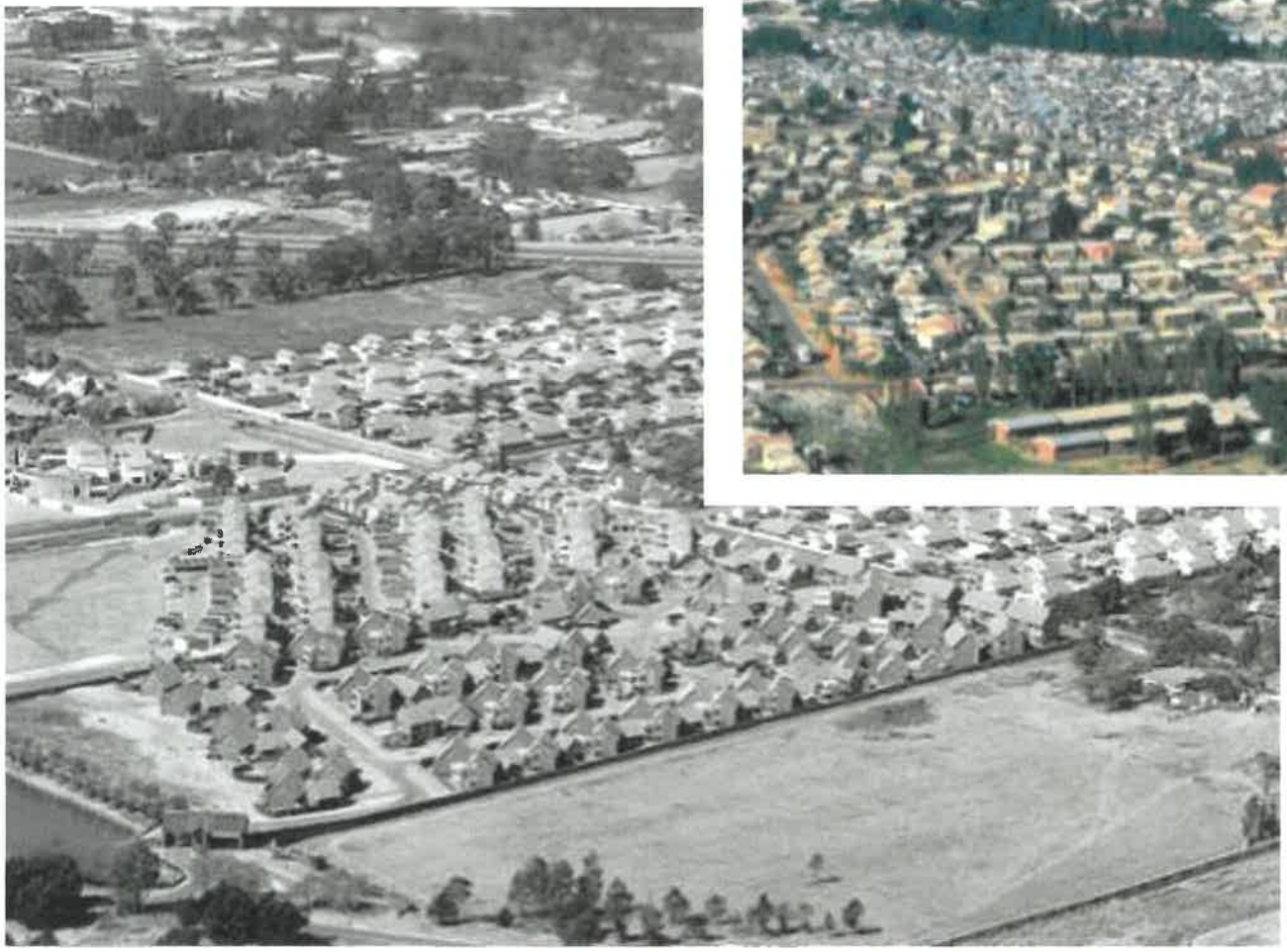
INTRODUCTION





1

PROJECT BRIEF

DEMACON Market Studies were commissioned by **Turning Point Project Managers** to perform market research to assess the demographic profile, economic drivers and trends, highest and best land uses and development & growth potential of a **proposed mixed-use development in the Diepkloof (Soweto) area, *with the optimum mix and sizes of the various highest and best land uses to be informed by the market study*.**

It is our understanding that a comprehensive highest and best use market study is required to inform relevant parties with regard to the **full and optimum development potential of the site,** in order to inform strategic **planning, investment and marketing decisions.**

The following land uses would be investigated in the market research:

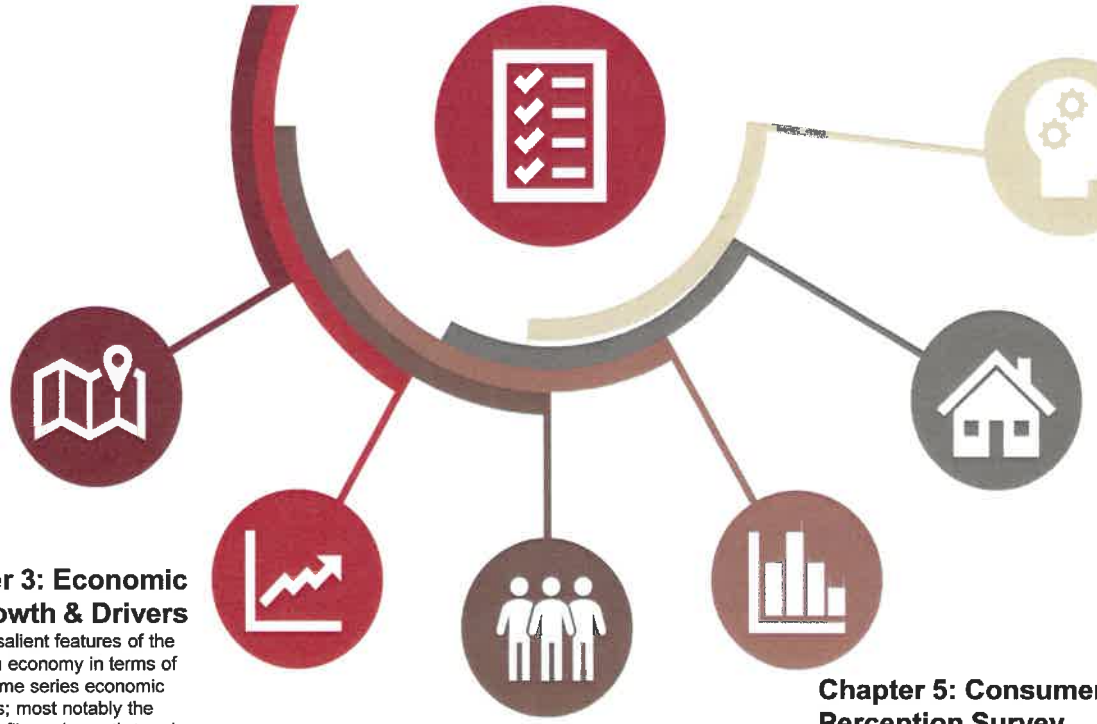
In the context of the above, a comprehensive highest and best use market study is therefore required to assess the viability and optimum composition of a potential development concept in terms of, *inter alia*:

- ✓ identify the optimum combination of **highest and best uses** (HBUs) for the sites (taking due cognisance of market and development trends and demands in the sub-region)
- ✓ refine the above to a **short list** of potential activities / real estate markets to be analysed
- ✓ demographic *status quo* and trends of the anticipated **target market**, including point of origin, affordability levels, etc.
- ✓ local and sub-regional economic *status quo* and trends, including **main economic drivers and trends** in the region
- ✓ **location analysis and property description**
- ✓ **SDF** / Urban Design Framework Alignment
- ✓ catalytic effect of **new and / or comparable projects** in the market
- ✓ **market activity and growth**
- ✓ **main competitors / supply** in the market, i.e. comparable projects aimed at similar target market (existing and proposed)
- ✓ forecast **take-up** rates
- ✓ **extrapolated market profile**, i.e. future resident population (and demand implications for ancillary facilities)
- ✓ corresponding **product offer and type**
- ✓ **timing / phased implementation** and optimum point of market entry
- ✓ future **demand thresholds and target markets per land use**
- ✓ **Market potential assessment** (including 5- and 10-year growth forecast)
- ✓ **Recommendations and conclusions**, including optimum land use mix and project size (including optimum size quantified for each respective project component, optimum points of market entry / phasing, recommended typologies, product and pricing profiles, competition analysis, future growth and expansion potential, etc.) – including photos, diagrams, graphs, maps, etc.

DEMACON's approach is purely market based and we apply our extensive involvement as well as recent research and market intelligence on the subject matter to complement the market study.

PROJECT BRIEF

The remainder of the report is structured in terms of the following main themes:



Chapter 2: Location Analysis
focuses on the location aspects in the market with the objective of estimating the development potential within the designated area.

Chapter 3: Economic Growth & Drivers
outline the salient features of the market area economy in terms of selected time series economic indicators; most notably the economic profile and growth trends within the local economy.

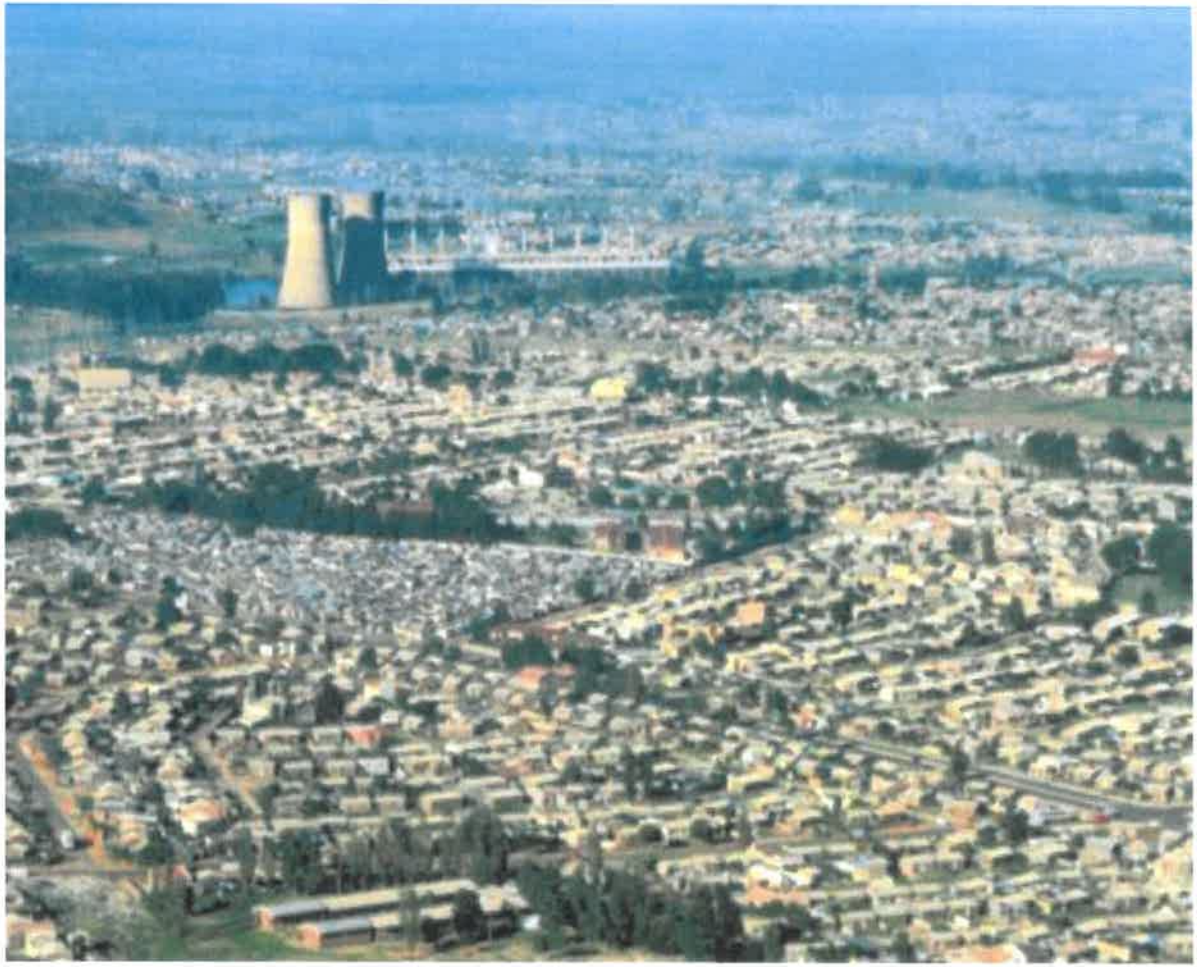
Chapter 4: Consumer Market Profile
Demographic *status quo* and trends of the anticipated target market, including point of origin, affordability levels, etc.

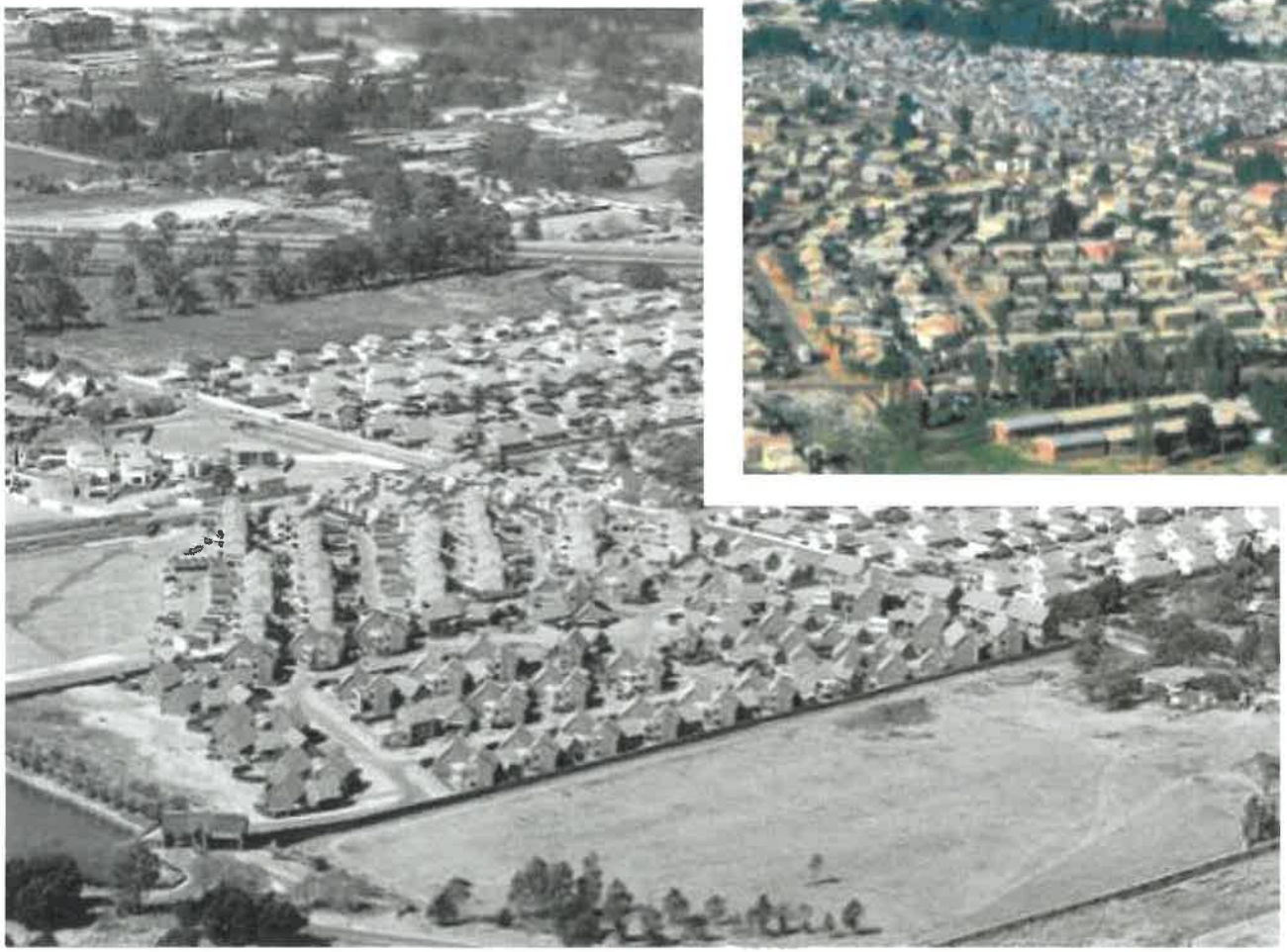
Chapter 5: Consumer Perception Survey
conduct a random sample, perception survey in the surrounding area, which represents a large captive market for potential buyers.

Chapter 6 - 14: Market Demand & Supply Analysis
identify the supply and demand for residential, retail, automotive, office, industrial, short-stay, medical, education and social facilities within the market area and assess in terms of current trends, to determine the development potential, including ideal typology mix, pricing profiles, optimum point of market entry, etc.

Chapter 15: Development Recommendations
optimum product offering, based on revealed preferences, target market and demand modelling, including economic impact assessment.

BACKGROUND & LOCATION ANALYSIS



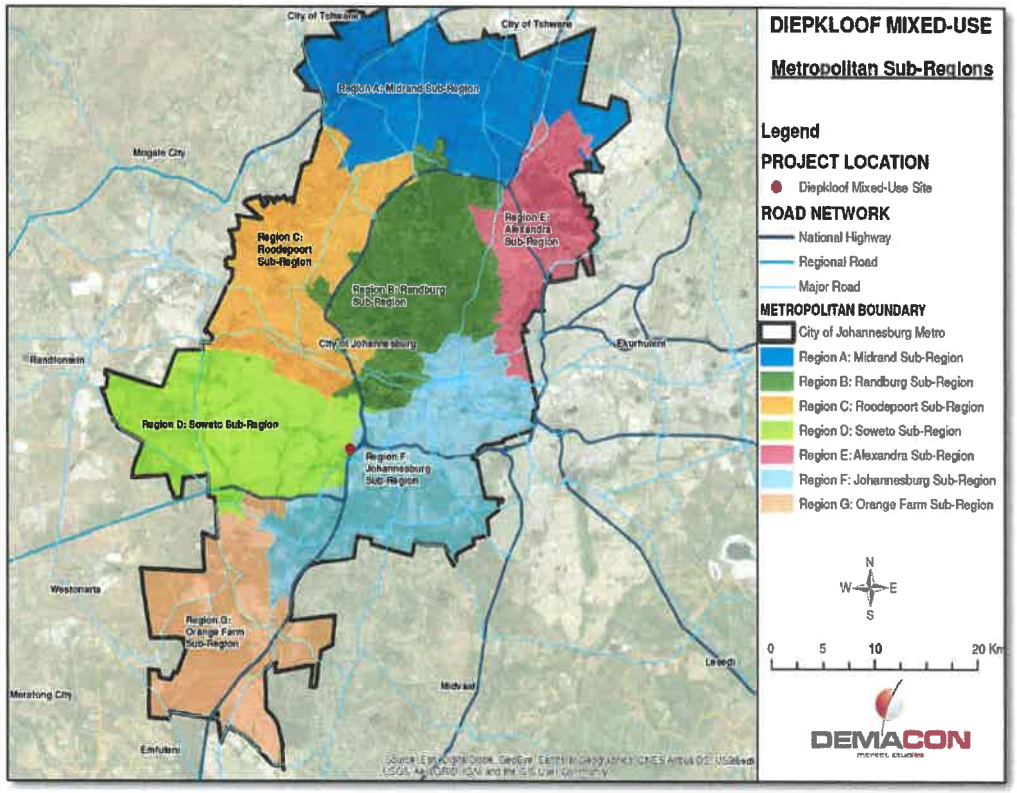


2

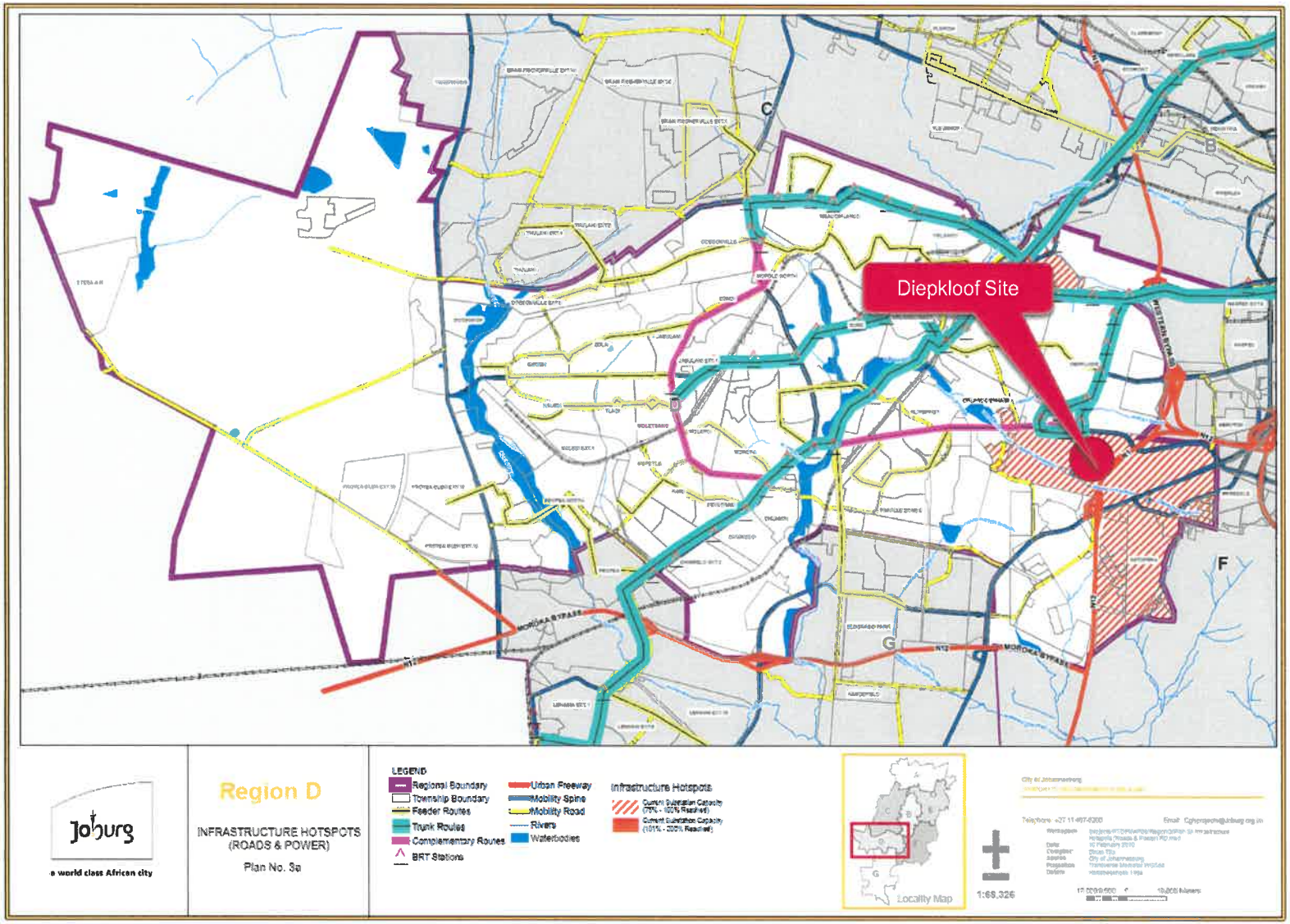
CITY OF JHB REGIONAL SPATIAL DEVELOPMENT FRAMEWORK: REGION D

- The Diepkloof site is situated within Region D of City of Johannesburg Metro.
- Region D is one of the seven Administrative Regions in the City of Johannesburg. It is situated to the western edge of the City and is surrounded by Regions B and C to the north, Region F to the east and Region G to the south. There are 36 wards in Soweto.
- Rich in history, but poorer in terms of quality of the settlement.
- It is a vast, sprawling urban area, characterised by mostly residential developments and a limited variety of other uses and facilities (social amenities and infrastructure).
- There are few significant sites for commercial, office, retail and industrial development and informal activities proliferate.
- Prominent **nodes** include: Baralink, Jabulani, Dobsonville and Kliptown.
- **Regional accessibility** provided by the N1, Golden Highway, Chris Hani Road, Soweto Highway and Roodepoort Road.
- External linkages are limited as well as northern access from the two interchanges onto the N1 Highway.
- **Residential** is the most dominant land use in Soweto.
- Rental housing is the most common form of tenure (flats, backyard shacks and hostels).
- Soweto has 15% of the city's informal settlements with an approximate total of 12 809 shacks. 24 of the informal settlements are located on public land, while 4 are on private land. 68% of these have an official mandate for upgrading.
- A large number of the informal settlements are concentrated around the Klipspruit Valley Area and other environmentally unsafe areas. They offer poor quality living environments, inadequate services and lack bulk infrastructure. Furthermore, they are normally located on land that is Dolomitic.
- Greater Kliptown is a high priority upgrading and renewal housing area with projects in Pimville Zone 9, Klipspruit Ext 6, Klipspruit Ext 7 and Klipspruit Ext 11at various planning and implementation stages.
- Most residents work outside Soweto and most of the disposable income is spent outside the region.

Metropolitan Sub-Regions



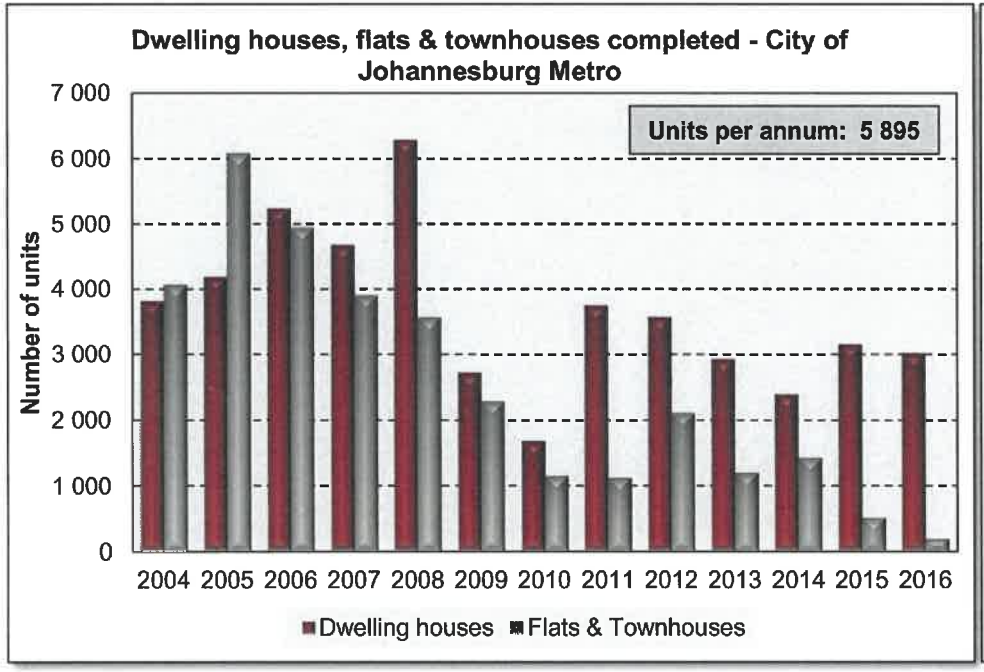
CITY OF JHB REGIONAL SPATIAL DEVELOPMENT FRAMEWORK: REGION B



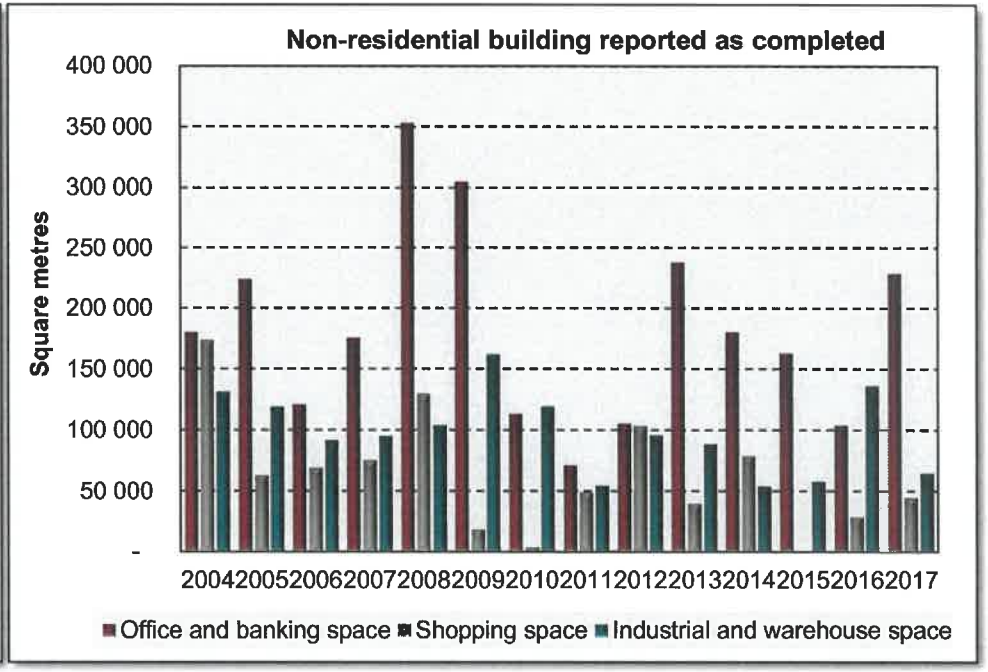
- ✓ The site is seen as an **Infrastructure Hotspot** and situated along the N1 with great visibility.

Residential Building Plans Completed – City of Johannesburg Metro

RESIDENTIAL BUILDINGS COMPLETED



NON-RESIDENTIAL BUILDINGS COMPLETED



The average number of residential buildings completed since 2004 in City of Johannesburg Metro amounts to approximately **5 895 units per annum**.

Site Location & Site Assessments

LOCATION OF THE SITE

- ✓ The proposed development is situated in the eastern extent of Region D of City of Johannesburg Metropolitan Municipality.
- ✓ The site is bordered to Chris Hani Road to the north and the N1 (Western Bypass) to the east of the suburb Diepkloof.
- ✓ To the west of the subject site is Chris Hani Baragwanath Hospital Complex and ±5km further west Maponya Mall. To the north of the site is Diepkloof Square.

SITE ASSESSMENTS

Market potential is influenced not only by consumer income and expenditure, but in particular also by the characteristics of the retail site/location under consideration. Retail centres and other urban property markets have specific location requirements and given the fact that the development potential of an array of other uses should also be tested, these should also be included in the location assessment exercise.

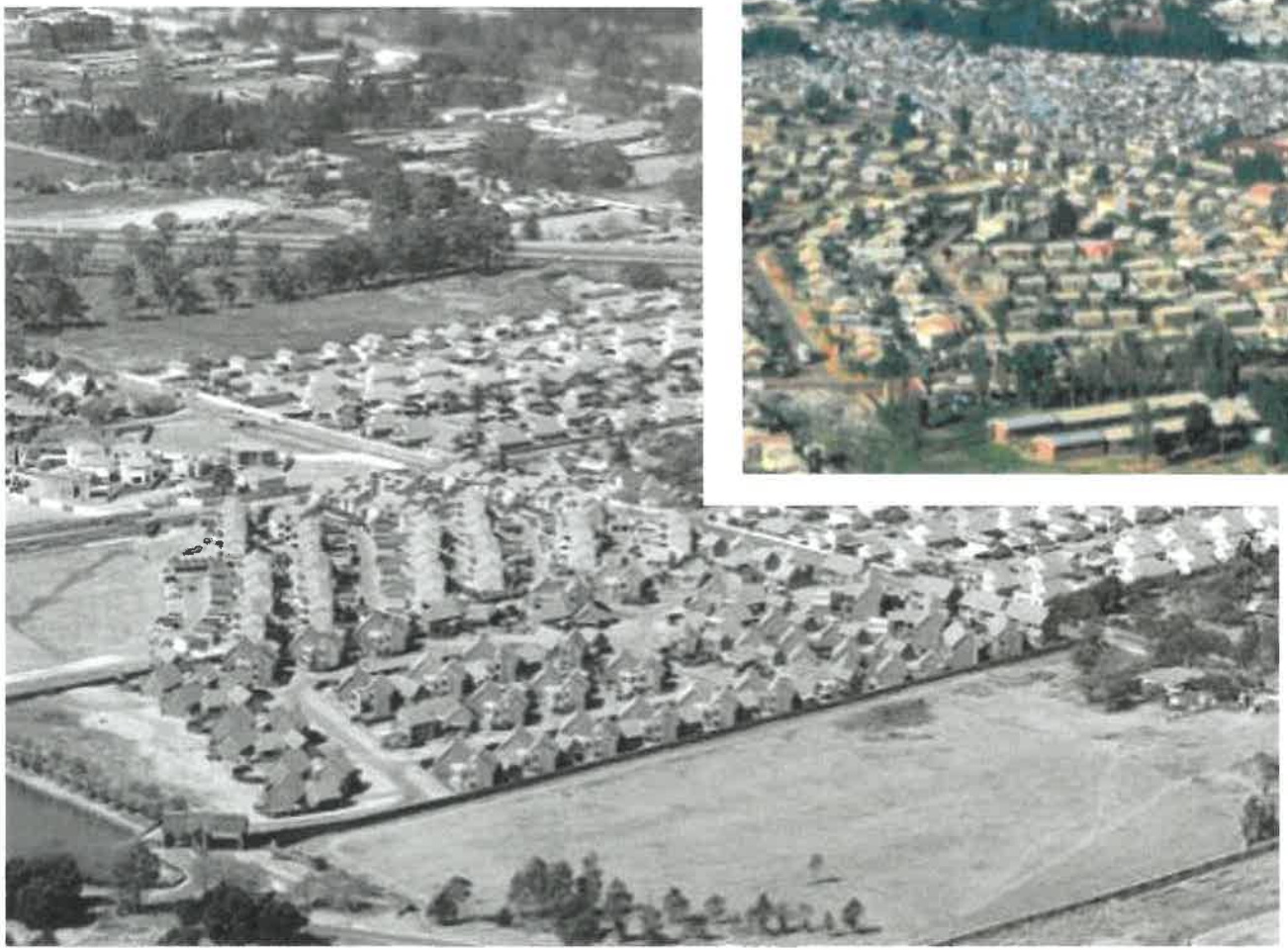
To this effect, ***DEMACON Site Evaluation Models*** © are utilised. These DEMACON models are pragmatic and are based on the assignment of values to various location factors. Firstly, the site is evaluated on a ten-point scale, with ten being the highest. Secondly, weights are attached to these factors, in order of importance (1 to 5, with 5 being the most important).

Subsequent section provides the location assessments of the following land uses.

Proposed Land Use	Percentage
Retail / Trade	77.4%
Medical (Private Hospital)	77.1%
Residential	76.4%
Education (Private School)	75.4%
Short-Stay Accommodation (Hotel)	75.2%
Office	74.5%
Industrial	73.9%

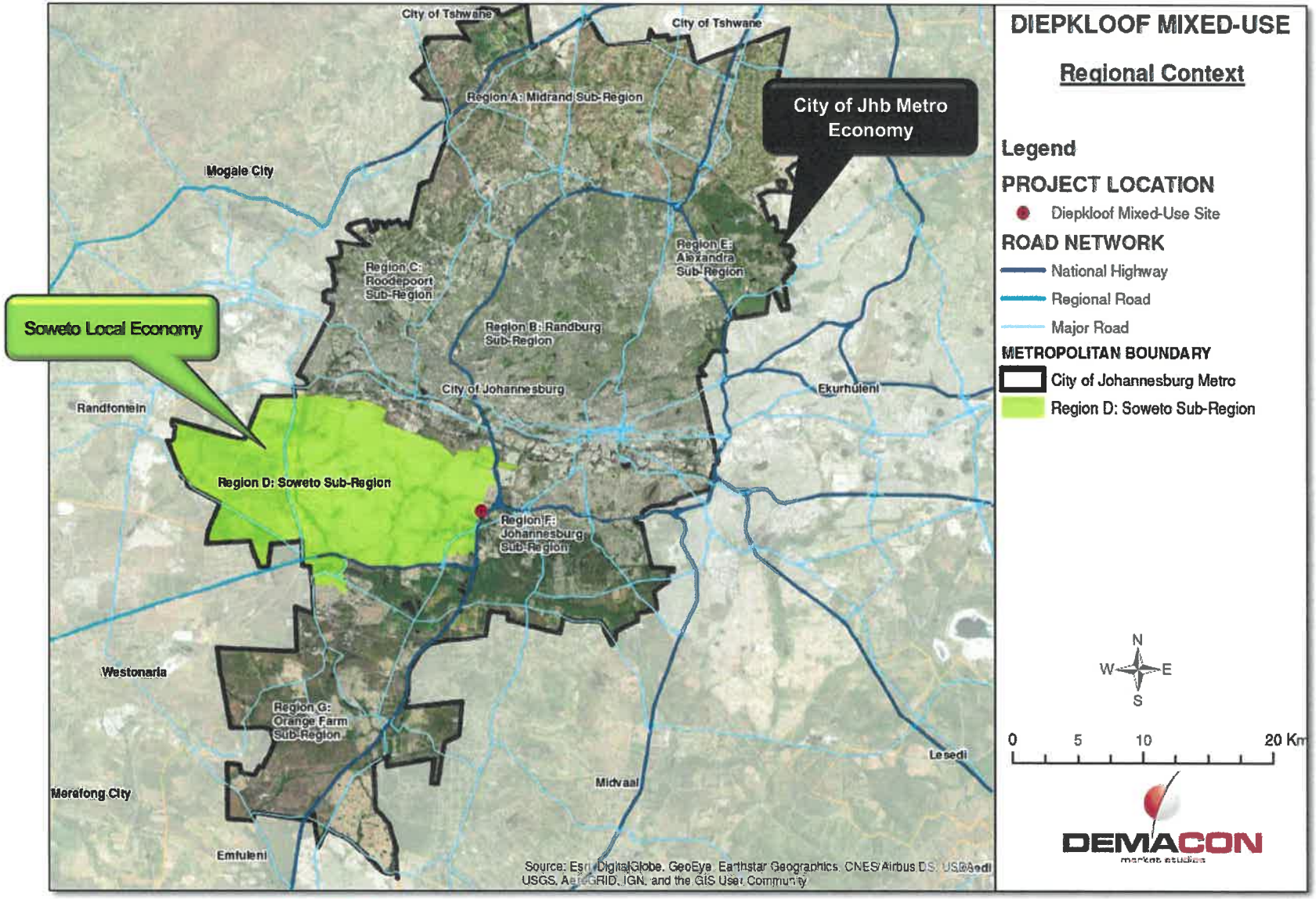
The proposed mixed-use development site scored locational ratings between 70% and 80%+ which indicates that most important fundamentals for a successful mixed-use development is in place.

ECONOMIC BASE ANALYSIS



3

Economic Base Analysis – Soweto Local Economy



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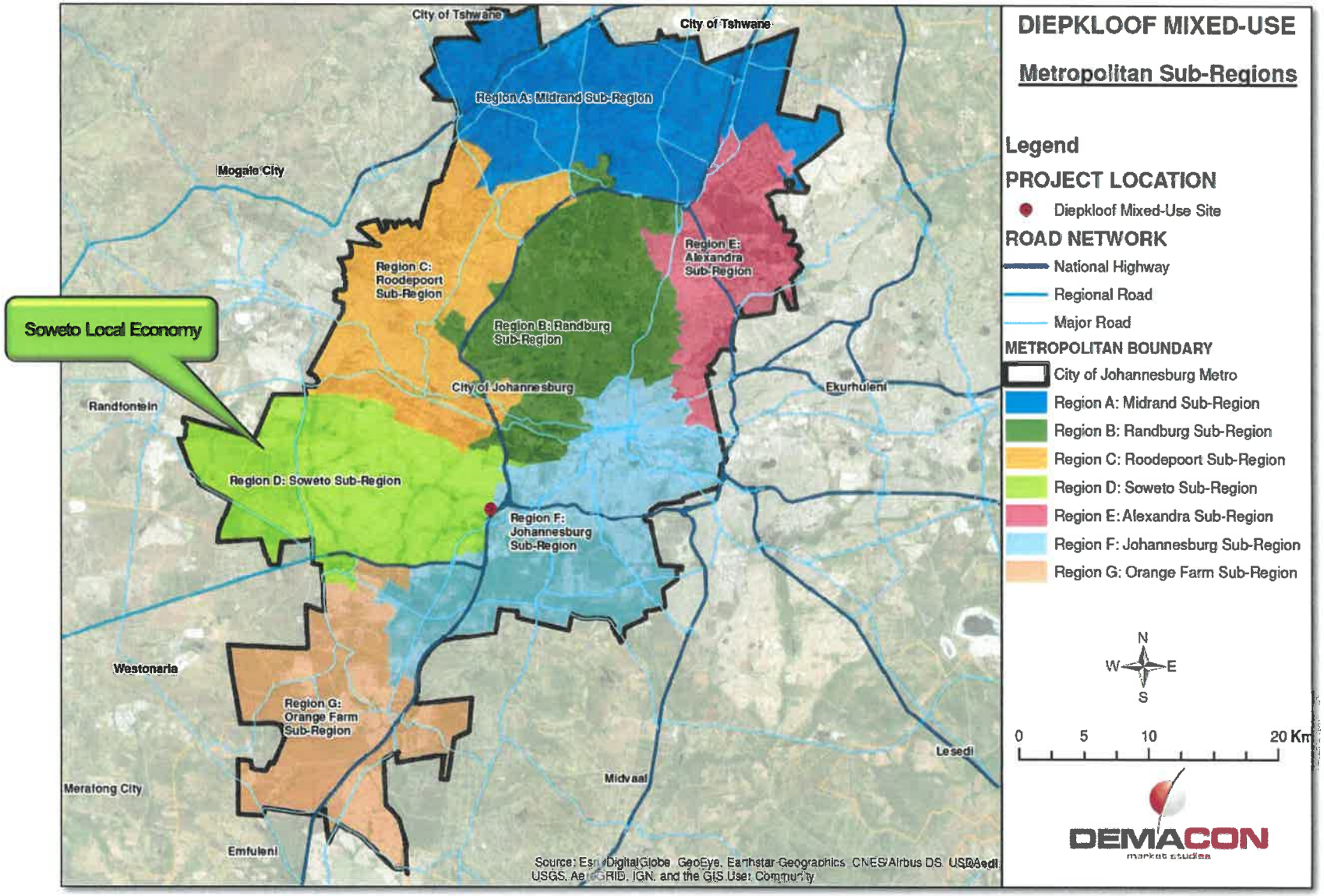
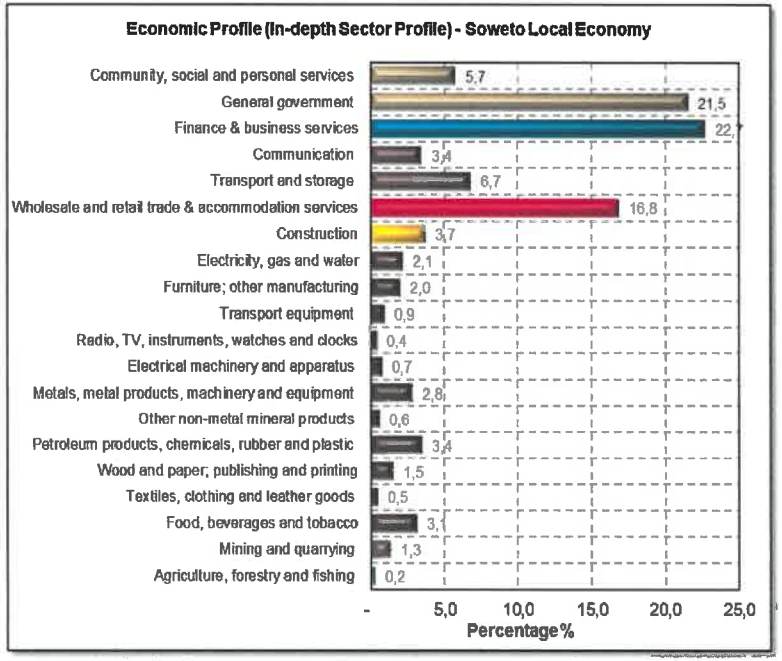
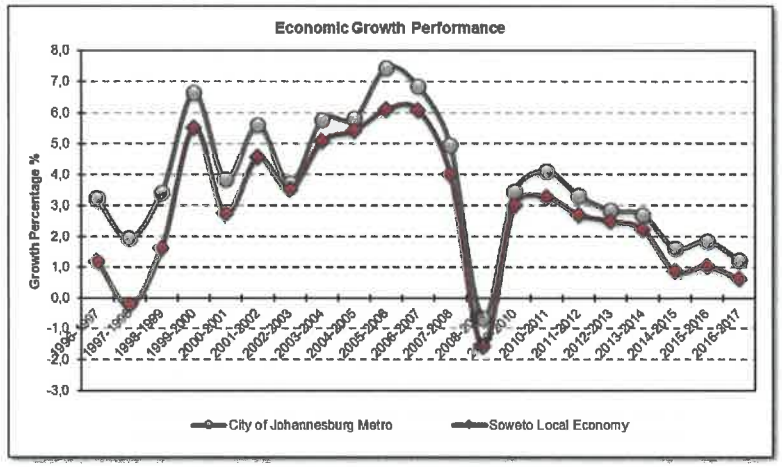


Economic Base Analysis – Soweto Local Economy





SIZE OF THE LOCAL ECONOMY

City of Johannesburg Metro:

- ✓ City of Jhb Metro contributes 39.6% to the Gauteng Province.

SowetoLocal Economy:

- ✓ The Soweto Sub-economy contributes **15,4%** to the City of Jhb Metro Economy.

ECONOMIC PROFILE

- ✓ Finance, insurance, real estate and business services – 22.7%
- ✓ Community, social and personal services – 21.5%
- ✓ Trade – 16.8%
- ✓ Manufacturing – 15.8%

ECONOMIC GROWTH

City of Johannesburg Metro:

- ✓ 3.8% average annual growth rate per year since 1996, 2.0% average annual growth rate per year since 2012

Soweto Local Economy:

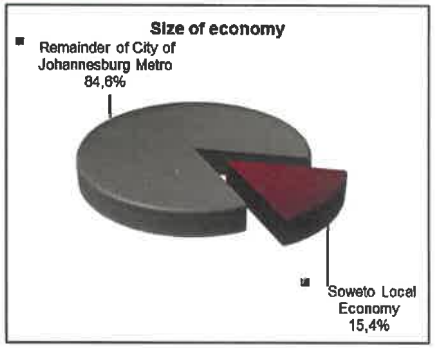
- ✓ **2.9%** average annual growth rate per year since 2002, **1.4%** average annual growth rate per year since 2012

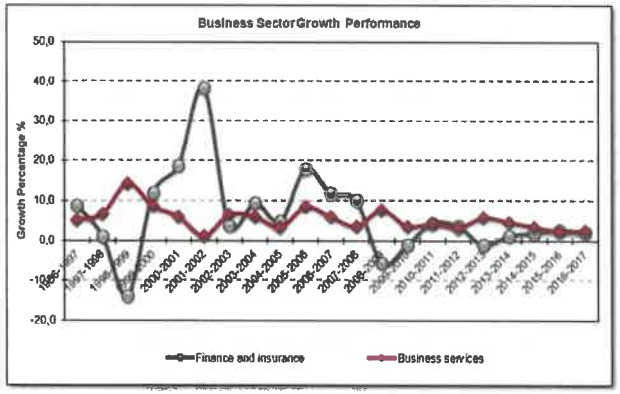
BUSINESS SECTOR PERFORMANCE

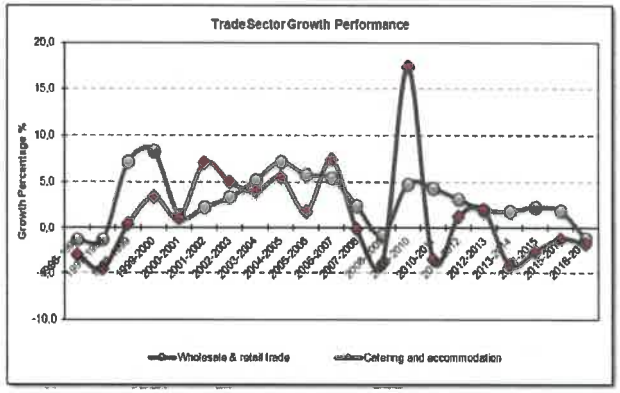
- ✓ *Finance & insurance sub-sector* obtained an average growth of 6.2% since 1996 and 1.3% since 2012.
- ✓ *Business sub-sector* obtained average growth of 5.2% since 1996 and experience a decrease to 3.6% since 2012

TRADE SECTOR PERFORMANCE

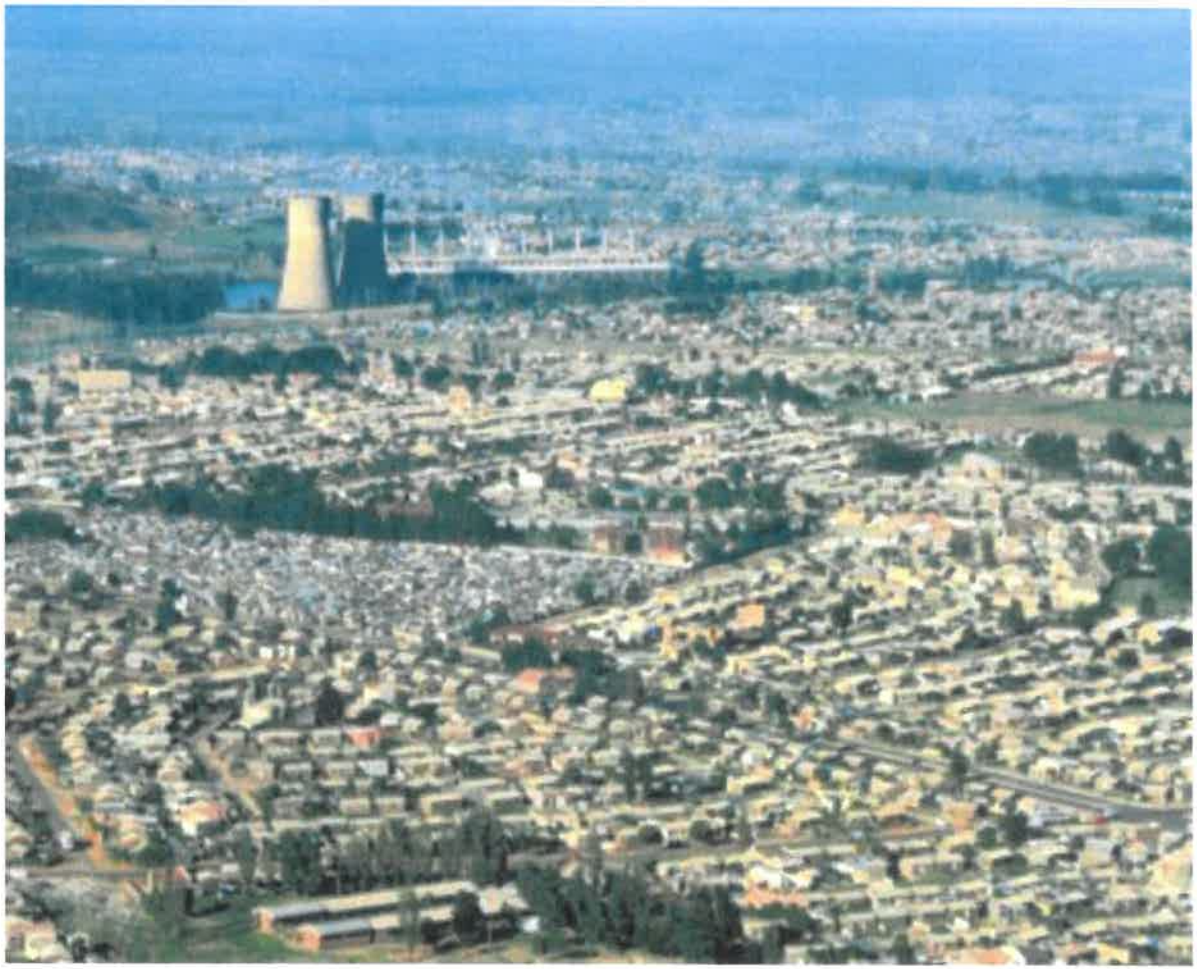
- ✓ *Wholesale & retail trade sub-sector* obtained an average growth of 3.0% *since1996 – 2017 and 1.3% since 2012.*
- ✓ *Catering and accommodation* obtained an average growth of 1.5% since 1996 and experience a decrease to -1.6% since 2012

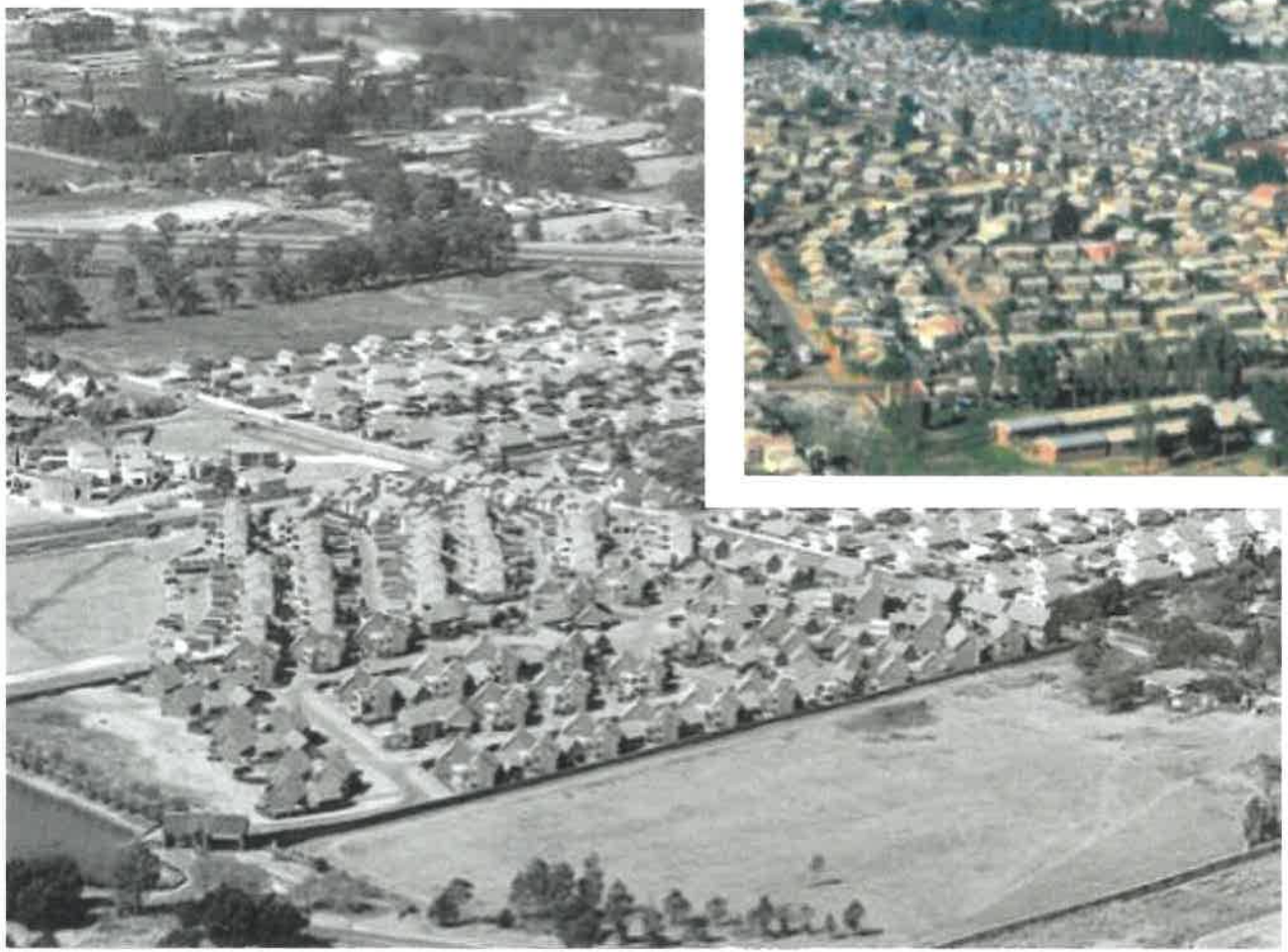






TRADE AREA & DEMOGRAPHIC PROFILE

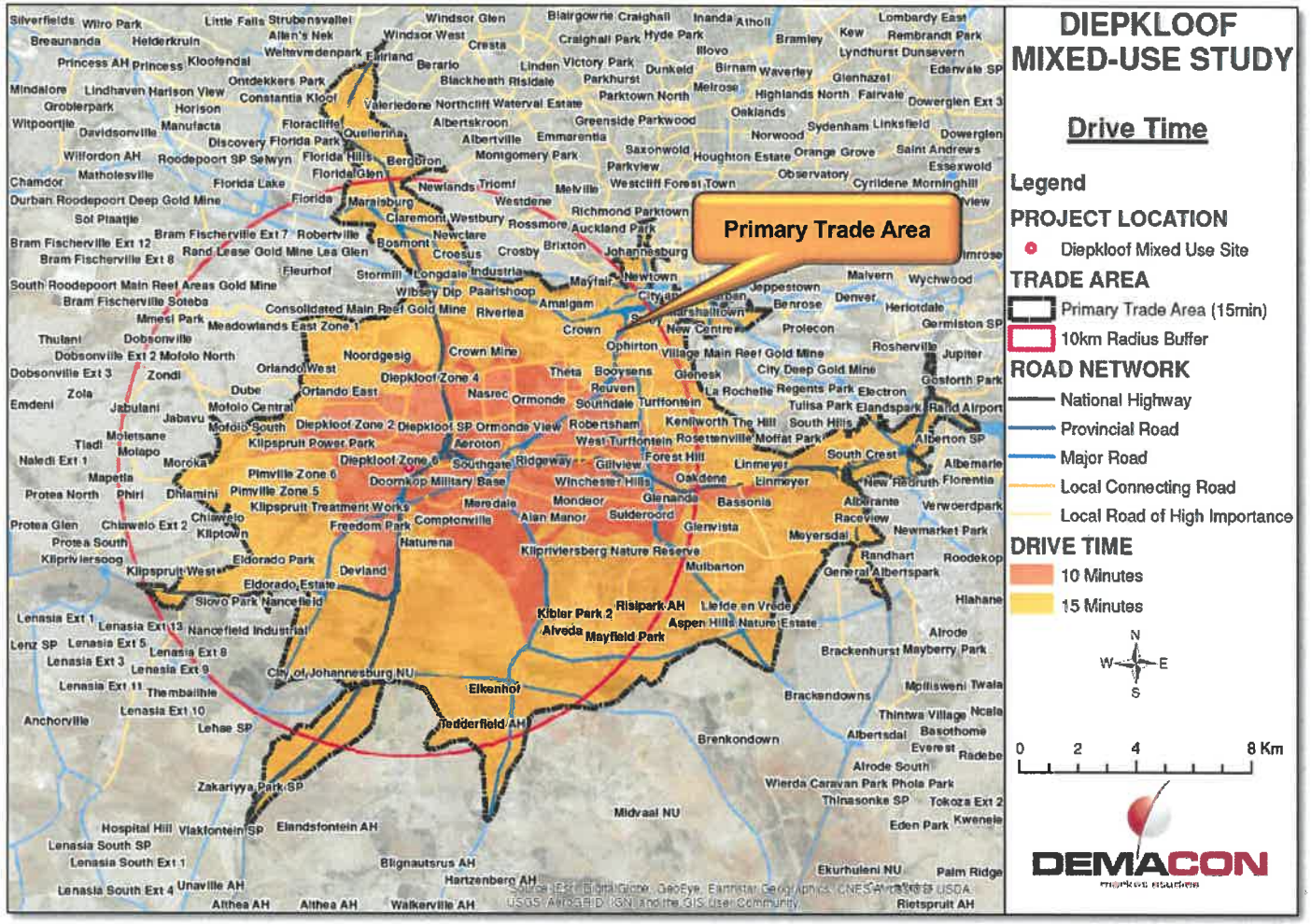




4

Primary Trade Area Delineation & Drive Time Polygon

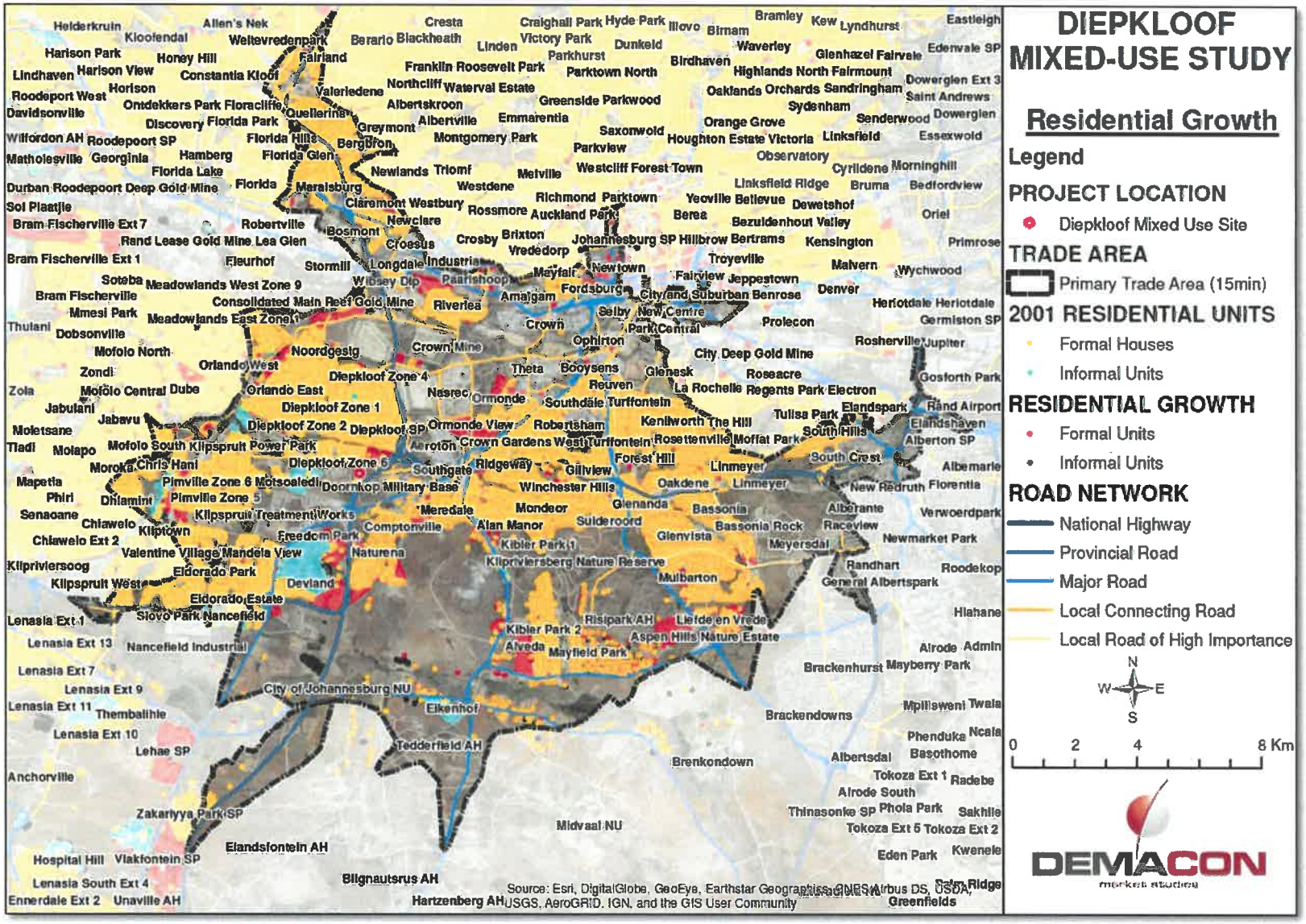
The primary market area for the project is based on an approximated **15 min drive time.**



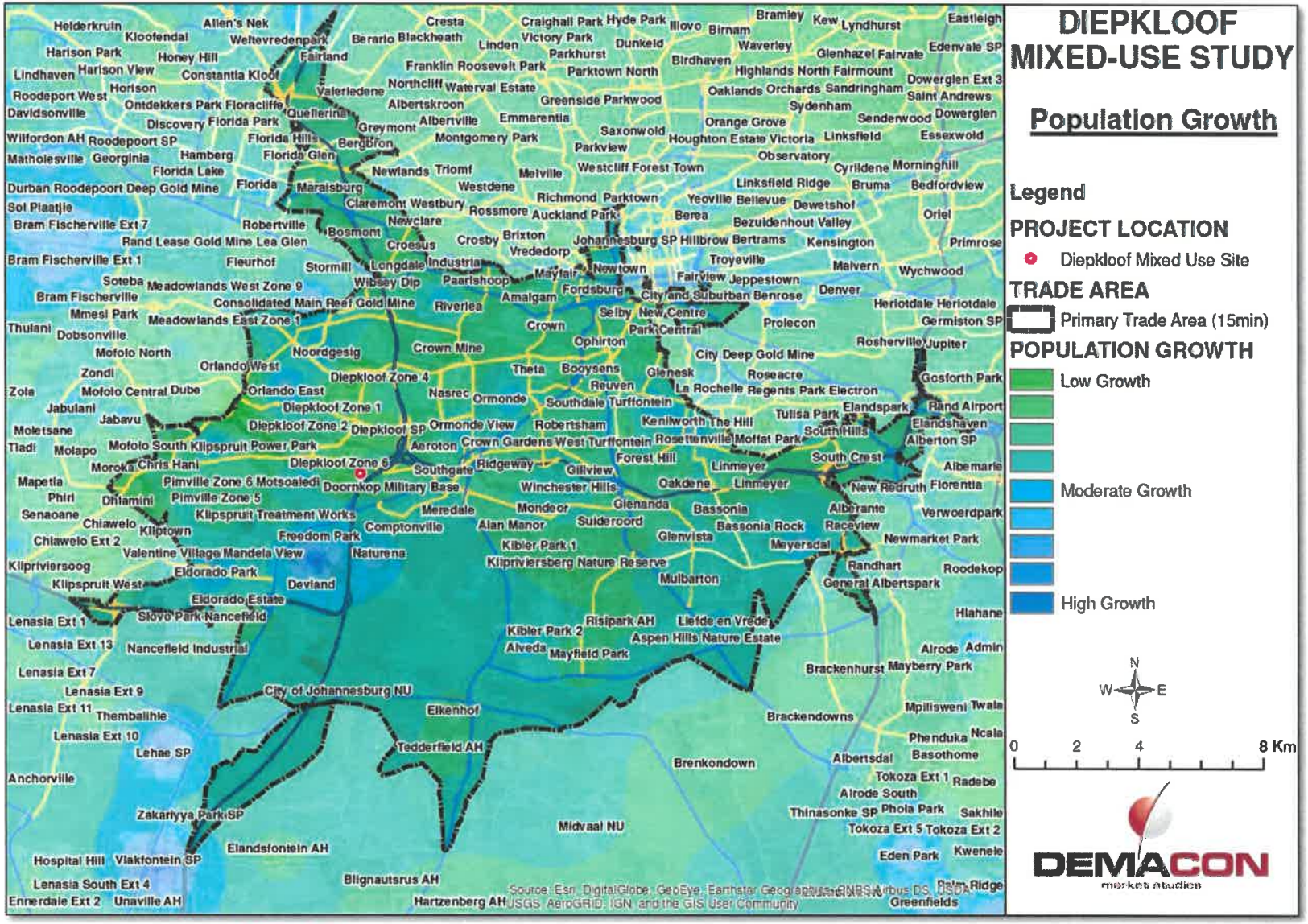
The primary market, informed by general **trade area criteria**, as well as the following:

- ✓ Consumer market behaviour and expenditure trends
- ✓ Regional and sub-regional levels of accessibility
- ✓ Geographic barriers
- ✓ Natural catchment areas
- ✓ General consumer mobility patterns and drive times.
- ✓ General SACSC guidelines

Residential Growth



Population Growth



Primary Market Demographic Profile Characteristics - Summary

POPULATION

Population – 1 276 632
Households – 485 556
3.3 people per household

RACIAL PROFILE

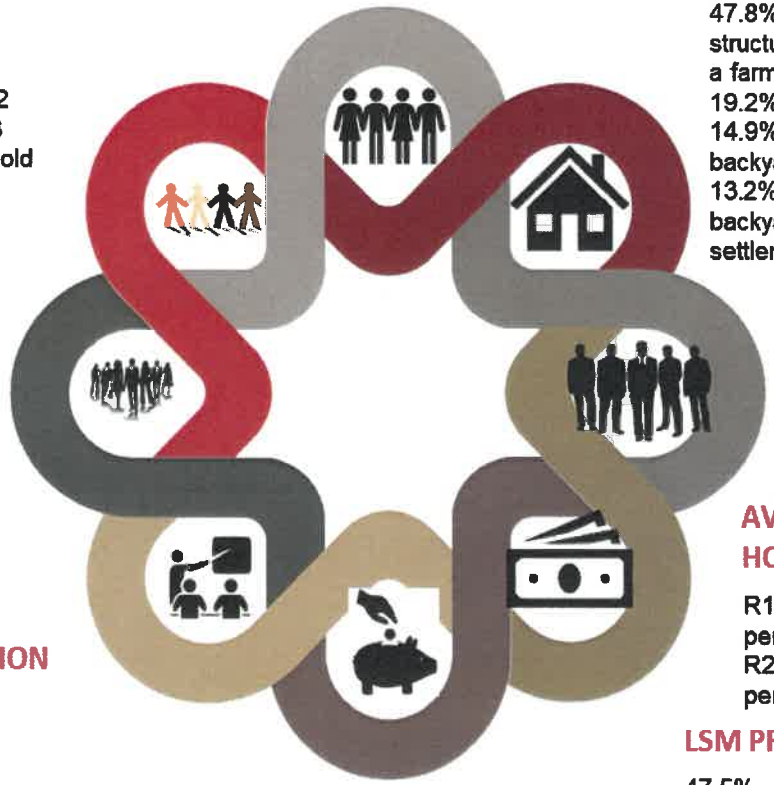
77.8% - Black African
11.8% - Coloured
6.6% - White
3.8% - Indian/ Asian

EMPLOYMENT STATUS

69.2% - Economically Active
65.7% - Employed
34.3% - Unemployed

HIGHEST LEVEL OF EDUCATION

38.0% - Std 10/Grade 12
35.5% – Some secondary
13.5% - Higher



DWELLING UNIT:

47.8% - House or brick/ concrete block structure on a separate stand or yard or on a farm
19.2% - House/ flat/ room in backyard
14.9% - Informal dwelling (shack; in backyard)
13.2% - Informal dwelling (shack; not in backyard; e.g. in an informal/ squatter settlement or on a farm)

OCCUPATION PROFILE

21.1% - Elementary occupations
19.9% - Service workers; shop and market sales workers
15.2% - Clerks
13.5% - Craft and related trade workers

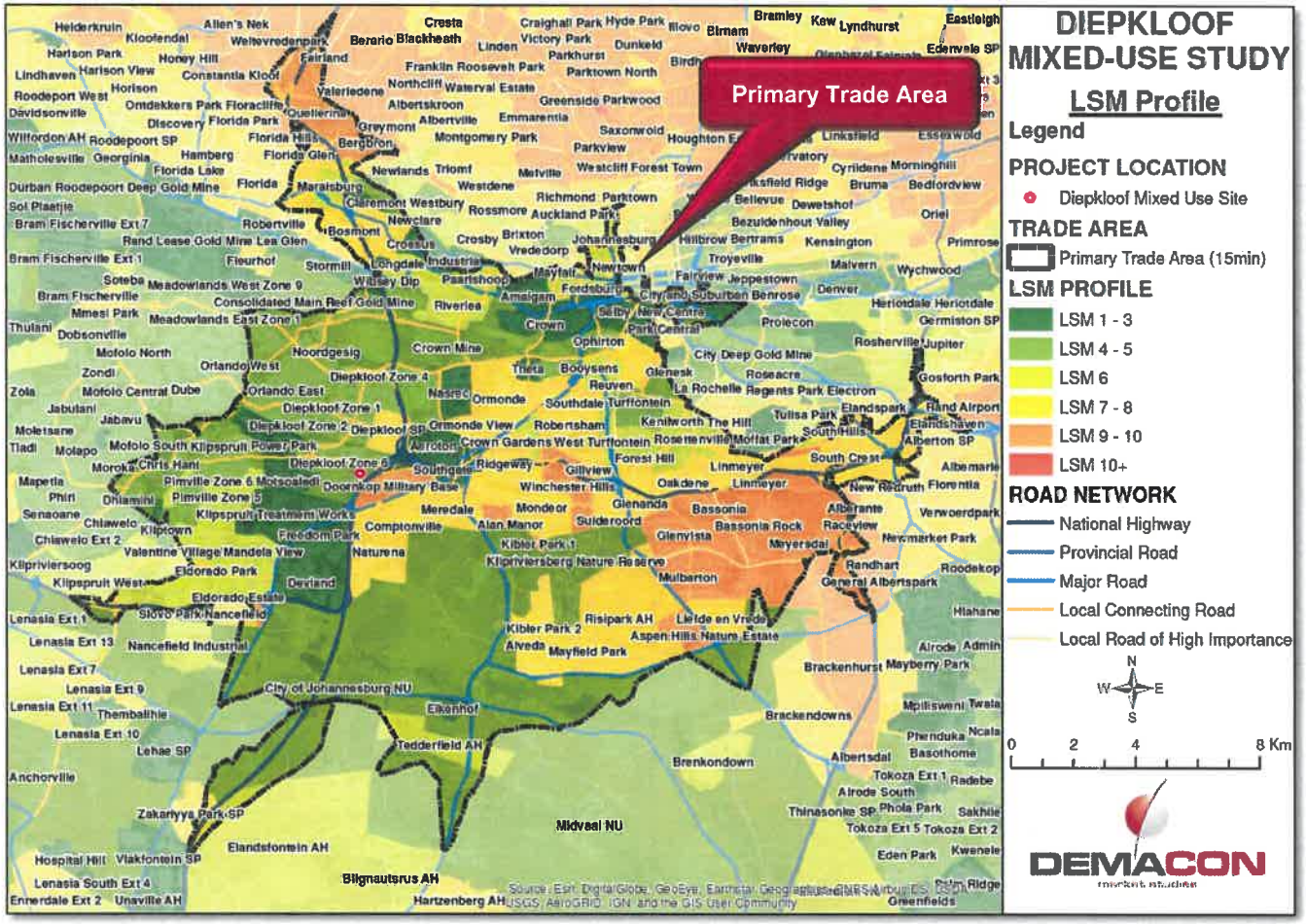
AVERAGE ANNUAL HOUSEHOLD INCOME

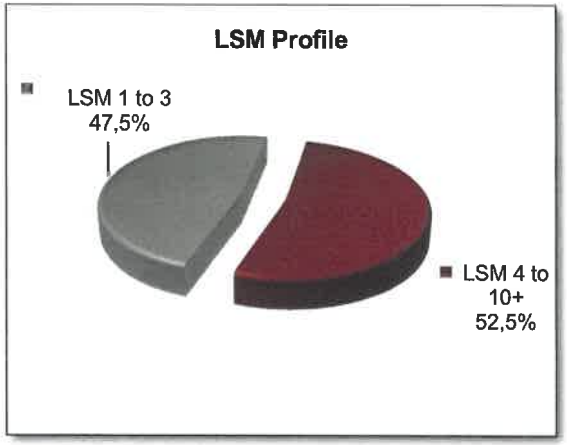
R144 665 per annum, R12 055 per month – (All LSM)
R264 915 per annum, R22 076 per month – (LSM 4 to 10+)

LSM PROFILE

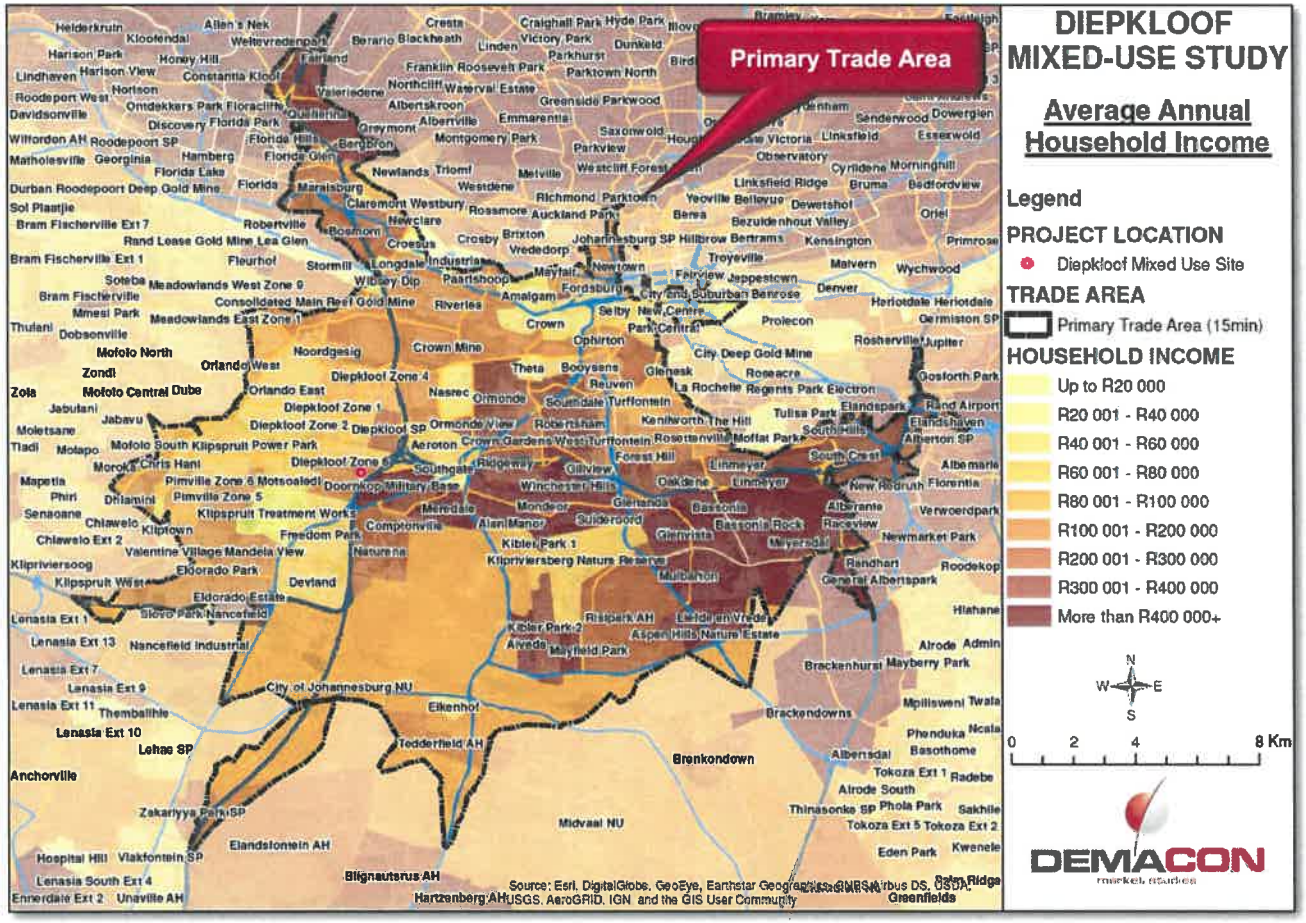
47.5% - LSM 1 - 3
52.5% - LSM 4 to 10+

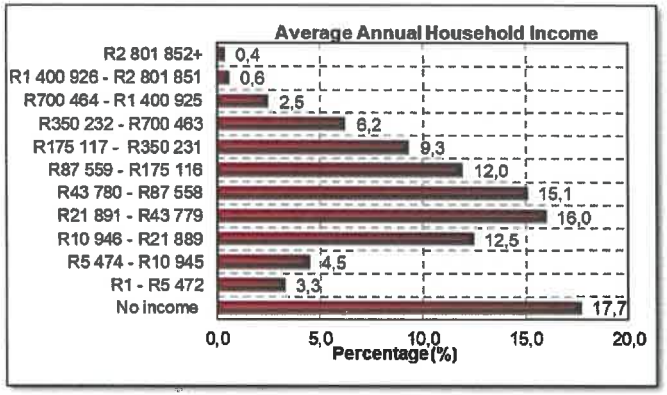
LSM Profile


Primary Trade Area
DIEPKLOOF MIXED-USE STUDY
LSM Profile
Legend
PROJECT LOCATION
Diepkloof Mixed Use Site
TRADE AREA
Primary Trade Area (15min)
LSM PROFILE
LSM 1 - 3
LSM 4 - 5
LSM 6
LSM 7 - 8
LSM 9 - 10
LSM 10+
ROAD NETWORK
National Highway
Provincial Road
Major Road
Local Connecting Road
Local Road of High Importance
N
W
E
S
0
2
4
8 Km
DEMACON
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community


LSM Profile
LSM 1 to 3
47,5%
LSM 4 to 10+
52,5%

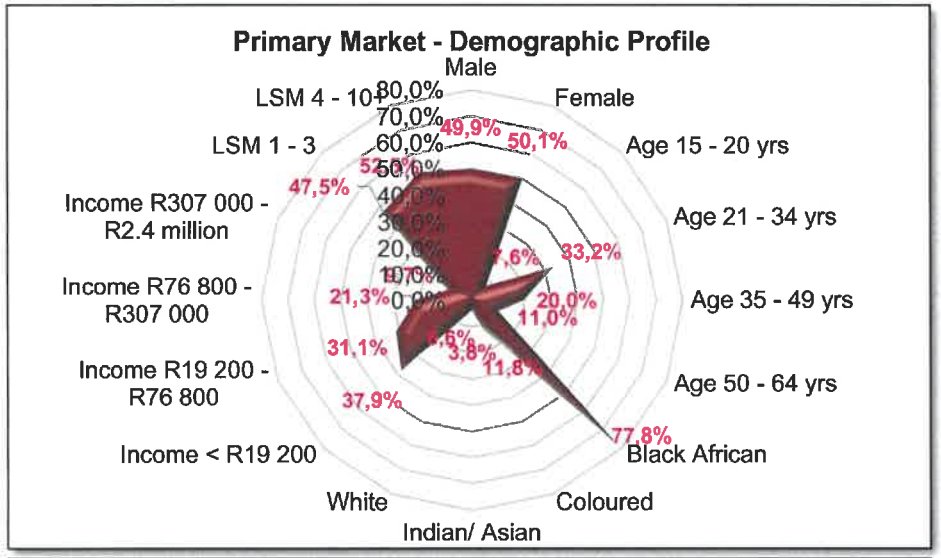
Household Income Profile

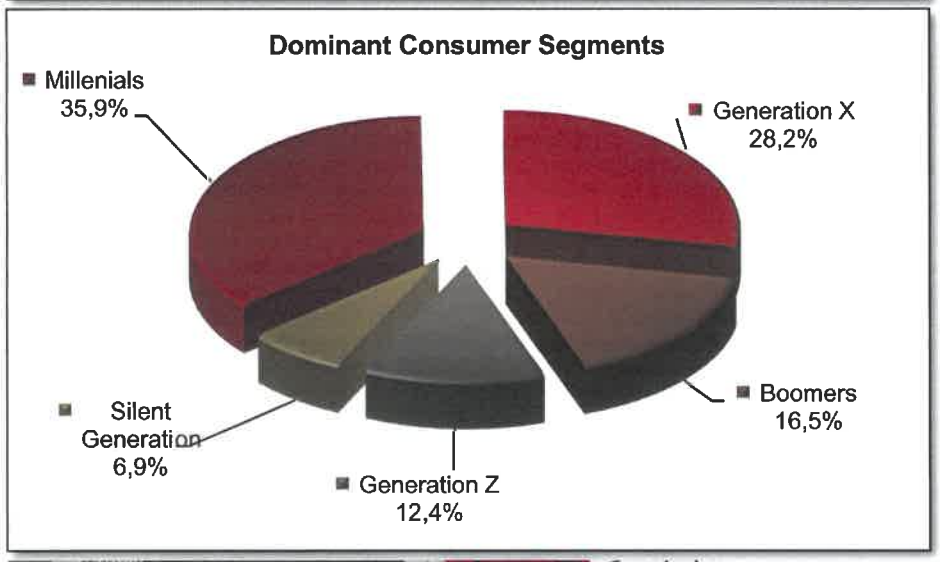




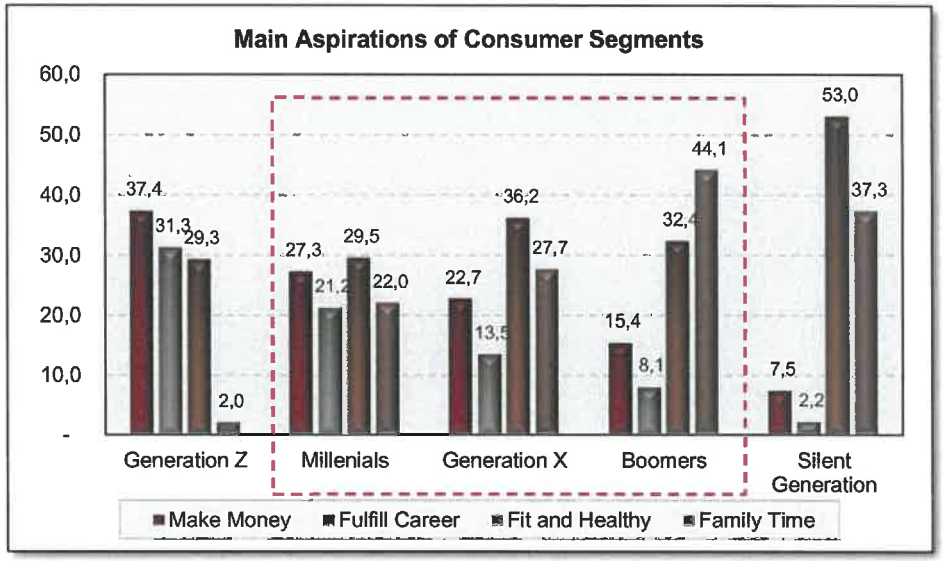
Area Summary & Generation Consumers

DEMOGRAPHIC PROFILE





MAIN ASPIRATIONS OF CONSUMER SEGMENTS

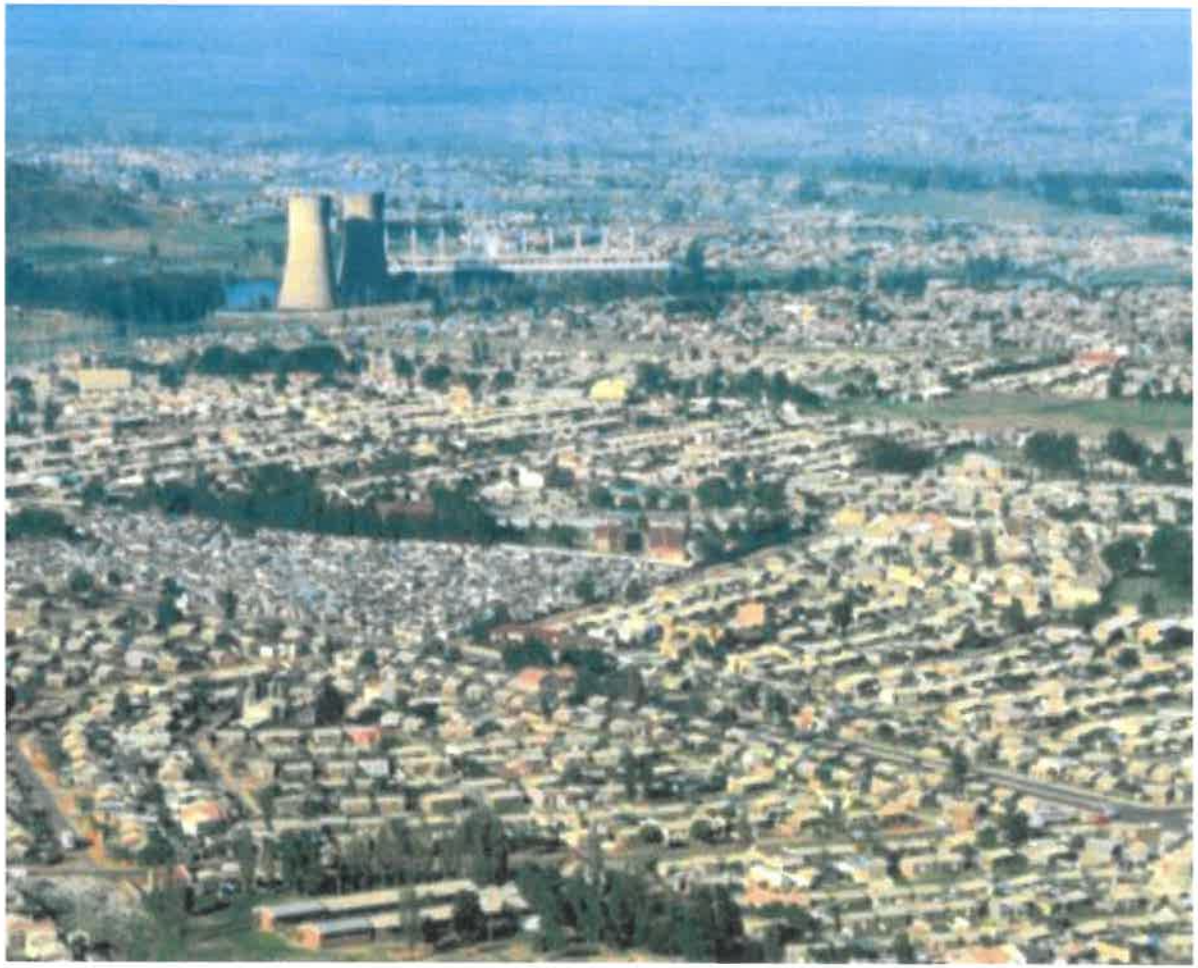


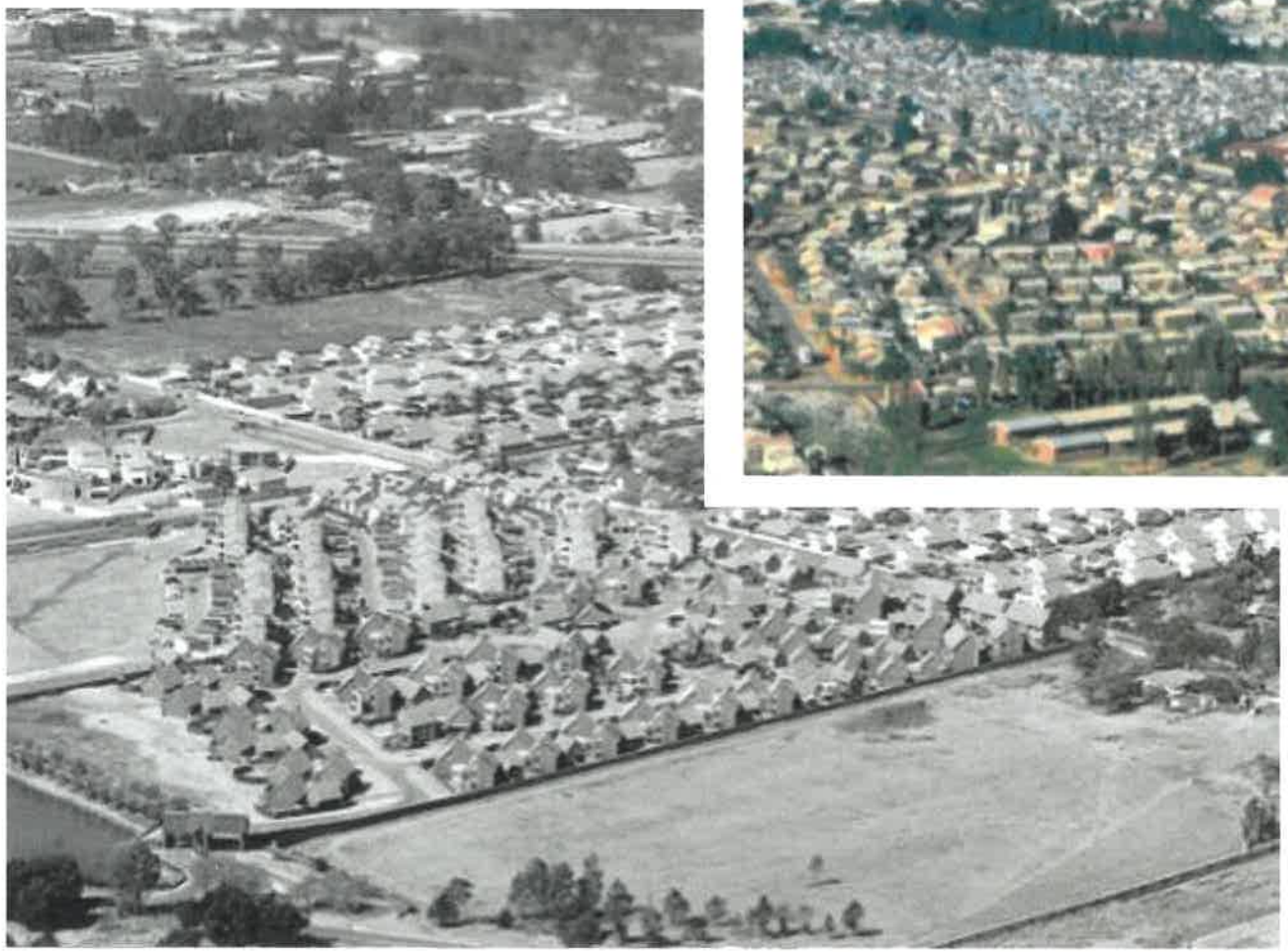
Millennials - Aged 21 to 34 years.
The majority of this generation has never known a world without mobile phones, laptops and cable television. This cohort is the one that tends to cop most criticism at the moment, with labels such as 'used to instant everything', 'believe they can separate effort from reward', 'do not live to work but work to live'. This segment is the most formally educated and most sophisticated of all the generations before it. Detailed research has shown that they are looking for brands that resonate with their peers. They are very image driven and so value, for example, electronic toys, piercings and tattoos. Other research shows that they pay less attention to quality than other generations.

Generation X - Aged between 35 and 49 years.
A bridging generation, which joined the workforce generally during periods of economic prosperity (the mid to late 1980s onwards). Generation Xs are highly educated but more questioning of convention than the Baby Boomers. They are also generally more interested in balancing family, life and work, and much less inclined to sacrifice time, energy and relationships for career advancement like the Baby Boomers did.

Boomers - Aged 50 to 64 years of age.
The ageing shoppers look for social interaction and leisure experiences in shopping malls. They seek personal attention, opposed to, speed. They prefer high quality products at good prices. These consumers are wiser, more experienced and have plenty of time for scrutinising products and information gathering before making choices. They place emphasis on security, safe parking areas, mall furniture and a range of places offering them social and leisure experience

HOUSEHOLD SURVEY ANALYSIS





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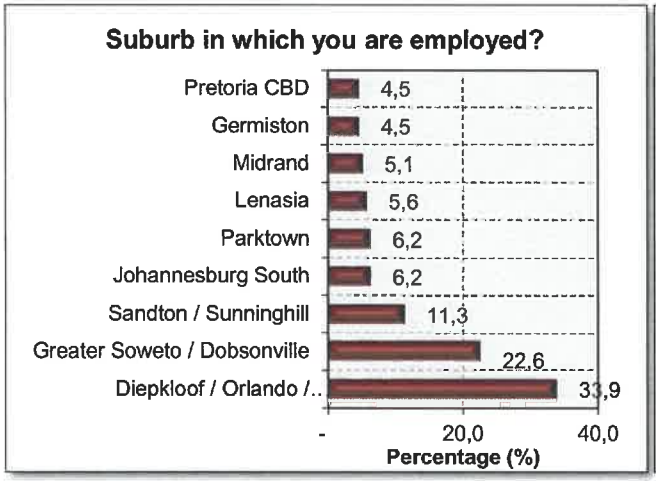
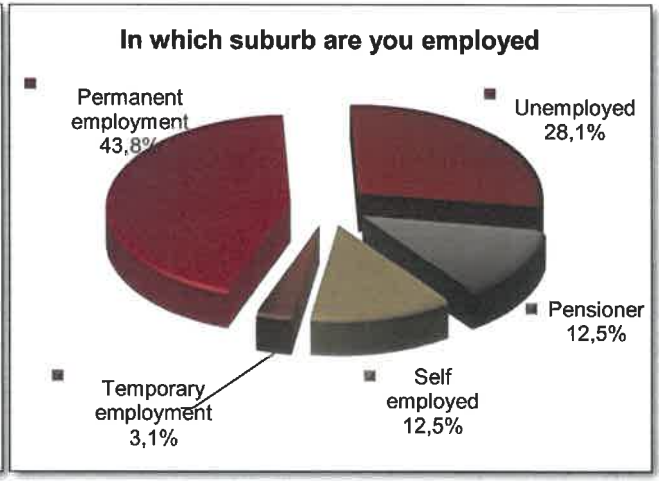
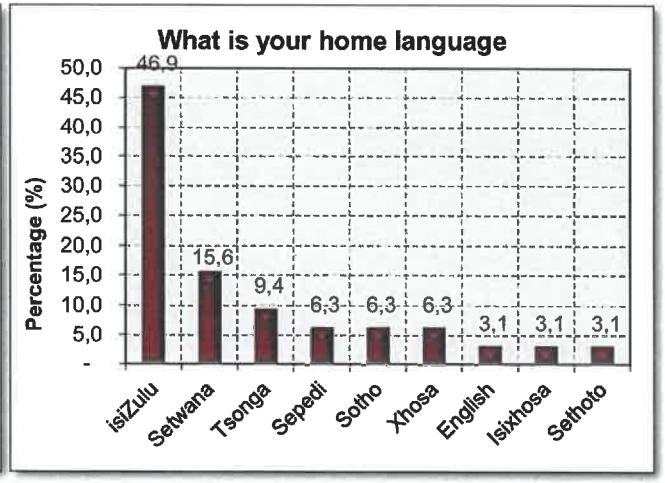
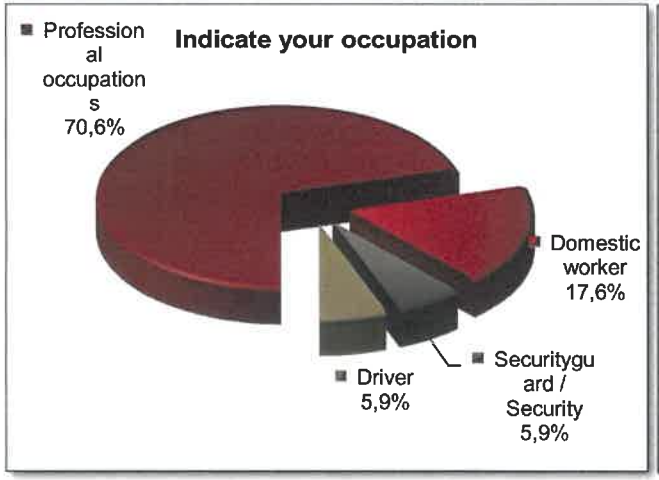
Household Survey Results – Socio Economic Information

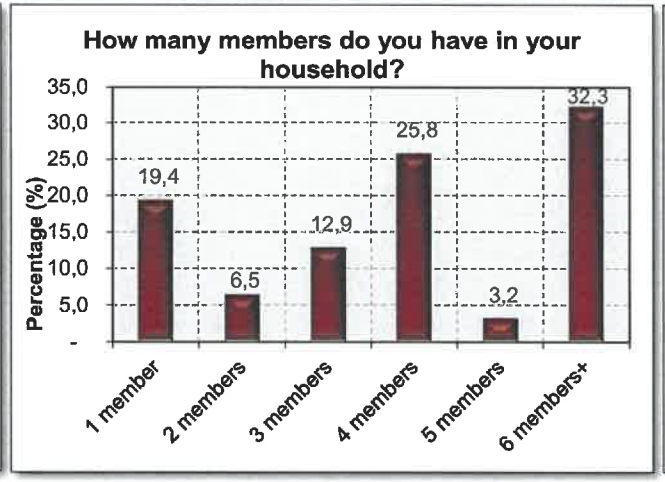
SUBURB EMPLOYED, EMPLOYMENT STATUS, OCCUPATION, MEMBERS IN HOUSEHOLD, HOME LANGUAGE & ETHNIC GROUP

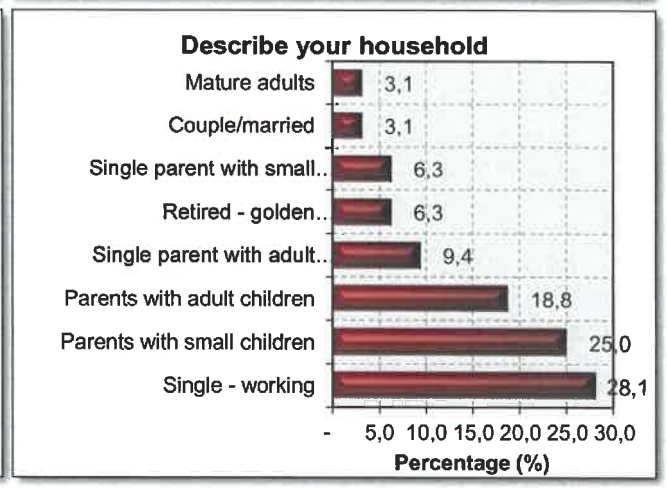








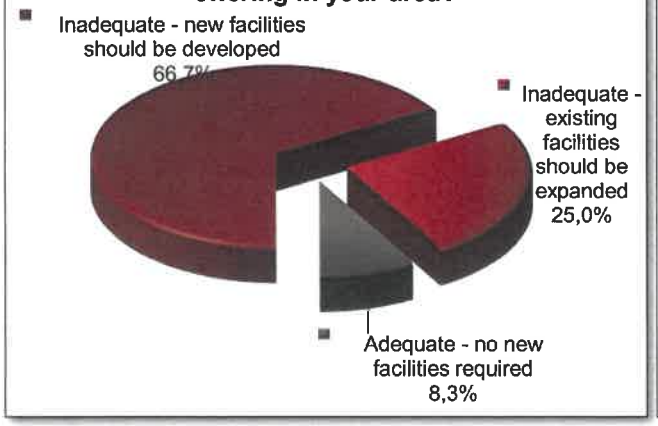




Household Survey Results – Retail Preferences & Key Findings

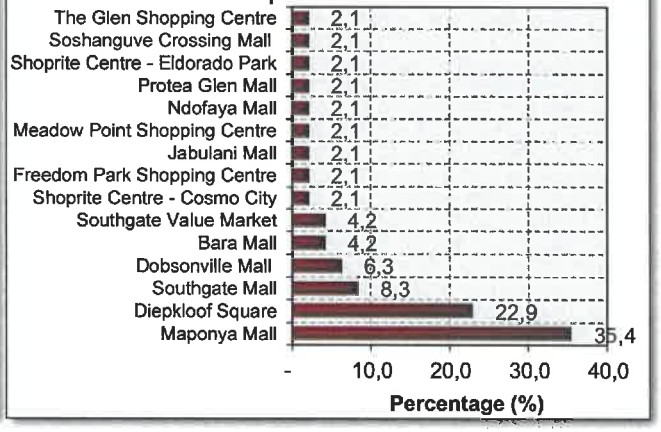
RETAIL OFFERING, NEED & SUPPORT, EXPENDITURE LEAKAGE, PREFERRED SHOPPING CENTRE, MOST IMPORTANCE ASPECTS WHEN CHOOSING SHOPPING CENTRE

What would best describe the retail offering in your area?

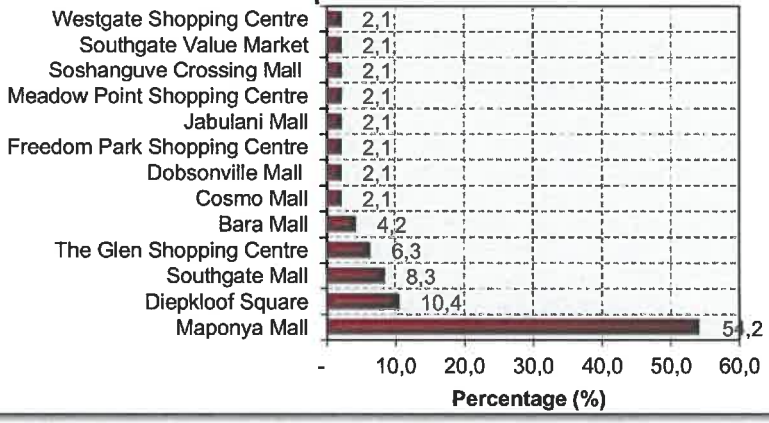


Do you feel there is a need for an additional shopping centre in the Diepkloof area?

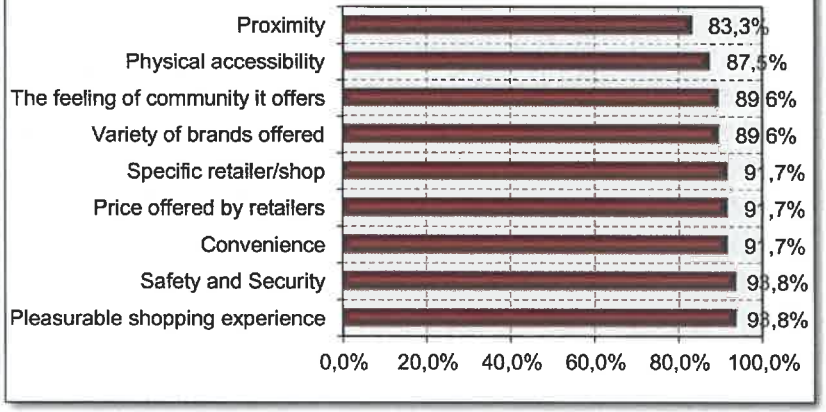
Preferred shopping centre for grocery purchases



Preferred shopping centre for clothing & other purchases

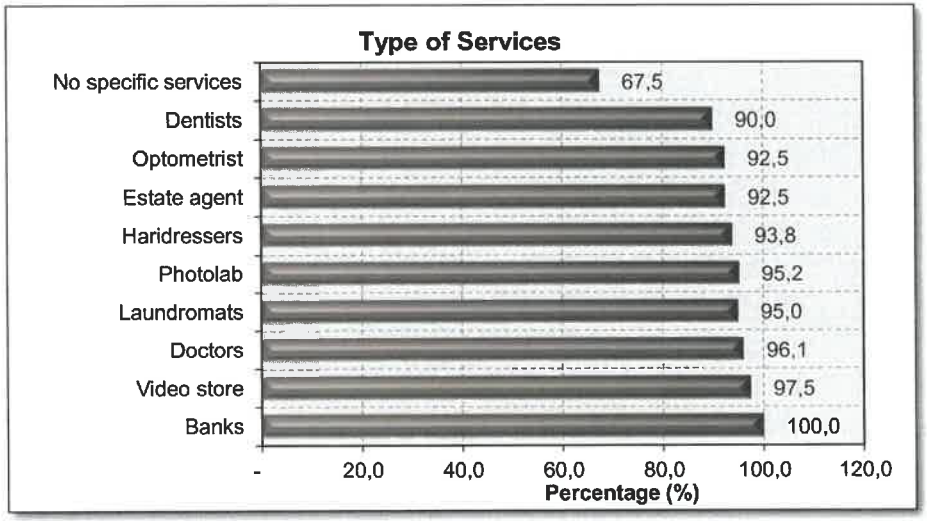


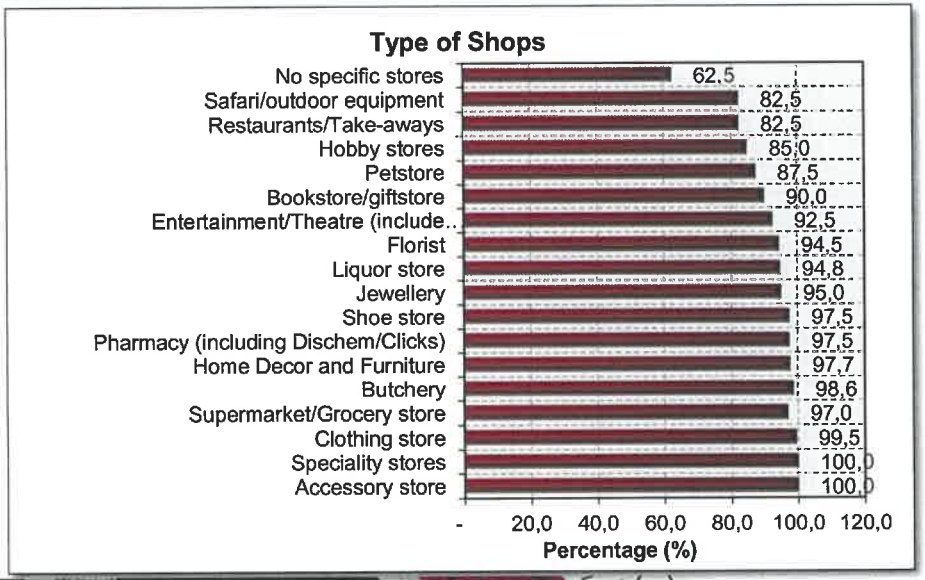
Most importance aspects, when choosing a shopping centre

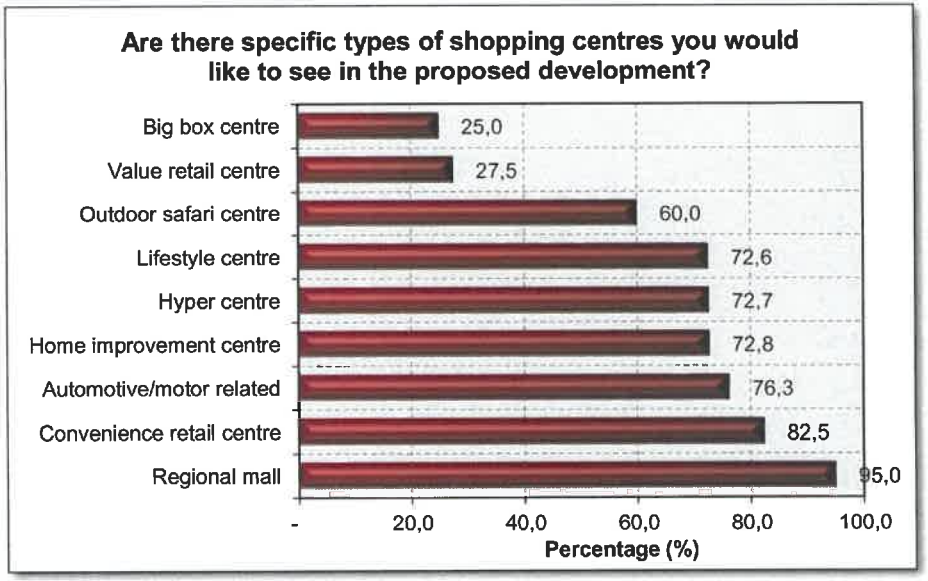


Household Survey Results – Retail Preferences & Key Findings

WOULD YOU SHOP AT NEW SHOPPING CENTRE, PREFERRED TYPE OF SHOPS & SERVICES, SPECIFIC TYPES OF SHOPPING CENTRES,

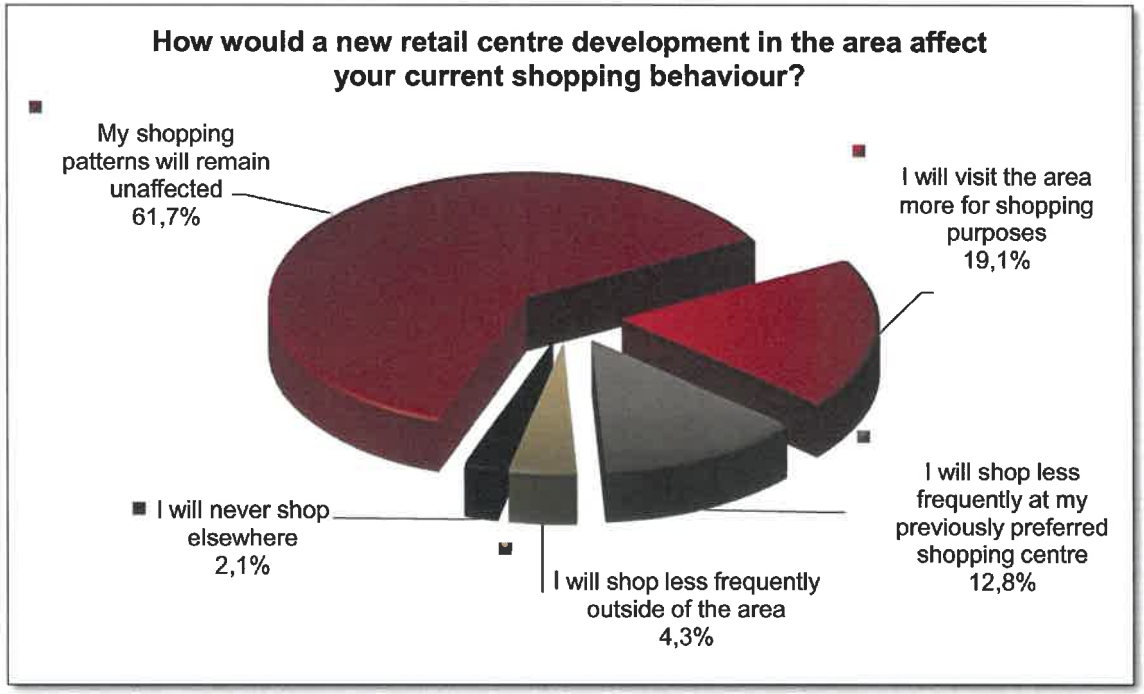






Household Survey Results – Retail Preferences & Key Findings

SHOPPING BEHAVIOUR



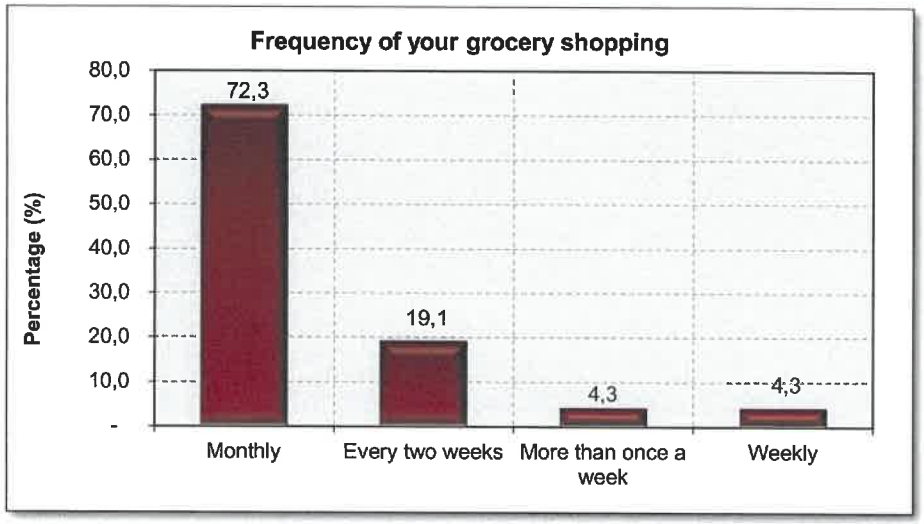
Shopping behaviour

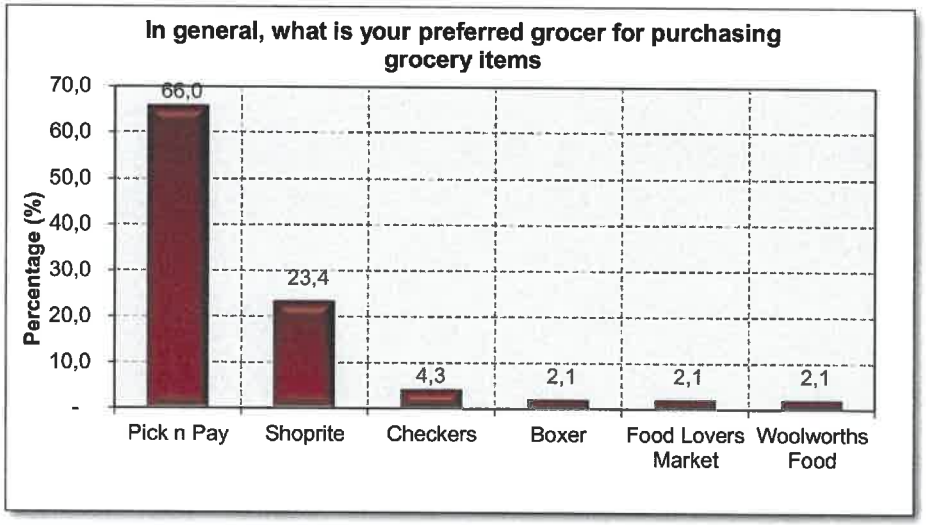
- ✓ 61.7% of respondents indicated that their shopping behaviour will remain unaffected should a new shopping centre be built, *this could be attributed to the historic dominance of Southgate Mall and the subsequent support of the Soweto residents in view of the absence of sizeable destination retail-orientated centres in the local market.*
- ✓ 19.1% of the respondents indicated that they will visit the area more for shopping purposes.
- ✓ 12.8% of the respondents indicated they will shop less at their previously preferred shopping centres.

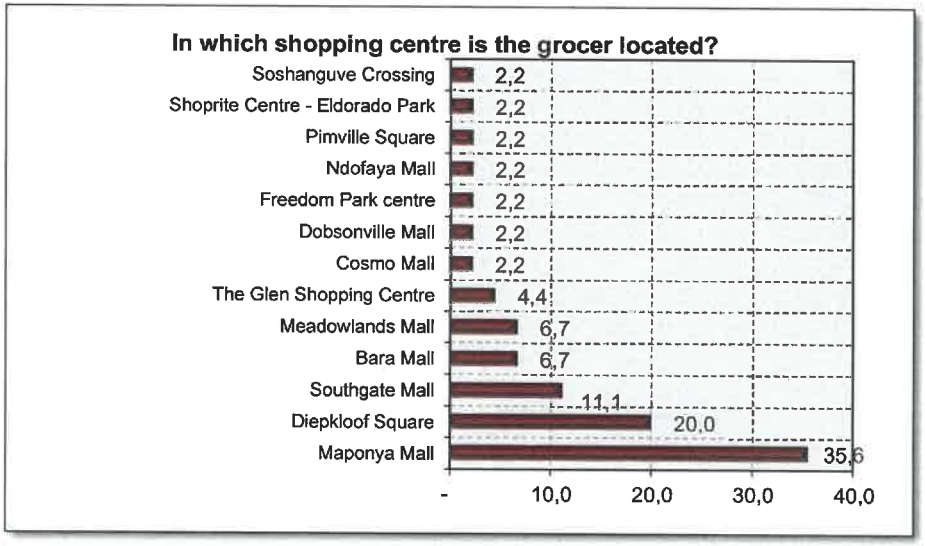
The above may indicate the suitability of a smaller initial phase with a more convenience and lifestyle orientated focus.

Household Survey Results – Retail Preferences & Key Findings

GROCERY ANCHOR PREFERENCES





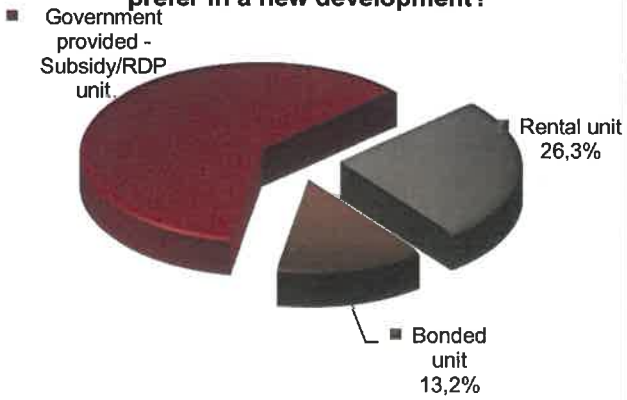


Household Survey Results – Residential Preferences & Key Findings

DEMAND FOR NEW RESIDENTIAL DEVELOPMENT, PREFERRED TYPE OF DWELLING UNITS / BUILDINGS, COMPOSITION OF UNITS

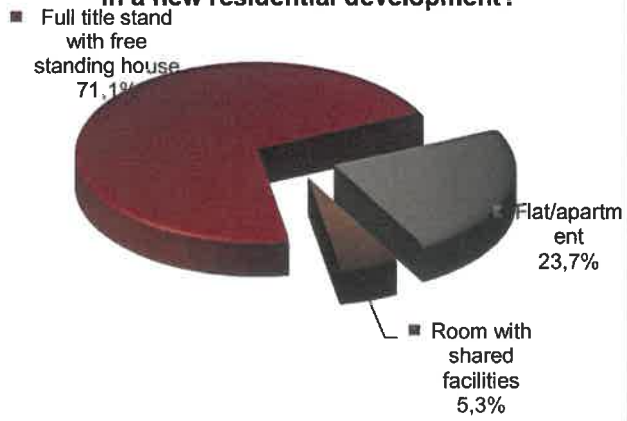
Demand for a new residential development in the Diepkloof area?

Which of the following units would you prefer in a new development?



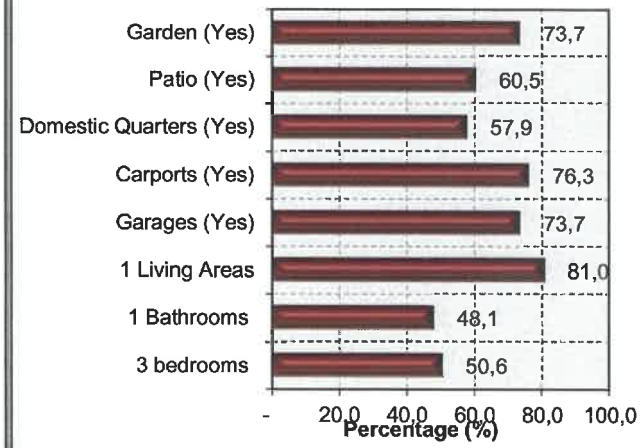
Envisaged ideal type of tenure be in such a development?

Type of dwelling units would you prefer in a new residential development?



Configuration of residential buildings should be developed?

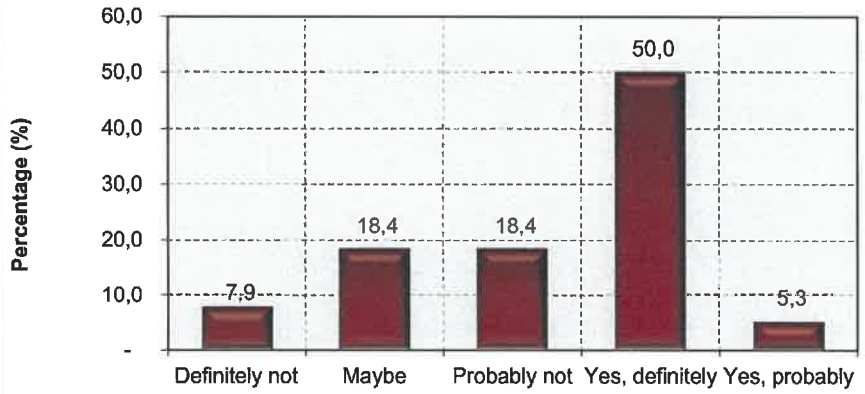
Preferred composition



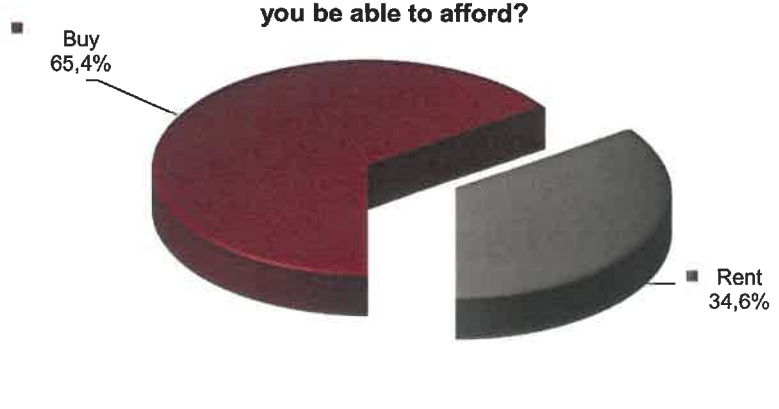
Household Survey Results – Residential Preferences & Key Findings

CONSIDER MOVING, AFFORDABILITY

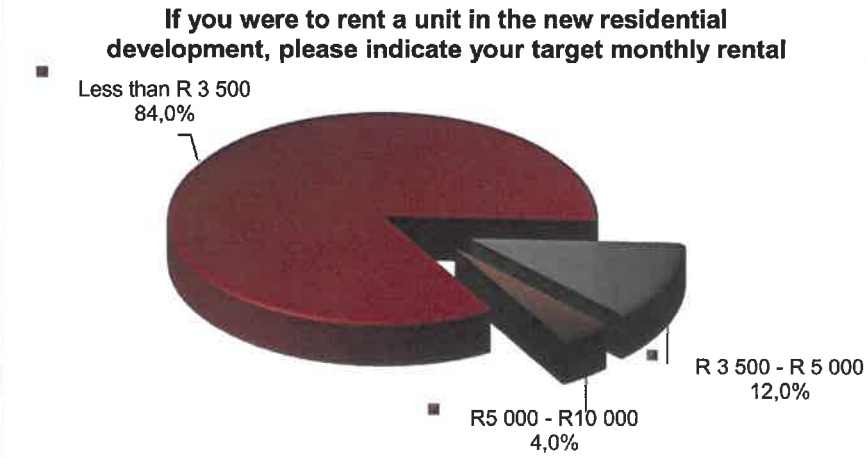
Would you consider moving to this development?



Based on your current income profile, which option would you be able to afford?



If you were to rent a unit in the new residential development, please indicate your target monthly rental



If you were to buy a new residential property what would be a reasonable market price?

Household Survey Results – Perceived Demand For Ancillary Uses

PERCEIVED DEMAND FOR ANCILLARY USES - PREFERENCES / KEY FINDINGS

Offices	Low Demand		Moderate	High Demand	
Municipal Satellite Offices	3,7	11,1	11,1	14,8	59,3
Government offices	3,7	7,4	22,2	22,2	44,4
Parastatal offices	3,7	3,7	25,9	18,5	48,1
SMME offices with shared business centre	3,2	12,9	16,2	16,2	51,5
Call Centre	3,2	12,9	19,3	12,9	51,8
Small Business Offices (100 - 250)	3,2	16,1	19,4	9,7	51,6

Industrial facility	Low Demand		Moderate	High Demand	
Industrial stand only (300 - 500sqm)	33,6	18,9	9,4	15,1	23,0
Industrial stand only (500 - 1000sqm)	32,8	19,1	8,8	15,6	23,7
Mini warehouse (100 - 150sqm)	34,1	17,8	7,8	16,7	23,6
Mini warehouse (150-300sqm)	33,7	18,5	9,6	15,5	22,7
Warehouse (300-500sqm)	33,3	18,2	9,1	17,1	22,3
Warehouse (500sqm+)	34,4	19,1	8,2	15,3	23,0

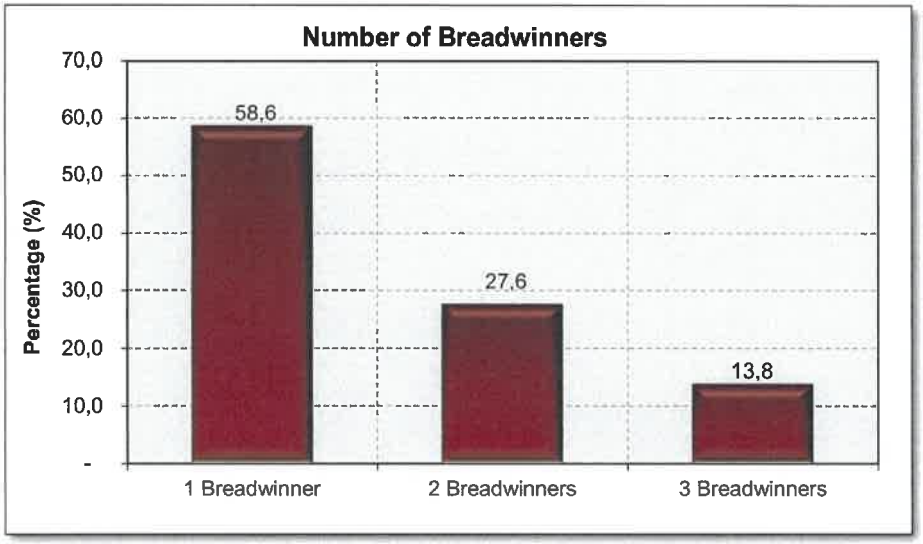
Automotive facility	Low Demand		Moderate	High Demand	
Autotrade (new & second hand)	25,9	18,5	22,2	18,5	14,8
Motorcycle trade	26,9	23,1	15,4	23,1	11,5
Automotive/motorcycle parts & spares	26,9	19,2	23,1	19,2	11,5
Automotive fitness centres	26,9	19,2	23,1	19,2	11,5
Tyres & wheel alignment centres	25,9	18,5	18,5	22,2	14,8
Automotive workshops	26,9	19,2	23,1	19,2	11,5
Filling station	22,2	18,5	22,2	22,2	14,8

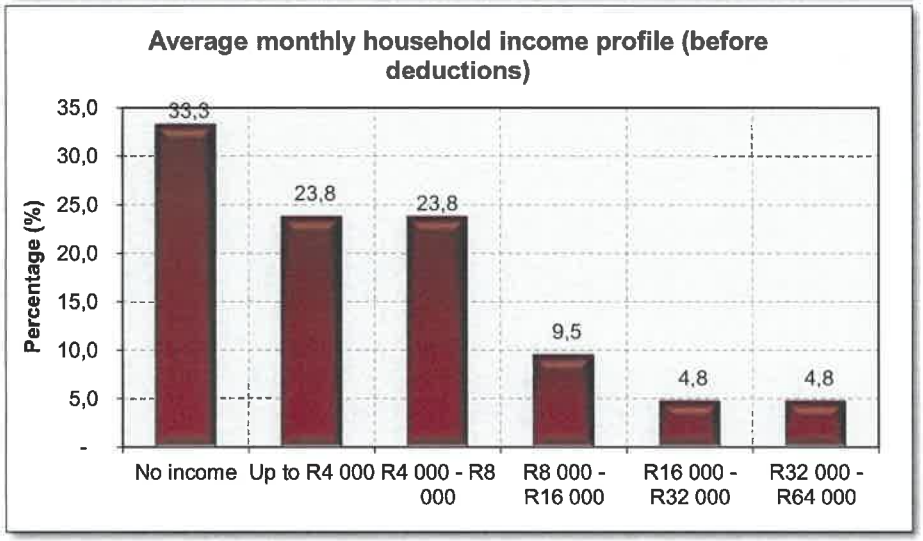
Other facilities	Low Demand		Moderate	High Demand	
Public Primary School	-	3,6	25,0	21,4	50,0
Public Secondary School	-	10,7	25,0	17,9	46,4
Private Pre-Primary School / Creche	-	11,5	30,8	19,2	38,5
Private School - Primary Phase	-	11,5	30,8	7,7	50,0
Private School - Secondary Phase	-	11,5	26,9	11,5	50,0
Private Hospital	3,3	13,3	16,7	6,7	60,0
Private Clinic	3,7	11,1	25,9	14,8	44,4
Hotel / Accommodation Facility	-	14,3	25,0	10,7	50,0
Public Primary School	-	3,6	25,0	21,4	50,0

- ✓ There is **very high perceived demand** for the following:
  - Offices in general,
  - Facilities such as schools, a private hospital / clinic and a hotel
- ✓ There is **very low perceived demand** for the following:
  - Industrial & warehousing and
  - Automotive and ancillary uses

Household Survey Results – Income Profile

BREADWINNERS IN HOUSEHOLD, HOUSEHOLD INCOME, INCOME SOURCES

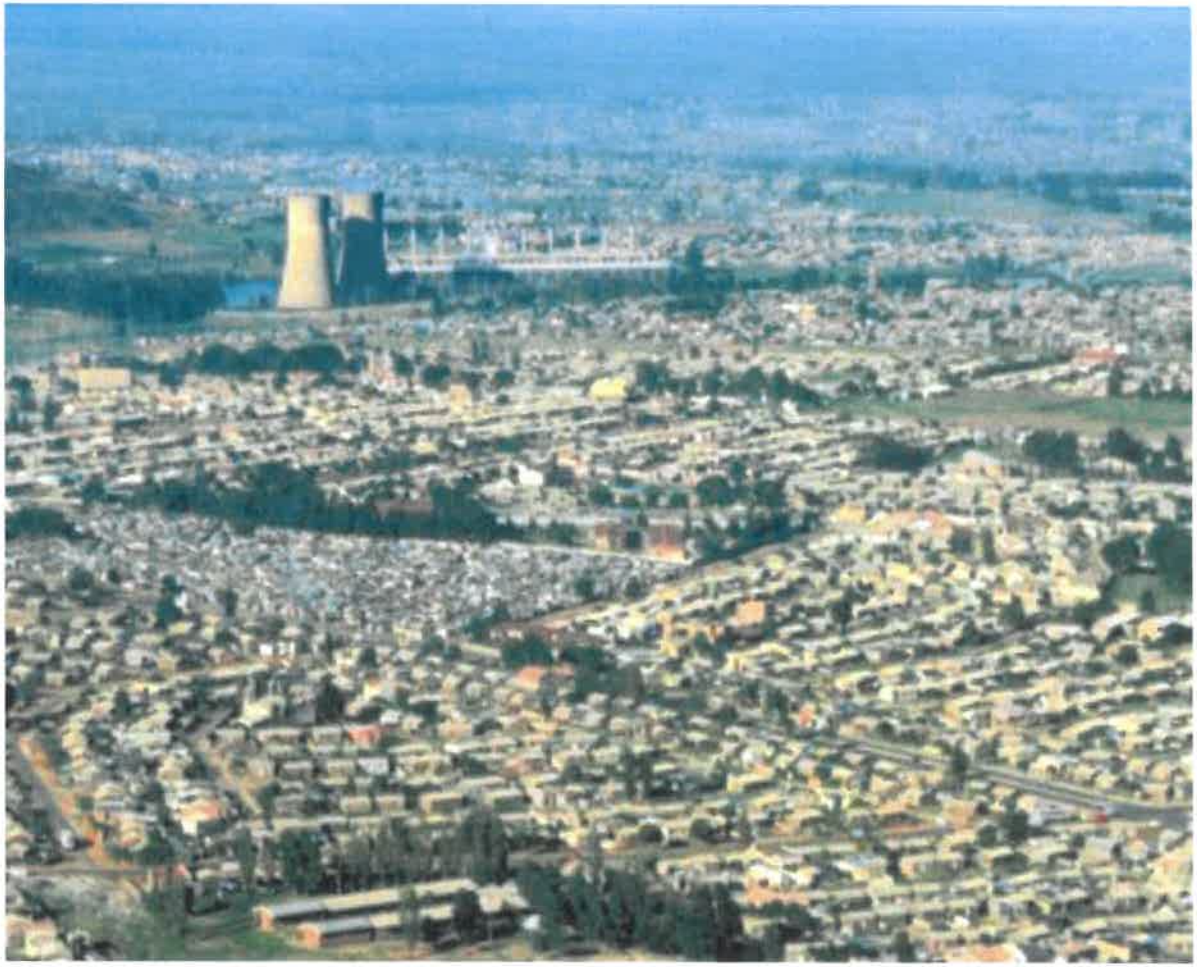


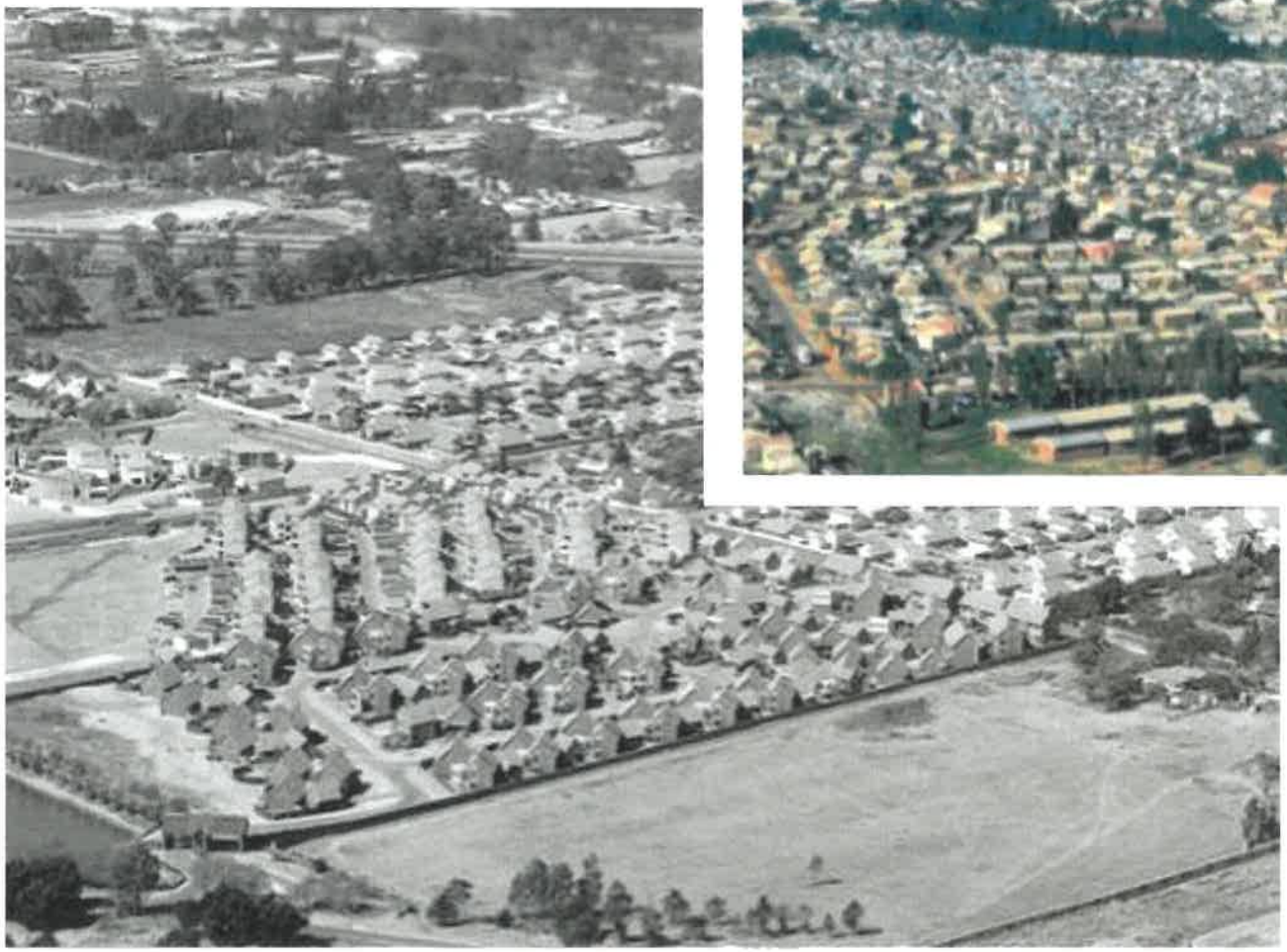


	R1 - R500	R501 - R1000	R1001- R1500	R1501- R2000	R2001- R3500	R3500- R5000	R5000- R7500	R7500+
Formal job	18,2	9,1	9,1	9,1	27,3	9,1	-	18,2
Temporary job	-	-	-	-	-	-	-	-
Informal trade	-	-	-	-	-	-	-	-
Pension	-	66,7	33,3	-	-	-	-	-
Social grant	-	100,0	-	-	-	-	-	-
Disability grant	-	-	-	-	-	-	-	-
Remittances	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-

- ✓ **Breadwinners**
  58.6% of the respondents indicated they have 1 breadwinner in the household, followed by 27.6% with 2 breadwinners in the household.
- ✓ **Average monthly household income**
  The majority of respondents (33.3%) indicated they earn no income, followed by 23.8% between R4 000 to R8 000 per month. Smaller percentages earn between R8 000 to R64 000+
- ✓ **Income sources**
  - 27.3% of the respondents indicate their income primarily derives from their formal job which is between R2 001 to R3 500 per month.
  - 66.7% of the respondents indicated they earn income from pension allowance between R501 to R1 000 or a social grant (100.0%) also between R501 to R1 000.

RESIDENTIAL MARKET ANALYSIS

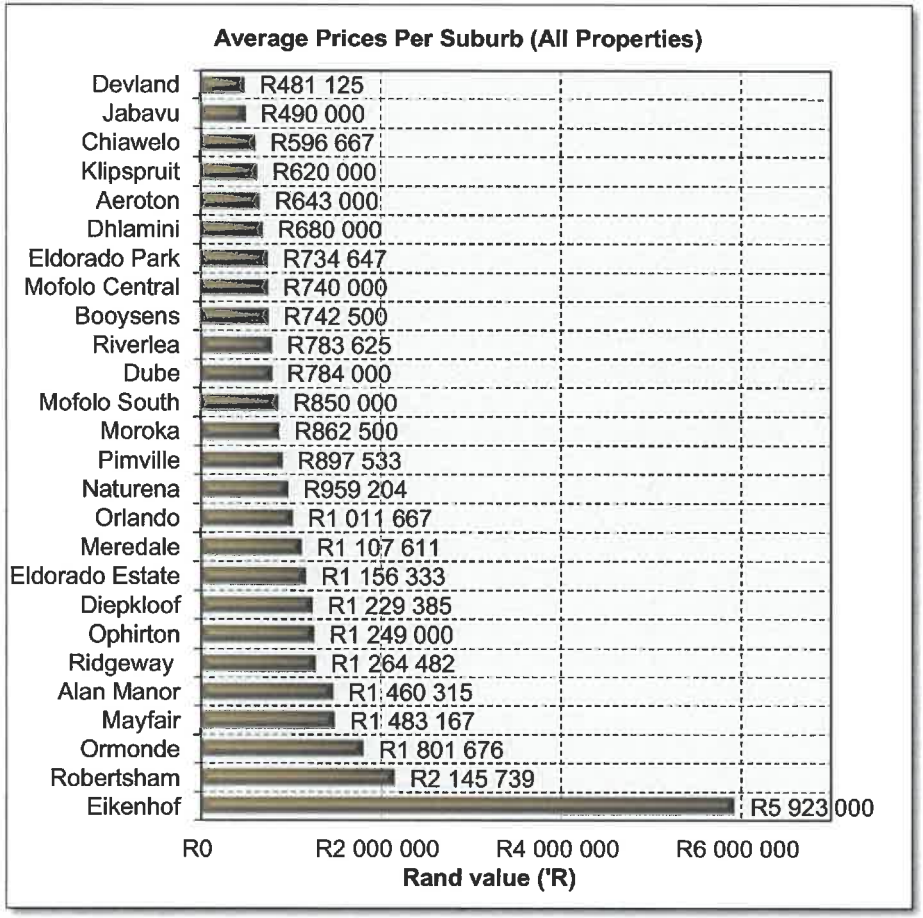




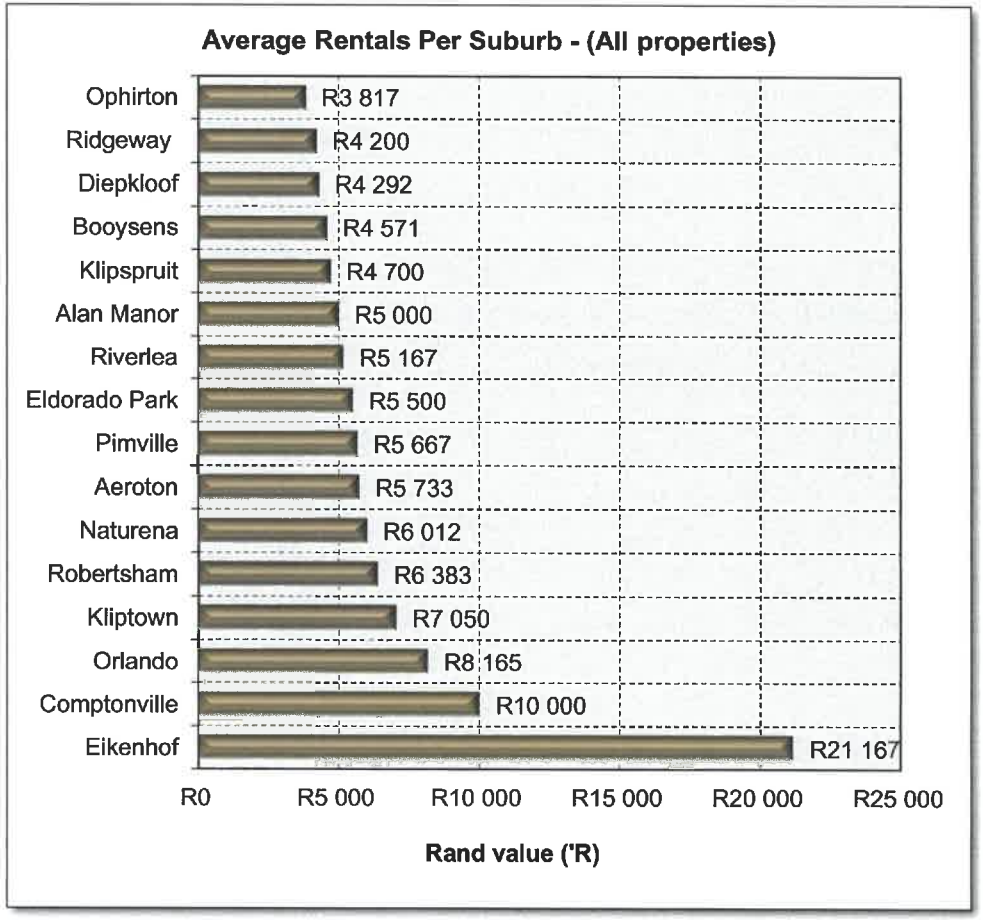
6

Residential Market Analysis – Average Sales & Rental Prices per Suburb

AVERAGE SALES PRICES PER SUBURB – ALL PROPERTIES

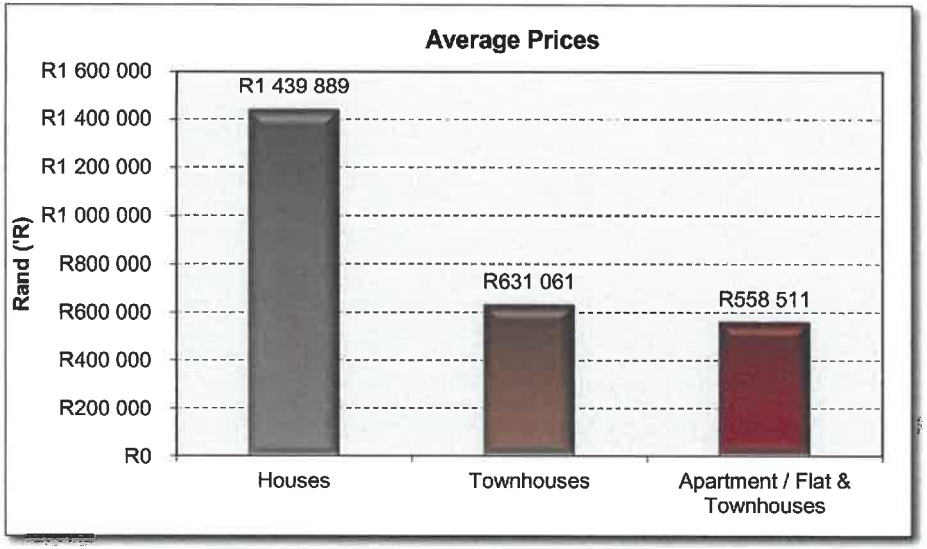


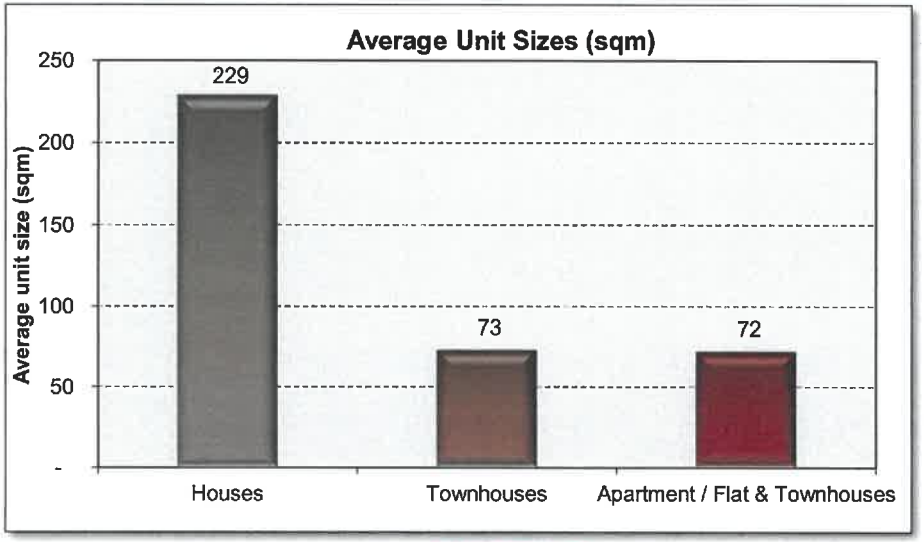
AVERAGE RENTAL PRICES PER SUBURB – ALL PROPERTIES



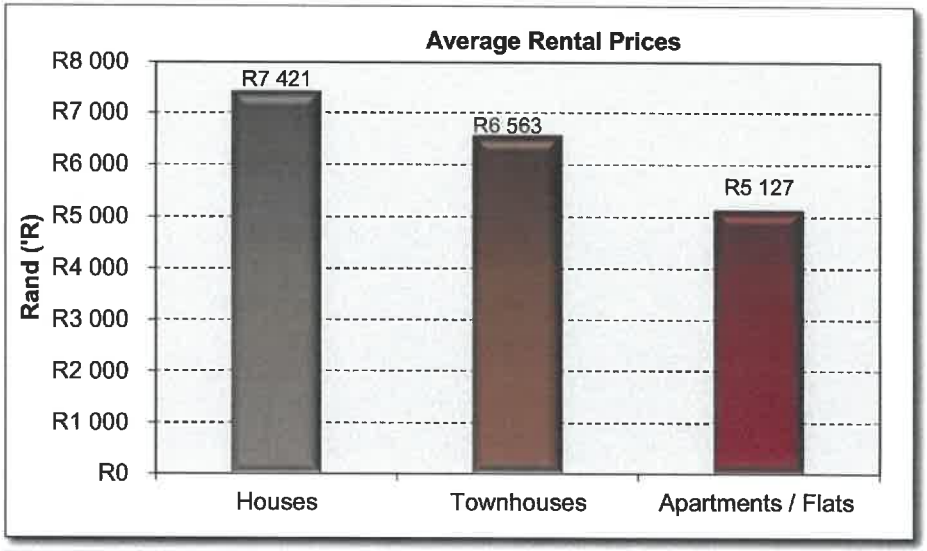
Residential Market Analysis – Summary

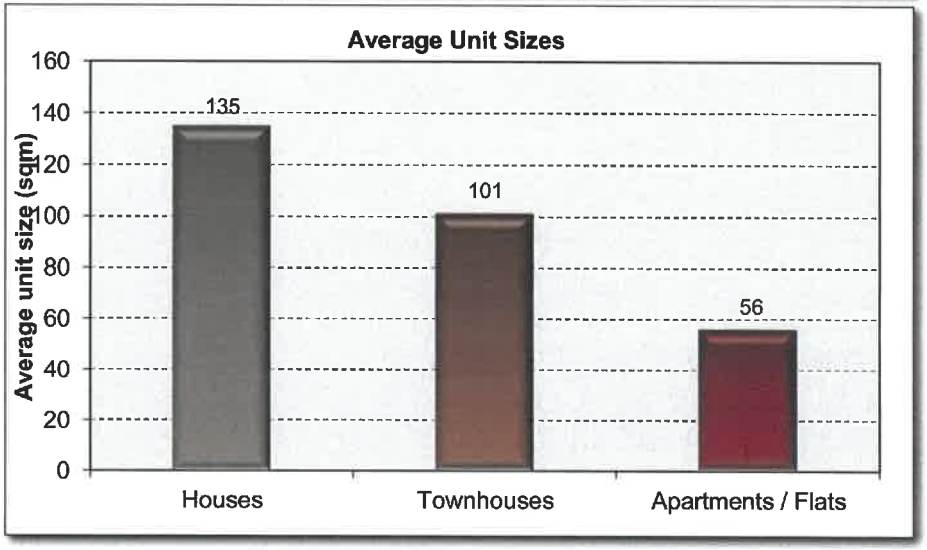
SALES DATA - HOUSES



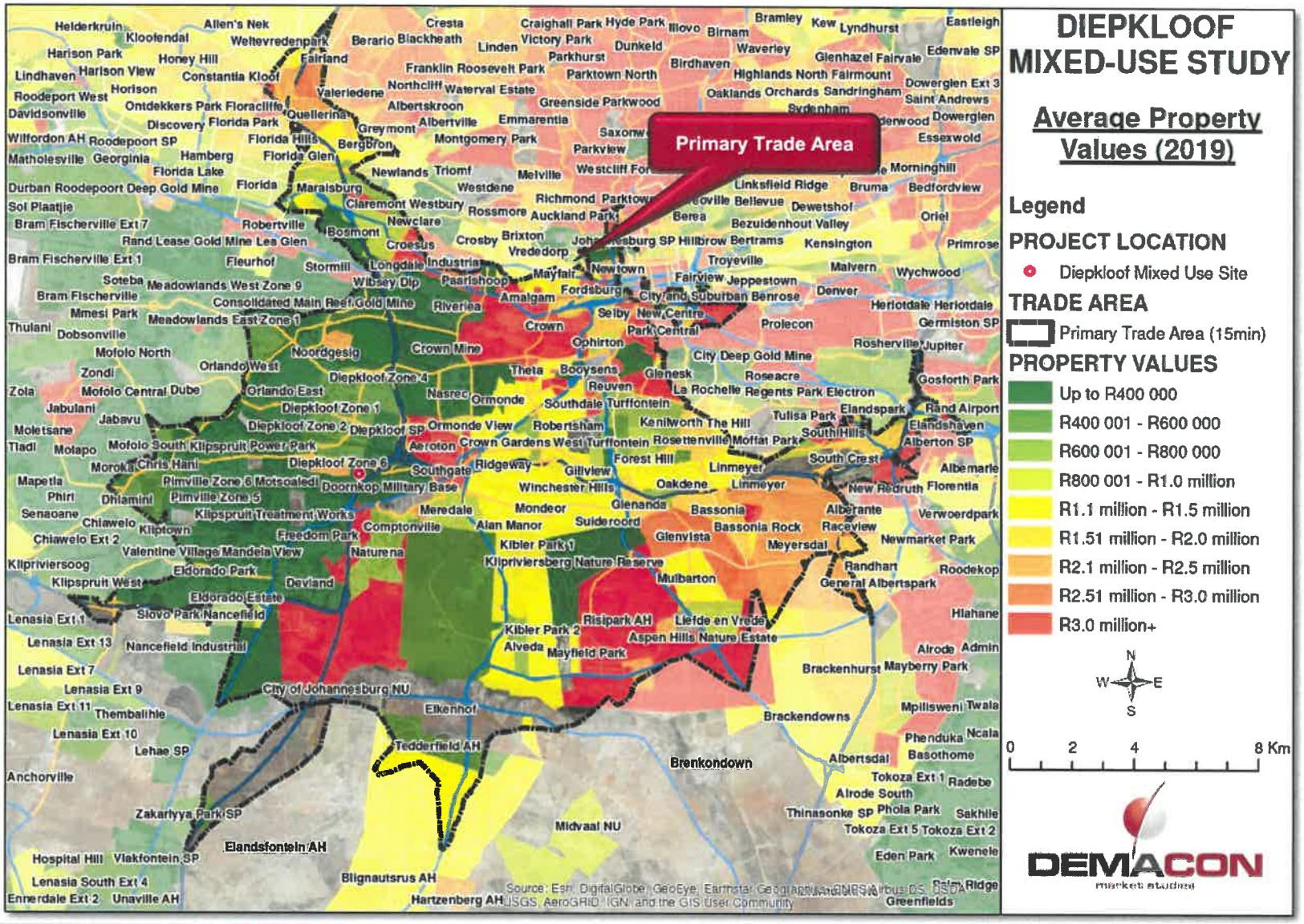


RENTAL DATA - HOUSES





Residential Market Analysis – Average Property Values

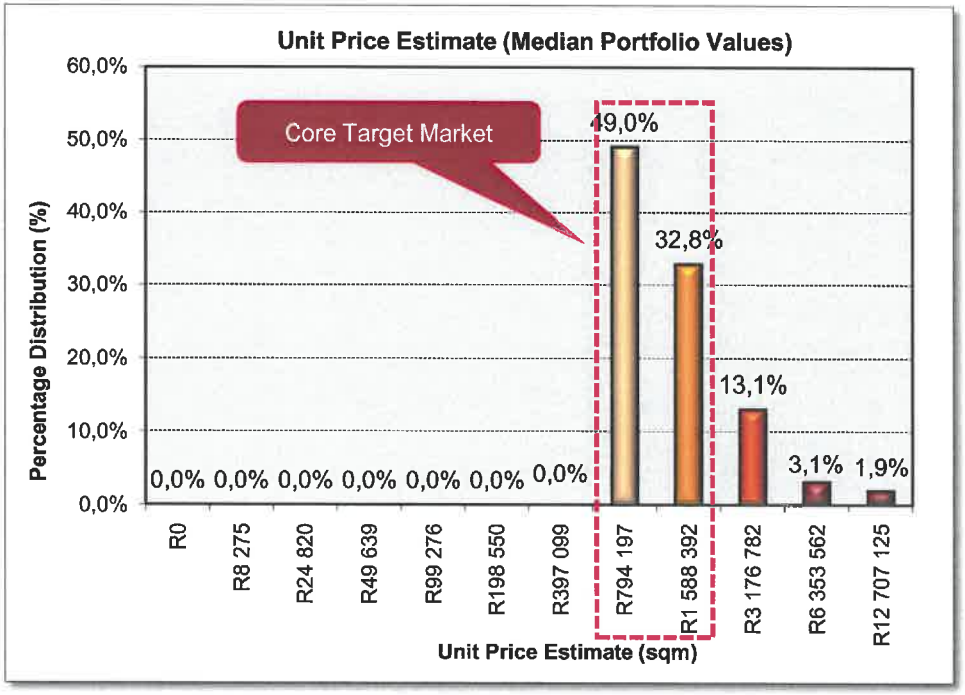


Residential Demand Modelling – Bonded Housing

SUMMARY OF MARKET RECOMMENDATIONS

	TOTAL MARKET		
A	Additional HH: base yr + 5yrs		20 237
B	Annualised Market growth (full housing spectrum)		4 047
C	Bonded units		46,1%
D	Bonded take-up per annum		1 865
E	Annual secondary market contribution (units / annum)	Min	2 079
F		Max	4 158
G	Total annual bonded demand	Min	3 944
H		Max	6 023
	PROJECT SPECIFIC – BONDED UNITS		
I	Project Bonded Units		1 500
J	Forecast market share of total market sales	Min	5.0%
K		Max	10.0%
L	Project forecast total annual take-up rate (units / annum)	Min	197
M		Max	602
N	Years to 80% take-up (bonded units)	Min	2,5
O		Max	7,6
P		Avg	5,0
	Optimum point of market entry		2021+

UNIT PRICE ESTIMATION (MEDIAN PORTFOLIO)



Findings:

- ✓ The modelling portrays market-based take-up based on medium to long-term market growth trends.
- ✓ It can be expected that an estimated 20 237 new households will seek accommodation in the target geographic market area, resulting in an annual growth in demand of approximately 4 047.
- ✓ A total of **1 500 units** (Bonded Units) could be developed and taken up in the market within approximately 5.0 years+ (80% take-up), resulting in between 197 and 602 units *per annum*.
- ✓ Phase one could include 500 – 750 units
- ✓ Optimum point of market entry: 2021+

Residential Demand Modelling – Bonded Housing

GAP ANALYSIS

DEVELOPMENT RECOMMENDATIONS:

Bonded Units:

- ✓ The modelling portrays market-based take-up based on medium to long-term market growth trends.
- ✓ It can be expected that an estimated 20 237 new households will seek accommodation in the target geographic market area, resulting in an annual growth in demand of approximately 4 047.
- ✓ A total of 1 500 units (Bonded Units) could be developed and taken up in the market within approximately 7.6 years+ (80% take-up), resulting in between 197 and 602 units per annum.
- ✓ Optimum point of market entry: 2021+
- ✓ Configuration of units: upmarket housing precinct with **3 to 4 storey walk-ups (i.e. medium density units) / townhouses**
- ✓ The modelling figures corresponds with the increased FLISP income bracket – this served to increase demand for units in this bracket.

OPTIMUM DISTRIBUTION RANGE CONFIGURATION

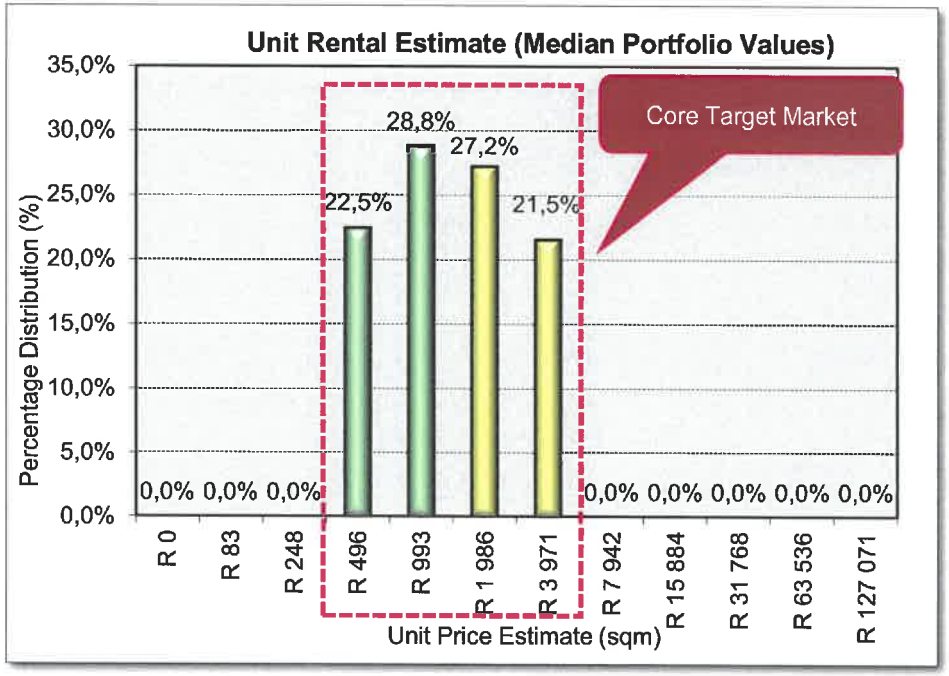
%	Total Units	Price Range	Bedrooms	Square metres
49.0%	441	✓R600 – R1 million	✓1 bed, 1 bath, 1 garage	✓60 – 90m²
	294	✓R1.1million – R1.6 million	✓1 bed, 1 bath, 1 garage	✓60 – 90m²
32.8%	295	✓R1.7 million to R2.3 million	✓2 bed, 1 bath, 1 garage	✓100m² - 135m²
	197	✓R2.4 million to R4.7 million	✓2 bed, 2 bath, 2 garages, carport	✓140 – 165m²
18.1%	272	✓R4.7 million+	✓2 bed, 1 bath, 1 garage and 2 bed, 2 bath, 2 garages, carport	✓100m² - 165m²
Total	1 500			

Residential Demand Modelling – Social Housing

SUMMARY OF MARKET RECOMMENDATIONS

	TOTAL MARKET		
A	Additional HH: base yr + 5yrs		20 237
B	Annualized Market growth (full housing spectrum)		4 047
C	Social Housing Segment		55,5%
D	Entry-level to Social Housing take-up per annum		1 763
E	Annual secondary market contribution (units / annum)	Min	1 502
F		Max	2 504
G	Total entry level to Social Housing Market take-up	Min	3 265
H		Max	4 267
	PROJECT SPECIFIC - SOCIAL UNITS		
I	Project entry-level to Social Housing Units		450
J	Forecast market share of total market sales	Min	5%
K		Max	10%
L	Project forecast total annual take-up rate (units / annum)	Min	163
M		Max	427
N	Years to 80% take-up (Social Housing units)	Min	1,1
O		Max	2,8
P		Avg	1,9
	Optimum point of market entry		**2020+**

UNIT PRICE ESTIMATION (MEDIAN PORTFOLIO)



Findings:

- ✓ The take-up forecast for social housing units is based on a maximum 1.9 years. This calculation will lead to a feasible 450 units, with a take-up of 163 to 427 units per annum (market share of between 5% to 10%).
- ✓ 22,5% of the rental units could be in the region of R370 to R745 per month, 28,8% in the region of R750 to R1 489 per month, 27.2% in the region of R1 500 to R2 978 and 21.5% between R2 978 to R5 956.
- ✓ The first phase should ideally measure **200 to 250** social units.
- ✓ Optimum point of market entry: **2020+**

Residential Demand Modelling – Social Housing

GAP ANALYSIS

OPTIMUM DISTRIBUTION RANGE CONFIGURATION

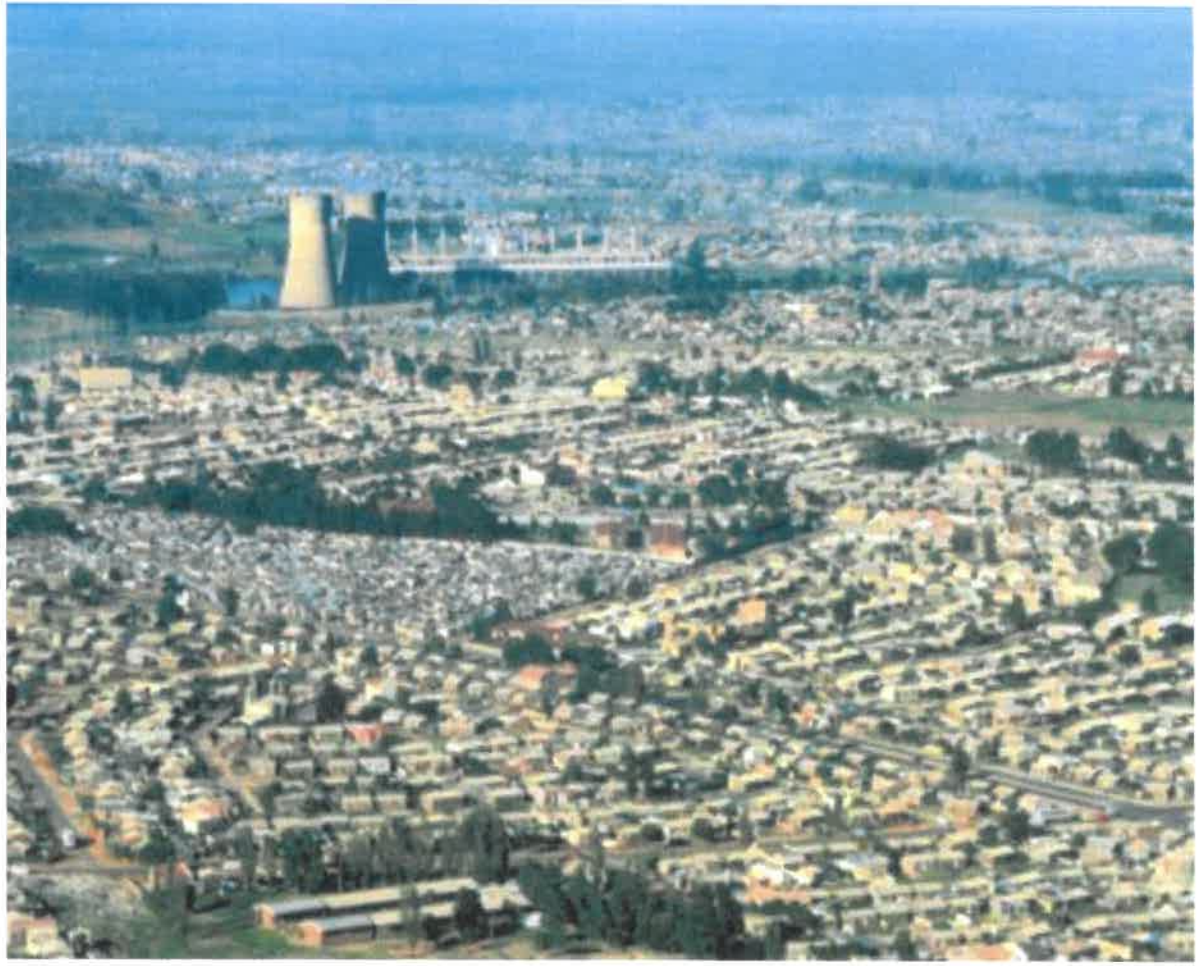
	Percentage contribution	Units (no.)	Monthly rental	Size	Distribution range
1 / 1.5 Bedroom units, 1 Bath	22,5%	101	R370 - R745	35m² - 40m²	20.0% - 25.0%
2 Bedroom units, 1 Bath	28,8%	130	R750 - R1 500	40m² - 45m²	30.0% - 40.0%
2 Bedroom units, 2 Bath	27,2%	122	R1 500 - R3 000	45m² - 55m²	20.0% - 40.0%
3 Bedroom units, 2 bath	21,5%	97	R3000 - R6 000	55m²+	10.0% - 15.0%
Total	100.0%	450			

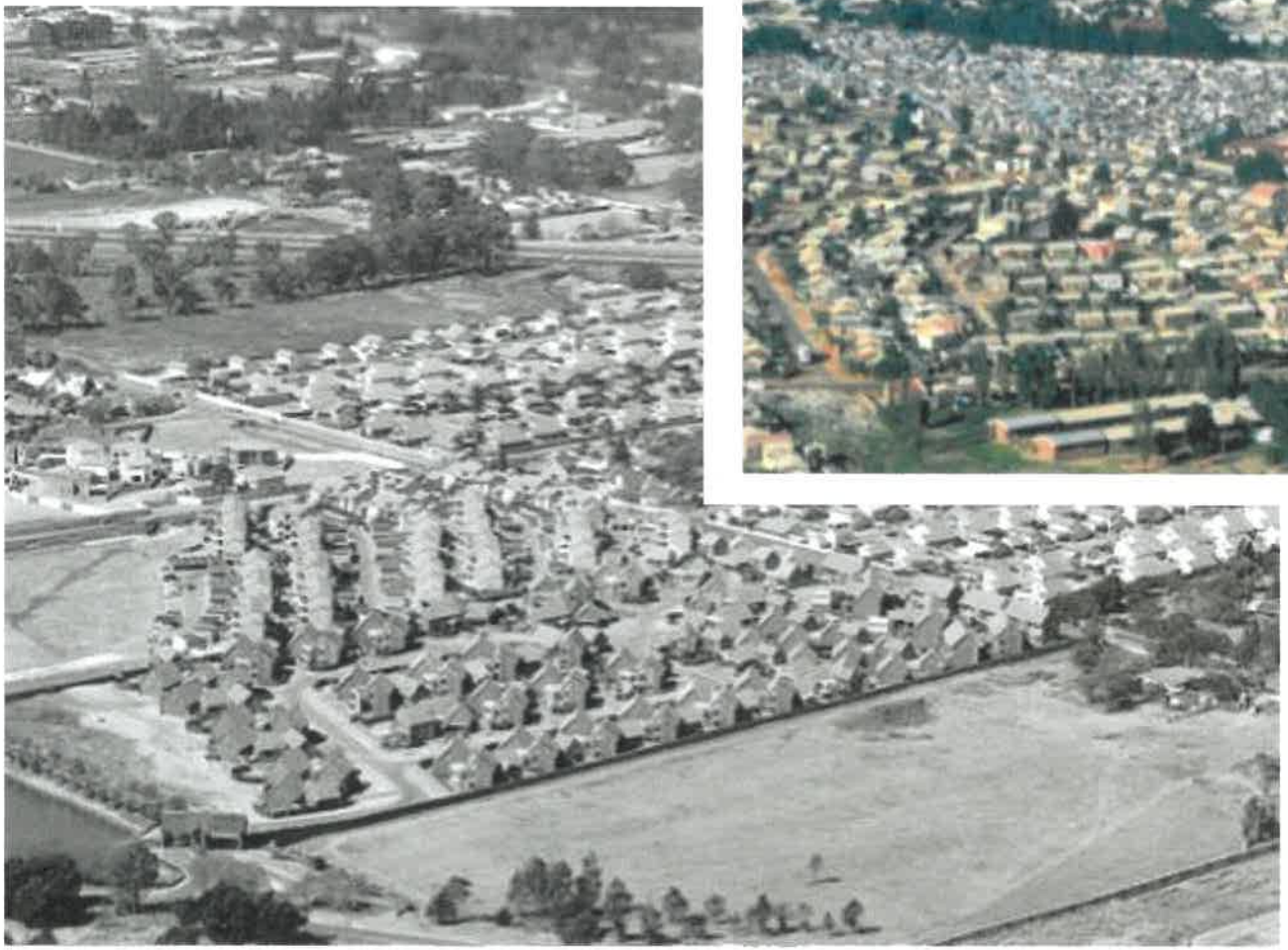
DEVELOPMENT RECOMMENDATIONS:

Social Units:

- ✓ The modelling portrays demand and take-up based on current and expected future market trends.
- ✓ The table above shows the social housing market potential - this segment (62.9%) yields a take-up of 90 units *per annum*.
- ✓ The take-up forecast for social housing units is based on a maximum 1.9 years. This calculation will lead to a feasible 450 units, with a take-up of 163 to 427 units per annum.
- ✓ 22,5% of the rental units could be in the region of R370 to R745 per month, 28,8% in the region of R750 to R1 500 per month, 27.2% in the region of R1 500 to R3 000 and 21.5% between R3 000 to R6 000.
- ✓ Optimum point of market entry: **2020 / 2021+**

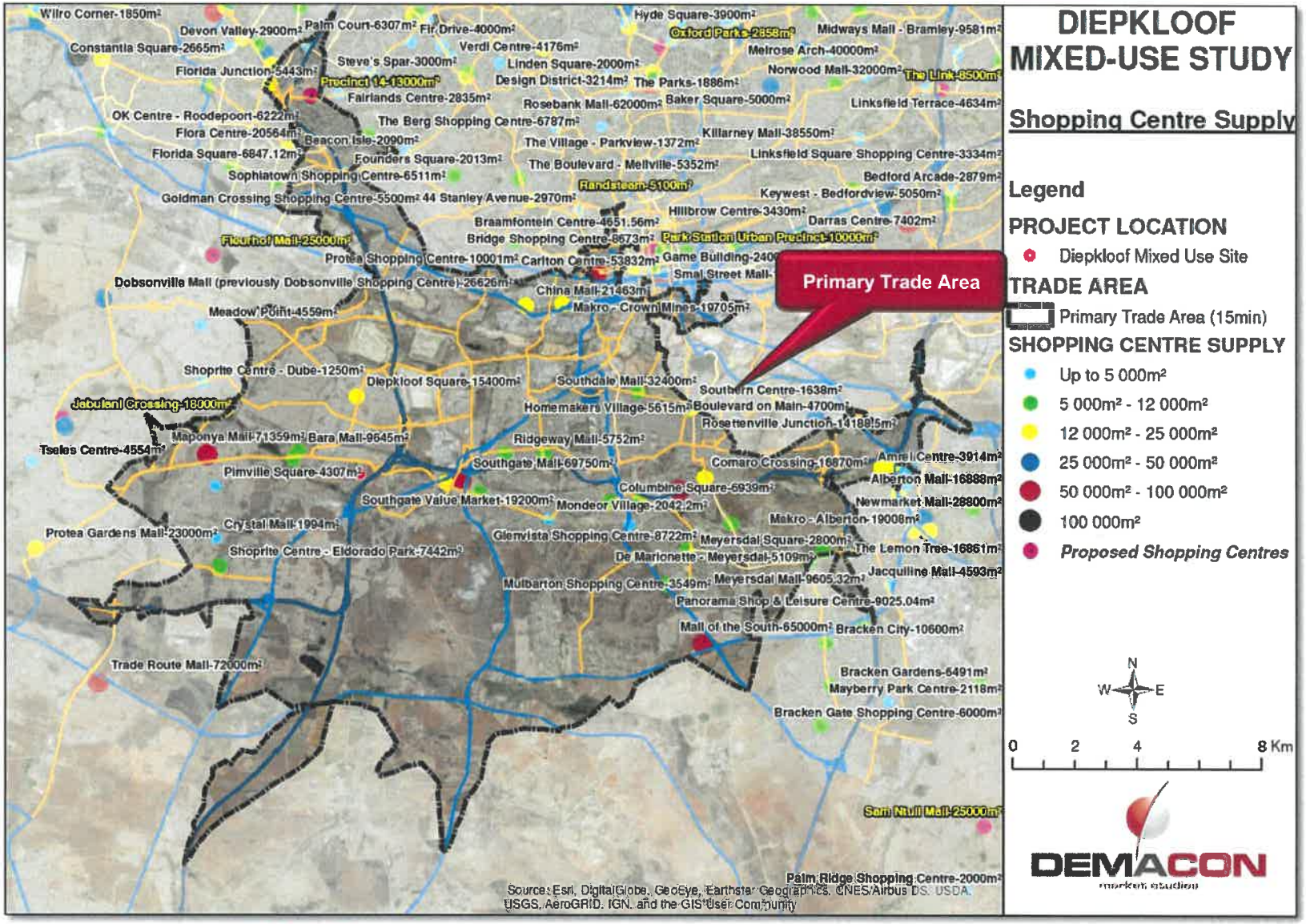
RETAIL MARKET ANALYSIS





7

Shopping Centre Supply Analysis



Existing Shopping Centre Supply Analysis

Name of Shopping Centre	Street Address	Classification	GLA	Year Developed	Year refurbished	Nr of retail floors	Parking open	Parking covered	Parking total	Nr of shops	Main Anchors
Oriental Plaza - Fordsburg	Cnr Main & Bree Streets, Fordsburg	Specialised Purpose: Specialty	80 616	1974	2009	3	2 400	500	2 900	360	Speciality Stores, Oriental Shops
The Glen Shopping Centre	Cnr Orpen & Letaba Streets, Oakdene	Regional Centre	74 624	1998	2009	3	1 700	2 000	3 700	207	Edgars, Woolworths, Foschini Group, Truworths, Pick n Pay, Dis-Chem, Game, Incredible Connection, Hi-Fi Corporation, Mr Price Group
Maponya Mall	2127 Chris Hani Road, Klipspruit Ext 5	Regional Centre	71 359	2007		2	-	-	-	183	Pick n Pay, Woolworths, Edgars, Truworths, Foschini, Mr Price, Ster Kinekor, Virgin Active
Southgate Mall	Cnr Columbine Avenue & Rifle Range Road, Mondeor	Regional Centre	69 750	1990	2002	2	-	180	3 200	201	Checkers, Pick n Pay, Edgars, Woolworths, Ster-Kinekor, Game
Mall of the South	Cnr Swartkoppies and Kliprivier Road, Aspen Hills	Regional Centre	65 000	2015		2	-	-	-	150	Pick n Pay, Checkers, Game, Woolworths, Edgards, Mr Price Group, Truworths, Foschini
Jabulani Mall	644 Cnr Bolani Road & Koma Street, Jabulani	Regional Centre	48 855	2006		1	1 789	-	1 789	109	Shoprite, Food Lover's Market, Game, Woolworths, Truworths, Mr Price, Edgars & Foschini, Virgin Active
Alberton City Shopping Centre	Cnr Voortrekker Road & Du Plessis Road, New Redruth	Regional Centre	47 091	1986	2014	2	1 036	652	1 688	125	Pick n Pay, Game, Woolworths, Edgars, Truworths, Foschini Group, Mr Price Group, House & Home
Newtown Junction	Cnr Miriam Makeba & Carr Streets, Newtown	Regional Centre	33 653	2014		1	-	-	-	355	Pick n Pay, Shoprite, Mr Price, Foschini, Truworths, Restaurants, Small Shops and Boutiques
Southdale Mall	Stand 129, Cnr Alamien & Landsborough Road, Southdale	Community Centre	32 400	1968	2014	3	568	-	568	118	Pick n Pay, Shoprite Checkers

Existing Shopping Centre Supply Analysis

Name of Shopping Centre	Street Address	Classification	GLA	Year Developed	Year refurbished	Nr of retail floors	Parking open	Parking covered	Parking total	Nr of shops	Main Anchors
Dobsonville Mall (previously Dobsonville Shopping Centre)	Elias Motsoaledi Road, Dobsonville	Community Centre	26 626	1996	2010	1	550	-	550	63	Checkers, Mr Price, Jet
14 Avenue District Shopping Centre	235 Golf Club Terrace, Constantia Kloof	Value Centre	24 879	1978	2006	1	1 571	-	1 571	31	CheckersHyper, House & Home, Ackermans, Pep, FNB, BabiesRUs
China Mall	Industrial Road, Industria	Value Centre	21 463	2006		2	-	-	-	-	Chinese Shops
Makro - Crown Mines	Cnr Main Reef Road & Hanover Street, Crown Mines	Value Centre	19 705	1977		1	900	-	900	1	Free-standing Makro
Southgate Value Market	Cnr Columbine Avenue & Rifle Range Road, Mondeor	Value Centre	19 200	1990	2002	1	-	-	-	25	Builder's Express, Shoprite, Virgin Active, McDonald's
Comaro Crossing	Cnr Oak Street & Boundary Road, Oakdene	Neighbourhood Centre	16 870	2001	2007	1	-	-	-	43	Pick n Pay, Fruit and Veg City, Meatworld, KFC
Alberton Value Centre	St Austell Street, New Redruth	Value Centre	15 972	1978	2010	1	730	-	730	14	Baby City, Timber City, Waltons, On Tap, Tiger Wheels
Diepkloof Square	Cnr Patrick Road & Immink Drive, Zone 3, Diepkloof	Community Centre	15 400	2013		1	-	-	-	42	Pick n Pay, Food Lover's Market, Cashbuild
Rosettenville Junction	592 Geranium Street, Rosettenville	Community Centre	14 189	1995		2	631	448	1 079	55	Pick n Pay, Truworths, Mr Price, Pep
New Redruth Village	Cnr St Austell Street & Cambourne Road, New Redruth	Neighbourhood Centre	12 028	2006	2012	1	586	-	586	32	Pick n Pay, Woolworths
Comaro View Shopping Centre	Cnr Comaro Street & Soetdoring Avenue, Bassonia	Neighbourhood Centre	11 000	1996	2009	2	600	150	750	35	Spar, Liquor City, Virgin Active, Woolworths, Clicks
Klipspruit Centre - Soweto	Cnr Chris Hani & Dynamo Streets, Klipspruit	Neighbourhood Centre	10 434	1980		1	-	-	-	15	Builders Trade Depot, Fair Discounters
Xavier Boulevard	20 Cnr Xavier & Vleiroos Streets, Winchester Hills	Neighbourhood Centre	10 167	2006		1	-	-	280	18	Bathroom Bizzare

Existing Shopping Centre Supply Analysis

Name of Shopping Centre	Street Address	Classification	GLA	Year Developed	Year refurbished	Nr of retail floors	Parking open	Parking covered	Parking total	Nr of shops	Main Anchors
Protea Shopping Centre	High Street, Brixton	Neighbourhood Centre	10 001	1970	2003	2	98	143	241	46	Pick n Pay Super, Ackermans, Cash Crusader, SA Post Office
Bara Mall	Stand 24793 Cnr Old Potchefstroom Road & Nicholas Drive, Diepkloof Ext 4	Neighbourhood Centre	9 645	2007		1	-	-	-	50	Shoprite, Pep, Standard Bank, ABSA
Meyersdal Mall	Cnr Hennie Alberts Street & Michelle Avenue, Meyersdal	Neighbourhood Centre	9 605	1997	2008	2	680	-	680	50	Spar, Steers, Mica, Mimmos, Nedbank, Harbour Fish & Grill
Panorama Shop & Leisure Centre	Cnr Kliprivier Drive & Jordi Street, Mulbarton	Neighbourhood Centre	9 025	1997		2	-	-	-	45	Pick n Pay Family, Mr Video, Yankees, Pam Golding, Jimmy's Killer Prawns
Glenvista Shopping Centre	188 Biggarsberg Road, Glenvista Ext 5	Neighbourhood Centre	8 722	1983	2007	2	250	100	350	35	Checkers, Woolworths Food, Clicks
Shoprite Centre - Eldorado Park	Sirkel Road, Extension 2	Neighbourhood Centre	7 442	1992	2000	1	311	-	311	29	Shoprite, OK Furniture, Lewis Furniture
Columbine Crossing Shopping Centre	Cnr Columbine & John Mansfield Avenues, Mondeor Ext 3	Neighbourhood Centre	7 000	1997	2006	1	80	14	94	14	Pick n Pay
Columbine Square	82 Swartgoud Street, Suideroord	Neighbourhood Centre	6 939	2006		1	216	120	336	32	Checkers, Clicks, Woolworths
Glenanda Village Shopping Centre	Cnr Vorster & Le Roux Avenues, Glenanda	Neighbourhood Centre	5 800	1981	2010	2	60	-	60	20	Steers, Foo Wah Chinese Restaurant
Ridgeway Mall	Cnr Swartgoud & Rifle Range Roads, Ridgeway	Neighbourhood Centre	5 752	1980	2000	1	-	-	-	28	Shoprite, Pep
Homemakers Village	69 Turfclub Road, Turffontein	Neighbourhood Centre	5 615	1980		1	100	50	150	20	Essential Paint, Vacant Shops
Goldman Crossing Shopping Centre	Cnr 9th Avenue & Goldman Street, Florida	Neighbourhood Centre	5 500	1998	2006	1	300	-	300	25	Superspar
De Marionette - Meyersdal	Cnr Michelle & Blue Crane Avenues, Meyersdal Ext 19	Neighbourhood Centre	5 109	2005		1	150	28	178	22	Small shops

Existing Shopping Centre Supply Analysis

Name of Shopping Centre	Street Address	Classification	GLA	Year Developed	Year refurbished	Nr of retail floors	Parking open	Parking covered	Parking total	Nr of shops	Main Anchors
Boulevard on Main	171 Main Road, Kenilworth	Local Convenience Centre	4 700	1991	2006	2	200	-	200	3	Superspar, Tops
Meadow Point	Heckroodt Circle, Zone 2, Meadowlands	Local Convenience Centre	4 559	0		1	60	-	60	34	Pick n Pay Supermarket, Pep, Ellerines
Virgin Active - Kliprivier	Farm Rietvlei 101, Glenvista	Local Convenience Centre	4 350	2011		1	-	-	-	3	Virgin Active
Pimville Square	11665 Modjadji Street, Pimville Zone 7	Local Convenience Centre	4 307	1989		1	84	-	84	29	Shoprite
Amrel Centre	Cnr Voortrekker Road & Redruth Street, Alberton Central	Strip Convenience Centre	3 914	2003		1	-	-	-	1	Tafelberg Furnishers
Mulbarton Shopping Centre	13 True North Road, Mulbarton	Local Convenience Centre	3 549	0		1	120	-	120	18	Spar
Devon Valley	Cnr 9th and Rugby Road, Weltevreden Park	Local Convenience Centre	2 900	1998	2013	1	80	-	80	10	Quik Foods
Meyersdal Square	Cnr Michelle Avenue & Jurgen van Bruggen Street, Randhart	Local Convenience Centre	2 800	2007		2	200	-	200	23	Woolworths Food
Mondeor Village	Cnr Columbine Avenue & Ormonde Drive, Mondeor	Strip Convenience Centre	2 042	0		2	94	-	94	8	Black Steer, Mr Video
Founders Square	Cnr Ontdekkers Road & 6th Avenue, Delarey	Local Convenience Centre	2 013	2001		1	35	-	35	8	Goldwagen, SAPO, South Supermarket
Crystal Mall	Cavendish Road & George Elliot, Ext 6, Eldorado Park Ext 6	Local Convenience Centre	1 994	2000		1	-	-	-	8	Shoprite
Shoprite Centre - Dube	Cnr Mahalefele Road & Tshekedi Street, Dube	Local Convenience Centre	1 250	0		2	-	-	1 000	20	Shoprite, Hungry Lion, Liquor Store
TOTAL (m^2)			875 814								

Proposed Shopping Centre Supply Analysis

Name of shopping centre	Street Address	Classification	GLA	Developer	Year of development	Parking Total	No of shops	Main Anchors
Fleurhof Mall	Fleurhof Drive, Fleurhof	Community Centre	25 000	Abland Property Developments	2019	0		
Jabulani Crossing	Cnr Legogo & Bolani Street, Soweto	Community Centre	18 000	Retail Network Services	2018	750	45	Cashbuild, Pick 'n Pay
Precinct 14	14th Avenue, Roodepoort	Community Centre	13 000	Atterbury Property Developments & Century Property Developments	2020	0		Woolworths
TOTAL (m^2)			56 000					

- ✓ Total *existing supply* of shopping centre retail floor space within the primary market area (15-minute drive time) presently amounts to approximately **875 814m^2 GLA.**
- ✓ Proposed shopping centre supply amounts to **56 000m^2.**
- ✓ To conclude, the above supply figures can not directly be correlated with the demand of the market area due to the fact that most of the centres are trading off multiple trade areas and trade area overlap occurs.

Retail Demand Analysis – LSM 4 to 10+

MARKET SIZE

Market Area Retail Expenditure

Retail Category	2019 R/annum	2024 R/annum	2029 R/annum
Bulk groceries	R8 873 216 588	R10 395 775 704	R12 179 591 405
Top-up groceries	R2 652 575 329	R3 107 731 890	R3 640 988 965
Clothing, shoes, accessories	R3 920 177 699	R4 592 842 705	R5 380 930 594
Furniture and home ware	R1 150 231 780	R1 347 600 554	R1 578 835 923
Hardware goods	R422 534 123	R495 036 938	R579 980 543
Gifts, books and confectionary	R868 542 364	R1 017 575 929	R1 192 182 227
Specialty / value goods	R281 689 415	R330 024 626	R386 653 695
Restaurants, entertainment	R2 910 790 627	R3 410 254 464	R3 995 421 519
Personal care	R915 490 600	R1 072 580 033	R1 256 624 510
Other personal goods & services	R1 478 869 431	R1 732 629 284	R2 029 931 901
TOTAL	R23 474 117 958	R27 502 052 127	R32 221 141 282

Retail Floor Space Demand

Retail Category	2019 (m^2 GLA)	2024 (m^2 GLA)	2029 (m^2 GLA)
Bulk groceries	187 648	199 121	211 297
Top-up groceries	56 096	59 526	63 165
Clothing, shoes, accessories	114 600	121 608	129 044
Furniture and home ware	33 625	35 681	37 863
Hardware goods	12 352	13 107	13 909
Gifts, books and confectionary	22 718	24 107	25 581
Specialty / value goods	7 368	7 818	8 297
Restaurants, entertainment	85 093	90 296	95 817
Personal care	26 763	28 399	30 136
Other personal goods & services	43 233	45 876	48 681
TOTAL	589 495	625 540	663 789

DEMAND POTENTIAL

Retail tenant mix apportionment – 10 to 15 year demand

Retail Category	Min Demand (m^2)	Max Demand (m^2)	Midpoint (m^2)	Floor space apportionment (%)
Bulk groceries	15 012	22 518	18 765	31,8%
Top-up groceries	4 488	6 731	5 610	9,5%
Clothing, shoes, accessories	9 168	13 752	11 460	19,4%
Furniture and home ware	2 690	4 035	3 363	5,7%
Hardware goods	988	1 482	1 235	2,1%
Gifts, books and confectionary	1 817	2 726	2 272	3,9%
Specialty / value goods	589	884	737	1,2%
Restaurants, entertainment	6 807	10 211	8 509	14,4%
Personal care	2 141	3 212	2 676	4,5%
Other personal goods & services	3 459	5 188	4 323	7,3%
TOTAL	47 160	70 739	58 950	100,0%

Ideal tenant mix apportionment at optimum point of market entry

Retail Category	OPTION 1: Short to Medium Term - Min Demand (m^2)	OPTION 2: Short to Medium Term - Min Demand (m^2)
Groceries	33 821	9 301
Clothing, shoes, accessories	15 902	4 373
Furniture and home ware	4 666	1 283
Hardware goods	1 714	471
Gifts, books and confectionary	3 152	867
Specialty / value goods	1 022	281
Restaurants, entertainment	11 807	3 247
Personal care	3 714	1 021
Other personal goods & services	5 999	1 650
TOTAL	81 797	22 494

Retail Demand Analysis – LSM 4 to 10+

GAP ANALYSIS

Development Type

Regional Shopping Centre

Effective Market Gap

Yes

Development Prospects

Moderate

The retail demand modelling for the LSM 4 – 10+ market, suggests that the optimum centre size over the *short to medium term* could ideally measure a centre of **±81 797m² GLA.**

OPTION 1: RECOMMENDED CENTRE OPTIONS

	LSM 4 – 10+ (Rand / sqm)
Total annual growth in market demand (sqm/a)	7 209
Centre share of growth (sqm/a)	721
Point of market entry	2022+
Additional growth in demand for centre (sqm)	6 488
Retail GLA at OPME	65 438
Services GLA at OPME	16 359
Cinemans & Entertainment	-
OPME Centre Size (sqm GLA)	**81 797m²**
On-site job creation	2 727
Retail Sales potential (R2019 value)	R3 077 863 569
Total capital investment (R2019 value)	R1 554 142 999
Additional Parking bays required	3 272
Parking infrastructure & landscaping cost	R77 870 744

CENTRE SIZE AND RECOMMENDATIONS

OPTION 1:

Size and parking:

- ✓ The short to medium term prospect is for a **regional shopping centre**.
- ✓ Market data suggests that the optimum size for a new shopping centre over the short to medium term measuring ideally **±81 797m² GLA**.
- ✓ The optimum point of market entry for the first phase would be **2026+** and the second phase **2022+.**
- ✓ The proposed convenience / lifestyle retail centre should be able to attain an annual sales potential of approximately **R3 077 863 569** (based on benchmark trading densities) & permanent on-site job creation of **±2 727**.
- ✓ Performance will be dependent on, inter alia, appropriate tenant composition.
- ✓ The regional centre could include between **150 to 250** shops
- ✓ Ample parking should be provided at a ratio of **6 bays per 100m²** retail GLA
- ✓ The parking area should be accessible, convenient, paved and well-lit in the evenings
- ✓ Land should be reserved for future expansion phase

Main Tenants (Regional Centre):

- ✓ Large Supermarket(s) or hyper
- ✓ 3 or more large clothing stores
- ✓ Small clothing stores and boutiques
- ✓ Entertainment, restaurants
- ✓ Services
- ✓ Convenience stores

Retail Demand Analysis – LSM 4 to 10+

GAP ANALYSIS

Development Type

Convenience / Lifestyle

Effective Market Gap

Yes

Development Prospects

Moderate to High

The retail demand modelling for the LSM 4 – 10+ market, suggests that the optimum centre size over the *short to medium term* could ideally measure a centre of ± **22 494m² GLA.**

OPTION 2: RECOMMENDED CENTRE OPTIONS

	LSM 4 – 10+ (Rand / sqm)
Total annual growth in market demand (sqm/a)	7 209
Centre share of growth (sqm/a)	198
Point of market entry	2022+
Additional growth in demand for centre (sqm)	1 784
Retail GLA at OPME	17 995
Services GLA at OPME	4 499
Cinemas & Entertainment	-
OPME Centre Size (sqm GLA)	**22 494m²**
On-site job creation	750
Retail Sales potential (R2019 value)	R846 412 482
Total capital investment (R2019 value)	R427 389 325
Additional Parking bays required	900
Parking infrastructure & landscaping cost	R21 414 455

CENTRE SIZE AND RECOMMENDATIONS

OPTION 2

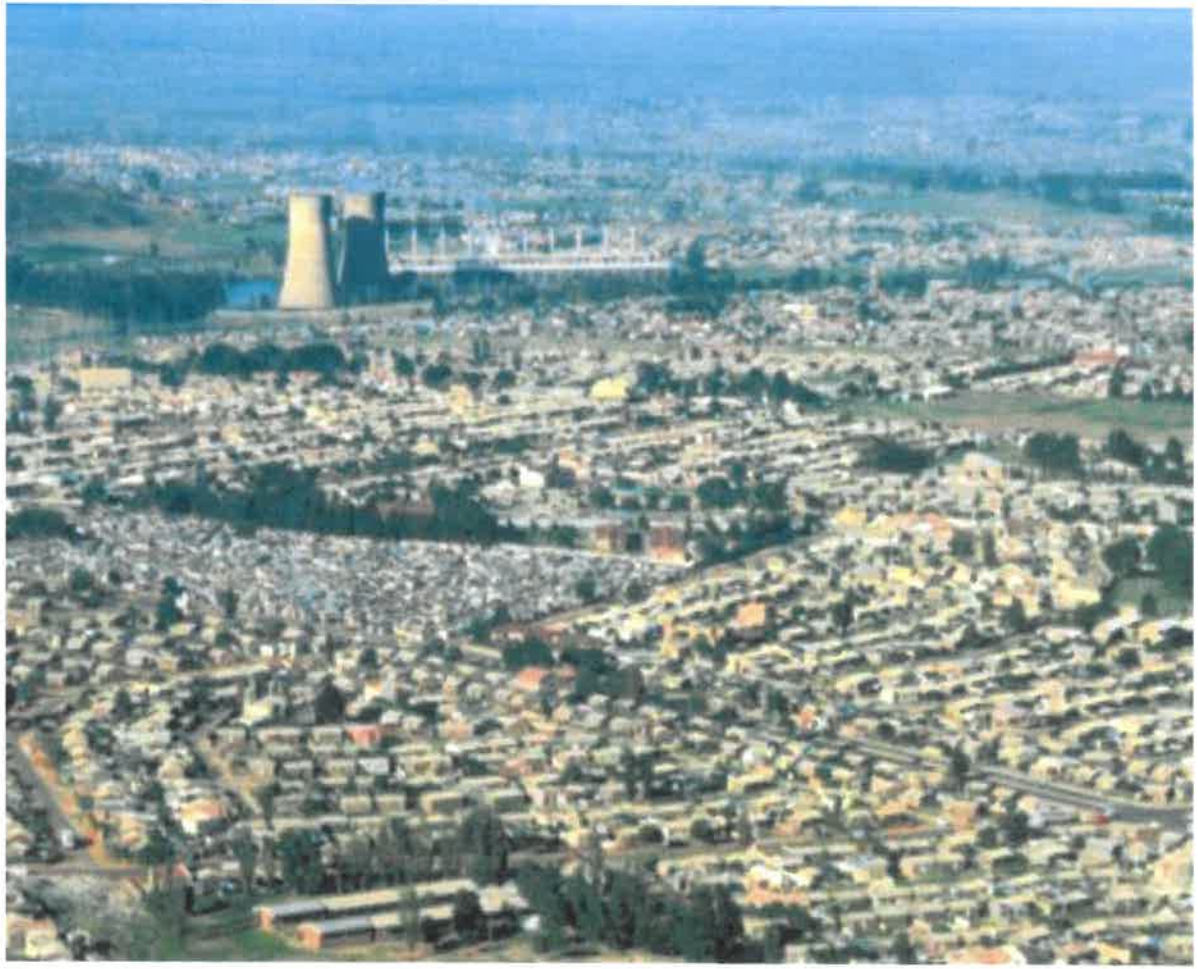
Size and parking:

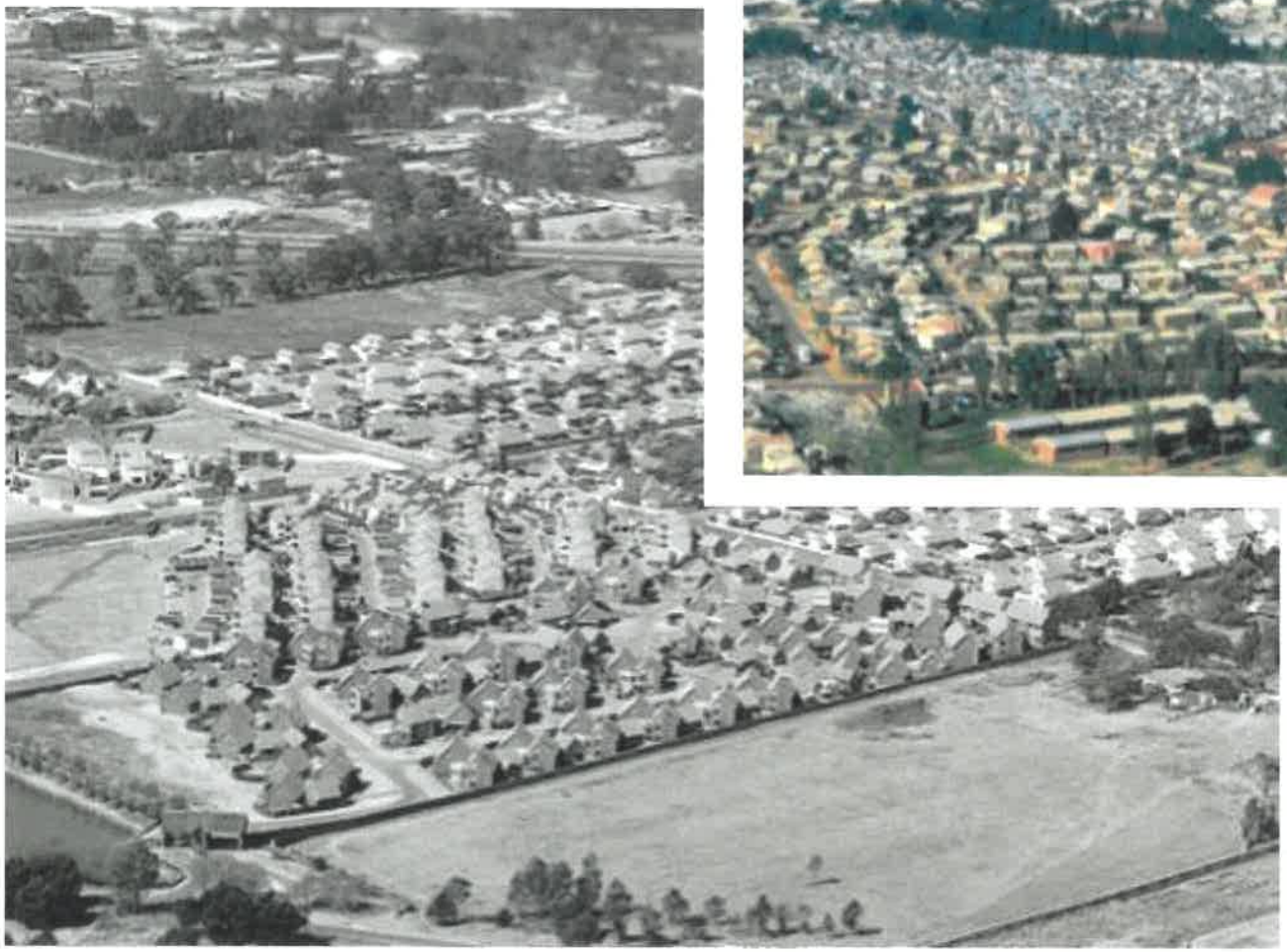
- ✓ The short to medium term prospect is for a **convenience / lifestyle shopping centre.**
- ✓ Market data suggests that the optimum size for a new shopping centre over the short to medium term measuring ideally ±**22 494m² GLA.**
- ✓ The optimum point of market entry for the first phase would be **2026+** and the second phase **2022+.**
- ✓ The proposed convenience / lifestyle retail centre should be able to attain an annual sales potential of approximately **R846 412 482** (based on benchmark trading densities) & permanent on-site job creation of ±**750**.
- ✓ Performance will be dependent on, inter alia, appropriate tenant composition.
- ✓ The regional centre could include between **50 to 100** shops
- ✓ Ample parking should be provided at a ratio of **6 bays per 100m²** retail GLA
- ✓ The parking area should be accessible, convenient, paved and well-lit in the evenings
- ✓ Land should be reserved for future expansion phase

Main Tenants (Convenience / Lifestyle Centre):

- ✓ Large Supermarket
- ✓ Convenience
- ✓ Small national clothing stores
- ✓ Entertainment & takeaways
- ✓ Services

AUTOMOTIVE MARKET ANALYSIS





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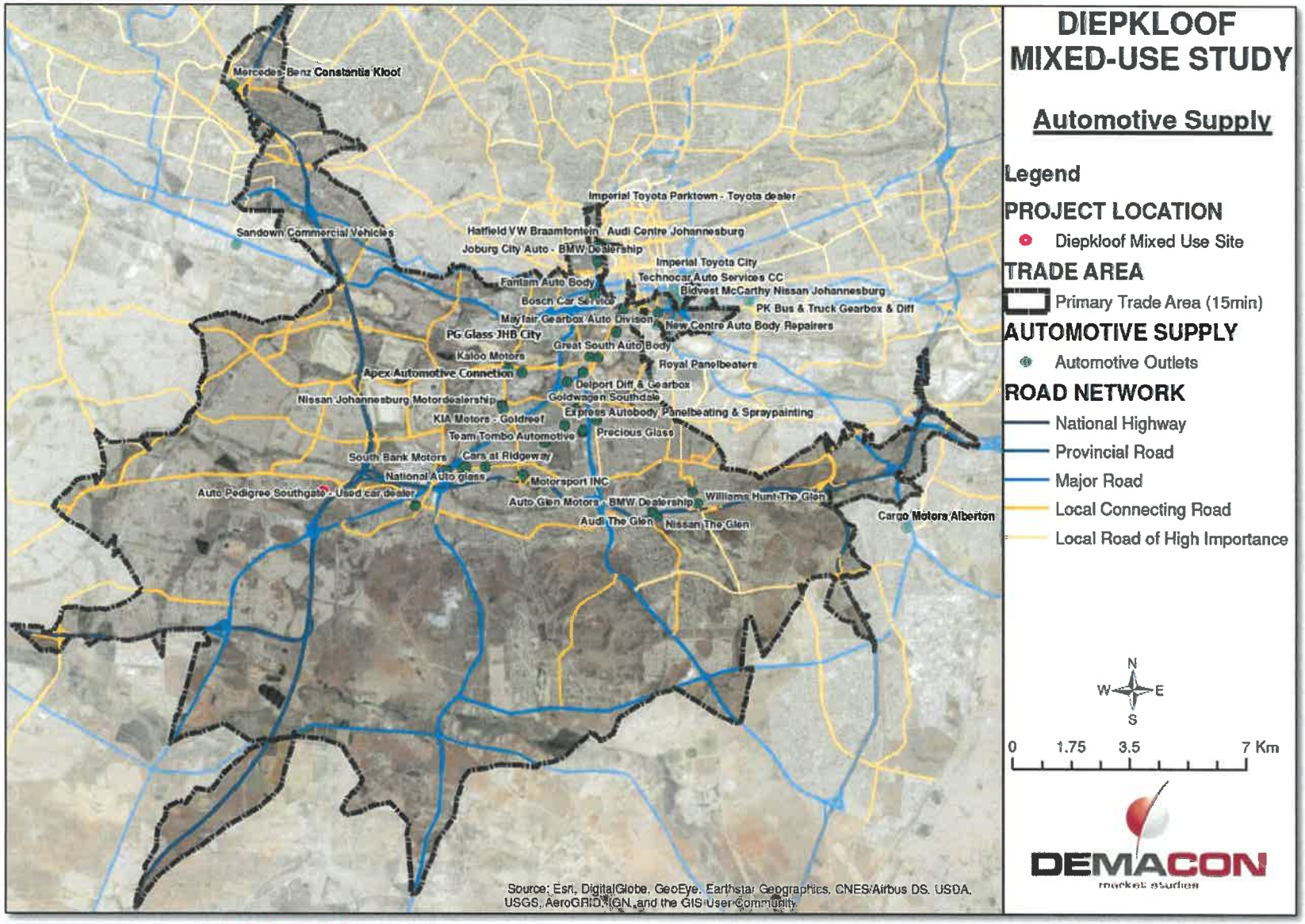
Automotive Supply Analysis



Automotive & Related Supply Analysis

Business Name	Business Type	Physical Address	Suburb
All-O-Matic Transmissions	Transmission shop	10 Palmer St	Booysens
Apex Automotive connection	Car Repair and Maintenance	29 4th St, Booysens Reserve	Johannesburg South
Audi Centre Johannesburg	Dealership	51-55 Juta St	Johannesburg
Audi The Glen	Dealership	2 Amanda Avenue	Gleneagles
Auto Glen Motors - BMW Dealership	Dealership	Cnr Middle Ln & Oak Ave	Oakdene
Auto Pedigree Southgate - Used car dealer	Dealership	Columbine Ave	Meredale
Bidvest McCarthy Nissan Johannesburg -	Dealership	3-5 End St	City and Suburban Johannesburg
Bosch Car Service	Auto repair shop	68 Booysens Rd	Selby
Cargo Motors Alberton - Mercedes Benz dealer	Dealership	Padstow St	Alberton
Cars At Ridgeway - Used car dealer	Dealership	Corner Rifle Range, 1 Keats St	Ridgeway
Danmar Auto Body	Auto Body Shop	39 Earp St	Ophirton
Delport Diff & Gearbox	Auto parts store	1 Booysens Rd	Booysens
Express Autobody Panelbeating & Spraypainting	Auto repair shop	53 Jasper Rd	Robertsham
Fantam Auto Body	Auto repair shop	24 Marshall St	Westgate
Freeway Toyota - Johannesburg - Toyota dealer	Dealership	Corner Northern Parkway & Crownwood Rd	Ormonde
Goldwagen Southdale	Auto parts store	30 Alamein Road, Southdale Shopping Centre	Southdale
Great South Auto Body	Auto body shop	10 Wagner St Cnr Rawbone & Hilliard	Booysens
Hatfield VW Braamfontein - Volkswagen dealer	Dealership	30 De Korte St	Johannesburg
Imperial Toyota City	Dealership	271 Commissioner St	Jeppestown
Imperial Toyota Parktown - Toyota dealer	Dealership	67 Empire Rd	Parktown
Involve Vogue Parts	Auto parts store	80 Harry St	Robertsham
Jeppe Glass	Auto glass shop	61 Hay St	Booysens
Joburg City Auto - BMW Dealership	Dealership	93 Carr St	Newtown
John Morrison Panelbeaters	Auto restoration service	7 Meike Street	City & Suburban
Kaloo Motors - Car dealer	Dealership	Goldreef Business Park, 119 Booysens Reserve Rd, Theta	Johannesburg South
KIA Motors - Goldreef	Dealership	Crownwood Rd & Northern Pkwy	Ormonde
Mayfair Gearbox Auto Divison	Corporate office	4 Richard St	Selby
Mercedes-Benz Constantia Kloof	Dealership	Cnr Hendrick Potgieter & William Nicol Dr	Constantia Kloof
Mercedes-Benz/ Cargo Motors M2 City	Dealership	Cnr Droste Crescent and Maritzburg St	Johannesburg
Motor Accident Group	Auto body parts supplier	80 Booysens Rd	Selby
Motorsport INC	Car Repair and Maintenance	Cnr Xavier & Verona St	Winchester Hills Ext 3
National Auto glass	Auto glass shop	37 Rifle Range Rd	Ridgeway
New Centre Auto Body Repairers	Auto body shop	34 Roper St	New Centre
Nissan Johannesburg Motordeal - Nissan dealer	Dealership	100 Crownwood Rd	Ormonde
Nissan The Glen	Dealership	Skukusa Rd & Lois Avenue	Bassonia
Ophirton Glass Works	Auto glass shop	Ophir-Booysens Rd	Ophirton
PK Bus & Truck Gearbox & Diff	Truck parts supplier	20 Ruven Rd	Benrose
Precious Glass	Glass & Mirror Shop	61 Garden St	Turffontein
Pro Garage Automotive Repair Service	Auto Repair Shop	22 Chromium St	Amalgam
Royal Panelbeaters	Auto Repair Shop	12 La Rochelle Rd, Cnr Hippo St	Stafford
Sandown Commercial Vehicles - Mercedes Benz	Dealership	1141 Leader Ave, Stormill	Roodepoort
South Bank Motors	Dealership	1 Nasrec Rd	Ormonde
Steimar Automotive Refinishers	Car Repair and Maintenance	89 Rosettenville Rd	Village Main
Success Fitment Centre	Car Repair and Maintenance	33 Rosettenville Rd	Village Main
Super Cars - Car dealer	Dealership	Cnr Visage Street, 5 Rifle Range Rd	Ridgeway
Team Tombo Automotive	Radiator repair service	156 Side Rd, West Turffontein	West Turffontein
Technocar Auto Services CC	Auto repair shop	115 Albert St	City & Suburban
The Magwheel Surgeon	Wheel store	34 Amsterdam Ave	Park Central, Selby
Truck & Car Body Repairs	Auto repair shop	5 Sophia Rd	West Turffontein
Williams Hunt The Glen	Dealership	Comaro St	Oakdene
Wolfsburg Auto Salvage - BMW Dealer	Dealership	19 Van Riebeeck Ave	Johannesburg

Automotive Demand Analysis

GAP ANALYSIS

Development Type

Automotive fitment centres, outdoor, sales etc

Effective Market Gap

Yes

Development Prospects

Moderate to High

Demacon's Demand Modelling results illustrate that the consumer market can sustain automotive fitment centres / ancillary services / sales / motorcycles / trailers / roof racks, 4x4 safari / outdoor type of services of approximately **12 641m²** with the optimum point of market entry in **2023+**.

SPACE DEMAND MODELLING RESULTS

Cumulative Additional Space Demand	2024	2029	2034	2039
Wholesale & Retail Trade (sqm GLA)	157 222	337 651	557 709	728 958
Catering & Accommodation (sqm GLA)	9 849	16 201	28 226	48 597
TOTAL: Soweto Local Economy	**167 071**	**353 853**	**585 935**	**777 554**
At 28.58% automotive	**12 068**	**47 749**	**101 131**	**167 460**
Project Share - min	1 207	4 775	10 113	16 746
Project Share - max	1 810	7 162	15 170	25 119
Average	**1 508**	**5 969**	**12 641**	**20 933**

PROJECT SPACE DEMAND RESULTS - M² GLA (CUMULATIVE)

Forecast	Square metre (m²)
Up to 2024	1 000m² – 1 500m²
2024 – 2029	5 500m² – 10 000m²
2034 – 2039	12 000m² – 15 000m²
2039+	20 000m² – 25 000m²

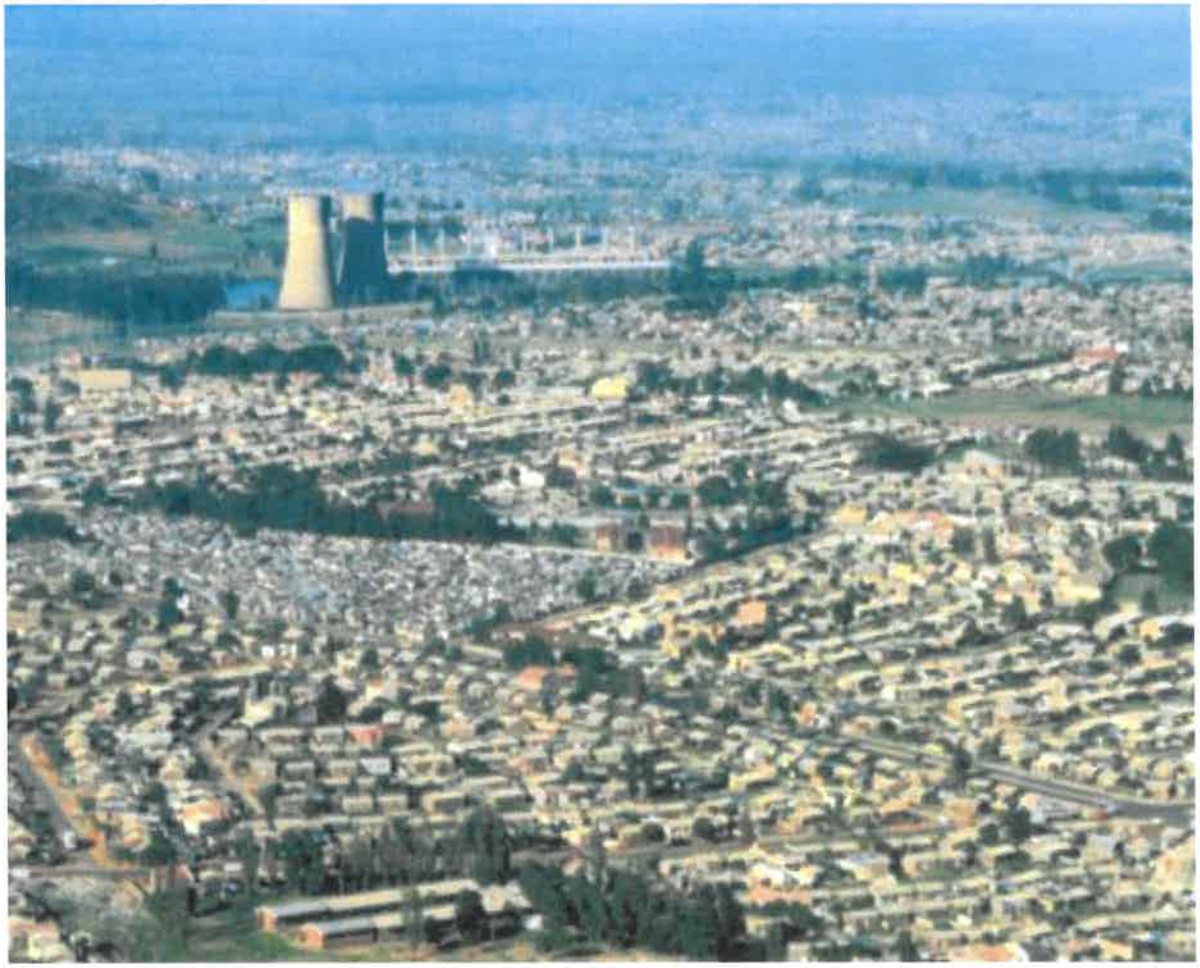
SITE SPECIFIC SIZING (20-YEAR TIMEFRAME)

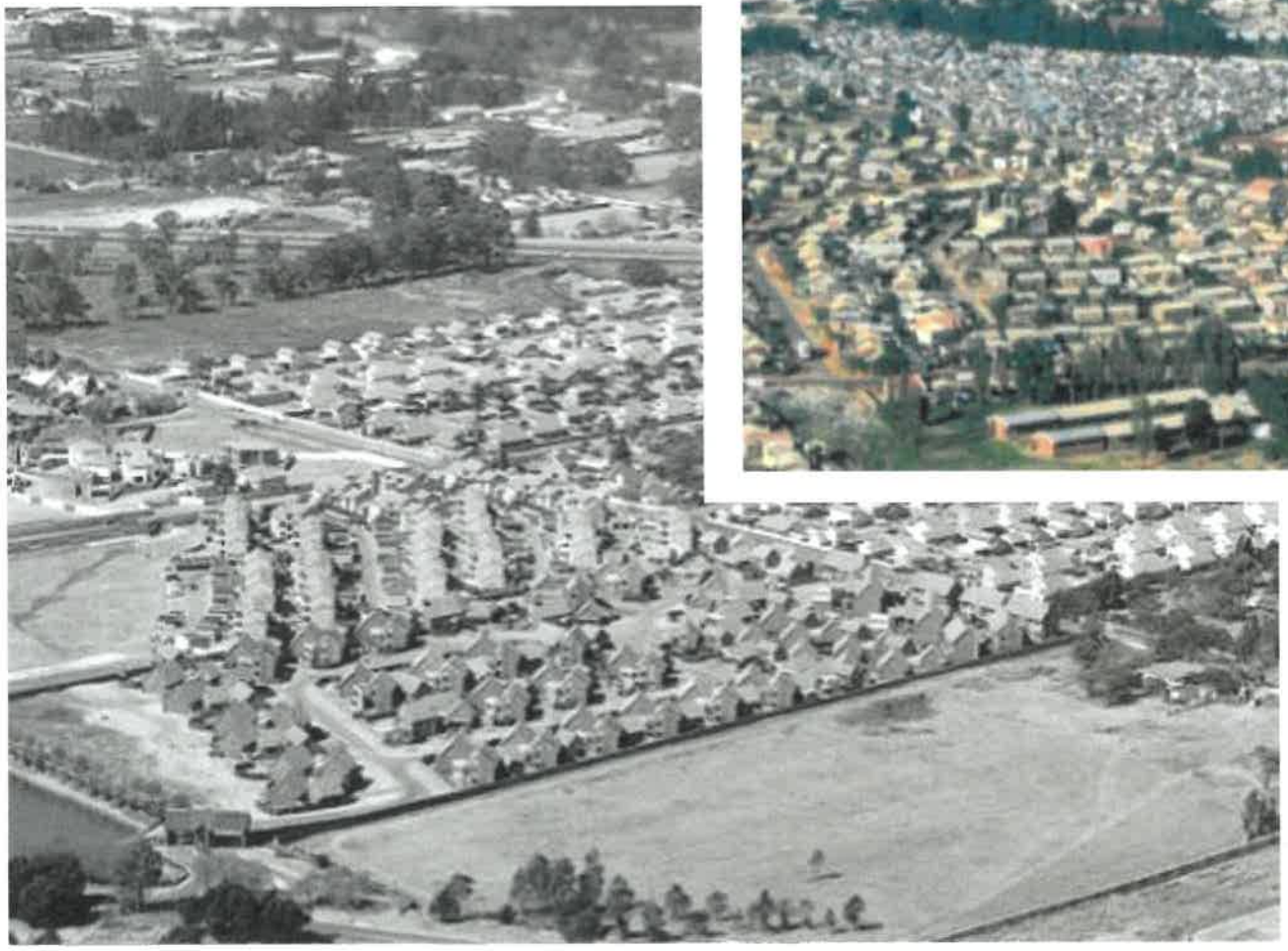
	Rand per annum / m²
Capital investment (2019 constant values)	R214 903 505
Employment opportunities	294
Parking	352
Parking infrastructure & landscaping cost (2019 constant values)	R8 382 965
Point of market entry	2023+
Size of development (sqm) (up to 2029)	**12 641m²**

The following is evident from the above tables:

- ✓ Trade sector market demand in **Soweto Local Economy** increases cumulatively from 167 071m² GLA in 2024 to 777 554m² GLA in 2039.
- ✓ Market demand for **automotive floor space** in the trade area increases cumulatively from 12 068m² in 2024 up to 167 460m² GLA in 2039.
- ✓ Proposed size of development over the short to medium term amounts to approximately **12 641m²**.
- ✓ This floor space could include:
  - Selected automotive dealerships – scope for 2 to 3 dealerships
  - workshops & fitment centres,
  - speciality shops and services,
  - Motorcycles, quads
  - Outdoor, 4x4 and camping.
- ✓ Optimum point of market entry: **2023+**

OFFICE MARKET ANALYSIS





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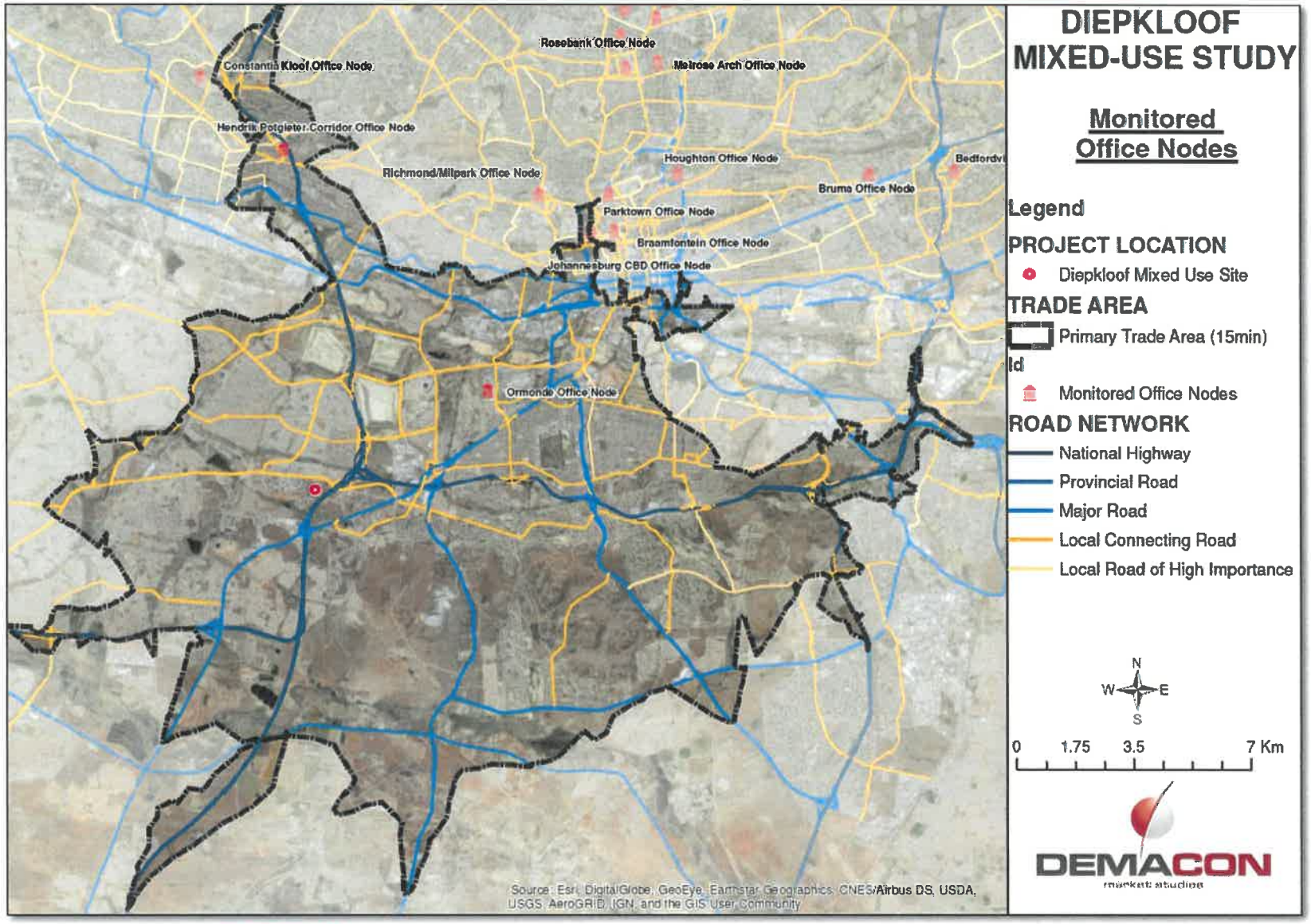
Office Nodes

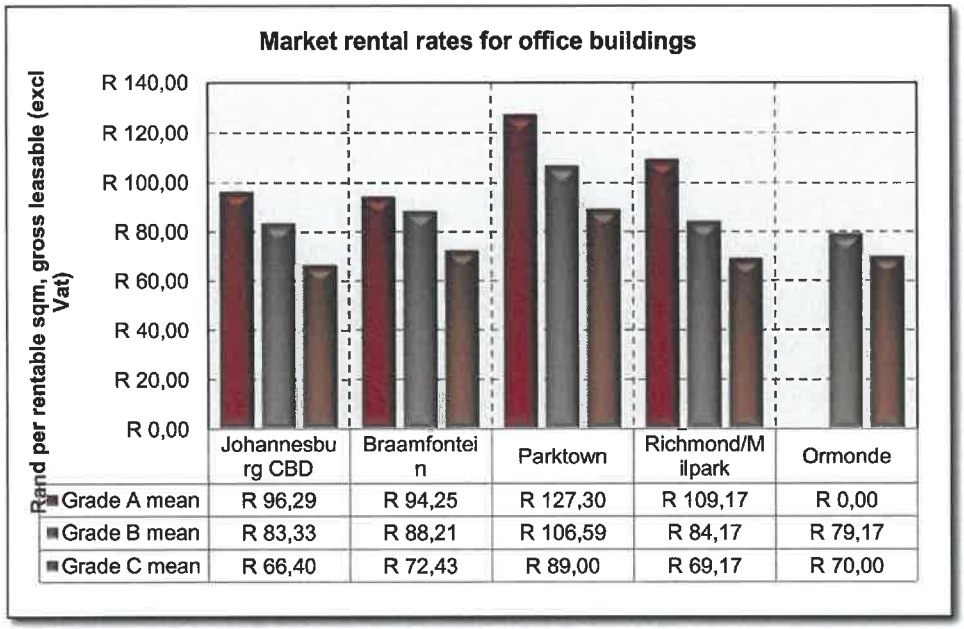


Office Market Indicators

The following section summarises the office market indicators for the **most prominent monitored nodes** in vicinity of the Diepkloof site which could be used as proxy.

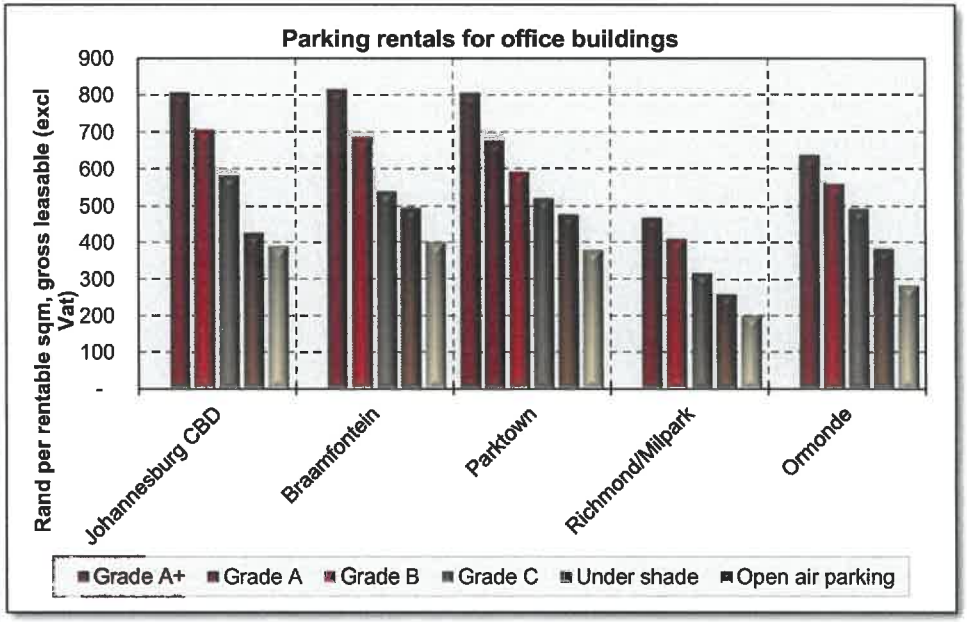
OFFICE MARKET RENTAL RATES

OFFICE NODES	GRADE A+	GRADE A mean	GRADE B Mean	GRADE C Mean
Johannesburg CBD	-	R 96,29	R 83,33	R 66,40
Braamfontein	-	R 94,25	R 88,21	R 72,43
Parktown	-	R 127,30	R 106,59	R 89,00
Richmond/Milpark	-	R 109,17	R 84,17	R 69,17



OFFICE PARKING RATES

	Covered				Under shade	Open air parking
	Grade A+	Grade A	Grade B	Grade C		
Johannesburg CBD	-	807	706	581	425	389
Braamfontein	-	815	686	538	494	399
Parktown	806	675	591	520	476	378
Richmond/Milpark	-	467	408	317	258	200



The nearest monitored office nodes to the site are **Ormonde, Johannesburg CBD, Braamfontein, Parktown and Richmond / Milpark** with rentals commanded in the region of **R96 to R109 per m²** (gross rent ex VAT) for Grade A office space and **R79 to R106 per m²** (gross rent ex VAT) for Grade B office space.

- ✓ Parking rental rates (covered parking) commanded in the surrounding nodes are in the region of **R460 to R815** for Grade A offices, **R258 to R494** for open-air parking and **R200 to R399** for under shade parking.
- ✓ .

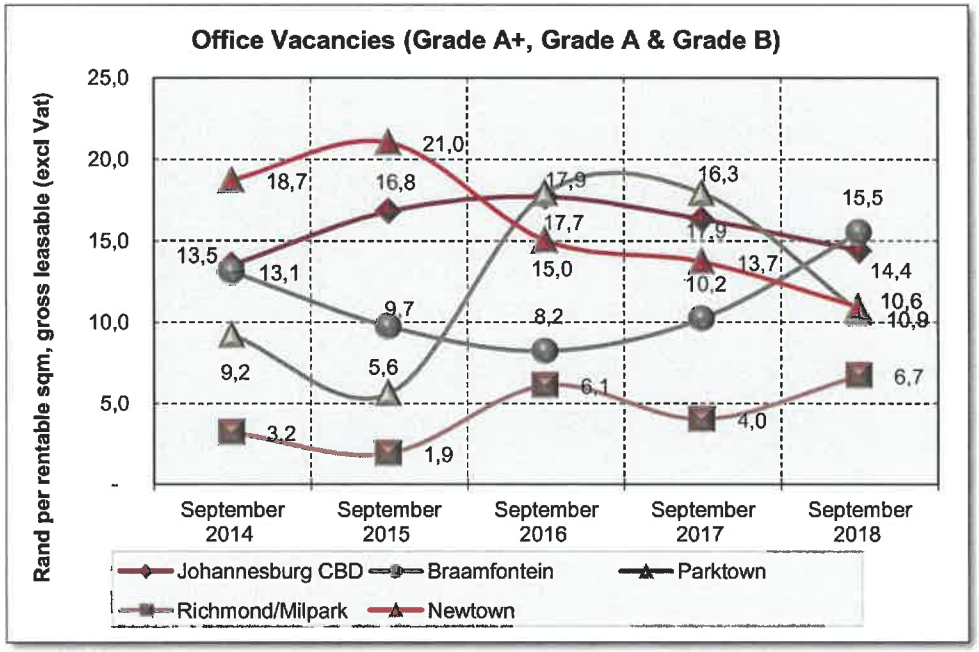
Office Market Indicators

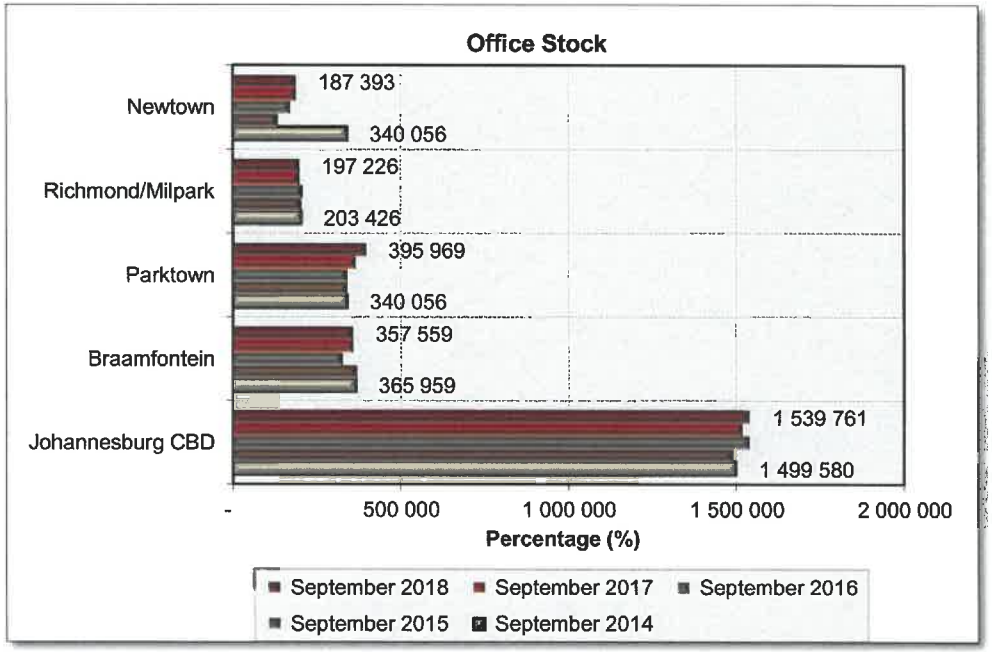
OFFICE VACANCY

	Sept 2014	Sept 2015	Sept 2016	Sept 2017	Sept 2018
Johannesburg CBD	13,5	16,8	17,7	16,3	14,4
Braamfontein	13,1	9,7	8,2	10,2	15,5
Parktown	9,2	5,6	17,9	17,9	10,6
Richmond/Milpark	3,2	1,9	6,1	4,0	6,7
Newtown	18,7	21,0	15,0	13,7	10,9

OFFICE STOCK

	Sept 2014	Sept 2015	Sept 2016	Sept 2017	Sept 2018
Johannesburg CBD	1 499 580	1 490 868	1 539 967	1 518 583	1 539 761
Braamfontein	365 959	368 959	325 659	357 559	357 559
Parktown	340 056	340 056	340 056	364 769	395 969
Richmond/Milpark	203 426	203 726	206 826	197 226	197 226
Newtown	340 056	133 559	169 559	187 393	187 393





Office Demand Modelling

GAP ANALYSIS

Demacon's demand modelling indicated office potential of approximately **62 126m² (say 60 000 to 65 000m²) office GLA over the short to medium term**. This space includes GLA for offices and related facilities, but excludes parking, storage and basements. The optimum point of market entry would be **2024+**.

SPACE DEMAND MODELLING RESULTS – m² GLA (Cumulative)

Cumulative Additional Space Demand	Up to 2024	2029	2034	2039
Finance & Insurance *(sqm GLA)*	121 284	147 572	175 342	203 044
Business services *(sqm GLA)*	102 277	266 604	430 335	529 609
TOTAL: Soweto Local Economy	**223 561**	**414 176**	**605 677**	**732 654**
Nodal Share - Min	**22 356**	**41 418**	**60 568**	**73 265**
Nodal Share - Max	**44 712**	**82 835**	**121 135**	**146 531**
Average*	**33 534**	**62 126**	**90 852**	**109 898**

PROJECT SPACE DEMAND FORECAST SUMMARY

Forecast	Hectares
Up to 2024	30 000m² – 40 000m²
2024 – 2029	60 000m² – 65 000m²
2034 – 2039	90 000m² – 95 000m²
2039+	100 000m² – 110 000m²

SITE SPECIFIC SIZING (20-YEAR TIMEFRAME)

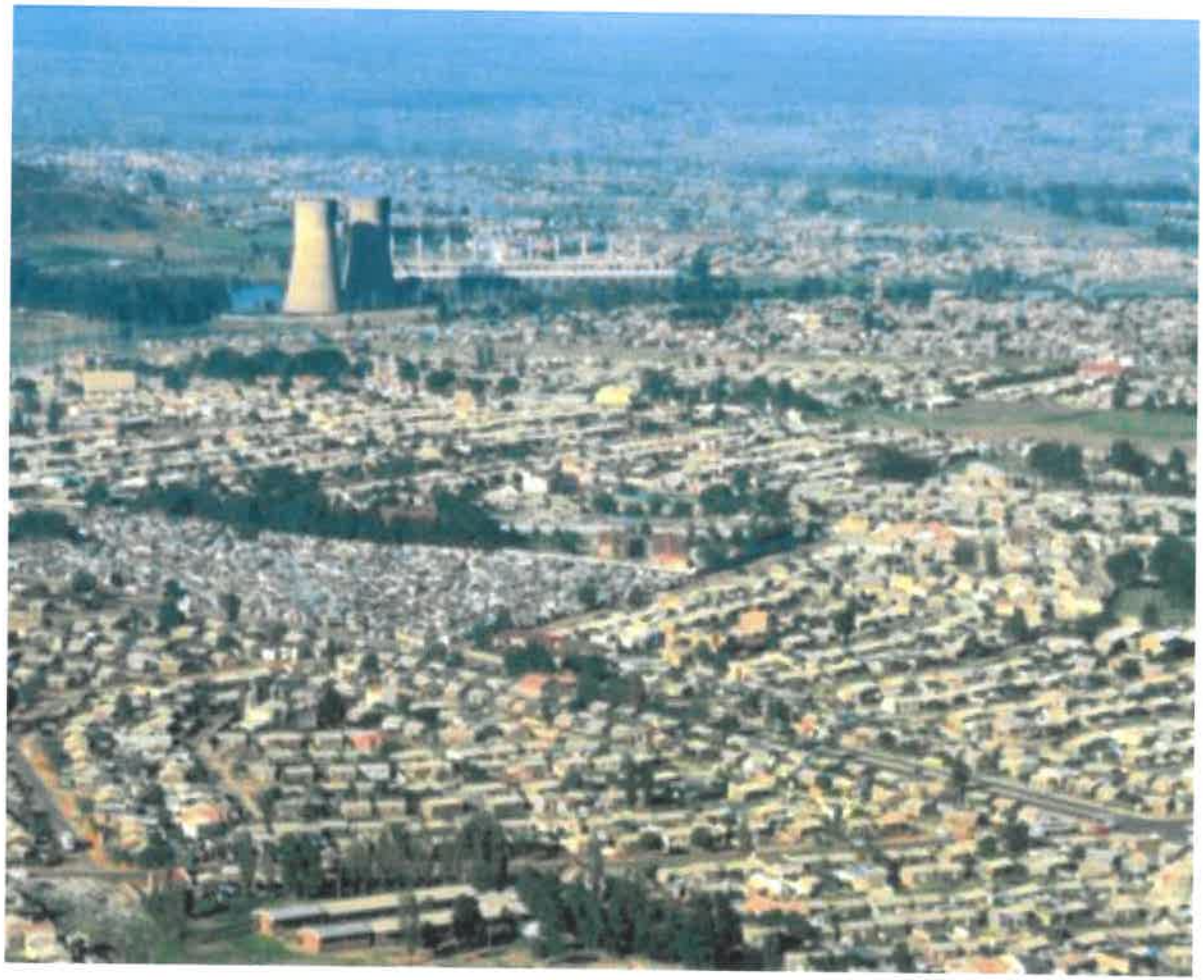
Variables	Rand per annum / m²
Capital Investment (2019 constant values)	R 1 242 529 292
Optimum size (GLA – 2034)	**62 126m²**
Employment (on-site)	3 106
Parking bays	2 485
Parking infrastructure & landscaping cost (2019 constant values)	R 59 144 394
Point of market entry	2024+

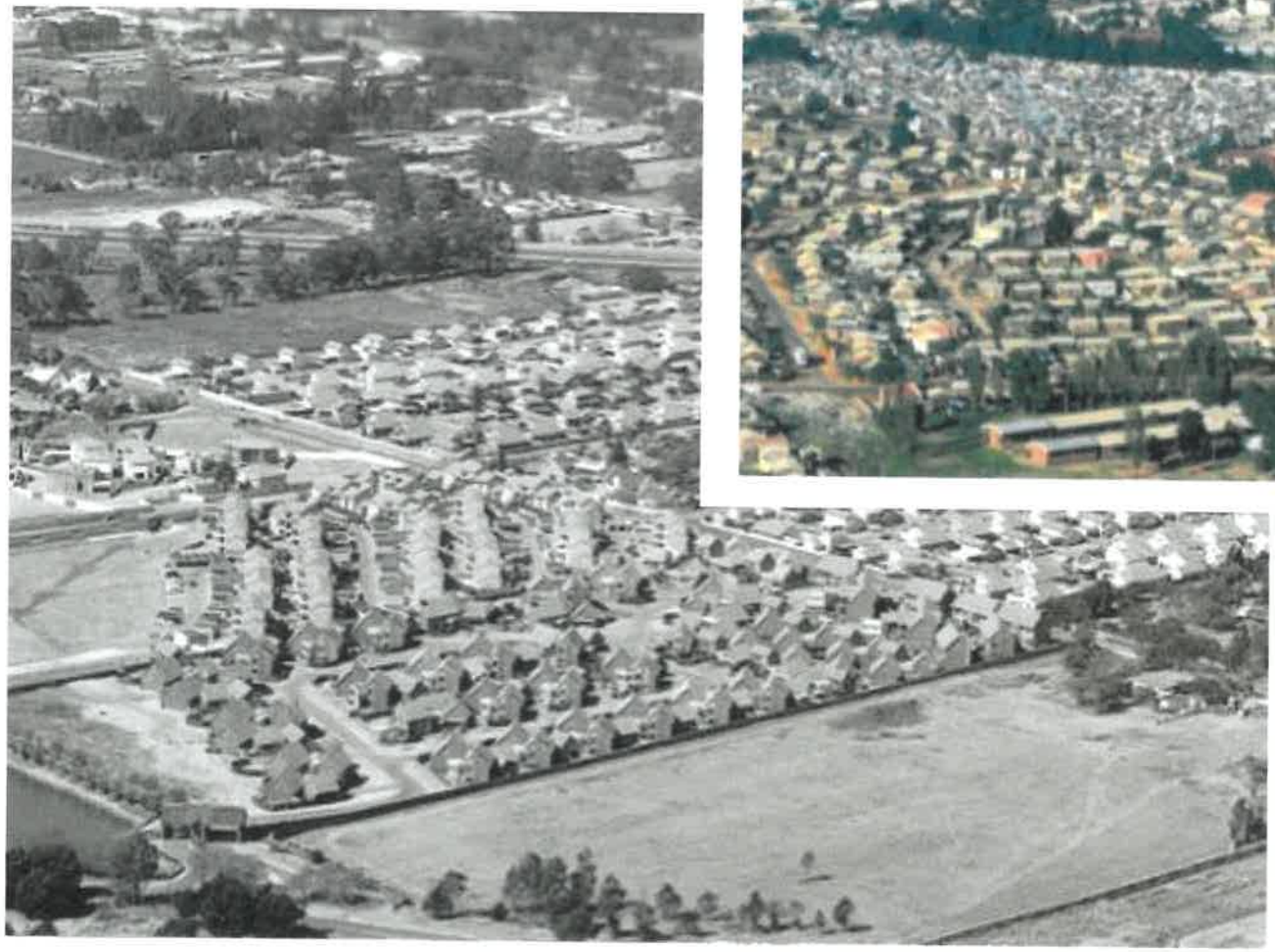
SYNTHESIS

The following emerged from preceding paragraphs:

- ✓ Market demand for office floor space in **Soweto Local Economy** increases cumulatively from 223 561m² GLA in 2024 to 732 654m² GLA in 2039.
- ✓ The maximum nodal absorption increases from 44 712m² in 2024 to 146 531m² in 2039.
- ✓ Over the short to medium term, the project could attract office take-up of approximately **62 126m²** (say 60 000m² to 65 000m²)
- ✓ Optimum point of market entry: **2024+**
- ✓ The development could be configured as a **hybrid business park** including offices and commercial buildings, positioned to draw optimum benefit from N1 freeway sight value and exposure.

INDUSTRIAL MARKET ANALYSIS





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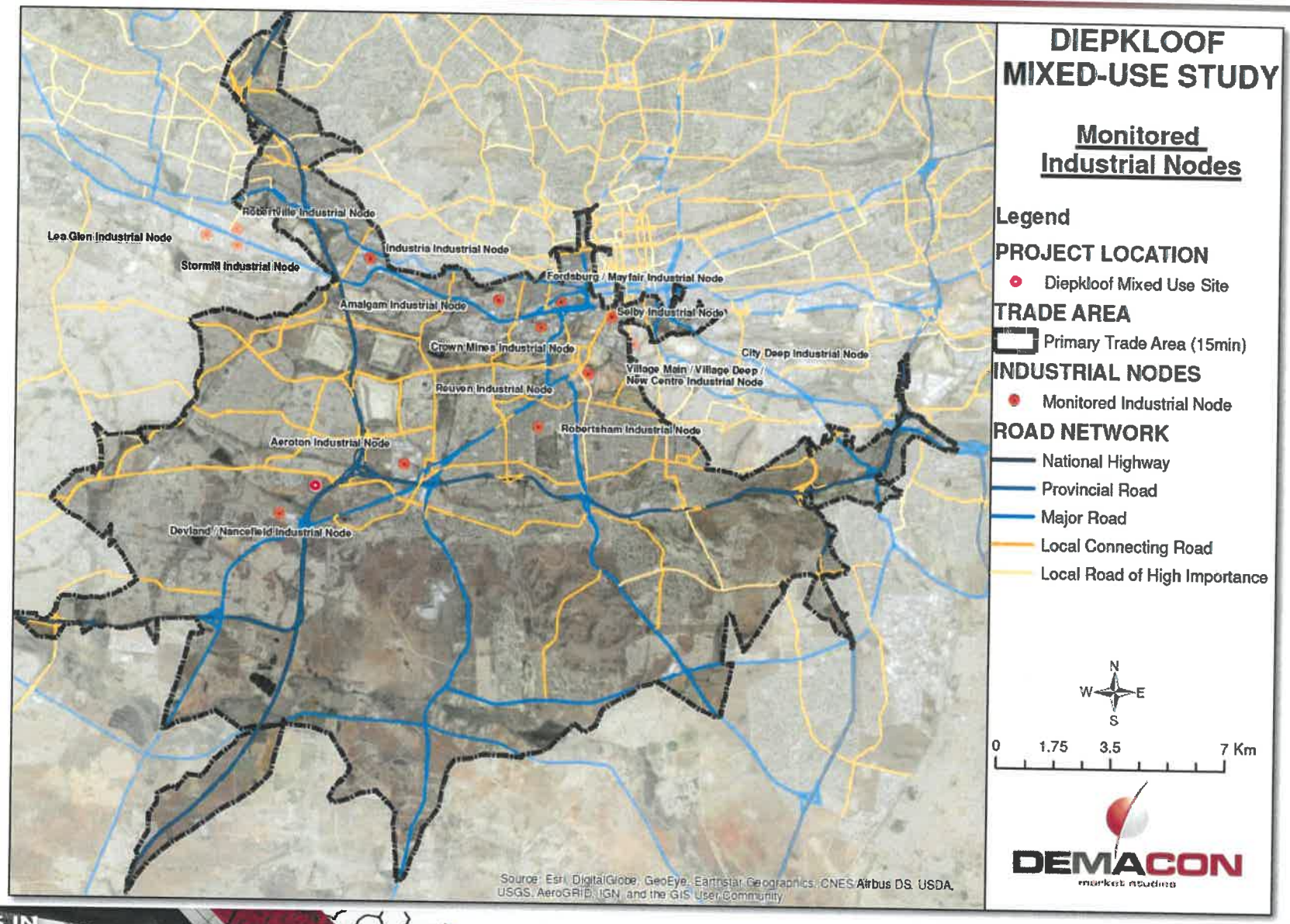
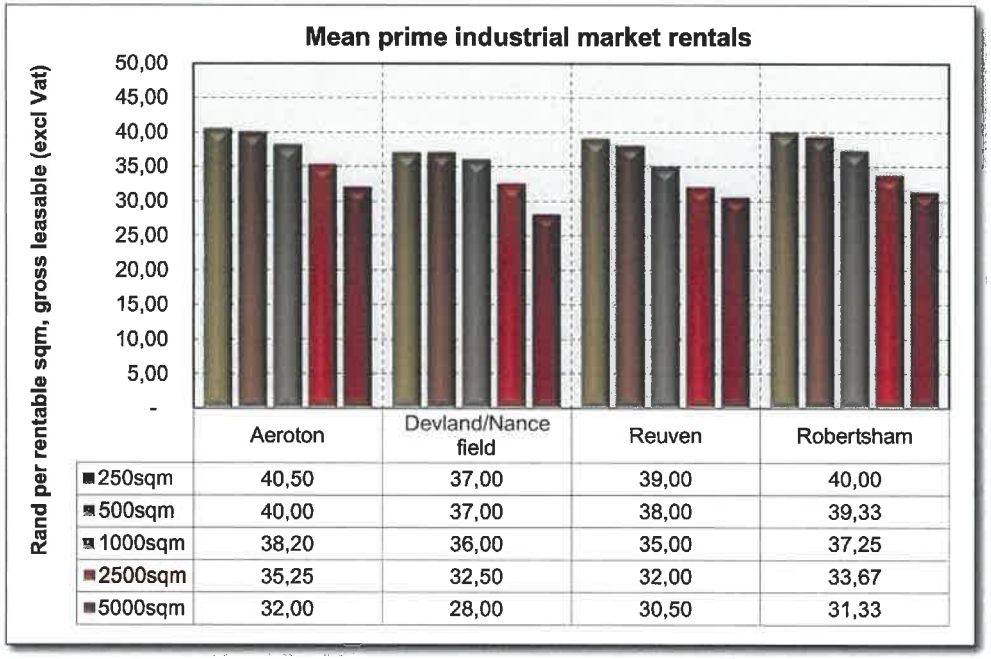
Industrial Monitored Nodes



Industrial Market Indicators

MEAN PRIME INDUSTRIAL MARKET RENTALS

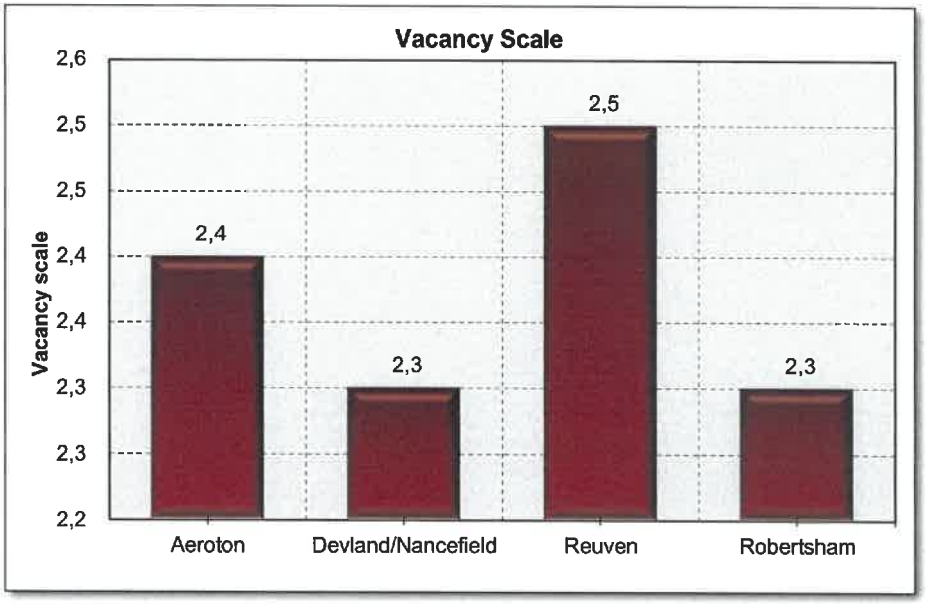
Nodes	Area size leased in m²					Vacancy
	250	500	1000	2500	5000	
Aeroton	40,50	40,00	38,20	35,25	32,00	2,40
Devland/Nancefield	37,00	37,00	36,00	32,50	28,00	2,30
Reuven	39,00	38,00	35,00	32,00	30,50	2,50
Robertsham	40,00	39,33	37,25	33,67	31,33	2,30



Industrial rentals in the immediate vicinity include:

- ✓ Aeroton – R32.00 to R40.50 per m²
- ✓ Devland / Nancefield – R28 to R37 per m²
- ✓ Reuven – R30.50 to R39.00 per m²
- ✓ Robertsham – R31.33 to R40.00 per m²

INDUSTRIAL VACANCY SCALE

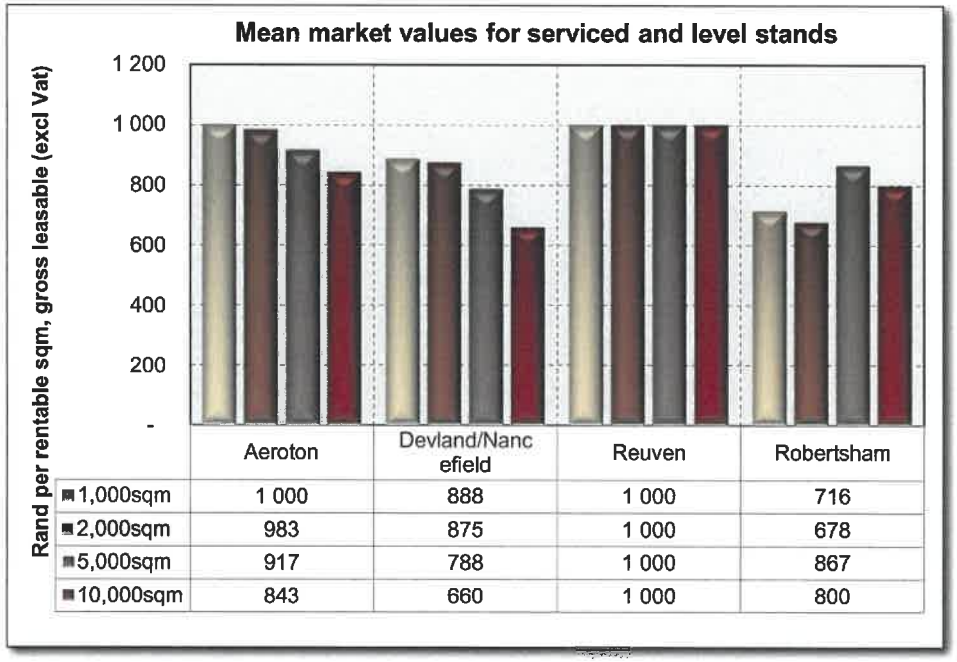


Vacancy scale for industrial townships. The vacancy levels are based on a scale of 0 to 9 as shown below:

0	1 2 3	4 5 6	7 8 9
Nil	Low	Medium	High

Industrial Market Indicators

MEAN MARKET VALUES FOR SERVICED AND LEVEL INDUSTRIAL STANDS



	Area size leased in m²				Vacancy
	1 000m²	2 000m²	5 000m²	10 000m²	
Aeroton	1 000	983	917	843	2,3
Devland/Nancefield	888	875	788	660	2,5
Reuven	1 000	1 000	1 000	1 000	-
Robertsham	716	678	867	800	1,7

Stand values in the immediate vicinity include:

- ✓ Aeroton – R843 to R1 000
- ✓ Devland / Nancefield – R660 to R888
- ✓ Reuven – R1000
- ✓ Robertsham – R716 to R800

Industrial Demand Modelling

GAP ANALYSIS

Development Type
Light industrial / warehousing

Effective Market Gap
Yes

Development Prospects
Moderate

Demacon's Demand Modelling results illustrate that the consumer market can sustain light industrial, warehousing & distribution development up to **±11.01 hectares (60 579m²)** in the market area over the short to medium term. The optimum point of market entry in **2024+.**

SPACE DEMAND MODELLING RESULTS – m² GLA (Cumulative)

Cumulative Additional Land Demand	Up to 2024	2024 – 2029	2029 - 2034	2034 - 2039
Total Manufacturing (Hectares)	20,71	34,35	57,54	73,70
Total Warehousing (Hectares)	30,57	53,77	93,81	121,71
Total Hectares (Soweto)	**51,28**	**88,11**	**151,35**	**195,41**
Minimum Share	5,13	8,81	15,14	19,54
Maximum Share	7,69	13,22	22,70	29,31
Total Hectares	6,41	11,01	18,92	24,43
Development Bulk (sqm)	35 254	60 579	94 594	122 131

DEMAND FORECAST SUMMARY

Forecast	Hectares
Up to 2024	6 hectares – 10 hectares
2024 – 2029	10 hectares – 15 hectares
2034 – 2039	15 hectares – 20 hectares
2039+	20 hectares – 25 hectares

SITE SPECIFIC SIZING (20-YEAR TIMEFRAME)

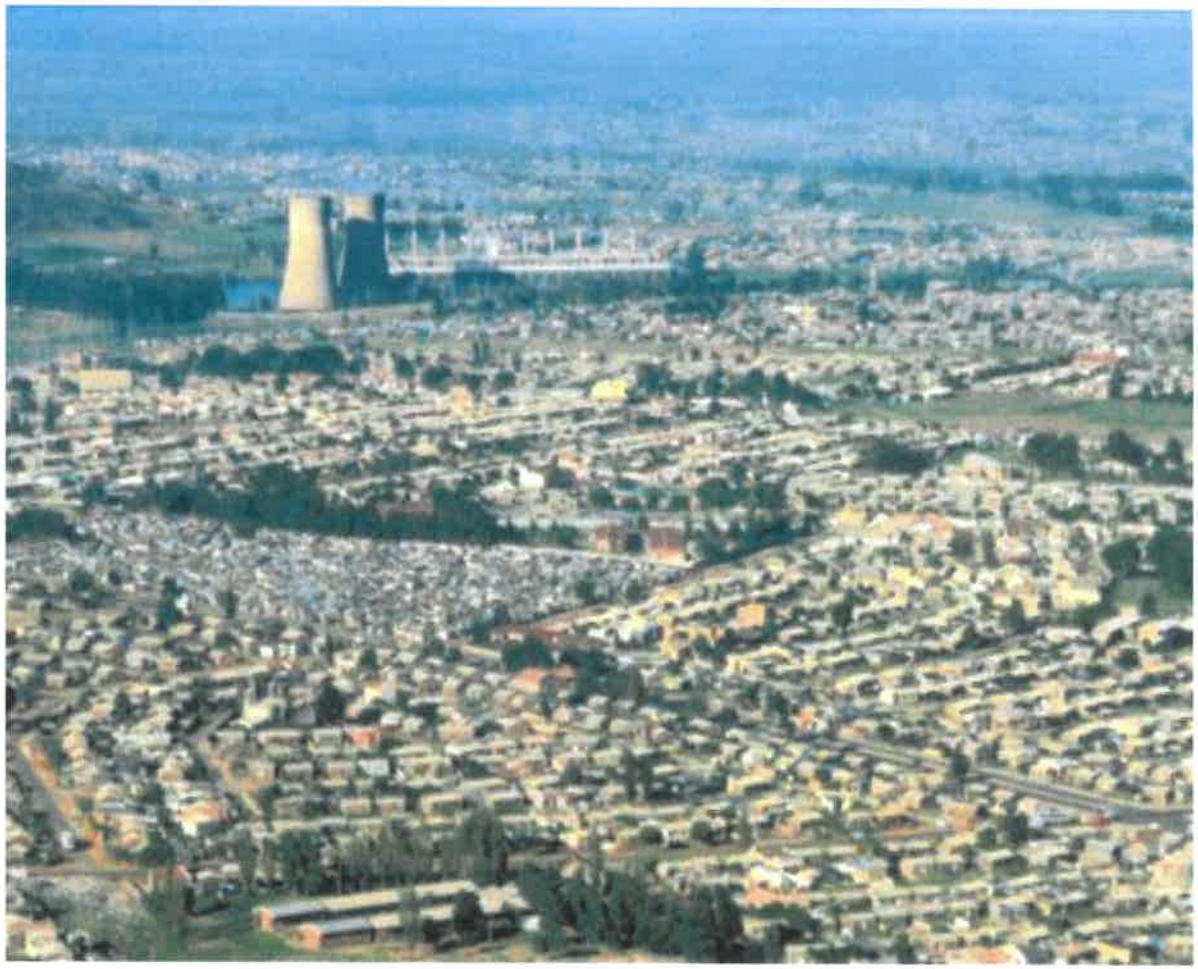
Recommended sizes	Rand (R') / m²
Capital investment (2019 constant values)	R 969 258 838
Employment opportunities	1 101
Parking	1 212
Parking infrastructure & landscaping cost (2019 constant values)	R 27 139 247
Optimum point of market entry	2024+
Size of Industrial (building sqm GLA & hectare land)	60 579m² GLA / 11.01 ha

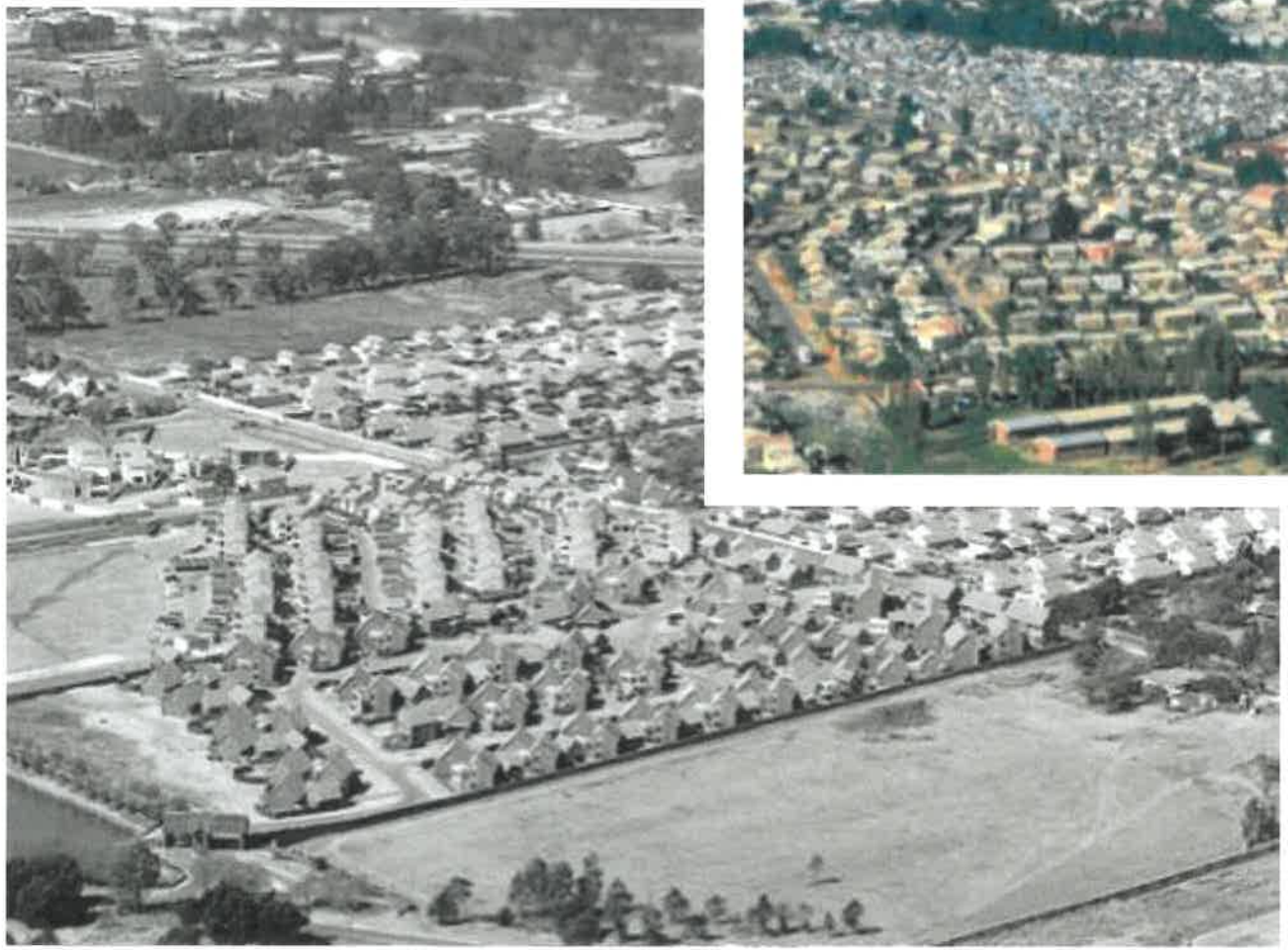
SYNTHESIS

The following is evident from the preceding paragraphs:

- ✓ The total development potential of **Soweto** up to 2024, amounts to approximately 51.28 hectares increasing cumulatively to 195.41 hectares in 2039.
- ✓ The recommended size of industrial development for the project over the next 5 to 10 years amounts to **±11.01 hectares (60 579m² GLA)**
- ✓ Optimum point of market entry could be developed in **2024+.**
- ✓ The commercial component should be configured as a hybrid business park including offices and commercial buildings, positioned to draw optimum benefit from N1 freeway sight value and exposure.

SHORT-STAY MARKET ANALYSIS





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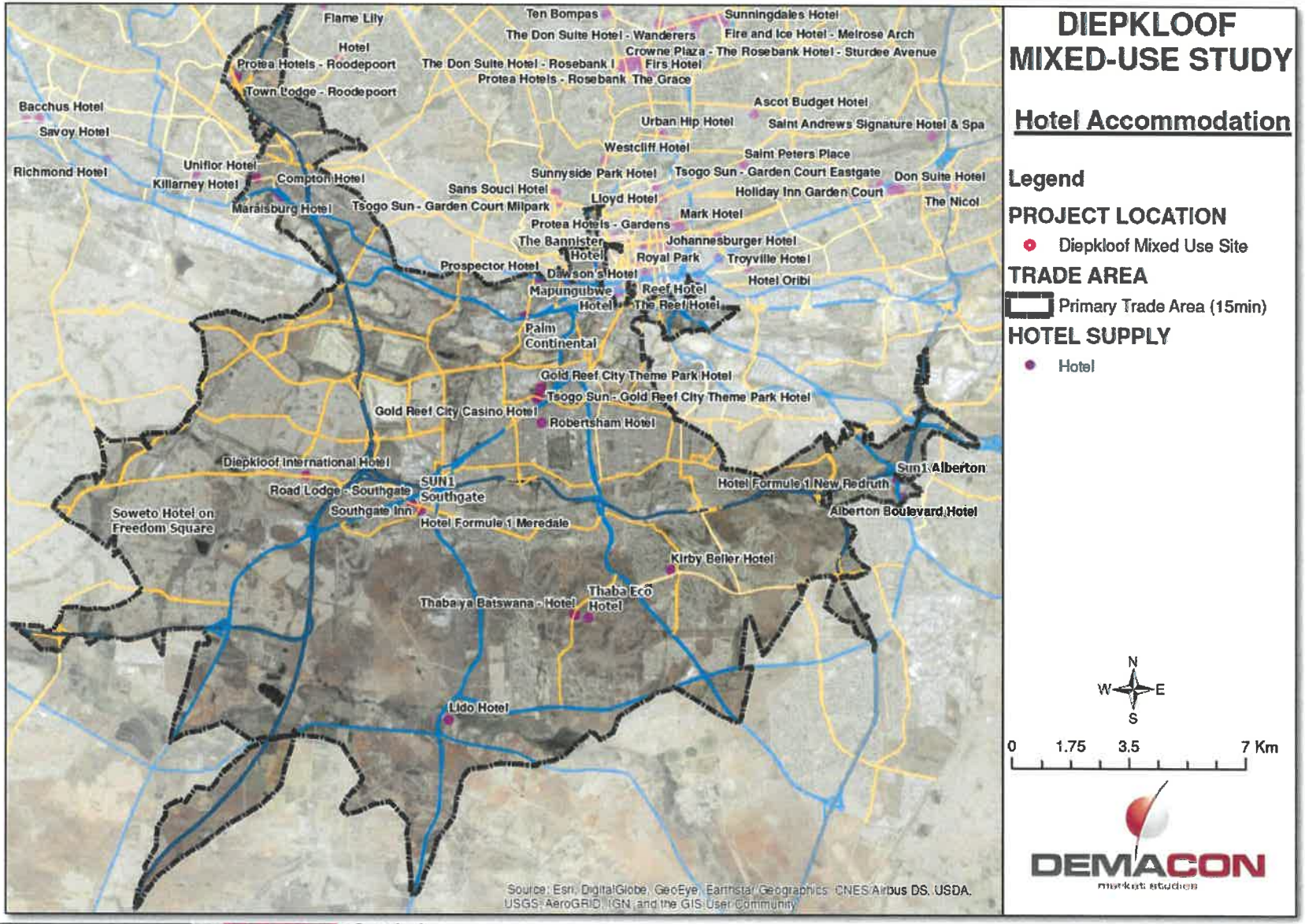
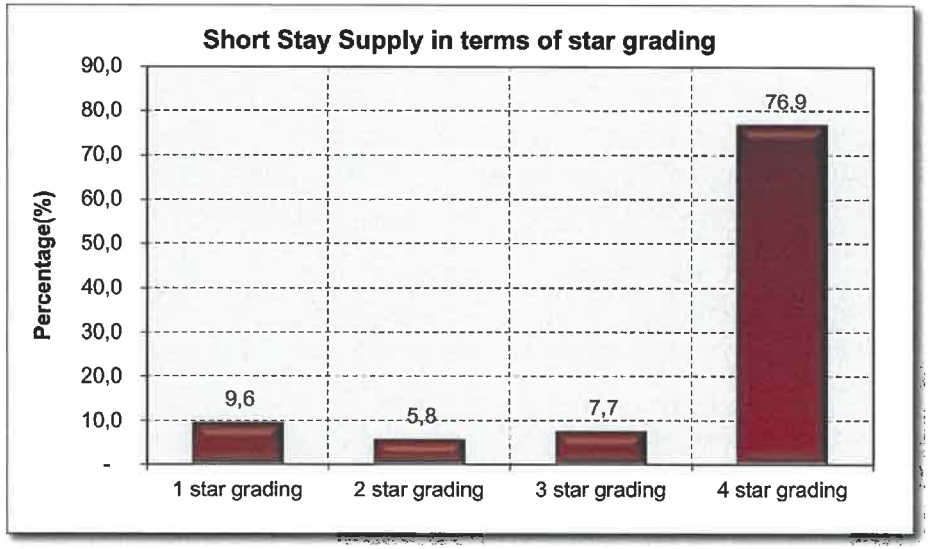
Short-Stay Accommodation Supply

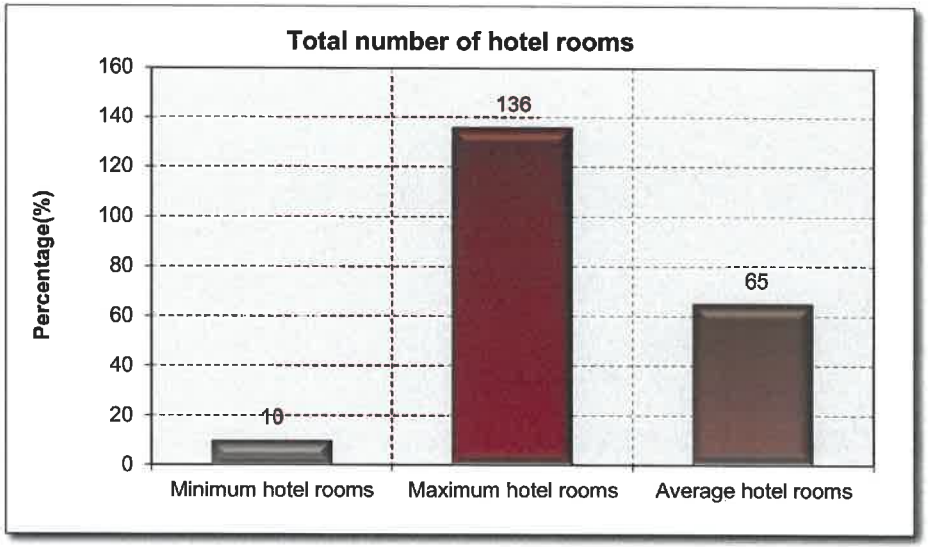


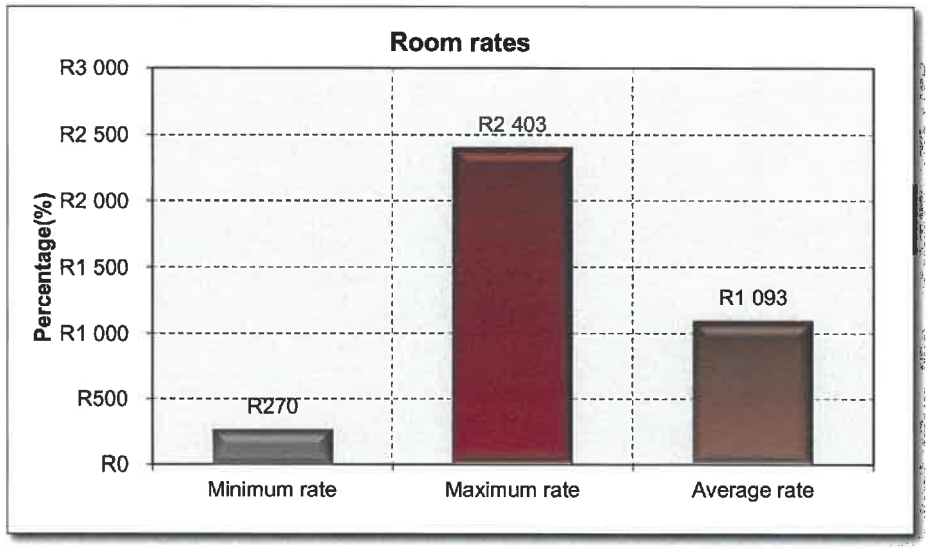
Short-Stay Accommodation Supply

Name of Hotel	Physical Address	Rooms	Grading	Room Rates Per Person Sharing
Alberton Boulevard Hotel	34 Voortrekker Road, New Redruth, Alberton,	44	3	From R750
Gold Reef City Casino Hotel	Northern Parkway Rd, Ormonde, Johannesburg South	38	4	From R1053
Gold Reef City Theme Park Hotel	Shaft 14, Northern Parkway, Ormonde	75	4	From R1770
Hotel Formula 1 - Southgate	Cnr. Main & 47 Murray Ave, Meredale	58	1	From R605
Lido Hotel	Pennylane 342-Iq, Vereeniging Road, R82, Eikenhof, 1872, Eikenhof,	24	3	From R700
Prospector Hotel	106 Central Ave, Johannesburg	62	1	From R1622
Protea Hotels - Roodepoort	Corner Of 14th Avenue & Hendrik Potgieter Street, Weltevredenpark	80	3	From R1282
Road Lodge - Southgate	Road Lcolumbine Ave & Golden Highway, Southgateodge - Southgate	118	1	From R695
Robertsham Hotel	87 Harry St, Robertsham, Johannesburg South	25	2	From R270
Ecotel Southgate Inn	12 Main Rd, Meredale, Johannesburg South	10	4	From R339
Thaba Ya Batswana - Hotel	46 Impala Rd, Rietvlei 101-Ir, Johannesburg South	52	4	From R2164
The Orient Hotel	48 Central Road. Fordsburg, Johannesburg	12	3	From R710
Town Lodge - Roodepoort	360 Plot Road, 8 Constantia Boulevard, Lower Lake Lane, Constantia Kloof, Roodepoort	106	2	From R1034
Tsogo Sun - Gold Reef City Theme Park Hotel	14 Northern Pkwy, Ormonde 99-Ir, Johannesburg South	75	4	From R1600
Thaba Eco Hotel	Klipriviersberg Nature Reserve, Impala Rd, Kibler Park,	52	4	From R2403
Sun1 Alberton	St Austell Road, Alberton	76	2	From R605

Short-Stay Accommodation Supply







SUMMARY OF HOTEL SUPPLY

Findings:

- ✓ There are sixteen hotels located within the primary trade area.
- ✓ Room rates start from R270 and R2 403 per night, average **R1 093 per person per night**
- ✓ A total of **1 367 rooms** with the average hotel size of **65 rooms**.
- ✓ The largest segment of hotels is graded as **four-star hotels** (76.9%) followed by 9.6% graded as one-star hotels.
- ✓ Evidently this reflects a market with a demand towards the more affordable star gradings with unique and different product offerings.

Short-Stay Accommodation Demand Modelling

The market demand estimations are calculated for the hotel market and auxiliary facilities per market segment. The share analysis refers to the expected market share generated according to the capacity provided.

Gauteng Attractions of Bednights (Total Bednights)				
	2019	2024	2029	2034
Foreign Bednights	38 989 736	52 610 834	70 990 475	95 791 059
Domestic Bednights	17 064 634	13 735 889	11 056 473	8 899 721
Total	56 054 370	66 346 724	82 046 948	104 690 781

Gauteng Attractions of Hotel Guests (Bednights)				
	2019	2024	2029	2034
Foreign Bednights	4 769 146	6 435 251	8 683 412	11 716 970
Domestic Bednights	625 703	503 649	405 404	326 323
Total	5 394 849	6 938 901	9 088 816	12 043 293

Project Summary				
Project Summary	2019	2024	2029	2034
Soweto Local Economy Share (GVA & Employment)	9,7%	9,7%	9,7%	9,7%
Soweto Regional Hotel Share (Bednights)	523 300	673 073	881 615	1 168 199
Soweto Hotel Share (Bednights)	523 300	673 073	881 615	1 168 199
Project - Bednights	39 248	50 481	66 121	87 615
Demand (keys)	123	158	207	274

Total Hotel Demand				
Total Hotel Demand	2019	2024	2029	2034
Keys (65.0% Occupancy)	189	243	318	421
Restaurant seats	377	485	636	842
Conference Seats	321	413	540	716
Total Hotel Demand Square Metres				
Total Hotel Demand	2019	2024	2029	2034
Keys (65.0% Occupancy)	14 152	18 202	14 305	31 592
Restaurant seats	755	971	1 272	1 685
Conference Seats	545	701	919	1 217
Total Square Metres	15 452	19 874	16 495	34 494

GAP ANALYSIS

Development Type

Hotel

Conference Facility

Restaurant

Effective Market Gap

Yes

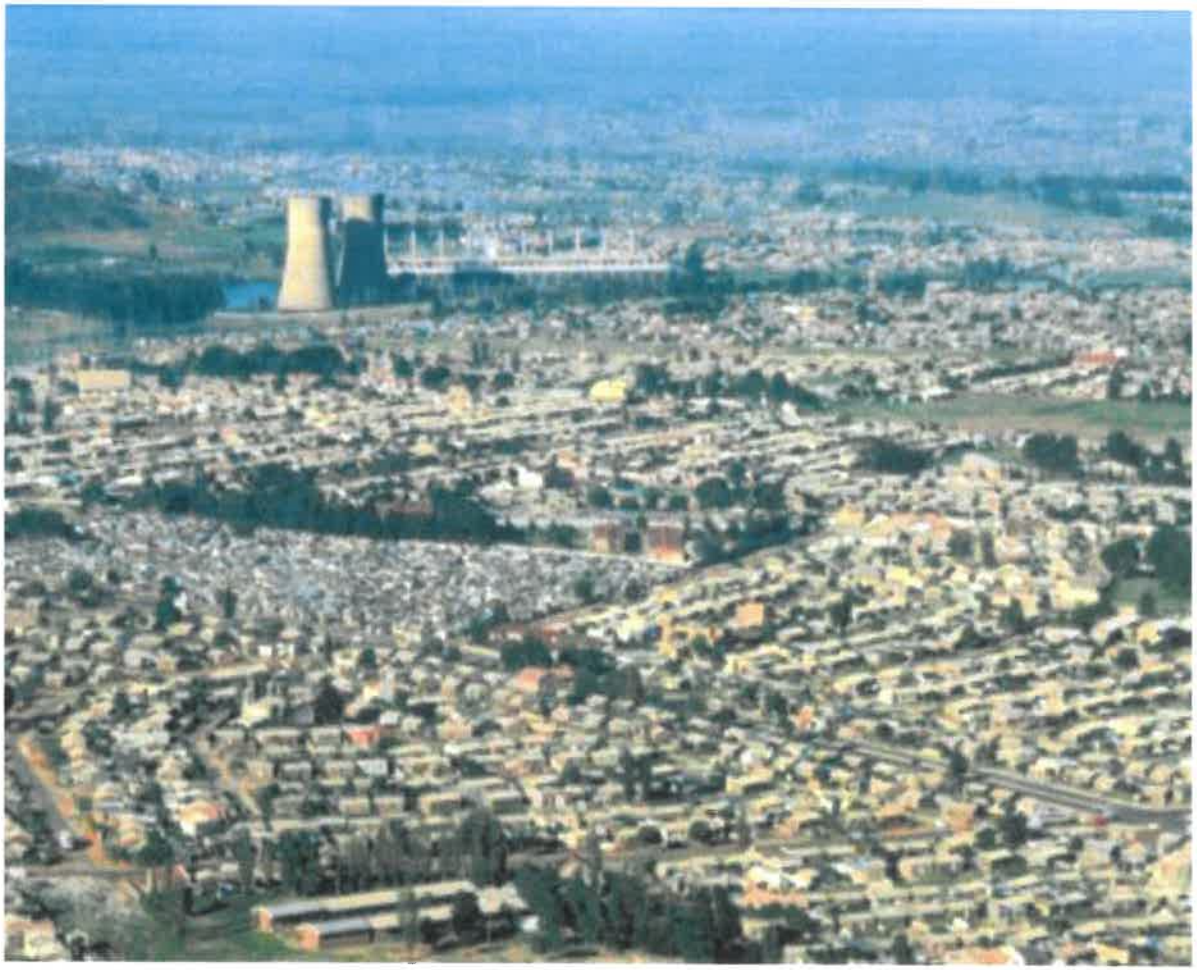
Development Prospects

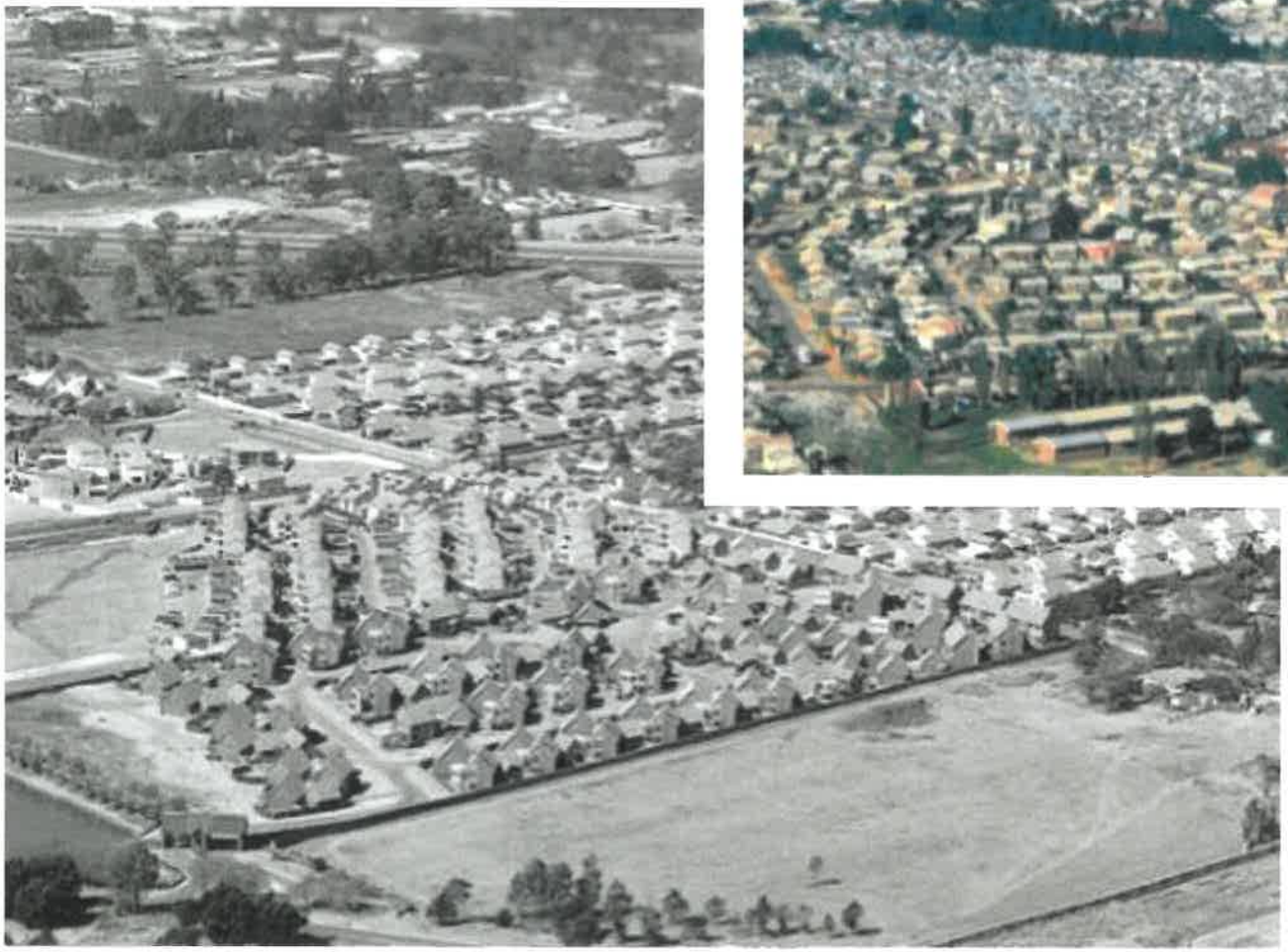
Moderate to High

Findings:

- ✓ It is evident that a moderate to high demand exists for a hotel facility of approximately 318 hotel keys (2029).
- ✓ There is scope for 636 conference seats and 540 restaurant facility seats (2029).
- ✓ Total hotel demand exists of approximately **16 495m²**
- ✓ Optimum point of market entry would be **2020+.**
- ✓ The facility could double up as a function venue.

PRIVATE HOSPITAL MARKET ANALYSIS





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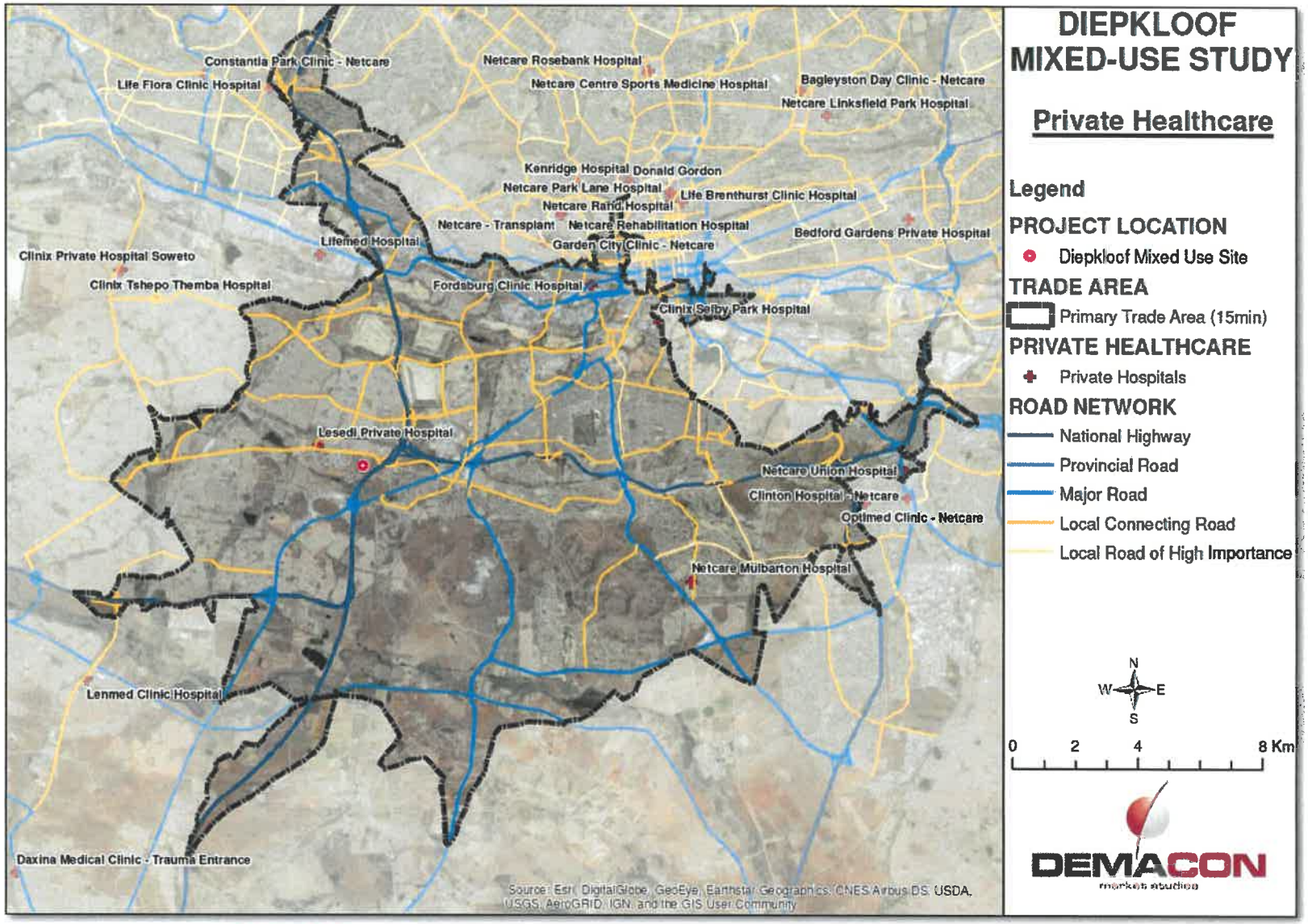
Healthcare Supply Analysis



Healthcare Supply Analysis

EXISTING HOSPITAL WITHIN THE TRADE AREA

Name	Physical Address	Hospital Group	Number of beds
Fordsburg Clinic Hospital	22 Bonanza St, Selby, Johannesburg	NHN	30
SK Matseke Private Hospital (Lesedi Private Hospital)	23967 Old Potchefstroom Road, Zone 6, Diepkloof, Soweto	Clinix Health Group	132
Netcare Garden City Hospital	35 Barlett Road, Mayfair West, Johannesburg 2092	Netcare	363
Selby Hospital	121 Eloff Street Ext, Selby, Johannesburg	Clinix Health Group	642
Mulbarton Hospital	25 True North Road, Mulbarton, Johannesburg	Netcare	155
Netcare Clinton Hospital	62 Clinton Road, New Redruth, Alberton	Netcare	165
Netcare Union Hospital	47 Clinton Road, New Redruth, Alberton	Netcare	222
Netcare Rehabilitation Hospital	2 Bunting Road, Auckland Park, Johannesburg 2006	Netcare	110
Netcare Rand Hospital	33 Bruce Street, Berea, Johannesburg 2198	Netcare	151
Medicross Roodepoort Family Medical Centre	Princess Crossing Shopping Centre, 54 Ontdekkers Road, Ontdekkerspark, Roodepoort	Netcare	

PROPOSED HOSPITAL WITHIN THE GREATER SOWETO AREA

Name	Physical Address	Hospital Group	Details
Dr Nthato Motlana Memorial Hospital	Opposite Protea Glen Shopping Centre	Clinix	The new hospital, which will be located at the southern side of Protea Boulevard and south of the Protea Glen Mall in Protea Glen Extension 12. The hospital will boast facilities such as an adult ICU ward, a radiology unit, an integrated theatre complex and a maternity ward etc.
Kagiso Hospital	1 Adcock St & Randfontein Road, Chamdor	Provincial	Leratong is a provincial facility providing a comprehensive health care service which includes HIV and TB-related treatment, care and support services

Findings:
From the data above, there are 10 private hospital in the primary market area with approximately beds ranging between 30 to 363 hospital beds.

Healthcare Demand Analysis

DEMAND MODELLING

MARKET DEMAND (LSM 4 - 10+)			
DEMAND	2019	2024	2029
PRIMARY DEMAND			
2019 Medically insured population (people)	379 114	503 428	668 504
Additional insured lives per annum		24 863	33 015
Population growth rate (% / annum - compound growth)	5,836%	5,836%	5,836%
beds / 1000 population medically insured (private beds)	4,8	4,8	4,8
Private beds in demand (LSM 4-10+)	1 820	2 416	3 209
SECONDARY DEMAND			
Injection	10%	10%	10%
Secondary demand	42 123	55 936	74 278
Private beds in demand (LSM 4-10+)	202	268	357
TOTAL MARKET DEMAND			
Number of beds (private beds)	2 022	2 685	3 565
MARKET SUPPLY (Trade Area Apportioned Effective Competitive Supply)			
Fordsburg Clinic Hospital	12	12	12
Lesedi Private Hospital	86	86	86
Netcare Garden City Hospital	127	127	127
Selby Hospital	225	225	225
Mulbarton Hospital	54	54	54
Netcare Clinton Hospital	25	25	25
Netcare Union Hospital	22	22	22
Netcare Rehabilitation Hospital	17	17	17
Netcare Rand Hospital	15	15	15
EFFECTIVE COMPETITIVE SUPPLY			
Total competing beds in primary market	450	450	450
MARKET POTENTIAL			
Net effective demand (residual market capacity - additional beds)	1 572	2 235	3 116
Market share (% market share of total beds for facility)	10,0%	10,0%	10,0%
Market potential (total number of viable beds for facility)	**202**	**268**	**357**
Total additional area requirement (sqm hospital floor space)	15 165	20 137	26 740
Model Calibration & Sensitivity			
Beds / 1000 total population as benchmark:			
Population ('000)	379,1	503,4	668,5
National Average (Private beds per 1000 population)	4,80	4,80	4,80
Study area private beds per 1000 total population (as per Demacon Model)	1,55	1,28	1,09
Model acuracy (under / over estimation)	32,3%	26,8%	22,6%

GAP ANALYSIS

Development Type

Private Hospital

Effective Market Gap

Yes

Development Prospects

Moderate to High

Market Potential and Growth Forecast Model

- ✓ Table 13.6 illustrates that there are approximately 379 114 medically insured persons in the trade area, from a total estimate population of 1 584 453 - a total of 23.9% of the market population.
- ✓ For demand modelling purposes, the number of private beds catering required to the needs of the medically insured segment of the market is 4.8 private beds per 1 000 medically insured persons.
- ✓ The above with a 10% secondary market injection yields a demand for **2 022 private beds** in the market area (2019), increasing to **2 685** in 2024 and **3 565** in 2029.
- ✓ Based on the current location and the nature of the proposed development a **private hospital** with approximately **202 to 357 beds can be developed over the next** 5 to 10 years (say 270 – 360 beds).
- ✓ The optimum point of market entry for the private hospital could be **2023+.**

Healthcare Gap Analysis

	SK Matseke Private Hospital (Lesedi Private Hospital)	Mulbarton Hospital	Netcare Clinton Hospital	Netcare Union Hospital
Physical Address	23967 Old Potchefstroom Road, Zone 6, Diepkloof, Soweto	25 True North Road, Mulbarton, Johannesburg	62 Clinton Road, New Redruth, Alberton	47 Clinton Road, New Redruth, Alberton
Number of Beds	132 (undergoing refurbishment and upon completion will house 266 beds)	216	165	222
24-hr Emergency centre				
Audiology & Speech Therapy				
Antenatal Classes				
Brachytherapy				
Biokinetics				
Burns Unit				
Cardiology				
Cardiothoracic				
Cardiac Cathlab				
Chiropractitioner				
Dental Procedures				
Dermalogica				
Dermatology				
Dialysis				
Dietetics				
Diabetic Ward				
Ear, Nose & Throat Surgeon				
Endocrinology				
Endoscopy Unit				
Epilepsy Monitoring Unit				
Gastroenterology				
General Practitioners				
General Surgery				
Gynecology & Obstetrics				
Haematology				
HIV Wellness Clinic				
ICU				
Internal medicine				
Lithotripsy				
Maxillofacial & Oral Surgery				

Healthcare Gap Analysis

	SK Matseke Private Hospital (Lesedi Private Hospital)	Mulbarton Hospital	Netcare Clinton Hospital	Netcare Union Hospital
Physical Address	23967 Old Potchefstroom Road, Zone 6, Diepkloof, Soweto	25 True North Road, Mulbarton, Johannesburg	62 Clinton Road, New Redruth, Alberton	47 Clinton Road, New Redruth, Alberton
Number of Beds	132 (undergoing refurbishment and upon completion will house 266 beds)	**216**	**165**	**222**
Maternity				
Nephrology				
Neurology				
Neonatal				
Nuclear medicine				
Occupational Therapy				
Oncology				
Ophthalmology				
Orthopaedics				
Periodontics				
Orthopaedical Surgery				
Occularist				
Orthotics				
Ophthalmology				
Paediatric ICU				
Paediatric Oncology				
Paediatric Specialist (Cardiologist, Neurologist etc)				
Paediatrics				
Pathology				
Physiotherapy				
Plastic & Reconstructive Surgery				
Psychiatry				
Psychology				
Pulmonology				
Podiatristy				
Radiology				
Rehabilitation Unit / Step-Down Facility				
Renal Dialysis				
Rheumatology				
Thoracic Surgery				

Healthcare Gap Analysis

	SK Matseke Private Hospital (Lesedi Private Hospital)	Mulbarton Hospital	Netcare Clinton Hospital	Netcare Union Hospital
Physical Address	23967 Old Potchefstroom Road, Zone 6, Diepkloof, Soweto	25 True North Road, Mulbarton, Johannesburg	62 Clinton Road, New Redruth, Alberton	47 Clinton Road, New Redruth, Alberton
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Maternity				
Nephrology				
Neurology				
Neonatal				
Nuclear medicine				
Occupational Therapy				
Oncology				
Ophthalmology				
Orthopaedics				
Periodontics				
Orthopaedical Surgery				
Occularist				
Orthotics				
Ophthalmology				
Paediatric ICU				
Paediatric Oncology				
Paediatric Specialist (Cardiologist, Neurologist etc)				
Paediatrics				
Pathology				
Physiotherapy				
Plastic & Reconstructive Surgery				
Psychiatry				
Psychology				
Pulmonology				
Podiatristy				
Radiology				
Rehabilitation Unit / Step-Down Facility				
Renal Dialysis				
Rheumatology				
Thoracic Surgery				

Healthcare Gap Analysis

	SK Matseke Private Hospital (Lesedi Private Hospital)	Mulbarton Hospital	Netcare Clinton Hospital	Netcare Union Hospital
Physical Address	23967 Old Potchefstroom Road, Zone 6, Diepkloof, Soweto	25 True North Road, Mulbarton, Johannesburg	62 Clinton Road, New Redruth, Alberton	47 Clinton Road, New Redruth, Alberton
Number of Beds	132 (undergoing refurbishment and upon completion will house 266 beds)	216	165	222
Trauma Unit				
Sleeplab				
Spinal Unit				
Urology				
Vascular Surgery				
Wound Care Clinic				

In terms of the above gap analysis, the following gaps could be filled at the private hospital.

Development Type	Effective Market Gap	Development Prospects
Burns & Wound Unit	Yes	Moderate to High
HIV/TB Clinic	Yes	Moderate to High
Rehab Centre	Yes	Moderate to High
Ophthalmologist		

Private Healthcare Recommendations

Level 2 Hospital

It is recommended that the proposed private hospital could include facilities and services offered at a level 2 hospital.

A facility that provides care requiring the intervention of specialists as well as general medical practitioner services.

- ✓ A hospital providing a single specialist service would be classified as a specialised level 2 hospital.
- ✓ A general level 2 hospital should provide and the staffed permanently in the following 6 basic specialties of surgery:
  - Medicine
  - Orthopedics
  - Pediatrics
  - Obstetrics
  - Gynecology
  - Psychiatry
  - Diagnostic radiology and anesthetics.

Healthcare facilities / services to be considered:

- ✓ Specialised nursing units
- ✓ 24 –hr Emergency centre
- ✓ Critical/high care unit
  - Critical care unit/high care unit to perform a variety of procedures, ranging from simple diagnostic to more complicated interventional procedures.
- ✓ Neonatal critical/high care unit
  - The unit should comprise of high care, critical care beds, and special isolation units, and be equipped with the latest medical technological equipment in order to care for the infants.
- ✓ Specialised clinics
  - Antenatal clinic
  - Diabetes clinic
  - Diabetes clinic
  - Pre-admission centre
  - Woundcare clinic.

Healthcare facilities / services to be considered:

- ✓ Supplementary services
  - CT Scan
  - Pathology
  - Radiology
  - Renal dialysis.

Independent Consulting Rooms:

The consulting rooms should include one or more independent practitioners to see ambulatory patients for consultation, examination, investigation and treatment.

Medical & Surgical Disciplines to consider:

- ✓ Cardiology
- ✓ Dental surgery
- ✓ Dentistry
- ✓ Dermatology
- ✓ Ear, nose and throat surgery
- ✓ General practice
- ✓ General surgery
- ✓ Gynaecology
- ✓ Urology
- ✓ Renal Dialysis
- ✓ Orthopaedic surgery
- ✓ Pathology
- ✓ Paediatrics
- ✓ Periodontal surgery
- ✓ Ancillary services: Pharmacy.

Private Healthcare Recommendations

HIV/ AIDS Centre

Treatment / Facilities to consider:

- ✓ Voluntary HIV Testing
- ✓ CD4 Testing
- ✓ Wellness Programme
- ✓ Antiretroviral Programme
- ✓ Circumcision
- ✓ On Site Pharmacy
- ✓ Prevention of Mother-to-child Transmission
- ✓ Post Exposure Prohylaxis
- ✓ Pap Smears
- ✓ Family Planning
- ✓ Child Vaccine Programme
- ✓ Adult Immunisation
- ✓ Cholesterol Screening
- ✓ Diabetes Management
- ✓ High Blood Pressure
- ✓ TB Screening.

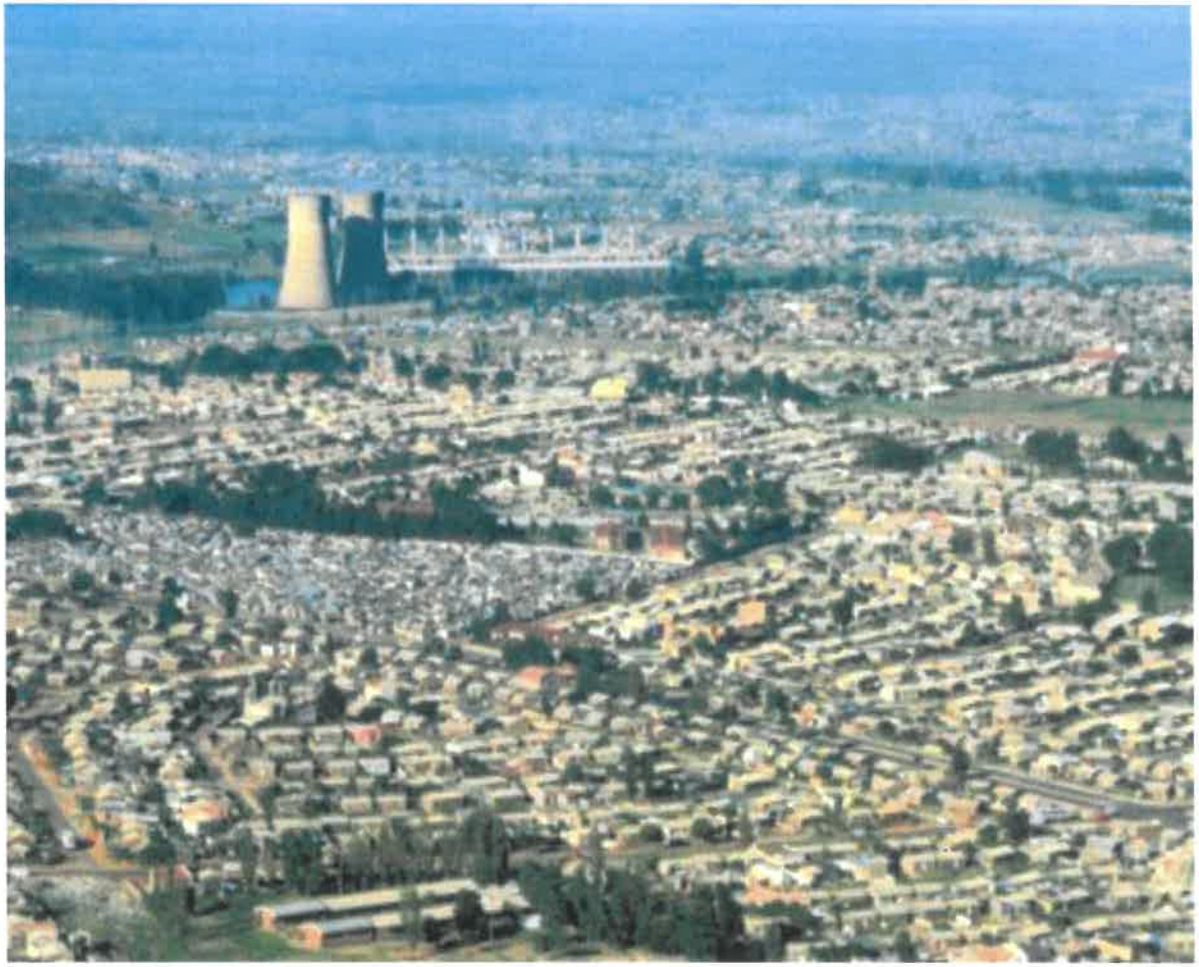
Private Medical Centre

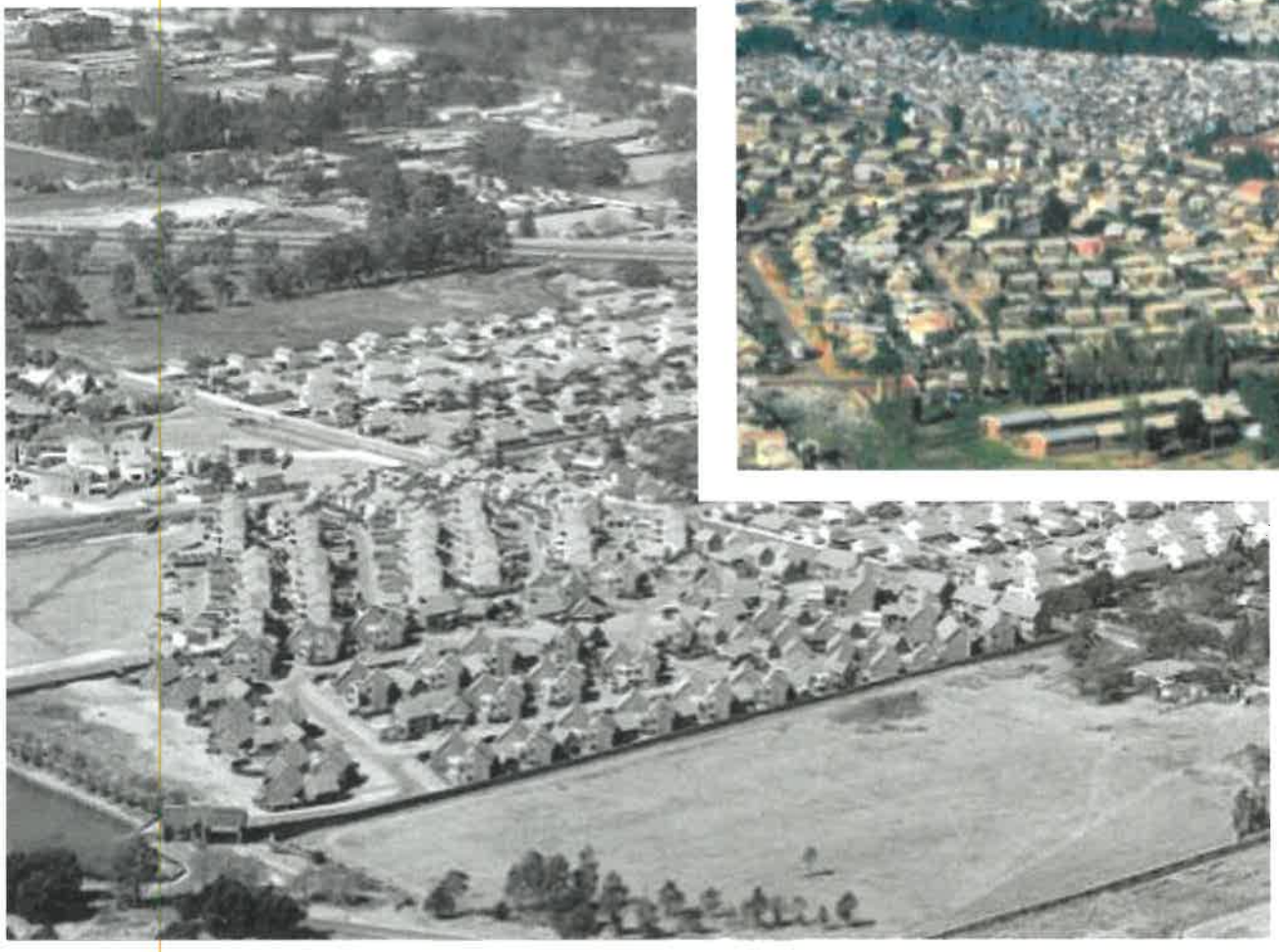
It is recommended that a private medical centre (such as a community health centre, specialised health centre and / or independent consulting rooms) could be considered as part of the proposed private hospital development. This provides for the agglomeration of various types of medical disciplines to be accommodated in a single building – examples include private doctor, gynaecologist, optometrist, orthodontist/dentist, audiologist en pathologist

Recommended medical centres

Recommended Medical Centres	
Community health centre	A facility which is open 24 hours a day, 7 days a week at which a broad range of primary healthcare services are provided. It also offers accident and emergency and midwifery services but not surgery under general anaesthesia
Specialised health centre	A facility that provides specialised care to particular groups of patients usually for less than 24 hours at a time. There are many possibilities for such units, but the most common are obstetric units and renal dialysis units
Independent consulting rooms	A facility that is not part of a hospital or clinic and is used by one or more independent practitioners to see ambulatory patients for consultation, examination, investigation and treatment. General practitioner consulting rooms – one or more professionals registered as medical practitioners and who are not registered as specialist deliver health services Specialist consulting rooms – one or more professionals register as medical practitioners and who are registered as specialists deliver health services Registered practitioner consulting rooms – where one or more professionals registered in any of the allied health professions deliver health services.

PRIVATE SCHOOL MARKET ANALYSIS





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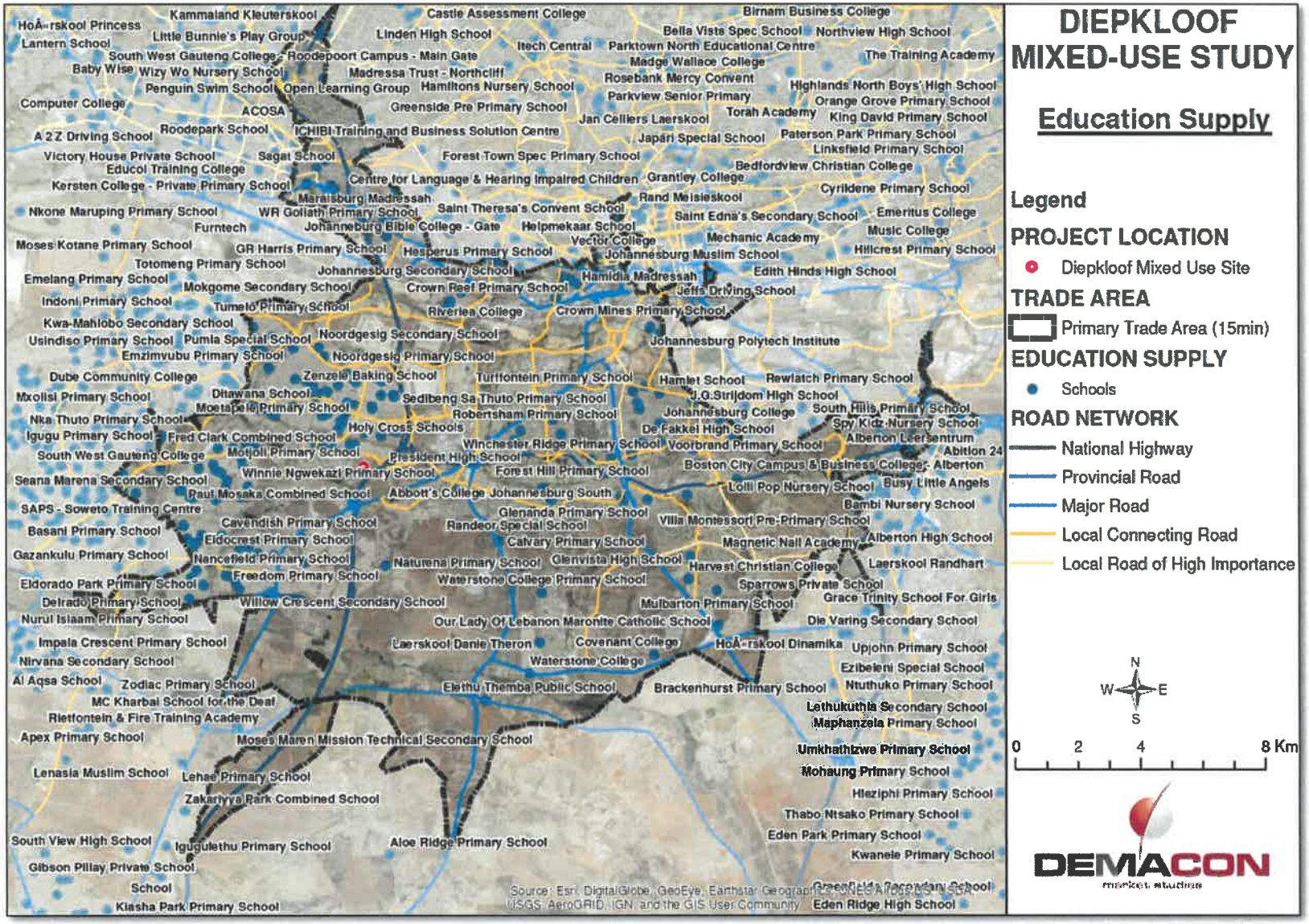
Education Supply Analysis



Education Supply Analysis

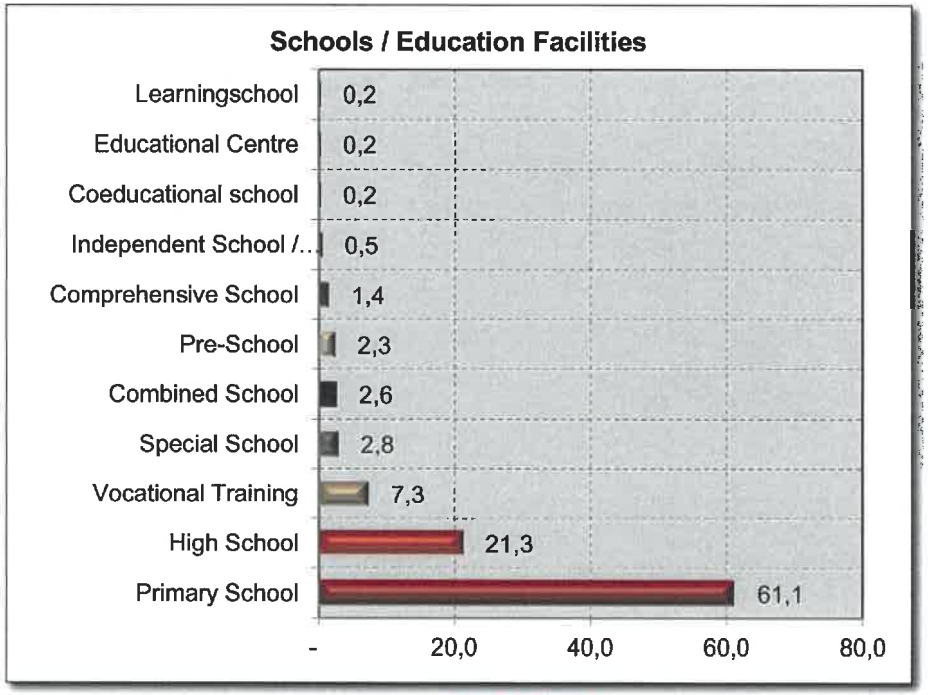
Name of School			
Marist Brothers Linmeyer - Marian College	Seana Marena Secondary School	Rosettenville Central Primary School	Molalatladi Primary School
Elethu Themba Public School	Sekanontoane Secondary School	Saint Ive's Primary School	Molemo Primary School
Bethany Combined School	Selelekela Secondary	Saint Theresa's Convent School	Motjoli Primary School
Fred Clark Combined School	Senaoane Secondary School	Tambotie Preparatory School	Mveledzandivho Primary School
Ipatleleng Zifuneleni Combined School	Thaba -Jabula Secondary School	TC Esterhuysen Primary School	Mxolisi Primary School
Lulama Combined School	Thesele Secondary School	Theo Wassenaar Primary School	Mzamo Primary School
Paul Mosaka Combined School	Thulare Secondary School	Townsview Primary School	Ndondo Primary School
Paul Mosaka Combined School	Tlhatlogang Junior Secondary School	Turffontein Primary School	Nhluvuko Primary School
Lulama Combined School	Vuwani Secondary School	Voorbrand Primary School	Nka Thuto Primary School
Paul Mosaka Combined School	Esiyalweni Junior Secondary	West Rand Seventh Day Adventist Primary School	Nkholi Primary School
Paul Mosaka Combined School	Maraisburg Madressah	Westbury Primary School	Nonofelo Primary School
Lulama Combined School	Alberton Leersentrum	Wilhelmina Hoskins Primary School	Nonto Primary School
Anchors Comprehensive School	Spy Kidz Nursery School	Winchester Ridge Primary School	Orlando Sda Primary
Nghunghunyani Comprehensive School	Soweto Day Care	WR Goliath Primary School	Phakamani Primary School
Progress Comprehensive School	Inkululeko Day Care Centre	Mayfair Convent Primary School	Phiri Primary School
Bona Comprehensive School	Arbor Helland Pre-Primary School	Dzata Primary School	Phumuzile Primary School
Nghunghunyani Comprehensive School	Busy Buddies Nursery School	Emelang Primary School	Phuthalushaka Primary School
Progress Comprehensive School	Kidz At Play Nursery School	Empumalanga Primary School	Pimville Primary School
Kip McGrath Education Centre	Towerby Pre Primary School	Emzimvubu Primary School	Reutlwile Primary School
Bopasenatla Secondary School	Little Scholars Nursery	Hlabangane Primary School	Risuna Primary School
Diepdale Secondary School	Sagat School	Indoni Primary School	Rutegang Primary School
Fidelitas Comprehensive School	Wheezie Wizard Nursery	Inkonjane Primary School	Saint Angela's Primary School
Fons Luminis Secondary School	Bakgomana Primary School	Kwa-Phalo Primary School	Saint John Berchman's Primary School
Immaculata Secondary	Bapedi Primary School	Lejoeleputsoa Primary School	Saint Martin de Porres Primary School
Madibane Comprehensive School	Boepakitso Primary School	Livhuwani Primary School	Saint Matthew's Primary School
Namedi Secondary School	Bopanang Primary School	Mawila Primary School	Saint Peter Claver Primary School
Abbott's College Johannesburg South	Dumezweni Primary School	Moruta-Thuto Primary School	Samuel Mangala Primary School
Alpha and Omega Christian Academy	Ekuthuleni Primary School	Nkwe Primary School	Sapebuso Primary School
Coronationville Secondary School	Elitheni Primary School	Palesa Primary School	Sefika Primary School
Covenant College	Giyani Primary School	Retile Primary School	Sekwati Primary School
De Fakkel High School	Holy Cross Schools	Rishile Primary School	Selope-Thema Primary School
Edumore Christrian Academy	Ikaneng Primary School	Shako-Bowa Primary School	Senyamo Primary School
Eldoradopark Secondary School	Inkwenkwezi Primary School	Sivelile Primary School	Shalom Manne Primary School
Forest High School	Ipolokeng Primary School	Thakhisa Primary School	Shomang Primary School
Futura School-Remedial School	JS Mpanza Primary School	Thembalethu Primary School	Sibongile Primary School
Glenvista High School	Khomanani Primary School	Thobeka Primary School	Sizanani Primary School
Hor Tegniese Skool Langlaagte	Khulangdwazi Primary School	Thsimologo Lower Primary School	Thabaneng Primary School
Hoërskool Vorentoe	Lebowa Primary School	Tiyimiseni Primary School	Thabisang Primary School
Horizon International High School	Mangwele Primary School	Tlhokomelo Primary School	Thathezakho Primary School
Johannesburg Polytech Institute	Nandi Primary	Totomeng Primary School	Thembu Primary School
Johannesburg Secondary School	Qhobosheane Primary School	Tshileletso Primary School	Thulasizwe Primary School
Klipspruit Wes High School	Sedibeng Sa Thuto Primary School	Tsietsi Mashinini Primary School	Thusanang Primary School
Kliptown Secondary School	Seipateng Primary School	Tsogang Primary School	Tlakeni Primary School

Education Supply Analysis

Name of School			
Lancea Vale Secondary School	Thabisile Primary School	Tswelelang Primary School	Tirisano Primary School
Missouri Secondary School	Tiyani Primary School	Tumang Primary School	Tlhoreng Primary School
Mondeor High School	Tlotlego Primary School	Tumelo Primary School	Tshebedisano Primary School
Moses Maren Mission Technical Secondary School	Vulamazibuko Primary School	WK Maponyane Primary School	Tshedimosho Primary School
Nationwide School for Academic Excellence	Bephelo-Impilo Primary School	Arthur Mathews Primary School	Tshilidzi Primary School
Noordgesig Secondary School	Bernard Isaacs Primary School	Bosmont Primary School	Usindiso Primary School
Park Secondary School	Boekenhout Primary School	Claremont Primary School	Uvuyo Primary School
President High School	Bree Street Primary School	GR Harris Primary School	Vezokuhle Primary School
Raucall Secondary School	Calvary Primary School	Kersten College - Private Primary School	Vukani Primary School
Riverlea Secondary	Cavendish Primary School	Laerskool General de la Rey	Vukayibamba Primary School
Sama Independent	Charles McBain Primary School	Crown Christian School	Vukazenele Primary School
Silver Oaks Secondary School	CL Magardie Primary School	AB Xuma Primary School	Welizibuko Primary School
Sir John Adamson High School	Crown Mines Primary School	Bafikile Primary School	Winnie Ngwekazi Primary School
Sparrow Secondary School	Crown Reef Primary School	Basani Primary School	Wisani Primary School
Vine College	Dalmondeor Primary School	Batsogile Primary School	Zakheni Primary School
Waterstone College Primary School	Delrado Primary School	Belle Primary School	Zithathele Primary School
Westbury Secondary School	Dowlinglaan / Avenue L	Bethany Girls' Primary School	Johannesburg Muslim School
Willow Crescent Secondary School	Eldocrest Primary School	Ditau Primary School	Takelani School
Saint Martin's High School	Eldorado Park Muslim School	Ditawana Primary School	Coronationville Special School
Thathulwazi school	Eldorado Park Primary School	Doctor Mary Malahlela Primary School	Don Mattera School
Kelokitso Comprehensive School	Eldridge Primary School	Donaldson Primary School	Frances Vorwerg Special School
Khindlimukani Secondary School	EP Baumann Primary School	Ekuphumeleleni Primary School	Goudveld Vaardigheid Special School
Kwa-Mahlobo Secondary School	Everest Primary School	Emadlelweni Primary School	Hamlet School
Lamula Jubilee Secondary School	EW Hobbs Primary School	Emathafeni Primary School	Randeor Special School
Matseliso Secondary School	Firethorn Primary School	Emisebeni Primary School	Adelaide Tambo School for the Physically Challenged
Meadowlands Secondary School	Florida Avenue Primary School	Enkanyezini Higher Primary School	Mezodo Tech Orientation Centre Special School
Mokgome Secondary School	Fordsburg Primary School	Enkolweni Primary School	Pumelela Special School
Thutolore Secondary School	Forest Hill Primary School	Entandweni Primary School	Mezodo Tech Orientation Centre Special School
Veritas Secondary School	General Christiaan de Wet Primary School	Faresani Primary School	Pumelela Special School
Bosmont Muslim School	Glenanda Primary School	Freedom Primary School	Barloworld Automotive Training Centre
Chris J. Botha Secondary School	Goudpark Primary School	Gazankulu Primary School	Magnetic Nail Academy
Die Burger Secondary School	Hartford College	Hlakaniphani Junior Primary School	Thera-Ed Educational Centre
Kotulo School of Excellence	Heerengracht Primary School	Hlalefang Primary School	Funda Community College
RW Fick Primary School	Hesperus Primary School	Hoernle Primary School	Academy of Learning
Unifield Public School	Highveld Primary School	Igugu Primary School	Bernard Price Institute for Palaeontological Research
Bhukulani Secondary School	Huguenot Primary School	Ikwezi Primary School	Central Johannesburg College Highveld Campus
Daliwonga Secondary	Jim Fouche Primary School	Isipho Primary School	Dental Teaching Hospital - Wits
Doctor Beyer's Naude Secondary School	Kliptown Primary School	Itekeng Primary School	Harvest Christian College
Emadwaleni Secondary School	Laerskool Danie Theron	Ithembalihle Primary School	Johannesburg College
Emphukantambo Secondary School	Laerskool Piet van Vuuren	Jabavu East Primary School	New Nation College
Freedom Park Secondary School	Mary Help Of Christians Junior Primary School	Khandubuhle Primary School	Riverlea College

Education Supply Analysis

Name of School			
Ibhongo Secondary School	Meredale Primary School	Lakeview Primary School	Task Academy College
Jabulani Technical Secondary School	Milnerton Primary School	Leihlo Primary School	Waterstone College
Job Rathebe Secondary School	Mondeor Primary School	Lekang Primary School	Meadowlands Life College
Kwa-Ntsikane Intermediate School	Mossie Primary School	Lilydale Primary School	Furntech
Lobone Secondary School	Mulbarton Primary School	Lodirile Primary School	JD Group
Lofentse Girls' High School	Nancefield Primary School	Lo-Itekile Primary School	Open Learning Group
Mafori Mphahlele Secondary School	Naturena Primary School	Lukholweni Primary School	Saint Barnabas College - Bosmont
Mlamli Finishing Secondary School	Newclare Primary School	Mabewana Primary School	Dube Community College
Mncube Secondary School	Noordgesig Primary School	Makhoarane Primary School	Herbert Mdingi Adult Education Centre
Morris Isaacson Secondary School	Olifantsvlei Primary	Mambo Primary School	Itshepeng Community College
Musi Comp. School	Our Lady Of Lebanon Maronite Catholic School	Margaret Gwele Primary School	John Wesley College
Orlando West Secondary School	Park Primary School	Mdelwa-Hlongwane Primary School	South West Gauteng College
Phafogang Secondary School	Parkdale Primary School	Moetapele Primary School	Zenzele Baking School
Phefeni Secondary School	Rainbow Lower Primary School	Mohloding Primary School	Dube Community College
Reutlwile Secondary School	Riverlea Primary	Mokorotio Primary School	
Saint Matthew's Secondary School	Robertsham Primary School	Molaetsa Primary School	



Findings:

- ✓ 61.1% of the education facilities are primary schools, 21.3% are high schools, 7.3% vocational training facilities, 2.8% special needs schools, 2.6% combined school, 2.3% of pre-schools.

Private School Supply Analysis

DEMACON'S Demand Modelling results illustrate that the market can sustain an integrated private school consisting of the following:

MARKET AREA DEMAND

Market Area		2019	2024	2029
Total number of people		1 542 243	1 611 426	1 683 713
Ages 18months - 4 years	7,1%	109 912	114 843	119 995
Ages 5 - 9	7,4%	114 476	119 612	124 977
Ages 10 - 14	6,6%	101 286	105 829	110 576
Ages 15 - 19	7,6%	117 296	122 558	128 056
		442 971	462 842	483 604

PRIVATE SCHOOL ATTENDANCE

Private School Attendance	2019	2024	2029	Percentage
Ages 18months - 4 years	16 487	17 226	17 999	24,8%
Ages 5 - 9	17 171	17 942	18 747	25,8%
Ages 10 - 14	15 193	15 874	16 586	22,9%
Ages 15 - 19	17 594	18 384	19 208	26,5%
Total (Pupils)	66 446	69 426	72 541	100,0%

MARKET SHARES (MINIMUM AND MAXIMUM)

Private School Attendance	2019	2024	2029	Percentage
Ages 18months - 4 years	495 – 824	517 – 861	540 - 900	24,8%
Ages 5 - 9	515 – 859	538 – 897	562 - 937	25,8%
Ages 10 - 14	456 – 760	476 – 794	498 - 829	22,9%
Ages 15 - 19	528 – 880	552 - 919	576 - 960	26,5%
Total (Pupils)	1993 – 3 322	2 083 – 3 471	2 176 – 3 627	100,0%

GAP ANALYSIS

Development Type

Private School

Effective Market Gap

Yes

Development Prospects

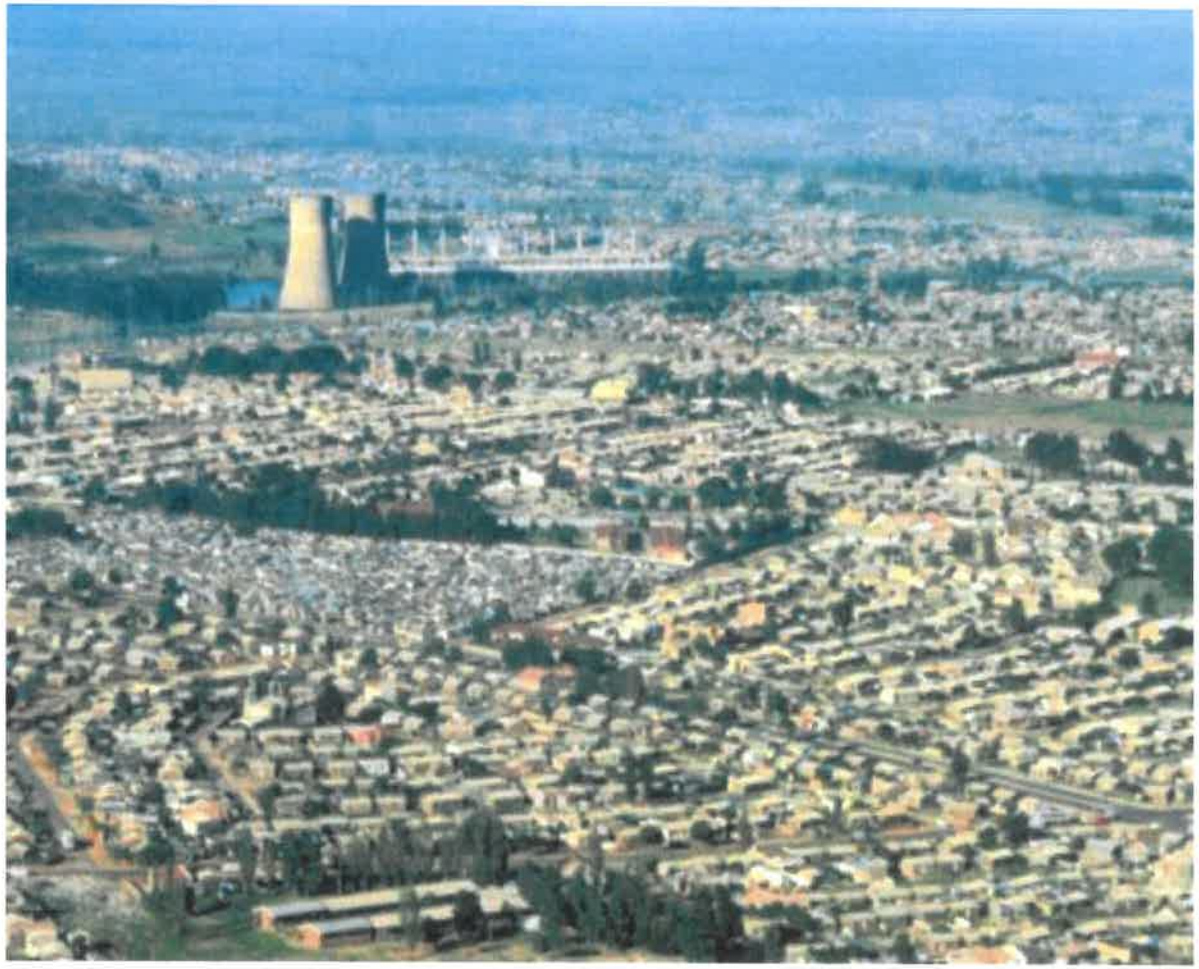
Moderate to High

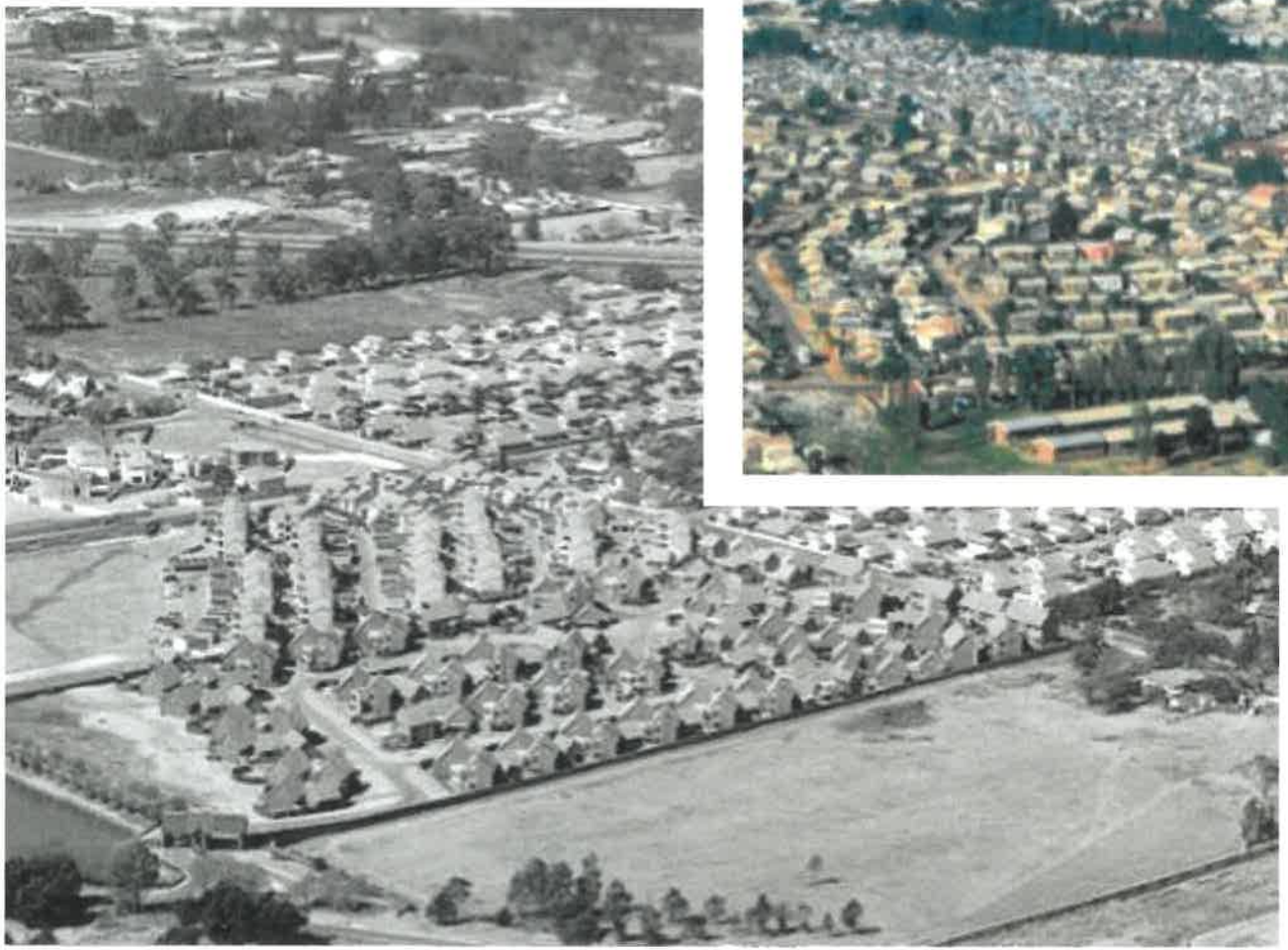
- ✓ It can be concluded that there is demand for a private school as part of the Diepkloof Project.
- ✓ Potential exists for the development of **one private school** catering for **2 083 to 3 471** pupils (2024) or **2 176 to 3 627** pupils at full capacity (2029) It is recommended that the facility should be developed in phases as demand increases.
- ✓ The optimum point of market entry should be **2022+**.

Demacon's Demand Modelling results illustrate that the market can sustain **one** private school catering for **approximately 3 627 (say 3 500) pupils** (2038) at full capacity.

Based on the anticipated nature of the proposed facility and the facilities to be provided it is anticipated that it could attract larger shares from the secondary market provided if the project is effectively branded.

SOCIAL AMENITIES MARKET ANALYSIS





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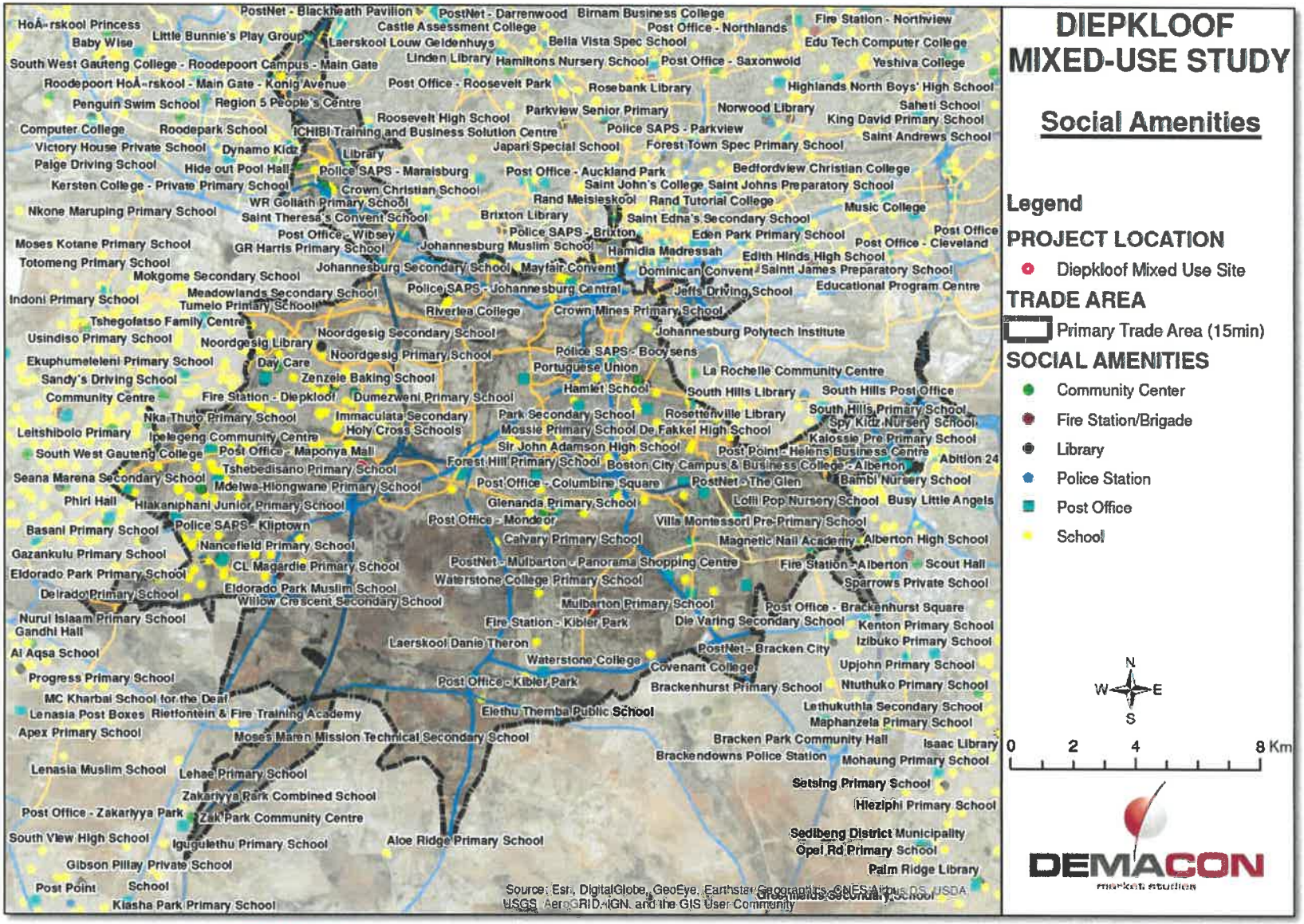
Social Amenities Supply Analysis



Social Amenities Supply Analysis

SOCIAL FACILITIES SUPPLY			
Pre-Primary Schools	**Primary Schools (continue)**	**Secondary Schools**	**Vocational Training**
Pre-Primary School	Mokorotio Primary School	Abbott's College Johannesburg South	Vocational Training
Arbor Helland Pre-Primary School	Molaetsa Primary School	Alpha and Omega Christian Academy	Academy of Learning
Busy Buddies Nursery School	Molalatladi Primary School	Bhukulani Secondary School	Barloworld Automotive Training Centre
Day Care	Molemo Primary School	Bopasenatla Secondary School	Bernard Price Institute for Paleontological Research
Inkululeko Day Care Centre	Mondeor Primary School	Bosmont Muslim School	Central Johannesburg College Highveld Campus
Kidz At Play Nursery School	Moruta-Thuto Primary School	Chris J. Botha Secondary School	Dental Teaching Hospital - Wits
Little Scholars Nursery	Mossie Primary School	Coronationville Secondary School	Dube Community College
Sagat School	Motjoli Primary School	Covenant College	Funda Community College
Spy Kidz Nursery School	Mulbarton Primary School	Daliwonga Secondary	Furntech
Towerby Pre Primary School	Mveledzandivho Primary School	De Fakkel High School	Harvest Christian College
Wheezie Wizard Nursery	Mxolisi Primary School	Die Burger Secondary School	Herbert Mdingi Adult Education Centre
Primary Schools	Mzamo Primary School	Diepdale Secondary School	Itshepeng Community College
AB Xuma Primary School	Nancefield Primary School	Doctor Beyer's Naude Secondary School	JD Group
Arthur Mathews Primary School	Nandi Primary	Edumore Christrian Academy	Johannesburg College
Bafikile Primary School	Naturena Primary School	Eldoradopark Secondary School	John Wesley College
Bakgomana Primary School	Ndondo Primary School	Emadwaleni Secondary School	Magnetic Nail Academy
Bapedi Primary School	Newclare Primary School	Emphukantambo Secondary School	Meadowlands Life College
Basani Primary School	Nhluvuko Primary School	Fidelitas Comprehensive School	New Nation College
Batsogile Primary School	Nka Thuto Primary School	Fons Luminis Secondary School	Open Learning Group
Belle Primary School	Nkholi Primary School	Forest High School	Riverlea College
Bephelo-Impilo Primary School	Nkwe Primary School	Freedom Park Secondary School	Saint Barnabas College - Bosmont
Bernard Isaacs Primary School	Nonofelo Primary School	Glenvista High School	South West Gauteng College
Bethany Girls' Primary School	Nonto Primary School	Hoër Tegniese Skool Langlaagte	Task Academy College
Boekenhout Primary School	Noordgesig Primary School	Hoër skool Vorentoe	Thera-Ed Educational Centre
Bopanang Primary School	Olifantsvlei Primary	Horizon International High School	Waterstone College
Bosmont Primary School	Orlando Sda Primary	Ibhongo Secondary School	Zenzele Baking School
Bree Street Primary School	Our Lady of Lebanon Maronite Catholic School	Immaculata Secondary	**Other Schools**
Calvary Primary School	Palesa Primary School	Jabulani Technical Secondary School	Adelaide Tambo School for the Physically Challenged
Cavendish Primary School	Park Primary School	Job Rathebe Secondary School	Alberton Leersentrum
Charles McBain Primary School	Parkdale Primary School	Johannesburg Polytech Institute	Anchors Comprehensive School
CL Magardie Primary School	Phakamani Primary School	Johannesburg Secondary School	Bethany Combined School
Claremont Primary School	Phiri Primary School	Kelokitso Comprehensive School	Blue World Swim School
Crown Mines Primary School	Phumuzile Primary School	Khindlimukani Secondary School	Boepakitso P
Crown Reef Primary School	Phuthalushaka Primary School	Klipspruit Wes High School	Bona Comprehensive School
Dalmondeor Primary School	Pimville Primary School	Kliptown Secondary School	Coronationville Special School
Delrado Primary School	Qhobosheane Primary School	Kotulo School of Excellence	Crown Christian School
Ditau Primary School	Rainbow Lower Primary School	Kwa-Mahlobo Secondary School	Don Mattera School
Ditawana Primary School	Retile Primary School	Kwa-Ntsikane Intermediate School	Elethu Themba Public School
Doctor Mary Malahlela Primary School	Reutlwile Primary School	Lamula Jubilee Secondary School	Esiyalweni Junior Secondary
Donaldson Primary School	Rishile Primary School	Lancea Vale Secondary School	Frances Vorwerg Special School

Social Amenities Supply Analysis

SOCIAL FACILITIES SUPPLY			
Primary Schools	Primary Schools (continue)	Secondary Schools	Other Schools
Dowlinglaan / Avenue L	Risuna Primary School	Lobone Secondary School	Fred Clark Combined School
Dumezweni Primary School	Riverlea Primary	Lofentse Girls' High School	Futura School-Remedial School
Dzata Primary School	Robertsham Primary School	Madibane Comprehensive School	Goudveld Vaardigheid Special School
Ekuphumeleleni Primary School	Rosettenville Central Primary School	Mafori Mphahlele Secondary School	Hamidia Madressah
Ekuthuleni Primary School	Rutegang Primary School	Matseliso Secondary School	Hamlet School
Eldocrest Primary School	Saint Angela's Primary School	Meadowlands Secondary School	Holy Cross Schools
Eldorado Park Muslim School	Saint Ive's Primary School	Missouri Secondary School	Ipatleleng Zifuneleni Combined School
Eldorado Park Primary School	Saint John Berchman's Primary School	Mlamli Finishing Secondary School	Johannesburg Muslim School
Eldridge Primary School	Saint Martin de Porres Primary School	Mncube Secondary School	Kip McGrath Education Centre
Elitheni Primary School	Saint Matthew's Primary School	Mokgome Secondary School	Lulama Combined School
Emadlelweni Primary School	Saint Peter Claver Primary School	Mondeor High School	Maraisburg Madressah
Emathafeni Primary School	Saint Theresa's Convent School	Morris Isaacson Secondary School	Marist Brothers Linmeyer - Marian College
Emelang Primary School	Samuel Mangala Primary School	Moses Maren Mission Technical Secondary School	Mayfair Convent
Emisebeni Primary School	Sapebuso Primary School	Musi Comp. School	Mezodo Tech Orientation Centre Special School
Empumalanga Primary School	Sedibeng Sa Thuto Primary School	Namedi Secondary School	Nghunghunyani Comprehensive School
Emzimvubu Primary School	Sefika Primary School	Nationwide School for Academic Excellence	Paul Mosaka Combined School
Enkanyezini Higher Primary School	Seipateng Primary School	Noordgesig Secondary School	Progress Comprehensive School
Enkolweni Primary School	Sekwati Primary School	Orlando West Secondary School	Pumelela Special School
Entandweni Primary School	Selope-Thema Primary School	Park Secondary School	Randeor Special School
EP Baumann Primary School	Senyamo Primary School	Phafogang Secondary School	Saint Martin's High School
Everest Primary School	Shako-Bowa Primary School	Phefeni Secondary School	Takelani School
EW Hobbs Primary School	Shalom Manne Primary School	President High School	Thathulwazi school
Faresani Primary School	Shomang Primary School	Raucall Secondary School	**Post Boxes / Post Offices**
Firethorn Primary School	Sibongile Primary School	Reutlwile Secondary School	Post Boxes / Post Office
Florida Avenue Primary School	Sivelile Primary School	Riverlea Secondary	Post Boxes - Florida Glen
Fordsburg Primary School	Sizanani Primary School	RW Fick Primary School	Post Office - Soweto
Forest Hill Primary School	Tambotie Preparatory School	Saint Matthew's Secondary School	Post Office - Booysens
Freedom Primary School	TC Esterhuysen Primary School	Sama Independent	Post Office - Columbine Square
Gazankulu Primary School	Thabaneng Primary School	Seana Marena Secondary School	Post Office - Comaro View Shopping Centre
General Christiaan de Wet Primary School	Thabisang Primary School	Sekanontoane Secondary School	Post Office - Crown Mines
Giyani Primary School	Thabisile Primary School	Selelekela Secondary	Post Office - Delarey - The Founders Square
Glenanda Primary School	Thakhisa Primary School	Senaoane Secondary School	Post Office - Diepkloof
Goudpark Primary School	Thathezakho Primary School	Silver Oaks Secondary School	Post Office - Dobsonville
GR Harris Primary School	Thembalethu Primary School	Sir John Adamson High School	Post Office - Dube
Hartford College	Thembu Primary School	Sparrow Secondary School	Post Office - Eldorado Park
Heerengracht Primary School	Theo Wassenaar Primary School	Thaba -Jabula Secondary School	Post Office - Fordsburg
Hesperus Primary School	Thobeka Primary School	Thesele Secondary School	Post Office - Glenvista Shopping Centre
Highveld Primary School	Thsimologo Lower Primary School	Thulare Secondary School	Post Office - Industria
Hlabangane Primary School	Thulasizwe Primary School	Thutolore Secondary School	Post Office - Jabulani Shopping Centre
Hlakaniphani Junior Primary School	Thusanang Primary School	Tlhatlogang Junior Secondary School	Post Office - Kibler Park

Social Amenities Supply Analysis

SOCIAL FACILITIES SUPPLY			
Primary Schools	Primary Schools (continue)	Secondary Schools	Post Boxes / Post Offices
Hlalefang Primary School	Tiakeni Primary School	Unifield Public School	Post Office - Kliptown
Hoernle Primary School	Tirisano Primary School	Veritas Secondary School	Post Office - Maponya Mall
Huguenot Primary School	Tiyani Primary School	Vine College	Post Office - Maraisburg
Igugu Primary School	Tiyimiseni Primary School	Vuwani Secondary School	Post Office - Meadowlands
Ikaneng Primary School	Tlhokomelo Primary School	Waterstone College Primary School	Post Office - Meyersdal Mall
Ikwezi Primary School	Tlhoreng Primary School	Westbury Secondary School	Post Office - Mondeor
Indoni Primary School	Tlotlego Primary School	Willow Crescent Secondary School	Post Office - Moroka
Inkonjane Primary School	Totomeng Primary School	**Fire Station**	Post Office - Motsoaledi
Inkwenkwezi Primary School	Townsview Primary School	Fire Station - Brixton - Training	Post Office - Mulbarton Shopping Centre
Ipolokeng Primary School	Tshebedisano Primary School	Fire Station - Diepkloof	Post Office - Newclare
Isipho Primary School	Tshedimosho Primary School	Fire Station - Dobsonville	Post Office - Orlando
Itekeng Primary School	Tshileletso Primary School	Fire Station - Eldorado Park	Post Office - Pimville
Ithembalihle Primary School	Tshilidzi Primary School	Fire Station - Jabulani	Post Office - Ridgeway Gardens
Jabavu East Primary School	Tsietsi Mashinini Primary School	Fire Station - Kibler Park	Post Office - Robertsham
Jim FouchÃƒÂ© Primary School	Tsogang Primary School	Fire Station - Linmeyer	Post Office - Rosettenville
JS Mpanza Primary School	Tswelelang Primary School	Fire Station - Turffontein	Post Office - Southdale
Kersten College - Private Primary School	Tumang Primary School	Fire Station 10 - Brixton	Post Office - Southgate
Khandubuhle Primary School	Tumelo Primary School	**Library**	Post Office - Springfield
Khomanani Primary School	Turffontein Primary School	Alberton Library	Post Office - Tshiawelo
Khulangdwazi Primary School	Usindiso Primary School	Bosmont Public Library	Post Office - Turfontein
Kliptown Primary School	Uvuyo Primary School	Brixton Library	Post Office - Weltevreden Park
Kwa-Phalo Primary School	Vezokuhle Primary School	Coronation Library	Post Office - Wibsey
Laerskool Danie Theron	Voorbrand Primary School	Diepkloof Library	Post Office - Wits
Laerskool General de la Rey	Vukani Primary School	Islamic Research Library & Bookshop	Post Office - Witspos
Laerskool Piet van Vuuren	Vukayibamba Primary School	Jabavu Library	Post Point - Johannesburg
Lakeview Primary School	Vukazenele Primary School	Klipspruit West Library	Post Point - Alberton
Lebowa Primary School	Vulamazibuko Primary School	Kopanong Library	Post Point - Roodepoort
Leihlo Primary School	Welizibuko Primary School	Library - Roodepoort	Post Point - Bassonia
Lejoeleputsoa Primary School	West Rand Seventh Day Adventist Primary School	Library - Johannesburg	Post Point - Checkers Hyper Centre
Lekang Primary School	Westbury Primary School	Mayfair Library	Post Point – Glenvista
Lilydale Primary School	Wilhelmina Hoskins Primary School	Meadowlands Community Library	Post Point - Ridgeway Gardens
Livhuwani Primary School	Winchester Ridge Primary School	Newlands Public Library	Post Point - The Founders Square
Lodirile Primary School	Winnie Ngwekazi Primary School	Noordgesig Library	PostNet - Meyersdal Square
Lo-Itekile Primary School	Wisani Primary School	Phiri Public Library	PostNet - Mulbarton - Panorama Shopping Centre
Lukholweni Primary School	WK Maponyane Primary School	Pimville Library	PostNet - New Redruth
Mabewana Primary School	WR Goliath Primary School	Riverlea Library	PostNet - The Glen Park
Makhoarane Primary School	Zakheni Primary School	Rosettenville Library	
Mambo Primary School	Zithathele Primary School	Southdale Library	
Mangwele Primary School		Westbury Library	

Social Amenities Supply Analysis

SOCIAL FACILITIES SUPPLY			
Primary Schools	Primary Schools (continue)	Secondary Schools	Vocational Training
Margaret Gwele Primary School		Private Hospitals	
Mary Help of Christians Junior Primary School		Fordsburg Clinic Hospital	
Mawila Primary School		Lesedi Private Hospital	
Mdelwa-Hlongwane Primary School		Netcare Garden City Hospital	
Meredale Primary School		Selby Hospital	
Milnerton Primary School		Mulbarton Hospital	
Mawila Primary School		Netcare Clinton Hospital	
Mdelwa-Hlongwane Primary School		Netcare Union Hospital	
Meredale Primary School		Netcare Rehabilitation Hospital	
Milnerton Primary School		Netcare Rand Hospital	
Moetapele Primary School		Medicross Roodepoort Family Medical Centre	
Mohloding Primary School			

Social Amenities Demand Analysis

	Parameter	Land Required Per Amenity	Market Gap	Hectares
HEALTH AND EMERGENCY SERVICES				
Tertiary Hospital L3	2 400 000	0,50	0,0	0,0
Regional Hospital L2	1 770 000	7,00	0,0	0,0
District Hospital L1	300 000	5,00	0,0	0,0
Community Health Centre	100 000	1,50	0,0	0,0
Primary Health Clinic	24 000	0,50	0,0	0,0
Fire Station	60 000	1,20	0,0	0,0
Police Station	60 000	0,45	0,0	0,0
SOCIAL & CULTURAL (PUBLIC SERVICE FACILITIES)				
Community Performing Arts Centre	50 000	0,05	0,0	0,0
Museum – large	500 000	0,05	0,0	0,0
Regional Library – Reference	450 000	0,03	0,0	0,0
Regional Library	200 000	0,03	0,0	0,0
Local Library	20 000	0,05	0,0	0,0
CIVIC				
Major Public Event Venue	1 000 000	3,00	0,0	0,0
Home Affairs – large office	400 000	0,05	0,0	0,0
Home Affairs – medium office	160 000	0,02	0,0	0,0
Home Affairs – small office	40 000	0,02	0,0	0,0
SOCIAL SERVICES				
Community Hall – large	60 000	0,50	0,0	0,0
Community Hall - medium / small (fringe areas)	10 000	0,20	0,0	0,0
ICT Access point	10 000	1,50	0,0	0,3
Post office / agent with post boxes	10 000	0,03	0,0	0,0
Social Grant Pay Point	40 000	0,03	0,0	0,0
Community Hall – large	60 000	0,50	0,0	0,0
EDUCATION				
Post-matric Skills Training (i.e. nursing teaching, etc.)	400 000	1,00	0	0,0
Small Creche / early childhood development centre	**2 400**	**0,02**	**3**	**0,1**
Grade R Class at primary school	**1 000**	**0,01**	**7**	**0,1**
Primary School	**7 000**	**2,80**	**1**	**2,5**
Secondary School	**12 500**	**4,00**	**1**	**2,0**
ECD Resource Hub and Care Centre	20 000	0,10	0	0,0
RECREATION PROVISION (SPORT & PARKS)				
Indoor Sports Hall (medium/large)	250 000	0,50	0,0	0,0
Regional Sports Stadium	200 000	0,50	0,0	0,0
Sports Complex with 9 - 12 court sports hall, etc.	200 000	0,80	0,0	0,0
TOTAL HECTARES				**5.2 ha**

Note: Parameter reflects the number of people required to support development of a specific facility.

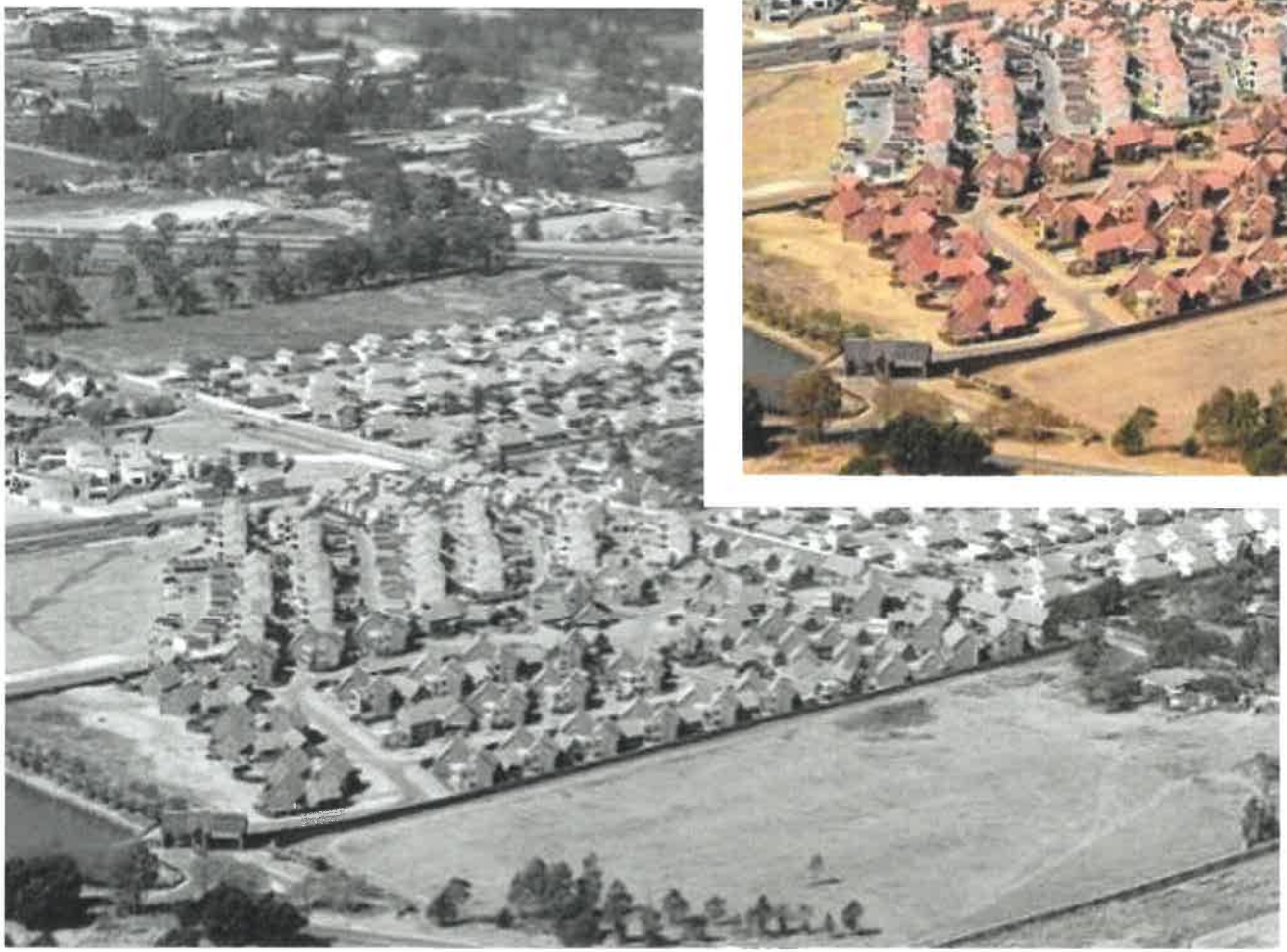
Source: Demacon, 2018

From the social facility modelling, it is evident that there is a gap for several facilities in the primary trade area. The table indicates that the social amenities that are feasible, necessary and compatible with the site configuration are:

- ✓ Small Creche / early childhood development centre (3)
- ✓ Grade R Class at primary school (7)
- ✓ Primary School (1)
- ✓ Secondary School (1)

The development of other amenities would depend on future population growth in the market area – current demand thresholds can only partially sustain additional amenities.

LAND BUDGET & OPTIMUM POINT OF MARKET ENTRY



15

Short to Medium Term Land Budget & Estimated Timeframe

The table below illustrates the potential composition for the Diepkloof Project.

Diepkloof Project Project Land Use Budget (Site Potential) – 2029

Land Use	Proposed size	Including Roads & Circulation	Percentage of land area (%)	Optimum point of market entry
Residential - Bonded	1 500 units	15,0	18,3%	2021+
Residential - Social	450 units	3,4	4,1%	2021+
Retail (Convenience / Lifestyle Shopping Centre)	22 494m²	6,7	8,2%	2022+
Trade (Automotive)	12 641m²	3,8	4,6%	2023+
Offices	62 126m²	12,4	15,2%	2024+
Industrial / Warehousing	11.01 ha	13,2	16,1%	2024+
Short-Stay Accommodation (Hotel)	318 keys (16 495m²)	3,3	4,0%	2020+
Medical - Private Hospital	357 beds (26 740m²)	5,3	6,5%	2023+
Private School	36 270m²	12,4	15,2%	2022+
Social Amenities	5.2 ha	6,2	7,6%	2020+
Hectare Take-up		**81,9 ha**	**100.0%**	

Source: Demacon, 2019
**This figure includes floor space for conferencing & restaurant*

To conclude, from the market research the following development options could be considered:

The total size of the property measures approximately **30 hectares**. The highest and best use principle should be applied to select the optimum mix, which may include the following three options in order of priority:

Highest & Best Use Recommended Options

OPTION 1
Integrated Lifestyle Precinct

- ❑ Convenience / Lifestyle Retail - 6.7ha
- ❑ Healthcare - 5.3ha
- ❑ High Density Residential - 10 to 15 ha
- ❑ Automotive - 3.8ha

Priority

±30.8 ha

OPTION 2
Retail Precinct with Automotive

- ❑ Retail (Regional Mall) – 24.5ha
- ❑ Office – 12.4ha
- ❑ Automotive – 3.8ha
- ❑ Commercial / industrial – 13.2ha

Priority

± 53.9 ha

OPTION 3
Hybrid Commercial / Industrial Precinct

- ❑ Office – 12.4ha
- ❑ Automotive – 3.8ha
- ❑ Commercial / industrial – 13.2ha

Priority

± 29.4 ha

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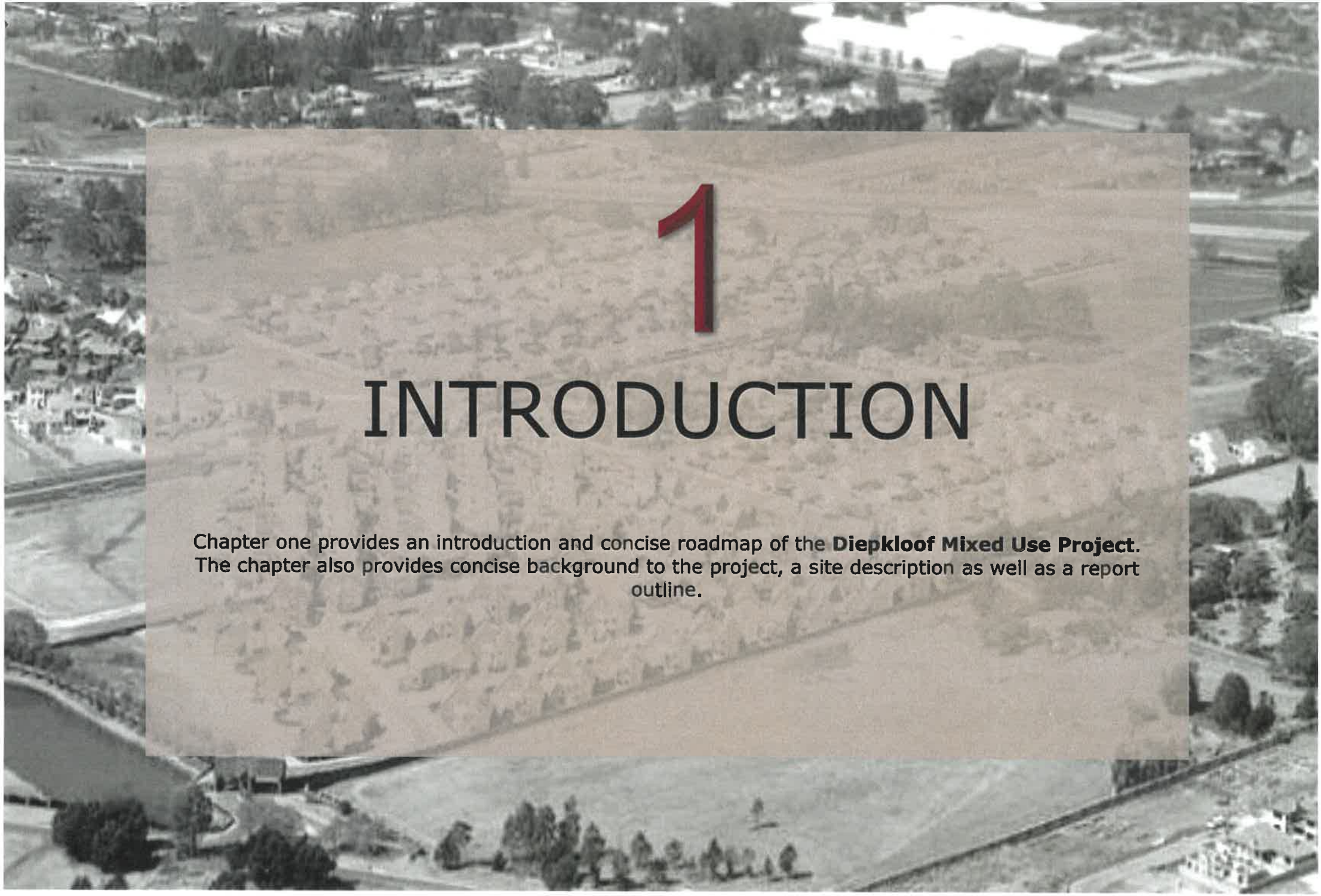


1

INTRODUCTION

Chapter one provides an introduction and concise roadmap of the **Diepkloof Mixed Use Project**. The chapter also provides concise background to the project, a site description as well as a report outline.

INTRODUCTION 1

1.1 BACKGROUND

Chapter one provides an introduction and concise roadmap of the **Diepkloof Mixed Use Project**. The chapter also provides concise background to the project, a site description as well as a report outline.

1.2 PROJECT BRIEF & OBJECTIVES

DEMACON Market Studies were commissioned by **Turning Point Project Managers** to perform market research to assess the demographic profile, economic drivers and trends, highest and best land uses and development & growth potential of a **proposed mixed-use development in the Diepkloof (Soweto) area, *with the optimum mix and sizes of the various highest and best land uses to be informed by the market study*.**

It is our understanding that a comprehensive highest and best use market study is required to inform relevant parties with regard to the **full and optimum development potential of the site,** in order to inform strategic **planning, investment and marketing decisions.**

In the context of the above, a comprehensive highest and best use market study is therefore required to assess the viability and optimum composition of a potential development concept in terms of, *inter alia*:

- ✓ identify the optimum combination of **highest and best uses** (HBUs) for the sites (taking due cognisance of market and development trends and demands in the sub-region)
- ✓ refine the above to a **short list** of potential activities / real estate markets to be analysed
- ✓ demographic *status quo* and trends of the anticipated **target market**, including point of origin, affordability levels, etc.
- ✓ local and sub-regional economic *status quo* and trends, including **main economic drivers and trends** in the region
- ✓ **location analysis and property description**
- ✓ **SDF** / Urban Design Framework Alignment
- ✓ catalytic effect of **new and / or comparable projects** in the market
- ✓ **market activity and growth**
- ✓ **main competitors / supply** in the market, i.e. comparable projects aimed at similar target market (existing and proposed)
- ✓ forecast **take-up** rates
- ✓ **extrapolated market profile**, i.e. future resident population (and demand implications for ancillary facilities)
- ✓ corresponding **product offer and type**
- ✓ **timing / phased implementation** and optimum point of market entry
- ✓ future **demand thresholds and target markets per land use**
- ✓ **Market potential assessment** (including 5- and 10-year growth forecast)
- ✓ **Recommendations and conclusions**, including optimum land use mix and project size (including optimum size quantified for each respective project component, optimum points of market entry / phasing, recommended typologies, product and pricing profiles, competition analysis, future growth and expansion potential, etc.) – including photos, diagrams, graphs, maps, etc.

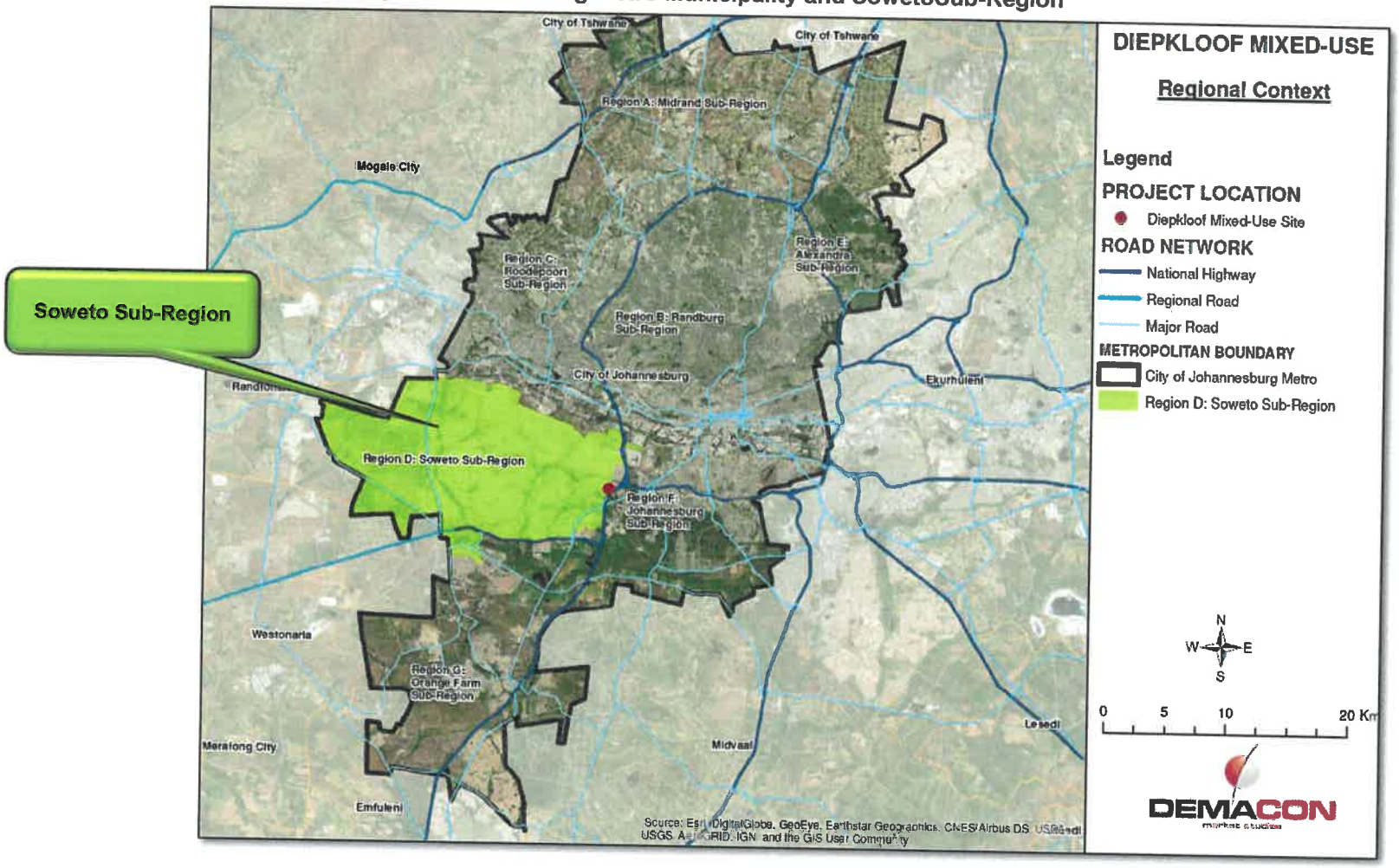
DEMACON's approach is purely market based and we will apply our extensive involvement as well as recent research and market intelligence on the subject matter to complement the market study.

1.3 STUDY AREA DELINEATION

❖ ***Regional Context***

The study area falls within **City of Johannesburg Metro** and **Soweto Sub-Region.**

Map 1.1: Site in regional context - City of Johannesburg Metro Municipality and SowetoSub-Region



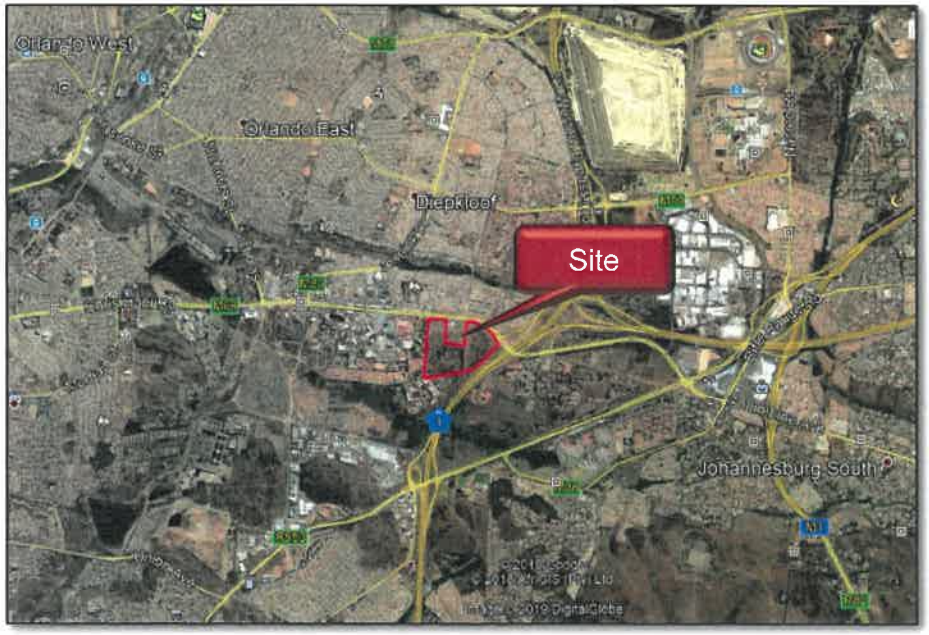
- ***Locality and description of site***

The proposed development is situated in the eastern extent of Region D of City of Johannesburg Metropolitan Municipality.

The site is bordered by Chris Hani Road to the north and the N1 (Western Bypass) to the east of the suburb Diepkloof.

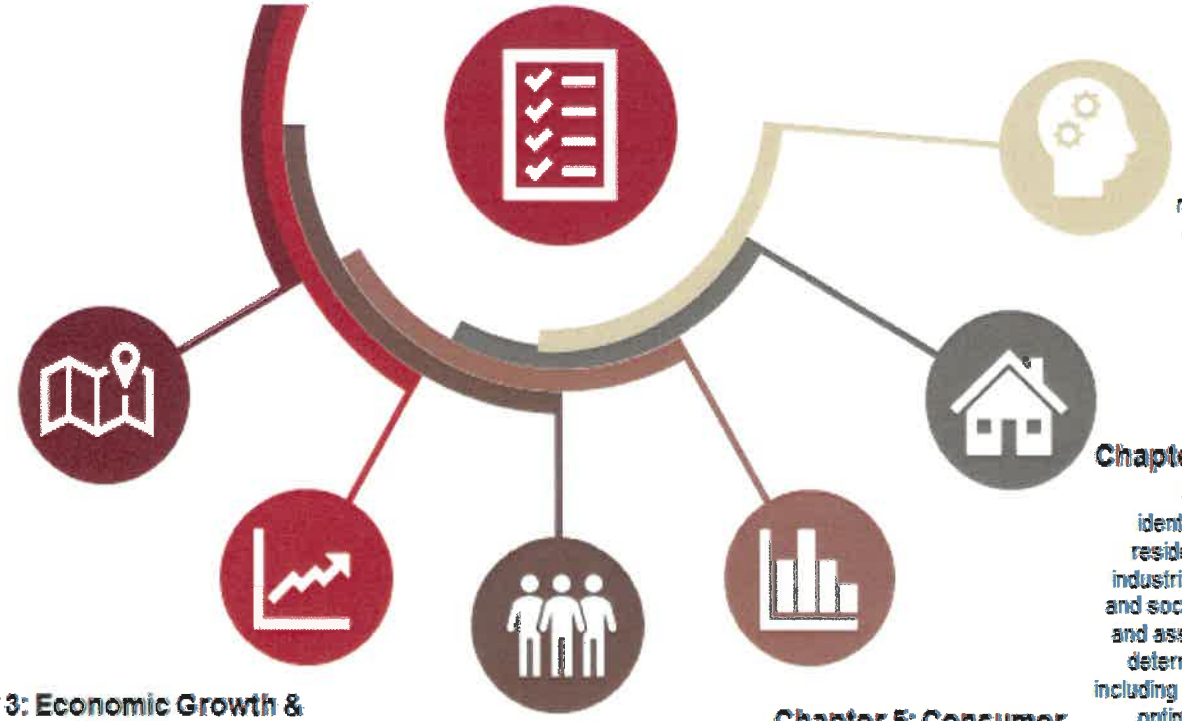
To the west of the subject site is Chris Hani Baragwanath Hospital Complex and ±5km further west Maponya Mall. To the north of the site is Diepkloof Square.

Map 1.2: Location of the site



1.4 REPORT OUTLINE

The remainder of the report is structured in terms of the following main themes:



Chapter 2: Location Analysis
focuses on the location aspects in the market with the objective of estimating the development potential within the designated area.

Chapter 3: Economic Growth & Drivers
outline the salient features of the market area economy in terms of selected time series economic indicators; most notably the economic profile and growth trends within the local economy.

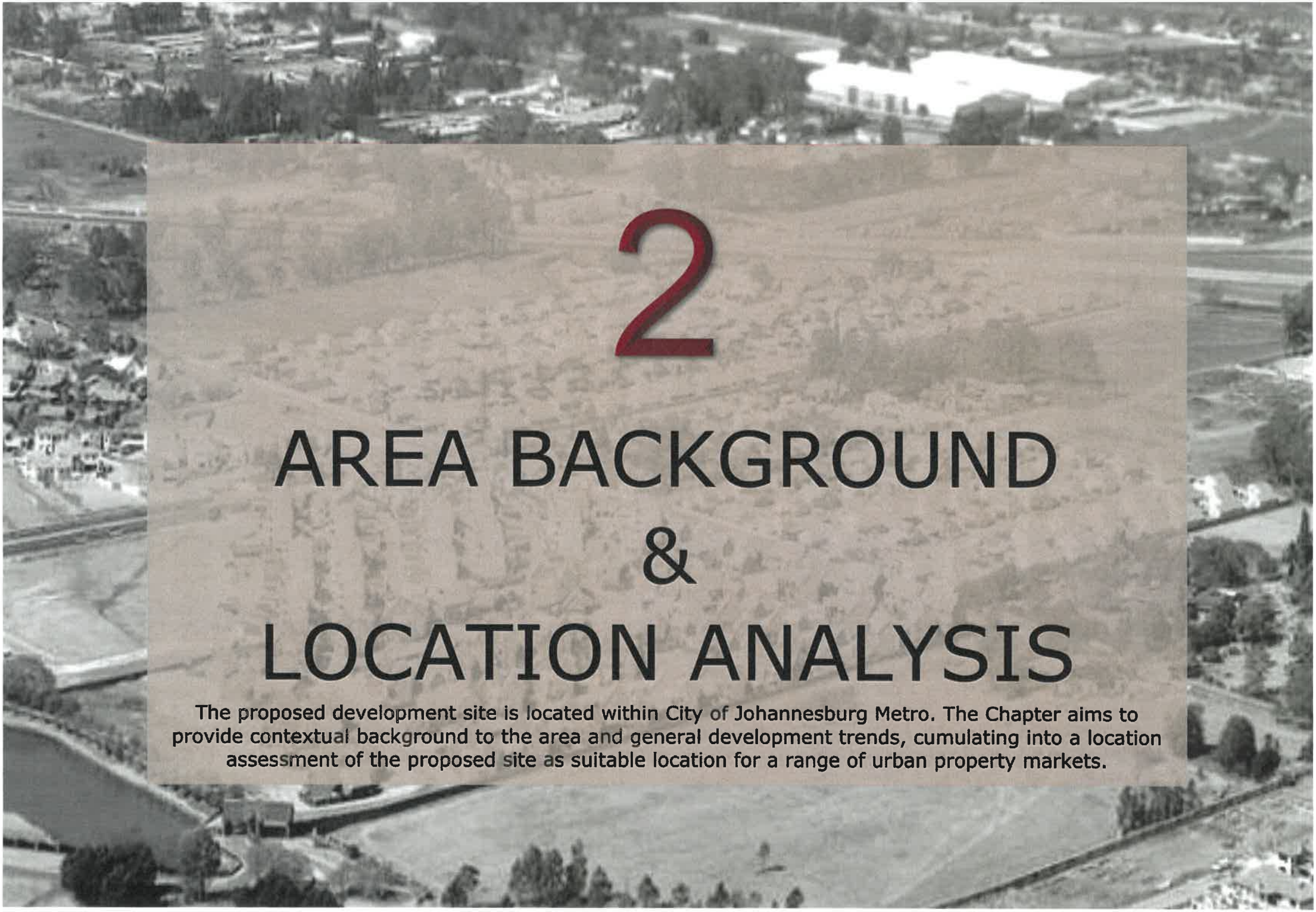
Chapter 4: Consumer Market Profile
Demographic *status quo* and trends of the anticipated target market, including point of origin, affordability levels, etc.

Chapter 5: Consumer Perception Survey
conduct a random sample, perception survey in the surrounding area, which represents a large captive market for potential buyers.

Chapter 6 - 14: Market Demand & Supply Analysis
identify the supply and demand for residential, retail, automotive, office, industrial, short-stay, medical, education and social facilities within the market area and assess in terms of current trends, to determine the development potential, including ideal typology mix, pricing profiles, optimum point of market entry, etc.

Chapter 15: Development Recommendations
optimum product offering, based on revealed preferences, target market and demand modelling, including economic impact assessment.

The following Chapter provides the location analysis.



2

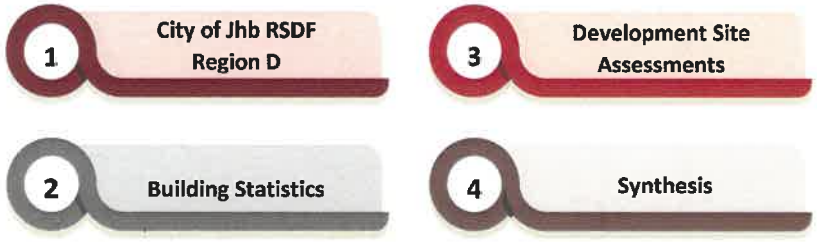
AREA BACKGROUND & LOCATION ANALYSIS

The proposed development site is located within City of Johannesburg Metro. The Chapter aims to provide contextual background to the area and general development trends, cumulating into a location assessment of the proposed site as suitable location for a range of urban property markets.

AREA BACKGROUND & LOCATION ANALYSIS 2

2.1 INTRODUCTION

The proposed development site is located within **City of Johannesburg Metro Municipality.** The Chapter aims to provide contextual background to the area and general development trends, cumulating into a location assessment of the proposed site as suitable location for a range of urban property markets. This chapter is outlined by the following subheadings:



2.2 CITY OF JOHANNESBURG REGIONAL SPATIAL DEVELOPMENT FRAMEWORK: REGION D[1]

City of Johannesburg regions

The City has instituted a system of urban management that operates at a regional scale. There are seven regions within City of Johannesburg Metropolitan Municipality, see table below.

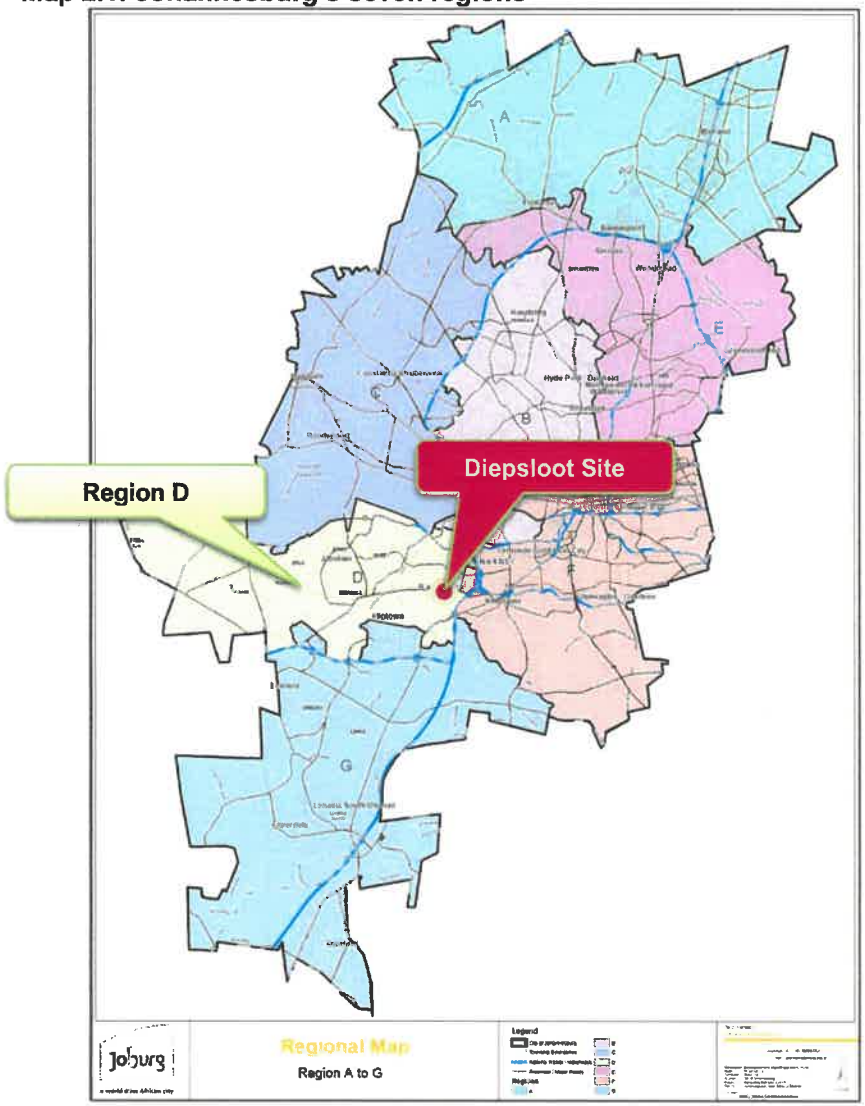
Table 2.1: City of Johannesburg Regions

New Regions	Old Regions	Comments
A	1 and 2	The former regions have been combined into one (such as Diepsloot, Midrand, Fourways, Sunninghill, Woodmead).
B	3 and 4	Includes whole of the former Region 4, excluding Ward 70 (such as Florida), including Wards 90, 102 & 104 (such as Rosebank, Bryanston, Randburg)
C	5	This includes Wards 44, 49, 50, 70 and 84 (such as Bram Fischerville, Thulani, Florida)
D	6 and 10	Soweto only
E	7	Includes all of the former Region 3, excluding Wards 90, 102 and 104 (such as Rosebank, Bryanston, Randburg). Includes Wards 73, 74, 91, 103 and 106 (such as Parkwood, Highlands North, Alexandra, Wynberg, Morningside, Douglasdale)
F	8 and 9	Includes whole of former Region 8 and includes Wards 23, 54, 57, 65 and 66 (such as Glenvista, Ormonde, City Deep, Benrose, Kensington)
G	11	Includes the former Region 11 plus Ward 10 (Lenasia), Wards 17 and 18 (Eldorado Park) and Protea.

The **Diepkloof site** is situated within Region D but is bordered by Region F on the eastern site.

[1] *City of Johannesburg Regional Spatial Development Framework: Region D*

Map 2.1: Johannesburg's seven regions



2.2.1 CITY OF JOHANNESBURG REGIONAL SPATIAL DEVELOPMENT FRAMEWORK 2010 / 2011[2]

REGIONAL ANALYSIS

❖ LOCALITY

Region D is one of the seven Administrative Regions in the City of Johannesburg. It is situated to the western edge of the City and is surrounded by Regions B and C to the north, Region F to the east and Region G to the south. There are 36 wards in Soweto. Refer to Locality Plan below.

❖ REGIONAL CHARACTERISTICS AND TRENDS

The information provided in this section is a brief summary of the main development trends and characteristics in Region D.

- ✓ Rich in history, but poorer in terms of quality of the settlement.
- ✓ It is a vast, sprawling urban area, characterised by mostly residential developments and a limited variety of other uses and facilities (social amenities and infrastructure).
- ✓ Existing mining operations and activities to the north of the region implying that certain land parcels may be locked and unavailable for packaging, release and development along the EWDC.
- ✓ There are few significant sites for commercial, office, retail and industrial development and informal activities proliferate.
- ✓ Prominent nodes include: Baralink, Jabulani, Dobsonville and Kliptown.

Map 2.2 indicates existing Broad Land Uses in Region D, with the most dominant land uses being residential housing and vacant agricultural land to the western edge of the Region.

[2] *City of Johannesburg Regional Spatial Development Framework 2010/11 Administrative Region D*

❖ MOVEMENT

- ✓ Regional accessibility provided by the N1, Golden Highway, Chris Hani Road, Soweto Highway and Roodeport Road.
- ✓ External linkages are limited as well as northern access from the two interchanges onto the N1 Highway.
- ✓ Road conditions have improved but there is still limited access both into and through Soweto. The N17 is being constructed to improve accessibility.
- ✓ Growing trend towards private motor vehicle usage.
- ✓ Intense traffic bottlenecks are experienced during morning and afternoon peak hours.
- ✓ Large numbers of people commute to the Inner City via public transport.
- ✓ Major mode of transport is the minibus (taxi); hence the need to upgrade some taxi ranks and public transport routes.
- ✓ Public transport services do not extend to all areas.
- ✓ Two rail lines service Soweto. Currently they do not extend further than Naledi. However, there are plans to extend the northern rail west of Naledi, as well as roads to the Lufhereng/Doornkop Township.
- ✓ There is increasing pedestrian and vehicular traffic volumes given new mall developments.
- ✓ Main congestion points are concentrated in the approaches to Baralink and Jabulani Node and nearly all inbound routes have little/ spare capacity or are overloaded.
- ✓ Bus Rapid Transit (BRT) system being implemented consists of three main types of services, i.e. trunk, feeder and complementary bus services.
- ✓ Three BRT terminals are proposed at Dobsonville, Jabulani and Baragwanath and are to be complimented by BRT stations situated at 500m apart along the trunk route.

❖ SOCIAL FACILITIES

- ✓ There are budgetary constraints for upgrading of existing and construction of new social facilities.
- ✓ The quantity and location of social facilities in Soweto is unevenly distributed amongst the wards and the quality is often poor.
- ✓ There is no proper hierarchy of facilities in terms of threshold.
- ✓ There is a multipurpose library planned for Klipspruit.
- ✓ The current trend among resident parents is to send children to schools within other established suburbs in the City. This is fuelled by the perception that public education is poor and that these schools offer a better level of education.
- ✓ Consequently, over twenty schools have so far been closed due to low enrolment in Region D. This number is estimated to remain high, as the majority of young and up coming as well as the middle-income residents, have no desire to place their children in the local schools.
- ✓ Arrangements are underway to lease out the closed schools for other uses.
- ✓ The following summarises the different social facilities in Soweto:
  - Recreation (halls, multi purpose community centres):28
  - Sports (stadiums, sports fields): 23
  - Butt huts: 9
  - Health (clinics): 20
  - Aquatic complexes: 11
  - Libraries and information services: 17
- ✓ Need for skills development facilities.

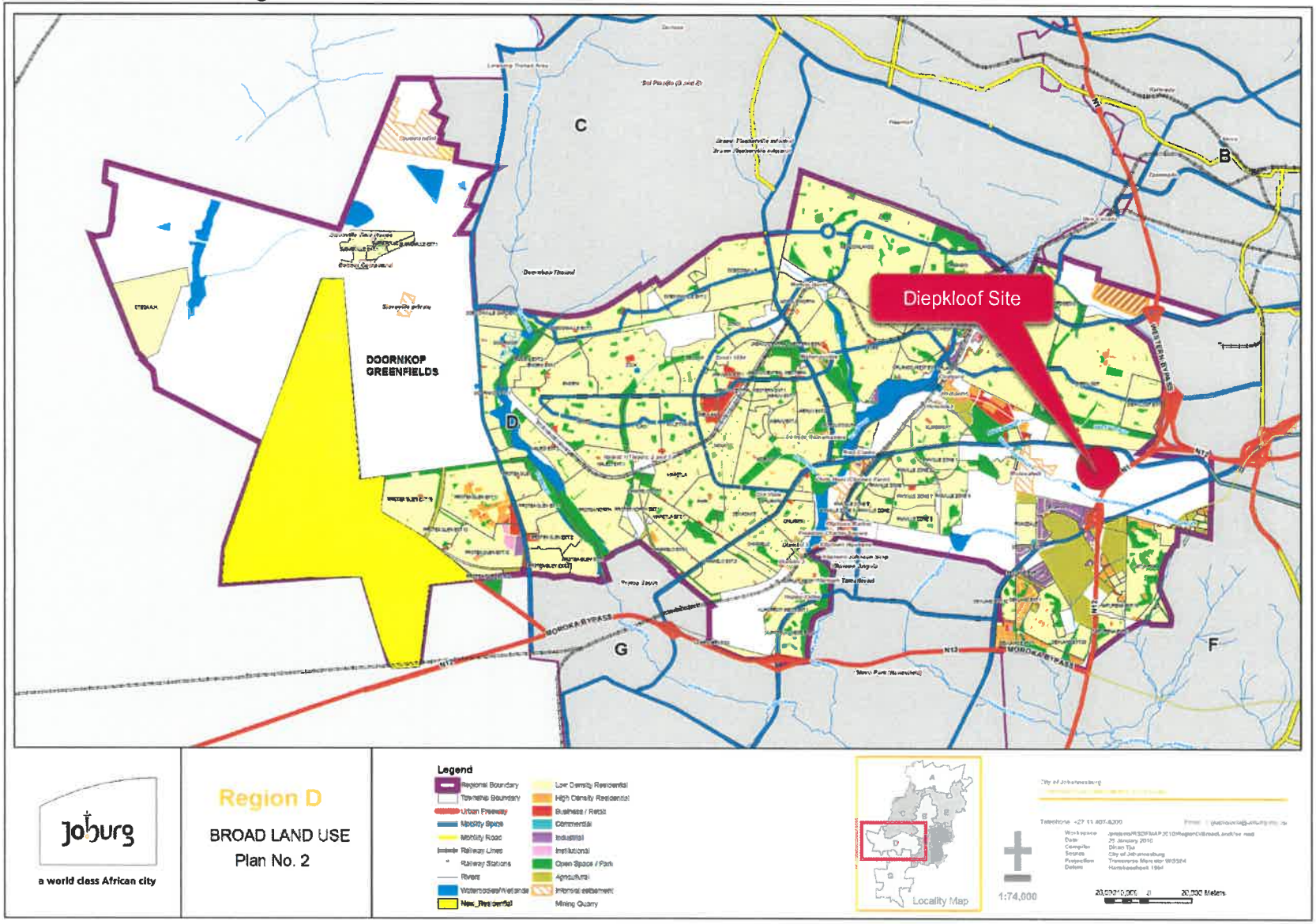
❖ HOUSING

- ✓ Most dominant land use in Soweto.
- ✓ Rental housing is the most common form of tenure (flats, backyard shacks and hostels).
- ✓ Soweto has 15% of the city's informal settlements with an approximate total of 12 809 shacks. 24 of the informal settlements are located on public land, while 4 are on private land. 68% of these have an official mandate for upgrading.
- ✓ Increasing informal settlements place a major strain on the existing infrastructure.
- ✓ A large number of the informal settlements are concentrated around the Klipspruit Valley Area and other environmentally unsafe areas. They offer poor quality living environments, inadequate services and lack bulk infrastructure. Furthermore, they are normally located on land that is Dolomitic.
- ✓ Greater Kliptown is a high priority upgrading and renewal housing area with projects in Pimville Zone 9, Klipspruit Ext 6, Klipspruit Ext 7 and Klipspruit Ext 11at various planning and implementation stages.
- ✓ A total of 3 082 stands have been approved for transfer in Devland Extensions 1, 14, 15, 16, 27, 30, 33 and 35 by end of 2009. Of these, 2 793 have been transferred and 289 are outstanding.

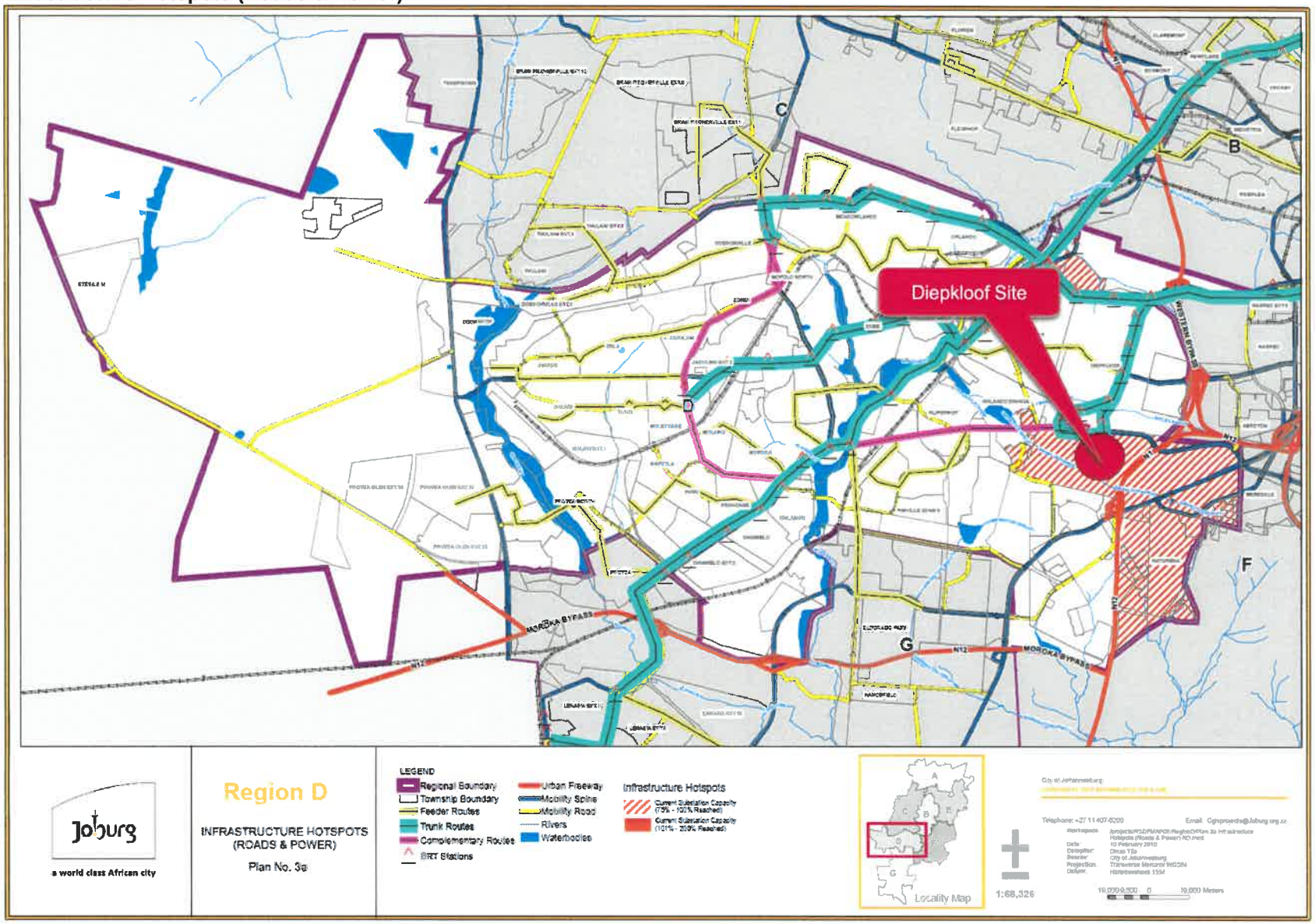
❖ REGIONAL ECONOMY

- ✓ Soweto remains economically entrapped due to negative impacts of Apartheid.
- ✓ Most residents work outside Soweto and most of the disposable income is spent outside the region.
- ✓ There is high unemployment and a proliferation of informal businesses.
- ✓ Similarly, there are relatively low levels of income.
- ✓ There is a small commercial, industrial and rates base (as a result of historical legislative restrictions).
- ✓ Recent mall developments are Jabulani, Bara and Maponya Malls.
- ✓ Development frameworks for Dobsonville, Bara Central and Ikwezi nodes approved to generate economic opportunities.
- ✓ The envisaged development of the Soweto Empowerment Zone (SEZ) and Orlando eKhaya precinct would boost local economic development.
- ✓ Doornkop has been identified as a site suitable for agri-business (organic farming, etc).

Map 2.2: Broad Land Use Plan – Region D



Map 2.3: Infrastructure Hotspots (Roads & Power)



2.2.2 DEVELOPMENT POLICIES AND STRATEGIES

GROWTH MANAGEMENT STRATEGY

The GMS sets high, medium and low priority areas across the City and describes specific interventions:

I. HIGH PRIORITY AREAS (I.E. 2008-2011 CAPITAL INVESTMENT AND IMMEDIATE SERVICE UPGRADING)

PUBLIC TRANSPORT PRIORITY AREAS:

The locations noted below represent the backbone of a revitalised and integrated public transportation system. The multi-billion Rand investments of Gautrain and the Bus Rapid Transit System (BRT) represents the City and State's commitment to realising a world-class public transportation system that facilitates movement within and beyond the City's borders and is efficient and accessible to all communities. The expanded system being developed represents a significant and complimentary advancement of the current bus and taxi services rendered within the City.

The locations below also represent latent opportunities to restructure the current fragmented City form and to provide more inclusive environments for the City's communities. Issues relating to appropriate and effective densities, mixed-uses and infrastructure provision are foremost in the City's designation of these areas as priority areas from an infrastructure perspective. City budgets relating to infrastructure will be co-ordinated to ensure that these imperatives are met. Additionally, aspects relating to Inclusionary Housing to facilitate affordable and "gap-market" housing and incentives to facilitate socially geared developments in these locations are critical.

The Public Transport Priority Areas for Region D are:

- The existing rail corridor and the station precincts.
- Nodal precincts that coincide with transportation interventions, such as Jabulani, Baralink, Kliptown, Orlando Stadium.
- Phase 1 of the Bus Rapid Transit System.

Planning emphasis in Soweto has been placed on developing Development Frameworks and Precinct Plans for a number of areas that have rail or BRT stations located in and/or near them. These areas have very good potential for diversification and more intense land uses to compliment investment in the public transportation facilities. The following are such areas in Region D.

❖ **Ikwezi Station Precinct**

The Ikwezi station precinct has been identified as a public transport interchange node. The node is serviced by a rail station and taxi rank. Elias Motsoaledi Road and Koma/Mmila Roads are proposed BRT complimentary routes passing through the precinct. This qualifies it as a GMS public transport priority area.

❖ **Naledi / Merafi Station Precincts**

The precincts cover a 1km radius around the Naledi and Merafe rail stations. The vision is informed by the understanding that TOD is not only about densification around a transit point but is also mainly concerned with creating an extremely pedestrian friendly precinct.

❖ **Midway / Chiawelo Stations Precinct**

The Midway precinct is a "specialist node" that is industrial in function and strategically located close to both rail and road transportation networks. The Chiawelo rail station precinct is however more residential in character.

❖ **Orlando East / Noordgesig Precinct**

The precinct covers the Orlando East and Noordgesig residential areas. It incorporates the two rail stations of Orlando East and Mlamlankunzi.

NODAL BASED HIGH PRIORITY AREAS:

❖ **Baralink**

Baralink node is the only Regional node in Soweto. It is regarded as the "gateway" to Soweto because of its strategic location between the eastern sector of Soweto and the southern sector of Johannesburg CBD. The node is mainly institutional in character comprising of the military, prison, tertiary education, medical and mining establishments. There is also an established retail component in the node (Bara mall, Diepkloof shopping centre).

❖ **Soweto Empowerment Zone**

The Soweto Empowerment Zone (SEZ) is located in Diepkloof at the intersection of Chris Hani Road and N1 Highway and forms part of the Baralink Regional Node. It is situated on Portion 159 of the Farm Diepkloof No 319 and is approximately 35.64ha in size.

❖ **Orlando Ekhaya**

Orlando Ekhaya project is situated within Sub-Area 10. It is located in close proximity to the Baragwanath Hospital and Bara mall. It lies directly along the Chris Hani Road, a mobility spine and within 3Km of the N1 highway.

Key components of the development are:

- 1 200 new mixed income houses
- 30 000m^2 of new retail space
- 10 000 student University Campus
- 60ha lakefront park
- Conference and business centre.
- Extreme heights centre – Orlando Towers.
- Commercial

❖ **Bara Central**

Bara Central is a node within the greater Baralink node located adjacent the Bara Public Transport Terminus and south of the Universal Church of the Kingdom of God in Diepkloof Zone 6.

❖ **Kliptown node**

Kliptown is a District node situated in Sub Area 9. It is both a heritage and business node made up of various formal and informal land uses that include housing, retail and transport facilities.

❖ **Jabulani node**

The Jabulani Node is located in central Soweto, east of the intersection of Koma Road and Bolani Street. It is a mixed-use district node with great momentum for growth.

❖ **Dobsonville Node**

Dobsonville is a neighbourhood node that fulfils an important local function. The challenge is that the node is not currently developed to its fullest potential and does not look or function the way an important node should do

MARGINALIZED AREAS

The continued City commitment to the upgrading and economic upliftment of these areas places them within the highest priority category of the five Growth Management Areas and reinforces the commitment to service upgrading (e.g. gravel roads upgrading, eradication of informal settlements etc.).

The transformation of these locations from their previous dormitory township status to vibrant, integrated communities are central to the principles of the Growth and Development Strategy such as "facilitated social mobility" and "settlement restructuring".

The City via a series of incentives and targeted infrastructure provision will support developments that foster increased economic development and labour-intensive industries. A full suite of incentives is still being developed but they could include fast tracking of applications, application fee and bulk contributions exemptions and in relation to industrial and commercial development, rates holidays.

Region D is identified as a marginalized area in the City and is the focus of township regeneration programmes and interventions.

One such example is the potential development of the SOJO Business, Tourism and Recreation Trail in Soweto:

The Tourism Trail:

Soweto has a rich history mainly due to apartheid and there do exist heritage elements at various points within the region. These heritage sites are connected through a Tourism Trial that has been identified by the City's Department of Arts, Culture and Heritage.

Identified core heritage sites/ tourism points within Soweto include:

1. Chris Hani Baragwanath Node, along Old Potchefstroom Road.

2. Cooling Towers, Orlando Dam.
3. Walter Sisulu Freedom Square, Kliptown.
4. Regina Mundi Church, Rockville.
5. Credo Mutwa Cultural Village and Oppenheimer Tower.
6. Morris Isaacson School.
7. Hector Pieterson Museum, Orlando West.
8. Vilakazi Street, Orlando West.

II. MEDIUM PRIORITY AREAS (I.E. IMMEDIATE REMEDIAL INFRASTRUCTURE UPGRADING. NEW CAPITAL INVESTMENT 2011-2015)

CONSOLIDATION AREAS

The greatest impact of the Growth Management Strategy will undoubtedly be felt in the Consolidation Areas. The primary objective of the Consolidation Areas is to prevent the compounding of the infrastructure constraints, most notably relating to energy and traffic but also noting the significant impact of large-scale and incremental developments on water and sanitation, storm water management and social amenities.

Consolidation areas do not affect region D.

EXPANSION AREAS

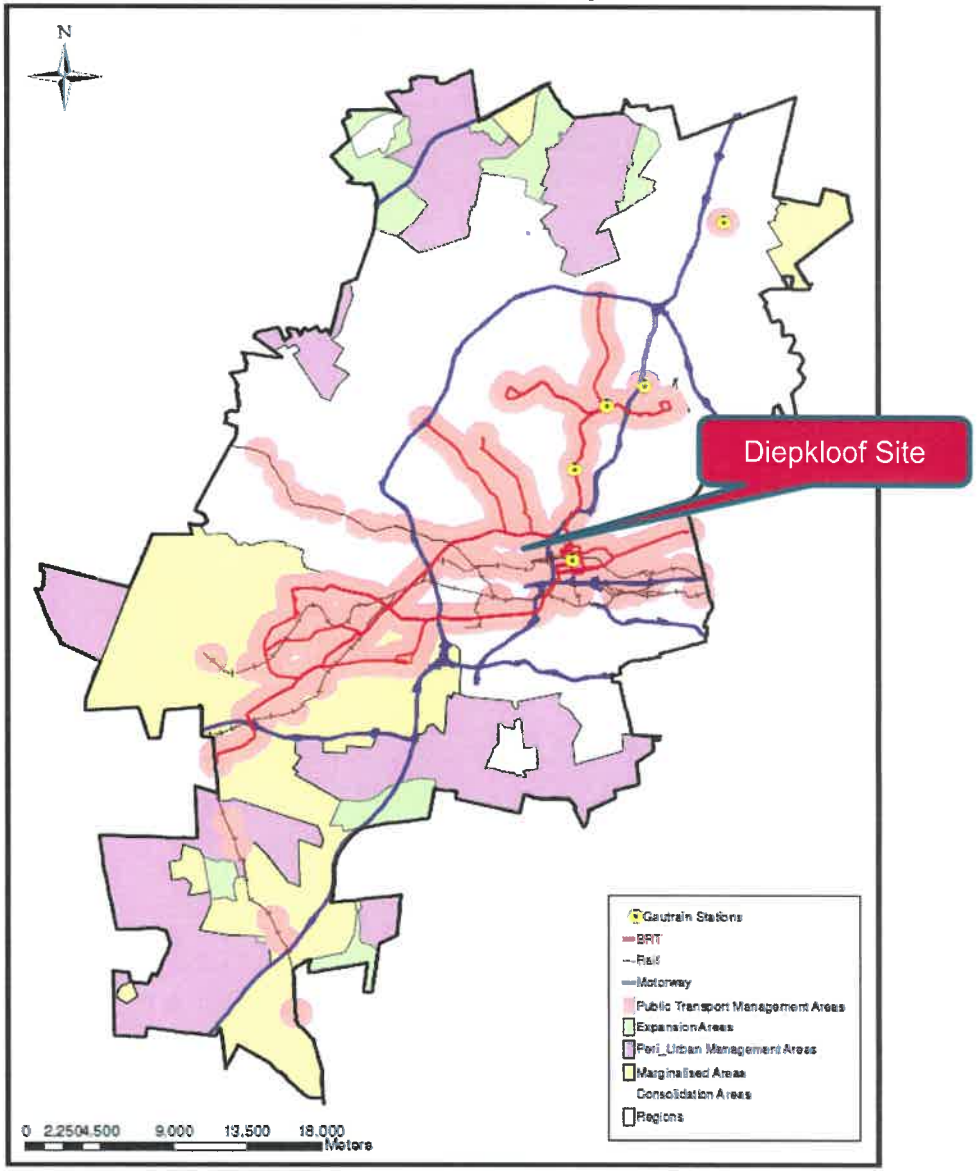
To the north and south of the City, potential land resources presently beyond the Urban Development Boundary (UDB) have been identified and the proposal to include them within the UDB are included in the SDF and RSDFs for Regions A and G. There are no expansion areas within Region D.

III. LOW PRIORITY AREAS (I.E. NO INFRASTRUCTURE UPGRADING / PROVISION BEFORE 2020)

PERI URBAN AREAS

Localities beyond the extent of the Urban Development Boundary comprise the Peri-Urban Management Areas. There are no short- or medium-term obligations or plans to service these areas. The west of the region is identified as a peri-urban area.

Map 2.4: The City's Growth Management Priority Areas



2.2.2.1 ROAD NETWORK HIERARCHY AND MANAGEMENT GUIDELINES

A number of critical road linkages are required to improve inter- and intra-regional connectivity. These include:

- Westlake Road Extension to Meadowlands (north-south link) between Roodepoort and Soweto.
- Soweto Highway extension eastwards to Rosettenville Road improving access to the City Deep Freight Logistics Hub and also a new on-and off-ramp to the north of Soweto High way and N1.
- Chris Hani Road inter-change onto the N1.
- Emdeni link promoting access to new developments to the West of Soweto.
- K43 / Union Road extension improving access and linkages southward.
- K102 linking the K15 in the West and northward to Roodepoort Road.
- M2/Golden Highway link
- Develop initiatives to address the upgrade and extension of Tshabuse Road, Foxglove Street as well as safe pedestrian access to the Station and Taxi Rank, Klipspruit West.
- N17 link to Nasrec Road, Crown Mines and Klipspruit Valley Roads, Soweto.
- Widening of Bolani and Koma Roads in order to support the Jabulani Node.
- Pedestrian bridges at Orlando East/Diepkloof, vehicle and pedestrian bridge at Naledi Ext.2 across railway line, Kliptown low level bridge and Roodepoort and Van Onselen link
- Develop the first 25Km of dedicated cycle lanes along roads

The dual carriageway of Koma Road, from Moroka police station to Moletsane Road junction is currently under construction including street curbing and sidewalks paving. Chris Hani Road is also presently being widened to accommodate the BRT median lane from Moroka police station to Roodepoort Road junction.

❖ **Bus Rapid Transit (BRT)**

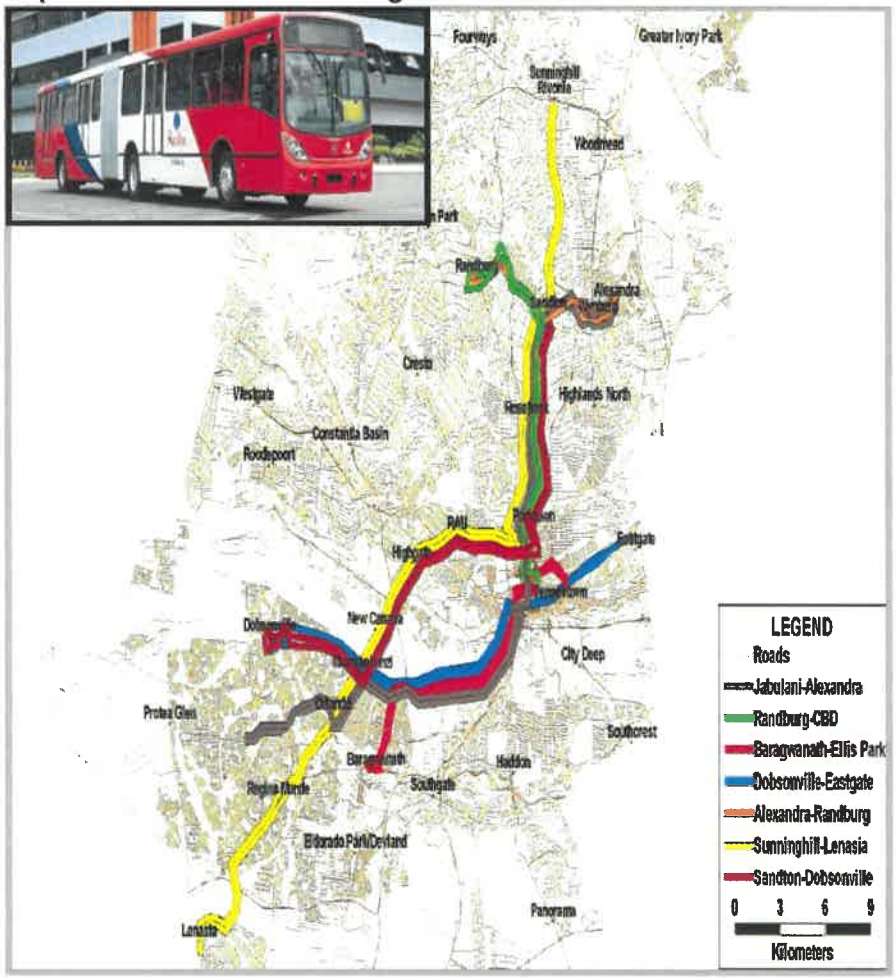
In November 2006 the City approved the upgrading of the SPTN to a Bus Rapid Transit (BRT) System which is defined as a " high quality bus-based transit system that delivers fast, comfortable and cost-effective urban mobility through the provision of segregated right-of-way infrastructure, rapid and frequent operations, and excellence in marketing and consumer service" (Wright and Hook, 2006 in Rea Vaya Scoping Study).

The BRT system consists of a hierarchy of three routes, namely BRT trunk routes, complimentary routes and feeder routes. The trunk routes in Region D for Phase 1 indicated on Map 2.5, are:

1. Lenasia - Sunninghill
2. Jabulani – Alexandra
3. Baragwanath – Ellis Park
4. Orlando – Sandton
5. Dobsonville – Eastgate

Three terminal stations at Jabulani, Dobsonville and Baragwanath are proposed. These shall be supported by conventional BRT stations strategically located apart at points where higher potential passenger movement would take place. The implementation of the BRT has commenced and Phase 1a from Soweto to the Inner City is operational.

Map 2.5: BRT ROUTE indicating Phase 1 Routes



2.2.2.2 FACILITATING SUSTAINABLE HOUSING ENVIRONMENTS IN APPROPRIATE LOCATIONS

The Housing Strategy aims to facilitate the most fundamental change in the City by promoting the provision of sustainable housing environments within close proximity to economic opportunities and social amenities. Appropriate housing typologies meeting a range of needs throughout the City are a pre-requisite to a City that is accessible, efficient and sustainable. Beyond the provision of accommodation, new housing delivery must address the provision of adequate social and economic amenities to ensure the concept of sustainable housing environments.

Within the region, the following are housing issues:

- Housing is the most dominant land use in Greater Soweto.
- Addressing the housing backlog as well as investigating alternatives for densification.
- Soweto houses 15% of the city's informal settlements.
- Hostel re-development and conversions remain an issue.
- Integrating housing development with social and economic development.
- Providing various tenure options and housing typologies (single residential, town houses, flats etc).

The City's Housing programmes form the basis of the City's delivery targets of developing 100 000 units by 2011. These units must be made available to include a range of tenure options and typologies. The Housing programmes include the formalisation of informal settlements; rejuvenation of the CBD and other nodes and hostel redevelopment.

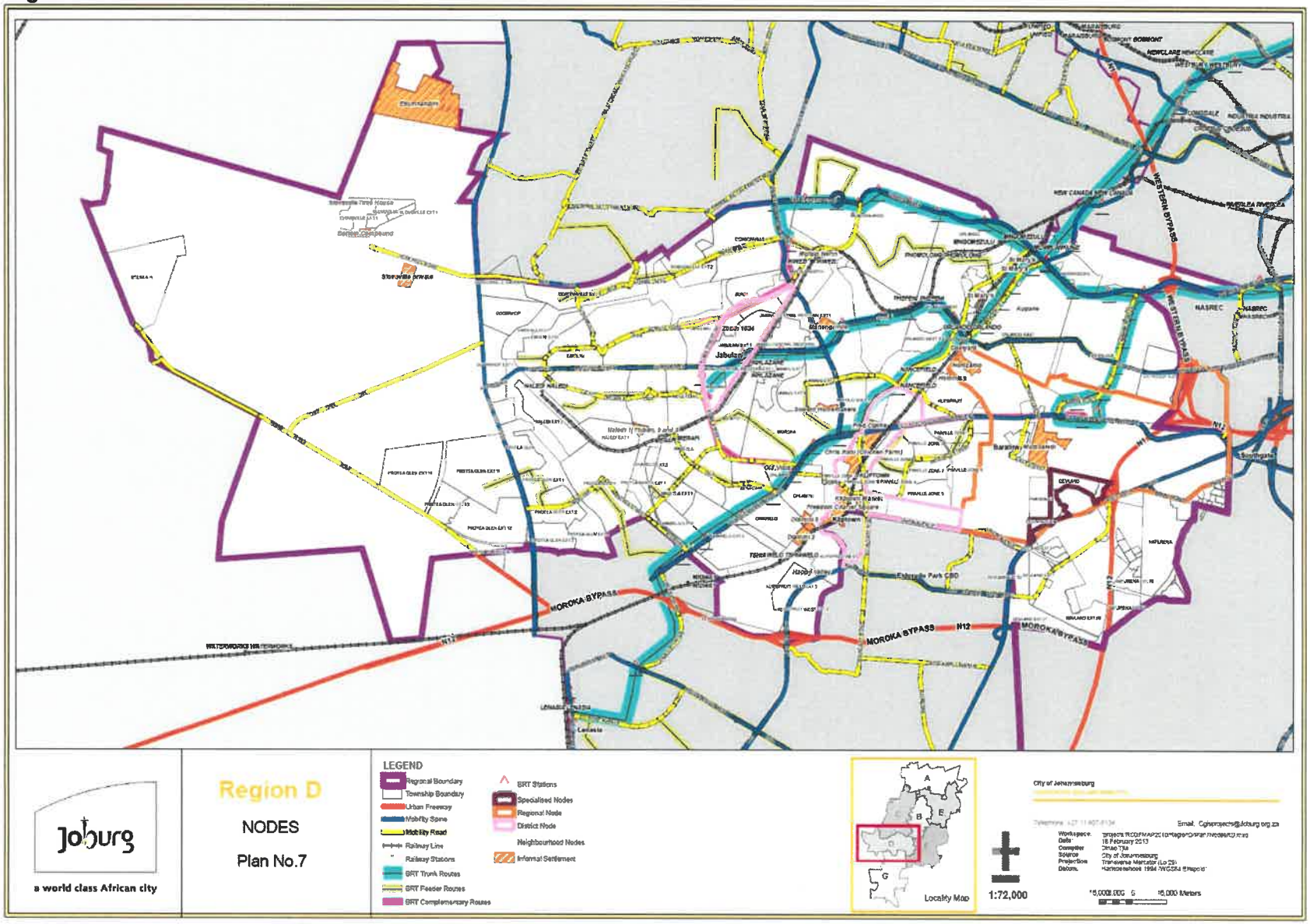
The initiatives in terms of the Housing programmes are as illustrated in Table 2.2 below. It is focussed on areas such as Kliptown, Golden Triangle, Elias Motsoaledi, Orlando East, Zola (back yard rental upgrading) and Doornkop Greenfields.

Table 2.2: Housing Initiatives in Region D

Area	Location	Description/Components	Custodian
Greater Kilptown	• Klipspruit Ext 6 (Fred Clarke) • Klippsruit Ext 7 (Chris Hani) • Klippsruit Ext 11 • Pimville Zone 9 • Klippsruit Ext 7 south	• 207 units planned. • Layout plan circulated for 2015 units. • Layout plan circulated for 728 units. • 224 units built and 30 stands subdivided. • New precinct plan with 200 units coming.	City of Johannesburg
Devland	Golden Triangle	Top Structure construction, 3 082 stands	City of Johannesburg

Area	Location	Description/Components	Custodian
		approved for transfer, with 289 still outstanding as at December 2009.	
Klipspruit	Staff hostel	Conversion	City of Johannesburg
Orlando	Staff hostel	Conversion	City of Johannesburg
Orlando East	Orlando East Back yard project	Construction of Backrooms	Province
Zola	Zola Backyard rental upgrading	Construction of Backrooms- 274 units completed	Province
Dube	Dube hostel	Temporary relocation units 'Containers' - 326 Completed	Provincial Hostel Re-developments
Meadowlands Zone 3	Meadowlands hostel	1 115 temporary relocation units to be constructed	Provincial Hostel Re-developments

Map 2.6: Region D Nodes



2.3 BUILDING PLANS COMPLETED

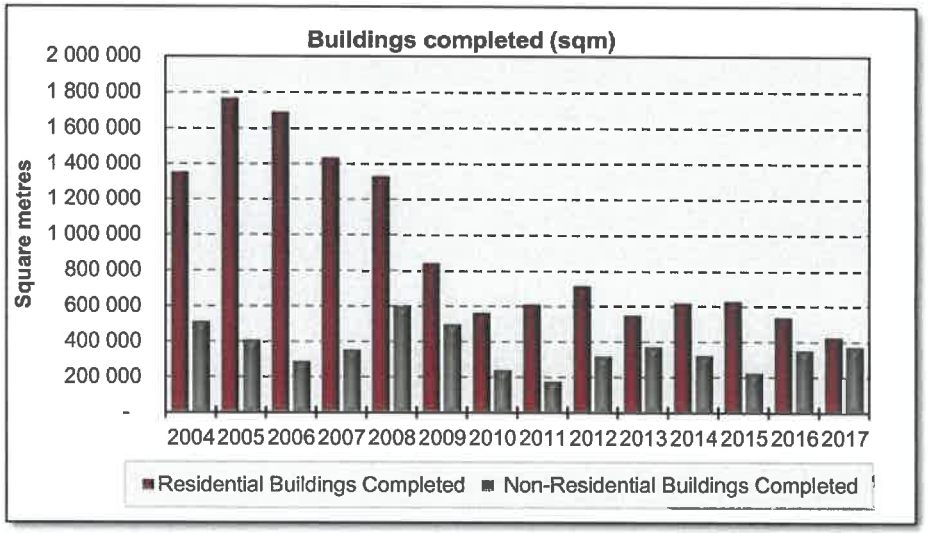
The following table indicate the buildings reported as completed within **City of Johannesburg Metro**, in terms of residential buildings, non-residential buildings as well as additions and alterations.

Table 2.3: Buildings completed – City of Johannesburg Metro Municipality

City of Johannesburg Metro Municipality						
	Residential buildings	Non-residential buildings		Additions and alterations		Buildings reported as completed
Year	Total square metres	No of buildings	Total square metres	No of plans	Total square metres	Total square metres
2004	1 351 238	197	510 257	2 386	226 944	2 088 439
2005	1 764 336	136	408 312	2 177	187 805	2 360 453
2006	1 688 155	111	289 140	5 041	414 935	2 392 230
2007	1 433 395	109	355 344	4 650	378 241	2 166 980
2008	1 327 816	116	600 623	4 851	451 875	2 380 314
2009	836 176	92	495 443	4 562	474 114	1 805 733
2010	560 373	75	239 625	3 614	357 043	1 166 041
2011	609 179	125	174 915	4 443	470 526	1 254 620
2012	714 257	107	320 042	3 283	361 408	1 395 707
2013	547 833	93	371 234	2 896	291 759	1 210 826
2014	619 431	55	323 660	1 429	101 202	1 134 293
2015	628 829	35	223 493	597	124 817	977 139
2016	535 525	56	351 892	732	115 713	1 003 130
2017	423 776	45	371 947	862	123 333	919 056

Source: Demacon ex StatsSA

Figure 2.1: Buildings completed in City of Johannesburg Metro



Source: Demacon ex StatsSA

❑ DWELLING HOUSES, FLATS & TOWNHOUSES COMPLETED

The following tables provide dwelling houses, flats and townhouses reported as completed within City of Johannesburg Metro.

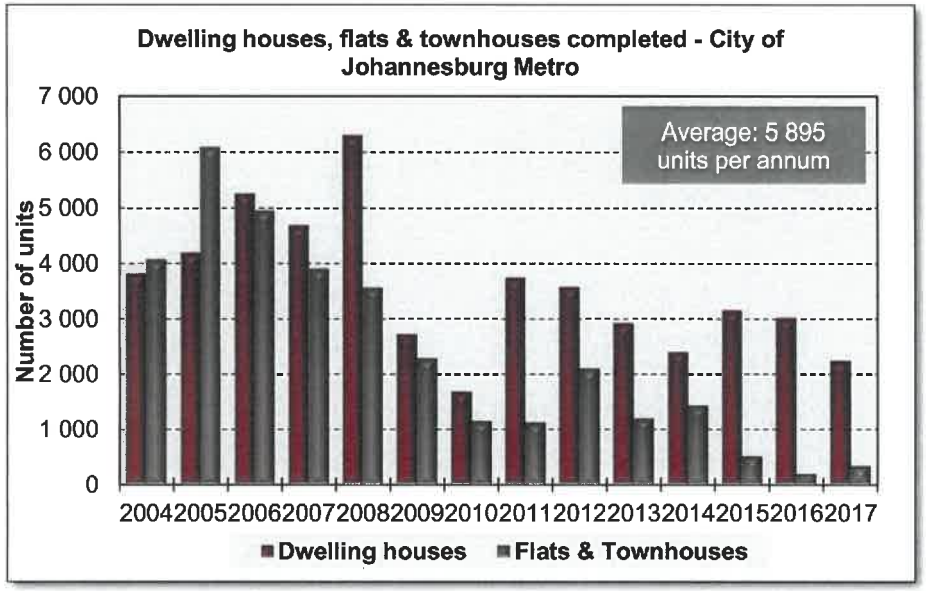
Table 2.4: City of Johannesburg Metro (2017)

City of Johannesburg Metro			
	Dwelling houses	Flats & Townhouses	Total
2004	3 807	4 065	7 872
2005	4 181	6 086	10 267
2006	5 245	4 947	10 192
2007	4 678	3 901	8 579
2008	6 290	3 562	9 852
2009	2 714	2 286	5 000
2010	1 680	1 154	2 834
2011	3 740	1 123	4 863
2012	3 567	2102	5 669

City of Johannesburg Metro			
	Dwelling houses	Flats & Townhouses	Total
2013	2 920	1 201	4 121
2014	2 387	1 433	3 820
2015	3 149	520	3 669
2016	3 010	200	3 210
2017	2 240	348	2 588
Total			**82 536**
Average			**5 895**

Source: Demacon ex StatsSA

Figure 2.2: Dwelling Houses, Flats and Townhouses Completed (City of Johannesburg Metro Municipality)



Source: Demacon ex StatsSA

The average number of residential buildings completed between 2004 and 2017 amounts to approximately **5 895 units.**

❑ RESIDENTIAL BUILDING COMPLETED BY SIZE OF DWELLING

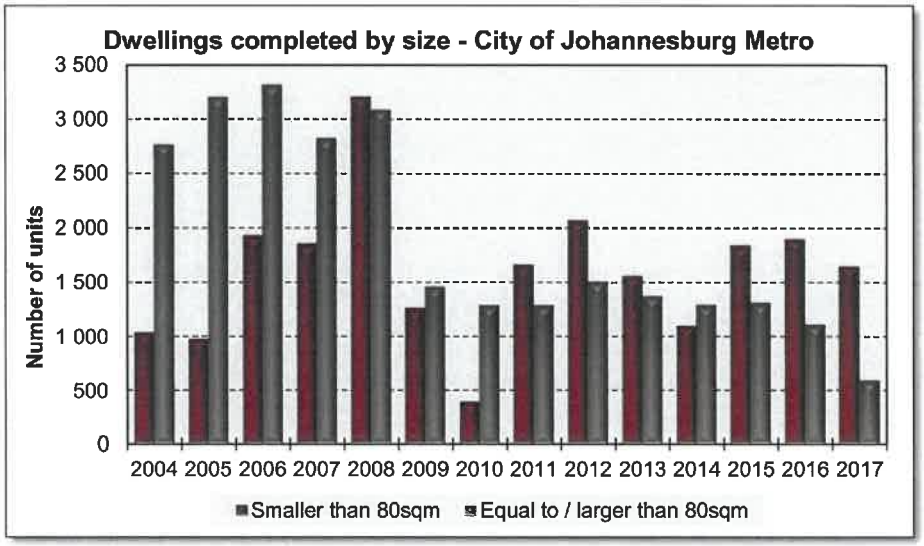
The following table indicates residential buildings completed by size of dwelling.

Table 2.5: Residential buildings completed by size of dwelling house

City of Johannesburg Metro			
Year	Smaller than 80sqm	Equal to or larger than 80sqm	Total dwelling houses
2004	1 039	2 768	3 807
2005	977	3 204	4 181
2006	1 927	3 318	5 245
2007	1 853	2 825	4 678
2008	3 205	3 085	6 290
2009	1 260	1 454	2 714
2010	394	1 286	1 680
2011	1 659	1 287	2 946
2012	2 065	1 502	3 567
2013	1 553	1 367	2 920
2014	1 099	1 288	2 387
2015	1 840	1 309	3 149
2016	1 894	1 116	3 010
2017	1 646	594	2 240

Source: Demacon ex StatsSA

Figure 2.3: Number dwelling houses completed by size



Source: Demacon ex StatsSA

❑ NON-RESIDENTIAL BUILDINGS COMPLETED

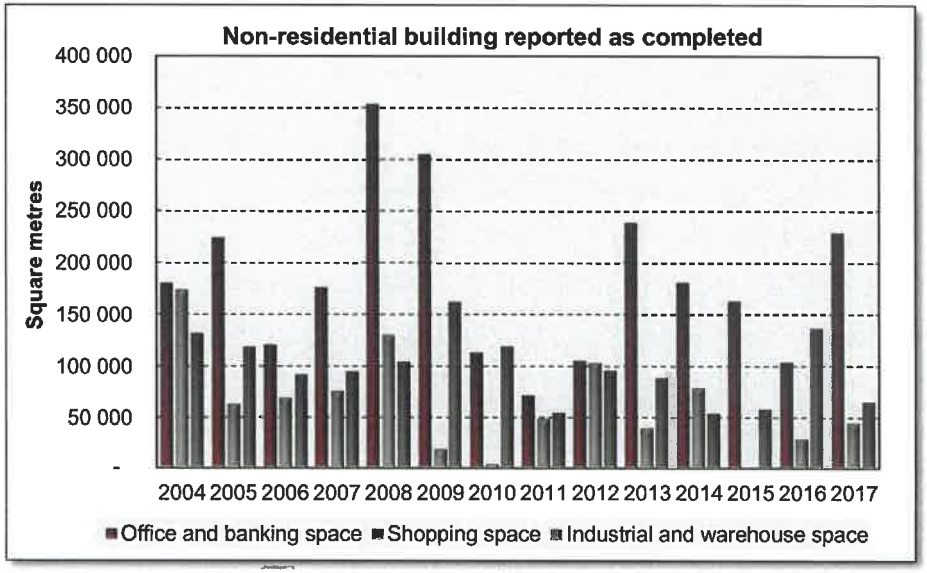
The following tables provide the non-residential buildings completed.

Table 2.6: Non-Residential buildings completed

	Office and banking space (m^2)	Shopping space (m^2)	Industrial and warehouse space (m^2)
2004	180 129	173 920	131 243
2005	223 701	63 049	118 799
2006	120 780	69 334	91 958
2007	175 742	75 615	95 094
2008	353 067	129 928	104 330
2009	304 463	18 922	161 637
2010	112 941	4 253	119 126
2011	71 420	48 961	54 534
2012	105 198	103 362	95 792
2013	238 067	39 934	88 519
2014	180 475	79 108	54 002
2015	162 756	1 076	57 978
2016	104 063	29 173	136 217
2017	228 640	44 915	65 083

Source: Demacon ex StatsSA

Figure 2.4: Non-residential space – City of Johannesburg Metro Municipality



Source: Demacon ex StatsSA

2.4 DEVELOPMENT SITE ASSESSMENT

2.4.1 SITE DESCRIPTION

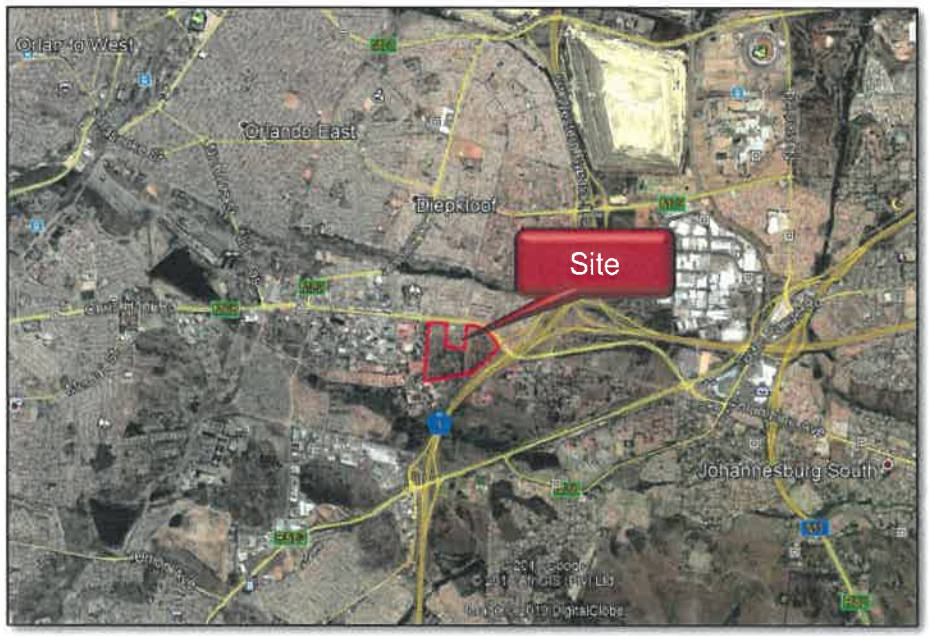
❖ ***Locality and description of site***

The proposed development is situated in the eastern extent of Region D of City of Johannesburg Metropolitan Municipality.

The site is bordered to Chris Hani Road to the north and the N1 (Western Bypass) to the east of the suburb Diepkloof.

To the west of the subject site is Chris Hani Baragwanath Hospital Complex and ±5km further west Maponya Mall. To the north of the site is Diepkloof Square.

Map 2.7: Location of the site



2.4.2 LOCATION ASSESSMENT

Market potential is influenced not only by consumer income and expenditure, but in particular also by the characteristics of the retail site/location under consideration. Retail centres and other urban property markets have specific location requirements and given the fact that the development potential of an array of other uses should also be tested, these should also be included in the location assessment exercise.

To this effect, ***DEMACON Site Evaluation Models*** © are utilised. These DEMACON models are pragmatic and are based on the assignment of values to various location factors. Firstly, the site is evaluated on a ten-point scale, with ten being the highest. Secondly, weights are attached to these factors, in order of importance (1 to 5, with 5 being the most important).

Subsequent section provides the location assessments of the following land uses:

- Residential
- Trade (Retail & Automotive)
- Office
- Industrial
- Short-Stay Accommodation (Hotel)
- Medical (Private Hospital)
- Education (Private School)

❖ **RESIDENTIAL ASSESSMENT**

Table 2.7: Residential assessment

	Grade 1-10	Weight 1-5	Points
Perceived Level of Safety and Security	7	5	35
Area Price Profile	7	4	28
Address Value	8	4	32
LSM Profile	7	5	35
Perceived Quality of Residential Environment	7	4	28
Tempo of Residential Growth	8	5	40
Within direction of Current & Future Growth	8	5	40
Perceived investment value	8	4	32

	Grade 1-10	Weight 1-5	Points
Access to main roads	8	3	24
Proximity to work place	8	3	24
Proximity to schools	7	4	28
Proximity to retail facilities	7	4	28
Proximity to social amenities	7	3	21
Proximity to public transport	7	3	21
Availability of Land	8	3	24
Total			440
Score			74,6%

Source: Demacon, 2019

* Note: 80%+ indicates an exceptional site rating; a site rating of 70 – 80% is high and indicates that most important fundamentals for a successful residential development is in place; a rating of 60 – 70% indicates some critical factors may be lacking but could possibly be addressed; projects with a sub 60% rating are not recommended for consideration.

❖ RETAIL ASSESSMENT

Table 2.8: Retail assessment

	Grade 1-10	Weight 1-5	Points
Consumer Volumes	8	5	40
Income / LSM profile	7	5	35
Population Growth	8	4	32
Visibility	8	4	32
Accessibility	8	4	32
Functional & Complimentary Uses	8	3	24
Effective Market Gap	8	4	32
Proximity to Intermodal Facilities, e.g. BRT Route, Gautrain, Rail / Taxi / Bus terminus	7	3	21
Address Value	8	4	32
Availability of Land	8	4	32
Future Expansion Potential	8	4	32
Directional Growth of Area	8	4	32
Proximity to Labour	7	3	21
Proximity to Suppliers	7	3	21
Perceived Level of Security	7	4	28
Total			446
Score			76,9%

Source: Demacon, 2019

* Note: 80%+ indicates an exceptional site rating; a site rating of 70 – 80% is high and indicates that most important fundamentals for a successful retail development is in place; a rating of 60 – 70% indicates some critical factors may be lacking but could possibly be addressed; projects with a sub 60% rating are not recommended for consideration.

❖ PRIVATE SCHOOL ASSESSMENT

Table 2.9: Private School Assessment

	Grade 1-10	Weight 1-5	Points
Accessibility	8	4	32
LSM Profile	7	4	28
Direct Proximity to Middle to High Income Suburbs	7	4	28
Moderate to Large Segment of Population aged below 18 years	8	5	40
Moderate to High Population Growth	8	4	32
Proximity to Captive Market	7	4	28
Absence of Competitive Products	7	3	21
Perceived Level of Security	7	4	28
Address Value	8	4	32
Proximity to Retail Facilities	7	3	21
Total			290
Score			74,4%

Source: Demacon, 2019

* Note: 80%+ indicates an exceptional site rating; a site rating of 70 – 80% is high and indicates that most important fundamentals for a successful private school & college development is in place; a rating of 60 – 70% indicates some critical factors may be lacking but could possibly be addressed; projects with a sub 60% rating are not recommended for consideration.

❖ PRIVATE HEALTCHARE ASSESSMENT

Table 2.10: Private Healthcare Assessment

	Grade 1-10	Weight 1-5	Points
Address Value	8	4	32
Local Accessibility	7	4	28
Regional Accessibility	7	4	28
Visibility	8	3	24
LSM Profile	7	5	35
Level of Private Healthcare Insurance	7	5	35
Moderate to Higher Population Growth	8	3	24
Abscence of Competitive Products / Market Gap	8	4	32
Proximity to Skilled and Semi-Skilled Labour Force	7	3	21
Perceived Level of Security	7	4	28
Located in Direct Line of Growth	8	3	24
Availability of Land	8	4	32
Future Expansion Potential	7	3	21
Total			364
Score			74,3%

Source: Demacon, 2019

* Note: 80%+ indicates an exceptional site rating; a site rating of 70 – 80% is high and indicates that most important fundamentals for a successful private healthcare development is in place; a rating of 60 – 70% indicates some critical factors may be lacking but could possibly be addressed; projects with a sub 60% rating are not recommended for consideration.

2.5 SYNTHESIS

This chapter investigated the context of the development in terms of the surrounding environment's characteristics, anticipated future development and suitability for development.

❑ AREA BACKGROUND

- ✓ **The Diepkloof site** is situated within Region D - one of the seven administrative regions in the City of Johannesburg.
- ✓ It is situated to the western edge of the City and is surrounded by Regions B and C to the north, Region F to the east and Region G to the south. There are 36 wards in Soweto.
- ✓ It is a vast, sprawling urban area, characterised by mostly residential developments and a limited variety of other uses and facilities (social amenities and infrastructure).
- ✓ Prominent nodes include: Baralink, Jabulani, Dobsonville and Kliptown.
- ✓ Regional accessibility is provided by the N1, Golden Highway, Chris Hani Road, Soweto Highway and Roodeport Road.
- ✓ Three BRT terminals are proposed at Dobsonville, Jabulani and Baragwanath and are to be complimented by BRT stations situated at 500m apart along the trunk route.
- ✓ Housing is the most dominant land use in Soweto.
- ✓ Rental housing is the most common form of tenure (flats, backyard shacks and hostels).
- ✓ Greater Kliptown is a high priority upgrading and renewal housing area with projects in Pimville Zone 9, Klipspruit Ext 6, Klipspruit Ext 7 and Klipspruit Ext 11 at various planning and implementation stages.
- ✓ Most residents work outside Soweto and most of the disposable income is spent outside the region.
- ✓ Major retail roll players in the area include Jabulani, Bara and Maponya Malls.
- ✓ The envisaged development of the Soweto Empowerment Zone (SEZ) and Orlando eKhaya precinct would boost local economic development.

Source: City of Johannesburg Regional Spatial Development Framework 2010/11 Administrative Region D

❑ LOCATION ASSESSMENT

In terms of the location assessment, the site ratings are summarised in Table 2.11.

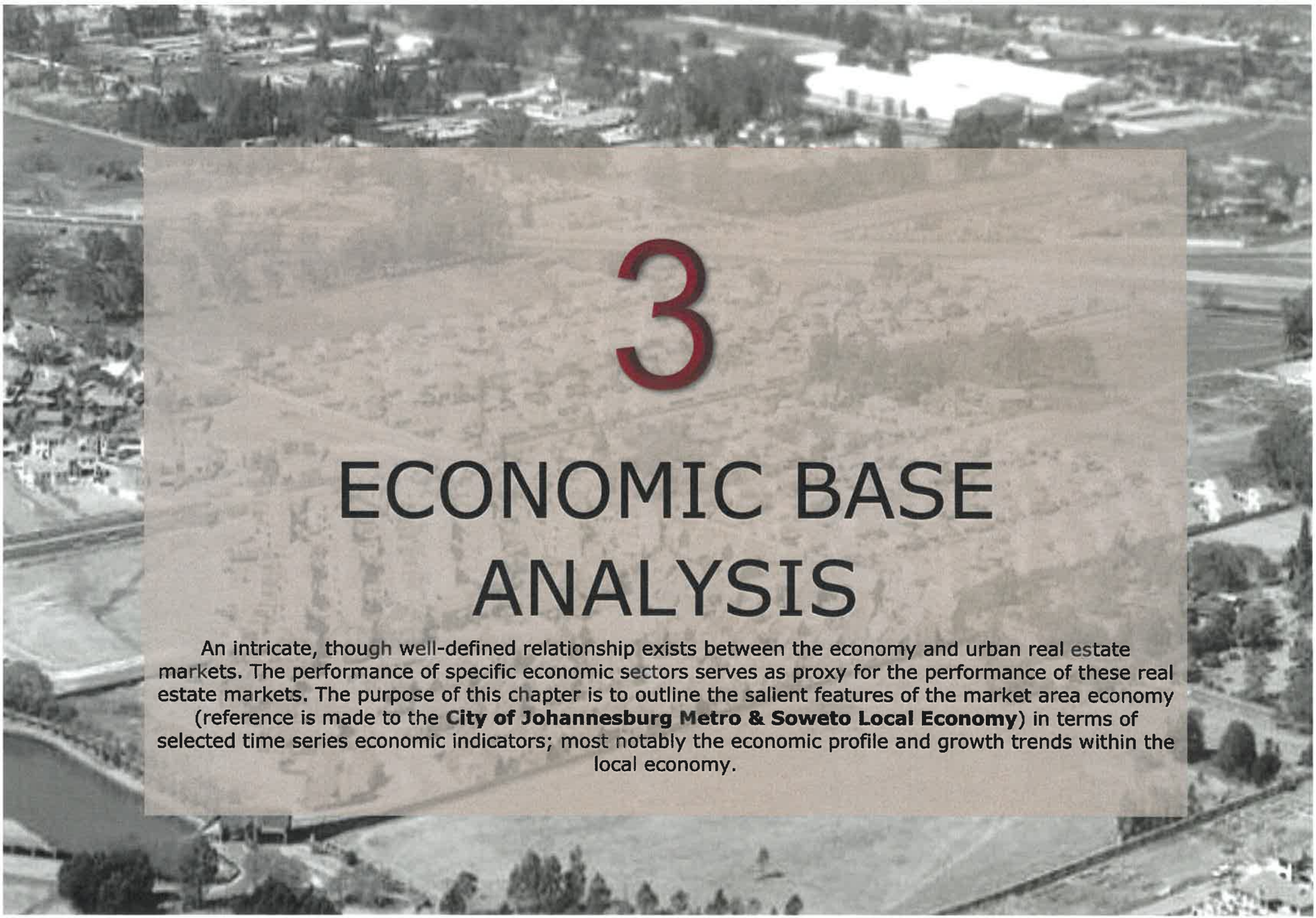
Table 2.11: Summary of Site Evaluation Results:

Proposed Land Use	Percentage
Retail / Trade	77.4%
Medical (Private Hospital)	77.1%
Residential	76.4%
Education (Private School)	75.4%
Short-Stay Accommodation (Hotel)	75.2%
Office	74.5%
Industrial	73.9%

** Note: 80%+ indicates an exceptional site rating; a site rating of 70 – 80% is high and indicates that most important fundamentals for a successful mixed-use development is in place; a rating of 60 – 70% indicates some critical factors may be lacking but could possibly be addressed; projects with a sub 60% rating are not recommended for consideration.*

The proposed mixed-use development site scored locational ratings between 70% and 80%+ which indicates that most important fundamentals for a successful mixed-use development is in place.

The subsequent chapter provides an overview of the local economy in which the proposed development will be located.



3

ECONOMIC BASE ANALYSIS

An intricate, though well-defined relationship exists between the economy and urban real estate markets. The performance of specific economic sectors serves as proxy for the performance of these real estate markets. The purpose of this chapter is to outline the salient features of the market area economy (reference is made to the **City of Johannesburg Metro & Soweto Local Economy**) in terms of selected time series economic indicators; most notably the economic profile and growth trends within the local economy.

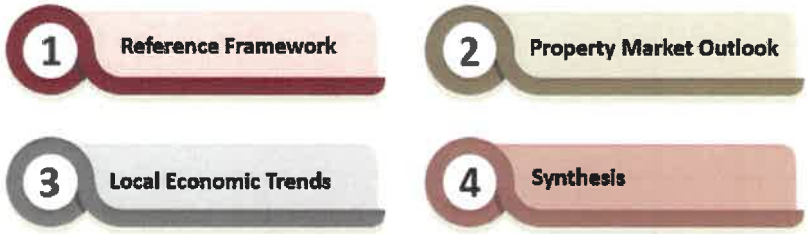
ECONOMIC BASE ANALYSIS 3

3.1 INTRODUCTION

An intricate, though well-defined relationship exists between the economy and urban real estate markets. The performance of specific economic sectors serves as proxy for the performance of these real estate markets. The purpose of this chapter is to outline the salient features of the market area economy (reference is made to the **City of Johannesburg Metro & Soweto Local Economy**) in terms of selected time series economic indicators; most notably the economic profile and growth trends within the local economy.

As such, this chapter provides insight into the composition and stability of the sub-region economy and hence, provides a more comprehensive assessment of medium- to long-term investment prospects than the conventional demographic analysis.

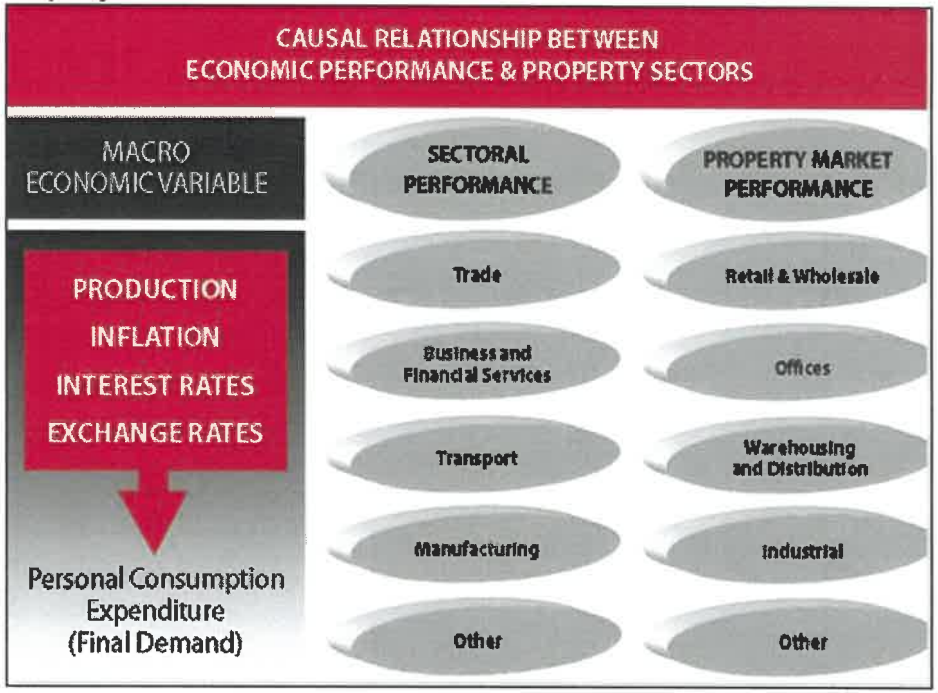
Subsequent sub-sections provide a concise overview of the local economy in terms of the following aspects:



3.2 REFERENCE FRAMEWORK

The causal relationship between economic sector performance and property market performance is illustrated in Diagram 3.1.

Diagram 3.1: Causal Relationship between Economic Performance and Property Sectors



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The economic indicators of an area form the basis for current demand for commercial product offering and serve as drivers for future growth in demand. Subsequent paragraphs highlight the main indicators for the market area under investigation.

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3.2.1 MACRO-ECONOMIC FUNDAMENTALS – WHAT TO EXPECT[3]

'Modest growth recovery as elections loom

- ✓ **Elections due in May 2019 are key**. Over the past year, President Ramaphosa has made progress in rolling back state capture and rebooting the economy. However, his ability to further advance clean and technocratic governance depends on whether he gets a strong mandate from the elections. Current polls suggest the ANC will win but the exact outcome is unclear.
- ✓ **The economy has gained some traction since the recession in H1 18 but the near-term outlook remains muted**. Investment spending is floundering due to weak business confidence and the consumer is constrained by a lack of jobs. We forecast GDP growth of 1.7% for 2019 and 2.1% for 2020 on the assumption of middle-of-the-road policy settings after the 2019 election.
- ✓ **Inflation will likely remain well contained within the target range.** There are presently no big inflationary pressures in the economy, and FX pass-through remains weak. Wage settlements also appear to be moderating. However, electricity prices, food prices and the exchange rate remain upside risks. We forecast that headline CPI will hit 4.6% by end-2019 and 5.3% by end-2020.
- ✓ **We forecast the current account to track sideways at 3.8% of GDP in 2019, then widening as demand recovers**. But the risky part of the balance of payments is portfolio capital flows, which are vulnerable to a potential rating downgrade from Moody's or a fall in risk appetite globally.
- ✓ **The 2019 Budget on 20 February is critical**. Finance Minister Mboweni would probably like to push for a tougher fiscal stance, given that budget deficits above 4% of GDP will lead to still higher public indebtedness, but he likely does not have much political room to manoeuver.
- ✓ **Financial, operational and structural challenges at troubled state-owned companies are a big fiscal constraint and drag on sovereign creditworthiness.** Eskom is due to unveil a turnaround plan in Q1 19. President Ramaphosa has appointed an expert panel to make recommendations by end-January, and NERSA is set to decide Eskom's tariff hike on 1 March.
- ✓ **With scant inflation and low oil prices we believe the SARB will leave rates on hold until demand recovers** – unless the rand weakens sharply. The market recently shifted to price in much less tightening this year. We forecast the next 25bp rate hike in September 2019.
- ✓ **A further downgrade from Moody's cannot be ruled out after elections.** However, with Stable Outlooks on their ratings, all three rating agencies will likely give warning of any potential move by cycling through a directional outlook change first. Moody's is due to opine next on 29 March.
- ✓ **We are more constructive about the ZAR**. Our structural ZAR valuations imply the ZAR has become less overvalued, due to SA's improving growth outlook. However, our peer model valuations are broadly unchanged because of mixed global developments. Hence, our 2019-point forecasts are only slightly less ZAR bearish, namely R14.50 by mid-year and R14.80 by year-end.
- ✓ **Heightened global market volatility poses risks of big adverse repercussions for South Africa.** As usual, for small open economies dependent on commodity prices and capital flows, the potential downside risks to an economy like South Africa's seem more numerous and more probable than upside risks – even before South Africa's own domestic uncertainties feed through.

The Quarterly Perspectives series of reports outline our macroeconomic forecasts for South Africa with discussion of the key themes and issues for the quarters ahead. The forecasts presented in this report are based on the output of our proprietary demand-side macroeconomic model, enlivened with supply-side constraints. The model runs off a comprehensive macro data set up to Q3 18, as published by Statistics South Africa and the South African Reserve Bank's latest Quarterly Bulletin, but updated for other relevant data published more recently.

The elections in May 2019 are critical for South Africa's prospects In the last year, since he was elected as president of the African National Congress (ANC), President Ramaphosa has made a lot of progress in rolling back state capture. He has relied on the judicial system and due process to effect critical personnel changes in the cabinet, boards and management of various state-owned companies, and in key institutions such as the National Prosecuting

[3] *Source: ABSA. South Africa Quarterly Perspectives: Q3:2018. 6 July 2018.*

Authority, South Africa Revenue Services and South African Police Service. However, much work remains to be done to fully restaff and rehabilitate South Africa's damaged institutions.

President Ramaphosa's personal popularity remains elevated, which would seem to give him the upper hand over his opponents but their fight-back is existential, and victory over the state capture brigade is far from complete. Ramaphosa's task is complicated by the fact that the ANC's popularity has been buffeted recently by revelations at the Zondo Commission of Inquiry, which has shown that state capture cannot be blamed on one or two errant officials alone. Meanwhile, both the key opposition parties, Democratic Alliance (DA) and the Economic Freedom Fighters (EFF), appear to have suffered major setbacks - the former over racial politics and the latter with evidence linking its leaders and the party to the VBS bank fraud.

Meanwhile, the government's decision to change the constitution to facilitate expropriation without compensation (EWC) to speed up land redistribution will likely continue to generate a heated public and political debate. The DA and various civic organisations could challenge the government's decision in the courts, while the EFF could attempt to outflank the ANC's plans for circumscribed EWC with its argument that all land should be nationalised.

Against this backdrop, the national and provincial elections due sometime in May 2019 are critical. (The date will be announced at the State of the Nation Address on 7 February.) We are inclined to agree with the thesis that a strong showing for the ANC would be supportive of President Ramaphosa, and therefore positive for the country's reform prospects. However, we rather discount the ancillary argument that a weak showing for the ANC in the elections would embolden and enable Ramaphosa's opponents within the party to have him recalled. Instead, we just think that a weak showing for the party could make it hesitant on the economic reform front. A big uncertainty would arise, however, if the ANC's support drops below 50% at the national level, forcing it to seek a coalition partner, more likely the EFF than the DA.

Current opinion polls suggest the ANC will win the elections, although there is still a high degree of uncertainty about the precise outcome. An IPSOS face-to-face poll of 3,571 respondents, published on 4 January found 61% of the electorate supporting the ANC, 14% the DA, 9% the EFF and 2% the Inkatha Freedom Party, with 13% of respondents answering, 'don't know/won't say/won't vote'. However, the recent establishment of a couple of new political parties, including a socialist one backed by the 350,000-strong National Union of Metalworkers of South Africa could alter the outcome at the margins in unpredictable ways, especially given South Africa's pure proportional representation and disillusionment with established parties. And events themselves, especially as the Zondo inquiry resumes its hearings, could also alter the electoral calculus. Thus, the elections in May could well set South Africa on either a high road or a low road – or leave the country bumbling along in a muddled middle. At present, it is a difficult call, but we are inclined to believe the elections will put South Africa on a moderately upward trajectory.

Growth has picked up from the H1 18 recession, but the outlook is muted

After falling into recession in the first half of 2018, the South African economy began to grow modestly from Q3 18 with a 2.2% q/q saar GDP print, marginally ahead of our and consensus forecasts. This came after a revised contraction of 0.4% q/q saar (initial estimate: -0.7%) in Q2 18.

From a supply-side perspective, the manufacturing sector showed the biggest gain in Q3, rising 7.5% q/q saar compared with an upwardly revised 0.6% q/q saar in Q2, thereby adding 0.9pp to the overall quarterly GDP growth rate (Table 3.1). Additionally, and perhaps surprisingly, agricultural production registered a sharp uptick of 6.5% q/q saar, following two successive quarters of extremely negative growth. While agriculture has a small share of GDP, large volatility in agricultural output (often due to climate fluctuations) tends to be a big driver of the movement in the overall GDP growth figure. The tertiary services sector also performed well in Q3 18, with all of its five subcomponents showing positive growth.

All these positive developments were more than sufficient to offset the big 8.8% q/q saar contraction in the mining sector, where sharply lower output of gold, PGMs, iron ore, copper and nickel outweighed higher output of coal, diamonds and manganese in Q3.

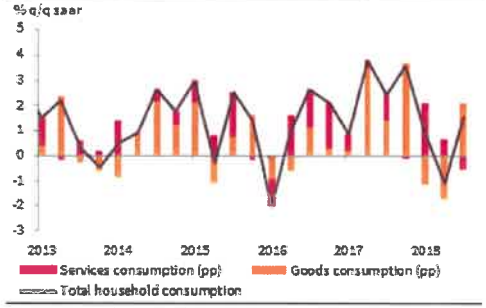
Table 3.1: Strong Q3 18 GDP growth was quite broadly based

% q/q saar	Q3 17	Q4 17	Q1 18	Q2 18	Q3 18
Agriculture, forestry and fishing	41.7	39.0	-33.6	-31.9	6.5
Mining and quarrying	6.2	-4.4	-10.3	8.1	-8.8
Primary sector	13.8	5.2	-17.0	-3.3	-5.4
Manufacturing	3.7	4.3	-6.7	0.6	7.5
Electricity and water	-6.1	3.3	0.2	2.2	-0.9
Construction	-1.2	-1.4	-1.9	2.1	-2.7
Secondary sector	1.5	3.1	-5.0	1.1	4.5
Trade & accommodation	-0.1	4.8	-3.1	-1.4	3.2
Transport and communication	0.8	2.8	0.9	-4.9	5.7
Finance, real estate and business services	1.9	2.5	1.1	1.9	2.3
Personal services	1.2	1.0	1.2	0.8	0.7
General government services	1.1	1.4	1.9	-0.4	1.5
Tertiary sector	1.1	2.7	0.3	-0.4	2.6
GDP at market prices	2.3	3.1	-2.6	-0.4	2.2

Source: StatsSA, Absa Research

From a demand-side perspective, household consumption expenditure recovered sharply in Q3 18 by 1.6% q/q saar, after a big contraction in Q2, thereby contributing 1.0pp to overall quarterly GDP growth rate. Of the four broad household consumption categories, semi-durable goods showed the biggest improvement, rising 6.0% q/q saar in Q3, after a 2.3% q/q saar contraction in Q2. Similarly, non-durables registered a 4.5% q/q saar increase compared with a contraction of 2.0% q/q saar in Q2. A strong pick-up of 9.6% q/q saar in vehicle sales pushed up durable goods consumption to -0.9% q/q saar, significantly up from -7.7% q/q saar in Q2, albeit still in negative territory. Discouragingly, services, which account for 43% of total household consumption, were down 1.2% q/q saar. We attribute much of the weakness in household consumption in Q2 18 to the VAT increase, which sucked a lot of timing-discretionary purchases, particularly on big ticket items, forward from Q2 into Q1. However, the strength of the rebound in Q3 18 is also a little surprising to us, given various headwinds to consumption.

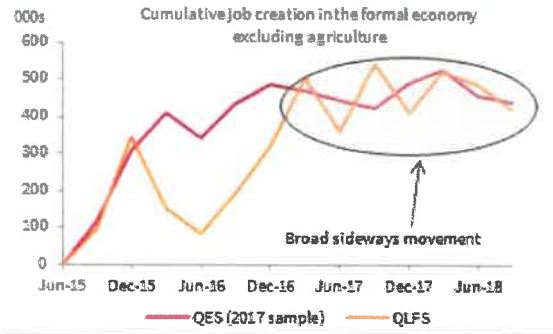
Figure 2: Household consumption also recovered sharply in Q3 18



Source: StatsSA, Absa Research

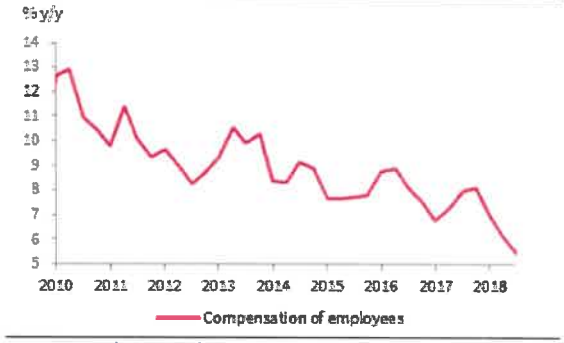
We have argued before that various headwinds against the consumer continue to persist. A weak labour market is probably the most important of all. The latest Quarterly Employment Statistics reported that a further 16k formal sector jobs were shed in Q3 18, primarily in the manufacturing and construction sectors Additionally, income growth is slowing. StatsSA reported that average monthly earnings were estimated to have grown just 5.0% y/y in Q3 18, even though the public sector wage uplift kicked in during that quarter, such that the growth in aggregate nominal compensation of employees has fallen to record lows. Other important headwinds were the big increase in petrol prices from March onwards (now substantially abated) and the ongoing weakness of household credit growth.

Figure 3: Formal sector employment has been broadly stagnant



Source: StatsSA, Absa Research

Figure 4: Deceleration of wage settlements and compensation

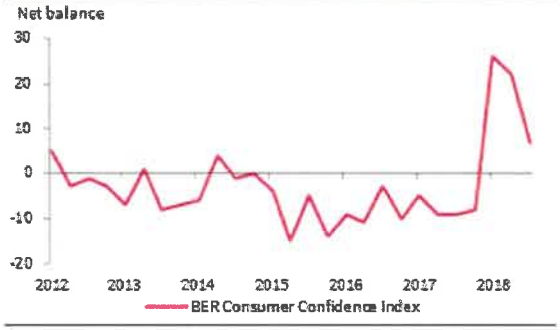


Source: SARB, Absa Research

After reaching extraordinary elevated levels in H1 18, consumer confidence fell sharply to 7 points in Q3 from 22 points in Q2 Sentiment was down across all income groups but the fall was most notable in low income consumers, with the sub-index for them plunging by 28 points to -8. Meanwhile, TransUnion's

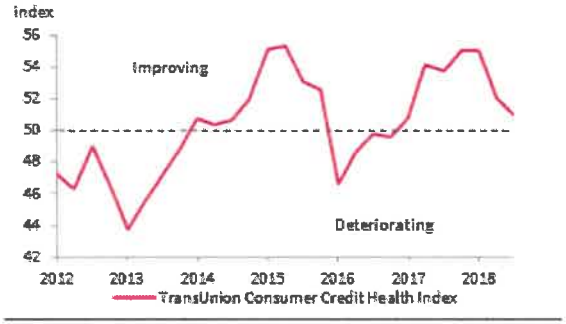
Consumer Credit Index (CCI) continued its downward trend, falling by 1 index point to 51 in Q3 18, still just above the 50-mark that ostensibly separates improving credit health from a deterioration**Error! Reference source not found.**. Furthermore, data released by the National Credit Regulator in mid-December showed a tightening credit market, with a fairly sharp rise in rejection rates on new consumer credit applications (Figure 7), and another modest pick-up in arrears (Figure 8), as well as some indirect evidence that consumers are rolling loans, and with much of the marginal increase in consumer credit growth (from 3.8% y/y at end-2017 to 5.5% y/y in November) driven by unsecured credit. With a stagnant jobs market, moderating confidence and weakening credit health, consumer spending faces several headwinds, though these will be at least partly offset by two tailwinds: the recent fall in fuel prices and the introduction of National Minimum Wage at the start of this year. We expect household consumption expenditure to have grown 1.5% in 2018, and forecast growth of 1.5 for 2019 and 1.9% in 2020.

Figure 5: Consumer confidence has slumped from H1 highs



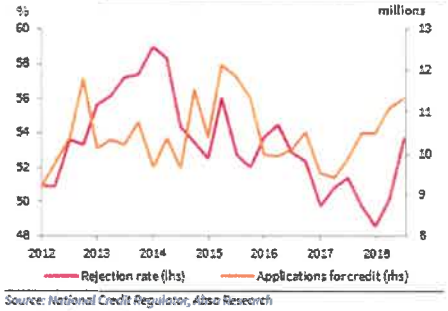
Source: BER, Absa Research

Figure 6: Consumer credit health appears to be weakening



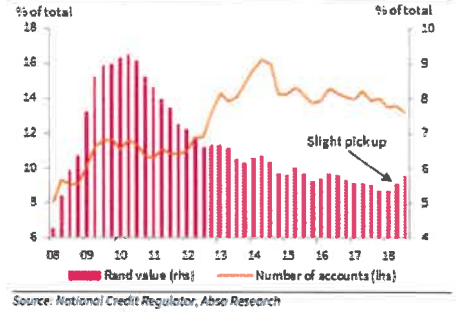
Source: TransUnion, Absa Research

Figure 7: Rejection rate on consumer applications for credit has risen



Source: National Credit Regulator, Absa Research

Figure 8: Arrears are grinding higher

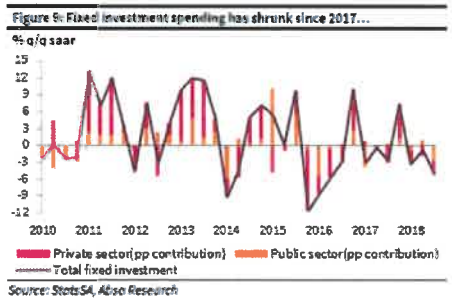


Source: National Credit Regulator, Absa Research

Regrettably, although household consumption expenditure recovered, fixed investment spending slumped in Q3 18 by 5.1% q/q saar, sufficient to subtract 1.0pp from overall GDP growth. Declines were largely seen in activities associated with construction works, transport equipment and nonresidential construction. Private sector investment in particular continued to deteriorate, falling 4.0% q/q saar (Figure 9). The deterioration is not particularly surprising considering that business sentiment remains gloomy. Despite President Ramaphosa's political progress and growth initiatives such as the Investment Summit, the BER Business Confidence Index (BCI) fell further to 31 points in Q4 18 from 34 in Q3, indicating that 7 out of 10 South African businesses are not confident (Figure 10), with pessimism reigning in all 5 business sectors comprising the BCI.

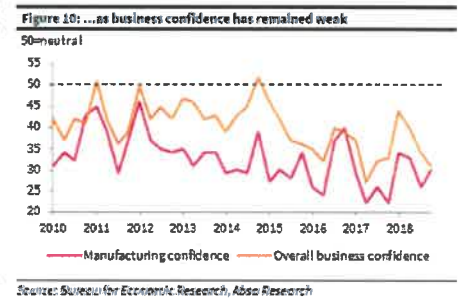
Similarly, two confidence surveys that are not part of the BCI were also weak. The Agbiz/IDC Agribusiness Confidence Index fell to a nine-year low in the fourth quarter to print at 42, down from 48 in Q3, while the BER Civil Construction Confidence Index printed at just 18 in Q4.

Figure 9: Fixed investment spending has shrunk since 2017...



Source: StatsSA, Absa Research

Figure 10: ...as business confidence has remained weak



Sources: Bureau for Economic Research, Absa Research

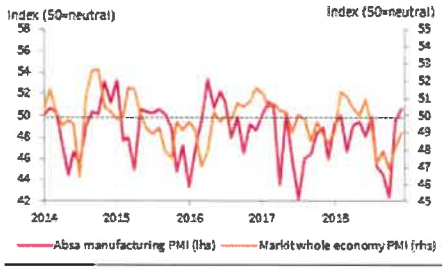
Elsewhere in the GDP expenditure components, the picture was mixed. A big inventory rebuilds in Q3 18 (after a big inventory drawdown in Q2) was the biggest single contributor to GDP growth, adding 2.8pp to the overall GDP growth of 2.2% q/q saar. Meanwhile, final consumption expenditure by the general government increased by 2.2% q/q saar in Q3, adding 0.4pp to the growth rate. While exports performed strongly in Q3, growing by 24.2% q/q saar compared with 12.7% q/q saar in Q2, net exports dragged on growth, given the relatively bigger surge in imports of 26.7% q/q saar in Q3 compared with 4.0% q/q saar in Q2. Overall, net exports shed 0.9pp from overall GDP in Q3.

So far, high frequency indicators point to a relatively strong start to Q4 18. In particular, manufacturing output jumped sharply by 1.1% m/m sa in October and another 0.7% m/m sa in November. (These strong prints were quite surprising given that in October the Absa PMI was at a 15-month low of 42.4 before some recovery to 49.5 in November. It then rose further to 50.7 in December, the first print above the neutral mark since May 2017, offering some hope that the December output might also have been quite robust. We note, however, that the PMI has been very volatile in recent months and the results ought to be read with caution.

Meanwhile, mining production also started Q4 on a solid footing, surging by 3.3% m/m sa in October compared with 0.7% m/m sa in September. Retail sales in October were also stronger than expected, despite higher petrol prices peaking during the month, with a 0.6% m/m sa gain, following a 0.7% m/m contraction in September. However, the ongoing strike at Sibanye from late November suggests that gold output remained under pressure in November and December. Meanwhile, passenger car sales data in Q4 18 were pretty much flat on Q3 18 after adjusting for seasonal factors.

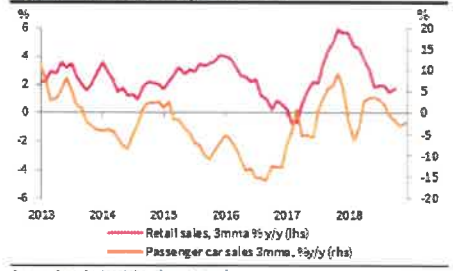
Overall, we forecast real GDP growth of 1.5% q/q saar in Q4 18, with the data to be released on 5 March. Absent any big revisions to historical data, this should leave South Africa with a 2018 GDP growth rate of 0.7%.

Figure 11: Both PMIs improved, though still in contraction territory



Source: Bureau for Economic Research, Markit, Absa Research

Figure 12: Household spending is constrained



Source: StatsSA, NAAMSA, Absa Research

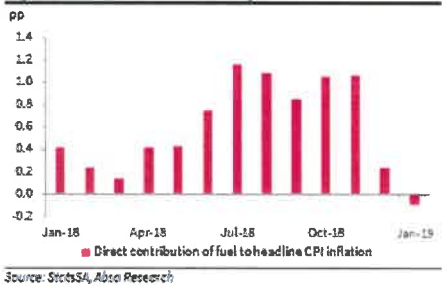
Looking further ahead, we do not see any reason to be especially bullish about South Africa's nearto medium-term growth prospects. The economics of growth is complicated, but countries can expand GDP by increasing either the capital or labour inputs to production processes or by adopting new technologies or new modes of commercial organisation to improve productivity.

Absent a pick-up in business confidence, it is hard to see investment picking up much from its current insufficient 18.5% of GDP. And increased utilisation of South Africa's substantially unemployed labour force is deterred by weak skill levels and sclerotic labour markets. Meanwhile, the policy alchemy required to catalyse stronger productivity growth remains mysterious and probably largely unrealised. Mining is probably key to South Africa's growth prospects. However, it remains to be seen if the recently improved regulatory environment will engender strong investment in the sector, which accounts for about 8% of GDP directly, but has strong forward and backward linkages into manufacturing and business services. In the near term, the return of load shedding could bode ill for production volumes and general sentiment, with Eskom warning that load shedding could resume in 2019. Material drought risks continue to linger as well, with below average rainfall in the central and western parts of the country, such that many farmers have missed the optimal planting window for the key maize harvest. We forecast GDP growth of 1.5% in 2019 and 1.9% in 2020. These forecasts are based on a middle-of-the-road scenario for policy settings in the wake of the 2019 elections, but the inherent political and policy uncertainty generates many potential paths for the economy.

Modest inflation, with ongoing uncertainty about upside inflation risks

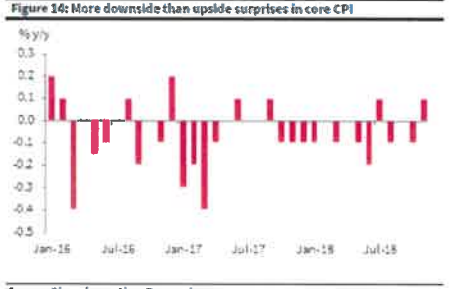
South Africa's current inflationary dynamic appears relatively benign, with negligible inflationary pressure aside from the huge surge in fuel prices between March and November. Fuel prices, which comprise 4.6% of the CPI basket, posted a 23.1% y/y inflation rate in November, but the remaining 95.4% of the CPI basket posted an inflation rate of just 4.2% y/y. However, since November, petrol prices have since fallen so steeply (by 10.9% m/m in December and 8.1% m/m in January) that they are now subtracting from headline y/y inflation, rather than adding to it (Figure 13). And, in general, core CPI inflation has manifested more downside than upside surprises (Figure 14).

Figure 13: Fuel prices are now subtracting from the overall CPI



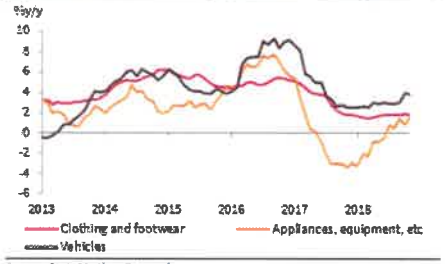
Source: StatsSA, Absa Research

Figure 14: More downside than upside surprises in core CPI



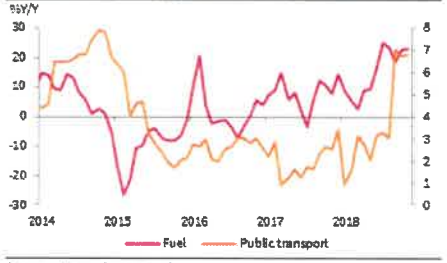
Source: Bloomberg, Absa Research

Figure 15: Manufactured tradable goods show no pass-through inflation



Source: StatsSA, Absa Research

Figure 16: Some pass-through of fuel prices to public transport



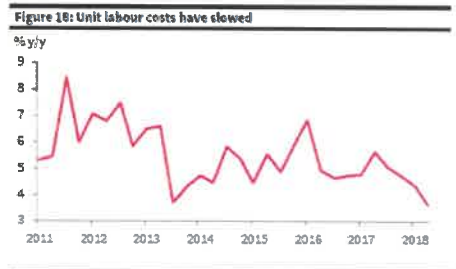
Source: StatsSA, Absa Research

However, while it is clear that inflation is currently subdued, it does seem likely to rise anew from Q2 19 onwards, though just how fast and how high remain somewhat uncertain. Negatively, inflation expectations have risen in the past handful of quarters (Figure 17), but positively, wage settlements and unit labour costs have decelerated sharply, such that in Q2 18 they grew just 3.6% y/y, the slowest pace of growth in over a decade (Figure 18).

Figure 17: Inflation expectations have edged up from their Q1 18 low

Source: Bureau for Economic Research, Absa Research

Figure 18: Unit labour costs have slowed



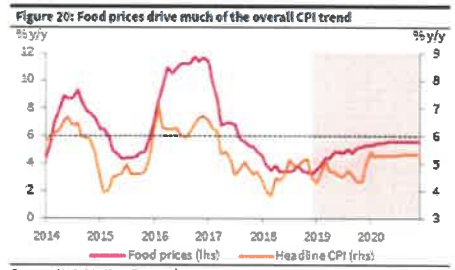
Source: SARB, Absa Research

However, we do see ongoing upside inflation risks from electricity prices, with the National Energy Regulator of South Africa's decision on Eskom's 15% standard tariff application due on 1 March. Even if NERSA sharply scales back the standard tariff award, there are still sizeable upside risks to our 8% electricity price hike assumption for 2019, given that Regulatory Clearing Account tariff adjustments to be implemented this year already amount to a 4% uplift. We also see the current drought as generating upside risks to food prices (which constitute 17.2% of the CPI basket and which currently are experiencing an overall inflation rate of just 3.4% y/y). Grain prices have already risen sharply, wheat by 20% over the last year and maize by half (Figure 19). However, we believe the good domestic grain stockpiles should limit the increase and keep overall food prices more or less contained – but the risks lie to the upside (Figure 20).

Figure 19: Grain prices have surged this year

Source: SAFEX, Absa Research

Figure 20: Food prices drive much of the overall CPI trend



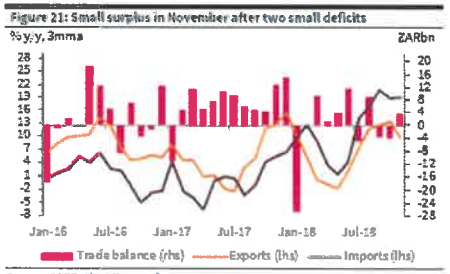
Source: StatsSA, Absa Research

We also see upside inflationary risks if the rand lurches weaker, whether as a result of a Moody's rating downgrade or a surge in global risk aversion. There is a lively debate about whether South Africa will experience a burst of pent-up pass-through from exchange rate depreciation once demand picks up again, but we are inclined to view FX pass-through effects as probably 'lower'

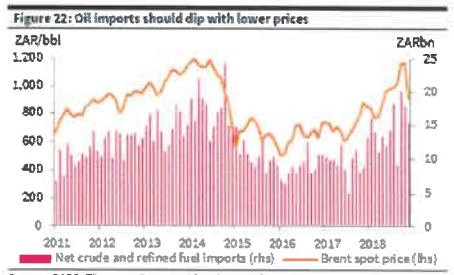
rather than just 'slower'. (In contrast, the SARB's inflation model still embeds a 20% pass-through coefficient, which is one reason why its inflation forecasts are higher than Absa's, see Monetary Policy section, page 13). Key to our inflation forecast is our assumption that that USDZAR rises to 14.80 by Q4 19 and 15.60 by end-2020, and that Brent rises back to USD69.0/bbl in Q4 19 and USD71.4/bbl in Q4 20 (in line with the Bloomberg consensus although current spot prices suggest downside risk to this assumption). We forecast that core CPI inflation will rise from 4.4% in Q4 18 to 4.8% in Q4 19 and 5.1% in Q4 20 as the output gap narrows. However, even with the assumed rebound in crude oil prices, base effects in petrol prices will likely see headline CPI track more or less sideways in 2019 to hit 4.6% in Q4 19 and then 5.3% in Q4 20. In other words, though both headline and core CPI inflation are projected to rise over the forecast period, we do not see them breaching target.

Modest widening of current account but portfolio capital flows are vulnerable South Africa's monthly trade balance data are inherently volatile, but have exhibited a trend deterioration over the last year, as import growth (in nominal rand terms) has outpaced export growth (Figure 21). Much of this trend, however, has been due to mounting crude oil prices (Figure 22). Now, the 22% collapse of the crude oil price since end-October offers some succour, but this benefit could be offset in the short run by lower gold exports due to the Sibanye strike and also by higher diesel imports to fuel the open cycle gas turbines, as Eskom experiences elevated breakdowns at its coal-fired plants due to insufficient maintenance. Commodity export prices remain flat and are unlikely to pick up in the face of a global growth slowdown (Figure 23).

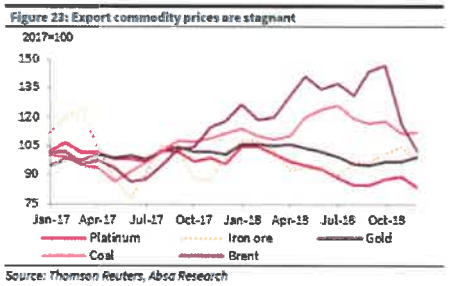
Overall, we expect South Africa's imports to pick up as domestic demand recovers, but only a muted export response to the weaker exchange rate, given weakening global growth and limited willingness of producers of tradable goods in South Africa to invest in export capacity. Consequently, we forecast the current account tracking pretty much sideways at 3.8% of GDP in 2019 (Figure 24).



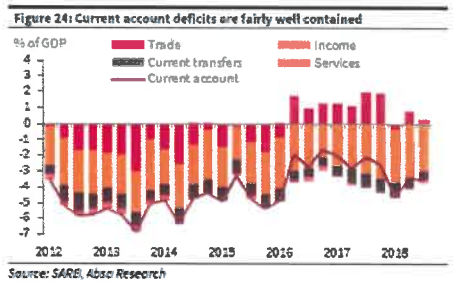
Source: SARS, Absa Research



Source: SARS, Thomson Reuters, Absa Research



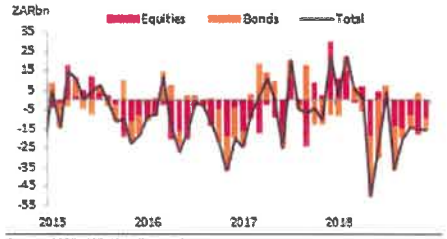
Source: Thomson Reuters, Absa Research



Source: SARB, Absa Research

In general, we see the main risk to South Africa's overall balance residing in the capital, rather than current account. Notwithstanding President Ramaphosa's USD100bn investment drive, we do not see a big pickup in FDI-related FX inflows. And portfolio capital flows are volatile and have been materially negative since April, amounting to ZAR173bn, about 3.5% of 2018 GDP, between May and December (Figure 25). Some of these may have been offset by other forms of capital inflow, such as shifts in bank deposits. But the reality is that portfolio capital flows will remain sensitive to potential domestic shocks, such as a possible credit rating downgrade, or political noise, or shifts in risk appetite globally. Fortunately, South Africa does enjoy some sizeable buffers in its balance of payments, not least a sizeable positive net international investment position (reflecting huge outward FDI and portfolio investment by South African corporates, institutional investments and individuals) worth ZAR799bn, a little over 16% of estimated 2018 GDP as of end-September (Figure 26).

Figure 25: Balance of payments risk sits with portfolio capital flows

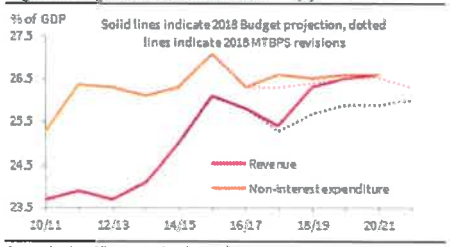


Source: SARB, JSE, Absa Research

Figure 26: Net international investment position is a sizeable BoP buffer

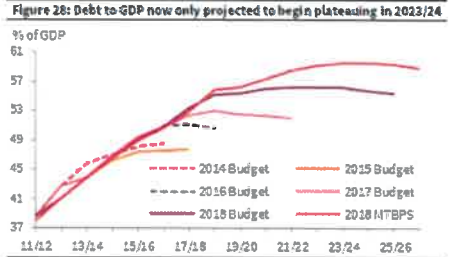
Source: SARB, Absa Research

Figure 27: Budget deficits were widened out sharply in the MTBPS



Source: National Treasury, Absa Research

Figure 28: Debt to GDP now only projected to begin plateauing in 2023/24



Source: National Treasury, Absa Research

Fiscal weakness is a huge policy challenge for the government

We view the 2019 Budget to be presented by Finance Minister Mboweni on 20 February as critical. The Medium Term Budget Policy Statement (MTBPS) revised the main budget deficit target for FY18/19 wider to 4.3% of GDP from 3.8% of GDP, largely as a result of a ZAR20bn increase to VAT refunds to catch up on a backlog, thereby reducing net tax collections. (The total shortfall in net tax collections relative to the original 2018 Budget target was projected in the MTBPS to be ZAR27.4bn on an assumption of nominal GDP growth of 6.9% and a tax buoyancy of 1.21.) We accept that the widening of the budget deficit target in the current fiscal year reflects a meritorious effort by South Africa Revenue Service (SARS) to regularise its VAT credit book after prior maladministration. However, we are concerned that the MTBPS also revised substantially wider the main budget deficit targets for the subsequent years in the planning horizon (from FY19/20 to 21/22) by about half a percentage point of GDP – although this reflects weaker revenue projections rather than expenditure slippage (Figure 27). Nonetheless, with the main budget deficit projected to track more or less sideways above 4% of GDP, the primary balances are left still mired in the red. This is far too lax a fiscal stance to stabilise debt to GDP, which is now only projected by the National Treasury to begin to plateau in 2023/24 at best (Figure 28). There are of course inevitable upward debt management risks from higher interest rates, a weaker rand and increased inflation. For example, a 10% increase in USDZAR would lift the debt ratio about half a percent of GDP (Figure 29).

3.2.2 COMPOSITE BUSINESS CYCLE INDICATORS – SARB, JANUARY 2019[4]

DEMACON believes the composite leading business cycle indicator is one of **the most** useful indicators to follow for the following reasons:

- ✓ It is a composite indicator – consists of various sub-indicators, including;
- ✓ Job advertisement space in the Sunday Times newspaper: Percentage change over twelve months
- ✓ Number of residential building plans passed for flats, townhouses and houses larger than 80m²
- ✓ Interest rate spread: 10-year government bonds less 91-day Treasury bills
- ✓ Index of prices of all classes of shares traded on the JSE
- ✓ Real M1 money supply (deflated with CPI): Six-month smoothed growth rate
- ✓ Index of commodity prices in US dollar for a basket of South Africa's export commodities
- ✓ Composite leading business cycle indicator of South Africa's major trading-partner countries: percentage change over twelve months
- ✓ Gross operating surplus as a percentage of gross domestic product
- ✓ Opinion survey of business confidence: Manufacturing, construction, and trade
- ✓ Net balance of manufacturers observing an increase in the average number of hours worked per factory worker (half weight)
- ✓ Net balance of manufacturers observing an increase in the volume of orders received (half weight)
- ✓ Number of new passenger vehicles sold: Percentage change over 12 months.

[4] *Source: South African Reserve Bank, Composite Business Cycle – January 2019:*

- ✓ Forward looking – i.e. indicative of future growth expected to materialize over the short to medium term, i.e. the next 12-18 months.

Note: The composite business cycle indicators were rebased to 2010=100

- ✓ The **composite leading business cycle indicator** decreased by 0.5% on a month-to-month basis in December 2018. Of the nine available component time series, four decreased and four increased, while the other component remained unchanged. The largest negative contributions to the movement in the composite leading business cycle indicator in December came from decreases in the number of residential building plans approved and the South African produced export commodity price index (US dollar based). The largest positive contributions resulted from an acceleration in the twelve-month percentage changes in job advertisement space and in the twelve-month percentage change in the number of new passenger vehicles sold.
- ✓ The **composite coincident business cycle indicator** remained unchanged in November 2018.
- ✓ The **composite lagging business cycle indicator** decreased by 0.8% on a month-to-month basis in November 2018.

Table 3.2: Composite Business Cycle Indicators

Description (Indices 2010 = 100)	Apr 2018	May 2018	Jun 2018	Jul 2018	Aug 2018	Sept 2018	Oct 2018	Nov 2018	Dec 2018
Leading indicator	105.9	105.8	106.7	106.2	105.8	105.3	105.8	105.7	105.2
12-month percentage change	3.7	4.4	5.3	2.8	2.4	0.6	0.3	0.0	*-0.6*
Coincident indicator	102.1	103.0	103.4	103.3	103.6	103.7	104.2	104.2	-
12-month percentage change	*0.0*	*0.8*	*1.0*	*0.5*	*0.1*	*0.4*	*0.6*	*-0.1*	-
Lagging indicator	94.4	94.5	94.7	94.7	94.4	95.3	95.4	94.6	-
12-month percentage change	*-2.4*	*-2.6*	*-2.6*	*-1.7*	*-1.2*	*-1.0*	*-0.3*	*-0.8*	-

Source: Demacon ex. SARB, Jan 2019
The composite business cycle indicators are revised continuously following revisions to underlying component time series data.

The composite leading business cycle indicator decreased slightly on a month-to month basis from October 2018 to December 2018. In terms of the latest press release (February 2019), the current value of the leading indicator for December 2018 is **105.2**.

The leading indicator affirms that the national economy remains under pressure – which ultimately impacts the consumer in general and the retail sector (including shopping centres). Extensive private and public-sector capital investment (including new real estate development and associated investment in infrastructure) is required to reignite economic growth.

3.3 PROPERTY MARKET OUTLOOK[5]

Figure 3.1 reflects the biannual property index performance for South Africa, based on the following characteristics:

- ✓ Total Market Value (R'million) – R340 747
- ✓ Total Number of Properties – 1 581
- ✓ Average Property Value (R'million) – R215.5
- ✓ Number of Portfolios – 15

[5] *FNB Property Barometer, 2018*

Figure 3.1: IPD South Africa Biannual Property Index Performance – Property Returns (Rand)

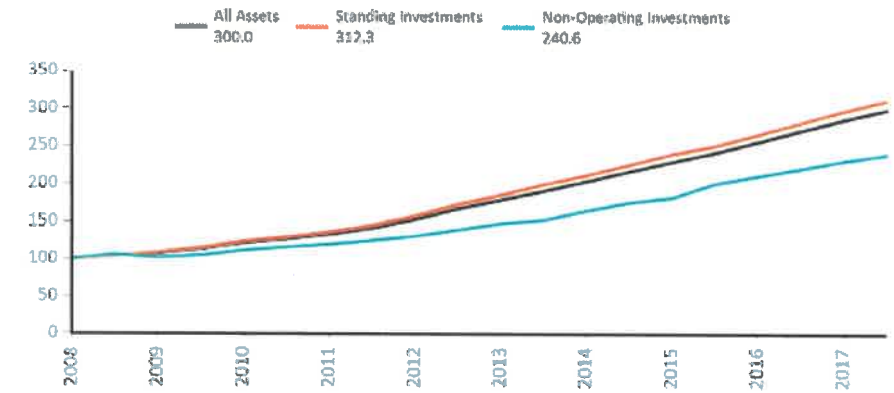


Table 3.3: South Africa Property Index Transparency

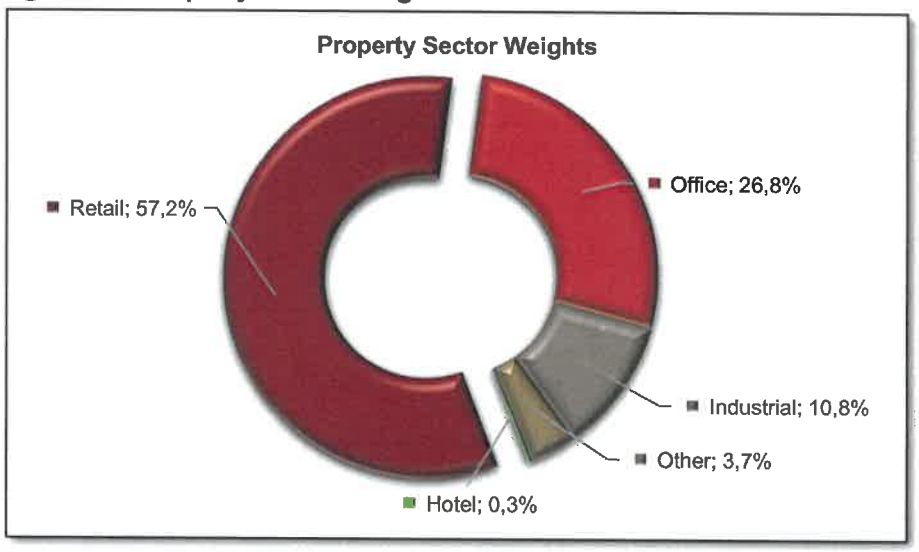
	Total Market Value (R'million)	Average Property Value (R'million)	Number of Properties	Number of Portfolios
Retail	194 846	595.9	15	17.0%
Office	91 233	155.4	13	9.7%
Industrial	36 825	73.8	10	9.0%
Hotel	1 105	157.9	4	84.2%
Other	12 481	111.4	11	-

Source: Demacon ex. MSCI, 2018

PROPERTY SECTOR WEIGHTS

Sector weights are calculated by aggregating the capital value of individual assets across the main property types. This illustrates the composition of the index and whether there is a heavier concentration in a particular property sector thus having a greater impact on the overall index performance.

Figure 3.2: Property Sector Weights



Source: IPD South Africa Biannual Property Index

Property Fundamentals – Outlook for 2018[6]

Office Market:

- ✓ Despite businesses experiencing internal growth underlined by a demand for additional space, do not result in a shift towards larger office space.
- ✓ Current market trends reflect a preference towards:
  - Employing the services of working space specialists
  - Encourage mobile offices
  - Shrinking offices sizes – moving away from individual offices and cubicles towards more social work settings.
- ✓ These trends have resulted in property managers and landlords finding themselves leasing to a larger number of tenants, each utilising a smaller space (despite the higher number of employees).
- ✓ Medium-to-small businesses have also started leaning towards flexible leases and subdividing space to share risk and ultimately reduce monthly costs.

FNB Property Barometer, January 2018.

[6] *Source: IPD South Africa Biannual Property Index*

Retail Market:

- ✓ South Africa is the sixth country in the world considering the number of formal retail malls.
- ✓ This situation is rather cumbersome given:
  - Uncertain economic climate
  - Unstable political situation
  - Increased pressure on disposable income
  - Decline in foot traffic
  - Lower individual spend.
- ✓ Many retailers, including Stuttafords, River Island, to name a few have been forced to withdraw from South Africa, resulting in increased vacancies in South African Malls.
- ✓ It appears that retail centre developers are reconsidering smaller centres with smaller gross leasable space to rent out.

Industrial Market:

- ✓ The industrial market is perceived to be the most resilient of these three.
- ✓ Property developers are focused towards the provision of warehouses, largely catering to the logistic industry.
- ✓ The logistic industry reflects strong demand towards new high-tech warehousing.
- ✓ Moving away from older industrial assets.

Residential Market:

- ✓ 2018 could see a slightly stronger house price growth, with average house price growth higher/near 5%.
- ✓ This is based on expectations of marginal economic growth improvement in 2018, and one interest rate hike only late in 2018 (not expected to dampen market performance).
- ✓ Much will depend on the political and government policy environment, though, with 2018 being the run-up to the 2019 general election.
- ✓ In addition, drought conditions, notably in the Western Cape region, can impact on regional economies which feeds into those regions' housing markets, so much will depend on weather patterns in certain parts of the country this year, especially in the Western Cape which is one of the country's prime property markets.

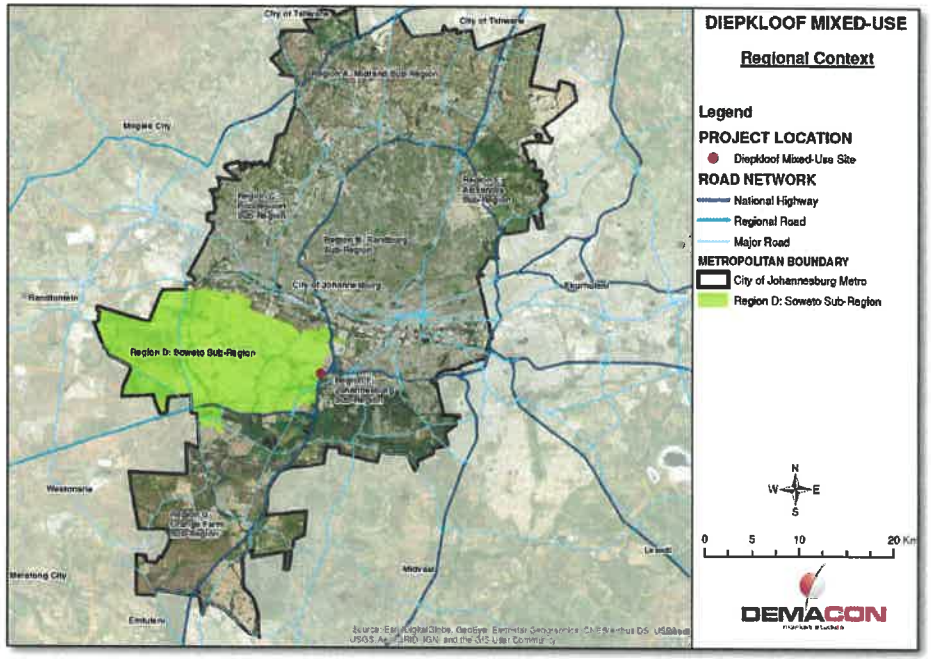
The following section provides an overview of local economic trends in the market area.

3.4 LOCAL ECONOMIC TRENDS

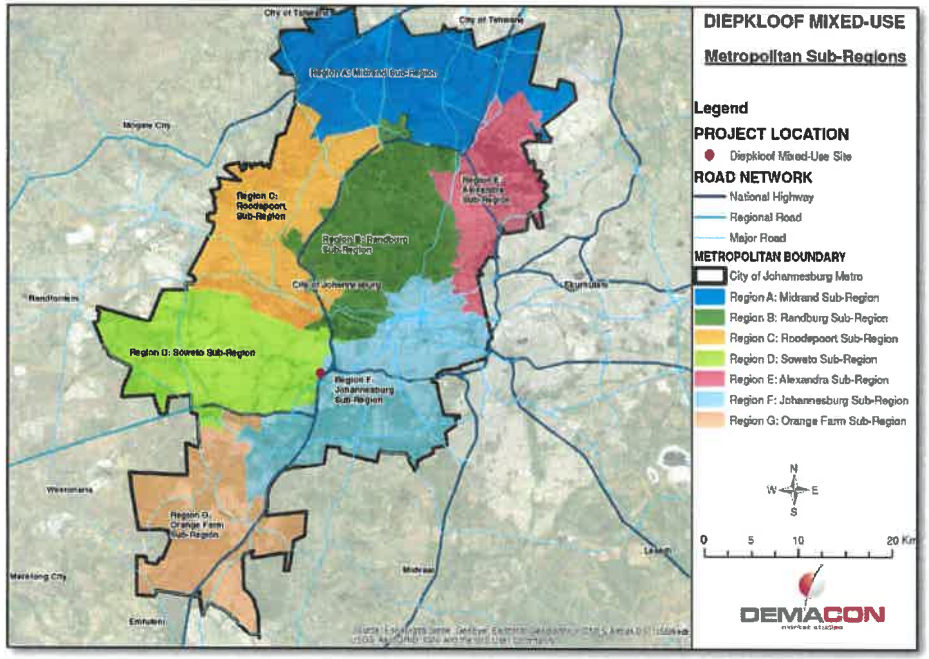
Subsequent section provides the key economic indicators of **Soweto Local Economy.**

❖ ***Regional Context***

Map 3.1: Site in regional context – City of Johannesburg Metro and Soweto Sub-Region



Map 3.2: Metropolitan Sub-Regions



3.4.1 SIZE OF ECONOMY

The figure below indicates the size of **City of Johannesburg Metro** in relation to **Gauteng Province** and **Soweto Local Economy** in relation to the **City of Johannesburg Metro.**

Figure 3.3: Size of the economy, 2017 (*at basic prices*) - GVA

Source: Demacon ex Statssa, 2019

Findings: (Figure 3.3)

Figure 3.3 indicates that City of Johannesburg Metro contributed 39.6% towards Gauteng Province in 2017 and Soweto Local Economy contributed 15.4% towards City of Johannesburg Metro.

3.4.2 ECONOMIC PROFILE

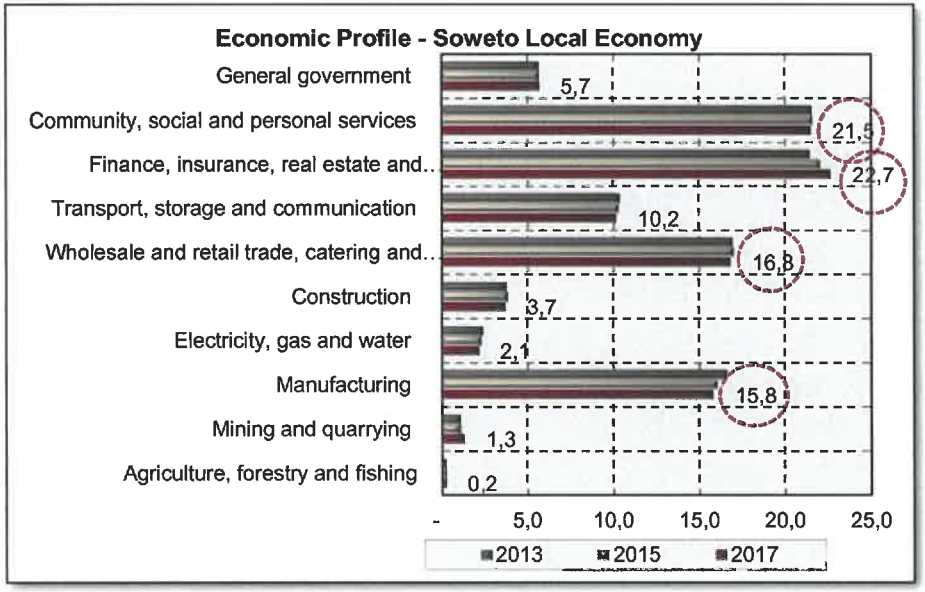
The assessment in the following sections serves to highlight sub-regional **growth trends** in the market. Future investment opportunities will be informed by this sub-regional assessment.

The figure below indicates the contribution of the ten major economic sectors to the total economic production of the local economy.

The ten economic sectors referred to include:

- ✓ General government services
- ✓ Community, social and other personal services
- ✓ Finance and business services
- ✓ Transport and communication
- ✓ Trade sector (Wholesale and retail; catering and accommodation)
- ✓ Construction
- ✓ Electricity and water
- ✓ Manufacturing
- ✓ Mining
- ✓ Agriculture, forestry and fishing.

Figure 3.4: Economic Profile of Soweto Local Economy, 2013 – 2017 (GVA at basis prices)



Source: Demacon ex Statssa, 2019

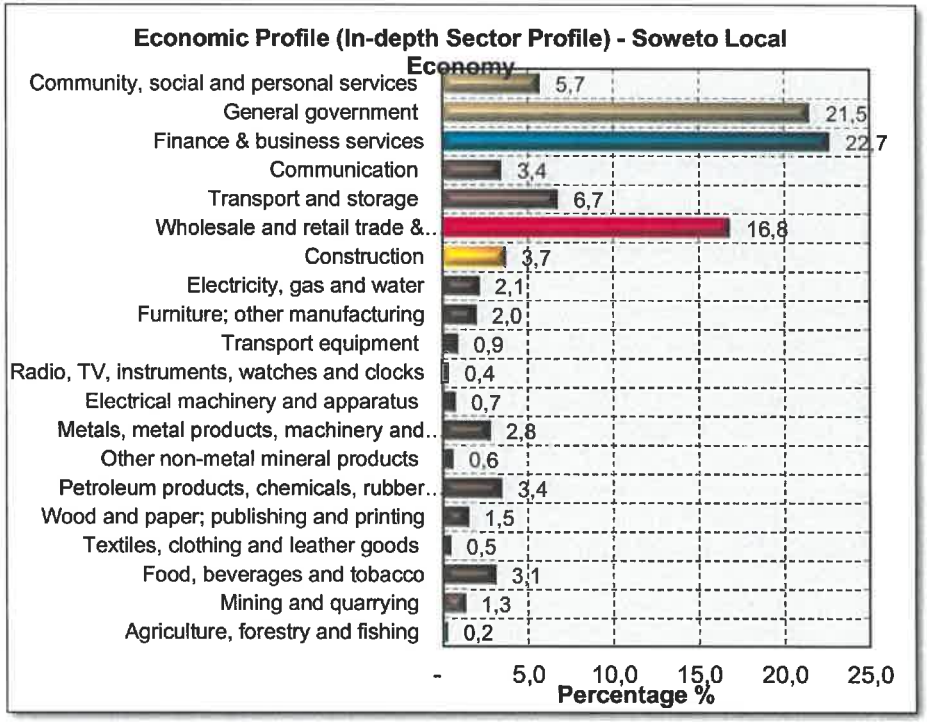
Findings: (Figure 3.4)

The pillars of **Soweto Local Economy include** the Finance & Business Sector, Trade Sector, Manufacturing Sector and the Transport Sector - contributing approximately **76.8%** towards the district economy.

- ✓ The Finance & Business Sector represents the largest contributing sector - increasing its contribution from 21.4% to 22.7% between 2013 and 2017.
- ✓ The Community Sector represents the second largest contributing sector decreasing slightly from 21.6% to 21.5% between 2013 and 2017.
- ✓ The Wholesale & Retail Sector represents the third dominant sector with its share also decreasing slightly from 17.0% to 16.8% between 2013 and 2017.
- ✓ The Manufacturing represents the fourth largest contributing sector – its contribution decreased from 16.6% to 15.8% between 2013 and 2017.

IN-DEPTH ECONOMIC PROFILE OF SOWETO LOCAL ECONOMY

Figure 3.5: In-Depth Economic Profile of Soweto Local Economy, 2017 (GVA at basis prices)



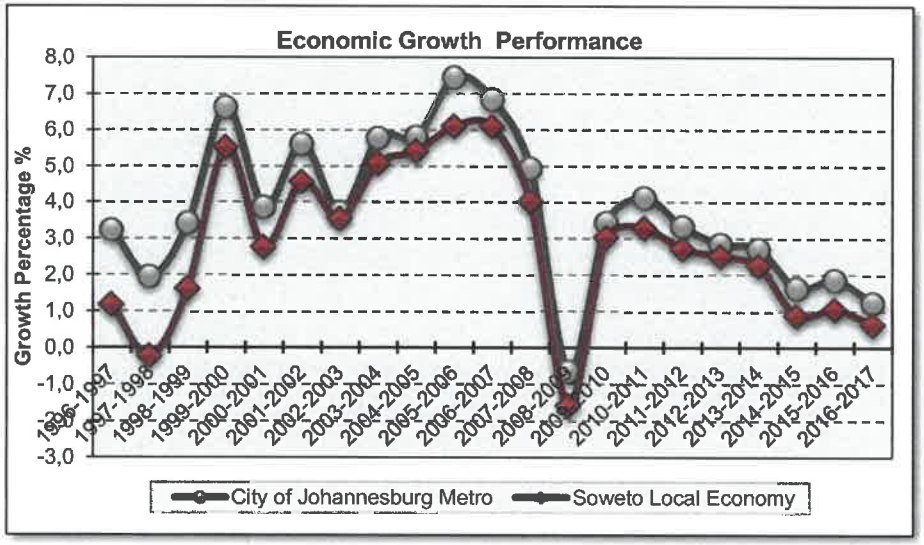
Source: Demacon ex Statssa, 2019

Subsequent economic indicator provides insight to the economic growth performance of the above-mentioned municipalities.

3.4.3 ECONOMIC GROWTH

Figure 3.6 provides detail on the growth performance of the **City of Johannesburg Metro & Soweto Local Economy between** 1996 and 2017.

Figure 3.6: Economic Growth Performance, 1996 – 2017 (GVA at basic prices)



Source: Demacon ex Statssa, 2019

Findings: (Figure 3.6)

- ✓ **City of Johannesburg Metro** reached an average growth rate of approximately 3.8% since 1996. Since 2012 the metro recorded an average growth rate of approximately 2.0.%
- ✓ **Soweto Local Economy** reached an average growth rate of approximately 2.9% since 1996. Since 2012 the local economy recorded an average growth rate of approximately 1.4%.
- ✓ *Note: The latest local area economic data is only available up to 2017. The local business cycle follows the national cycle closely, albeit that local data lags by approximately 12 to 18 months, and a similar upward trend in the local economy, compared with the national trend, which is already noticeable.*

Development Implications

- ✓ Economic growth in the local and regional economy reflects a similar cyclical trend that correlates with growth trends experienced in the SA domestic economy over the same period of time.
- ✓ Most notable negative impacts that had a lagged effect on domestic demand and consumer expenditure include the 1997/1998 Asian Crisis (more commonly referred to as the Asian Flu), followed by record high prime lending rates of 25.5% in August 1998 and all-time high exchange rates in January 2002 (R16.64:1£ and R11.61:1$).
- ✓ The global financial crisis that erupted in 2007 and progressively spread to the real economy resulted in world output growth slowing to 3% in 2008, from 5.2% the previous year. Economic conditions continued deteriorating well into 2009, with output estimated by the International Monetary Fund (IMF) to have declined by 0.6%. As global demand waned, and production levels were curtailed, world trade registered a staggering 12% contraction in 2009, according to the World Trade Organization (WTO). This followed a dismal 2% growth in the volume of world trade in 2008.
- ✓ The global economy emerged from recession in 2010, although the pace of recovery has varied substantially across regions, and particularly at country level. Certain emerging and developing economies, especially those that managed to side-step a recession quite effectively, such as China and India, have seen a visible improvement in their growth momentum. Nevertheless, a number of emerging economies continue experiencing difficulties in resuming and sustaining higher growth trajectories.
- ✓ In South Africa, signs of recovery from the economy's first recession in 17 years gradually emerged during the last six months of 2009. Gross domestic product (GDP) expanded in real terms by 3.1% (on a quarter-on-quarter basis) in the fourth quarter of 2009, accelerating to 4.6% in the first quarter of 2010. However, economic growth slowed to 2.8% and 2.6% in the subsequent two quarters of 2010 respectively.
- ✓ Although the global economic recovery has been swifter than initially anticipated, its multi-speed characteristics have become more pronounced and the momentum has lost some steam in several advanced economies. Fiscal austerity measures in several countries, particularly in Europe, high unemployment rates and yet excessive household indebtedness underpin expectations of a slowdown, particularly in the industrialized nations, and rising concerns over the sustainability of the global economic recovery. Recently announced by the United States authorities, the second round of quantitative easing (known as QE2 and amounting to a massive US$600 billion) reflects this uneasiness.
- ✓ The South African economy continued to report growth in economic activity during the opening six months of 2010, although there have been signs of the momentum being weaker than initially anticipated. The recovery in demand has been slow, especially from the household segment, as well as externally. After reducing inventory levels during the recession, companies eventually started

Development Implications

rebuilding them, resulting in an upturn in production, albeit still at levels below those reached in 2008 for most economic sectors.

- ✓ The local business cycle reflects a negative trend with reference to 2007 to 2009. The local business cycle follows the national cycle closely. In the context of the national recovery - including economic growth and retail sales - local economic growth and growth in disposable income is expected to reveal a similar recovery trend since 2009.
- ✓ The domestic growth outlook remains subdued and below-trend growth is expected to persist. The forecast of the National Reserve Bank pertaining to GDP growth remained at 2.8 per cent for 2010, a slight recovery is however expected towards 2011 and 2012 with average estimated growth rates of 3.3 per cent and 3.6 per cent respectively. This bodes well towards the metropolitan regions of the national economy, which in general leads the economic recovery curve and in general reflects economic growth rates exceeding that of the national average.

3.4.4 FINANCIAL AND BUSINESS SERVICES SECTOR PERFORMANCE

The business and finance sector serve as proxy for the office market. This sector comprises establishments engaged in professional services, financial institutions (e.g. banks and insurance companies) as well as real estate services.

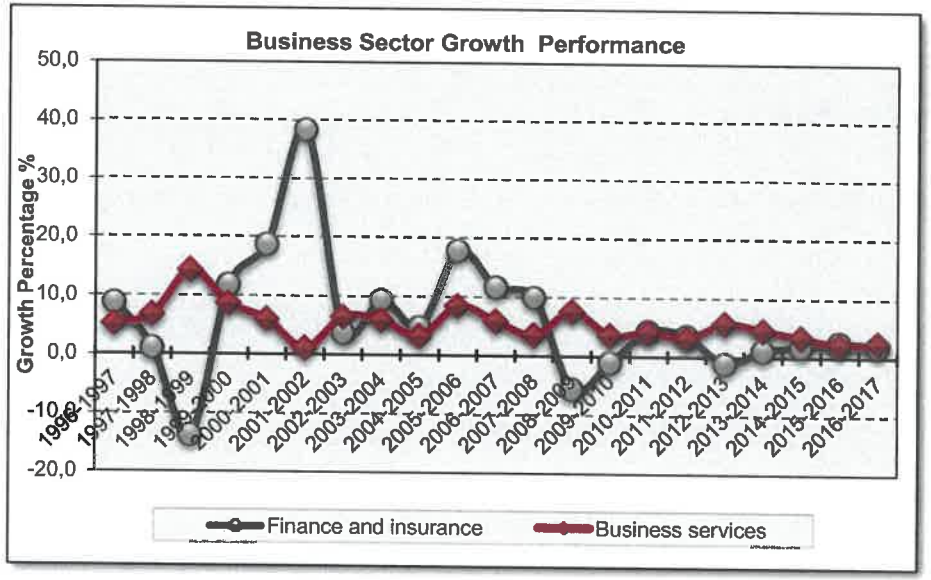
CLASSIFICATION OF FINANCE AND BUSINESS SECTOR

According to the SIC (Standard Industrial Classification of all Economic Activities) the following are included in the Finance and Business Services Sector:

- ✓ Financial intermediation
- ✓ Insurance and pension funding
- ✓ Real estate activities
- ✓ Computer and related activities
- ✓ Other business activities
  - Legal
  - Accounting
  - Book-keeping
  - Auditing activities
  - Tax consultancy
  - Market research
  - Public opinion research
  - Business and management consultancy

Figure 3.7 indicates the growth performance of the business and finance sector from 1996 to 2017.

Figure 3.7: Financial and Business Services Sector Growth Performance (constant 2010 prices)



Source: Demacon ex Statssa, 2019

Findings: (Figure 3.7)

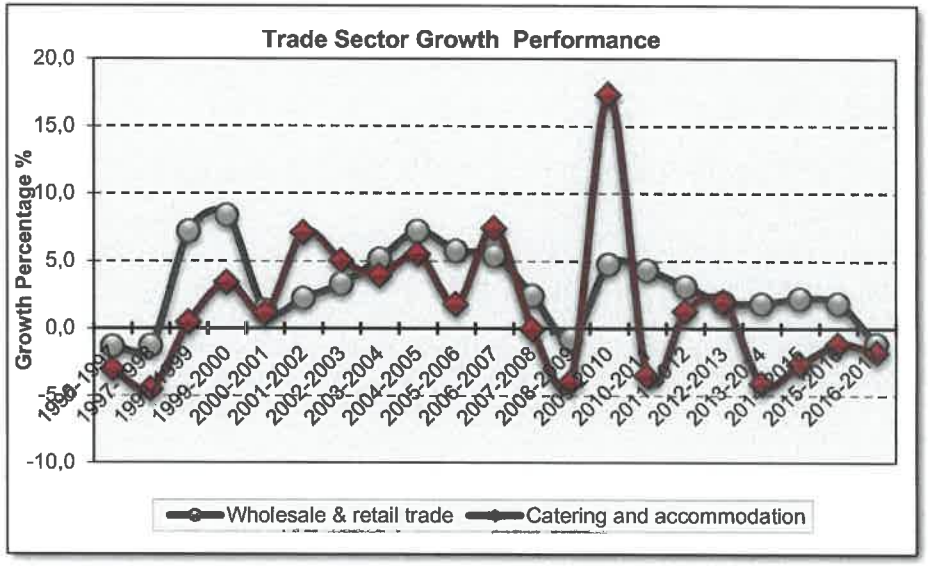
- ✓ The *finance and insurance sub-sector* of Soweto Local Economy reached an average growth rate of approximately 6.2% since 1996. Since 2012 the finance sector recorded an average growth rate of approximately 1.3%.
- ✓ The *business services sub-sector* of Soweto Local Economy reached an average growth rate of approximately 5.2% since 1996. Since 2012 the business sector recorded an average growth rate of approximately 3.6%.

3.4.5 TRADE AREA SECTOR PERFORMANCE

The trade sector comprises establishments engaged in retailing merchandise, generally without transformation, and rendering of services incidental to the sale of merchandise. Trade thus involves the selling or arranging the purchase or sale of goods from resale, and selling durable, semi-durable and non-durable consumer goods. The trade sector is sensitive to business cycle fluctuations, which in turn are extremely sensitive to global economic fluctuations.

The state of this sector is therefore an ultimate and direct reflection of consumer demand. The impact of macro and micro economic forces on the trade sector therefore extends to both supply and demand side dynamics of the product value chain. The trade sector is the all-important interface between producer, wholesaler and consumer. The figure below illustrates trade sector growth in the market area since 1996.

Figure 3.8: Soweto Trade Sector Growth Performance, 1996 - 2017 (constant 2010 prices)



Source: Demacon ex Statssa, 2019

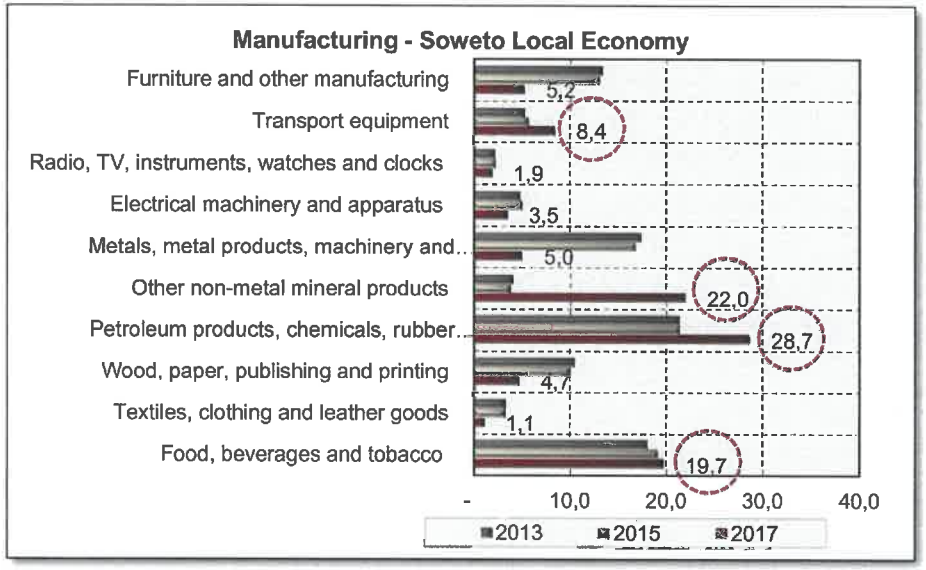
Findings: (Figure 3.8)

- ✓ Figure 3.8 indicates the growth performance of the trade sector – the sector peaked during 1999 to 2000, 2004 to 2005 and 2009 to 2010. The sector reached its weakest point in 1996 to 1997.
- ✓ The *wholesale and retail trade sub-sector* of Soweto Local Economy reached an average growth of approximately 3.0% since 1996. Since 2012 the sub-sector recorded an average growth rate of approximately 1.3%.
- ✓ The *catering and accommodation sub-sector* reached an average growth of approximately 1.5% since 1996. Since 2012 the sub-sector recorded an average growth rate of approximately -1.6%.

3.4.6 MANUFACTURING SECTOR PERFORMANCE

Wholesale and distribution refer to storage and wholesale facilities from where products (usually in large quantities) are distributed. This does not necessarily include an industrial or manufacturing function. Wholesalers do have a buying and selling function – products are usually sold in large quantities. An example is such as wholesale trade in agricultural materials and livestock.

Figure 3.9: Manufacturing Sector Performance (constant 2010 prices)



Source: Demacon ex Statssa, 2019

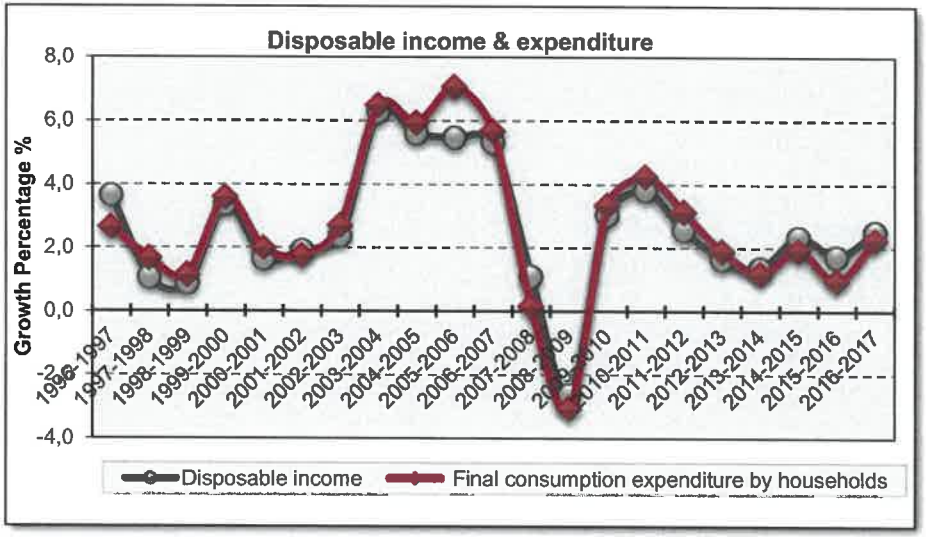
Findings: (Figure 3.9)

- ✓ The four dominant contributors within this sector in **Soweto Local Economy in** 2017 are the following:
  - Petroleum products, chemicals, rubber and plastic – 28.7%
  - Other non-metal mineral products – 22.0%
  - Food, beverages and tobacco – 19.7%
  - Transport equipment – 8.4%

3.4.7 GROWTH IN FINAL CONSUMPTION EXPENDITURE & DISPOSABLE INCOME

Figures in subsequent paragraphs illustrate the rate of ***growth of final consumptions expenditure*** (on all goods and services) in relation to ***growth in disposable household income***. The graph reveals a high degree of positive correlation between the two variables, which in turn reveals similar up- and downturns to the business cycle as a whole.

Figure 3.10: Growth in final consumption expenditure & disposable income (constant 2010 prices)



Source: Demacon ex Statssa, 2019

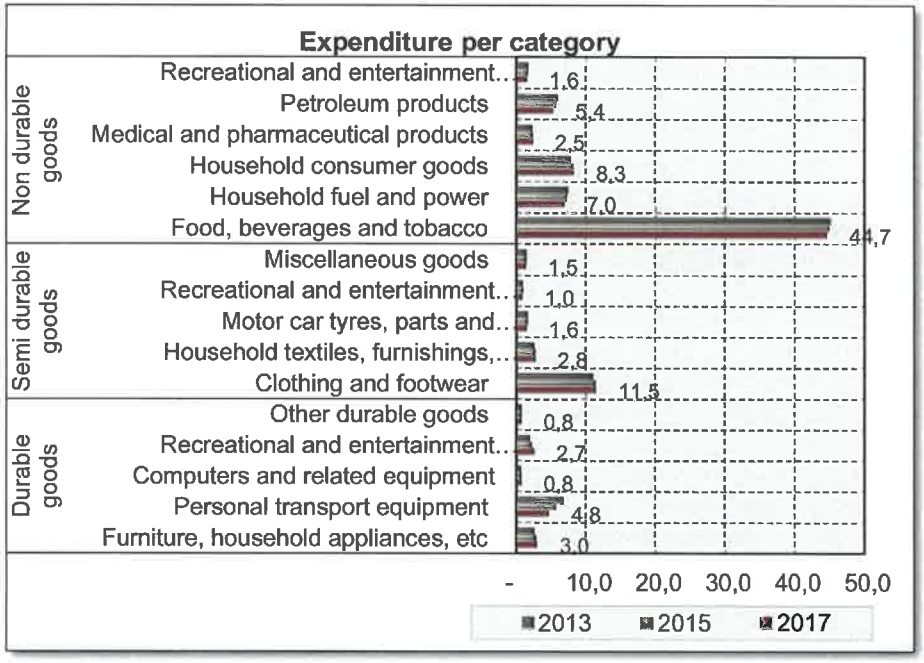
Findings: (Figure 3.10)

- ✓ The cyclical trend observed in the above figure correlates with the business cycle trend, i.e. a follow through on the 2000 / 2001 weakening of the Rand and subsequent growth to record high levels in 2004 (continuing into 2005 and the first quarter of 2006).
- ✓ *Final consumption expenditure* of Soweto Local Economy obtained an average annual growth rate of 2.6% since 1996 and 1.9% since 2012.
- ✓ *Disposable income* of Soweto Local Economy obtained an average annual growth rate of 2.7% since 1996 and 1.6% since 2012.

3.4.8 HOUSEHOLD EXPENDITURE PER CATEGORY

The trade sector is accounted for by a spectrum of consumer types, including private households, other businesses, government and exports. The household sector is by far the largest of these consumer markets, especially in the retail sub-sector. Retail sales refer to the amount of money spent on a variety of consumer goods. This includes for example non-perishable products, footwear, jewellery and hardware. Retail sales serve as an indication of the expenditure in certain categories. Retail sales figures provide an indication of current demand for specific categories of consumer goods, which can be divided into three broad groupings, namely:

Figure 3.11: Household expenditure per category – Soweto Local Economy (constant 2010 prices), 2013 to 2017



Source: Demacon ex Statssa, 2019

Findings: (Figure 3.11)

- ✓ A general urban South African trend indicates that the decrease in expenditure directed towards non-durable groceries is declining year-on-year with a rise in consumption expenditure on semi durables including clothes and foot ware. These trends can be ascribed to the high rate of inflation on non-durables (especially meat) and unabated clothing and footwear deflation.
- ✓ The figure discloses that food, beverages and tobacco is the largest sector of the household expenditure categories, with a contribution of 44.7% in 2017.
- ✓ The second largest sector is represented by clothing and footwear with a contribution of 11.5%.
- ✓ The third largest sector is household consumer goods of 8.3% and the smallest category is other durable goods of 0.8%.

3.5 SYNTHESIS

This module provided an overview of the macro-economic trends underlining the local economy.

❑ LOCAL ECONOMIC TRENDS SUMMARY

The table below summarises the key economic indicators of **Soweto Local Economy.**

Table 3.4 : Key Economic Indicators

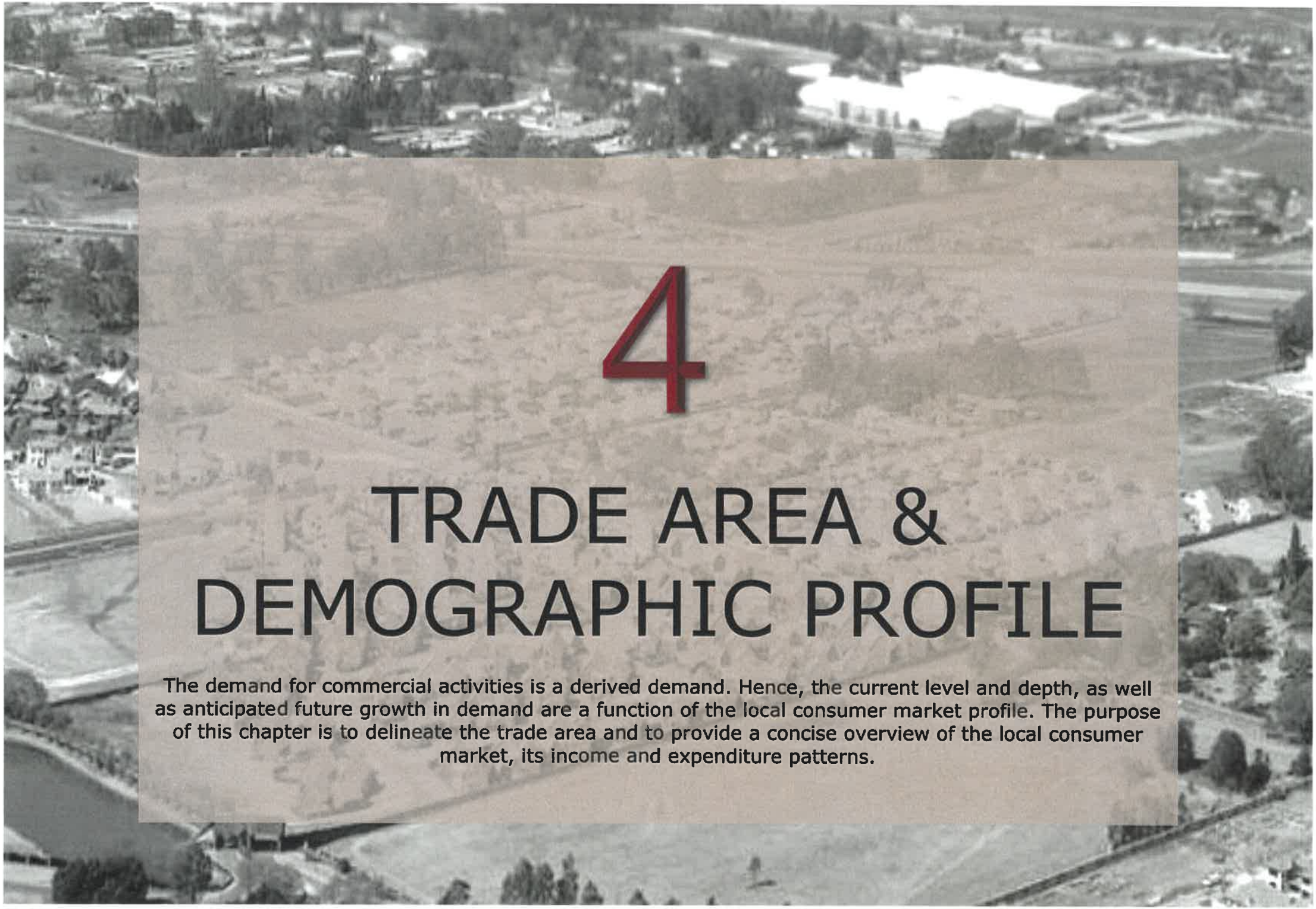
Variable	Market Characteristics
Size of the GVA (2017)	✓ The economic sector of Soweto Local Economy contributes 15.4% towards City of Johannesburg Metro.
Dominant Economic Contributions (2017)	*Soweto Local Economy:* ✓ Finance, insurance, real estate and business services – 22.7% ✓ Community, social and personal services – 21.5% ✓ Trade – 16.8% ✓ Manufacturing – 15.8%
Economic Growth Performance (Time Period 1996 – 2017)	*Soweto Local Economy* ✓ Growth in the local economy has averaged 2.9% per annum since 1996 ✓ Since 2012, growth in the local economy has averaged 1.4% per annum.
Business Sector Performance	*Soweto Local Economy*

Variable	Market Characteristics
(Time Period 1996 – 2017)	✓ *Finance & insurance sub-sector* obtained an average growth of 6.2% since 1996 and 1.3% since 2012. ✓ *Business sub-sector* obtained average growth of 5.2% since 1996 and experience a decrease to 3.6% since 2012
Trade Sector Performance (Time Period 1996 – 2017)	*Soweto Local Economy* ✓ *Wholesale & retail trade sub-sector* obtained an average growth of 3.0% since1996 – 2017 and 1.3% since 2012. ✓ *Catering and accommodation* obtained an average growth of 1.5% since 1996 and experience a decrease to -1.6% since 2012
Manufacturing Sectors Performance (Time Period 1996 – 2017)	*Soweto Local Economy:* ✓ Petroleum products, chemicals, rubber and plastic – 28.7% ✓ Other non-metal mineral products – 22.0% ✓ Food, beverages and tobacco – 19.7% ✓ Transport equipment – 8.4%
Final Consumption Expenditure (Time Period 1996 – 2017)	*Soweto Local Economy:* ✓ *Final consumption expenditure* of the local economy obtained average growth of 2.6% since 1996 and 1.9% since 2012. ✓ *Disposable income* of the local economy obtained average growth of 2.7% since 1996 and 1.6% since 2012.

Note: the latest local area economic data is only available up to 2017. The local business cycle follows the national cycle closely. In the context of the national recovery – including economic growth and retail sales – local economic growth and growth in disposable income is expected to reveal a similar trend since 2017.

The economic indicators of an area form the basis for current demand for residential and commercial product offering and serve as drivers for future growth in demand. An improving economy has positive implications for disposable income growth and thus residential purchasing power in the near term.

Market potential is not influenced by economic and demographic trends alone, but also by macro and micro area dynamics. In the context of the above, Chapter Four provides a demographic profile of the study area under consideration



4

TRADE AREA & DEMOGRAPHIC PROFILE

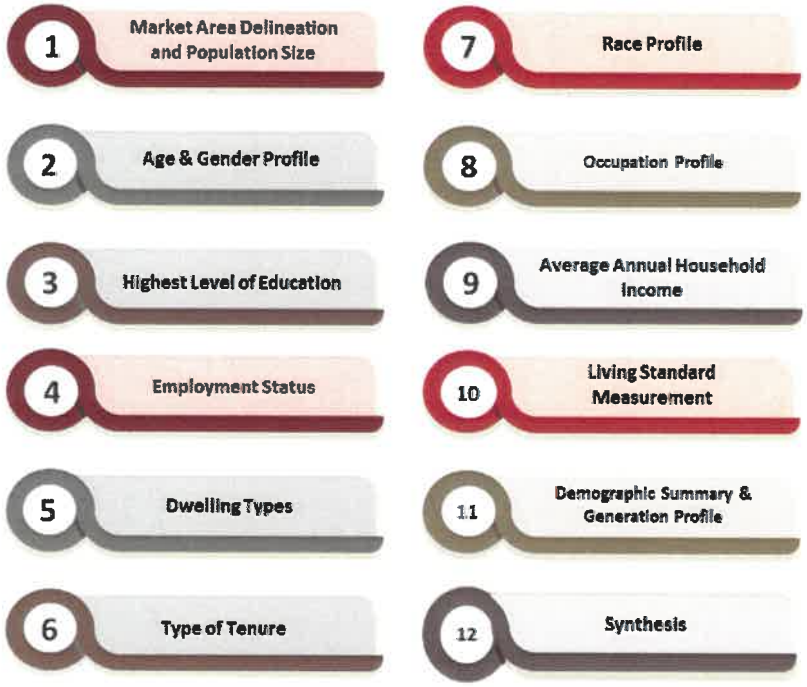
The demand for commercial activities is a derived demand. Hence, the current level and depth, as well as anticipated future growth in demand are a function of the local consumer market profile. The purpose of this chapter is to delineate the trade area and to provide a concise overview of the local consumer market, its income and expenditure patterns.

TRADE AREA & DEMOGRAPHIC PROFILE 4

4.1 INTRODUCTION

The demand for commercial activities is a derived demand. Hence, the current level and depth, as well as anticipated future growth in demand are a function of the local consumer market profile. The purpose of this chapter is to delineate the trade area and to provide a concise overview of the local consumer market, its income and expenditure patterns.

The consumer market profile is outlined in terms of the following headings:



The following section provides an overview of the population size of the primary market area.

4.2 MARKET AREA DELINEATION AND POPULATION SIZE

In order to gain some insight into the socio-economic character of the greater surrounding area, a market area was delineated in order to establish the main socio-economic market characteristics of affecting the study. The primary market area for the project is based on an approximated **15-minute drive time polygon.**

This chapter provides the key socio-economic indicators of the primary market, informed by **general trade area criteria**, as well as the following:

- ✓ Consumer market behaviour and expenditure trends
- ✓ Regional and sub-regional levels of accessibility
- ✓ Geographic barriers
- ✓ Natural catchment areas
- ✓ General consumer mobility patterns and drive times.
- ✓ General SACSC guidelines

Table 4.1: Population size of the market area, (approximated 15-minute drive time polygon - 2019

Sub-places	Number of people in sub-place	Number of households in sub-place	Household size
Aeroton	11	9	1,2
Alan Manor	2 283	789	2,9
Alberante	269	94	2,9
Alberton SP	1 824	669	2,7
Alveda	3 493	1 131	3,1
Amalgam	108	68	1,6
Aspen Hills Nature Estate	1 556	506	3,1
Auckland Park	852	411	2,1

Sub-places	Number of people in sub-place	Number of households in sub-place	Household size
Bassonia	4 633	1 579	2,9
Bassonia Rock	1 680	579	2,9
Bergbron	2 043	775	2,6
Booysens	3 163	1 218	2,6
Booysens Reserve	53	25	2,1
Bosmont	6 301	1 617	3,9
Brixton	4 067	1 872	2,2
Chiawelo	13 103	4 113	3,2
Chiawelo Ext 1	5 759	1 769	3,3
Chiawelo Ext 2	19 740	5 941	3,3
Chiawelo Ext 3	11	3	3,8
Chiawelo Ext 4 & 5	841	215	3,9
Chris Hani	1 499	567	2,6
Chris Hani Baragwanath Hospital	470	350	1,3
Chrisville	1 133	328	3,4
City and Suburban	456	198	2,3
City Deep Gold Mine	85	46	1,9
City of Johannesburg NU	2 305	913	2,5
Claremont	9 183	2 434	3,8
Comptonville	574	177	3,2
Consolidated Main Reef Gold Mine	10 502	3 516	3,0
Constantia Kloof	354	132	2,7
Coronationville	4 848	1 898	2,6
Croesus	6	2	3,0
Crosby	6 112	1 746	3,5
Crown	466	249	1,9
Crown Gardens	4 110	1 210	3,4
Crown Mine	154	64	2,4
Crown North	802	191	4,2
Delarey	1 846	601	3,1
Devland	38 684	13 071	3,0
Dhlamini	16 739	4 355	3,8
Diepkloof SP	5 903	1 558	3,8
Diepkloof Zone 1	13 241	3 612	3,7
Diepkloof Zone 2	19 899	5 763	3,5
Diepkloof Zone 3	9 897	2 513	3,9
Diepkloof Zone 4	20 029	5 369	3,7
Diepkloof Zone 5	14 681	4 128	3,6
Diepkloof Zone 6	11 417	3 678	3,1
Dobsonville	26 269	8 032	3,3
Doornkop Military Base	218	46	4,7
Droste Park	169	125	1,3
Dube	18 123	6 325	2,9
Eikenhof	4 579	1 814	2,5
Eikenhof SP1	1 337	400	3,3
Elandsfontein AH	44	16	2,7
Elandshaven	666	221	3,0
Elandspark	712	212	3,4
Eldorado Estate	440	106	4,2
Eldorado Park	65 698	15 266	4,3
Evans Park	589	163	3,6
Fairland	2 435	966	2,5
Ferreirasdorp	370	183	2,0
Fleurhof	1 755	487	3,6
Floracliffe	10	3	2,8
Florentia	64	21	3,1
Florida	10 061	3 479	2,9
Florida Glen	3 400	1 320	2,6
Florida Hills	395	146	2,7
Florida North	597	230	2,6
Florida View	40	11	3,7
Fordsburg	2 110	601	3,5
Forest Hill	5 744	1 860	3,1
Freedom Charter Square	4 947	1 752	2,8
Freedom Park	10 755	3 811	2,8
Gillview	1 027	294	3,5
Glenanda	3 105	979	3,2
Glenesk	290	96	3,0
Glenvista	10 095	3 501	2,9
Gosforth Park	11	4	2,7
Haddon	2 271	801	2,8
Homestead Park	1 423	396	3,6
Hurst Hill	2 321	275	8,4
Industria	38	12	3,2
Industria North	10	5	2,0

Sub-places	Number of people in sub-place	Number of households in sub-place	Household size
Industria West	10	4	2,5
Jabavu	45 198	12 383	3,6
Jabulani	18 601	6 166	3,0
Jan Hofmeyer	1 995	535	3,7
Johannesburg Prison	9 742	413	23,6
Johannesburg SP	7 950	2 487	3,2
Jupiter	6	4	1,5
Kenilworth	8 998	3 103	2,9
Kibler Park 1	411	128	3,2
Kibler Park 2	5 618	1 731	3,2
Klipriviersberg Nature Reserve	3	3	1,0
Klipriviersoog	0	0	2,2
Klipspruit	25 581	8 781	2,9
Klipspruit Treatment Works	505	343	1,5
Klipspruit West	8 668	1 920	4,5
Kliptown	7 548	2 544	3,0
La Rochelle	12	4	2,8
Langlaagte North	1 292	394	3,3
Lea Glen	20	18	1,1
Lehae SP	583	166	3,5
Lenasia Ext 13	19	5	3,5
Liefde en Vrede	4 086	1 337	3,1
Lindberg Park	1 156	410	2,8
Linmeyer	399	167	2,4
Linmeyer	2 739	951	2,9
Longdale	2 772	1 095	2,5
Mapetla	4 768	1 488	3,2
Maraisburg	3 053	958	3,2
Marshalltown	752	386	1,9
Martindale	446	130	3,4
Mayberry Park	9	2	3,7
Mayfair	12 027	3 354	3,6
Mayfair West	4 669	1 349	3,5
Mayfield Park	1 229	421	2,9
Meadowlands East Zone 1	23 198	6 731	3,4
Meadowlands East Zone 2	8 917	2 149	4,1
Meadowlands East Zone 3	9 536	2 447	3,9
Meadowlands East Zone 4	11 832	3 364	3,5

Sub-places	Number of people in sub-place	Number of households in sub-place	Household size
Meadowlands East Zone 5	13 970	3 839	3,6
Meadowlands West Zone 10	15 779	4 687	3,4
Meadowlands West Zone 6	10 597	3 226	3,3
Meadowlands West Zone 7	9 608	2 621	3,7
Meadowlands West Zone 8	7 125	2 046	3,5
Meadowlands West Zone 9	12 032	3 181	3,8
Meredale	6 227	1 870	3,3
Meyersdal	9 055	3 315	2,7
Midvaal NU	26	9	2,9
Mmesi Park	824	214	3,9
Mofolo Central	701	185	3,8
Mofolo North	13 014	3 589	3,6
Mofolo South	6 270	1 778	3,5
Molapo	14 935	4 136	3,6
Moletsane	2 617	720	3,6
Mondeor	8 021	2 573	3,1
Montclare	963	268	3,6
Moroka	17 402	4 570	3,8
Moroka North	3 363	1 062	3,2
Motsoaledi	8 392	3 038	2,8
Mulbarton	6 645	2 236	3,0
Nancefield	695	204	3,4
Nancefield Industrial	234	59	4,0
Nasrec	5	4	1,3
Naturena	13 737	3 949	3,5
New Centre	262	112	2,3
New Redruth	2 344	895	2,6
Newclare	6 519	1 849	3,5
Newlands	6 506	1 996	3,3
Newtown	1 336	471	2,8
Noordgesig	12 115	2 855	4,2
Northcliff	331	125	2,6
Oakdene	4 931	1 854	2,7
Ophirton	506	232	2,2
Orlando East	68 210	23 658	2,9
Orlando West	40 603	11 871	3,4
Ormonde	9 823	3 170	3,1
Ormonde View	3 299	1 104	3,0

Sub-places	Number of people in sub-place	Number of households in sub-place	Household size
Paarlshoop	1 890	634	3,0
Pageview	813	281	2,9
Parktown	56	14	3,8
Phiri	13 621	3 613	3,8
Pimville Zone 1	7 391	2 179	3,4
Pimville Zone 2	7 055	2 000	3,5
Pimville Zone 3	6 627	1 841	3,6
Pimville Zone 4	9 266	2 884	3,2
Pimville Zone 5	5 283	1 466	3,6
Pimville Zone 6	8 642	2 492	3,5
Pimville Zone 7	3 999	1 086	3,7
Pimville Zone 8	4 481	1 148	3,9
Power Park	6 071	2 438	2,5
Prolecon	6	0	35,0
Quellerina	1 897	638	3,0
Rand Airport	0	0	2,6
Rand Lease Gold Mine	1 280	637	2,0
Randhart	928	300	3,1
Reuven	466	86	5,4
Ridgeway	8 723	2 774	3,1
Risana	663	227	2,9
Risipark AH	1 145	409	2,8
Riverlea	16 226	4 317	3,8
Robertsham	6 727	1 845	3,6
Robertville	86	18	4,8
Rosettenville	15 384	5 086	3,0
Rosherville	15	7	2,2
Rossmore	1 210	616	2,0
Selby	3 077	1 223	2,5
Senaoane	14 340	3 648	3,9
Slovo Park	7 810	3 147	2,5
Soweto	2 648	654	4,1
South Crest	3 550	1 219	2,9
South Hills	2 009	639	3,1
Southdale	647	201	3,2
Springfield	3	2	1,5
Steeledale	0	0	1,3
Stormill	259	-	-

Sub-places	Number of people in sub-place	Number of households in sub-place	Household size
Suideroord	3 556	1 116	3,2
Tedderfield AH	558	186	3,0
The Hill	953	307	3,1
Towerby	751	241	3,1
Townsview	1 096	346	3,2
Triomf	1 743	534	3,3
Tulisa Park	1 197	367	3,3
Turf Club	1 862	631	3,0
Turffontein	14 826	5 145	2,9
Uitsaaisentrum	52	0	193,0
Valentine Village/Mandela View	4 346	1 519	2,9
Village Main Reef Gold Mine	38	16	2,3
Vlakfontein SP	278	85	3,3
Vrededorp	104	38	2,7
Weltevredenpark	3 326	1 212	2,7
West Turffontein	8 697	2 741	3,2
Westbury	13 461	2 833	4,8
Westdene	2 942	1 424	2,1
Whiteridge	466	156	3,0
Winchester Hills	9 207	3 203	2,9
Winnie Camp	2 608	955	2,7
Zakariyya Park SP	1 720	391	4,4
Zola	753	191	3,9
Zondi	15 130	4 546	3,3
TOTAL 2011	**1 276 632**	**385 414**	**3,3**
TOTAL 2019	**1 584 453**	**485 556**	**3,3**

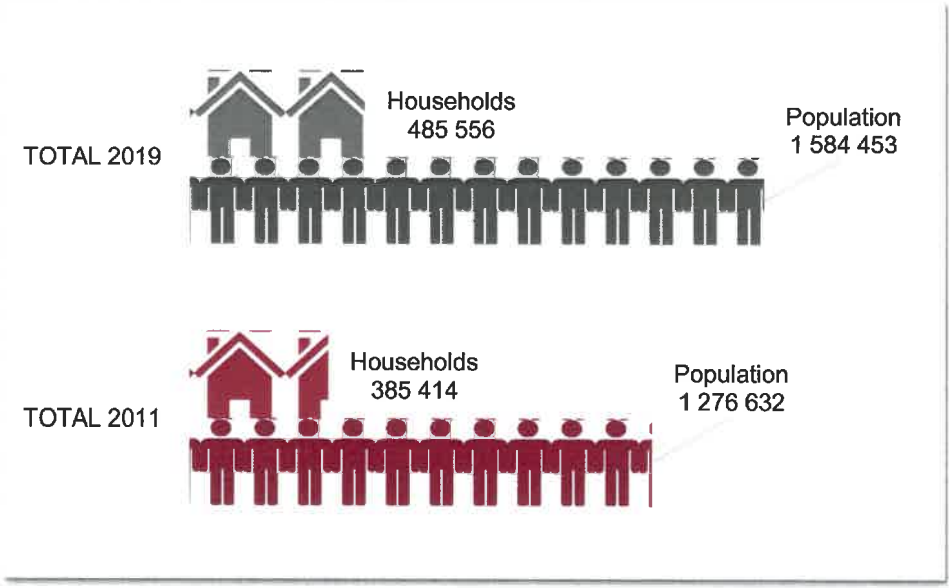
**Based on the new census 2011 figures*
Source: Demacon ex StatsSA, 2019

Findings: (Table 4.1)

- ✓ From Table 4.1 it is estimated that the primary market area (approximated 10 to 30-minute drive time polygon), consists of approximately **1 584 453** people (2019) and **485 556** households (2019) residing in the primary market area.
- ✓ The average household size of the primary market area amounts to **3.3** people per household.

✓ It reflects moderate population densities, in line with surrounding areas.

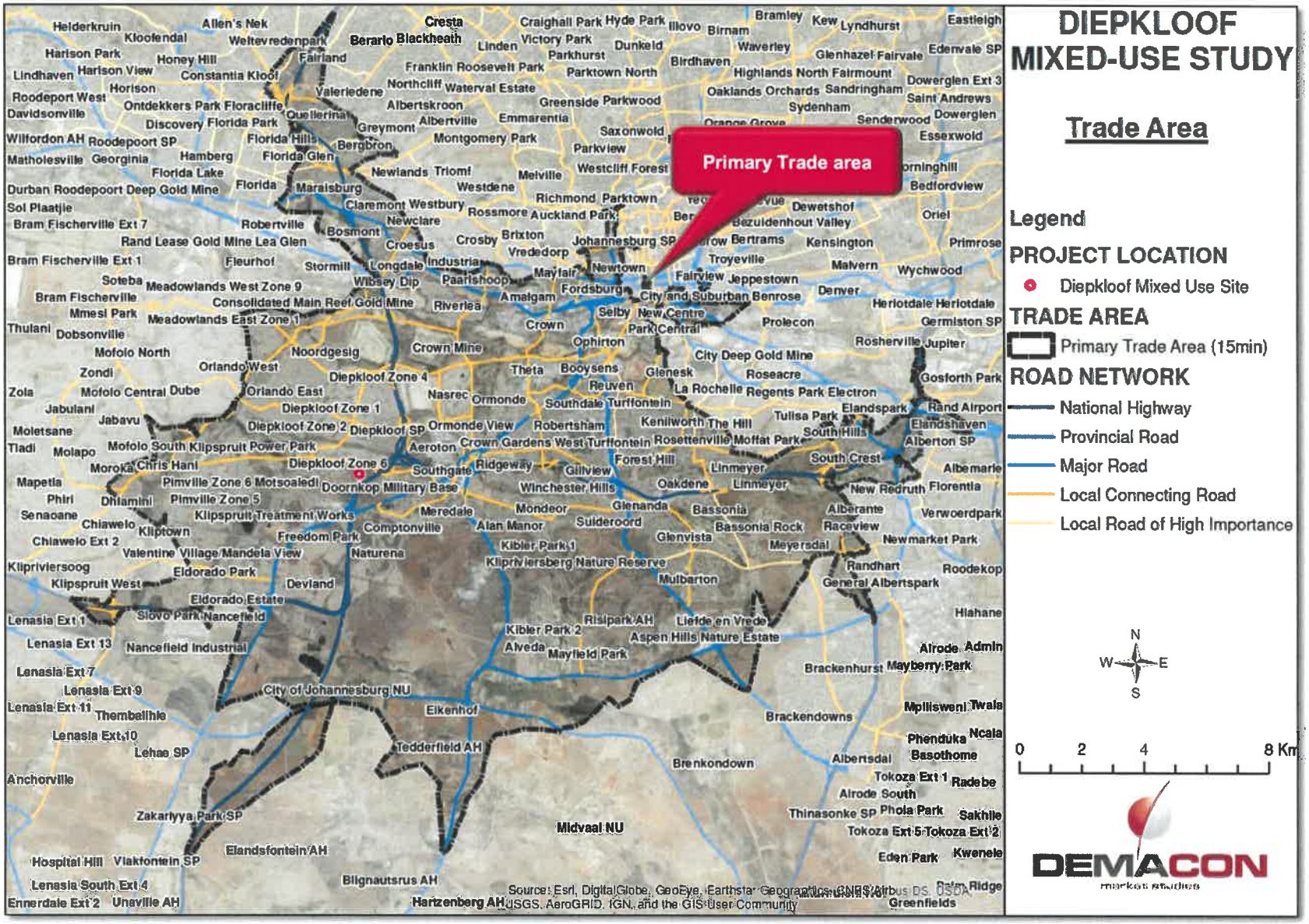
Figure 4.1: Population characteristic of the trade area



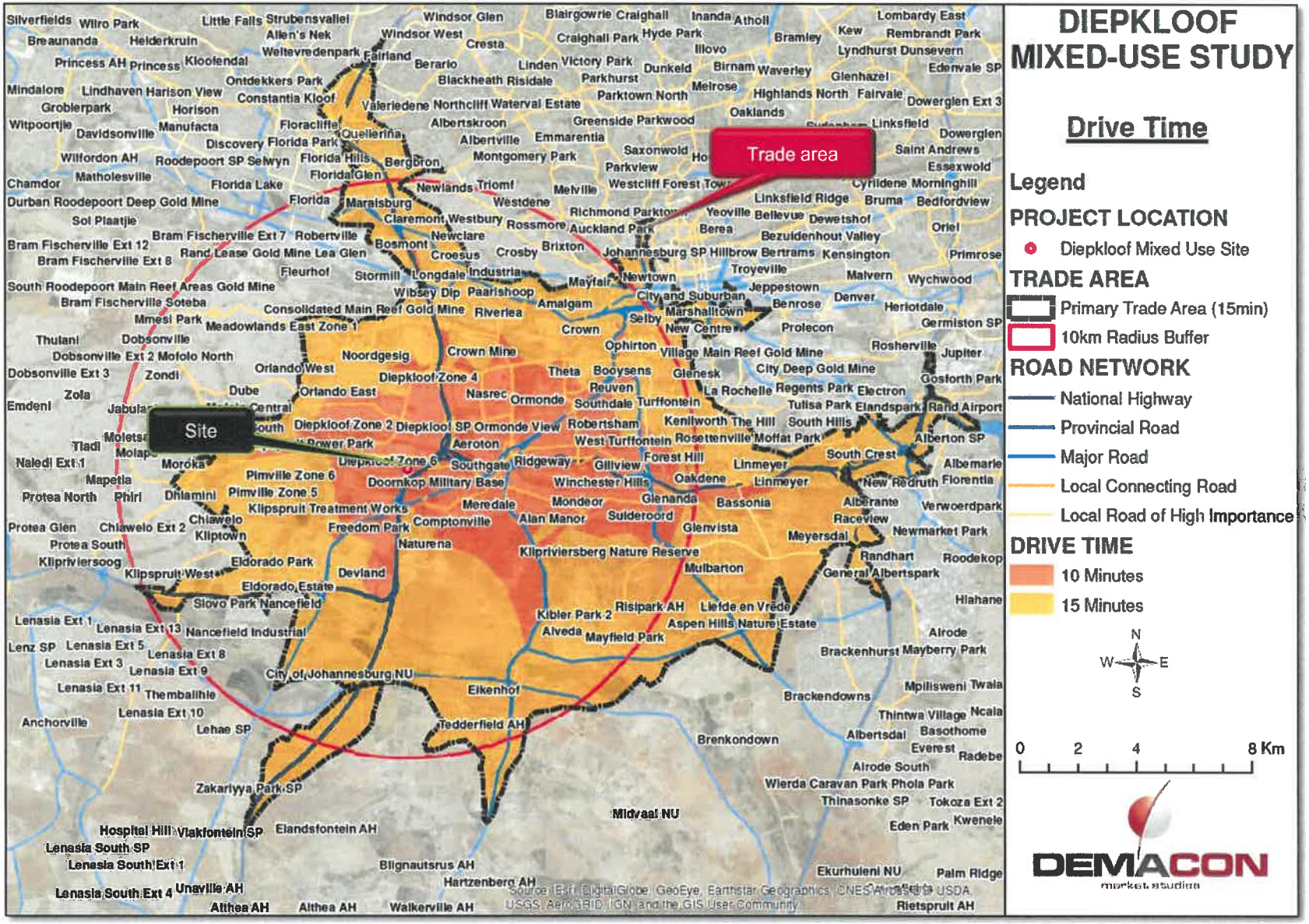
Source: Demacon ex StatsSA, 2019

Map 4.1 to Map 4.4 illustrate the location of the site, the trade area delineation, drive times, population growth and population distribution.

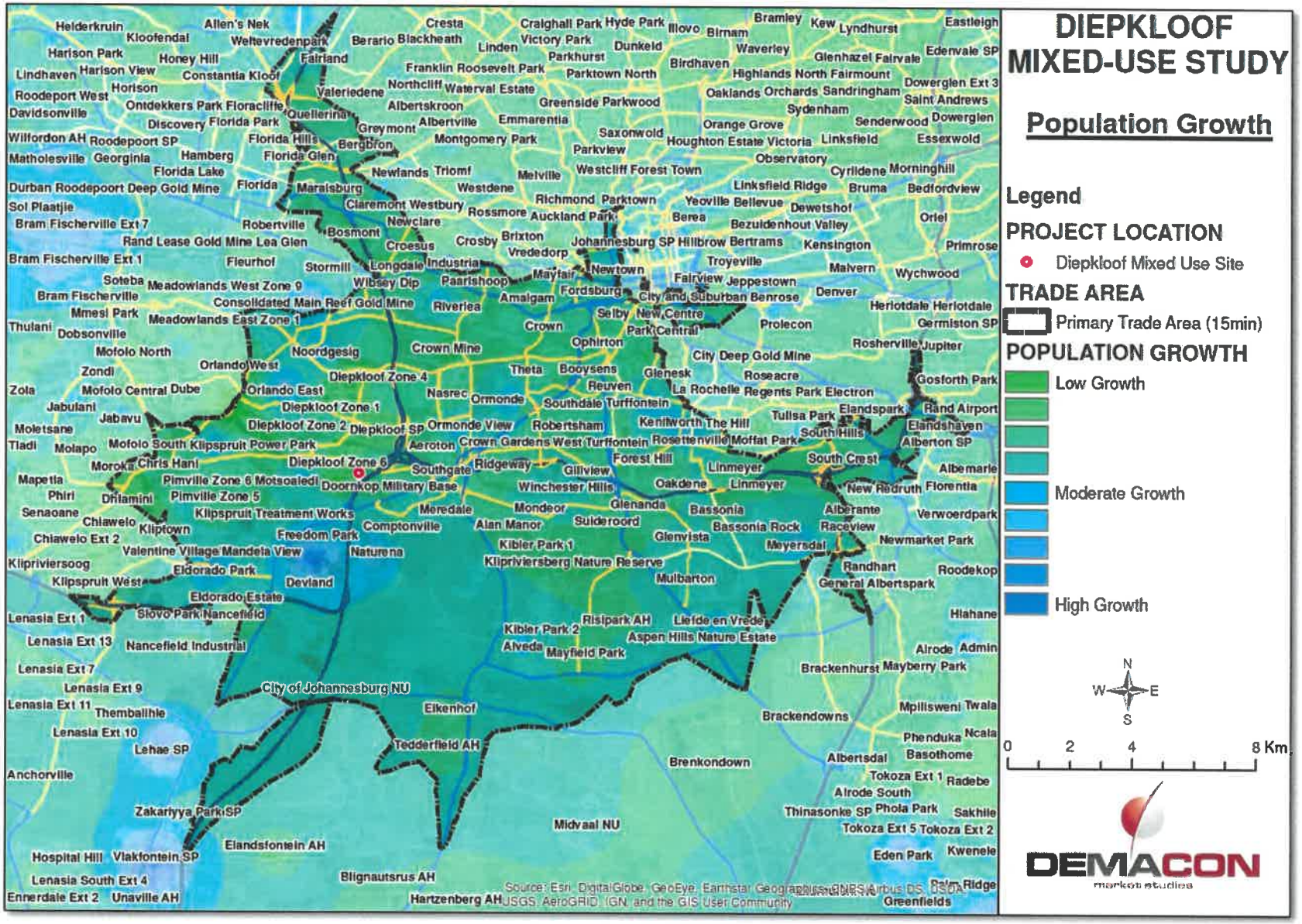
Map 4.1: Site delineation within the primary trade area



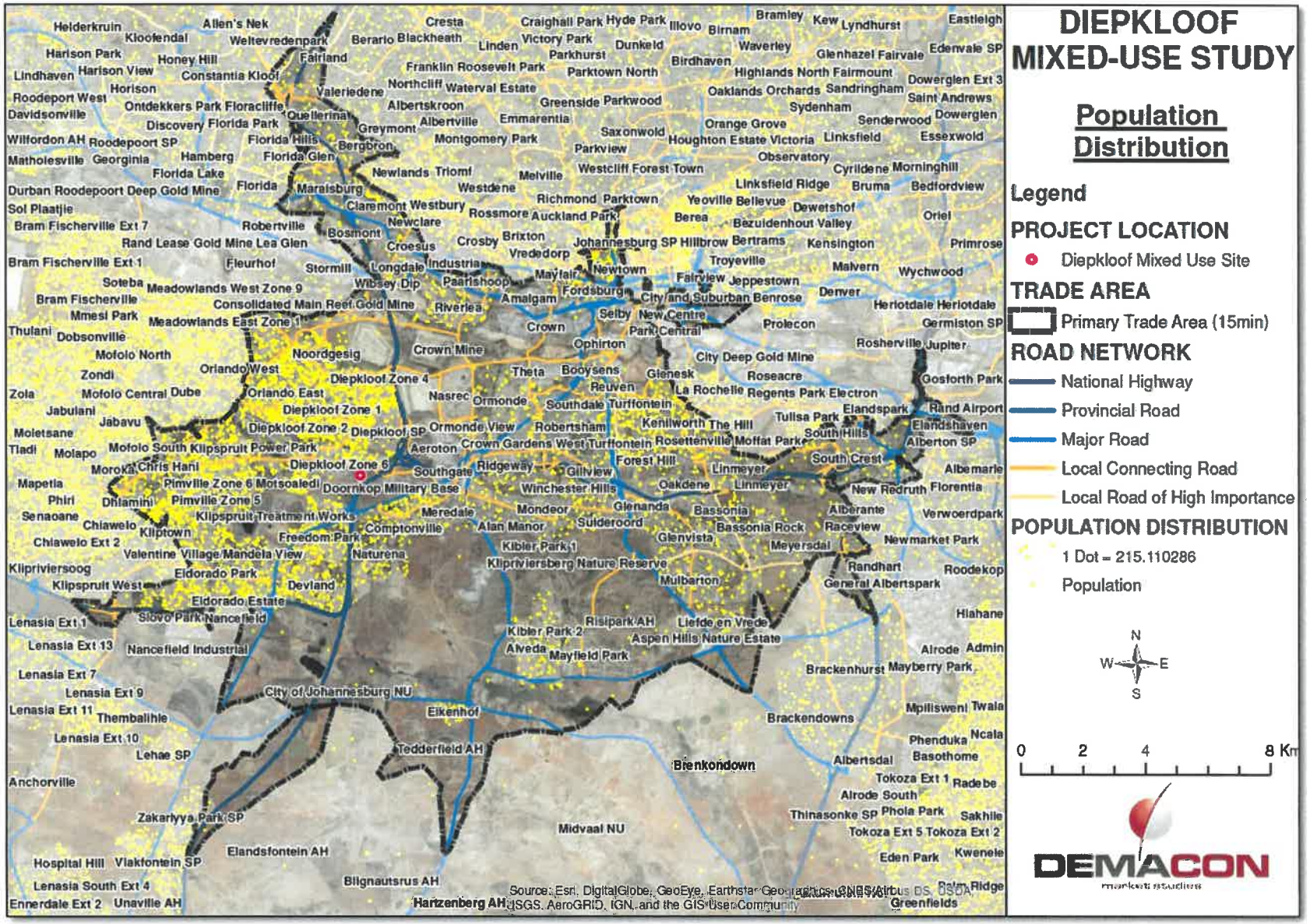
Map 4.2: Indication of site within a 5-minute, 10-min & 15-minute drive time polygons



Map 4.3: Population Growth



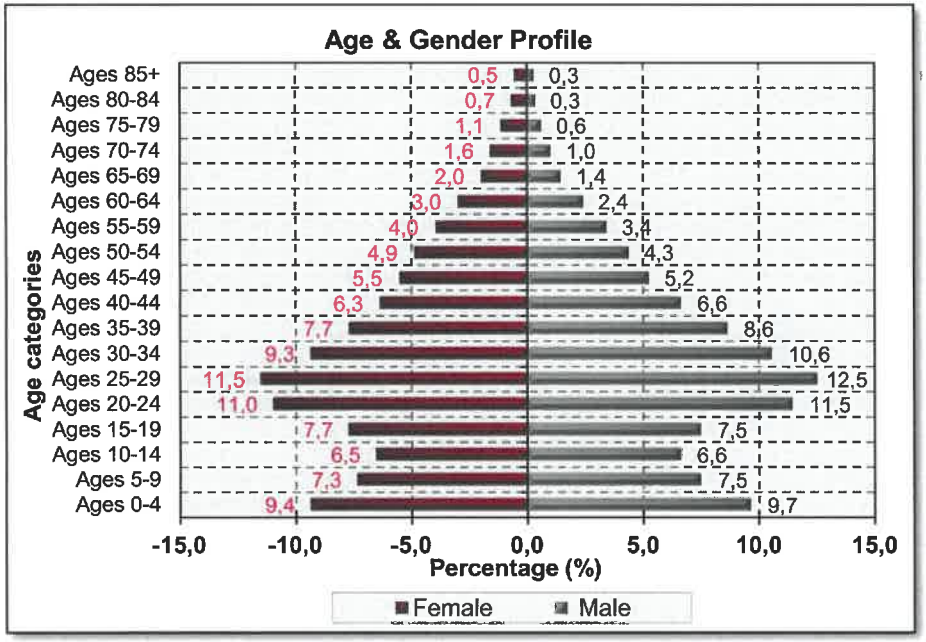
Map 4.4: Population Distribution



4.3 AGE & GENDER PROFILE

The age and gender distribution of a specific area also serves as an important indicator, with reference to consumer demand behaviour and preferences - in particular the dominant age groups. Figure 4.2 illustrates the age and gender profile of the consumer market.

Figure 4.2: Age and Gender Profile



Source: Demacon ex StatsSA, 2019

Findings: (Figure 4.2)

- ✓ The primary market area is characterised by a large segment of young adults and maturing population and children supported by a smaller segment of elderly.
- ✓ The majority of the market area falls within 20 to 40 years' category, which consists of 43.2% of males and 39.5% of females.
- ✓ The second largest grouping of the market falls within 40 – 60 years, which consists of 19.6% of males and 20.7% of females.
- ✓ The third largest grouping falls within the 0 – 9 years, with 17.2% of males and 16.7% of females.
- ✓ The fourth largest grouping falls within 10 – 19 years, with 14.1% of males and 14.2% females.

Development implications

Definition: This entry provides the distribution of the population according to age. Information is included by sex and age group (0-14 years, 15-64 years, 65 years and over). The age structure of a population affects a nation's key socio-economic issues. Countries with young populations (high percentage under age 15) need to invest more in schools, while countries with older populations (high percentage ages 65 and over) need to invest more in the health sector. The age structure can also be used to help predict potential political issues. For example, the rapid growth of a young adult population unable to find employment can lead to unrest.

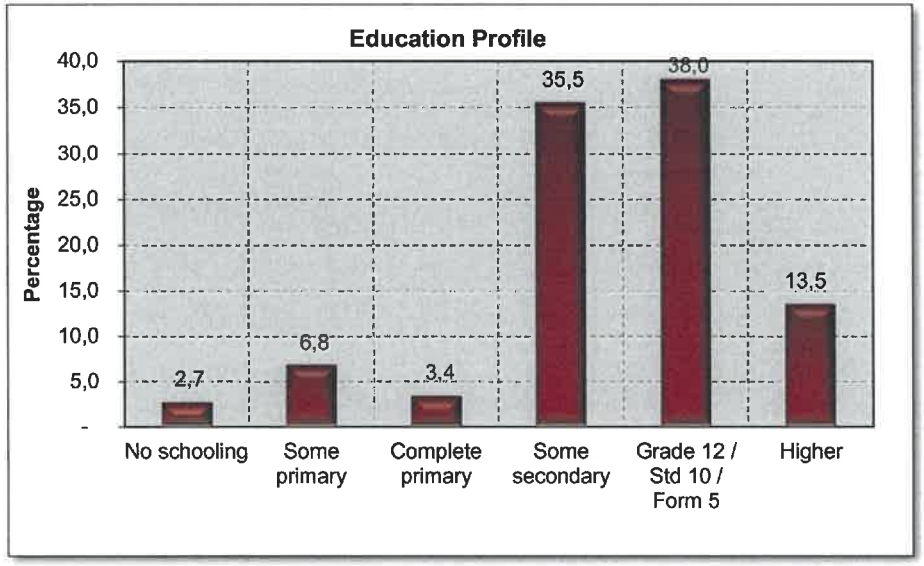
4.4 HIGHEST LEVEL OF EDUCATION

The highest level of education serves as proxy for human development within the consumer market. The level of employment is also an important indicator, impacting on the level of human development as well as on the level of disposable community income. Figure 4.3 indicates the highest level of education of the population in the market.

Findings: (Figure 4.3)

- ✓ The largest portion of the market area (38.0%) has obtained Grade 12 / Std 10, some secondary education (35.5%) and 13.5% has obtained higher education.
- ✓ 6.8% of the market has obtained some primary education and 3.4% complete primary education.
- ✓ 2.7% has no schooling.

Figure 4.3: Highest level of education



Source: Demacon ex StatsSA, 2019

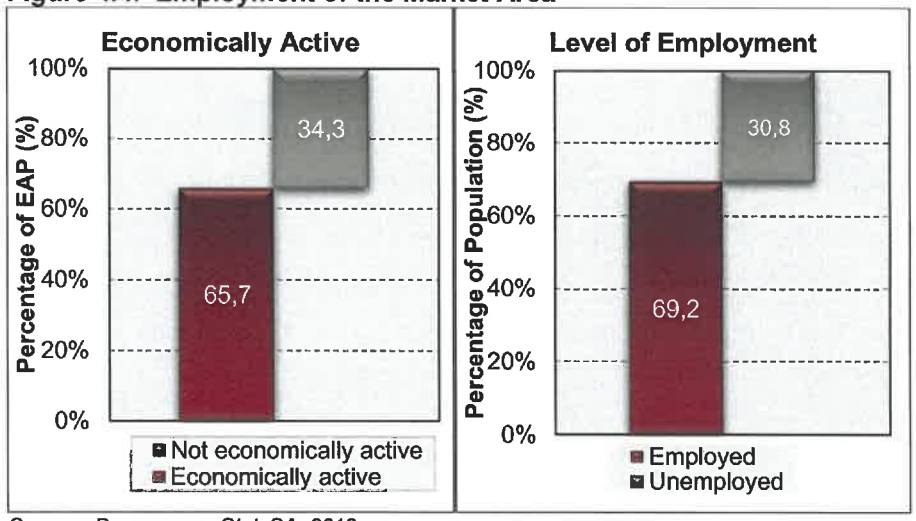
Development Implications

Several factors contribute to the general property development climate in a specific geographical area. Of the socio-economic factors that provide an initial indication of market potential are levels of education and standards of living. A moderate segment of the adult market population is educated, and it is anticipated that this will be reflected in the employment and overall living standard profile of the market. In the market, the higher education segment amounts to **13.5%.** According to Census 2011, the percentage of people aged 20 or older who have higher education increased from 8.4% in 2001 to 12.1%. The number of those who matriculated increased from 20.4% to 28.5%. Those who had no schooling at all decreased from 17.9% to 8.6%. http://www.southafrica.info/about/facts.htm#.UclhoZx3fwI#ixzz2XDbeVKs4

4.5 EMPLOYMENT STATUS

Employment is the primary means by which individuals who are of working age may earn an income that will enable them to provide for their basic needs. As such, employment and unemployment rates are important indicators of socio-economic well-being. The level of employment also impacts on the disposable income patterns of the market area and is indicative of dependency ratios. (Refer to Figure 4.4).

Figure 4.4: Employment of the Market Area



Source: Demacon ex StatsSA, 2019

Findings:(Figure 4.4)

- ✓ 65.7% of the market area population is economically active within the market area.
- ✓ The not economically active population (34.3%) represents children, the youth, the elderly and the disabled that are not able to be employed.
- ✓ Of the economically active segment of the population in the market area, 69.2% are currently employed, whereas 30.8% are unemployed.

Development Implications

The trade area enjoys moderate levels of employment – 65.7% of being economically active and more than 65.0% employed. This is indicative of low dependency ratios and middle-income communities.

Unemployment rate by province:

In terms of the latest Quarterly Labour Force Survey of StatsSA for 2018Q2, the official unemployment rate increased by 0,5 of a percentage point in Q2: 2018 compared to Q1: 2018. The official unemployment rate increased in five of the nine provinces. The largest increase in the unemployment rate was recorded in Free State (up by 1,6 percentage points), Gauteng (up by 1,1 percentage points), and Western Cape (up by 1,0 percentage point). Year-on-year, the official unemployment rate declined by 0,5 of a percentage point. The largest declines were recorded in KwaZulu-Natal (2,2 percentage points), followed by Northern Cape (1,6 percentage points) and Limpopo (1,5 percentage points). Compared to Q1: 2018, the expanded unemployment rate increased by 0,5 of a percentage point in Q2: 2018 to 37,2%. The largest increases were recorded in Free State (1,7 percentage points) and North West (1,6 percentage points), followed by Northern Cape (1,4 percentage points). Compared to Q2: 2017, the expanded unemployment rate also increased by 0,6 of a percentage points, with Gauteng recording the largest increase of 1,5 percentage point.

Source: Quarterly Labour Force Survey, Quarter 2, 2018

Table 4.3: Unemployment rate by province

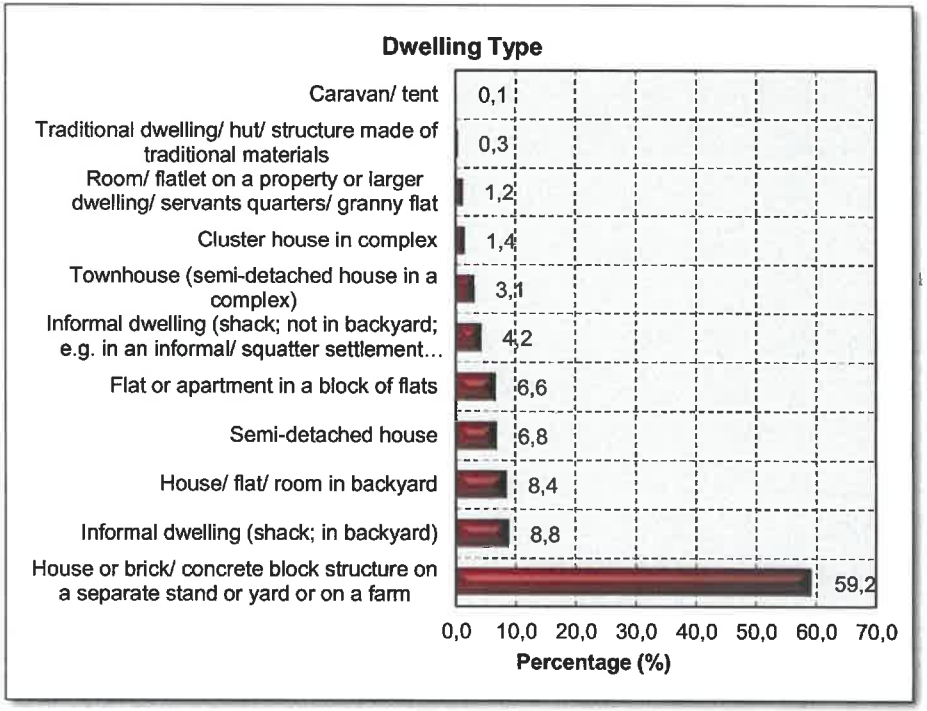
	Official unemployment rate					Expanded unemployment rate				
	Apr-Jun 2017	Jan-Mar 2018	Apr-Jun 2018	Qtr-to-qtr change	Year-on-year change	Apr-Jun 2017	Jan-Mar 2018	Apr-Jun 2018	Qtr-to-qtr change	Year-on-year change
	Per cent			Percentage points		Per cent			Percentage points	
South Africa	27,7	26,7	27,2	0,5	-0,5	36,6	36,7	37,2	0,5	0,6
Western Cape	20,7	19,7	20,7	1,0	0,0	24,6	22,5	23,2	0,7	-1,4
Eastern Cape	34,4	35,6	34,2	-1,4	-0,2	44,5	46,0	45,8	-0,2	1,3
Northern Cape	30,5	29,5	28,9	-0,6	-1,6	45,3	41,0	42,4	1,4	-2,9
Free State	34,4	32,8	34,4	1,6	0,0	40,5	38,4	40,1	1,7	-0,4
KwaZulu-Natal	24,0	22,3	21,8	-0,5	-2,2	40,4	40,6	40,9	0,3	0,5
North West	27,2	25,8	26,1	0,3	-1,1	42,0	41,8	43,4	1,6	1,4
Gauteng	29,9	28,6	29,7	1,1	-0,2	32,9	33,6	34,4	0,8	1,5
Mpumalanga	32,3	32,4	33,2	0,8	0,9	41,4	42,5	41,7	-0,8	0,3
Limpopo	20,8	19,8	19,3	-0,6	-1,5	37,1	37,6	37,4	-0,2	0,3

The unemployment rate of **Gauteng Province** for the second quarter of 2018 was approximately ***29.7%.***

4.6 DWELLING TYPES

The following table indicates the different dwelling types of the population in the market area.

Figure 4.5: Dwelling Type



Source: Demacon ex StatsSA, 2019

Findings: (Figure 4.5)

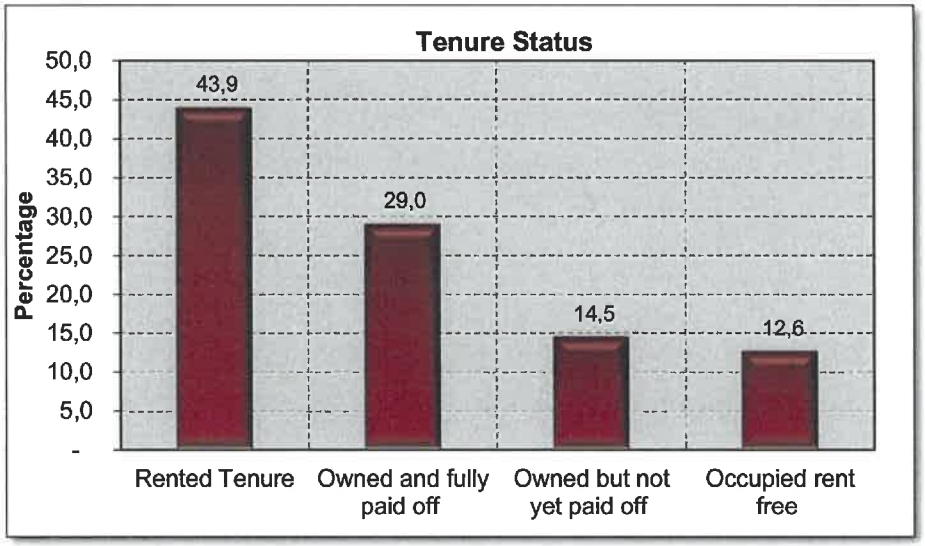
- ✓ The majority of the population in the primary market area (59.2%) is occupying a house of brick structure on a separate stand or yard or on a farm followed by 8.8% an informal dwelling (shack in backyard).

✓ 8.4% of the population occupies a flat / room in backyard and 6.8% a semi-detached house.

4.7 TENURE STATUS

The following figure indicates the type of tenure of the population in the market area in terms of a residence that is owned and fully paid off, a residence owned but not yet paid off, rented and occupied rent-free.

Figure 4.6: Type of tenure



Source: Demacon ex StatsSA, 2019

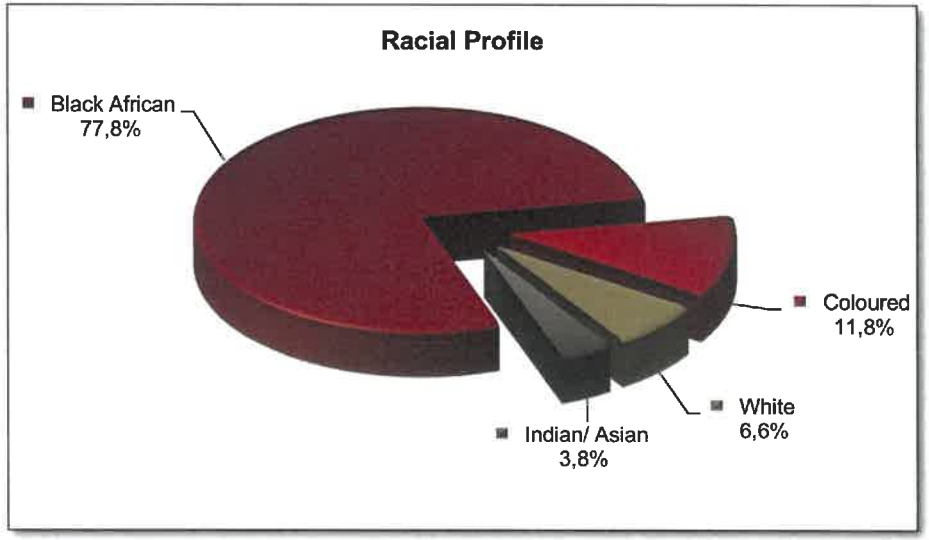
Findings: (Figure 4.6)

✓ The majority of the population (43.9%) in the primary market area is renting a residence.
✓ 29.0% owns a residence which is fully paid off in relation to 14.5% who owns a residence which is not fully paid off yet.
✓ 12.6% of the population is occupying a residence rent-free.

4.8 RACE PROFILE

indicates the racial distribution of the primary trade area population. The racial distribution will also impact on the commercial behaviour of the consumer market and will impact on the preferences and demand for commercial and residential products and services.

Figure 4.7: Race Profile



Source: Demacon, ex Statssa, 2018

Findings: (Figure 4.7)

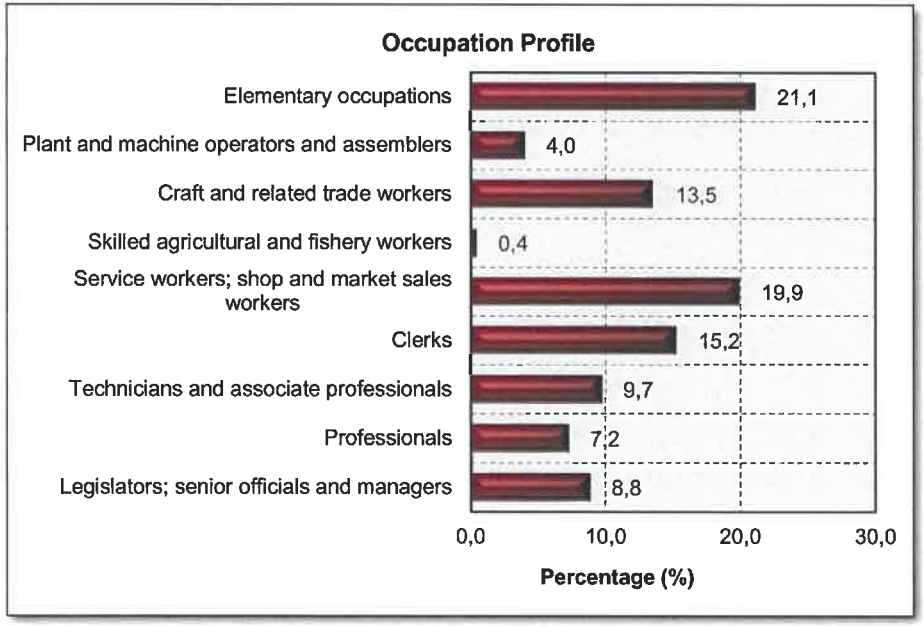
✓ The dominant segment (77.8%) in the primary market area is Black Africans, 11.8% Coloured, 6.6% White and 3.8% Indian / Asian.

4.9 OCCUPATION PROFILE

The occupation profile is an important indicator of anticipated community income, serving as proxy for the level of community wealth and stability. The presence of white and blue-collar occupations serves as indication of a higher

income profile or lower income profile consumer market. Figure 4.8 indicates the occupation profile of the consumer market.

Figure 4.8: Occupation profile



Source: Demacon, ex Statssa, 2018

Findings: (Figure 4.8)

The figure indicates the dominant type of occupations occupied by the market segments.

- ✓ Elementary occupations – 21.1%
- ✓ Service workers; shop and market sales workers – 19.9%
- ✓ Clerks – 15.2%
- ✓ Craft and related trades workers – 13.5%
- ✓ Smaller percentages of technicians and associate professionals (9.7%), legislators; senior officials and managers (8.8%), professionals (7.2%) and plant and machine operators and assemblers (4.0%) are present in the market.

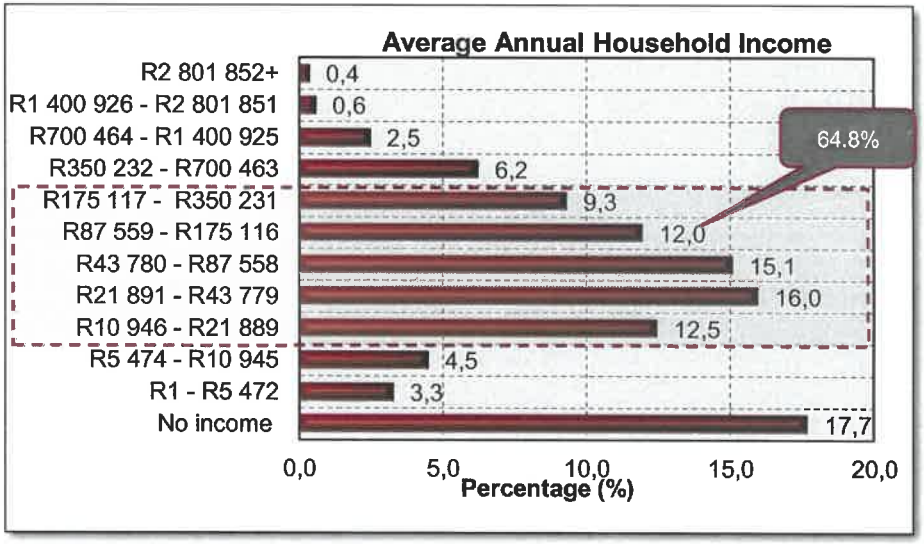
Development implications

The occupation profile reflects two dominant market segments – one segment representing white collar occupations, serving as proxy for higher incomes, with the other representing blue-collar occupations serving as proxy for middle income earners. These findings correlate with the findings of preceding paragraphs pertaining to aspects such as level of education and employment.

4.10 ANNUAL HOUSEHOLD INCOME

Average household income is a direct indicator of consumer demand for a broad spectrum of economic goods and services and the quantity of additional floor space that could be sustained by a given consumer market. Average household income, to an extent, also reflects the living standard of a household, and influences aspects such as asset ownership. Figure 4.9 illustrates the annual household income profile of the market.

Figure 4.9: Average annual household income



Source: Demacon ex StatsSA, 2019
**Based on the new census 2011 income categories and 2011 figures*
Note: The income profile presents the income-defined segment of the market i.e. excluding households within the undetermined income category.

Findings: (Figure 4.9)

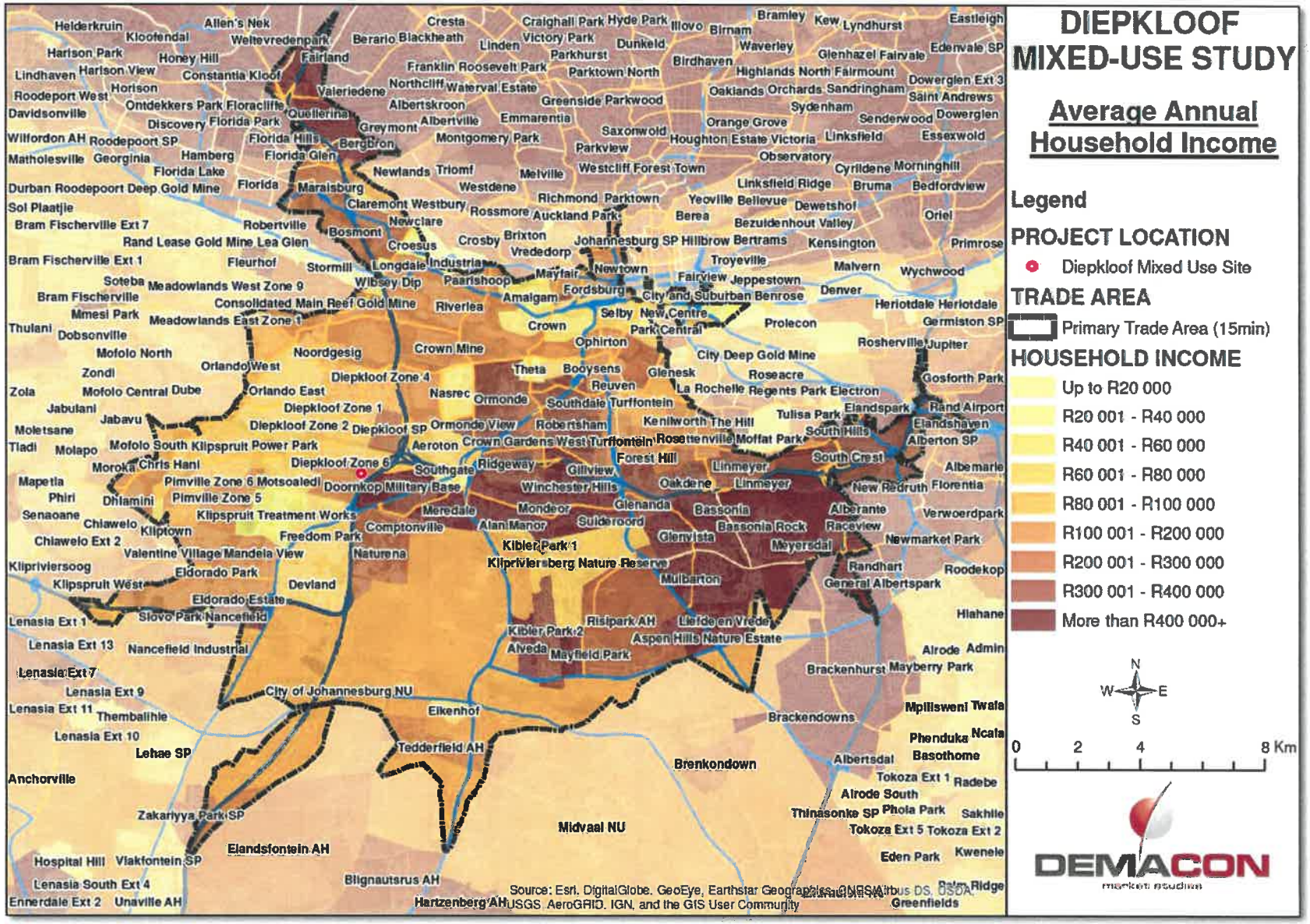
- ✓ The dominant segment (17.7%) of households in the total market area earn no income - some of these suburbs include Orlando East, Devlang, Eldorado Park, Orlando West, Jabavu, Klipspruit and Meadowlands East Zone 1 etc.
- ✓ 16.0% of the households earn between R21 891 – R43 779 followed by 15.1% between R43 780 - R87 558.
- ✓ 64.8% of households in the market earn between R10 946 – R350 231.
- ✓ The **weighted average annual household income** in the market area for 2019 amounts to:
  - **R144 665 per annum,** which translates into **R12 055 per month (All LSM** – this calculation includes the no income segment)
  - **R264 915 per annum,** which translates into **R22 076 per month (LSM 4 to 10+)**

Development Implications

This indicates that the market area is predominantly characterised by a **middle-income earning consumer market**. Overall, these income trends correlate with the findings of the preceding sections and impact directly on the overall living standard measurement of the market.

Subsequent paragraphs indicate the living standard measurement of the market.

Map 4.5: Household Income Profile



4.11 LIVING STANDARD MEASUREMENT

The LSM index is an instrument designed to profile a market in terms of a continuum of progressively more developed and sophisticated market segments. The LSM system is based on a set of marketing differentiators, which group consumers according to their standard of living, using criteria such as degree of urbanisation and ownership of assets (predominantly luxury goods).

The LSM system is a wealth measure based on standard of living, rather than income alone. The market segmentation continuum is divided into ten LSM segments, where LSM 1 signifies the lowest living standard and LSM 10+ signifies the highest living standard. The LSM categories are defined and weighted in terms of the following 29 variables (refer to Table 4.2). It is important to note that the LSM system is widely applied for marketing and branding purposes.

Table 4.2: Living Standard Measurement (LSM) Variables

1	Hot running water	16	Less than 2 radio sets/household
2	Fridge/freezer	17	Hi-Fi/music centre
3	Microwave oven	18	Rural outside
4	Flush toilet in/outside house	19	Built-in kitchen sink
5	No domestic in household	20	Home security service
6	VCR	21	Deep freezer
7	Vacuum cleaner/floor polisher	22	Water in home/plot
8	No cell phone in household	23	M-net/DSTV subscription
9	Traditional hut	24	Dishwasher
10	Washing machine	25	Electricity
11	PC in home	26	Sewing machine
12	Electric stove	27	DVD player
13	TV set	28	1 cell phone per household
14	Tumble dryer	29	Motor vehicle in household
15	Home telephone		

Table 4.3 below summarises the current status of the consumer market in terms of the LSM index. Essentially, the LSM index summarises the net result of market indicators discussed in preceding paragraphs. Th objective is to assess whether minimum demand thresholds can be met by households within the market area sustaining the market potential, taking due cognisance of demand potential and effective competitive supply.

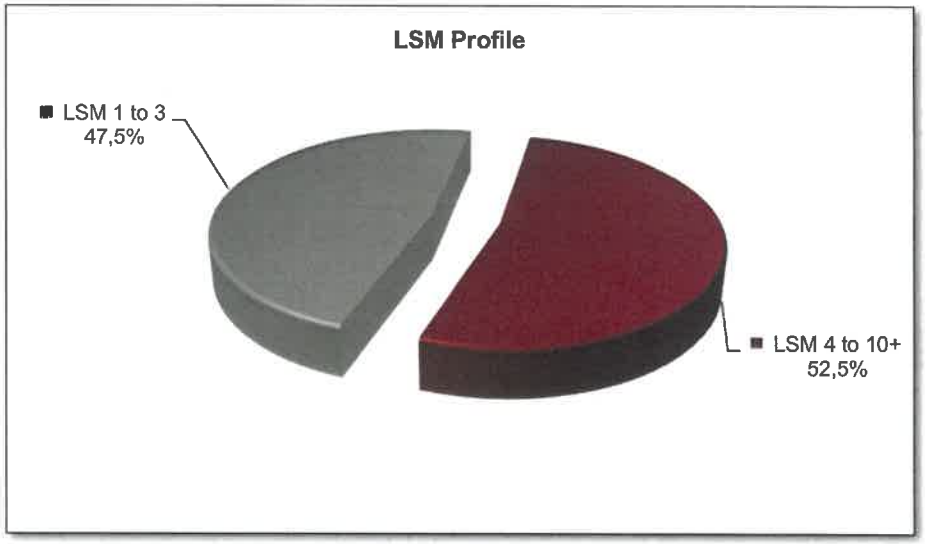
Table 4.3: LSM index summaries

Trade area	LSM 1 to 3	LSM 4 to 10+
Primary Market Area	57.5%	42.5%

Source: Demacon ex Statssa, 2019

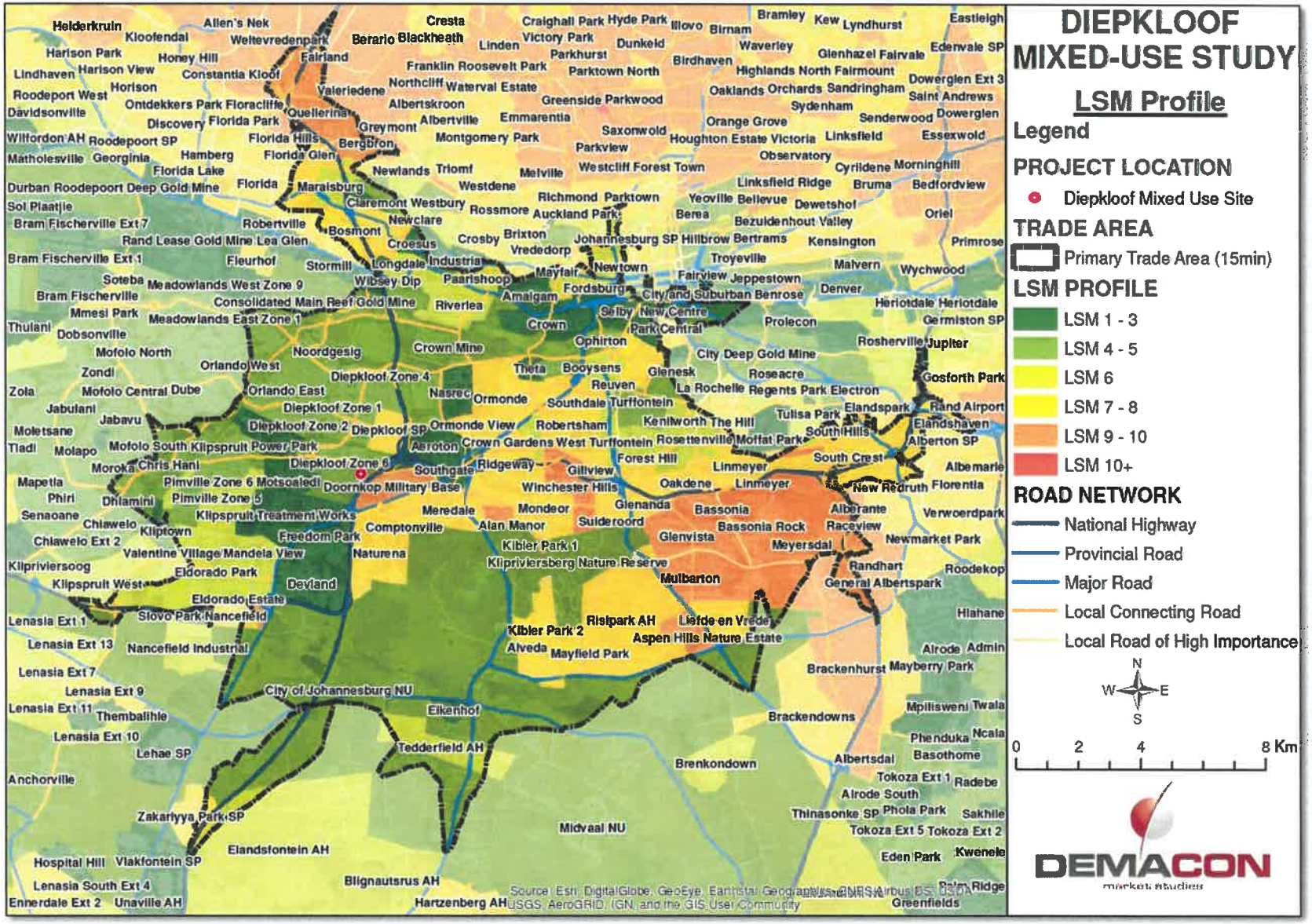
Findings: (Table 4.3)
As seen from the table above, 57.5% of the households in the market area fall within the LSM 1 to 3 category and 42.5% within LSM 4 to 10+ category.

Figure 4.10: LSM Profile



Source: Demacon, 2019

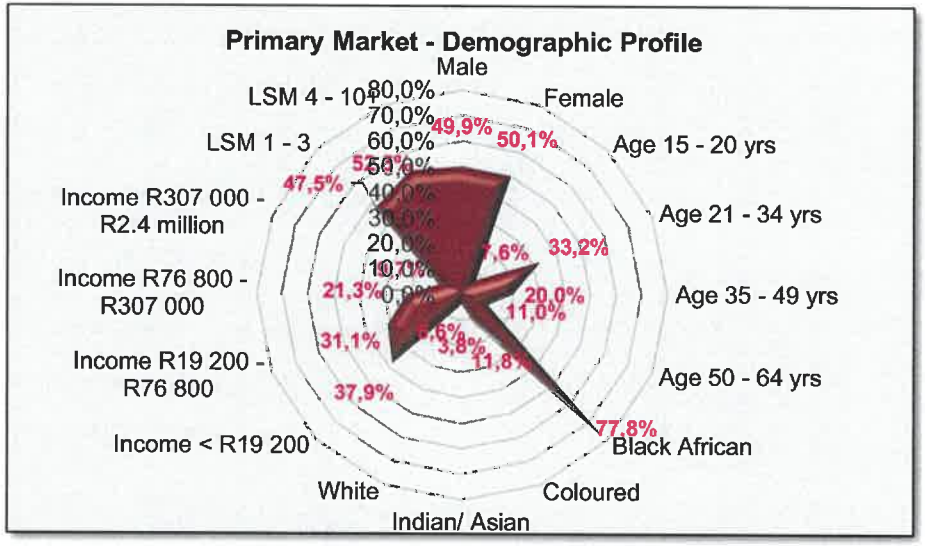
Map 4.6: LSM Profile



4.12 DEMOGRAPHIC PROFILE SUMMARY & GENERATION PROFILE

The following diagram summarises the demographic profile of the primary catchment.

Figure 4.11: Demographic Profile Primary Catchment



Source: Demacon, 2019

Consumer Segments

Changes have been taking place within shopping centres, largely due to changes in their market segment's life styles. Increased emphasis is being placed on the creation of spaces and atmospheres within malls where people feel comfortable and are encouraged to linger longer. Focus is turned towards the experience and convenience of centres, offering consumers the opportunity to relax and interact with friends and family.

Defining the Consumer Generations

Silent Generation - aged 65 years +. Shaped by major influences including the Great Depression and two world wars. Not surprisingly, this cohort values savings, morals and ethics, and tends to be very patriotic. Family togetherness and conformity are also very important attributes for them.

Baby Boomers - Born immediately after World War ii, now aged between **50 and 64 years**. Influenced in their upbringing by strong economic growth and generally full employment, they are generally considered to be adaptive and flexible. Baby Boomers are regarded as having defined themselves largely by their careers, with a high proportion considered to be workaholics. They are increasingly moving into the retirement phase of their life, but many plan to continue working.

Generation X - Aged between 35 and 49 years. A bridging generation, which joined the workforce generally during periods of economic prosperity (the mid to late 1980s onwards). Generation Xs are highly educated but more questioning of convention than the Baby Boomers. They are also generally more interested in balancing family, life and work, and much less inclined to sacrifice time, energy and relationships for career advancement like the Baby Boomers did.

Millennials - Aged 21 to 34 years. The majority of this generation has never known a world without mobile phones, laptops and cable television. This cohort is the one that tends to cop most criticism at the moment, with labels such as 'used to instant everything', 'believe they can separate effort from reward', 'do not live to work but work to live'. This segment is the most formally educated and most sophisticated of all the generations before it. Detailed research has shown that they are looking for brands that resonate with their peers. They are very image driven and so value, for example, electronic toys, piercings and tattoos. Other research shows that they pay less attention to quality than other generations.

Generation Z – Aged 15 to 20 years. The labels being attached to this generation include 'realistic', 'highly connected' and 'digital natives'. Generation Z s are seen to be wary with their money, having seen their parents lose jobs and their older siblings move back home because housing is so expensive. Via expert use of social media and the internet, they have already become demanding purchasers. They research diligently, are marketing savvy and are much less likely to make impulse purchases. They will find the best deals and will expect to test out products physically or virtually before they commit to buy. Generation Z will, apparently, want brands to show their long-term value.

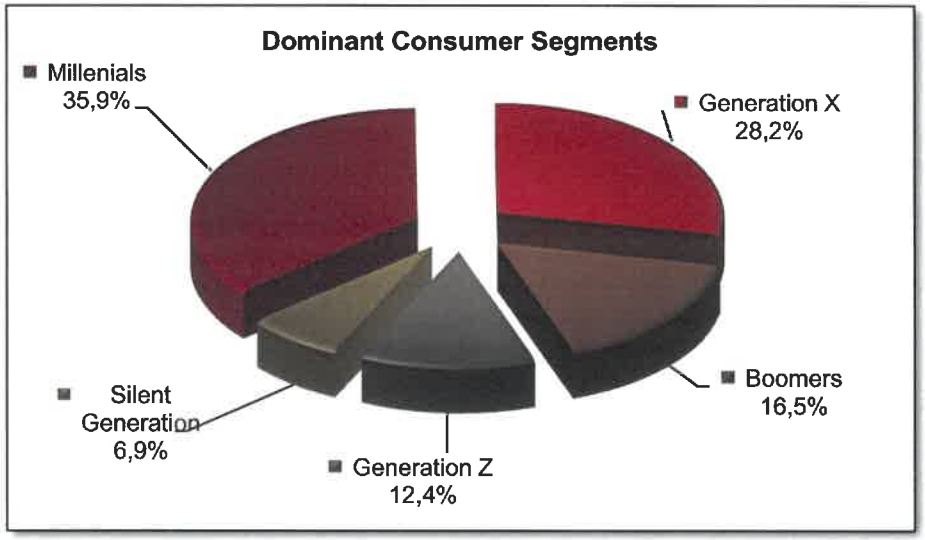
Consumer Market Segments to Consider

The following diagrams reflects the dominant consumer market segments present within the primary trade area. Each of these market segments share similar characteristics and aspirational values.

The important market segments to consider with regards to market, include:

1 **Millennials**
2 **Generation X**
3 **Boomers.**

Figure 4.12: Dominant Consumer Segments



Source: Demacon, 2019

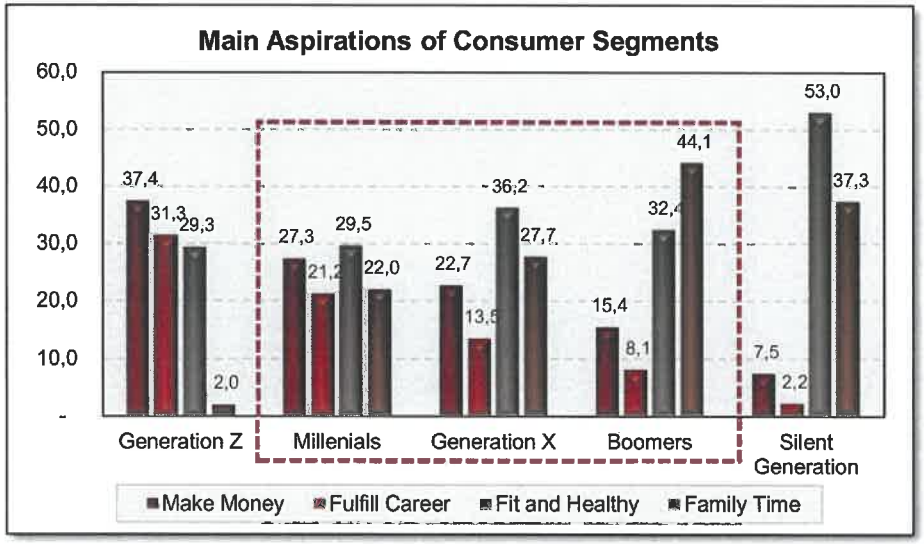
Defining Market Segments & Relation to Retail Environment:

Millennials: Aged 21 to 34 years of age. They represent young people with more choice over what they spend their money on. They crave intuitive experiences and unique entertainment. Their focus is on convenience and price and they reflect lower levels of brand loyalty. They shop for bargains (take part in promotions) and seek inspiration (buy on impulse). They are less purpose driven than the older consumer segments and make use of the entertainment options to spend time with friends. Main purpose for visits to a mall include shopping for clothes, shoes and accessories, followed by groceries and household goods. They also visit restaurants, cafés, spend leisure time and make use of services and entertainment offerings. They prefer not to shop alone. It is anticipated by JLL that they will want the following within shopping centres in future: a variety of smaller niche shops in authentic places where they can eat a variety of foods, drink coffee and hang out with their gadgets, friends and colleagues. This consumer segment is mobile and experience-driven.

Generation X: Aged 35 to 49 years of age. Reflect slightly older more predictable and richer consumer segments. This market segment is relatively fixed, brand loyal and asset-holding. Consumers most often shop for grocery and household goods, followed by clothing, shoes and accessories. They try to spend as much time with their families as possible and largely prefer shopping with family members. They tend to perceive shopping as an obligation and necessity. They do support food courts, cafés and delis while shopping.

Boomers: Aged 50 to 64 years of age. The ageing shoppers look for social interaction and leisure experiences in shopping malls. They seek personal attention, opposed to, speed. They prefer high quality products at good prices. These consumers are wiser, more experienced and have plenty of time for scrutinising products and information gathering before making choices. They place emphasis on security, safe parking areas, mall furniture and a range of places offering them social and leisure experience.

Figure 4.13: Main Aspirations of Consumer Segments



Source: Demacon, Ex. Nielsen, 2016

The three consumer market segments reflect the following main aspirations:

Millennials:

- ✓ Highest aspiration is to be fit and healthy
- ✓ Second aspiration is to make money
- ✓ Third aspiration is to make time for their families.

Generation X:

- ✓ Highest aspiration is to be fit and healthy
- ✓ Second aspiration is to make time for their families
- ✓ Thirdly is to make money (with emphasis on the provision for retirement).

Boomers:

- ✓ Their highest aspiration is to spend time with their families
- ✓ This is followed by the aspiration to be / and stay fit and healthy
- ✓ Thirdly, and to a lesser extent, making money.

All of these market segments places emphasis on being **fit and healthy and to spend time with their families**. Centres providing for facilities where they can fulfil these aspirations will attract the largest share of these segments.

These market segments also reflect lower risks pertaining to over-indebtedness, and much lower impacts to be induced by interest rate hikes. Millennials and Generation X represent higher spenders compared to the Boomers. A strong focus for these segments is towards quality of products and services.

They also reflect higher frequencies of restaurant and fast food visitations compared to that of the Boomers. The Boomers are loyal to the brands that they support, and relatively set in their shopping ways, although not excessively brand conscious.

4.13 SYNTHESIS

The trade area selected for this study is comprised of **15 min drive time** isochrone (refer to Map 4.1). Table 4.4 summarises the key socio-economic indicators for the primary source market, and considers inter alia, the following:

- ✓ Consumer market behaviour and expenditure trends
- ✓ Regional and sub-regional levels of accessibility
- ✓ Geographic barriers
- ✓ Natural catchment areas
- ✓ General consumer mobility patterns and drive times.
- ✓ General SACSC guidelines

Table 4.4: Key socio-economic indicators of the primary trade area, 2018 (approximated 15-minute drive time isochrone)

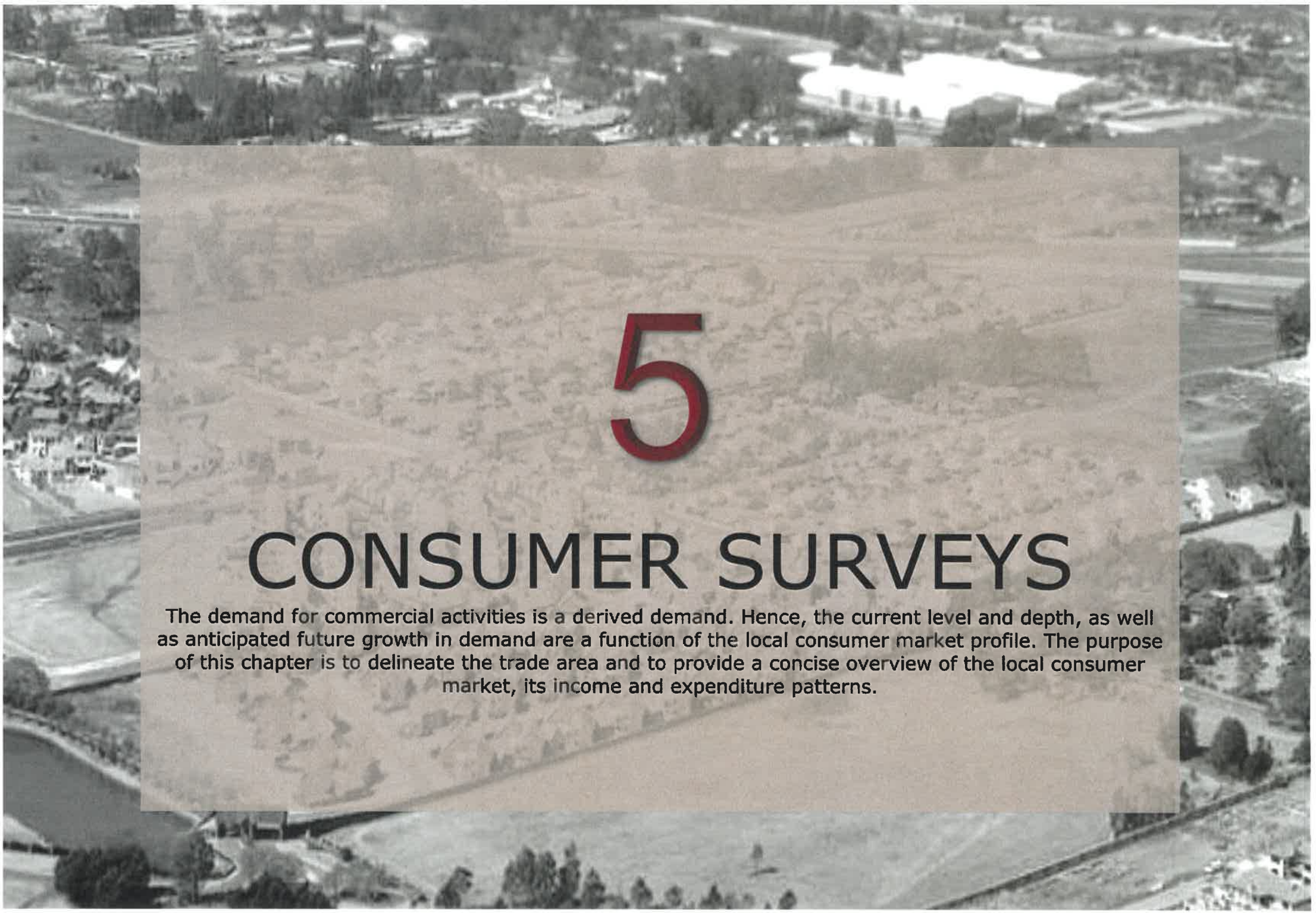
Variable	Market Characteristics
Population Size	1 584 453 people 485 556 households
Household Size	3.3 people / household
Age & Gender Profile	17.2% male, 16.7% female - 0 to 9 years 14.1% male, 14.2% female - 10 to 19 years 43.2% male, 39.5% female - 20 to 40 years 19.6% male, 20.7% female - 40 to 60 years 6.0% male, 8.9% female - 60 years+

Variable	Market Characteristics
Highest Level of Education	2.7% - No schooling 6.8% - Some primary 3.4% - Complete primary 35.5% – Some secondary 38.0% - Std 10/Grade 12 13.5% - Higher
Level of Employment	65.7% Economically active of which 69.2% is employed and 30.8% is unemployed
Dwelling Types	59.2% - House or brick/ concrete block structure on a separate stand or yard or on a farm 8.8% - Informal dwelling (shack; in backyard) 8.4% - House/ flat/ room in backyard 6.8% - Semi-detached house
Tenure Status	43.9% - Rented Tenure 29.0% - Owned and fully paid off 14.5% - Owned but not yet paid off 12.6% - Occupied rent free
Race Profile	77.8% - Black African 11.8% - Coloured 6.6% - White 3.8% - Indian/ Asian
Occupation Profile	21.1% - Elementary occupations 19.9% - Service workers; shop and market sales workers 15.2% - Clerks 13.5% - Craft and related trade workers
Average Household Income (2019)	R144 665 per annum, R12 055 per month – (All LSM) R264 915 per annum, R22 076 per month – (LSM 4 to 10+)
LSM Profile	47.5% - LSM 1 - 3 52.5% - LSM 4 to 10+

Source: Demacon ex StatsSA, 2019

The market profile reveals the following pertinent characteristics:

- ✓ In the primary market, an estimated **1 584 453 people** or **485 556 households** reside within a 15-minute drive time polygon.
- ✓ The primary market area is characterised by a large segment of young adults and children supported by a smaller segment of mature adults and elderly.
- ✓ The **weighted average annual household income** in the market area for 2019 amounts to:
  - **R144 665 per annum,** which translates into **R12 055 per month (All LSM** – this calculation includes the no income segment)
  - **R264 915 per annum,** which translates into **R22 076 per month (LSM 4 to 10+)**
- ✓ ***52.5%*** of households in the primary market area fall within the **LSM 4 and higher** category.



5

CONSUMER SURVEYS

The demand for commercial activities is a derived demand. Hence, the current level and depth, as well as anticipated future growth in demand are a function of the local consumer market profile. The purpose of this chapter is to delineate the trade area and to provide a concise overview of the local consumer market, its income and expenditure patterns.

CONSUMER SURVEYS 5

5.1 INTRODUCTION

Subsequent paragraphs provide survey results to assess the potential for a new mixed-use development located in **Diepkloof, Gauteng Province**. As stated, random sample, perception surveys were performed in the surrounding area, which represents a large captive market for potential buyers.

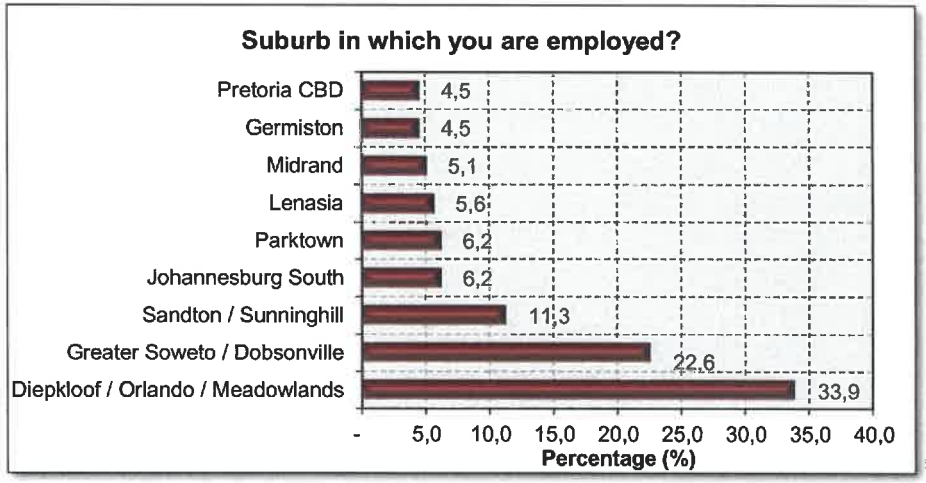
Subsequent paragraphs highlight the findings of the surveys and will be addressed under the following headings

1. Socio-Economic Information
2. Retail Support & Preferences
3. Residential Support & Preferences
4. Perceived Demand for Ancillary Uses
5. Income Profile
6. Synthesis

5.2 SOCIO ECONOMIC INFORMATION

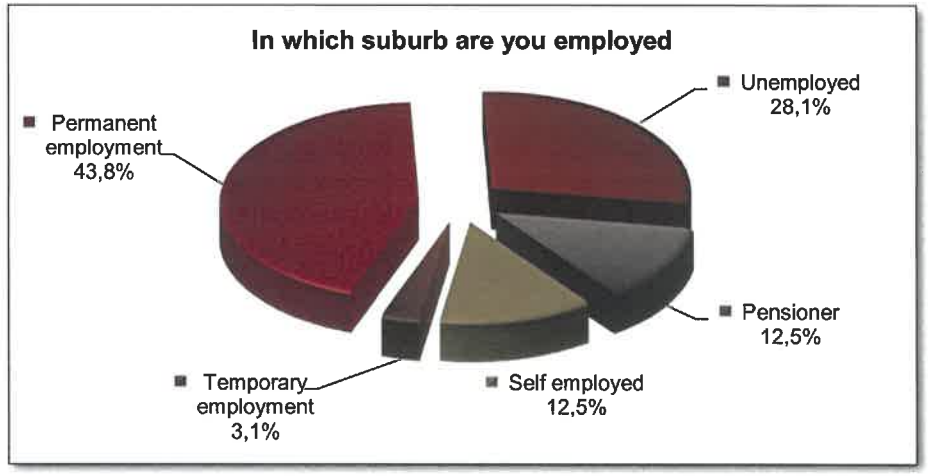
Subsequent paragraphs highlight information regarding suburb / area the respondent work in, how many members in household, breadwinners, current employment status, home language, and a description of their household.

Figure 5.1: In which suburb are you employed



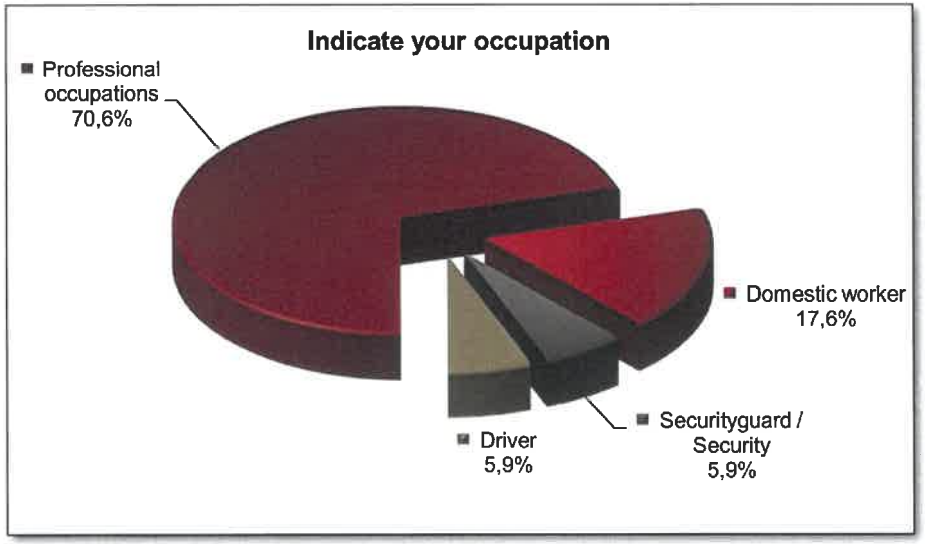
Source: Demacon, Household Survey, 2019

Figure 5.2: Indicate your current employment status



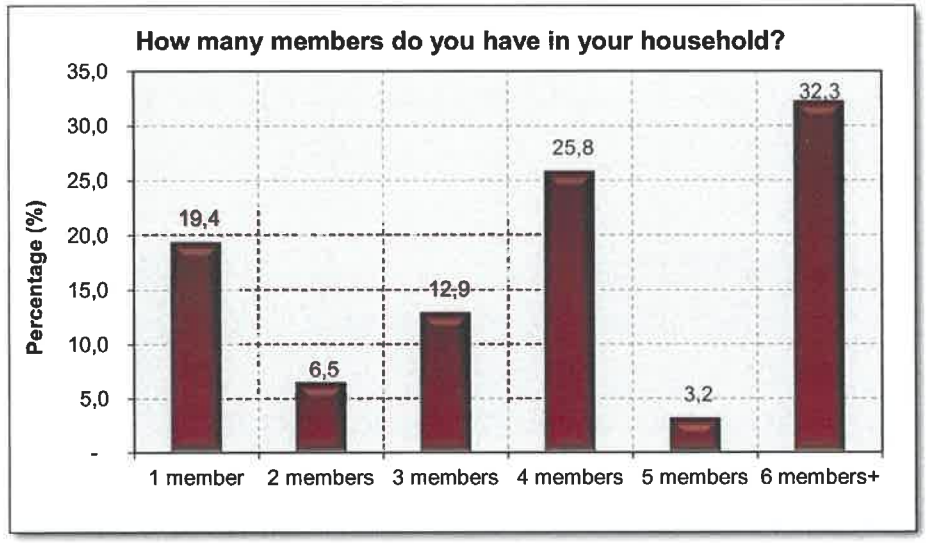
Source: Demacon, Household Survey, 2019

Figure 5.3: Please indicate your occupation



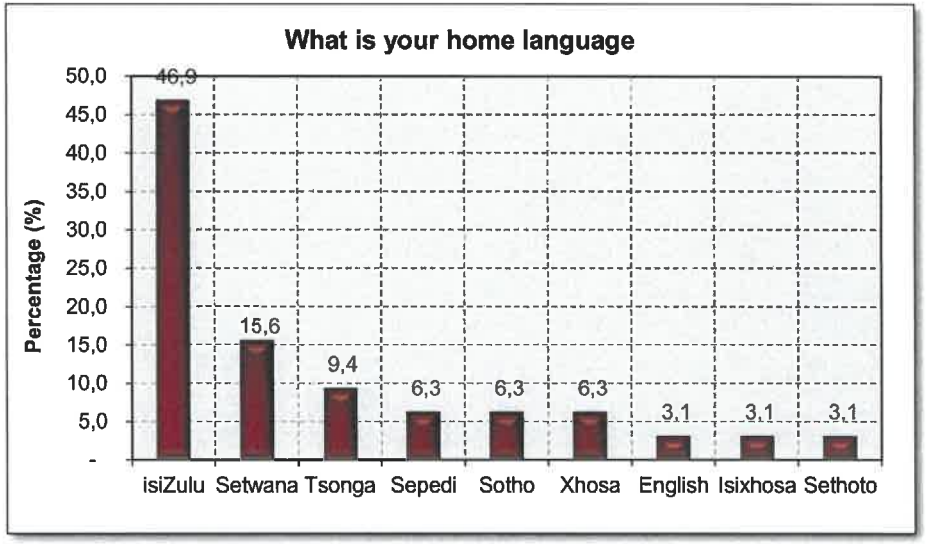
Source: Demacon, Household Survey, 2019

Figure 5.4: How many members do you have in your household *



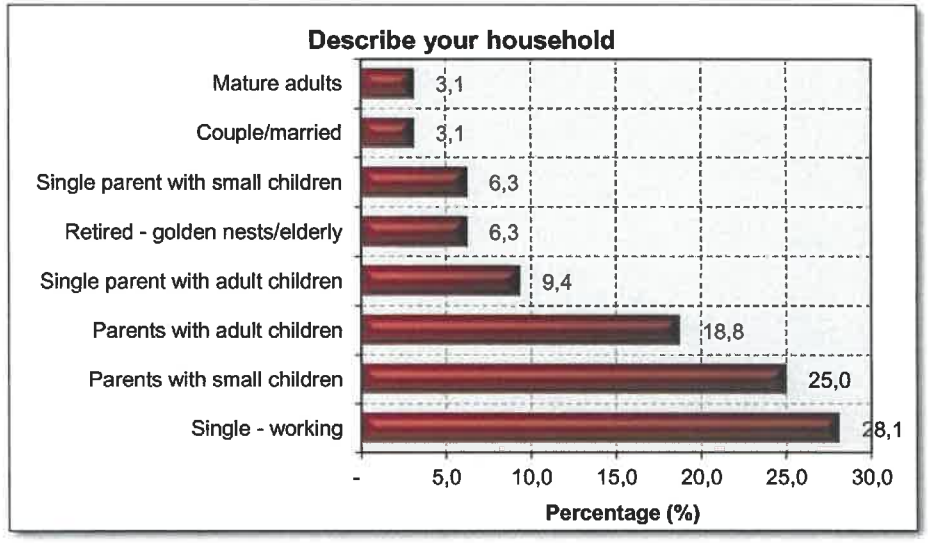
Source: Demacon, Household Survey, 2019

Figure 5.5: Home Language



Source: Demacon, Household Survey, 2019

Figure 5.6: Describe your household



Source: Demacon, Household Survey, 2019

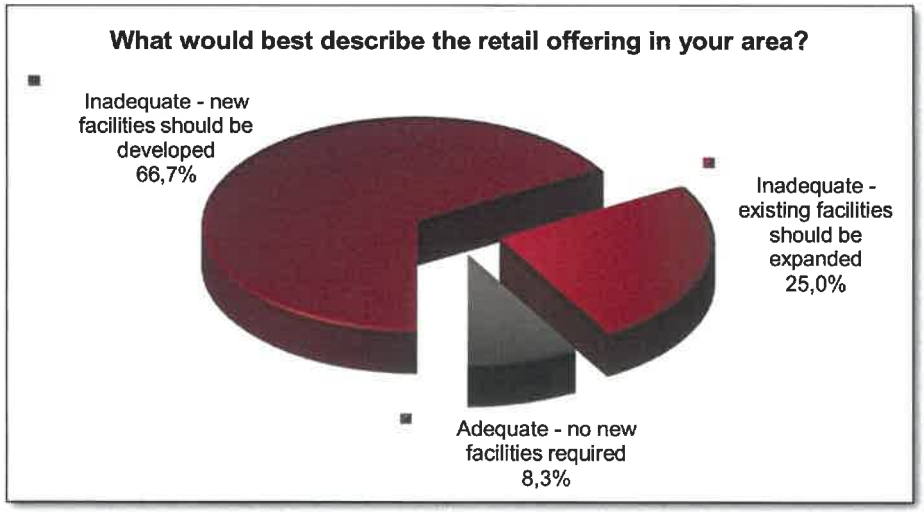
Findings: (Figure 5.1 to Figure 5.6)

- ✓ 43.8% of the respondents are permanently employed and working in Diepkloof / Orlando / Meadowlands areas (33.9%), Greater Soweto / Dobsonville areas (22.6%) and Sandton / Sunninghill (11.3%).
- ✓ The majority of respondents (32.3%) indicated their **household size** is more than 6 members in the household, followed by 4 members (25.8%).
- ✓ 46.9% indicated their **home language** is isZulu, 15.6% Setwana, 9.4% Tsonga and 6.3% Sepedi, Sotho and Xhosa.
- ✓ **Occupation profile** – 70.6% of the respondents is occupied in professional occupations and 17.6% is domestic workers.
- ✓ The majority of respondents **described their household** as:
  - Single – working (28.1%)
  - Parents with small children (25.0%
  - Parents with adult children (18.8%)
  - Single parent with adult children (9.4%)

5.3 RETAIL SUPPORT & PREFERENCES

CURRENT RETAIL EXPENDITURE AND LEAKAGES

Figure 5.7: What would best describe your retail offering

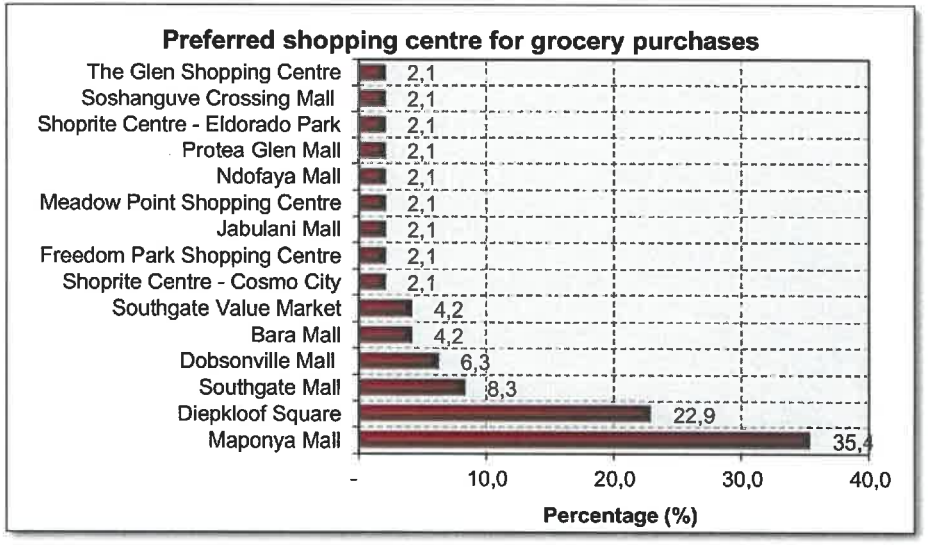


Source: Demacon Household Survey, 2019

Figure 5.8: Need for an additional shopping centre in the Diepkloof area

Source: Demacon Household Survey, 2019

Figure 5.9: Preferred shopping centre for grocery purchases?

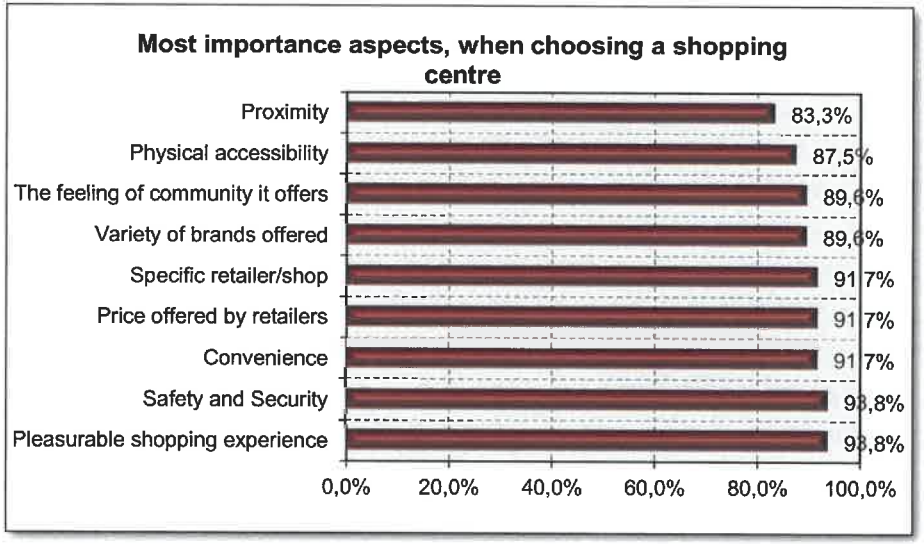


Source: Demacon Household Survey, 2019

Figure 5.10: Preferred shopping centre for clothing and other purchases

Source: Demacon Household Survey, 2019

Figure 5.11: Please rate the importance of the following aspects, when choosing a shopping centre to shop at: *

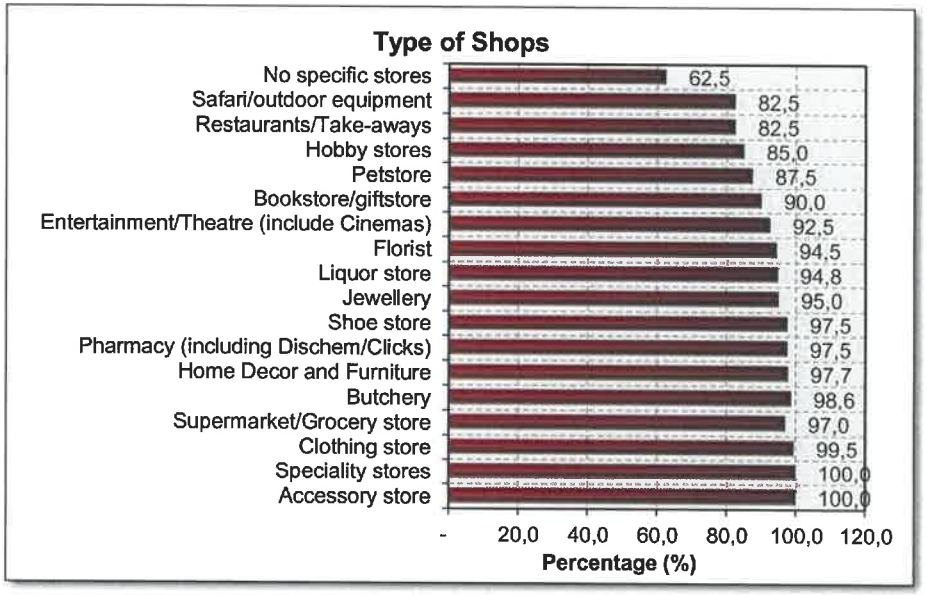


Source: Demacon Household Survey, 2019

Figure 5.12: Would you shop at a new shopping centre if it were built as part of a larger mixed-use precinct?

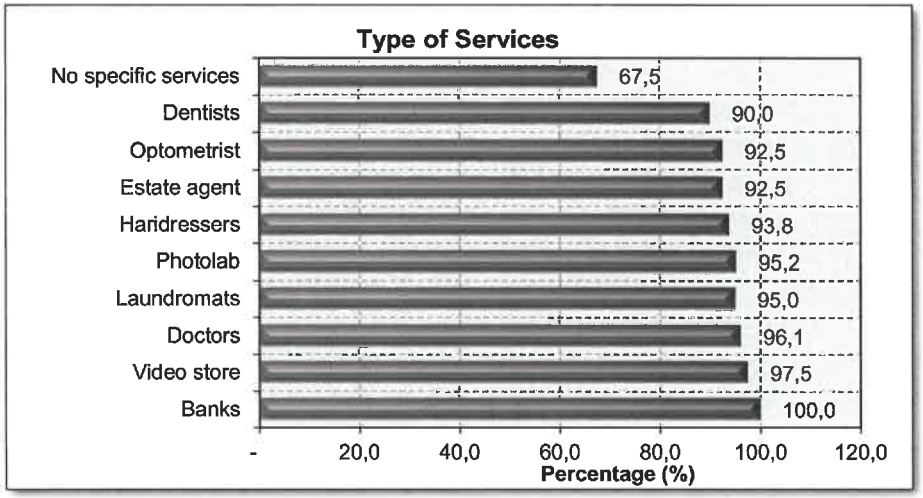
Source: Demacon Household Survey, 2019

Figure 5.13: If YES, what type of SHOPS do you feel are in demand in a new shopping centre?



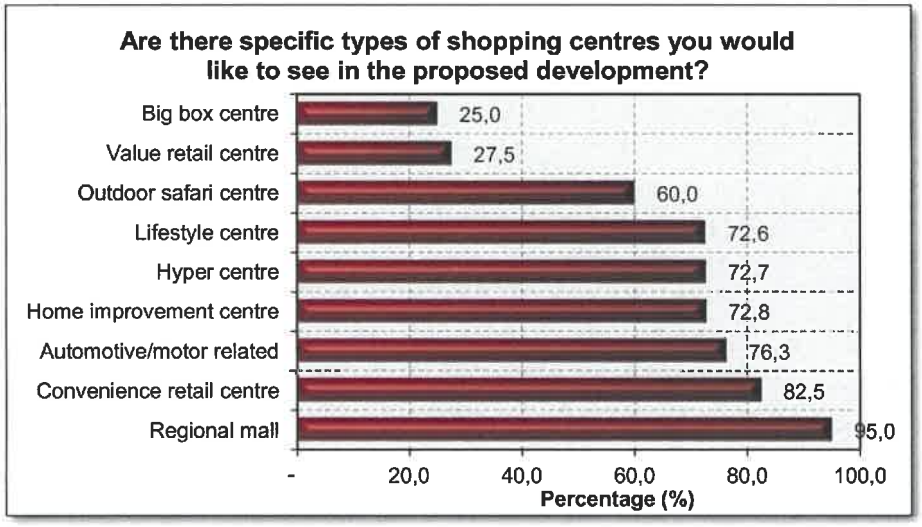
Source: Demacon Household Survey, 2019

Figure 5.14: If YES, what type of SERVICES do you feel are in demand in a new shopping centre?



Source: Demacon Household Survey, 2019

Figure 5.15: In the context of the above, are there specific types of shopping centres you would like to see in the proposed development?



Source: Demacon Household Survey, 2019

Figure 5.16: How would a new retail centre development in the area affect your current shopping behaviour?

Source: Demacon Household Survey, 2019

Findings: (Figure 5.7 to Figure 5.16)

- ✓ The respondents indicated the following regarding the current **retail offering** in the area:
  - Inadequate, new facilities should be built – 66.7%
  - inadequate existing facilities should be expanded – 25.0%
  - adequate, no new facilities required – 8.3%.
- ✓ 77.1% of the respondents indicated that there is a **need for an additional shopping centre**, whereas 22.9% feel there is no need for an additional shopping centre in Diepkloof.
- ✓ The **preferred shopping centre** for purchasing **groceries** include
  - Maponya Mall – 35.4%
  - Diepkloof Square – 22.9%
  - Southgate Mall – 8.3%
  - Dobsonville Mall – 6.3%
- ✓ The **preferred shopping centre** for purchasing **clothing and other** include
  - Maponya Mall – 54.2%

- Diepkloof Square – 10.4%
- Southgate Mall – 8.3%
- The Glen Shopping Centre – 6.3%

✓ The following **aspects are of most importance** to the respondents when **choosing a shopping centre**:
- Pleasurable shopping experience – 93.8%
- Safety and Security – 93.8%
- Convenience – 91.7%
- Price offered by retailers – 91.7%
- Specific retailer/shop – 91.7%

✓ 82.6% of the respondents indicated that they **would shop at the new shopping centre** if it were built as part of the mixed-use precinct.

✓ **Type of shops** the respondents feel there is a demand for includes:
- Accessory store – 100.0%
- Speciality stores – 100.0%
- Clothing store – 99.5%
- Supermarket/Grocery store – 97.0%
- Butchery – 98.6%
- Hone décor & furniture – 97.7%
- Pharmacy – 97.5%

✓ **Type of services the respondents feel there is a demand for includes:**
- Banks – 100.0%
- Videostore – 97.5%
- Doctors – 96.1%
- Laundromat – 95.0%
- Photolab – 95.2%

✓ **Are there specific types of shopping centres you would like to see**
- Regional mall – 95.0%
- Convenience retail centre – 82.5%
- Automotive/motor related – 76.3%
- Home improvement centre – 72.8%
- Hyper centre – 72.7%
- Lifestyle centre – 72.6%
- Outdoor safari centre – 60.0%
- Value retail centre – 27.5%
- Big box centre – 25.0%

✓ **Shopping behaviour**

✓ 61.7% of respondents indicated that their **shopping behaviour** will remain unaffected should a new shopping centre be built, *this could be attributed to the historic dominance of Southgate Mall and the subsequent support of the Soweto residents in view of the absence of sizeable destination retail-orientated centres in the local market.*

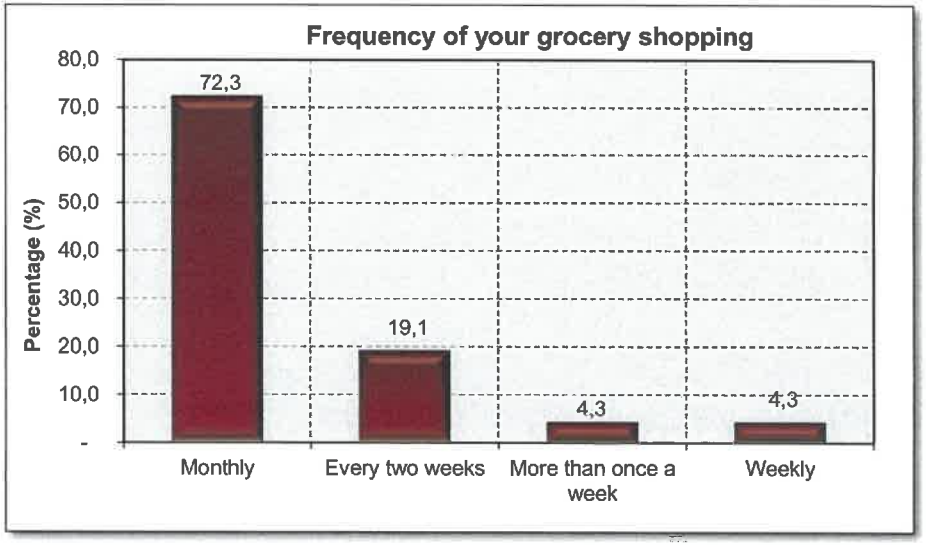
✓ 19.1% of the respondents indicated that they will visit the area more for shopping purposes.

✓ 12.8% of the respondents indicated they will shop less at their previously preferred shopping centres.

The above may indicate the suitability of a smaller initial phase with a more convenience and lifestyle orientated focus.

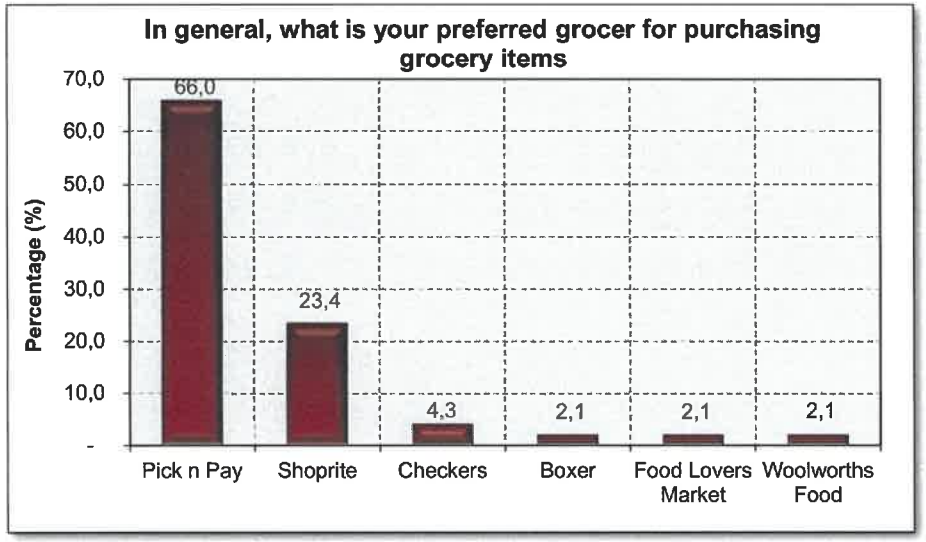
GROCERY ANCHOR PREFERENCES

Figure 5.17: Frequency of your grocery shopping



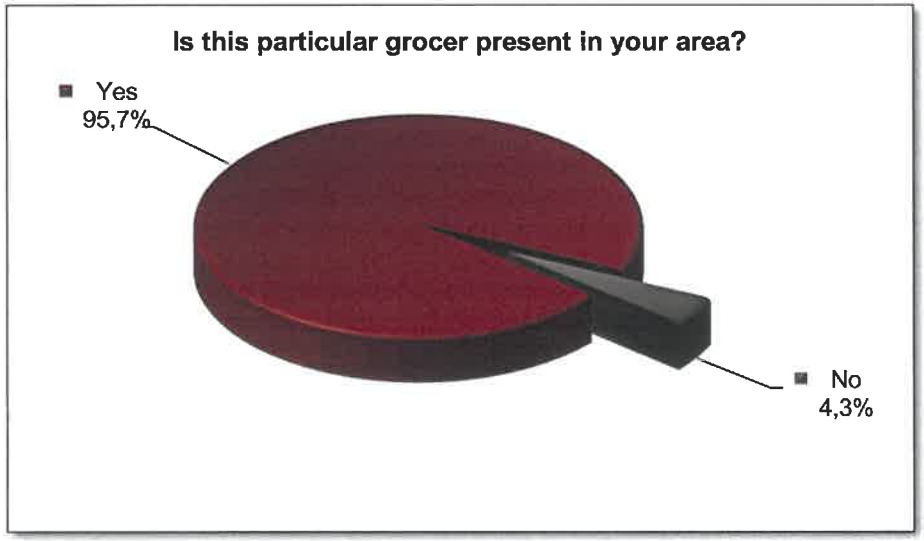
Source: Demacon Household Survey, 2019

Figure 5.18: Preferred grocer



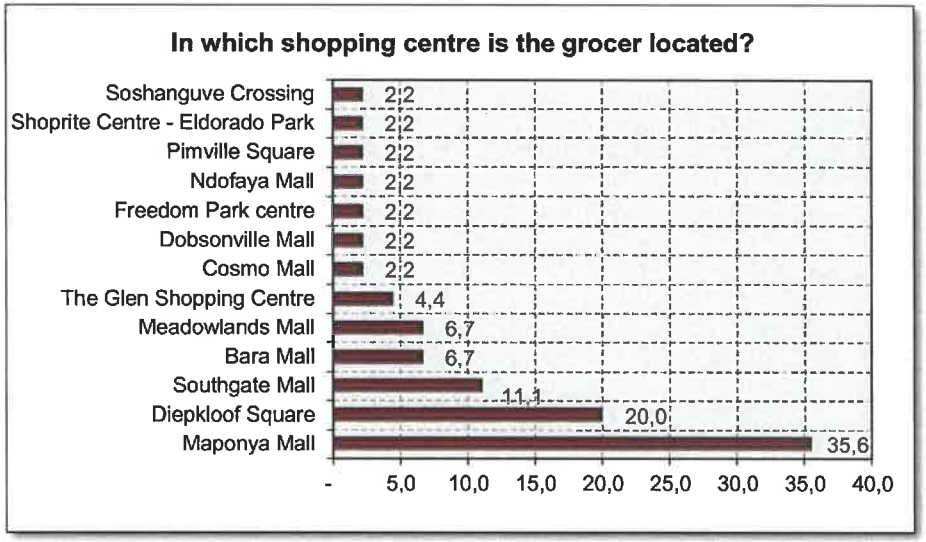
Source: Demacon Household Survey, 2019

Figure 5.19: Is this grocer present in the area



Source: Demacon Household Survey, 2019

Figure 5.20: If yes, in which shopping centre is the grocer located?



Source: Demacon Household Survey, 2019

Findings: (Figure 5.17 to Figure 5.20)

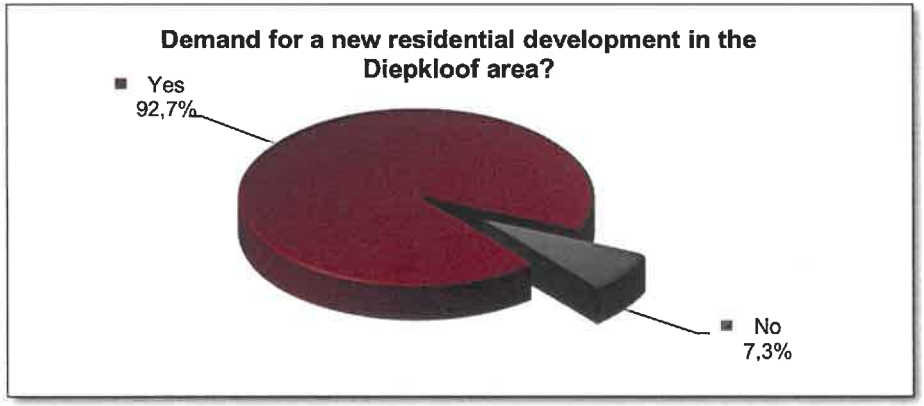
- ✓ Their **frequency of grocery shopping** is conducted on a monthly basis (72.3%) and every two weeks (19.1%), smaller percentages indicate more than once a week or weekly (27.8%).
- ✓ **Preferred grocer in general**
  Most of the respondents in the area, indicated that in general, their preferred grocer for purchasing grocery items include Pick n Pay (66.0%) and Shoprite (23.4%), other grocers include Checkers (4.3%), Boxer, Food Lovers Market (2.1%).
- ✓ 95.7% of the respondents indicated that this **preferred grocery is present** in the market area and located within the following shopping centres:
  - Maponya Malll (35.6%),
  - Diepkloof Square (20.0%),
  - Southgate Mall (11.1%),
  - Bara Mall (6.7%) and Meadowlands (6.7%).

5.4 RESIDENTIAL SUPPORT & PREFERENCES

This section focuses on the support, preferences and personal expectations regarding the residential market.

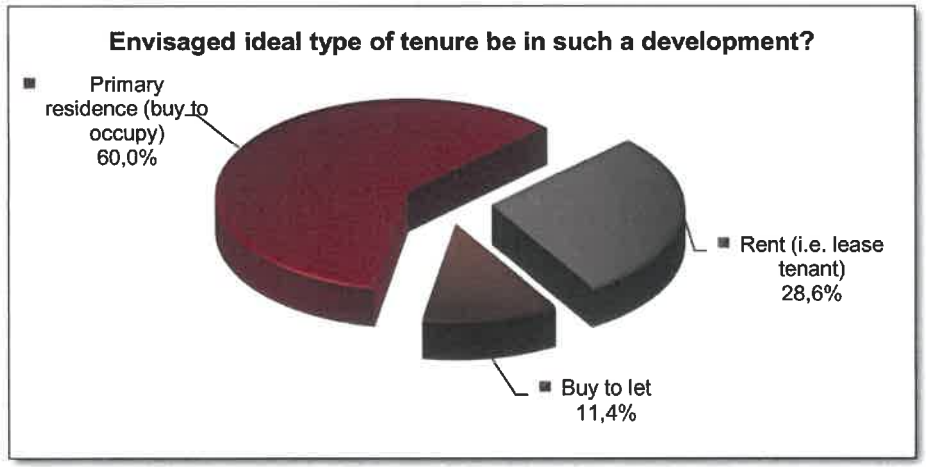
Potential Support towards New Residential Development

Figure 5.21: Demand for new residential development in Diepkloof area



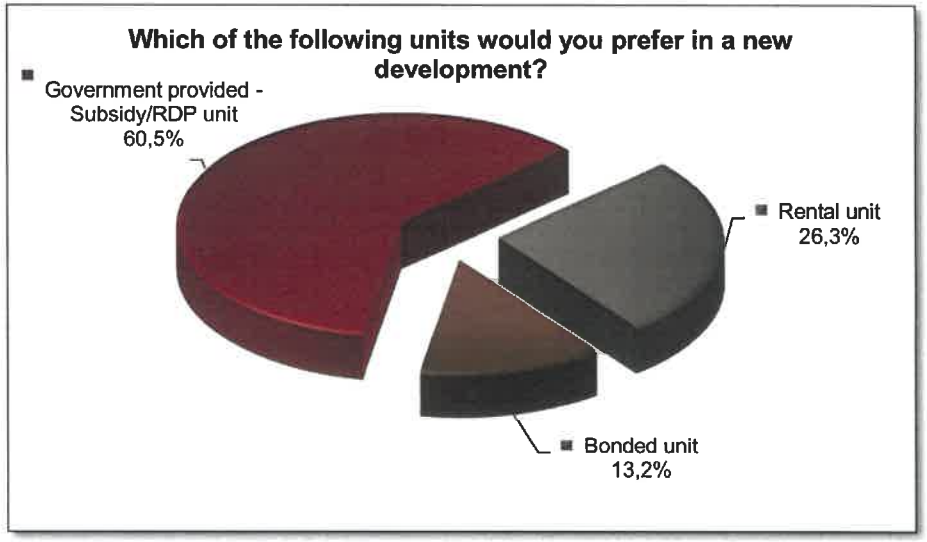
Source: Demacon, Household Survey, 2019

Figure 5.22: Envisaged ideal type of tenure in the new development



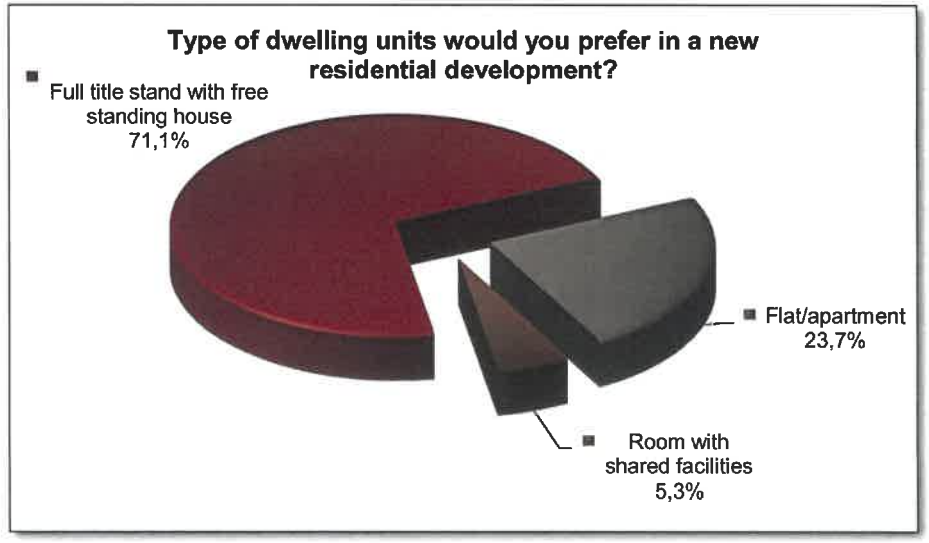
Source: Demacon Household Survey, 2019

Figure 5.23: Configuration of residential units



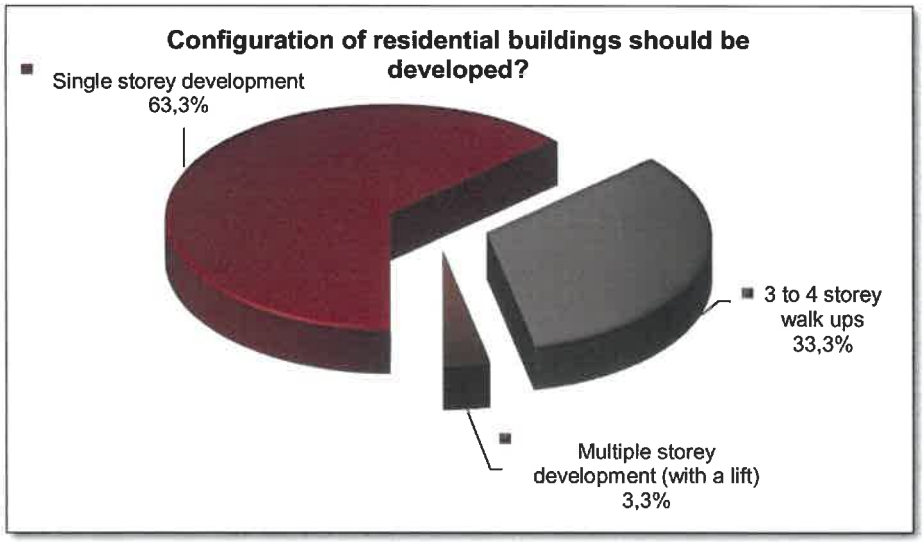
Source: Demacon Household Survey, 2019

Figure 5.24: Preferred type of dwelling units



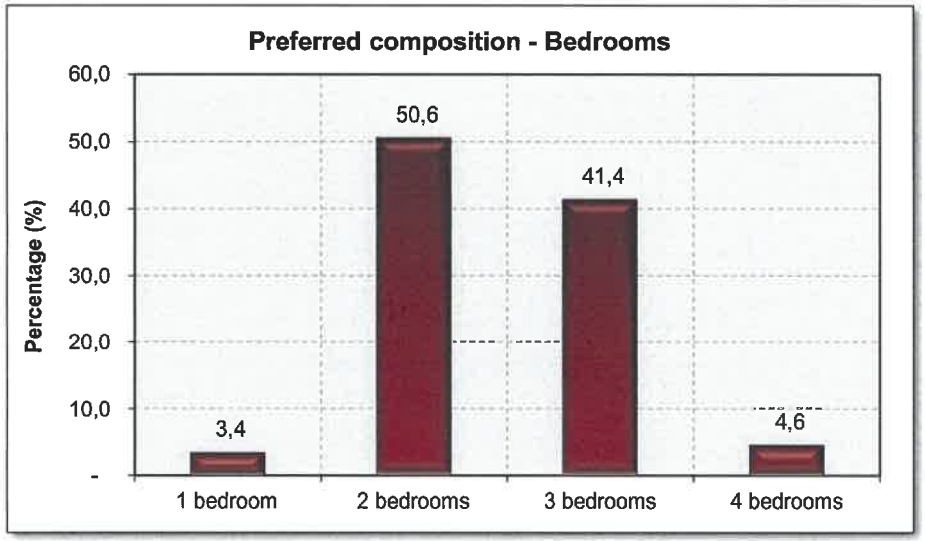
Source: Demacon Household Survey, 2019

Figure 5.25: Configuration of residential buildings



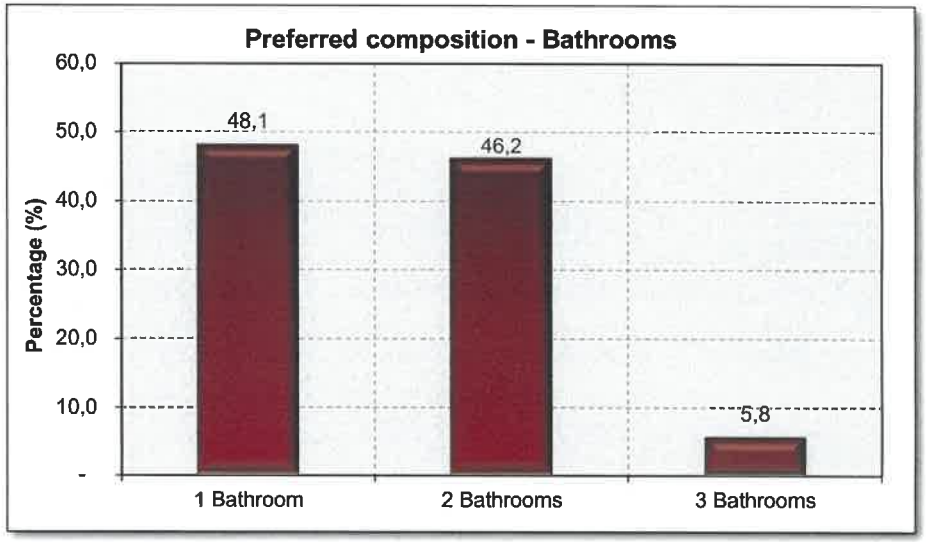
Source: Demacon Household Survey, 2019

Figure 5.26: Preferred composition of residential units (bedrooms)



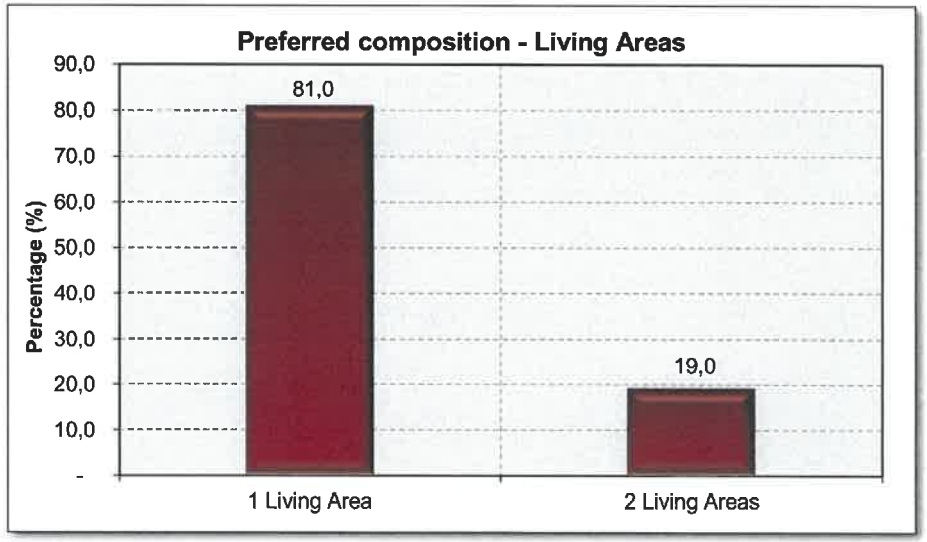
Source: Demacon Household Survey, 2019

Figure 5.27: Preferred composition of residential units (bathrooms)



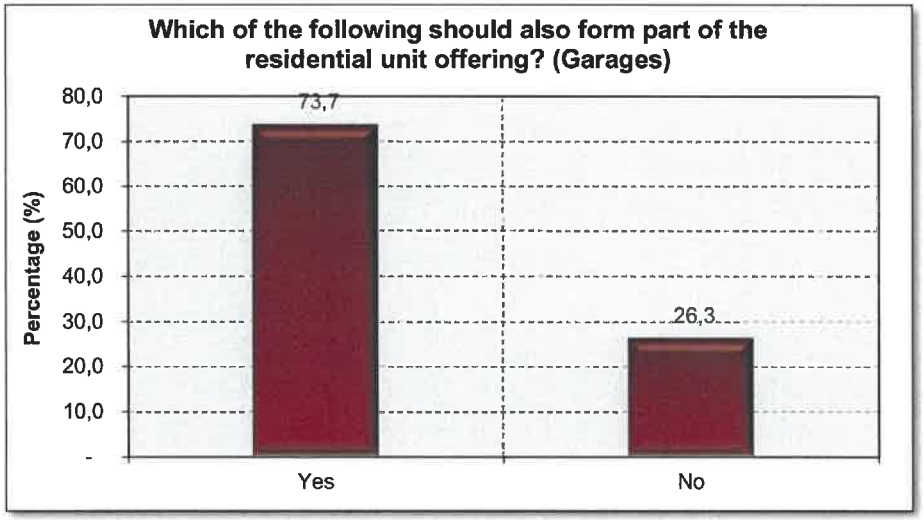
Source: Demacon Household Survey, 2019

Figure 5.28: Preferred composition of residential units (living areas)



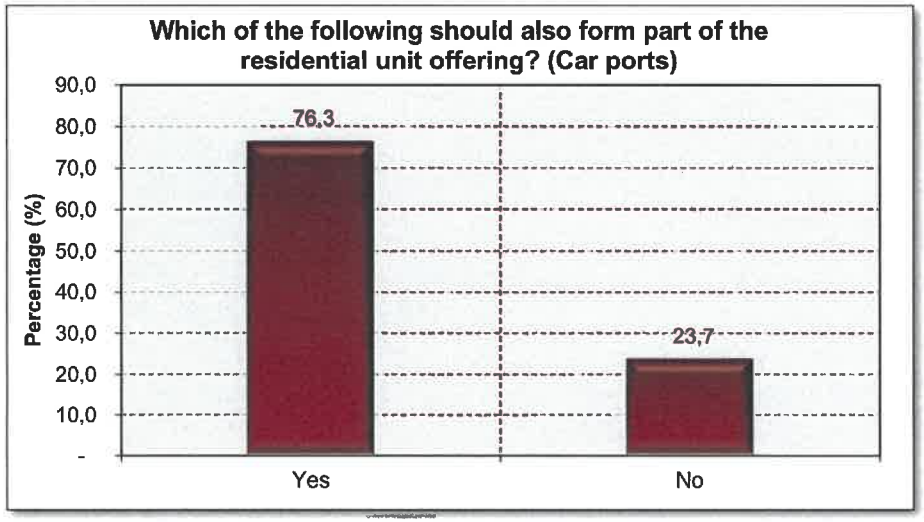
Source: Demacon Household Survey, 2019

Figure 5.29: Which of the following should also form part of the residential unit offering (garages)



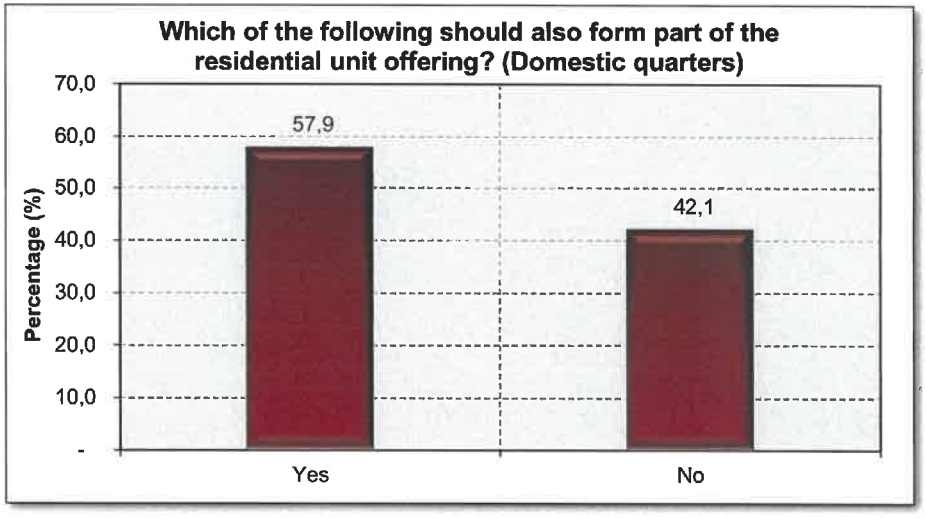
Source: Demacon Household Survey, 2019

Figure 5.30: Which of the following should also form part of the residential unit offering (carports)



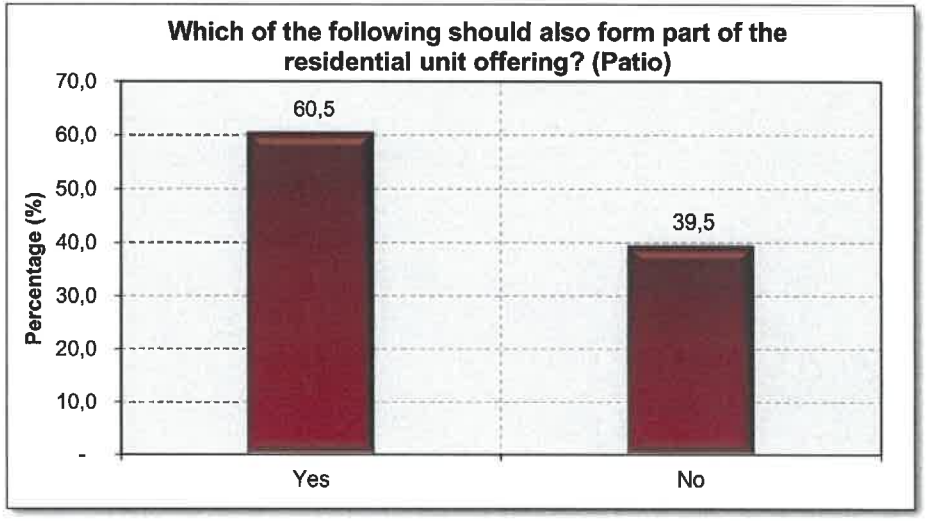
Source: Demacon Household Survey, 2019

Figure 5.31: Which of the following should also form part of the residential unit offering (domestic quarters)



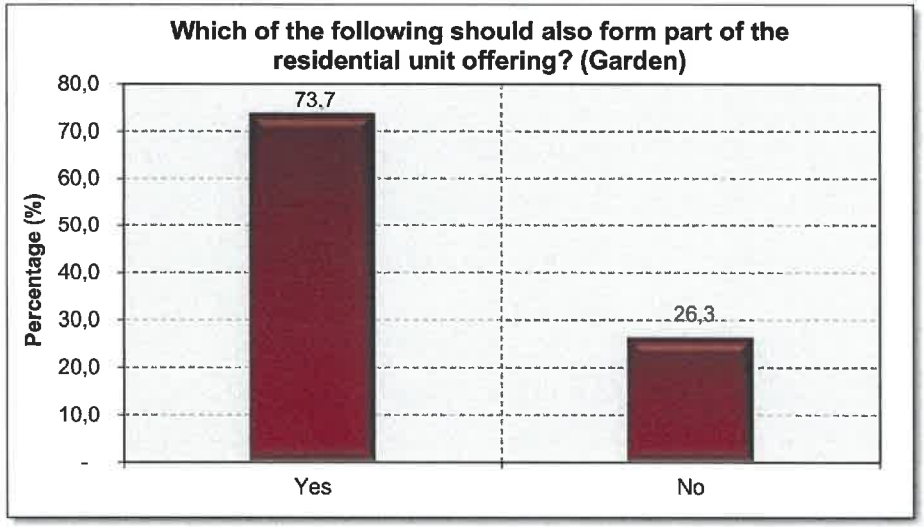
Source: Demacon Household Survey, 2019

Figure 5.32: Which of the following should also form part of the residential unit offering (patio)



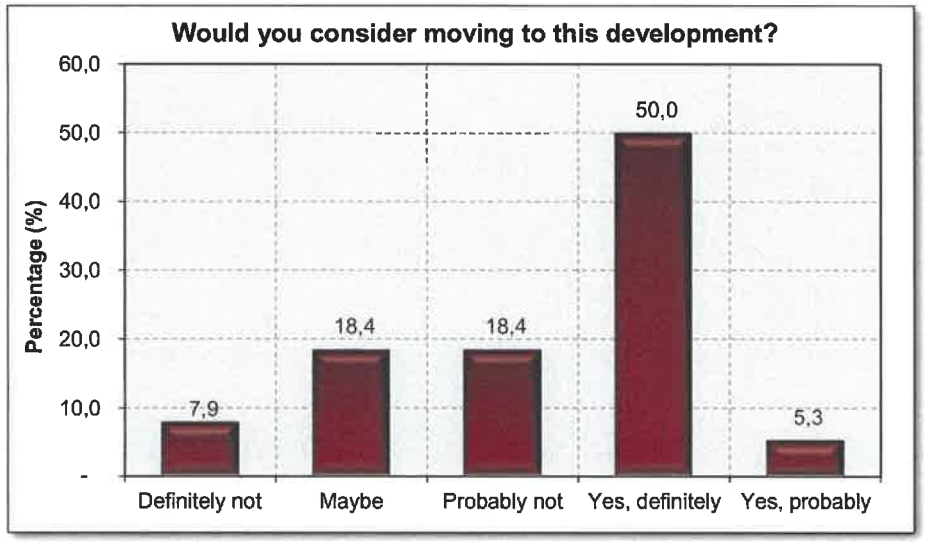
Source: Demacon Household Survey, 2019

Figure 5.33: Which of the following should also form part of the residential unit offering (garden)



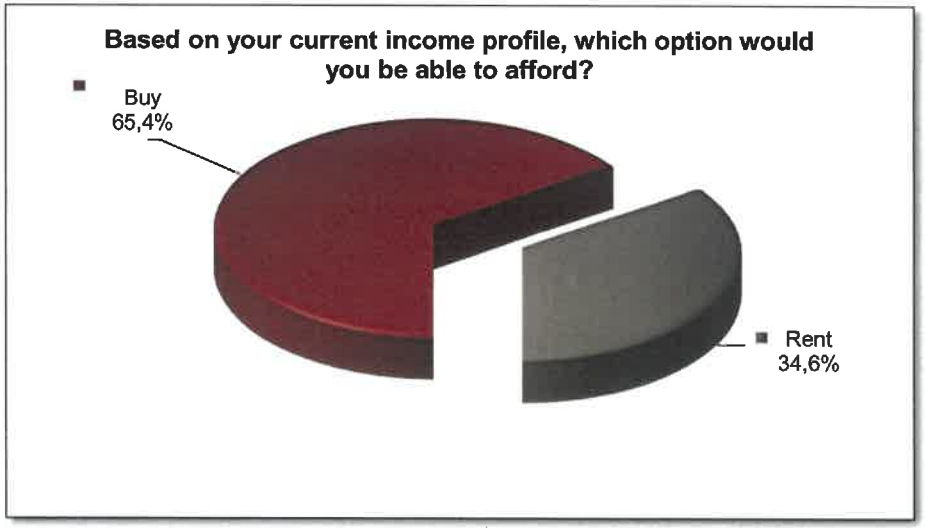
Source: Demacon Household Survey, 2019

Figure 5.34: Consider moving to new development



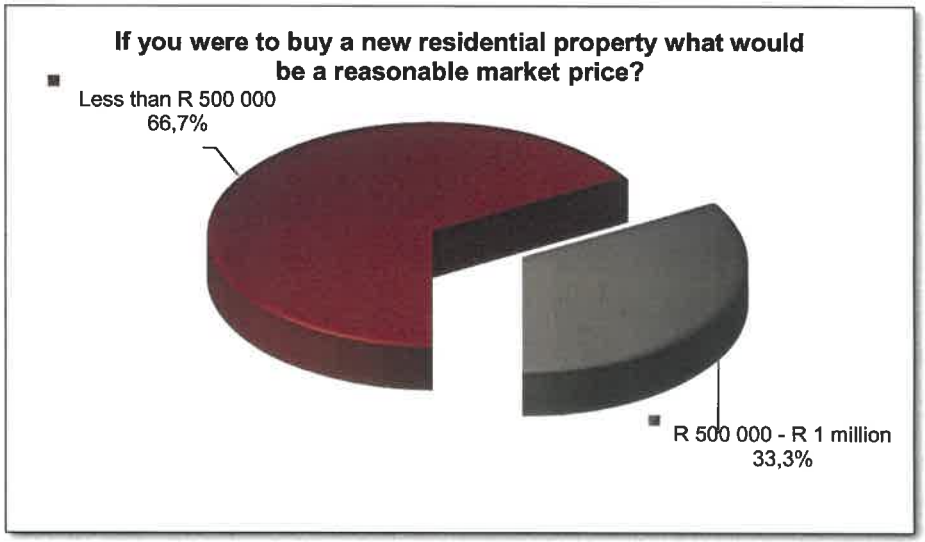
Source: Demacon Household Survey, 2019

Figure 5.35: Based on your current income profile, which option would you be able to afford?



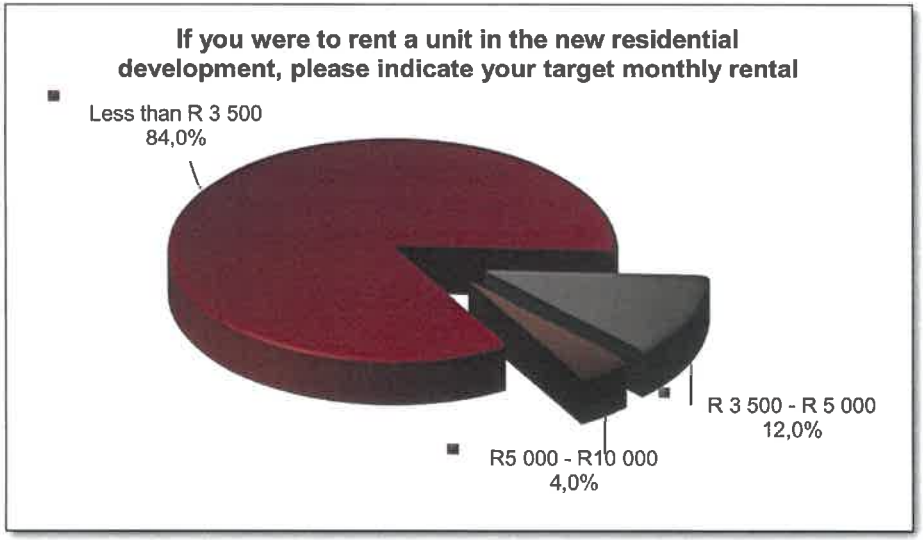
Source: Demacon Household Survey, 2019

Figure 5.36: Reasonable market price if you would buy



Source: Demacon Household Survey, 2019

Figure 5.37: Reasonable monthly rental



Source: Demacon Household Survey, 2019

Findings: (Figure 5.21 to Figure 5.37)

- ✓ The majority of respondents (92.7%) feel there is a **demand** for a new residential development in Diepkloof area and 50.0% would definitely **move** to this development if built.
- ✓ The **envisaged type of tenure** as indicated by the respondent, is a primary residence (buy to occupy), 28.6% would rent and 11.4% would buy to let.
- ✓ The **preferred type of unit** would be a government provided subsidy / RDP house (60.5%), a rental unit (26.3%) or a bonded unit (13.2%).
- ✓ 71.1% of the respondents indicated the preferred **configuration of residential units** should be a full title stand with free standing house or 23.7% a flat / apartment and 5.3% a room with shared facilities.
- ✓ The preferred **configuration of residential buildings** to develop is indicated to be a single storey development (63.3%) or 3 to 4 storey walk-up (33.3%) and multiple storey development (3.3%).
- ✓ **What composition of residential units would you prefer?**
  - 2 bedrooms (50.6%),
  - 1 bathroom (48.1%),
  - 1 living area (81.0%),
  - with garages (73.7%),
  - with carports (76.3%),
  - domestic quarters (57.9%),
  - with patio (60.5%) and
  - with a garden (73.7%)
- ✓ **Based on your current income profile, which option would you be able to afford?**
  65.4% of the respondents indicated that they would be able to buy a property whereas 34.6% would rent a property.
- ✓ **What would be a reasonable market price if you were to buy property?**
  - Less than R500 000 – 66.7%
  - R500 000 to R1 million – 33.3%
- ✓ **What would be a reasonable monthly rental price?**
  - Less than R3 500 per month – 84.0%
  - R3 500 to R5 000 per month – 12.0%
  - R5 000 to R10 000 per month – 4.0%

5.5 PERCEIVED DEMAND FOR ANCILLARY USES

Table 5.1: Offices

Offices	Low Demand		Moderate	High Demand	
Municipal Satellite Offices	3,7	11,1	11,1	14,8	59,3
Government offices	3,7	7,4	22,2	22,2	44,4
Parastatal offices	3,7	3,7	25,9	18,5	48,1
SMME offices with shared business centre	3,2	12,9	16,2	16,2	51,5
Call Centre	3,2	12,9	19,3	12,9	51,8
Small Business Offices (100 - 250)	3,2	16,1	19,4	9,7	51,6

Table 5.2: Industrial & Warehousing

Industrial facility	Low Demand		Moderate	High Demand	
Industrial stand only (300 - 500sqm)	33,6	18,9	9,4	15,1	23,0
Industrial stand only (500 - 1000sqm)	32,8	19,1	8,8	15,6	23,7
Mini warehouse (100 - 150sqm)	34,1	17,8	7,8	16,7	23,6
Mini warehouse (150-300sqm)	33,7	18,5	9,6	15,5	22,7
Warehouse (300-500sqm)	33,3	18,2	9,1	17,1	22,3
Warehouse (500sqm+)	34,4	19,1	8,2	15,3	23,0

Table 5.3: Automotive

Automotive facility	Low Demand		Moderate	High Demand	
Autotrade (new & second hand)	25,9	18,5	22,2	18,5	14,8
Motorcycle trade	26,9	23,1	15,4	23,1	11,5
Automotive/motorcycle parts & spares	26,9	19,2	23,1	19,2	11,5
Automotive fitness centres	26,9	19,2	23,1	19,2	11,5
Tyres & wheel alignment centres	25,9	18,5	18,5	22,2	14,8
Automotive workshops	26,9	19,2	23,1	19,2	11,5
Filling station	22,2	18,5	22,2	22,2	14,8

Table 5.4: Other facilities

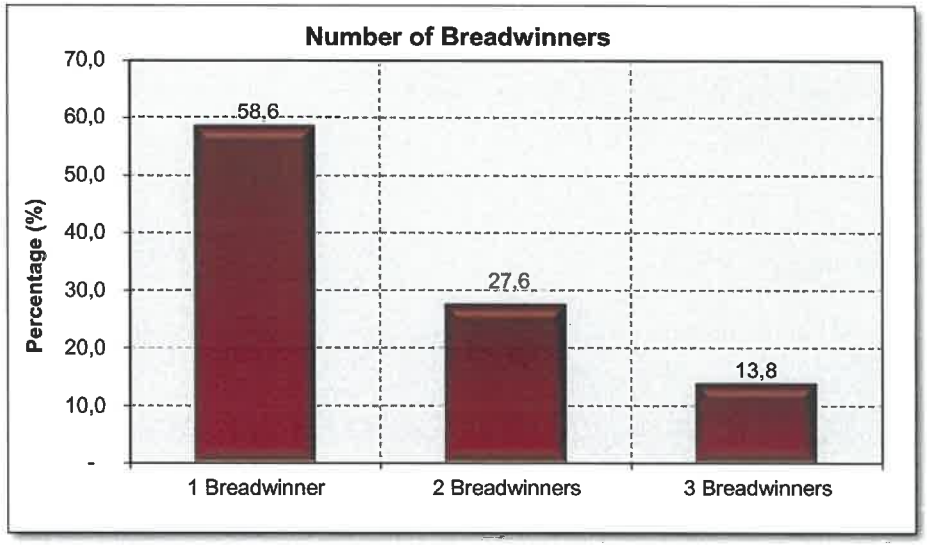
Other facilities	Low Demand		Moderate	High Demand	
Public Primary School	-	3,6	25,0	21,4	50,0
Public Secondary School	-	10,7	25,0	17,9	46,4
Private Pre-Primary School / Creche	-	11,5	30,8	19,2	38,5
Private School - Primary Phase	-	11,5	30,8	7,7	50,0
Private School - Secondary Phase	-	11,5	26,9	11,5	50,0
Private Hospital	3,3	13,3	16,7	6,7	60,0
Private Clinic	3,7	11,1	25,9	14,8	44,4
Hotel / Accommodation Facility	-	14,3	25,0	10,7	50,0
Public Primary School	-	3,6	25,0	21,4	50,0

Findings: (Table 5.1 to Table 5.4)

- ✓ There is **very high perceived demand** for the following:
  - Offices in general,
  - Facilities such as schools, a private hospital / clinic and a hotel
- ✓ There is **very low perceived demand** for the following:
  - Industrial & warehousing and
  - Automotive and ancillary uses

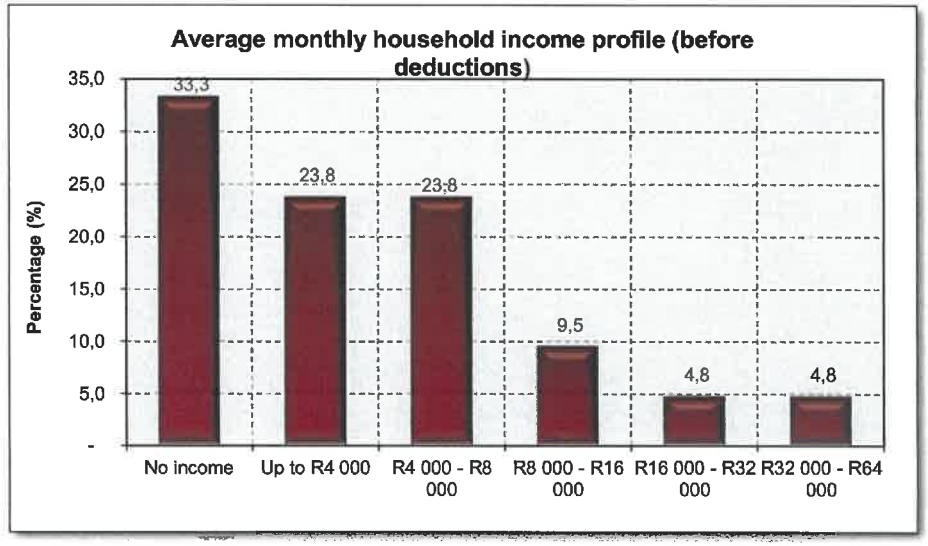
5.6 INCOME

Figure 5.38: Number of Breadwinners



Source: Demacon Household Survey, 2019

Figure 5.39: Average monthly income profile



Source: Demacon Household Survey, 2019

Table 5.5: Income from sources

	R1 - R500	R501 - R1000	R1001 - R1500	R1501 - R2000	R2001 - R3500	R3500 - R5000	R5000 - R7500	R7500 +
Formal job	18,2	9,1	9,1	9,1	27,3	9,1	-	18,2
Temporary job	-	-	-	-	-	-	-	-
Informal trade	-	-	-	-	-	-	-	-
Pension	-	66,7	33,3	-	-	-	-	-
Social grant	-	100,0	-	-	-	-	-	-
Disability grant	-	-	-	-	-	-	-	-
Remittances	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-

Source: Demacon Household Survey, 2019

Findings: (Figure 5.38 to Figure 5.39 & Table 5.5)

- ✓ **Breadwinners**
  58.6% of the respondents indicated they have 1 breadwinner in the household, followed by 27.6% with 2 breadwinners in the household.
- ✓ **Average monthly household income**
  The majority of respondents (33.3%) indicated they earn no income, followed by 23.8% between R4 000 to R8 000 per month. Smaller percentages earn between R8 000 to R64 000+
- ✓ **Income sources**
  - 27.3% of the respondents indicate their income primarily derives from their formal job which is between R2 001 to R3 500 per month.
  - 66.7% of the respondents indicated they earn income from pension allowance between R501 to R1 000 or a social grant (100.0%) also between R501 to R1 000.

5.7 SYNTHESIS

Subsequent paragraphs provide a synthesis of pertinent findings of the household market surveys conducted in the surrounding area.

SUMMARISED INTERPRETATION

SOCIO ECONOMIC INFORMATION

- ✓ 43.8% of the respondents are permanently employed and working in Diepkloof / Orlando / Meadowlands areas (33.9%), Greater Soweto / Dobsonville areas (22.6%) and Sandton / Sunninghill (11.3%).
- ✓ The majority of respondents (32.3%) indicated their **household size** is more than 6 members in the household, followed by 4 members (25.8%).
- ✓ 46.9% indicated their **home language** is isiZulu, 15.6% Setwana, 9.4% Tsonga and 6.3% Sepedi, Sotho and Xhosa.
- ✓ **Occupation profile** – 70.6% of the respondents is occupied in professional occupations and 17.6% is domestic workers.
- ✓ The majority of respondents **described their household** as:
  - Single – working (28.1%)
  - Parents with small children (25.0%
  - Parents with adult children (18.8%)
  - Single parent with adult children (9.4%)

RETAIL SUPPORT & PREFERENCES

- ✓ The respondents indicated the following regarding the current **retail offering** in the area:
  - Inadequate, new facilities should be built – 66.7%
  - inadequate existing facilities should be expanded – 25.0%
  - adequate, no new facilities required – 8.3%.
- ✓ 77.1% of the respondents indicated that there is a **need for an additional shopping centre**, whereas 22.9% feel there is no need for an additional shopping centre in Diepkloof.
- ✓ The **preferred shopping centre** for purchasing **groceries** include
  - Maponya Mall – 35.4%
  - Diepkloof Square – 22.9%
  - Southgate Mall – 8.3%
  - Dobsonville Mall – 6.3%

- ✓ The **preferred shopping centre** for purchasing **clothing and other** include
  - Maponya Mall – 54.2%
  - Diepkloof Square – 10.4%
  - Southgate Mall – 8.3%
  - The Glen Shopping Centre – 6.3%
- ✓ The following **aspects are of most importance** to the respondents when **choosing a shopping centre**:
  - Pleasurable shopping experience – 93.8%
  - Safety and Security – 93.8%
  - Convenience – 91.7%
  - Price offered by retailers – 91.7%
  - Specific retailer/shop – 91.7%
- ✓ 82.6% of the respondents indicated that they **would shop at the new shopping centre** if it were built as part of the mixed-use precinct.
- ✓ **Type of shops** the respondents feel there is a demand for includes:
  - Accessory store – 100.0%
  - Speciality stores – 100.0%
  - Clothing store – 99.5%
  - Supermarket/Grocery store – 97.0%
  - Butchery – 98.6%
  - Hone décor & furniture – 97.7%
  - Pharmacy – 97.5%
- ✓ **Type of services the respondents feel there is a demand for includes:**
  - Banks – 100.0%
  - Videostore – 97.5%
  - Doctors – 96.1%
  - Laundromat – 95.0%
  - Photolab – 95.2%
- ✓ **Are there specific types of shopping centres you would like to see**
  - Regional mall – 95.0%
  - Convenience retail centre – 82.5%
  - Automotive/motor related – 76.3%
  - Home improvement centre – 72.8%
  - Hyper centre – 72.7%
  - Lifestyle centre – 72.6%
  - Outdoor safari centre – 60.0%
  - Value retail centre – 27.5%
  - Big box centre – 25.0%
- ✓ **Shopping behaviour**
  - 61.7% of respondents indicated that their **shopping behaviour** will remain unaffected should a new shopping centre be built, *this could be attributed to the historic dominance of Southgate Mall and the subsequent support of the Soweto residents in view of the absence of sizeable destination retail-orientated centres in the local market.*
  - 19.1% of the respondents indicated that they will visit the area more for shopping purposes.
  - 12.8% of the respondents indicated they will shop less at their previously preferred shopping centres.

The above may indicate the suitability of a smaller initial phase with a more convenience and lifestyle orientated focus.

<u>Grocery Anchor Preferences</u>

- ✓ Their **frequency of grocery shopping** is conducted on a monthly basis (72.3%) and every two weeks (19.1%), smaller percentages indicate more than once a week or weekly (27.8%).
- ✓ **Preferred grocer in general**
  Most of the respondents in the area, indicated that in general, their preferred grocer for purchasing grocery items include Pick n Pay (66.0%) and Shoprite (23.4%), other grocers include Checkers (4.3%), Boxer, Food Lovers Market (2.1%).
- ✓ 95.7% of the respondents indicated that this **preferred grocery is present** in the market area and located within the following shopping centres:
  - Maponya Malll (35.6%),
  - Diepkloof Square (20.0%),
  - Southgate Mall (11.1%),
  - Bara Mall (6.7%) and Meadowlands (6.7%).

RESIDENTIAL SUPPORT & PREFERENCES

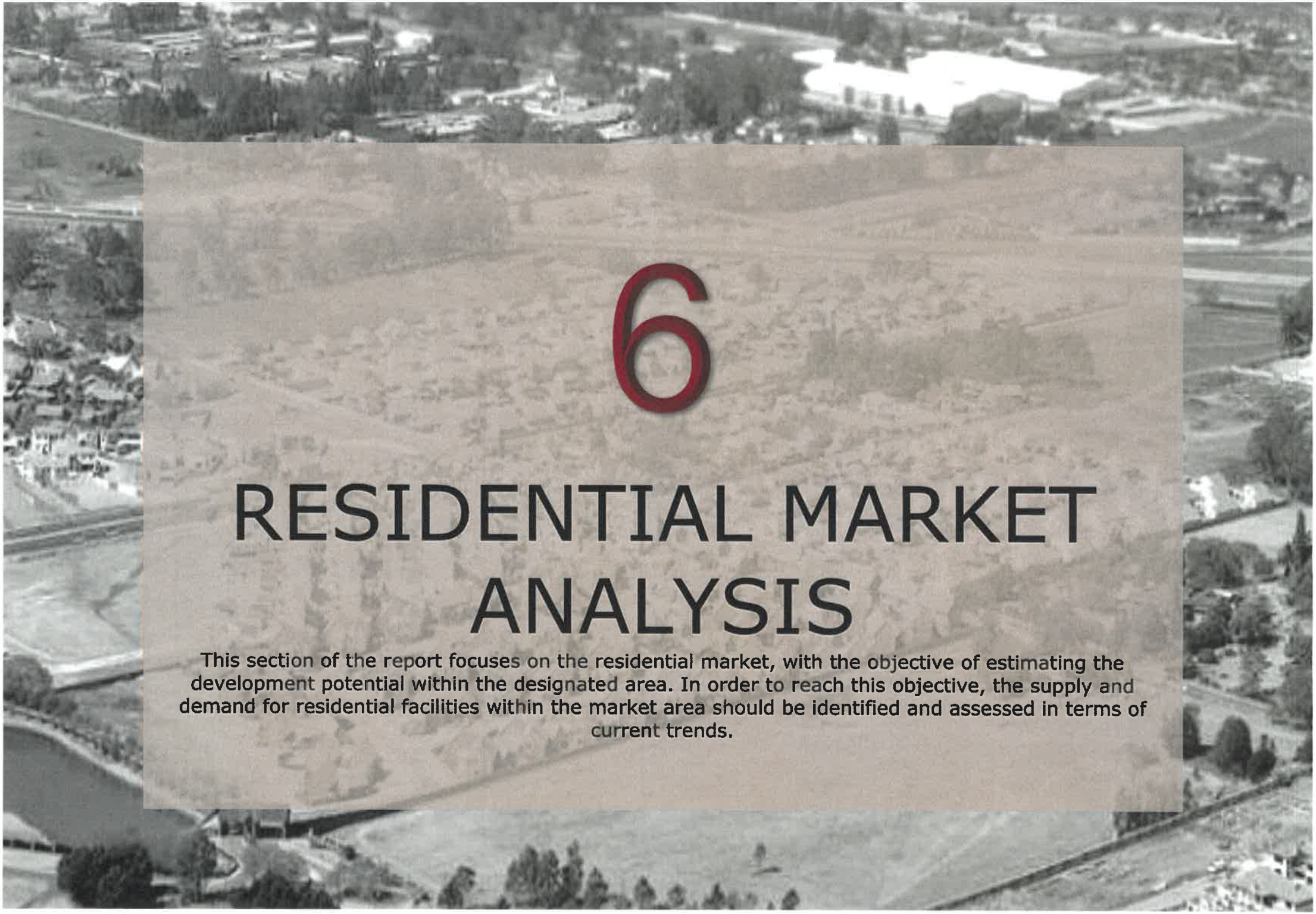
- ✓ The majority of respondents (92.7%) feel there is a **demand** for a new residential development in Diepkloof area and 50.0% would definitely **move** to this development if built.
- ✓ The **envisaged type of tenure** as indicated by the respondent, is a primary residence (buy to occupy), 28.6% would rent and 11.4% would buy to let.
- ✓ The **preferred type of unit** would be a government provided subsidy / RDP house (60.5%), a rental unit (26.3%) or a bonded unit (13.2%).
- ✓ 71.1% of the respondents indicated the preferred **configuration of residential units** should be a full title stand with free standing house or 23.7% a flat / apartment and 5.3% a room with shared facilities.
- ✓ The preferred **configuration of residential buildings** to develop is indicated to be a single storey development (63.3%) or 3 to 4 storey walk-up (33.3%) and multiple storey development (3.3%).
- ✓ **What composition of residential units would you prefer?**
  - 2 bedrooms (50.6%),
  - 1 bathroom (48.1%),
  - 1 living area (81.0%),
  - with garages (73.7%),
  - with carports (76.3%),
  - domestic quarters (57.9%),
  - with patio (60.5%) and
  - with a garden (73.7%)
- ✓ **Based on your current income profile, which option would you be able to afford?**
  65.4% of the respondents indicated that they would be able to buy a property whereas 34.6% would rent a property.
- ✓ **What would be a reasonable market price if you were to buy property?**
  - Less than R500 000 – 66.7%
  - R500 000 to R1 million – 33.3%
- ✓ **What would be a reasonable monthly rental price?**
  - Less than R3 500 per month – 84.0%
  - R3 500 to R5 000 per month – 12.0%
  - R5 000 to R10 000 per month – 4.0%

PERCEIVED DEMAND FOR ANCILLARY USES

- ✓ There is **very high perceived demand** for the following:
  - Offices in general,
  - Facilities such as schools, a private hospital / clinic and a hotel
- ✓ There is **very low perceived demand** for the following:
  - Industrial & warehousing and
  - Automotive and ancillary uses

INCOME

- ✓ **Breadwinners**
  58.6% of the respondents indicated they have 1 breadwinner in the household, followed by 27.6% with 2 breadwinners in the household.
- ✓ **Average monthly household income**
  The majority of respondents (33.3%) indicated they earn no income, followed by 23.8% between R4 000 to R8 000 per month. Smaller percentages earn between R8 000 to R64 000+
- ✓ **Income sources**
  - 27.3% of the respondents indicate their income primarily derives from their formal job which is between R2 001 to R3 500 per month.
  - 66.7% of the respondents indicated they earn income from pension allowance between R501 to R1 000 or a social grant (100.0%) also between R501 to R1 000.



6

RESIDENTIAL MARKET ANALYSIS

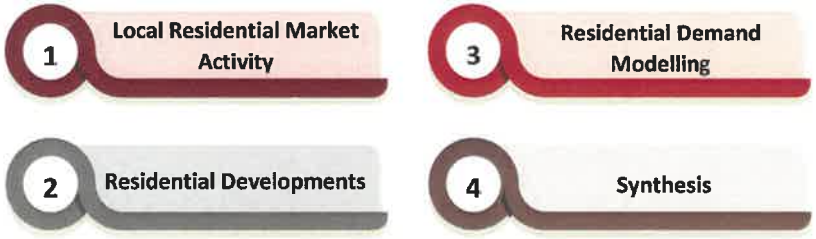
This section of the report focuses on the residential market, with the objective of estimating the development potential within the designated area. In order to reach this objective, the supply and demand for residential facilities within the market area should be identified and assessed in terms of current trends.

RESIDENTIAL MARKET ANALYSIS 6

6.1 INTRODUCTION

This section of the report focuses on the residential market, with the objective of estimating the development potential within the designated area. In order to reach this objective, the supply and demand for residential facilities within the market area should be identified and assessed in terms of current trends.

Subsequent paragraphs highlight the following main headings in order to identify the aforesaid beneficiaries:



6.2 LOCAL RESIDENTIAL MARKET ACTIVITY IN SURROUNDING AREAS

6.2.1 LOCAL MARKET ACTIVITY

SALES DATA

The following table provides the property activity of selected surrounding suburbs within the trade area - these are **selling properties** in the market. The table below summarises data in terms of bedroom units, quantity, average prices, standard deviation and classification.

The following suburbs were selected for the analysis:

Aeroton	Eldorado Estate	Naturena
Alan Manor	Eldorado Park	Ophirton
Booysens	Jabavu	Orlando
Chiawelo	Klipspruit	Ormonde
Devland	Mayfair	Pimville
Dhlamini	Meredale	Ridgeway
Diepkloof	Mofolo Central	Riverlea
Dube	Mofolo South	Robertsham
Eikenhof	Moroka	

Table 6.1: Residential Market Activity, Size, Min and Max Prices, Mean Prices and Frequency, March 2019

Size	Minimum	Maximum	STD Deviation	Average price	Nr of pro-perties	%
Apartments / Flats						
1 Bedrooms	R180 000	R499 000	R117 004	R414 000	6	12,8%
2 Bedrooms	R350 000	R975 000	R128 318	R579 469	32	68,1%
3 Bedrooms	R420 000	R1 795 000	R415 457	R953 889	9	19,1%
Average price				**R558 511**	47	100,0%
Houses						
1 Bedrooms	R180 000	R680 000	R211 021	R434 000	5	1,6%
2 Bedrooms	R260 000	R1 395 000	R205 561	R681 473	55	17,2%
3 Bedrooms	R470 000	7 999 000	R777 971	1 174 435	152	47,6%
4 Bedrooms	R500 000	R8 800 000	R1 231 553	R1 695 377	61	19,1%
5 Bedrooms	R980 000	R10 000 000	R2 214 381	R2 617 158	19	6,0%
6 Bedrooms	R819 000	R11 499 000	R3 783 168	R3 622 571	7	2,2%
7 Bedrooms	R1 030 000	R2 995 000	R854 190	R1 892 857	7	2,2%
8 Bedrooms	R350 000	R19 500 000	R10 207 146	R7 883 333	3	0,9%
9 Bedrooms	R260 000	R879 000	R234 214	R651 800	5	1,6%

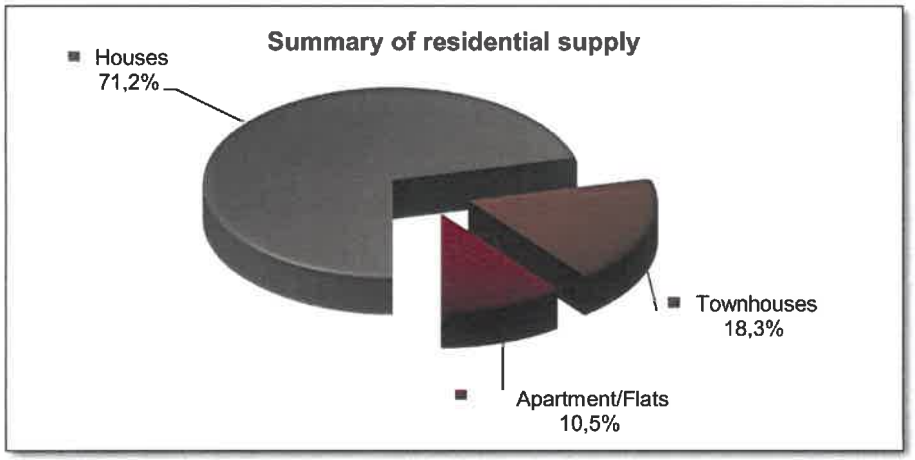
Size	Minimum	Maximum	STD Deviation	Average price	Nr of pro-perties	%
11 Bedrooms	R260 000	R879 000	R294 853	R495 800	5	1,6%
Average price				**R1 439 889**	**319**	**100,0%**
Townhouses						
1 Bedrooms	R460 000	R590 000	R55 976	R510 000	4	4,9%
2 Bedrooms	R380 000	R1 350 000	R151 075	R619 226	53	64,6%
3 Bedrooms	R185 000	R1 795 000	R320 338	R751 880	25	30,5%
Average price				**R631 061**	**82**	**100,0%**

Source: Demacon, 2019

Findings: (Table 6.1)

- ✓ The average price for apartments / flats is in the region of **R558 511,** of which the majority of apartments / flats are 2-bedroom units
- ✓ The average price for houses is in the region of **R1 439 889.**
- ✓ The majority of houses are 3-bedrooms and 4-bedrooms (47.6% and 19.1%, respectively).
- ✓ The average price for townhouses is in the region of **R631 061,** of which the majority is 2-bedroom units (64.6%).

Figure 6.1: Summary of residential supply



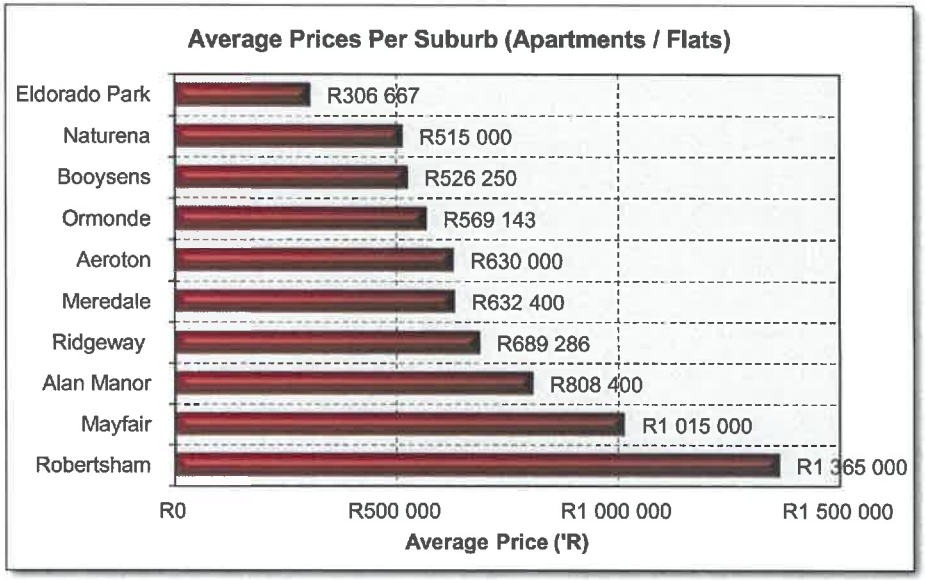
Source: Demacon, 2019

❑ AVERAGE PRICE PER SUBURB

The following figures provide the average price per suburb for apartments / flats, townhouses and houses.

Apartments / Flats & Townhouses

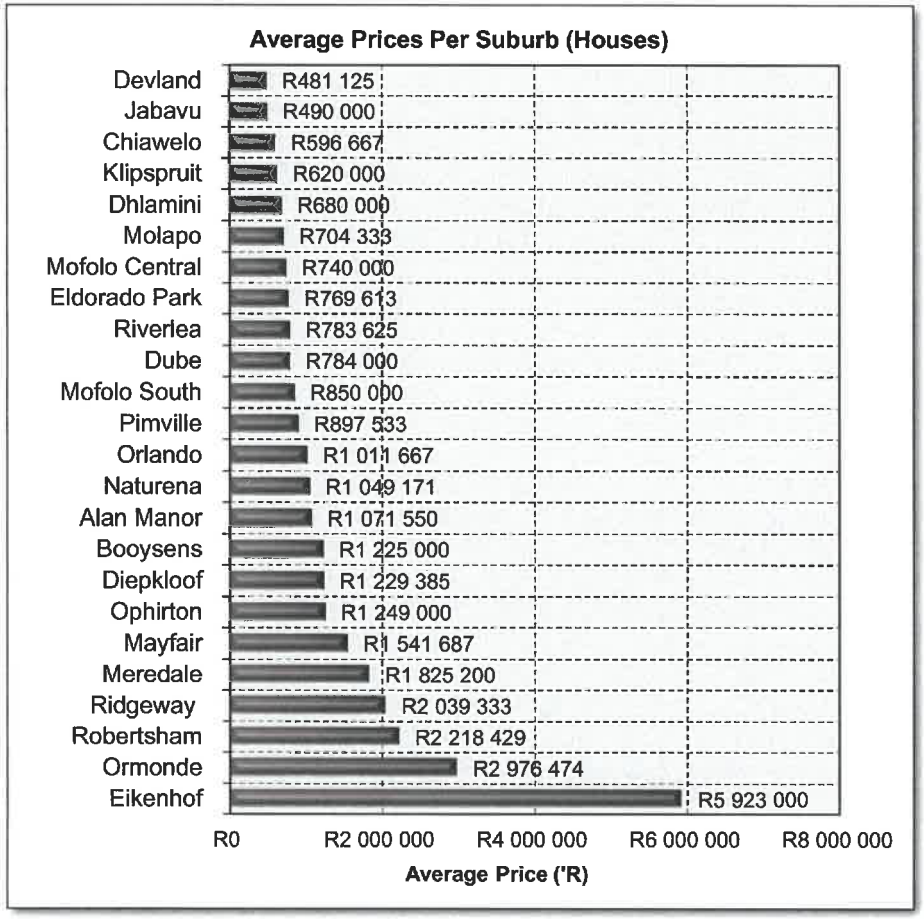
Figure 6.2: Average price per suburb



Source: Demacon, 2019

Houses

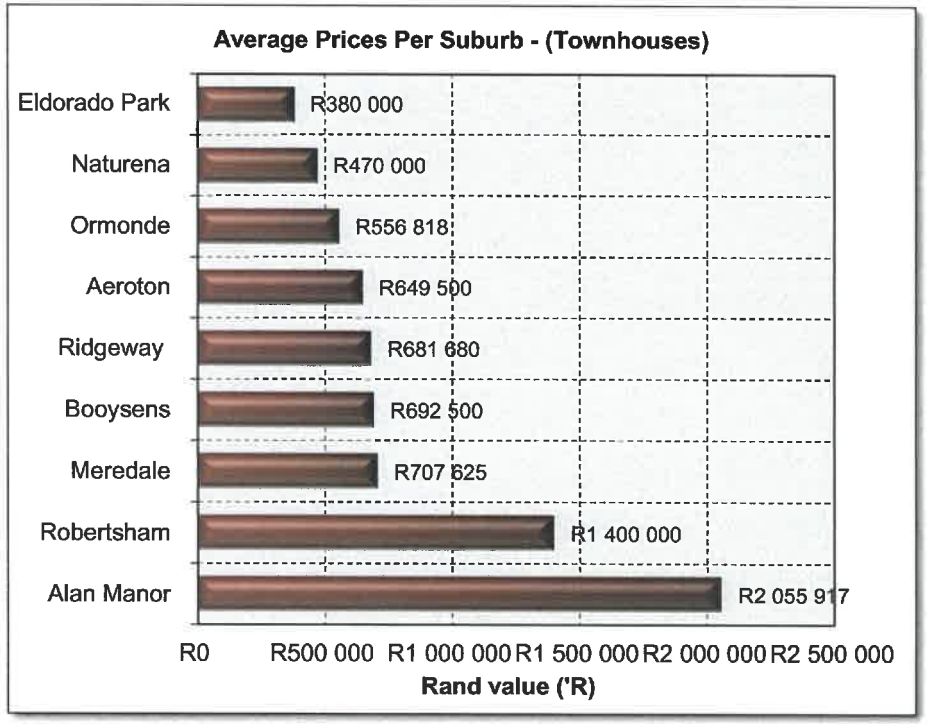
Figure 6.3: Average price per suburb



Source: Demacon, 2019

Townhouses

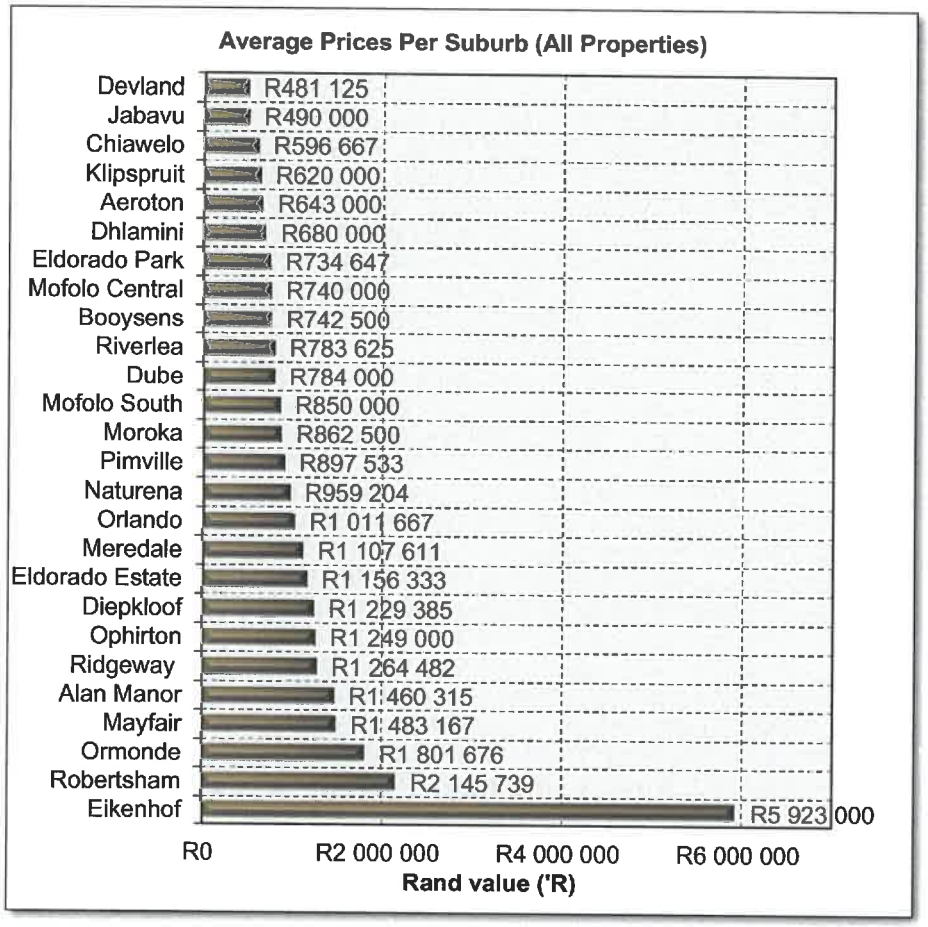
Figure 6.4: Average price per suburb



Source: Demacon, 2019

ALL PROPERTIES

Figure 6.5: Average price per suburb



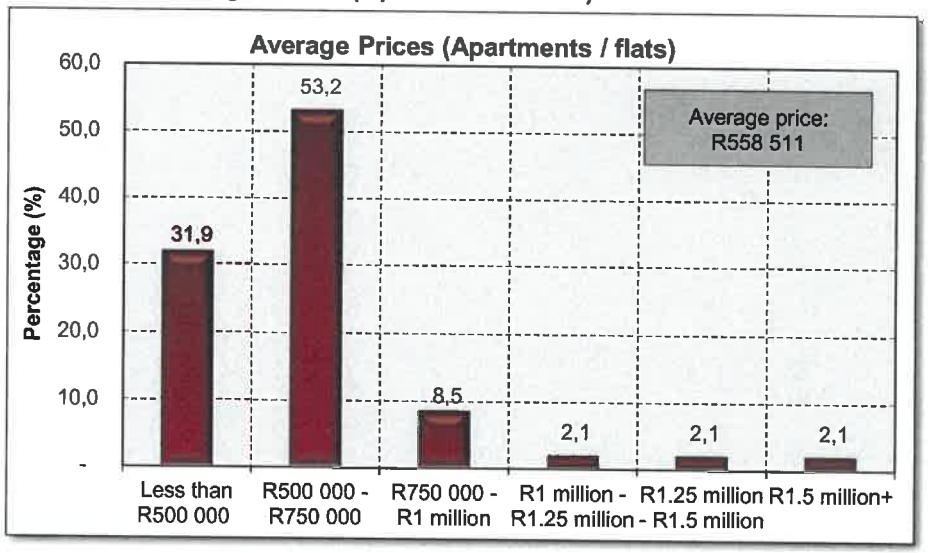
Source: Demacon, 2019

❑ AVERAGE PRICES, UNIT & STAND SIZES

Apartments / Flats & Townhouses

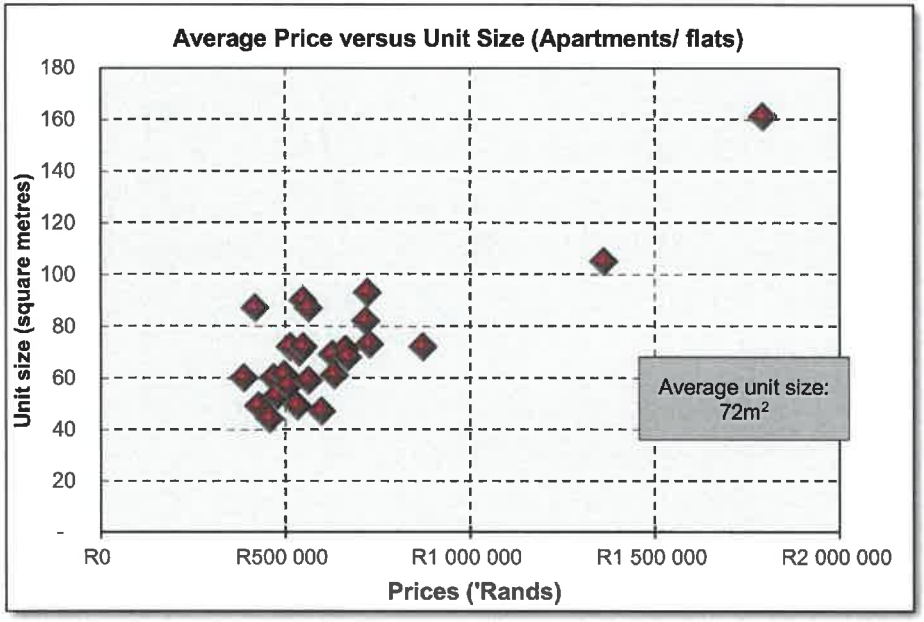
The following figures provide the average price of apartments / flats in the market along with unit sizes.

Figure 6.6: Average Prices (Apartments / flats)



Source: Demacon, 2019

Figure 6.7: Average Price versus Unit Size



Source: Demacon, 2019

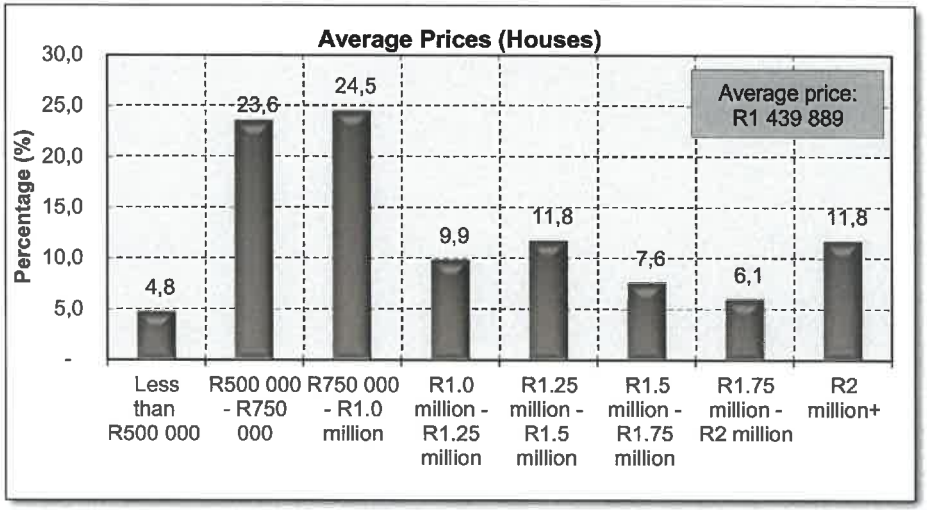
Findings: (Figure 6.6 to Figure 6.7)

- ✓ The majority of apartments / flats (53.2%) trade between R500 000 to R750 000 followed by 31.9% for less than R500 000.
- ✓ 8.5% of apartments / flats trade between R750 000 to R1 million and 6.3% for more than R1 million.
- ✓ Unit sizes range from **44m² to 161m²**, average of **72m²**
- ✓ The average price for apartments in the area amounts to approximately **R558 511 (weighted average).**
- ✓ The residential supply currently within the area is predominantly towards the **middle-income segment.**

Houses

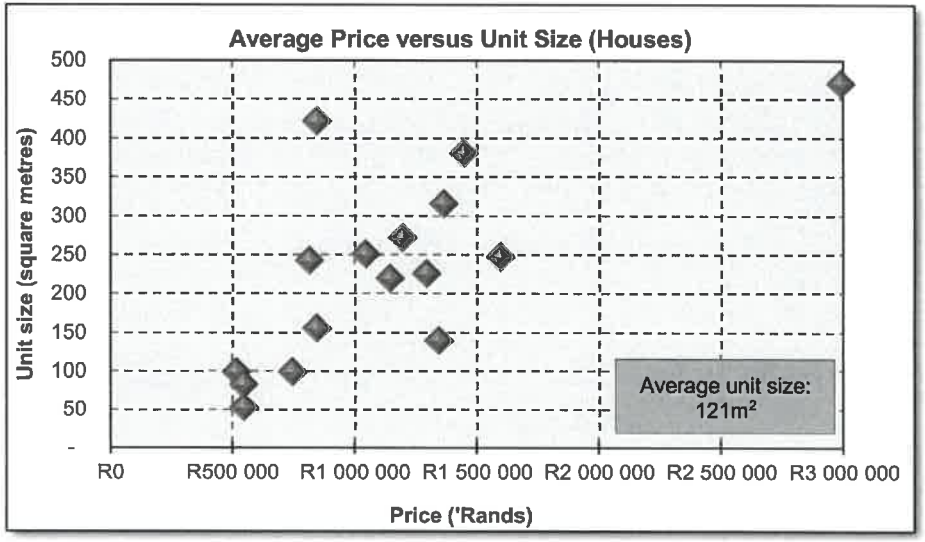
The following figures provide the average price of houses in the market along with unit sizes.

Figure 6.8: Average Prices (Houses)



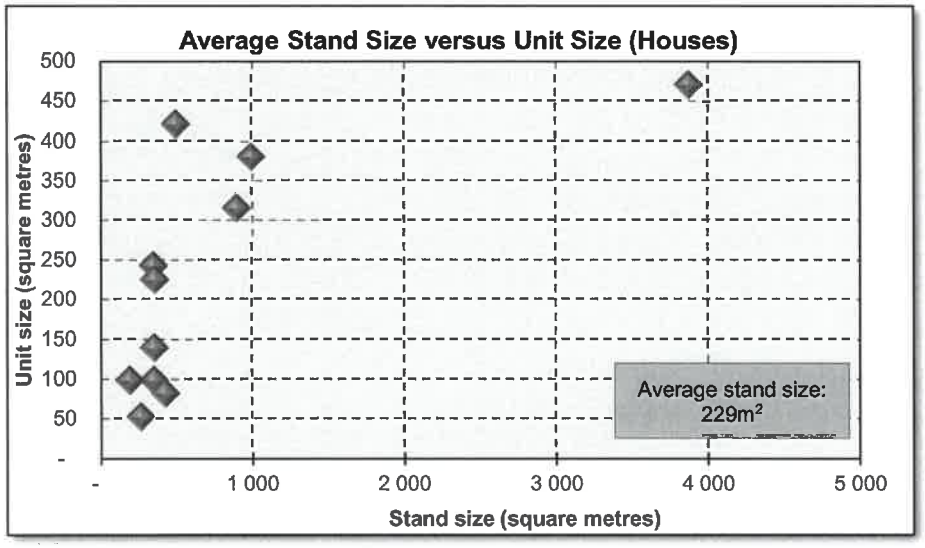
Source: Demacon, 2019

Figure 6.9: Average Price versus Unit Size



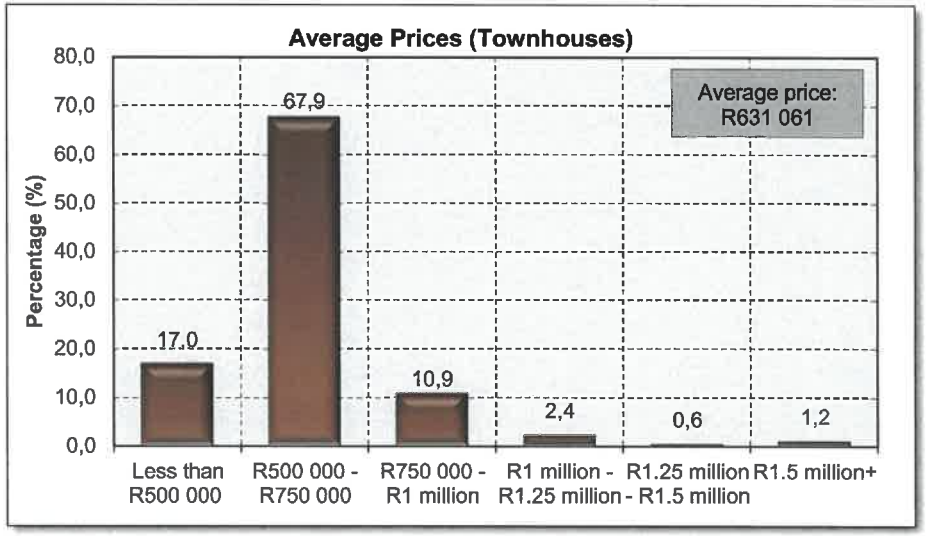
Source: Demacon, 2019

Figure 6.10: Average Unit Size versus Stand Size



Source: Demacon, 2019

Figure 6.11: Average Prices (Townhouses)



Source: Demacon, 2019

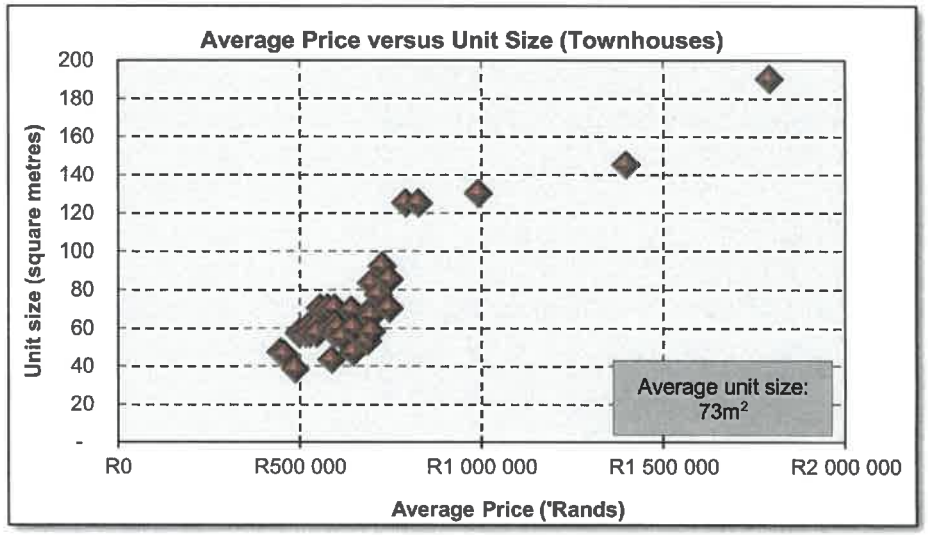
Findings: (Figure 6.8 to Figure 6.10)

- ✓ The majority of houses (24.5%) trade between R750 000 – R1 million and 23.6% between R500 000 to R750 000.
- ✓ 21.7% of houses trade between R1 million to R1.5 million and 13.7% trade between R1.5 million to R2 million. There are 11.8% of properties for R2 million and more – these properties are situated within Robertsham, Meredale, Ridgeway and Robertsham.
- ✓ Unit sizes range from **52m² to 470m²**, average of **229m²**
- ✓ Stand sizes range from **195 to 3 878m²**, average of **781m²**
- ✓ The average price for houses in the area amounts to approximately **R1 439 889 (weighted average).**
- ✓ The residential supply currently within the area is predominantly towards the **middle income segment** of the market.

Townhouses

The following figures provide the average price of townhouses in the market along with unit sizes.

Figure 6.12: Average Price versus Unit Size



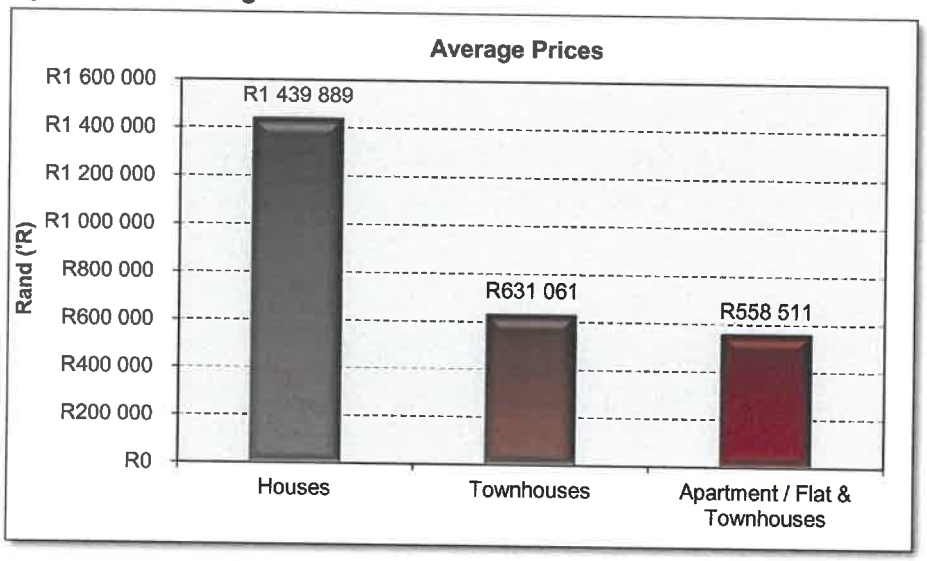
Source: Demacon, 2019

Findings: (Figure 6.11 to Figure 6.12)

- ✓ The majority of townhouses (67.9%) trade between R750 000 – R750 000 and 17.0% trade for less than R500 000.
- ✓ 10.9% of townhouses trade for R750 000 to R1 million and 3.0% for R1 million to R1.5 million.
- ✓ Unit sizes range from Unit sizes range from **38m^2 to 190m^2**, average of **73m^2**
- ✓ The average price for houses in the area amounts to approximately **R631 061 (weighted average).**
- ✓ The residential supply currently within the area is predominantly towards the **middle-income segment** of the market.

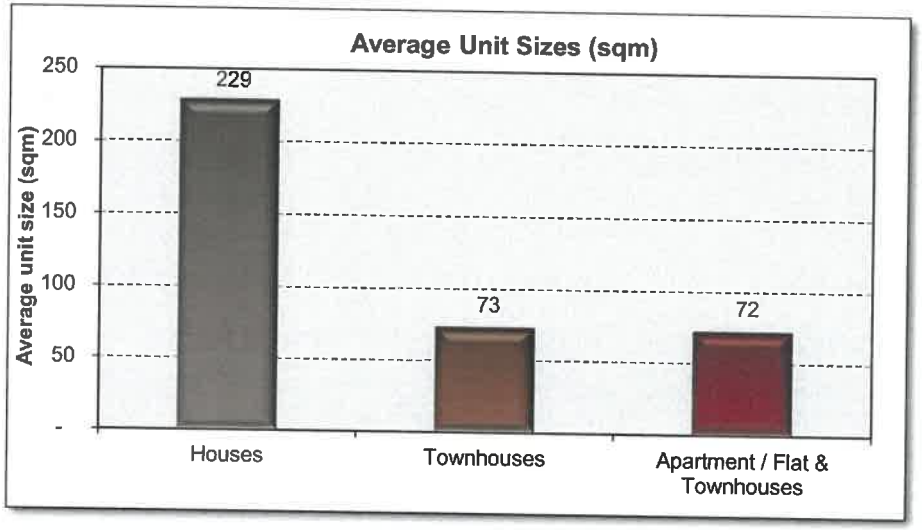
SUMMARY OF SALES DATA

Figure 6.13: Average Prices



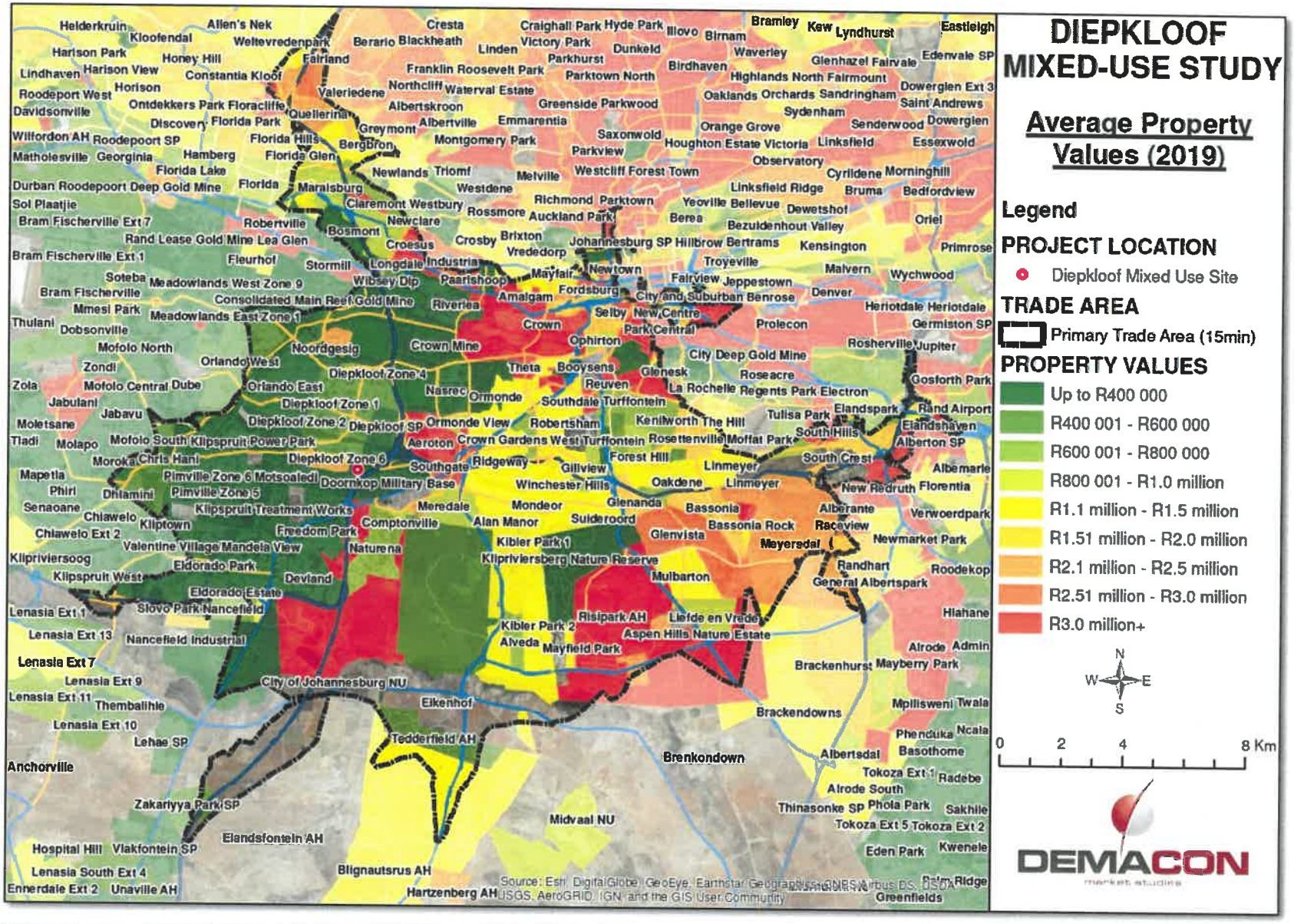
Source: Demacon, 2019

Figure 6.14: Average Unit Sizes



Source: Demacon, 2019

Map 6.1: Average Property Sales Prices



RENTAL DATA ANALYSIS

The following table provides the property activity of selected suburbs in the surrounding market - these are **rental properties**. The table below summarise data in terms of bedroom units, quantity, average prices, standard deviation and classification.

The following suburbs were selected for the analysis.

Aeroton	Kliptown
Alan Manor	Naturena
Booysens	Ophirton
Comptonville	Orlando
Diepkloof	Pimville
Eikenhof	Ridgeway
Eldorado Park	Riverlea
Klipspruit	Robertsham

Table 6.2: Residential Market Activity, Size, Min, Max & Average Rental Prices and Frequency, March 2019

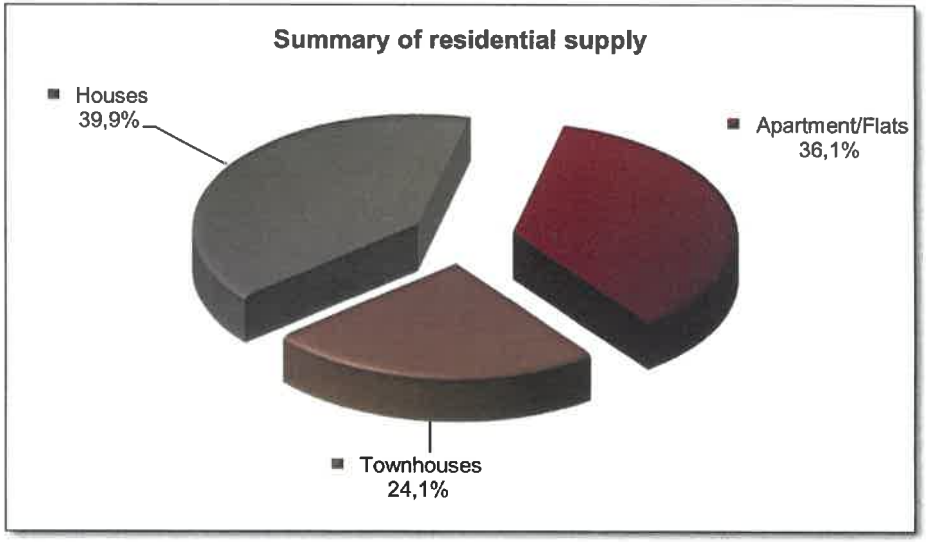
Size	Minimum	Maximum	STD Deviation	Average rental price	Number of properties	%
Apartments / Flats						
1 Bedroom	R3 500	R6 000	R837	R4 560	10	17,5%
2 Bedrooms	R4 000	R7 200	R879	R5 741	40	70,2%
3 Bedrooms	R5 200	R9 800	R1 590	R7 421	7	12,3%
Average rental				R5 127	57	100,0%
Houses						
1 Bedroom	R1 800	R5 000	R1 391	R3 333	6	9,5%
2 Bedrooms	R3 500	R10 000	R1 405	R5 986	25	39,7%
3 Bedrooms	R5 500	R13 500	R2 124	R8 666	21	33,3%
4 Bedrooms	R8 000	R40 000	R10 643	R14 206	8	12,7%
5 Bedrooms	R2 000	R7 500	R3 889	R4 750	2	3,2%
7 Bedrooms	R17 000	R17 000	R0	R17 000	1	1,6%
Average rental				**R7 421**	63	**100,0%**
Townhouses						
1 Bedroom	R4 500	R5 950	R1 025	R5 225	2	5,3%
2 Bedrooms	R4 900	R7 000	R537	R5 964	28	73,7%
3 Bedrooms	R6 500	R17 000	R3 392	R8 716	8	21,1%
Average rental				**R6 563**	38	**100,0%**

Source: Demacon, 2019

Findings: (Table 6.2)

- ✓ The average rental for apartments / flats is in the region of **R5 127**. The majority of properties consist of **2-bedroom apartments / flats** (70.2%).
- ✓ The average rental for houses is in the region of **R7 421**. The majority of properties consist of **2 and 3-bedroom houses** (73.0%)
- ✓ The average rental for townhouses is in the region of **R6 563** of which the majority of consists of 2-bedroom units (73.7%).

Figure 6.15: Summary of residential supply



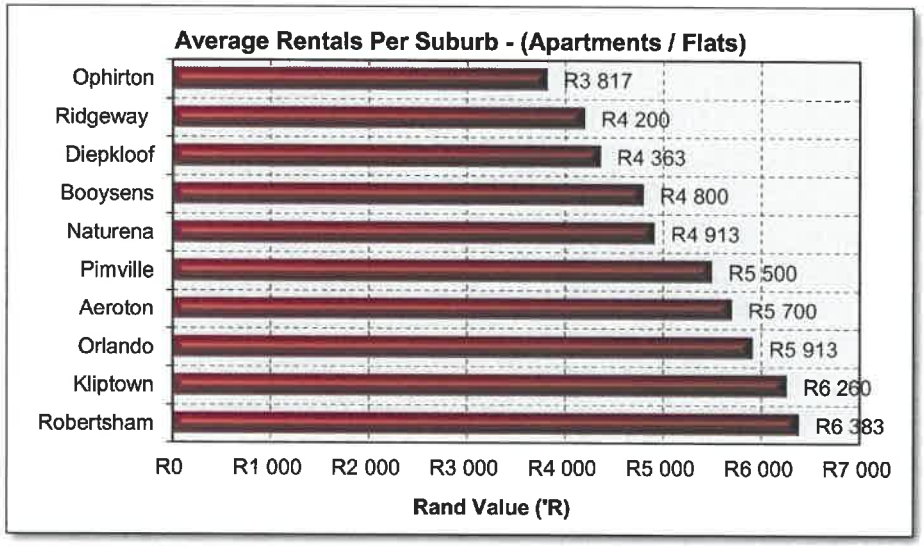
Source: Demacon, 2019

❑ AVERAGE RENTAL PRICE PER SUBURB

Figure 6.16 provides the average rental price per suburb for apartments / flats, houses and townhouses.

Apartments / Flats

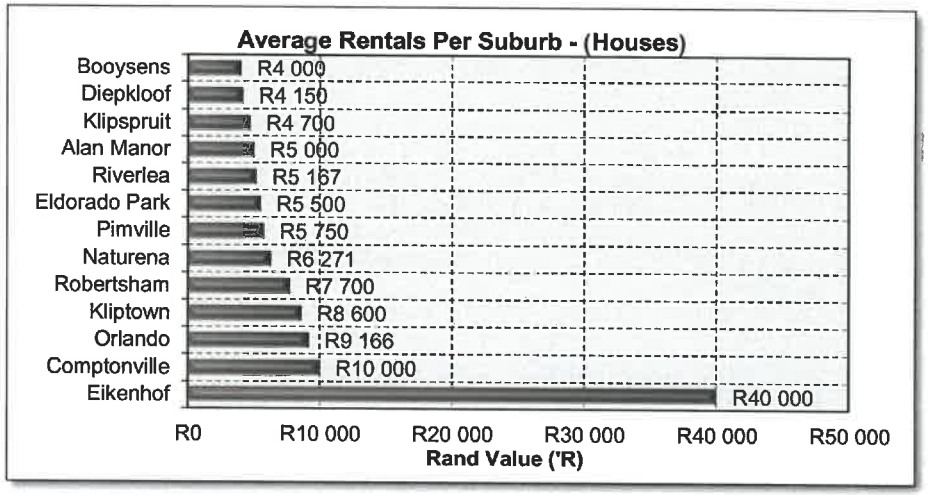
Figure 6.16: Average rental per suburb



Source: Demacon, 2019

Houses

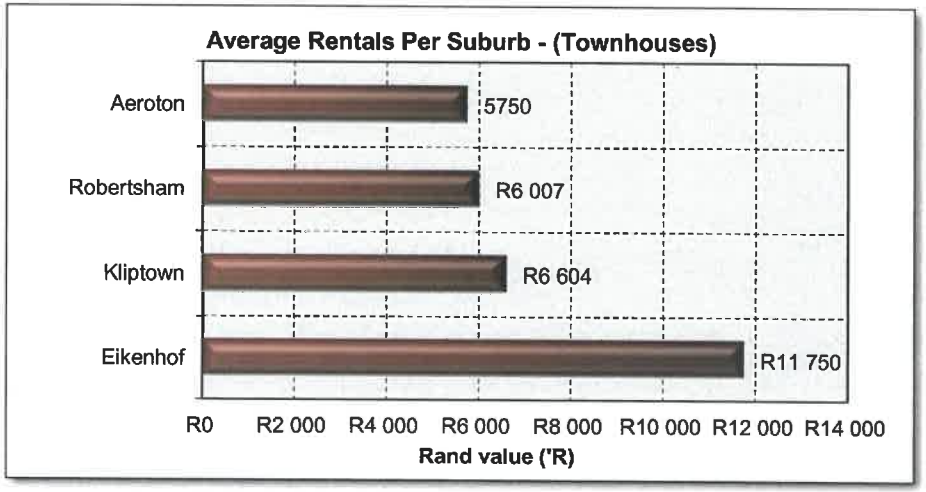
Figure 6.17: Average rental per suburb



Source: Demacon, 2019

Townhouses

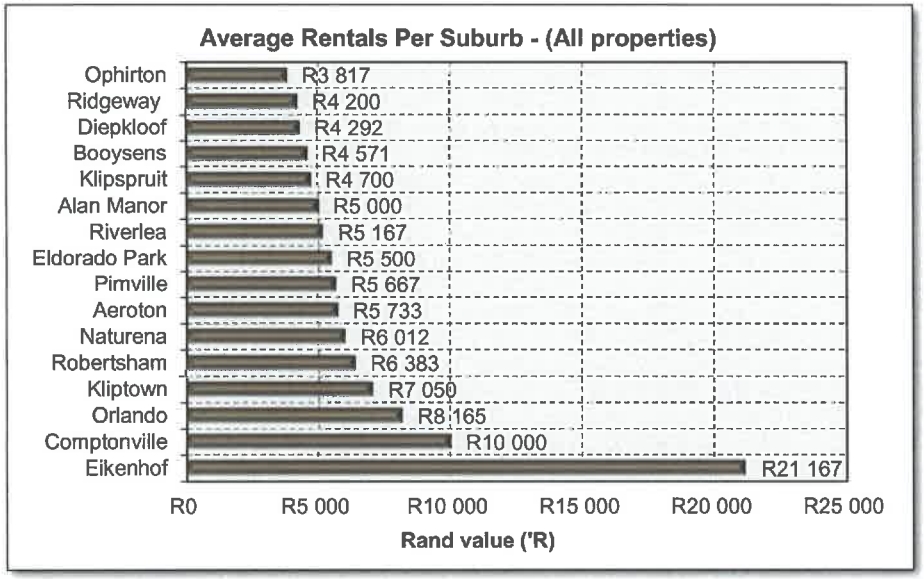
Figure 6.18: Average rental per suburb



Source: Demacon, 2019

ALL PROPERTIES

Figure 6.19: Average price per suburb



Source: Demacon, 2019

❑ AVERAGE RENTALS & UNIT SIZES

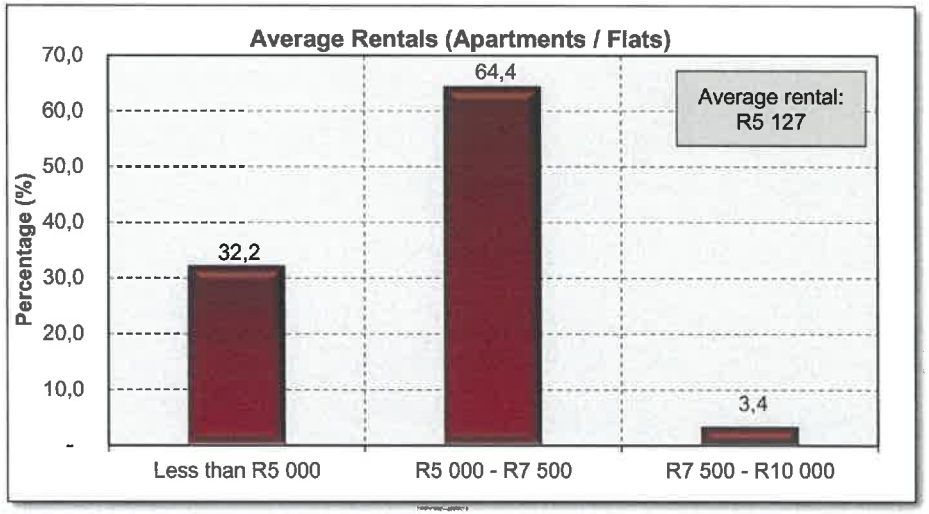
The following figures provide the average rental price and unit sizes of apartments / flats, houses and townhouses in the market.

Findings: (Figure 6.20 to Figure 6.21)

- ✓ The majority of apartments / flats (64.4%) in the area trade for between R5 000 to R7 500, 32.2% trade for less than R5 000 and 3.4% between R7 500 to R10 000.
- ✓ The average unit size range from 27m² to 101m², average of **56m²**.
- ✓ The average rental for apartments / flats & townhouses in the area trades for **R5 127** (weighted average).
- ✓ The residential suply currently within the area is predominantly towards the **middle-income segment**.

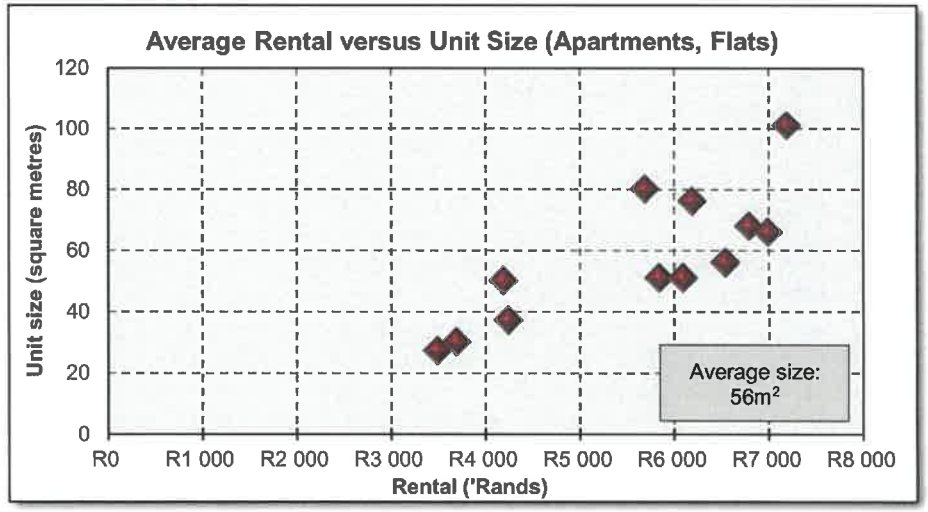
Apartments / Flats

Figure 6.20: Average Rentals (Apartments / Flats)



Source: Demacon, 2019

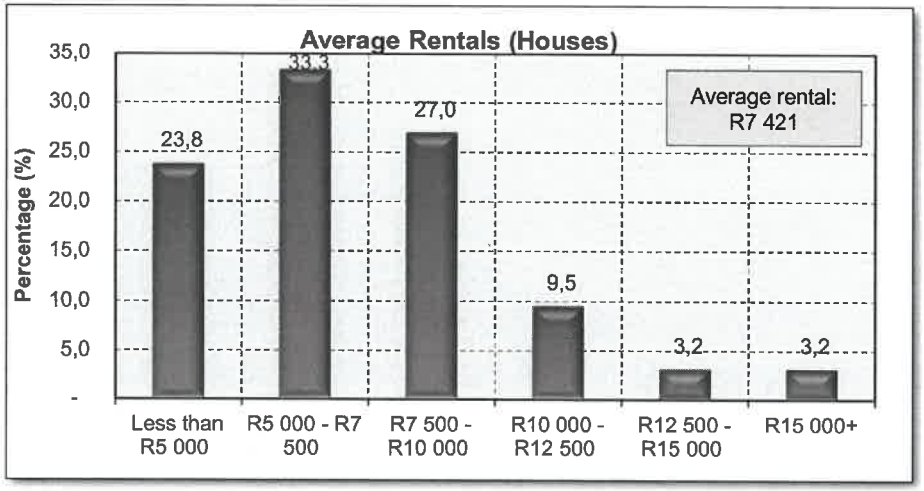
Figure 6.21: Average Rentals versus Unit Size



Source: Demacon, 2019

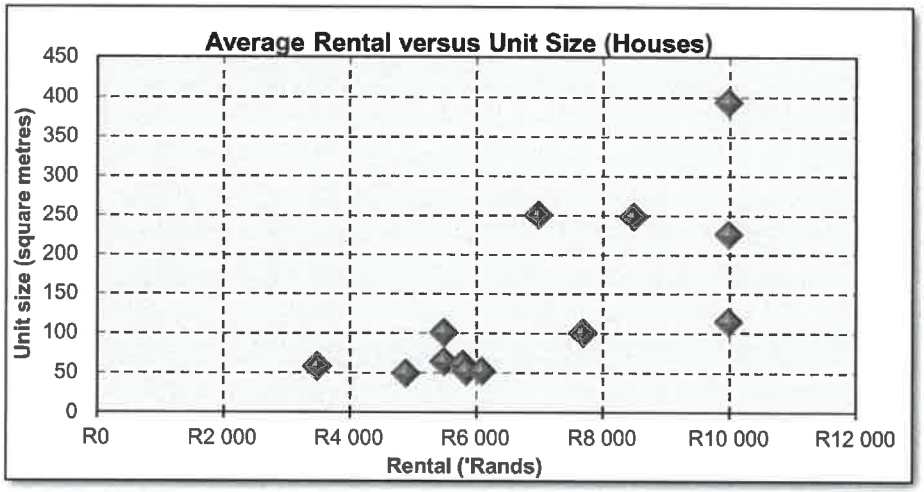
Houses

Figure 6.22: Average Rentals (Houses)



Source: Demacon, 2019

Figure 6.23: Average Rentals versus Unit Size



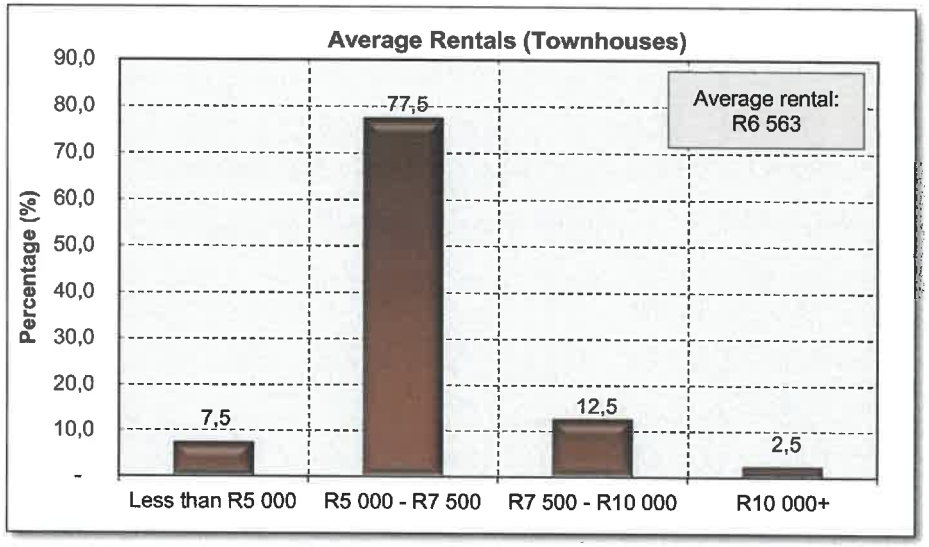
Source: Demacon, 2019

Findings: (Figure 6.22 & Figure 6.23)

- ✓ The majority of houses (33.3%) in the area trade between R5 000 to R7 500 and 23.8% trade for less than R5 000.
- ✓ 27.0% of the houses trade between R7 500 to R10 000 and 15.9% trade for more than R10 000+.
- ✓ Unit sizes vary between 48m² to 393m², average **135m²** and stand sizes vary between 300 to 1 487m², average **613m²**
- ✓ The average rental for houses in the area trade for **R7 421** (weighted average).
- ✓ The residential supply currently within the area is predominantly towards the **middle-income segment**.

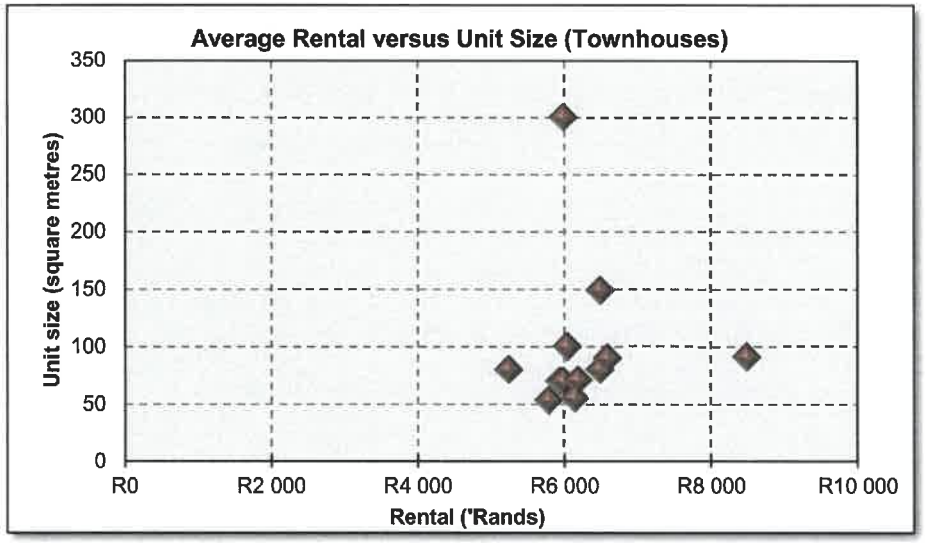
Townhouses

Figure 6.24: Average Rentals (Townhouses)



Source: Demacon, 2019

Figure 6.25: Average Rentals versus Unit Size



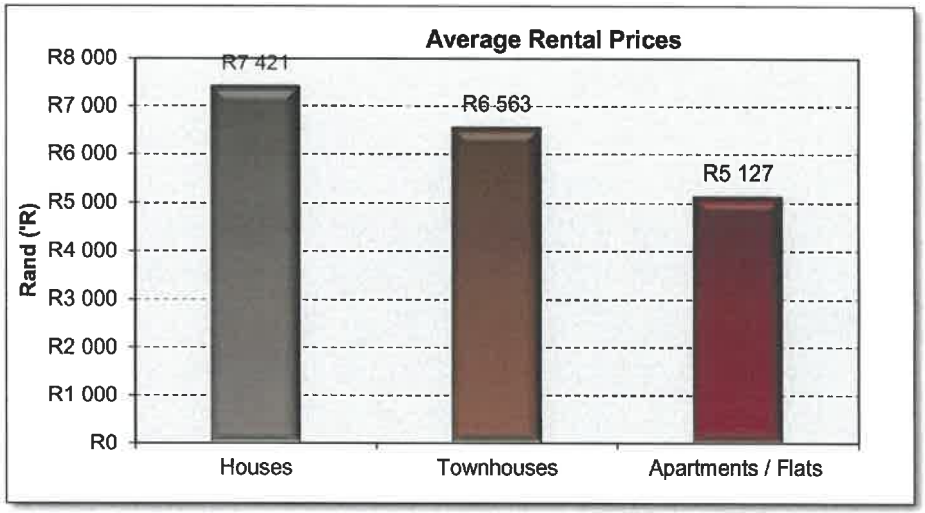
Source: Demacon, 2019

Findings: (Figure 6.24 & Figure 6.25)

- ✓ The majority of townhouses (77.5%) in the area trade between R5 000 to R7 500 and 12.5% trade for between R7 500 to R10 000.
- ✓ Unit sizes vary between 53m² to 300m², average **101m²**
- ✓ The average rental for townhouses in the area trade for **R6 563** (weighted average).
- ✓ The residential supply currently within the area is predominantly towards the **middle-income segment**.

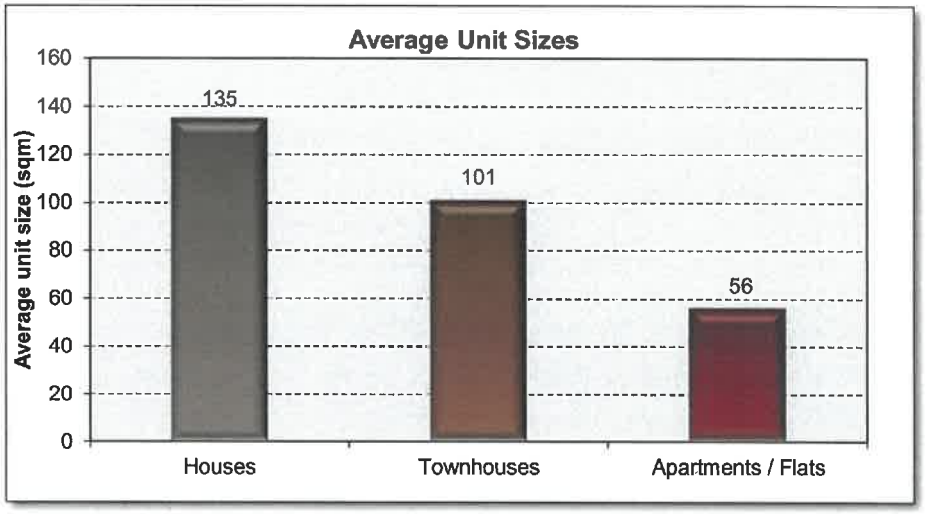
SUMMARY OF RENTAL DATA

Figure 6.26: Average Prices



Source: Demacon, 2019

Figure 6.27: Average Sizes



Source: Demacon, 2019

6.3 RESIDENTIAL DEMAND MODELLING

This section of the report focuses on the residential market, with the objective of estimating the development potential within the market area.

In order to reach this objective, the supply and demand for residential facilities within the market segment should be identified and assessed in light of current trends.

Table 6.3: Household Income Categories

Income Category	Type of Housing
R0 – R1 500	Subsidy
R1 500 – R3 500	Subsidy & CRU Housing
R3 500 – R7 500*	FLSIP / GAP & Social Housing
R7 500 – R15 000	FLSIP / GAP & Affordable Bonded
R15 000+	Bonded

Source: Centre for Affordable Housing Finance in Africa
**Note: The upper Social Housing limit has recently been adjusted from R7 500 to R15 000*

Demand for residential units can be stated as follows:

Definition

The residential market refers to land uses associated with human habitation such as housing or dwelling units. Residential use can vary in typology, density, tenure, structure, layout and affordability. 'Residential' does not include hotels or guesthouses, which are defined as being 'short-stay' accommodation.

Defining demand

Residential demand depends on a variety of factors. In this context, residential demand can be conceptualised as follows:

Dres. = f {Po; P%; Q; Pr; Pr%, ROI, I, Tx; Y; Hs; R; Ci; Hs; Hp}

Where:

Po	=	Population Size
P%	=	Population growth rate
Q	=	Existing quality of residential environment
Pr	=	House prices
Pr%	=	Growth in house prices
ROI	=	Return on investment
I	=	Interest rates
Tx	=	Rates and Taxes
Y	=	Household income
Hs	=	Household size
R	=	Rent
Ci	=	Cap Rates
Hs	=	Housing shortage
Hp	=	Housing preferences

BONDED HOUSING

❖ **Income and Housing Affordability**

Table 6.4 indicates a range of income midpoints, midpoint house prices and classifications attainable by the source market area.

Table 6.4: Residential Affordability Profile

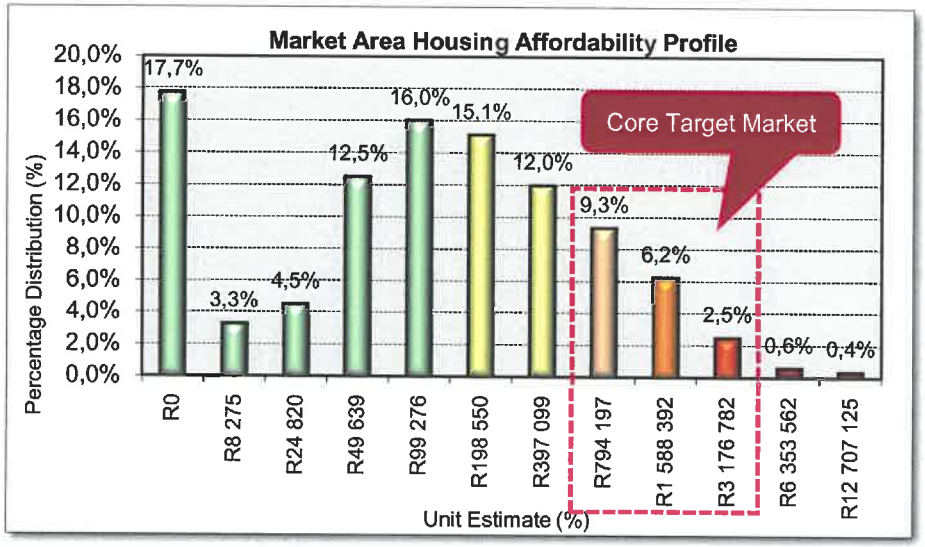
Income Midpoint 2019 (R)	House Price (Midpoint)	Generic Indicative Unit Size	(%)	Number of Units (1 500)	Classification
R0	R0	40m² - 50m²	0.0%	0	Subsidy / Social Housing
R2 987	R8 275	40m² - 50m²		0	Subsidy / Social Housing
R8 960	R24 820	40m² - 50m²		0	Subsidy / Social Housing
R17 919	R49 639	40m² - 50m²		0	Subsidy / Social Housing
R35 838	R99 276	50m² - 60m²		0	Subsidy / Social Housing
R71 675	R198 550	60m² - 70m²			FLISP / Gap
R143 350	R397 099	80m² - 90m²			FLISP / Gap
R286 699	R794 197	120m² - 140m²	49,0%	736	Middle to Higher Income
R573 398	R1 588 392	140m² - 400m²	32,8%	492	Middle to Higher Income
R1 146 795	R3 176 782	420m² - 750m²	13,1%	196	Higher Income

Income Midpoint 2019 (R)	House Price (Midpoint)	Generic Indicative Unit Size	(%)	Number of Units (1 500)	Classification
R2 293 589	R6 353 562	780m² - 1000m²	3,1%	47	Top-End
R4 587 178	R12 707 125	1 000m²+	1,9%	29	Top-End

- ✓ The core target market of the bonded segment is households earning on average between R573 398 and R4 587 178 annually.
- ✓ This segment can afford houses between R1 588 392 and R12 707 178.
- ✓ The total units recommended for the bonded segment of the project is a maximum of approximately **1 500 units.**

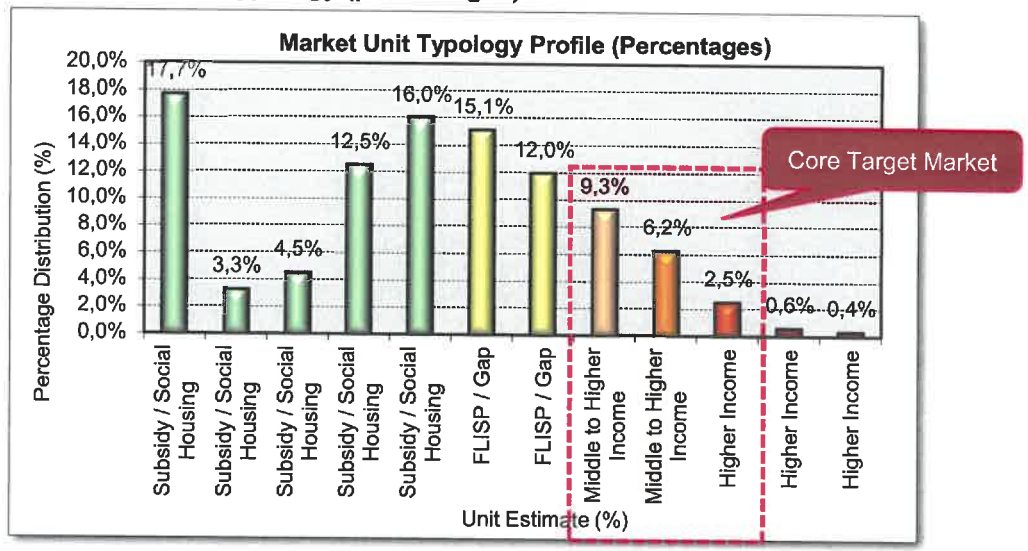
Figure 6.28 indicates the target market housing profile based on the affordability analysis within the delineated source market.

Figure 6.28: Housing Affordability Profile



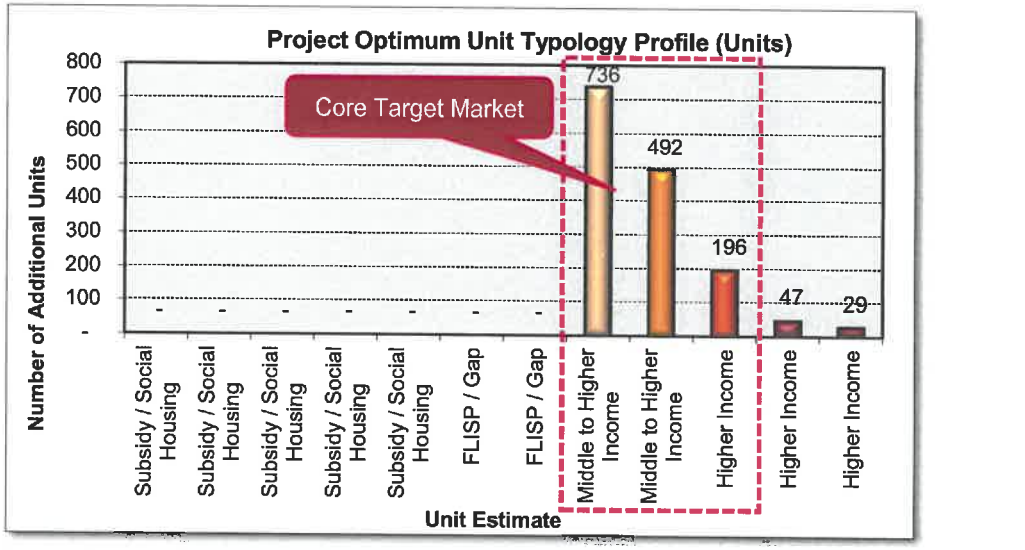
Source: Demacon Demand Modelling, 2019

Figure 6.29: Unit Typology (percentages)



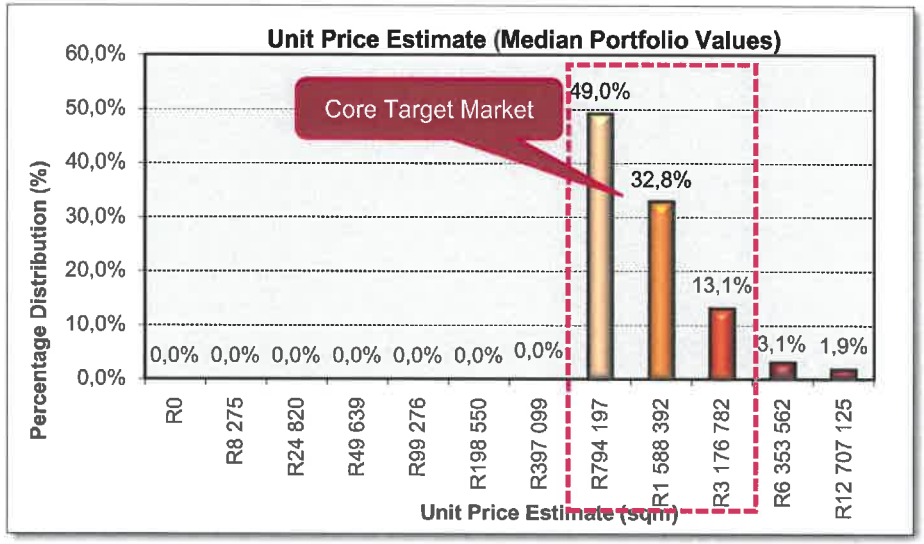
Source: Demacon Demand Modelling, 2019

Figure 6.30: Unit Typology (units)



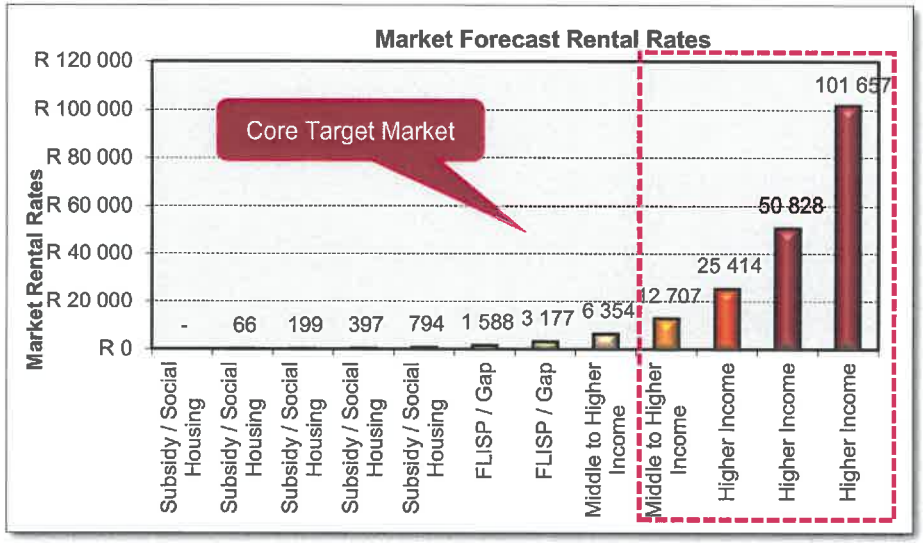
Source: Demacon Demand Modelling, 2019

Figure 6.31: Unit Price Estimate (Median Portfolio Values)



Source: Demacon Demand Modelling, 2019

Figure 6.32: Market Forecast Rental Rates



Source: Demacon Demand Modelling, 2019

❖ Summary of Market Recommendations

Table 6.5: Summary of Market Recommendations

	TOTAL MARKET		
A	Additional HH: base yr + 5yrs		20 237
B	Annualised Market growth (full housing spectrum)		4 047
C	Bonded units		46,1%
D	Bonded take-up per annum		1 865
E	Annual secondary market contribution (units / annum)	Min	2 079
F		Max	4 158
G	Total annual bonded demand	Min	3 944
H		Max	6 023
	PROJECT SPECIFIC – BONDED UNITS		
I	Project Bonded Units		1 500
J	Forecast market share of total market sales	Min	5%
K		Max	10%
L	Project forecast total annual take-up rate (units / annum)	Min	197
M		Max	602
N	Years to 80% take-up (bonded units)	Min	2,5
O		Max	7,6
P		Avg	5,0
	Optimum point of market entry		2021+

Source: Demacon, Modelling 2019
Explanatory Notes:
A = increase in demand for new rental units, 2019 – 2024
B = Annualised market growth, i.e. of A/5
D = B x C
E & F = Annual secondary market contribution (i.e. the contribution made by re-sales in the target affordability income brackets)
G & H = Annual new entry-level to executive flat/ apartment demand; D + E and D + F
I = Project entry-level to executive flat/ apartment units
J & K = assumed market share of market area
L = G x J
M = H x K
N = I / L
O = I / M

Explanatory Notes:
[2] – Reflects the percentage of the local population with incomes and affordability levels aligned to bonded units

[3] – Number of potential buyers through local secondary market transactions, e.g. qualifying local potential buyers selling existing homes to move to new area.

Findings:

- ✓ The modelling portrays market-based take-up based on medium to long-term market growth trends.
- ✓ It can be expected that an estimated 10 827 new households will seek accommodation in the target geographic market area, resulting in an annual growth in demand of approximately 2 165.
- ✓ A total of **1 500 units** (Bonded Units) could be developed and taken up in the market within approximately 7.3 years+ (80% take-up), resulting in between 156 and 296 units *per annum*.
- ✓ Optimum point of market entry: **2021+**

SOCIAL HOUSING

❖ Income and Housing Affordability

The table below indicates a range of income midpoints, midpoint house prices and classifications attainable by the source market area.

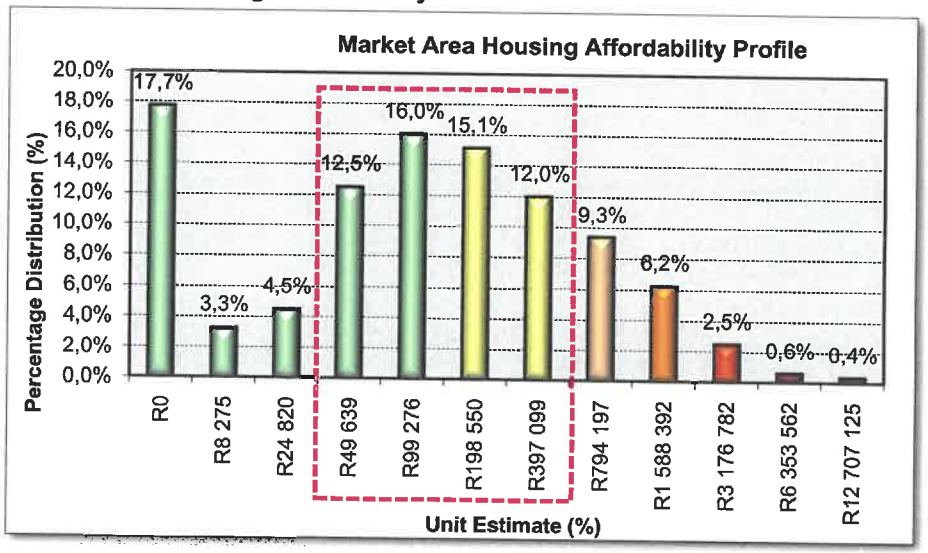
Table 6.6: Residential Affordability Profile

Income Midpoint 2018 (R)	House Price (Midpoint)	Generic Indicative Unit Size	(%)	No of units (450 units)	Classification
R 0	R 0	40m² - 50m²			Subsidised rentals
R 2 987	R 8 275	40m² - 50m²			Subsidised rentals
R 8 960	R 24 820	40m² - 50m²			Subsidised rentals
R 17 919	R 49 639	40m² - 50m²	22,5%	101	Subsidised rentals
R 35 838	R 99 276	50m² - 60m²	28,8%	130	Very affordable rentals
R 71 675	R 198 550	60m² - 70m²	27,2%	122	Low rentals
R 143 350	R 397 099	80m² - 90m²	21,5%	97	Low-middle rentals
R 286 699	R 794 197	120m² - 140m²			Middle rentals
R 573 398	R 1 588 392	140m² - 400m²			Middle-high rentals
R 1 146 795	R 3 176 782	420m² - 750m²			High rentals
R 2 293 589	R 6 353 562	780m² - 1 000m²			Elite rentals
R 4 587 178	R 12 707 125	1 000m²+			Elite rentals

Source: Demacon Demand Modelling, 2019

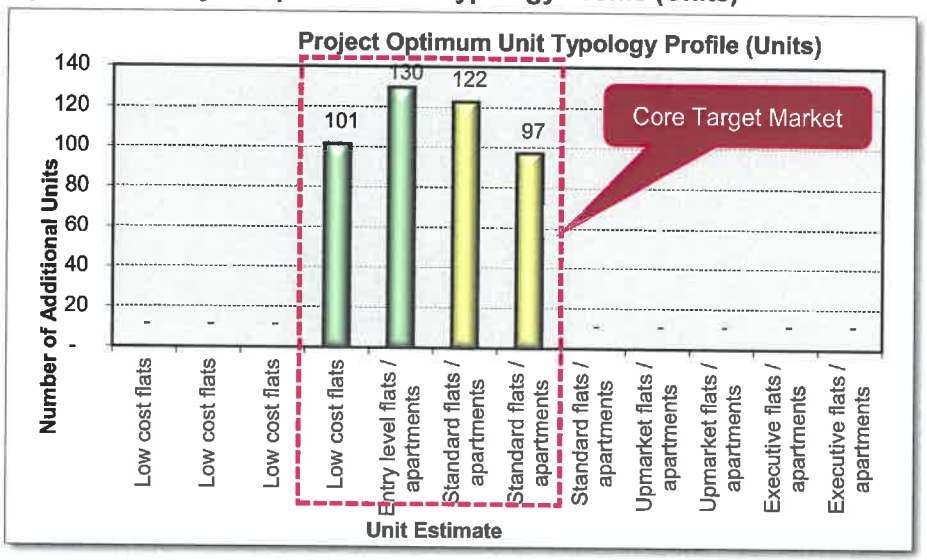
- ✓ The Social Housing segment caters to households earning on average between R17 919 and R143 350 annually.
- ✓ The project could potentially accommodate up to approximately **450 social housing units.**

Figure 6.33: Housing Affordability Profile



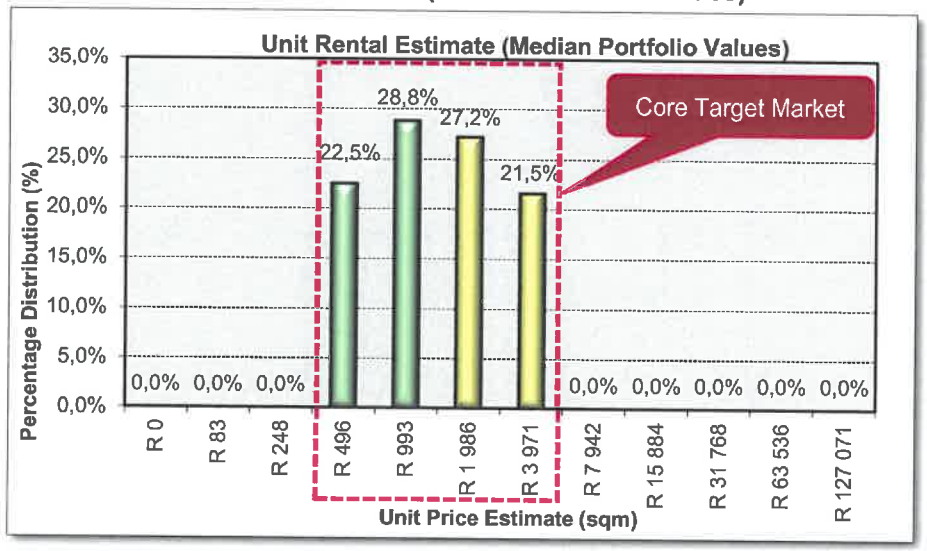
Source: Demacon Demand Modelling, 2019

Figure 6.34: Project Optimum Unit Typology Profile (Units)



Source: Demacon Demand Modelling, 2019

Figure 6.35: Unit Rental Estimate (Median Portfolio Values)



Source: Demacon Demand Modelling, 2019

❖ Project Size and Anticipated Take-Up

The table below indicates the current market performance and the market share that the social housing component of the proposed project could attract.

Table 6.7: Summary of Market Recommendations

	TOTAL MARKET		
A	Additional HH: base yr + 5yrs		20 237
B	Annualized Market growth (full housing spectrum)		4 047
C	Social Housing Segment		55,5%
D	Entry-level to Social Housing take-up per annum		1 763
E	Annual secondary market contribution (units / annum)	Min	1 502
F		Max	2 504
G	Total entry level to Social Housing Market take-up	Min	3 265
H		Max	4 267
	PROJECT SPECIFIC - SOCIAL UNITS		
I	Project entry-level to Social Housing Units		450
J	Forecast market share of total market sales	Min	5%
K		Max	10%
L	Project forecast total annual take-up rate (units / annum)	Min	163
M		Max	427
N	Years to 80% take-up (Social Housing units)	Min	1,1
O		Max	2,8
P		Avg	1,9
	Optimum point of market entry		**2020+**

Explanatory Notes:
A = increase in demand for new housing units, 2019 – 2024 (i.e. new household formation in the market area)
B = Annualized market growth, i.e. of A/5
D = B x C
E & F = Annual secondary market contribution (i.e. the contribution made by re-sales in the target affordability income brackets)
G & H = Annual finance linked and bonded segment demand; D + E and D + F
I = Project finance linked and bonded units
J & K = assumed market share of market area
L = G x J
M = H x K
N = I / L
O = I / M

Findings:

✓ The take-up forecast for social housing units is based on a maximum 1.9 years. This calculation will lead to a feasible 450 units, with a take-up of 163 to 427 units per annum (market share of between 5% to 10%).

- ✓ 22,5% of the rental units could be in the region of R370 to R745 per month, 28,8% in the region of R750 to R1 489 per month, 27.2% in the region of R1 500 to R2 978 and 21.5% between R2 978 to R5 956.
- ✓ The first phase should ideally measure **200 to 250** social units.
- ✓ Optimum point of market entry: **2020+**

6.4 SYNTHESIS

This chapter provided an overview of the residential market trends underlining the source market area. The following summarise the findings of the residential supply and demand in terms of the housing affordability and the net demand modelling.

❑ RESIDENTIAL MARKET ACTIVITY - SUPPLY

From the supply analysis, the following was evident from the **sales data:**

Apartments / Flats

- ✓ The majority of apartments / flats (53.2%) trade between R500 000 to R750 000 followed by 31.9% for less than R500 000.
- ✓ 8.5% of apartments / flats trade between R750 000 to R1 million and 6.3% for more than R1 million.
- ✓ Unit sizes range from **44m^2 to 161m^2**, average of **72m^2**
- ✓ The average price for apartments in the area amounts to approximately **R558 511 (weighted average).**
- ✓ The residential supply currently within the area is predominantly towards the **middle-income segment.**

Houses

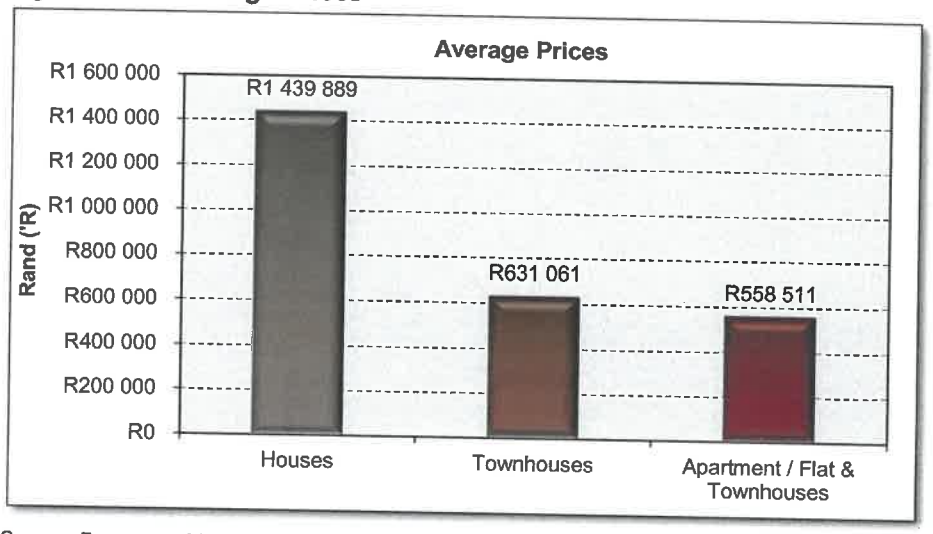
- ✓ The majority of houses (24.5%) trade between R750 000 – R1 million and 23.6% between R500 000 to R750 000.
- ✓ 21.7% of houses trade between R1 million to R1.5 million and 13.7% trade between R1.5 million to R2 million. There are 11.8% of properties for R2 million and more – these properties are situated within Robertsham, Meredale, Ridgeway and Robertsham.
- ✓ Unit sizes range from **52m^2 to 470m^2**, average of **229m^2**
- ✓ Stand sizes range from **195 to 3 878m^2**, average of **781m^2**
- ✓ The average price for houses in the area amounts to approximately **R1 439 889 (weighted average).**
- ✓ The residential supply currently within the area is predominantly towards the **middle-income segment** of the market.

Townhouses

- ✓ The majority of townhouses (67.9%) trade between R750 000 – R750 000 and 17.0% trade for less than R500 000.
- ✓ 10.9% of townhouses trade for R750 000 to R1 million and 3.0% for R1 million to R1.5 million.
- ✓ Unit sizes range from Unit sizes range from **38m^2 to 190m^2**, average of **73m^2**
- ✓ The average price for houses in the area amounts to approximately **R631 061 (weighted average).**
- ✓ The residential supply currently within the area is predominantly towards the **middle-income segment** of the market.

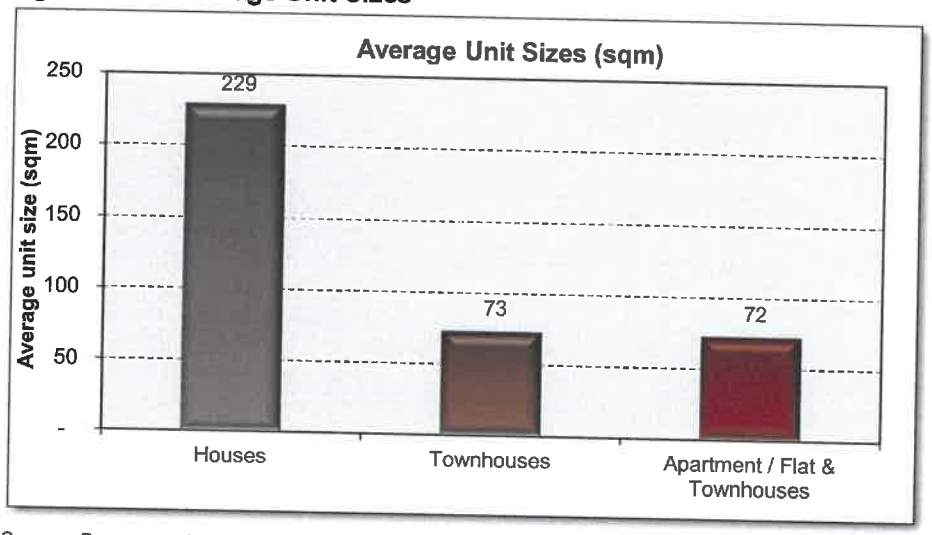
SUMMARY OF SALES DATA

Figure 6.36: Average Prices



Source: Demacon, 2019

Figure 6.37: Average Unit Sizes



Source: Demacon, 2019

From the supply analysis, the following was evident from the **rental data:**

Apartments / Flats

- ✓ The majority of apartments / flats (64.4%) in the area trade for between R5 000 to R7 500, 32.2% trade for less than R5 000 and 3.4% between R7 500 to R10 000.
- ✓ The average unit size ranges from 27m² to 101m², average of **56m²**.
- ✓ The average rental for apartments / flats & townhouses in the area trades for **R5 127** (weighted average).
- ✓ The residential suply currently within the area is predominantly towards the **middle-income segment**.

Houses

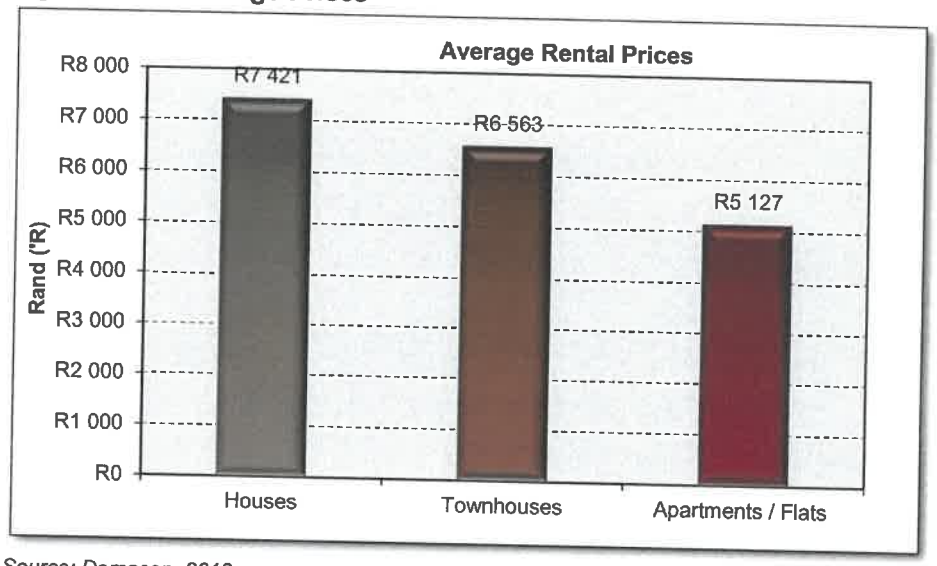
- ✓ The majority of houses (33.3%) in the area trade between R5 000 to R7 500 and 23.8% trade for less than R5 000.
- ✓ 27.0% of the houses trade between R7 500 to R10 000 and 15.9% trade for more than R10 000+.
- ✓ Unit sizes vary between 48m² to 393m², average **135m²** and stand sizes vary between 300 to 1 487m², average **613m²**
- ✓ The average rental for houses in the area trade for **R7 421** (weighted average).
- ✓ The residential supply currently within the area is predominantly towards the **middle-income segment**.

Townhouses

- ✓ The majority of townhouses (77.5%) in the area trade between R5 000 to R7 500 and 12.5% trade for between R7 500 to R10 000.
- ✓ Unit sizes vary between 53m² to 300m², average **101m²**
- ✓ The average rental for townhouses in the area trade for **R6 563** (weighted average).
- ✓ The residential supply currently within the area is predominantly towards the **middle-income segment**.

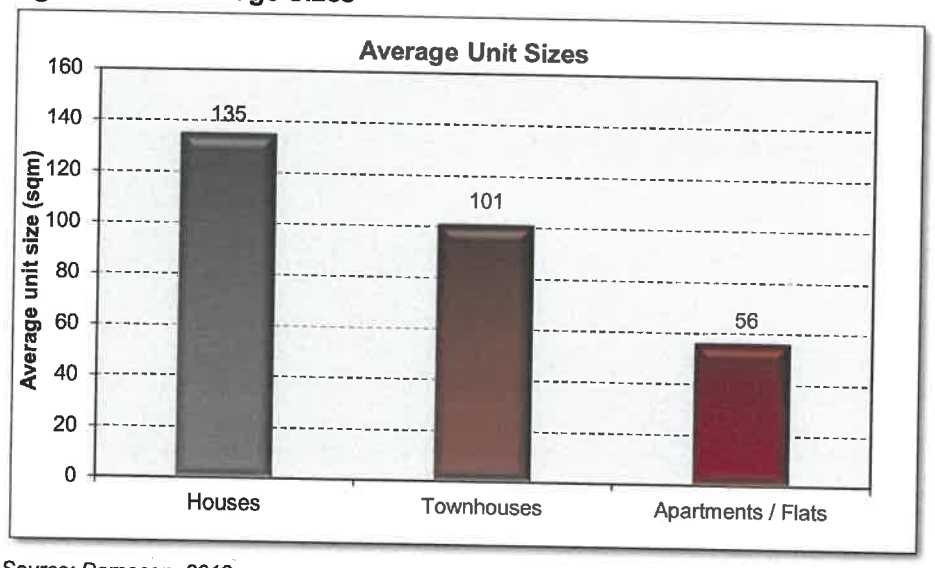
SUMMARY OF RENTAL DATA

Figure 6.38: Average Prices



Source: Demacon, 2019

Figure 6.39: Average Sizes



Source: Demacon, 2019

❑ GAP ANALYSIS

Development Type
- Bonded Housing
- Social Housing

Effective Market Gap
- Yes

Development Prospects
- Moderate to High

In the context of the above, it is evident that there is a market for **bonded and social residential units.**

❑ DEVELOPMENT RECOMMENDATIONS:

Bonded Housing:

- ✓ The modelling portrays market-based take-up based on medium to long-term market growth trends.
- ✓ It can be expected that an estimated 10 827 new households will seek accommodation in the target geographic market area, resulting in an annual growth in demand of approximately 2 165.
- ✓ A total of **1 500 units** (Bonded Units) could be developed and taken up in the market within approximately 7.3 years+ (80% take-up), resulting in between 156 and 296 units *per annum*.
- ✓ Optimum point of market entry: 2021+
- ✓ Configuration of units: a combination of **free-standing homes** and **3 to 4 storey walk-ups** (i.e. medium density units).
- ✓ The localized house price profile (sales) compared with household income figures indicate a high percentage of buyers originating from outside the primary catchment – up to 48% of new home buyers in the Greater Cape Town market originate from beyond the Western Cape (12.6% of buyers are foreigners).

Optimum Distribution Range Configuration

%	Total Units	Price Range	Bedrooms	Square metres
49.0%	441	✓ R600 – R1 million	✓ 1 bed, 1 bath, 1 garage	✓ 60 – 90m²
	294	✓ R1.1million – R1.6 million	✓ 1 bed, 1 bath, 1 garage	✓ 60 – 90m²
32.8%	295	✓ R1.7 million to R2.3 million	✓ 2 bed, 1 bath, 1 garage	✓ 100m² - 135m²
	197	✓ R2.4 million to R4.7 million	✓ 2 bed, 2 bath, 2 garages, carport	✓ 140 – 165m²
18.1%	272	✓ R4.7 million+	✓ 2 bed, 1 bath, 1 garage and 2 bed, 2 bath, 2 garages, carport	✓ 100m² - 165m²
Total	1 500			

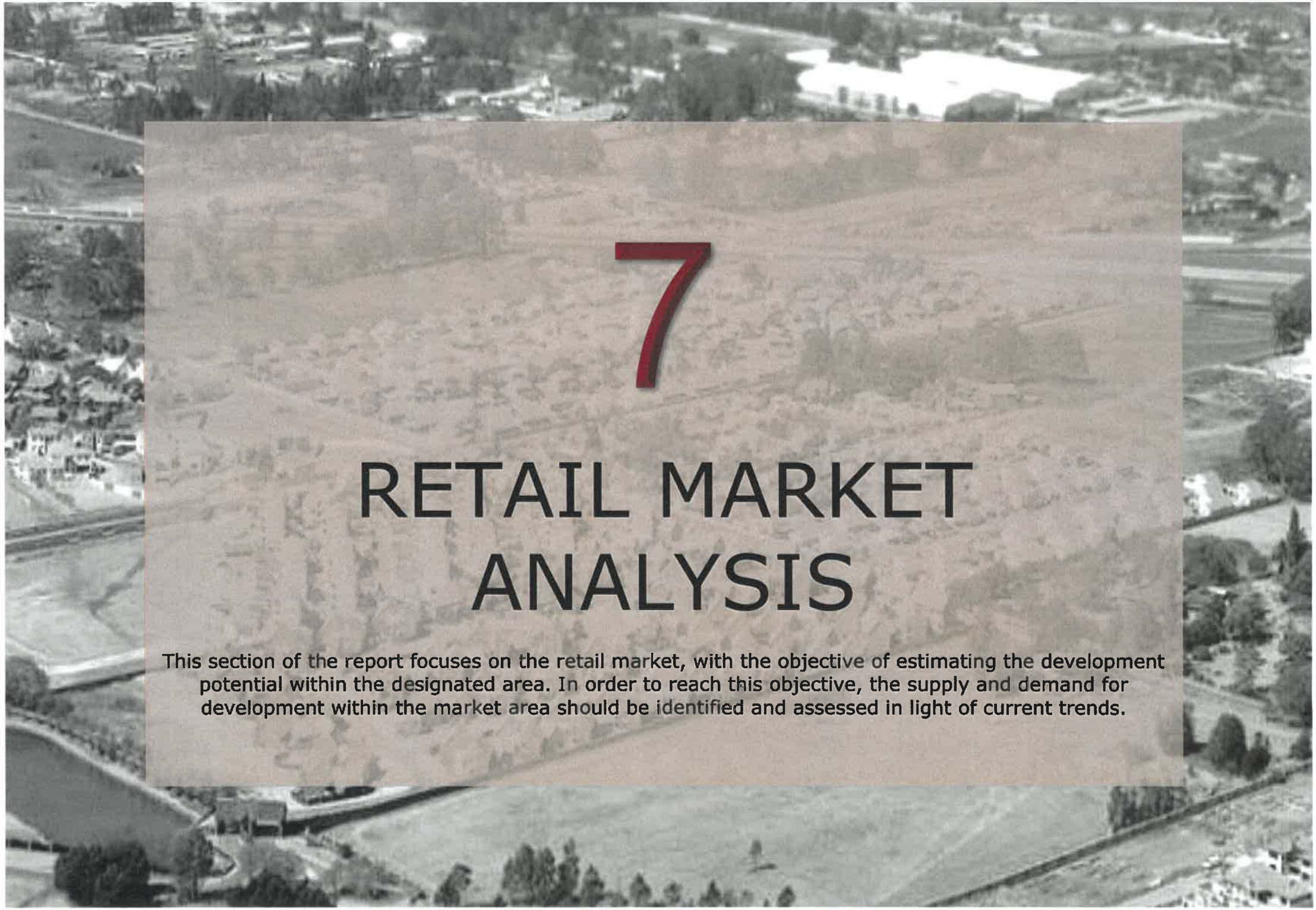
Source: Demacon Demand Modelling, 2019

Social Housing:

- ✓ The modelling portrays demand and take-up based on current and expected future market trends.
- ✓ The table above shows the social housing market potential - this segment (62.9%) yields a take-up of 90 units *per annum*.
- ✓ The take-up forecast for social housing units is based on a maximum 1.9 years. This calculation will lead to a feasible 450 units, with a take-up of 163 to 427 units per annum.
- ✓ 22,5% of the rental units could be in the region of R370 to R745 per month, 28,8% in the region of R750 to R1 500 per month, 27.2% in the region of R1 500 to R3 000 and 21.5% between R3 000 to R6 000.
- ✓ Optimum point of market entry: **2020 / 2021+**

Optimum Distribution Range Configuration

	Percentage contribution	Units (no.)	Monthly rental	Size	Distribution range
1 / 1.5 Bedroom units, 1 Bath	22,5%	101	R370 - R745	35m² - 40m²	20.0% - 25.0%
2 Bedroom units, 1 Bath	28,8%	130	R750 - R1 500	40m² - 45m²	30.0% - 40.0%
2 Bedroom units, 2 Bath	27,2%	122	R1 500 - R3 000	45m² - 55m²	20.0% - 40.0%
3 Bedroom units, 2 bath	21,5%	97	R3000 - R6 000	55m²+	10.0% - 15.0%
Total	100.0%	450			



7

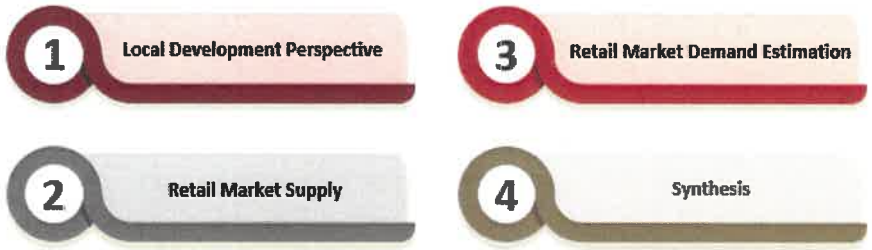
RETAIL MARKET ANALYSIS

This section of the report focuses on the retail market, with the objective of estimating the development potential within the designated area. In order to reach this objective, the supply and demand for development within the market area should be identified and assessed in light of current trends.

RETAIL MARKET ANALYSIS 7

7.1 INTRODUCTION

This section of the report focuses on the retail market, with the objective of estimating the development potential within the designated area. In order to reach this objective, the supply and demand for development within the market area should be identified and assessed in light of current trends. Subsequent sub-sections provide a concise overview of the retail property market in terms of the following aspects:



7.2 LOCAL DEVELOPMENT PERSPECTIVE

The development and overall sustainability of a retail facility relies strongly on its location. The following **location requirements** determine the success of a retail facility:

- ✓ *Visibility and exposure:* Retail facilities should be highly visible and accessible to potential consumers. It should be located in proximity to efficient road and transport networks.
- ✓ *Accessibility:* Retail facilities must be accessible to local labour force as well as consumers. It should be accessible on a local and regional level, as well as on a site-specific basis referring to the ingress and egress from the development.
- ✓ *Functionality & complimentary:* The centre should fit the urban context and should be functionally compatible.
- ✓ *Sufficient buying power:* Total disposable income of the market area population that is available to be spent at a specific retail facility.
- ✓ *Competition:* Existing shopping centres present competition and has an impact on the sustainability of future developments.
- ✓ *Role & function in hierarchy:* Should fit in with existing retail hierarchy of the area.
- ✓ *Address value:* Retail locates in areas where household expenditure is high, where it is accessible and visible.
- ✓ *Growth:*Growth in market population, disposable income and retail support impact on developments.
- ✓ *Traffic volume:* Level of traffic volumes contribute to level of support and exposure.

7.3 RETAIL MARKET POTENTIAL ASSESSMENT

The demand-side dynamics within the market have been concisely described in preceding chapters, supported by a retail market growth assessment. An assessment of the net effective demand for additional retail floor space will be made in this chapter. A growth forecast, respectively for a five and ten-year horizon are provided based on economic, population and income growth prevalent in the market.

Retail demand modelling has become increasingly specialised over the past decade. One particular aspect that has changed is a notable shift away from broad based supply-demand estimations to multivariate, differentiated models. Contemporary models focus on specific expenditure patterns of selected LSM market segments.

The retail development potential estimations will be addressed under the following headings:

The demand and supply side of the retail market can be defined in terms of the following:

Defining Demand

Retail demand depends on a variety of customer-related aspects. It can be conceptualised as follows:

$$D_{ret} = f\{P_o; P_{\%}; Q; Y; R_e; C_p; S_f\}$$

Where:

P_o	=	Population size
$P_{\%}$	=	Population growth
Q	=	Existing quality of retail space
Y	=	Household income
R_e	=	Household expenditure patterns
C_p	=	Consumer preferences
S_f	=	Seasonality factors

Defining Supply

The supply of retail markets entails the following:

$$S_{ret} = f\{D_{ret}; GLA_{ret}; R; S_c; C_c; L_u; I_a; S_p; V_{ret}\}$$

Where:

D_{ret}	=	Demand
GLA_{ret}	=	Current rentable/useable area
R	=	Rent/m^2
S_c	=	Competition
C_c	=	Construction cost
L_u	=	Surrounding land uses
I_a	=	Infrastructure availability
S_p	=	Speculative climate
V_{ret}	=	Vacancy

7.3.1 RETAIL SUPPLY IN THE MARKET AREA

Subsequent paragraphs provide an overview of the existing and proposed retail centres within the primary market area. The findings of the assessment are based on the following sources of information:

- ✓ Shopping Centre Directory, SA Council of Shopping Centres, 1996 – 2019
- ✓ Demacon GIS, 2019

❖ **EXISTING RETAIL SUPPLY**

Table 7.1 indicates all the existing retail supply within a 15-minute drive time – providing the name of the shopping centre, type, size, year developed, parking, retail floors, number of shops and anchor stores. Also, refer to Map 7.1 for the shopping centre supply.

Table 7.1: Retail supply within the primary market area (15-minute drive time)

Name of Shopping Centre	Street Address	Classification	GLA	Year Developed	Year refurbished	Nr of retail floors	Parking open	Parking covered	Parking total	Nr of shops	Main Anchors
Oriental Plaza - Fordsburg	Cnr Main & Bree Streets, Fordsburg	Specialised Purpose: Specialty	80 616	1974	2009	3	2 400	500	2 900	360	Speciality Stores, Oriental Shops
The Glen Shopping Centre	Cnr Orpen & Letaba Streets, Oakdene	Regional Centre	74 624	1998	2009	3	1 700	2 000	3 700	207	Edgars, Woolworths, Foschini Group, Truworths, Pick n Pay, Dis-Chem, Game, Incredible Connection, Hi-Fi Corporation, Mr Price Group
Maponya Mall	2127 Chris Hani Road, Klipspruit Ext 5	Regional Centre	71 359	2007		2	-	-	-	183	Pick n Pay, Woolworths, Edgars, Truworths, Foschini, Mr Price, Ster Kinekor, Virgin Active
Southgate Mall	Cnr Columbine Avenue & Rifle Range Road, Mondeor	Regional Centre	69 750	1990	2002	2	-	180	3 200	201	Checkers, Pick n Pay, Edgars, Woolworths, Ster-Kinekor, Game
Mall of the South	Cnr Swartkoppies and Kliprivier Road, Aspen Hills	Regional Centre	65 000	2015		2	-	-	-	150	Pick n Pay, Checkers, Game, Woolworths, Edgards, Mr Price Group, Truworths, Foschini
Jabulani Mall	644 Cnr Bolani Road & Koma Street, Jabulani	Regional Centre	48 855	2006		1	1 789	-	1 789	109	Shoprite, Food Lover's Market, Game, Woolworths, Truworths, Mr Price, Edgars & Foschini, Virgin Active
Alberton City Shopping Centre	Cnr Voortrekker Road & Du Plessis Road, New Redruth	Regional Centre	47 091	1986	2014	2	1 036	652	1 688	125	Pick n Pay, Game, Woolworths, Edgars, Truworths, Foschini Group, Mr Price Group, House & Home
Newtown Junction	Cnr Miriam Makeba & Carr Streets, Newtown	Regional Centre	33 653	2014		1	-	-	-	355	Pick n Pay, Shoprite, Mr Price, Foschini, Truworths, Restaurants, Small Shops and Boutiques
Southdale Mall	Stand 129, Cnr Alamien & Landsborough Road, Southdale	Community Centre	32 400	1968	2014	3	568	-	568	118	Pick n Pay, Shoprite Checkers
Dobsonville Mall (previously Dobsonville Shopping Centre)	Elias Motsoaledi Road, Dobsonville	Community Centre	26 626	1996	2010	1	550	-	550	63	Checkers, Mr Price, Jet
14 Avenue District Shopping Centre	235 Golf Club Terrace, Constantia Kloof	Value Centre	24 879	1978	2006	1	1 571	-	1 571	31	CheckersHyper, House & Home, Ackermans, Pep, FNB, BabiesRUs
China Mall	Industrial Road, Industria	Value Centre	21 463	2006		2	-	-	-	-	Chinese Shops

Name of Shopping Centre	Street Address	Classification	GLA	Year Developed	Year refurbished	Nr of retail floors	Parking open	Parking covered	Parking total	Nr of shops	Main Anchors
Makro - Crown Mines	Cnr Main Reef Road & Hanover Street, Crown Mines	Value Centre	19 705	1977		1	900	-	900	1	Free-standing Makro
Southgate Value Market	Cnr Columbine Avenue & Rifle Range Road, Mondeor	Value Centre	19 200	1990	2002	1	-	-	-	25	Builder's Express, Shoprite, Virgin Active, McDonald's
Comaro Crossing	Cnr Oak Street & Boundary Road, Oakdene	Neighbourhood Centre	16 870	2001	2007	1	-	-	-	43	Pick n Pay, Fruit and Veg City, Meatworld, KFC
Alberton Value Centre	St Austell Street, New Redruth	Value Centre	15 972	1978	2010	1	730	-	730	14	Baby City, Timber City, Waltons, On Tap, Tiger Wheels
Diepkloof Square	Cnr Patrick Road & Immink Drive, Zone 3, Diepkloof	Community Centre	15 400	2013		1	-	-	-	42	Pick n Pay, Food Lover's Market, Cashbuild
Rosettenville Junction	592 Geranium Street, Rosettenville	Community Centre	14 189	1995		2	631	448	1 079	55	Pick n Pay, Truworths, Mr Price, Pep
New Redruth Village	Cnr St Austell Street & Cambourne Road, New Redruth	Neighbourhood Centre	12 028	2006	2012	1	586	-	586	32	Pick n Pay, Woolworths
Comaro View Shopping Centre	Cnr Comaro Street & Soetdoring Avenue, Bassonia	Neighbourhood Centre	11 000	1996	2009	2	600	150	750	35	Spar, Liquor City, Virgin Active, Woolworths, Clicks
Klipspruit Centre - Soweto	Cnr Chris Hani & Dynamo Streets, Klipspruit	Neighbourhood Centre	10 434	1980		1	-	-	-	15	Builders Trade Depot, Fair Discounters
Xavier Boulevard	20 Cnr Xavier & Vleiroos Streets, Winchester Hills	Neighbourhood Centre	10 167	2006		1	-	-	280	18	Bathroom Bizzare
Protea Shopping Centre	High Street, Brixton	Neighbourhood Centre	10 001	1970	2003	2	98	143	241	46	Pick n Pay Super, Ackermans, Cash Crusader, SA Post Office
Bara Mall	Stand 24793 Cnr Old Potchefstroom Road & Nicholas Drive, Diepkloof Ext 4	Neighbourhood Centre	9 645	2007		1	-	-	-	50	Shoprite, Pep, Standard Bank, ABSA
Meyersdal Mall	Cnr Hennie Alberts Street & Michelle Avenue, Meyersdal	Neighbourhood Centre	9 605	1997	2008	2	680	-	680	50	Spar, Steers, Mica, Mimmos, Nedbank, Harbour Fish & Grill
Panorama Shop & Leisure Centre	Cnr Kliprivier Drive & Jordi Street, Mulbarton	Neighbourhood Centre	9 025	1997		2	-	-	-	45	Pick n Pay Family, Mr Video, Yankees, Pam Golding, Jimmy's Killer Prawns
Glenvista Shopping Centre	188 Biggarsberg Road, Glenvista Ext 5	Neighbourhood Centre	8 722	1983	2007	2	250	100	350	35	Checkers, Woolworths Food, Clicks
Shoprite Centre - Eldorado Park	Sirkel Road, Extension 2	Neighbourhood Centre	7 442	1992	2000	1	311	-	311	29	Shoprite, OK Furniture, Lewis Furniture

Name of Shopping Centre	Street Address	Classification	GLA	Year Developed	Year refurbished	Nr of retail floors	Parking open	Parking covered	Parking total	Nr of shops	Main Anchors
Columbine Crossing Shopping Centre	Cnr Columbine & John Mansfield Avenues, Mondeor Ext 3	Neighbourhood Centre	7 000	1997	2006	1	80	14	94	14	Pick n Pay
Columbine Square	82 Swartgoud Street, Suideroord	Neighbourhood Centre	6 939	2006		1	216	120	336	32	Checkers, Clicks, Woolworths
Glenanda Village Shopping Centre	Cnr Vorster & Le Roux Avenues, Glenanda	Neighbourhood Centre	5 800	1981	2010	2	60	-	60	20	Steers, Foo Wah Chinese Restaurant
Ridgeway Mall	Cnr Swartgoud & Rifle Range Roads, Ridgeway	Neighbourhood Centre	5 752	1980	2000	1	-	-	-	28	Shoprite, Pep
Homemakers Village	69 Turfclub Road, Turffontein	Neighbourhood Centre	5 615	1980		1	100	50	150	20	Essential Paint, Vacant Shops
Goldman Crossing Shopping Centre	Cnr 9th Avenue & Goldman Street, Florida	Neighbourhood Centre	5 500	1998	2006	1	300	-	300	25	Superspar
De Marionette - Meyersdal	Cnr Michelle & Blue Crane Avenues, Meyersdal Ext 19	Neighbourhood Centre	5 109	2005		1	150	28	178	22	Small shops
Boulevard on Main	171 Main Road, Kenilworth	Local Convenience Centre	4 700	1991	2006	2	200	-	200	3	Superspar, Tops
Meadow Point	Heckroodt Circle, Zone 2, Meadowlands	Local Convenience Centre	4 559	0		1	60	-	60	34	Pick n Pay Supermarket, Pep, Ellerines
Virgin Active - Kliprivier	Farm Rietvlei 101, Glenvista	Local Convenience Centre	4 350	2011		1	-	-	-	3	Virgin Active
Pimville Square	11665 Modjadji Street, Pimville Zone 7	Local Convenience Centre	4 307	1989		1	84	-	84	29	Shoprite
Amrel Centre	Cnr Voortrekker Road & Redruth Street, Alberton Central	Strip Convenience Centre	3 914	2003		1	-	-	-	1	Tafelberg Furnishers
Mulbarton Shopping Centre	13 True North Road, Mulbarton	Local Convenience Centre	3 549	0		1	120	-	120	18	Spar
Devon Valley	Cnr 9th and Rugby Road, Weltevreden Park	Local Convenience Centre	2 900	1998	2013	1	80	-	80	10	Quik Foods
Meyersdal Square	Cnr Michelle Avenue & Jurgen van Bruggen Street, Randhart	Local Convenience Centre	2 800	2007		2	200	-	200	23	Woolworths Food
Mondeor Village	Cnr Columbine Avenue & Ormonde Drive, Mondeor	Strip Convenience Centre	2 042	0		2	94	-	94	8	Black Steer, Mr Video

Name of Shopping Centre	Street Address	Classification	GLA	Year Developed	Year refurbished	Nr of retail floors	Parking open	Parking covered	Parking total	Nr of shops	Main Anchors
Founders Square	Cnr Ontdekkers Road & 6th Avenue, Delarey	Local Convenience Centre	2 013	2001		1	35	-	35	8	Goldwagen, SAPO, South Supermarket
Crystal Mall	Cavendish Road & George Elliot, Ext 6, Eldorado Park Ext 6	Local Convenience Centre	1 994	2000		1	-	-	-	8	Shoprite
Shoprite Centre - Dube	Cnr Mahalefele Road & Tshekedi Street, Dube	Local Convenience Centre	1 250	0		2	-	-	1 000	20	Shoprite, Hungry Lion, Liquor Store
TOTAL (m^2)			875 814								

Source: Demacon, 2019

❖ PROPOSED RETAIL SUPPLY

Table 7.2: Proposed supply in the market area

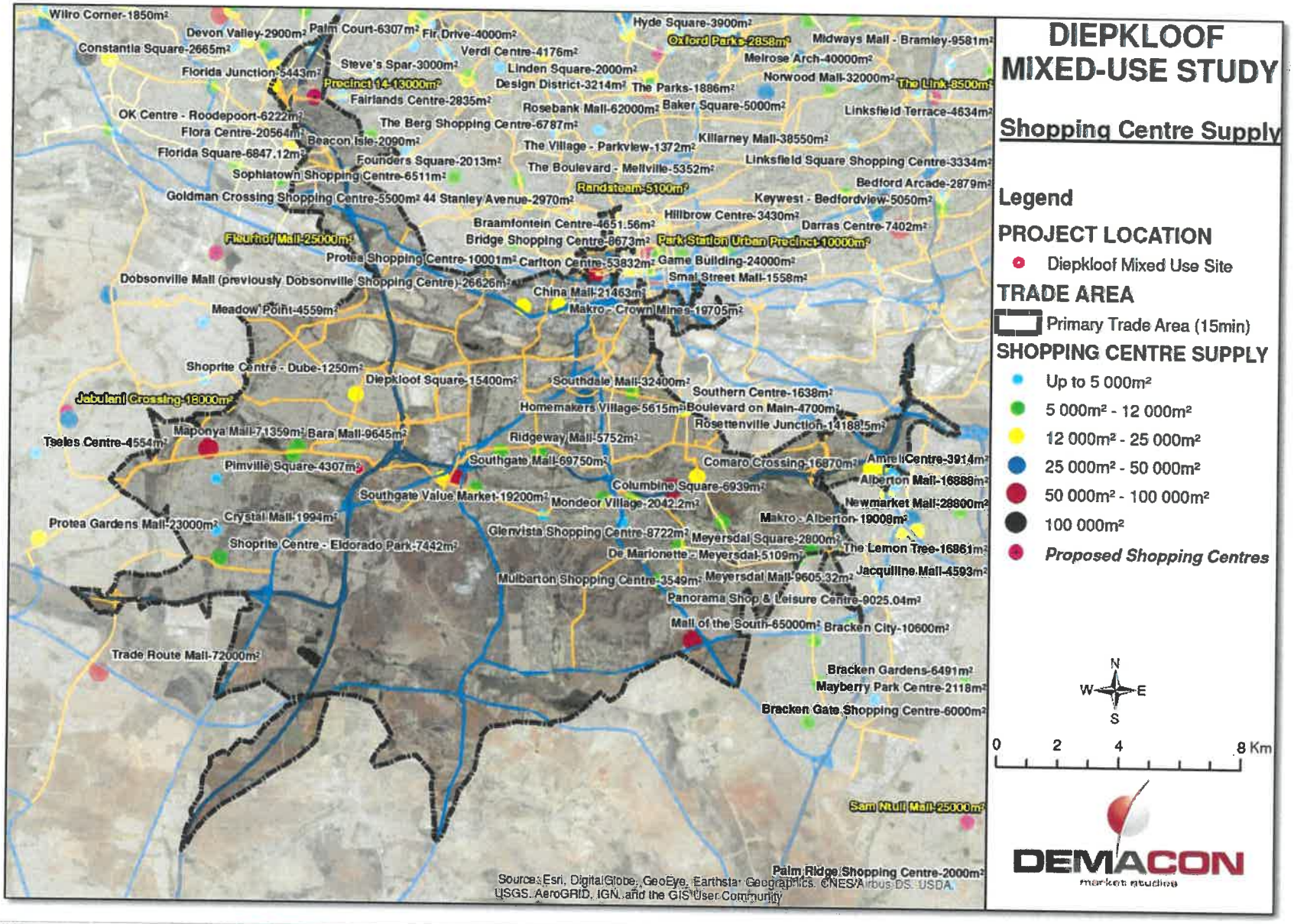
Name of shopping centre	Street Address	Classification	GLA	Developer	Year of development	Retail floors	Parking Total	No of shops	Main Anchors
Fleurhof Mall	Fleurhof Drive, Fleurhof	Community Centre	25 000	Abland Property Developments	2019		0		
Jabulani Crossing	Cnr Legogo & Bolani Street, Soweto	Community Centre	18 000	Retail Network Services	2018	1	750	45	Cashbuild, Pick 'n Pay
Precinct 14	14th Avenue, Roodepoort	Community Centre	13 000	Atterbury Property Developments & Century Property Developments	2020		0		Woolworths
TOTAL (m^2)			56 000						

Source: Demacon, 2019

Findings:

- ✓ Total *existing supply* of shopping centre retail floor space within the primary market area (15-minute drive time) presently amounts to approximately **875 814m^2 GLA.**
- ✓ Proposed shopping centre supply amounts to **56 000m^2.**
- ✓ To conclude, the above supply figures can not directly be correlated with the demand of the market area due to the fact that most of the centres are trading off multiple trade areas and trade area overlap is present.

Map 7.1: Retail supply within the primary market area



7.3.2 RETAIL MARKET DEMAND ESTIMATIONS

The retail market is a derived demand. The primary demand drivers are community income and expenditure profiles. An important concept in retailing is the fact that different order size shopping centres cater to different consumer needs and hence, do not compete directly for market share. In this context, the objective of this sub-section is to access the magnitude of retail development that can be sustained by the node and the new resident community.

The retail demand estimations are conducted based on prevalent population and income growth trends (all values: 2019 constant prices). The demand estimations are considered conservative and realistic. Subsequent paragraphs indicate the market potential analysis of the proposed development. The retail market estimations are based on a trade area-based technique.

The following tables summarise the current and forecast market expenditure and the retail floor space for retail facilities within the retail node. Demand values are presented for **2019, 2024** and **2029 (all values: constant 2019 prices).**

LSM 4 – 10+ RETAIL MODELLING

Subsequent section is based on LSM 4 – 10+ households in the primary market area.

Table 7.3: Market Area Retail Expenditure, 2019, 2024 and 2029

Retail Category	2019 R/annum	2024 R/annum	2029 R/annum
Bulk groceries	R8 873 216 588	R10 395 775 704	R12 179 591 405
Top-up groceries	R2 652 575 329	R3 107 731 890	R3 640 988 965
Clothing, shoes, accessories	R3 920 177 699	R4 592 842 705	R5 380 930 594
Furniture and home ware	R1 150 231 780	R1 347 600 554	R1 578 835 923
Hardware goods	R422 534 123	R495 036 938	R579 980 543
Gifts, books and confectionary	R868 542 364	R1 017 575 929	R1 192 182 227
Specialty / value goods	R281 689 415	R330 024 626	R386 653 695
Restaurants, entertainment	R2 910 790 627	R3 410 254 464	R3 995 421 519
Personal care	R915 490 600	R1 072 580 033	R1 256 624 510
Other personal goods & services	R1 478 869 431	R1 732 629 284	R2 029 931 901
TOTAL	R23 474 117 958	R27 502 052 127	R32 221 141 282

Source: Demacon Demand Modelling, 2019

❖ **MARKET RETAIL FLOOR SPACE DEMAND**

The above expenditure patterns translate into the demand for retail floor space as summarised in Table 7.4.

Table 7.4: Retail Floor Space Demand, 2019, 2024 and 2029

Retail Category	2019 (m^2 GLA)	2024 (m^2 GLA)	2029 (m^2 GLA)
Bulk groceries	187 648	199 121	211 297
Top-up groceries	56 096	59 526	63 165
Clothing, shoes, accessories	114 600	121 608	129 044
Furniture and home ware	33 625	35 681	37 863
Hardware goods	12 352	13 107	13 909
Gifts, books and confectionary	22 718	24 107	25 581
Specialty / value goods	7 368	7 818	8 297
Restaurants, entertainment	85 093	90 296	95 817
Personal care	26 763	28 399	30 136
Other personal goods & services	43 233	45 876	48 681
TOTAL	589 495	625 540	663 789

Source: Demacon Demand Modelling, 2019

❖ **TENANT COMPOSITION & APPORTIONMENT**

Given the above market potential estimation, based on the Residual Demand Technique, the Market Share Model could assist in refining the tenant composition of the proposed centre. PhD research conducted by the author indicates that the share technique should not be applied in isolation, but only once market potential has been established, to inform centre composition and tenant mix.

In the context of the market potential analysis, empirical data was utilised to estimate the apportionment of additional floor space. Table 7.5 indicates the retail tenant mix apportionment and findings provide guidelines for centre tenanting and merchandising.

OPTION 1:

Table 7.5: Retail tenant mix apportionment, 2019

Retail Category	Min Demand (m²)	Max Demand (m²)	Midpoint (m²)	Floor space apportionment (%)
Bulk groceries	15 012	22 518	18 765	31,8%
Top-up groceries	4 488	6 731	5 610	9,5%
Clothing, shoes, accessories	9 168	13 752	11 460	19,4%
Furniture and home ware	2 690	4 035	3 363	5,7%
Hardware goods	988	1 482	1 235	2,1%
Gifts, books and confectionary	1 817	2 726	2 272	3,9%
Specialty / value goods	589	884	737	1,2%
Restaurants, entertainment	6 807	10 211	8 509	14,4%
Personal care	2 141	3 212	2 676	4,5%
Other personal goods & services	3 459	5 188	4 323	7,3%
TOTAL	47 160	70 739	58 950	100,0%

Source: Demacon Demand Modelling, 2019

Table 7.5 indicates that the market potential for retail (in 2019) is in the region of approximately **58 950m² retail GLA**. The potential is calculated on average benchmark trading densities and market shares for similar centres in comparable market areas. The centre will, however, not be operational in 2019 and optimum centre size should take in account the short-term growth in demand, as well as the acceptable addition of 10% – 20% for non-retail services.

OPTION 2:

Table 7.6: Retail tenant mix apportionment, 2019

Retail Category	Min Demand (m²)	Max Demand (m²)	Midpoint (m²)	Floor space apportionment (%)
Bulk groceries	3 753	6 568	5 160	31,8%
Top-up groceries	1 122	1 963	1 543	9,5%
Clothing, shoes, accessories	2 292	4 011	3 152	19,4%
Furniture and home ware	673	1 177	925	5,7%
Hardware goods	247	432	340	2,1%
Gifts, books and confectionary	454	795	625	3,9%
Specialty / value goods	147	258	203	1,2%
Restaurants, entertainment	1 702	2 978	2 340	14,4%
Personal care	535	937	736	4,5%
Other personal goods & services	865	1 513	1 189	7,3%
TOTAL	11 790	20 632	16 211	100,0%

Source: Demacon Demand Modelling, 2019

Table 7.6 indicates that the market potential for retail (in 2019) is in the region of approximately **16 211m² retail GLA**. The potential is calculated on average benchmark trading densities and market shares for similar centres in comparable market areas. The centre will, however, not be operational in 2019 and optimum centre size should take in account the short-term growth in demand, as well as the acceptable addition of 10% – 20% for non-retail services.

Based on the demand modelling results, the following table indicates the recommended centre options.

Table 7.7: Ideal tenant mix apportionment at optimum point of market entry

Retail Category	OPTION 1: Min Demand (m²)	OPTION 2: Min Demand (m²)
Groceries	33 821	9 301
Clothing, shoes, accessories	15 902	4 373
Furniture and home ware	4 666	1 283
Hardware goods	1 714	471
Gifts, books and confectionary	3 152	867
Specialty / value goods	1 022	281
Restaurants, entertainment	11 807	3 247
Personal care	3 714	1 021
Other personal goods & services	5 999	1 650
TOTAL	81 797	22 494

Source: Demacon Demand Modelling, 2019

❖ TOTAL RETAIL EXPENDITURE & DEMAND

Table 7.8 the total retail expenditure of the markets and the total retail demand in the market.

Table 7.8: Summary of Total Expenditure - 2019, 2024 and 2029

	2019 Rand/annum	2024 Rand/annum	2029 Rand/annum
Retail Expenditure	R23 474 117 958	R27 502 052 127	R32 221 141 282

Source: Demacon Demand Modelling, 2019

Table 7.9: Summary of Total Demand - 2019, 2024 and 2029

	2019 m² GLA	2024 m² GLA	2029 m2 GLA
Retail Demand	589 495	625 540	663 789
Services	117 899	125 108	132 758
Total	707 394	750 648	796 547

Source: Demacon Demand Modelling, 2019

❖ SUMMARY OF RETAIL MARKET DEMAND ESTIMATIONS

The retail demand modelling for the LSM 4 – 10+ market, suggests that the optimum centre size in terms of the baseline scenario could ideally measure a centre of **±81 797m² GLA**.Refer to table below.

Table 7.10: Summary of market demand estimations

	OPTION 1: LSM 4 – 10+ (Rand / sqm)	OPTION 2: LSM 4 – 10+ (Rand / sqm)
Total annual growth in market demand (sqm/a)	7 209	7 209
Centre share of growth (sqm/a)	721	198
Point of market entry	2022+	2022+
Additional growth in demand for centre (sqm)	6 488	1 784
Retail GLA at OPME	65 438	17 995
Services GLA at OPME	16 359	4 499
Cinemans & Entertainment	-	-
OPME Centre Size (sqm GLA)	81 797m²	22 494m²
On-site job creation	2 727	750
Retail Sales potential (R2019 value)	R3 077 863 569	R846 412 482
Total capital investment (R2019 value)	R1 554 142 999	R427 389 325
Additional Parking bays required	3 272	900
Parking infrastructure & landscaping cost	R77 870 744	R21 414 455

Source: Demacon Demand Modelling, 2019

7.4 SYNTHESIS

The findings of the preceding Chapter are integrated into an empirical assessment of retail market potential.

❑ RETAIL MARKET SUPPLY

Findings:

- ✓ Total *existing supply* of shopping centre retail floor space within the primary market area (15-minute drive time) presently amounts to approximately **875 814m² GLA.**
- ✓ Proposed shopping centre supply amounts to **56 000m²**.

✓ To conclude, the above supply figures can not directly be correlated with the demand of the market area due to the fact that most of the centres are trading off multiple trade areas and trade area overlap is present.

❑ GAP ANALYSIS

The development and overall sustainability of a retail facility relies strongly on its location. The following **location requirements** determine the success of a retail facility:

- ✓ **Sufficient buying power** – this refers to the disposable income per household in the catchment area of a retail facility, which is available to be spent at the specific retail facility.
- ✓ **Competition** – this plays an important role in the location of a retail facility. The sustainability and viability of a retail facility is higher with no competition than in an area with competition.
- ✓ **Competitive shopping / clustering** – this refers to the location of similar retail facilities in close proximity of each other. The result is lower prices as well as the improvement of services and products to the benefit of the consumer.
- ✓ **Accessibility** – the accessibility of a retail location to the labour force as well as consumers is an important locational factor in the development of retail facilities.
- ✓ **Land** – land as a locational factor refers to the market value of land or the lease value of structures. Lower values provide better development opportunities.
- ✓ **Role and function in shopping centre hierarchy** – retail facilities in a given geographical area are ranked in a hierarchy that services a given portion of the consumer population, according to each centre's unique size, composition, role and function.

❑ SUMMARY OF THE DEMAND ANALYSIS

The following table summarises the demand analysis for the retail component.

Table 7.11: Summary of market demand estimations

	OPTION 1: LSM 4 – 10+ (Rand / sqm)	OPTION 2: LSM 4 – 10+ (Rand / sqm)
Total annual growth in market demand (sqm/a)	7 209	7 209
Centre share of growth (sqm/a)	721	198
Point of market entry	2022+	2022+
Additional growth in demand for centre (sqm)	6 488	1 784
Retail GLA at OPME	65 438	17 995
Services GLA at OPME	16 359	4 499
Cinemans & Entertainment	-	-
OPME Centre Size (sqm GLA)	81 797m^2	22 494m^2
On-site job creation	2 727	750
Retail Sales potential (R2019 value)	R3 077 863 569	R846 412 482
Total capital investment (R2019 value)	R1 554 142 999	R427 389 325
Additional Parking bays required	3 272	900
Parking infrastructure & landscaping cost	R77 870 744	R21 414 455

Source: Demacon Demand Modelling, 2019

❑ CENTRE SIZE AND RECOMMENDATIONS

OPTION 1:

Size and parking:

- ✓ The short to medium term prospect is for a **regional shopping centre**.
- ✓ Market data suggests that the optimum size for a new shopping centre over the short to medium term measuring ideally **±81 797m² GLA**.
- ✓ The optimum point of market entry for the first phase would be **2026+** and the second phase **2022+.**
- ✓ The proposed convenience / lifestyle retail centre should be able to attain an annual sales potential of approximately **R3 077 863 569** (based on benchmark trading densities) & permanent on-site job creation of **±2 727**.
- ✓ Performance will be dependent on, inter alia, appropriate tenant composition.
- ✓ The regional centre could include between **150 to 250** shops
- ✓ Ample parking should be provided at a ratio of **6 bays per 100m²** retail GLA
- ✓ The parking area should be accessible, convenient, paved and well-lit in the evenings
- ✓ Land should be reserved for future expansion phase

Main Tenants (Regional Centre):

- ✓ Large Supermarket(s) or hyper
- ✓ 3 or more large clothing stores
- ✓ Small clothing stores and boutiques
- ✓ Entertainment, restaurants
- ✓ Services
- ✓ Convenience stores

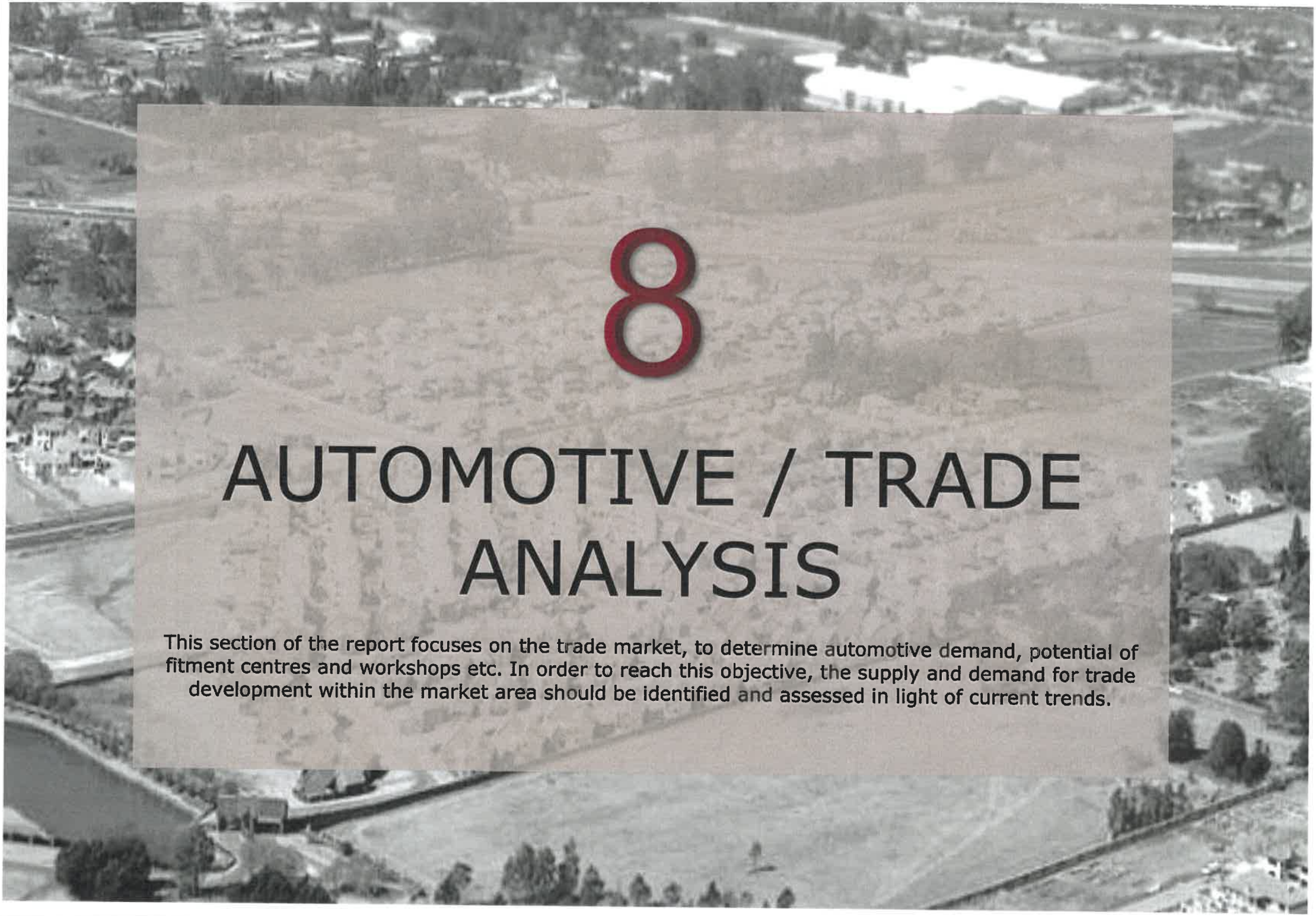
OPTION 2

Size and parking:

- ✓ The short to medium term prospect is for a **convenience / lifestyle shopping centre**.
- ✓ Market data suggests that the optimum size for a new shopping centre over the short to medium term measuring ideally **±22 494m² GLA**.
- ✓ The optimum point of market entry for the first phase would be **2026+** and the second phase **2022+.**
- ✓ The proposed convenience / lifestyle retail centre should be able to attain an annual sales potential of approximately **R846 412 482** (based on benchmark trading densities) & permanent on-site job creation of **±750**.
- ✓ Performance will be dependent on, inter alia, appropriate tenant composition.
- ✓ The regional centre could include between **50 to 100** shops
- ✓ Ample parking should be provided at a ratio of **6 bays per 100m²** retail GLA
- ✓ The parking area should be accessible, convenient, paved and well-lit in the evenings
- ✓ Land should be reserved for future expansion phase

Main Tenants (Convenience / Lifestyle Centre):

- ✓ Large Supermarket
- ✓ Convenience
- ✓ Small national clothing stores
- ✓ Entertainment & takeaways
- ✓ Services



8

AUTOMOTIVE / TRADE ANALYSIS

This section of the report focuses on the trade market, to determine automotive demand, potential of fitment centres and workshops etc. In order to reach this objective, the supply and demand for trade development within the market area should be identified and assessed in light of current trends.

AUTOMOTIVE TRADE ANALYSIS 8

8.1 INTRODUCTION

This section of the report focuses on the trade market, to determine automotive demand, potential of fitment centres and workshops etc. In order to reach this objective, the supply and demand for trade development within the market area should be identified and assessed in light of current trends.

Subsequent sub-sections provide a concise overview of the market in terms of the following aspects:

- ✓ Defining of Sector and Sub-Sectors
- ✓ Market Potential Assessment
  - Market Supply
  - Space Demand Modelling
- ✓ Synthesis

8.2 DEFINING OF SECTOR AND SUBSECTOR

The formal definition of the wholesale and retail trade sector according to the Stats SA SIC (Standard Industrial Classification and all Economic Activities (SIC)) is:

MAJOR DIVISION 6: Wholesale and retail trade, repair of motor vehicles, motor cycles and personal and household goods, hotels and restaurants. The formal definitions of the sub-sectors according to the Stats SIC are:

SIC 61 - Wholesale and commission trade, except of motor vehicles and motor cycles

This sector (61) includes the following activities:

611	wholesale trade on a fee or contract basis
612	wholesale trade in agricultural raw materials, livestock, food, beverages and tobacco
613	wholesale trade in household goods
614	wholesale trade in non-agricultural intermediate products, waste and scrap
615	wholesale trade in machinery, equipment and supplies
616	other wholesale trade

SIC 62 - Retail trade, except of motor vehicle and motor cycles; repair of personal household goods

This sector (62) includes the following activities:

621	non-specialised retail trade in stores
622	retail trade in food, beverages and tobacco in specialised stores
623	other retail trade in new goods in specialised stores
624	retail trade in second-hand goods in stores
625	retail trade not in stores
626	retail trade of personal and household goods

SIC 63 - Sale, maintenance and repair of motor vehicles and motorcycle; retail trade in automotive fuel

This sector (63) includes the following activities:

631	sale of motor vehicles
632	maintenance and repair of motor vehicles
633	sale of motor vehicle parts and accessories
634	sale, maintenance and repair of motorcycles and related parts and accessories
635	retail sale of automotive fuel

SIC 64 - Hotels and restaurants

This sector (64) includes the following activities:

641	hotels, camping sites and other provision of short-stay accommodation
642	restaurants, bars and canteens

8.3 MARKET POTENTIAL ASSESSMENT

The demand-side dynamics within the market have been concisely described in preceding chapters, supported by a retail market growth assessment. An assessment of the net effective demand for additional retail floor space will be made in this chapter. A growth forecast, respectively for a five and ten-year horizon are provided based on economic, population and income growth prevalent in the market.

Demand modelling has become increasingly specialised over the past decade. One particular aspect that has changed is a notable shift away from broad based supply-demand estimations to multivariate, differentiated models. Contemporary models focus on specific expenditure patterns of selected LSM market segments.

The market potential estimations will be addressed under the following headings:

- ✓ Trade Supply
- ✓ Development Potential
- ✓ Trade Space Demand

8.3.1 MARKET SUPPLY

Subsequent table summarises competitive supply within the market area in terms of automotive dealerships, fitment centres, and related ancillary services.

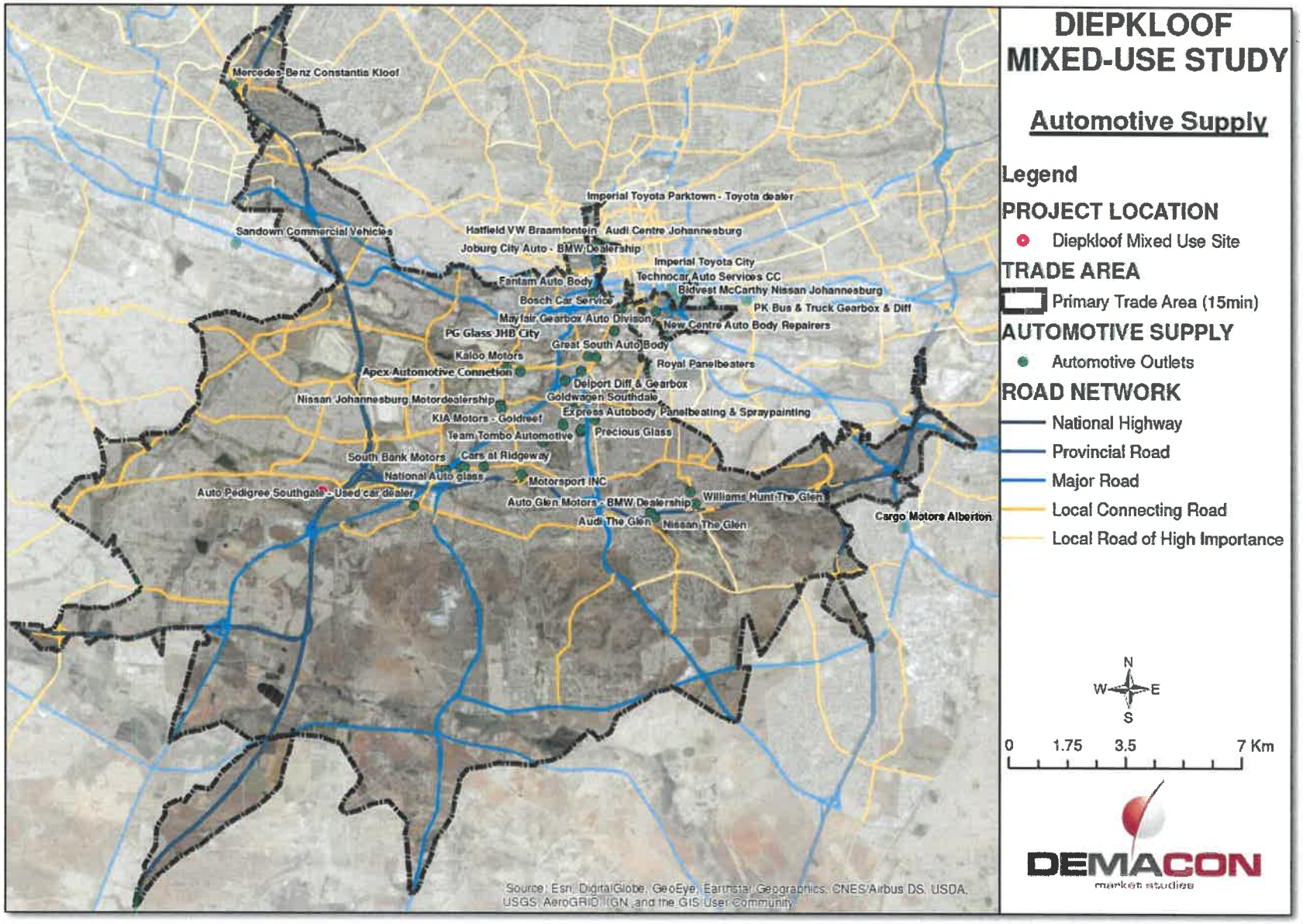
Table 8.1: Automotive supply in and around market area

Business Name	Business Type	Physical Address	Suburb
All-O-Matic Transmissions	Transmission shop	10 Palmer St	Booysens
Apex Automotive connection	Car Repair and Maintenance	29 4th St, Booysens Reserve	Johannesburg South
Audi Centre Johannesburg	Dealership	51-55 Juta St	Johannesburg
Audi The Glen	Dealership	2 Amanda Avenue	Gleneagles
Auto Glen Motors - BMW Dealership	Dealership	Cnr Middle Ln & Oak Ave	Oakdene
Auto Pedigree Southgate - Used car dealer	Dealership	Columbine Ave	Meredale
Bidvest McCarthy Nissan Johannesburg - Nissan dealer	Dealership	3-5 End St	City and Suburban Johannesburg
Bosch Car Service	Auto repair shop	68 Booysens Rd	Selby
Cargo Motors Alberton - Mercedes Benz dealer	Dealership	Padstow St	Alberton
Cars At Ridgeway - Used car dealer	Dealership	Corner Rifle Range, 1 Keats St	Ridgeway
Danmar Auto Body	Auto Body Shop	39 Earp St	Ophirton
Delport Diff & Gearbox	Auto parts store	1 Booysens Rd	Booysens
Express Autobody Panelbeating & Spraypainting	Auto repair shop	53 Jasper Rd	Robertsham
Fantam Auto Body	Auto repair shop	24 Marshall St	Westgate
Freeway Toyota - Johannesburg - Toyota dealer	Dealership	Corner Northern Parkway & Crownwood Rd	Ormonde
Goldwagen Southdale	Auto parts store	30 Alamein Road, Southdale Shopping Centre	Southdale
Great South Auto Body	Auto body shop	10 Wagner St Cnr Rawbone & Hilliard	Booysens
Hatfield VW Braamfontein - Volkswagen dealer	Dealership	30 De Korte St	Johannesburg
Imperial Toyota City	Dealership	271 Commissioner St	Jeppestown
Imperial Toyota Parktown - Toyota dealer	Dealership	67 Empire Rd	Parktown
Involve Vogue Parts	Auto parts store	80 Harry St	Robertsham
Jeppe Glass	Auto glass shop	61 Hay St	Booysens
Joburg City Auto - BMW Dealership	Dealership	93 Carr St	Newtown
John Morrison Panelbeaters	Auto restoration service	7 Meike Street	City & Suburban
Kaloo Motors - Car dealer	Dealership	Goldreef Business Park, 119 Booysens Reserve Rd, Theta	Johannesburg South
KIA Motors - Goldreef - Car dealer	Dealership	Crownwood Rd & Northern Pkwy	Ormonde

Business Name	Business Type	Physical Address	Suburb
Mayfair Gearbox Auto Divison	Corporate office	4 Richard St	Selby
Mercedes-Benz Constantia Kloof	Dealership	Cnr Hendrick Potgieter & William Nicol Dr	Constantia Kloof
Mercedes-Benz/ Cargo Motors M2 City	Dealership	Cnr Droste Crescent and Maritzburg St	Johannesburg
Motor Accident Group	Auto body parts supplier	80 Booysens Rd	Selby
Motorsport INC	Car Repair and Maintenance	Cnr Xavier & Verona St	Winchester Hills Ext 3
National Auto glass	Auto glass shop	37 Rifle Range Rd	Ridgeway
New Centre Auto Body Repairers	Auto body shop	34 Roper St	New Centre
Nissan Johannesburg Motordeal - Nissan dealer	Dealership	100 Crownwood Rd	Ormonde
Nissan The Glen - Car dealer	Dealership	Skukusa Rd & Lois Avenue	Bassonia
Ophirton Glass Works	Auto glass shop	Ophir-Booysens Rd	Ophirton
PK Bus & Truck Gearbox & Diff	Truck parts supplier	20 Ruven Rd	Benrose
Precious Glass	Glass & Mirror Shop	61 Garden St	Turffontein
Pro Garage Automotive Repair Service	Auto Repair Shop	22 Chromium St	Amalgam
Royal Panelbeaters	Auto Repair Shop	12 La Rochelle Rd, Cnr Hippo St	Stafford
Sandown Commercial Vehicles - Mercedes Benz dealer	Dealership	1141 Leader Ave, Stormill	Roodepoort
South Bank Motors	Dealership	1 Nasrec Rd	Ormonde
Steimar Automotive Refinishers	Car Repair and Maintenance	89 Rosettenville Rd	Village Main
Success Fitment Centre	Car Repair and Maintenance	33 Rosettenville Rd	Village Main
Super Cars - Car dealer	Dealership	Cnr Visage Street, 5 Rifle Range Rd	Ridgeway
Team Tombo Automotive	Radiator repair service	156 Side Rd, West Turffontein	West Turffontein
Technocar Auto Services CC	Auto repair shop	115 Albert St	City & Suburban
The Magwheel Surgeon	Wheel store	34 Amsterdam Ave	Park Central, Selby
Truck & Car Body Repairs	Auto repair shop	5 Sophia Rd	West Turffontein
Williams Hunt The Glen	Dealership	Comaro St	Oakdene
Wolfsburg Auto Salvage - BMW Dealer	Dealership	19 Van Riebeeck Ave	Johannesburg

Refer to the map below for the atumotmoive supply in the primary trade area.

Map 8.1: Automotive supply



The following section provides the space demand estimations for the trade sector (automotive and related services).

8.3.2 SPACE DEMAND ESTIMATIONS

Space demand modelling has become increasingly specialised. One particular aspect that has changed is a notable shift away from broad based supply-demand estimations to multivariate, differentiated models. In the context of preceding chapters, the trade development potential in the market is subsequently determined, based on a specialist econometric model. It is known that the demand of space depends on the production function of a market area.

Defining Demand

Retail demand depends on a variety of customer-related aspects. It can be conceptualised as follows:

$$D_{ret} = f\{P_o; P_{\%}; Q; Y; R_e; C_p; S_f\}$$

Where:

P_o	=	Population size
$P_{\%}$	=	Population growth
Q	=	Existing quality of retail space
Y	=	Household income
R_e	=	Household expenditure patterns
C_p	=	Consumer preferences
S_f	=	Seasonality factors

Defining Supply

The supply of the markets entails the following:

$$S_{ret} = f\{D_{ret}; GLA_{ret}; R; S_c; C_c; L_u; I_a; S_p; V_{ret}\}$$

Where:

D_{ret}	=	Demand
GLA_{ret}	=	Current rentable/useable area
R	=	Rent/m²
S_c	=	Competition
C_c	=	Construction cost
L_u	=	Surrounding land uses
I_a	=	Infrastructure availability
S_p	=	Speculative climate
V_{ret}	=	Vacancy

Trade demand modelling has become increasingly specialised. One particular aspect that has changed is a notable shift away from broad based supply-demand estimations to multivariate, differentiated models. In the context of preceding chapters, the development potential for trade in the market is subsequently determined, based on a specialist econometric model. To develop a model, *inter alia* three data sets are required in time series format.

They are:

- ✓ Total employment of the market area,
- ✓ Trade sector employment,
- ✓ Trade sector productivity indicator.

Related property market indicators, together with the four data series were used in the following formula.

FORMULA:

The following equation is used to determine office space absorption:

$AB_{t=}{}^{*}CO)\tilde{\iota}_t - OC_{t-1})$

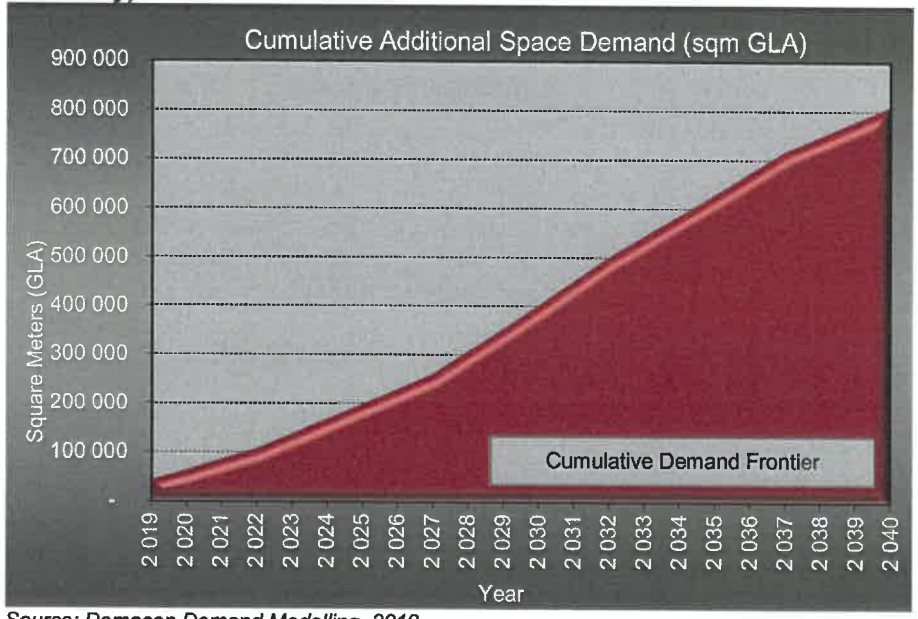
$=\tilde{\iota}(\alpha_0 + \alpha_1 EM_1 + \alpha_2 EW_t + \alpha_3 Q_t - \alpha_4 R_{t-2}) - \tilde{\iota}_1 OC_{t-1}$

Key:

AB=Net absorption of space
OC=Occupied Space
EM=Employment in Wholesale & Retail sector
EW=Employment in Catering & Accommodation sector
Q=Trade Sector Output per Worker
R=Rental Rate for Retail Space

It is known that the demand for trade space depends on the level of activity in terms of wholesale and retail trade, (including automotive and fuel retail sales), as well as catering and accommodation within **Soweto Local Economy**. Figure 8.1 illustrates cumulative additional trade space demand for the area.

Figure 8.1: Cumulative Additional Trade Space Demand (Soweto Local Economy)



Source: Demacon Demand Modelling, 2019

The following table summarised the space demand modelling results for wholesale & retail trade, catering & accommodation as well as automotive sales.

❑ DEMAND MODELLING

Demacon's Demand Modelling results illustrate that the consumer market can sustain automotive fitment centres / ancillary services / sales / motorcycles / trailers / roof racks, 4x4 safari / outdoor type of services of approximately **12 641m²** with the optimum point of market entry in **2023+**.

The following tables indicate the space demand modelling result of the trade sector.

Table 8.2: Synthesis of Space Demand Modelling Results (nodal potential) – m² GLA (constant values)

Cumulative Additional Space Demand	2024	2029	2034	2039
Wholesale & Retail Trade (sqm GLA)	39 446	157 222	337 651	557 709
Catering & Accommodation (sqm GLA)	2 779	9 849	16 201	28 226
TOTAL: Soweto Local Economy	**42 225**	**167 071**	**353 853**	**585 935**
At 28.58% automotive	**12 068**	**47 749**	**101 131**	**167 460**
Project Share - min	4 222	16 707	35 385	58 594
Project Share - max	6 334	25 061	53 078	87 890
Average	1 508	5 969	12 641	20 933

Source: Demacon Demand Model, 2019

Table 8.3: Project Space Demand Results - m² GLA (cumulative)

Forecast	Square metre (m²)
Up to 2024	1 000m² – 1 500m²
2024 – 2029	5 500m² – 10 000m²
2034 – 2039	12 000m² – 15 000m²
2039+	20 000m² – 25 000m²

Source: Demacon Demand Model, 2019

Table 8.4: Recommended Sizes

Recommended Sizes	Rand per annum / m²
Capital investment (2019 constant values)	R214 903 505
Employment opportunities	294
Parking	352
Parking infrastructure & landscaping cost (2019 constant values)	R8 382 965
Point of market entry	2023+
Size of development (sqm) (up to 2029)	12 641m²

Source: Demacon Demand Model, 2019

The following is evident from the above tables:

- ✓ Trade sector market demand in **Soweto Local Economy** increases cumulatively from 167 071m² GLA in 2024 to 777 554m² GLA in 2039.
- ✓ Market demand for automotive floor space in the trade area increases cumulatively from 12 068m² in 2024 up to 167 460m² GLA in 2039.
- ✓ Proposed size of development over the short to medium term amounts to approximately **12 641m².**
- ✓ This floor space could include:
- ✓ Selected automotive dealerships – scope for 2 dealerships
  - workshops & fitment centres,
  - speciality shops and services,
  - Motorcycles, quads
  - Outdoor, 4x4 and camping.
- ✓ Optimum point of market entry: **2023+**

8.4 SYNTHESIS

The findings of the preceding Chapter are integrated into an empirical assessment of the market potential.

❑ GAP ANALYSIS

Development Type	Effective Market Gap	Development Prospects
Automotive fitment centres, outdoor, sales etc	Yes	Moderate

Demacon's Demand Modelling results illustrate that the consumer market can sustain automotive fitment centres / ancillary services / sales / motorcycles / trailers / roof racks, 4x4 safari / outdoor type of services of approximately **12 641m²** with the optimum point of market entry in **2023+.**

9

OFFICE MARKET ANALYSIS

This section of the report focuses on the office market, with the objective of estimating the development potential within the designated area. In order to reach this objective, the supply and demand for offices within the market area should be identified and assessed in light of current trends.

OFFICE MARKET ANALYSIS 9

9.1 INTRODUCTION

This section of the report focuses on the office market, with the objective of estimating the development potential within the designated area. In order to reach this objective, the supply and demand for offices within the market area should be identified and assessed in light of current trends.

Subsequent sub-sections provide a concise overview of the office market in terms of the following aspects:

- ✓ General Office Market Trends
- ✓ Office Market Indicators
- ✓ Space Demand Modelling
- ✓ Synthesis

9.2 GENERAL OFFICE MARKET TRENDS

Offices are defined by the functions performed in them, the type of premises occupied and the occupational sector accommodated within them. The function of offices can be described as personal services, administration and the management of social and economic systems.

The office market in general is divided into different office categories. These categories relate to the quality of the office space provided. The market generally distinguishes between:

Table 9.1: Office Grading

Grading	Description
Grade P	Top quality offices with modern space that is generally a pace-setter in establishing rentals and which includes the latest or a recent generation of building services, ample parking, a prestige lobby finish and good views, or good environment.
Grade A	Generally new and not older than 10 years unless renovated. These offices are located in prime location and provide high quality finishes, on-site parking and air-conditioning. Grade A offices typically accommodate financial service activities and rely on agglomeration provided by large retail nodes.
Grade B	Generally 10 to 20 years old, unless renovated. Accommodation is modern, situated in good locations and provides on-site parking and air-conditioning. B grade offices typically accommodate government institutional and small businesses. These offices are usually located in the vicinity of smaller retail centres and in CBD's.
Grade C and D	Generally 20 to 30 years old. Buildings are in fairly good condition, although finishes are not to modern standards. These offices generally accommodate government institutions, small businesses and activities related to industrial uses, and are typically located in older CBD's. It is important to acknowledge the fact that specific location requirements underline the development of offices in a specific area.

These location requirements include the following:

Office Location Requirements

- ✓ Accessibility
- ✓ Visibility
- ✓ Address Value
- ✓ Moderate to Higher LSM Profile
- ✓ Proximity to Educated Labour Force
- ✓ Established Office Address / Monitored Node

- ✓ Functional and Complimentary Uses
- ✓ Emerging Commercial Node
- ✓ Proximity to Freeways / Major Provincial Routes
- ✓ Proximity to Intermodal Facilities, e.g. BRT, Gautrain, Rail/Taxi/Bus terminus
- ✓ Availability of Land
- ✓ Future Expansion Potential
- ✓ Perceived Level of Security
- ✓ Directional Growth of Area

The office park is a consequence suburban office development. Office parks are not merely freestanding suburban office buildings, but rather a group of office structures developed according to a coordinated master plan and managed by means of a variety of measures. The office park therefore occurs in a controlled environment.

The general trends concerning business parks are that it should be a landscaped area with building densities lower than what it would usually be in a traditional industrial estate. It's an area of land in which many office buildings are grouped together. All of the work that goes on is commercial, not industrial or residential.

These are popular in many suburban locations, where it is cheaper to develop land because of the lower land costs and the lower building costs for building wider, not necessarily higher. Business parks should preferentially be located where motorway, rail and airport communications are within a short distance.

At the moment, there is a growing trend towards sectional title of commercial property and this is due to the fact that small to medium businesses want to be able to own their own property. With the economy booming and decentralization taking place, there are great numbers of small businesses who are looking for convenient office space that is affordable.

The **first office parks** in South Africa made their appearance in the mid-eighties in Bryanston East, Woodmead and Midrand. Some examples of office parks in South Africa are Woodmead office park (Sandton), Menlyn office park (Pretoria), Waterfall park (Midrand), Constantia Village (Midrand) Sandhurst Park (Sandton), Sunnyside Parktown (Johannesburg), Woodlands office park (Sandton), Sanlyn (Pretoria), Braampark (Johannesburg), The Isle of Houghton (Johannesburg), Tyger Valley Office Park (Belville), The Oval (Sandton), St Andrews Office Park (Bryanston), Hyde Park Lane (Johannesburg), La Lucia Ridge Office Estate (Natal) and Parktown office park (Johannesburg).

The office park shows certain similarities to a shopping centre on the one hand and an industrial park on the other. Like a shopping centre, an office park demands compatible architecture, continuous management and services to tenants and parking on the site for employees and visitors.

Like the industrial park, it contains additional features such as control over traffic movements, comprehensive landscaping, control over signage, and other control measures. Depending on the size of the office park, support services such as a bank, restaurant, shops and a conference centre may be provided.

An office park may be designed in such a way that individual sites in the office park are sold or let to bodies who wish to erect their own buildings or to developers who wish to erect buildings for single or multiple tenants.

The design layout should maximize the natural attributes of the site and ensure that each building in the development has its own identity, access and orientation. The most important **control measures** include:

- ✓ Control over appearance (architectural, signage, etc.).
- ✓ Landscaping
- ✓ Parking provision
- ✓ Traffic circulation (vehicles and pedestrians).
- ✓ Prevention of disturbances
- ✓ Coverage
- ✓ Site maintenance

Location is by far the most important consideration in the development of an office park. Location is, in the first instance, linked to the accessibility to freeways and highways, which in turn improves the accessibility to the CBD, other residential areas and airports.

The appearance of the immediate environment, the prestige attached to adjacent high socio-economic residential areas, the provision of shopping and recreation facilities and shorter work/home trips are important secondary

considerations. The most important locations criteria in choosing the site for an office park are:

- ✓ Accessibility from major roads and freeways.
- ✓ Visibility from major roads
- ✓ Availability of land large enough to accommodate the concept, probably not less than five hectares (although offices built in landscaped surroundings can be accommodated on small sites).
- ✓ The preference of tenants for a particular location.

The developer should not succumb to the temptation to increase the density as high as possible, thereby losing the distinctive appeal of the office park concept. Sclapobersky (1995) recommends a FAR of 0.25, although the FAR can be increased to 0.3 or even higher if the following factors are present:

- ✓ An abundance of mature trees on the site
- ✓ A good fall in the contours of the property
- ✓ The accommodation of at least 60% of the parking in basements under the buildings.
- ✓ Utilising buildings of two or three storeys in height.

For an office park, the **minimum parking ratio** recommended is four bays per 100m² office GLA, or preferably 4.5 to 5 bays per 100m².

Concerning office ownership, the Sectional Title Act makes provision for the development of sectional title offices. This possibility of ownership of a site, rather than having to rent, has been used by developers on a small scale to develop sectional title offices. The advantages of owning one's own office site are, in fact, the advantages of owning a property.

These include the following:

- ✓ Security of tenure
- ✓ More control over the interior of the property
- ✓ Often an own identity (especially if the sections are separate buildings)
- ✓ Hedging against future increase in rentals
- ✓ Ownership of tangible assets

The value of the sectional title property is reasonably well quantifiable when an interest in the business is sold or a partnership is dissolved. However, sectional title ownership is not the answer to all types of businesses. If a business has **variable space requirements**, fixed space and lack of expansion possibilities are limiting factors.

A sectional title office which is larger than current needs can be bought and the excess let out, but then the owner also acts as the lessor, with all the attendant implications at risk. The property is also not necessarily easy to be disposed of quickly should the owner wish to move elsewhere.

The **bond payment** when purchasing a sectional title property will typically be higher for the first couple of years than the rental. The breakeven point, from a cash flow point of view, is 5 to 8 years, depending on the interest rates on mortgage bonds and the rental market at that stage. It may be that the owner could have invested his available capital more efficiently (e.g. in his own business) than in fixed property.

Another disadvantage is the owner's involvement in the controlling body and the fact that, together with the other owners, he is responsible for the maintenance and management of the sectional title property. This greater say in the property may also be seen as an advantage, depending on the management capabilities of the controlling body relative to those of the lessor when office premises are rented. The owners at least have a vested interest in the maintenance of their own property.

Images below indicate selected medium rise business parks in the Gauteng which are perceived to be fairly well located and tenanted. As mentioned above, design, security, parking, landscaping and mixed uses are of the most important factors for designing a business park.

Stonehill Office Park – Wapadrand (Pretoria)

Nestle Head Office – Johannesburg

Bridge Park - Cape Town (Bridgeways 'green' precinct in Century City)

Sable Park - Century City

9.3 LOCAL MARKET INDICATORS

9.3.1 OFFICE MARKET INDICATORS

❖ OFFICE MARKET RENTAL RATES

The office market continued to perform poorly in the fourth quarter of 2018, with national decentralized nominal rental growth slowing further. This uninspiring performance is not a surprise as the average vacancy rate for the sector is still at about 10% amid a weak economy.

In the fourth quarter of 2018, Johannesburg decentralized rentals increased by only 1% compared to the fourth quarter of 2017, on par with building-cost inflation, but slowing from the 4% growth recorded in the previous quarter.

Several nodes in Johannesburg recorded rentals that were lower than in the third quarter of 2018. Among these nodes are Sandton (17%) and Illovo (14%), where vacancy rates are on a rising trend. Rental growth in Rivonia cooled from the third quarter but is still 13% higher than in the fourth quarter of 2017 – the best yearly growth rate of the major nodes.

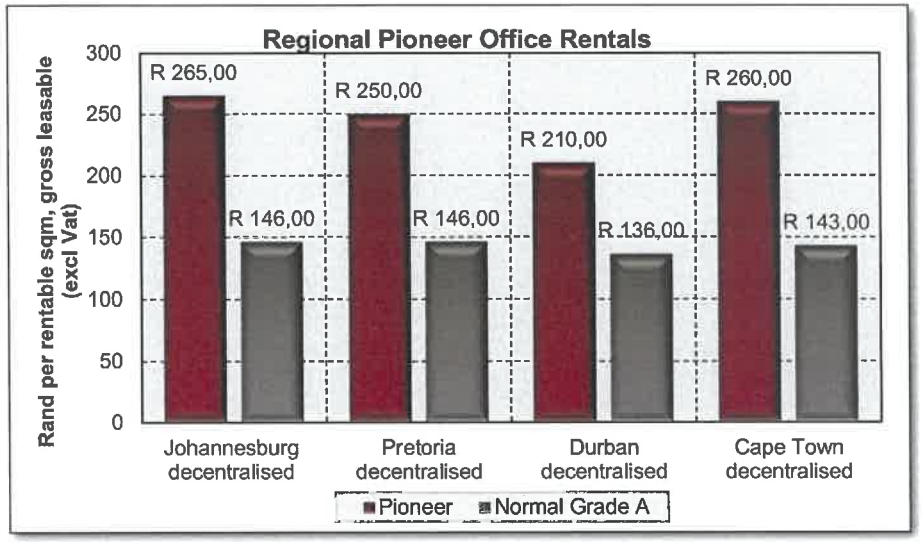
Table 9.2 shows the difference between pioneer rentals and grade-A market rentals as in the fourth quarter of 2018. This the reader can use as a rough indication of prospects for eventual market rental growth, should the deus ex machina come down from the skies. Pioneer rental levels often represent leases signed on newly erected on-demand buildings, and these reflect today's building costs as developers naturally expect a fair initial yield on their development costs. Thus, when the economy eventually climbs out of its current lethargy, market rentals will in the wake of renewed economic growth shoot up to the levels of these pioneer rentals.

Table 9.2: Pioneer office rentals

	Pioneer	Normal Grade A	Difference %
Johannesburg decentralised	265	146	82%
Pretoria decentralised	250	146	71%
Durban decentralised	210	136	54%
Cape Town decentralised	250	143	82%

Source: Demacon ex Sapoa, 2018:Q4

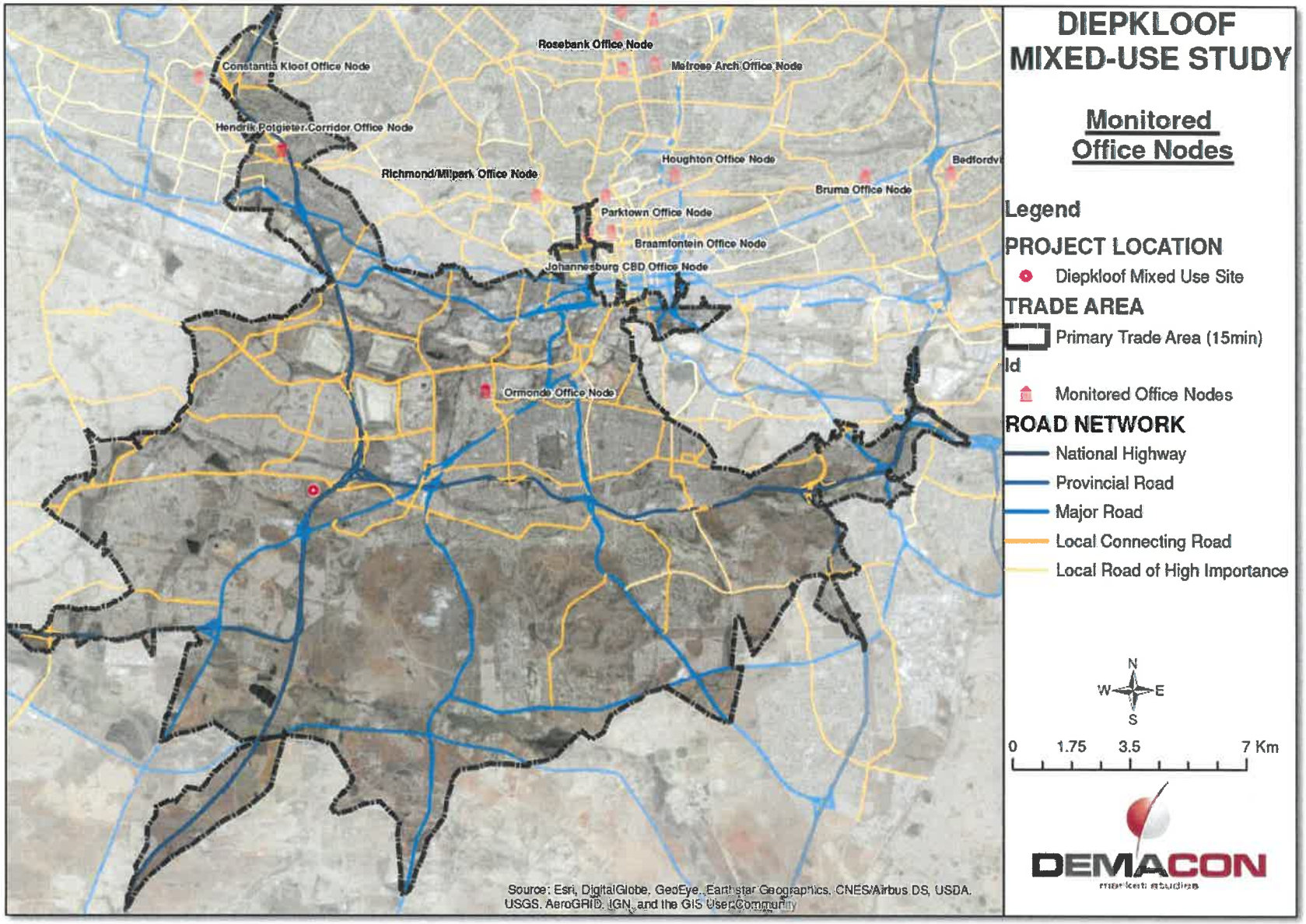
Figure 9.1: Pioneer office rentals



Source: Demacon ex Sapoa, 2018:Q4

Map 9.1 indicates the main office nodes in the Greater Johannesburg area.

Map 9.1: Main Monitored Office Nodes



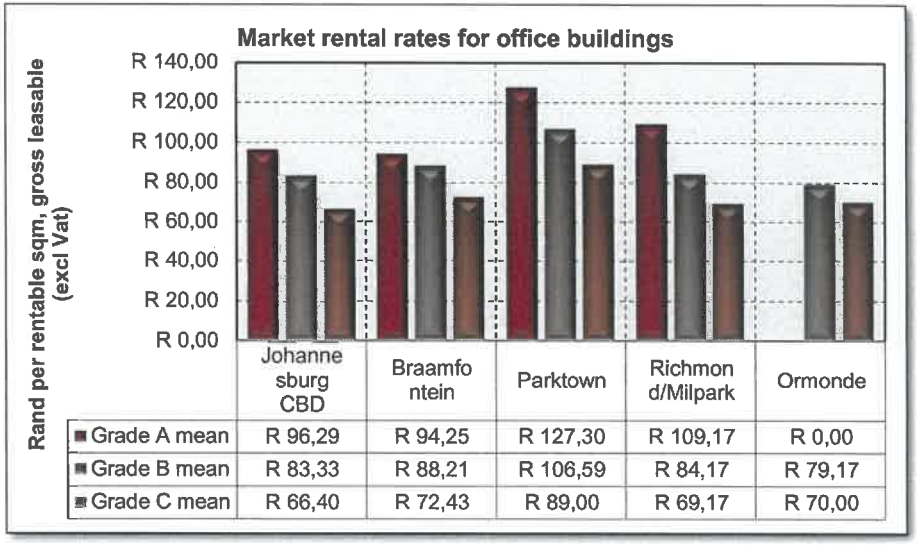
The following section summarises the office market indicators for the **most prominent monitored nodes** in vicinity of the Diepkloof site which could be used as proxy.

Table 9.3: Office market rental rates

OFFICE NODES	GRADE A+	GRADE A mean	GRADE B Mean	GRADE C mean
Bedfordview	R 150,00	R 138,33	R 113,00	R 93,00
Braamfontein	-	R 94,25	R 88,21	R 72,43
Bruma	-	R 96,67	R 84,64	R 75,33
Bryanston / Epsom	R 196,67	R 152,27	R 119,55	R 93,67
Chiselhurston	R 171,67	R 137,50	R 112,50	R 96,67
Constantia Kloof (Roodepoort)	R 192,00	R 159,29	R 132,50	R 98,33
Dunkeld West	R 130,00	R 105,00	R 70,00	
Eastgate / Kramerville	R 180,08	R 140,83	R 107,73	R 92,14
Fourways	-	R 117,88	R 97,60	R 83,00
Hendrik Potgieter Corridor	R 184,58	R 152,50	R 116,25	R 100,00
Houghton	R 174,38	R 161,50	R 132,00	R 105,00
Hydepark	R 203,75	R 162,81	R 134,06	98,75
Illovo	R 210,42	R 170,00	R 135,00	R 102,50
Illovo Boulevard	-	R 96,29	R 83,33	R 66,40
Johannesburg CBD	R 222,78	R 212,78	R 165,00	-
Meadowbrook	R 178,17	R 127,19	R 95,00	R 73,22
Melrose Arch	-	-	R 79,17	R 70,00
Midrand	-	R 127,30	R 106,59	R 89,00
Ormonde	R 101,67	R 96,45	R 80,00	R 66,43
Parktown	-	R 109,17	R 84,17	R 69,17
Randburg Ferndale	-	R 126,25	R 102,78	R 81,11
Richmond / Milpark	R 238,00	R 181,11	R 134,32	R 105,56
Rivonia	R 216,79	R 169,42	R 132,31	R 103,75
Rosebank	-	R 100,50	R 87,19	R 76,50
Sandton CBD	R 211,06	R 183,33	-	-
Sunninghill	R 166,67	R 139,00	R 117,00	R 86,00
Wierda Valley	R 168,75	R 135,31	R 116,25	R 94,17
Woodmead	R 149,00	R 130,28	R 107,22	R 80,60

Source: Demacon ex Sapoa, 2018:Q4

Figure 9.2: Market rental rates for office buildings



Source: Demacon ex Sapoa, 2018:Q4

The nearest monitored office nodes to the site are **Ormonde, Johannesburg CBD, Braamfontein, Parktown and Richmond / Milpark** with rentals commanded in the region of **R96 to R109 per m²** (gross rent ex VAT) for Grade A office space and **R79 to R106 per m²** (gross rent ex VAT) for Grade B office space.

❖ OFFICE PARKING RENTAL RATES

Subsequent section provides the office market parking rentals for the selected monitored office nodes as stated in Table 9.4.

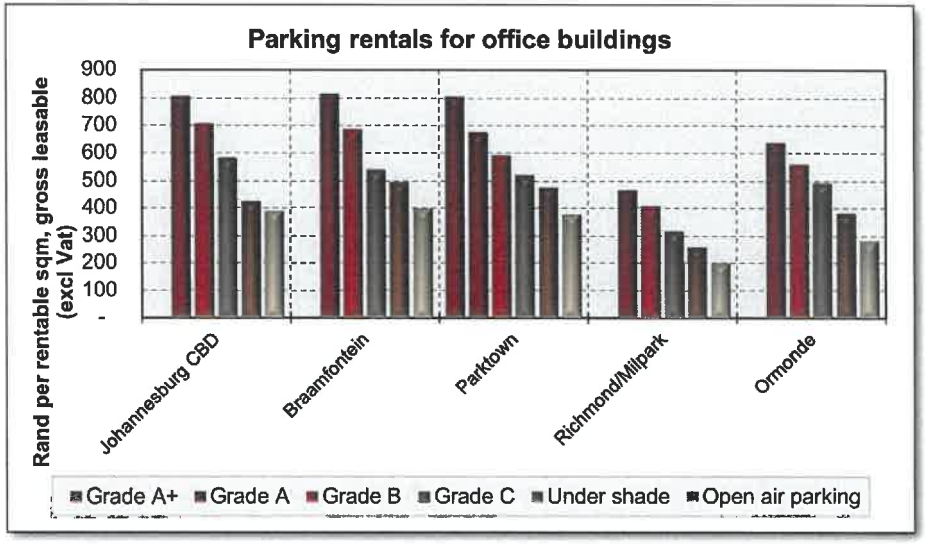
Table 9.4: Office parking rental rates

	Covered				Under shade	Open air parking
	Grade A+	Grade A	Grade B	Grade C		
Bedfordview	600	593	545	450	430	359
Braamfontein	-	815	686	538	494	399
Bruma	-	555	513	400	381	331

	Covered				Under shade	Open air parking
	Grade A+	Grade A	Grade B	Grade C		
Bryanston/Epsom Downs	815	675	569	514	477	386
Chislehurston	810	714	633	588	496	400
Dunkeld West	830	740	596	550	496	391
Eastgate/Karmerville	790	694	613	542	568	431
Fourways						
Hendrik Potgieter Corridor	760	674	553	454	484	369
Houghton	768	644	536	500	433	348
Hyde Park	1 248	1 167	1 167	800	-	650
Illovo	925	788	680	543	535	428
Illovo Boulevard	938	800	701	566	561	445
Johannesburg CBD	-	807	706	581	425	389
Melrose Arch	888	691	588	533	521	397
Midrand	-	-	325	275	350	283
Ormonde	-	638	558	492	382	283
Parktown	806	675	591	520	476	378
Randburg Ferndale	575	520	453	450	371	279
Richmond/Milpark	-	467	408	317	258	200
Rivonia	-	622	514	495	442	345
Rosebank	1 129	879	718	621	573	454
Sandton CBD	1 106	866	711	604	595	513
Sunninghill	625	614	550	425	419	328
Waterfall	1 053	833	-	-	565	521
Waverley/Bramley	890	688	588	525	529	393
Wierda Valley	836	713	643	578	474	407
Woodmead	706	659	553	430	450	356

Source: Demacon ex Sapoa, 2018:Q4

Figure 9.3: Parking rentals for office buildings



Source: Demacon ex Sapoa, 2018:Q4

✓ Parking rental rates (covered parking) commanded in the surrounding nodes are in the region of **R460 to R815** for Grade A offices, **R258 to R494** for open-air parking and **R200 to R399** for under shade parking.

❖ OFFICE VACANCIES

In the third quarter of 2018, the national decentralized vacancy rate for grades A and B offices combined was 10,2%, the same as in the second quarter of 2018. This was the sixth consecutive quarter of double-digit vacancy rates as the market remains in oversupply.

The Johannesburg decentralized vacancy rate for grades A and B office space remained elevated at 11,5%. The high vacancy rates can largely be ascribed to Sandton and Midrand, which together account for a third of decentralized Johannesburg office space.

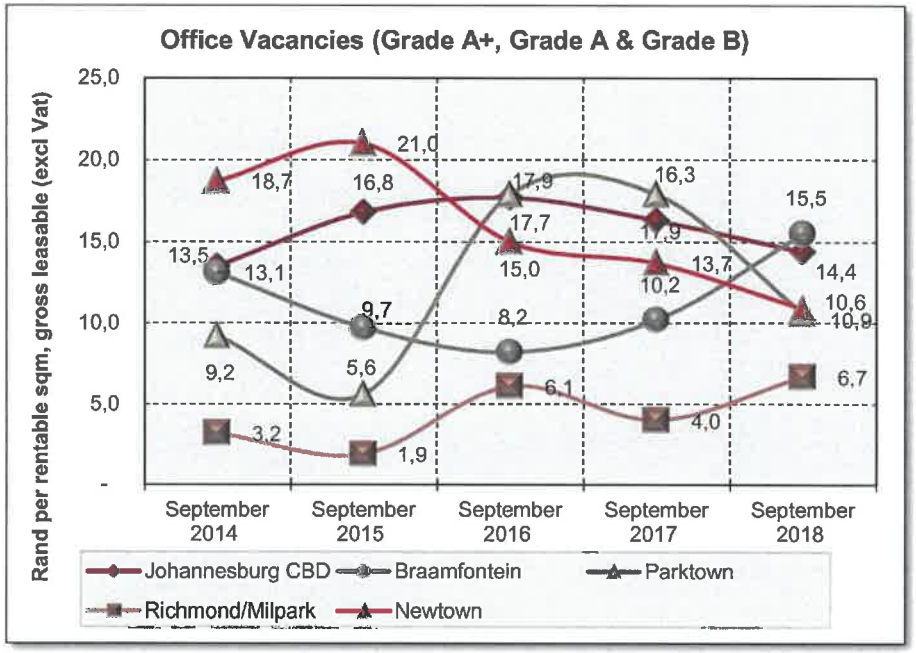
Vacancy rates declined in Illovo (14%), while the opposite is occurring in Parktown (11%). Only three nodes in Johannesburg have vacancy rates of less than 5%, namely Waterfall (2%), Greenstone (3%) and Constantia Kloof (4%).

Table 9.5: Office Vacancies

	Sept 2014	Sept 2015	Sept 2016	Sept 2017	Sept 2018
Johannesburg CBD	13,5	16,8	17,7	16,3	14,4
Braamfontein	13,1	9,7	8,2	10,2	15,5
Parktown	9,2	5,6	17,9	17,9	10,6
Richmond/Milpark	3,2	1,9	6,1	4,0	6,7
Newtown	18,7	21,0	15,0	13,7	10,9

Source: Demacon ex Sapoa, 2018:Q4

Figure 9.4: Office vacancies



Source: Demacon ex Sapoa, 2018:Q4

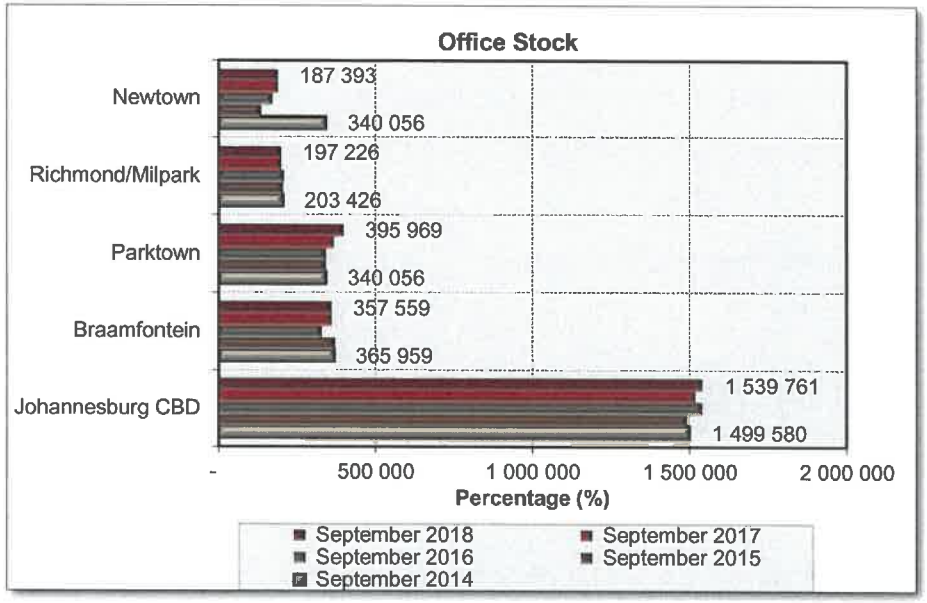
❖ OFFICE STOCK

Table 9.6: Office Stock

	Sept 2014	Sept 2015	Sept 2016	Sept 2017	Sept 2018
Johannesburg CBD	1 499 580	1 490 868	1 539 967	1 518 583	1 539 761
Braamfontein	365 959	368 959	325 659	357 559	357 559
Parktown	340 056	340 056	340 056	364 769	395 969
Richmond/Milpark	203 426	203 726	206 826	197 226	197 226
Newtown	340 056	133 559	169 559	187 393	187 393

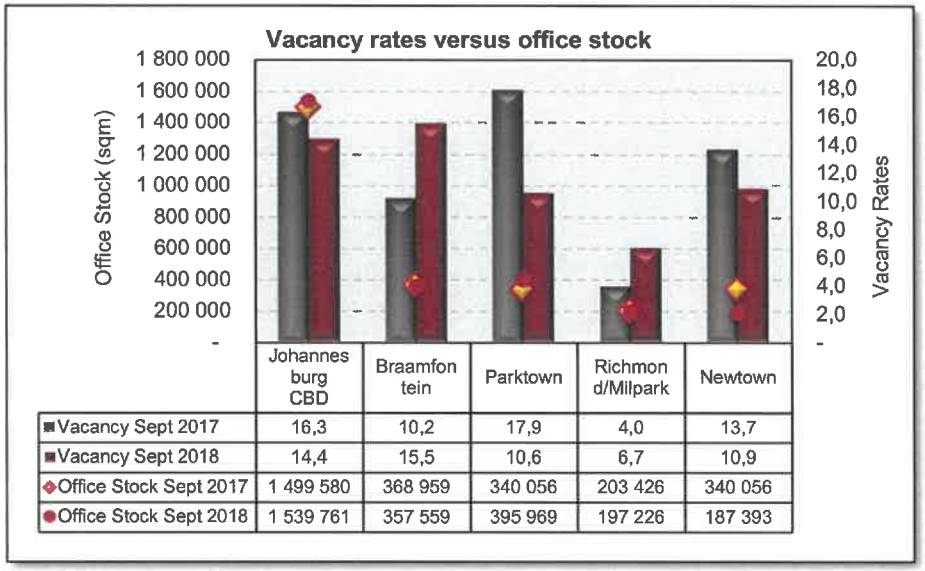
Source: Demacon ex Sapoa, 2018:Q4

Figure 9.5: Office Stock



Source: Demacon ex Sapoa, 2018:Q4

Figure 9.6: Vacancy Rates vs Office Stock



	Johannesburg CBD	Braamfontein	Parktown	Richmond/Milpark	Newtown
Vacancy Sept 2017	16,3	10,2	17,9	4,0	13,7
Vacancy Sept 2018	14,4	15,5	10,6	6,7	10,9
Office Stock Sept 2017	1 499 580	368 959	340 056	203 426	340 056
Office Stock Sept 2018	1 539 761	357 559	395 969	197 226	187 393

Source: Demacon ex Sapoa, 2018:Q4

9.4 OFFICE SPACE DEMAND MODELLING

Office demand modelling has become increasingly specialized. One particular aspect that has changed is a notable shift away from broad based supply-demand estimations to multivariate, differentiated models.

In the context of preceding chapters, the development potential for a business park in the market is subsequently determined, based on a specialist econometric model. It is known that the demand office space depends on the production function of a market area. To develop a model, *inter alia* three data sets are required in time series format.

They are:

- ✓ Total employment of the market area,
- ✓ Finance and business services employment,
- ✓ Finance and business services productivity indicator.

Related property market indicators, together with the four data series were used in the following formula.

FORMULA:

The following equation is used to determine office space absorption:

$AB_{t=}{}^{*}CO)\tilde{\iota}_{t} - OC_{t-1})$

$=\tilde{\iota}(\alpha_0 + \alpha_1 EM_1 + \alpha_2 EW_t + \alpha_3 Q_t - \alpha_4 R_{t-2}) - \tilde{\iota}_1\ OC_{t-1}$

Key:

AB=Net absorption of space
OC=Occupied Space
EM=Employment in Finance sector
EW=Employment in Business sector
Q=Finance and Business Output per Worker
R=Rental Rate for Office Space

RATIONALE

The net absorption of space, AB_t will be an adjustment between the desired amount of occupied space, OC^*_t and that used last period, OC_{t-1}. The desired amount of space will be a linear function of current lagged employment in the finance and business sectors (EW_t EM_t) together with the level of office output per worker (Q).

Finance employment and output per worker is used as separate variables (instead of total office production), recognizing that the space demand, which originates from more workers can be quite different from that arising when firms use more capital and knowledge to generate additional output. To estimate an office rental elasticity of space demand, the rental rate for office space (R_t) is entered directly into the equation for the desired stock of space.

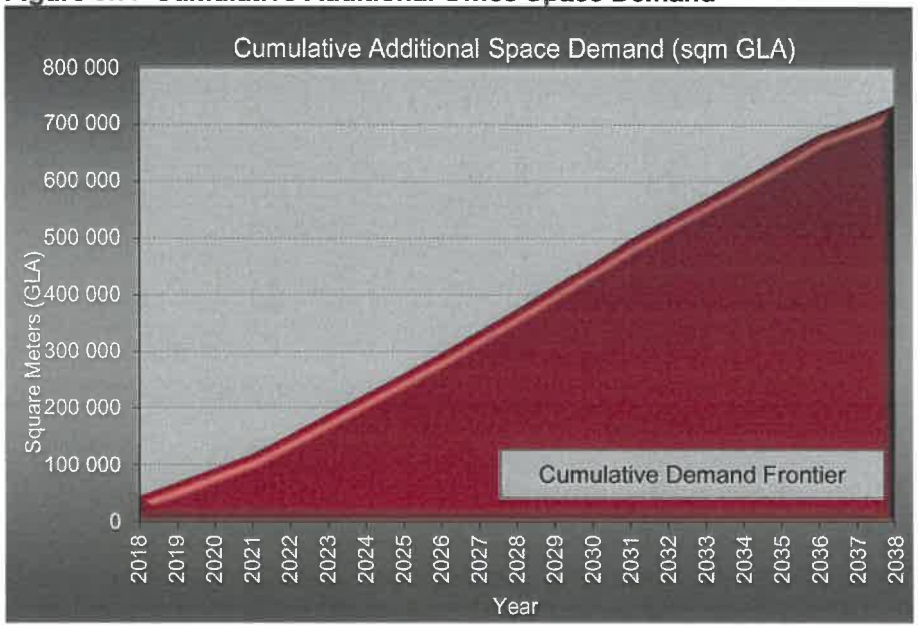
(The long-term square metre demanded per finance and business workers are the parameters α_1, α_2 in the Equation above. The actual estimated statistical coefficients on finance and business employment are the parameters multiplied by the estimated parameters multiplied by the estimated parameter on the lagged occupied stock).

SPACE DEMAND MODELING

The aim of the following is to determine whether there would be a demand for certain types of floor space in the future and if so, how much. This can be

determined by taking into account GGP, employment and output per worker. The following figure illustrates cumulative additional office space demand for the **Soweto Local Economy**.

Figure 9.7: Cumulative Additional Office Space Demand



Source: Demacon Demand Model, 2019

The following table summarised the space demand modelling results for the office sector.

❑ DEMAND MODELLING

Demacon's demand modelling indicated office potential of approximately **62 126m²** (say 60 000 to 65 000m²) office GLA over the short to medium term. This space includes GLA for offices and related facilities, but excludes parking, storage and basements. The optimum point of market entry would be **2024+.**

Table 9.7: Synthesis of Space Demand Modelling Results – m² GLA (cumulative)

Cumulative Additional Space Demand	Up to 2024	2029	2034	2039
Finance & Insurance *(sqm GLA)*	121 284	147 572	175 342	203 044
Business services *(sqm GLA)*	102 277	266 604	430 335	529 609
TOTAL: Soweto Local Economy	**223 561**	**414 176**	**605 677**	**732 654**
Nodal Share - Min	22 356	41 418	60 568	73 265
Nodal Share - Max	44 712	82 835	121 135	146 531
Average*	33 534	62 126	90 852	109 898

Source: Demacon Demand Model, 2019
** Note: the nodal shares and the average figures are cumulative*

Table 9.8: Space Demand Results - m² GLA (cumulative values – maximum share)

Forecast	Square metres
Up to 2024	30 000m² – 40 000m²
2024 – 2029	60 000m² – 65 000m²
2034 – 2039	90 000m² – 95 000m²
2039+	100 000m² – 110 000m²

Source: Demacon Demand Model, 2019

The table below provides the recommended office options.

Table 9.9: Recommended office space options (ten-year timeframe)

Variables	Rand per annum / m²
Capital Investment (2019 constant values)	R 1 242 529 292
Optimum size (GLA – 2034)	62 126m²
Employment (on-site)	3 106
Parking bays	2 485
Parking infrastructure & landscaping cost (2019 constant values)	R 59 144 394
Point of market entry	2024+

Source: Demacon Demand Model, 2019

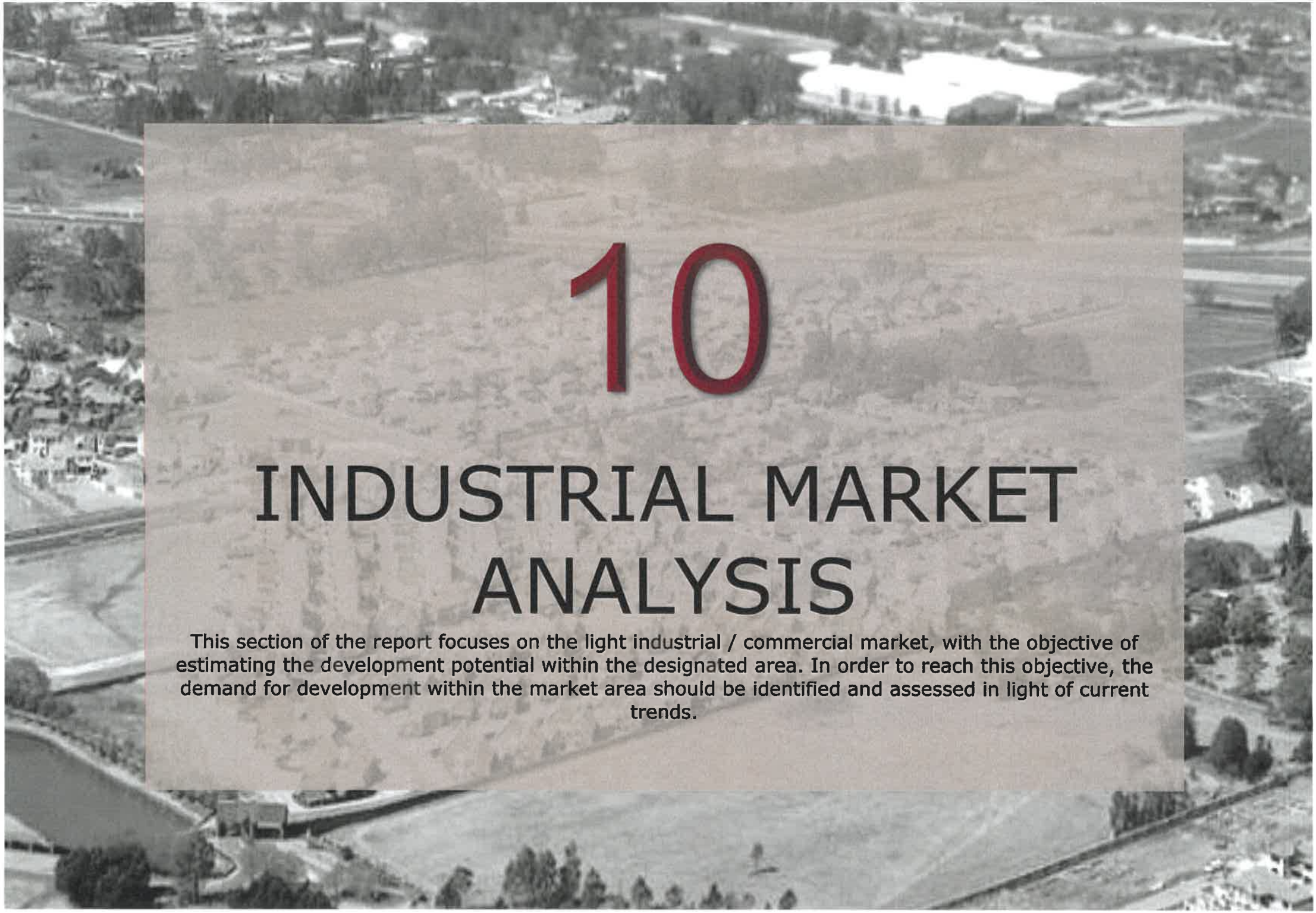
The following emerged from preceding paragraphs:

- ✓ Market demand for office floor space in Soweto Local Economy increases cumulatively from 223 561m² GLA in 2024 to 732 654m² GLA in 2039.
- ✓ The maximum nodal absorption increases from 44 712m2 in 2024 to 146 531m² in 2039.
- ✓ Over the short to medium term, the project could attract office take-up of approximately **62 126m²** (say 60 000m² to 65 000m²)
- ✓ Optimum point of market entry: **2024+**
- ✓ The development could be configured as a hybrid business park including offices and commercial buildings, positioned to draw optimum benefit from N1 freeway sight value and exposure.

9.5 SYNTHESIS

❑ GAP ANALYSIS

Demacon's demand modelling indicated office potential of approximately **62 126m²** (say 60 000 to 65 000m²) office GLA over the short to medium term. This space includes GLA for offices and related facilities, but excludes parking, storage and basements. The optimum point of market entry would be **2024+.**



10

INDUSTRIAL MARKET ANALYSIS

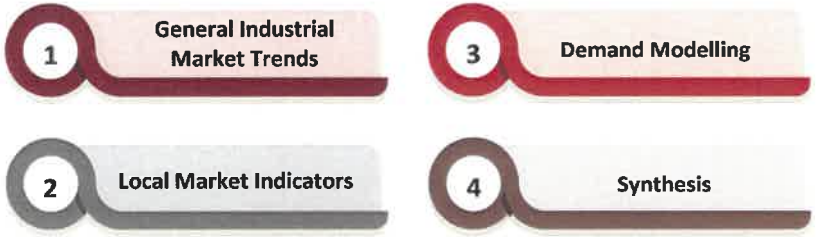
This section of the report focuses on the light industrial / commercial market, with the objective of estimating the development potential within the designated area. In order to reach this objective, the demand for development within the market area should be identified and assessed in light of current trends.

INDUSTRIAL MARKET ANALYSIS 10

10.1 INTRODUCTION

This section of the report focuses on the light industrial / commercial market, with the objective of estimating the development potential within the designated area. In order to reach this objective, the demand for development within the market area should be identified and assessed in light of current trends.

Subsequent sections provide a concise overview of the light industrial / commercial market in terms of the following aspects:



10.2 GENERAL INDUSTRIAL MARKET TRENDS

10.2.1 MOST IMPORTANT CHARACTERISTICS OF INDUSTRIAL PARKS

- ✓ It should be developed according to a predetermined master plan
- ✓ Management is governed by a single management body, whether the owner or an association of occupiers
- ✓ Control is exercised over the uses and activities, by means of zoning, title conditions and mutual agreements
- ✓ The compatibility of uses is protected to the advantage of the occupiers and the owner as well as the community in which the industrial park is located.
- ✓ Roads (in many cases also railway facilities), parking, services, as well as eating and recreation facilities and related services are provided.

Advantages and limitations for the developer:

- ✓ The development of an industrial site increases the value of adjacent sites. In an industrial park, the developer owns the adjacent sites and therefore enjoys the advantage of appreciation in value.
- ✓ The developer hopes for greater returns from the development of an industrial park than from sales of the underdeveloped land.
- ✓ The industrial park offers the possibility of scale advantages from a planning and cost viewpoint.
- ✓ Sites and buildings in an industrial park are usually easier to market than individual sites or buildings.
- ✓ Financing an industrial park may be easier and better terms may possibly be obtained.
- ✓ The developer can determine the pace of development by phasing. The development success of an earlier phase also affects the success of later phases-he therefore controls his own future to a great extent.
- ✓ The developer of an industrial park requires exceptional skill and high capital cost. Capital often has to be invested for long periods before a return is obtained.
- ✓ The cost of improvements may be higher than in the case of individual sites, which are often served by existing roads and services.
- ✓ Requirements set by local authorities may be more restrictive than in the individual sites.
- ✓ If certain services (like access roads) must be provided by the local authorities, it may happen that they are not provided according to schedule with the accompanying embarrassments and costs to the developer.
- ✓ The sustained enforcement of park standards and control measures is time-consuming and expensive. The developer is not involved in the short-term, but remains involved until the whole industrial park is completed and often afterwards as well.
- ✓ The developer cannot adjust easily to changing market circumstances.

Advantages and limitations for the industrialist/occupier:

- ✓ Immediate availability of a variety of full-equipped spaces

- ✓ Possible scale benefits of development costs, as well as operating costs
- ✓ A choice of different site sizes, shapes and locations is usually possible in the industrial park.
- ✓ A wide variety of services (e.g. security, landscaping) is usually available.
- ✓ Pleasant working conditions and usually nearby-situated eating and recreation facilities for employees.
- ✓ Stability of environment and character
- ✓ Sites and buildings in an industrial park are usually easier to market, lease or sublet in the future, than individual sites or buildings.
- ✓ High cost. In spite of possible scale benefits, a specific industrialist may not always need all the services supplied in the industrial park.
- ✓ Control measures, which were initially acceptable, may later prove to be unnecessarily restrictive.
- ✓ Industrial parks are not suitable or acceptable for all industries (e.g. large chemical, steel or cement factories)
- ✓ Possible loss identity, especially in the case of large, nationally known enterprises.
- ✓ Traffic problems may arise if access roads prove to be insufficient.

Advantages and limitations for the community:

- ✓ Increased job opportunities, income and taxes.
- ✓ Orderly industrial development, with the least negative effort on the community.
- ✓ Diversification of the local economy.
- ✓ More economic utilization of municipal infrastructure.
- ✓ Insufficient planning of access roads may cause traffic problems
- ✓ Future growth of the industrial park may cause an overloading of municipal services

10.2.3 TYPES OF INDUSTRIAL PARKS

General or composite uses

The least specialised type of industrial park in which non-industrial uses are permitted and often encouraged. In some cases of the occupiers of the industrial park, like filling stations, retailers and catering facilities. However, if other uses are allowed unchecked, the unique character in the area park may be lost.

Exclusive industrial parks

Industrial parks exclusively occupied by industries are the most common and also a rule the most attractive developer. They do not compete with commercial developments in the area, for instance, and offer the greatest possible basis for industrial development.

Single use industrial parks

The accommodation of only one type of manufacturing or distributive operation offers the potential of greater possible returns as a result of specialisation. On the other hand, they are exposed to greater risks, since changes in the specific industry's operation, standards or even preferences may take the whole park obsolete.

A specialised variant of the single use industrial park is the single industry park, which accommodates only one industrial enterprise. Since it does not house a community of industries, it is not strictly definable as an industrial park. However; it does not illustrate the importance of aesthetics and compatibility with the environment for modern industries.

Office/Mixed use parks

Office parks are based on the same principles of developments as industrial parks, with the difference that office uses only are allowed (e.g. at Barlow Park in Sandton). As a result of the need for office accommodation in the immediate vicinity of industries, an office park may be developed directly next to an industrial park (e.g. at City Deep, Johannesburg).

Office accommodation may of course also be developed in an industrial park, if the rights allow for this. Besides limited offices inside the factory building or warehouse, office buildings as such may be placed inside the industrial park (e.g. the Isando Industrial Park in Kempton Park or Kya Sands Business Park, Randburg).

Research/Technology parks

A research park or technology park is an industrial park closely connected with local universities or other research bodies, so far that technology, and especially high level technology, can be conveyed and commercially applied.

The first and probably the best known example is the Stanford Research, sometimes also known as Science parks, are also found in Britain,France,Israel,Australia and Taiwan. An extensive bibliography is provided in AURPP (1997). Because Research Park has to be located in an area where there is a considerable concentration of higher education institutions, there are only a few locations in South Africa which are suitable for purpose.

Examples include Perserquor Techno Park in Pretoria (Techno forum 1992-exhibit 21.1), the Techno Park in Stellenbosch (Malan 1988) and the Capricorn industrial and technology park in Muizenberg (exhibit 21.2)

Airport industrial parks

The facilities offered by airports for transport, as well as international and national travellers, create attractive possibilities for industrial parks in the immediate vicinity of an airport (especially for industrial exhibition space). Fisher (1962,1966) offers information on the development of this type of industrial park. The potential contribution of the Polokwane Airport to economic development in the region could be greatly enhanced by means of the judicious application of the principles of airport economic.

10.2.4 SELECTION OF THE SITE

Location considerations

A desirable location for an industrial park is of course where a concentration of exists or can develop-probably a metropolitan location. It should be close to and accessible to labour markets, sources of materials (in terms of type, quantity and delivery costs) and product markets. The location requirements for an industrial park are therefore the same as the location requirements for industries. The site must be immediately accessibility of product from the main transport routes (savings on transport, increased labour market, accessibility of product and visibility), while a location near rail facilities, an airport and harbour, would be an asset.

Site requirements

The site under construction must be carefully analysed to ascertain whether it complies with the requirements for the development of an industrial park, It is useful to investigate the site by means of a checklist for site features (Site selection checklist), during the analysis process.

Ideally the site will have the following features:

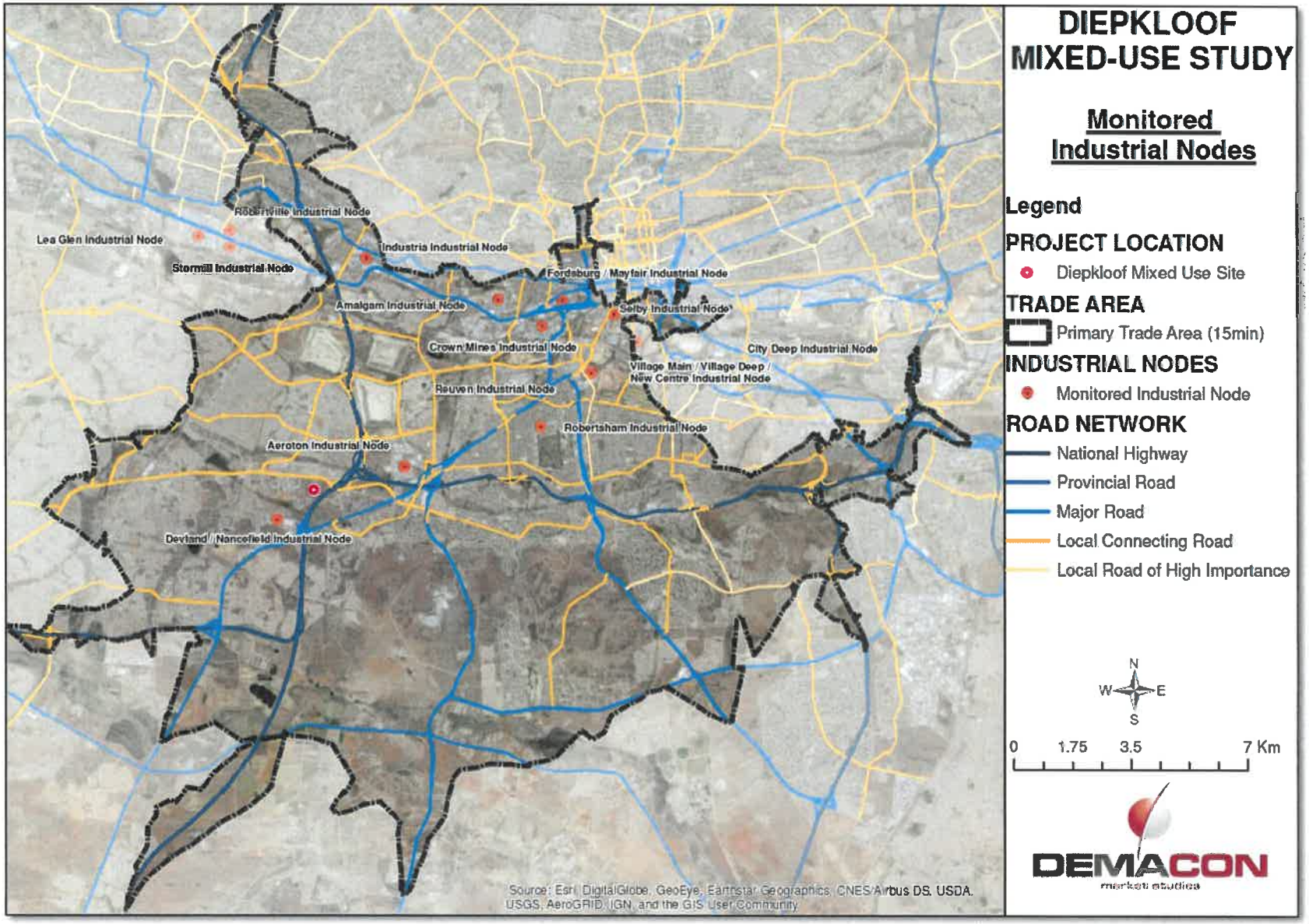
a) It should be an event, well-drained pierce of land, more or less rectangular in shape and of good soil structure.
b) It should be accessible for private as well as public transport.
c) It should be easily offer space for expansion.
d) It must be fully serviced (water, electricity, telephone, drainage, etc.)
e) It should be zoned for industries or a rezoning should be possible (consult Guide Plans and Town Planning Schemes)

10.3 LOCAL MARKET INDICATORS

10.3.1 LOCAL INDUSTRIAL MARKET TRENDS

Map 10.1 illustrates the industrial nodes in the market area.

Map 10.1: Industrial Nodes



❖ INDUSTRIAL RENTALS AND VACANCIES

Industrial rentals still strong

Industrial property remains the bright spot in the South African property market due to its superior rental growth and lower vacancy rates.

Nominal industrial market rentals grew by 6% year on year in the fourth quarter of 2018, the same pace as in the third quarter of 2018. This implies that rentals continued to increase in real terms, after adjusting for building-cost inflation (BER BCI) of about 1%.

Drivers of the industrial market

Changes in rental and vacancy rates are strongly linked to the performance of the manufacturing and retail sectors. The manufacturing sector underpins the demand for industrial space for manufacturing production purposes, whereas the retail sector underpins the demand for warehouse space and manufacturing.

Manufacturing production did not change in September 2018 compared to September 2017 but increased by 1% in the first nine months of 2018 – an improvement from the 1% decrease recorded in 2017. The latest Absa Purchasing Managers' Index (PMI) points to better conditions in the sector towards the end of the year. The PMI reached 49,5 index points in November from 42,4 in October after three consecutive monthly declines, thanks to an improvement in sales orders and activity. Noteworthy is that survey respondents were more positive about the future due the import cost relief brought by the stronger rand and lower oil price.

However, despite the overall improvement, the PMI remains just below the 50-point mark that separates contraction from expansion, indicating that the sector generally remains under pressure.

The scary story is that the trend of this index has been sliding since 2007. Thus, the peaks and valleys have been showing a declining trend. This is consistent with a South Africa that is deindustrialising, like a true First World country – as if we can afford this.

The retail sector performed better than the manufacturing sector over the first nine months of the year, growing by 2,6% in real terms. However, September sales grew at a yearly rate of only 0,7%, the slowest this year. This slow growth was not surprising as consumers are buckling under financial pressure.

Rental performance

Thanks to South Africans' ingrained predilection to consume (necessitating warehouse space and freight logistics), industrial property continued its stellar performance in the fourth quarter of 2018, with national nominal market rentals growing by 6%, comfortably outpacing building-cost inflation of about 1% (latest available). This was the same growth rate as in the third quarter, indicating that the market is still on a solid footing.

National rental growth in the fourth quarter was largely driven by the Cape Peninsula, where nominal market rentals for prime industrial space of 500 m² grew by 10% year on year.

However, rental growth has slowed for the second consecutive quarter. The region's sharp rental growth is in line with its Rode vacancy factor of 2,1, where a figure of 1–3 on the scale denotes a vacancy of less than 10%. Some of the areas that stand out with low vacancy rates are Saxenburg Industrial Park, Contermanskloof, Brackengate, Ndabeni and the areas at the airport.

Market rentals in the Central Witwatersrand, Durban and East Rand grew by 5%, 5% and 3% respectively, roughly on par with growth rates in the previous quarter. This implies that rentals managed to grow in real terms in all the major industrial regions.

As a yardstick of potential future growth in market rentals, we compare pioneer rentals with prevailing market rentals for prime industrial premises of 1 000 m² as in the fourth quarter of 2018 (see Table 7.1 on the next page). Pioneer rental levels often represent leases signed on newly erected on-demand buildings, and these rentals then reflect today's building costs, as developers naturally expect an immediate fair return on their development costs.

Thus, these rentals are an early indicator of the eventual level that market rentals will attain once demand catches up with supply in the wake of renewed economic growth.

Operating expenses are also an important factor to consider when assessing the profitability or viability of a property.

Table 10.1: Mean prime industrial market rentals

	Pioneer	Normal Prime	Difference (%)
Central Witswatersrand	92,0	48,0	91%
West Rand	85,0	41,0	103%
East Rand	70,0	49,0	44%
Durban	85,0	60,0	42%
Cape Peninsula	85,0	51,0	66%
Bloemfontein	65,0	35,0	84%

Source: Demacon ex, SAPOA 2018:Q4

The following table provides mean prime industrial market rentals for the immediate surrounding areas.

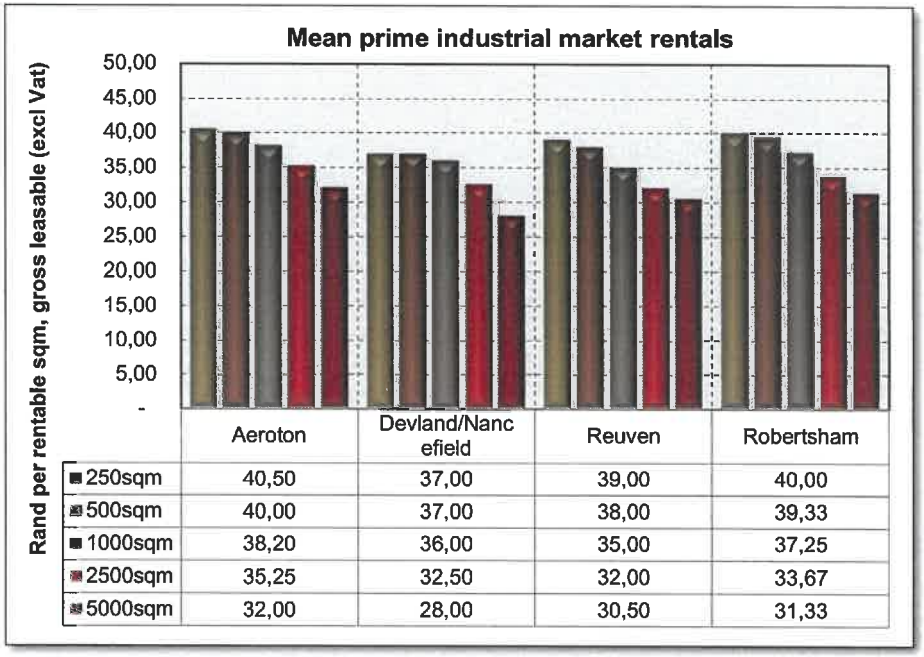
Table 10.2: Mean prime industrial market rentals

Nodes	Area size leased in m²					Vacancy
	250	500	1000	2500	5000	
Amalgam	41,38	40,13	38,00	37,50	36,00	1,60
Crown Mines	42,50	42,50	40,67	38,67	36,00	1,50
Industria	39,00	37,00	36,80	34,00	31,75	2,80
Village Main/Village Deep/New Centre	37,50	37,50	33,50	31,00	27,50	3,00
Aeroton	40,50	40,00	38,20	35,25	32,00	2,40
Devland/Nancefield	37,00	37,00	36,00	32,50	28,00	2,30
City Deep	44,40	44,40	42,92	41,40	40,00	3,20
Selby Ext 12/13/15/19/20/24 City West	40,00	40,00	37,75	34,00	31,33	3,30
Selby Ext 5/10/14/18	39,33	38,67	35,67	33,00	30,33	2,70
Selby Ext 11	40,00	38,67	35,67	33,00	28,50	2,70
Selby Ext 3/4/6	40,00	38,00	35,00	32,33	28,50	2,70
Reuven	39,00	38,00	35,00	32,00	30,50	2,50
Selby (old)/Selby Ext 2/Park Central	36,00	34,67	33,93	30,00	26,33	3,00
Robertsham	40,00	39,33	37,25	33,67	31,33	2,30
Fordsburg/Mayfair	42,00	40,00	40,00	35,00	35,00	2,00
Lea Glen	41,25	40,75	37,50	36,00	35,50	2,10
Stormill	42,50	42,38	40,67	40,50	40,33	2,30
Robertville	42,10	38,86	38,25	38,00	37,20	2,20

Source: Demacon ex, SAPOA 2018:Q4

The figure provides mean prime industrial market rentals for selected industrial nodes in close proximity to the site.

Figure 10.1: Mean prime industrial market rentals

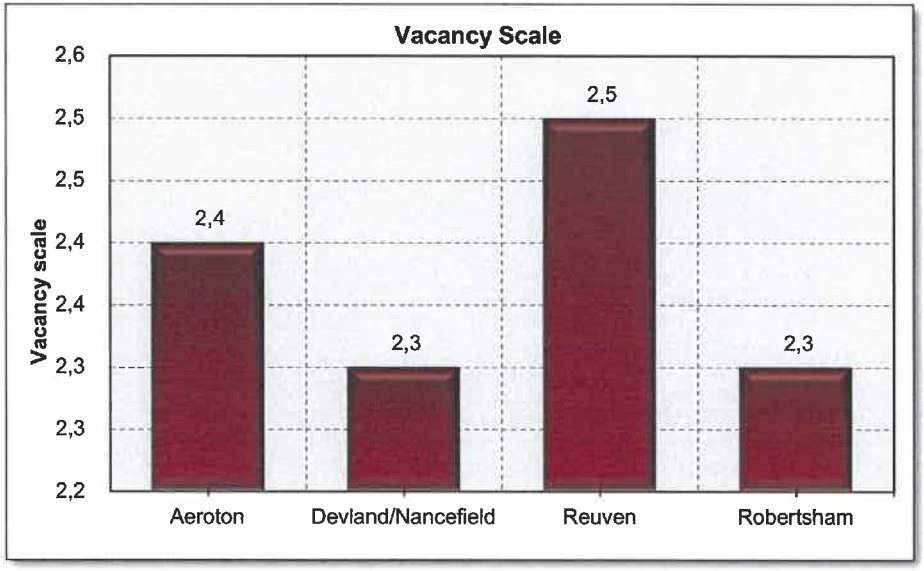


Source: Demacon ex, SAPOA 2018:Q4

Industrial rentals in the immediate vicinity include:

- ✓ Aeroton – R32.00 to R40.50 per m²
- ✓ Devland / Nancefield – R28 to R37 per m²
- ✓ Reuven – R30.50 to R39.00 per m²
- ✓ Robertsham – R31.33 to R40.00 per m²

Figure 10.2: Vacancy scale (rentals)



Source: Demacon ex, SAPOA 2018:Q4

Vacancy scale for industrial townships. The vacancy levels are based on a scale of 0 to 9 as shown below:

0	1	2	3	4	5	6	7	8	9
Nil		Low			Medium			High	

The scale should be interpreted as follows:

- 0 = no vacancy
- 1 = 'low–' vacancy;
- 2 = 'low' vacancy
- 3 = 'low+' vacancy
- 4 = 'medium–' vacancy;
- 5 = 'medium' vacancy
- 6 = 'medium+' vacancy
- 7 = 'high–' vacancy;
- 8 = 'high' vacancy
- 9 = 'high+' vacancy

where: low = <1 vacancy;
medium = 1 - 2 vacancy;
high = >2 vacancy.

❖ INDUSTRIAL STAND VALUES

Stand value growth slows

Stand values tend to track industrial rentals. Therefore, sustained growth in stand values can only be expected on the back of a sustained increase in market rentals.

The performance of industrial or warehouse rentals is, in turn, driven by the performance of the sectors key to it, namely retail and manufacturing. The retail sector (real sales up 2,6%) performed notably better than the manufacturing sector in the first nine months of 2018. However, the most recent indicators point to a somewhat improved manufacturing sector performance in the fourth quarter of this year.

As stand values are a residual item in a viability study, poor market rental growth translates into very poor stand-value growth. The pro forma viability study that shows how a land value is calculated using the residual approach. Note the sensitivity of stand values to changes in market rentals. The effect is akin to financial gearing.

Regionally, Durban showed the best nominal growth rate (12%) compared to the fourth quarter of 2017. This was the first time in two years that any region performed better than the Cape Peninsula. In the latter, stand values still grew by 4%, but slowed for the fourth consecutive quarter – probably owing to supply catching up with demand, not to mention affordability.

Rentals also increased firmly in the Central Witwatersrand (+9%) and the East Rand (+4%) but slowed from the growth rate recorded in the previous quarter. The West Rand and Far East Rand bucked the trend, with stand values down in nominal and *real* terms.

Normally, the larger an industrial stand, the cheaper the stand value per square metre. However, we find this is not always the case, most likely due to a shortage or an oversupply in certain size categories.

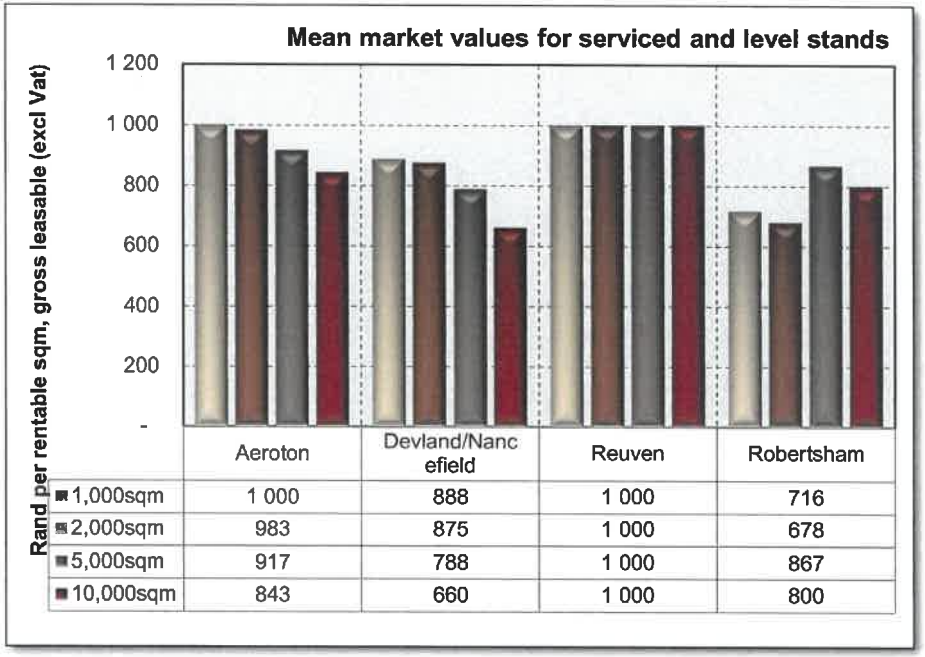
Table 10.3: Mean market values for serviced and level industrial stands

	Area size leased in m²				Vacancy
	1 000m²	2 000m²	5 000m²	10 000m²	
Amalgam	-	-	1 200	1 000	1,0
Crown Mines	1 317	1 317	1 250	1 150	2,3
Industria	1 275	1 250	1 200	1 150	2,0
Village Main/Village Deep/New Centre	800	800	775	775	1,0
Aeroton	1 000	983	917	843	2,3
Devland/Nancefield	888	875	788	660	2,5
City Deep	960	900	900	867	2,0
Selby Ext 12/13/15/19/20/24 City West	750	750	725	700	1,0
Selby Ext 5/10/14/18	750	750	725	700	1,0
Selby Ext 11	750	725	725	725	1,0
Selby Ext 3/4/6	750	725	725	725	1,0
Reuven	1 000	1 000	1 000	1 000	-
Selby (old)/Selby Ext 2/Park Central	850	850	800	750	2,0
Robertsham	716	678	867	800	1,7
Fordsburg/Mayfair	-	-	-	-	1,0
Lea Glen	817	800	783	767	1,7
Stormill	985	970	933	867	2,3
Amalgam	-	-	1 200	1 000	1,0

Source: Demacon ex, SAPOA 2018:Q4

The figure below provides mean market values for serviced and level industrial stands for selected industrial nodes in close proximity to the project.

Figure 10.3: Mean market values for serviced and level industrial stands (1 000 to 10 000sqm units)



Source: Demacon ex, SAPOA 2018:Q4

Stand vaues in the immediate vicinity include:

- ✓ Aeroton – R843 to R1 000
- ✓ Devland / Nancefield – R660 to R888
- ✓ Reuven – R1000
- ✓ Robertsham – R716 to R800

10.4 INDUSTRIAL NET SPACE DEMAND MODELLING

The following paragraphs provide definitions of respectively demand and supply for the industrial and commercial market.

✓ **Definition**

Wholesale and distribution refer to storage and wholesale facilities from where products (usually in large quantities) are distributed. This does not necessarily

include an industrial or manufacturing function. Wholesalers do have a buying and selling function – products are usually sold in large quantities. An example is such as wholesale trade in agricultural materials and livestock.

✓ **Defining Demand**

The demand in the industrial and commercial market is dependent on the following aspects:

$$D_{whol} = f\{P_o, P_{\%}, Q_w, R, T_x, Y; R_s; R_{s\%}\}$$

Where:
P_o=Population size
$P_{\%}$=Population growth
Q_w=Quality of existing facilities
R=Rental levels
T_x= Property rates and taxes
Y= Household income
R_s=Retail sales
$R_{s\%}$=Retail sales growth

✓ **Defining Supply**

The supply of industrial and commercial land users can be described as being the following:

$$S_{whol} = f\{D_{whole}, C_w, V_w, L_u, I_a, GLA_w, C_c\}$$

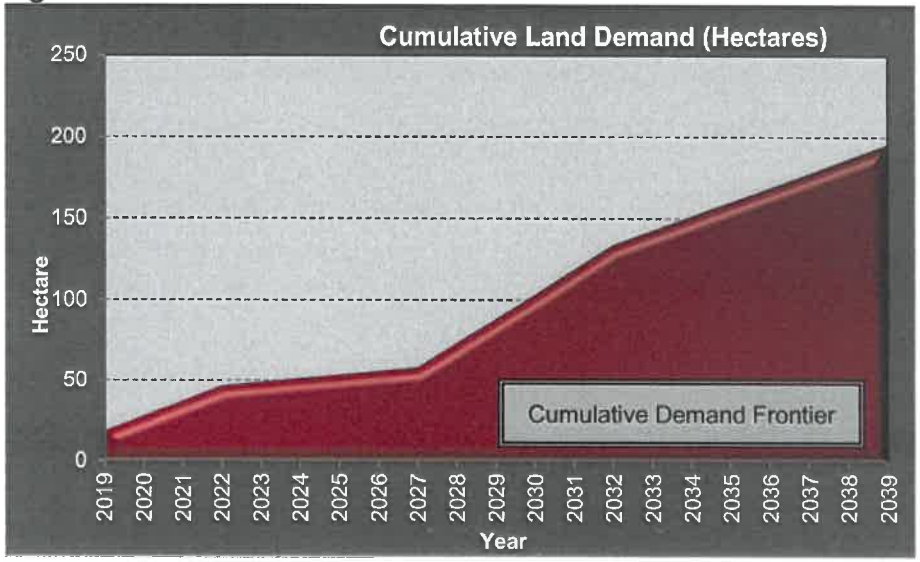
Where:

D_{whole}= Demand
C_w= Competition
V_w= Vacancies
L_u= Surrounding land uses
I_a= Infrastructure availability
GLA_w= Current usable / rentable area
C_c= Construction cost

10.4.1 SPACE DEMAND MODELLING

It is known that the demand for industrial / commercial space depends on the production of goods within a specified area. The following figure illustrates cumulative additional land demand for the specified area. Subsequent demand modelling indicators provide insight to the performance of current and future demand of the industrial market of ***Soweto Local Municipality.***

Figure 10.4: Cumulative Additional Land Demand



Source: Demacon, Industrial Demand Modelling, 2019

❑ **SPACE DEMAND RESULTS**

The following tables provide a synthesis of space demand modelling results presented in this chapter.

Table 10.4: Synthesis of Space Demand Modelling results, 2024 - 2039

Cumulative Additional Land Demand	Up to 2024	2024 – 2029	2029 - 2034	2034 - 2039
Total Manufacturing (Hectares)	20,71	34,35	57,54	73,70
Total Warehousing (Hectares)	30,57	53,77	93,81	121,71
Total Hectares (Soweto)	**51,28**	**88,11**	**151,35**	195,41

Cumulative Additional Land Demand	Up to 2024	2024 – 2029	2029 - 2034	2034 - 2039
Minimum Share	5,13	8,81	15,14	19,54
Maximum Share	7,69	13,22	22,70	29,31
Total Hectares	**6,41**	**11,01**	**18,92**	**24,43**
Development Bulk (sqm)	**35 254**	**60 579**	**94 594**	**122 131**

Source: Demacon Demand Modelling, 2019

Table 10.5: Area Long Term Space Demand Forecast Summary

Forecast	Hectares
Up to 2023	6 hectares – 10 hectares
2023 – 2028	10 hectares – 15 hectares
2028 – 2033	15 hectares – 20 hectares
2033 - 2038	20 hectares – 25 hectares

Source: Demacon, Industrial Demand Modelling, 2019

Table 10.6: Site Specific Sizing (20-year timeframe)

Recommended sizes	Rand (R') / m^2
Capital investment (2019 constant values)	R 969 258 838
Employment opportunities	1 101
Parking	1 212
Parking infrastructure & landscaping cost (2019 constant values)	R 27 139 247
Optimum point of market entry	**2024+**
Size of Industrial (building sqm GLA & hectare land)	**60 579m^2 GLA / 11.01 ha**

Source: Demacon, Industrial Demand Modelling, 2019

The following is evident from the preceding paragraphs:

- ✓ The total development potential of **Soweto** up to 2024, amounts to approximately 51.28 hectares increasing cumulatively to 195.41 hectares in 2039.
- ✓ The recommended size of industrial development for the project over the next 5 to 10 years amounts to **±11.01 hectares (60 579m^2 GLA)**
- ✓ Optimum point of market entry could be developed in **2024+**.
- ✓ The commercial component should be configured as a hybrid business park including offices and commercial buildings, positioned to draw optimum benefit from N1 freeway sight value and exposure.

10.5 SYNTHESIS

This chapter outlined the industrial market including the latest trends, local indicators, and the industrial modelling.

❑ GAP ANALYSIS

Demacon's Demand Modelling results illustrate that the consumer market can sustain light industrial, warehousing & distribution development up to **±6.51 hectares (32 564m²)** in the market area over the short to medium term. The optimum point of market entry in **2020 / 2021+**.

❑ SPACE DEMAND RESULTS

Table 10.7: Site Specific Sizing (10-year timeframe)

Recommended sizes	Rand (R') / m²
Capital investment (2019 constant values)	R 969 258 838
Employment opportunities	1 101
Parking	1 212
Parking infrastructure & landscaping cost (2019 constant values)	R 27 139 247
Optimum point of market entry	**2024+**
Size of Industrial (building sqm GLA & hectare land)	**60 579m² GLA / 11.01 ha**

Source: Demacon, Industrial Demand Modelling, 2019

The following is evident from the preceding paragraphs:

- ✓ The total development potential of **Soweto** up to 2024, amounts to approximately 51.28 hectares increasing cumulatively to 195.41 hectares in 2039.
- ✓ The recommended size of industrial development for the project over the next 5 to 10 years amounts to **±11.01 hectares (60 579m² GLA)**
- ✓ Optimum point of market entry could be developed in **2024+**.
- ✓ The commercial component should be configured as a hybrid business park including offices and commercial buildings, positioned to draw optimum benefit from N1 freeway sight value and exposure.

11

SHORT-STAY ACCOMMODATION MARKET ANALYSIS

This section of the report focuses on the light industrial / commercial market, with the objective of estimating the development potential within the designated area. In order to reach this objective, the demand for development within the market area should be identified and assessed in light of current trends.

SHORT-STAY ACCOMMODATION MARKET ANALYSIS 11

11.1 INTRODUCTION

This chapter provides a description of tourism in terms of segments, products and visits. **Definition: Tourism is travel for recreational, leisure or business purposes.** The World Tourism Organisation defines **tourists** as people who *"travel to and stay in places outside their usual environment for more than twenty-four (24) hours and not more than one consecutive year for leisure, business and other purposes not related to the exercise of an activity remunerated from within the place visited".*

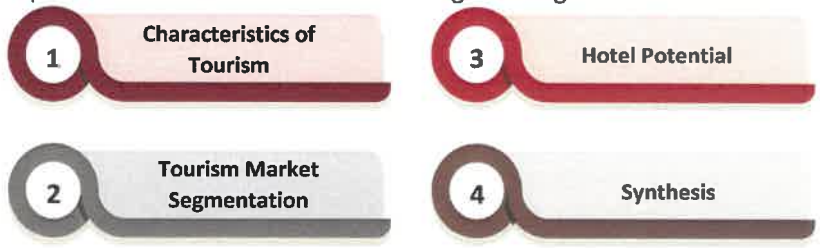
Tourism is an amalgam of visitors' consumption of goods and services which include transportation, **accommodation, food and beverage, recreation and entertainment, travel and tour operations,** and souvenirs. It is envisaged that tourism is becoming a global pillar of productive and sustainable source of national revenue, decent employment and poverty reduction globally

Tourism is the business of selling leisure as a destination or a place as a product. The characteristics of the product are:

- ✓ **Spatial scale**: a place is inevitably one component in the hierarchy of a spatial scale, a characteristic unique to the 'place product'. A different structured hierarchy may create a different product.
- ✓ **Multi-sold:** The same destination, the same facilities etc. are sold to different groups of consumers for different purposes. The place is often viewed differently in tourist origin area and tourist destinations inclusive of travel in the former and exclusive of travel in the latter. A place product is distinguished by variety of businesses and experiences obtainable at that place. Each individual consumes a unique selection of these products.
- ✓ Consequently, a place product is marketed by destination agencies without a clear idea of nature of product being consumed.

A tourism product can therefore be defined as a sum of the place product (destination tourism offering including accommodation and ancillary services) and the travel experience.

This chapter is addressed under the following headings:



11.2 CHARACTERISTICS OF TOURISM

Tourism has the following characteristics as a product:

- ✓ **Inflexibility**: The tourism industry is highly inflexible in terms of capacity. The number of beds in a hotel or seats on a flight is fixed so it is not possible to meet sudden upsurges in demand similarly restaurants tables, hotels beds and flights seats remain empty and unused in periods of low demand.
- ✓ **Perishability**: It is related to the fact that travel products are intended to be consumed as they are produced. For example, an airline has seats to sell on each flight; a hotel has rooms to sell for each night. If the airline is not able to sell all its seats on its flight, or a hotel is not able to sell its rooms for the night then the opportunity to sell the product is lost forever. Service sector cannot keep inventory like products. If the tourist cannot visit the place, the opportunity is lost. Hence, this becomes one of its important characteristics.
- ✓ **Inconsistency:** In the Travel and Tourism industry a product or a package of a tourism service can be standardised i.e. for example of 2 days 3 nights in so and so hotel, but the actual experience of consuming this package is highly inconsistent. There are lots of travel stories which becomes a

portrayal of a lot of bad experiences for example the tourist guide may not be good, the hotels lodging and boarding was bad etc. Therefore, there is high level of inconsistency prevailing.

- ✓ **Intangibility:** Travel products cannot be touched as they include flight experience on an airplane, cruise on an ocean liner, a night's rest in a hotel, view of the mountains, a visit to a museum, a good time in a night club and much more. These products are experiences. Once they have taken place they can only be recalled and relished.

Elements that's make a successful Tourism destination

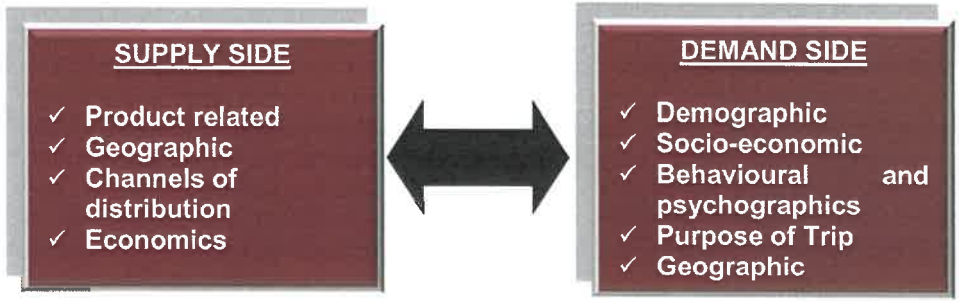
- ✓ **High Quality:** is a key guiding value in tourism development. For any attraction this means having a pleasing clean appearance, offering smooth customer-oriented operations and procedures, resource protection, friendly hospitality, etc.
- ✓ **Authenticity:** being real, matters. It means letting the distinctive local flavour of a community shine through in ways that create and produce a "sense of place".
- ✓ **Uniqueness:** This is the "edge" that sets an attraction in one community apart from the competition somewhere else.
- ✓ **Drawing Power:** This is measured in terms of the number of visitors who will travel to a specified distance to visit a community and whether they will return for repeat visits.
- ✓ **Activity Options:** A variety of activities are important characteristics of attractions. The first impulse is to concentrate on buildings, sites, facilities. But, it is important to remember the activities that provide resident and visitors things to do. Does the attraction offer a varied and changing set of activities?

The combination of these tourism elements sets attractions apart from one another.

11.3 TOURISM MARKET SEGMENTATION

Market segmentation can be defined as the process through which people (both tourism providers and consumers) with similar needs, wants and characteristics are grouped together so that a tourism business/organisation can use greater precision in serving and communicating with these groups (marketing). The benefits of segmentation are that it enables better marketing decisions and promotes more viable operations.

Characteristics commonly used to divide markets into segments include:



The following comments focus on the three main bases for market segmentation: product, demographic and behavioural.

Supply side segmentation

Product Related Segmentation: Typical product-related segmentation may be along the lines of the following:

- ✓ **Accommodation** (from camp grounds to high end wilderness lodges)
- ✓ **Adventure Operators/Organisers:** These incorporates family adventures and motorcycle tours to hunting and bird-watching
- ✓ **Attractions:** these include museums and theme parks to sports clubs and festivals
- ✓ **Transportation and Services** These include cruise liners, train and van tours to restaurants and gas stations.

The tourism product can be a **location** where the specific place is the destination and it can either be natural or manmade e.g. theme parks, **the travel process** itself as the destination e.g. cruise liners and train tours or the **stay** as the destination e.g. resorts and palaces.

Other supply-side segmentation criteria may be geographical location of the customers, e.g. Europe, Africa etc while channel of distribution entails the means by which the consumer is reached e.g. packaged tours, individuals and tour operator.

Demand-Based Segmentation

- ✓ **Demographics:** Understanding demographics is imperative to product development and segmentation, especially with regard to understanding trends in the market place. Demography (the study of age, sex, education, family status, life cycle etc.) is an excellent tool for product developers and marketers. According to the well-respected demographer, David Foot, demographics accounts for "two-thirds of everything", (markets, social problems, demand for services etc.). The subject therefore plays a key-role in decision-making regarding demand for tourism products.
- ✓ **Behavioural Segmentation:** People's *activities, interests* and *opinions* (AIO's) also play a key role in decision-making and travel habits. These behavioural characteristics (also known as psychographics), when used in conjunction with demographics, provide a much stronger marketing tool for tourism businesses and planners. Key among these behaviours are:
    - Intimacy & Romance
    - Experiencing Different Cultures
    - Natural Wonders
    - Fine Cuisine and being pampered
    - Escaping winter weather
    - Adventure and Excitement
    - Experiencing Unspoiled Nature
    - Historic sites
    - Hands on Learning
    - Hobby or sport.

Purpose of trip e.g. conferences and geographical factors also affect the segmentation of tourism from the demand side.

Business & Leisure Tourism

Leisure tourism is when someone travels to a destination because they **want to and there is no other motivation except looking for fun and relaxation** and it has experience at its core. Whatever subtle reasons or motivations for leisure travel, when done, one engages in an experience. One does not just buy a product (although one may buy souvenirs) or just buy services (although one buys transportation, accommodation, food service, etc.), but buys an experience that comprises what and how one feels during and at the end of a trip –emotional response to a journey through time and space that includes purchases of products and services, but also an interaction with people and places.

Business tourism comprises of a trip that is undertaken for the purpose of attending a conference, meeting, exhibition or event, or as part of an employment incentive. Business travel, by contrast, is conducted by individual businesses, which is more difficult to track and to market in a targeted fashion. Business tourists as a category tend to be more worldly and well-travelled than the norm, and thus more interested in new and better experiences.

These economic benefits of business tourism need to be effectively managed in order for destinations to yield the maximum benefit. When this is the case, the 'impact of this industry on a nation's economy is tremendous' (Lee and Josiam, 2004: 105). Figure 5.1 below highlights both the positive and negative impacts that can develop through the influence of business tourism on a localized level highlighting the need for careful structured management.

Without proper consideration, environmental and social factors may have a negative impact. From creating additional pollution and waste to the demand for infrastructure, the physical environment may suffer negatively from an influx of business tourists. Socially, business tourism appears to have mixed impacts, with the business traveller experiencing a more favourable time than the local community in the destination who may suffer negative impacts (Swarbrooke and Horner, 2001).

Large cities are multifunctional and therefore any business tourism operations become part of the mix of activities in a big city. In Law's categorisation of cities, he found that the 'invisibility of tourism in cities partly arises from the fact that many facilities are used both by residents and visitors. Improving these facilities therefore provides benefits for residents as well as assisting the promotion of tourism' (Law, 1996: 5). New projects and development of convention centres and arenas are often the 'centrepieces of the regeneration of derelict areas on the downtown areas' (Law, 1996: 12) and can be used effectively to secure funding for upliftment of the community.

11.4 TOWNSHIP TOURISM

Townships are the focus of a new tourist trend in South Africa, where the emphasis is on cultural aspects. Cultural tourists are presumably motivated by a desire to experience local cultures when choosing to visit a particular location. Cultural tourism in South Africa is still in its infancy; however the political changes, post-apartheid, have stimulated increased interest in the fascinating mix of cultures found in townships (Ramchander, 2007a,b)

A large part of tourism is about contact with other cultures and learning about other ways of life. Cultaral tourism is constantly growing as more and more tourists seek tto interact with other cultures and broaden their knowledge and personal experience base. (ed Lubbe 2003: P87)

The cultural tourist is strongly motivated by the interest in cultures and behaviours different from their own. Therefore, cultural tourism has become increasingly popular assess for communities, which can be used as a tool to create employment opportunities and attract investment with their areas. Township tourism is a type of cultural tourism in South Africa that has started to become very popular amont the internation tourists.

The majority of townhsips within South Africa can be characterised by a very poor population with high rates of unemployment and low levels of education. Furthermore, the economic growth potential of these areas are also usually very low, and as such these areas are characterised by limited employment opportunities.

According to Briedenhann & Ramchander (2005:125), the increased demand for or interest in township can be attributed to three key aspects

1. The first reason described by Briedenhann & Ramchander (1999 cited in Witz et al, 2005:125), argues that tourists want to engange in an activity where they can experience authenticity, in other words activities / attractrions that depict the "real life / history" of communities.
2. The second reason for the interest in township tourism is based on the visual experience, as tourists can visually see the results of the apartheid regime on these previously disadvantaged groups and their communities.
3. The third reason for tourists' interest in tonship tourism is the fact that tourists get the opportunity to experience the cultural heritage of these townships by visiting numerous heritage and cultural attractions, as these areas are very rich in these types of tourism product.

Township tourism in Johannesburg - Soweto

In 1976 the name Soweto (first used in 1963 to describe the South West Townships created to keep black South Africans away from white Joburg) became globally synonymous with the anti-apartheid struggle as youth rose up against inferior education. But Soweto's history goes back a lot further to the 1930s when black workers who had flocked to the goldfields since 1886 in search of work were housed here. Today Soweto is home to around 1.5 million people and its neighbourhoods range from Kliptown's informal shacklands to the mansions of Diepkloof Extension, also known as Diepkloof Expensive and Vilakazi Street, the heart of tourist Soweto. More like a city, this 'township' has worthwhile historical sites, a vibrant contemporary social scene and exciting new lifestyle attractions.

Activities / sight seeing in Soweto:

- ✓ **Tour Soweto**
- ✓ **Lebo's Soweto Bicycle Tours**
  Address: 10823A Pooe St, Orlando West, Soweto
- ✓ **Lebo's Open Air Restaurant**
  Address: 10823A Pooe St (cnr Ramushu St), Orlando West, Soweto
- ✓ **Lebo's Soweto Backpackers**
  Address: 10823A Pooe St, cnr Ramushu St, Orlando West, Soweto
- ✓ **Thesis Concept Store**
  Address: 173 Machaba Dr, Mofolo, Soweto
- ✓ **Bay of Grace Tours**
  Address: Dynamo St, off Chris Hani Rd, Soweto
- ✓ **Hector Pieterson Memorial and Museum**
  Address: 8287 Khumalo St, Orlando West
- ✓ **IBhoni Cycling Tours**
- ✓ **Johannesburg City Sightseeing Soweto Tour**
  Address: Apartheid Museum, Cnr Northern Parkway and Gold Reef Rd, Ormonde
- ✓ **Soweto Outdoor Adventures**
  Address: Dynamo St, cnr Old Potch Rd, Orlando, Soweto
- ✓ **TKD Tours**

Address: Based in Kliptown, Soweto

- ✓ **Hector Pieterson Memorial and Museum**
  Address: 8287 Khumalo St, Orlando West
- ✓ **Vilakazi Street**
  Address: Vilakazi St, Orlando West, Soweto
- ✓ **Credo Mutwa Cultural Village and the Oppenheimer Tower**
  Address: 991 Bochabela St, Jabavu Central, Soweto
- ✓ **FNB Stadium**
  Address: Nasrec Rd and Stadium Ave, Nasrec
- ✓ **Kliptown**
  Kliptown, Soweto
- ✓ **Kliptown Museum**
  Address: Walter Sisulu Square, cnr Union St and Main Rd, Kliptown, Soweto
- ✓ **Mandela House Museum**
  Address: 8115 Vilakazi St, Orlando West, Soweto
- ✓ **Orland Towers**
  Address: Cnr Kingsley Sithole St and Nicholas St, Orlando, Soweto
- ✓ **Regina Mudi Church**
  Address: 1149 Khumalo St, off Elias Motsoaledi Rd, Rockville, Soweto
- ✓ **Soweto Equestrian Centre**
  Address: 1679 Vundla Dr, Moroka, Soweto

With the growth of tourism in the townships, the Johannesburg Tourism Company (JTC) has formed a Soweto Tourism Information Centre (STIC). The centre is a tourism hub and one-stop shop for Soweto. The offices is located at the Walter Sisulu Square of Dedication in Kliptown, on the site where the Freedom Charter was signed 50 years ago.

The offices include a visitors' centre, a conference-cum-meeting room fully equipped with standard conferencing audiovisual equipment, a curio shop, a call centre, an Internet café and a cafeteria.

Visitors could book their accommodation, plan and book tours, and hire site guides through the STIC. The STIC will be a centralised facility that is planned to service tourism interests in the whole of southern Johannesburg.

The Soweto Tourism Association operate better with its sister associations such as those at Kliptown, Eldorado Park and Lenasia as well as accommodation establishments, tour operators and site guides.

The STIC is as a springboard for launching the potential of the travel market and spurring the growth of tourism in the south of Johannesburg. The centre provides training for young entrepreneurs seeking to establish businesses in the hospitality sector and other business activities in Soweto.

In context of the above, it is clear that there is potential for a hotel which would attract the tourism market, locally as well as internationally.

11.5 HOTEL POTENTIAL ASSESSMENT

11.5.1 EXISTING HOTEL SUPPLY

Refer Map 11.1 and Table 11.1 for a summary of hotel facilities located within the primary market area.

Table 11.1: Summary of hotel facilities within the primary market area

Name of Hotel	Physical Address	Rooms	Grading	Room Rates per person sharing
Alberton Boulevard Hotel	34 Voortrekker Road, New Redruth, Alberton,	44	3	From R750
Gold Reef City Casino Hotel	Northern Parkway Rd, Ormonde, Johannesburg South	38	4	From R1053
Gold Reef City Theme Park Hotel	Shaft 14, Northern Parkway, Ormonde	75	4	From R1770
Hotel Formula 1 - Southgate	Cnr. Main & 47 Murray Ave, Meredale	58	1	From R605
Lido Hotel	Pennylane 342-Iq, Vereeniging Road, R82, Eikenhof, 1872, Eikenhof,	24	3	From R700
Prospector Hotel	106 Central Ave, Johannesburg	62	1	From R1622

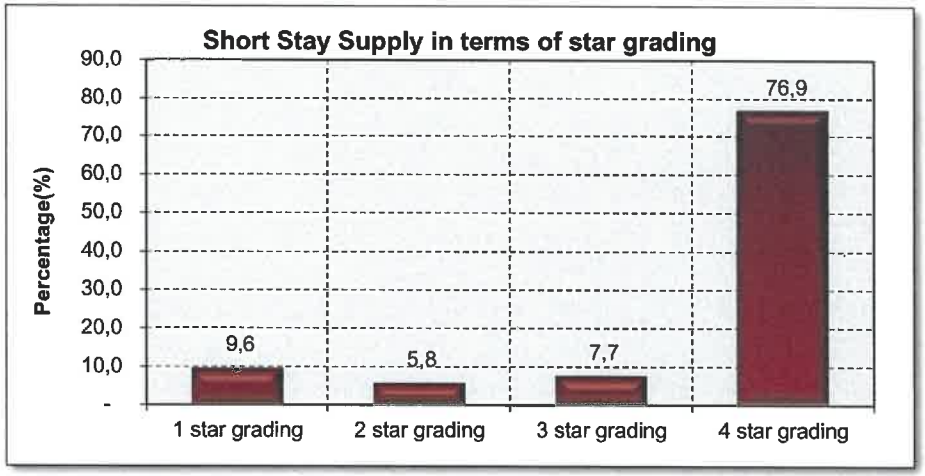
Name of Hotel	Physical Address	Rooms	Grading	Room Rates per person sharing
Protea Hotels - Roodepoort	Corner Of 14th Avenue & Hendrik Potgieter Street, Weltevredenpark	80	3	From R1282
Road Lodge - Southgate	Road Lcolumbine Ave & Golden Highway, Southgateodge - Southgate	118	1	From R695
Robertsham Hotel	87 Harry St, Robertsham, Johannesburg South	25	2	From R270
Ecotel Southgate Inn	12 Main Rd, Meredale, Johannesburg South	10	4	From R339
Thaba Ya Batswana - Hotel	46 Impala Rd, Rietvlei 101-Ir, Johannesburg South	52	4	From R2164
The Orient Hotel	48 Central Road. Fordsburg, Johannesburg	12	3	From R710
Town Lodge - Roodepoort	360 Plot Road, 8 Constantia Boulevard, Lower Lake Lane, Constantia Kloof, Roodepoort	106	2	From R1034
Tsogo Sun - Gold Reef City Theme Park Hotel	14 Northern Pkwy, Ormonde 99-Ir, Johannesburg South	75	4	From R1600
Thaba Eco Hotel	Klipriviersberg Nature Reserve, Impala Rd, Kibler Park,	52	4	From R2403
Sun1 Alberton	St Austell Road, Alberton	76	2	From R605

SUMMARY OF HOTEL SUPPLY

Findings:

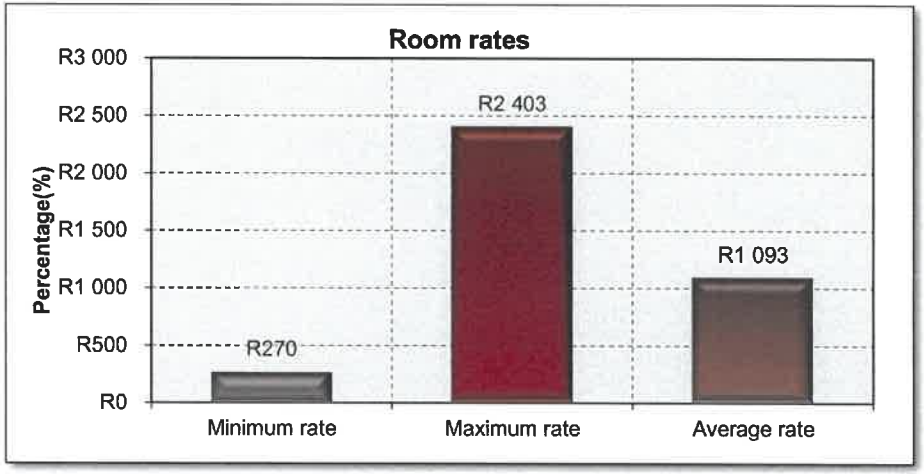
- ✓ There are sixteen hotels located within the primary trade area.
- ✓ Room rates start from R270 and R2 403 per night, average **R1 093 per person per night**
- ✓ A total of **1 367 rooms** with the average hotel size of **65rooms**.
- ✓ The largest segment of hotels is graded as **four-star hotels** (76.9%) followed by 9.6% graded as one-star hotels.
- ✓ Evidently this reflects a market with a demand towards the more affordable star gradings with unique and different product offerings.

Figure 11.1: Hotel Grading Distribution



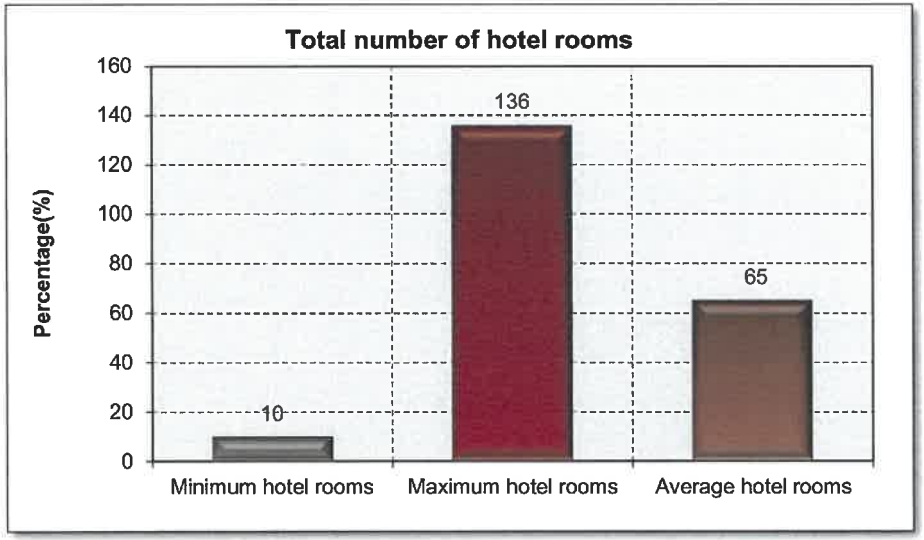
Source: Demacon 2019

Figure 11.2: Room rate



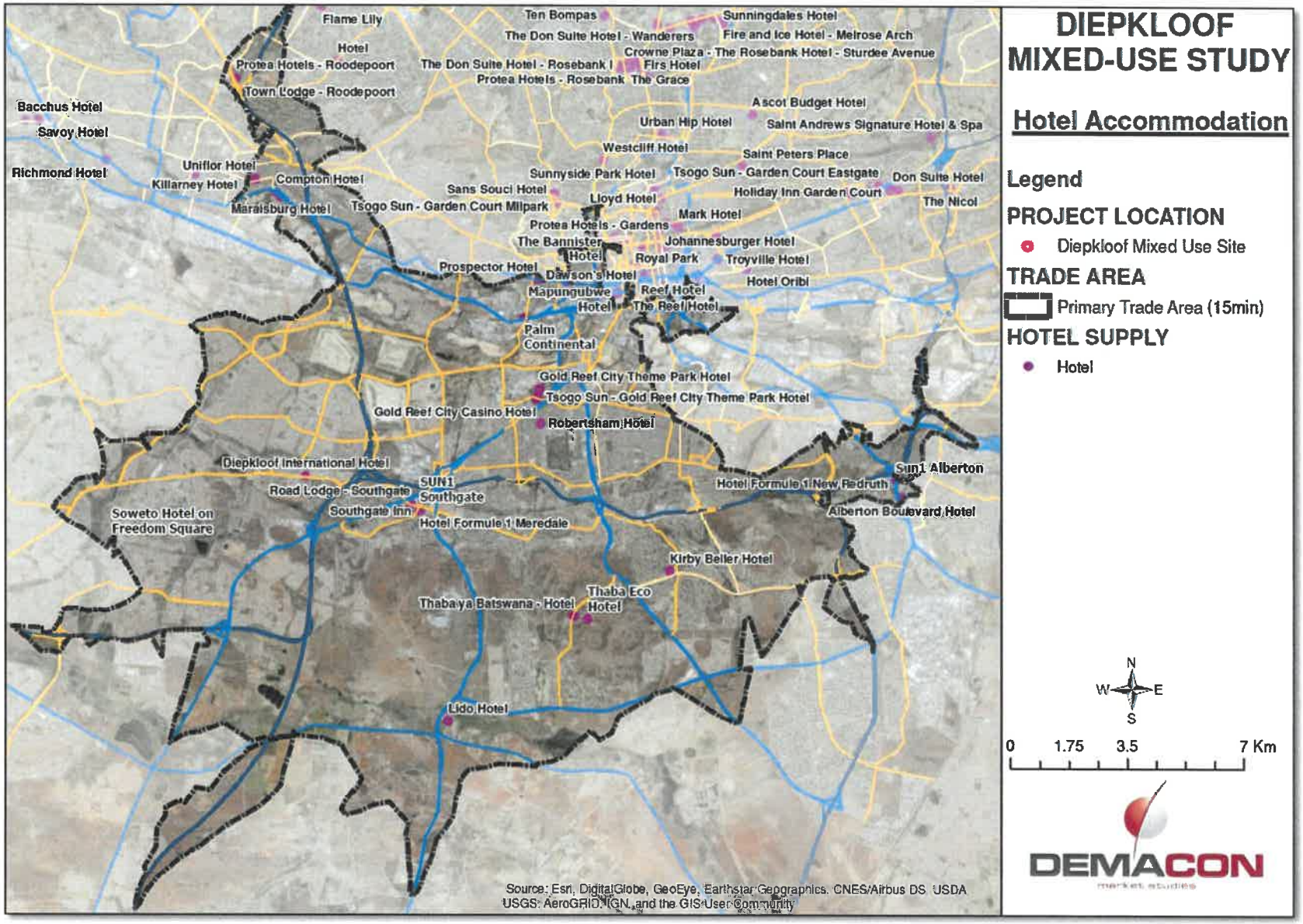
Source: Demacon 2019
Note: Room rates start from R270 and R2 403 per night, average R1 093 per person per night

Figure 11.3: Total number of hotel rooms



Source: Demacon 2019

Map 11.1: Hotel Supply



11.5.2 HOTEL MARKET DEMAND ESTIMATIONS

Demand Estimations

The market demand estimations are calculated for the hotel market and auxiliary facilities per market segment. The share analysis refers to the expected market share generated according to the capacity provided.

Table 11.2: Gauteng Attractions of Bednights (Total Bednights)

	2019	2024	2029	2034
Foreign Bednights	38 989 736	52 610 834	70 990 475	95 791 059
Domestic Bednights	17 064 634	13 735 889	11 056 473	8 899 721
Total	56 054 370	66 346 724	82 046 948	104 690 781

Source: Demacon, 2019

Table 11.3: Gauteng Attractions of Hotel Guests (Bednights)

	2019	2024	2029	2034
Foreign Bednights	4 769 146	6 435 251	8 683 412	11 716 970
Domestic Bednights	625 703	503 649	405 404	326 323
Total	5 394 849	6 938 901	9 088 816	12 043 293

Source: Demacon, 2019

Table 11.4: Project Summary

Project Summary	2019	2024	2029	2034
Soweto Local Economy Share (GVA & Employment)	9,7%	9,7%	9,7%	9,7%
Soweto Regional Hotel Share (Bednights)	523 300	673 073	881 615	1 168 199
Soweto Hotel Share (Bednights)	523 300	673 073	881 615	1 168 199
Project - Bednights	39 248	50 481	66 121	87 615
Demand (keys)	123	158	207	274

Source: Demacon, 2019

Table 11.5: Total Hotel Demand

Total Hotel Demand	2019	2024	2029	2034
Keys (65.0% Occupancy)	189	243	318	421
Restaurant seats	377	485	636	842
Conference Seats	321	413	540	716

Source: Demacon, 2019

Table 11.6: Total Hotel Demand Square Metres

Total Hotel Demand	2019	2024	2029	2034
Keys (65.0% Occupancy)	14 152	18 202	14 305	31 592
Restaurant seats	755	971	1 272	1 685
Conference Seats	545	701	919	1 217
Total Square Metres	15 452	19 874	16 495	34 494

Source: Demacon, 2019

Development Implications

- ✓ It is evident that a moderate to high demand exists for a hotel facility of approximately 318 hotel keys (2029).
- ✓ There is scope for 636 conference seats and 540 restaurant facility seats (2029).
- ✓ Total hotel demand exists of approximately **16 495m^2**
- ✓ Optimum point of market entry would be **2020+.**
- ✓ The facility could double up as a function venue

11.6 SYNTHESIS

This chapter explained the various concepts of tourism such as tourism characteristics, tourism products and how tourism markets can be segmented. This is to understand tourism and its sub-contents in context.

Tourism was shown to be split between business and leisure, while core services required for the sector are accommodation and transportation. A mix of other support or additional services is also required. These are shown to include telecoms, information services, finance, legal, real estates, etc.

The market demand estimations were calculated for the hotel market and auxiliary facilities. The share analysis refers to the expected market share generated according to the capacity provided.

❑ **GAP ANALYSIS**

The analysis of the market potential of the proposed hotel development show that there are a number of opportunities, which over the medium to long term, can bring about growth and development in the area / local economy. The proposed development will also contribute to the following:

- ✓ Improving the quality of facilities in the area
- ✓ Job creation and economic growth of area
- ✓ Leading to Public-Private partnership investment
- ✓ Promote development of SMMEs
- ✓ Attract high volumes of tourists to area
- ✓ Attract seasonal and non-seasonal tourists
- ✓ Expand business activity in the area
- ✓ Contribute positively to rates and taxes payable to local authority.

According to the market research, there exists a demand for a four-star hotel, which should ideally be supported by conference and restaurant facilities. This demand is anticipated to rise markedly over the short to medium term.

Despite relatively good short-stay accommodation supply within the surrounding market area, the site is strategically located and will be able to capture the increased short and medium-stay accommodation needs of a growing tertiary educational market. The proposed hotel could in future attract a high and increasing number of part-time students, lecturers and guest speakers within convenient walking distance as this area is not only conveniently located in relation to major roads and popular routes, but also offers an attractive environment.

Importance of Branding and Image

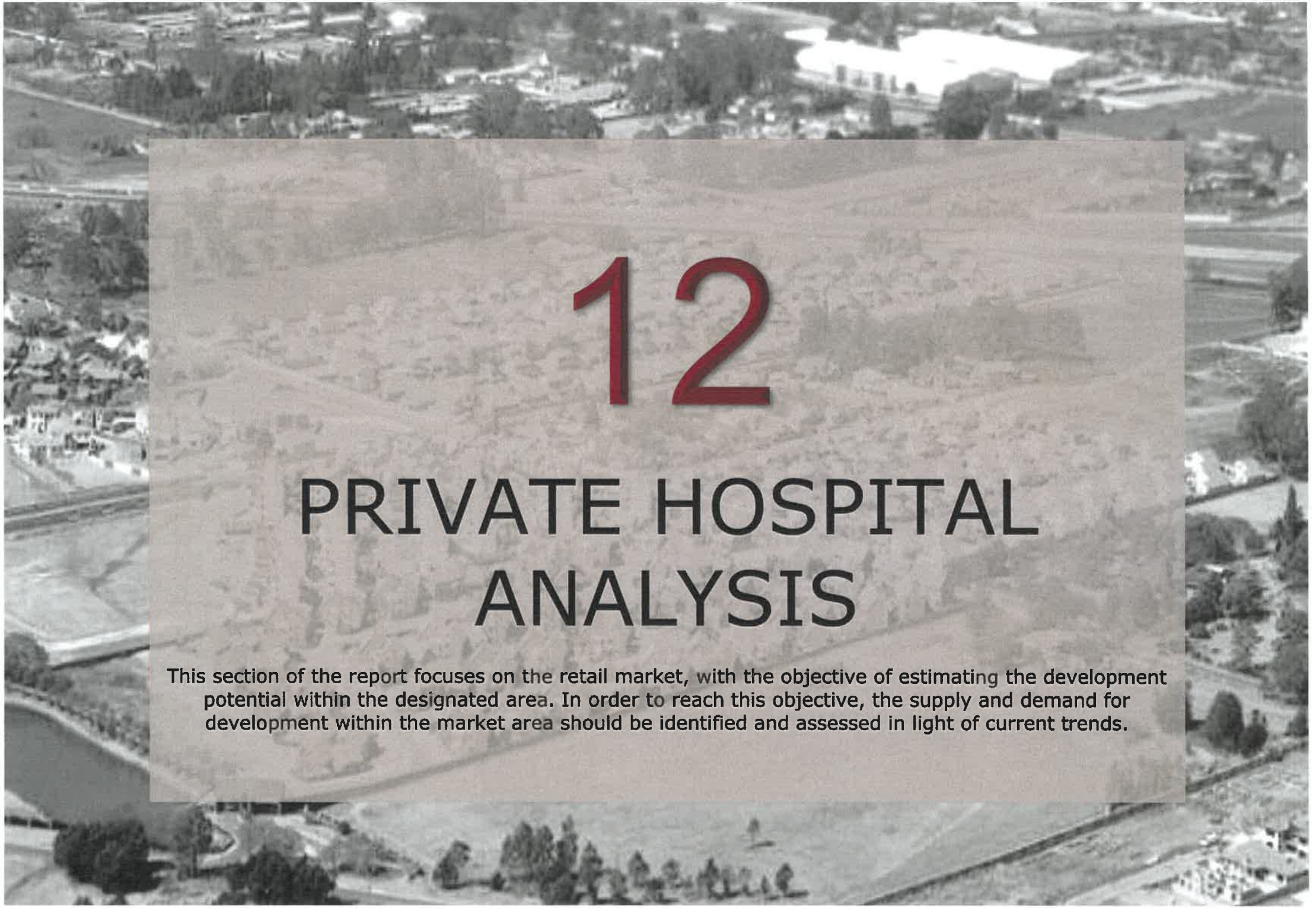
The following aspects are important in terms of branding and image of hotel developments within the area:

- ✓ **Brand Architecture** (Brand name or names for the different products and services)
- ✓ **Target market** insight and segmentation
- ✓ Competition
- ✓ Vision and mission
- ✓ **Brand** Image
- ✓ Brand **value differentiation**
- ✓ Brand essence and **positioning**
- ✓ Brand **Associations**
- ✓ Brand **building activities** and **brand implementation schedules.**

Most hotels have themes, this makes it unique and it stands out from the other competitors. The theme must form a golden thread through the architecture of the entrance gate; accommodation facilities; landscape, street furniture, signage system, logo, marketing material, web site etc.

Market Segments that could be targeted by the hotel development

- ✓ Tourists visiting the area
- ✓ Government functions and events
- ✓ Independent practitioners to see ambulatory patients for consultation, examination, investigation and treatment.
- ✓ Educational Traveller (such as lecturers, students etc.)
- ✓ Business travellers, professionals



12

PRIVATE HOSPITAL ANALYSIS

This section of the report focuses on the retail market, with the objective of estimating the development potential within the designated area. In order to reach this objective, the supply and demand for development within the market area should be identified and assessed in light of current trends.

PRIVATE HOSPITAL MARKET ANALYSIS 12

12.1 INTRODUCTION

The purpose of this chapter is to provide an **overview** of the **medical/healthcare market** with specific focus on the **private hospital** sector of the area. This will contribute to the identification of **gaps** in the **market** area that will **stimulate the demand** for a **new private hospital / clinic** and its related medical services.

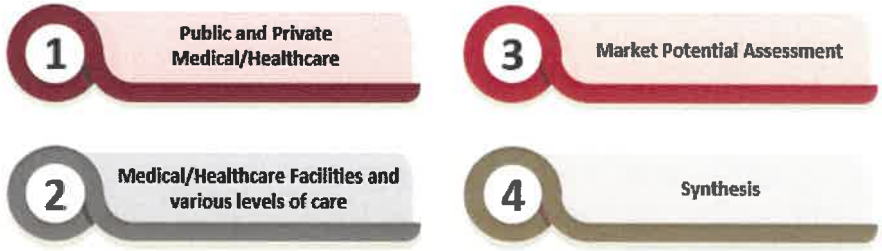
Private hospitals play a significant role in the South African health system. Access to private hospital services however, is still very limited largely because they cost significantly more than services in the public sector. Beneficiaries of medical schemes are the primary customers of the private hospital industry, although an increasing trend of self-funding patients has been reported.

The changing preferences of the medical scheme population have influenced a significant shift from utilisation of public hospitals to private hospitals since 1990. As a result, private hospitals have experienced substantial growth with the total number of private sector beds increasing by 32% since 1998 to the current estimated 27 500 beds.

Private hospitals however, are concentrated in the major metropolitan areas with most hospitals found in Gauteng, KwaZulu-Natal and the Western Cape. Private hospital facilities are predominantly owned by three major hospital groups i.e. Netcare, Medi-Clinic and Life Healthcare. Collectively, these groups own and operate more than three quarters of all private sector beds and more than 80% of all private sector theatre facilities. The private hospital industry consistently attracts the attention of health care funders and regulatory authorities regarding its cost structures and pricing practices.

A perception prevails that the fee-for-service reimbursement mechanism implemented by medical schemes encourages over-servicing thus driving cost-escalation in the environment, which makes private hospital services unaffordable for the majority of South Africans.

Subsequent sub-sections provide a concise overview of the private hospital market in terms of the following aspects:



12.2 PUBLIC AND PRIVATE MEDICAL HEALTHCARE

The public sector is primarily funded by national and provincial government and generally struggle with capacity, funding and acquiring adequate staff. Recruiting doctors and nurses for the public sector is often difficult since public healthcare facilities generally pay lower wages than the private sector and working conditions are often poor.

Public Sector medical/healthcare facilities include:

- ✓ Public hospitals
  - District
  - Regional
  - Provincial
  - Tertiary
  - National
  - Central
- ✓ Specialized hospitals (E.g. and psychiatric care)
- ✓ Public clinics
- ✓ Community health centres
- ✓ Community based services (including school health services, home based care etc.)
- ✓ Ambulance and patient transport services

Private health care is provided by a large "for profit" sector and a small, but significant workplace-based health care system. Private "for profit" hospitals are predominantly located in urban areas and has expanded rapidly over the past ten years. Private doctors are generally not employed by hospitals but operate as independent contractors with relatively loose affiliations to hospitals. Approximately 56% of doctors work in the private sector and is generally better qualified and more experienced (on average) than doctors in the public sector. A wave of mergers between health insurers, pharmaceuticals, manufacturers and hospital groups have resulted in a significantly smaller group of companies controlling the majority of the private health care industry.

Private sector medical/healthcare facilities include:

- ✓ Private hospitals
- ✓ Private ambulances
- ✓ Private laboratories
- ✓ Radiologists
- ✓ Private medical and dental specialists
- ✓ Private general practitioners
- ✓ Private dentists
- ✓ Retail pharmacies
- ✓ Supplementary and allied health professionals (including dieticians, psychologists, optometrists, physiotherapist etc.)
- ✓ Complementary medicine practitioners (including homeopaths and chiropractors etc.)
- ✓ Services such as drug rehabilitation and hospice care

Private medical/healthcare facilities can be categorised as for profit or not-for-profit facilities. Private for profit are facilities where the staff delivering health services are employed by the trade, partnership or registered business and the cost of the service are recovered from fees charged for the services rendered. Private not-for-profit includes facilities where the staff delivering health services is employed by a charitable or non-profit institute or organisation registered under Section 21 of the Companies Act.

12.3 MEDICAL/HEALTHCARE FACILITIES, VARIOUS LEVELS OF CARE AS WELL AS MEDICAL SERVICES AND SPECIALTIES

Medical facilities are classified according to the various types of services provides. Certain facilities provide basic care and others offer more specialised services. This section provides a brief overview of the various types of medical facilities, the various levels of care as well as the different services offered by medical/healthcare facilities.

Private Medical/Healthcare Facility

"A unit delivering health services where the staff delivering the service is employed by any organisation that is not part of Government. Private medical/healthcare facilities may be for profit or not-for-profit in nature."

❖ MEDICAL FACILITIES

Table 12.1 provides a summary of the various medical facilities and a brief description of their facilities and services.

Table 12.1: Medical Facility Classification and Description

Providing Inpatient Services	
Facility	**Description**
Hospitals	
Level 1 Hospital	A facility at which a range of outpatient and inpatient services are offered mostly within the scope of general medical practitioners. It has a functional operating theatre in which operations are performed regularly under general anaesthesia
Level 2 Hospital	A facility that provides care requiring the intervention of specialists as well as general medical practitioner services. A hospital providing a single specialist service would be classified as a specialised level 2 hospital. A general level 2 hospital should provide and the staffed permanently in the following 6 basic specialties of surgery: • Medicine • Orthopaedics • Paediatrics • Obstetrics • Gynaecology • Psychiatry • Diagnostic radiology and anaesthetics

Providing Inpatient Services	
Facility	**Description**
Level 3 hospital	Provides specialist and sub-specialist care as defined for level 3 services. A specialised level 3 hospital will only have one or two specialties from group 1, 2 or 3 represented (e.g. cardiology and respiratory medicine plus associated anaesthetics and diagnostic facilities). A general level 3 hospital will have sub specialty representation in at least 50% of the range of the group 1 specialities listed in Table
Specialised hospitals	There are a wide range of possible specialties that could be focused in hospital, the two most common being TB and Psychiatry, but they also include spinal injuries, maternity, heart, infectious diseases etc. These units may also provide either acute, sub-acute or chronic care for all of those levels of care.
Sub-Acute Facilities (Step Down)	
Convalescent unit	Cater for patients who need ongoing treatment requiring supervision or respite care. They will be staffed either by professions allied to medicine (physical rehab) or specialist nurses (psychiatric rehab) These specialised units may be on or off hospital site. Patients may be discharged from hospital into off site units.
Hospice Unit	These cater for terminally ill patients requiring palliative care or respite care. They will be staffed by allied professions and specialist nurses. These specialised units may often be on or off hospital site. Patients may be discharged from hospital into off site units
Transit Units	These units cater for patients who are awaiting treatment from a hospital but do not require admission. They may also cater for patients who have been discharged from hospital but for social reasons cannot go home.
Other Medical/Healthcare Facilities	
Health Post	Room in a house or other structure in a community from which a range of elementary PHC services are provided
Mobile	Temporary service from which a range of PHC services are provided and where a mobile unit/bus/car provides the resources of the services. This service is provided on fixed routes and at a number of strategic points which are visited on a regular basis. Some visiting points may involve the use of a room in a building, but the resources (equipment, stock etc.) are provided from the mobile when the service is available and are not maintained at the visiting point.
Clinics and Health Centres	

Providing Inpatient Services	
Facility	**Description**
Satellite Clinic	A facility that is a fixed building where one or more rooms are permanently equipped and from which a range of PHC services are provided. It is open for up to 8 hours per day and less than 4 days per week.
Clinic	An appropriately permanently equipped facility at which a range of primary health care services are provided. It is open at least 8 hours a day and at least 4 days a week
Community day centre	A facility which is not open 24 hours a day, 7 days a week but at which a broad range of primary healthcare services are provided. It also offers accident and emergency but not midwifery services or surgery under general anaesthesia
Community health centre	A facility which is open 24 hours a day, 7 days a week at which a broad range of primary healthcare services are provided. It also offers accident and emergency and midwifery services but not surgery under general anaesthesia
Specialised health centre	A facility that provides specialised care to particular groups of patients usually for less than 24 hours at a time. There are many possibilities for such units, but the most common are obstetric units and renal dialysis units
Independent consulting rooms	A facility that is not part of a hospital or clinic and is used by one or more independent practitioners to see ambulatory patients for consultation, examination, investigation and treatment General practitioner consulting rooms – one or more professionals registered as medical practitioners and who are not registered as specialist deliver health services Specialist consulting rooms – one or more professionals register as medical practitioners and who are registered as specialists deliver health services Registered practitioner consulting rooms – where one or more professionals registered in any of the allied health professions deliver health services
Traditional Health practitioners consulting rooms	Where one or more professionals are registered as traditional health practitioners and deliver health services

❖ **VARIOUS LEVELS OF CARE**

This section provides a brief overview of the various levels of care offered by different medical/healthcare facilities. The various levels of medical care are listed in Table 12.2 together with a brief description.

Table 12.2: Level of Care and Description

Ambulatory Care	Non-Admitted care, generally includes consultations, interventions or tests
Primary Healthcare	A set of prescribed services, generally falling within the skill base of professional nurse, technician, mid-level worker, counsellor, community health worker, midwife and emergency medical practitioner. These services may be first point of contact or for follow-up care
Referred outpatient care	Services provided by the requiring the skills of a general medical practitioner, a medical specialist or an allied health professional to which patients are referred, usually by appointment, for more specialised opinions or care. These will include referrals to general medical or surgical outpatients as well as the referrals to specialist clinics. They will also include referrals within a primary health care facility with or without appointment where their professionals deliver outreach services and/or where they provide services from private rooms or surgeries.
Day care	Treatment, observation or assessment that requires an extended stay, usually beyond the treatment or consultation as an outpatient, but less than 1 day. Day-case patients do not get counted in midnight bed count.
Impatient Care	Patients are admitted to hospital for at least one night for diagnosis, investigation or treatment Level 1 care Services which are within the skill base of a general medical practitioner and do not require the intervention of a specialist. Includes simple surgery requiring general anaesthetics Level 2 care (secondary) Services which at some time during the intervention are beyond the normal scope of a generalist and required the input of a registered specialist. Level 3 care (tertiary) Services which at some time during the intervention are beyond the normal scope of a specialist and requires the input of a registered sub-specialist
Acute care	Care of conditions that may change within a few hours or days and that require prompt investigations, diagnosis and treatment
Step-down or Sub-acute	Inpatient care that follows or forms the latter part of an acute episode in which the patient has been investigated, diagnosed, is in a stable condition and has a treatment plan but require ongoing inpatient nursing or rehabilitation care for less than 90 days
Chronic Care	Long term inpatient care and or treatment of patients relating to chronic conditions that require extended care over 90 days

➢ SERVICES AND SPECIALTIES

Table 12.3 provides an overview of various services classified as Group 1, Group 2 and Group 3 specialties. Specialty services are usually only offered by selective healthcare/medical facilities due to cost and availability of skilled and experienced individuals.

Table 12.3: Services and Specialties

Group 1 Specialties	Group 2 Specialties	Group 3 Specialties
Burns	**N/A**	**N/A**
N/A	**Cardiology** ✓ Echocardiography ✓ Ultrasound ✓ Electrocardiography ✓ Stress testing ✓ ECH holter ✓ Pacemaker follow up ✓ Catch lab ✓ Electrophysiology ablation	**Cardiology** ✓ Cardioberter defribulator ✓ LV assist devices
Critical Care	**N/A**	**N/A**
Dermatology	**N/A**	**N/A**
Diagnostic Radiology ✓ Multi-slice CT scan ✓ Fluoroscope ✓ Mammography ✓ Colour Doppler US ✓ Interventional radiology ✓ Angiography	**Diagnostic Radiology** ✓ MRI ✓ Interventional neuroradiology	**Diagnostic Radiology** ✓ PET scan ✓ Cardiac imaging

Group 1 Specialties	Group 2 Specialties	Group 3 Specialties
Ear, Nose and Throat ✓ General Surgery	**Ear Nose and Throat** ✓ Specialised services	**Ear, Nose and Throat** ✓ Skull base surgery ✓ Cochlear implants
Gastroenterology ✓ Angiography ✓ AT scan ✓ Coronary care ✓ Echocardiography ✓ Stress ECG ✓ Endoscopy ✓ Proctoscopy ✓ Colonoscopy	**N/A**	**N/A**
N/A	**Endocrinology**	**N/A**
General Surgery ✓ Complex and high acuity care	**N/A**	**General Surgery** ✓ Liver and pancreatic resections ✓ TME
N/A	**Geriatrics**	**N/A**
N/A	**Haematology**	**Haematology** ✓ Bone marrow transplant
N/A	**N/A**	**Hepatology** ✓ Specialist liver unit ✓ Liver transplant
N/A	**Human Genetics**	**N/A**
Infectious Diseases ✓ Tertiary infectious diseases ✓ Pathology ✓ Infection control	**Infectious Diseases** ✓ Clinical research	**Infectious Diseases** ✓ National institute for communicable diseases
Dietician ✓ Counselling services ✓ Social worker	**N/A**	**N/A**
N/A	**Medical Radiation Oncology**	**Medical Radiation Oncology** ✓ Bone marrow transplant ✓ IMRT ✓ Intra-operative radiation ✓ Stereotactic radiation ✓ PET scan planning

Group 1 Specialties	Group 2 Specialties	Group 3 Specialties
		✓ Laminar flow ✓ Cryopreservation ✓ Stem cell harvesting ✓ T-cell depletion facilities
Mental Health ✓ Old age psychiatry ✓ Forensic psychiatry ✓ Substance abuse ✓ Liaison psychiatry ✓ Eating disorders ✓ Inpatient psychotherapy ✓ Social psychiatry ✓ Acute psychotic ✓ Acute non-psychotic	**N/A**	**N/A**
Neo-Nathology ✓ Neo-natal intensive care	**N/A**	**N/A**
Nephrology	**N/A**	**Nephrology** ✓ Pancreas ✓ Kidney ✓ Liver ✓ Transplants
N/A	**Neurosurgery**	**N/A**
N/A	**Nuclear Medicine**	**Nuclear Medicine** ✓ PET or gamma PET
Obstetrics and Gynaecology ✓ Foetal and maternal medicine	**Obstetrics and Gynaecology** ✓ Oncology ✓ Urogynecologist ✓ Reproductive medicine	**N/A**
Ophthalmology	**Ophthalmology** ✓ Specialised	**Ophthalmology** ✓ Super specialised
Paediatrics ✓ Specialist paediatric medicine ✓ Surgery service ✓ Paediatric ICU	**Paediatrics** ✓ Paediatric cardiology ✓ Endocrinology ✓ Gastroenterology ✓ Haematology ✓ Oncology ✓ Nephrology	**Paediatrics** ✓ Organ transplant ✓ Epilepsy surgery ✓ Craniofacial surgery ✓ High cost/complex medical interventions ✓ Metabolic laboratory

Group 1 Specialties	Group 2 Specialties	Group 3 Specialties
	✓ Neurology	✓ Bone marrow transplants
N/A	**Respiratory Medicine**	**N/A**
Plastic and Reconstructive Surgery ✓ General	**Plastic and Reconstructive Surgery** ✓ Specialised	**N/A**
Rehabilitation Centre	**Rehabilitation Centre** ✓ Audiology ✓ Spinal injuries ✓ Stroke units	

12.4 MARKET POTENTIAL ASSESSMENT

12.4.1 COMPETING PRIVATE HOSPITALS

The following assessments provide the supply side input into the market potential model. The supply of private hospitals within market area, are illustrated in the following tables.

Table 12.4: Existing private hospitals

Name	Physical Address	Hospital Group	Number of beds
Fordsburg Clinic Hospital	22 Bonanza St, Selby, Johannesburg	NHN	30
SK Matseke Private Hospital (Lesedi Private Hospital)	23967 Old Potchefstroom Road, Zone 6, Diepkloof, Soweto	Clinix Health Group	132
Netcare Garden City Hospital	35 Barlett Road, Mayfair West, Johannesburg 2092	Netcare	363
Selby Hospital	121 Eloff Street Ext, Selby, Johannesburg	Clinix Health Group	642
Mulbarton Hospital	25 True North Road, Mulbarton, Johannesburg	Netcare	155
Netcare Clinton Hospital	62 Clinton Road, New Redruth, Alberton	Netcare	165
Netcare Union Hospital	47 Clinton Road, New Redruth, Alberton	Netcare	222
Netcare Rehabilitation Hospital	2 Bunting Road, Auckland Park, Johannesburg 2006	Netcare	110
Netcare Rand Hospital	33 Bruce Street, Berea, Johannesburg 2198	Netcare	151
Medicross Roodepoort Family Medical Centre	Princess Crossing Shopping Centre, 54 Ontdekkers Road, Ontdekkerspark, Roodepoort	Netcare	

Source: Demacon, 2019

Map 12.1: Healthcare facilities within the primary market area

12.4.2 PROPOSED PRIVATE HOSPITALS

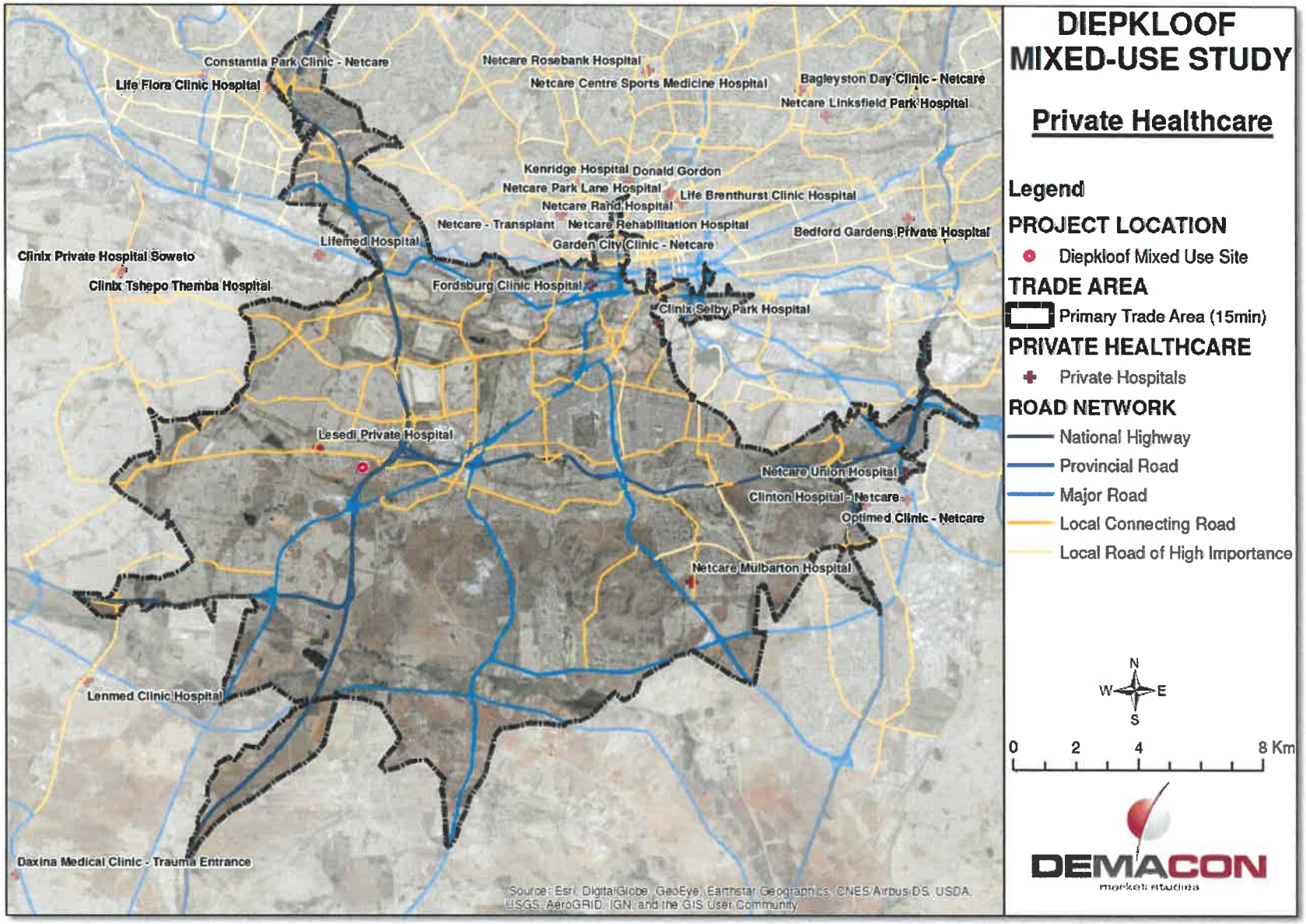
The table below provides the proposed private hospital within the greater Soweto market area.

Table 12.5: Proposed medical supply

Name	Physical Address	Hospital Group	Number of beds
Dr Nthato Motlana Memorial Hospital	Opposite Protea Glen Shopping Centre	Clinix	The new hospital, which will be located at the southern side of Protea Boulevard and south of the Protea Glen Mall in Protea Glen Extension 12. The hospital will boast facilities such as an adult ICU ward, a radiology unit, an integrated theatre complex and a maternity ward etc.
Kagiso Hospital	1 Adcock St & Randfontein Road, Chamdor	Provincial	Leratong is a provincial facility providing a comprehensive health care service which includes HIV and TB-related treatment, care and support services

Findings:

✓ From the data above, there are 10 private hospital in the primary market area with approximately beds ranging between 30 to 363 hospital beds.


Constantia Park Clinic - Netcare
Life Flora Clinic Hospital
Netcare Rosebank Hospital
Netcare Centre Sports Medicine Hospital
Bagleyston Day Clinic - Netcare
Netcare Linksfield Park Hospital
Kenridge Hospital
Donald Gordon
Netcare Park Lane Hospital
Life Brenthurst Clinic Hospital
Netcare Rand Hospital
Netcare - Transplant
Netcare Rehabilitation Hospital
Bedford Gardens Private Hospital
Lifemed Hospital
Garden City Clinic - Netcare
Clinix Private Hospital Soweto
Clinix Tshepo Themba Hospital
Fordsburg Clinic Hospital
Clinix Selby Park Hospital
Lesedi Private Hospital
Netcare Union Hospital
Clinton Hospital - Netcare
Optimed Clinic - Netcare
Netcare Mulbarton Hospital
Lenmed Clinic Hospital
Daxina Medical Clinic - Trauma Entrance
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
DIEPKLOOF MIXED-USE STUDY
Private Healthcare
Legend
PROJECT LOCATION
Diepkloof Mixed Use Site
TRADE AREA
Primary Trade Area (15min)
PRIVATE HEALTHCARE
Private Hospitals
ROAD NETWORK
National Highway
Provincial Road
Major Road
Local Connecting Road
Local Road of High Importance
N
W
E
S
0
2
4
8 Km
DEMACON
market studies

12.4.3 MARKET POTENTIAL ESTIMATIONS

The DEMACON market potential model is based on the 2019 medically insured population and annual growth rates over a ten-year forecast period. The ***residual / net demand technique*** provides an indication of overall market capacity, whereas the ***share technique*** provides a more accurate estimation of the number of sustainable / viable beds in demand for the particular private hospital under consideration. Table 12.6 indicates the market potential for a private medical facility.

Table 12.6: Market Potential & Growth Forecast Model (Private Facility) – 2019

MARKET DEMAND (LSM 4 - 10+)			
DEMAND	**2019**	**2024**	**2029**
PRIMARY DEMAND			
2019 Medically insured population (people)	379 114	503 428	668 504
Additional insured lives per annum		24 863	33 015
Population growth rate (% / annum - compound growth)	5,836%	5,836%	5,836%
beds / 1000 population medically insured (private beds)	4,8	4,8	4,8
Private beds in demand (LSM 4-10+)	1 820	2 416	3 209
SECONDARY DEMAND			
Injection	10%	10%	10%
Secondary demand	42 123	55 936	74 278
Private beds in demand (LSM 4-10+)	202	268	357
TOTAL MARKET DEMAND			
Number of beds (private beds)	2 022	2 685	3 565
MARKET SUPPLY (Trade Area Apportioned Effective Competitive Supply)			
Fordsburg Clinic Hospital	12	12	12
Lesedi Private Hospital	86	86	86
Netcare Garden City Hospital	127	127	127
Selby Hospital	225	225	225
Mulbarton Hospital	54	54	54
Netcare Clinton Hospital	25	25	25
Netcare Union Hospital	22	22	22
Netcare Rehabilitation Hospital	17	17	17
Netcare Rand Hospital	15	15	15
EFFECTIVE COMPETITIVE SUPPLY			
Total competing beds in primary market	450	450	450
MARKET POTENTIAL			
Net effective demand (residual market capacity - additional beds)	1 572	2 235	3 116
Market share (% market share of total beds for facility)	10,0%	10,0%	10,0%
Market potential (total number of viable beds for facility)	**202**	**268**	**357**
Total additional area requirement (sqm hospital floor space)	15 165	20 137	26 740
Model Calibration & Sensitivity			
Beds / 1000 total population as benchmark:			
Population ('000)	379,1	503,4	668,5
National Average (Private beds per 1000 population)	4,80	4,80	4,80
Study area private beds per 1000 total population (as per Demacon Model)	1,55	1,28	1,09
Model acuracy (under / over estimation)	**32,3%**	**26,8%**	**22,6%**

Interpretation:
<100% = Conservative market potential estimation
>100% = Liberal market potential estimation (likely to produce oversupply in market)

Market Potential and Growth Forecast Model (Table 12.6)

- ✓ Table 12.6 illustrates that there are approximately 379 114 medically insured persons in the trade area, from a total estimate population of 1 584 453 - a total of 23.9% of the market population.
- ✓ For demand modelling purposes, the number of private beds catering required to the needs of the medically insured segment of the market is 4.8 private beds per 1 000 medically insured persons.
- ✓ The above with a 10% secondary market injection yields a demand for 2 022 private beds in the market area (2019), increasing to 2 685 in 2024 and 3 565 in 2029.
- ✓ Based on the current location and the nature of the proposed development a **private hospital** with approximately **202 to 357 beds can be developed over the next** 5 to 10 years (say 270 – 360 beds).
- ✓ The optimum point of market entry for the private hospital could be **2023+.**

12.5 SYNTHESIS

Chapter 12 integrated the findings of preceding chapters into an empirical assessment of the market potential for additional beds in the market area. The market area supply profiling exercise subsequently lead to the identification of the following market gaps and concomitant investment opportunities. It is important to note that the gap analysis is based on medical facilities within the area.

❑ GAP ANALYSIS

In context of the above, Demacon's Demand Modelling indicates potential / scope for a **private hospital** with approximately **202 to 357 beds**. Given the rate of market growth, the optimum point of market entry should be **2023+**.

Table 12.7: Gap Analysis

	SK Matseke Private Hospital (Lesedi Private Hospital)	Mulbarton Hospital	Netcare Clinton Hospital	Netcare Union Hospital
Physical Address	23967 Old Potchefstroom Road, Zone 6, Diepkloof, Soweto	25 True North Road, Mulbarton, Johannesburg	62 Clinton Road, New Redruth, Alberton	47 Clinton Road, New Redruth, Alberton
Number of Beds	132 (undergoing refurbishment and upon completion will house 266 beds)	**216**	**165**	**222**
24-hr Emergency centre				
Audiology & Speech Therapy				
Antenatal Classes				
Brachytherapy				
Biokinetics				
Burns Unit				
Cardiology				
Cardiothoracic				
Cardiac Cathlab				
Chiropractitioner				
Dental Procedures				
Dermalogica				
Dermatology				
Dialysis				
Dietetics				
Diabetic Ward				
Ear, Nose & Throat Surgeon				
Endocrinology				
Endoscopy Unit				
Epilepsy Monitoring Unit				
Gastroenterology				
General Practitioners				
General Surgery				
Gynecology & Obstetrics				
Haematology				
HIV Wellness Clinic				
ICU				
Internal medicine				

	SK Matseke Private Hospital (Lesedi Private Hospital)	Mulbarton Hospital	Netcare Clinton Hospital	Netcare Union Hospital
Lithotripsy				
Maxillofacial & Oral Surgery				
Maternity				
Nephrology				
Neurology				
Neonatal				
Nuclear medicine				
Occupational Therapy				
Oncology				
Ophthalmology				
Orthopaedics				
Periodontics				
Orthopaedical Surgery				
Occularist				
Orthotics				
Ophthalmology				
Paediatric ICU				
Paediatric Oncology				
Paediatric Specialist (Cardiologist, Neurologist etc)				
Paediatrics				
Pathology				
Physiotherapy				
Plastic & Reconstructive Surgery				
Psychiatry				
Psychology				
Pulmonology				
Podiatristy				
Radiology				
Rehabilitation Unit / Step-Down Facility				
Renal Dialysis				
Rheumatology				
Thoracic Surgery				
Trauma Unit				
Sleeplab				
Spinal Unit				

	SK Matseke Private Hospital (Lesedi Private Hospital)	Mulbarton Hospital	Netcare Clinton Hospital	Netcare Union Hospital
Urology				
Vascular Surgery				
Wound Care Clinic				

In terms of the above gap analysis, the following gaps could be filled at the private hospital.

❑ PRIVATE HOSPITAL DEVELOPMENT RECOMMENDATIONS

On account of the above, the DEMACON demand model factors extensive support from beyond the catchment, but nevertheless, remains alive to the distance deterrence function and diminishing support as travel time increases, coupled with low levels of private healthcare insurance in the informal areas. In context of the above, DEMACON'S Demand Modelling indicates potential / scope for a private hospital of approximately **202 to 357 beds.**

The proposed hospital could expect the following occupancy rates:

Table 12.8: Estimated Occupancy Rates for the Proposed Private Hospital

Year 1	Year 2	Year 3
70% - 80%	80% - 90%	90%+

Source: Demacon, 2019

These estimates will be subject to operator characteristics, management efficiency, service offering and quality, convenience of access and other location attributes.

PRIVATE HOSPITAL RECOMMENDATIONS:

Medical Facilities / Disciplines Gap Analysis

The following medical facilities / disciplines were identified as gaps in the market and could be considered as part of the private hospital.

It is recommended that the proposed private hospital could include facilities and services offered at a level 2 hospital.

- ✓ A facility that provides care requiring the intervention of specialists as well as general medical practitioner services.
- ✓ A hospital providing a single specialist service would be classified as a specialised level 2 hospital.
- ✓ A general level 2 hospital should provide and the staffed permanently in the following 6 basic specialties of surgery:
  - Medicine
  - Orthopedics
  - Pediatrics
  - Obstetrics
  - Gynecology
  - Psychiatry
  - Diagnostic radiology and anesthetics.

Healthcare facilities / services to be considered:

- ✓ Specialised nursing units
- ✓ 24 –hr Emergency centre
- ✓ Critical/high care unit
  - Critical care unit/high care unit to perform a variety of procedures, ranging from simple diagnostic to more complicated interventional procedures.
- ✓ Neonatal critical/high care unit
  - The unit should comprise of high care, critical care beds, and special isolation units, and be equipped with the latest medical technological equipment in order to care for the infants.
- ✓ Specialised clinics
  - Antenatal clinic
  - Diabetes clinic
  - Pre-admission centre
  - Woundcare clinic.
- ✓ Supplementary services
  - CT Scan
  - Pathology
  - Radiology
  - Renal dialysis.

Independent Consulting Rooms:

- ✓ The consulting rooms should include one or more independent practitioners to see ambulatory patients for consultation, examination, investigation and treatment.

Medical & Surgical Disciplines to consider:

- ✓ Cardiology
- ✓ Dental surgery
- ✓ Dentistry
- ✓ Dermatology
- ✓ Ear, nose and throat surgery
- ✓ General practice
- ✓ General surgery
- ✓ Gynaecology
- ✓ Urology
- ✓ Renal Dialysis
- ✓ Orthopaedic surgery
- ✓ Pathology
- ✓ Paediatrics
- ✓ Periodontal surgery
- ✓ Ancillary services: Pharmacy.

HIV/AIDS Centre

Treatment / Facilities to consider:

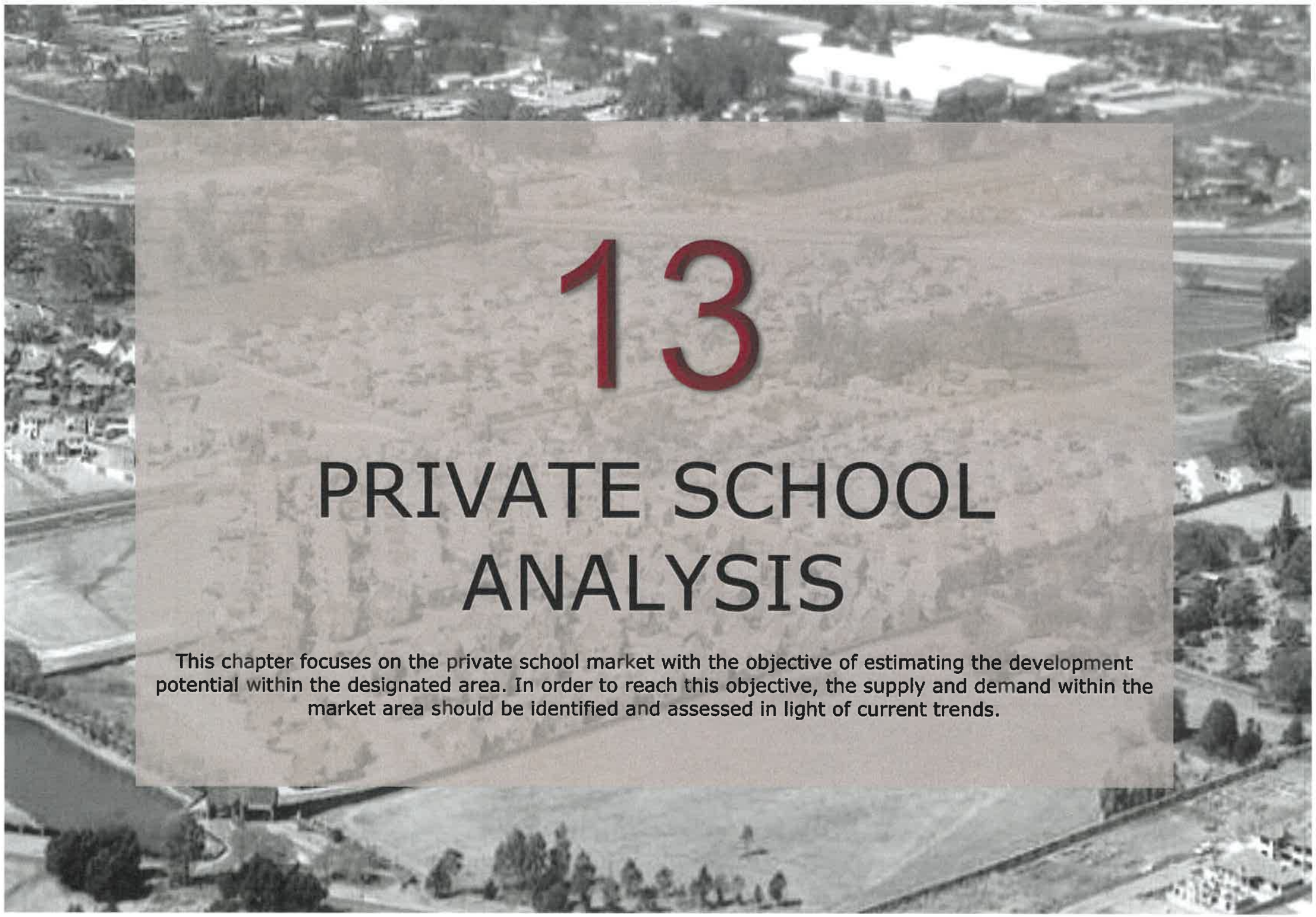
- ✓ Voluntary HIV Testing
- ✓ CD4 Testing
- ✓ Wellness Programme
- ✓ Antiretroviral Programme
- ✓ Circumcision
- ✓ On Site Pharmacy
- ✓ Prevention of Mother-to-child Transmission
- ✓ Post Exposure Prohylaxis
- ✓ Pap Smears
- ✓ Family Planning
- ✓ Child Vaccine Programme
- ✓ Adult Immunisation
- ✓ Cholesterol Screening
- ✓ Diabetes Management
- ✓ High Blood Pressure
- ✓ TB Screening.

Private Medical Centre

It is recommended that a private medical centre (such as a community health centre, specialised health centre and / or independent consulting rooms) could be considered as part of the proposed private hospital development. This provides for the agglomeration of various types of medical disciplines to be accommodated in a single building – examples include private doctor, gynaecologist, optometrist, orthodontist/dentist, audiologist en pathologist.

Table 12.9: **Recommended medical centres**

Recommended Medical Centres	
Community health centre	A facility which is open 24 hours a day, 7 days a week at which a broad range of primary healthcare services are provided. It also offers accident and emergency and midwifery services but not surgery under general anaesthesia
Specialised health centre	A facility that provides specialised care to particular groups of patients usually for less than 24 hours at a time. There are many possibilities for such units, but the most common are obstetric units and renal dialysis units
Independent consulting rooms	A facility that is not part of a hospital or clinic and is used by one or more independent practitioners to see ambulatory patients for consultation, examination, investigation and treatment. General practitioner consulting rooms – one or more professionals registered as medical practitioners and who are not registered as specialist deliver health services Specialist consulting rooms – one or more professionals register as medical practitioners and who are registered as specialists deliver health services Registered practitioner consulting rooms – where one or more professionals registered in any of the allied health professions deliver health services.



13

PRIVATE SCHOOL ANALYSIS

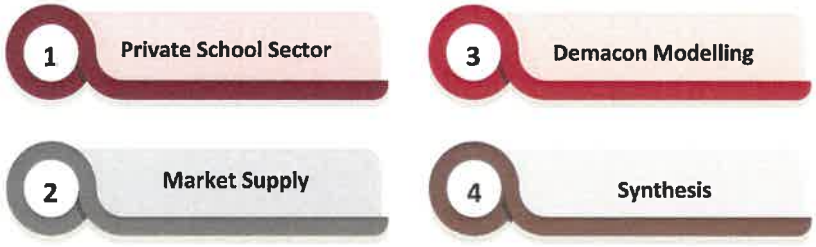
This chapter focuses on the private school market with the objective of estimating the development potential within the designated area. In order to reach this objective, the supply and demand within the market area should be identified and assessed in light of current trends.

PRIVATE SCHOOL MARKET ANALYSIS 13

13.1 INTRODUCTION

This chapter focuses on the private school market with the objective of estimating the development potential within the designated area. In order to reach this objective, the supply and demand within the market area should be identified and assessed in light of current trends.

This chapter is addressed under the following headings:



13.2 PRIVATE SCHOOL SECTOR

13.2.1 DEFINING & BACKGROUND INFORMATION TO PRIVATE SCHOOLS

❖ **Defining Private / Independent Schools**

In terms of the South African Schools Act (SASA) in 1996 a national schooling system was introduced and recognised two categories of schools: public and independent. Public schools are state controlled and independent schools are privately governed.

Within the public-school category, SASA created a sub-category of "public schools on private property" comprising state schools on private land owned

by religious bodies, farmers, mines and forestry companies. All private schools were included in the independent school category.

The South African definition of independent (private) schools is a narrow one compared to other developing countries, especially as it does not include the "public schools on private property".

In terms of Section 29 of the Constitution of South Africa, everyone has the right to establish, at his or her own expense, independent educational institutions. These institutions may not discriminate on the basis of race, must be registered with the state, and must maintain standards not inferior to those of comparable public institutions. State subsidies to independent institutions are permitted, but not guaranteed. Most independent schools are community schools. Another large category is not-for-profit religious schools: Christian, Muslim, Hindu and Jewish. There is a growing category of secular independent schools, which may be either not-for-profit or for-profit.

❖ **The South African Independent School Sector**

Since the collapse of the apartheid state and the advent of democracy in South Africa, dramatic changes have occurred in the independent (private) school sector. In 1990, there were approximately 550 registered independent schools in the country. The dominant public perception of independent schools at that time was "white, affluent and exclusive". This perception was largely true.

According to a recent HSRC Quantitative Survey there are now at least 1290 independent schools in South Africa – more if primary and secondary schools are counted separately. Over 60% of all independent schools have therefore been established since 1990. The sector now educates more than 400,000 learners, of which 70% are black (58% are African). The majority of schools charge fees below R8 500 per annum. Only 14% of schools charge fees of more than R27 000 per annum.

What has caused this dramatic change? Research has confirmed that both excess (unmet) and differentiated (different or better) demand for education are found in South Africa. Historically, excess demand was found in black communities and differentiated demand in white communities. A new demand

from black communities for differentiated education is largely responsible for the growth of the independent school sector since 1990.

Despite an increase in the number of for-profit independent schools, the sector remains overwhelmingly not-for-profit. Most independent schools are also small schools, with 350 learners per school or less. This is partly because so many of them are newly established. The sector serves a wide range of different religions, philosophies and educational approaches across the full socio-economic spectrum. Religious schools, at 43% of sector, are the largest subcategory of independent school.

Most independent schools arise out of a community need and have strong links to their community of origin. Over 64% of independent schools, both well- and poorly-resourced, have community development programmes. These programmes reach more learners than the total number educated in all independent schools.

❖ **ISASA Governance Structures**

ISASA's General Council, which includes its office-bearers and delegates from its five regions, determines the Association's policy. The Executive Committee expedites policy decisions of the Council. Each region also has a Regional Committee, as well as a Chair and a Regional Director.

When ISASA was established in 1999, the heads' and the bursars' associations changed their names and constitutions to become constituent members of ISASA, as the Southern African Heads of Independent Schools Association (SAHISA) and the Southern African Bursars of Independent Schools Association (SABISA) respectively.

Prior to 2001, a national consultative body for all the independent school associations, known as the National Joint Liaison Committee (JLC) existed. At the end of 2000, the JLC drew up a constitution to cement the good working relationships between these associations and to facilitate interaction with government. The new body is known as the National Alliance of Independent School Associations of Southern Africa (NAISA).

13.3 MARKET POTENTIAL ASSESSMENT

13.3.1 MARKET SUPPLY

Table 13.1 provides the education facilities within the primary market area.

Table 13.1: Education facilities

Name of School	Category
ALBERTON	
Alberton Leersentrum	Learningschool
Kip McGrath Education Centre	Educational Centre
Barloworld Automotive Training Centre	Vocational Training
Magnetic Nail Academy	Vocational Training
Thera-Ed Educational Centre	Vocational Training
DIEPKLOOF	
Inkululeko Day Care Centre	Pre-School
Bakgomana Primary School	Primary School
Bapedi Primary School	Primary School
Boepakitso Primary School	Primary School
Bopanang Primary School	Primary School
Dumezweni Primary School	Primary School
Ekuthuleni Primary School	Primary School
Elitheni Primary School	Primary School
Giyani Primary School	Primary School
Holy Cross Schools	Primary School
Ikaneng Primary School	Primary School
Inkwenkwezi Primary School	Primary School
Ipolokeng Primary School	Primary School
JS Mpanza Primary School	Primary School
Khomanani Primary School	Primary School
Khulangdwazi Primary School	Primary School
Lebowa Primary School	Primary School
Mangwele Primary School	Primary School
Nandi Primary	Primary School
Qhobosheane Primary School	Primary School
Sedibeng Sa Thuto Primary School	Primary School

Name of School	Category
Seipateng Primary School	Primary School
Thabisile Primary School	Primary School
Tiyani Primary School	Primary School
Tlotlego Primary School	Primary School
Vulamazibuko Primary School	Primary School
Bopasenatla Secondary School	High School
Diepdale Secondary School	High School
Fidelitas Comprehensive School	High School
Fons Luminis Secondary School	High School
Immaculata Secondary	High School
Madibane Comprehensive School	High School
Namedi Secondary School	High School
Takelani School	Special School
Funda Community College	Vocational Training
GERMISTON	
Spy Kidz Nursery School	Pre School
JOHANNESBURG	
Arbor Helland Pre-Primary School	Pre-School
Busy Buddies Nursery School	Pre-School
Kidz At Play Nursery School	Pre-School
Towerby Pre Primary School	Pre-School
Bephelo-Impilo Primary School	Primary School
Bernard Isaacs Primary School	Primary School
Boekenhout Primary School	Primary School
Bree Street Primary School	Primary School
Calvary Primary School	Primary School
Cavendish Primary School	Primary School
Charles McBain Primary School	Primary School
CL Magardie Primary School	Primary School
Crown Mines Primary School	Primary School
Crown Reef Primary School	Primary School
Dalmondeor Primary School	Primary School
Delrado Primary School	Primary School
Dowlinglaan / Avenue L	Primary School
Eldocrest Primary School	Primary School

Name of School	Category
Eldorado Park Muslim School	Primary School
Eldorado Park Primary School	Primary School
Eldridge Primary School	Primary School
EP Baumann Primary School	Primary School
Everest Primary School	Primary School
EW Hobbs Primary School	Primary School
Firethorn Primary School	Primary School
Florida Avenue Primary School	Primary School
Fordsburg Primary School	Primary School
Forest Hill Primary School	Primary School
General Christiaan de Wet Primary School	Primary School
Glenanda Primary School	Primary School
Goudpark Primary School	Primary School
Hartford College	Primary School
Heerengracht Primary School	Primary School
Hesperus Primary School	Primary School
Highveld Primary School	Primary School
Huguenot Primary School	Primary School
Jim Fouche Primary School	Primary School
Kliptown Primary School	Primary School
Laerskool Danie Theron	Primary School
Laerskool Piet van Vuuren	Primary School
Mary Help Of Christians Junior Primary School	Primary School
Meredale Primary School	Primary School
Milnerton Primary School	Primary School
Mondeor Primary School	Primary School
Mossie Primary School	Primary School
Mulbarton Primary School	Primary School
Nancefield Primary School	Primary School
Naturena Primary School	Primary School
Newclare Primary School	Primary School
Noordgesig Primary School	Primary School
Olifantsvlei Primary	Primary School
Our Lady Of Lebanon Maronite Catholic School	Primary School
Park Primary School	Primary School

Name of School	Category
Parkdale Primary School	Primary School
Rainbow Lower Primary School	Primary School
Riverlea Primary	Primary School
Robertsham Primary School	Primary School
Rosettenville Central Primary School	Primary School
Saint Ive's Primary School	Primary School
Saint Theresa's Convent School	Primary School
Tambotie Preparatory School	Primary School
TC Esterhuysen Primary School	Primary School
Theo Wassenaar Primary School	Primary School
Townsview Primary School	Primary School
Turffontein Primary School	Primary School
Voorbrand Primary School	Primary School
West Rand Seventh Day Adventist Primary School	Primary School
Westbury Primary School	Primary School
Wilhelmina Hoskins Primary School	Primary School
Winchester Ridge Primary School	Primary School
WR Goliath Primary School	Primary School
Mayfair Convent Primary School	Primary School
Abbott's College Johannesburg South	High School
Alpha and Omega Christian Academy	High School
Coronationville Secondary School	High School
Covenant College	High School
De Fakkel High School	High School
Edumore Christrian Academy	High School
Eldoradopark Secondary School	High School
Forest High School	High School
Futura School-Remedial School	High School
Glenvista High School	High School
Hor Tegniese Skool Langlaagte	High School
Hoërskool Vorentoe	High School
Horizon International High School	High School
Johannesburg Polytech Institute	High School
Johannesburg Secondary School	High School
Klipspruit Wes High School	High School

Name of School	Category
Kliptown Secondary School	High School
Lancea Vale Secondary School	High School
Missouri Secondary School	High School
Mondeor High School	High School
Moses Maren Mission Technical Secondary School	High School
Nationwide School for Academic Excellence	High School
Noordgesig Secondary School	High School
Park Secondary School	High School
President High School	High School
Raucall Secondary School	High School
Riverlea Secondary	High School
Sama Independent	High School
Silver Oaks Secondary School	High School
Sir John Adamson High School	High School
Sparrow Secondary School	High School
Vine College	High School
Waterstone College Primary School	High School
Westbury Secondary School	High School
Willow Crescent Secondary School	High School
Saint Martin's High School	High School
Thathulwazi school	High School
Johannesburg Muslim School	Private School
Coronationville Special School	Special School
Don Mattera School	Special School
Frances Vorwerg Special School	Special School
Goudveld Vaardigheid Special School	Special School
Hamlet School	Special School
Randeor Special School	Special School
Academy of Learning	Vocational Training
Bernard Price Institute for Palaeontological Research	Vocational Training
Central Johannesburg College Highveld Campus	Vocational Training
Dental Teaching Hospital - Wits	Vocational Training
Harvest Christian College	Vocational Training
Johannesburg College	Vocational Training
New Nation College	Vocational Training

Name of School	Category
Riverlea College	Vocational Training
Task Academy College	Vocational Training
Waterstone College	Vocational Training
Marist Brothers Linmeyer - Marian College	Coeducational school
Elethu Themba Public School	Combined School
MEADOWLANDS	
Dzata Primary School	Primary School
Emelang Primary School	Primary School
Empumalanga Primary School	Primary School
Emzimvubu Primary School	Primary School
Hlabangane Primary School	Primary School
Indoni Primary School	Primary School
Inkonjane Primary School	Primary School
Kwa-Phalo Primary School	Primary School
Lejoeleputsoa Primary School	Primary School
Livhuwani Primary School	Primary School
Mawila Primary School	Primary School
Moruta-Thuto Primary School	Primary School
Nkwe Primary School	Primary School
Palesa Primary School	Primary School
Retile Primary School	Primary School
Rishile Primary School	Primary School
Shako-Bowa Primary School	Primary School
Sivelile Primary School	Primary School
Thakhisa Primary School	Primary School
Thembalethu Primary School	Primary School
Thobeka Primary School	Primary School
Thsimologo Lower Primary School	Primary School
Tiyimiseni Primary School	Primary School
Tlhokomelo Primary School	Primary School
Totomeng Primary School	Primary School
Tshileletso Primary School	Primary School
Tsietsi Mashinini Primary School	Primary School
Tsogang Primary School	Primary School
Tswelelang Primary School	Primary School

Name of School	Category
Tumang Primary School	Primary School
Tumelo Primary School	Primary School
WK Maponyane Primary School	Primary School
Kelokitso Comprehensive School	High School
Khindlimukani Secondary School	High School
Kwa-Mahlobo Secondary School	High School
Lamula Jubilee Secondary School	High School
Matseliso Secondary School	High School
Meadowlands Secondary School	High School
Mokgome Secondary School	High School
Thutolore Secondary School	High School
Veritas Secondary School	High School
Meadowlands Life College	Vocational Training
ROODEPOORT	
Little Scholars Nursery	Pre-School
Sagat School	Pre-School
Wheezie Wizard Nursery	Pre-School
Arthur Mathews Primary School	Primary School
Bosmont Primary School	Primary School
Claremont Primary School	Primary School
GR Harris Primary School	Primary School
Kersten College - Private Primary School	Primary School
Laerskool General de la Rey	Primary School
Crown Christian School	Primary School
Bosmont Muslim School	High School
Chris J. Botha Secondary School	High School
Die Burger Secondary School	High School
Kotulo School of Excellence	High School
RW Fick Primary School	High School
Unifield Public School	High School
Maraisburg Madressah	Independent School
Furntech	Vocational Training
JD Group	Vocational Training
Open Learning Group	Vocational Training
Saint Barnabas College - Bosmont	Vocational Training

Name of School	Category
SOWETO	
Soweto Day Care	Pre School
AB Xuma Primary School	Primary School
Bafikile Primary School	Primary School
Basani Primary School	Primary School
Batsogile Primary School	Primary School
Belle Primary School	Primary School
Bethany Girls' Primary School	Primary School
Ditau Primary School	Primary School
Ditawana Primary School	Primary School
Doctor Mary Malahlela Primary School	Primary School
Donaldson Primary School	Primary School
Ekuphumeleleni Primary School	Primary School
Emadlelweni Primary School	Primary School
Emathafeni Primary School	Primary School
Emisebeni Primary School	Primary School
Enkanyezini Higher Primary School	Primary School
Enkolweni Primary School	Primary School
Entandweni Primary School	Primary School
Faresani Primary School	Primary School
Freedom Primary School	Primary School
Gazankulu Primary School	Primary School
Hlakaniphani Junior Primary School	Primary School
Hlalefang Primary School	Primary School
Hoernle Primary School	Primary School
Igugu Primary School	Primary School
Ikwezi Primary School	Primary School
Isipho Primary School	Primary School
Itekeng Primary School	Primary School
Ithembalihle Primary School	Primary School
Jabavu East Primary School	Primary School
Khandubuhle Primary School	Primary School
Lakeview Primary School	Primary School
Leihlo Primary School	Primary School
Lekang Primary School	Primary School

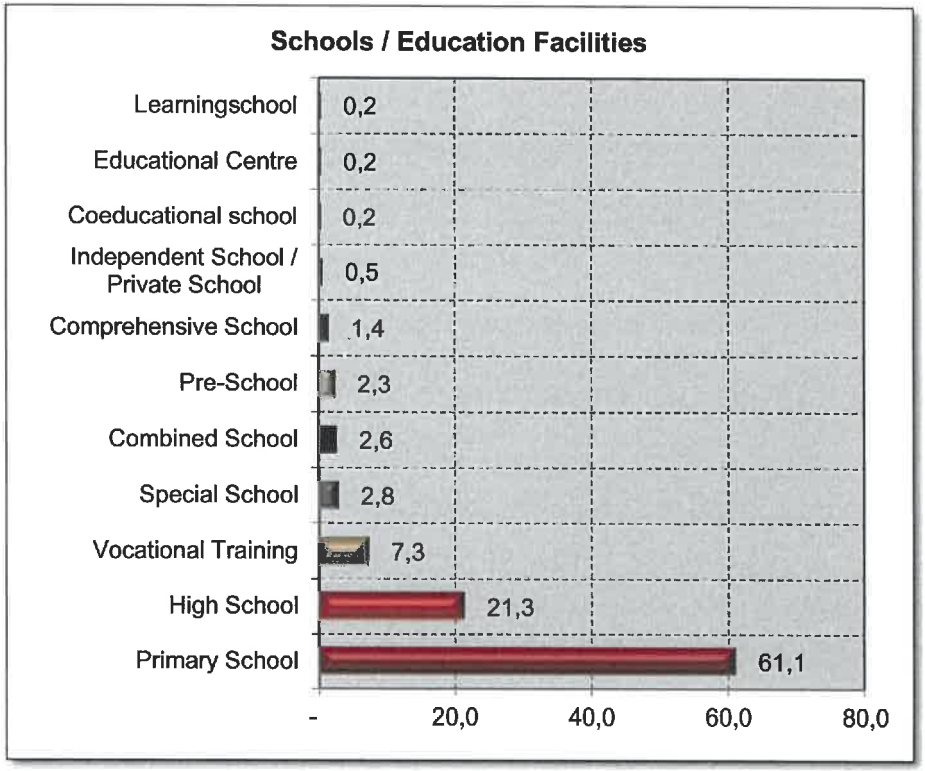
Name of School	Category
Lilydale Primary School	Primary School
Lodirile Primary School	Primary School
Lo-Itekile Primary School	Primary School
Lukholweni Primary School	Primary School
Mabewana Primary School	Primary School
Makhoarane Primary School	Primary School
Mambo Primary School	Primary School
Margaret Gwele Primary School	Primary School
Mdelwa-Hlongwane Primary School	Primary School
Moetapele Primary School	Primary School
Mohloding Primary School	Primary School
Mokorotio Primary School	Primary School
Molaetsa Primary School	Primary School
Molalatladi Primary School	Primary School
Molemo Primary School	Primary School
Motjoli Primary School	Primary School
Mveledzandivho Primary School	Primary School
Mxolisi Primary School	Primary School
Mzamo Primary School	Primary School
Ndondo Primary School	Primary School
Nhluvuko Primary School	Primary School
Nka Thuto Primary School	Primary School
Nkholi Primary School	Primary School
Nonofelo Primary School	Primary School
Nonto Primary School	Primary School
Orlando Sda Primary	Primary School
Phakamani Primary School	Primary School
Phiri Primary School	Primary School
Phumuzile Primary School	Primary School
Phuthalushaka Primary School	Primary School
Pimville Primary School	Primary School
Reutlwile Primary School	Primary School
Risuna Primary School	Primary School
Rutegang Primary School	Primary School
Saint Angela's Primary School	Primary School

Name of School	Category
Saint John Berchman's Primary School	Primary School
Saint Martin de Porres Primary School	Primary School
Saint Matthew's Primary School	Primary School
Saint Peter Claver Primary School	Primary School
Samuel Mangala Primary School	Primary School
Sapebuso Primary School	Primary School
Sefika Primary School	Primary School
Sekwati Primary School	Primary School
Selope-Thema Primary School	Primary School
Senyamo Primary School	Primary School
Shalom Manne Primary School	Primary School
Shomang Primary School	Primary School
Sibongile Primary School	Primary School
Sizanani Primary School	Primary School
Thabaneng Primary School	Primary School
Thabisang Primary School	Primary School
Thathezakho Primary School	Primary School
Thembu Primary School	Primary School
Thulasizwe Primary School	Primary School
Thusanang Primary School	Primary School
Tiakeni Primary School	Primary School
Tirisano Primary School	Primary School
Tlhoreng Primary School	Primary School
Tshebedisano Primary School	Primary School
Tshedimosho Primary School	Primary School
Tshilidzi Primary School	Primary School
Usindiso Primary School	Primary School
Uvuyo Primary School	Primary School
Vezokuhle Primary School	Primary School
Vukani Primary School	Primary School
Vukayibamba Primary School	Primary School
Vukazenele Primary School	Primary School
Welizibuko Primary School	Primary School
Winnie Ngwekazi Primary School	Primary School
Wisani Primary School	Primary School

Name of School	Category
Zakheni Primary School	Primary School
Zithathele Primary School	Primary School
Bhukulani Secondary School	High School
Daliwonga Secondary	High School
Doctor Beyer's Naude Secondary School	High School
Emadwaleni Secondary School	High School
Emphukantambo Secondary School	High School
Freedom Park Secondary School	High School
Ibhongo Secondary School	High School
Jabulani Technical Secondary School	High School
Job Rathebe Secondary School	High School
Kwa-Ntsikane Intermediate School	High School
Lobone Secondary School	High School
Lofentse Girls' High School	High School
Mafori Mphahlele Secondary School	High School
Mlamli Finishing Secondary School	High School
Mncube Secondary School	High School
Morris Isaacson Secondary School	High School
Musi Comp. School	High School
Orlando West Secondary School	High School
Phafogang Secondary School	High School
Phefeni Secondary School	High School
Reutlwile Secondary School	High School
Saint Matthew's Secondary School	High School
Seana Marena Secondary School	High School
Sekanontoane Secondary School	High School
Selelekela Secondary	High School
Senaoane Secondary School	High School
Thaba -Jabula Secondary School	High School
Thesele Secondary School	High School
Thulare Secondary School	High School
Tlhatlogang Junior Secondary School	High School
Vuwani Secondary School	High School
Esiyalweni Junior Secondary	High School
Adelaide Tambo School for the Physically Challenged	Special School

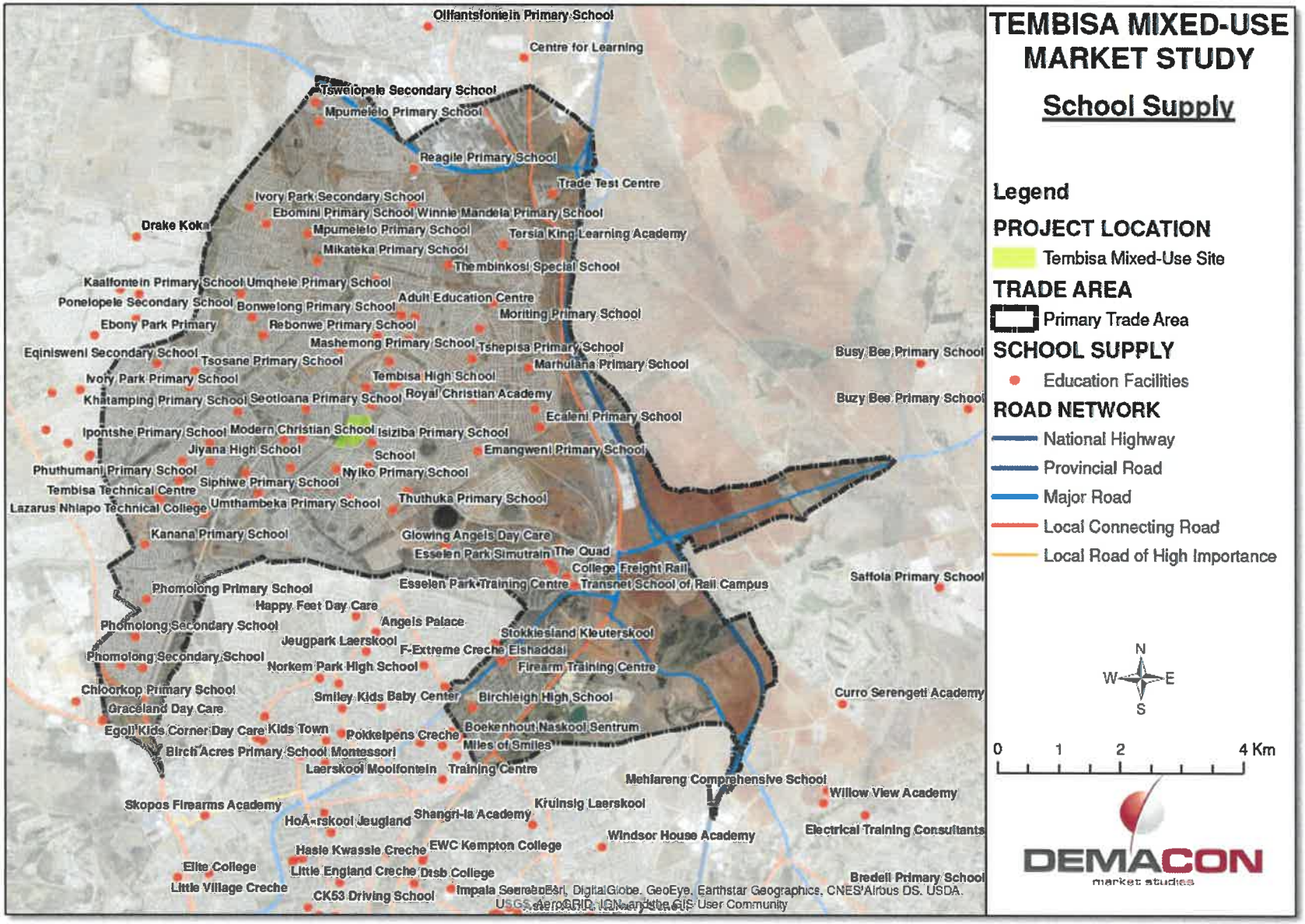
Name of School	Category
Mezodo Tech Orientation Centre Special School	Special School
Pumelela Special School	Special School
Mezodo Tech Orientation Centre Special School	Special School
Pumelela Special School	Special School
Anchors Comprehensive School	Comprehensive School
Nghunghunyani Comprehensive School	Comprehensive School
Progress Comprehensive School	Comprehensive School
Bona Comprehensive School	Comprehensive School
Nghunghunyani Comprehensive School	Comprehensive School
Progress Comprehensive School	Comprehensive School
Bethany Combined School	Combined School
Fred Clark Combined School	Combined School
Ipatleleng Zifuneleni Combined School	Combined School
Lulama Combined School	Combined School
Paul Mosaka Combined School	Combined School
Paul Mosaka Combined School	Combined School
Lulama Combined School	Combined School
Paul Mosaka Combined School	Combined School
Paul Mosaka Combined School	Combined School
Lulama Combined School	Combined School
Dube Community College	Vocational Training
Herbert Mdingi Adult Education Centre	Vocational Training
Itshepeng Community College	Vocational Training
John Wesley College	Vocational Training
South West Gauteng College	Vocational Training
Zenzele Baking School	Vocational Training
Dube Community College	Vocational Training
Herbert Mdingi Adult Education Centre	Vocational Training
Itshepeng Community College	Vocational Training
John Wesley College	Vocational Training
South West Gauteng College	Vocational Training
Zenzele Baking School	Vocational Training

Figure 13.1: Summary of School / Education Facilities



Source: Demacon, 2019

Map 13.1: School supply in the primary market area



13.3.2 PRIVATE SCHOOL DEMAND MODELLING

DEMACON'S Demand Modelling results illustrate that the market can sustain an integrated private school consisting of the following:

Table 13.2: Market Area

Market Area		2019	2024	2029
Total number of people		1 542 243	1 611 426	1 683 713
Ages 18months - 4 years	7,1%	109 912	114 843	119 995
Ages 5 - 9	7,4%	114 476	119 612	124 977
Ages 10 - 14	6,6%	101 286	105 829	110 576
Ages 15 - 19	7,6%	117 296	122 558	128 056
		442 971	462 842	483 604

Source: Demacon Demand Modelling 2019

Table 13.3: Private school attendance

Private School Attendance	2019	2024	2029	Percentage
Ages 18months - 4 years	16 487	17 226	17 999	24,8%
Ages 5 - 9	17 171	17 942	18 747	25,8%
Ages 10 - 14	15 193	15 874	16 586	22,9%
Ages 15 - 19	17 594	18 384	19 208	26,5%
Total (Pupils)	66 446	69 426	72 541	100,0%

Source: Demacon Demand Modelling 2019

Table 13.4: Market shares (minimum and maximum)

Private School Attendance	2019	2024	2029	Percentage
Ages 18months to 4 years	495 – 824	517 – 861	540 - 900	24,8%
Ages 5 - 9	515 – 859	538 – 897	562 - 937	25,8%
Ages 10 - 14	456 – 760	476 – 794	498 - 829	22,9%
Ages 15 - 19	528 – 880	552 - 919	576 - 960	26,5%
Total (Pupils)	1993 – 3 322	2 083 – 3 471	2 176 – 3 627	100,0%

Source: Demacon Demand Modelling 2019

Development Implications

- ✓ It can be concluded that there is demand for a private school as part of the Diepkloof Project.
- ✓ Potential exists for the development of **one private school** catering for **2 083 to 3 471** pupils (2024) or **2 176 to 3 627** pupils at full capacity (2029) It is recommended that the facility should be developed in phases as demand increases.
- ✓ The optimum point of market entry should be **2022+.**

Demacon's Demand Modelling results illustrate that the market can sustain **one** private school catering for **approximately 3 627 (say 3 500) pupils** (2029) at full capacity.

Based on the anticipated nature of the proposed facility and the facilities to be provided it is anticipated that it could attract larger shares from the secondary market provided if the project is effectively branded.

13.4 SYNTHESIS

❑ GAP ANALYSIS

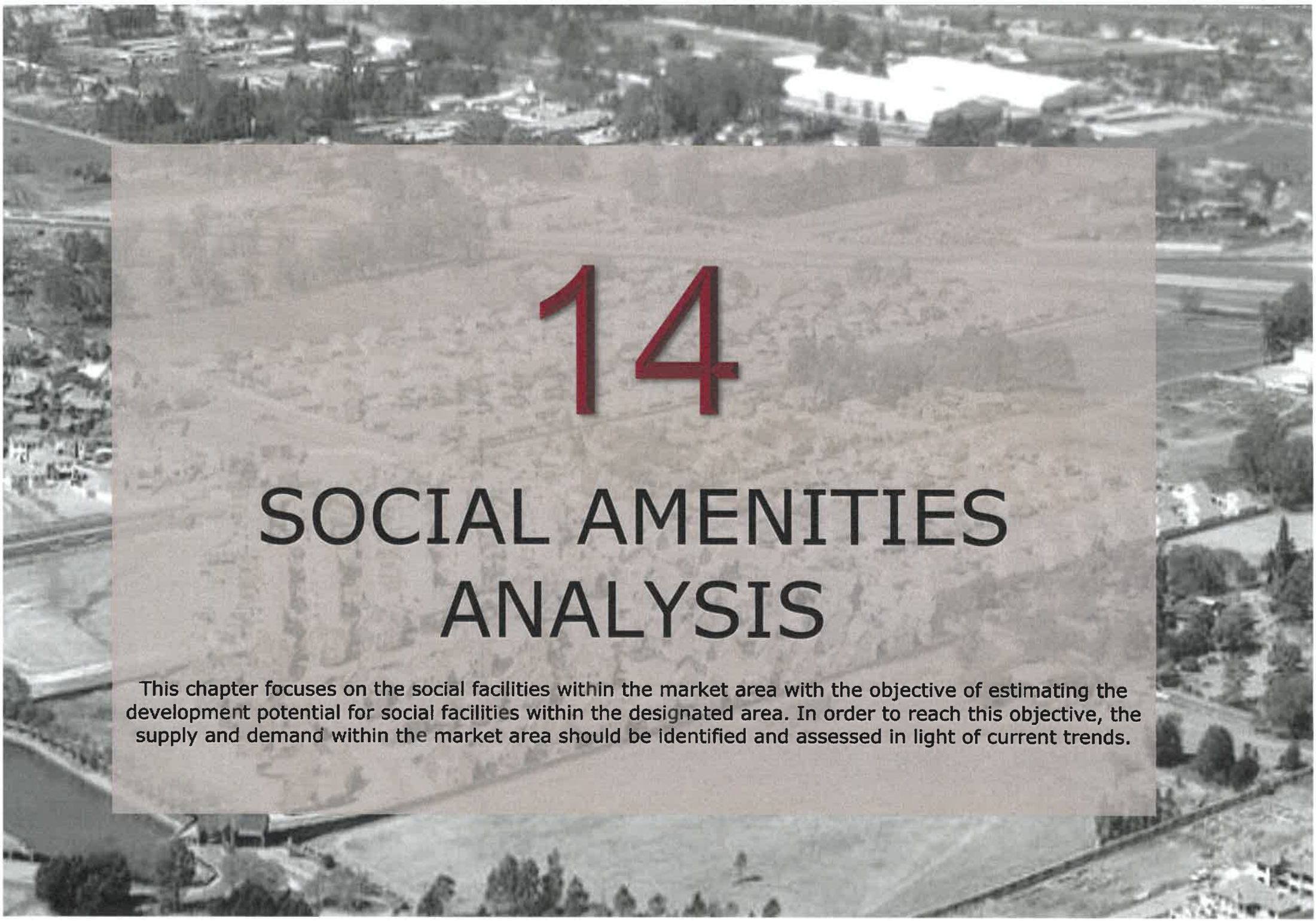
It is determined that there is a market gap for a private school. Development prospects are rated as high for a private school. Potential will increase as residential growth takes place over the medium to longer term.

❑ DEMAND POTENTIAL

Private School Facility

Demacon's Demand Modelling results illustrate that the market can sustain **one private school** catering for **2 176 to 3 627 pupils** (2029) at full capacity. The optimum point of market entry should be **2022+.**

Based on the anticipated nature of the proposed facility and the facilities to be provided it is anticipated that it could attract larger shares from the secondary market provided if the project is effectively branded.



14

SOCIAL AMENITIES ANALYSIS

This chapter focuses on the social facilities within the market area with the objective of estimating the development potential for social facilities within the designated area. In order to reach this objective, the supply and demand within the market area should be identified and assessed in light of current trends.

SOCIAL AMENITIES ANALYSIS 14

14.1 INTRODUCTION

This chapter focuses on the social facilities within the market area with the objective of estimating the development potential for social facilities within the designated area. In order to reach this objective, the supply and demand within the market area should be identified and assessed in light of current trends.

14.2 SOCIAL FACILITIES GUIDELINES

14.2.1 SOCIAL FACILITY DEMAND GUIDELINES

This section provides guidelines on the planning of public facilities within residential settlements.

Public facilities are defined as those basic services, which cannot be supplied directly to the individual dwelling unit and as a result are utilised away from the individual residential dwelling unit within the public environment. Public facilities satisfy specific individual or community needs, including safety and security, communication, recreation, sport, education, health, public administration, religious, cultural and social.

Public facilities quantitative guidelines:

Public facilities can be classified as higher-order, middle-order, lower-order and mobile, depending on the size of the area that they serve.

- ✓ **Higher-order public facilities:** these facilities generally serve the entire region, metropolitan area or city (eg. Hospitals and universities), and are not provided for in the layout planning process for single residential settlements.
- ✓ **Middle-order public facilities:** these are facilities, which serve a number of diverse and different communities (eg. High schools and clinics). These facilities are essential to individual residential settlements, but the facilities serve a threshold population, which exceeds an individual settlement, and therefore are supported by a number of settlements.
- ✓ **Lower-order public facilities:** these are facilities, which are utilised by a single or a limited number of residential communities (eg. A crèche or pre-primary school), a
- ✓ **Mobile public facilities:** these area facilities, which move from one location to another, serving a large number of communities. Many problems with regard to the spatial location of public facilities are increasingly being solved through the use of mobile public facilities, such as clinics, post offices and public telephones. Through mobile facilities, the ideal of allocating scarce resources, whilst at the same time serving the greatest number of people, can be achieved.

Table 14.1 indicates the quantitative guidelines for social services

Table 14.1: Quantitative Guidelines for Social Service Facilities

Facility	Location	Access	Size and Dimensions
Crèche / Nursery School	Community specific facilities which should be walking distance of residential units can be clustered with pre-primary schools, primary schools, community centres etc.	Maximum travel time: 10 minutes Maximum walking distance: 750m	Minimum size of facility: 130m²
Primary School	Should be located within easy reach of the local areas which it is intended to serve – needs to be located close to public transport route and can be combined with a number of other facilities	Maximum travel time: 20 minutes Maximum walking distance:1,5km	Minimum size of facility: 2.4ha
High School	School should be situated on a major transport route with public transport stops	Maximum travel time: 30 minutes Maximum walking distance: 2.25km	Minimum size for facility: 4.6ha

Facility	Location	Access	Size and Dimensions
Clinic	Should be located close to public transport stops but need not be located along a major route	Maximum walking distance: 2km	0.1ha per 5 000 people 0.2ha per 10 000 people 0.5ha per 20 000 people 1ha per 40 000 people 1.5ha per 60 000 to 80 000 people
Libraries	Should be easily accessible, preferably on main thoroughfare convenient to main traffic and transportation routes	Maximum travel time: 20 to 30 minutes Maximum walking diatance:1.5km to 2.25km	Minimum size for facility: 130m²
Community Centres	Provides a variety of services to a number of residential communities – should be easily accessible to these communities	Maximum travel time: 20 to 30 minutes Maximum walking distance: 1.5km to 2.25km	Minimum size of facility: 5 000m²
Religious	Churches can be clustered with other public facilities in order to promote multi-functionality.	Maximum travel time: 20 minutes Maximum walking distance: 1.5km	Site can range from 150m² to 3 000m²
Municipal Offices / Pay Points	Require high levels of exposure and must be easily accessible by public transport	Maximum travel time: 30 minutes	Minimum size for facility: 3 000m²
Post offices	Needs to be visible and accessible and located along activity routes within easy walking distance of public transport stops	Maximum travel time: 30 to 40 minutes Maximum walking distance: 2lm	Minimum size for facility: 500m²
Police Station	Should be located central to all the communities which they are required to serve and should be on a main thoroughfare	Maximum travel time: 20 minutes Maximum walking distance: 1.5km	Varies between 0.1ha to 1 ha
Fire Stations	Should be located on higher-order multifunctional routes	Not generally planned within a residential community	Average erf size of 1.2ha
Children's Home	Regional facility and would be provided in terms of a development framework based on statistics regarding homeless children	Not applicable to the planning of residential settlements	Average erf size: 2ha
Community Information Centres	Should be easily accessible and visible to as many people as possible	Maximum walking distance: 1km	Need not be bigger than 100m²

With the above guidelines for social facilities, the existing market supply and market gap for the area can be determined. From the table it is also evident that social facilities should be located within a convenient distance from residents who should be able to easily access these facilities. Since the majority of residents are of lower income households, walking is the most preferred and convenient manner of accessing social facilities and hence these facilities should be within a comfortable walking distance.

14.2.2 SOCIAL FACILITY SUPPLY WITHIN THE MARKET TRADE AREA

Table 14.2 illustrates the existing social facilities in the market area.

Table 14.2: Social facility supply in the primary market area

SOCIAL FACILITIES SUPPLY			
Pre-Primary Schools	Primary Schools (continue)	Secondary Schools	Vocational Training
Pre-Primary School	Mokorotio Primary School	Abbott's College Johannesburg South	Vocational Training
Arbor Helland Pre-Primary School	Molaetsa Primary School	Alpha and Omega Christian Academy	Academy of Learning
Busy Buddies Nursery School	Molalatladi Primary School	Bhukulani Secondary School	Barloworld Automotive Training Centre
Day Care	Molemo Primary School	Bopasenatla Secondary School	Bernard Price Institute for Paleontological Research
Inkululeko Day Care Centre	Mondeor Primary School	Bosmont Muslim School	Central Johannesburg College Highveld Campus
Kidz At Play Nursery School	Moruta-Thuto Primary School	Chris J. Botha Secondary School	Dental Teaching Hospital - Wits
Little Scholars Nursery	Mossie Primary School	Coronationville Secondary School	Dube Community College
Sagat School	Motjoli Primary School	Covenant College	Funda Community College
Spy Kidz Nursery School	Mulbarton Primary School	Daliwonga Secondary	Furntech
Towerby Pre Primary School	Mveledzandivho Primary School	De Fakkel High School	Harvest Christian College
Wheezie Wizard Nursery	Mxolisi Primary School	Die Burger Secondary School	Herbert Mdingi Adult Education Centre
Primary Schools	Mzamo Primary School	Diepdale Secondary School	Itshepeng Community College
AB Xuma Primary School	Nancefield Primary School	Doctor Beyer's Naude Secondary School	JD Group
Arthur Mathews Primary School	Nandi Primary	Edumore Christrian Academy	Johannesburg College
Bafikile Primary School	Naturena Primary School	Eldoradopark Secondary School	John Wesley College
Bakgomana Primary School	Ndondo Primary School	Emadwaleni Secondary School	Magnetic Nail Academy
Bapedi Primary School	Newclare Primary School	Emphukantambo Secondary School	Meadowlands Life College
Basani Primary School	Nhluvuko Primary School	Fidelitas Comprehensive School	New Nation College
Batsogile Primary School	Nka Thuto Primary School	Fons Luminis Secondary School	Open Learning Group
Belle Primary School	Nkholi Primary School	Forest High School	Riverlea College
Bephelo-Impilo Primary School	Nkwe Primary School	Freedom Park Secondary School	Saint Barnabas College - Bosmont
Bernard Isaacs Primary School	Nonofelo Primary School	Glenvista High School	South West Gauteng College
Bethany Girls' Primary School	Nonto Primary School	Hoër Tegniese Skool Langlaagte	Task Academy College
Boekenhout Primary School	Noordgesig Primary School	Hoër skool Vorentoe	Thera-Ed Educational Centre
Bopanang Primary School	Olifantsvlei Primary	Horizon International High School	Waterstone College
Bosmont Primary School	Orlando Sda Primary	Ibhongo Secondary School	Zenzele Baking School
Bree Street Primary School	Our Lady of Lebanon Maronite Catholic School	Immaculata Secondary	**Other Schools**
Calvary Primary School	Palesa Primary School	Jabulani Technical Secondary School	Adelaide Tambo School for the Physically Challenged
Cavendish Primary School	Park Primary School	Job Rathebe Secondary School	Alberton Leersentrum
Charles McBain Primary School	Parkdale Primary School	Johannesburg Polytech Institute	Anchors Comprehensive School

SOCIAL FACILITIES SUPPLY			
CL Magardie Primary School	Phakamani Primary School	Johannesburg Secondary School	Bethany Combined School
Claremont Primary School	Phiri Primary School	Kelokitso Comprehensive School	Blue World Swim School
Crown Mines Primary School	Phumuzile Primary School	Khindlimukani Secondary School	Boepakitso P
Crown Reef Primary School	Phuthalushaka Primary School	Klipspruit Wes High School	Bona Comprehensive School
Dalmondeor Primary School	Pimville Primary School	Kliptown Secondary School	Coronationville Special School
Delrado Primary School	Qhobosheane Primary School	Kotulo School of Excellence	Crown Christian School
Ditau Primary School	Rainbow Lower Primary School	Kwa-Mahlobo Secondary School	Don Mattera School
Ditawana Primary School	Retile Primary School	Kwa-Ntsikane Intermediate School	Elethu Themba Public School
Doctor Mary Malahlela Primary School	Reutlwile Primary School	Lamula Jubilee Secondary School	Esiyalweni Junior Secondary
Donaldson Primary School	Rishile Primary School	Lancea Vale Secondary School	Frances Vorwerg Special School
Dowlinglaan / Avenue L	Risuna Primary School	Lobone Secondary School	Fred Clark Combined School
Dumezweni Primary School	Riverlea Primary	Lofentse Girls' High School	Futura School-Remedial School
Dzata Primary School	Robertsham Primary School	Madibane Comprehensive School	Goudveld Vaardigheid Special School
Ekuphumeleleni Primary School	Rosettenville Central Primary School	Mafori Mphahlele Secondary School	Hamidia Madressah
Ekuthuleni Primary School	Rutegang Primary School	Matseliso Secondary School	Hamlet School
Eldocrest Primary School	Saint Angela's Primary School	Meadowlands Secondary School	Holy Cross Schools
Eldorado Park Muslim School	Saint Ive's Primary School	Missouri Secondary School	Ipatleleng Zifuneleni Combined School
Eldorado Park Primary School	Saint John Berchman's Primary School	Mlamli Finishing Secondary School	Johannesburg Muslim School
Eldridge Primary School	Saint Martin de Porres Primary School	Mncube Secondary School	Kip McGrath Education Centre
Elitheni Primary School	Saint Matthew's Primary School	Mokgome Secondary School	Lulama Combined School
Emadlelweni Primary School	Saint Peter Claver Primary School	Mondeor High School	Maraisburg Madressah
Emathafeni Primary School	Saint Theresa's Convent School	Morris Isaacson Secondary School	Marist Brothers Linmeyer - Marian College
Emelang Primary School	Samuel Mangala Primary School	Moses Maren Mission Technical Secondary School	Mayfair Convent
Emisebeni Primary School	Sapebuso Primary School	Musi Comp. School	Mezodo Tech Orientation Centre Special School
Empumalanga Primary School	Sedibeng Sa Thuto Primary School	Namedi Secondary School	Nghunghunyani Comprehensive School
Emzimvubu Primary School	Sefika Primary School	Nationwide School for Academic Excellence	Paul Mosaka Combined School
Enkanyezini Higher Primary School	Seipateng Primary School	Noordgesig Secondary School	Progress Comprehensive School
Enkolweni Primary School	Sekwati Primary School	Orlando West Secondary School	Pumelela Special School
Entandweni Primary School	Selope-Thema Primary School	Park Secondary School	Randeor Special School
EP Baumann Primary School	Senyamo Primary School	Phafogang Secondary School	Saint Martin's High School
Everest Primary School	Shako-Bowa Primary School	Phefeni Secondary School	Takelani School
EW Hobbs Primary School	Shalom Manne Primary School	President High School	Thathulwazi school
Faresani Primary School	Shomang Primary School	Raucall Secondary School	**Post Boxes / Post Offices**

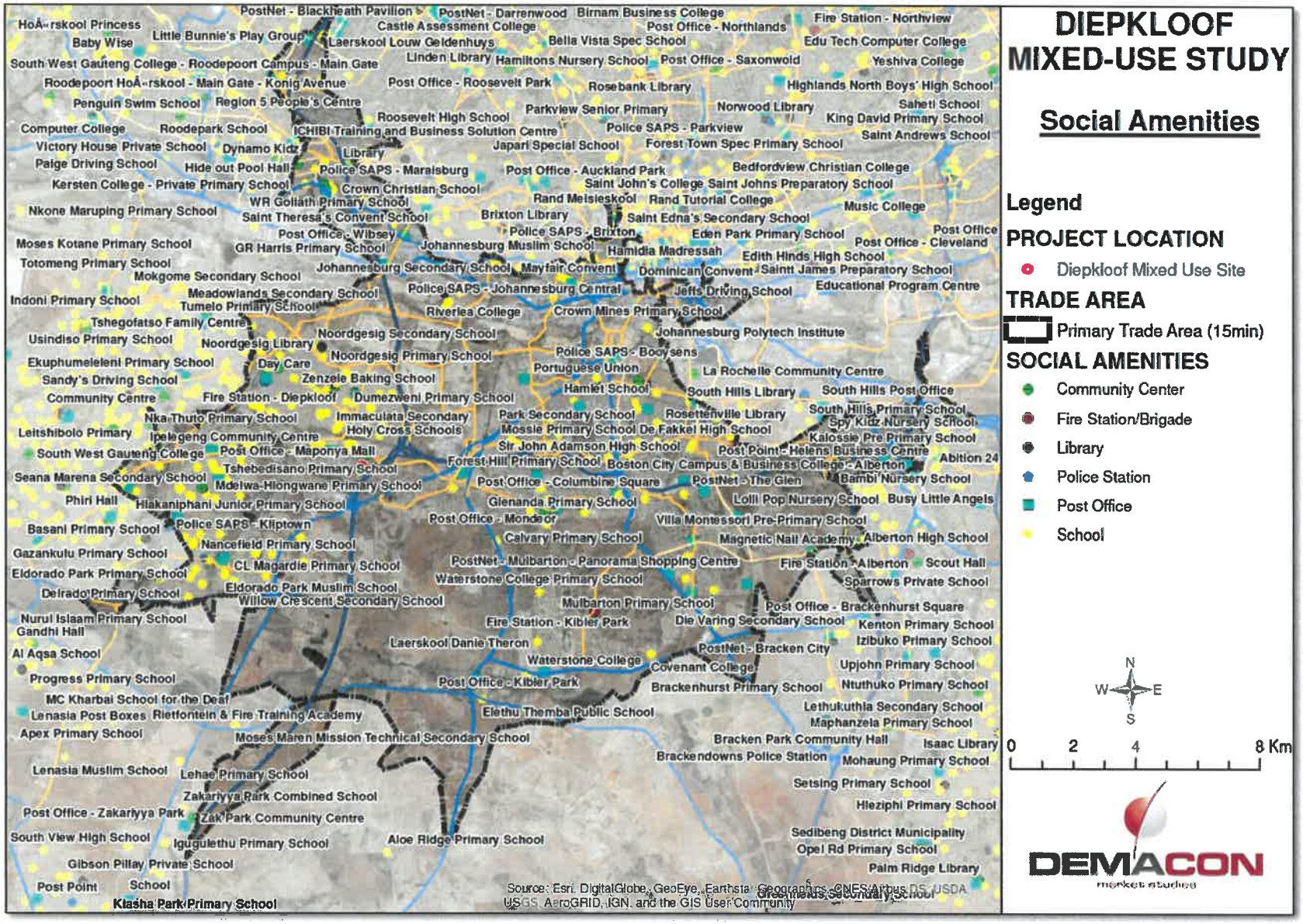
SOCIAL FACILITIES SUPPLY			
Firethorn Primary School	Sibongile Primary School	Reutlwile Secondary School	Post Boxes / Post Office
Florida Avenue Primary School	Sivelile Primary School	Riverlea Secondary	Post Boxes - Florida Glen
Fordsburg Primary School	Sizanani Primary School	RW Fick Primary School	Post Office - Soweto
Forest Hill Primary School	Tambotie Preparatory School	Saint Matthew's Secondary School	Post Office - Booysens
Freedom Primary School	TC Esterhuysen Primary School	Sama Independent	Post Office - Columbine Square
Gazankulu Primary School	Thabaneng Primary School	Seana Marena Secondary School	Post Office - Comaro View Shopping Centre
General Christiaan de Wet Primary School	Thabisang Primary School	Sekanontoane Secondary School	Post Office - Crown Mines
Giyani Primary School	Thabisile Primary School	Selelekela Secondary	Post Office - Delarey - The Founders Square
Glenanda Primary School	Thakhisa Primary School	Senaoane Secondary School	Post Office - Diepkloof
Goudpark Primary School	Thathezakho Primary School	Silver Oaks Secondary School	Post Office - Dobsonville
GR Harris Primary School	Thembalethu Primary School	Sir John Adamson High School	Post Office - Dube
Hartford College	Thembu Primary School	Sparrow Secondary School	Post Office - Eldorado Park
Heerengracht Primary School	Theo Wassenaar Primary School	Thaba -Jabula Secondary School	Post Office - Fordsburg
Hesperus Primary School	Thobeka Primary School	Thesele Secondary School	Post Office - Glenvista Shopping Centre
Highveld Primary School	Thsimologo Lower Primary School	Thulare Secondary School	Post Office - Industria
Hlabangane Primary School	Thulasizwe Primary School	Thutolore Secondary School	Post Office - Jabulani Shopping Centre
Hlakaniphani Junior Primary School	Thusanang Primary School	Tlhatlogang Junior Secondary School	Post Office - Kibler Park
Hlalefang Primary School	Tiakeni Primary School	Unifield Public School	Post Office - Kliptown
Hoernle Primary School	Tirisano Primary School	Veritas Secondary School	Post Office - Maponya Mall
Huguenot Primary School	Tiyani Primary School	Vine College	Post Office - Maraisburg
Igugu Primary School	Tiyimiseni Primary School	Vuwani Secondary School	Post Office - Meadowlands
Ikaneng Primary School	Tlhokomelo Primary School	Waterstone College Primary School	Post Office - Meyersdal Mall
Ikwezi Primary School	Tlhoreng Primary School	Westbury Secondary School	Post Office - Mondeor
Indoni Primary School	Tlotlego Primary School	Willow Crescent Secondary School	Post Office - Moroka
Inkonjane Primary School	Totomeng Primary School	**Fire Station**	Post Office - Motsoaledi
Inkwenkwezi Primary School	Townsview Primary School	Fire Station - Brixton - Training	Post Office - Mulbarton Shopping Centre
Ipolokeng Primary School	Tshebedisano Primary School	Fire Station - Diepkloof	Post Office - Newclare
Isipho Primary School	Tshedimosho Primary School	Fire Station - Dobsonville	Post Office - Orlando
Itekeng Primary School	Tshileletso Primary School	Fire Station - Eldorado Park	Post Office - Pimville
Ithembalihle Primary School	Tshilidzi Primary School	Fire Station - Jabulani	Post Office - Ridgeway Gardens
Jabavu East Primary School	Tsietsi Mashinini Primary School	Fire Station - Kibler Park	Post Office - Robertsham
Jim FouchÃƒÂ© Primary School	Tsogang Primary School	Fire Station - Linmeyer	Post Office - Rosettenville
JS Mpanza Primary School	Tswelelang Primary School	Fire Station - Turffontein	Post Office - Southdale

SOCIAL FACILITIES SUPPLY			
Kersten College - Private Primary School	Tumang Primary School	Fire Station 10 - Brixton	Post Office - Southgate
Khandubuhle Primary School	Tumelo Primary School	**Library**	Post Office - Springfield
Khomanani Primary School	Turffontein Primary School	Alberton Library	Post Office - Tshiawelo
Khulangdwazi Primary School	Usindiso Primary School	Bosmont Public Library	Post Office - Turfontein
Kliptown Primary School	Uvuyo Primary School	Brixton Library	Post Office - Weltevreden Park
Kwa-Phalo Primary School	Vezokuhle Primary School	Coronation Library	Post Office - Wibsey
Laerskool Danie Theron	Voorbrand Primary School	Diepkloof Library	Post Office - Wits
Laerskool General de la Rey	Vukani Primary School	Islamic Research Library & Bookshop	Post Office - Witspos
Laerskool Piet van Vuuren	Vukayibamba Primary School	Jabavu Library	Post Point - Johannesburg
Lakeview Primary School	Vukazenele Primary School	Klipspruit West Library	Post Point - Alberton
Lebowa Primary School	Vulamazibuko Primary School	Kopanong Library	Post Point - Roodepoort
Leihlo Primary School	Welizibuko Primary School	Library - Roodepoort	Post Point - Bassonia
Lejoeleputsoa Primary School	West Rand Seventh Day Adventist Primary School	Library - Johannesburg	Post Point - Checkers Hyper Centre
Lekang Primary School	Westbury Primary School	Mayfair Library	Post Point - Glenvista
Lilydale Primary School	Wilhelmina Hoskins Primary School	Meadowlands Community Library	Post Point - Ridgeway Gardens
Livhuwani Primary School	Winchester Ridge Primary School	Newlands Public Library	Post Point - The Founders Square
Lodirile Primary School	Winnie Ngwekazi Primary School	Noordgesig Library	PostNet - Meyersdal Square
Lo-Itekile Primary School	Wisani Primary School	Phiri Public Library	PostNet - Mulbarton - Panorama Shopping Centre
Lukholweni Primary School	WK Maponyane Primary School	Pimville Library	PostNet - New Redruth
Mabewana Primary School	WR Goliath Primary School	Riverlea Library	PostNet - The Glen Park
Makhoarane Primary School	Zakheni Primary School	Rosettenville Library	
Mambo Primary School	Zithathele Primary School	Southdale Library	
Mangwele Primary School		Westbury Library	
Margaret Gwele Primary School		Private Hospitals	
Mary Help of Christians Junior Primary School		Fordsburg Clinic Hospital	
Mawila Primary School		Lesedi Private Hospital	
Mdelwa-Hlongwane Primary School		Netcare Garden City Hospital	
Meredale Primary School		Selby Hospital	
Milnerton Primary School		Mulbarton Hospital	
Mawila Primary School		Netcare Clinton Hospital	
Mdelwa-Hlongwane Primary School		Netcare Union Hospital	
Meredale Primary School		Netcare Rehabilitation Hospital	

SOCIAL FACILITIES SUPPLY			
Milnerton Primary School		Netcare Rand Hospital	
Moetapele Primary School		Medicross Roodepoort Family Medical Centre	
Mohloding Primary School			

From Table 14.2 it is evident that several social facilities exist within the market area. Given the large amount of residential units planned in the greater Soweto area, demand for numerous social facilities will have to be addressed. The following section identifies social facility shortfalls / market gaps within the primary trade area.

Map 14.1: Social Facilities



14.3 SOCIAL FACILITY MARKET DEMAND ESTIMATIONS

This section provides the results for the demand in social facilities in the market area. The social following facilitiess were included in the modelling:

It is important to remember that these are guidelines and it is not always feasible to address the entire market gap although the analysis remains useful to identify social facility shortfalls.

Table 14.3 shows the social facility market gap for the project.

Table 14.3: Social Amenities Market Gap – (Project Specific)

	Parameter	Land Required Per Amenity	Market Gap	Hectares
HEALTH AND EMERGENCY SERVICES				
Tertiary Hospital L3	2 400 000	0,50	0,0	0,0
Regional Hospital L2	1 770 000	7,00	0,0	0,0
District Hospital L1	300 000	5,00	0,0	0,0
Community Health Centre	100 000	1,50	0,0	0,0
Primary Health Clinic	24 000	0,50	0,0	0,0
Fire Station	60 000	1,20	0,0	0,0
Police Station	60 000	0,45	0,0	0,0
SOCIAL & CULTURAL (PUBLIC SERVICE FACILITIES)				
Community Performing Arts Centre	50 000	0,05	0,0	0,0
Museum – large	500 000	0,05	0,0	0,0
Regional Library – Reference	450 000	0,03	0,0	0,0
Regional Library	200 000	0,03	0,0	0,0
Local Library	20 000	0,05	0,0	0,0
CIVIC				
Major Public Event Venue	1 000 000	3,00	0,0	0,0
Home Affairs – large office	400 000	0,05	0,0	0,0
Home Affairs – medium office	160 000	0,02	0,0	0,0
Home Affairs – small office	40 000	0,02	0,0	0,0
SOCIAL SERVICES				
Community Hall – large	60 000	0,50	0,0	0,0
Community Hall - medium / small (fringe areas)	10 000	0,20	0,0	0,0
ICT Access point	10 000	1,50	0,0	0,3
Post office / agent with post boxes	10 000	0,03	0,0	0,0
Social Grant Pay Point	40 000	0,03	0,0	0,0
Community Hall – large	60 000	0,50	0,0	0,0
EDUCATION				
Post-matric Skills Training (i.e. nursing teaching, etc.)	400 000	1,00	0	0,0
Small Creche / early childhood development centre	**2 400**	**0,02**	**3**	**0,1**
Grade R Class at primary school	**1 000**	**0,01**	**7**	**0,1**
Primary School	**7 000**	**2,80**	**1**	**2,5**
Secondary School	**12 500**	**4,00**	**1**	**2,0**
ECD Resource Hub and Care Centre	20 000	0,10	0	0,0
RECREATION PROVISION (SPORT & PARKS)				
Indoor Sports Hall (medium/large)	250 000	0,50	0,0	0,0
Regional Sports Stadium	200 000	0,50	0,0	0,0
Sports Complex with 9 - 12 court sports hall, etc.	200 000	0,80	0,0	0,0
TOTAL HECTARES				**5.2 ha**

Note: Parameter reflects the number of people required to support development of a specific facility.
Source: Demacon, 2019

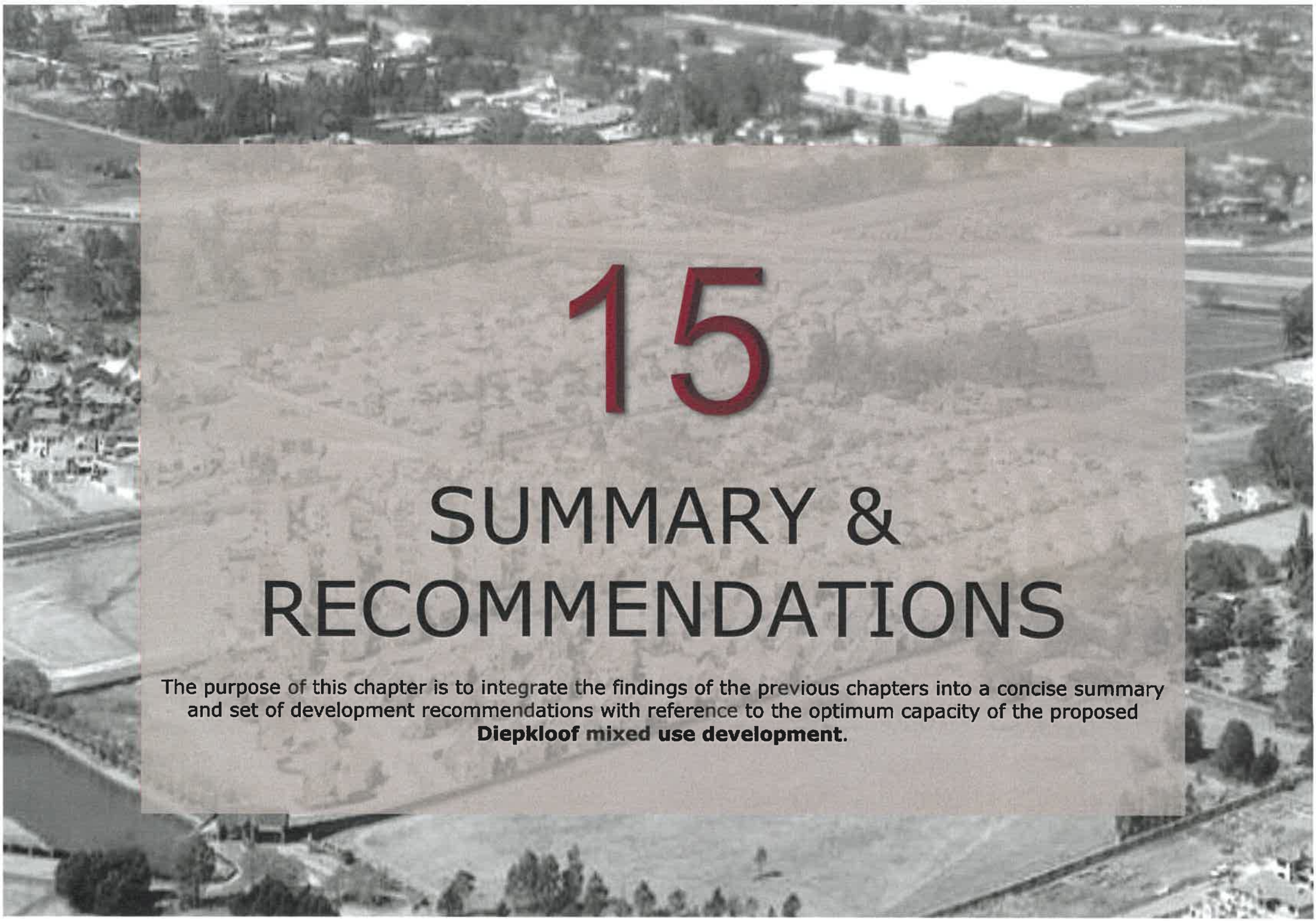
14.4 SYNTHESIS

Chapter 14 provided an empirical assessment of the development potential of a range of community and social facilities. This is supported by a gap analysis of social facilities. These assessments provide a useful indication of possible future developments within the area.

From the social facility modelling, it is evident that there is a gap for several facilities in the primary trade area. The table indicates that the social amenities that are feasible, necessary and compatible with the site configuration are:

- ✓ Small Creche / early childhood development centre (3)
- ✓ Grade R Class at primary school (7)
- ✓ Primary School (1)
- ✓ Secondary School (1)

The development of other amenities would depend on future population growth in the market area – current demand thresholds can only partially sustain additional amenities



15

SUMMARY & RECOMMENDATIONS

The purpose of this chapter is to integrate the findings of the previous chapters into a concise summary and set of development recommendations with reference to the optimum capacity of the proposed **Diepkloof mixed use development.**

SUMMARY & RECOMMENDATIONS 15

15.1 INTRODUCTION

The purpose of this chapter is to integrate the findings of the previous chapters into a concise summary and set of development recommendations with reference to the optimum capacity of the proposed **Diepkloof mixed use** development.

Subsequent sections provide concise recommendations of the following markets:

15.2 SUMMARY OF DEMOGRAPHICS AND KEY LOCATION ATTRIBUTES

- ✓ The Diepkloof Project is located within a primary market area of approximately 1 276 632 people / 485 556 households and 3.3 people per household. (52.5% within LSM 4 to 10+).
- ✓ The proposed development is situated in the eastern extent of Region D of City of Johannesburg Metropolitan Municipality.
- ✓ The site is bordered to Chris Hani Road to the north and the N1 (Western Bypass) to the east of the suburb Diepkloof. To the west of the subject site is Chris Hani Baragwanath Hospital Complex and ±5km further west Maponya Mall. To the north of the site is Diepkloof Square The size of the site amounts to approximately 30 hectares in extent.
- ✓ The proposed mixed-use development site scored locational ratings between 70% and 80%+ which indicates that most important fundamentals for a successful mixed-use development is in place.
- ✓ Given the location requirements of a selected range of urban property markets, it is found that, the current site rated ideal for a new retail development.
- ✓ Located in a middle-income consumer market.
- ✓ It is anticipated that the proposed development will have a positive impact on the local and district economy as well as on the municipal.

15.3 RESIDENTIAL MARKET RECOMMENDATIONS

❑ RESIDENTIAL MARKET ACTIVITY - SUPPLY

The following figures indicate the average sales and rental prices for apartments / flats as well as the average unit sizes. This is based on current residential supply in terms of the number of transactions.

From the supply analysis, the following was evident from the **sales data:**

Apartments / Flats

- ✓ The majority of apartments / flats (53.2%) trade between R500 000 to R750 000 followed by 31.9% for less than R500 000.
- ✓ 8.5% of apartments / flats trade between R750 000 to R1 million and 6.3% for more than R1 million.
- ✓ Unit sizes range from **44m^2 to 161m^2**, average of **72m^2**
- ✓ The average price for apartments in the area amounts to approximately **R558 511 (weighted average).**
- ✓ The residential supply currently within the area is predominantly towards the **middle-income segment.**

Houses

- ✓ The majority of houses (24.5%) trade between R750 000 – R1 million and 23.6% between R500 000 to R750 000.
- ✓ 21.7% of houses trade between R1 million to R1.5 million and 13.7% trade between R1.5 million to R2 million. There are 11.8% of properties for R2 million and more – these properties are situated within Robertsham, Meredale, Ridgeway and Robertsham.
- ✓ Unit sizes range from **52m^2 to 470m^2**, average of **229m^2**
- ✓ Stand sizes range from **195 to 3 878m^2**, average of **781m^2**

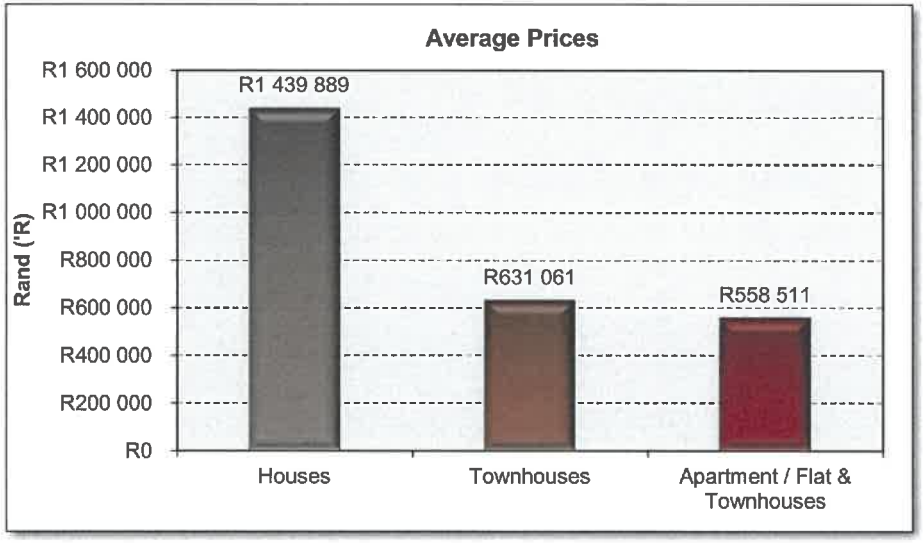
- ✓ The average price for houses in the area amounts to approximately **R1 439 889 (weighted average).**
- ✓ The residential supply currently within the area is predominantly towards the **middle-income segment** of the market.

Townhouses

- ✓ The majority of townhouses (67.9%) trade between R750 000 – R750 000 and 17.0% trade for less than R500 000.
- ✓ 10.9% of townhouses trade for R750 000 to R1 million and 3.0% for R1 million to R1.5 million.
- ✓ Unit sizes range from Unit sizes range from **38m^2 to 190m^2**, average of **73m^2**
- ✓ The average price for houses in the area amounts to approximately **R631 061 (weighted average).**
- ✓ The residential supply currently within the area is predominantly towards the **middle-income segment** of the market.

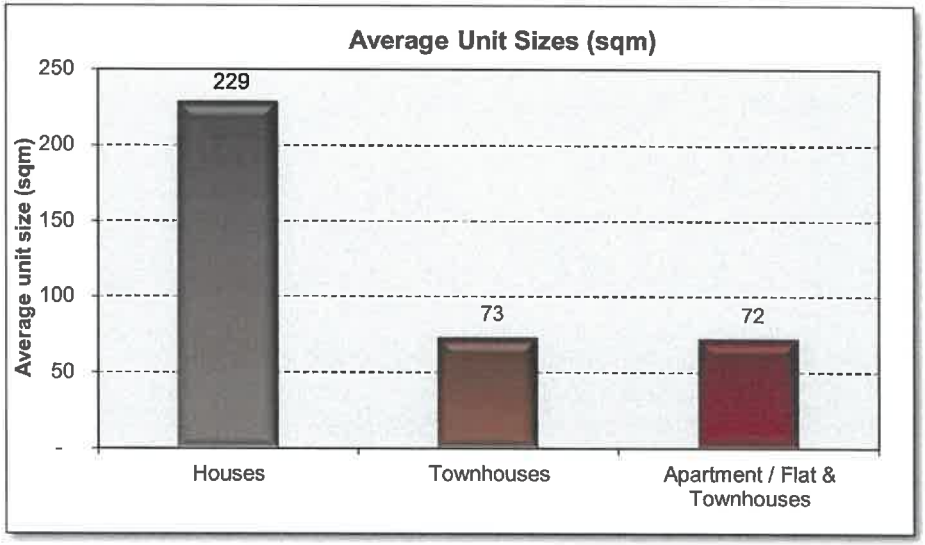
SUMMARY OF SALES DATA

Figure 15.1: Average Prices



Source: Demacon, 2019

Figure 15.2: Average Unit Sizes



Source: Demacon, 2019

From the supply analysis, the following was evident from the **rental data:**

Apartments / Flats

- ✓ The majority of apartments / flats (64.4%) in the area trade for between R5 000 to R7 500, 32.2% trade for less than R5 000 and 3.4% between R7 500 to R10 000.
- ✓ The average unit size ranges from 27m^2 to 101m^2, average of **56m^2.**
- ✓ The average rental for apartments / flats & townhouses in the area trades for **R5 127** (weighted average).
- ✓ The residential suply currently within the area is predominantly towards the **middle-income segment**.

Houses

- ✓ The majority of houses (33.3%) in the area trade between R5 000 to R7 500 and 23.8% trade for less than R5 000.
- ✓ 27.0% of the houses trade between R7 500 to R10 000 and 15.9% trade for more than R10 000+.
- ✓ Unit sizes vary between 48m^2 to 393m^2, average **135m^2** and stand sizes vary between 300 to 1 487m^2, average **613m^2**

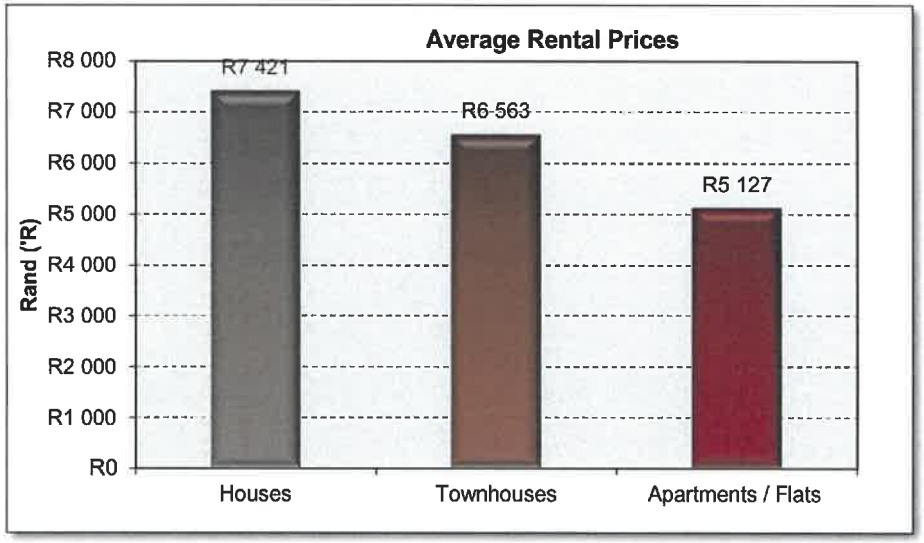
- ✓ The average rental for houses in the area trade for **R7 421** (weighted average).
- ✓ The residential supply currently within the area is predominantly towards the **middle-income segment**.

Townhouses

- ✓ The majority of townhouses (77.5%) in the area trade between R5 000 to R7 500 and 12.5% trade for between R7 500 to R10 000.
- ✓ Unit sizes vary between 53m² to 300m², average **101m²**
- ✓ The average rental for townhouses in the area trade for **R6 563** (weighted average).
- ✓ The residential supply currently within the area is predominantly towards the **middle-income segment**.

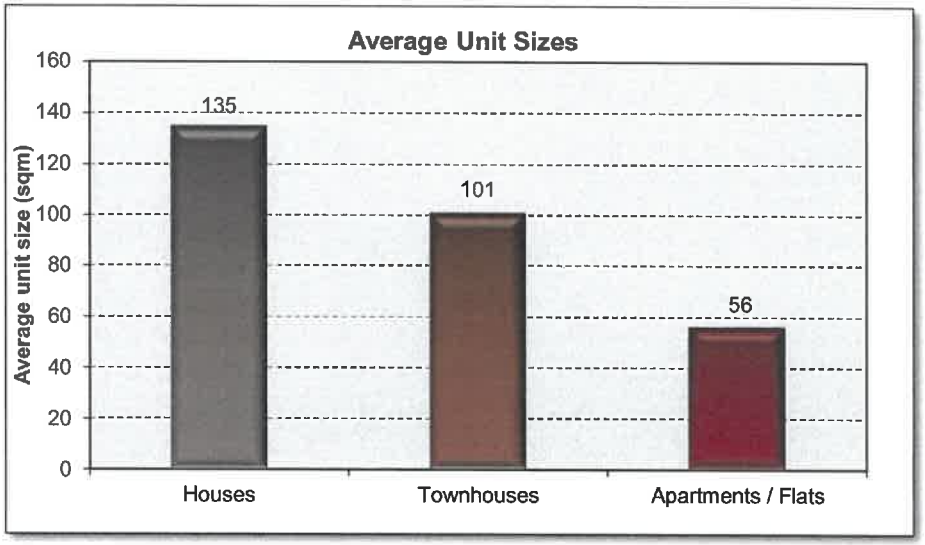
SUMMARY OF RENTAL DATA

Figure 15.3: Average Prices



Source: Demacon, 2019

Figure 15.4: Average Sizes



Source: Demacon, 2019

❑ GAP ANALYSIS

In the context of the above, it is evident that there is a market for **bonded and social residential units.**

❑ SUMMARY OF RESIDENTIAL DEMAND

BONDED HOUSING

Project Size and Anticipated Take-Up

Table 15.1 indicates the current market performance and the market share that bonded housing component of the proposed project could attract.

Table 15.1: Summary of Market Recommendations

	TOTAL MARKET		
A	Additional HH: base yr + 5yrs		20 237
B	Annualised Market growth (full housing spectrum)		4 047
C	Bonded units		46,1%
D	Bonded take-up per annum		1 865
E	Annual secondary market contribution (units / annum)	Min	2 079
F		Max	4 158
G	Total annual bonded demand	Min	3 944
H		Max	6 023
	PROJECT SPECIFIC – BONDED UNITS		
I	Project Bonded Units		1 500
J	Forecast market share of total market sales	Min	5%
K		Max	10%
L	Project forecast total annual take-up rate (units / annum)	Min	197
M		Max	602
N	Years to 80% take-up (bonded units)	Min	2,5
O		Max	7,6
P		Avg	5,0
	Optimum point of market entry		2021+

Source: Demacon, Modelling 2019

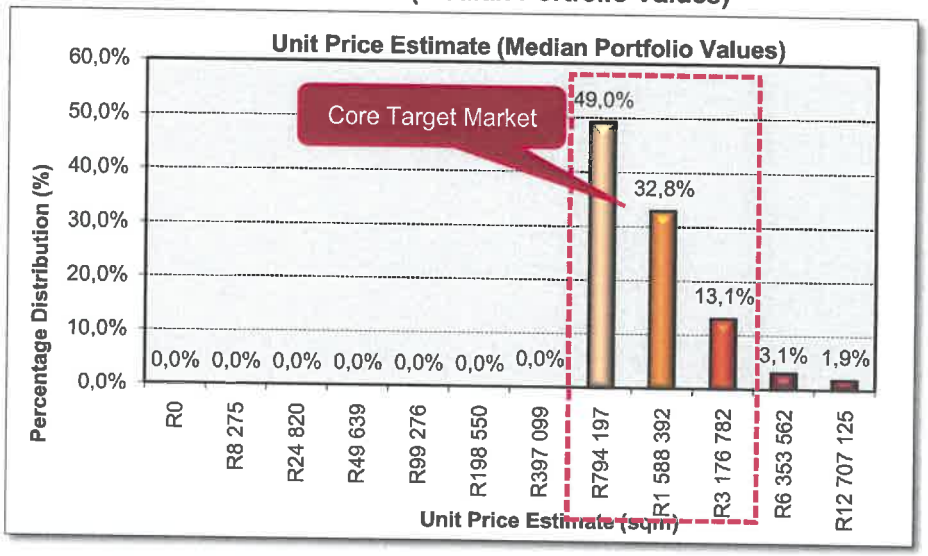
Explanatory Notes:
A = increase in demand for new rental units, 2019 – 2024
B = Annualised market growth, i.e. of A/5
D = B x C
E & F = Annual secondary market contribution (i.e. the contribution made by re-sales in the target affordability income brackets)
G & H = Annual new entry-level to executive flat/ apartment demand; D + E and D + F
I = Project entry-level to executive flat/ apartment units
J & K = assumed market share of market area
L = G x J
M = H x K
N = I / L
O = I / M

Explanatory Notes:
[2] – Reflects the percentage of the local population with incomes and affordability levels aligned to bonded units
[3] – Number of potential buyers through local secondary market transactions, e.g. qualifying local potential buyers selling existing homes to move to new area.

Findings:

- ✓ The modelling portrays market-based take-up based on medium to long-term market growth trends.
- ✓ It can be expected that an estimated 10 827 new households will seek accommodation in the target geographic market area, resulting in an annual growth in demand of approximately 2 165.
- ✓ A total of **1 500 units** (Bonded Units) could be developed and taken up in the market within approximately 7.3 years+ (80% take-up), resulting in between 156 and 296 units *per annum*.
- ✓ Optimum point of market entry: **2021+**

Figure 15.5: Unit Price Estimate (Median Portfolio Values)



Source: Demacon Demand Modelling, 2019

SOCIAL HOUSING

Project Size and Anticipated Take-Up

The table below Table 15.2 indicates the current market performance and the market share that bonded housing component of the proposed project could attract.

Table 15.2: Summary of Market Recommendations

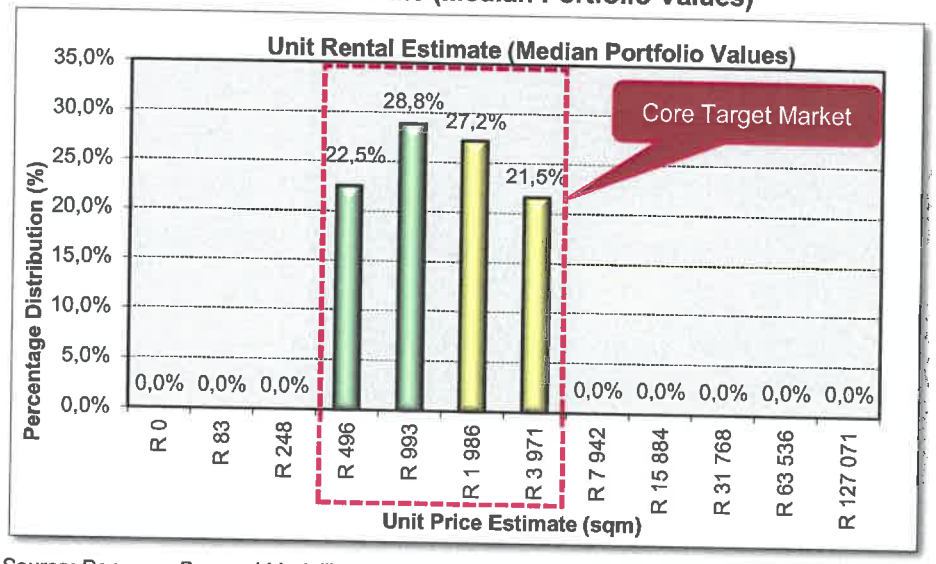
	TOTAL MARKET		
A	Additional HH: base yr + 5yrs		20 237
B	Annualized Market growth (full housing spectrum)		4 047
C	Social Housing Segment		55,5%
D	Entry-level to Social Housing take-up per annum		1 763
E	Annual secondary market contribution (units / annum)	Min	1 502
F		Max	2 504
G	Total entry level to Social Housing Market take-up	Min	3 265
H		Max	4 267
	PROJECT SPECIFIC - SOCIAL UNITS		
I	Project entry-level to Social Housing Units		450
J	Forecast market share of total market sales	Min	5%
K		Max	10%
L	Project forecast total annual take-up rate (units / annum)	Min	163
M		Max	427
N	Years to 80% take-up (Social Housing units)	Min	1,1
O		Max	2,8
P		Avg	1,9
	Optimum point of market entry		**2020+**

Explanatory Notes:
A = increase in demand for new housing units, 2019 – 2024 (i.e. new household formation in the market area)
B = Annualized market growth, i.e. of A/5
D = B x C
E & F = Annual secondary market contribution (i.e. the contribution made by re-sales in the target affordability income brackets)
G & H = Annual finance linked and bonded segment demand; D + E and D + F
I = Project finance linked and bonded units
J & K = assumed market share of market area
L = G x J
M = H x K
N = I / L
O = I / M

Findings:

- ✓ The modelling portrays demand and take-up based on current and expected future market trends.
- ✓ The table above shows the social housing market potential - this segment (62.9%) yields a take-up of 90 units *per annum*.
- ✓ The take-up forecast for social housing units is based on a maximum 1.9 years. This calculation will lead to a feasible 450 units, with a take-up of 163 to 427 units per annum.
- ✓ 22,5% of the rental units could be in the region of R370 to R745 per month, 28,8% in the region of R750 to R1 500 per month, 27.2% in the region of R1 500 to R3 000 and 21.5% between R3 000 to R6 000.
- ✓ Optimum point of market entry: **2020 / 2021+**

Figure 15.6: Unit Rental Estimate (Median Portfolio Values)



Source: Demacon Demand Modelling, 2019

❑ DEVELOPMENT RECOMMENDATIONS

Bonded Housing:

- ✓ The modelling portrays market-based take-up based on medium to long-term market growth trends.

- ✓ It can be expected that an estimated 10 827 new households will seek accommodation in the target geographic market area, resulting in an annual growth in demand of approximately 2 165.
- ✓ A total of **1 500 units** (Bonded Units) could be developed and taken up in the market within approximately 7.3 years+ (80% take-up), resulting in between 156 and 296 units *per annum*.
- ✓ Optimum point of market entry: 2021+
- ✓ Configuration of units: a combination of **free-standing homes** and **3 to 4 storey walk-ups** (i.e. medium density units).
- ✓ The localized house price profile (sales) compared with household income figures indicate a high percentage of buyers originating from outside the primary catchment – up to 48% of new home buyers in the Greater Cape Town market originate from beyond the Western Cape (12.6% of buyers are foreigners).

Optimum Distribution Range Configuration

%	Total Units	Price Range	Bedrooms	Square metres
49.0%	441 294	✓ R600 – R1 million ✓ R1.1million – R1.6 million	✓ 1 bed, 1 bath, 1 garage ✓ 1 bed, 1 bath, 1 garage	✓ 60 – 90m² ✓ 60 – 90m²
32.8%	295 197	✓ R1.7 million to R2.3 million ✓ R2.4 million to R4.7 million	✓ 2 bed, 1 bath, 1 garage ✓ 2 bed, 2 bath, 2 garages, carport	✓ 100m² - 135m² ✓ 140 – 165m²
18.1%	272	✓ R4.7 million+	✓ 2 bed, 1 bath, 1 garage and 2 bed, 2 bath, 2 garages, carport	✓ 100m² - 165m²
Total	1 500			

Source: Demacon Demand Modelling, 2019

Social Housing:

- ✓ The modelling portrays demand and take-up based on current and expected future market trends.
- ✓ The table above shows the social housing market potential - this segment (62.9%) yields a take-up of 90 units *per annum*.
- ✓ The take-up forecast for social housing units is based on a maximum 1.9 years. This calculation will lead to a feasible 450 units, with a take-up of 163 to 427 units per annum.
- ✓ 22,5% of the rental units could be in the region of R370 to R745 per month, 28,8% in the region of R750 to R1 500 per month, 27.2% in the region of R1 500 to R3 000 and 21.5% between R3 000 to R6 000.
- ✓ Optimum point of market entry: **2020 / 2021+**

Optimum Distribution Range Configuration

	Percentage contribution	Units (no.)	Monthly rental	Size	Distribution range
1 / 1.5 Bedroom units, 1 Bath	22,5%	101	R370 - R745	35m² - 40m²	20.0% - 25.0%
2 Bedroom units, 1 Bath	28,8%	130	R750 - R1 500	40m² - 45m²	30.0% - 40.0%
2 Bedroom units, 2 Bath	27,2%	122	R1 500 - R3 000	45m² - 55m²	20.0% - 40.0%
3 Bedroom units, 2 bath	21,5%	97	R3000 - R6 000	55m²+	10.0% - 15.0%
Total	100.0%	450			

15.4 RETAIL MARKET RECOMMENDATIONS

❑ FACTORS THAT INFLUENCE CONSUMER BEHAVIOUR

It has been established through empirical research that the factors listed below impact directly on a centres power of attraction. In addition to proven market demand, centre design should accommodate these values (Diagram 15.1).

These aspects affirm that physical factors are only one dimension of consumer behaviour patterns. Other factors such as cognitive, emotional and experiential factors are increasingly contributing to the viability of retail centres.

The sustainability of a centre is dominated by level one, thus the importance of providing the correct tenant mix as part of the shopping centre. The tenant mix should adhere to the demands and preferences of the market population.

Diagram 15.1: Factors that Influence Consumer Behaviour

FACTORS THAT INFLUENCE CONSUMER BEHAVIOUR

LEVEL 1: COSUMPTION VAUES

- Functional Value: need for specific products; tenant mix
- Social value: place to interact
- Emotional value: to excite or relax
- Epistemic value: need to be stimulated, informed, to learn and to find out
- Conditional value: e.g. to shop for Christmas or a birthday
- Significate value: does the mall symbolise or signify an area

LEVEL 2: CONSEQUENCES OF SHOPPING AT A SPECIFIC

- Aspirational factors
- Ambience
- Convenience
- Belonging
- Cost
- Feelings
- Family impact
- Historic factors
- Individual goal directedness
- New experiences
- Time awareness

LEVEL 3: ATTRIBUTES OF THE SHOPPING CENTRE

- Appearance
- People
- Layout
- Parking
- Time and money
- Retail requirements
- Convenient location

❑ RETAIL MARKET SUPPLY

Findings:

- ✓ Total *existing supply* of shopping centre retail floor space within the primary market area (15-minute drive time) presently amounts to approximately **875 814m^2 GLA.**
- ✓ Proposed shopping centre supply amounts to **56 000m^2.**
- ✓ To conclude, the above supply figures can not directly be correlated with the demand of the market area due to the fact that most of the centres are trading off multiple trade areas and trade area overlap is present.

❑ GAP ANALYSIS

Development Type	Effective Market Gap	Development Prospects
Regional Shopping Centre	Yes	Moderate
Convenience / Lifestyle		Moderate to High

The development and overall sustainability of a retail facility relies strongly on its location. The following **location requirements** determine the success of a retail facility:

- ✓ **Sufficient buying power** – this refers to the disposable income per household in the catchment area of a retail facility, which is available to be spent at the specific retail facility.
- ✓ **Competition** – this plays an important role in the location of a retail facility. The sustainability and viability of a retail facility is higher with no competition than in an area with competition.
- ✓ **Competitive shopping / clustering** – this refers to the location of similar retail facilities in close proximity of each other. The result is lower prices as well as the improvement of services and products to the benefit of the consumer.

- ✓ **Accessibility** – the accessibility of a retail location to the labour force as well as consumers is an important locational factor in the development of retail facilities.
- ✓ **Land** – land as a locational factor refers to the market value of land or the lease value of structures. Lower values provide better development opportunities.
- ✓ **Role and function in shopping centre hierarchy** – retail facilities in a given geographical area are ranked in a hierarchy that services a given portion of the consumer population, according to each centre's unique size, composition, role and function.

❑ SUMMARY OF THE DEMAND ANALYSIS

The following table summarises the demand analysis for the retail component.

Table 15.3: Summary of market demand estimations

	OPTION 1: LSM 4 – 10+ (Rand / sqm)	OPTION 2: LSM 4 – 10+ (Rand / sqm)
Total annual growth in market demand (sqm/a)	7 209	7 209
Centre share of growth (sqm/a)	721	198
Point of market entry	2022+	2022+
Additional growth in demand for centre (sqm)	6 488	1 784
Retail GLA at OPME	65 438	17 995
Services GLA at OPME	16 359	4 499
Cinemans & Entertainment	-	-
OPME Centre Size (sqm GLA)	**81 797m²**	**22 494m²**
On-site job creation	2 727	750
Retail Sales potential (R2019 value)	R3 077 863 569	R846 412 482
Total capital investment (R2019 value)	R1 554 142 999	R427 389 325
Additional Parking bays required	3 272	900
Parking infrastructure & landscaping cost	R77 870 744	R21 414 455

Source: Demacon Demand Modelling, 2019

❑ CENTRE SIZE AND RECOMMENDATIONS

OPTION 1:

Size and parking:

- ✓ The short to medium term prospect is for a **regional shopping centre**.
- ✓ Market data suggests that the optimum size for a new shopping centre over the short to medium term measuring ideally **±81 797m² GLA**.
- ✓ The optimum point of market entry for the first phase would be **2026+** and the second phase **2022+.**
- ✓ The proposed convenience / lifestyle retail centre should be able to attain an annual sales potential of approximately **R3 077 863 569** (based on benchmark trading densities) & permanent on-site job creation of **±2 727**.
- ✓ Performance will be dependent on, inter alia, appropriate tenant composition.
- ✓ The regional centre could include between **150 to 250** shops
- ✓ Ample parking should be provided at a ratio of **6 bays per 100m²** retail GLA
- ✓ The parking area should be accessible, convenient, paved and well-lit in the evenings
- ✓ Land should be reserved for future expansion phase

Main Tenants (Regional Centre):

- ✓ Large Supermarket(s) or hyper
- ✓ 3 or more large clothing stores
- ✓ Small clothing stores and boutiques
- ✓ Entertainment, restaurants
- ✓ Services
- ✓ Convenience stores

OPTION 2

Size and parking:

- ✓ The short to medium term prospect is for a **convenience / lifestyle shopping centre**.
- ✓ Market data suggests that the optimum size for a new shopping centre over the short to medium term measuring ideally **±22 494m² GLA**.

- ✓ The optimum point of market entry for the first phase would be **2026+** and the second phase **2022+.**
- ✓ The proposed convenience / lifestyle retail centre should be able to attain an annual sales potential of approximately **R846 412 482** (based on benchmark trading densities) & permanent on-site job creation of **±750**.
- ✓ Performance will be dependent on, inter alia, appropriate tenant composition.
- ✓ The regional centre could include between **50 to 100** shops
- ✓ Ample parking should be provided at a ratio of **6 bays per 100m²** retail GLA
- ✓ The parking area should be accessible, convenient, paved and well-lit in the evenings
- ✓ Land should be reserved for future expansion phase

Main Tenants (Convenience / Lifestyle Centre):

- ✓ Large Supermarket
- ✓ Convenience
- ✓ Small national clothing stores
- ✓ Entertainment & takeaways
- ✓ Services

15.5 TRADE / AUTOMOTIVE MARKET RECOMMENDATIONS

❑ GAP ANALYSIS

Demacon's Demand Modelling results illustrate that the consumer market can sustain automotive fitment centres / ancillary services / sales / motorcycles / trailers / roof racks, 4x4 safari / outdoor type of services of approximately **12 641m²** with the optimum point of market entry in **2023+.**

❑ DEMAND ANALYSIS

The following tables indicate the space demand modelling result of the trade sector.

Table 15.4: Synthesis of Space Demand Modelling Results (nodal potential) – m² GLA (constant values)

Cumulative Additional Space Demand	2024	2029	2034	2039
Wholesale & Retail Trade (sqm GLA)	39 446	157 222	337 651	557 709
Catering & Accommodation (sqm GLA)	2 779	9 849	16 201	28 226
TOTAL: Soweto Local Economy	**42 225**	**167 071**	**353 853**	**585 935**
At 28.58% automotive	**12 068**	**47 749**	**101 131**	**167 460**
Project Share - min	4 222	16 707	35 385	58 594
Project Share - max	6 334	25 061	53 078	87 890
Average	1 508	5 969	12 641	20 933

Source: Demacon Demand Model, 2019

Table 15.5: Project Space Demand Results - m² GLA (cumulative)

Forecast	Square metre (m²)
Up to 2024	1 000m² – 1 500m²
2024 – 2029	5 500m² – 10 000m²
2034 – 2039	12 000m² – 15 000m²
2039+	20 000m² – 25 000m²

Source: Demacon Demand Model, 2019

Table 15.6: Recommended Sizes

Recommended Sizes	Rand per annum / m²
Capital investment (2019 constant values)	R214 903 505
Employment opportunities	294
Parking	352

Recommended Sizes	Rand per annum / m^2
Parking infrastructure & landscaping cost (2019 constant values)	R8 382 965
Point of market entry	2023+
Size of development (sqm) (up to 2029)	12 641m^2

Source: Demacon Demand Model, 2019

The following is evident from the above tables:

- ✓ Trade sector market demand in **Soweto Local Economy** increases cumulatively from 167 071m^2 GLA in 2024 to 777 554m^2 GLA in 2039.
- ✓ Market demand for automotive floor space in the trade area increases cumulatively from 12 068m^2 in 2024 up to 167 460m^2 GLA in 2039.
- ✓ Proposed size of development over the short to medium term amounts to approximately **12 641m^2.**
- ✓ This floor space could include:
- ✓ Selected automotive dealerships – scope for 2 dealerships
  - workshops & fitment centres,
  - speciality shops and services,
  - Motorcycles, quads
  - Outdoor, 4x4 and camping.
- ✓ Optimum point of market entry: **2023+**

15.6 OFFICE MARKET RECOMMENDATIONS

❑ GAP ANALYSIS

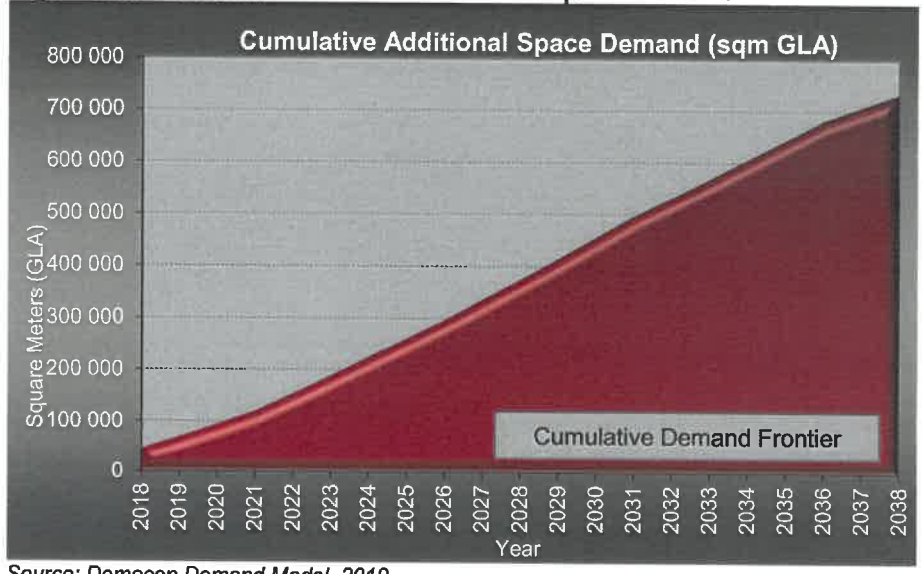
Demacon's demand modelling indicated office potential of approximately **62 126m^2** (say 60 000 to 65 000m^2) office GLA over the short to medium term. This space includes GLA for offices and related facilities, but excludes parking, storage and basements. The optimum point of market entry would be **2024+.**

Table 15.7: Synthesis of Space Demand Modelling Results – m^2 GLA (cumulative)

Cumulative Additional Space Demand	Up to 2024	2029	2034	2039
Finance & Insurance *(sqm GLA)*	121 284	147 572	175 342	203 044
Business services *(sqm GLA)*	102 277	266 604	430 335	529 609
TOTAL: Soweto Local Economy	**223 561**	**414 176**	**605 677**	**732 654**
Nodal Share - Min	**22 356**	**41 418**	**60 568**	**73 265**
Nodal Share - Max	**44 712**	**82 835**	**121 135**	**146 531**
Average*	33 534	62 126	90 852	109 898

Source: Demacon Demand Model, 2019
** Note: the nodal shares and the average figures are cumulative*

Figure 15.7: Cumulative Additional Office Space Demand



Source: Demacon Demand Model, 2019

Table 15.8: Space Demand Results - m² GLA (cumulative values – maximum share)

Forecast	Square metres
Up to 2024	30 000m² – 40 000m²
2024 – 2029	60 000m² – 65 000m²
2034 – 2039	90 000m² – 95 000m²
2039+	100 000m² – 110 000m²

Source: Demacon Demand Model, 2019

The table below provides the recommended office options.

Table 15.9: Recommended office space options (ten-year timeframe)

Variables	Rand per annum / m²
Capital Investment (2019 constant values)	R 1 242 529 292
Optimum size (GLA – 2034)	62 126m²
Employment (on-site)	3 106
Parking bays	2 485
Parking infrastructure & landscaping cost (2019 constant values)	R 59 144 394
Point of market entry	2024+

Source: Demacon Demand Model, 2019

The following emerged from preceding paragraphs:

- ✓ Market demand for office floor space in Soweto Local Economy increases cumulatively from 223 561m² GLA in 2024 to 732 654m² GLA in 2039.
- ✓ The maximum nodal absorption increases from 44 712m2 in 2024 to 146 531m² in 2039.
- ✓ Over the short to medium term, the project could attract office take-up of approximately **62 126m²** (say 60 000m² to 65 000m²)
- ✓ Optimum point of market entry: **2024+**
- ✓ The development could be configured as a hybrid business park including offices and commercial buildings, positioned to draw optimum benefit from N1 freeway sight value and exposure.

15.7 INDUSTRIAL MARKET RECOMMENDATIONS

❑ GAP ANALYSIS

Demacon's Demand Modelling results illustrate that the consumer market can sustain light industrial, warehousing & distribution development up to **±11.01 hectares (60 579m²)** in the market area over the short to medium term. The optimum point of market entry in **2024+.**

❑ INDUSTRIAL DEMAND MODELLING

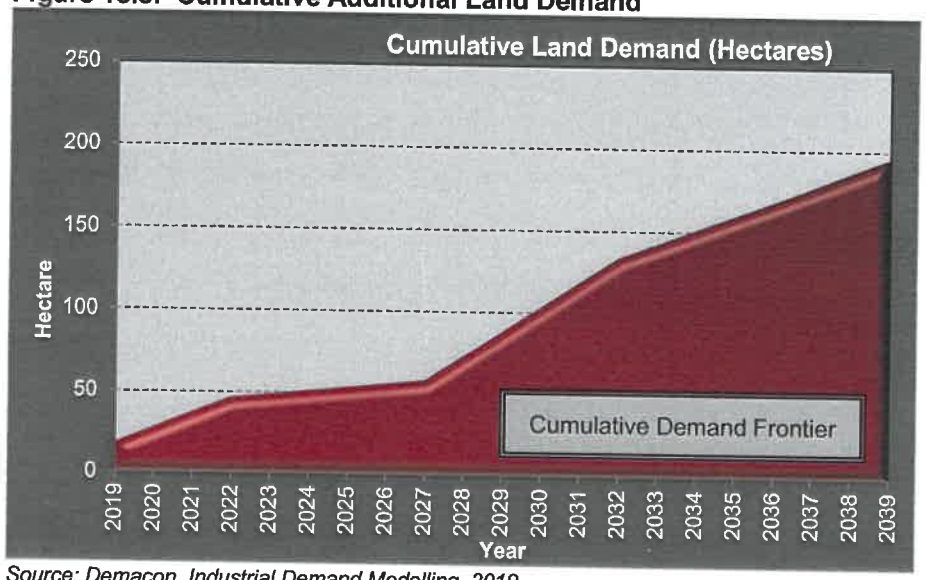
The following tables provide a synthesis of space demand modelling results.

Table 15.10: Synthesis of Space Demand Modelling results, 2024- 2039

Cumulative Additional Land Demand	Up to 2024	2024 – 2029	2029 - 2034	2034 - 2039
Total Manufacturing (Hectares)	20,71	34,35	57,54	73,70
Total Warehousing (Hectares)	30,57	53,77	93,81	121,71
Total Hectares (Soweto)	**51,28**	**88,11**	151,35	195,41
Minimum Share	5,13	8,81	15,14	19,54
Maximum Share	7,69	13,22	22,70	29,31
Total Hectares	**6,41**	**11,01**	**18,92**	**24,43**
Development Bulk (sqm)	**35 254**	**60 579**	**94 594**	**122 131**

Source: Demacon Demand Modelling, 2019

Figure 15.8: Cumulative Additional Land Demand



Source: Demacon, Industrial Demand Modelling, 2019

Table 15.11: Area Long Term Space Demand Forecast Summary

Forecast	Hectares
Up to 2023	6 hectares – 10 hectares
2023 – 2028	10 hectares – 15 hectares
2028 – 2033	15 hectares – 20 hectares
2033 - 2038	20 hectares – 25 hectares

Source: Demacon, Industrial Demand Modelling, 2019

Table 15.12: Site Specific Sizing (20-year timeframe)

Recommended sizes	Rand (R') / m²
Capital investment (2019 constant values)	R 969 258 838
Employment opportunities	1 101
Parking	1 212
Parking infrastructure & landscaping cost (2019 constant values)	R 27 139 247
Optimum point of market entry	**2024+**
Size of Industrial (building sqm GLA & hectare land)	**60 579m² GLA / 11.01 ha**

Source: Demacon, Industrial Demand Modelling, 2019

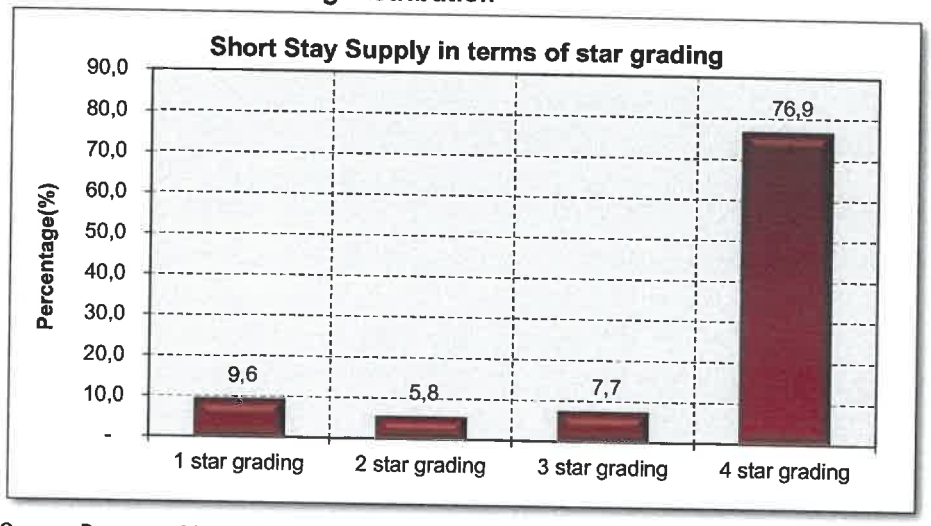
The following is evident from the preceding paragraphs:

- ✓ The total development potential of **Soweto** up to 2024, amounts to approximately 51.28 hectares increasing cumulatively to 195.41 hectares in 2039.
- ✓ The recommended size of industrial development for the project over the next 5 to 10 years amounts to **±11.01 hectares (60 579m² GLA)**
- ✓ Optimum point of market entry could be developed in **2024+**.
- ✓ The commercial component should be configured as a hybrid business park including offices and commercial buildings, positioned to draw optimum benefit from N1 freeway sight value and exposure.

15.8 SHORT-STAY ACCOMMODATION RECOMMENDATIONS

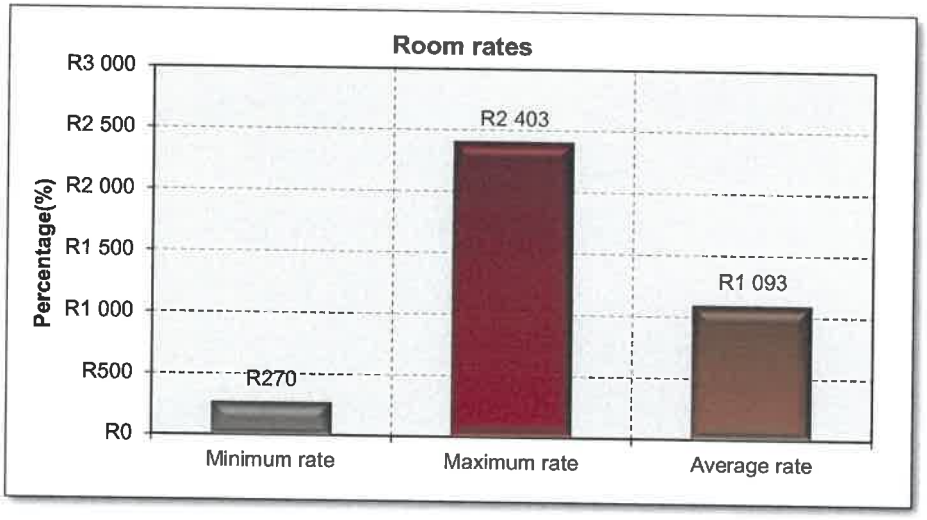
❑ SUMMARY OF HOTEL SUPPLY

Figure 15.9: Hotel Grading Distribution



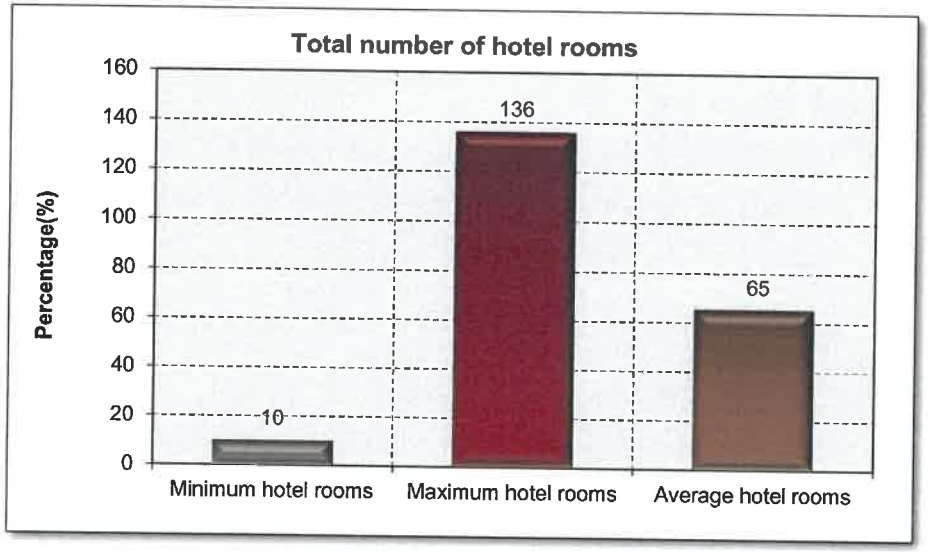
Source: Demacon 2019

Figure 15.10: Room rate



Source: Demacon 2019
Note: Room rates start from R270 and R2 403 per night, average R1 093 per person per night

Figure 15.11: Total number of hotel rooms



Source: Demacon 2019

Findings:

- ✓ There are sixteen hotels located within the primary trade area.
- ✓ Room rates start from R270 and R2 403 per night, average **R1 093 per person per night**
- ✓ A total of **1 367 rooms** with the average hotel size of **65rooms**.
- ✓ The largest segment of hotels is graded as **four-star hotels** (76.9%) followed by 9.6% graded as one-star hotels.
- ✓ Evidently this reflects a market with a demand towards the more affordable star gradings with unique and different product offerings.

❑ HOTEL MARKET DEMAND ESTIMATIONS

Demand Estimations

The market demand estimations are calculated for the hotel market and auxiliary facilities per market segment. The share analysis refers to the expected market share generated according to the capacity provided.

Table 15.13: Gauteng Attractions of Bednights (Total Bednights)

	2019	2024	2029	2034
Foreign Bednights	38 989 736	52 610 834	70 990 475	95 791 059
Domestic Bednights	17 064 634	13 735 889	11 056 473	8 899 721
Total	56 054 370	66 346 724	82 046 948	104 690 781

Source: Demacon, 2019

Table 15.14: Gauteng Attractions of Hotel Guests (Bednights)

	2019	2024	2029	2034
Foreign Bednights	4 769 146	6 435 251	8 683 412	11 716 970
Domestic Bednights	625 703	503 649	405 404	326 323
Total	5 394 849	6 938 901	9 088 816	12 043 293

Source: Demacon, 2019

Table 15.15: Project Summary

Project Summary	2019	2024	2029	2034
Soweto Local Economy Share (GVA & Employment)	9,7%	9,7%	9,7%	9,7%
Soweto Regional Hotel Share (Bednights)	523 300	673 073	881 615	1 168 199
Soweto Hotel Share (Bednights)	523 300	673 073	881 615	1 168 199
Project - Bednights	39 248	50 481	66 121	87 615
Demand (keys)	123	158	207	274

Source: Demacon, 2019

Table 15.16: Total Hotel Demand

Total Hotel Demand	2019	2024	2029	2034
Keys (65.0% Occupancy)	189	243	318	421
Restaurant seats	377	485	636	842
Conference Seats	321	413	540	716

Source: Demacon, 2019

Table 15.17: Total Hotel Demand Square Metres

Total Hotel Demand	2019	2024	2029	2034
Keys (65.0% Occupancy)	14 152	18 202	14 305	31 592
Restaurant seats	755	971	1 272	1 685
Conference Seats	545	701	919	1 217
Total Square Metres	15 452	19 874	16 495	34 494

Source: Demacon, 2019

Development Implications

- ✓ It is evident that a moderate to high demand exists for a hotel facility of approximately 318 hotel keys (2029).
- ✓ There is scope for 636 conference seats and 540 restaurant facility seats (2029).
- ✓ Total hotel demand exists of approximately **16 495m²**
- ✓ Optimum point of market entry would be **2020+.**
- ✓ The facility could double up as a function venue

❑ GAP ANALYSIS

The analysis of the market potential of the proposed hotel development show that there are a number of opportunities, which over the medium to long term, can bring about growth and development in the area / local economy. The proposed development will also contribute to the following:

- ✓ Improving the quality of facilities in the area
- ✓ Job creation and economic growth of area
- ✓ Leading to Public-Private partnership investment
- ✓ Promote development of SMMEs
- ✓ Attract high volumes of tourists to area
- ✓ Attract seasonal and non-seasonal tourists
- ✓ Expand business activity in the area
- ✓ Contribute positively to rates and taxes payable to local authority.

According to the market research, there exists a demand for a four-star hotel, which should ideally be supported by conference and restaurant facilities. This demand is anticipated to rise markedly over the short to medium term.

Despite relatively good short-stay accommodation supply within the surrounding market area, the site is strategically located and will be able to capture the increased short and medium-stay accommodation needs of a growing tertiary educational market. The proposed hotel could in future attract a high and increasing number of part-time students, lecturers and guest speakers within convenient walking distance as this area is not only conveniently located in relation to major roads and popular routes, but also offers an attractive environment.

Importance of Branding and Image

The following aspects are important in terms of branding and image of hotel developments within the area:

- ✓ **Brand Architecture** (Brand name or names for the different products and services)
- ✓ **Target market** insight and segmentation
- ✓ Competition
- ✓ Vision and mission
- ✓ **Brand** Image
- ✓ Brand **value differentiation**
- ✓ Brand essence and **positioning**
- ✓ Brand **Associations**
- ✓ Brand **building activities** and **brand implementation schedules.**

Most hotels have themes, this makes it unique and it stands out from the other competitors. The theme must form a golden thread through the architecture of the entrance gate; accommodation facilities; landscape, street furniture, signage system, logo, marketing material, web site etc.

Market Segments that could be targeted by the hotel development

- ✓ Tourists visiting the area
- ✓ Government functions and events
- ✓ Independent practitioners to see ambulatory patients for consultation, examination, investigation and treatment.
- ✓ Educational Traveller (such as lecturers, students etc.)
- ✓ Business travellers, professionals

15.9 PRIVATE HOSPITAL RECOMMENDATIONS

❑ GAP ANALYSIS

The market area supply profiling exercise subsequently lead to the identification of the following market gaps and concomitant investment opportunities. It is important to note that the gap analysis is based on medical facilities within the area.

❑ PRIVATE HOSPITAL DEVELOPMENT RECOMMENDATIONS

On account of the above, the DEMACON demand model factors extensive support from beyond the catchment, but nevertheless, remains alive to the distance deterrence function and diminishing support as travel time increases, coupled with low levels of private healthcare insurance in the informal areas. In context of the above, DEMACON'S Demand Modelling indicates potential / scope for a private hospital of approximately **202 to 357 beds.**

The proposed hospital could expect the following occupancy rates:

Table 15.18: Estimated Occupancy Rates for the Proposed Private Hospital

Year 1	Year 2	Year 3
70% - 80%	80% - 90%	90%+

Source: Demacon, 2019

These estimates will be subject to operator characteristics, management efficiency, service offering and quality, convenience of access and other location attributes.

PRIVATE HOSPITAL RECOMMENDATIONS:

Medical Facilities / Disciplines Gap Analysis

The following medical facilities / disciplines were identified as gaps in the market and could be considered as part of the private hospital.

It is recommended that the proposed private hospital could include facilities and services offered at a level 2 hospital.

- ✓ A facility that provides care requiring the intervention of specialists as well as general medical practitioner services.
- ✓ A hospital providing a single specialist service would be classified as a specialised level 2 hospital.
- ✓ A general level 2 hospital should provide and the staffed permanently in the following 6 basic specialties of surgery:
    - Medicine
    - Orthopedics
    - Pediatrics
    - Obstetrics
    - Gynecology
    - Psychiatry
    - Diagnostic radiology and anesthetics.

Healthcare facilities / services to be considered:

- ✓ Specialised nursing units
- ✓ 24 –hr Emergency centre
- ✓ Critical/high care unit
    - Critical care unit/high care unit to perform a variety of procedures, ranging from simple diagnostic to more complicated interventional procedures.
- ✓ Neonatal critical/high care unit
    - The unit should comprise of high care, critical care beds, and special isolation units, and be equipped with the latest medical technological equipment in order to care for the infants.
- ✓ Specialised clinics
    - Antenatal clinic
    - Diabetes clinic
    - Pre-admission centre
    - Woundcare clinic.
- ✓ Supplementary services
    - CT Scan
    - Pathology
    - Radiology
    - Renal dialysis.

Independent Consulting Rooms:

- ✓ The consulting rooms should include one or more independent practitioners to see ambulatory patients for consultation, examination, investigation and treatment.

Medical & Surgical Disciplines to consider:

- ✓ Cardiology
- ✓ Dental surgery
- ✓ Dentistry
- ✓ Dermatology
- ✓ Ear, nose and throat surgery
- ✓ General practice
- ✓ General surgery
- ✓ Gynaecology
- ✓ Urology
- ✓ Renal Dialysis
- ✓ Orthopaedic surgery
- ✓ Pathology
- ✓ Paediatrics
- ✓ Periodontal surgery
- ✓ Ancillary services: Pharmacy.

HIV/AIDS Centre

Treatment / Facilities to consider:

- ✓ Voluntary HIV Testing
- ✓ CD4 Testing
- ✓ Wellness Programme
- ✓ Antiretroviral Programme
- ✓ Circumcision
- ✓ On Site Pharmacy
- ✓ Prevention of Mother-to-child Transmission
- ✓ Post Exposure Prohylaxis
- ✓ Pap Smears
- ✓ Family Planning
- ✓ Child Vaccine Programme
- ✓ Adult Immunisation
- ✓ Cholesterol Screening

- ✓ Diabetes Management
- ✓ High Blood Pressure
- ✓ TB Screening.

Private Medical Centre

It is recommended that a private medical centre (such as a community health centre, specialised health centre and / or independent consulting rooms) could be considered as part of the proposed private hospital development. This provides for the agglomeration of various types of medical disciplines to be accommodated in a single building – examples include private doctor, gynaecologist, optometrist, orthodontist/dentist, audiologist en pathologist.

Table 15.19: Recommended medical centres

Recommended Medical Centres	
Community health centre	A facility which is open 24 hours a day, 7 days a week at which a broad range of primary healthcare services are provided. It also offers accident and emergency and midwifery services but not surgery under general anaesthesia
Specialised health centre	A facility that provides specialised care to particular groups of patients usually for less than 24 hours at a time. There are many possibilities for such units, but the most common are obstetric units and renal dialysis units
Independent consulting rooms	A facility that is not part of a hospital or clinic and is used by one or more independent practitioners to see ambulatory patients for consultation, examination, investigation and treatment. General practitioner consulting rooms – one or more professionals registered as medical practitioners and who are not registered as specialist deliver health services Specialist consulting rooms – one or more professionals register as medical practitioners and who are registered as specialists deliver health services Registered practitioner consulting rooms – where one or more professionals registered in any of the allied health professions deliver health services.

Table 15.20: Gap Analysis

	SK Matseke Private Hospital (Lesedi Private Hospital)	Mulbarton Hospital	Netcare Clinton Hospital	Netcare Union Hospital
Physical Address	23967 Old Potchefstroom Road, Zone 6, Diepkloof, Soweto	25 True North Road, Mulbarton, Johannesburg	62 Clinton Road, New Redruth, Alberton	47 Clinton Road, New Redruth, Alberton
Number of Beds	**132 (undergoing refurbishment and upon completion will house 266 beds)**	**216**	**165**	**222**
24-hr Emergency centre				
Audiology & Speech Therapy				
Antenatal Classes				
Brachytherapy				
Biokinetics				
Burns Unit				
Cardiology				
Cardiothoracic				
Cardiac Cathlab				
Chiropractitioner				
Dental Procedures				
Dermalogica				
Dermatology				
Dialysis				
Dietetics				
Diabetic Ward				
Ear, Nose & Throat Surgeon				
Endocrinology				
Endoscopy Unit				
Epilepsy Monitoring Unit				
Gastroenterology				
General Practitioners				
General Surgery				
Gynecology & Obstetrics				
Haematology				
HIV Wellness Clinic				
ICU				

	SK Matseke Private Hospital (Lesedi Private Hospital)	Mulbarton Hospital	Netcare Clinton Hospital	Netcare Union Hospital
Internal medicine				
Lithotripsy				
Maxillofacial & Oral Surgery				
Maternity				
Nephrology				
Neurology				
Neonatal				
Nuclear medicine				
Occupational Therapy				
Oncology				
Ophthalmology				
Orthopaedics				
Periodontics				
Orthopaedical Surgery				
Occularist				
Orthotics				
Ophthalmology				
Paediatric ICU				
Paediatric Oncology				
Paediatric Specialist (Cardiologist, Neurologist etc)				
Paediatrics				
Pathology				
Physiotherapy				
Plastic & Reconstructive Surgery				
Psychiatry				
Psychology				
Pulmonology				
Podiatristy				
Radiology				
Rehabilitation Unit / Step-Down Facility				
Renal Dialysis				
Rheumatology				
Thoracic Surgery				
Trauma Unit				
Sleeplab				

	SK Matseke Private Hospital (Lesedi Private Hospital)	Mulbarton Hospital	Netcare Clinton Hospital	Netcare Union Hospital
Spinal Unit				
Urology				
Vascular Surgery				
Wound Care Clinic				

In terms of the above gap analysis, the following gaps could be filled at the private hospital.

Development Type

- Burns & Wound Unit
- HIV/TB Clinic
- Rehab Centre
- Ophthalmologist

Effective Market Gap

Yes

Development Prospects

Moderate to High

15.10 PRIVATE SCHOOL MARKET RECOMMENDATIONS

❑ GAP ANALYSIS

It is determined that there is a market gap for a private school. Development prospects are rated as high for a private school. Potential will increase as residential growth takes place over the medium to longer term.

❑ PRIVATE SCHOOL DEMAND MODELLING

Table 15.21: Market Area

Market Area		2019	2024	2029
Total number of people		1 542 243	1 611 426	1 683 713
Ages 18months - 4 years	7,1%	109 912	114 843	119 995
Ages 5 - 9	7,4%	114 476	119 612	124 977
Ages 10 - 14	6,6%	101 286	105 829	110 576
Ages 15 - 19	7,6%	117 296	122 558	128 056
		442 971	462 842	483 604

Source: Demacon Demand Modelling 2019

Table 15.22: Private school attendance

Private School Attendance	2019	2024	2029	Percentage
Ages 18months - 4 years	16 487	17 226	17 999	24,8%
Ages 5 - 9	17 171	17 942	18 747	25,8%
Ages 10 - 14	15 193	15 874	16 586	22,9%
Ages 15 - 19	17 594	18 384	19 208	26,5%
Total (Pupils)	66 446	69 426	72 541	100,0%

Source: Demacon Demand Modelling 2019

Table 15.23: Market shares (minimum and maximum)

Private School Attendance	2019	2024	2029	Percentage
Ages 18months to 4 years	495 – 824	517 – 861	540 - 900	24,8%
Ages 5 - 9	515 – 859	538 – 897	562 - 937	25,8%
Ages 10 - 14	456 – 760	476 – 794	498 - 829	22,9%
Ages 15 - 19	528 – 880	552 - 919	576 - 960	26,5%
Total (Pupils)	1993 – 3 322	2 083 – 3 471	2 176 – 3 627	100,0%

Source: Demacon Demand Modelling 2019

Development Implications

- ✓ It can be concluded that there is demand for a private school as part of the Diepkloof Project.
- ✓ Potential exists for the development of **one private school** catering for **2 083 to 3 471** pupils (2024) or **2 176 to 3 627** pupils at full capacity (2029) It is recommended that the facility should be developed in phases as demand increases.
- ✓ The optimum point of market entry should be **2022+.**

Demacon's Demand Modelling results illustrate that the market can sustain **one** private school catering for **approximately 3 627 (say 3 500) pupils** (2029) at full capacity.

Based on the anticipated nature of the proposed facility and the facilities to be provided it is anticipated that it could attract larger shares from the secondary market provided if the project is effectively branded.

15.11 SOCIAL AMENITIES RECOMMENDATIONS

❑ GAP ANALYSIS

It is important to remember that these are guidelines and it is not always feasible to address the entire market gap although the analysis remains useful to identify social facility shortfalls.

Table 15.24 shows the social facility market gap for the project.

Table 15.24: Social Amenities Market Gap – (Project Specific)

	Parameter	Land Required Per Amenity	Market Gap	Hectares
HEALTH AND EMERGENCY SERVICES				
Tertiary Hospital L3	2 400 000	0,50	0,0	0,0
Regional Hospital L2	1 770 000	7,00	0,0	0,0
District Hospital L1	300 000	5,00	0,0	0,0
Community Health Centre	100 000	1,50	0,0	0,0
Primary Health Clinic	24 000	0,50	0,0	0,0
Fire Station	60 000	1,20	0,0	0,0
Police Station	60 000	0,45	0,0	0,0
SOCIAL & CULTURAL (PUBLIC SERVICE FACILITIES)				
Community Performing Arts Centre	50 000	0,05	0,0	0,0
Museum – large	500 000	0,05	0,0	0,0
Regional Library – Reference	450 000	0,03	0,0	0,0
Regional Library	200 000	0,03	0,0	0,0
Local Library	20 000	0,05	0,0	0,0
CIVIC				
Major Public Event Venue	1 000 000	3,00	0,0	0,0
Home Affairs – large office	400 000	0,05	0,0	0,0
Home Affairs – medium office	160 000	0,02	0,0	0,0
Home Affairs – small office	40 000	0,02	0,0	0,0
SOCIAL SERVICES				
Community Hall – large	60 000	0,50	0,0	0,0
Community Hall - medium / small (fringe areas)	10 000	0,20	0,0	0,0
ICT Access point	10 000	1,50	0,0	0,3
Post office / agent with post boxes	10 000	0,03	0,0	0,0
Social Grant Pay Point	40 000	0,03	0,0	0,0
Community Hall – large	60 000	0,50	0,0	0,0
EDUCATION				
Post-matric Skills Training (i.e. nursing teaching, etc.)	400 000	1,00	0	0,0
Small Creche / early childhood development centre	**2 400**	**0,02**	3	**0,1**
Grade R Class at primary school	**1 000**	**0,01**	7	**0,1**
Primary School	**7 000**	**2,80**	**1**	**2,5**
Secondary School	**12 500**	**4,00**	**1**	**2,0**
ECD Resource Hub and Care Centre	20 000	0,10	0	0,0
RECREATION PROVISION (SPORT & PARKS)				
Indoor Sports Hall (medium/large)	250 000	0,50	0,0	0,0
Regional Sports Stadium	200 000	0,50	0,0	0,0
Sports Complex with 9 - 12 court sports hall, etc.	200 000	0,80	0,0	0,0
TOTAL HECTARES				5.2 ha

Note: Parameter reflects the number of people required to support development of a specific facility.

From the social facility modelling, it is evident that there is a gap for several facilities in the primary trade area. The table indicates that the social amenities that are feasible, necessary and compatible with the site configuration are:

- ✓ Small Creche / early childhood development centre (3)
- ✓ Grade R Class at primary school (7)
- ✓ Primary School (1)
- ✓ Secondary School (1)

The development of other amenities would depend on future population growth in the market area – current demand thresholds can only partially sustain additional amenities

15.12 LAND BUDGET & ESTIMATED TIMEFRAME

The tables below illustrate the potential composition for the Diepkloof Project.

Table 15.25: Diepkloof Project 20-year land use budget (site potential) – 2029

Land Use	Proposed size	Including Roads & Circulation	Percentage of land area (%)	Optimum point of market entry
Residential - Bonded	1 500 units	15,0	15,0%	2021+
Residential - Social	450 units	3,4	3,4%	2021+
Retail (Regional Mall)	81 797m^2	24,5	24,6%	2022+
Trade (Automotive)	12 641m^2	3,8	3,8%	2023+
Offices	62 126m^2	12,4	12,5%	2024+
Industrial / Warehousing	11.01 ha	13,2	13,3%	2024+
Short-Stay Accommodation (Hotel)	318 keys (16 495m^2)	3,3	3,3%	2020+
Medical - Private Hospital	357 beds (26 740m^2)	5,3	5,4%	2023+
Private School	36 270m^2	12,4	12,5%	2022+
Social Amenities	5.2 ha	6,2	6,3%	2020+
Hectare Take-up		99.7ha	100.0%	

Source: Demacon, 2019
**This figure includes floor space for conferencing & restaurant*

Table 15.26: Diepkloof Project 20-year land use budget (site potential) – 2029

Land Use	Proposed size	Including Roads & Circulation	Percentage of land area (%)	Optimum point of market entry
Residential - Bonded	1 500 units	15,0	18,3%	2021+
Residential - Social	450 units	3,4	4,1%	2021+
Retail (Convenience / Lifestyle Shopping Centre)	22 494m^2	6,7	8,2%	2022+
Trade (Automotive)	12 641m^2	3,8	4,6%	2023+
Offices	62 126m^2	12,4	15,2%	2024+
Industrial / Warehousing	11.01 ha	13,2	16,1%	2024+
Short-Stay Accommodation (Hotel)	318 keys (16 495m^2)	3,3	4,0%	2020+
Medical - Private Hospital	357 beds (26 740m^2)	5,3	6,5%	2023+
Private School	36 270m^2	12,4	15,2%	2022+
Social Amenities	5.2 ha	6,2	7,6%	2020+
Hectare Take-up		81,9 ha	100.0%	

Source: Demacon, 2019
**This figure includes floor space for conferencing & restaurant*

To conclude, from the market research the following development options could be considered:

The total size of the property measures approximately 30 hectares. The highest and best use principle should be applied to select the optimum mix, which may include the following three options in order of priority:

❑ HIGHEST & BEST USE RECOMMENDED OPTIONS

OPTION 1
Integrated Lifestyle Precinct

- ❑ Convenience / Lifestyle Retail - 6.7ha
- ❑ Healthcare - 5.3ha
- ❑ High Density Residential - 10 to 15 ha
- ❑ Automotive - 3.8ha

Priority

±30.8 ha

OPTION 2
Retail Precinct with Automotive

- ❑ Retail (Regional Mall) – 24.5ha
- ❑ Office – 12.4ha
- ❑ Automotive – 3.8ha
- ❑ Commercial / industrial – 13.2ha

Priority

±53.9 ha

OPTION 3
Commercial / Industrial Precinct

- ❑ Office – 12.4ha
- ❑ Automotive – 3.8ha
- ❑ Commercial / industrial – 13.2ha

Priority

±29.4 ha

MIXED USE CASE STUDIES A

A INTRODUCTION

The following case studies provide examples of shopping centres with lifestyle elements within a mixed-use developments as well as hybrid business centre examples.

B CASE STUDIES WITH LIFESTYLE ELEMENT

LYNNWOOD BRIDGE

Location: Daventry Road, Lynnwood Manor, Pretoria

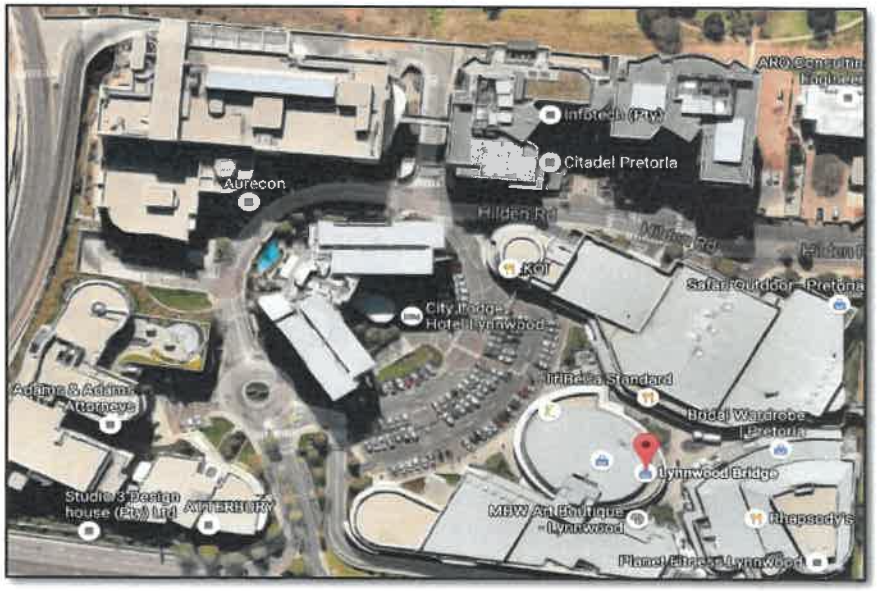
Map B1: Location of Lynnwood Bridge

Lynnwood Bridge Shopping Centre is conveniently situated on Lynnwood Road, close to the N1 highway.

The centre offers a mixture between exclusive stores, entertainment, and dining surrounded by offices, a hotel and a gym.
Surrounding facilities include:

- ✓ Glenfair Shopping Centre (linked via pedestrian bridge)
- ✓ Alkantrant Park
- ✓ Alkantrant Library
- ✓ Church
- ✓ Residential security estates

Map B2: Location of Lynnwood Bridge and Surrounding Offices



Lynnwood Bridge offers a mixture between exclusive stores, entertainment and dining.

Table B1: Characteristics

CHARACTERISTICS	
Location	4 Daventry Street, Lynnwood Manor, Pretoria
Classification	Lifestyle Centre
Size	12 562sqm
Developed	2010
Retail Floors	1
Number of Shops	34
Anchor Tenants	Woolworths Safari & Outdoor Rhapsody's
Trade Hours	Monday to Friday: 9am – 6pm Saturday: 9am – 5pm Sunday: 9am – 3pm
Location	4 Daventry Street, Lynnwood Manor, Pretoria

Tenants:

Table B2: Lynnwood Bridge Tenants

LYNNWOOD BRIDGE TENANTS	
RESTAURANTS & FOOD	**SPECIALITY**
Café Beyritz	Baseline Runners
Col' Cacchio	Bridal Wardrobe
Kings Meat Deli	The Bicycle Company
Koi	Graffiti Books
Rhapsody's	Homewood
Stephnie's	Jenna Clifford
The Famous Fishoek	Louie Daniele
Tribeca Standard	MBW Art Gallery
Vovo Telo	Safari & Outdoor
Woolworths Food	Scuba Scene
HEALTH & BEAUTY	The Pro Shop
SkinPhD	VetsMart

LYNNWOOD BRIDGE TENANTS	
Planet Fitness	**OFFICES**
ENTERTAINMENT	Adams & Adams
Atterbury Theatre	Atterbury Property
City Lodge	Aurecon
	Citadel
	Groot FM
	Pentad
	Sanlam Private Investments
	Studio 3

OFFICES WITHIN LYNNWOOD BRIDGE

THE CLUB

Location: Cnr. Pinaster Avenue & 18th Street, Hazelwood, Pretoria

Located across the road from Pretoria Country Club - where The Club. This development is positioned in one of Pretoria's prime areas with good proximity to the exclusive suburbs of Waterkloof and Brooklyn.

Map B3: Location of The Club

The Club is a mixed-use precinct which offers exclusive dining and upmarket convenience surrounded by offices. Ideally situated in Hazelwood Pretoria. The Club's proximity to the Garsfontein off-ramp ensures easy access to the N1 Motorway, Hatfield, Menlyn, Pretoria CBD and Brooklyn.

Size of centre: 6 793m^2
Classification: Speciality Centre
Number of shops: 10
Number of retail floors: 1

Parking bays: 128 covered
Trading hours:

- Monday to Friday: 9am – 7pm
- Saturday: 9am – 5pm
- Sunday & public holidays: 9am – 2pm

Tenants:

Table B3: The Club Tenants

TENANT LISTING — The Club Retail · die Klubhuis ○ Club One · Surgical Centre

restaurants & food

Beefcakes	012 941 9966	Khaleo	083 306 4727
Frozen For You	010 534 8295	Life Grand Café	012 346 2350
Hinterland	012 340 0082	Pachas	012 460 5063 / 3220
○ Hogshead Hazelwood	084 643 8002	Woolworths	012 424 9300
○ Hudson's - The Burger Joint	012 346 2619	Woolworths Café	012 424 9304

health, beauty & fashion

Africology	076 564 1241	Paul Mitchell - The Salon	012 346 1155
Brooklyn Optica	012 346 2413	Planet Fitness Waterkloof	012 030 1001
Club Surgical Centre	012 001 9800	Skin Phd	012 346 0774
Dischem	012 612 0013	Sorbet	012 346 1827
Jolie Boutique	083 458 6387		
	072 689 1811		

club surgical centre

Ear, Nose & Throat Surgeon	012 001 9850	Burger Radiology	012 880 4900
Dentists	012 001 9873/70	Spine Africa	012 880 4911
Plastic Surgeon	012 001 9863/99	Aesthetic Lab	012 001 9899
Hearing Hub	012 001 9850/1/2/3	Ampath	079 688 3120
MOH's & Dermatology	012 001 9876/77/78		
	012 001 9858		

Click here to view full list of Doctors & services

offices & services

Attarbury Properties	012 471 1600	The Workspace	0861 250 259
Engel & Volkers Waterkloof	012 030 0301	Van Huyssteens Commercial Attorneys	012 349 2306
Nedbank ATM	-		

OFFICES WITHIN THE CLUB

THE VILLAGE

Location: 16th Street, Menlo Park

The Village

Map B4: Location of The Village Restaurants & Offices

The Village has sprung up to incorporate some existing restaurants and a slew of new venues, offices and apartments. The dining inspiration is the leafy-sidewalk suburban dining associated with Stellenbosch and Franschhoek. This location forms a bit of a hub between various suburbs in Pretoria.

Table B3: The Village Tenants

THE VILLAGE TENANTS	
RESTAURANTS / DELI'S, CAFÉ'S	
Alfie's	Pride of India
Boston Bistro	Salt
Burger Bistro	Smaak Deli & Take-Out Restaurant
Chocolat et Café	23 on Hazelwood
KinGelato	SANO Juice and Smoothie Bar
Blackmores	Oz'e Café & Bistro
Spout	Dough
Cowfish	

OFFICES WITHIN THE VILLAGE

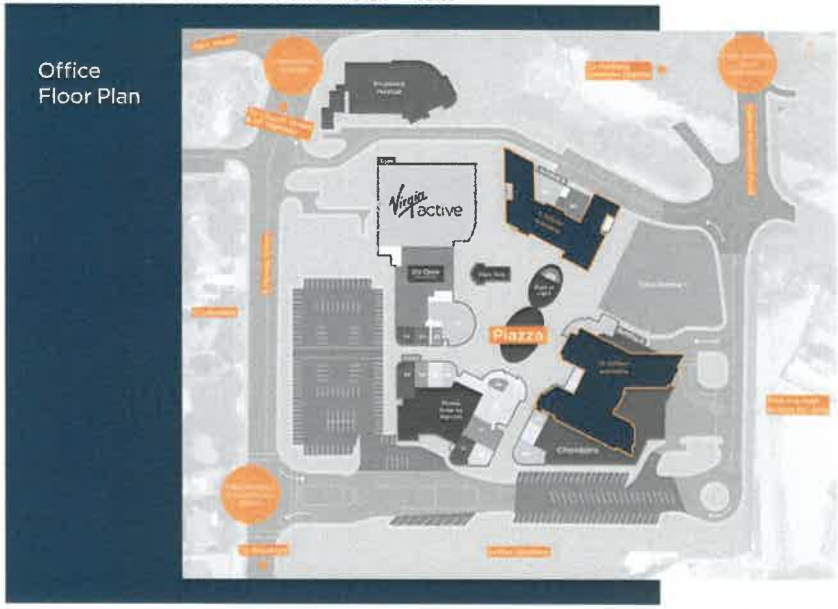
LOFTUS PARK

Location: Loftus Park, Kirkness Street, Pretoriak

Situated next to the renowned Loftus Versfeld Stadium, the Loftus Park precinct is destined to be one of the most iconic mixed-use developments in Gauteng. The precinct totals an impressive **55 000m²** and consists of P-grade **office space, hotel, premium gym, potential private hospital, open-air piazza with restaurants and a convenience retail offering**. Loftus Park will seamlessly bring business and leisure together as it tackles both work and play in one vibrant precinct.

Map B5: Location of The Club

Office Floor Pan & Retail Floor Plan



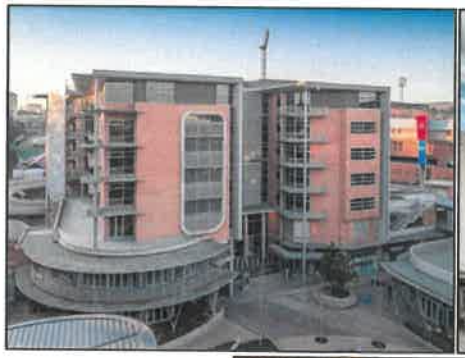
Gross Letable Area

Precinct	55 000m²
Commercial	15 800m²
Retail	8000m²
Hotel	10 000m²
Gym	3 500m²

Retail
Floor Plan

OFFICES

The core component of Loftus Park is its P-grade office space, totalling **15 780m²** in phase one. Businesses will have the benefit of superior access via the Gautrain bus stop and the new Tshwane Rapid Transport line, making the commute in and out of the precinct quick and easy. State of the art technology secures the precinct. The precinct will be accredited as a Green Star Building with features including grey water harvesting, back-up generators and 48-hour emergency water supply.



Building A – 10 000m²
Building B – 2 000m²
Space from 150m² to 15 000m²

RETAIL - STORE DIRECTORY

Table B4: Loftus Park Tenants

Loftus Park Tenants	
Restaurants	
RocoMamas	Skyline Restaurant, Lounge and Bar
Turn 'n Tender	Vovo Telo
Salsa	Seattle Coffee Co
Speciality	
Dirty Lolli	Khalifa
JVL	Vos Biltong
Services, Health & Beauty	
Protea Hotel by Marriott ® Pretoria Loftus Park	EVA SPA
Eyeland Optometrist	Postnet
Shane K Walters Hair Dressing	Sorbet
Sorbet Man	
Anchors	
Virgin Active	Dis-chem
Checkers	PNA
ATMs	
Nedbank	Capitec
FNB	ABSA

HOTEL

Protea Hotel by Marriott Pretoria Loftus Park is a 4-star Hotel, situated in a dynamic mixed-use development in the heart of Pretoria's sporting, business, cultural and diplomatic hub.

Hotel facilities included conferencing, Restaurant, coffee shop, bar and a roof top pool and Sky Lounge. Protea Hotel by Marriott Pretoria Loftus Park is ideally positioned to accommodate precinct users, business and leisure travelers as well as fans of Loftus Versveld Stadium.

Loftus Park consist of offices, Virgin Active Gym, various restaurants, pharmacy, supermarket and various other retail outlets. These amenities all surround the buzzling open air piazza of Loftus Park.

Conveniently located in Pretoria next to Loftus Versveld Stadium with easy access to the Pretoria CBD, Hatfield, Arcadia and the Eastern Suburbs of Pretoria. Loftus Park is only 1km from the Hatfield Gautrain Station and the new Tshwane Rapid Transport Bus route (TRT) is only 350m from the precinct.

C HYBRID BUSINESS CENTRE CASE STUDIES

SIX FOUNTAINS PRECINCT – SOLOMON MAHLANGU DRIVE

Six Fountains serves as example of a hybrid business centre case study. This precinct consists of Six Fountains Lifestyle Centre, automotive dealerships, fitment centres and ancillary services, outdoor 4 x 4 safari centre etc.

❖ SIX FOUNTAINS LIFESTYLE CENTRE

Location: Corner of Six Fountains & Bendeman Boulevard, Six Fountains, Pretoria East

Map C1: Location of Six Fountains Lifestyle Centre

This lifestyle centre is located close to the busy intersection of Lynnwood Rd. and Solomon Mahlangu Drive. Access to the centre is via Solomon Mahlangu Drive. The development is made up of many big box furniture and lifestyle tenants.

Table C1: Six Fountains Lifestyle Centre Characteristics

SIX FOUNTAINS LIFE STYLE CHARACTERISTICS	
Location	Cnr Solomon Mashlangu Drive & Bendema Boulevard Six Fountains Estate
Classification	Lifestyle Centre
Size	27 981sqm
Developed	2007 Refurbished: 2014
Retail Floors	2
Number of Shops	21
Anchor Tenants	Makro

SIX FOUNTAINS LIFE STYLE CHARACTERISTICS	
	House & Home Tekkie Town Outdoor Warehouse
Trade Hours	Monday to Saturday: 8am – 5pm Sunday: Closed

Table C2: Tenants Listed

Homeware, décor, furnishers	Food	Other
✓ House & Home	✓ Seawork	✓ Tekkie Town
✓ Beds for Africa	✓ Basileia Café	✓ Musica
✓ The Bed Shop		✓ Autozone
✓ Bed & Lounge		✓ Dent Doctor
✓ Outdoor Warehouse		✓ Iron Angel Private Gym
		✓ Solarman
		✓ Plastilon
		✓ Glasfiit
		✓ Mamre Property Management
		✓ Single Track Cycles
		✓ Carve Guitar Studio

❖ **SIX FOUNTAINS AUTOMOTIVE CENTRE**

Table C3: Automotive and ancillary

Automotive and ancillary within Six Fountains	Automotive in Solomon Mahlangu Drive
Tyremart	Engen Filling Station
Autowiel	Volvo
4x4 Safari Centre	Hyundai
Glassfit	Jaguar
Inspecta Cars	Landrover
Car Wash	Renault
Dent Doctor	Kia Motors
Menlyn Gearbox & Diff Centre	McCarthy Ford
Bosch Car Service	Tyremart
Drive Car Sales	Autowiel
Select Pre-Owned	
The Lawnmower	

FOURWAYS PRECINCT

❖ DESIGN QUARTER LIFESTYLE CENTRE

Location: William Nicol Dr & Leslie Ave, Magaliessig, Sandton

Map C2: Location of Design Quarter

Design Quarter is classified as a Lifestyle Centre, known to be a décor / homeware destination. Situated on the corner of William Nicol and Leslie Avenue in Fourways, Design Quarter caters to savvy shoppers, interior designers, décor consultants, suppliers, architects, and developers.

For lovers of decor, Design Quarter provides an opportunity for support, advice, and one-on-one service from some of South Africa's most admired decorators and retail outlets. The centre has an open-air plaza with restaurants and coffee shops.

Table C4: Design Quarter Characteristics

CHARACTERISTICS	
Location	Cnr Leslie Avenue & William Nicol Drive, Fourways, Sandton
Classification	Lifestyle Centre
Size	25 000sqm
Developed	2005
Retail Floors	3
Annual Foot Count	2.0 million
Parking Bays	774
Number of Shops	32
Anchor Tenants	Woolworths Mr Price Home Boardmans @home living space Coricraft
Trade Hours	Monday to Friday: 9AM to 6PM Saturday: 9AM to 5PM Sunday: 9AM to 4PM

Table C5: Design Quarter Tenant List

Offices	Retail	Other
✓ Alive Architecture	✓ @home livingspace	✓ Nedbank ATM
✓ Berge Farrell	✓ Bakos Brothers	✓ Kitchen Bar
✓ 082 Carwash	✓ Biggie Best	✓ Mythos
✓ Cathay Pacific Airways	✓ Boardmans	✓ Vida e Caffe
✓ Cerebra Communication	✓ Coricraft	✓ Woolworths Food Bar
✓ Club Med	✓ Cottonwood	✓ KOI
✓ Comcorp	✓ Crabtree & Evelyn	✓ Arteye Gallery
✓ Conilium Legal Services	✓ Fabri	✓ Blu-Line Kitchens
✓ DNA Brand Architecture	✓ Ghorbary Carpets	✓ OSIM
✓ Flight Centre	✓ Granny Goose Duvets	✓ Red Man
✓ Formfunc Studio	✓ Haier	
✓ Hitchcock Michalski	✓ Isabelina	
✓ Left RIGHT	✓ Lindt Chocolate Studio	
✓ Qatar Airlines	✓ Morceau De Mantel	
✓ Red Bull SA	✓ Mr Price Home	
✓ RG Group	✓ Plascon Spaces Showroom	
✓ The Apprentice Valley	✓ Satran Trading	
✓ The CRM Team	✓ Studio Matrix	
✓ Wallstreet Interactive	✓ Tempur	
✓ Digital Agency	✓ The Golfers Club	
✓ Wild Eye	✓ The Private House Company	
✓ WIOCC SA	✓ Vendange	
	✓ Willowbrook Cotton Co.	
	✓ Woolworths Home & Food	

Images of Design Quarter

❖ **FOURWAYS AUTOMOTIVE & ANCILLARY**

Location: William Nicol Drive, Fourways Sandton

Table C6: Automotive & ancillary

Automotive dealerships and ancillary in William Nicol Drive	
BP Filling Station	Halfway Toyota
Shell Filling Station	Tiger Wheel & Tyre (Fourways Crossing)
Cycle Lab	Nissan
Pro Shop	Lindsay Saker Volkswagen
Gone Skiing	Mastercars
Missing Link	Kia Motors
Harlequin Luxaire	Audi Centre
Creative Rides	Lexus Fourways
Showrooms on Leslie	Supa Quick
Silver Thread	

Pictures of Automotive & Ancillary

- *Site Investigations*
- *Slope Stability*
- *Rock Mechanics*
- *Soil Mechanics*
- *Foundations*
- *Borrow Pits and Materials*
- *Roads*
- *Groundwater*
- *NHBRC*
- *Geotechnical Instrumentation*

Geotechnical Investigation for the proposed Empowerment Zone Development in Diepkloof, Gauteng: Preliminary Report

Client: Turning Point Project Management

Reference: 18-0975R01

Dated: 13 February 2019

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Geotechnical Investigation for the proposed Empowerment Zone Development in Diepkloof, Gauteng: Preliminary Report

Reference: 18-0975R01 **Date: 13 February 2019**

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Appendix A	TLB-excavated Trial Pit Profiles
Appendix B	Laboratory Test Results (Outstanding)
Figure 1	Site Plan
Figure 2	Geological Plan

Geotechnical Investigation for the proposed Empowerment Zone Development in Diepkloof, Gauteng: Preliminary Report

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Title	Geotechnical Investigation for the proposed Empowerment Zone Development in Diepkloof, Gauteng: Preliminary Report		
	Name	**Signature**	**Date**
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Geotechnical Investigation for the proposed Empowerment Zone Development in Diepkloof, Gauteng: Preliminary Report

Reference: 18-0975R01 **Date: 12 February 2019**

EXECUTIVE SUMMARY

This report presents the results of a geotechnical investigation for the proposed Diepkloof Empowerment Zone in Soweto, Gauteng Province, and presents the conclusions and recommendations for materials usage, excavations, foundations and earthworks.

The most important consideration in relation to the proposed development is the presence of potentially collapsible soils, and the almost ubiquitous presence shallow bedrock on site.

Based on the 1:250 000 Geological Map titled "2626 West-Rand (1986)", the site can be seen to be underlain by quartzite, conglomerate and shale of the Turffontein Subgroup, Central Rand Group of the Witwatersrand Supergroup.

On site, thin horizons of topsoil, hillwash and fill were noted to be overlying the residual sandstone and/or sandstone bedrock. In some instances sandstone bedrock was observed outcropping from surface.

*Soft excavation in terms of **SABS 1200: D** may be anticipated to depths of between 0.35 and 1.6 m below natural ground level over the site, and intermediate to hard excavation and possible blasting may be anticipated below this depth, if required.*

The site, as a whole, has been categorized into the following zones, according to NHBRC guidelines:

- ***Zone A – P***
- ***Zone B – C2***
- ***Zone C – C/R***
- ***Zone D – C1/R***
- ***Zone E – C2/R***
- ***Zone F - R***

Thus, the following foundation recommendations, and/or combinations of these, are suggested:

- *Normal construction.*
- *Stiffened strip foundations or stiffened raft foundations.*
- *Compaction of in-situ soils below individual footings.*
- *Deeper than normal strip foundations.*
- *Soil raft.*

It is assumed that the in-situ materials will be of a suitable quality for site road layerworks construction. Index and compaction testing will confirm this suitability for usage.

*Finally, the ground conditions described in this report refer specifically to those encountered at the test positions advanced on site. It is therefore possible that conditions at variance with those discussed above may be encountered elsewhere on the site. In this regard it is critical that material management be maintained continuously on site and that **GCS Geotechnical** carry out periodic inspections of the site during construction to ensure that any variation in the anticipated ground conditions can be assessed and revised recommendations subsequently provided in order to avoid unnecessary delays and expense. Furthermore it is important that the construction phase of the project be treated as an augmentation of the geotechnical investigation.*

Geotechnical Investigation for the proposed Empowerment Zone Development in Diepkloof, Gauteng: Preliminary Report

Reference: 18-0975R01 **Date: 12 February 2019**

Definitions and Abbreviations

Commercial:

GCS Geotechnical	GCS Geotechnical (Pty.) Ltd.

Technical:

CH	Chainage (metres)
mbgl	metres below ground level
masl	metres above sea level
NGL	Natural Ground Level
FL	Foundation Level
BH	Borehole
SPT	Standard Penetration Test
N	SPT N value (blows per 300 mm)
TLB	Tractor-mounted Loader Backhoe
TP	Test Pit
DCP	Dynamic Cone Penetrometer
EABC	Estimated Allowable Bearing Capacity
G1-G10	Standard classification of natural road building materials (TRH 14)
CBR	California Bearing Ratio
MDD	Maximum Dry Density (kg/m3)
MADD	Modified AASHTO Dry Density
OMC	Optimum moisture Content (%)
PI	Plasticity Index
LL	Liquid Limit
LS	Linear Shrinkage
RMR	Rock Mass Rating
GSI	Geological Strength Index
mi	Hoek-Brown Constant (origin & texture dependent)
RQD	Rock Quality Designation (%)
FF	Fracture frequency
UCS	Unconfined Compressive Strength (MPa)
C (c')	Cohesion (kPa) – total stress and (effective stress)
Φ (Φ')	Friction Angle (degrees) – total stress and (effective stress)
Kv	Modulus of Subgrade Reaction (MN/mm or kPa/mm)
CFA	Continuous Flight Auger (pile type)
DCI	Driven Cast In situ (pile type)
Cv	Coefficient of Consolidation (m2/yr)
Mv	Modulus of Compressibility (m2/MN)
MC1	Moisture Content Before Test (%)
MC2	Moisture Content After Test (%)
ρ	Dry Density (kg/m3)
VSR	Very soft rock
SR	Soft rock
MHR	Medium hard rock
HR	Hard rock
VHR	Very hard rock

Geotechnical Investigation for the proposed Empowerment Zone Development in Diepkloof, Gauteng: Preliminary Report

Reference: 18-0975R01 **Date: 12 February 2019**

1. INTRODUCTION & TERMS OF REFERENCE

At the request of Ms. Gugu Hlope of Turning Point Project Management (hereafter referred to as Turning Point), ***GCS Geotechnical*** (hereafter referred to as GCS) was asked to provide a proposal and cost estimate for the geotechnical investigation for the proposed Empowerment Zone Development in Diepkloof, Gauteng, which was sent through on 29 October 2018. The proposal was accepted and finalized on 11 December 2018, and fieldwork commenced on 5 February 2019.

2. AVAILABLE INFORMATION

The following information was drawn upon for the purposes of the investigation:

- The 1:250 000 Geological Map titled *"2626 West Rand"* as compiled by the South African Geological Survey, 1986,
- Google Earth Site Location,
- Geotechnical Site Investigations for Housing Developments (GFSH2:2002),
- SABS 1200 D – Earthworks.

The table below shows the available published physiographical information on the site.

Table 2: Summary of Available Desk Study Information

Parameter	Value	Reference
Development	Empowerment Zone Development	Turning Point
Site coordinates	26°15'47.29"S / 27°57'3.63"E	Turning Point
Weinerts N-value	2-5	Weinert (1974)
Climatic Region	Moderate	TRH 2 (1978)
Rainfall	650-700 mm	2526 Johannesburg (1999) 1:500 000 scale
Temperature	0.5°C – 26.7°C	after DWAF (1986)
Evaporation	1650 mm	After DWAF (1986)
Water Balance	Deficit	Schulze (1985)
Weathering Type	Slight disintegration, moderate decomposition with frost action and very slight weathering	Fookes et al (1971)
Geology	Quartzite, conglomerate and shale, tillite and hornfels of the Turffontein Subgroup, Central Rand Group of the Witwatersrand Supergroup.	Geological Map Series: West Rand-2626 (1986) 1:250 000 scale
Soil Cover	Arenaceous sediments	Brink (1985)
Origin	Transported and residual	Brink (1985)
Topography	Variable Gradient	Garmap SA Topo & Rec 2012.1
Drainage	Not well defined	Garmap SA Topo & Rec 2012.1
Drainage Region	Quaternary Catchment: C22A	DWAF (1999)
Hydrogeology	0.5-2l; fractured	1:500 000 scale
Groundwater depth	Unknown	DWAF-WRC (1995)
Erodibility Index	9-15 (Intermediate)	WRC (1992)
Seismic Intensity	VI (MMS)	Fernandez et al (1972)
Liquefaction	Unlikely (<50 cm/s2)	Welland (2002)

3. SITE DESCRIPTION

The site, holistically, falls on Portion 159 Diepkloof, and is bounded in the north and northeast by Chris Hani Road (the M68), to the west by Chris Hani Baragwanath Hospital, to the south and southeast by the N1 Western Bypass.

Portion 159 covers a cumulative area of approximately 34 Ha, although the existing Soweto Empowerment Zone occupies approximately 5 Ha of this total area.

The site is bounded by a perimeter wall, with gates that are locked and bolted along the western and southern sides. Access to the site may be gained through the Soweto Empowerment Zone. The eastern portion of the site along Chris Hani Street has parts of the perimeter wall broken down.

The site gradient is quite variable with a slight decent towards to the north, and a steeper descent to the south towards the N1. Much of the southern and southwestern portion of the site has undergone large scale excavations, possibly having been used as a borrow pit in the

Table 5.1b: Summary of Soil Profile over the Majority of the Site

Depth From (m)	Depth To (m)	Description	EABC (kPa)	Kv (kPa/mm)	E (MPa)	C' (kPa)	Φ' (deg)
Topsoil							
0	0.21	Dry to slightly moist grey brown mottled cream white LOOSE intact silty medium **SAND** with minor fine gravels and roots.	50	25	10-15	0-5	28-30
Fill							
0.21	0.23	Slightly moist yellow to orange brown LOOSE becoming VERY DENSE silty **SAND** with gravels and abundant interlocking COBBLES and BOULDERS.	50-300	25-100	10-35	0	28-45
Hillwash / Ferruginised Hillwash							
0.23	0.32	Slightly moist orange to yellow brown MEDIUM DENSE intact to pinholed, voided and possibly occasionally shattered silty gravelly **SAND**. Partially ferruginised in places.	100-150	40-55	15-25	0-5	30-35
Residual Sandstone							
0.32	0.57	Slightly moist pink to orange brown MEDIUM DENSE to DENSE intact medium to coarse-grained **SAND** with quartz gravels.	150-300	55-100	15-35	0	30-40
Weathered Sandstone							
0.57	0.68	Pink to grey brown highly to completely weathered fine to medium-grained closely jointed VERY SOFT to MEDIUM HARD **ROCK**.	300-500	100-200	35+	0	50+

EABC = estimated allowable bearing capacity (ignoring collapse potential)
Kv = modulus of subgrade reaction
E = elastic modulus
C' = cohesion (kPa)
Φ' (deg) = internal friction angle of soil
NB. It is important to note that the above layer thicknesses are an average across the site.

6. GROUNDWATER

No groundwater seepage occurred on site in any of the TPs during the time of the investigation, although during summer months and during times of prolonged or heavy rainfall it may be anticipated that a perched groundwater table may be present at relatively shallow depths over the site.

7. LABORATORY TESTING

Laboratory tests have been scheduled on soil samples recovered from the site. The following tests are being carried out:

- Seven foundation indicator tests (particle size distribution, hydrometer and Atterberg Limits).
- Four Modified-AASHTO & California Bearing Ratio (CBR) tests.
- Three chemistry tests (pH and EC).

Detailed laboratory test results will be provided in Appendix B of the final report, while summaries of these results will be presented below as in Tables 7a to 7d, when available.

Table 7a: Summary of Foundation Indicators

TP	Depth (m-m)	LL	PI	GM	PE*	CBR* (%)	Classifications		
							TRH14	PRA	USCS
Hillwash									
4	0.2-0.5								
Residual Sandstone									
7	0.45-1								
12	0.7-1.1								
21	0.3-0.6								
24	0.2-0.6								
Weathered Sandstone									
1	0.7-0.9								
Composite Sample – Residual / Weathered Mixture									
22	0.1-0.5								

*CBR estimated from PI-GM relationship.
*PE – Potential Expansiveness

Table 7b: Summary of Corrosivity Tests

TP	Depth (m-m)	pH	EC (µS/cm)	Resistivity (Ohm/cm)	Degree of Corrosivity
Hillwash					
4	0.2-0.5				
Residual Sandstone					
7	0.45-1				
21	0.3-0.6				
Weathered Sandstone					
1	0.7-0.9				
Composite Sample – Residual / Weathered Mixture					
22	0.1-0.5				

Table 7c: Summary of Compaction Test Results

TP No.	Depth (m-m)	MDD (kg/m3)	OMC (%)	Swell (%)	CBR (%)				
					90	93	95	98	100
Hillwash									
4	0.2-0.5								
Residual Sandstone									
12	0.7-1.1								
Weathered Sandstone									
1	0.7-0.9								
Composite Sample – Residual / Weathered Mixture									
22	0.1-0.5								

MDD = maximum dry density
OMC = optimum moisture content

Table 7d: Materials Classification and Recommended Usage

Material Description	Classification	Recommended Usage
Hillwash	PI = GM = Classification:	Materials qualify as G7-G9 (*upper to lower selected layers*)
Residual Sandstone	PI = GM = Classification:	Materials qualify as G7-G9 (*upper to lower selected layers*)
Weathered Sandstone	PI = GM = Classification:	Materials qualify as G6-G8 (*lower subbase to middle selected layers*)
Composite Sample	PI = GM = Classification:	Materials qualify as G6-G8 (*lower subbase to middle selected layers*)

8. DEVELOPMENT RECOMMENDATIONS

8.1 Materials Usage

Site soils include a thin topsoil horizon underlain by hillwash and further underlain by residual sandstone and weathered sandstone.

Based on visual and tactile means prior to laboratory test results, the following materials on site will be discussed in terms of their materials usage:

- ***Hillwash***

The hillwash layer is assumed to qualify as **G7-G9** (*upper to lower selected layers*) and may thus be re-used as such in foundation construction and layerworks.

- ***Residual Sandstone***

The residual sandstone layer is assumed to qualify as **G7-G9** (*upper to lower selected layers*) and may thus be re-used as such in foundation construction and layerworks.

- ***Weathered Sandstone***
  The more weathered sandstone, where excavatable is assumed to qualify as **G5-G7** (*upper subbase to upper selected layers*) and may thus be re-used as such in foundation construction and layerworks.

- ***Composite Soils***
  This mixed layer of residual and weathered sandstone is assumed to qualify as **G5-G7** (*upper subbase to upper selected layers*) and may thus be re-used as such in foundation construction and layerworks.

8.2 NHBRC Classification

GCS Geotechnical has classified and zoned the site, to NHBRC standards, based on visual and tactile means coupled with general experience in similar geological environments, prior to laboratory results are available.

The main geotechnical constraints on site are the presence of potentially collapsible soils and the presence of shallow bedrock in places.

Assuming that the topsoil horizon, which ranges in thickness from 0.1 to 0.4 m, will be stripped and stockpiled for landscaping rather than founded upon, potential collapse settlement will only really be probable in the medium dense to dense hillwash and residual sandstone layers, with a CP assumed to range between 1 and 3%.

Site soils are assumed not to be potentially expansive, although this will be quantified once laboratory test results are made available.

In most instances weathered sandstone bedrock occurs at depths shallower than 1 m across the site. As a result, the site has been divided into Zones A-F, as seen below, and will be presented as a zoned Site Plan:

Table 8.2a: NHBRC Classification Zones

Zonation	NHBRC Classification	Respective TPs	Geotechnical Constraints
A	P	• 20	• Controlled Fill (Problematic).
B	C2	• 4 • 12	• Potential Collapse of >10 mm.
C	C/R	• 8	• Potential Collapse of 0-5 mm. • Shallow Bedrock.
D	C1/R	• 3 • 20-21 • 26 • 28	• Potential Collapse of 5-10 mm. • Shallow Bedrock.
E	C2/R	• 1-2 • 5-7 • 9-11 • 22-25	• Potential Collapse of >10 mm. • Shallow Bedrock.
F	R	• 13-18 • 27	• Shallow Bedrock.

8.3 Foundations

Based on the **NHBRC** site classification zones above, the following foundation recommendations, or combinations thereof, should be considered holistically for ***C2/R***:

- **Normal construction** in the areas of surficial or very shallow bedrock, which will encompass strip or pad foundations with associated site drainage.
- **Stiffened strip foundations or stiffened raft** comprising articulation joints with solid lightly reinforced masonry, fabric reinforcement in floor slabs, site drainage and plumbing precautions, and bearing pressures not to exceed 50 kPa.
- **Compaction of in-situ soils below individual footings** by removing in-situ materials to a depth of 1.5 times foundation width or to a competent soil horizon and replace with compacted material to a minimum of 93% MOD AASHTO and -1 to +2% OMC and with normal construction with lightly reinforced strip footings and light reinforcement in masonry.
- **Deeper than normal strip foundations** which comprises normal construction with drainage requirement, or founding directly onto a competent soil horizon below the collapsible layer.
- **Soil Raft** in the same way as compaction beneath individual footings, except beneath the entire footprint of the respective structure.

8.4 Excavatability & Earthworks

All materials on site classify as ***soft excavation*** (SABS 1200: D) to depths between 0.35 and 1.6 m, with an average refusal depth of 0.68 m. Beneath these depths, ***intermediate*** and possibly ***hard excavation*** with possible ***blasting*** should be anticipated if the need arises to excavate deeper for services trenches.

8.5 Roads

Materials are being assessed for their suitability in on-site road construction. It is assumed all materials on site will qualify as between G6 and G9, which will be suitable as road layerworks construction materials, however this will be quantified when laboratory results are made available. Index and compaction testing will confirm this suitability for usage.

8.6 Drainage

For the promotion of a stable site, with no soil movement-related issues, it is extremely important that suitable drainage, both surface and subsurface, be constructed so that no water ingress into the subsurface soils in and around foundation bases is possible. Drainage should be such that any rainfall is diverted to the nearest stormwater drainage system. Areas of potential pooling or damming of rainfall on site should be carefully designed and sloped so as the remove this water away from the foundations.

9. CONCLUSIONS & RECOMMENDATIONS

General

- This report presents the results of a geotechnical investigation for the proposed Diepkloof Empowerment Zone in Soweto, Gauteng Province, and presents the conclusions and recommendations for materials usage, excavations, foundations and earthworks.

- The most important consideration in relation to the proposed development is the presence of potentially collapsible soils, and the almost ubiquitous presence shallow bedrock on site.

Geology & Ground Conditions

- Based on the 1:250 000 Geological Map titled *"2626 West-Rand* (1986)", the site can be seen to be underlain by quartzite, conglomerate and shale of the Turffontein Subgroup, Central Rand Group of the Witwatersrand Supergroup.

  On site, thin horizons of topsoil, hillwash and fill were noted to be overlying the residual sandstone and/or sandstone bedrock. In some instances sandstone bedrock was observed from surface.

Excavatability

- Soft excavation in terms of **SABS 1200: D** may be anticipated to depths of between 0.35 and 1.6 m below natural ground level over the site, and intermediate to hard excavation and possible blasting may be anticipated below this depth, if required.

Foundations

- The site, as a whole, has been categorized into the following zones, according to NHBRC standards:

  - **Zone A – P**
  - **Zone B – C2**
  - **Zone C – C/R**
  - **Zone D – C1/R**
  - **Zone E – C2/R**
  - **Zone F - R**

Thus, the following foundation recommendations, and/or combinations of these, are suggested:

- Normal construction.
- Stiffened strip foundations or stiffened raft foundations.
- Compaction of in-situ soils below individual footings.
- Deeper than normal strip foundations.
- Soil Raft.

Roads

- It is assumed that the in-situ materials will be of a suitable quality for site road layerworks construction. Index and compaction testing will confirm this suitability for usage.

Further Investigations

- Finally, the ground conditions described in this report refer specifically to those encountered at the test positions advanced on site. It is therefore possible that conditions at variance with those discussed above may be encountered elsewhere on the site. In this regard it is critical that material management be maintained continuously on site and that ***GCS Geotechnical*** carry out periodic inspections of the site during construction to ensure that any variation in the anticipated ground conditions can be assessed and revised recommendations subsequently provided in order to avoid unnecessary delays and expense. Furthermore it is important that the construction phase of the project be treated as an augmentation of the geotechnical investigation.

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13 February 2019

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Appendix A
TLB-Excavated Trial Pit Profiles

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PORTION 159 FARM DIEPKLOOF 319-IQ DEVELOPMENT AT DIEPKLOOF, SOWETO FOR CITY OF JOHANNESBURG

ELECTRICAL BULK SERVICES REPORT

Issue/revision	Issue 1	Revision 1	Revision 2	Revision 3
Remarks				
Date	15 February 2019	07 June 2019		
Prepared & Compiled by: Authorised by:	Johannes Lethuba Thomas Makamo	Johannes Lethuba Thomas Makamo		
Project number File reference	DIEPK/EE DIEPK/EE/00	DIEPK/EE DIEPK/EE/00		

RIVONINGO
CONSULTING ENGINEERS

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1. INTRODUCTION

Rivoningo Consulting Engineers (Pty) Ltd has been appointed by Turning Point Project Management to prepare an electrical bulk services report for Portion 159 Farm Diepkloof 319-IQ Development for City of Johannesburg.

Electrical supply authority for the area is City Power.

The project name will be referred to as Portion 159 Farm Diepkloof 319-IQ Development.

2. KEY ASSUMPTION

This electrical bulk services report is based on the assumption of site investigation findings as conducted by Rivoningo Consulting Engineers.

3. SCOPE OF REPORT

The purpose of this report is to investigate and determine the estimated electrical capacity required for the proposed development.

The scope of this report entails identification of the existing electrical services in the surrounding areas of the site and engage with the electricity supply authority to investigate if there is available capacity on their network to support the proposed development.

This will include the following:

- General description of the site
- Nearest Electrical supply
- Electrical load estimate for the proposed development

4. SITE INSPECTION

4.1 SITE DESCRIPTION

The proposed site is situated at corner Chris Hani and Collinder Road in Soweto, South of Johannesburg.

The site is currently vacant with landscaping consisting of rocks, grass and trees which is adjacent to Soweto Empowerment Zone Center along Chris Hani Road and opposite Diepkloof Medico Legal Laboratory along Collinder Road.

The site consists of vacant land of 30.4 hectares and it is owned by City of Johannesburg.

Figure 1: Site Locality Map

Figure 2: Site Photo

4.2 SERVITUDES

Based on the information available from the town planner, there are 3 servitudes crossing the site. The services are gas, water and sewer which will require to be protected.

4.3 PROPOSED DEVELOPMENT

The proposed development will consist of a shops, restaurants, hotel, conference centre, offices, car sale lots, motor showrooms, medical facilities, children care centre, social halls, residential units, religious purposes, sport and recreation clubs.

5. EXISTING BULK ELECTRICAL SERVICES

Figure 3: 11/6.6kV-415V 315kVA mini-sub and metering kiosk located in the Soweto Empowerment Centre

Figure 4: 6.6kV Substation building located at the boundary of SowetoEmpowerment Centre

Figure 5: 6.6kV Substation building located within the Diepkloof Medico Legal Laboratory premises

The two 6.6kV substation buildings indicated on figure 4 and 5 are located along Chris Hani Road (Soweto Empowerment Centre) and Collinder Road (Diepkloof Medico Legal Laboratory). Both substations are fed from the main Orlando Substation.

Figure 6: Position of nearest substation buildings

6. ELECTRICAL LOAD ESTIMATE

The load estimates for different subdivisions were calculated using area sizes and they are as follows:

- 3kVA per residential unit.
- 65W/m² for car sales lots and motor showrooms.
- 65W/m² for children care centre and social halls.
- 65W/m² for religious buildings and sport and recreation clubs.
- 80W/m² for restaurants and hotels.
- 80W/m² for conference centre and offices.
- 80W/m² for restaurants and hotels.
- 80W/m² for medical facilities.
- 80W/m² for shops with air-condition system.
- 120W/m² for shops with air-conditioning system and cold rooms.

The electrical load estimate calculation breakdown for the development is as follows:

Portion 159 Farm Diepkloof 319-IQ Development - Electrical Load Estimate

Proposed Subdivisions	AREA (m²)	Calculated Load(kVA)	Calculated Load(Amps)	
ERF 1				
Shops, Restaurants, offices, car sales lot, motor showrooms, showrooms,dwelling units, residential buildings, warehouses	24748	1732	2501	3-ph
ERF 2				
Shops, Restaurants, offices, car sales lot, motor showrooms, showrooms,dwelling units, residential buildings, warehouses	41600	2912	4203	3-ph
ERF 3				
Offices, medical consulting rooms, clinic, place of instruction, dwelling units, residential buildings	52744	4220	6091	3-ph
ERF 4				
Dwelling units, residential buildings	306	918	1325	3-ph
ERF 5				
Dwelling units, residential buildings	306	918	1325	3-ph
ERF 6				
Dwelling units, residential buildings	192	576	831	3-ph
ERF 7				
Dwelling units, residential buildings	443	1329	1918	3-ph
ERF 8				
Public Open Space	1389	7	10	3-ph
ERF 9				
Dwelling units, residential buildings	496	1488	2148	3-ph
ERF 10				
Dwelling units, residential buildings	519	1557	2247	3-ph
ERF 11				
Residential buildings, hotel, conference centre, restaurant	16487	1319	1904	3-ph
ERF 12				
Place of instruction, child care centre, religious purposes, institutions, social halls, sport and recreation clubs	14733	958	1382	3-ph
ERF 13				
Place of instruction, child care centre	2094	136	196	3-ph
ERF 14				
Shops, Restaurants, business purposes, car sales lot, motor showrooms, showrooms	1916	153	221	3-ph
Street Lighting				
Street Lighting	57593	115	166	3-ph

PTN 159 Farm Diepkloof 319IQ - Total Estimated Load	**18 MVA**
80% Diversity Factor	**0.8**
PTN 159 Farm Diepkloof 319IQ - Total Diversified Estimated Load	**15 MVA**

7. INVESTIGATION FINDINGS

The areas in close proximity to the site are fed from Orlando Substation, this includes the Soweto Empowerment Zone Center, Diepkloof Medico Legal Laboratory and Chris Hani Baragwanath Academic Hospital.

We have engaged with Zanele Sibanyoni from City Power regarding the availability of capacity on their network to accommodate power supply required for the proposed development and they have confirmed that Orlando Substation firm capacity is 30MVA and is currently fully utilised, this means there is no spare capacity available at the Substation.

According to information gathered during our investigation, City of Johannesburg was planning to upgrade the Orlando substation in 2013, but the project did not proceed due to lack of funding,therefore no new power connections for any new proposed developments have been considered to be added on their existing supply network.

City Power has confirmed that Nancefield Substation has available capacity but it is situated 10kM from the site (See figure 7). The long distance between the substation and development site will result in a high voltage drop on the supply cable, which will exceed the tolerance acceptable by City Power, therefore, Nancefield substation is too far to supply power for the site.

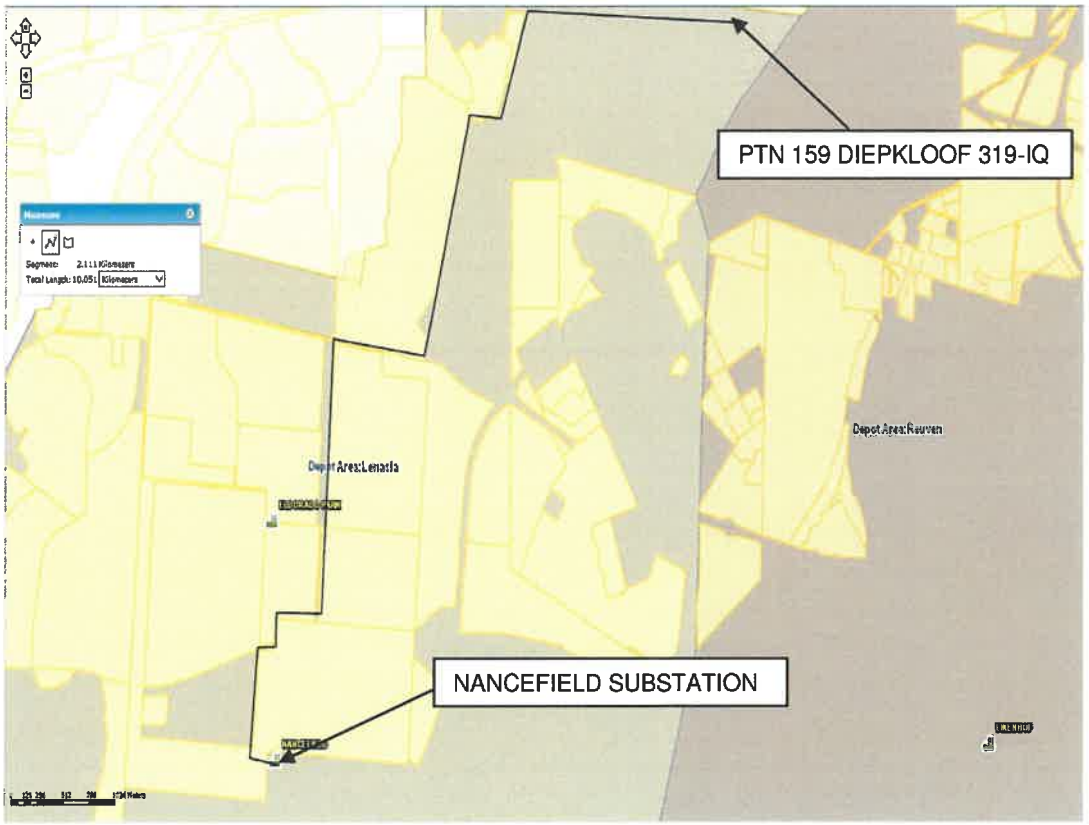

Figure 7: MV Supply Cable Route from Nancefield Substation to PTN 159 Diepkloof 319-IQ Site

8. CONCLUSION

The Orlando Substation requires to be upgraded to supply additional power for any new developments around the area. The supply constrain on City Power existing network will not be able cater for any additional load, as this might overload the substation and damage the equipment as a result.

Based on the load calculations above, we hereby confirm that the estimated load capacity of **15 MVA** is required for the Proposed Portion 159 Farm Diepkloof 319-IQ Development.

THOMAS MAKAMO
For and on behalf of
RIVONINGO CONSULTING ENGINEERS (PTY) LTD

TURNKEY DEVELOPMENT FOR THE FORMULATION OF A DETAILED PROPERTY PLAN AND SUBMISSION OF TOWN PLANNING APPLICATION (INCLUDING REMOVAL RESTRICTIVE TITLE CONDITIONS) ON PORTION 159 OF THE FARM DIEPKLOOF 319 IQ

ENVIRONMENTAL SCREENING REPORT

FEBRUARY 2019

688 Gallagher Avenue
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I PROJECT DETAILS

Client:	Turning Point Project Management
Report name:	**Environmental Screening Report for Portion 159 of the Farm Diepkloof 319IQ**
Report type:	Environmental Screening Report
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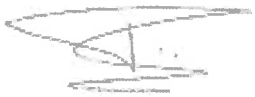

Tsepo Lepono

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EXECUTIVE SUMMARY

Environmental significance of the proposed development is low as revealed by various desktop studies. Removal of Threatened and or Protected Species (ToPS) will necessitate an application for a permit from Department of Forestry and Fisheries (DAFF). Other licenses and permits may include removal of graves. This will be confirmed during the detailed Environmental Authorisation application phase (Phase 2).

Environmental significance of the proposed development is presented in the table below.

Environmental Significance

Environmental Feature	Likely Impact
Rivers and Wetlands	Low
Red Data Flora	Low
Red Data Fauna	Low
Heritage	Low
Gauteng Cplan	Low
Social	Low

Possible environmental triggers as per National Environmental Management Act, 1998 (Act N0.107 of 1998). These will be confirmed with the project team and the Competent Authority prior to commencement of the Environmental Authorisation application process. An EMPr will also be developed to guide construction and operational phases of the project.

Possible Environmental Triggers

Listed activity	Description as per regulation
GNR.327 Item 26, 07 April 2017	Residential, retail, recreational, tourism, commercial or institutional developments of 1 000 square metres or more, on land previously used for mining or heavy industrial purposes; — excluding — (i) where such land has been remediated in terms of part 8 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case the National Environmental Management: Waste Act, 2008 applies; or (ii) where an environmental authorisation has been obtained for the decommissioning of such a mine or industry in terms of this Notice or any previous NEMA notice; or (iii) where a closure certificate has been issued in terms of section 43 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) for such land.
GNR.327 Item 28, 07 April 2017	Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture, game farming, equestrian purposes or afforestation on or after 01 April 1998 and where such development: (i) will occur inside an urban area, where the total land to be developed is bigger than 5 hectares; or (ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare;

Listed activity	Description as per regulation
	excluding where such land has already been developed for residential, mixed, retail, commercial, industrial or institutional purposes.
GNR.325 Item 15, 07 April 2017	The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for— (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.

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GLOSSARY OF TERMS

The definitions given below are for explanatory purposes only and are applicable to this Environmental Screening Report. In the event that any conflict arises between the definitions contained herein and those contained within the final contract, those within the contract shall prevail.

Alien vegetation:

Alien vegetation is defined as undesirable plant growth which shall include, but not be limited to Category 1 plants (declared weeds), Category 2 plant invaders (commercial value) and Category 3 plant invaders (ornamental value) as set out in the Amended Regulations of the Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983) (CARA). Other vegetation deemed to be alien invasive shall be those plant species that show the potential to occupy in number, any area within the defined construction area. Alien species also include species that are not indigenous species or any indigenous species that has been translocated or is intended to be translocated to a place outside its natural distribution range in nature, but does not include indigenous species that have extended their natural distribution range by natural means of migration or dispersion without human intervention.

EIA Regulations:

Environmental Impact Assessment (EIA) Regulations dated 5 September 1997, published by the Minister of Environmental Affairs and Tourism pursuant to sections 21, 22 and 26 of the Environment Conservation Act,

1989 (Act No. 73 of 1989), as applicable to the Application for Environmental Authorisation. Also refers to Regulations GN R385, R386 and R387 (dated 21 April 2006), Regulations GN R543, R544, R545 and R546 (dated 18 June 2010) and Regulations GN R982, R983, R984 and R985 (dated 4 December 2014) published in terms of Chapter 5 of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended, as may be applicable to any further Environmental Authorisation requirements of the proposed project, as appropriate.

Environment:

The surroundings in which humans exist and which comprise:

a) The land, water and atmosphere of the earth;

b) Micro-organisms, plant and animal life;

c) Any part or combination of a) and b) and the interrelationships among and between them; and

d) The physical, chemical, aesthetic and cultural properties and conditions of the foregoing that can influence human health and well-being.

(After National Environmental Management Act, 1998 (Act No.107 of 1998)).

Environmental Impact:

Any change to the environment resulting from a construction activity, whether desirable or undesirable. An impact may be the direct, indirect or cumulative consequence of an activity.

Environmental Impact Assessment (EIA):

A process of examining the environmental effects of development (after DEAT, 1998. Guideline Document: EIA Regulations). The assessment requires detailed/specialist studies of key issues that have been identified during the environmental scoping process. Also, "a systematic process of identifying, assessing and reporting environmental impacts associated with an activity and includes basic assessment and S&EIR" (after GN R982 dated 4 December 2014).

Environmental Management Programme (EMP):

A detailed programme of action prepared to ensure that recommendations for enhancing positive impacts and preventing or limiting negative environmental impacts are implemented during the life-cycle of a project.

Alien Vegetation Eradication Programme:

The organised clearing and rehabilitation of land infested by invasive alien plant species.

Hazard:

A source of or exposure to danger.

Mitigate:

The implementation of practical measures to avoid or reduce adverse impacts, or enhance beneficial impacts of an activity.

No-go area:

Area where construction activities are prohibited.

Pollution:

Any change in the environment caused by (i) substances; (ii) radioactive or other waves; or (iii) noise, odours, dust or heat emitted from any activity, including the storage or treatment of waste or substances, construction and the provision of services, whether engaged in by any person or an organ of state, where that change has an adverse effect on human health or well-being or on the composition, resilience and productivity of natural or managed ecosystems, or on materials useful to people, or will have such an effect in the future (after National Environmental Management Act, 1998).

Record of Decision or Environmental Authorisation:

A written statement from the relevant environmental authority that records its approval/rejection of a listed activity (for example, to build or upgrade a section of road). Approval is usually granted with conditions specifying the necessary measures required to prevent or reduce the effects of environmental impacts during the life of a contract.

Rehabilitation:

To re-establish or restore to a healthy, sustainable capacity or state.

Riparian zone:

A zone located next to a stream or river, affected by stream processes such as flooding and deposition of alluvial soil, and supporting a fauna and flora different from the upland slopes.

Site: (compare with "construction area")

Refers to those sections of the existing Portion 159 of the Farm Diepkloof 319IQ.

ABBREVIATIONS

CARA	Conservation of Agricultural Resources Act, 1989 (Act No. 43 of 1989)
COJ	City of Johannesburg
DAFF	Department of Agriculture, Forestry and Fisheries
DEA	Department of Environmental Affairs
DMR	Department of Mineral Resources
DWS	Department of Water and Sanitation
ECA	Environment Conservation Act, 1989 (Act No. 73 of 1989)
EIA	Environmental Impact Assessment
EIR	Environmental Impact Report
EMP	Environmental Management Programme
EMPR	Environmental Management Programme Report
EMS	Environmental Management System
JDA	Johannesburg Development Agency
I&AP	Interested and Affected Party
NBI	National Botanical Institute
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NFA	National Forests Act, 1998 (Act No. 84 of 1998)
NHRA	National Heritage Resources Act, 1999 (Act No. 25 of 1999)
NWA	National Water Act, 1998 (Act No. 36 of 1998)
PHRAG	Provincial Heritage Resources Agency-Gauteng
ROD	Record of Decision
SAHRA	South African Heritage Resources Agency

1. INTRODUCTION

Various databases from national, provincial and municipal planning schemes were analysed and aerial photographs utilised to create sensitivity maps to assist in the determination of project feasibility. A site visit was undertaken on to verify desktop analyses.

The following environmental aspects were investigated and discussed on subsequent sections:

- Aquatic Features
- Biodiversity
    - Vegetation
    - Fauna
    - Heritage
- Gauteng Conservation Plan

2. LEGAL FRAMEWORK

3.1 CONSTITUTION OF THE REPUBLIC OF SOUTH AFRICA ACT, ACT NO. 108 OF 1996

States that everyone has a right to an environment that is not harmful to their health and wellbeing and as such JRA should conduct its business in a manner that does not result in environmental pollution and ecological degradation, that contributes to the conservation of cultural heritage and national economic and social development.

3.2 NATIONAL ENVIRONMENTAL MANAGEMENT ACT, NO 107 OF 1998

This Act provides the legislative framework through which strategic environmental management goals and objectives are to be implemented. It is the basis through which the Environmental Impact Assessment and the Environmental Management Plan were developed and it also provides the mandate for the enforcement of the implementation of the EMPr.

3.3 NATIONAL HERITAGE RESOURCES ACT, NO 25 OF 1999

This Act provides for the protection of heritage resources, which according to the Act is a place, or an object of cultural significance, which includes a place or object of aesthetic, architectural, historical, scientific, social, spiritual, linguistic and technological value. A permit is required for the disturbance, removal or destruction of any heritage site, archaeological site or paleontological site, burial ground, grave, or any public monument or memorial that may be encountered during the construction phase. All excavation related activities are to cease if any artefacts exposed during this exercise, in addition an Archaeologist must be called to site for inspection and possible rescue. Under no circumstances is any artefact to de destroyed or removed without the consent of the South African Heritage Resource Agency.

3.4 NATIONAL WATER ACT, NO 36 OF 1998

The purpose of the Act is to ensure that the nation's water resources are protected, used, developed, conserved, managed and controlled in responsible ways. The Act also calls for JRA to adopt actions that will prevent and remedy the effects of pollution generated by its operations and those that will address emergency incidences.

4.1 Impeding or Diverting the Flow of Water in a Watercourse and Altering the Bed, Banks, Course or Characteristics of a Watercourse

Government Notice No. 1199 of 18 December 2009 replaced Government Notice No. 398 of 26 March 2004 in terms of authorising all or any category of persons to use water in respect of Sections 21(c) and (i) of the NWA, subject to the conditions set out in the Schedule thereto (note, however, that certain areas are excluded from General Authorisation for these water use activities). Adherence to the conditions stipulated in the Schedule should be ensured.

4.2 Control of Alien Vegetation

Government Notice R1048 of 25 May 1984 (as amended by Government Notices R2687 of 6 December 1985 and R280 of 30 March 2001) deals with Regulations promulgated in terms of CARA. In addition to CARA, the Alien and Invasive Species Regulations, 2014 (A&IS) were published under Government Notice

R598 of 1 August 2014 (effective as from 1 October 2014) under NEMBA. Further to the Regulations, a list of alien and invasive species, the Alien and Invasive Species List, 2014, under Government Notice R590 of 1 August 2014 was published. The Regulations must thus be read together with the A&IS list.

The main difference between NEMBA and CARA is that the latter is aimed at the preservation of natural agricultural resources with a view to ensure the maintenance of the production potential of land, which may be affected by weeds and invader plants. CARA only applies in respect of flora (invader plants and weeds), not fauna. NEMBA, on the other hand, is an environmental statute that has a wider scope of the preservation of natural ecological systems (both flora and fauna) of South Africa (within the principles and obligations of environmental and natural resources protection espoused by NEMA. Where there is conflict between CARA and NEMBA, the latter prevails.

4.3 Control Of Development Affecting Natural Forests

The DAFF has developed a set of Policy Principles and Guidelines for Control of Development Affecting Natural Forests (2008) to serve as the basis for decisions and comments made by forestry staff in all regions when dealing with development proposals, land use planning and EIAs affecting natural forests. The policy and guidelines aid the proper implementation of existing legislation, especially the NFA (as amended), which provides the strongest and most comprehensive legislation and mandate for the protection of all natural forests in South Africa. Developments affecting natural forests are also subject to a licence application.

4.4 NHRA Regulations

Government Notice No. R548 of 2 June 2000 (promulgated in terms of section 25 of the NHRA) contain, amongst others, the following minimum qualifications and standards of practice with regard to permit applications for burial grounds and graves (Chapter IX):

A permit will be issued only for exhumation or removal that is to be done:

- Under the supervision of a qualified archaeologist or person approved by the relevant heritage resources authority;

- With due respect for any human remains and the customs and beliefs of any person or community concerned with such grave or burial ground and, when requested, in the presence of such person or community representative; and
- After arrangements have been made for the re-interment of any human remains and the re-interment or curation of any other contents of such grave or burial ground, to the satisfaction of SAHRA or the relevant heritage resources authority, in accordance with Guidelines.

3. PROJECT AREA

The proposed development falls within farm Portion 159 of the Farm Diepkloof 319IQ, in Soweto within City of Johannesburg Metropolitan Municipality. The farm is approximately 30ha. It is bordered by Chris Hani Road (M68) to the north and Western Bypass (N1) to the east (Fig 1 and 2). Chris Hani Baragwanath borders the western section of the property.

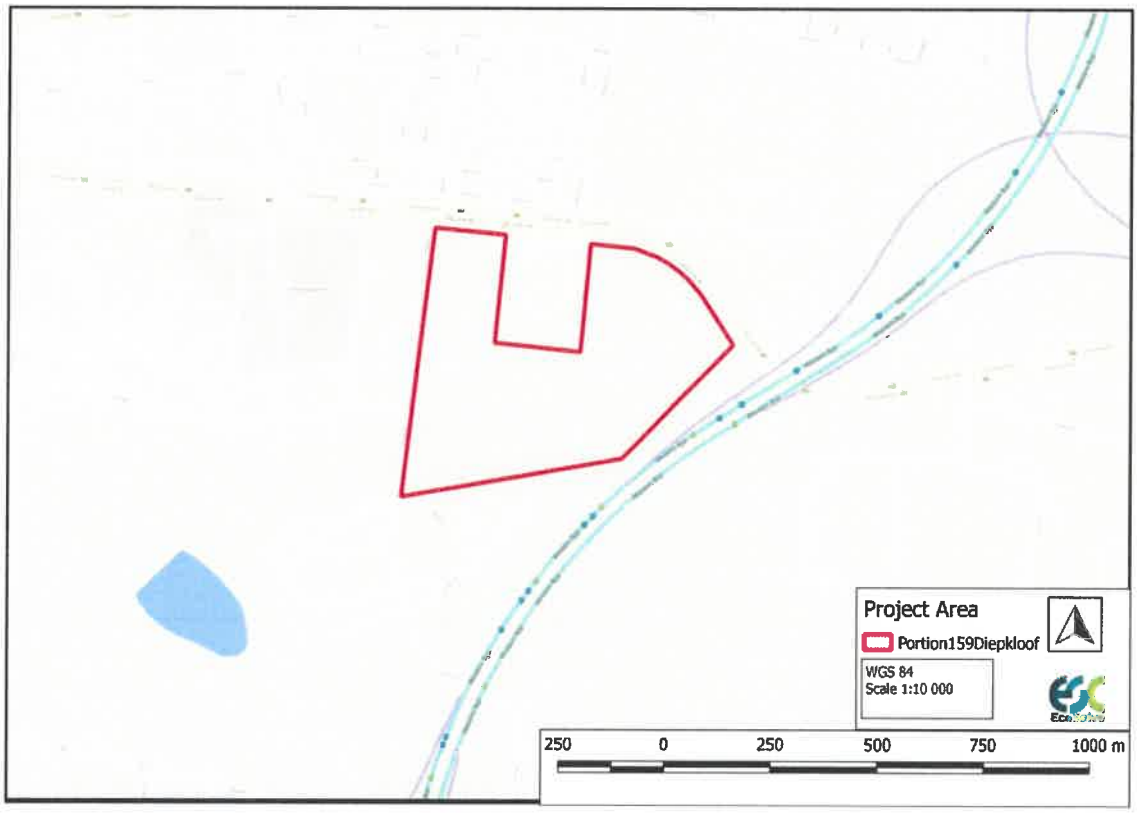


Figure 1: Project area

Figure 2: Aerial view of the project area

4. BIOPHYSICAL ENVIRONMENT

4.1. CLIMATE

The Köppen (1931) climatic classification is world-wide recognised as a classic broad climatic classification system. This system is a hierarchical classification system with up to three levels of detail, based on rainfall magnitudes, rainfall seasonality, and rainfall concentration. It also includes durations above or below threshold temperatures on a monthly basis. Input requirements are, therefore, monthly precipitation and temperature data (Schulze et al. 2006). According to the Köppen classification the study area falls, as with most of the Highveld region of South Africa, within the Cwb class, of which the climatic characteristics translate to:

C – Moist with cold winters

w – Dry winters

b – Summers relatively long and cool

The long term Mean Annual Precipitation (MAP) for the two weather stations nearest to the study area is 689 mm/annum (Table 2 and Figure 3) and for Johannesburg weather station 713 mm/annum (Erasmus, 1985). This rainfall is received mainly in the summer months with December and January receiving the highest total rainfall and June and August the least.

Table 1: The Monthly and Mean Annual Precipitation for Klipspruit and Baragwanath weather stations (Erasmus, 1985).

Month	Klipspruit (26° 16' S; 27° 55' E)	Baragwanath (26° 15' S; 27° 59' E)	Average
January	121	104	113
February	99	106	103
March	87	87	87
April	45	36	41
May	20	16	18
June	6	7	7
July	11	13	12
August	7	10	9
September	20	22	21
October	61	62	62
November	97	114	106
December	112	115	114
MAP	**686**	**692**	**689**

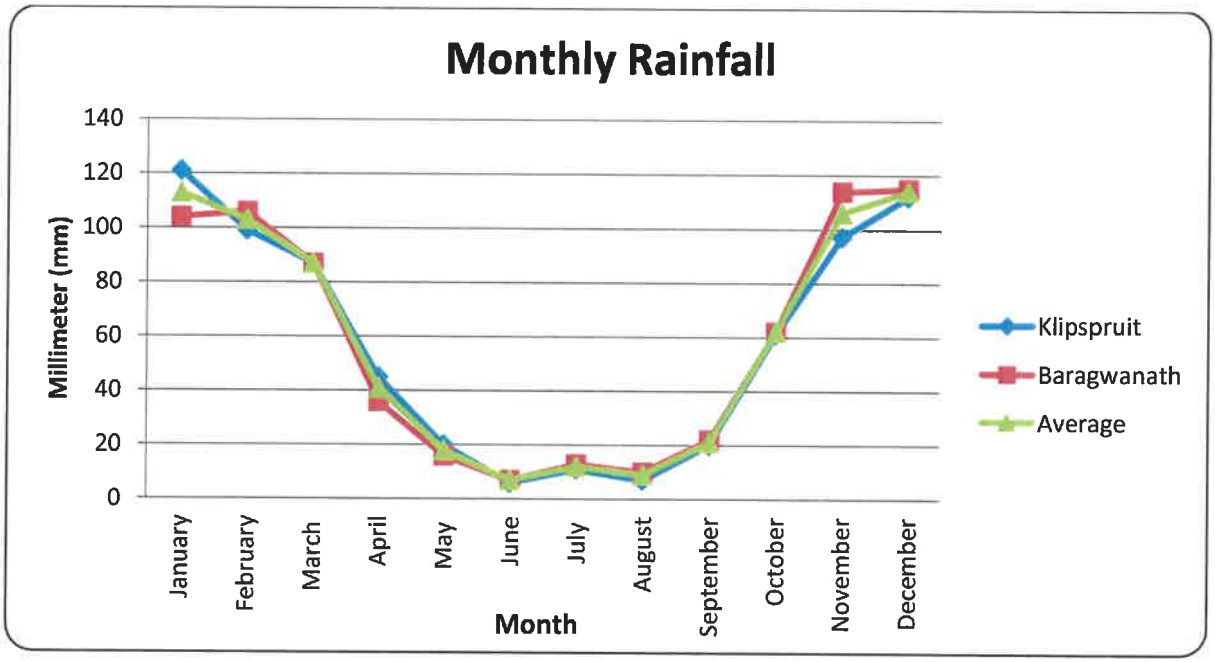


Figure 3: Monthly rainfall distribution for the study area (Erasmus, 1985)

Data from the nearest SAWS weather station situated in Johannesburg (26° 08' S 28° 14' E) shows the average maximum daily temperature to be 22°C and the average minimum daily temperature 10°C (Table 1). The expected first date of occasional frost is 3 May while the expected first date of regular frost in the study area is about 30 May. The expected date of last regular frost is about 25 August while the expected date of last occasional frost is about 30 September (AGIS, 2008).

4.2. TOPOGRAPHY, GEOLOGY & SOILS

The topography and terrain morphology of an area is important as it influence climatic and edaphic conditions, thereby indirectly contributing to microclimatic and biological diversity. The more variety in terrain morphology the more variety in microclimatic and biological diversity and vice versa. The study area has a relatively high variety in terrain morphology. According to the National Land Type Classification (Kruger 1973, Hammond 1964) the study area includes three terrain types, namely 1. Level plains with some relief 2. Plains with open low hills or ridges 3. Rolling or irregular plains with high hills or ridges

4.3. AQUATIC FEATURES

The project area falls within Upper Vaal WMA quaternary catchment C22A (Figure 5 and 6). The main tributary is Klip Rivier. The Klip River drains the southern Witwatersrand region. It flows primarily southwards until it joins the Vaal River at Vereeniging. The Klip River catchment incorporates the southern part of Johannesburg, one of the most developed urban complexes in Africa.

Consequently, the Klip Rivier catchment is one of the most heavily impacted river systems in South Africa and is subjected to various types of pollution. Increasing rates of urbanisation, industrialisation and population growth have aggravated the significance of water pollution as a threat to the wetland resources in the Klip Rivier catchment. The Upper Klip Rivier in the south is located in an area of urban development and past mining activity, and is subject to intense pressure from human activities. In addition to water scarcity, a large percentage of drinking water is lost due to degradation of the water supply infrastructure, water wastage and leakages. The main concerns from an environmental perspective are the impacts of the increasing demands on water resources, and the impact of pollution on downstream impoundment and on users of this water source. The downstream communities, which are exposed to raw sewage and polluted streams and rivers, face serious health hazards. According to DWA 2013, the Present Ecological Status (PES) of the catchment area is considered a Class E, or seriously modified. The biological integrity of the Klip Rivier system is considerably impaired and water quality objectives are hardly ever met (Table 1). Alterations to the system include:

- A completely modified hydrological regime - the strong seasonality of rainfall in this area is cancelled by more constant contributions from treated wastewater;
- A change in the chemical quality of water and rain water largely reaches the river via urban run-off, effluent discharge and mine drainage;
- Changes in stream morphology brought about by the building of weirs, bridges, recreational facilities etc., and
- Degradation and destruction of natural riparian habitats as a result of formal and informal urbanisation, and industrial, agricultural and domestic activities close to the river banks.

Table 2: Water Quality Objectives for the Klip River Catchment

Variable	Ideal	Acceptable	Tolerable	Unacceptable
EC (mS/m)	<45	45 - 70	70 - 100	>100
Chemical Oxygen Demand (mg/l)	<20	20 - 35	35 - 55	>55
Suspended Solids (mg/l)	<5	5 - 15	15 - 25	>25
Dissolved Oxygen	<9	5 - 9	4 - 5	<4
pH	6.5 - 8.5	-		<6.5; >8.5
Phosphate (as PO4 in mg/l)	<0.2	0.2 - 0.4	0.4 - 0.6	>0.6
Sodium (mg/l)	<50	50 - 70	70 - 100	>100
Sulphate (mg/l) E. coli (per 100 ml) – in stream	<80 <10	80 -10 - 200 100	200 - 500 100 - 1000	>500 >1000

Wetlands and rivers occur north and south of the project area. These are however, located far away from the project area. The project area also falls outside 1:100yr floodlines. This will therefore not trigger a water use licence application process.

Recreational activities within the surrounding water courses include a wide range of noncontact, intermediate contact and full contact recreation including:

Riparian home ownership;

- Picnicking;
- Fishing;
- Birdwatching and enjoyment of nature; and
- Swimming;

These activities are particularly popular at impoundments in the urban areas of the Witwatersrand, which serve as important recreational hubs for city dwellers. Fishing is a popular recreational pastime in these impoundments and in the Klip Rivier itself, but generally the fish species caught are not considered sensitive. The fact that fish may be consumed by fishermen, however, raises the issue of health. The Vaal Barrage, into which the Klip Rivier flows is also a key recreational area for both permanent residents and, in particular for weekend visitors.

Figure 4: Wetland areas in the vicinity of the study area

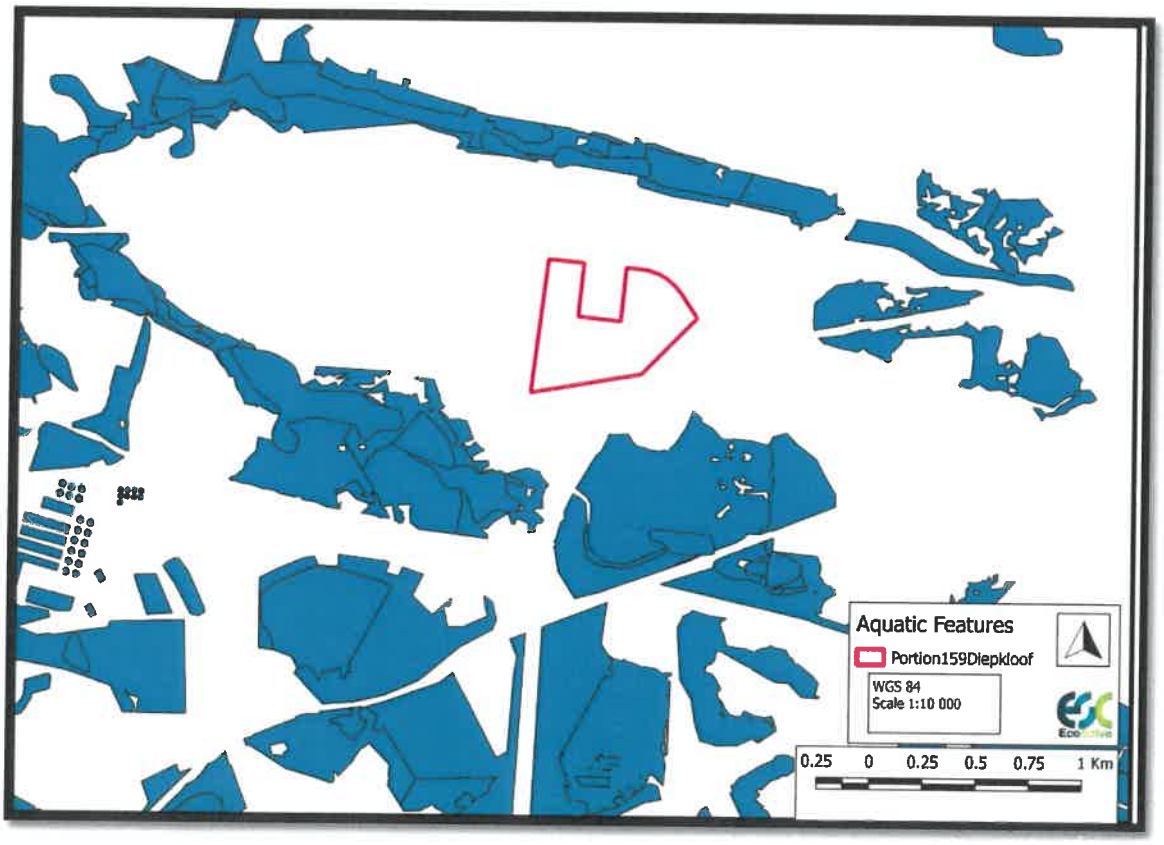


Figure 5: Aquatic features

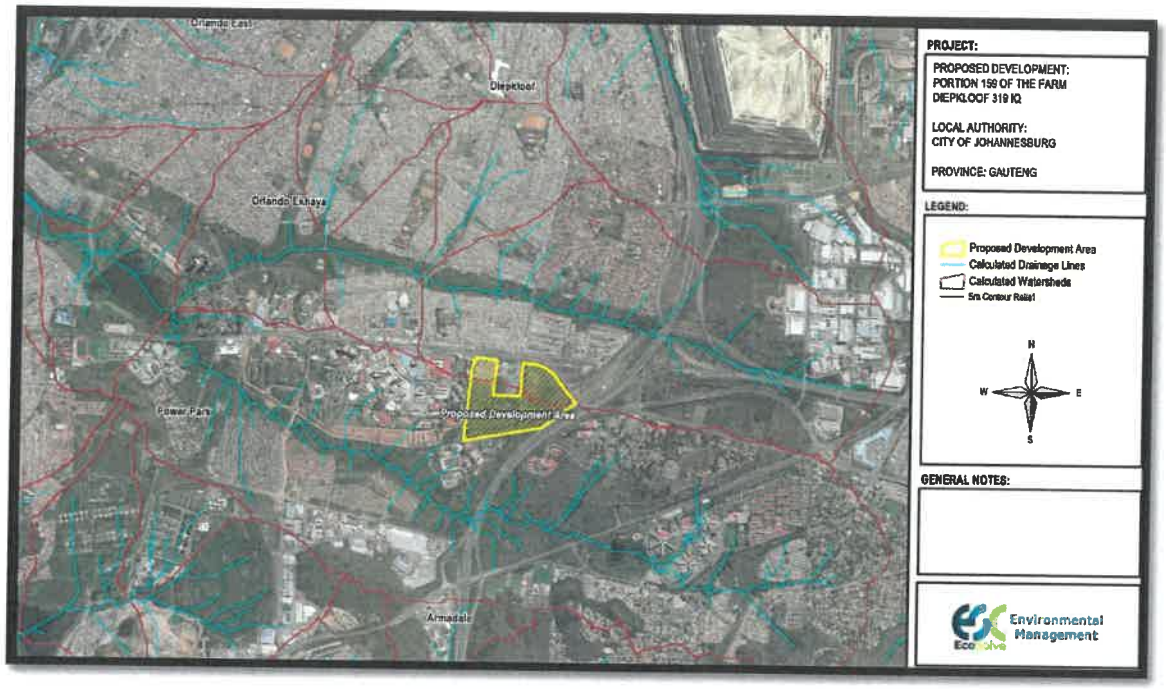


Figure 6: Surface hydrology

The dominant vegetation in the wetlands are reedbeds (*Phragmites communis* and *Typha capensis*), which are expanding because of nutrient enrichment of the river system and alteration of river banks. Many wetlands are thus artificially created as a result of human activities. They do, however, provide a sanctuary for birdlife, small animals and aquatic life. No threatened fauna and flora are known to occur either in the Klip river catchment or in the riparian vegetation, although the rare rock catfish, *Austroglanis sclateri* has been observed.

4.4. VEGETATION TYPES

To broadly describe the vegetation of the study area, reference is made to the classification carried out for South Africa, Lesotho and Swaziland, by Mucina & Rutherford (editors) (2006). With this system the region was classified into 435 zonal and azonal vegetation types, using a three-level hierarchy of mapping units, namely Biome, Bioregion and Vegetation Unit. In addition to data on vegetation distribution, data sources on topography, geology, soils, land types and climatic zones were also used (Mucina & Rutherford 2006). The study area contains one vegetation type - Soweto Highveld Grassland (Figure 3). This diversity in vegetation types can mainly be ascribed to the topographical and geological range within the study area as well as the altitude and climate.

4.4.1. Soweto Highveld Grassland

This vegetation unit occurs in Mpumalanga, Gauteng (and to a very small extent also in neighbouring Free State and North-West) Provinces. It lies in a broad band roughly delimited by the N17 road between Ermelo and Johannesburg in the north, Perdekop in the southeast and the Vaal River (border with the Free State) in the south. It extends further westwards along the

southern edge of the Johannesburg Dome (including part of Soweto) as far as the vicinity of Randfontein. In southern Gauteng it includes the surrounds of Vanderbijlpark and Vereeniging as well as Sasolburg in the northern Free State. The altitude ranges from 1 420–1 760 m.

It occurs on gently to moderately undulating landscape on the Highveld plateau supporting short to medium high, dense, tufted grassland dominated almost entirely by *Themeda triandra* (Rooi grass) and accompanied by a variety of other grasses such as *Elionuris muticus* (Wire grass), *Eragrostis racemosa* (Small heart grass), *Heteropogon contortus* (Spear grass) and *Tristachya leucothrix* (Trident grass). Only small scattered wetlands, narrow streams and occasional ridges or rocky outcrops interrupt the continuous grassland cover. The geology consists mainly of shale, sandstone or mudstone of the Madzarinwe formation (Karoo supergroup).

Conservation status

Currently considered endangered. Only a handful of patches statutorily conserved (Waldrift, Krugersdorp, Leeuwkuil, Suikerbosrand, and Rolfe's Pan Nature Reserves) or privately conserved (Johanna Jacobs, Tweefontein, Gert Jacobs, Nikolaas and Avalon Nature Reserves, Heidelberg Natural Heritage Site). Almost half of the area already transformed by cultivation, urban sprawl, mining and building of road infrastructure. Some areas have been flooded by dams (Grootdraai, Leeukuil, Trichardtsfontein, Vaal and Willem Brummer dams). Erosion is generally very low (93%).

4.5. SITE VEGETATION

The vegetation is mainly dominated by *Hyparrhenia hirta* (Common Thatching Grass) and *Tagetes minuta* (Khaki weed) and black wattle (*Acacia mearnsii*). Topsoil and vegetation disturbance due to littering, topsoil excavations, building waste disposal, remnant construction foundations, etc. are common.

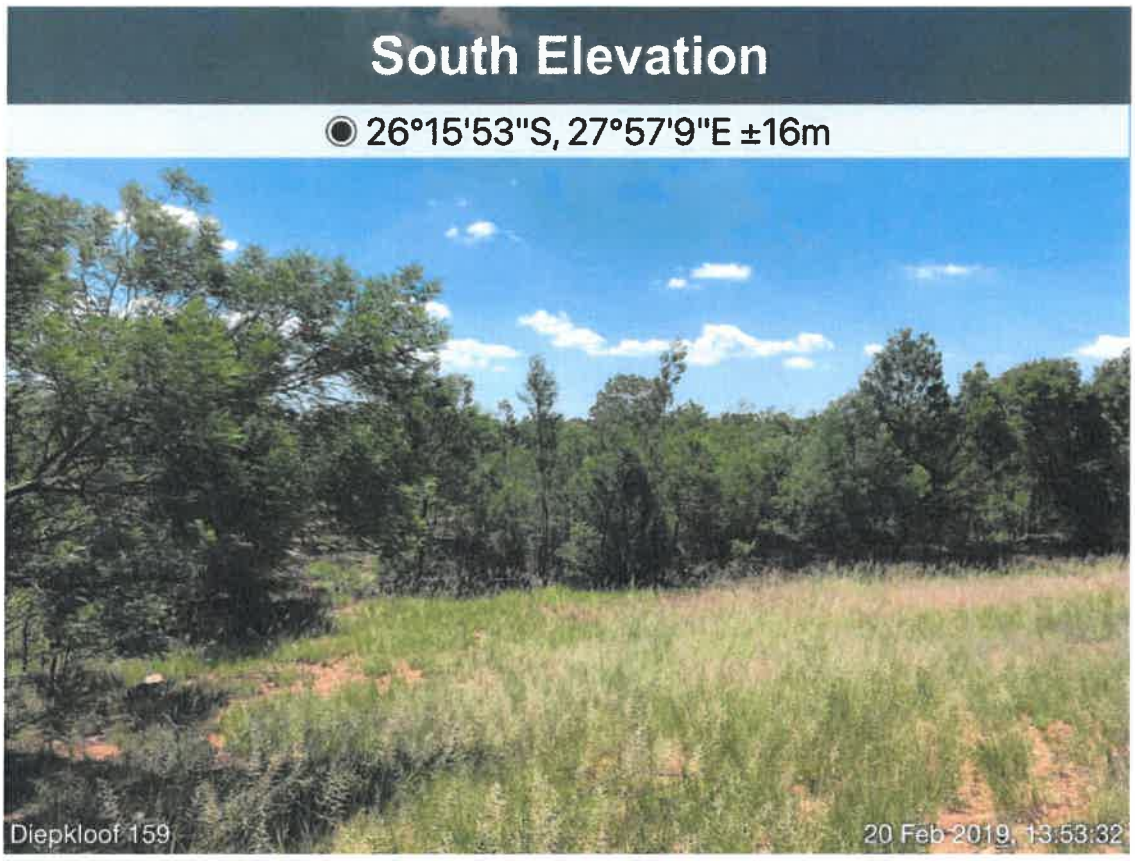


Figure 7: The transformed grassland zone is located mainly on highly disturbed areas due to the presence of litter and other forms of topsoil disturbance.

Table 3: List of common plant species occurring in the Transformed Grassland zone (exotic species indicated with an asterisk).

Species	Growth form	Species	Growth form
Acacia karroo	Tree	Hyparrhenia hirta	Grass
*Acacia mearnsii	Tree	Melinis repens	Grass
Aristida congesta	Grass	*Oxalis obliquifolia*	Geophyte
Brachiaria brizantha	Grass	*Plantago lanceolata*	Forb
**Conyza albida*	Forb	*Pogonarthria squarrosa*	Grass
**Conyza bonariensis*	Forb	**Schkuhria pinnata*	Forb
Crassula sp.	Forb	*Searsia lancea*	Tree
Cynodon dactylon	Grass	*Searsia pyroides*	Tree
**Datura stramonium*	Forb	*Senecio inornatus*	Forb
Dichrostachys cinerea	Shrub	*Senecio lydenburgensis*	Forb
Eragrostis chloromelas	Grass	**Solanum mauritianum*	Shrub
Eragrostis curvula	Grass	*Sporobolus stapfianus*	Grass
Eragrostis plana	Grass	*Stoebe vulgaris*	Forb
Felicia filifolia	Forb	**Tagetes minuta*	Forb
Felicia muricata	Forb	*Tephrosia sp.*	Forb
Guilleminea densa	Forb	*Urochloamosambicensis*	Grass
Helichrysum nudifolium	Forb	**Verbena aristigera*	Forb
Helichrysum rugulosum	Forb	**Verbena bonariensis*	Forb

4.6. PLANT SPECIES OF SPECIAL CONCERN

No species of concern were recorded. The reason for their absence is likely due to the highly disturbed nature of the vegetation and the fact that most of the Red Data species are not directly associated with the immediate study area. However, some of the listed species are small and inconspicuous, and their presence cannot be completely ruled out.

4.7. ROCKY OUTCROPS

Rocky outcrops are geological features that encompass a wide variety of physical environments, including escarpments, overhangs, cliffs, tors, boulder-heaps and insular domes (inselbergs). They support high levels of species diversity and endemism, and provide stable micro-climates for thousands of years. They provide critical breeding sites for many top order mammalian and avian predators; nesting sites for colonial species such as seabirds, bats and swifts and ecological refuges for ancient lineages.

Rocky outcrops within the study area nave been mainly transformed by illegal dumping of rubble and litter. Many are no longer providing unique habitats as a result.

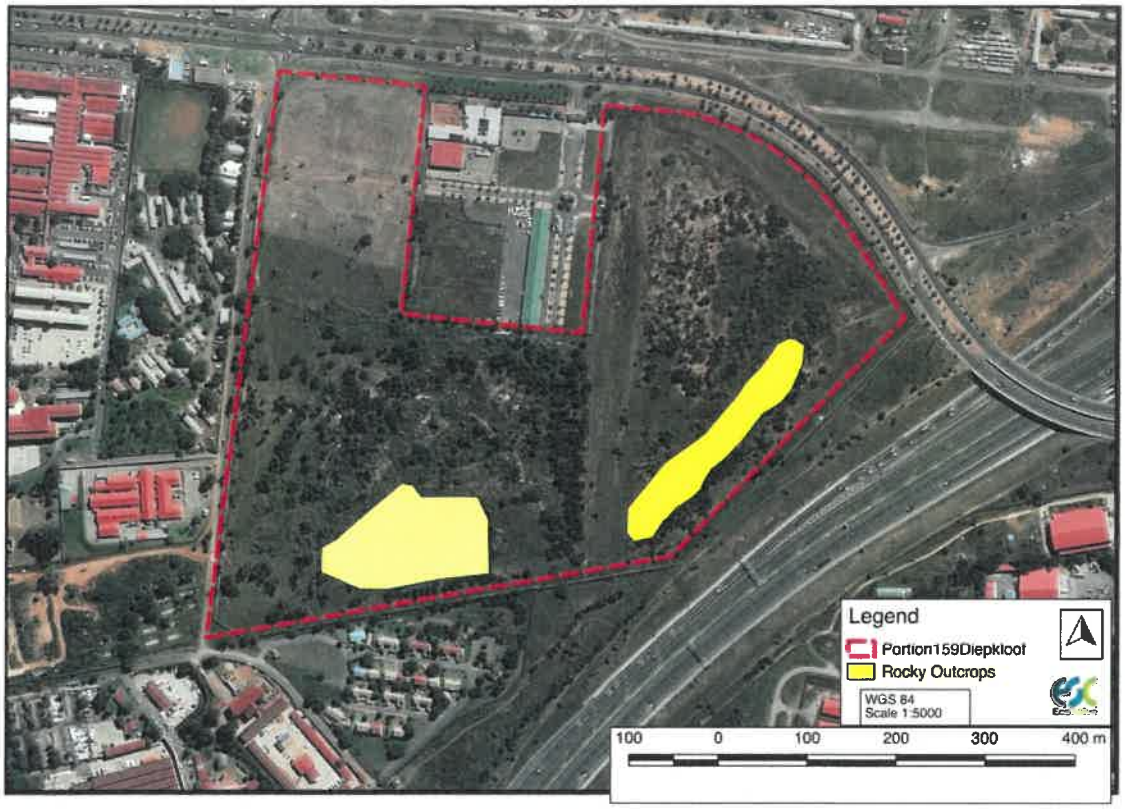


Figure 8: Rocky outcrops

4.8. GAUTENG CONSERVATION PLAN (C-PLAN)

According to Gauteng Conservation Plan version 3.3 (C Plan 3.3), the proposed area does not fall within any of the areas identified as Critical Biodiversity Areas (CBAs) –Irreplaceable or Ecological Support Areas (ESA) – Important (Figure 9).

CBAs require moderate to high levels of protection and/or management. Various moderate impact land management options exist, but ecological structure and functioning must be preserved. Ecological Support Areas are supporting zones required to prevent the degradation of Critical Biodiversity Areas and Protected Areas. These may include areas that are degraded or even transformed if these areas still play an important role in supporting CBAs.

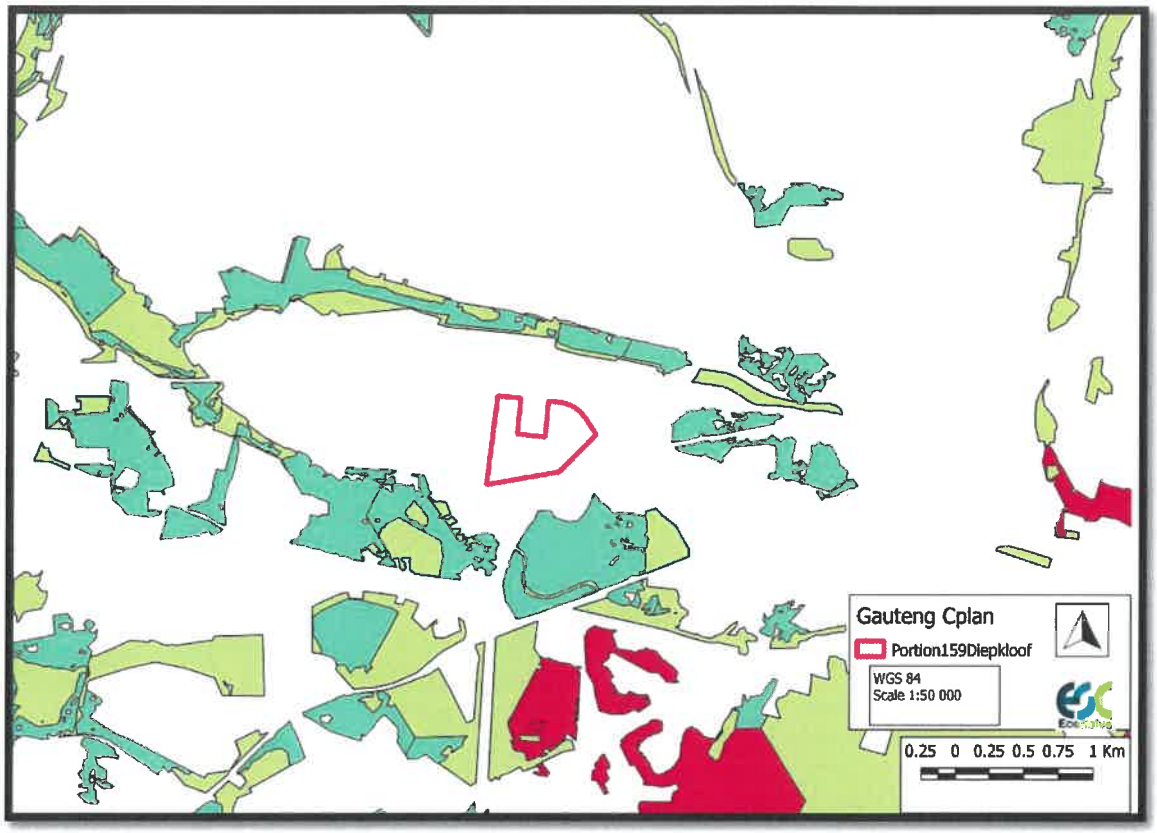


Figure 9: Conservation Plan Map

5. SOCIAL ENVIRONMENT

5.1 VISUAL

Scenic value can be described as the reaction to aesthetics of the environment as perceived by an individual or a group and therefore it is a very subjective perception. In terms of the surrounding landscape compatibility, the proposed development will fit into an existing landuse, as the area is predominantly industrial/residential. The visual receptors in the area will consist of people currently utilising the area in terms of the infrastructure already established.

5.2 HERITAGE

Phase I HIA study was indicates that no objects of any cultural (archaeological or historical) origin or significance were found on site. Phase HIA report will be submitted to the Provincial Heritage Resources Agency of Gauteng (PHRAG) for comment/approval in terms of Section 38 of the National Heritage Resources Act (Act 25 of 1999).

The establishment of Soweto is, like Johannesburg, linked directly to the discovery of Gold in 1885 (Marais, 2019). Thousands of people from around the world and South Africa flocked to the new town to seek their fortunes or to offer their labour. Within 4 years Johannesburg was the second largest city. More than half the population was black, most living in multiracial shanty towns near the gold mines in the centre of the town. As the gold mining industry developed, so did the need for labour increase. Migrant labour was started and most of these workers lived in mine compounds. However other workers had to find their own accommodation often in appalling conditions (Marais, 2019).

The first residents of what is now known as Soweto were located into the area called Klipspruit in 1905 following their relocation from "Coolietown" in the centre of Johannesburg as a result of an outbreak of bubonic plague. The Johannesburg City Council took the opportunity to establish racially segregated residential areas. Some residents were to be relocated to Alexandra Township (near the present day Sandton). This group comprised Black, Indian and Coloured families and they received freehold title to their land (this was subsequently reversed by the Apartheid Government). Only Black families were located into Klipspruit and the housing was on a rental basis. Klipspruit was subsequently renamed Pimville (Marais, 2019).

During the 1930's the demand for housing for the large numbers of black people who had moved into Johannesburg grew to such an extent that new housing was built in an area known as Orlando, named after the first administrator Edwin Orlando Leaky.

In the 1940's a controversial character James Mpanza led the first land invasion and some 20000 squatters occupied land near Orlando. James Mpanza is known as the "Father of Soweto".

In 1959 the residents of Sophiatown were forcefully removed to Soweto and occupied the area known as Meadowlands. Sir Earnest Oppenheimer, the first chairman of the Anglo-American Corporation, was appalled by the housing shortage and was instrumental in arranging a loan for the construction of additional housing and this is commemorated by the Oppenheimer Tower in Jabulani

Although no objects of heritage importance were identified, it should be noted that the possibility of unearthing archaeological or historical features or objects is always present. Should any such features be identified during the construction or development process, activities on site will have to cease and a heritage specialist should be brought in to further investigate the objects or features and provide guidance as to how the development may proceed.

5.3 Noise

Noise control must form part of the planning stage of any development. During the construction phase, noise may be generated as a result of construction related activities such as: the use of machinery and equipment, and the movement of construction vehicles etc. These potential noise impacts must be mitigated.

5.4 Air Quality

Vehicles travelling on exposed surfaces, earthworks as well as wind are the main generators of dust. The nuisance and aesthetic impacts associated with the dust generated during the construction phase should be mitigated and dust suppression measures should be implemented.

6. CONCLUSIONS AND RECOMMENDATIONS

Environmental significance of the proposed development is low as revealed by various desktop studies.

Removal of Threatened and or Protected Species (ToPS) will necessitate an application for a permit from Department of Forestry and Fisheries (DAFF). Other licenses and permits may include removal of graves. This will be confirmed during phase 2 of the project.

Due to proximity to communities and legislative requirements of NEMA, public consultations will become central to applying for the various licenses. Public participation provides the opportunity for interested and affected parties to participate and to ensure that their needs and requirements are considered. In so doing, ownership of the project is vested in both the project proponent and the community.

Table 4: Environmental Significance

Environmental Feature	Likely Impact
Rivers and Wetlands	Low
Red Data Flora	Low
Red Data Fauna	Low
Heritage	Low
Gauteng Cplan	Low
Social	Low

Possible environmental triggers as per National Environmental Management Act, 1998 (Act N0.107 of 1998). These will be confirmed with the project team and the Competent Authority prior to commencement of the Environmental Authorisation application process. An EMPr will also be developed to guide construction and operational phases of the project.

Table 5: Possible Environmental Triggers

Listed activity	Description as per regulation
GNR.327 Item 26, 07 April 2017	Residential, retail, recreational, tourism, commercial or institutional developments of 1 000 square metres or more, on land previously used for mining or heavy industrial purposes; — excluding — (i) where such land has been remediated in terms of part 8 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case the National Environmental Management: Waste Act, 2008 applies; or (ii) where an environmental authorisation has been obtained for the decommissioning of such a mine or industry in terms of this Notice or any previous NEMA notice; or (iii) where a closure certificate has been issued in terms of section 43 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) for such land.
GNR.327 Item 28, 07 April 2017	Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture, game farming, equestrian purposes or afforestation on or after 01 April 1998 and where such development:

Listed activity	Description as per regulation
	(i) will occur inside an urban area, where the total land to be developed is bigger than 5 hectares; or (ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare; excluding where such land has already been developed for residential, mixed, retail, commercial, industrial or institutional purposes.
GNR.325 Item 15, 07 April 2017	The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for— (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.

7. REFERENCES

Acocks, J.P.H. 1988. Veld types of South Africa. Memoirs of the botanical survey of South Africa No. 57. Botanical Research Institute, South Africa.

Animal Demography Unit (2017). MammalMAP Virtual Museum. Accessed at http://vmus.adu.org.za/?vm=MammalMAP.

IUCN Red Data Listed Species, 2014.3. The IUCN Red Data List of Threatened Species. Accessed at http://www.iucnredlist.org/.

Mucina, L & Rutherford, M. (eds) (2006). The vegetation of South Africa, Lesotho and Swaziland. Strelitzia 19.

National Environmental Management Act (NEMA) 1998.

Plants of South Africa (2017). Plants of South Africa an online checklist. Accessed at http://posa.sanbi.org/searchspp.php.

CONSOLIDATION DIAGRAM

OFFICE COPY

MERIDIAN
SURVEYS
LAND SURVEYORS
PRETORIA

COMPONENTS

1. The figure A B C D g Q A represents PORTION 108 vide Diagram S.G.No. A4322/1988 Deed of Transfer No.
2. The figure E F G H J K L M N P g E represents PORTION 158 vide Diagram S.G.No. 4684/2002 Deed of Transfer No.

SERVITUDE NOTES:

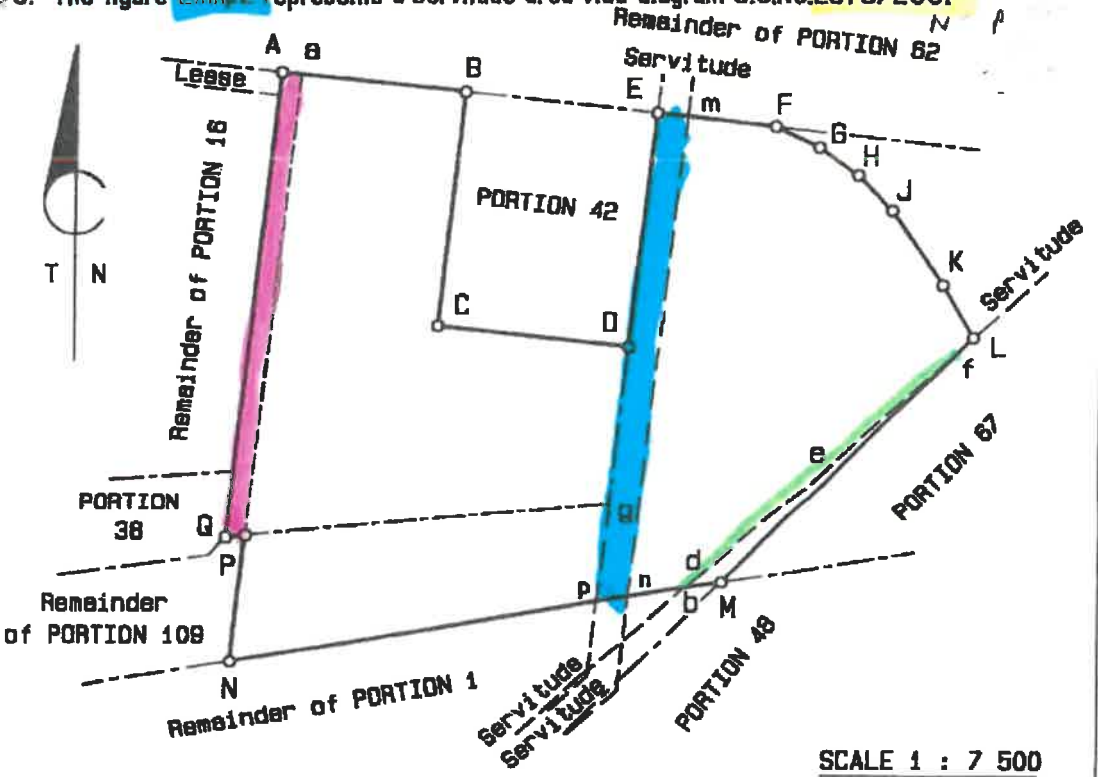
K1241/1995S

1. The line b d e f represents the centre line of a Gas Pipe Line Servitude 2,00 metres wide vide Diagram S.G.No. A5501/1990 Deed of Servitude No. K1241/1995s
2. The figure A a P Q A represents a Servitude 20,00 metres wide vide Diagram S.G.No. A4322/1988 Deed of Servitude No.
3. The figure EmnpE represents a servitude area vide diagram S.G.No.2378/2001

S.G.No.
4685/2002
Approved
H.C. Brand. Surveyor-General
by
SURVEYOR
GENERAL
2002.08.27

Ord No. 20/1986
Section 2(1)a

Signed 11/11/2002



SCALE 1 : 7 500

The figure A B C D E F G H J K L M N P Q A represents 30,5292 hectares of land being

PORTION 159 of the farm
DIEPKLOOF No. 319-IQ
and comprises components 1) and 2) as quoted above

Province of Gauteng

~~Surveyed~~ Compiled in April 2002 by me F.M. HATTINGH PLS0252

Professional Land Surveyor

This diagram is annexed to No. T169982/2007 dated i.f.o. Pta JOHANNESBURG registrar of Deeds	The original diagrams are as quoted above Transfer No.	File -/57 S.R. No 2106/2002 G.P. Comp. IQNP-41,IQNP-4162 IQNP-42,IQNP-4241

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Your Ref: **Our Ref:** **Date:** 26 February 2019

CONVEYANCER'S CERTIFICATE
IN RESPECT OF PORTION 159 OF THE FARM DIEPKLOOF 319 REGISTRATION DIVISION IQ GAUTENG PROVINCE

I, the undersigned,

JOHANNES GERHARDUS STEPHANUS MINNAAR

hereby certify that I am a duly qualified and admitted conveyancer and sign this certificate in order to indicate:

GENERAL

1. the description of the land on which the proposed township establishment will take place;
2. the various title conditions contained in the title deed relating to the land on which this township will be established;
3. the way in which these title conditions must be disposed of for township establishment purposes;
4. the particulars of the registered owner of the land;
5. the particulars of the township applicant;
6. the particulars of the local authority;
7. conveyancing steps to be followed before or simultaneously with the opening of the township register.

Attorneys Notaries & Conveyancers
Directors: Darren Brander | Tiaan Esterhuyse | Karl-Heinz Göhring | Anastasia Haji-Pavlou
Senior Associates: Y Baia | L Ferreira | S Harvey
Associates: S Bharath | G Enslin | K Tsebe
Executive Consultants: Gert Minnaar | Tony Newell | Richard van Schalkwyk | Kristo Scholtz | Pieter Smith | Kim Zolty

Cape Town: 021 406 9100 | Bedfordview: 011 453 0577 | Blouberg: 021 521 4000 | Centurion: 012 001 1546 | Claremont: 021 673 4700 | East London: 043 721 1556|Fish Hoek:021 784 1580| Fourways: 010 001 2632 | Helderberg: 021 850 6400 | Illovo: 011 219 6200 | Tyger Valley: 021 943 3800

Registration No: 2007/007774/21
VAT Reg No: 4540235860

1. Property description

It appears from information received from information received from Atlega Development Practitioners that the proposed township will be established on the following property:

Portion 159 of the farm DIEPKLOOF 319
Registration Division I.Q., Gauteng Province
Measuring 30,5292 (Thirty Comma Five Two Nine Two) hectares
Held by Certificate of Consolidated Title T169982/2007

2. Title conditions

The following title conditions are recorded against Certificate of Consolidated Title T169982/2007 in respect of Portion 159 of the farm DIEPKLOOF 319, Registration Division I.Q., Gauteng Province

A. Specially subject to the following conditions:

(a) The land is proclaimed land and as such is subject to the provisions of the Gold Law now or hereafter to be in force affecting such land, and subject to all mining titles and to all rights attaching to them under the Gold Laws on and under the area of the said land. The CROWN MINES LIMTED, or its successors in title, retains and reserve to itself all rights to minerals and rights to mine, as also all rights which may be allotted to the freehold owner, arising from rights to minerals, such as its rights to one half of the claim licence moneys received by the State in respect of the gold mining claims, but this reservation shall not apply in respect of any licence moneys payable by the owner to the State in respect of the said land in respect of which Certificate of Mineral Rights 269/1948 RM was issued on 23 May 1948. Notwithstanding anything to the contrary contained in the aforesaid reservation of rights to minerals, the transferee and its successors in title or assigns to the land hereby transferred, shall at all times be entitled to establish and maintain Townships, Agricultural Holdings, Locations and other settlements on the said land and to construct or cause or permit to be constructed thereon streets, houses, buildings, erection and structures of all kinds.

(b) As the land may be undermined and is adjoining or adjacent to land which has been and is being undermined, neither CROWN MINES, LIMITED, nor its successors in the title to the remaining extent of a portion of the farm "DIEPKLOOF" 319 I.Q., district Johannesburg, measuring 1383,1478 morgen, held by the Company by Deed of Transfer No. 5386/1930, dated 4th June, 1930, nor the holder of any mining title over the land or any adjoining or any adjacent land shall be liable or responsible for any damage or injury caused by past or future mining operations beneath the land or any adjoining or any adjacent land.

(c) The owner of the land shall not directly or indirectly interfere with or in any way restrain or prevent gold mining operations being carried on beneath the surface of the said land by the CROWN MINES, LIMITED, or its successors in title to the minerals reserved, whether the surface be occupied by buildings, roads or otherwise.

(d) THE CROWN MINES, LIMITED, or its successors in title to the said remaining extent or portion of the farm "DIEPKLOOF" 319 I.Q. Transvaal shall not be responsible for any damage caused to the Transferee or its successors in title or any occupiers of the said land from the dumps in the vicinity thereof or from the flowing of water or sand

or slime over the said area from any slimes dams or sand dumps adjoining or adjacent to the said area or form any water flowing therefrom.

B. The former Remaining Extent of Portion 16 of the said farm Diepkloof, measuring 163,9287 hectares of which the property held hereunder forms a portion, is subject to the following.

Onderhewig aan 'n kraglynserwituut met bykomende regte en onderhewig aan voorwaardes ten gunste van ESKOM soos vollediger sal blyk uit Notariële Akte van Serwituut K2348A/1981S.

Note – The examiners in the Deeds Office are now demanding the amplification of existing registered title conditions by the insertion of references to the figures of the servitude areas as depicted on the relevant diagrams.

It may be required for this title condition to be amplified by the insertion of references to the figures of the servitude areas as depicted on the relevant diagrams prior or simultaneously with any registration in the Deeds Office to read as here below:

Onderhewig aan 'n kraglynserwituut 20 meter wyd met bykomende regte en onderhewig aan voorwaardes ten gunste van ESKOM soos aangedui deur die figuur A a P Q A op die aangehegte kaart SG No 4685/2002 en soos vollediger sal blyk uit Notariële Akte van Serwituut K2348A/1981S.

C. The former Portion 158 (a portion of Portion 109) of the said farm Diepkloof, indicated by the figure E F G H J K L M N P g E on the said diagram SG No 4685/2002, is subject to the following conditions:

1. (a) The transferee shall us the Properties solely for purposes of upgrading the Elias Motsoaledi Informal Settlement by the development of low-cost housing and related municipal infrastructure.

(b) Should the properties not be used for the purposes referred to in Clause (a) above, the properties shall revert to the Transferor. All costs giving effect to the reversion shall be for the account of the Transferee or its successors in title.

(c) The parties agree that the donation of the properties is further subject to a pre-emptive right in favour of the transferor whereby the transferee or its successors in title grants the transferor the right of first refusal to acquire its land for the transferor's needs, free of charge, whenever the Council decides to dispose of any superfluous land vested in it, and whenever the State identifies Council land for the domestic purposes of the State and such land is found to be superfluous to the domestic needs of the Council, up to a value equivalent to the value of the donated land, duly escalated to its future value, as at the date of any such acquisitions.

2. Subject to a 2,00 metres wide servitude in perpetuity over the property in favour of AECI Limited for the purpose of constructing, laying and maintaining a gas pipeline with ancillary rights, the centre line of which servitude is indicated by the line b d e f on the said diagram SG No 4685/2002 as will more fully appear from Notarial Deed of Servitude K1241/1995S with diagram annexed thereto.

3. Disposal of the title conditions for township establishment purposes

3.1 *The following title conditions refer to the reservation of rights to minerals*

Conditions A (a) to (d) on pages 2 to 4 of Certificate of Consolidated Title T16998/2007

These title conditions have lapsed and will not form part of the title conditions in the township title for the proposed township

Since 1 May 2004 the Deeds Office no longer perform the functions relating to the registration of rights to minerals because Section 2 of the Mining Titles Registration Act, 1967 No 16 of 1967) was amended to replace the Deeds Office from 1 May 2004 by the Mineral and Petroleum Titles Registration Office as the office for the registration of all mineral and petroleum and all other related rights, deeds and documents

The township applicant whose intention it is to use the surface of this property for township establishment purposes, must in any event apply in terms of section 53 of the Mineral and Petroleum Resources Development Act, 2002 (No 28 of 2002) to the Minister of Mineral Resources for such approval after an investigation first identified which mining and mineral resources could be detrimentally affected by such township establishment. Alternatively the township applicant can circulate the township application to the Department of Mineral Resources and await its comments at that later point in time

3.2 *The following title condition relates to an electrical power transmission servitude in favour of ESKOM for which the exact route and/or situation of the servitude has been determined and it can be plotted.*

Condition B on page 4 of Certificate of Consolidated Title T8731/1947 relating to Notarial Deed K2348A/1981S.

The land surveyor's servitude certificate must indicate if this electrical power transmission servitude affects the proposed township area through the situation thereof. If so, it must be accommodated in the lay-out plan of the proposed township and the conditions of establishment must indicate which erven and/or streets are affected by it.

However, if this servitudes does not affect the proposed township area through the situation thereof the conditions of establishment must indicate that it will not be carried forward to the title deeds of the erven in this township

3.3 *The following title conditions restrict the use of a portion of the land to be used solely for purposes of upgrading the Elias Motsoaledi Informal Settlement, failing which it shall revert back to the Donor of the former Portion 158 (portion of Portion 109) of the said farm DIEPKLOOF*

Conditions C.1 (a) to (c) on pages 4 to 5 of Certificate of Consolidated Title T8731/1947

The conditions of establishment for the proposed township must indicate that Conditions C.1 (a) to (c) on pages 4 to 5 of Certificate of Consolidated Title T8731/1947 must be cancelled, removed or suspended simultaneously with the opening of the township register of the proposed township established on Portion 159 of the said farm DIEPKLOOF

The township applicant must obtain a letter from the relevant authority processing this township application confirming that the former Portion 158 (portion of Portion 109) of the

said farm DIEPKLOOF is used solely for the purposes of upgrading the Elias Motsoaledi Informal Settlement

This letter will then be used by the conveyancers to cancel Conditions C.1 (a) to (c) on pages 4 to 5 of Certificate of Consolidated Title T8731/1947 in terms of section 68(1) of the Deeds Registries Act, 1937, No 47 of 1937) simultaneously with the opening of the township register of the proposed township established

3.4 *The following title condition relates to a gas pipeline servitude in favour of AECI LIMITED for which the exact route and/or situation of the servitude has been determined and it can be plotted.*

Condition C.2 on page 5 of Certificate of Consolidated Title T8731/1947 relating to Notarial Deed K1241/1995S.

The land surveyor's servitude certificate must indicate if this gas pipeline servitude affects the proposed township area through the situation thereof. If so, it must be accommodated in the lay-out plan of the proposed township and the conditions of establishment must indicate which erven and/or streets are affected by it.

However, if this servitudes does not affect the proposed township area through the situation thereof the conditions of establishment must indicate that it will not be carried forward to the title deeds of the erven in this township

4. Particulars of the Registered Owner

City of Johannesburg Metropolitan Municipality

5. Particulars of the Township Applicant

City of Johannesburg Metropolitan Municipality

6. Particulars of the Local Authority

City of Johannesburg Metropolitan Municipality

7. Conveyancing steps to be followed before or simultaneously with the opening of the township register

7.1 Cancellation of Conditions C.1 (a) to (c) on pages 4 to 5 of Certificate of Consolidated Title T8731/1947 in terms of section 68(1) of the Deeds Registries Act, 1937, No 47 of 1937)

7.2 Opening of the township register and the registration of the General Plan

SIGNED at ILLOVO on 26 February 2019

CONVEYANCER

PROPERTY PLAN
SOWETO GATEWAY PRECINCT
PORTION 159 OF FARM DIEPKLOOF NO. 319 IQ
Revision 4

Legend:

Soweto Empowerment Zone

The Site – Portion 159 of Farm Diepkloof no.319 IQ

EXECUTIVE SUMMARY

The proposed development is on Portion 159 of the Farm Diepkloof No. 319 IQ in Soweto within the City of Johannesburg Metropolitan Municipality. The farm is approx. 30.5ha, it is bordered by Chris Hani Road (M68) to the north and the Western Bypass (N1) to the east.

The site is strategically located at the main entry point into Soweto and therefore a hotspot for high value proposition infrastructure development. The site is envisioned as a 'Gateway Site' that has the potential to be an iconic, unique destination place and will be subdivided into 14 portions with various uses.

Our development objectives for the is site is to accommodate a mix of land uses which not only take advantage of the properties strategic location to the existing Baralink Node.

Our intension is providing a complementing catalyst for the reinforcing of surrounding uses, existing activities and to integrate the commercial elements of the Soweto Empowerment Zone i.e. Office Space Optimization Regional Municipal Offices, extend the existing Opportunity Centre initiative and promote for more automotive / entrepreneurial resource centre type of square.

We looking to transform this corner of Soweto into a liveable district in its own right that is well connected, accessible to the rest of Greater Soweto including the City, having access to job opportunities and the full array of urban amenities within a balanced and sustainable urban framework.

Ownership	City of Johannesburg Metropolitan Municipality
Locality	The site is in the eastern part of Soweto, located south-west for Chris Hani Road and the N1 intersection. The site is also easily identifiable by the existing Soweto Empowerment Zone facility as its land mark.
Locality Plan attached as **ANNEXURE 2**	Yes
Title Deed Number	T 169982/2007
Copy of Title Deed attached as **ANNEXURE 3**	Yes
Property Size	Property measures 30,5292 hectares

SECTION 2: DEPARTMENTAL & MOE COMMENTS

Development Planning	Development concept supported in principle subject to various proposed amendments to land use zoning and densities
City Transformation	Development concept is viewed positively and well received as it aims to unlock Soweto as a True City District by diversifying land uses through densification and mixed-uses
City Parks	Township establishment application submitted on 14 June 2019 and we are pending comments
Environment	The draft basic assessment report is being has been prepared and pending the vegetation study which can only be undertaken in November as per GDARD requirements.
City Power / Eskom	Orlando substation is currently fully utilised (30MVA) therefore no spare capacity available at the substation. Nancefield substation has capacity but is situated 10Km from the development and concern is that this may result in a high voltage drop on the supply cable. Therefore Orlando substation needs to be upgraded to supply additional power for any new developments in the area.
JRA	Outline scheme report as per township layout is ready and will be submitted by 28 June 2019 for formal comments
Joburg Water	Outline scheme report as per township layout is ready and will be submitted by 28 June 2019 for formal comments
Ward Councillor	A feedback session is being arranged with Region D to present outcomes of the investigations and progress to-date on the proposed development (03 July or 04 July 2019)

Comments attached as **ANNEXURE 4 / 5 / 6** | Yes

SECTION 3: DEVELOPMENT RESTRICTIONS

Current Uses on site	The majority of the site is vacant although a portion appears to be illegally occupied by vagrants.
Current occupants	Illegal occupants appear to be vagrants (temporary shelters on site).
Existing structures and features	The site has concrete palisade boundary fencing around its extent including around the existing Soweto Empowerment Zone facility. The vacant site has uneven terrain, topsoil, rocky outcrops, barrow pits and building waste disposal. Refer to Annexure 7 & 8.
Existing Vegetation	The site vegetation on the north to north-western quadrant is short grass and few small trees, while on southern to eastern portions is the medium to larger trees. The most common vegetation type is thatching grass and khaki weed. No species of concern were recorded and the rocky outcrops present on the site no longer provide unique habitats as a result of illegal dumping. Refer to Annexure 7 & 8.
Contour survey on site plan **ANNEXURE 10**	Yes
1:100 year floodlines	The site is situated far from wetlands and rivers thus falls outside the 1:100 year floodline and the proposed development will not trigger a water use licence application process. Refer to Annexure 8.
Floodlines on site plan **ANNEXURE 8**	Yes
Geotechnical conditions	The site is underlain by topsoil, hillwash and fill overlying the residual sandstone and sandstone bedrock. Soft excavation may be anticipated at depths above 1.6m below natural ground level and intermediate to hard excavation at depths below this level. Overall, the site is developable.
Geotechnical Report attached as **ANNEXURE 11**	Yes

Wetland Deliniation	No rivers and wetland on site.
Wetland Report attached as **ANNEXURE 8**	Ye s
Environmental Fatal Flaw Analysis	Environmental significance for development is low as revealed by various desktop studies. However it is recommended that the project undergoes detailed studies as per NEMA requirements and any mitigation measures are undertaken before construction.
Fatal Flaw report attached as **ANNEXURE 8**	Ye s
Heritage Issues	There are no visible restrictions or negative impacts in terms of heritage associated with the site therefore development on the site can proceed. In the event that historical deposits and graves are discovered during infrastructure or construction works a heritage/archaeologist should be commissioned to investigate.
Heritage Report attached as **ANNEXURE 7**	Ye s
Registered Servitudes	• S.G. No. A4322/1988 20m Public road servitude • S.G. 2378/2001 32m Rand Water Pipe • S.G. A5501/1990 2m Gas pipeline
Unprotected Council Services	There are unprotected services on the site which are not within a registered servitude and are shown on the Servitude Survey Plan. The Servitude Survey Plan is attached as Annexure 10
Restrictive conditions of title	There are no restrictive conditions but just the following special conditions: Condition C 1. (a) The transferee shall use the Properties solely for purposes of upgrading the Elias Motsoaledi informal Settlement by the development of low-cost housing and related municipal infrastructure. (b) Should the properties not be used for the purposes referred to in Clause (a) above, the properties shall revert to the Transferor. All costs giving effect to the reversion shall be for the account of the Transferee or its successors in title.
SG diagram No. attached as **ANNEXURE 12**	SG No: 4685/2002

Town Planning Report attached as **ANNEXURE 14** | Yes

DEVELOPABLE AREA SUMMARY

Site Plan reflecting above findings* attached as **ANNEXURE 15** | Yes

Total Site Area | 30,5292 hectares

Minus undevelopable areas:

Description	Area (Hectares)
Road reserves i.e. Roads, Sidewalks, Rand Water and Gas pipeline	5,7593 Ha
TOTAL	5,7593 Ha

Net Development Area | 24,7699 Ha

SECTION 4: ZONING RIGHTS

Current Zoning | Mining

Zoning certificate attached as **ANNEXURE 13** | Yes

Town Planning Policy | City of Johannesburg Land Use Scheme, 2018

Maximum Potential Zoning

	Floor Area/units
Residential 3 (Erf 4, 5, 6)	48,237m2 (483 units)
Residential 4 (Erf 7, 9, 10, 11)	183,253m2 (2,222 units)
Business 1 (Erf 2, 14)	43,516m2 (231 units)
Business 2 (Erf 3)	52,744m2 (292 units)
Educational (Erf 12, 13)	16,827m2
General (Erf 1)	24,748m2 (137 units)
Public Open Space	1,389m2
Road Reserves – Roads, Sidewalks & Rand Water	57,593m2

Letter from DPUM attached as **ANNEXURE 5 / 6** | City Transformation and Land Use Management are support of the proposed development. Refer to comments per annexure 5 and 6

SECTION 5: SERVICES

The current availability of bulk and link services to the site together with the additional bulk and link requirements to service the proposed development on the site are summarised as follows:

Engineering Assessments were undertaken by the various consultants on the availability of services. The investigation revealed that there are water and sewer connections available on the site. Surrounding roads will need to be upgraded in order to meet the anticipated traffic flow. There is no additional electrical capacity in the Orlando Substation and this will need to be upgraded before development can take place.

Electrical	Electricity is provided by City Power. The Orlando substation is currently operating at full capacity, meaning there is no available capacity for future development.
Electrical Engineers report	Available. Refer to Annexure 17
Water	Available. Refer to Annexure 18
Sewer	Available. Refer to Annexure 18
Roads	One access road is available. Potential access points on Collinder Road and Elias Motsoaledi Road. Refer to Annexure 18
Stormwater	Existing stormwater drainage next to the site. An internal storm water management system will be provided for the development. See Annexure 18

Estimated cost of supply of bulk and link services to the proposed development: This item is in progress as we currently are in receipt of scoping reports from the various consultants.

Electrical	R
Water	R
Sewer	R
Roads	R
Stormwater	R
TOTAL	R

Engineers report attached as **ANNEXURE 17 / 18** Ye s

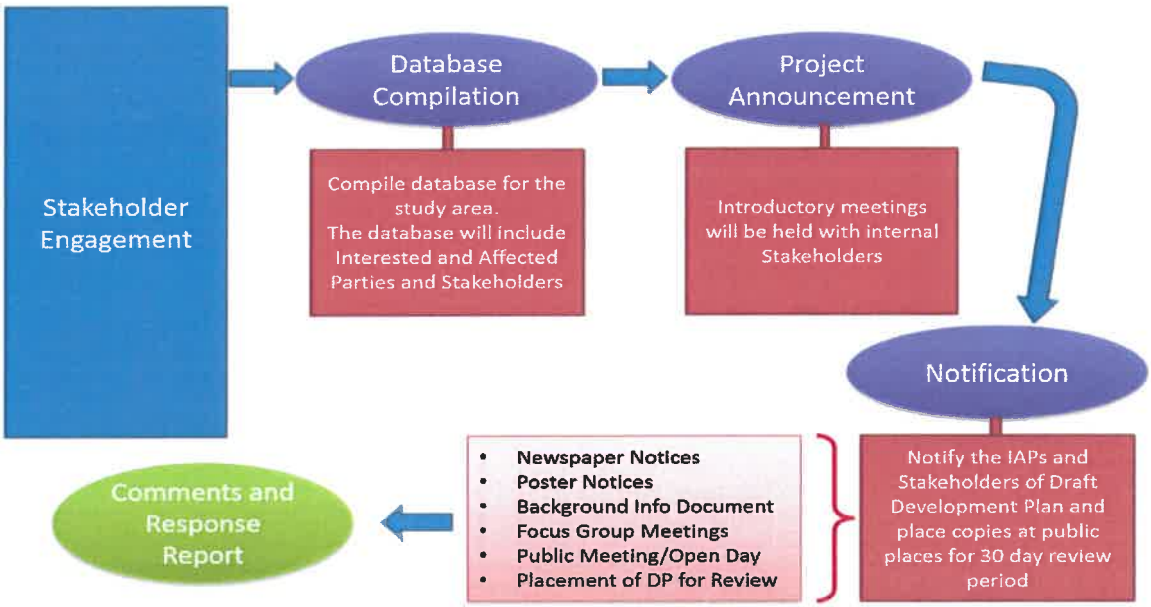
The purchaser will be responsible for the payment of all services and parks contributions which are payable as a result of the rezoning / township establishment of the site.

SECTION 6: COMMUNITY ISSUES

The stakeholder engagement, various stakeholders from different levels have been engaged with and notified of current plans for the site. These stakeholders include Region D officials, the Department of Economic Development, The Chris Hani Baragwanath Academic Hospital and COJ Housing Department thus far. Minutes are attached and refer to Annexure 22.

After approval of the proposed property plan by JPC, a detailed stakeholder engagement process will be undertaken in order to get the township layout approved. The outcomes of the property plan investigations will then be presented to City Transformation, Land-use Management, Region D officials, COJ Housing Department including Local ward councillors, The Department of Transportation and The Community at large in order to commence the public participation process.

Stakeholder Engagement Flow Diagram



SECTION 7: DEVELOPMENT PROPOSAL

Proposed Development Concept – Refer to Annexure 21(Draft Urban Design Report)

SECTION 8: PROPOSED IMPROVEMENTS

Proposed Improvements – Refer to Annexure 15 (Township Layout and Development Controls)

SECTION 9: ESTIMATED COSTS AND EXPECTED RETURNS

Refer to Annexure 23 – In progress and currently being updated to suit the township layout and development controls

SECTION 10: DEVELOPMENT TIMEFRAMES

Available. Refer to Annexure 24

SECTION 11: DEVELOPMENT FEASIBILITY / DEMAND STUDY

Available. Refer to Annexure 25

TOWNSHIP ESTABLISHMENT ON PORTION 159 OF THE FARM DIEPKLOOF NO 319 IQ.

DRAFT BASIC ASSESSMENT REPORT

SEPTEMBER 2019

GDARD Ref.:

EcoSolve

26 Ealston Street
Centurion
0157
Tel: 011 512 0304
Fax: 086 697 7422
tsepo@ecosolve.co.za

Turning Point Project Management
Tel: 011 781 7774
Fax: 086 710 8706
Mobile: 082 961 3888
ghlophe@tpnt.co.za

GAUTENG PROVINCE
AGRICULTURE AND RURAL DEVELOPMENT
REPUBLIC OF SOUTH AFRICA

Basic Assessment Report in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended, and the Environmental Impact Assessment Regulations, 2014 (Version 1)

Kindly note that:

1. This **Basic Assessment Report** is the standard report required by GDARD in terms of the EIA Regulations, 2014.
2. This application form is current as of 8 December 2014. It is the responsibility of the EAP to ascertain whether subsequent versions of the form have been published or produced by the competent authority.
3. **A draft Basic Assessment Report must be submitted, for purposes of comments within a period of thirty (30) days, to all State Departments administering a law relating to a matter likely to be affected by the activity to be undertaken.**
4. **A draft Basic Assessment Report (1 hard copy and two CD's) must be submitted, for purposes of comments within a period of thirty (30) days, to a Competent Authority empowered in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended to consider and decide on the application.**
5. Five (5) copies (3 hard copies and 2 CDs-PDF) of the final report and attachments must be handed in at offices of the relevant competent authority, as detailed below.
6. The report must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.
7. Selected boxes must be indicated by a cross and, when the form is completed electronically, must also be highlighted.
8. An incomplete report may lead to an application for environmental authorisation being refused.
9. **Any report that does not contain a titled and dated full colour large scale layout plan of the proposed activities including a coherent legend, overlain with the sensitivities found on site may lead to an application for environmental authorisation being refused.**
10. The use of "not applicable" in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the application for environmental authorisation being refused.
11. No faxed or e-mailed reports will be accepted. Only hand delivered or posted applications will be accepted.
12. Unless protected by law, and clearly indicated as such, all information filled in on this application will become public information on receipt by the competent authority. The applicant/EAP must provide any interested and affected party with the information contained in this application on request, during any stage of the application process.
13. Although pre-application meeting with the Competent Authority is optional, applicants are advised to have these meetings prior to submission of application to seek guidance from the Competent Authority.

DEPARTMENTAL DETAILS

Gauteng Department of Agriculture and Rural Development
Attention: Administrative Unit of the of the Environmental Affairs Branch
P.O. Box 8769
Johannesburg
2000

Administrative Unit of the of the Environmental Affairs Branch
56 Eloff Street, Umnotho House, Johannesburg, Ground Floor
Administrative Unit telephone number: (011) 240 3377
Department central telephone number: (011) 240 2500

(For official use only)

NEAS Reference Number:	
File Reference Number:	
Application Number:	
Date Received:	

If this BAR has not been submitted within 90 days of receipt of the application by the competent authority and permission was not requested to submit within 140 days, please indicate the reasons for not submitting within time frame.

N/A

Is a closure plan applicable for this application and has it been included in this report? NO

if not, state reasons for not including the closure plan.

The application is for township establishment on Portion 159 of the farm Diepkloof No 319 IQ to be known as Diepkloof Extension 16, Soweto within City of Johannesburg Metropolitan Municipality (CoJ).

It is not envisaged that the rehabilitation measures will require a closure plan. The accompanying Environmental Management Programme (EMPr) however makes provision for rehabilitation of the construction areas which will be conducted in tandem with the construction phase of the project, where possible. Should the need for closure arise, the applicant will submit the plan to the GDARD in terms of the Legislation that will be prevailing at that time. The EAP expects that the impacts of decommissioning and closure will be the same as those for construction and therefore the mitigation measures shall apply.

Has a draft report for this application been submitted to a competent authority and all State Departments administering a law relating to a matter likely to be affected as a result of this activity? YES

Is a list of the State Departments referred to above attached to this report including their full contact details and contact person? N/A

If no, state reasons for not attaching the list.

N/A

Have State Departments including the competent authority commented? NO

If no, why?

This is the first application to the Competent Authority, and no other State Department administering a law relating to this application are affected.

SECTION A: ACTIVITY INFORMATION

1. PROPOSAL OR DEVELOPMENT DESCRIPTION

Project title (must be the same name as per application form):

TOWNSHIP ESTABLISHMENT ON PORTION 159 OF THE FARM DIEPKLOOF NO 319 IQ.

Select the appropriate box

The application is for an upgrade of an existing development		The application is for a new development	X	Other, specify	

Does the activity also require any authorisation other than NEMA EIA authorisation?

	NO X

If yes, describe the legislation and the Competent Authority administering such legislation

---

If yes, have you applied for the authorisation(s)?		NO X
If yes, have you received approval(s)? (attach in appropriate appendix)	YES	NO

2. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

List all legislation, policies and/or guidelines of any sphere of government that are applicable to the application as contemplated in the EIA regulations:

Title of legislation, policy or guideline:	Administering authority:	Promulgation Date:
National Environmental Management Act, 1998 (ActNo. 107 of 1998 as amended).	Department of Environmental Affairs (DEA) Gauteng Department of Agriculture and Rural Development (GDARD)	27 November 1998
National Water Act, 1998 (Act No. 36 of 1998)	Department of Water and Sanitation (DWS)	20 August 1998
National Heritage Resources Act, 1999 (Act No. 25 of 1999)	South Africa Heritage Resources Agency (SAHRA)	14 April 1999
National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)	Department of Environmental Affairs (DEA) Gauteng Department of Agriculture and Rural Development (GDARD)	7 June 2004
National Spatial Biodiversity Assessment:	Department of Environmental Affairs (DEA) Gauteng Department of Agriculture and Rural Development (GDARD)	2011
National Veld and Forest Fire Act, 1998 (ActNo. 1010 of 1998)	Department of Environmental Affairs (DEA) Gauteng Department of Agriculture and Rural Development (GDARD)	27 November 1998

Title of legislation, policy or guideline:	Administering authority:	Promulgation Date:
Occupational Health and Safety Act, 1993 (Act No. 85 of 1993)	National Department of Labour	23 June 1993
Constitution of the Republic of South Africa, 1996 (Act No. 108 of 1996): Chapter 2 Section 24	National, Provincial, and Local Authorities	8 May 1996
The Gauteng Conservation Plan Version 3.3 (2011)	Gauteng Department of Agriculture and Rural Development (GDARD)	October 2011
Conservation of Agricultural Resources (Act 43 of 1983)	National Department of Agriculture	21 April 1983
The Gauteng Agriculture Potential Atlas Version 4.4 Gauteng Planning and Development Act, 2003 (Act No. 3 of 2003)	Gauteng Department of Agriculture and Rural Development(GDARD)	14 October 2003
Gauteng Environmental Management Framework	Gauteng Province	2015

Legislation, policy of guideline	Description of compliance
National Environmental Management Act, 1998 (Act No. 107 of 1998): Environmental Impact Regulation (2014) (NEMA:EIR)	An application for environmental authorisation for the identified Listed Activities in terms of the Environmental Impact Regulation (2014) has been lodged with the Gauteng Department of Agriculture and Rural Development (GDARD). The application will follow a Basic Assessment approach in terms of Section 19 of Government Notice R982(as amended in March 2017) enema: BAR.
National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA)	The South Africa Heritage Resources Agency will be consulted, and a heritage case will be created in the SAHRIS program for statutory comment in terms of Section38(8) of the NHRA (1999).
Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) (OHSA)	The proposed rehabilitation activities will be subject to OHSA during construction/operational phase of the project.
National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) (NEMBA)	Although it is not anticipated, rare or protected species may be affected during construction works. The NEMBA lists flora and fauna species that are threatened and requiring protection to ensure their survival in the wild, while regulating activities which may have a potential negative impact on their long-term survival.
GN. R 327, 7 April 2017, Listing 1 Activity 26: Residential, retail, recreational, tourism, commercial or institutional developments of 1 000 square metres or more, on land previously used for mining or heavy industrial purposes; — excluding —	The proposed development entails high density mixed use development on the property, including but not limited to uses such as a medical precinct (medical purposes, offices), shops, offices, restaurants, dwelling units, hotel, motor showrooms, religious purposes, social halls and places of instruction on Portion 159 of the farm Diepkloof No 319 IQ to be known as Diepkloof Extension 16. The property is approximately 300

(i) where such land has been remediated in terms of part 8 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case the National Environmental Management: Waste Act, 2008 applies; or (ii) where an environmental authorisation has been obtained for the decommissioning of such a mine or industry in terms of this Notice or any previous NEMA notice; or (iii) where a closure certificate has been issued in terms of section 43 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) for such land.	000m^2 (30ha), and will form part of Soweto Empowerment Zone (SEZ)

3. ALTERNATIVES

Describe the proposal and alternatives that are considered in this application. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity could be accomplished. The determination of whether the site or activity (including different processes etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment.

The no-go option must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed. **Do not** include the no go option into the alternative table below.

Note: After receipt of this report the competent authority may also request the applicant to assess additional alternatives that could possibly accomplish the purpose and need of the proposed activity if it is clear that realistic alternatives have not been considered to a reasonable extent.

Please describe the process followed to reach (decide on) the list of alternatives below

3.1 Site alternatives

No property alternatives were considered for the proposed development. The Soweto Empowerment Zone (SEZ) falls within the Transformation Zone in terms of the Spatial Development Framework 2040 (SDF). These are areas where investment is prioritised for future urban intensification and growth, as they have the capacity to trigger positive effects on a metropolitan scale.

3.2. Activity alternatives

This particular property was earmarked for high-density mixed-use development by the CoJ. The activity is required to meet the need for mixed use development in the area.

3.3. Design or layout alternatives

The preferred layout includes Medical facilities, warehousing, high density residential, public open spaces, hotels, conference centres, convenience stores, community facilities and municipal office (See table below for proposed land uses)

PTN 159 Diepkloof 3198Q - Detailed Proposed Land Uses

Site	Area (m2)	Area (Ha)	Zoning	Proposed Land Uses	FAR	Bulk (m2)	Density (Du/Ha)	No. of dwelling Units
PTN 1	19749	1,97	General	Business purposes, Shops, Restaurants, Offices, Car sales lot, Motor showrooms, Showrooms, Dwelling units, Residential buildings, Warehouses	1,8	24748	100	197
PTN 2	29111	2,91	Business 1	Business purposes, Shops, Restaurants, Offices, Car sales lot, Motor showrooms, Showrooms, Dwelling units, Residential buildings, Warehouses	1,8	41500	100	291
PTN 3	29302	2,93	Business 2	Offices, Shops, Restaurants, Medical Consulting Rooms, Clinic, Place of instruction, Dwelling units, Residential buildings	1,8	52744	100	293
PTN 4	12247	1,22	Residential 3	Dwelling units, Residential buildings	1,5	18371	150	184
PTN 5	12247	1,22	Residential 3	Dwelling units, Residential buildings	1,5	18371	150	184
PTN 6	7663	0,77	Residential 3	Dwelling units, Residential buildings	1,5	11495	150	115
PTN 7	29546	2,95	Residential 4	Dwelling units, Residential buildings	2	59092	250	739
PTN 8	6944	0,69	Public Open Space	Public Open Space	0,2	1389	0	0
PTN 9	33086	3,31	Residential 4	Dwelling units, Residential buildings	2	66172	250	827
PTN 10	20751	2,08	Residential 4	Dwelling units, Residential buildings	2	41502	250	519
PTN 11	19789	1,97	Residential 4	Dwelling units, Residential buildings, Hotel, Conference Cetre, Restaurant	1,2	16487	100	197
PTN 12	35852	3,58	Educational	Place of instruction, Child care centre, Religious purposes, Institutions, Social halls, Sport and recreation clubs	0,4	14739	0	0
PTN 13	5256	0,52	Educational	Place of instruction, Child care centre	0,4	2094	0	0
PTN 14	3194	0,32	Business 1	Shops, Restaurants, Business purposes, Car sales lot, Showrooms, Motor Showrooms	0,6	1916	0	0
Roads	57645	5,76	Public Road	Public Roads	0	0	0	0
	305292	30,53				370712		3366

3.4. Technology alternatives

The propped development will utilise Green Building principles and will utilise processes that are environmentally responsible and resource-efficient throughout a building's life-cycle: from planning to design, construction, operation, maintenance, renovation, and demolition.

3.5. No-go alternative

The no-go Alternative is the option of not undertaking the proposed development. The no-go option would result in failure for the CoJ to meet the growing need for mixed use development in the area. This would have long-term negatively repercussions on the socio-economic structure of the population of CoJ. Currently the land is not being utilised and it serves very little ecological service due to its degraded state. The proposed development will aid the development intent to unlock Soweto as a True City District. Intensification and diversification of land uses through densification and mixed-uses in the proposed development is viewed positively and well received.

Provide a description of the alternatives considered

No.	**Alternative type**, either alternative: site on property, properties, activity, design, technology, energy, operational or other(provide details of "other")	**Description**
1	Proposal	
2	Alternative 1	

3	Alternative 2	
	Etc.	

In the event that no alternative(s) has/have been provided, a motivation must be included in the table below.

N/A

4. PHYSICAL SIZE OF THE ACTIVITY

Indicate the total physical size (footprint) of the proposal as well as alternatives. Footprints are to include all new infrastructure (roads, services etc), impermeable surfaces and landscaped areas:

	Size of the activity:
Proposed activity ***(Total environmental (landscaping, parking, etc.) and the building footprint)***	30ha
Alternatives:	
Alternative 1 (if any)	N/A
Alternative 2 (if any)	
	Ha/ m^2

or, for linear activities:

	Length of the activity:
Proposed activity	
Alternatives:	
Alternative 1 (if any)	
Alternative 2 (if any)	
	m/km

Indicate the size of the site(s) or servitudes (within which the above footprints will occur):

	Size of the site/servitude:
Proposed activity	
Alternatives:	
Alternative 1 (if any)	
Alternative 2 (if any)	
	Ha/m^2

5. SITE ACCESS

Proposal

Does ready access to the site exist, or is access directly from an existing road?	YES X
If NO, what is the distance over which a new access road will be built	m

Describe the type of access road planned:

N/A

Include the position of the access road on the site plan (if the access road is to traverse a sensitive feature the impact thereof must be included in the assessment).

Alternative 1

Does ready access to the site exist, or is access directly from an existing road?	YES X
If NO, what is the distance over which a new access road will be built	m

Describe the type of access road planned:

N/A

Include the position of the access road on the site plan. (if the access road is to traverse a sensitive feature the impact thereof must be included in the assessment).

Alternative 2

Does ready access to the site exist, or is access directly from an existing road? YES X

If NO, what is the distance over which a new access road will be built m

Describe the type of access road planned:

N/A

Include the position of the access road on the site plan. (if the access road is to traverse a sensitive feature the impact thereof must be included in the assessment).

PLEASE NOTE: Points 6 to 8 of Section A must be duplicated where relevant for alternatives

Section A 6-8 has been duplicated [ ] Number of times (only complete when applicable)

6. LAYOUT OR ROUTE PLAN

A detailed site or route (for linear activities) plan(s) must be prepared for each alternative site or alternative activity. It must be attached to this document. The site or route plans must indicate the following:

- the layout plan is printed in colour and is overlaid with a sensitivity map (if applicable);
- layout plan is of acceptable paper size and scale, e.g.
  - A4 size for activities with development footprint of 10sqm to 5 hectares;
  - A3 size for activities with development footprint of > 5 hectares to 20 hectares;
  - A2 size for activities with development footprint of >20 hectares to 50 hectares);
  - A1 size for activities with development footprint of >50 hectares);

- The following should serve as a guide for scale issues on the layout plan:
  - A0 = 1: 500
  - A1 = 1: 1000
  - A2 = 1: 2000
  - A3 = 1: 4000
  - A4 = 1: 8000 (±10 000)
- shapefiles of the activity must be included in the electronic submission on the CD's;
- the property boundaries and Surveyor General numbers of all the properties within 50m of the site;
- the exact position of each element of the activity as well as any other structures on the site;
- the position of services, including electricity supply cables (indicate above or underground), water supply pipelines, boreholes, sewage pipelines, septic tanks, storm water infrastructure;
- servitudes indicating the purpose of the servitude;
- sensitive environmental elements on and within 100m of the site or sites (including the relevant buffers as prescribed by the competent authority) including (but not limited thereto):
  - Rivers and wetlands;
  - the 1:100 and 1:50 year flood line;
  - ridges;
  - cultural and historical features;
  - areas with indigenous vegetation (even if it is degraded or infested with alien species);

- Where a watercourse is located on the site at least one cross section of the water course must be included (to allow the position of the relevant buffer from the bank to be clearly indicated)

FOR LOCALITY MAP (NOTE THIS IS ALSO INCLUDED IN THE APPLICATION FORM REQUIREMENTS)

- the scale of locality map must be at least 1:50 000. For linear activities of more than 25 kilometres, a smaller scale e.g. 1:250 000 can be used. The scale must be indicated on the map;
- the locality map and all other maps must be in colour;
- locality map must show property boundaries and numbers within 100m of the site, and for poultry and/or piggery, locality map must show properties within 500m and prevailing or predominant wind direction;
- for gentle slopes the 1m contour intervals must be indicated on the map and whenever the slope of the site exceeds 1:10, the 500mm contours must be indicated on the map;
- areas with indigenous vegetation (even if it is degraded or infested with alien species);
- locality map must show exact position of development site or sites;
- locality map showing and identifying (if possible) public and access roads; and
- the current land use as well as the land use zoning of each of the properties adjoining the site or sites.

7. SITE PHOTOGRAPHS

Colour photographs from the center of the site must be taken in at least the eight major compass directions with a description of each photograph. Photographs must be attached under the appropriate Appendix. It should be supplemented with additional photographs of relevant features on the site, where applicable.

8. FACILITY ILLUSTRATION

A detailed illustration of the activity must be provided at a scale of 1:200 for activities that include structures. The illustrations must be to scale and must represent a realistic image of the planned activity. The illustration must give a representative view of the activity to be attached in the appropriate Appendix.

SECTION B: DESCRIPTION OF RECEIVING ENVIRONMENT

Note: Complete Section B for the proposal and alternative(s) (if necessary)

Instructions for completion of Section B for linear activities

1) For linear activities (pipelines etc) it may be necessary to complete Section B for each section of the site that has a significantly different environment.
2) Indicate on a plan(s) the different environments identified
3) Complete Section B for each of the above areas identified
4) Attach to this form in a chronological order
5) Each copy of Section B must clearly indicate the corresponding sections of the route at the top of the next page.

Section B has been duplicated for sections of the route	**"insert No. of duplicates"**	times

Instructions for completion of Section B for location/route alternatives

1) For each location/route alternative identified the entire Section B needs to be completed
2) Each alterative location/route needs to be clearly indicated at the top of the next page
3) Attach the above documents in a chronological order

Section B has been duplicated for location/route alternatives	**DisplayText cannot span**	time s	(complete only when appropriate)

Instructions for completion of Section B when both location/route alternatives and linear activities are applicable for the application

Section B is to be completed and attachments order in the following way

- All significantly different environments identified for Alternative 1 is to be completed and attached in a chronological order; then
- All significantly different environments identified for Alternative 2 is to be completed and attached chronological order, etc.

Section B - Section of Route		(complete only when appropriate for above)
Section B – Location/route Alternative No.		(complete only when appropriate for above)

1. PROPERTY DESCRIPTION

Property description: (Including Physical Address and Farm name, portion etc.)	**Property description:** Portion 159 of the farm Diepkloof No 319 IQ. **Street Address:** Corner of Chris Hani Road and Collinder Road, Diepkloof.

2. ACTIVITY POSITION

Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in decimal degrees. The

degrees should have at least six decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

Alternative:	**Latitude (S):**	**Longitude (E):**
	-26.264417°	27.950876°

In the case of linear activities:

Alternative:	**Latitude (S):**	**Longitude (E):**
• Starting point of the activity		
• Middle point of the activity		
• End point of the activity		

For route alternatives that are longer than 500m, please provide co-ordinates taken every 250 meters along the route and attached in the appropriate Appendix

Addendum of route alternatives attached	Appendix D

The 21 digit Surveyor General code of each cadastral land parcel

PROPOSAL	T	0	I	Q	0	0	0	0	1	9	0	0	0	0	0	3	1	9	0	0	1
ALT. 1																					
ALT. 2																					

3. GRADIENT OF THE SITE

Indicate the general gradient of the site.

	1:15 – 1:10 X	

4. LOCATION IN LANDSCAPE

Indicate the landform(s) that best describes the site.

Ridgeline X		Side slope of hill/ridge X	Valley X	

5. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

a) Is the site located on any of the following?

Shallow water table (less than 1.5m deep)		NO X

Dolomite, sinkhole or doline areas	NO X
Seasonally wet soils (often close to water bodies)	NO X
Unstable rocky slopes or steep slopes with loose soil	NO X
Dispersive soils (soils that dissolve in water)	NO X
Soils with high clay content (clay fraction more than 40%)	NO X
Any other unstable soil or geological feature	NO X
An area sensitive to erosion	NO X

(Information in respect of the above will often be available at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by Geological Survey may also be used).

b) are any caves located on the site(s) NO

If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

Latitude (S):	**Longitude (E):**
°	°

c) are any caves located within a 300m radius of the site(s) NO

If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

Latitude (S):	**Longitude (E):**
°	°

d) are any sinkholes located within a 300m radius of the site(s) NO

If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

Latitude (S):	**Longitude (E):**
°	°

If any of the answers to the above are "YES" or "unsure", specialist input may be requested by the Department

6. AGRICULTURE

Does the site have high potential agriculture as contemplated in the Gauteng Agricultural Potential Atlas (GAPA 4)? NO

According to the GAPA 4, the area has a low agriculture potential, 10 and 12 (Figure 5).

Please note: The Department may request specialist input/studies in respect of the above.

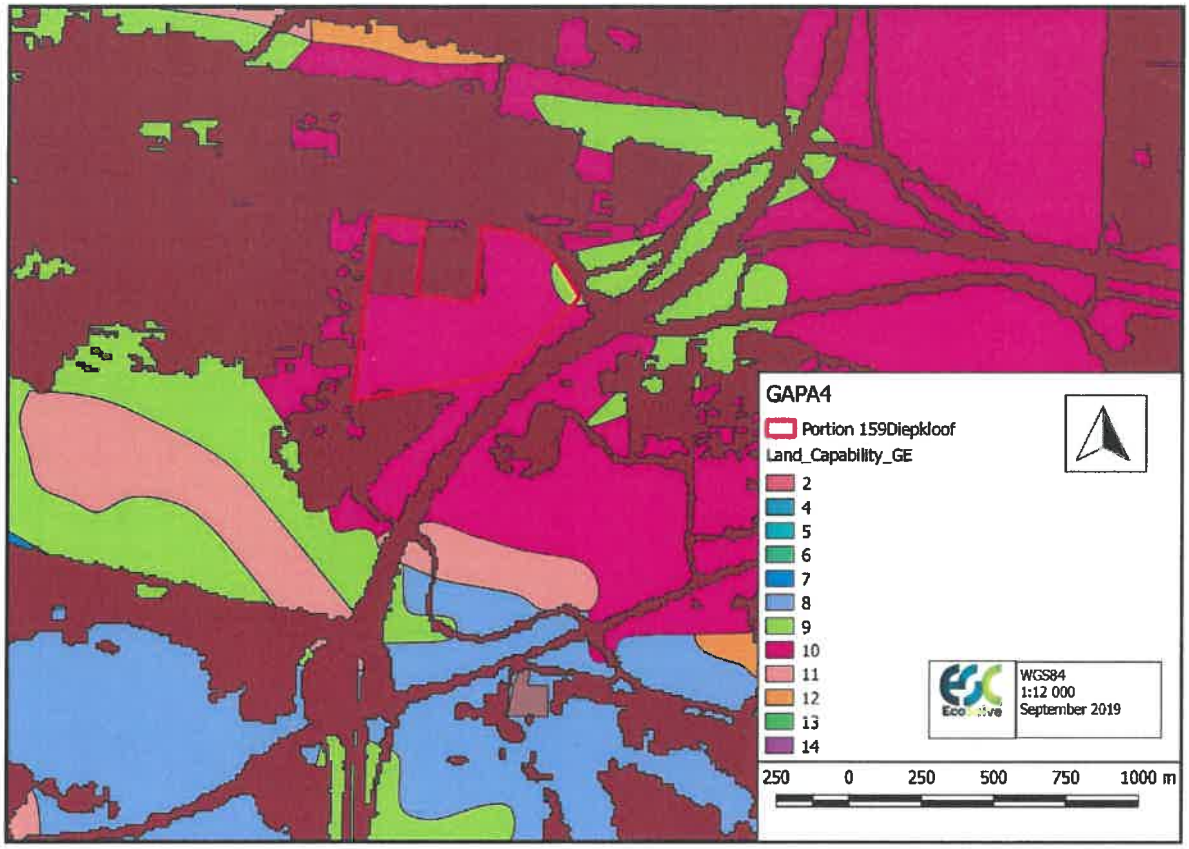


Figure 1: GAPA 4

7. GROUNDCOVER

To be noted that the location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

Indicate the types of groundcover present on the site and include the estimated percentage found on site

Natural veld - good condition % = 0	Natural veld with scattered aliens % = 0	Natural veld with heavy alien infestation % = 40	Veld dominated by alien species % = 60	Landscaped (vegetation) % = 0
Sport field % = 0	Cultivated land % = 5	Paved surface (hard landscaping) % = 0	Building or other structure % = 0	Bare soil % = 0

Please note: The Department may request specialist input/studies depending on the nature of the groundcover and potential impact(s) of the proposed activity/ies.

Are there any rare or endangered flora or fauna species (including red list species) present on the site	NO X

If YES, specify and explain:

N/A

Are there any rare or endangered flora or fauna species (including red list species) present within a 200m (if within urban area as defined in the Regulations) or within 600m (if outside the urban area as defined in the Regulations) radius of the site.	NO X

If YES, specify and explain:

N/A

Are there any special or sensitive habitats or other natural features present on the site?	YES X

If YES, specify and explain:

The Gauteng Conservation Plan 3.3 described the study area as falling within Critical Biodiversity Areas (CBA's) and Ecological support areas (ESA's) (Figure 2). CBAs are areas of the landscape that need to be maintained in a natural or near-natural state in order to ensure the continued existence and functioning of species and ecosystems and the delivery of ecosystem services. In other words, if these areas are not maintained in a natural or near-natural state then biodiversity conservation targets cannot be met. Maintaining an area in a natural state can include a variety of biodiversity-compatible land uses and resource uses. Ecological support areas (ESA's) are areas that are not essential for meeting biodiversity representation targets/thresholds but which nevertheless play an important role in supporting the ecological functioning of critical biodiversity areas and/or in delivering ecosystem services that support socio-economic development, such as water provision, flood mitigation or carbon sequestration. The degree of restriction on land use and resource use in these areas may be lower than that recommended for critical biodiversity areas According to Gauteng Conservation Plan 3.3, CBAs contain irreplaceable, important and protected areas and ESAs contain buffered wetlands, buffered rivers, ridges within 1500m of CBAs, dolomite, corridors and low cost metropolitan areas.

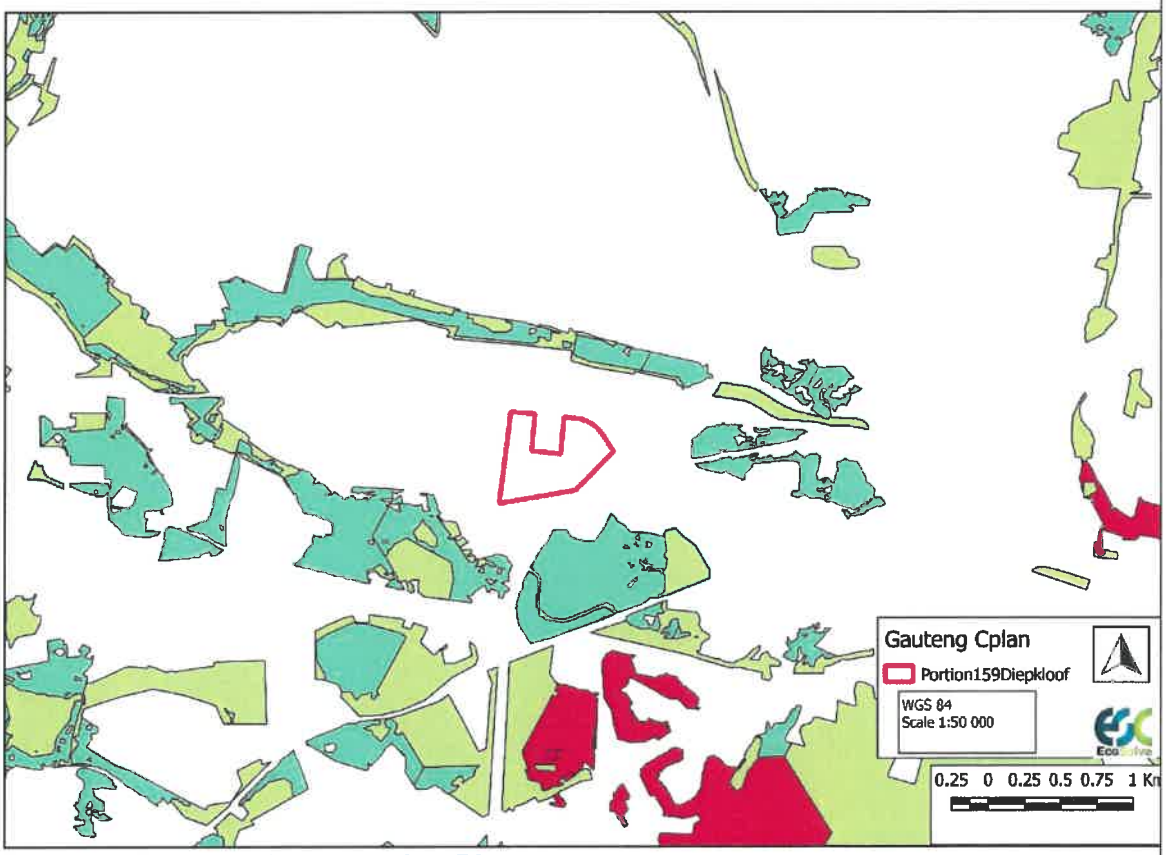


Figure 2: Gauteng Conservation Plan

According to Gauteng Conservation Plan version 3.3 (C Plan 3.3), the proposed area does not fall within any of the areas identified as CBAs or ESAs.

Figure 3: Typical landscape

Was a specialist consulted to assist with completing this section	YES X		
If yes complete specialist details			
Name of the specialist:	Thabo Mohlala (Pr.Sci.Nat)		
Qualification(s) of the specialist:	MSc, Wits University South African Council for Natural Scientific Professions (SACNASP) Reg No.: 114264		
Postal address:	292 Katiso Street Phalaborwa		
Postal code:	1390		
Telephone:		Cell:	076 822 2210
E-mail:	thabo@emnamconsulting.co.za	Fax:	
Are any further specialist studies recommended by the specialist?		NO X	
If YES, specify:	N/A		
If YES, is such a report(s) attached?		NO X	

If YES list the specialist reports attached below

N/A

Signature of specialist:		Date:	25 September 2019

Was a specialist consulted to assist with completing this section	YES X		

If yes complete specialist details

Name of the specialist:	Molefi Rajele		
Qualification(s) of the specialist:	MSc, Integrated Water Resources Management. University of Western Cape.		
Postal address:	26 Jellicoe Street Extension 1 eMalahleni		
Postal code:	1034		
Telephone:	+27 (0) 13 656 1212	Cell:	
E-mail:	mrajele@margen.co.za	Fax:	+27 (0) 13 656 2333

Are any further specialist studies recommended by the specialist?		NO X
If YES, specify:		
If YES, is such a report(s) attached?		NO X

If YES list the specialist reports attached below

N/A

Signature of specialist:

Date: 25 September 2019

Please note; If more than one specialist was consulted to assist with the filling in of this section then this table must be appropriately duplicated

8. LAND USE CHARACTER OF SURROUNDING AREA

Using the associated number of the relevant current land use or prominent feature from the table below, fill in the position of these land-uses in the vacant blocks below which represent a 500m radius around the site

1. Vacant land	2. River, stream, wetland	3. Nature conservation area	4. Public open space	5. Koppie or ridge
6. Dam or reservoir	7. Agriculture	8. Low density residential	9. Medium to high density residential	10. Informal residential
11. Old age home	12. Retail	13. Offices	14. Commercial & warehousing	15. Light industrial
16. Heavy industrial[AN]	17. Hospitality facility	18. Church	19. Education facilities	20. Sport facilities
21. Golf course/polo fields	22. Airport[N]	23. Train station or shunting yard[N]	24. Railway line[N]	25. Major road (4 lanes or more)[N]
26. Sewage treatment plant[A]	27. Landfill or waste treatment site[A]	28. Historical building	29. Graveyard	30. Archeological site

31. Open cast mine	32. Underground mine	33.Spoil heap or slimes dam[A]	34. Small Holdings	
Other land uses (describe):				

NOTE: Each block represents an area of 250m X 250m, if your proposed development is larger than this please use the appropriate number and orientation of hashed blocks

NORTH

9/12	9/12	9	9	9
9/14	9/12	15	9	9
13	13		25	25
8	8	1/25	25	9
1/13	1/13	25	25	25

WEST

EAST

= Site

SOUTH

Note: More than one (1) Land-use may be indicated in a block

Please note: The Department may request specialist input/studies depending on the nature of the land use character of the area and potential impact(s) of the proposed activity/ies. Specialist reports that look at health & air quality and noise impacts may be required for any feature above and in particular those features marked with an "A" and with an "N" respectively.

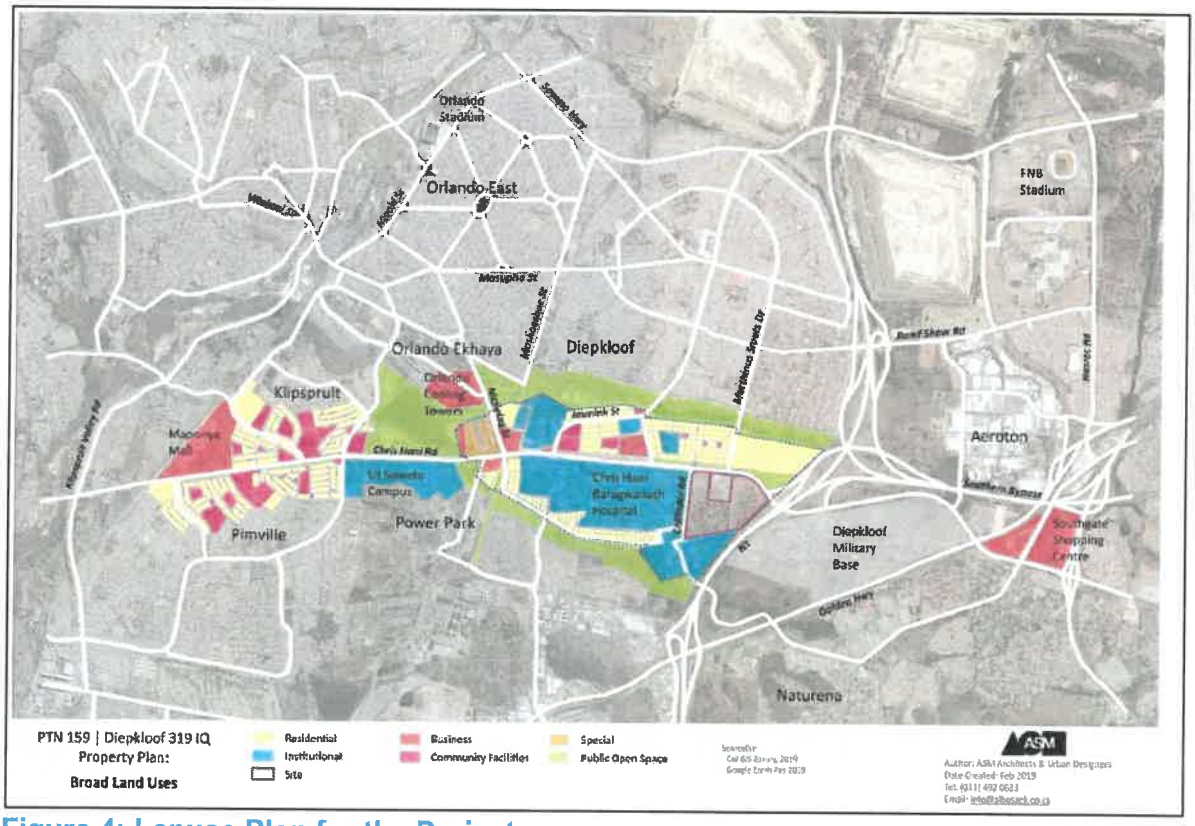


Figure 4: Lanuse Plan for the Project

Have specialist reports been attached	YES
If yes indicate the type of reports below	
Traffic Impact study	
Land Use Planner	

9. SOCIO-ECONOMIC CONTEXT

Describe the existing social and economic characteristics of the area and the community condition as baseline information to assess the potential social, economic and community impacts.

Level of unemployment

The unemployment rate in South Africa increased to 29 percent in the second quarter of 2019 from 27.6 in the previous period. It was the highest jobless rate since the first quarter of 2003, as the number of unemployed rose by 455 thousand to 6.65 million and employment rose by 21 thousand to 16.31 million. A year earlier, the jobless rate was lower at 27.2 percent. Unemployment Rate in South Africa averaged 25.71 percent from 2000 until 2019, reaching an all time high of 31.20 percent in the first quarter of 2003 and a record low of 21.50 percent in the fourth quarter of 2008.

The City of Johannesburg Metropolitan Municipality (CoJMM) are reflective of the challenges that its regions are facing. CoJMM continues to fight unemployment, which is one of the major problems facing South Africa as a whole. Overall, CoJMM unemployment in the second quarter of 2015 was 26.2% based on a narrow definition (StatsSA Quarterly Labour Force Survey July 2015). If the expanded definition is taken into account, unemployment in the region rises to approximately 40%. Youth unemployment is of particular concern and is estimated to be above 35%.
The finance sector is the biggest employer in the region accounting for 26.6% of total employment, followed by the trade sector which employs 21.1% of the formal sector workers. The agricultural sector employs the least share of the formal sector workers with only 0.4% (Global sight, 2015).
Informal economy employs 12.4% of the total employment in Johannesburg. The biggest number of informal economy jobs is generated in trade.

Economic profile of local municipality

Despite being the largest urban residential area in the country, the formal economy of Soweto is very small. It is a region that comprises about 43% of the total population of the City yet contributes about 4% towards the economy of Johannesburg Metro. The Community Services sector (government services like clinics, hospitals, schools etc.) accounts for 20% of the total economy. This is then followed by negligible contributions of about 4% by construction, 3.5% by transport and 3% by the trade sector. Put simply, Soweto does not have a diversified economic base. As such, it is predominantly dependent on the economic activity of the Johannesburg Metropolitan area for its formal employment opportunities.

Sectoral Overview

a) The Tourism Sector

Nationally and internationally, Soweto enjoys an iconic status. Events such as the Soweto Students Uprisings and iconic personalities like Nobel Laureates Nelson Mandela and Desmond Tutu as well as other struggle personalities all point to the fact that Soweto enjoys

a particular place in history. Moreover, it is estimated that the Soweto tourism industry, directly and indirectly, contributed R143 million to the Gauteng gross geographic product in 2003. This accounts for less than 1% of the amount generated by the South African Tourism Economy in 2002. It is estimated that Soweto generated over 1400 jobs and R61 million in salaries in 2003. Soweto's contribution to taxes was calculated as R29 million in tax revenue to provincial and local governments in the same year.

Given the average compound growth of 2.4% forecast over all markets between 2004 and 2013 and assuming that Soweto continues to achieve its current market share, the following results will be achieved:1 100 000 visitors in 2013; 120 000 visits to tourist attractions in Soweto by 2013. These figures were projected before the 2010 Soccer World Cup hosting was announced. However, it needs to be highlighted that for the region to benefit from the bigger cake of the tourism industry, diversification of the Soweto tourism product portfolio needs to happen, concerns around safety and security need to be addressed, infrastructure investments need to take place, and customer care needs to improve. It is further noted in the tourism plan that integration of Soweto into spatial tourism zones outside the region needs to be undertaken – with particular emphasis placed on Sandton, Fourways and Golf Reef City.

b) The Manufacturing Sector

Whilst there is currently no manufacturing strategy for the region, existing evidence nonetheless seems to suggest that there is no well-developed manufacturing sector in Soweto. Such a phenomenon could be attributed to the residential land use monotony within the region. Nonetheless, a number of underdeveloped and underutilised industrial areas have been established in Soweto. However, the take-up rate is very low, with large areas still undeveloped as the list below indicates:

i) Emndeni 2,6ha Under utilized

ii) Midway 3,5ha Largely undeveloped (about 60% vacancy levels)

iii) Chiawelo Ext 6 5,8ha Vacant iv. Dlamini Ext 3 8,3ha Largely underdeveloped

iv) Nancefield 7,2ha Under utilized

v) Dobsonville 2000m^2 Under utilized

The industrial areas in Soweto find themselves in a precarious position since they have to compete with the other industrial parks available elsewhere in Johannesburg. Although the level of infrastructure is more or less on par with comparable industrial areas, and the price of land is generally cheaper, there is still a perception in the minds of investors and industrialists about levels of crime in Soweto, which adds to the business risks. Furthermore, Soweto is not very accessible and transportation to and from the industrial areas is generally costlier than for comparable areas. These factors militate against the marketability and attractiveness of Soweto as a location for industrial investment. In the absence of significant comparative advantages, it becomes a challenge to successfully market industrial areas in Soweto. The most realistic strategy would be to gradually build a base of sustainable manufacturing enterprises, in order to illustrate that such activities can be located successfully in Soweto. This can be achieved by harnessing local demand within the region.

The Soweto Economic Empowerment Zone is one instrument through which a case is being built for locating industrial enterprises in Soweto. This dedicated SMME and BEE enterprises industrial park is comprised of six clusters, which seek to ensure that the facility is itself

diversified and avoids pitfalls of other similar type industrial estates that government unsuccessfully promoted in the past. These clusters are as follows:

- Property development and management;
- Automotive (motor repair, services and related);
- Paper and printing;
- Furniture;
- Home ware industries, and;
- Clothing and Textile.

This initiative needs to ensure that functional economic linkages between the Sowetan economy and other economic opportunities within and outside the region are strengthened.

The Informal Sector

The informal sector has proliferated in Soweto, and has become a very important source of employment opportunities and income. However, the strong growth in the informal sector is not the result of a sudden surge in the level of entrepreneurship. Rather, it is the result of the high increase in the level of unemployment, which in effect forces people to engage in other economic activities to augment their household survival strategy.

The location of the informal sector is always a very good indication of the degree of demand for the particular goods and services on offer. As such, informal activities are most concentrated at major intersections where there is a high degree of accessibility, and at modal interchanges, where there is a large through flow of pedestrian traffic. Others locate next to larger shopping centres / malls, or at government facilities, where they "feed off" the traffic generated by these concentrations. As such, there is a very strong link between the formal and informal sector. In general, it would appear as if the formal sector do not view the informal sector as a direct threat, as they cater for different market segments. Factors that hamper the informal sector include the unavailability of ablution facilities, proper trading places and a lack of protection against criminal elements. Also, most of the traders do not have access to storage facilities, and most of the entrepreneurs store their goods at home. The large number of people that have entered the industry has resulted in high levels of competition and low profit margins. As a result, most informal activities are survivalist in nature. The most dominant commodities and services offered by the informal sector are fruit & vegetables, street garages, and public telephones. Other typical commodities and services include shoe repairs, hair cutting, traditional doctors, sale of meat, sales of snacks and the sale of second hand clothes. The customer profile depends on the location, and can include taxi / train commuters, pedestrians, public servants, residents and the customers to other facilities in the area such as clinics, or the shopping centre. In broad terms, a distinction can be made between those informal activities that are located at particular places, and those that are performed from home. The former type would locate at highly accessible points such as taxi ranks as they are reliant on a constant flow of vehicular or pedestrian traffic. The typical activity would be trade orientated. The informal activities that are performed from home do not require such a high traffic volume to be profitable, and typical examples include bakeries and traditional doctors.

The informal sector by its nature is robust, dynamic and flexible. The local informal sector has become a major source of employment, and it has a significant role to play in the regional economy.

The Retail Sector

Until recently, the retail sector has been under-provided in Soweto. It is for this reason that in the development of Soweto over time, there were concerns by the residents that the region served to subsidise the traditional white areas in addition to being a residential monotony. It is out of this recognition that the retail strategy for Soweto was developed – from which most of the remarks in this economic development plan are pulled. As regards the assessment of supply and demand, the Retail Strategy arrived at the conclusions that:

- The total demand for retail goods in Soweto is estimated at R4.2 billion per year;
- Of this R4.2 billion spent by Soweto residents, only R1.05 billion is being spent within Soweto;
- The balance is spent in the City of Johannesburg and Southgate predominantly;
- There would be a projected increase of retail spending from R1.05 billion to R2.1 billion over a period of five years;

As such, there would be a need for new shopping space in Soweto. As a result of the assessment, the Retail Strategy was developed and the strategic thrusts could be summarised as follows:

- The City of Johannesburg supported the development of an additional 70 000 square metres of retail space in Soweto over a period of five years – (2004 – 2009);
- Approximately 30 000 square metres were already under construction (Baralink Mall and Protea Gardens) and these were also supported;
- Of the remaining 40 000 square metres believed to be viable, the City intended that about 5 000 square metres be used for street front shopping development aimed at providing convenience shopping in local neighbourhoods and niche shops associated with tourism and entertainment;
- The remaining 35 000 square metres be reserved for new development during the 2004 – 2009-time period;
- Baralink, Kliptown and Jabulani are strongly favoured as locations for new shopping centres – with Ikhwezi being a next nodal priority and Diepkloof being targeted as a smaller neighbourhood centre;
- With regard to new centres, the City would like to see the development of centres which accommodate local retailers, with value centres designed for smaller scale enterprises as an example;
- The City also liked to see energy being placed on the improvement of existing facilities such as Dobsonville, Crossroads and Meadowpoint, and;
- Commitment for supporting informal sector retail development was also demonstrated by the City.

Note was also made of the proposal for the development of the Soweto Crossing – which is nowadays Maponya Mall. Whilst it is not clear-cut, it is obvious that the City did not support the Maponya Mall – given all the technical justifications advanced through the Retail Strategy. Nonetheless, the Maponya Mall has become a contemporary retail landmark of Soweto. Consequently, it has had an added benefit of ensuring that travel time is saved, jobs have been created, benefits are accruing to property developers and owners, the retail sector value chain has been improved through transport, goods supplies, tourism and, functional city efficiency improved.

Of course, there are downsides as well such as the collapse of smaller retail businesses and big business type developments being the norm.

a) 25 Year Gauteng Integrated Master Plan

The Gauteng road network remains one of the most important infrastructure assets of the province that underpins and support local economic growth and the resultant growth in job opportunities within the identified corridors and nodes. It is thus vitally important that the Gauteng Province develop and maintain an integrated road network. The proposed Braamfischerville – Thulani Project seeks to fulfil this mandate. Other planned developments in the area include a railway corridor and Class 1 road (Figure 9).

10. CULTURAL/HISTORICAL FEATURES

Please be advised that if section 38 of the National Heritage Resources Act 25 of 1999 is applicable to your proposal or alternatives, then you are requested to furnish this Department with written comment from the South African Heritage Resource Agency (SAHRA) – Attach comment in appropriate annexure

38. (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as-
(a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
(b) the construction of a bridge or similar structure exceeding 50m in length;
(c) any development or other activity which will change the character of a site-
(i) exceeding 5 000 m2 in extent; or
(ii) involving three or more existing erven or subdivisions thereof; or
(iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or
(iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;
(d) the re-zoning of a site exceeding 10 000 m2 in extent; or
(e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.

Are there any signs of culturally (aesthetic, social, spiritual, environmental) or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including archaeological or palaeontological sites, on or close (within 20m) to the site?	NO X

If YES, explain:

N/A

If uncertain, the Department may request that specialist input be provided to establish whether there is such a feature(s) present on or close to the site.

Briefly explain the findings of the specialist if one was already appointed:

The Phase I Archaeological and Cultural Heritage Impact Assessment for the proposed construction of a road has identified no significant impacts to archaeological or grave resources that will need to be mitigated prior construction. None of the heritage resource mentioned under Section 3 of the National Heritage Resources Act where noted in the other proposed alternatives.

Will any building or structure older than 60 years be affected in any way?		NO X
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)? If yes, please attached the comments from SAHRA in the appropriate Appendix		NO X

SECTION C: PUBLIC PARTICIPATION (SECTION 41)

1. The Environmental Assessment Practitioner must conduct public participation process in accordance with the requirement of the EIA Regulations, 2014.

2. LOCAL AUTHORITY PARTICIPATION

Local authorities are key interested and affected parties in each application and no decision on any application will be made before the relevant local authority is provided with the opportunity to give input. The planning and the environmental sections of the local authority must be informed of the application at least thirty (30) calendar days before the submission of the application to the competent authority.

Was the draft report submitted to the local authority for comment?	YES X	
If yes, has any comments been received from the local authority?	YES X	

If "YES", briefly describe the comment below (also attach any correspondence to and from the local authority to this application):

(a) principle by Land Use Management directorate from CoJ subject to various amendments to the proposed land use zonings and densities. It is noted that the current proposal does not include 4 portions. Land Use Management recommends these portions be included into the overall development concept as portion 15, 16, 17 and 18. The Township application must be submitted with following proposed zoning and density amendments:

- Portion 1: Business to General
- Portion 3: Commercial to Business 2
- Portions 4-6: Residential 3 at 150 dwelling units per hector
- Portion 7: Residential 4 at 250 dwelling units per hector
- Portion 9: Residential 4 at 250 dwelling units per hector
- Portion 10: Residential 4 at 250 dwelling units per hector
- Portions 13-14: Community facility to Institutional
- Portion 15: Municipal
- Portions 16-17: Business 1
- Portion 18: Industrial 1

(b) The proposed development concept of the SEZ aids the development intent to unlock Soweto as a True City District. Intensification and diversification of land uses through densification and mixed-uses in the proposed development is viewed positively and well received, hence City Transformation and Spatial Planning directorate is in support of the proposal.

(c) CoJ Housing suggested that residential housing be planned as high rise units with sectional titles. They asked whether the project had considered property title schemes.

(d) CoJ suggested that the project investigate other pilot low cost high rise projects that CoJ Housing has undertaken to obtain guidance. They suggested Vleihoff and Jabulani as good examples to investigate.

(e) CoJ mentioned that it was important to note that previous feasibility studies were undertaken in response to the overflow of demand from Phase 1 of Elias Motsoaledi Housing Development, and that Reconstruction and Development Programme (RDP) housing was planned, but it ultimately proved to be unfeasible.

(f) CoJ added that they was pleased that the SGP would be catering for low cost housing for Elias Motsoaledi, and that CoJ supported the densification concept (i.e. that a high rise, low cost model would work).

(g) WM stated that in addition to the Elias Motsoaledi community, there may be people from the Diepkloof community who would want to be part of the new development. They suggested that the project may need to consider incorporating Diepkloof, and possibly Orlando within the low cost and social housing sections of the development. CoJ further added that to pre-empt opposition, they recommended including Diepkloof and Orlando communities, because the project will be disrupted if they are not included. The aim would be to balance inclusion from all three communities.

If "NO" briefly explain why no comments have been received or why the report was not submitted if that is the case.

N/A

3. CONSULTATION WITH OTHER STAKEHOLDERS

Any stakeholder that has a direct interest in the activity, site or property, such as servitude holders and service providers, should be informed of the application at least **thirty (30) calendar days** before the submission of the application and be provided with the opportunity to comment.

Has any comment been received from stakeholders?

	NO X

If "YES", briefly describe the feedback below (also attach copies of any correspondence to and from the stakeholders to this application):

If "NO" briefly explain why no comments have been received

The project has only been introduced to the Local Authority (CoJ). Draft Bar will then be published and advertised for a 30-Day period. Public consultations will then be undertaken with the other stakeholders during this period. Comments and Response Report (CRR) will be compiled and included in the final BAR.

4. GENERAL PUBLIC PARTICIPATION REQUIREMENTS

The Environmental Assessment Practitioner must ensure that the public participation process is adequate and must determine whether a public meeting or any other additional measure is appropriate or not based on the particular nature of each case. Special attention should be given to the involvement of local community structures such as Ward Committees and ratepayers associations. Please note that public concerns that emerge at a later stage that should have been addressed may cause the competent authority to withdraw any authorisation it may have issued if it becomes apparent that the public participation process was flawed.

The EAP must record all comments and respond to each comment of the public / interested and affected party before the application report is submitted. The comments and responses must be captured in a Comments and Responses Report as prescribed in the regulations and be attached to this application.

5. APPENDICES FOR PUBLIC PARTICIPATION

All public participation information is to be attached in the appropriate Appendix. The information in this Appendix is to be ordered as detailed below

Appendix 1 – Proof of site notice

Appendix 2 – Written notices issued as required in terms of the regulations

Appendix 3 – Proof of newspaper advertisements

Appendix 4 –Communications to and from interested and affected parties

Appendix 5 – Minutes of any public and/or stakeholder meetings

Appendix 6 - Comments and Responses Report

Appendix 7 –Comments from I&APs on Basic Assessment (BA) Report

Appendix 8 –Comments from I&APs on amendments to the BA Report

Appendix 9 – Copy of the register of I&APs

SECTION D: RESOURCE USE AND PROCESS DETAILS

Note: Section D is to be completed for the proposal and alternative(s) (if necessary)

Instructions for completion of Section D for alternatives

1) For each alternative under investigation, where such alternatives will have different resource and process details (e.g. technology alternative), the entire Section D needs to be completed
4) Each alterative needs to be clearly indicated in the box below
5) Attach the above documents in a chronological order

Section D has been duplicated for alternatives (complete only when appropriate)	**"insert No. of duplicates"**	times

Section D Alternative No.	"insert alternative number"	(complete only when appropriate for above)

1. WASTE, EFFLUENT, AND EMISSION MANAGEMENT

Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?	YES X
If yes, what estimated quantity will be produced per month?	(Unknown) m3

How will the construction solid waste be disposed of (describe)?

Any construction waste produced will be disposed of in dedicated containers on site and removed by approved service providers to permitted landfill sites as specified in the accompanying Environmental Management Programme (EMPr). The landfill site servicing the area is Marie Louise Landfill Site, Cnr. Elias Motsoledi Street & Main Road, Dobsonville, Soweto.

Where will the construction solid waste be disposed of (describe)?

Construction waste will be disposed of to the nearest permitted landfill site:
Goudkoppies Landfill site
11 Pallet Cres
Soweto.

Will the activity produce solid waste during its operational phase?	YES X
If yes, what estimated quantity will be produced per month?	Unknown m^3

How will the solid waste be disposed of (describe)?

Good waste management practices that are based on reduce, recycling and reuse.
Additional waste will be disposed of to the nearest permitted landfill site:
Goudkoppies Landfill site
11 Pallet Cres
Soweto.

Has the municipality or relevant service provider confirmed that sufficient air space exists for treating/disposing of the solid waste to be generated by this activity?	NO X

Where will the solid waste be disposed if it does not feed into a municipal waste stream (describe)?

Solid waste will be disposed of to the nearest permitted landfill site: Goudkoppies Landfill site. An application will be lodged with the municipality as part of the township establishment approval process.

Note: If the solid waste (construction or operational phases) will not be disposed of in a registered landfill site or be taken up in a municipal waste stream, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Can any part of the solid waste be classified as hazardous in terms of the relevant legislation? NO X

If yes, inform the competent authority and request a change to an application for scoping and EIA.

Is the activity that is being applied for a solid waste handling or treatment facility? NO X

If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Describe the measures, if any, that will be taken to ensure the optimal reuse or recycling of materials:

Waste Separation and Handling

General domestic wastes at the selected sites will be disposed of through a colour coded bin system for different types of waste material. Solid waste and scrap metals will be collected in refuse bins.

Recycling

Provision for recycling of waste will be considered and all recyclable waste material will be disposed of at municipal facilities that recycle plastics, glasses, papers, scrap metals, cardboard boxes, tins and cans.

Liquid effluent (other than domestic sewage)

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system? NO X

If yes, what estimated quantity will be produced per month? N/A m^3

If yes, has the municipality confirmed that sufficient capacity exist for treating / disposing of the liquid effluent to be generated by this activity(ies)? NO X

Will the activity produce any effluent that will be treated and/or disposed of on site? NO X

If yes, what estimated quantity will be produced per month? N/A m^3

If yes describe the nature of the effluent and how it will be disposed.

N/A

Note that if effluent is to be treated or disposed on site the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA

Will the activity produce effluent that will be treated and/or disposed of at another facility? NO X

If yes, provide the particulars of the facility:

Facility name:	N/A		
Contact person:			
Postal address:			
Postal code:			
Telephone:		Cell:	
E-mail:		Fax:	

Describe the measures that will be taken to ensure the optimal reuse or recycling of waste water, if any:

Overhead tanks will be utilised. Grey water will be recycled and used for non-potable uses where possible.

Liquid effluent (domestic sewage)

Will the activity produce domestic effluent that will be disposed of in a municipal sewage system? YES X

If yes, what estimated quantity will be produced per month? Unkown m^3

If yes, has the municipality confirmed that sufficient capacity exist for treating / disposing of the domestic effluent to be generated by this activity(ies)? NO X

Will the activity produce any effluent that will be treated and/or disposed of on site? NO X

If yes describe how it will be treated and disposed off.

During the construction pahse, waste water will be generated on site. An approved service provider will collect the domestic sewage on a regular basis during construction and dispose of it to an approved WWTW.

During operational phase, the developer will apply to the municipality to connect to the water reticulation system as part of township establishment.

Emissions into the atmosphere

Will the activity release emissions into the atmosphere? YES X

If yes, is it controlled by any legislation of any sphere of government? NO X

If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If no, describe the emissions in terms of type and concentration:

During construction, there will be particulate emissions (dust) related to debris handling; truck transport; materials storage, handling and transfer; open areas (windblown emissions). Gas emissions are also expected to occur due to vehicle and construction equipment activity (exhaust fumes). These impacts can be mitigated and managed to acceptable levels, with a post mitigation impact that is of low significance.

2. WATER USE

Indicate the source(s) of water that will be used for the activity

Municipal	Directly from water board	groundwater	river, stream, dam or lake	other	the activity will not use water
X					

If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month: N/A liters

If Yes, please attach proof of assurance of water supply, e.g. yield of borehole, in the appropriate Appendix

Does the activity require a water use permit from the Department of Water Affairs? NO X

If yes, list the permits required

N/A

If yes, have you applied for the water use permit(s)?

If yes, have you received approval(s)? (attached in appropriate appendix)

	NO X
YES	NO

jiud

3. POWER SUPPLY

Please indicate the source of power supply eg. Municipality / Eskom / Renewable energy source

An electrical engineer has been appointed as part of the engineering team. Their report has been appended. Give reccomendations from the electrial engineer

If power supply is not available, where will power be sourced from?

N/A

4. ENERGY EFFICIENCY

Describe the design measures, if any, that have been taken to ensure that the activity is energy efficient:

Where required, low energy LED lighting will be used in the open spaces and servitudes such as pedestrian pathways.

Describe how alternative energy sources have been taken into account or been built into the design of the activity, if any:

N/A

Summary of response from the practitioner to the issues raised by the interested and affected parties (including the manner in which the public comments are incorporated or why they were not included)
(A full response must be provided in the Comments and Response Report that must be attached to this report):

(a) EAP responded to say that the project had not yet arrived at the stage where property title schemes were being decided, but were rather at the stage of looking for recommendations regarding the size of housing needed.
(b) SL said that the SGP project shouldn't compromise the objectives of the Elias Motsoaledi Housing Development, and advised that 'rent-to-buy' concepts do not exist, as developments are governed by the Housing Code which does not include the rent-to-buy concept.
(c)

2. IMPACTS THAT MAY RESULT FROM THE CONSTRUCTION AND OPERATIONAL PHASE

Briefly describe the methodology utilised in the rating of significance of impacts

The first stage of any impact assessment is the identification of potential environmental activities[1], aspects[2] and impacts, which may occur during the commencement and implementation of a project. This is supported by the identification of receptors[3] and resources[4], which allows for an understanding of the impact pathway and an assessment of the sensitivity to change. Environmental impacts[5] (social and biophysical) are then identified based on the potential interaction between the aspects and the receptors/resources.

The significance of the impact is then assessed by rating each variable numerically according to defined criteria as outlined in Table 1 below. The purpose of the rating is to develop a clear understanding of influences and processes associated with each impact. The severity[6], spatial scope[7] and duration[8] of the impact together comprise the consequence of the impact and when summed can obtain a maximum value of 15. The frequency of the activity[9] and the frequency of the impact1[10] together comprise the likelihood of the impact occurring and can obtain a maximum value of 10. The values for likelihood and consequence of the impact are then read off a significance rating matrix table as shown in Table 2.

This matrix thus provides a rating on a scale of 1 to 150 (low, medium low, medium high or high) based on the consequence and likelihood of an environmental impact occurring.

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[1] An ***activity*** is a distinct process or task undertaken by an organisation for which a responsibility can be assigned. Activities also include facilities or pieces of infrastructure that are possessed by an organisation.

[2] An ***environmental aspect*** is an 'element of an organisations activities, products and services which can interact with the environment'. The interaction of an aspect with the environment may result in an impact.

[3] ***Receptors*** comprise, but are not limited to people or man-made structures.

[4] ***Resources*** include components of the biophysical environment.

[5] ***Environmental impacts*** are the consequences of these aspects on environmental resources or receptors of particular value or sensitivity, for example, disturbance due to noise and health effects due to poorer air quality. Receptors can comprise, but are not limited to, people or human-made systems, such as local residents, communities and social infrastructure, as well as components of the biophysical environment such as aquifers, flora and paleontology. In the case where the impact is on human health or well-being, this should be stated. Similarly, where the receptor is not anthropogenic, then it should, where possible, be stipulated what the receptor is.

[6] ***Severity*** refers to the degree of change to the receptor status in terms of the reversibility of the impact; sensitivity of receptor to stressor; duration of impact (increasing or decreasing with time); controversy potential and precedent setting; threat to environmental and health standards.

[7] ***Spatial scope*** refers to the geographical scale of the impact.

[8] ***Duration*** refers to the length of time over which the stressor will cause a change in the resource or receptor.

[9] ***Frequency of activity*** refers to how often the proposed activity will take place.

[10] ***Frequency of impact*** refers to the frequency with which a stressor (aspect) will impact on the receptor.

Natural and existing mitigation measures, including built-in engineering designs, are included in the pre-mitigation assessment of significance. Measures such as demolishing of infrastructure, and reinstatement and rehabilitation of land, are considered post-mitigation.

SEVERITY OF IMPACT	RATING
Insignificant / non-harmful	1
Small / potentially harmful	2
Significant / slightly harmful	3
Great / harmful	4
Disastrous / extremely harmful	5

SPATIAL SCOPE OF IMPACT	RATING
Activity specific	1
Site specific	2
Local area (within 5 km of the project)	3
Regional	4
National	5

DURATION OF IMPACT	RATING
One day to one month	1
One month to one year	2
One year to ten years	3
Life of operation	4
Post closure / permanent	5

CONSEQUENCE

FREQUENCY OF ACTIVITY / DURATION OF ASPECT	RATING
Annually or less / low	1
6 monthly / temporary	2
Monthly / infrequent	3
Weekly / life of operation / regularly / likely	4
Daily / permanent / high	5

FREQUENCY OF IMPACT	RATING
Almost never / almost impossible	1
Very seldom / highly unlikely	2
Infrequent / unlikely / seldom	3
Often / regularly / likely / possible	4
Daily / highly likely / definitely	5

LIKELIHOOD

Table 1: Criteria for Assessing Significance of Impacts

Briefly describe and compare the potential impacts (as appropriate), significance rating of impacts, proposed mitigation and significance rating of impacts after mitigation that are likely to occur as a result of the construction phase for the various alternatives of the proposed development. This must include an assessment of the significance of all impacts.

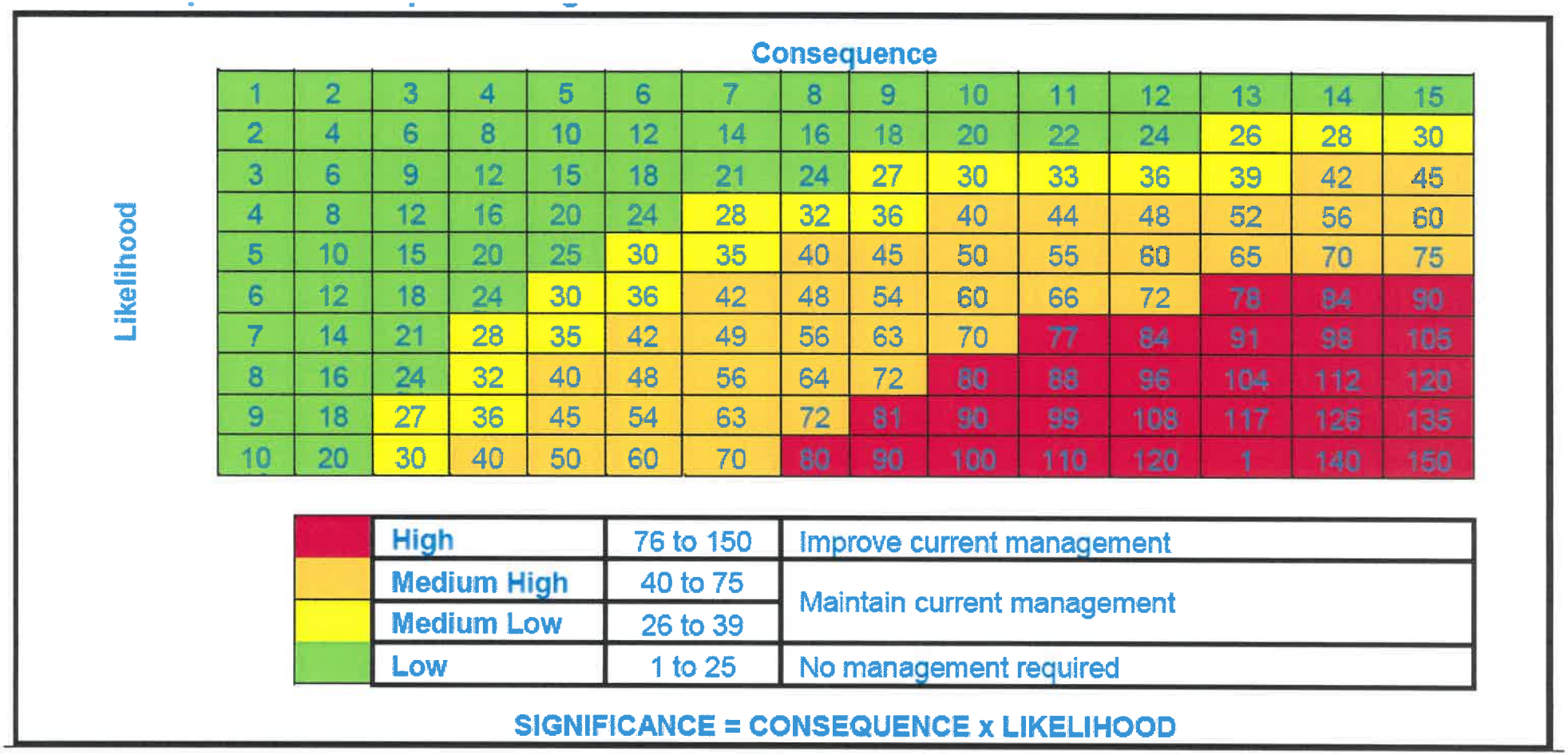

Table 2: Impact Assessment Matrix

Potential impacts that can be expected during the construction phase

Proposal:

Potential impacts:	**Significance rating of impacts (positive or negative):**	**Proposed mitigation:**	**Significance rating of impacts after mitigation:**	**Risk of the impact and mitigation not being implemented**
Use of vehicles during field survey	Medium	Make use of existing access roads as far as possible.	Low	Low
Ineffective communication with affected property owners and communities leading to conflict	Low	• Random and regular alcohol and drug testing shall be conducted on all personnel responsible for operating machinery and driving construction vehicles to ensure the safety of the public. • Security and safety should be emphasized. • Liaise with the SAPD and existing forums to implement effective crime prevention strategies. • No construction workers shall be allowed to access private properties without the owner's knowledge and consent. • A register of complaints from the affected residents shall be kept on site and made available for inspection on request. • Where possible, a community liaison officer shall be appointed to deal with complaints from the affected residents.	Low	Low
Construction activities may result in an increase in petty crimes in the area	Medium		Low	Low
Unauthorised access to private property may result in conflict with the property owners and occupiers	Low		Low	Low
Creation of employment and business opportunities	Low	Maximise the use of local labour for low – semi skilled jobs far as possible.	Low	Low
Site clearing for construction/placement of roads; • Foundations; • Culverts	Medium	• Vegetation clearing to be kept to a minimum. No unnecessary vegetation to be cleared. • The final development area should be surveyed by an appropriately qualified ecologist for species suitable for search and rescue, which should be translocated prior to the commencement of construction. • No collection of plants or plant parts to be allowed by construction personnel. The ECO should provide environmental induction to all construction staff to ensure that they are aware of this and other environmental sensitivities at the site. • No fuelwood collection should be allowed on-site	Low	Low
Fauna will be impacted by the development as a result of construction activities and human presence at the site.	Medium	• construction activities should be removed to a safe location by the ECO or other suitably qualified person. • The collection, hunting or harvesting of any plants or animals at the site should be strictly forbidden. • Personnel should not be allowed to wander off the construction site. If the site must be lit at night for security purposes, this should be done with low-UV type lights (such as most LEDs), which do not attract insects. • All hazardous materials should be stored in the appropriate manner to prevent contamination of the site. Any accidental chemical, fuel or oil spills that occur at the site should be cleaned up in the appropriate manner as related to the nature of the spill.	Low	Low

		• No unauthorized persons should be allowed onto the site. • All construction vehicles should adhere to a low speed limit to avoid collisions with susceptible species		
Disturbance and the construction activities are likely to result in habitat degradation, impact on biodiversity as well as habitat fragmentation	Low	• Hardened surfaces should be kept to a minimum • Should a service road beneath the power line be required, this should be restricted to a track and a formal cleared road should not be necessary, especially through the rocky hills and drainage lines. • Vegetation should be allowed to remain alongside or encroach on the roads as much as possible. • Temporary lay-down areas should be in previously transformed areas or areas that will be used by the development. • Regular monitoring for erosion during construction to ensure that no erosion problems have developing as result of the construction disturbance. • All erosion problems observed to be associated with the project should be rectified as soon as possible, using the appropriate erosion control structures and revegetation techniques	Low	Low
Destruction of natural bird habitat on and near site	Medium-Low	• Provide protection for sensitive habitats • Conduct avifaunal walk through to identify these areas	Low	Low
Disturbance of surfaces and/or sub-surfaces may destroy, damage, alter, or remove from its original position archaeological and paleontological material or objects.	Medium-Low	Observed sites are all of low significance and are sufficiently recorded and no further mitigation will be necessary as the impact of the pylon positions are considered to be extremely low and comparative material will remain on the unaffected areas of the site.	Low	Low
Construction on sensitive visual receptors in close proximity to the proposed road.	Low	• Ensure that vegetation is not unnecessarily removed during the construction period. • Reduce the construction period through careful logistical planning and productive implementation of resources. Plan the placement of lay-down areas and temporary construction equipment camps in order to minimise vegetation clearing (i.e. in already disturbed areas) wherever possible. • Restrict the activities and movement of construction workers and vehicles to the immediate construction site and existing access roads.	Low	Low
Visual intrusion because of the movement of machinery and the establishment of the required infrastructure.	Low	• The number of construction vehicles and machinery to be used shall be kept to a minimum. • Movement of vehicles shall be kept to outside busy hours to minimise the visual impacts on the residents. • Where possible, rehabilitation of the work areas shall be undertaken in tandem with construction to ensure that areas stripped of vegetation are kept to a minimum. • The landscaping and green engineering solutions shall be utilised for rehabilitation and to minimise visual impacts.	Low	Low

Although the heritage study found no resources of cultural and/or heritage importance that will be affected by the project, a possibility remains that, there may be some resources that may be affected.	Medium-Low	If archaeological sites or graves are exposed during construction work, it should immediately be reported to a heritage practitioner so that an investigation and evaluation of the finds can be made.	Low	Low
Soil erosion on construction sites due to decreased vegetation cover and increased water run-off	Low	• If it is not possible to retain a good plant cover during construction, technologies should be employed to keep the soil covered by other means, i.e. straw, mulch, erosion control mats, etc., until a healthy plant cover is again established. • Compile and implement an appropriate stormwater management plan	Low	Low
Possible increase in dust generation, PM_{10} and $PM_{2.5}$ because of bulk earthworks, operation of heavy machinery, and material movement	Medium-Low	• Dust suppression measures shall be implemented on dry weather days and periods of high wind velocities. • Appropriate dust suppression measures may include spraying with water. • Where practical possibly rehabilitation should be undertaken progressively. • Dust from the construction activities shall not disturb the landowners in the area. • A speed limit of 20 km/h shall apply to limit vehicle entrained dust from the unpaved roads. • All construction equipment must be scheduled for preventative maintenance to limit air pollution.	Low	Low
Increase in traffic volumes because of pre-construction activities which may lead to an increase in traffic congestion on roads around the project area.	Medium	• Local speed limits and traffic laws shall apply always to minimise the occurrences of accidents on public roads; • Where possible the transportation of construction materials and rubbish shall be undertaken outside traffic peak hours to minimise inconveniencing residents; • Materials transported on public roads must be covered.	Low	Low
The use of vehicles and machinery during the construction phase may generate noise in the immediate vicinity	Medium	• All equipment must be kept in good working order, with immediate attention being paid to defective silencers, slipping fan-belts, worn bearings and other sources of noise. • Equipment must be operated within specifications and capacity (e.g. no overloading of machines). • Regular maintenance of equipment must be undertaken, particularly about lubrication, • Equipment must be operated with appropriate noise abatement accessories such as silencers and sound hoods, which must be correctly maintained. • Equipment must be operated in such a way that the equipment is operated throughout the working periods instead of operating several items simultaneously. • Equipment shall be switched off when not in operation.	Low	Low

		• Appropriate directional and intensity settings must be maintained on all hooters and sirens. • The contractor must ensure that the employees conduct themselves in an appropriate manner while on site. • Adjacent landowners shall be notified in writing if work needs to be carried out after hours or if any blasting will be required. • Noise/vibration producing activities shall be limited to daylight hours (Monday to Friday 07H00 to 16H00 and Saturday 07H00 -14H00). • The contractor (s) shall comply with the traffic regulations		
Contamination and degradation of the soil due to spillages of oil, petrol, diesel and other contaminants used by vehicles and equipment on the site or stored on the site	Low	• Vehicles and equipment must be serviced regularly and maintained in a good operating condition. • Storage of contaminants must be limited to low quantities and done under strict industry standards. • There must be strict control over the safe usage of vehicles and equipment to minimise vehicle accidents and damage to vehicles by rocks and boulders which may cause spillages.	Low	Low
Exacerbation of erosion as a result of soil stripping and compaction.	Medium	• Measures to control erosion include minimal stripping of vegetation • Installation of energy dissipation structures such as catch dams.	Low	Low
Poor waste management will result in the contamination of surface runoff resulting in the deterioration of water quality of surface water resources.	Medium	**Separation of waste** • Waste shall be stored in demarcated areas according to type of waste. • Hazardous waste shall not be mixed with general waste and in doing so increase the quantities of hazardous waste to be managed. • Runoff from any area demarcated for waste will be contained, treated and reused. • Hazardous waste will be removed and managed by an approved service provider. • A safe disposal certificate must be provided by the approved service provider as proof of responsible disposal of hazardous waste and kept on record. • All waste management facilities will be maintained in good working order. • No littering shall be allowed in and around the site, a sufficient number of bins shall be provided for the disposal of waste. • Flammable substances must be kept away from sources of ignition and from oxidizing agents, • The maximum retention time for temporary storage of waste generated shall not exceed 30 days, provided the waste does not present a health hazard or risk of odour. **Disposal of waste.** • General waste will be collected in adequate number of litter bins located throughout the construction site. • Bins must be provided with lids to keep rain water out. • Bins shall be cleaned regularly to prevent the bins from overflowing. • All work areas shall be kept clean and tidy always.	Low	Low

		• All general waste shall be disposed of to the nearest licensed landfill site, • Where necessary dedicate a storage area on site for collection of construction waste. • No construction rubble shall be disposed of to the riparian area. • If construction rubble is not removed immediately it shall be stockpiled outside the 1:50 year flood line and outside the sensitive riparian areas. • All construction rubble shall be disposed of to an appropriate licensed landfill site. • Concrete shall only be mixed in a dedicated area and surplus concrete shall be dispose of responsibly. • Waste shall not be buried or burned on site.		
Disposal and storage of hazardous waste including hydrocarbon contaminated soils, rags etc will result in the contamination of surface runoff resulting in the deterioration of water quality of surface water resources.	Low	**Storage of hazardous substances** • All bunding areas of hazardous substances will comply with the SANS standards. • On surface bulk storage of hydrocarbons must be stored in a dedicated area which will include a bund or a drain where necessary to contain any spillages during the use, loading and off-loading of the substances. • Bunded areas shall contain 110% of the stored volume. • Bund areas must be impermeable. • Bund area must have a facility such as a valve/sump to drain or remove clean stormwater, • Contaminated water shall be pumped into a container for removal by an approved service provider. • Regular inspections shall be carried out to ensure the integrity of the bundwalls. • The relevant safety signage must be provided to warn employees of the hazards in the area, • The necessary fire-fighting facilities will be provided. • All hazardous substances shall be stored in a secure, safe and weatherproof facility. The facility shall have an impermeable floor to prevent. • All containers must be labelled according to the substance stored, substances are not allowed to be decanted into another container without the correct labelling displayed on the container, • No combustible materials shall be stored near flammable substances; flammable substances shall be stored in a secured area. • A register of all the hazardous substances shall be kept on site. • The relevant Material Safety Data Sheets (MSDS) for all the hazardous substances shall be made available on request. **Handling of hazardous substances** • All personnel responsible for handling hazardous substances shall be trained on how to store, handling and dispose of the material. • Personnel shall be provided with the necessary personnel protective equipment to handle the hazardous substances. • The MSDS will be made available at the point of use.	Low	Low

		Disposable of hazardous substances • All empty hazardous substance containers shall be considered and shall be handled in accordance with the waste EMPr.		
Potential indiscriminate disposal of hazardous and non-hazardous materials wastes within freshwater resources, leading to altered water quality, possible changes to flow patterns because of blockages caused by solid wastes/rubble	Low	• No wastes are permitted to be disposed of within Kliprivier or surrounding areas, and ensure that all wastes are removed to an appropriate disposal facility; • Kliprivier to be designated a "No Go" area and off-limits to all personnel and vehicles, unless entry is unavoidable due to essential placement of infrastructure; and • Where entry into Kliprivier is essential, such as for the construction of the rock-fill weir, designated entry/exit points to the river must be demarcated to avoid indiscriminate movement through the river.	Low	Low
Inappropriate storage of hazardous materials and/or waste may lead to leaching and ground water pollution	Low	Hazardous material should be properly stored.	Low	Low
Contamination and degradation of the soil due to spillages of oil, petrol, diesel and other contaminants used by vehicles and equipment on the site or stored on the site	Medium	• Vehicles and equipment must be serviced regularly and maintained in a good operating condition. • Storage of contaminants must be limited to low quantities and done under strict industry standards. • There must be strict control over the safe usage of vehicles and equipment to minimise vehicle accidents and damage to vehicles by rocks and boulders which may cause spillages.	Low	Low
Increase in silt load in runoff due to site clearing, grubbing and the removal of topsoil from the construction footprint area.	Medium	• Adequate stormwater management must be incorporated into the design of the proposed remedial measures to prevent erosion and the associated sedimentation of the Kliprivier. • Only essential construction personnel shall be permitted within the 1:100-year floodlines. • All vehicles used to import rock must be inspected for leaks prior to entering the construction site. Any vehicles found to be leaking oils/hydrocarbons may not be allowed access; • Entry to Kliprivier must be by designated routes only and no indiscriminate movement within the river and/or banks should be allowed • All demarcated sensitive zones outside of the construction area shall be kept off limits during the construction phase. • The footprint area of the construction activities shall be limited to what is essential to minimise environmental damage. • During construction, erosion protection berms shall be installed to prevent gully formation. • Riparian areas shall be rehabilitated upon completion of the construction phase to ensure that the river system functions are re-instated, • Disturbed areas must be reseeded with indigenous grasses as specified by a suitably qualified specialist (ecologist).	Low	Low
Debris from poor handling of materials and/or waste blocking watercourses, resulting in flow impediment and pollution.	Medium		Low	Low
Contaminated dirty water runoff to surrounding areas resulting in the impact on local surface water quality	Medium		Low	Low
Increase of surface runoff and potentially contaminated water that needs to be maintained in the areas where site clearing occurred.	Medium		Low	Low
Localised changes to the riparian areas because of vegetation clearing.	Medium		Low	Low

No Go

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
Encroachment of Illegal settlements	High	Develop as proposed	Low	High

In terms of the 'no-go option', in this case the proposed development is considered to be vital infrastructure both in the national interest as well as at a local and regional level. Delivering priority infrastructure such as the proposed scheme delivers on CoJ's agreed operational objectives of ensuring quality housing and urban development. It also makes an essential contribution to wider governmental objectives associated with the provision of housing and basic utilities to a wider cross section of society. For this reason, the 'no-go option' is not considered viable in these circumstances.

Potential impacts that can be expected during the operation phase

Proposal:

Potential impacts:	**Significance rating of impacts (positive or negative):**	**Proposed mitigation:**	**Significance rating of impacts after mitigation:**	**Risk of the impact and mitigation not being implemented**
Creation of employment and business opportunities	Low	Maximise the use of local labour for low – semi skilled jobs far as possible.	Low	Low
Waste management	Medium	Waste receptacles should be sited at strategic locations, away from surface water resources.	Low	Low
Fauna will be impacted by the development as a result of operational activities and human presence at the site.	Medium-Low	• High traffic volumes are expected due to easier mobility; therefore, traffic calming measures should be implemented.	Low	Low
Disturbance and the operational activities are likely to result in habitat degradation, impact on biodiversity as well as habitat fragmentation	Low	• Hardened surfaces should be kept to a minimum • Vegetation should be allowed to remain alongside or encroach on the roads as much as possible. • Regular monitoring for erosion during construction to ensure that no erosion problems have developing as result of the operational disturbance. • All erosion problems observed to be associated with the project should be rectified as soon as possible, using the appropriate erosion control structures and revegetation techniques	Low	Low
Increase in traffic volumes because of operation of the road which may lead to an increase in traffic congestion on roads around the project area.	Low	• Local speed limits and traffic laws shall apply always to minimise the occurrences of accidents on public roads; • Materials transported on public roads must be covered.	Medium-Low	Low
The use of vehicles during the operational phase may generate noise in the immediate vicinity	Low	• vehicles must be operated within specifications and capacity (e.g. no overloading of machines). • Vehicles must be operated with appropriate noise abatement accessories such as silencers and sound hoods, which must be correctly maintained. • Motor vehicle drivers shall comply with the traffic regulations	Medium-Low	Low

List any specialist reports that were used to fill in the above tables. Such reports are to be attached in the appropriate Appendix.

- Ecological Assessment
- Floodline studies
- Heritage Resources Assessment; and,
- Traffic Impact Report
- Town Planning Report
- Geotech study

Describe any gaps in knowledge or assumptions made in the assessment of the environment and the impacts associated with the proposed development.

Assumptions:

- The scope is limited to assessing the potential impacts associated with the proposed development; therefore the effect on the surrounding environment is based on the current land use.
- All information provided by specialists involved is deemed valid and correct at the time it was provided.
- Since during the public participation process, no indigenous local knowledge came forth, it is assumed that there are no sensitive cultural, e.g. initiation schools sites on the proposed site.
- Based on the layout, the existing downstream aquatic ecosystems will not be affected by construction activities.

Limitations/Gaps in Knowledge:

None

3. IMPACTS THAT MAY RESULT FROM THE DECOMISSIONING AND CLOSURE PHASE

Briefly describe and compare the potential impacts (as appropriate), significance rating of impacts, proposed mitigation and significance rating of impacts after mitigation that are likely to occur as a result of the decommissioning and closure phase for the various alternatives of the proposed development. This must include an assessment of the significance of all impacts.

It is not foreseen that the proposed mixed use township development will be removed. It is unlikely that the development will be decommissioned, should this be necessary, the potential impacts will be like that during construction of the measures.

Proposal

Potential impacts:	**Significance rating of impacts(positive or negative):**	**Proposed mitigation:**	**Significance rating of impacts after mitigation:**	**Risk of the impact and mitigation not being implemented**

Alternative 1

Potential impacts:	Significance rating of impacts(positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented

Alternative 2

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented

List any specialist reports that were used to fill in the above tables. Such reports are to be attached in the appropriate Appendix.

- Ecological Assessment
- Floodline studies
- Heritage Resources Assessment; and,
- Traffic Impact Report
- Town Planning Report
- Geotech study

Where applicable indicate the detailed financial provisions for rehabilitation, closure and ongoing post decommissioning management for the negative environmental impacts.

None

4. CUMULATIVE IMPACTS

Describe potential impacts that, on their own may not be significant, but is significant when added to the impact of other activities or existing impacts in the environment. Substantiate response:

The cumulative impact of the construction of the proposed mixed use development is considered to be moderate to high at ward level and low at farm level, as the broader study area already comprises of a number of existing similar infrastructure including Baragwanath Hospital, Diepkloof Township, warehousing and retail.

Cumulative impacts of the proposed project need to be seen both from a site perspective (e.g. at individual farm level) and from a municipal, district or area perspective.
At local farm scale, the cumulative impacts of the proposed project will be high as there is existing similar infrastructure.
At ward level, the cumulative impacts will also be high as there is similar existing infrastructure. This also applies for regional level (municipal and district) as there is existing similar infrastructure.
The project is reviewed in conjunction with the Integrated Development Plans (IDPs) and Spatial Development Frameworks (SDFs) for the area. These are seen to provide limited detail for planned development and land use management.

Vegetation: The project is located within the Soweto Highland Grassland which occurs on gently to moderately undulating landscape on the Highveld plateau, supporting short to medium-high, dense, tufted grassland dominated almost entirely by *Themeda triandra*. More than 60% of area is infested by alien invasive plants. It is expected that the vegetation in this area is not likely to add to the conservation target of this vegetation type in the region in its present state and its loss from the study area is therefore not considered to contribute to any cumulative impacts. The development footprint of the project is also considered small in relation to the surrounding areas. The cumulative impact associated with the construction of the protection measures is therefore considered to be low (-).

Groundwater and Surface: Currently the Kliprivier is affected by water quality problems as result of contamination from sewer systems, industry, mining, residential areas and sedimentation. It is expected that during construction the project may result in erosion of the banks and bed, as well as contamination of the water if run-off is not managed. This will lead to an increased contamination and impact on the aquatic ecology. The potential groundwater and surface water quality impact associated with the project also relates to the potential contamination as a result of mismanagement of materials stored and leakages from vehicles and machinery. Mismanagement of materials stored on site and leakage of hydrocarbons may lead to an increase in the cumulative effect of potential contamination of groundwater and surface water quality downstream of the development area. It must however be noted that the impacts will be of short duration (during the construction phase). Mitigation measures have been proposed for the impacts on ground water and surface water contamination. It is expected that with the implementation of the mitigation measures this impact will be reduced to an acceptable level.

Air Quality: The potential air quality impacts associated with the project relate to the potential generation of $PM_{2.5}$, PM_{10} and fugitive dust emissions as a result of site clearance, vehicular movements as well as carbon emissions and ambient air pollutants (NO2 and SO2) as a result of movement of vehicles and operation of machinery/equipment. The majority of the surrounding land is mostly business/commercial and residential in nature, associated with a lot of vehicular movement in the vicinity of the river contributing air quality impacts. The movement of construction vehicles will lead to additional air quality impacts. The impacts are expected to be of low significance and can be mitigated to be of very low significance.

Noise: The potential noise nuisance associated with the project relates to the movement of vehicles and operation of machinery on site. Mitigation measures have been proposed to avoid and /or reduce the nuisance noise impacts. It is expected that with the implementation of the mitigation measures this impact will be reduced to an acceptable level.

The majority of the land use in the vicinity of the project area is mostly business/commercial and residential in nature. There will be a lot of vehicle movement associated with the project, contributing to nuisance noise levels. Mismanagement of sources of noise may lead to an increase in the cumulative effect of nuisance noise in the vicinity of the project.

5. ENVIRONMENTAL IMPACT STATEMENT

Taking the assessment of potential impacts into account, please provide an environmental impact statement that sums up the impact that the proposal and its alternatives may have on the environment after the management and mitigation of impacts have been taken into account with specific reference to types of impact, duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts.

Proposal:

It should be recognized that no development could be completed without impacting in some way on the environment; therefore, it is imperative that negative impacts are minimized to a greater extent.
During the screening phase of the project, the environmental issues that were identified were for both the construction and operation phase.
The identified impacts are summarized below:
1 Loss of topsoil;
2. Potential habitat of the infrastructure on the socio-economic structure of the area.
3. Job creation looking at employment of local community;
4. Excessive noise generation during construction;
5. Potential damage or destruction to undiscovered heritage sites of the area;
6. Traffic congestion during construction;
7. Potential impact of sensitive habitat destruction; and
8. Potential impact of destruction on red data plants.

From the evaluation identified impacts using the assessment methodology, the significance ratings of negative impacts were reduced to low with outlined mitigation measures and the positive impacts were accentuated. The extent with mitigation ranged between site specific and local. Adherence to the draft EMPr will also ensure that impacts occurring due to the development will be reduced to a greater extent. Specialists' studies that were undertaken as part of the BAR process included a Traffic Impact Assessment, Flood lines Assessment, Heritage Impact Assessment, Ecological Assessment to determine possible impacts of the development on the receiving environment. According to these studies, the site has no major major environmental impacts.

During the public participation, no objections were received. A no-go option for this project is not feasible because the site has been earmarked for mixed use development and connections to basic amenities like water and sewerage are economically feasible.

Alternative 1:

Alternative 2: Route 3

No-go (compulsory)

In terms of the 'no-go option', in this case the proposed development is considered to be vital infrastructure both in the national interest as well as at a local and regional level. Delivering priority infrastructure such as the proposed scheme delivers on CoJ's agreed operational objectives of ensuring reliability of services. It also makes an essential contribution to wider governmental objectives associated with the provision of housing and basic utilities to a wider cross section of society.

For this reason, the 'no-go option' is not considered viable in these circumstances.

6. IMPACT SUMMARY OF THE PROPOSAL OR PREFERRED ALTERNATIVE

For proposal:

The proposed development will result in a number of impacts, both positive and negative, during the Planning and Design, Construction and Operation Phases (see Impact Table above). The phase with the highest number of impacts is the construction phase. The following table provides a summary of the pre-mitigation and post-mitigation impacts for the preferred alternative. .

Table 1: **Environmental Significance**

Environmental Feature	Likely Impact – Pre-mitigation	Likely Impact – Post-mitigation
Rivers and Wetlands	Low	Low
Red Data Flora	Low	Low
Red Data Fauna	Low	Low
Heritage	Low	Low
Gauteng Cplan	Low	Low
Social	Medium	Low

For alternative:

For alternative:

Having assessed the significance of impacts of the proposal and alternative(s), please provide an overall summary and reasons for selecting the proposal or preferred alternative.

In addition to an extensive public consultation exercise, specialist studies were undertaken in order identify potential environmental impacts arising from the implementation of the proposed infrastructure. Based on the information gathered by specialists and received from Interested and Affected Parties (I&AP's) that responded during the public consultation process, a sensitivity analysis was undertaken to indicate the main social and environmental features present within the study area and the likely impact of the proposed infrastructure.

The proposed site is suitable for a mixed use development because it is compatible with the surrounding area, easily accessible and availability of connection points to services, e.g. water, electricity. The development will enable the municipality to decrease their housing development backlog and minimize the formation of illegal settlements on areas not considered for residential planning and to provide basic amenities, e.g. church, sport ground, and parks. The future residents will have proper shelter and access to basic services and in turn their livelihood and well being will be improved. The development will also contribute towards urban development.

CoJ must ensure compliance with the National Environment Management: Biodiversity Act, 2004 (Act 10 of 2004, section 56 (d) and section 57 (1) with, regards the protected and indigenous species. Any solid waste shall be disposed of at a waste disposal facility permitted in terms of Section 20(b) of the National Environmental Management Waste Act, 2008 (Act No. 59. of 2008).

According to Gauteng Environmental Management Framework (EMF), the proposed alternatives all fall within Urban Development Zone (UDZ).

7. SPATIAL DEVELOPMENT TOOLS

Indicate the application of any spatial development tool protocols on the proposed development and the outcome thereof.

The Spatial Development Framework (SDF) is the legislated component of the municipality's Integrated Development Plan (IDP) that prescribes development strategies and policy guidelines to restructure and reengineer the urban and rural form. The SDF is the municipality's long-term vision of what it wishes to achieve spatially, and within the IDP programmes and projects. The SDF should not be interpreted as a blueprint or master plan aimed at controlling physical development, but rather the framework giving structure to an area while allowing it to grow and adapt to changing circumstances. The proposed project has considered and is guided by the Regions SDF and IDP priorities of the area. It aims to empower the local economy, which is individuals and local business in terms of job creation and skills development.

According to the CoJ SDF, The land use proposals of the Johannesburg Spatial Development Framework require the implementation of a range of policies and strategies in order to re-create a smart, creative and developmental city.

8. RECOMMENDATION OF THE PRACTITIONER

Is the information contained in this report and the documentation attached hereto sufficient to make a decision in respect of the activity applied for (in the view of the Environmental Assessment Practitioner as bound by professional ethical standards and the code of conduct of EAPASA).	YES X	

If "NO", indicate the aspects that require further assessment before a decision can be made (list the aspects that require further assessment):

N/A

If "YES", please list any recommended conditions, including mitigation measures that should be considered for inclusion in any authorisation that may be granted by the competent authority in respect of the application:

Recommendations to be considered in the planning and design phase

It is recommended that all mitigation measures provided should be a condition of any approval from GDARD. In addition, a Construction and Operational Environmental Management Programme needs to be compiled.

Recommendations to be considered in the planning and design phase

POLICY COMPLIANCE

- Once the EA has been received, the conditions must be incorporated into all project phases, including planning and design, construction and operation.
- Other legal conditions of relevant policy and legislation (e.g. National Forestry Act, National Water Act) must be compiled and adhered to.

TECHNOLOGY EMPLOYED

Water:

- Rainwater tanks should be considered in the design and planning phase. Tanks will reduce the runoff created by the housing footprint and reduce municipal water usage.
- Water piping material and infrastructure must comply with SABA to insure as far as possible pipeline failures and future indirect impacts resulting from burst pipes do not result in water loss.

Energy:

- Insulation of houses and use of solar water heaters should be considered.
- Use of alternative renewable energy sources such as wind or solar power (PV) should be considered in the design and layout. However, if renewable energy technology is not implemented initially, provisions should be made in design to allow for easier post-construction retrofitting.

STORMWATER MANAGEMENT

- A flood attenuation and stormwater management plan must be drawn up by a qualified engineer and submitted to DWS and DAFF for comment and approval
- The stormwater management plan must include stormwater attenuation berms that are situated 32 m away from the watercourse. These berms should be able to hold a 1:100 year flood to be released as a 1:5 year flood.
- Impermeable surfaces should be minimised as much as possible through permeable surface technology, such as grassed gardens and verges, permeable paving and internal roads, etc.

SOCIO-ECONOMIC

- The architectural design should be as unobtrusive as possible in terms of colour and building material used.
- An architectural code could include use of natural/earth tone colours for the walls and a suitable blending colour (such as grey) is used for the roof.
- Vegetation could be planted to mitigate visual impacts

TRAFFIC AND TRANSPORT

- The recommendation of the Traffic Impact Assessment should be adhered to.

WASTE MANAGEMENT

- Provisions must be made for temporary storage of domestic waste, prior to municipal pick-up and disposal.
- A waste management plan incorporating recycling and waste minimisation must be developed and implemented for the construction and operational phases.
- The waste facility must be enclosed to avoid the spread of foul odours and to ensure that the spread of pests (flies) and vermin (rats and monkeys) are deterred.

Recommendations to be considered in the construction phase

BIOLOGICAL IMPACTS

- Prior to construction all sensitive areas (Rocky outcrops) must be demarcated and signs erected to ensure these areas are maintained. This must be done with the assistance of the ECO.
- The construction footprint must be surveyed and demarcated prior to construction. The surveyed construction footprint must be approved by an ECO to ensure that vegetation is not unnecessarily damaged.
- Alien plants must be removed from the site through appropriate methods e.g. hand pulling, chemical, cutting, etc., and under the supervision of the ECO.
- After construction, exposed areas must be rehabilitated with indigenous vegetation.
- Post-construction monitoring of rehabilitation must be implemented.
- All staff employed during construction must undergo environmental induction training.
- No construction workers should reside onsite.
- Construction personnel must be educated in appropriate waste management practices.
- Collected waste must be categorised as —hazardousll, —general wastell and —construction rubblell. Separate, distinguishable containers should be provided for different waste categories.
- Litter and construction waste must be removed on a regular basis and disposed of in an approved registered landfill.
- Potentially hazardous materials must be handled and stored onsite in secure containers and disposed of at an appropriately permitted hazardous waste disposal site through appointment of a reputable hazardous waste disposal company.
- The Contractor should maintain a register of the hazardous materials and should document the use, storage, final destination and method of disposal.

POLICY COMPLIANCE

- The developer must employ an independent Environmental Control Officer (ECO) for the construction phase to ensure that construction is implemented according to specifications in the EA and EMPr.

EROSION

- Wind screening and stormwater control should be undertaken to prevent soil erosion.

- All erosion control mechanisms must be regularly maintained.
- Vegetation must be retained where possible to avoid soil erosion.
- Construction must be phased in order to minimise the area of exposed soil at any one time.
- Re-vegetation of disturbed surfaces should occur immediately after the construction activities are completed with indigenous vegetation.

SANITATION

- Adequate sanitary and ablutions facilities must be provided for construction workers
- The facilities must be regularly serviced to reduce the risk of surface or groundwater pollution.
- Portable toilets must not be located within 50 metres of any watercourse.

STORAGE OF EQUIPMENT AND HAZARDOUS SUBSTANCES

- The storage of potentially hazardous material must be controlled to reduce the risk of environmental contamination.
- Drip trays must be placed under all machinery to avoid soil contamination.
- All vehicles and machinery must be regularly maintained and in good working order to reduce the risk of contamination of soil and ground water.
- All areas that have been contaminated during the construction phase must be rehabilitated.

CONCRETE BATCHING

- Cement and concrete must not be mixed directly on the ground, or during rainfall events when the potential for transport of pollutants to watercourses is the greatest. Cement and concrete must only be mixed in the area demarcated for this purpose and on an impermeable substratum.
- All construction water and contaminated runoff must be directed away from the drainage line.

DISPOSAL OF CONSTRUCTION MATERIAL

- Construction material must be removed to an approved, licenced off-site disposal site by the appointment of a reputable waste services provider.

NOISE POLLUTION

- Construction activities, which include the movement of construction vehicles and the operation of machinery, must be restricted to normal working hours (07:00am – 17:00pm).

FIRES ONSITE

- Fires must be prohibited onsite.
- Any source of fire hazards must be removed.
- The construction personnel must be educated regarding fire and fire management.
- Fire extinguishers must be available onsite.
- In order to reduce the risk of fires:
    - All flammable substances must be stored in dry areas which do not pose an ignition risk to the said substances.
    - Smoking must not be permitted near flammable substances.
    - All cooking must be done in demarcated areas that are safe in terms of runaway or uncontrolled fires.

- The contractor must have operational fire-fighting equipment available on site at all times.

DUST CONTROL

- Vegetation should only be stripped as construction progresses. The time that stripped areas are exposed should be minimised wherever possible.
- The sites must be re-vegetated as soon as possible during the construction phase, and indigenous trees, shrubbery and grass species must be retained wherever possible, for this purpose.
- Exposed soils must be dampened whenever possible and especially in dry and windy conditions to avoid excessive dust generation.
- Any soil excavated and not utilised for rehabilitation must be removed from site or incorporated into landscaping.

SOCIO-ECONOMIC

- Access control to the site must ensure no unauthorised person shall enter.
- The site must be secured in order to reduce the opportunity for the criminal activity in the locality of the construction site.

Recommendations to be considered for the operational phase

SOCIO-ECONOMIC

- Vegetation could be planted to mitigate visual impacts and residents should be encouraged to plant indigenous trees.
- The effectiveness of traffic control measures must be monitored on an on-going basis and appropriate remediation steps implemented if necessary.

TECHNOLOGY EMPLOYED

- Measures must be taken to reduce the consumption of natural resources.
- These measures should include, but not be limited to, the installation of rainwater tanks to reduce stormwater runoff and the pressure on the municipal water supply, as well as alternative renewable energy sources such as wind or solar (PV) power.

BIOLOGICAL IMPACTS

- An independent ECO must inspect the site during the first 6 months of the operational phase to assess the level of rehabilitation and address accordingly.
- There should be on-going alien plant removal from the site.

9. THE NEEDS AND DESIREBILITY OF THE PROPOSED DEVELOPMENT (as per notice 792 of 2012, or the updated version of this guideline)

	Questions (Notice 792, NEMA, 2012)	Response
	PART I: NEED	
1.	Is the land use associated with the activity being applied for considered within the timeframe intended by the	The proposed project has considered and is guided by the Regions SDF and IDP priorities of the area. It aims to empower the local economy, which

	existing approved SDF agreed to be the relevant environmental authority?	is individuals and local business in terms of job creation and skills development. According to the CoJ SDF, The land use proposals of the Johannesburg Spatial Development Framework require the implementation of a range of policies and strategies in order to re-create a smart, creative and developmental city.
2	Should the development, or if applicable, expansion of the town/area concerned in terms of this land use occurs here at this point in time?	Yes. The development will enable the municipality to decrease their housing development backlog and minimize the formation of illegal settlements on areas not considered for residential planning and to provide basic amenities, e.g. church, sport ground, and parks. The future residents will have proper shelter and access to basic services and in turn their livelihood and well being will be improved. The development will also contribute towards urban development.
3	Does the community/area need the activity and the associated land use concerned? This refers to the strategic as well as local level.	Yes. The project is highly favoured as it forms part of the main objectives of the Provincial Municipality as well as will provide various benefits to the communities involved. The project will contribute to community empowerment through the creation of temporary jobs to unemployed members of the community. The development will also enable the municipality to decrease their housing development backlog and minimize the formation of illegal settlements on areas not considered for residential planning
4	Are the necessary services with adequate capacity currently available (at the time of application) or must additional capacity be created to cater for the development?	Additional electricity supply will be required.
5	Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of the services and opportunity cost)?	

6	Is the project part of a national programme to address an issue of national concern or importance?	This project satisfies requirements of Strategic Infrastructure Project (SIP 7) which involves planning and implementation of public transport, human settlement, economic and social infrastructure and location decisions into sustainable urban settlements connected by densified transport corridors. This will focus on the 12 largest urban centres of the country, including all the metros in South Africa.
PART II: DESIRABILITY		
1	Is the development the best practicable environmental option for this land/site?	Yes. An assessment of the available feasible options showed that the proposed option is the best option, taking into account both socio-economic and environmental considerations.
2	Would the approval of this application compromise the integrity of the existing approved and credible IDP and SDF as agreed to by the relevant authorities?	No. The project has no bearing on the IDP or SDF of the CoJ.
3	Would the approval of this application compromise the integrity of the existing environmental management priorities for the area (e.g. as defined in EMFs), and if so, can it be justified in terms of sustainability considerations?	No. The Gauteng EMF shows that the project is located in Zone 1 (Urban Development Zone). The project will however not have any implications on the integrity of the EMFs.
4	Do location factors favour this land use at this place? (this relates to the contextualization of the proposed land use on this site within its broader context).	Yes.
5	How will the activity of the land use associated with the activity being applied for, impact on sensitive natural and cultural areas (built and rural/natural environment)?	The project area has significantly been modified, it is deemed unlikely that further negative impacts would have a significant impact on the ecology of the area, although cognisance must be taken of rocky outcrops which are considered areas of high biodiversity and cultural significance.
6	How will the development impact on people's health and well-being? (E.g. In terms of noise, odours, visual character and sense of place, etc.)?	The project will result in an improved mobility and safety and well-being. This will provide a safer environment to the public. During construction, there will be particulate emissions (dust) related to debris handling; truck transport; materials storage, handling and transfer; open areas (windblown

		emissions). Gas emissions are also expected to occur due to vehicle and construction equipment activity (exhaust fumes). These impacts, however, can be mitigated and managed to acceptable levels, with a post mitigation impact that is not significant. Movement of construction vehicles and machinery result in the production of construction related noise from construction vehicles and machineries which may cause a nuisance to people living near the project area. However, the implementation of appropriate mitigation measures would reduce the noise levels to remain within applicable and acceptable SANS levels (SANS 10103:2008). Occupational health and safety standards will apply. It is expected that the project will not have an impact on the visual character and sense of place, especially since landscaping techniques will be used.
7	Will the proposed activity or the land use associated with the activity being applied for, result in unacceptable opportunity costs?	No. The project will not result in any opportunity costs.
8	Will the proposed land use result in unacceptable cumulative impacts?	No. It is expected that the project may result in cumulative impacts. The impacts will be short lived, during the construction phase. It is however expected that implementation of the mitigation measures included in the EMPr will reduce the significance of the impact to low.

10. THE PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED *(CONSIDER WHEN THE ACITIVTY IS EXPECTED TO BE CONCLUDED)*

The Environmental Authorisation is required for a minimum of 50 years.

11. ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) (must include post construction monitoring requirements and when these will be concluded.)

If the EAP answers "Yes" to Point 7 above then an EMP is to be attached to this report as an Appendix

EMPr attached	Yes

SECTION F: APPENDIXES

The following appendixes must be attached as appropriate (this list is inclusive, but not exhaustive):

It is required that if more than one item is enclosed that a table of contents is included in the appendix

Appendix A: Site plan(s) – *(must include a scaled layout plan of the proposed activities overlain on the site sensitivities indicating areas to be avoided including buffers)*

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Route position information

Appendix E: Public participation information

Appendix F: Water use license(s) authorisation, SAHRA information, service letters from municipalities, water supply information

Appendix G: Specialist reports

Appendix H: EMPr

Appendix I: Other information

CHECKLIST

To ensure that all information that the Department needs to be able to process this application, please check that:

- Where requested, supporting documentation has been attached;
- All relevant sections of the form have been completed.

Appendix A: Site plan(s) – *(must include a scaled layout plan of the proposed activities overlain on the site sensitivities indicating areas to be avoided including buffers)*

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Route position information

Appendix E: Public participation information

Appendix F: Water use license(s) authorisation, SAHRA information, service letters from municipalities, water supply information

Appendix G: Specialist reports

Appendix H: EMPr

Appendix I: Other information

PROPOSED TOWNSHIP ESTABLISHMENT ON PORTION 159 OF THE FARM DIEPKLOOF NO 319 IQ, CITY OF JOHANNESBURG METROPOLITAN MUNICIPALITY (COJ), GAUTENG PROVINCE.

DRAFT ECOLOGICAL REPORT

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JANUARY 2020

I. PROJECT DETAILS

Client	**Turning Point Project Management**
Report name	Township Establishment on Portion 159 of the Farm Diepkloof No 319 Iq
Report type	Ecological Assessment
Author	Thabo Mohlala, Ecosolve Consulting
Qualifications	MSc (Environmental Management)
Professional Registration	Pr.Sci.Nat
Report Date:	10 January 2020

II. DOCUMENT REVIEW

	Name	Position	Signature	Date
Prepared by:	Thabo Mohlala	Ecological Scientist		10/01/20
Reviewed by:	Tsepo Lepono	Environmental Director		16/01/20
Approved by:	Tsepo Lepono	Environmental Director		

Revision	Date	Description	Prepared	Reviewed	Approved

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PROFESSIONAL DECLARATION

The specialist investigator responsible for conducting this particular specialist ecosolgical study declares that:

- At the time of conducting the study and compiling this report I did not have any interest, hidden or otherwise, in the proposed development that this study has reference to, except for financial compensation for work done in professional capacity.
- Work performed for this study was done in an objective manner. Even if this study results in views and findings that are not favourable to the client/applicant, I will not be affected in any manner by the outcome of any environmental process of which this report may form a part, other than being a member of the general public.
- I declare that there are no circumstances that may compromise my objectivity in performing this specialist investigation. I do not necessarily object to or endorse the proposed development, but aim to present facts, findings and recommendations based on relevant professional experience and scientific data.
- I do not have any influence over decisions made by the governing authorities.
- Should I, at any point, consider myself to be in conflict with any of the above declarations, I shall formally submit a Notice of Withdrawal to all relevant parties and formally register as an Interested and Affected Party.
- I undertake to disclose all material information in my possession that reasonably has or may have the potential of influencing any decision to be taken with respect to the application by a competent authority to such a relevant authority and the applicant.
- I have expertise and experience in conducting specialist reports relevant to this application, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity.
- This document and all information contained herein is and will remain the intellectual property Ecosolve Consulting and the specialist investigator responsible for conducting the study. This document, in its entirety or any portion thereof, may not be altered in any manner or form, for any purpose without the specific and written consent of the specialist investigator.
- I will comply with the Act, regulations and all other applicable legislation.
- All the particulars furnished by me in this document are true and correct.

- I realize that a false declaration is an offence in terms of Regulation 71 of NEMA and is punishable in terms of section 24F of the Act.

T Mohlala

1. INTRODUCTION

Ecosolve Consulting (Ecosolve) was appointed by Turning Point Project Management (TPPM) to undertake ecological assessment for a proposed township establishment on Portion 159 of the Farm Diepkloof No 319 IQ in the City of Johannesburg Metropolitan Municipality (CoJ). The proposed development includes medical facilities, warehousing, high density residential, public open spaces, hotels, conference centres, convenience stores, community facilities and municipal offices.

This ecological assessment consists of desktop studies, survey phase, fauna and flora assessments and reporting on the information and findings. TPPM has tasked Ecosolve with the production of ecological assessment which shall contribute to the overall decision for infrastructure development. The survey component of the assessment included a critical analysis of the biodiversity present on and surrounding the proposed sites. The use of Geographic Information Systems (GIS) allowed for the critical interpretation of the ecological importance and sensitivity of the study area.

The ecological assessment is comprised of various floristic and faunal information that was collected both on site and from various databases. Land management units operate on the assumption that species of plants and animals are supported by, and are therefore reliant on, features present within these vegetation types. Therefore, the presence of a vegetation type could indicate the presence of species of plants and animals. The subsequent management prescriptions will concentrate on the vegetation units and their associated species and not purely on species alone.

2. LEGAL FRAMEWORK

In terms of Section 24 (5) of the National Environmental Management Act, 1998 (Act 107 of 1998) as amended (NEMA), the proposed project requires the compilation of a Basic Assessment Report (BAR) for the activities listed in terms of GN Regulation 544 of the Act.

In addition, this survey was completed in compliance with the following legislation:

- Conservation of Agricultural Resources Act (CARA) no 43 of 1983;
- Section 5 of the National Environmental Management Act (Act 108 of 1998);
- National Environmental Management Biodiversity Act (NEMBA, Act 10 of 2004);
- Gauteng Department of Agriculture and Rural Development requirements; and
- Gauteng Provincial Environmental Management Framework (EMF).

3. METHODOLOGY

3.1. FAUNAL ASSESSMENT

The aim of the faunal assessment is to generally describe the faunal presence identified and noted at the study area. This will be through qualitative surveys across all habitat

types of the study area. The focus of the assessment is to identify sensitive faunal habitats rather than single Red Data species rather than to focus on finding single species. This approach will often overlap, but not always. It is important to note that the study area was not considered in isolation, linkage to surrounding natural faunal habitats represents an important consideration in the assessment of conservation value of an area. Within an ecological consideration, there is no difference in importance between species found in a system and the interactions between these species. Therefore, this assessment also focused on assessing the status of available faunal habitats; the sensitivities of these habitats are therefore based on the status of each habitat as well as the level of isolation because of habitat transformation and fragmentation.

3.1.1. General Faunal Observations

Animals found within the study area's boundaries were identified using visual observations, ecological indicators (tracks, dung, diggings, etc.), morphological characteristics (colour, size, shape etc.) and species-specific calls (especially for birds and frogs).

3.1.2. Red Listed Fauna Probabilities

The occurrence of red data listed species will be conducted during a detailed desktop assessment and any other identification of red data listed species. The probability of occurrence will be calculated along to the sensitivity the proposed project will have on the identified red data listed species.

3.1.3. Faunal Habitat Sensitivities

Faunal habitat sensitivities are subjectively estimated based on the following criteria:

- Habitat status;
- Connectivity;
- Observed species composition; and
- Functionality.

3.1.4. Regional faunal diversity

It is important to view the study area on an ecologically relevant scale; consequently, all sensitive animal species (specific faunal groups) known from the area are included in this assessment. Detailed regional and scientific data on all faunal groups are lacking (notably for most of the invertebrate groups) and as a result only data sets on specific faunal groups allow for habitat sensitivity analyses based on the presence/ absence of sensitive faunal species (Red Data species) and their specific habitat requirements.

3.2. Flora Assessment

The floral assessment was broken into two parts first that of a detailed desktop assessment. The desktop assessment was done through a detailed assessment of peer

reviewed papers and other resources. This information was used as the identified baseline prior to the on field site assessment. The sampled data was then compared to the identified expected baseline information to establish any differences / similarities between delineated vegetation units. Preliminary results and species list form as a baseline estimate of the expected species within the greater area. It is not the intention to provide exhaustive and comprehensive lists of all species that occur on this site, since most of the species on these lists are usually common or widespread species. Rare, threatened, protected and conservation worthy species and habitat associated with these species are considered the highest priority, the presence of which is most likely to result in significant negative effects on the development.

The second part of the floral assessment was the on field site assessment. The approach to this phase is based on a variation of the Braun-Blanquet method whereby vegetation types were first categorised through the desktop assessment and aerial images. These areas are identified to be similar habitats with similar species. These categorised areas are then surveyed for floristic and environmental diversity during a site investigation and compared to the identified desktop results of these observed units.

3.2.1. Red Data Flora

The purpose of listing Red Data plant species is firstly to provide information on the potential occurrence of species of special concern in the study area that may be affected. Secondly, the potential occurrence of these species can then be assessed in terms of their habitat requirements in order to determine whether they have a likelihood of occurring in habitats that may be affected.

Red Listed flora information, as presented by SANBI was used as a point of departure for this assessment. A snapshot investigation of an area, such as this particular investigation, represents a limitation in terms of locating and identification potential Red Listed flora species. Particular emphasis was therefore placed on the identification and assessment of habitat deemed suitable for the potential presence of Red Listed. It should be noted that Red List species are, by nature, usually rare and difficult to locate.

3.2.2. Floristic Sensitivity

The sensitivity of vegetation units or habitat types was assessed by means of the comparison of various floristic attributes.

- The confirmed presence of flora species of conservation importance, or the presence of protected flora species (provincially or other legislation);
- Conservation status of the regional vegetation type;
- The observed ecological status, based on degradation gradients, utilisation, habitat fragmentation and isolation, etc.

- The observed (or potential) floristic diversity, compared to surrounding areas and also compared to a pristine status of the particular habitat type within the regional vegetation type; and
- The functionality of the habitat type in a larger landscape that may, or not, be dominated by degradative and transformative anthropogenic activities.

3.2.3. Flora species of Conservation Importance of the Region

South Africa's Red List system is based on the IUCN Red List Categories and Criteria Version 3.1 (finalized in 2001), amended to include additional categories to indicate species that are of local conservation concern. The IUCN Red List system is designed to detect risk of extinction. Species that are at risk of extinction, also known as threatened or endangered species are those that are classified in the categories Critically Endangered (CR), Endangered (EN) and Vulnerable (VU). The red data species identified to potentially occur in the study area a detailed description of the reason and habitat requirements was described. These were then compared to the identified vegetation categories on the site. These units were then compared to the required habitats of red data listed species which could potentially occur noting the suitability where the habitat requirements overlap.

4. DESCRIPTION OF THE STUDY AREA

The proposed development falls within farm Portion 159 of the Farm Diepkloof 319IQ, in Soweto within City of Johannesburg Metropolitan Municipality. The farm is approximately 30ha. It is bordered by Chris Hani Road (M68) to the north and Western Bypass (N1) to the east (Fig 1). Chris Hani Baragwanath borders the western section of the property.

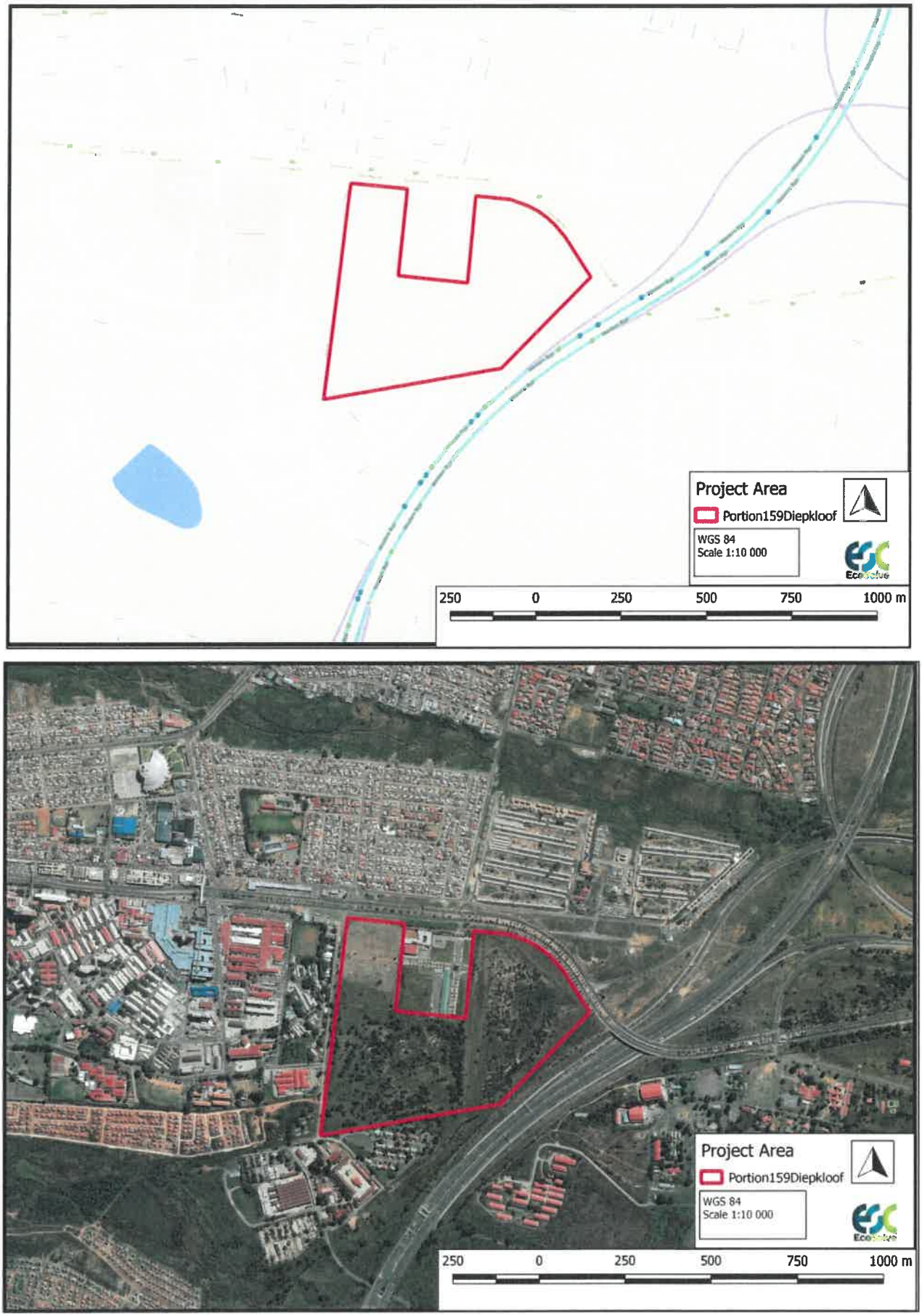


Figure 1: Study area

4.1. CLIMATE

The Köppen (1931) climatic classification is world-wide recognised as a classic broad climatic classification system. This system is a hierarchical classification system with up to three levels of detail, based on rainfall magnitudes, rainfall seasonality, and rainfall concentration. It also includes durations above or below threshold temperatures on a monthly basis. Input requirements are, therefore, monthly precipitation and temperature data (Schulze et al. 2006). According to the Köppen classification the study area falls, as with most of the Highveld region of South Africa, within the Cwb class, of which the climatic characteristics translate to:

C – Moist with cold winters

w – Dry winters

b – Summers relatively long and cool

The long term Mean Annual Precipitation (MAP) for the two weather stations nearest to the study area is 689 mm/annum (Table 2 and Figure 3) and for Johannesburg weather station 713 mm/annum (Erasmus, 1985). This rainfall is received mainly in the summer months with December and January receiving the highest total rainfall and June and August the least.

Table 1: The Monthly and Mean Annual Precipitation for Klipspruit and Baragwanath weather stations (Erasmus, 1985).

Month	**Klipspruit** (26° 16' S; 27° 55' E)	**Baragwanath** (26° 15' S; 27° 59' E)	**Average**
January	121	104	113
February	99	106	103
March	87	87	87
April	45	36	41
May	20	16	18
June	6	7	7
July	11	13	12
August	7	10	9
September	20	22	21
October	61	62	62
November	97	114	106
December	112	115	114
MAP	**686**	**692**	**689**

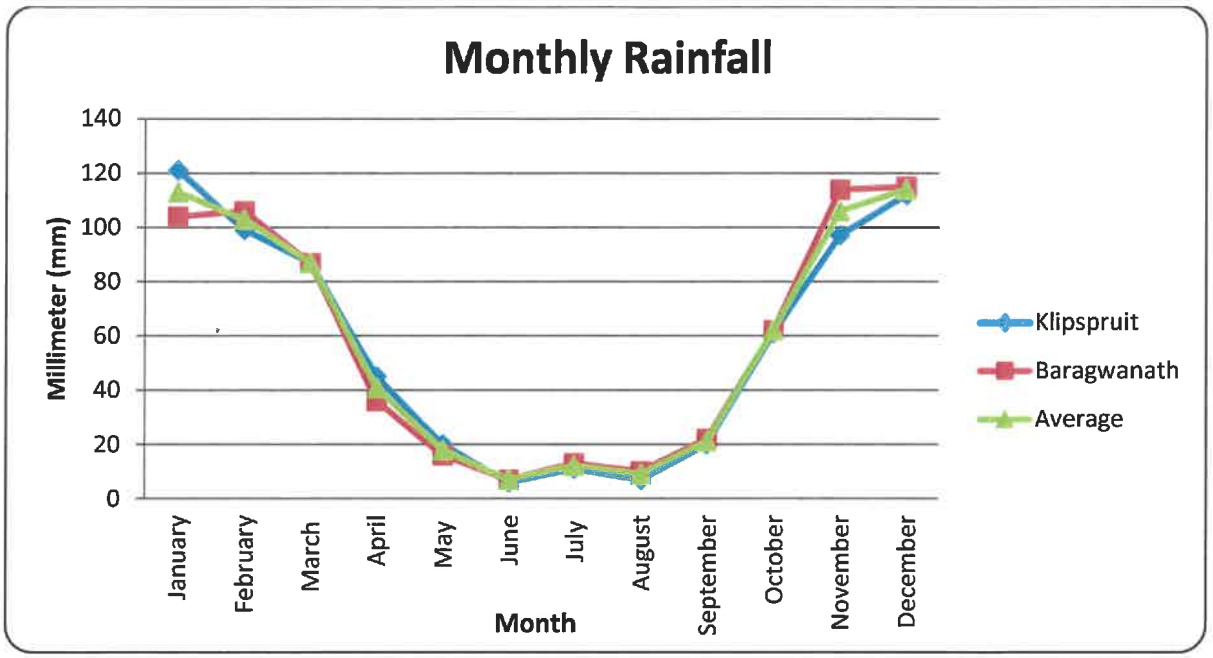


Figure 2: Monthly rainfall distribution for the study area (Erasmus, 1985)

Data from the nearest SAWS weather station situated in Johannesburg (26° 08' S 28° 14' E) shows the average maximum daily temperature to be 22°C and the average minimum daily temperature 10°C (Table 1). The expected first date of occasional frost is 3 May while the expected first date of regular frost in the study area is about 30 May. The expected date of last regular frost is about 25 August while the expected date of last occasional frost is about 30 September (AGIS, 2008).

4.2. Topography, Geology & Soils

The topography and terrain morphology of an area is important as it influence climatic and edaphic conditions, thereby indirectly contributing to microclimatic and biological diversity. The more variety in terrain morphology the more variety in microclimatic and biological diversity and vice versa. The study area has a relatively high variety in terrain morphology. According to the National Land Type Classification (Kruger 1973, Hammond 1964) the study area includes three terrain types, namely 1. Level plains with some relief 2. Plains with open low hills or ridges 3. Rolling or irregular plains with high hills or ridges

4.3. Aquatic Features

The project area falls within Upper Vaal WMA quaternary catchment C22A (Figure 5 and 6). The main tributary is Klip Rivier. The Klip River drains the southern Witwatersrand region. It flows primarily southwards until it joins the Vaal River at Vereeniging. The Klip River catchment incorporates the southern part of Johannesburg, one of the most developed urban complexes in Africa.

Consequently, the Klip Rivier catchment is one of the most heavily impacted river systems in South Africa and is subjected to various types of pollution. Increasing rates of urbanisation, industrialisation and population growth have aggravated the significance of water pollution as

a threat to the wetland resources in the Klip Rivier catchment. The Upper Klip Rivier in the south is located in an area of urban development and past mining activity, and is subject to intense pressure from human activities. In addition to water scarcity, a large percentage of drinking water is lost due to degradation of the water supply infrastructure, water wastage and leakages. The main concerns from an environmental perspective are the impacts of the increasing demands on water resources, and the impact of pollution on downstream impoundment and on users of this water source. The downstream communities, which are exposed to raw sewage and polluted streams and rivers, face serious health hazards. According to DWA 2013, the Present Ecological Status (PES) of the catchment area is considered a Class E, or seriously modified. The biological integrity of the Klip Rivier system is considerably impaired and water quality objectives are hardly ever met (Table 1). Alterations to the system include:

- A completely modified hydrological regime - the strong seasonality of rainfall in this area is cancelled by more constant contributions from treated wastewater;
- A change in the chemical quality of water and rain water largely reaches the river via urban run-off, effluent discharge and mine drainage;
- Changes in stream morphology brought about by the building of weirs, bridges, recreational facilities etc., and
- Degradation and destruction of natural riparian habitats as a result of formal and informal urbanisation, and industrial, agricultural and domestic activities close to the river banks.

Table 2: Water Quality Objectives for the Klip River Catchment

Variable	Ideal	Acceptable	Tolerable	Unacceptable
EC (mS/m)	<45	45 - 70	70 - 100	>100
Chemical Oxygen Demand (mg/l)	<20	20 - 35	35 - 55	>55
Suspended Solids (mg/l)	<5	5 - 15	15 - 25	>25
Dissolved Oxygen	<9	5 - 9	4 - 5	<4
pH	6.5 - 8.5	-		<6.5; >8.5
Phosphate (as PO4 in mg/l)	<0.2	0.2 - 0.4	0.4 - 0.6	>0.6
Sodium (mg/l)	<50	50 - 70	70 - 100	>100
Sulphate (mg/l) E. coli (per 100 ml) – in stream	<80 <10	80 -10 - 200 100	200 - 500 100 - 1000	>500 >1000

Wetlands and rivers occur north and south of the project area. These are however, located far away from the project area. The project area also falls outside 1:100yr floodlines. This will therefore not trigger a water use licence application process.

Recreational activities within the surrounding water courses include a wide range of noncontact, intermediate contact and full contact recreation including:

Riparian home ownership;

- Picnicking;
- Fishing;
- Birdwatching and enjoyment of nature; and
- Swimming;

These activities are particularly popular at impoundments in the urban areas of the Witwatersrand, which serve as important recreational hubs for city dwellers. Fishing is a popular recreational pastime in these impoundments and in the Klip Rivier itself, but generally the fish species caught are not considered sensitive. The fact that fish may be consumed by fishermen, however, raises the issue of health. The Vaal Barrage, into which the Klip Rivier flows is also a key recreational area for both permanent residents and, in particular for weekend visitors.

Figure 3: Wetland areas in the vicinity of the study area

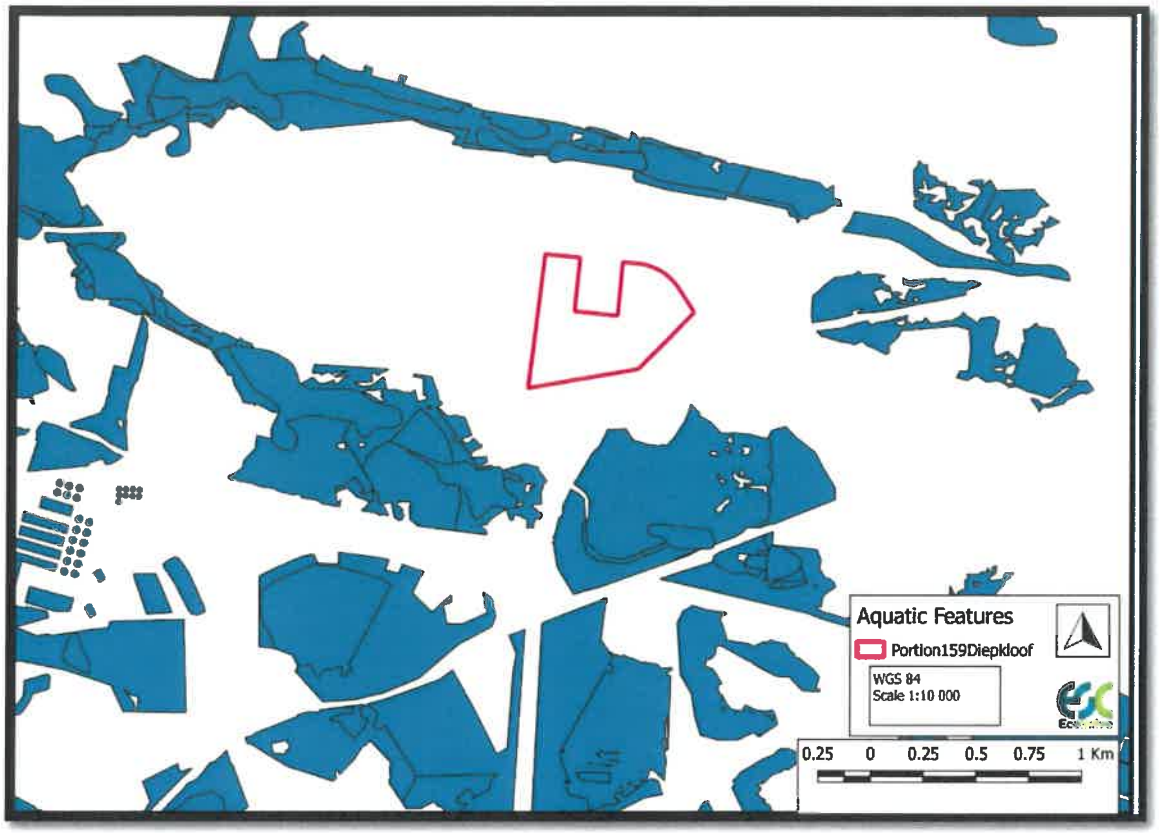


Figure 4: Aquatic features

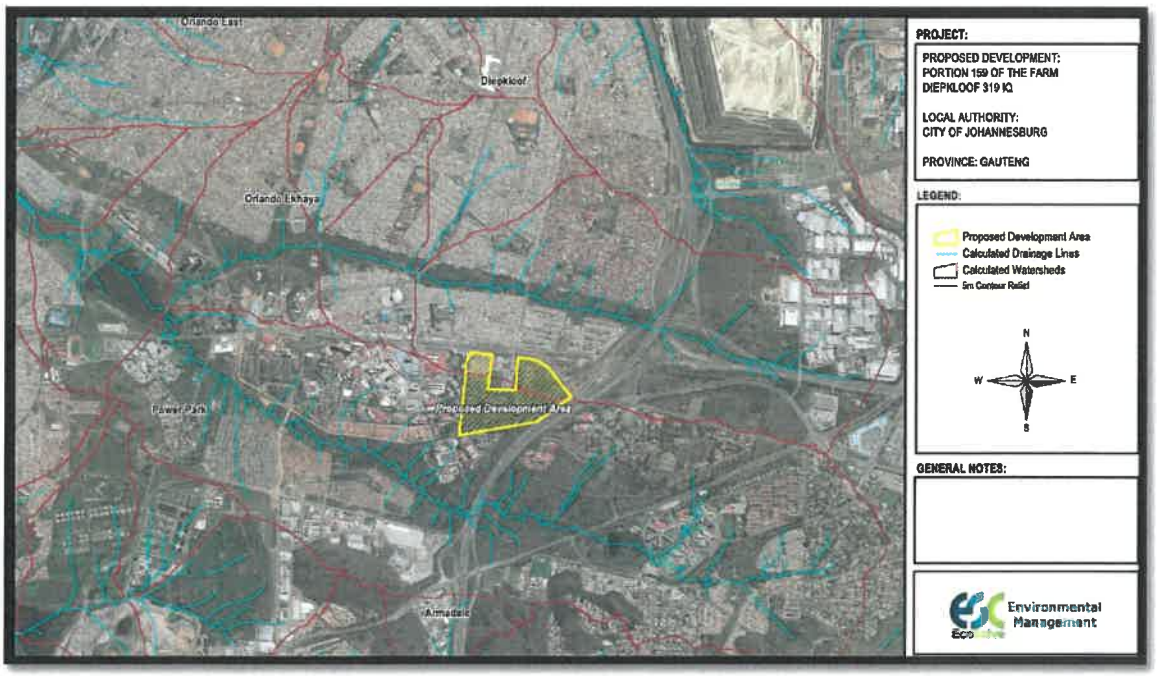


Figure 5: Surface hydrology

The dominant vegetation in the wetlands are reedbeds (*Phragmites communis* and *Typha capensis*), which are expanding because of nutrient enrichment of the river system and alteration of river banks. Many wetlands are thus artificially created as a result of human

activities. They do, however, provide a sanctuary for birdlife, small animals and aquatic life. No threatened fauna and flora are known to occur either in the Klip river catchment or in the riparian vegetation, although the rare rock catfish, *Austroglanis sclateri* has been observed.

4.4. VEGETATION TYPES

To broadly describe the vegetation of the study area, reference is made to the classification carried out for South Africa, Lesotho and Swaziland, by Mucina & Rutherford (editors) (2006). With this system the region was classified into 435 zonal and azonal vegetation types, using a three-level hierarchy of mapping units, namely Biome, Bioregion and Vegetation Unit. In addition to data on vegetation distribution, data sources on topography, geology, soils, land types and climatic zones were also used (Mucina & Rutherford 2006). The study area contains one vegetation type - Soweto Highveld Grassland (Figure 3). This diversity in vegetation types can mainly be ascribed to the topographical and geological range within the study area as well as the altitude and climate.

4.4.1. Soweto Highveld Grassland

This vegetation unit occurs in Mpumalanga, Gauteng (and to a very small extent also in neighbouring Free State and North-West) Provinces. It lies in a broad band roughly delimited by the N17 road between Ermelo and Johannesburg in the north, Perdekop in the southeast and the Vaal River (border with the Free State) in the south. It extends further westwards along the southern edge of the Johannesburg Dome (including part of Soweto) as far as the vicinity of Randfontein. In southern Gauteng it includes the surrounds of Vanderbijlpark and Vereeniging as well as Sasolburg in the northern Free State. The altitude ranges from 1 420–1 760 m.

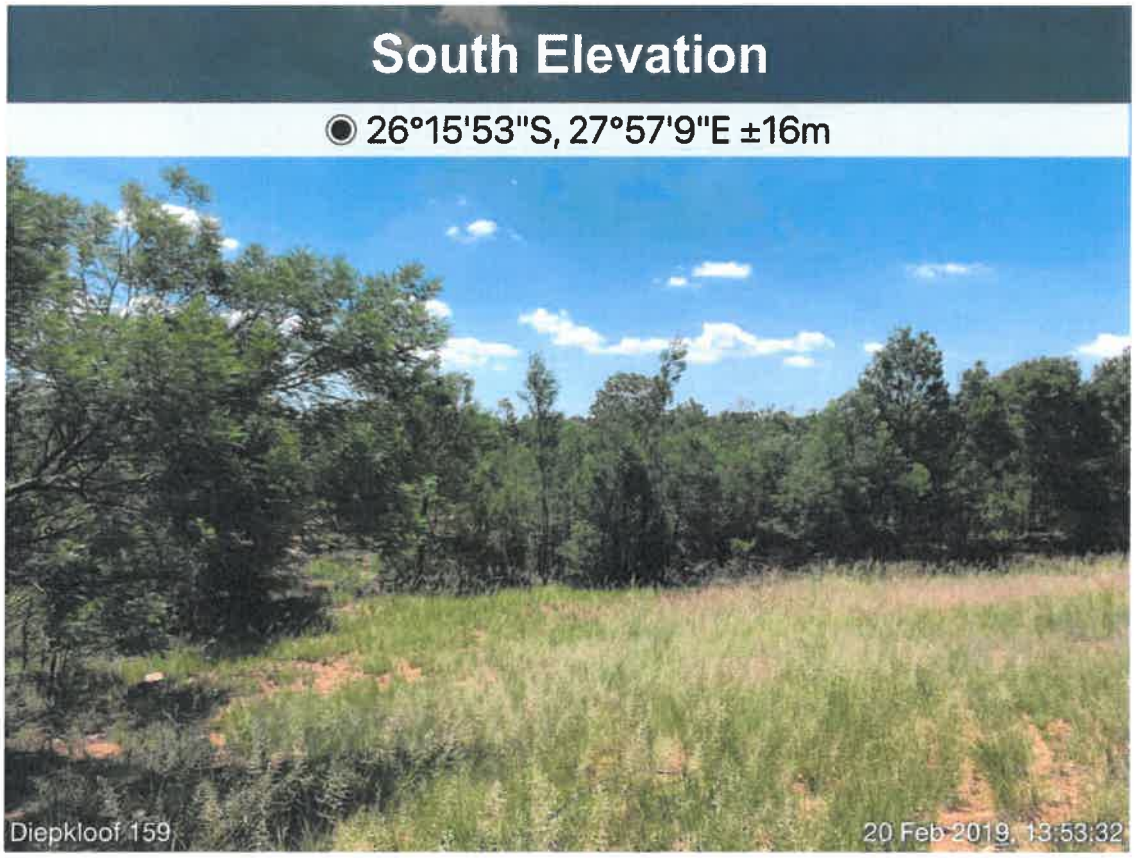
It occurs on gently to moderately undulating landscape on the Highveld plateau supporting short to medium high, dense, tufted grassland dominated almost entirely by *Themeda triandra* (Rooi grass) and accompanied by a variety of other grasses such as *Elionuris muticus* (Wire grass), *Eragrostis racemosa* (Small heart grass), *Heteropogon contortus* (Spear grass) and *Tristachya leucothrix* (Trident grass). Only small scattered wetlands, narrow streams and occasional ridges or rocky outcrops interrupt the continuous grassland cover. The geology consists mainly of shale, sandstone or mudstone of the Madzarinwe formation (Karoo supergroup).

Conservation status

Currently considered endangered. Only a handful of patches statutorily conserved (Waldrift, Krugersdorp, Leeuwkuil, Suikerbosrand, and Rolfe's Pan Nature Reserves) or privately conserved (Johanna Jacobs, Tweefontein, Gert Jacobs, Nikolaas and Avalon Nature Reserves, Heidelberg Natural Heritage Site). Almost half of the area already transformed by cultivation, urban sprawl, mining and building of road infrastructure. Some areas have been flooded by dams (Grootdraai, Leeukuil, Trichardtsfontein, Vaal and Willem Brummer dams). Erosion is generally very low (93%).

4.5. SITE VEGETATION

The vegetation is mainly dominated by *Hyparrhenia hirta* (Common Thatching Grass) and *Tagetes minuta* (Khaki weed) and black wattle (*Acacia mearnsii*). Topsoil and vegetation disturbance due to littering, topsoil excavations, building waste disposal, remnant construction foundations, etc. are common.



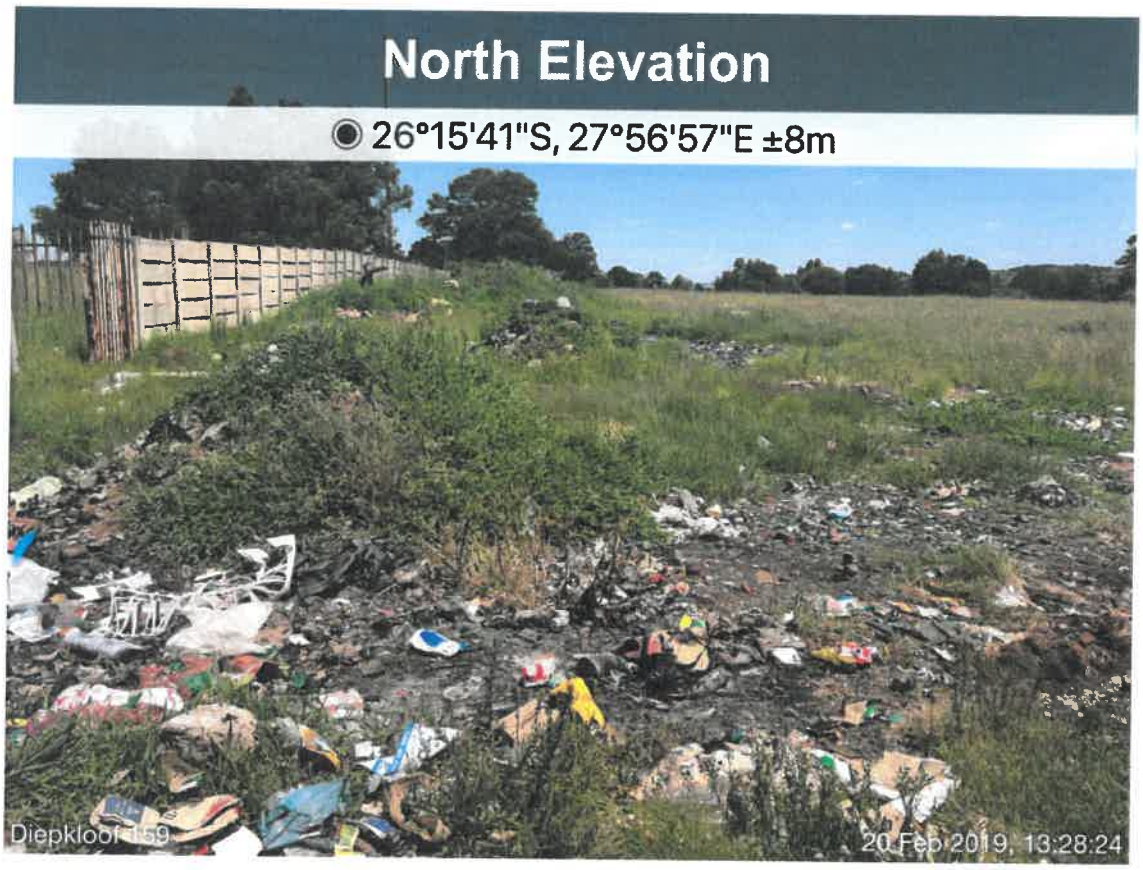


Figure 6: The transformed grassland zone is located mainly on highly disturbed areas due to the presence of litter and other forms of topsoil disturbance.

Table 3: List of common plant species occurring in the Transformed Grassland zone (exotic species indicated with an asterisk).

Species	Growth form	Species	Growth form
Acacia karroo	Tree	Hyparrhenia hirta	Grass
*Acacia mearnsii	Tree	Melinis repens	Grass
Aristida congesta	Grass	*Oxalis obliquifolia*	Geophyte
Brachiaria brizantha	Grass	*Plantago lanceolata*	Forb
**Conyza albida*	Forb	*Pogonarthria squarrosa*	Grass
**Conyza bonariensis*	Forb	**Schkuhria pinnata*	Forb
Crassula sp.	Forb	*Searsia lancea*	Tree
Cynodon dactylon	Grass	*Searsia pyroides*	Tree
**Datura stramonium*	Forb	*Senecio inornatus*	Forb
Dichrostachys cinerea	Shrub	*Senecio lydenburgensis*	Forb
Eragrostis chloromelas	Grass	**Solanum mauritianum*	Shrub
Eragrostis curvula	Grass	*Sporobolus stapfianus*	Grass
Eragrostis plana	Grass	*Stoebe vulgaris*	Forb
Felicia filifolia	Forb	**Tagetes minuta*	Forb
Felicia muricata	Forb	*Tephrosia sp.*	Forb
Guilleminea densa	Forb	*Urochloamosambicensis*	Grass
Helichrysum nudifolium	Forb	**Verbena aristigera*	Forb
Helichrysum rugulosum	Forb	**Verbena bonariensis*	Forb

4.6. PLANT SPECIES OF SPECIAL CONCERN

No species of concern were recorded. The reason for their absence is likely due to the highly disturbed nature of the vegetation and the fact that most of the Red Data species are not directly associated with the immediate study area. However, some of the listed species are small and inconspicuous, and their presence cannot be completely ruled out.

4.7. ROCKY OUTCROPS

Rocky outcrops are geological features that encompass a wide variety of physical environments, including escarpments, overhangs, cliffs, tors, boulder-heaps and insular domes (inselbergs). They support high levels of species diversity and endemism, and provide stable micro-climates for thousands of years. They provide critical breeding sites for many top order mammalian and avian predators; nesting sites for colonial species such as seabirds, bats and swifts and ecological refuges for ancient lineages.

Rocky outcrops within the study area nave been mainly transformed by illegal dumping of rubble and litter. Many are no longer providing unique habitats as a result.

4.8. GAUTENG CONSERVATION PLAN (C-PLAN)

According to Gauteng Conservation Plan version 3.3 (C Plan 3.3), the proposed area does not fall within any of the areas identified as Critical Biodiversity Areas (CBAs) –Irreplaceable or Ecological Support Areas (ESA) – Important (Figure 9).

CBAs require moderate to high levels of protection and/or management. Various moderate impact land management options exist, but ecological structure and functioning must be preserved. Ecological Support Areas are supporting zones required to prevent the degradation of Critical Biodiversity Areas and Protected Areas. These may include areas that are degraded or even transformed if these areas still play an important role in supporting CBAs.

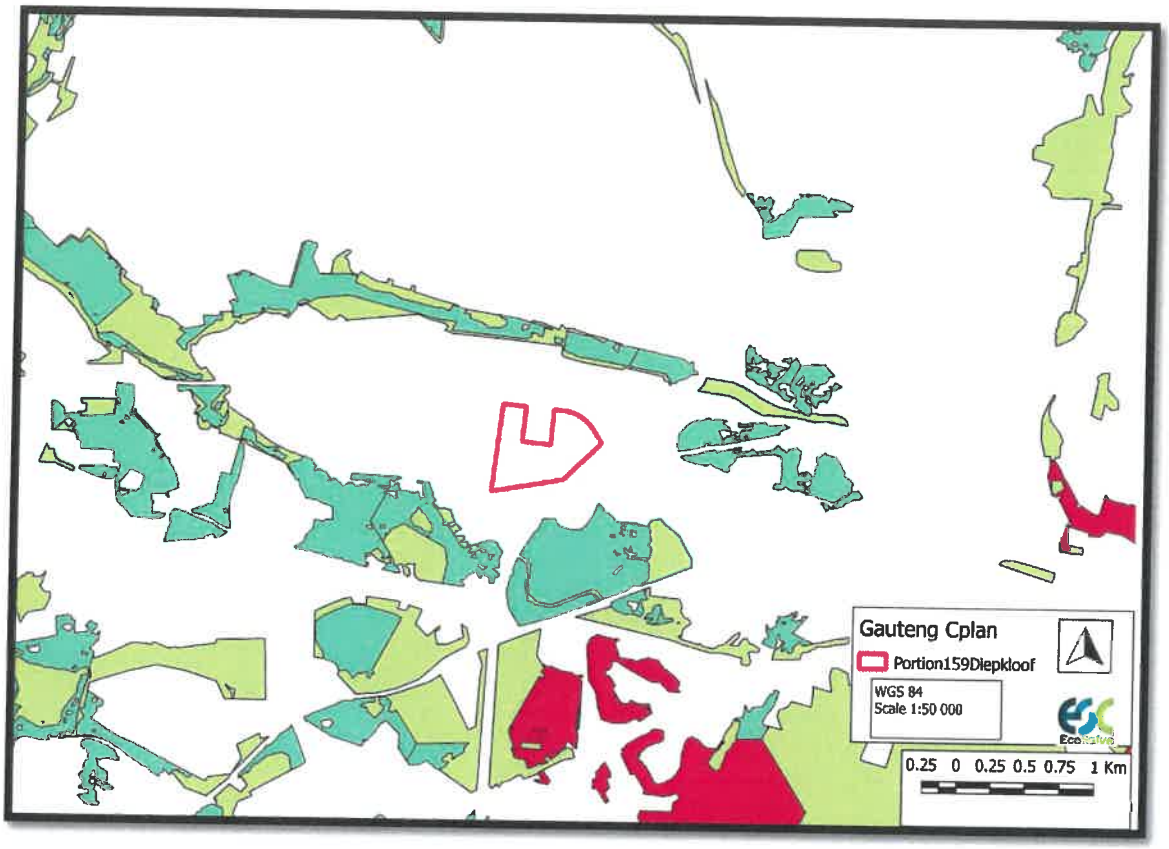


Figure 7: Conservation Plan Map

4.9. PLANT SPECIES OF SPECIAL CONCERN

No species of concern were recorded. The reason for their absence is likely due to the highly disturbed nature of the vegetation and the fact that most of the Red Data species are not directly associated with the immediate study area. However, some of the listed species are small and inconspicuous, and their presence cannot be completely ruled out.

4.10. MAMMAL SPECIES

There are 54 identified mammal species listed to occur within the study areas. Of the 54 species listed 31 are of Least Concern, 1 is Data Deficient, 2 Introduced Species and 13 Not listed species. The remaining 7 species are identified as threatened; 5 are Near Threatened, 1 is Vulnerable and 1 is Critically Endangered. The identified Vulnerable species is the Lion. The identified Critically Endangered species is the Percival's Short-eared Trident Bat. There are 41 endemic species listed to occur in the quarter degree square. None of these or likelihood of occurrence was, however, noted during the assessment and are unlikely to occur.

4.11. AVIFAUNAL SPECIES

A total number of species 326 species (SABAP2) have been identified within the site's QDS's. Of the 326 species, 3 species are introduced, 61 species are migrants and 262 species are residents. During the survey a variety of bird species were recorded including Longtailed widow, Blacksmith Lapwing, Cattle egret, Sacred ibis, Orange Throated longclaw and Egyptian geese. Other bird species identified included White faced ducks, Golden and Red bishops and Crowned lapwing.

The results show that there are 26 Endemic and 25 Near Endemic resident species occupying the QDS within which the site is located. The residents have 13 listed species, these being 7 Near Threatened and 6 Vulnerable. None of these were noted during the survey.

For the general conservation of the avifaunal community it is important to identify nesting and foraging cites of threatened avifaunal species as these sites are important to the longevity and survival of listed species, in future generations. It is also important to determine the impact of noise on natural sites, as this can result in the loss of noise sensitive species. Another important impact that needs to be limited is that of pollution, either through direct contamination of areas or indirect contamination resulting in the degradation of important habitats. None of the species listed was noted during the assessment and are considered unlikely to occur

4.12. Reptile Species

There are 31 identified reptile species listed to occur within the study area. Of the 31 species listed 29 are of Least Concern, 1 Not Listed species and 1 Vulnerable species. The identified Vulnerable species is the Nile Crocodile. There are 3 endemic species listed to occur in the quarter degree square. None of these were however, identified during the assessment.

4.13. Amphibian Species

There are 11 identified amphibian species listed to occur within the study areas quarter degree square this being 2628AD. Of the 11 species listed 9 are of Least Concern, 1 Not Listed species and 1 is Near Threatened. The identified Near Threatened species is the Giant Bull Frog. There is 1 endemic species listed to occur in the quarter degree square. None of these were hoever, noted during the assessment and are unlikely to occur.

4.14. Insect Species

There are 246 identified insect species listed to occur within the study areas. These are divided into 193 Lepidoptera, 27 Odonata, 9 Lacewings, 4 Scorpions and 13 Spiders. Of the 246 species listed 136 are of Least Concern, 43 Not Evaluated, 2 Introduced Species, 10 Not Threatened and 56 Not Listed species. The remaining species is identified as Endangered. The identified Endangered species is the Roodepoort copper. There are 9 endemic insects listed to occur within the quarter degree square. None of these were, however, noted during the survey and are unlikely to occur.

5. POTENTIAL IMPACTS

Although the proposed project does not encroach any water bodies, there is potential for downstream impacts on aquatic ecosystems within the catchment.

Removal of vegetation, coupled to an increase in hard surfaces which concentrate flows (quantity and velocities), could lead to the increased occurrence of erosion and sedimentation within systems. Erosion and sedimentation are thus secondary impacts, which also alter the physical characteristics of aquatic systems, resulting in changed habitats and water quality (e.g. increased suspended sediment loads). These are not only site-specific impacts, but also impact the systems further downstream.

The potential impacts, which would thus require design and construction mitigation within rivers (including ephemeral streams) and wetlands, are the following:

- Destruction of vegetation and changes in vegetation community type
- Reduction in permeable surfaces leading to changes to hydrological processes (increased surface run-off, velocities and volumes)
- Increased sediment loads down rivers, resulting in changes to instream habitats and therefore instream community structures

These impacts are applicable to all river and wetland systems. The impacts listed above can be ascribed to the following issues:

Certain natural and anthropogenic activities, e.g. floods, and placing structures in a river bed or wetland area, cause immense damage to the structure of banks or river beds, and therefore the channel in which the water flows. The physical channel structure forms the template for instream habitat and is essential for maintaining habitat quality. Any **changes in channel condition and structure** would have a cumulative effect, and if sufficiently extreme, may result in a shift in population structure and possibly biotic diversity at a site. Macroinvertebrates are particularly dependent on instream habitat availability, and due to their short life-spans and localised habitats, are very vulnerable to changes in channel structure and resultant changes in instream habitat. Instream habitat is also the link between activities in the riparian zone (i.e. habitat at a macro-scale) and instream biota. Degradation of the riparian zone would, therefore, result in changes to channel structure and condition, with resultant impacts on instream habitat and biotic population structure

Increased sedimentation will result from a number of activities. Irresponsible construction and upgrading activities would result in major impacts on the riparian zone of water bodies, thereby reducing the integrity of the riparian zone and a reduction in the services provided by intact and functional riparian strips (e.g. the stabilisation of river channels, banks and floodplains; flood attenuation; maintenance of water temperature and quality; provision of habitat, refuge and migration corridors for terrestrial, avian and aquatic fauna; the interception and breakdown of pollutants; the interception and deposition of nutrients and sediments; and the provision of fuels, building materials and medicines for local communities).

Bank destabilisation will therefore lead to increased erosion, resulting in increased sedimentation. Erosion and sedimentation will obviously be greater on steep slopes, along drainage lines and particularly where the soil types are erodible. During construction certain materials will be stockpiled at sites along the route that are conveniently located for easy access. These materials are exposed to the elements, and may also be eroded into sensitive wetlands and rivers. Eroded materials may settle, resulting in increased silt loading. This may, in turn, reduce the water quality available

to local communities and cattle, as well as disrupt the ecological functioning of these systems, particularly by coating instream habitats.

Changes in drainage patterns (or hydrological processes) are primarily related to activities such as diverting rivers and streams, impoundment, or placing large permanent structures across wetlands.

Construction may result in the flow of small rivers, streams and wetlands being impeded, which may result in potential impacts such as:

- Ecological changes downstream due to a reduced water flow, e.g. increased siltation due to a decrease in velocity, drying up of sections of wetlands, etc
- Destruction or physical loss of wetlands: Wetlands are sensitive and specialised areas which are particularly vulnerable to impacts from developments. Loss of wetlands may result in secondary impacts on local communities and animals utilising these water resources. This is particularly relevant for this study as large parts of the greenfields route are reliant on wetland seeps and springs as domestic water sources.

In areas of high erosion along the proposed route, silting up of culverts may take place if proper maintenance is not carried out, due to the transport and deposition of eroded materials in stormwater run-off. This may result in increased upstream flooding, which will increase the scour of downstream areas.

Significant changes in drainage patterns may also have localised impacts on groundwater recharge rates.

All impacts on aquatic bodies that result in changes to habitat, flow pattern or hydrodynamics and water quality, have the potential to cause **changes in ecosystem structure and function, and subsequent loss of biodiversity and species richness**. Some aquatic systems and organisms are more resilient than others. Knowledge of aquatic environments is therefore important as it provides an assessment of ecological sensitivity and importance and allows for a prediction of assimilative capacity.

6. IMPACT ASSESSMENT AND MITIGATION MEASURES

Township developments have several impacts on the surrounding environment and particularly on a wetlands and riparian areas. This type of development changes habitats, the ecological environment, infiltration rates, amount of runoff and runoff intensity of stormwater, and therefore the hydrological regime of the site. In the absence of the specific development layout, general impacts and mitigation measures are provided.

Destruction of vegetation and loss of sensitive habitats

Description of effect

The dominant vegetation type within the proposed project is grasslands. Vegetation types, together with the highly erodible soil types must be considered at all times during construction. Without mitigation and consideration of these sensitive areas, this impact would have a high significance as excessive removal of vegetation without rehabilitation would result in erosion.

Mitigation

Clearing of vegetation should be scheduled for the drier winter months and limited to areas immediately needed for construction. Vegetation stripping should occur in parallel with the progress of construction to minimise erosion and/or run-off. Large tracts of bare soil will either cause dust pollution or quickly erode and then cause sedimentation in the lower portions of the catchment. Large stands of Palmiet should be avoided during the construction phase and viable populations should remain in situ to allow for the possible recovery of these stands. Only selected plant species must be used in the re-vegetation process.

Assessment (with mitigation) – Vegetation

By keeping the clearing of any vegetation to a minimum, will reduce the overall impact from high to low. The re-vegetation of these areas after construction should also be monitored during the operational phase. The overall impact is rated as permanent due to the definite change or resetting of the plant community structure. However, if suitable indigenous species are used in the re-vegetation / rehabilitation process, the impact would be regarded as low, i.e. with mitigation. This would also aid in reducing the other impacts such as the increasing the surface area of permeable surfaces and reduce the diversion of flow to low, providing "soft" run-off areas, which slow flows and trap any pollution.

Physical change to wetland areas

Description of effect

As stated above, the proposed project does not encroach any water bodies, there is howverer potential for downstream impacts on aquatic ecosystems within the catchment.

Wetland processes are altered not only through physical change, but through the alteration of linked processes such as surface water flows and topography. Most wetlands are linked to groundwater systems and any change to water tables, could thus indirectly result in wetlands drying out, if surface water flow or groundwater movement directions are altered. Conversely, if excessive stormwater is diverted into a wetland, the wetland could change from temporary to always being inundated. Plant

communities then change from grasses or sedges to reeds and bulrushes, and if the wetland is not sufficiently protected from sustained high flows, it could also erode. These wetlands would also contain levels of pollution, found in the run-off generated and thus the water would not always suitable for human use or contact.

The importance of each wetland should thus be considered due to the ecological and social aspects raised in this report, i.e. a reduction in wetland plant cover would reduce the available ecological habitats, while a reduction or excessive increase in water levels would reduce the available resources (plants) for domestic, livestock use and for the continued functioning of the wetland. Temporary wetlands are an important source of winter grazing (bulrushes are not palatable) and also contain a high proportion of geophytes. Most geophytes are considered a source of food or medicine.

Mitigation

Construction should as far as possible not occur within any wetlands, thus resulting in their alteration or removal. This includes assessing the possible changes to wetland conditions; hydrological regimes etc. on wetland function. Further mitigation would be to ensure that no flows are altered

Assessment

The impact of physical change to wetlands areas was assessed as being low with mitigation in the construction and operational phases. Any changes to the plant communities or diversion of flows, as well as the physical disturbance of the wetlands, would be rated as a medium impact both in the construction and operational phases without mitigation. This would lead to the reduced functioning of the wetlands and impact on the resource's users.

Loss of instream habitat due to changes in channel structure and condition

Description of effect

Certain natural and anthropogenic activities, e.g. floods, and placing structures in a riverbed or wetland area, cause immense damage to the structure of banks or riverbeds, and therefore the channel in which the water flows. The physical channel structure forms the template for instream habitat and is essential for maintaining habitat quality. Any changes in channel condition and structure would have a cumulative effect, and if sufficiently extreme, may result in a shift in population structure and possibly biotic diversity at a site.

Mitigation

- Pillars and columns should not be placed in instream or in riparian zones, if at all possible.
- The disturbance of instream channels and riparian zones during construction must be minimized.

- Physical structures, which could later alter hydrological regimes, should not be placed in the vicinity of any wetlands.

Assessment

By keeping the physical footprint of the project that would require clearing to a minimum. The overall impacts would be low or very low (with mitigation) during the construction phase only.

Increased surface run-off

Description of effect

Vegetation not only stabilises soils, but also reduces surface run-off velocities when rainfall occurs. Attenuation of surface water flow encourages permeation of the soils and contributes to maintaining water table levels (Davies *et al.*, 1993). During the construction phase, with no instream vegetation cover, water velocities will increase.

Further in the case of this project, together with the increased risk of erosion, all of the surface run-off will be diverted via the service road away from localised or micro scale catchments. If the surface run-off is reduced this would affect the availability of water for the use by plants within the riparian and wetland areas. Over an extended period of time, these systems will dry out and possible recovery will be impeded.

Conversely, if excessive stormwater is diverted into a wetland, the wetland could change from temporary to always being inundated. Plant communities then change from grasses or sedges to reeds and bulrushes, and if the wetland is not sufficiently protected from sustained high flows, it could also erode. These wetlands would also contain levels of pollution, found in the run-off and thus the water would not always suitable for human use or contact.

The importance of each wetland should thus be considered due to the ecological and social aspects raised in this report, i.e. a reduction in wetland plant cover would reduce the available ecological habitats, while a reduction or excessive increase in water levels would reduce the available resources (plants) for domestic, livestock use and for the continued functioning of the wetland. Temporary wetlands are an important source of winter grazing (bulrushes are not palatable) and also contain a high proportion of geophytes. Most geophytes are considered a source of food or medicine.

Mitigation

The construction of a surface stormwater drainage system during the construction phases must be done in a manner that would protect the quality and quantity of the downstream system. The use of swales, which could then be grassed for the operational phase, is recommended as the swales would attenuate run-off water. The purpose of the retention swales is to ensure that stormwater containing silt and other sediments will settle out (commonly accepted sound environmental practice). It is expected that

seepage, evaporation and overflow will occur in the swale retention areas ensuring that the water released off-site is of a better quality. It is further recommended that these swales and retention ponds be incorporated into the operational phase.

The velocity of water that may reach wetlands should be slowed before it is intercepted by virgin soils using a siltation and erosion control structure, which abuts with natural bedrock. The plans and specification for this structure should be forwarded to the relevant stakeholders such as Working for Wetlands and EMM.

Assessment

By keeping the physical footprint of the pipe line servitude that would require clearing to a minimum, i.e. not extend clearing to areas beyond the required width, together with the short duration period required for construction and the limited surface areas impacted on, the overall impacts would be reduced to low with mitigation. After construction and in the operation phase, the impacts were also rated as low.

Risk of surface and groundwater pollution, including turbidity loads due to sedimentation and other pollutants

Description of effect

During the construction phase, due to the reduction of vegetated plant cover and any works that would have to take place within the river channels, sediment will enter the systems. This would lead to increased turbidities and pose sedimentation risks within the downstream areas if not managed using the methods listed below.

During operations, diesel and oils and any other chemical substances conveyed, will pose a threat to the continued functioning of the instream and adjacent areas, if by chance these are dispersed via surface run-off, or permeate into the groundwater. Changes to water quality (surface and groundwater) impact on the functioning of plants and other instream biota. This impact would have a high significance on the instream biota as only a minimal amount of pollution could impact on instream conditions without mitigation.

Mitigation

All construction materials including fuels and oil should be stored in a demarcated area that is contained within a berm to avoid spread of any contamination. Cement and plaster should only be mixed within mixing trays. Washing and cleaning of equipment should also be done within a bermed area, in order to trap any cement or plaster and avoid excessive soil erosion. These sites must be rehabilitated prior to commencing the operational phase. Mechanical plant and bowsers must not be refuelled or serviced within or directly adjacent to any river channel.

The following mitigation must be undertaken to avoid excessive sediment loads and other contaminants in rivers and wetlands:

- Emergency plans must be in place in case of spillages into river and wetland systems.
- No stockpiling should take place within a wetland.
- Storage containers must be regularly inspected so as to prevent leaks into aquatic systems, e.g. groundwater.
- Littering and contamination of water sources during construction must be mitigated by effective construction camp management.
- All stockpiles must be protected from erosion, stored on flat areas where run-off will be minimised, and be surrounded by bunds.
- Stockpiles must be located away from river channels if at all possible and for as short a time as possible.
- Erosion control of all banks must take place so as to reduce erosion and sedimentation into river channels or wetland areas.
- Pillars, vertical columns and buttresses should not be placed within river channels if at all possible. If this is necessary, all precautions should be taken to avoid excessive disturbance of the bank an increased sedimentation into the river channel. If work must take place within the channel it is suggested that coffer dams are built around the works area to trap any possible pollutants or sediments.
- Silt traps must be placed down slopes where vegetation stripping is taking place, so as to catch any silt which may move into the rivers or wetlands.
- Silt traps and culverts should be regularly maintained and cleared so as to ensure effective drainage.
- Water diversion and erosion control structures must be capable of withstanding storm events with a probability of greater than 50% for the time of year during which construction takes place or as specified by the hydrological engineer.
- Weather forecasts from the South African Weather Bureau of up to three days in advance must be monitored on a daily basis to avoid exposing soil or building works or materials during a storm event and appropriate action must be taken in advance to protect construction works should a storm event be forecasted.
- The construction camp and necessary ablution facilities meant for construction workers must be well removed from aquatic systems, especially undisturbed wetlands.
- The water quality in the streams supplied by wetlands that will be affected should be tested prior to the commencement of construction activities with the

objective of establishing baseline data for further monitoring of water quality. These data can be used as a level on which upon monitoring will be based.

- Local people should be employed to act as litter patrols on a weekly or daily basis if necessary during the construction phase, to ensure that pollution is reduced at all times.

The following mitigations are recommended for the operational phase:

- Emergency plans must be in place in case of spillages into river and wetland systems.
- Erosion control measures should be monitored to ensure their effectiveness.
- Silt traps and culverts should be regularly maintained and cleared so as to ensure effective drainage.
- Local people should be employed to act as litter patrols on a weekly or daily basis if necessary during the operational phase, to ensure that pollution (solid waste) is reduced at all times.

Assessment

By keeping the physical footprint that would require clearing to a minimum, i.e. not extend clearing to areas beyond the required area combined with the short duration period required for construction within the riverine habitat, the overall impacts for pipe line would be reduced to low with mitigation. After construction and in the operation phase, the impacts were also rated as low. During the operations the potential impacts or rather risk of pollution events occurring are reduced, as most areas will be re-vegetated. If managed well, the possibility of any impacts related pollution events and or sedimentation, both in the construction and operations phase could be reduced to low.

Change in vegetation community type

Description of effect

The natural vegetation found within any given landscape is dependent on a number of natural parameters. These parameters, such as hydrology, temperature and soils determine the type of vegetation that will occur (Stirling, 1996). With disturbance of any natural environment the potential of introducing exotic plant species during the construction phase poses a risk to indigenous plant species. This could lead to impacts with a High significance without mitigation due to the importance of the flora within the region. With careful management during rehabilitation phase of the project, which extends into the operational phase, this impact could be reduced to low. In other words, although the impact is initiated by construction, it is poor rehabilitation that will allow for the colonisation of weeds or exotic plants in the operational phase, thus is impact is an operational issue as recovery of vegetation community types is a long term process.

Mitigation

The use of indigenous plants must be encouraged in the rehabilitated areas, and stockpiles containing mostly exotic or weedy species should not receive specialised handling and should be covered for extended periods to inhibit seedling germination of these species. Active management and eradication of exotic / alien plant species should also occur when seedlings are found.

Plant species recommended by terrestrial vegetation study should be used by the Environmental Control Officer (ECO), to select the appropriate species. In other words the use of hygrophilous grasses must be used in the rehabilitation / re-vegetation of the riparian zones. Where slopes are suitable, riparian trees should also be planted, where natural forests currently occur. All areas disturbed by construction activities must be rehabilitated to their former state once construction activities have ceased and should be monitored afterwards. The re-vegetation must strive to equal the status quo.

The hydrodynamic environment of these areas should be considered i.e. not increase flows thereby increasing erosion or sedimentation. Construction and operations should always consider areas of the virgin land and these areas should be closely monitored for erosion and the possible encroachment of alien species. Necessary measures should be implemented to reduce soil erosion or encroachment of exotic flora.

Assessment

By reducing the potential for any significant changes in drainage patterns and the short duration period required for construction within the riverine habitat, the overall impacts during construction, no impacts would occur. After construction and in the operation phase, the impacts were rated as low with mitigation (medium, without).

Change in ecosystem structure and function, and subsequently biodiversity

Description of effect

All impacts on aquatic bodies that result in changes to habitat, flow pattern or hydrodynamics and water quality, have the potential to cause changes in ecosystem structure and function. Most of the issues above may result in loss of biodiversity in aquatic environments if development does not proceed with appropriate caution and effective mitigation. In many instances, certain organisms may be replaced with other organisms, e.g. indigenous fish replaced with alien species, or sensitive macroinvertebrates replaced with tolerant taxa, which may even result in the diversity improving at a site but have reduced the species variability that may be unique to a specific region.

Due to the specific requirements (e.g. in terms of habitat, flow requirements and water quality) of many indigenous faunal species, changes in preferred habitat condition may result in a greater susceptibility to being out-competed, and possibly replaced, by alien species.

Disturbances to the system therefore create habitat niches where aliens may thrive, increase in abundance and out-compete more sensitive indigenous species, thereby resulting in a loss of biodiversity. This is of particular relevance in areas where red data book species are found, where fish populations have not yet been surveyed, and where disturbances may occur in the river channel.

Mitigation

- Engineering design must reduce impacts on aquatic systems, and in so doing, reduce the possibility of changes in ecosystem structure and function, by maintaining base flows and reduced the potential sedimentation or erosion. Additional precautionary measures should be taken to avoid excessive disturbance in sensitive areas. Sensitive areas, where the possibility of impact is high, should be monitored before and after construction so as to detect changes in the present state of aquatic biota.
- Hydrogeological regimes of the important wetland areas should be maintained with little or no alteration.
- Large construction footprints should be limited to within reason, to reduce the overall impact on the floodplain areas. These areas not only contribute to the general ecology, but also dissipate major floods.
- It is also advised that an Environmental Control Officer (ECO), with a good understanding of the local flora be appoint during the construction phase. The ECO should be able to make clear recommendations with regards the re-vegetation of the newly completed / disturbed areas, using selected species detailed in this and the terrestrial vegetation report. All alien plant regrowth must be monitored and should it occur these plants should be eradicated. Specific species that would be required in the rehabilitation include the *Cyperus, Juncus, Thypha capensis, Setaria* and *Prinonium serratum*

Assessment

By reducing the clearing of any vegetation to a minimum, will reduce the overall impact from medium to low. The re-vegetation of these areas after construction should also be monitored during the operational phase. The overall impact is rated as permanent due to the definite change or resetting of the plant community structure. However, if suitable indigenous plant species must be used in the re-vegetation / rehabilitation process, this impact would be regarded as low with mitigation. This would also aid in reducing the other impacts such as the reduction of permeable surfaces and diversion of flow to low, providing "soft" run-off areas, which slow flows and trap any pollution.

Table 4: Impact summary table for both the construction and operational phases, with and without mitigation

Issue/Impact	Phase	Extent	Duration	Intensity	Probability	Significance	Status
VEGETATION							
Without Mitigation							
Destruction of vegetation and loss of	Construction	Local	Permanent	Medium	Definite	High	Negative
	Operation	N/A					
Increased surface run-off	Construction	Local	Permanent	Medium	Definite	Medium	Negative
	Operation	Local	Permanent	Medium	Definite	Medium	Negative
Risk of surface and groundwater pollution	Construction	Local	Permanent	Medium	Definite	Medium	Negative
	Operation	Local	Permanent	Medium	Definite	Medium	Negative
Reduction in permeable surfaces	Construction	N/A					
	Operation	Local	Permanent	Medium	Definite	Medium	Negative
Diversion of flow by hard surfaces	N/A						
	Operation	Local	Permanent	Medium	Definite	Medium	Negative
Change in vegetation community type	Construction	N/A					
	Operation	Local	Permanent	Medium	Definite	High	Negative
With Mitigation							
Destruction of vegetation and loss of sensitive habitats	Construction	Local	Permanent	Low	Definite	Low	Negative
	Operation	N/A					
Increased surface run-off	Construction	Local	Permanent	Low	Definite	Low	Negative
	Operation	Local	Permanent	Low	Definite	Low	Negative
Risk of surface and groundwater pollution	Construction	Local	Permanent	Low	Definite	Low	Negative
	Operation	Local	Permanent	Low	Definite	Low	Negative
Reduction in permeable surfaces	Construction	N/A					
	Operation	Local	Permanent	Low	Definite	Low	Negative

Change in vegetation community type	Construction	N/A					
	Operation	Local	Permanent	Low	Definite	Low	Negative
Issue/Impact	Phase	Extent	Duration	Intensity	Probability	Significance	Status
Without Mitigation							
Loss of instream habitats	Construction	Local	Short	Medium	Probable	Low	Negative
	Operation	N/A					
Risk of surface and groundwater pollution - sediments	Construction	Local	Short	Medium	Probable	Low	Negative
	Operation	Local	Short	Medium	Improbable	Low	Negative
Risk of surface and groundwater pollution - other	Construction	Local	Short	Medium	Probable	Low	Negative
	Operation	Local	Short	Medium	Probable	Low	Negative
AQUATIC ENVIRONMENT							
With Mitigation							
Loss of instream habitats	Construction	Local	Short	Low	Improbable	Very Low	Negative
	Operation	N/A					
Risk of surface and groundwater pollution – sediments	Construction	Local	Short	Low	Improbable	Low	Negative
	Operation	Local	Short	Low	Improbable	Low	Negative
Risk of surface and groundwater pollution – other	Construction	Local	Short	Medium	Probable	Low	Negative
	Operation	Local	Short	Low	Improbable	Low	Negative

7. MANAGEMENT AND RECOMMENDATIONS

Negative impacts that are associated with the study area such as soil erosion, continued colonisation of alien invasive species, and degradation of plant and bird life can be minimised by careful compliance with a mitigation program which include the recommendations for managing impacts described in this report.

7.1. CONSTRUCTION RECOMMENDATIONS

During the construction phase, it is recommended that:

- Clearing of natural vegetation is minimised where possible.
- Indigenous species be relocated if possible (not required by law as there are no endangered species present)
- Erosion is strictly controlled during construction
- Pollution of water run-off is avoided by strict control/handling of building materials such as cement and petrochemicals.
- Soil erosion control structures such as soil berms, mitre drains, sandbags or rock bolsters should be used to control run-off where necessary
- Bare surfaces should be grassed with indigenous grass mix as soon as construction is complete in order to minimise exposure time. Embankments should be planted with *Cynodon dactylon* which is a locally occurring grass that will help to stabilise the soil.
- Alien plants should be continually monitored during and after construction so that re-colonisation does not occur.
- Soil compaction should be minimised
- The construction team should not interfere with any vegetation outside the site area
- Construction waste must not be dumped on site and must be disposed of at a registered landfill site
- During operation, anti-erosion measure should be followed. This includes the regular inspection of potential erosion on site and the implementation of corrective measures should the erosion become a problem.
- Continual alien plant control and removal on site should be performed

8. CONCLUSION

This Biodiversity Assessment has taken various environmental conditions into consideration before recommendations have been presented. The proposed township establishment has an overall low impact on the natural habitat after sufficient mitigation measures have been put in place. Such areas are important and should receive attention as they allow for fauna and flora to continue occurring in the urban environment which not only has biodiversity value, but also social and educational value.

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- Site Investigations
- Slope Stability
- Rock Mechanics
- Soil Mechanics
- Foundations
- Borrow Pits and Materials
- Roads
- Groundwater
- NHBRC
- Geotechnical Instrumentation

Geotechnical Investigation for the proposed Empowerment Zone Development in Diepkloof, Gauteng: Preliminary Report

Client: Turning Point Project Management

Reference: 18-0975R01

Dated: 13 February 2019

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Geotechnical Investigation for the proposed Empowerment Zone Development in Diepkloof, Gauteng: Preliminary Report

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Geotechnical Investigation for the proposed Empowerment Zone Development in Diepkloof, Gauteng: Preliminary Report

Reference: 18-0975R01 **Date: 12 February 2019**

EXECUTIVE SUMMARY

This report presents the results of a geotechnical investigation for the proposed Diepkloof Empowerment Zone in Soweto, Gauteng Province, and presents the conclusions and recommendations for materials usage, excavations, foundations and earthworks.

The most important consideration in relation to the proposed development is the presence of potentially collapsible soils, and the almost ubiquitous presence shallow bedrock on site.

Based on the 1:250 000 Geological Map titled "2626 West-Rand (1986)", the site can be seen to be underlain by quartzite, conglomerate and shale of the Turffontein Subgroup, Central Rand Group of the Witwatersrand Supergroup.

On site, thin horizons of topsoil, hillwash and fill were noted to be overlying the residual sandstone and/or sandstone bedrock. In some instances sandstone bedrock was observed outcropping from surface.

*Soft excavation in terms of **SABS 1200: D** may be anticipated to depths of between 0.35 and 1.6 m below natural ground level over the site, and intermediate to hard excavation and possible blasting may be anticipated below this depth, if required.*

The site, as a whole, has been categorized into the following zones, according to NHBRC guidelines:

- ***Zone A – P***
- ***Zone B – C2***
- ***Zone C – C/R***
- ***Zone D – C1/R***
- ***Zone E – C2/R***
- ***Zone F - R***

Thus, the following foundation recommendations, and/or combinations of these, are suggested:

- *Normal construction.*
- *Stiffened strip foundations or stiffened raft foundations.*
- *Compaction of in-situ soils below individual footings.*
- *Deeper than normal strip foundations.*
- *Soil raft.*

It is assumed that the in-situ materials will be of a suitable quality for site road layerworks construction. Index and compaction testing will confirm this suitability for usage.

*Finally, the ground conditions described in this report refer specifically to those encountered at the test positions advanced on site. It is therefore possible that conditions at variance with those discussed above may be encountered elsewhere on the site. In this regard it is critical that material management be maintained continuously on site and that **GCS Geotechnical** carry out periodic inspections of the site during construction to ensure that any variation in the anticipated ground conditions can be assessed and revised recommendations subsequently provided in order to avoid unnecessary delays and expense. Furthermore it is important that the construction phase of the project be treated as an augmentation of the geotechnical investigation.*

Geotechnical Investigation for the proposed Empowerment Zone Development in Diepkloof, Gauteng: Preliminary Report

Reference: 18-0975R01 **Date: 12 February 2019**

Definitions and Abbreviations

Commercial:

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Technical:

CH	Chainage (metres)
mbgl	metres below ground level
masl	metres above sea level
NGL	Natural Ground Level
FL	Foundation Level
BH	Borehole
SPT	Standard Penetration Test
N	SPT N value (blows per 300 mm)
TLB	Tractor-mounted Loader Backhoe
TP	Test Pit
DCP	Dynamic Cone Penetrometer
EABC	Estimated Allowable Bearing Capacity
G1-G10	Standard classification of natural road building materials (TRH 14)
CBR	California Bearing Ratio
MDD	Maximum Dry Density (kg/m3)
MADD	Modified AASHTO Dry Density
OMC	Optimum moisture Content (%)
PI	Plasticity Index
LL	Liquid Limit
LS	Linear Shrinkage
RMR	Rock Mass Rating
GSI	Geological Strength Index
mi	Hoek-Brown Constant (origin & texture dependent)
RQD	Rock Quality Designation (%)
FF	Fracture frequency
UCS	Unconfined Compressive Strength (MPa)
C (c')	Cohesion (kPa) – total stress and (effective stress)
Φ (Φ')	Friction Angle (degrees) – total stress and (effective stress)
Kv	Modulus of Subgrade Reaction (MN/mm or kPa/mm)
CFA	Continuous Flight Auger (pile type)
DCI	Driven Cast In situ (pile type)
Cv	Coefficient of Consolidation (m2/yr)
Mv	Modulus of Compressibility (m2/MN)
MC1	Moisture Content Before Test (%)
MC2	Moisture Content After Test (%)
ρ	Dry Density (kg/m3)
VSR	Very soft rock
SR	Soft rock
MHR	Medium hard rock
HR	Hard rock
VHR	Very hard rock

Geotechnical Investigation for the proposed Empowerment Zone Development in Diepkloof, Gauteng: Preliminary Report

Reference: 18-0975R01 **Date: 12 February 2019**

1. INTRODUCTION & TERMS OF REFERENCE

At the request of Ms. Gugu Hlope of Turning Point Project Management (hereafter referred to as Turning Point), ***GCS Geotechnical*** (hereafter referred to as GCS) was asked to provide a proposal and cost estimate for the geotechnical investigation for the proposed Empowerment Zone Development in Diepkloof, Gauteng, which was sent through on 29 October 2018. The proposal was accepted and finalized on 11 December 2018, and fieldwork commenced on 5 February 2019.

2. AVAILABLE INFORMATION

The following information was drawn upon for the purposes of the investigation:

- The 1:250 000 Geological Map titled *"2626 West Rand"* as compiled by the South African Geological Survey, 1986,
- Google Earth Site Location,
- Geotechnical Site Investigations for Housing Developments (GFSH2:2002),
- SABS 1200 D – Earthworks.

The table below shows the available published physiographical information on the site.

past, or having materials cut to fill the area directly to the east, where it appears that an embankment might have been built up.

The site is vegetated mostly in the north and northwestern quadrants by short grass and few small trees, while in the southern and eastern portions, medium to large trees were noted.

A central coordinate for the sites combined is:

26°15'47.29"S / 27°57'3.63"E

4. GEOLOGY

At a regional scale, based on the 1:250 000 Geological Map titled *"2626 West-Rand* (1986)", the site can be seen to be underlain by quartzite, conglomerate and shale of the Turffontein Subgroup, Central Rand Group of the Witwatersrand Supergroup.
On site a relatively thick horizon of hillwash was noted to be overlying the residual sandstone.

On a local scale, it was noted that the site was underlain by a thin layer of topsoil, hillwash or ferruginised hillwash in places, and occasionally by fill in the areas of large-scale excavations for cut to fill. For the most part these transported and emplaced horizons are underlain by residual sandstone, and weathered sandstone bedrock.

5. FIELDWORK

TLB-excavated test pits (hereafter referred to as TP's) were advanced on site, in order to ascertain and better understand the general engineering properties and parameters of the subsurface materials.

5.1 TLB-excavated Test Pits

Twenty eight TPs were excavated on the site in order to better understand the engineering properties of the subsurface soil / rock conditions.

The results of the TPs indicated termination depths ranging between 0.0 and 1.6 m below existing ground level, with an average depth of 0.68 m. The site proved mostly rather homogeneous with the main differences being the respective depths to sandstone bedrock, which occurred a lot shallower, even surficially, in some areas.

Table 2: Summary of Available Desk Study Information

Parameter	Value	Reference
Development	Empowerment Zone Development	Turning Point
Site coordinates	26°15'47.29"S / 27°57'3.63"E	Turning Point
Weinerts N-value	2-5	Weinert (1974)
Climatic Region	Moderate	TRH 2 (1978)
Rainfall	650-700 mm	2526 Johannesburg (1999) 1:500 000 scale
Temperature	0.5°C – 26.7°C	after DWAF (1986)
Evaporation	1650 mm	After DWAF (1986)
Water Balance	Deficit	Schulze (1985)
Weathering Type	Slight disintegration, moderate decomposition with frost action and very slight weathering	Fookes et al (1971)
Geology	Quartzite, conglomerate and shale, tillite and hornfels of the Turffontein Subgroup, Central Rand Group of the Witwatersrand Supergroup.	Geological Map Series: West Rand-2626 (1986) 1:250 000 scale
Soil Cover	Arenaceous sediments	Brink (1985)
Origin	Transported and residual	Brink (1985)
Topography	Variable Gradient	Garmap SA Topo & Rec 2012.1
Drainage	Not well defined	Garmap SA Topo & Rec 2012.1
Drainage Region	Quaternary Catchment: C22A	DWAF (1999)
Hydrogeology	0.5-2l; fractured	1:500 000 scale
Groundwater depth	Unknown	DWAF-WRC (1995)
Erodibility Index	9-15 (Intermediate)	WRC (1992)
Seismic Intensity	VI (MMS)	Fernandez et al (1972)
Liquefaction	Unlikely (<50 cm/s2)	Welland (2002)

3. SITE DESCRIPTION

The site, holistically, falls on Portion 159 Diepkloof, and is bounded in the north and northeast by Chris Hani Road (the M68), to the west by Chris Hani Baragwanath Hospital, to the south and southeast by the N1 Western Bypass.

Portion 159 covers a cumulative area of approximately 34 Ha, although the existing Soweto Empowerment Zone occupies approximately 5 Ha of this total area.

The site is bounded by a perimeter wall, with gates that are locked and bolted along the western and southern sides. Access to the site may be gained through the Soweto Empowerment Zone. The eastern portion of the site along Chris Hani Street has parts of the perimeter wall broken down.

The site gradient is quite variable with a slight decent towards to the north, and a steeper descent to the south towards the N1. Much of the southern and southwestern portion of the site has undergone large scale excavations, possibly having been used as a borrow pit in the

Table 5.1a: Summary of Soil Layers in Test Pits

TP No.	Topsoil (m-m)	Fill (m-m)	Hillwash / Ferruginised Hillwash (m-m)	Residual Sandstone (m-m)	Weathered Sandstone (m-m)
1	0-0.3	-	0.3-0.7	0.7-0.9	0.9-1
2	0-0.2	-	-	0.2-0.7	0.7-0.9
3	0-0.25	-	-	0.25-0.55	0.55-0.75
4	0-0.2	-	0.2-0.5	0.5-1.1	1.1-1.2
5	0-0.3	-	0.3-0.6	0.6-0.9	0.9-1.2
6	0-0.4	-	0.4-0.55	0.55-0.8	0.8-0.95
7	0-0.2	-	0.2-0.45	0.45-1	1-1.6
8	0-0.4	-	-	0.4-0.55	0.55-0.65
9	0-0.2	-	0.2-0.5	0.5-0.9	0.9-1.1
10	0-0.25	-	0.25-0.5	0.6-0.8	0.8-0.85
11	0-0.3	-	0.3-0.6	0.6-1	1-1.1
12	0-0.4	-	0.4-0.7	0.7-1.1	1.1-1.3
13	0-0.2	-	-	-	0.2-0.22
14	0-0.4	-	-	-	0.4-0.42
15	0-0.2	-	-	-	0.2-0.21
16	-	-	-	-	Surficial
17	-	-	-	-	Surficial
18	-	-	-	-	Surficial
19	0-0.1	0.1-0.65	-	-	-
20	0-0.2	-	-	0.2-0.5	0.5-0.6
21	0-0.3	-	-	0.3-0.6	0.6-0.7
22	0-0.1	-	-	0.1-0.45	0.45-0.5
23	0-0.15	-	-	0.15-0.55	0.55-0.65
24	0-0.2	-	-	0.2-0.6	0.6-0.7
25	0-0.2	-	-	0.2-0.7	0.7-1
26	0-0.15	-	-	0.15-0.45	0.45-0.5
27	-	-	-	-	Surficial
28	0-0.15	-	-	0.15-0.35	-
Average Thickness (m)	0.21	0.02	0.09	0.25	0.11

Table 5.1b: Summary of Soil Profile over the Majority of the Site

Depth From (m)	Depth To (m)	Description	EABC (kPa)	Kv (kPa/mm)	E (MPa)	C' (kPa)	Φ' (deg)
Topsoil							
0	0.21	Dry to slightly moist grey brown mottled cream white LOOSE intact silty medium **SAND** with minor fine gravels and roots.	50	25	10-15	0-5	28-30
Fill							
0.21	0.23	Slightly moist yellow to orange brown LOOSE becoming VERY DENSE silty **SAND** with gravels and abundant interlocking COBBLES and BOULDERS.	50-300	25-100	10-35	0	28-45
Hillwash / Ferruginised Hillwash							
0.23	0.32	Slightly moist orange to yellow brown MEDIUM DENSE intact to pinholed, voided and possibly occasionally shattered silty gravelly **SAND**. Partially ferruginised in places.	100-150	40-55	15-25	0-5	30-35
Residual Sandstone							
0.32	0.57	Slightly moist pink to orange brown MEDIUM DENSE to DENSE intact medium to coarse-grained **SAND** with quartz gravels.	150-300	55-100	15-35	0	30-40
Weathered Sandstone							
0.57	0.68	Pink to grey brown highly to completely weathered fine to medium-grained closely jointed VERY SOFT to MEDIUM HARD **ROCK**.	300-500	100-200	35+	0	50+

EABC = estimated allowable bearing capacity (ignoring collapse potential)
Kv = modulus of subgrade reaction
E = elastic modulus
C' = cohesion (kPa)
Φ' (deg) = internal friction angle of soil
NB. It is important to note that the above layer thicknesses are an average across the site.

6. GROUNDWATER

No groundwater seepage occurred on site in any of the TPs during the time of the investigation, although during summer months and during times of prolonged or heavy rainfall it may be anticipated that a perched groundwater table may be present at relatively shallow depths over the site.

- ***Weathered Sandstone***

The more weathered sandstone, where excavatable is assumed to qualify as **G5-G7** (*upper subbase to upper selected layers*) and may thus be re-used as such in foundation construction and layerworks.

- ***Composite Soils***

This mixed layer of residual and weathered sandstone is assumed to qualify as **G5-G7** (*upper subbase to upper selected layers*) and may thus be re-used as such in foundation construction and layerworks.

8.2 NHBRC Classification

GCS Geotechnical has classified and zoned the site, to NHBRC standards, based on visual and tactile means coupled with general experience in similar geological environments, prior to laboratory results are available.

The main geotechnical constraints on site are the presence of potentially collapsible soils and the presence of shallow bedrock in places.

Assuming that the topsoil horizon, which ranges in thickness from 0.1 to 0.4 m, will be stripped and stockpiled for landscaping rather than founded upon, potential collapse settlement will only really be probable in the medium dense to dense hillwash and residual sandstone layers, with a CP assumed to range between 1 and 3%.

Site soils are assumed not to be potentially expansive, although this will be quantified once laboratory test results are made available.

In most instances weathered sandstone bedrock occurs at depths shallower than 1 m across the site. As a result, the site has been divided into Zones A-F, as seen below, and will be presented as a zoned Site Plan:

Table 8.2a: NHBRC Classification Zones

Zonation	NHBRC Classification	Respective TPs	Geotechnical Constraints
A	P	• 20	• Controlled Fill (Problematic).
B	C2	• 4 • 12	• Potential Collapse of >10 mm.
C	C/R	• 8	• Potential Collapse of 0-5 mm. • Shallow Bedrock.
D	C1/R	• 3 • 20-21 • 26 • 28	• Potential Collapse of 5-10 mm. • Shallow Bedrock.
E	C2/R	• 1-2 • 5-7 • 9-11 • 22-25	• Potential Collapse of >10 mm. • Shallow Bedrock.
F	R	• 13-18 • 27	• Shallow Bedrock.

8.3 Foundations

Based on the **NHBRC** site classification zones above, the following foundation recommendations, or combinations thereof, should be considered holistically for ***C2/R***:

- **Normal construction** in the areas of surficial or very shallow bedrock, which will encompass strip or pad foundations with associated site drainage.
- **Stiffened strip foundations or stiffened raft** comprising articulation joints with solid lightly reinforced masonry, fabric reinforcement in floor slabs, site drainage and plumbing precautions, and bearing pressures not to exceed 50 kPa.
- **Compaction of in-situ soils below individual footings** by removing in-situ materials to a depth of 1.5 times foundation width or to a competent soil horizon and replace with compacted material to a minimum of 93% MOD AASHTO and -1 to +2% OMC and with normal construction with lightly reinforced strip footings and light reinforcement in masonry.
- **Deeper than normal strip foundations** which comprises normal construction with drainage requirement, or founding directly onto a competent soil horizon below the collapsible layer.
- **Soil Raft** in the same way as compaction beneath individual footings, except beneath the entire footprint of the respective structure.

8.4 Excavatability & Earthworks

All materials on site classify as ***soft excavation*** (SABS 1200: D) to depths between 0.35 and 1.6 m, with an average refusal depth of 0.68 m. Beneath these depths, ***intermediate*** and possibly ***hard excavation*** with possible ***blasting*** should be anticipated if the need arises to excavate deeper for services trenches.

8.5 Roads

Materials are being assessed for their suitability in on-site road construction. It is assumed all materials on site will qualify as between G6 and G9, which will be suitable as road layerworks construction materials, however this will be quantified when laboratory results are made available. Index and compaction testing will confirm this suitability for usage.

8.6 Drainage

For the promotion of a stable site, with no soil movement-related issues, it is extremely important that suitable drainage, both surface and subsurface, be constructed so that no water ingress into the subsurface soils in and around foundation bases is possible. Drainage should be such that any rainfall is diverted to the nearest stormwater drainage system. Areas of potential pooling or damming of rainfall on site should be carefully designed and sloped so as the remove this water away from the foundations.

9. CONCLUSIONS & RECOMMENDATIONS

General

- This report presents the results of a geotechnical investigation for the proposed Diepkloof Empowerment Zone in Soweto, Gauteng Province, and presents the conclusions and recommendations for materials usage, excavations, foundations and earthworks.

- The most important consideration in relation to the proposed development is the presence of potentially collapsible soils, and the almost ubiquitous presence shallow bedrock on site.

Geology & Ground Conditions

- Based on the 1:250 000 Geological Map titled *"2626 West-Rand* (1986)", the site can be seen to be underlain by quartzite, conglomerate and shale of the Turffontein Subgroup, Central Rand Group of the Witwatersrand Supergroup.

On site, thin horizons of topsoil, hillwash and fill were noted to be overlying the residual sandstone and/or sandstone bedrock. In some instances sandstone bedrock was observed from surface.

Excavatability

- Soft excavation in terms of **SABS 1200: D** may be anticipated to depths of between 0.35 and 1.6 m below natural ground level over the site, and intermediate to hard excavation and possible blasting may be anticipated below this depth, if required.

Foundations

- The site, as a whole, has been categorized into the following zones, according to NHBRC standards:

  - **Zone A – P**
  - **Zone B – C2**
  - **Zone C – C/R**
  - **Zone D – C1/R**
  - **Zone E – C2/R**
  - **Zone F - R**

Thus, the following foundation recommendations, and/or combinations of these, are suggested:

- Normal construction.
- Stiffened strip foundations or stiffened raft foundations.
- Compaction of in-situ soils below individual footings.
- Deeper than normal strip foundations.
- Soil Raft.

Roads

- It is assumed that the in-situ materials will be of a suitable quality for site road layerworks construction. Index and compaction testing will confirm this suitability for usage.

Further Investigations

- Finally, the ground conditions described in this report refer specifically to those encountered at the test positions advanced on site. It is therefore possible that conditions at variance with those discussed above may be encountered elsewhere on the site. In this regard it is critical that material management be maintained continuously on site and that ***GCS Geotechnical*** carry out periodic inspections of the site during construction to ensure that any variation in the anticipated ground conditions can be assessed and revised recommendations subsequently provided in order to avoid unnecessary delays and expense. Furthermore it is important that the construction phase of the project be treated as an augmentation of the geotechnical investigation.

N Welland: Pr.Eng. / Pr.Sci.Nat

W Kretzinger: Pr.Sci.Nat

For GCS Geotechnical (Pty) Ltd

13 February 2019

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www.gcs-sa.biz

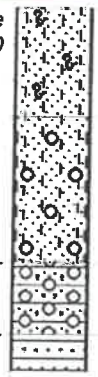
Appendix A
TLB-Excavated Trial Pit Profiles

Client: Turning Point Project Management
Title: Diepkloof Ptn 159 Geotech

HOLE No: TP01
Sheet 1 of 1

JOB NUMBER: 18.0975

Scale 1:20



0.00 Slightly moist, grey brown mottled cream white, LOOSE, intact, silty medium SAND. Topsoil with roots.

0.30 Slightly moist, orange to yellow brown, MEDIUM DENSE, intact to pinholed and voided and shattered, silty gravelly SAND. Partially ferruginised Hillwash.

0.70 Slighly moist, pink to orange brown, MEDIUM DENSE to DENSE, intact, medium to coarse-grained SAND with quartz gravels. Residual Sandstone.

0.90 Pink to grey brown highly to completely weathered fine to medium-grained SOFT to MEDIUM HARD ROCK SANDSTONE BEDROCK.

1.00

NOTES

1) No Groundwater Seepage
2) No Sidewall Collapse
3) Final Depth: 1.0 m (refusal on weathered sandstone)
4) Samples taken: Disturbed Sample DS1 at 0.7--0.9 m (Bulk).

CONTRACTOR : N/A
MACHINE : TLB-excavator
DRILLED BY :
PROFILED BY : WK

TYPE SET BY : Warren Kretzinger
SETUP FILE : STANDARD.SET
DOCE GCS Geotechnical

INCLINATION : Vertical
DIAM : N/A
DATE : 06/02/2019
DATE : 06/02/2019

DATE : 13/02/2019 09:44
TEXT : ..975DiepkloofLogs.ver.TXT

ELEVATION : N/A
X-COORD
Y-COORD

HOLE No: TP01

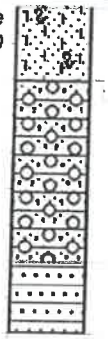
dotPLOT 7022 PBpH67

Client: Turning Point Project Management
Title: Diepkloof Ptn 159 Geotech

HOLE No: TP02
Sheet 1 of 1

JOB NUMBER: 18.0975

Scale 1:20



0.00 Dry to slightly moist, grey brown to brown mottled cream white, LOOSE, intact, silty medium SAND. Topsoil with roots.

0.20 Slighly moist, pink to orange and yellow brown, MEDIUM DENSE to DENSE, intact to pinholed, medium to coarse-grained SAND with quartz gravels. Residual Sandstone.

0.70 Pink to grey brown highly to completely weathered fine to medium-grained SOFT to MEDIUM HARD ROCK SANDSTONE BEDROCK.

0.90

NOTES

1) No Groundwater Seepage
2) No Sidewall Collapse
3) Final Depth: 0.90 m (refusal on weathered sandstone)
4) Samples taken: None.

CONTRACTOR : N/A
MACHINE : TLB-excavator
DRILLED BY :
PROFILED BY : WK

TYPE SET BY : Warren Kretzinger
SETUP FILE : STANDARD.SET
D0CE GCS Geotechnical

INCLINATION : Vertical
DIAM : N/A
DATE : 06/02/2019
DATE : 06/02/2019

DATE : 13/02/2019 09:44
TEXT : ..975DiepkloofLogs.ver.TXT

ELEVATION : N/A
X-COORD .
Y-COORD

HOLE No: TP02

dotPLOT 7022 PBpH67

Client: Turning Point Project Management
Title: Diepkloof Ptn 159 Geotech

HOLE No: TP03
Sheet 1 of 1

JOB NUMBER: 18.0975

Scale 1:20

0.00 Dry to slightly moist, grey brown to brown mottled cream white, LOOSE, intact, silty medium SAND with minor fine gravels. Topsoil with roots.

0.25 Slightly moist, pink brown to orange brown, MEDIUM DENSE, pinholed, silty SAND. Residual Sandstone.

0.55 Orange brown highly to completely weathered fine to coarse-grained SOFT to MEDIUM HARD ROCK SANDSTONE BEDROCK.

0.75

NOTES

1) No Groundwater Seepage
2) No Sidewall Collapse
3) Final Depth: 0.75 m (refusal on weathered sandstone)
4) Samples taken: None.

CONTRACTOR : N/A
MACHINE : TLB-excavator
DRILLED BY :
PROFILED BY : WK

TYPE SET BY : Warren Kretzinger
SETUP FILE : STANDARD.SET
D0CE GCS Geotechnical

INCLINATION : Vertical
DIAM : N/A
DATE : 06/02/2019
DATE : 06/02/2019

DATE : 13/02/2019 09:44
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ELEVATION : N/A
X-COORD :
Y-COORD :

HOLE No: TP03

dotPLOT 7022 PBpH67

Client: Turning Point Project Management
Title: Diepkloof Ptn 159 Geotech

HOLE No: TP04
Sheet 1 of 1

JOB NUMBER: 18.0975

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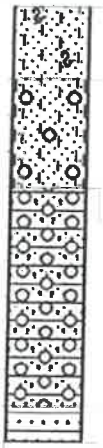

0.00 Slightly moist, grey brown mottled cream white, LOOSE, intact, silty medium SAND. Topsoil with roots.

0.20 Slightly moist, orange to yellow brown, MEDIUM DENSE, intact to pinholed and voided and shattered, silty gravelly SAND. Partially ferruginised Hillwash.

0.50 Slighly moist, pink to orange brown, MEDIUM DENSE to DENSE, intact, medium to coarse-grained SAND with quartz gravels. Residual Sandstone.

1.10 Pink to grey brown highly to completely weathered fine to medium-grained SOFT to MEDIUM HARD ROCK SANDSTONE BEDROCK.

1.20

NOTES

1) No Groundwater Seepage
2) No Sidewall Collapse
3) Final Depth: 1.20 m (refusal on weathered sandstone)
4) Samples taken: Disturbed sample DS1 at 0.2–0.5m (Bulk).

CONTRACTOR : N/A
MACHINE : TLB-excavator
DRILLED BY :
PROFILED BY : WK

TYPE SET BY : Warren Kretzinger
SETUP FILE : STANDARD.SET
D0CE GCS Geotechnical

INCLINATION : Vertical
DIAM : N/A
DATE : 06/02/2019
DATE : 06/02/2019

DATE : 13/02/2019 09:44
TEXT : ..975DiepkloofLogs.ver.TXT

ELEVATION : N/A
X-COORD :
Y-COORD :

HOLE No: TP04

dotPLOT 7022 PBpH67

Client: Turning Point Project Management
Title: Diepkloof Ptn 159 Geotech

HOLE No: TP05
Sheet 1 of 1

JOB NUMBER: 18.0975

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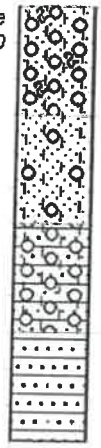

0.00 Dry, light to dark grey brown, LOOSE, intact to pinholed silty SAND with minor fine to coarse subangular to subrounded gravels and minor to abundant roots. Topsoil.

0.30 Slightly moist, orange to yellow brown, MEDIUM DENSE, intact to pinholed and voided and shattered, silty gravelly SAND. Hillwash.

0.60 Dry, dark grey to red brown, LOOSE to MEDIUM DENSE, shattered, silty friable GRAVEL. Residual Sandstone.

0.90 Pink to grey brown highly to completely weathered fine to medium-grained SOFT to MEDIUM HARD ROCK SANDSTONE BEDROCK.

1.20

NOTES

1) No Groundwater Seepage
2) No Sidewall Collapse
3) Final Depth: 1.20 m (refusal on weathered sandstone)
4) Samples taken: None

CONTRACTOR : N/A
MACHINE : TLB-excavator
DRILLED BY :
PROFILED BY : WK

TYPE SET BY : Warren Kretzinger
SETUP FILE : STANDARD.SET
D0CE GCS Geotechnical

INCLINATION : Vertical
DIAM : N/A
DATE : 06/02/2019
DATE : 06/02/2019

DATE : 13/02/2019 09:44
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ELEVATION : N/A
X-COORD :
Y-COORD :

HOLE No: TP05

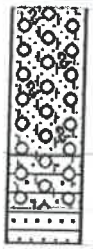
dotPLOT 7022 PBpH67

Client: Turning Point Project Management
Title: Diepkloof Ptn 159 Geotech

HOLE No: TP08
Sheet 1 of 1

JOB NUMBER: 18.0975

Scale 1:20



0.00 Dry , light to dark grey brown, LOOSE, intact to pinholed silty fine SAND with minor fine to coarse subangular to subrounded gravels and minor to abundant roots. Topsoil.

0.40 Dry to slightly moist, dark grey to red brown, LOOSE to MEDIUM DENSE, shattered, silty friable GRAVEL. Residual Sandstone.

0.55 Cream white highly to moderately weathered fine-grained closely jointed MEDIUM HARD ROCK. SANDSTONE BEDROCK.

0.65

NOTES

1) No Groundwater Seepage
2) No Sidewall Collapse
3) Final Depth: 0.65 m (refusal on weathered sandstone)
4) Samples taken: None

CONTRACTOR : N/A
MACHINE : TLB-excavator
DRILLED BY :
PROFILED BY : WK

TYPE SET BY : Warren Kretzinger
SETUP FILE : STANDARD.SET
DOCE GCS Geotechnical

INCLINATION : Vertical
DIAM : N/A
DATE : 06/02/2019
DATE : 06/02/2019

DATE : 13/02/2019 09:44
TEXT : ..975DiepkloofLogs.ver.TXT

ELEVATION : N/A
X-COORD :
Y-COORD :

HOLE No: TP08

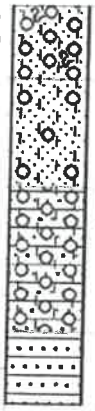
dotPLOT 7022 PBpH67

Client: Turning Point Project Management
Title: Diepkloof Ptn 159 Geotech

HOLE No: TP09
Sheet 1 of 1

JOB NUMBER: 18.0975

Scale 1:20



0.00 Dry to slightly moist, light to dark grey brown, LOOSE, intact to pinholed silty fine SAND with minor fine to coarse subangular to subrounded gravels and minor to abundant roots. Topsoil.

0.20 Slightly moist, orange to yellow brown, MEDIUM DENSE, intact to pinholed and voided and shattered, silty gravelly SAND. Hillwash.

0.50 Dry to slightly moist, dark grey to red brown, LOOSE to MEDIUM DENSE, shattered, silty friable GRAVEL. Residual Sandstone.

0.90 Cream white highly to moderately weathered fine-grained closely jointed MEDIUM HARD ROCK. SANDSTONE BEDROCK.

1.10

NOTES

1) No Groundwater Seepage
2) No Sidewall Collapse
3) Final Depth: 1.10 m (refusal on weathered sandstone)
4) Samples taken: None.

CONTRACTOR : N/A
MACHINE : TLB-excavator
DRILLED BY :
PROFILED BY : WK

TYPE SET BY : Warren Kretzinger
SETUP FILE : STANDARD.SET
DOCE GCS Geotechnical

INCLINATION : Vertical
DIAM : N/A
DATE : 06/02/2019
DATE : 06/02/2019

DATE : 13/02/2019 09:44
TEXT : ..975DiepkloofLogs.ver.TXT

ELEVATION : N/A
X-COORD :
Y-COORD

HOLE No: TP09

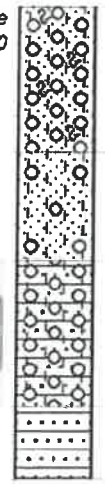
dotPLOT 7022 PBpH67

Client: Turning Point Project Management
Title: Diepkloof Ptn 159 Geotech

HOLE No: TP12
Sheet 1 of 1

JOB NUMBER: 18.0975

Scale 1:20



0.00 Dry to slightly moist, light to dark grey brown, LOOSE, intact to pinholed silty fine SAND with minor fine to coarse subangular to subrounded gravels and minor to abundant roots. Topsoil.

0.40 Slightly moist, orange to yellow brown, MEDIUM DENSE, intact to pinholed and voided and shattered, silty gravelly SAND. Hillwash.

0.70 Dry to slightly moist, dark grey to red brown, MEDIUM DENSE, shattered, silty friable GRAVEL. Residual Sandstone.

1.10 Cream white completely to highly weathered fine-grained closely jointed VERY SOFT to SOFT ROCK. SANDSTONE BEDROCK.

1.30

NOTES

1) No Groundwater Seepage
2) No Sidewall Collapse
3) Final Depth: 1.30 m (refusal on weathered sandstone)
4) Samples taken: Disturbed Sample DS1 at 0.7--1.1 m (Bulk).

CONTRACTOR : N/A
MACHINE : TLB-excavator
DRILLED BY :
PROFILED BY : WK

TYPE SET BY : Warren Kretzinger
SETUP FILE : STANDARD.SET
D0CE GCS Geotechnical

INCLINATION : Vertical
DIAM : N/A
DATE : 06/02/2019
DATE : 06/02/2019

DATE : 13/02/2019 09:44
TEXT : ..975DiepkloofLogs.ver.TXT

ELEVATION : N/A
X-COORD .
Y-COORD

HOLE No: TP12

dotPLOT 7022 PBpH67

Client: Turning Point Project Management
Title: Diepkloof Ptn 159 Geotech

HOLE No: TP13
Sheet 1 of 1

JOB NUMBER: 18.0975

Scale 1:20

0.00 Dry to slightly moist, light to dark grey brown, LOOSE, intact to pinholed silty fine SAND with minor fine to coarse subangular to subrounded gravels and minor to abundant roots. Topsoil.

0.20 Cream white completely to highly weathered fine-grained closely jointed SOFT ROCK to MEDIUM HARD ROCK. SANDSTONE BEDROCK.

0.22

NOTES

1) No Groundwater Seepage.
2) No Sidewall Collapse.
3) Final Depth: 0.22 m (refusal on weathered sandstone).
4) Samples taken: None.

CONTRACTOR : N/A
MACHINE : TLB-excavator
DRILLED BY :
PROFILED BY : WK

TYPE SET BY : Warren Kretzinger
SETUP FILE : STANDARD.SET

D0CE GCS Geotechnical

INCLINATION : Vertical
DIAM : N/A
DATE : 06/02/2019
DATE : 06/02/2019

DATE : 13/02/2019 09:44
TEXT : ..975DiepkloofLogs.ver.TXT

ELEVATION : N/A
X-COORD
Y-COORD .

HOLE No: TP13

dotPLOT 7022 PBpH67

Client: Turning Point Project Management
Title: Diepkloof Ptn 159 Geotech

HOLE No: TP14
Sheet 1 of 1

JOB NUMBER: 18.0975

Scale 1:20

0.00 Dry to slightly moist, light to dark grey brown, LOOSE, intact to pinholed silty fine SAND with minor fine to coarse subangular to subrounded gravels and minor to abundant roots. Topsoil.

0.40 Cream white completely to highly weathered fine-grained closely jointed SOFT ROCK to MEDIUM HARD ROCK. SANDSTONE BEDROCK.

0.42

NOTES

1) No Groundwater Seepage.

2) No Sidewall Collapse.

3) Final Depth: 0.42 m (refusal on weathered sandstone).

4) Samples taken: None.

CONTRACTOR : N/A
MACHINE : TLB-excavator
DRILLED BY :
PROFILED BY : WK

TYPE SET BY : Warren Kretzinger
SETUP FILE : STANDARD.SET

D0CE GCS Geotechnical

INCLINATION : Vertical
DIAM : N/A
DATE : 06/02/2019
DATE : 06/02/2019

DATE : 13/02/2019 09:44
TEXT : ..975DiepkloofLogs.ver.TXT

ELEVATION : N/A
X-COORD :
Y-COORD :

HOLE No: TP14

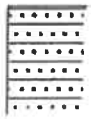
dotPLOT 7022 PBpH67

Client: Turning Point Project Management
Title: Diepkloof Ptn 159 Geotech

HOLE No: TP16
Sheet 1 of 1

JOB NUMBER: 18.0975

Scale 1:20



Surficial MEDIUM HARD ROCK. SANDSTONE BEDROCK.

NOTES

1) No Groundwater Seepage.
2) No Sidewall Collapse.
3) Final Depth: 0.0 m (refusal on weathered sandstone).
4) Samples taken: None.

CONTRACTOR : N/A
MACHINE : TLB-excavator
DRILLED BY :
PROFILED BY : WK

TYPE SET BY : Warren Kretzinger
SETUP FILE : STANDARD.SET
D0CE GCS Geotechnical

INCLINATION : Vertical
DIAM : N/A
DATE : 06/02/2019
DATE : 06/02/2019

DATE : 13/02/2019 09:44
TEXT : ..975DiepkloofLogs.ver.TXT

ELEVATION : N/A
X-COORD
Y-COORD :

HOLE No: TP16

dotPLOT 7022 PBpH67

Client: Turning Point Project Management
Title: Diepkloof Ptn 159 Geotech

HOLE No: TP17
Sheet 1 of 1

JOB NUMBER: 18.0975

Scale 1:20

Surficial MEDIUM HARD ROCK, SANDSTONE BEDROCK.

NOTES

1) No Groundwater Seepage.
2) No Sidewall Collapse.
3) Final Depth: 0.0 m (refusal on weathered sandstone).
4) Samples taken: None.

CONTRACTOR : N/A
MACHINE : TLB-excavator
DRILLED BY :
PROFILED BY : WK

TYPE SET BY : Warren Kretzinger
SETUP FILE : STANDARD.SET
D0CE GCS Geotechnical

INCLINATION : Vertical
DIAM : N/A
DATE : 06/02/2019
DATE : 06/02/2019

DATE : 13/02/2019 09:44
TEXT : ..975DiepkloofLogs.ver.TXT

ELEVATION : N/A
X-COORD :
Y-COORD :

HOLE No: TP17

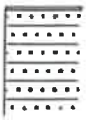
dotPLOT 7022 PBpH67

Client: Turning Point Project Management
Title: Diepkloof Ptn 159 Geotech

HOLE No: TP18
Sheet 1 of 1

JOB NUMBER: 18.0975

Scale 1:20



Surficial MEDIUM HARD ROCK. SANDSTONE BEDROCK.

NOTES

1) No Groundwater Seepage.
2) No Sidewall Collapse.
3) Final Depth: 0.0 m (refusal on weathered sandstone).
4) Samples taken: None.

CONTRACTOR : N/A
MACHINE : TLB-excavator
DRILLED BY :
PROFILED BY : WK

TYPE SET BY : Warren Kretzinger
SETUP FILE : STANDARD.SET

D0CE GCS Geotechnical

INCLINATION : Vertical
DIAM : N/A
DATE : 06/02/2019
DATE : 06/02/2019

DATE : 13/02/2019 09:44
TEXT : ..975DiepkloofLogs.ver.TXT

ELEVATION : N/A
X-COORD :
Y-COORD :

HOLE No: TP18

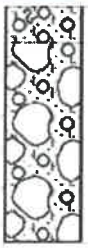
dotPLOT 7022 PBpH67

Client: Turning Point Project Management
Title: Diepkloof Ptn 159 Geotech

HOLE No: TP19
Sheet 1 of 1

JOB NUMBER: 18.0975

Scale 1:20



0.00 Dry to slightly moist, light to dark grey brown, LOOSE, intact to pinholed silty fine SAND with minor fine to coarse subangular to subrounded gravels and minor to abundant roots. Topsoil.

0.10 Slightly moist yellow to orange brown LOOSE becoming VERY DENSE silty SAND with gravel and with abundant angular interlocking COBBLES and BOULDERS. Fill

0.65

NOTES

1) No Groundwater Seepage.
2) No Sidewall Collapse.
3) Final Depth: 0.65 m (refusal on boulder fill).
4) Samples taken: None.

CONTRACTOR : N/A
MACHINE : TLB-excavator
DRILLED BY :
PROFILED BY : WK

TYPE SET BY : Warren Kretzinger
SETUP FILE : STANDARD.SET
DOCE GCS Geotechnical

INCLINATION : Vertical
DIAM : N/A
DATE : 06/02/2019
DATE : 06/02/2019

DATE : 13/02/2019 09:44
TEXT : ..975DiepkloofLogs.ver.TXT

ELEVATION : N/A
X-COORD :
Y-COORD :

HOLE No: TP19

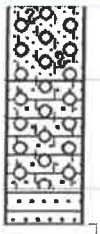
dotPLOT 7022 PBpH67

Client: Turning Point Project Management
Title: Diepkloof Ptn 159 Geotech

HOLE No: TP20
Sheet 1 of 1

JOB NUMBER: 18.0975

Scale 1:20



0.00 Dry to slightly moist, light to dark grey brown, LOOSE, intact to pinholed silty fine SAND with minor fine to coarse subangular to subrounded gravels and minor to abundant roots. Topsoil.

0.20 Dry to slightly moist, dark grey to red brown, MEDIUM DENSE, shattered, silty friable GRAVEL. Residual Sandstone.

0.50 Cream white completely to highly weathered fine-grained closely jointed VERY SOFT to SOFT ROCK. SANDSTONE BEDROCK.

0.60

NOTES

1) No Groundwater Seepage.
2) No Sidewall Collapse.
3) Final Depth: 0.60 m (refusal on weathered sandstone).
4) Samples taken: None.

CONTRACTOR : N/A
MACHINE : TLB-excavator
DRILLED BY :
PROFILED BY : WK

TYPE SET BY : Warren Kretzinger
SETUP FILE : STANDARD.SET

D0CE GCS Geotechnical

INCLINATION : Vertical
DIAM : N/A
DATE : 06/02/2019
DATE : 06/02/2019

DATE : 13/02/2019 09:44
TEXT : ..975DiepkloofLogs.ver.TXT

ELEVATION : N/A
X-COORD .
Y-COORD .

HOLE No: TP20

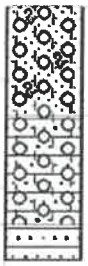
dotPLOT 7022 PBpH67

Client: Turning Point Project Management
Title: Diepkloof Ptn 159 Geotech

HOLE No: TP21
Sheet 1 of 1

JOB NUMBER: 18.0975

Scale 1:20



0.3–0.60

0.00 Dry to slightly moist, light to dark grey brown, LOOSE, intact to pinholed silty fine SAND with minor fine to coarse subangular to subrounded gravels and minor to abundant roots. Topsoil.

0.30 Dry to slightly moist, dark grey to red brown, MEDIUM DENSE, shattered, silty friable GRAVEL. Residual Sandstone.

0.60 Cream white completely to highly weathered fine-grained closely jointed VERY SOFT to SOFT ROCK. SANDSTONE BEDROCK.

0.70

NOTES

1) No Groundwater Seepage.
2) No Sidewall Collapse.
3) Final Depth: 0.70 m (refusal on weathered sandstone).
4) Samples taken: Disturbed Sample at 0.3--0.60 m.

CONTRACTOR : N/A
MACHINE : TLB-excavator
DRILLED BY :
PROFILED BY : WK

TYPE SET BY : Warren Kretzinger
SETUP FILE : STANDARD.SET
D0CE GCS Geotechnical

INCLINATION : Vertical
DIAM : N/A
DATE : 06/02/2019
DATE : 06/02/2019

DATE : 13/02/2019 09:44
TEXT : ..975DiepkloofLogs.ver.TXT

ELEVATION : N/A
X-COORD
Y-COORD

HOLE No: TP21

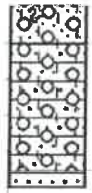
dotPLOT 7022 PBpH67

Client: Turning Point Project Management
Title: Diepkloof Ptn 159 Geotech

HOLE No: TP22
Sheet 1 of 1

JOB NUMBER: 18.0975

Scale 1:20



0.00 Dry to slightly moist, light to dark grey brown, LOOSE, intact to pinholed silty fine SAND with minor fine to coarse subangular to subrounded gravels and minor to abundant roots. Topsoil.

0.10 Dry to slightly moist, dark grey to red brown, MEDIUM DENSE, shattered, silty friable GRAVEL. Residual Sandstone.

0.45 Cream white completely to highly weathered fine-grained closely jointed VERY SOFT to SOFT ROCK. SANDSTONE BEDROCK.

0.50

NOTES

1) No Groundwater Seepage.
2) No Sidewall Collapse.
3) Final Depth: 0.50 m (refusal on weathered sandstone).
4) Samples taken: Disturbed Sample at 0.10--0.50 m (Bulk).

CONTRACTOR : N/A
MACHINE : TLB-excavator
DRILLED BY :
PROFILED BY : WK

TYPE SET BY : Warren Kretzinger
SETUP FILE : STANDARD.SET

DOCE GCS Geotechnical

INCLINATION : Vertical
DIAM : N/A
DATE : 06/02/2019
DATE : 06/02/2019

DATE : 13/02/2019 09:44
TEXT : ..975DiepkloofLogs.ver.TXT

ELEVATION : N/A
X-COORD :
Y-COORD :

HOLE No: TP22

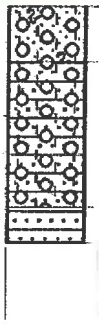
dotPLOT 7022 PBpH67

Client: Turning Point Project Management
Title: Diepkloof Ptn 159 Geotech

HOLE No: TP23
Sheet 1 of 1

JOB NUMBER: 18.0975

Scale 1:20



0.00 Dry to slightly moist, light to dark grey brown, LOOSE, intact to pinholed silty fine SAND with minor fine to coarse subangular to subrounded gravels and minor to abundant roots. Topsoil.

0.15 Dry to slightly moist, dark grey to red brown, MEDIUM DENSE, shattered, silty friable GRAVEL. Residual Sandstone.

0.55 Cream white completely to highly weathered fine-grained closely jointed VERY SOFT to SOFT ROCK. SANDSTONE BEDROCK.

0.65

NOTES

1) No Groundwater Seepage.
2) No Sidewall Collapse.
3) Final Depth: 0.65 m (refusal on weathered sandstone).
4) Samples taken: None.

CONTRACTOR : N/A
MACHINE : TLB-excavator
DRILLED BY :
PROFILED BY : WK

TYPE SET BY : Warren Kretzinger
SETUP FILE : STANDARD.SET
DOCE GCS Geotechnical

INCLINATION : Vertical
DIAM : N/A
DATE : 06/02/2019
DATE : 06/02/2019

DATE : 13/02/2019 09:44
TEXT : ..975DiepkloofLogs.ver.TXT

ELEVATION : N/A
X-COORD :
Y-COORD :

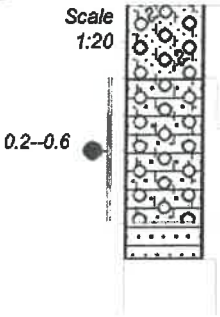
HOLE No: TP23

dotPLOT 7022 PBpH67

Client: Turning Point Project Management
Title: Diepkloof Ptn 159 Geotech

HOLE No: TP24
Sheet 1 of 1

JOB NUMBER: 18.0975



0.00 Dry to slightly moist, light to dark grey brown, LOOSE, intact to pinholed silty fine SAND with minor fine to coarse subangular to subrounded gravels and minor to abundant roots. Topsoil.

0.20 Dry to slightly moist, dark grey to red brown, MEDIUM DENSE, shattered, silty friable GRAVEL. Residual Sandstone.

0.60 Cream white completely to highly weathered fine-grained closely jointed VERY SOFT to SOFT ROCK. SANDSTONE BEDROCK.

0.70

NOTES

1) No Groundwater Seepage.
2) No Sidewall Collapse.
3) Final Depth: 0.70 m (refusal on weathered sandstone).
4) Samples taken: Disturbed Sample at 0.2--0.6 m.

CONTRACTOR : N/A
MACHINE : TLB-excavator
DRILLED BY :
PROFILED BY : WK

TYPE SET BY : Warren Kretzinger
SETUP FILE : STANDARD.SET
D0CE GCS Geotechnical

INCLINATION : Vertical
DIAM : N/A
DATE : 06/02/2019
DATE : 06/02/2019

DATE : 13/02/2019 09:44
TEXT : ..975DiepkloofLogs.ver.TXT

ELEVATION : N/A
X-COORD :
Y-COORD :

HOLE No: TP24

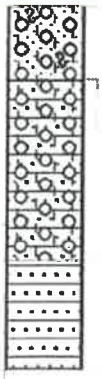
dotPLOT 7022 PBpH67

Client: Turning Point Project Management
Title: Diepkloof Ptn 159 Geotech

HOLE No: TP25
Sheet 1 of 1

JOB NUMBER: 18.0975

Scale 1:20



0.00

Dry to slightly moist, light to dark grey brown, LOOSE, intact to pinholed silty fine SAND with minor fine to coarse subangular to subrounded gravels and minor to abundant roots. Topsoil.

0.20

Dry to slightly moist, dark grey to red brown, MEDIUM DENSE, shattered, silty friable GRAVEL. Residual Sandstone.

0.70

Cream white completely to highly weathered fine-grained closely jointed VERY SOFT to SOFT ROCK. SANDSTONE BEDROCK.

1.00

NOTES

1) No Groundwater Seepage.
2) No Sidewall Collapse.
3) Final Depth: 1.0 m (refusal on weathered sandstone).
4) Samples taken: None.

CONTRACTOR : N/A
MACHINE : TLB-excavator
DRILLED BY :
PROFILED BY : WK

TYPE SET BY : Warren Kretzinger
SETUP FILE : STANDARD.SET
D0CE GCS Geotechnical

INCLINATION : Vertical
DIAM : N/A
DATE : 06/02/2019
DATE : 06/02/2019

DATE : 13/02/2019 09:44
TEXT : ..975DiepkloofLogs.ver.TXT

ELEVATION : N/A
X-COORD :
Y-COORD

HOLE No: TP25

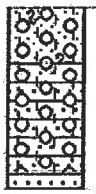
dotPLOT 7022 PBpH67

Client: Turning Point Project Management
Title: Diepkloof Ptn 159 Geotech

HOLE No: TP26
Sheet 1 of 1

JOB NUMBER: 18.0975

Scale 1:20



0.00 Dry to slightly moist, light to dark grey brown, LOOSE, intact to pinholed silty fine SAND with minor fine to coarse subangular to subrounded gravels and minor to abundant roots. Topsoil.

0.15 Dry to slightly moist, dark grey to red brown, MEDIUM DENSE, shattered, silty friable GRAVEL. Residual Sandstone.

0.45 Cream white completely to highly weathered fine-grained closely jointed VERY SOFT to SOFT ROCK. SANDSTONE BEDROCK.

0.50

NOTES

1) No Groundwater Seepage.
2) No Sidewall Collapse.
3) Final Depth: 0.50 m (refusal on weathered sandstone).
4) Samples taken: None.

CONTRACTOR : N/A
MACHINE : TLB-excavator
DRILLED BY
PROFILED BY : WK

TYPE SET BY : Warren Kretzinger
SETUP FILE : STANDARD.SET

DOCE GCS Geotechnical

INCLINATION : Vertical
DIAM : N/A
DATE : 06/02/2019
DATE : 06/02/2019

DATE : 13/02/2019 09:44
TEXT : ..975DiepkloofLogs.ver.TXT

ELEVATION : N/A
X-COORD :
Y-COORD :

HOLE No: TP26

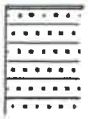
dotPLOT 7022 PBpH67

Client: Turning Point Project Management
Title: Diepkloof Ptn 159 Geotech

HOLE No: TP27
Sheet 1 of 1

JOB NUMBER: 18.0975

Scale 1:20



Surficial MEDIUM HARD ROCK. SANDSTONE BEDROCK.

NOTES

1) No Groundwater Seepage.
2) No Sidewall Collapse.
3) Final Depth: 0.50 m (refusal on weathered sandstone).
4) Samples taken: None.

CONTRACTOR : N/A
MACHINE : TLB-excavator
DRILLED BY :
PROFILED BY : WK

TYPE SET BY : Warren Kretzinger
SETUP FILE : STANDARD.SET
DOCE GCS Geotechnical

INCLINATION : Vertical
DIAM : N/A
DATE : 06/02/2019
DATE : 06/02/2019

DATE : 13/02/2019 09:44
TEXT : ..975DiepkloofLogs.ver.TXT

ELEVATION : N/A
X-COORD :
Y-COORD :

HOLE No: TP27

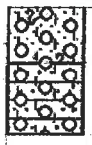
dotPLOT 7022 PBpH67

Client: Turning Point Project Management
Title: Diepkloof Ptn 159 Geotech

HOLE No: TP28
Sheet 1 of 1

JOB NUMBER: 18.0975

Scale 1:20



0.00 Dry to slightly moist, light to dark grey brown, LOOSE, intact to pinholed silty fine SAND with minor fine to coarse subangular to subrounded gravels and minor to abundant roots. Topsoil.

0.15 Dry to slightly moist, dark grey to red brown, MEDIUM DENSE, shattered, silty friable GRAVEL. Residual Sandstone.

0.35

NOTES

1) No Groundwater Seepage.
2) No Sidewall Collapse.
3) Final Depth: 0.35 m (refusal on weathered sandstone).
4) Samples taken: None.

CONTRACTOR : N/A
MACHINE : TLB-excavator
DRILLED BY :
PROFILED BY : WK

TYPE SET BY : Warren Kretzinger
SETUP FILE : STANDARD.SET
D0CE GCS Geotechnical

INCLINATION : Vertical
DIAM : N/A
DATE : 06/02/2019
DATE : 06/02/2019

DATE : 13/02/2019 09:44
TEXT : ..975DiepkloofLogs.ver.TXT

ELEVATION : N/A
X-COORD :
Y-COORD :

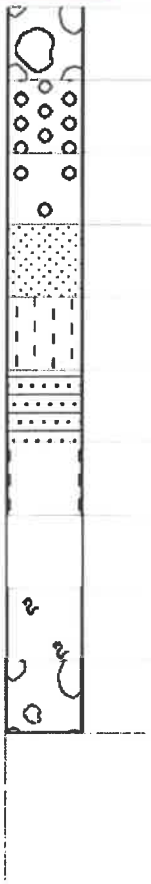
HOLE No: TP28

dotPLOT 7022 PBpH67

Client: Turning Point Project Management
Title: Diepkloof Ptn 159 Geotech

LEGEND
Sheet 1 of 1

JOB NUMBER: 18.0975



BOULDERS	{SA01}
GRAVELS/gravel	{SA02}
GRAVELLY	{SA03}
SAND	{SA04}
SILTY	{SA07}
SANDSTONE	{SA11}
PARTIALLY FERRUGINISED	{SA30}
DISTURBED SAMPLE	{SA38}
ROOTS	{SA40}
COBBLES	{SA58}

CONTRACTOR :
MACHINE
DRILLED BY :
PROFILED BY :

TYPE SET BY : Warren Kretzinger
SETUP FILE : STANDARD.SET
D0CE GCS Geotechnical

INCLINATION :
DIAM :
DATE :
DATE :

DATE : 13/02/2019 09:44
TEXT : ..975DiepkloofLogs.ver.TXT

ELEVATION :
X-COORD :
Y-COORD :

LEGEND
SUMMARY OF SYMBOLS

dotPLOT 7022 PBpH67

Appendix B
Laboratory Test Results (Outstanding)

Figure 1
Site Plan

PTN 159 DIEPKLOOF - SITE PLAN

LEGEND

- Test Pits

Road Network

- National Route
- Main Road
- Secondary Road
- Street
- Site Boundary (Ptn. 159/319)

Data Sources:
Google Earth™ mapping service: 2019
Imagery Date: 21/11/2018

0 25 50 100 Meters

SCALE: 1:3 500

FIGURE NO.:	-	MAP NUMBER:	18-0975-01
DRAWN BY:	A BROWER GIS TECHNICIAN	REVIEWED BY:	P CHETTY GIS SPECIALIST
DATUM: WGS84 PROJECTION: GEOGRAPHIC		DATE:	06 FEBRUARY 2019
PROJECT:	PTN 159 DIEPKLOOF		
CLIENT:	TURNING POINT PM		

GCS

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Fax: +27 (0) 11 803 5745
E-mail: jl@gcs-sa.biz
www.gcs-sa.biz

PTN 159 DIEPKLOOF - NHBRC CLASSIFICATION

LEGEND

- Test Pits

Road Network

- National Route
- Main Road
- Secondary Road
- Street
- Site Boundary (159/319)

NHBRC Classification

- Zone A: P - Controlled Fill (Problematic)
- Zone B: C2 - Potentially Collapsible > 10 mm
- Zone C: C/R - Potentially Collapsible 0 - 5 mm / Shallow Rock
- Zone D: C1/R - Potentially Collapsible 5 - 10 mm / Shallow Rock
- Zone E: C2/R - Potentially Collapsible > 10 mm / Shallow Rock
- Zone F: R - Shallow Rock
- No Go Area

Data Sources:
Google Earth™ mapping service: 2019
Imagery Date: 21/11/2018
NHBRC Classes from Engineering Geologist (W.Kretzinger)

0 25 50 100 Meters
SCALE: 1:3 500

FIGURE NO.:	-	MAP NUMBER:	19-0975-03
DRAWN BY:	A BROWER GIS TECHNICIAN	REVIEWED BY:	P CHETTY GIS SPECIALIST
DATUM: PROJECTION:	WGS84 GEOGRAPHIC	DATE:	13 FEBRUARY 2019
PROJECT:	PTN 159 DIEPKLOOF		
CLIENT:	TURNING POINT PM		

GCS

63 Wessel Road Woodmead
PO Box 2597 Rivonia 2128
South Africa

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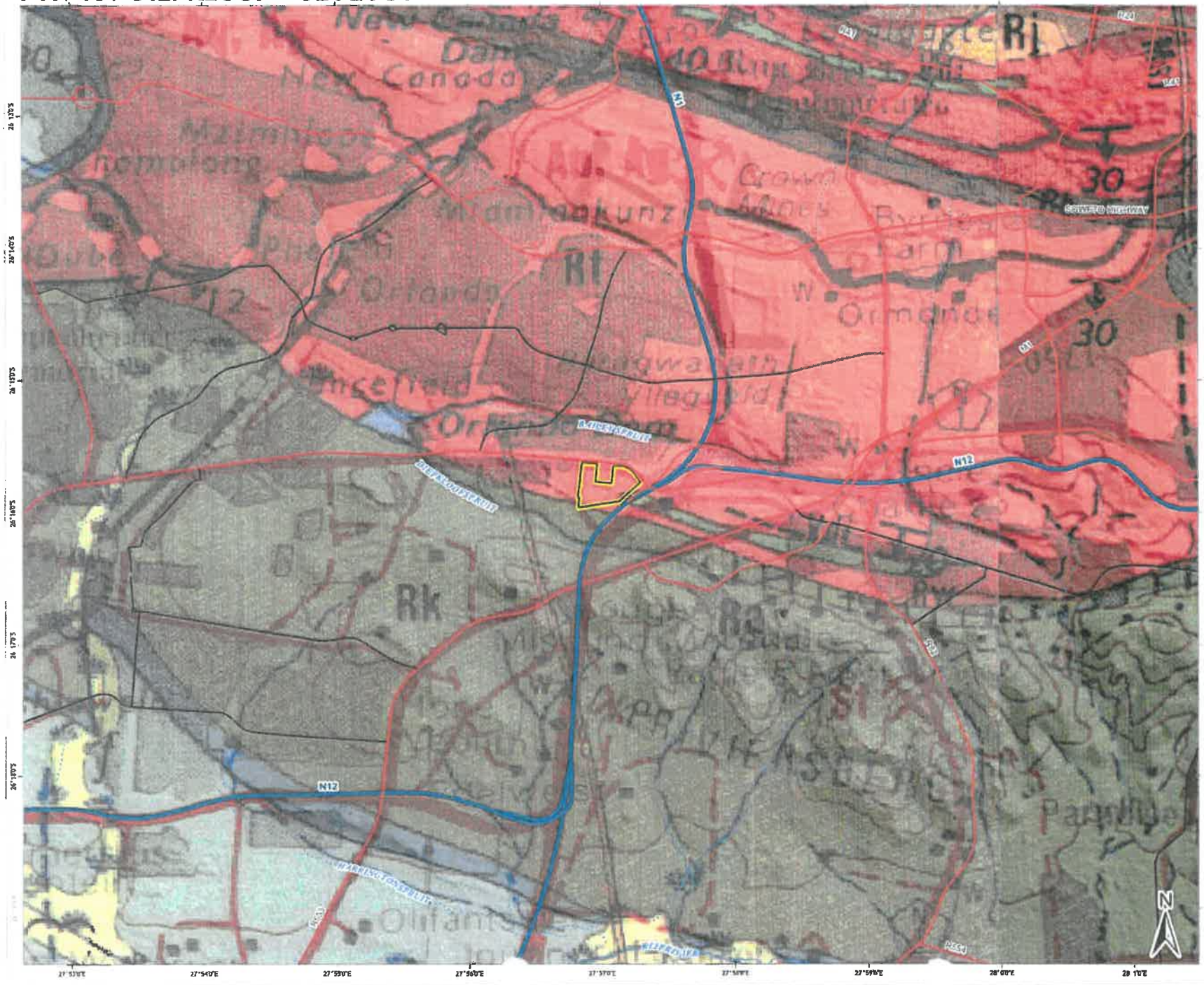
Fax: +27 (0) 11 803 5745
E-mail: jhb@gcs-sa.biz
www.gcs-sa.biz

Figure 2
Geological Plan

PTN 159 DIEPKLOOF - GEOLOGY



PROPERTY PLAN
SOWETO GATEWAY PRECINCT
PORTION 159 OF FARM DIEPKLOOF NO. 319 IQ
Revision 4

Legend:

Soweto Empowerment Zone

The Site – Portion 159 of Farm Diepkloof no.319 IQ

EXECUTIVE SUMMARY

The proposed development is on Portion 159 of the Farm Diepkloof No. 319 IQ in Soweto within the City of Johannesburg Metropolitan Municipality. The farm is approx. 30.5ha, it is bordered by Chris Hani Road (M68) to the north and the Western Bypass (N1) to the east.

The site is strategically located at the main entry point into Soweto and therefore a hotspot for high value proposition infrastructure development. The site is envisioned as a 'Gateway Site' that has the potential to be an iconic, unique destination place and will be subdivided into 14 portions with various uses.

Our development objectives for the is site is to accommodate a mix of land uses which not only take advantage of the properties strategic location to the existing Baralink Node.

Our intension is providing a complementing catalyst for the reinforcing of surrounding uses, existing activities and to integrate the commercial elements of the Soweto Empowerment Zone i.e. Office Space Optimization Regional Municipal Offices, extend the existing Opportunity Centre initiative and promote for more automotive / entrepreneurial resource centre type of square.

We looking to transform this corner of Soweto into a liveable district in its own right that is well connected, accessible to the rest of Greater Soweto including the City, having access to job opportunities and the full array of urban amenities within a balanced and sustainable urban framework.

Ownership	City of Johannesburg Metropolitan Municipality
Locality	The site is in the eastern part of Soweto, located south-west for Chris Hani Road and the N1 intersection. The site is also easily identifiable by the existing Soweto Empowerment Zone facility as its land mark.
Locality Plan attached as **ANNEXURE 2**	Yes
Title Deed Number	T 169982/2007
Copy of Title Deed attached as **ANNEXURE 3**	Yes
Property Size	Property measures 30,5292 hectares

SECTION 2: DEPARTMENTAL & MOE COMMENTS

Development Planning	Development concept supported in principle subject to various proposed amendments to land use zoning and densities
City Transformation	Development concept is viewed positively and well received as it aims to unlock Soweto as a True City District by diversifying land uses through densification and mixed-uses
City Parks	Township establishment application submitted on 14 June 2019 and we are pending comments
Environment	The draft basic assessment report is being has been prepared and pending the vegetation study which can only be undertaken in November as per GDARD requirements.
City Power / Eskom	Orlando substation is currently fully utilised (30MVA) therefore no spare capacity available at the substation. Nancefield substation has capacity but is situated 10Km from the development and concern is that this may result in a high voltage drop on the supply cable. Therefore Orlando substation needs to be upgraded to supply additional power for any new developments in the area.
JRA	Outline scheme report as per township layout is ready and will be submitted by 28 June 2019 for formal comments
Joburg Water	Outline scheme report as per township layout is ready and will be submitted by 28 June 2019 for formal comments
Ward Councillor	A feedback session is being arranged with Region D to present outcomes of the investigations and progress to-date on the proposed development (03 July or 04 July 2019)
Comments attached as **ANNEXURE 4 / 5 / 6**	Yes

SECTION 3: DEVELOPMENT RESTRICTIONS

Current Uses on site	The majority of the site is vacant although a portion appears to be illegally occupied by vagrants.
Current occupants	Illegal occupants appear to be vagrants (temporary shelters on site).
Existing structures and features	The site has concrete palisade boundary fencing around its extent including around the existing Soweto Empowerment Zone facility. The vacant site has uneven terrain, topsoil, rocky outcrops, barrow pits and building waste disposal. Refer to Annexure 7 & 8.
Existing Vegetation	The site vegetation on the north to north-western quadrant is short grass and few small trees, while on southern to eastern portions is the medium to larger trees. The most common vegetation type is thatching grass and khaki weed. No species of concern were recorded and the rocky outcrops present on the site no longer provide unique habitats as a result of illegal dumping. Refer to Annexure 7 & 8.
Contour survey on site plan **ANNEXURE 10**	Yes
1:100 year floodlines	The site is situated far from wetlands and rivers thus falls outside the 1:100 year floodline and the proposed development will not trigger a water use licence application process. Refer to Annexure 8.
Floodlines on site plan **ANNEXURE 8**	Yes
Geotechnical conditions	The site is underlain by topsoil, hillwash and fill overlying the residual sandstone and sandstone bedrock. Soft excavation may be anticipated at depths above 1.6m below natural ground level and intermediate to hard excavation at depths below this level. Overall, the site is developable.

Geotechnical Report attached as **ANNEXURE 11**	Yes
Wetland Deliniation	No rivers and wetland on site.
Wetland Report attached as **ANNEXURE 8**	Yes
Environmental Fatal Flaw Analysis	Environmental significance for development is low as revealed by various desktop studies. However it is recommended that the project undergoes detailed studies as per NEMA requirements and any mitigation measures are undertaken before construction.
Fatal Flaw report attached as **ANNEXURE 8**	Yes
Heritage Issues	There are no visible restrictions or negative impacts in terms of heritage associated with the site therefore development on the site can proceed. In the event that historical deposits and graves are discovered during infrastructure or construction works a heritage/archaeologist should be commissioned to investigate.
Heritage Report attached as **ANNEXURE 7**	Yes
Registered Servitudes	• S.G. No. A4322/1988 20m Public road servitude • S.G. 2378/2001 32m Rand Water Pipe • S.G. A5501/1990 2m Gas pipeline
Unprotected Council Services	There are unprotected services on the site which are not within a registered servitude and are shown on the Servitude Survey Plan. The Servitude Survey Plan is attached as Annexure 10
Restrictive conditions of title	There are no restrictive conditions but just the following special conditions: Condition C 1. (a) The transferee shall use the Properties solely for purposes of upgrading the Elias Motsoaledi informal Settlement by the development of low-cost housing and related municipal infrastructure. (b) Should the properties not be used for the purposes referred to in Clause (a) above, the properties shall revert to the Transferor. All costs giving effect to the reversion shall be for the account of the Transferee or its successors in title.

SG diagram No. attached as **ANNEXURE 12**	SG No: 4685/2002
Town Planning Report attached as **ANNEXURE 14**	Yes

DEVELOPABLE AREA SUMMARY

Site Plan reflecting above findings* attached as **ANNEXURE 15**	Yes
Total Site Area	30,5292 hectares

Minus undevelopable areas:

Description	Area (Hectares)
Road reserves i.e. Roads, Sidewalks, Rand Water and Gas pipeline	5,7593 Ha
TOTAL	5,7593 Ha

Net Development Area	24,7699 Ha

SECTION 4: ZONING RIGHTS

Current Zoning	Mining
Zoning certificate attached as **ANNEXURE 13**	Yes
Town Planning Policy	City of Johannesburg Land Use Scheme, 2018

Maximum Potential Zoning

	Floor Area/units
Residential 3 (Erf 4, 5, 6)	48,237m2 (483 units)
Residential 4 (Erf 7, 9, 10, 11)	183,253m2 (2,222 units)
Business 1 (Erf 2, 14)	43,516m2 (231 units)
Business 2 (Erf 3)	52,744m2 (292 units)
Educational (Erf 12, 13)	16,827m2
General (Erf 1)	24,748m2 (137 units)
Public Open Space	1,389m2
Road Reserves – Roads, Sidewalks & Rand Water	57,593m2

Letter from DPUM attached as **ANNEXURE 5 / 6**	City Transformation and Land Use Management are support of the proposed development. Refer to comments per annexure 5 and 6

SECTION 5: SERVICES

The current availability of bulk and link services to the site together with the additional bulk and link requirements to service the proposed development on the site are summarised as follows:

Engineering Assessments were undertaken by the various consultants on the availability of services. The investigation revealed that there are water and sewer connections available on the site. Surrounding roads will need to be upgraded in order to meet the anticipated traffic flow. There is no additional electrical capacity in the Orlando Substation and this will need to be upgraded before development can take place.

Electrical	Electricity is provided by City Power. The Orlando substation is currently operating at full capacity, meaning there is no available capacity for future development.
Electrical Engineers report	Available. Refer to Annexure 17
Water	Available. Refer to Annexure 18
Sewer	Available. Refer to Annexure 18
Roads	One access road is available. Potential access points on Collinder Road and Elias Motsoaledi Road. Refer to Annexure 18
Stormwater	Existing stormwater drainage next to the site. An internal storm water management system will be provided for the development. See Annexure 18

Estimated cost of supply of bulk and link services to the proposed development: This item is in progress as we currently are in receipt of scoping reports from the various consultants.

Electrical	R
Water	R
Sewer	R
Roads	R
Stormwater	R
TOTAL	R

Engineers report attached as **ANNEXURE 17 / 18** Yes

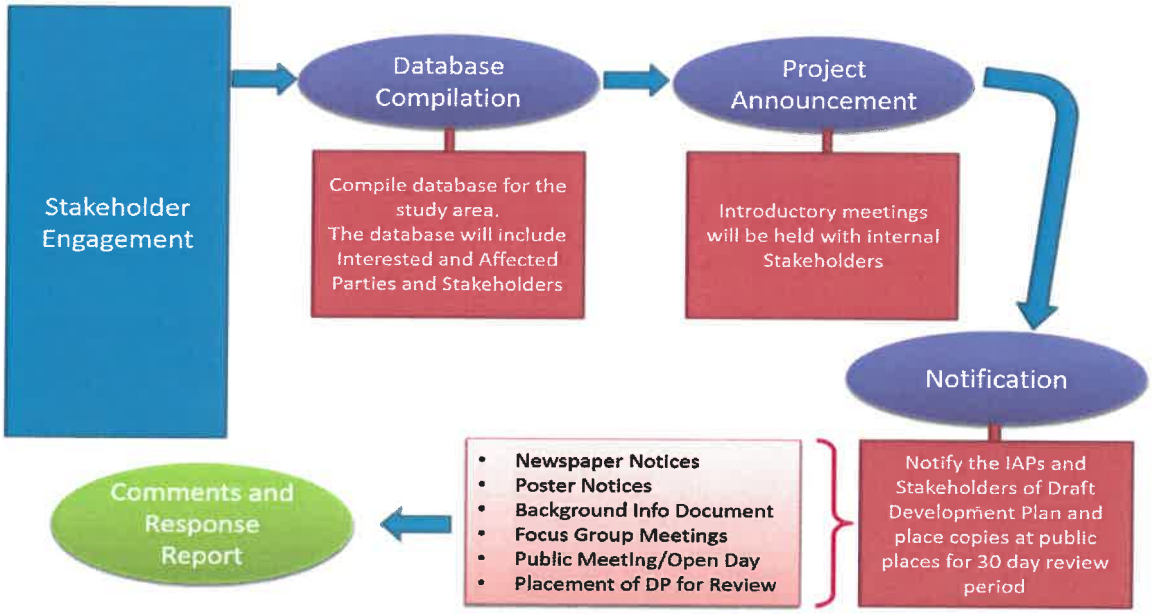
The purchaser will be responsible for the payment of all services and parks contributions which are payable as a result of the rezoning / township establishment of the site.

SECTION 6: COMMUNITY ISSUES

The stakeholder engagement, various stakeholders from different levels have been engaged with and notified of current plans for the site. These stakeholders include Region D officials, the Department of Economic Development, The Chris Hani Baragwanath Academic Hospital and COJ Housing Department thus far. Minutes are attached and refer to Annexure 22.

After approval of the proposed property plan by JPC, a detailed stakeholder engagement process will be undertaken in order to get the township layout approved. The outcomes of the property plan investigations will then be presented to City Transformation, Land-use Management, Region D officials, COJ Housing Department including Local ward councillors, The Department of Transportation and The Community at large in order to commence the public participation process.

Stakeholder Engagement Flow Diagram



SECTION 7: DEVELOPMENT PROPOSAL

Proposed Development Concept – Refer to Annexure 21(Draft Urban Design Report)

SECTION 8: PROPOSED IMPROVEMENTS

Proposed Improvements – Refer to Annexure 15 (Township Layout and Development Controls)

SECTION 9: ESTIMATED COSTS AND EXPECTED RETURNS

Refer to Annexure 23 – In progress and currently being updated to suit the township layout and development controls

SECTION 10: DEVELOPMENT TIMEFRAMES

Available. Refer to Annexure 24

SECTION 11: DEVELOPMENT FEASIBILITY / DEMAND STUDY

Available. Refer to Annexure 25

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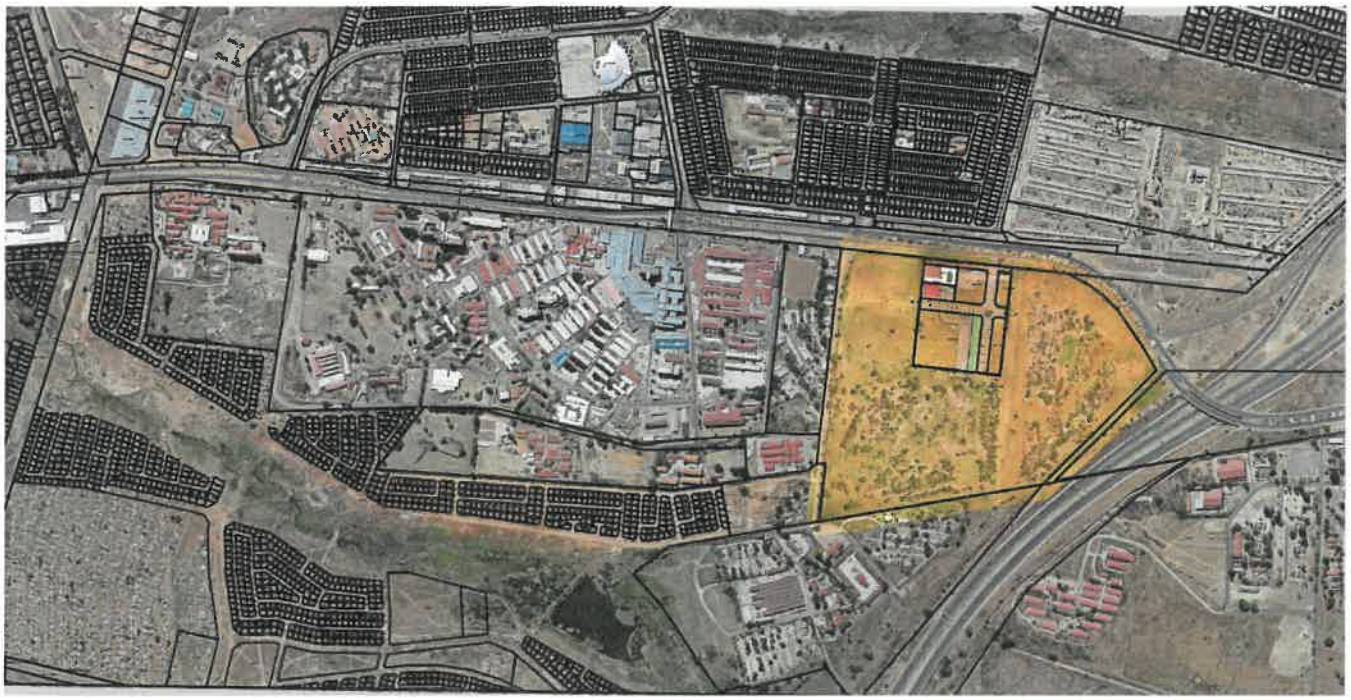
PORTION 159 OF FARM DIEPKLOOF 319-IQ
GENERAL TRAFFIC SCOPING REPORT
FEBRUARY 2019



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A traffic impact study or traffic impact assessment is a study which assesses the effect that a particular development has on the transportation network. The study is generally required by roads authorities to evaluate the impact of a change in land use. These studies are a part of the mandatory process to be followed by an application to obtain new land use rights.

A traffic impact study may vary in complexity depending on the size of the development, the current and proposed land use and the location of the development.
Various traffic engineering concepts and principles are applied while conducting a traffic impact assessment.

We have conducted traffic impact study for various developments comprising of residential, business, retail, industrial, offices, mixed use developments and also transit oriented developments.

There are several steps within a Traffic Impact Study, including trip generation, trip distribution, mode choice and assignment, which are then followed by capacity analyses and the identification of possible road upgrades. Specific assistance is given to identify road upgrades, to ensure that a realistic first order road upgrade costing is provided which takes into account physical site limitations that might have an impact on the final road upgrades to be recommended.

A traffic impact study is generally used to:

- Assess impact of traffic due to new development (or re-development)
- Support comprehensive plan amendments
- Support rezoning applications
- Support subdivision of land applications
- Obtain site plan approvals
- Obtain driveway or access permits
- As a part of environmental impact assessment
- Prepare traffic mitigation plans
- Determine developer /bulk contribution
- Determine cost apportionment
- Development access/egress and on-site circulation plans

Several important aspects need to be taken into consideration, such as the need for community involvement, the relevant road hierarchy, horizontal and/or vertical deviations required to achieve traffic impact objectives, pedestrian accessibility, existing public transport, schedule and routes of garbage trucks, and the role that decision makers play in the traffic calming process.
The extent of the study area was determined by identifying the intersections in the vicinity of the development on which the traffic generated by the development may have a significant impact. The target years and peak scenarios to be analyzed were not determined as yet, based on the fact that the land-use and extent of the development plan was not clearly defined.

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The existing traffic flow patterns were observed, where after the functioning of the intersections in the area was analyzed. Recommendations were made on the present need for road upgrading, without the development plan.

For the purposes of this study, the following intersections were investigated: -

□	Collinder Rd and Chris Hani Rd	Signaled Intersection
□	Smael St and Marthinus Smuts Dr	Stop controlled with free flow on Smael St
□	Dhlamini St and Marthinus Smuts Dr	Stop controlled with free flow on Marthinus Smuts Dr
□	Baragwanath Rd and Marthinus Smuts Dr	Stop controlled with free flow on Marthinus Smuts Dr
□	Ben Naude St and Marthinus Smuts Dr	Signaled Intersection
□	Ben Naude St and Immink Dr	Signaled Intersection
□	Immink Dr and Baragwanath Rd	Signaled Intersection
□	Immink Dr and Bara Entrance Rd	Signaled Intersection
□	Bara Entrance Rd and Chris Hani Rd	Signaled Intersection
□	Nicholas St and Elias Motsoaledi Rd	Signaled Intersection
□	East St and Golden Highway	Signaled Intersection
□	Collinder Rd and Golden Highway	Signaled Intersection
□	Collinder Rd and Elias Motsoaledi Rd	un-signaled and uncontrolled
□	East St and Elias Motsoaledi Rd	un-signaled and uncontrolled

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DATA COLLECTION AND DESCRIPTION OF EXISTING SITUATION
PEAK HOUR TURNING MOVEMENT VOLUMES AT INTERSECTIONS

A high level traffic observation was carried out at the intersections, during the weekday morning (06:00 – 08:30), weekday afternoon (16:00 – 19:00) and Saturday midday (10:00 – 14:00) peak periods. The peak hour traffic volumes, at the intersections

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CAPACITY ANALYSIS OF INTERSECTIONS

The existing peak hour traffic analysis was used to determine the levels-of-service at which the intersection is presently operating.

The levels-of-service of a traffic light controlled intersection is defined in terms of average total vehicle delay (not average stop delay), where delay is a measure of driver discomfort, frustration, fuel consumption and lost travel time. However, for an un-signalized intersection the average total delay for any particular minor movement is a function of the service rate or capacity of the approach and the degree of saturation.

Chris Hani Rd and Collinder St
The eastbound and westbound approaches on Chris Hani Road, experience a high degree of Saturation, during the week and throughout the day, with midday peak hour dropping a little bit. This is because the road is the entrance and exit route out of Soweto, and also the fact that the hospital entrance is off this road, emergency and visitors to the hospital use this road.

Chris Hani Rd and Bara Entrance
The eastbound and westbound approaches on Chris Hani Road, experience a high degree of Saturation, during the week and throughout the day, with midday peak hour dropping a little bit. Weekends, there's a significant increment of traffic especially during the visiting hours of (14:00 to 16:00) and also between (18:00 and 21:00) This is because the intersection is the entrance and exit route of the hospital.

Chris Hani Rd and Nicholas St
The eastbound and westbound approaches on Chris Hani Road, experience a high degree of Saturation, during the week and throughout the day, with midday peak hour dropping a little bit. There is also a university next to this intersection and some of the students use this intersection for left and right turning movements to avoid the above mentioned intersections, so it also has a significant peak during morning and afternoon peaks.

East St and Golden Highway
The intersection is also experiencing high degree of traffic volumes throughout the day, because it is also an alternative route out of Soweto and Eldorado Park. During morning and afternoon peaks, the road is experiencing high volume of traffics and also during the day because of the number of factories in and around the area, during the weekends, the traffic subsides but not too much. The vehicles from Nicholas St also use this intersection to avoid the bara entrance.

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ASSESSMENT OF THE STATUS QUO

Some of the roads will need to be improved to accommodate the new development plan proposal.

Collinder road will have to be given serious attention to accommodate the anticipated increments of traffic flows, and also the possibility of Environmental requirements when the road is to be widened. The road should be widened until the intersection with golden highway, and a traffic signal installed at the same intersection.

Elias Motasoledi road will also have to be surfaced until at the Nicholas intersection, this will help in reducing the traffic on Chris Hani Road towards the site, however traffic calming measures will have to be implemented on this road, especially after the intersection with east road, this will reduce rat-racing, but provide an alternative to access the site.

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PHASE 1 HERITAGE IMPACT ASSESSMENT (HIA) FOR THE PROPOSED DEVELOPMENT ON PORTION 159 OF THE FARM DIEPKLOOF, SOWETO, GAUTENG PROVINCE

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For:

ATLEGA DEVELOPMENT PRACTITIONERS

February 2019

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It may only be used for the purposes it was commissioned for by the client.

DISCLAIMER:

Although all possible care is taken to identify/find all sites of cultural importance during the initial survey of the study area, the nature of archaeological and historical sites is as such that it is always possible that hidden or sub-surface sites could be overlooked during the study. Leonie Marais Heritage Practitioner will not be held liable will not be held liable for such oversights or for the costs incurred as a result thereof.

ACKNOWLEDGEMENTS

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ABOUT THIS REPORT

The heritage report must reflect that consideration has been given to the history and heritage significance of the study area and that the proposed activities is sensitive towards the heritage resources and does not significantly alter or destroy the heritage significance of the study area.

The heritage report must refer to the heritage resources currently in the study area.

The opinion of an independent heritage consultant is required to evaluate if the proposed work generally follows a good approach that will ensure the conservation of the heritage resources.

The National Heritage Resources Act, 1999 (Act No. 25 of 1999), the National Environmental Management Act, 1998 (Act No. 107 of 1998), Ordinance on Exhumations, 1980 (No. 12 of 1980) and the Human Tissues Act, 1983 (Act No. 65 of 1983 as amended) are the guideline documents for a report of this nature.

Leonie Marais was appointed by Atlega Development Practitioners to carry out a Phase 1 Heritage Impact Assessment (HIA) for the proposed development on Portion 159 of the Farm Diepkloof, Soweto, Gauteng Province. The site visit took place on 26 February 2019.

DEFINITION OF TERMS:

"alter" means any action affecting the structure, appearance or physical properties of a place or object, whether by way of structural or other works, by painting, plastering or other decoration or any other means.

"archaeological" means—
(a) material remains resulting from human activity which are in a state of disuse and are in or on land and which are older than 100 years, including artefacts, human and hominid remains and artificial features and structures;
(b) rock art, being any form of painting, engraving or other graphic representation on a fixed rock surface or loose rock or stone, which was executed by human agency and which is older than 100 years, including any area within 10m of such representation;
(c) wrecks, being any vessel or aircraft, or any part thereof, which was wrecked in South Africa, whether on land, in the internal waters, the territorial waters or in the maritime culture zone of the Republic, as defined respectively in sections 3, 4 and 6 of the Maritime Zones Act, 1994 (Act No. 15 of 1994), and any cargo, debris or artefacts found or associated therewith, which is older than 60 years or which SAHRA considers to be worthy of conservation; and
(d) features, structures and artefacts associated with military history which are older than 75 years and the sites on which they are found.

"conservation", in relation to heritage resources, includes protection, maintenance, preservation and sustainable use of places or objects so as to safeguard their cultural significance.

"cultural significance" means aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance.

"development" means any physical intervention, excavation, or action, other than those caused by natural forces, which may in the opinion of a heritage authority in any way result in a change to the nature, appearance or physical nature of a place, or influence its stability and future well-being, including—
(a) construction, alteration, demolition, removal or change of use of a place or a structure at a place;
(b) carrying out any works on or over or under a place;
(c) subdivision or consolidation of land comprising, a place, including the structures or airspace of a place;
(d) constructing or putting up for display signs or hoardings;
(e) any change to the natural or existing condition or topography of land; and
(f) any removal or destruction of trees, or removal of vegetation or topsoil; object that is specifically designated by that state as being of importance.

"grave" means a place of interment and includes the contents, headstone or other marker of such a place, and any other structure on or associated with such place.

"heritage resource" means any place or object of cultural significance.

"heritage resources authority" means the South African Heritage Resources Agency, or in respect of a province, a provincial heritage resources authority.

"heritage site" means a place declared to be a national heritage site by SAHRA or a place declared to be a provincial heritage site by a provincial heritage resources authority.

"improvement", in relation to heritage resources, includes the repair,
restoration and rehabilitation of a place protected in terms of Act 25 of 1999.
"living heritage" means the intangible aspects of inherited culture, and may include—
(a) cultural tradition;
(b) oral history;

(c) performance;
(d) ritual;
(e) popular memory;
(f) skills and techniques;
(g) indigenous knowledge systems; and
(h) the holistic approach to nature, society and social relationships.

"local authority" means a municipality as defined in section 10B of the Local Government Transition Act, 1993 (Act No. 209 of 1993).

"management", in relation to heritage resources, includes the conservation, presentation and improvement of a place protected in terms of Act 25 of 1999.

"meteorite" means any naturally-occurring object of extraterrestrial origin.

"object" means any movable property of cultural significance which may be protected in terms of any provisions of Act 25 of 1999, including—
(a) any archaeological artefact;
(b) palaeontological and rare geological specimens;
(c) meteorites; and
(d) other objects.

"palaeontological" means any fossilised remains or fossil trace of animals or plants which lived in the geological past, other than fossil fuels or fossiliferous rock intended for industrial use, and any site which contains such fossilised remains or trance.

"place" includes—
(a) a site, area or region;
(b) a building or other structure which may include equipment, furniture, fittings and articles associated with or connected with such building or other structure;
(c) a group of buildings or other structures which may include equipment, furniture, fittings and articles associated with or connected with such group of buildings or other structures;
(d) an open space, including a public square, street or park; and
(e) in relation to the management of a place, includes the immediate surroundings of a place.

"presentation" includes—
(a) the exhibition or display of;
(b) the provision of access and guidance to;
(c) the provision, publication or display of information in relation to; and
(d) performances or oral presentations related to, heritage resources protected in terms of Act 25 of 1999.

"public monuments and memorials" means all monuments and memorials—
(a) erected on land belonging to any branch of central, provincial or local government, or on land belonging to any organisation funded by or established in terms of the legislation of such a branch of government; or
(b) which were paid for by public subscription, government funds, or a public-spirited or military organisation, and are on land belonging to any private individual.

"site" means any area of land, including land covered by water, and including
any structures or objects thereon.
"structure" means any building, works, device or other facility made by people and which is fixed to land, and includes any fixtures, fittings and equipment associated therewith.
"victims of conflict" means—

(a) certain persons who died in any area now included in the Republic as a direct result of any war or conflict as specified in the regulations, but excluding victims of conflict covered by the Commonwealth War Graves
Act, 1992 (Act No. 8 of 1992);
(b) members of the forces of Great Britain and the former British Empire who died in active service in any area now included in the Republic prior to 4 August 1914;
(c) persons who, during the Anglo-Boer War (1899-1902) were removed as prisoners of war from any place now included in the Republic to any place outside South Africa and who died there; and
(d) certain categories of persons who died in the "liberation struggle" as defined in the regulations, and in areas included in the Republic as well as outside the Republic.

EXECUTIVE SUMMARY

Leonie Marais Heritage Practitioner was requested Atlega Development Practitioners to carry out a Phase 1 Heritage Impact Assessment (HIA) for the proposed development on Portion 159 of the Farm Diepkloof, Soweto, Gauteng Province. The site visit took place on 26 February 2019.

A field survey was conducted after which a survey of literature was undertaken.

No heritages sites/items were identified on the area earmarked for development.

The restrictions encountered were dense vegetation in some sections of the site earmarked for development and vagrants occupying the site.

It should be noted that the sub-surface archaeological and/or historical deposits and graves are always a possibility. Care should be taken during any work in the entire area and if any of the above is discovered, an archaeologist/heritage practitioner should be commissioned to investigate.

1. INTRODUCTION

A Mixed-Use Development is planned for the study site. This proposed development will form part of the Soweto Gateway Project.

1.1 WHY A PHASE 1 HERITAGE IMPACT ASSESSMENT IS REQUIRED?

This project may potentially impact on any types and ranges of heritage resources that are outlined in Section 3 of the National Heritage Resources Act. 1999 (Act No. 25 of 1999). Subsequently a Phase 1 Heritage Impact Assessment (HIA) was commissioned by Atlega Development Practitioners and conducted by Leonie Marais.

1.1.1 METHOD

The objective of this Phase 1 Heritage Impact Assessment (HIA) was to gain an overall understanding of the heritage sensitivities of the area and indicate how they may be impacted on through development activities. The site survey took place on 26 February 2019.

In order to establish heritage significance the following method was followed:

- Investigation of primary resources (archival information)
- Investigation of secondary resources (literature and maps)
- Physical evidence (site investigation)
- Determining Heritage Significance.

1.2 HISTORIY OF THE STUDY AREA

The establishment of Soweto is, like Johannesburg, linked directly to the discovery of Gold in 1885. Thousands of people from around the world and South Africa flocked to the new town to seek their fortunes or to offer their labour. Within 4 years Johannesburg was the second largest city. More than half the population was black, most living in multiracial shanty towns near the gold mines in the centre of the town. As the gold mining industry developed, so did the need for labour increase. Migrant labour was started and most of these workers lived in mine compounds. However other workers had to find their own accommodation often in appalling conditions.

The first residents of what is now known as Soweto were located into the area called Klipspruit in 1905 following their relocation from "Coolietown" in the centre of Johannesburg as a result of an outbreak of bubonic plague. The Johannesburg City Council took the opportunity to establish racially segregated residential areas. Some residents were to be relocated to Alexandra Township (near the present day Sandton). This group comprised Black, Indian and Coloured families and they received freehold title to their land (this was subsequently reversed by the Apartheid Government). Only Black families were located into Klipspruit and the housing was on a rental basis. Klipspruit was subsequently renamed Pimville.

During the 1930's the demand for housing for the large numbers of black people who had moved into Johannesburg grew to such an extent that new housing was built in an area known as Orlando, named after the first administrator Edwin Orlando Leaky.

In the 1940's a controversial character James Mpanza led the first land invasion and some 20000 squatters occupied land near Orlando. James Mpanza is known as the "Father of Soweto".

In 1959 the residents of Sophiatown were forcefully removed to Soweto and occupied the area known as Meadowlands. Sir Earnest Oppenheimer, the first chairman of the Anglo-American Corporation, was appalled by the housing shortage and was instrumental in arranging a loan for

the construction of additional housing and this is commemorated by the Oppenheimer Tower in Jabulani[1]

1.3 LOCATION AND PHOTOGRAPHIC RECORD OF STUDY AREA

Figure 1: Locality Map

[1] E. Rosenthal (Editor) Encyclopaedia of Southern Africa.

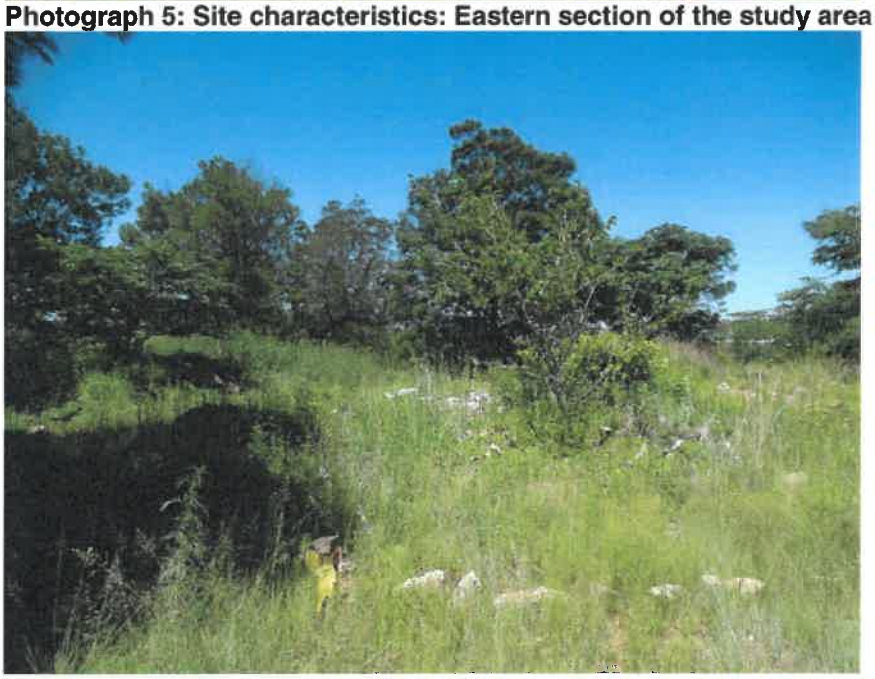
Photograph 1: Site characteristics: Northern section of the study area

Photograph 2: Site characteristics: Northern section of the study area

Photograph 3: Site characteristics: Northern section of the study area

Photograph 4: Site characteristics: Eastern section of the study area

Photograph 5: Site characteristics: Eastern section of the study area



Photograph 6: Site characteristics: Southern section of the study area

Photograph 7: Site characteristics: Southern section of the study area

Photograph 8: Site characteristics: Southern section of the study area

Photograph 9: Site characteristics: Northern section of the study area (west of the Bosch Centre)

Photograph 10: Site characteristics: Western section of the study area

Photograph 11: Site characteristics: Western section of the study area

Photograph 12: Site characteristics: South western area

Photograph 13: Site characteristics: Far southern area

Photograph 14: Site characteristics: Far southern area

Photograph 15: Site characteristics: Far southern area

Photograph 16: Site characteristics: Far southern area

Photograph 17: Site characteristics: Far southern area

2. FINDINGS

2.1 PRE-COLONIAL HERITAGE SITES

Possibilities: Greater study area taken into account.

Stone Age

The Stone Age is the period in human history when stone material was mainly used to produce tools[2]. In South Africa the Stone Age can be divided in three periods[3];

- Early Stone Age 2 000 000 – 150 000 years ago
- Middle Stone Age 150 000 – 30 000 years ago
- Late Stone Age 40 000 years ago - +/- 1850 AD

Iron Age

The Iron Age is the period in human history when metal was mainly used to produce artefacts[4]. In South Africa the Iron Age can be divided in three periods;

- Early Iron Age 250-900 AD
- Middle Iron Age 900-1300 AD
- Late Iron Age 1300-1840 AD[5]

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[2] P. J. Coertze & R.D. Coertze, Verklarende vakwoordeboek vir Antropologie en Argeologie.
[3] S.A. Korsman & A. Meyer, *Die Steentydperk en rotskuns* in J.S. Bergh (red) Geskiedenisatlas van Suid-Afrika. Die vier noordelike provinsies.
[4] P.J. Coertze & R.D. Coertze, Verklarende vakwoordeboek vir Antropologie en Argeologie.
[5] M.M. van der Ryst & A Meyer. *Die Ystertydperk* in J.S. Bergh (red) Geskidenisatlas van Suid-Afrika. Die vier noordelike provinsies and T.N Huffman, A Handbook to the Iron Age: The Archaeology of Pre-Colonial Farming Societies in Southern Africa.

There are no pre-colonial heritage sites evident in the study area. This can be attributed to previous farming and infrastructure development activities in the study and greater study area.

2.2 HISTORICAL PERIOD HERITAGE SITES

Possibilities: Greater study area taken into account.

- Pioneer sites;
- Sites associated with early mining;
- Structures older than 60 years;
- Graves (Graves younger than 60 years, graves older than 60 years, but younger than 100 years, graves older than 100 years, graves of victims of conflict or of individuals of royal descent).

No historical period sites are situated in the study area.

2.3 ORIGINAL LANDSCAPE

No original landscape has survived the urbanisation process in the study and greater study area.

2.4 INTANGIBLE HERITAGE

The intangible heritage of the greater study area can be found in the stories of past and present inhabitants.

3 CATEGORIES OF HERITAGE VALUE (ACT 25 OF 1999)

The National Heritage Resources Act (Act 25 of 1999) identifies the following categories of value under section 3(1) and (2) of the Act under the heading "National Estate":

"3 (1) For the purpose of this Act, those heritage resources of South Africa which are of cultural significance or other special value for the present community and for future generations must be considered part of the national estate and fall within the sphere of operations of heritage resources authorities.

(2) Without limiting the generality of subsection (1), the national estate may include-
- (a) places, buildings, structures and equipment of cultural significance;
- (b) places which oral traditions are attached or which are associated with living heritage;
- (c) historical settlements and townscapes;
- (d) landscapes and natural features of cultural significance;
- (e) geological sites of scientific or cultural importance;
- (f) archaeological and palaeontological sites;
- (g) graves and burial grounds, including-
  - (i) ancestral graves;
  - (ii) royal graves and graves of traditional leaders;
  - (iii) graves of victims of conflict;
  - (iv) graves of individuals designated by the Minister by notice in the Gazette
  - (v) historical graves and cemeteries; and

(vi) other human remains which are not covered in terms of the Human Tissue Act, 1983 (Act No. 65 of 1983);

(h) sites of significance relating to the history in South Africa;

(i) movable objects, including-

(i) objects recovered from the soil or waters of South Africa including archaeological and palaeontological objects and material, meteorites and rare geological specimens;

(ii) objects to which oral traditions are attached or which are associated with living heritage;

(iii) ethnographic art and objects;

(iv) military objects

(v) objects of decorative or fine art;

(vi) objects of scientific or technological interests; and

(vii) books, records, documents, photographic positives and negatives, graphic, film or video material or sound recordings, excluding those that are public records as defined in section I (xiv) of the National Archives of South Africa Act, 1996 (Act No. 43 of 1996).

(3) Without limiting the generality of the subsections (1) and (2), a place or object is to be considered part of the national estate if it has cultural significance or other special value because of-

(a) It is importance in the community, or pattern of South Africa's history;

(b) Its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;

(c) Its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;

(d) Its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural objects;

(e) Its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;

(f) Its importance in demonstrating a high degree of creative or technical achievement at a particular period;

(g) Its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;

(h) Its strong or special association with the life and work of a person, group or organisation of importance in the history of South Africa; and

(i) Sites of significance relating to the history of slavery in South Africa."

3.1 HERITAGE VALUE OF WEIGHED AGAINST CULTURAL SIGNIFICANCE CATEGORIES

3.1.1 Spiritual value

During the site visit/field work no indication of any spiritual activity was observed on/near the proposed site. Thus no sites of spiritual value will be impacted on by the proposed project.

3.1.2 Scientific value

No sites of scientific value were observed on or near the site earmarked for development.

3.1.3 Historical value

No historical value associated with the site could be found in primary and secondary sources.

3.1.4 Aesthetic value

No heritage item with exceptional aesthetic (architectural) value was identified in the study area.

3.1.5 Social value

Social value is attributed to sites that are used by the community for recreation and formal and informal meetings regarding matters that are important to the community. These sites include parks, community halls, sport fields etc. None of the said evident in the study area.

3.2 SPECIFIC CATEGORIES INVESTIGATED AS PER SECTION 3 (1) AND (2) OF THE NATIONAL HERITAGE LEGISLATION (ACT 25 OF 1999)

3.2.1 Does the site/s provide the context for a wider number of places, buildings, structures and equipment of cultural significance?

The study area does not provide context for a wider number of places, buildings, structures and equipment of cultural significance. The reason being the low density of heritage items in the study area.

3.2.2 Does the site/s contain places to which oral traditions are attached or which are associated with living heritage?

Places to which oral traditions are attached or associated with living heritage are usually find in conjunction with traditional settlements and villages which still practises age old traditions. None of these are evident near or on the proposed site.

3.2.3 Does the site/s contain historical settlements?

No historical settlements are located on or near the proposed site.

3.2.4 Does the site/s contain landscapes and natural features of cultural significance?

Due to previous agricultural activities the original character of the landscape has been altered significantly in the study area. There the site does not contain natural features of cultural significance.

3.2.5 Does the site/s contain geological sites of cultural importance?

Geological sites of cultural importance include meteorite sites (Tswaing Crater and Vredefort Dome), fossil sites (Karoo and Krugersdorp area), important mountain ranges or ridges (Magaliesburg, Drakensberg etc.). The proposed site is not located in an area known for sites of this importance.

3.2.6 Does the site/s contain a wide range of archaeological sites?

The proposed site does not contain any surface archaeological deposits, a possible reason is previous agricultural or infrastructure development activities in the study and greater study area.

The possibility of sub-surface findings always exists and should be taken into consideration in the Environmental Management Programme.

If sub-surface archaeological material is discovered work must stop and a heritage practitioner preferably an archaeologist contacted to assess the find and make recommendations.

3.2.7 Does the site/s contain any marked graves and burial grounds?

The site does not contain any marked graves or burial grounds.

The possibility of graves not visible to the human eye always exists and this should be taken into consideration in the Environmental Management Plan.

It is important to note that all graves and cemeteries are of high significance and are protected by various laws. Legislation with regard to graves includes the National Heritage Resources Act (Act 25 of 1999) whenever graves are 60 years and older. Other legislation with regard to graves includes those when graves are exhumed and relocated, namely the Ordinance on Exhumations (no 12 of 1980) and the Human Tissues Act (Act 65 of 1983 as amended).

If sub-surface graves are discovered work should stop and a professional preferably an archaeologist contacted to assess the age of the grave/graves and to advice on the way forward.

3.2.8 Does the site/s contain aspects that relate to the history of slavery?

This is not an area associated with the history of slavery like the Western Cape Province.

3.2.9 Can the place be considered as a place that is important to the community or in the pattern of South African history?

In primary and secondary sources the proposed site is not described as important to the community or in the pattern of South African history.[6]

3.2.10 Does the site/s embody the quality of a place possessing uncommon or rare endangered aspects of South Africa's natural and cultural heritage?

The proposed site does not possess uncommon, rare or endangered aspects of South Africa's natural and cultural heritage. These sites are usually regarded as Grade 1 or World Heritage Sites.

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[6] Standard Encyclopaedia of Southern Africa and the TAB database at the National Archives of South Africa;
J.S. Bergh (red), Geskiedenisatlas van Suid-Afrika. Die Vier Noordelike Provinsies.

3.2.11 Does the site/s demonstrate the principal characteristics of South Africa's natural or cultural places?

The proposed site does not demonstrate the principal characteristics of South Africa's natural or cultural places. These characteristics are usually associated with aesthetic significance.

3.2.12 Does the site/s exhibit particular aesthetic characteristics valued by the community or cultural groups?

This part of the greater study area does not exhibit particular aesthetic characteristics valued by the community or cultural groups. The reason being the low density of heritage buildings and structures located in the greater study area.

3.2.13 Does the site/s contain elements, which are important in demonstrating a high degree of creative technical achievement?

The site does not contain elements which are important in demonstrating a high degree of creative technical achievement. Reason being none of the above are evident on site.

3.2.14 Does the site/s have strong and special associations with particular communities and cultural groups for social, cultural and spiritual reasons?

The proposed site does not have a strong or special association with particular communities and cultural groups for social, cultural and spiritual reasons. No comment in this regard was received during the public participation period.

3.2.15 Does the site/s have a strong and special association with the life or work of a person, group or organisation?

No indication of the above could be found in primary and secondary research sources.[7]

4. RECOMMENDATIONS

- There are no visible restrictions or negative impacts in terms of heritage associated with the site.
- In terms of heritage this project can proceed.
- It should be noted that the sub-surface archaeological and/or historical deposits and graves are always a possibility. Care should be taken during any work in the entire area and if any of the above is discovered, an archaeologist/heritage practitioner should be commissioned to investigate.

5. WAY FORWARD

Submit this report as a Section 38 Application in term of the National Heritage Resources Act (Act 25 of 1999) to the Provincial Heritage Resources Agency of Gauteng (PHRAG) for comment/approval.

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[7] Dictionary of South African Biography (vol I-V) and the TAB database at the National Archives of South Africa

Tshawe Infrastructure Technologies
Civil & Structural Eng, Project Management & Capacity

OUTLINE SCHEME REPORT

FOR

ERF159/319-IQ

DIEPKLOOF EXTENSION 16 DEVELOPMENT

JUNE 2019

REPORT PREPARED FOR:
TURNING POINT PROJECT MANAGEMENT

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1. INTRODUCTION

Tshawe Infratruscture Technologies has been appointed to assess the capacity of the existing Bulk Engineering Infrastructure for the accommodation of the proposed development called Diepkloof Extension 16 Development.

The main objectives of this report are:

- ❖ To asses the existing capacity for the Bulk Infrustructure
- ❖ To determine the future demand of the proposed development
- ❖ To asses how the existing infrastructure will be affected by the proposed development

Tshawe Infrastructure Technologies will address bulk engineering services available for the proposed development, namely;

- ❖ Water Reticulation
- ❖ Sewer Reticulation
- ❖ Road and storm water

Property Description:
The proposed site is ERF 159/319-IQ is in Diepkloof within the City Of Johannesburg jurisdiction called the Diepkloof Extension 16 development. The site is in a developed area with existing services such as sewer network, water network, roads and storm water management

Locality:

The proposed site is an existing Soweto Empowerment Zone erf, co-ordinates of the site are 26°15'40.68" S; 27°57'02.59" E. It can be accessed via Chris Hani Road and also along Collinder Road.

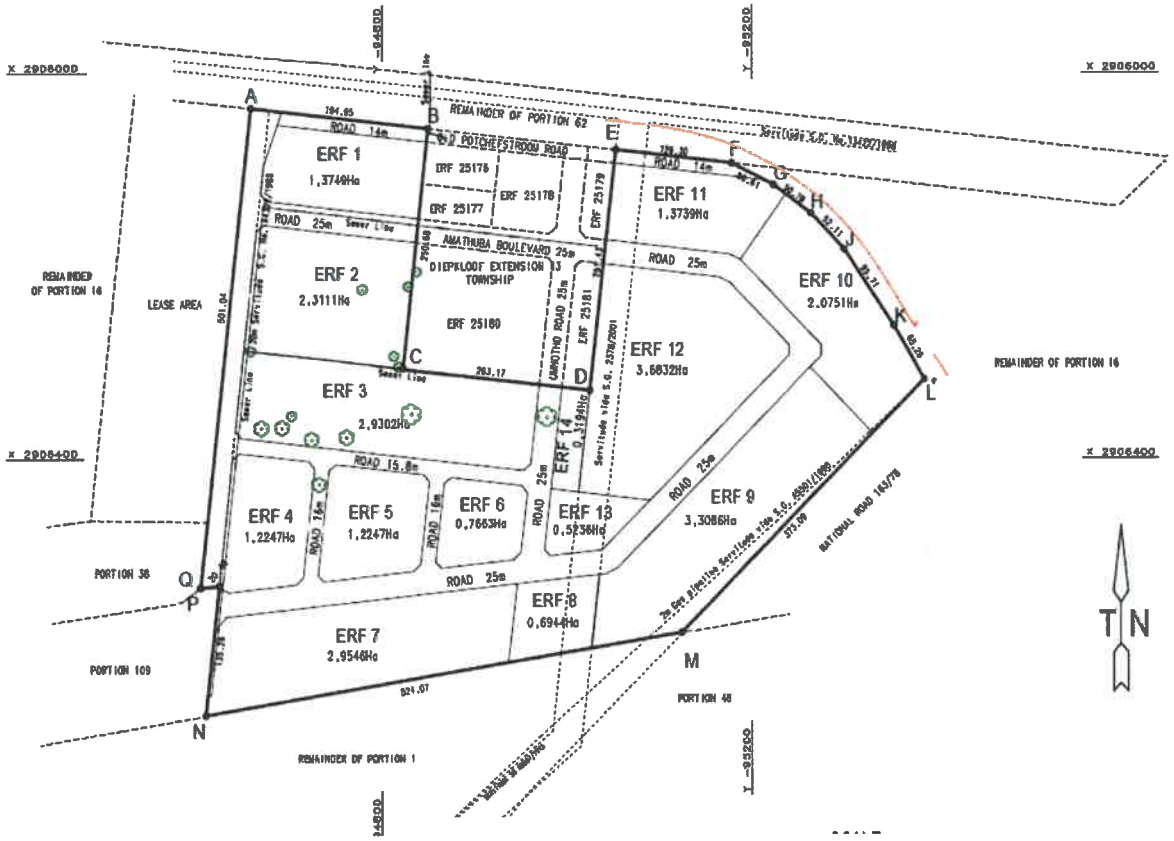
ERF 159/319-IQ is also in close proximity to amenities such as shopping centers, medical institutions and transportation nodes.

Size of Property:
The total size to be developed measures approximately 304700.99m^2(30.47Ha) with grid layout proposed for the development.

Proposed Land use of proposed site is as follows:

ZONING	ERF NO.	AREA(Ha)	% OF AREA
BUSINESS 1	1,2,14	4.0064	13.1
BUSINESS 4	3	2.9309	9.6
RESIDENTIAL 4	4-7,9-11	12.9304	42.4
EDUCATIONAL	12,13	4.2078	13.8
EXISTING.PUBLIC ROAD		5.7593	18.9
PUBLIC SPACE	8	0.6944	2.3
TOTA AREA OF THE SITE		**30.5292**	**100**

The land use zones provide demarcated areas of proposed future development, as integral to the role and function of the precinct. The aim of the zones is not to be prescriptive but to promote a mix of land uses.



Physical Features:
Over half of the land is vacant or occupied with temporary structures. The properties are not subject to any Heritage restrictions.

SITE DEVELOPMENT PLAN:

Facilities of the proposed development:

- Mixed income housing
- Municiapal services
- Clinics and other community facilities
- Cultural and educational facilities
- Public squares and recreational facilities

2. TERMS OF REFERENCE

Tshawe infrastructure Technolgies appointment is to asses the capacity of the existing bulk Engineering Infrastructure for the proposed housing development.

The main objectives of this report are therefore:

- To determine the demands for the proposed development
- To determine if the existing bulk infrastructure will accommodate the demand
- To determine the point of connection to the reticulation networks
- To present overall scenario and present bulk engineering services solution.

This report will not include the detail designs on the possible solutions. The opted solutions will be detailed at Detail Design Stage

3. LEVEL OF SERVICES

The design parameters utilised to calculate the demand and requirements for civil Services for this report are in accordance with the Guidelines for the Human Settlement Planning and Design compiled by the Department of Housing and Construction Technology and other approved design specifications.

4. TOPOGRAPHICAL INFORMATION

A detailed topographical survey will be conducted, the contours on the survey will indicate topographical information accurate enough for the detailed design.

5. ECOLOGY/ENVIRONMENT INFORMATION

A detailed environmental and ecological details will be available in the Enviromental Impact Asssesment report for the proposed development.

6. EXISTING BULK INFRASTRUCUTURE

The following bulk services are being addressed in this engineering report:

- Water provision and Sanitation
- Roads and Stormwater drainage

Limited calculation to determine the demand for the various services were prepared to obtain an indication of the size of the bulk services. The actual sizes of the bulk services will have to be determined through a final design process after the relevant details, final site layout plan size and coverage of the units of the various land uses, number of units etc have been finalised.

POPULATION FORECASTING

The proposed development has different zonings within the site i.e residential, business, industrial, community facilities with an annual average water demand of 1 000 (l/day) upper limit and 600(l/day) lower limit. The area is densely populated comprising of institutional facilities, business and residential area with low to medium income, the population in Diepkloof Zone 6 (ward 24) has an estimated annual average water demand of 15 851 (kl/day) in the Diepkloof area.

The design will be incorporated to the existing services, if there is a need the existing services will be upgraded to meet the demand of the development, while ensuring that the bulk distribution and storage infrastructure are not over exerted as a result of the designs. All applicable laws and regulations relating to public health and safety and zoning will be adhered to and the specifications of each authority will be considered during the detailed design phase. Handicap accessibility standards as prescribed by all the relevant authorities will be adhered to.

The design will meet all the requirements of all the authorities within the jurisdiction of the City Of Johannesburg. The water and sanitation requirements will be in compliance with the "Johannesburg water Guidelines and standards for the design and maintenance of water and sanitation services".

6.1 PORTABLE BULK WATER SUPPLY

The proposed site is bordered by developed areas.

Water Reticulation (Current Water)

Existing Water District AADD

Feature type	Water pipes
Number	332810
Diameter	150mm
Length	137m
Elevation	Us 1.659.9m/Ds 1.653.5m
Static head	Us 62.4m/Ds 68.8m
Peak head	Us 52.2m/Ds 58.5m
Peak Row	2.50l/s
Peak Velocity	0.14m/s
System	Diepkloof Reservoir

Water Reticulation (Future Water)

Feature type	Water pipes
Number	335452
Diameter	150mm
Length	137m
Elevation	Us 1.659.9m/Ds 1.653.5m
Static head	Us 63.8m/Ds 69.2m
Peak head	Us 42.0m/Ds 48.4m
Peak Row	1.7l/s
Peak Velocity	0.1m/s
System	Diepkloof Reservoir

Water reticulation design will be based on the current capacity in the area, the current system which the Diepkloof reservoir is supplied through a 1.7 km long 700mmø bulk pipeline from Rand Water Connection 2179. The present AADD is 15 851 kl/day. The 700mm diameter bulk pipeline can supply the required flow rate of 1.5 X AADD 9275 (l/s) at a velocity of 0.97 m/s which is within the acceptable limit, therefore indicating that spare capacity is available. The site is serviced by a 30 Ml reservoir (Diepkloof reservoir).

The average reservoir storage, 26 X AADD, the current reservoir capacities are therefore adequate to supply the ultimate demands. Provisions for future water demand in the area have been made, the estimated future demand is based on a 5 year cycle from the base line year 2009, and as such the current supply will be sufficient to meet the estimated demand of the development. The elements water distribution and storage system consist of adequate bulk water transmission systems such as bulk-storage reservoirs, intermediate-storage reservoirs and distribution networks.

Connection of the proposed developments water reticulation network to the bulk supply line will be done upon capacity approval from Johannesburg water (JW). The total estimated water demand for the proposed development is 1580kl/d taking into consideration the "Johannesburg water Guidelines and standards for the design and maintenance of water and sanitation services" and "CSIR's Guidelines for Human settlement planning and design".

WATER DEMANDS FOR PROPOSED DEVELOPMENT

ERF NO	ZONING	ERF SIZE (m^2)	FAR	FLOOR AREA (m2)	DENSITY (DU/HA)	UNIT SIZE (m2)	DWELLING UNITS	AADD(kl/d)	PEAK FACTOR	PEAK DEMAND FLOW(l/s)
1	Residential 4	13749	1,8	24748	100	60	137,49	46,75	4	2,16
2	Residential 4	23111	1,8	41600	100	60	231,11	78,6	4	3,64
3	Residential 4	29302	1,8	52744	100	60	293,02	99,63	4	4,61
4	Residential 3	12247	1,5	18371	150	100	183,705	99,2	4	7,89
5	Residential 3	12247	1,5	18371	150	100	183,705	99,2	4	7,89
6	Residential 3	7663	1,5	11495	150	100	114,945	62,07	4	4,94
7	Residential 4	29546	2	59092	250	80	738,65	342,73	4	11,9
8	Public Open Space	6944	0,2	1389	0	-	-	-	-	-
9	Residential 4	33086	2	66172	250	80	827,15	383,8	4	13,326
10	Residential 4	20751	2	41502	250	80	518,775	240,71	4	13,38
11	Residential 4	13739	1,2	16487	100	120	137,39	95,62	4	4,43
12	Educational	36832	0,4	14733	0	-	-	11,2	4	0,52
13	Educational	5236	0,4	2094	0	-	-	10	4	0,46
14	Business 1	3194	0,6	1916	0	-	-	10,54	4	0,49
Roads	Public Road	57593	0	0	0	-	-	-	-	
TOTALS		**305240 (m^2)**		**370712**			**3366**	**1580**		**76**

Total Fire Flow (L/s)	Min. Flow For Each Hydrant (L/s)	Minimum Residual Pressure at Fire node (m)	Duration of Fire (Hours)	Spacing of Hydrants
50	25	15	4	180m max
Fire flow requirement to be determined by a qualified Professional Fire Engineer.				

Water Connection

There are water connection points along Chris Hani Road and inside the proposed development area.

Future water demand in the area

Proposed bulk connection along Chriss Hani Road

6.2 SEWER RETICULATION

Diepkloof sewer management plan falls under the Southern (Diepkloof) sub-basin, the sub-basin serves certain portion of the Diepkloof area, the sub-basin slopes in a north westerly direction and is served by the Diepkloof link outfall which originates in Diepkloof as a 300mmø sewer. There is a 150mmø sewer collector pipes running on the perimeter of the site with possible sewer connection points.

The 300mmø collector pipe discharges waste material into the 1050mmø outfall. The outfall increases to a 1657 mmø sewer downstream before connecting to the BKP2 tunnel. The North Westerly outfall drains to the Bushkoppies waste water treatment works (WWTW). The Bushkoppies WWTW has a capacity of 220 Ml/day. The estimated sewer demand for the development is estimated at 1264kl/d taking into consideration "Johannesburg water Guidelines and standards for the design and maintenance of water and sanitation services" and the "CSIR's Guidelines for Human settlement planning and design" to be finalized on the detailed design.

Sewer Reticulation (Current Sewer)

Feature type	Water pipes
Code	4-07-02-10163
Diameter	150mm
Length	78m. slope 1 in 202 (min slope)
Inverts	No data
Full velocity	0.65m/s
Capacity	11.5l/s
Max flow	0.8m/s
Spare capacity	Abs: 93.3%. Rel: 93.3%
System	Ret- Power Park

Sewer Reticulation (Future Sewer)

Feature type	Water pipes
Code	4-07-02-10163
Diameter	150mm
Length	78m. slope 1 in 202 (min slope)
Inverts	No data
Full velocity	0.65m/s
Capacity	11.5l/s
Max flow	0.9l/s
Spare capacity	Abs: 91.9%. Rel: 91.9%
System	Ret- Power Park

SEWER INFLOWS FOR PROPOSED DEVELOPMENT

ERF NO	PROPOSED ZONING	ERF SIZE (m^2)	FAR	FLOOR AREA (m^2)	DENSITY (DU/HA)	UNIT SIZE (m^2)	DWELLING UNITS	ADDWF(kl/d)	Peak Factor	Extraneous flow(kl/d)	PWWF(l/s)
1	Residential 4	13749	1,8	24748,2	100	60	137	37,4	2,3	5,6	2,16
2	Residential 4	23111	1,8	41599,8	100	60	231	62,88	2,3	9,4	1,78
3	Residential 4	29302	1,8	52743,6	100	60	293	79,704	2,3	12,0	2,26
4	Residential 3	12247	1,5	18370,5	150	100	184	79,36056	2,3	11,9	2,25
5	Residential 3	12247	1,5	18370,5	150	100	184	79,36056	2,3	11,9	2,25
6	Residential 3	7663	1,5	11494,5	150	100	115	49,65624	2,3	7,4	1,41
7	Residential 4	29546	2	59092	250	80	739	274,18688	2,3	41,1	7,77
8	Public Open Space	6944	0,2	1388,8	-	-	-	-	-	-	-
9	Residential 4	33086	2	66172	250	80	827	307,03808	2,3	46,1	8,71
10	Residential 4	20751	2	41502	250	80	519	192,56928	2,3	28,9	5,46
11	Residential 4	13739	1,2	16486,8	100	120	137	76,498752	2,3	11,5	2,17
12	Educational	36832	0,4	14732,8	-	-	-	8,96	2,3	1,3	0,25
13	Educational	5236	0,4	2094,4	-	-	-	8	2,3	1,2	0,23
14	Business 1	3194	0,6	1916,4	-	-	-	8,432	1,3	1,3	0,14
Roads	Public Road	57593	-	-	-	-	-	-	-	-	-
TOTAL		**305240 (m^2)**		**370712**			**3366**	**1264**			**37**

6.3 ROAD NETWORK

There are major roads surrounding the site, minor upgrading may be required for this proposed development mostly in the area where the traffic will enter and exit the property. The traffic flow will be analysed and the roads may need upgrading in order to meet the traffic loading. The access roads and internal roads of the development have proposed road reserve ranging from 10m to 25m which will meet the requirements of the "SANRAL Geometric Guidelines", the turning radii, design speed and vehicle dimensions will be in accordance with the manual. A traffic count that will be conducted indicating a traffic statement required due to the traffic loading in the area

The Collinder road will need to be rehabitated in order to cater for the new development.

6.4 STORM WATER MANAGEMENT AND RETICULATION

An internal storm water management system will be provided for the catchment area of the ERF 159/319-IQ development to drain the surface runoff from the development to the JRA storm water infrastructure.

The design parameters for the proposed development will allow an integration of the internal drainage system of the development and the JRA storm water system.

The surface runoff on the parking will be drained by catch pits and grid inlets, and the roof runoff will be drained by the gutters and down pipes, all of this runoff will then be discharged into the internal storm water channels (or storm water pipes) and from there the runoff will be discharged into the JRA bulk storm water system.

Analysis and investigations on the catchment area will be conducted to ensure that the proposed storm water management plan is viable. The actual required capacity will be analysed and submitted once the catchment analysis and investigations have been concluded.

The final detailed designs will be based on Johannesburg Road Agency storm water modeling guidelines. Storm water pipes varying in diameter between 400 and 1200mm dia will be used to drain storm water from the internal storm water drains to the existing water drainage.

Portion 159 of Farm Diepkloof No. 319-IQ

Urban Design Report

October 2021

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1 INTRODUCTION

This report indicates the proposed development components and land use opportunities to guide the development of the site, Portion 159 of Farm Diepkloof 319-IQ in Soweto. This study has been coordinated by Turning Point, the professional team includes, Economists, Town and Regional Planners, Traffic and Services Engineers, Stakeholders liaison, Land Surveyor and Environmentalist.

The development site occupies an area of 35ha and includes what is known as the Soweto Empowerment Zone (SEZ) and Municipal offices which has been partially developed. It is accessible from Chris Hani Road through a controlled access point into an internal road providing the backbone for the future access and connectivity network to structure development within it. It is strategically located and has been the subject of previous investigations and proposals.

The purpose of the study is to reassess the opportunities for its development and formulate an integrated project plan, articulating and capturing current development opportunities. The work undertaken is informed by the market research conducted by property economists and input received from key stakeholders.

This report must be read in conjunction with other specialist's reports, this component of work only refers to the urban design input illustrating a concept that fits the context, the recommended land use mix and the development controls.

2 POLICY FRAMEWORK

ECONOMIC COMPONENTS AND CONSOLIDATION ZONE

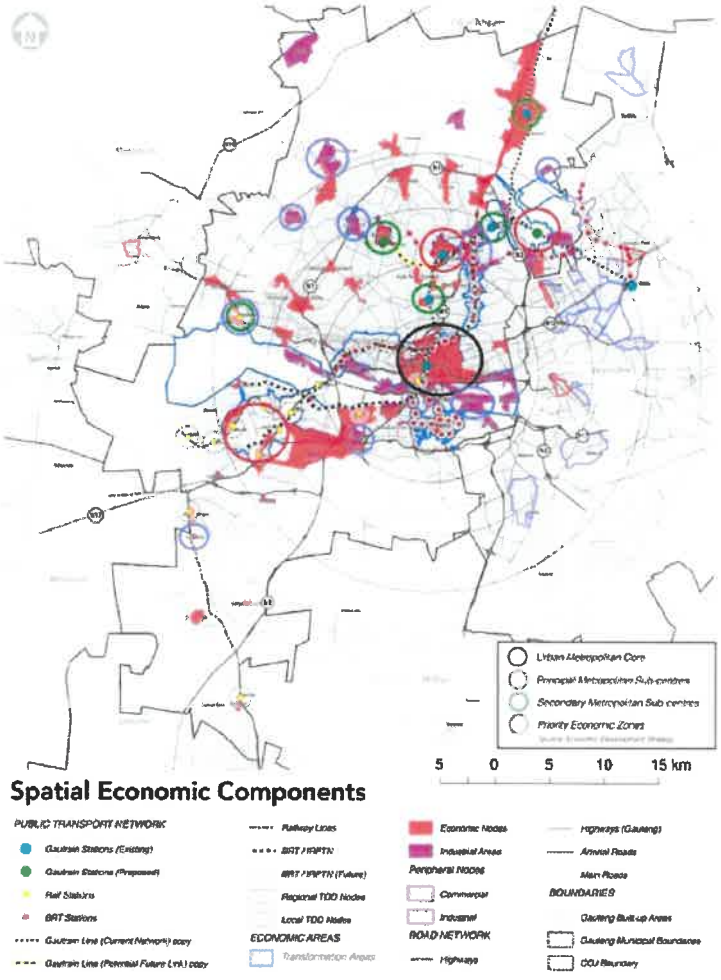


Figure 1: Spatial economic components (CoJ SDF, 2016).

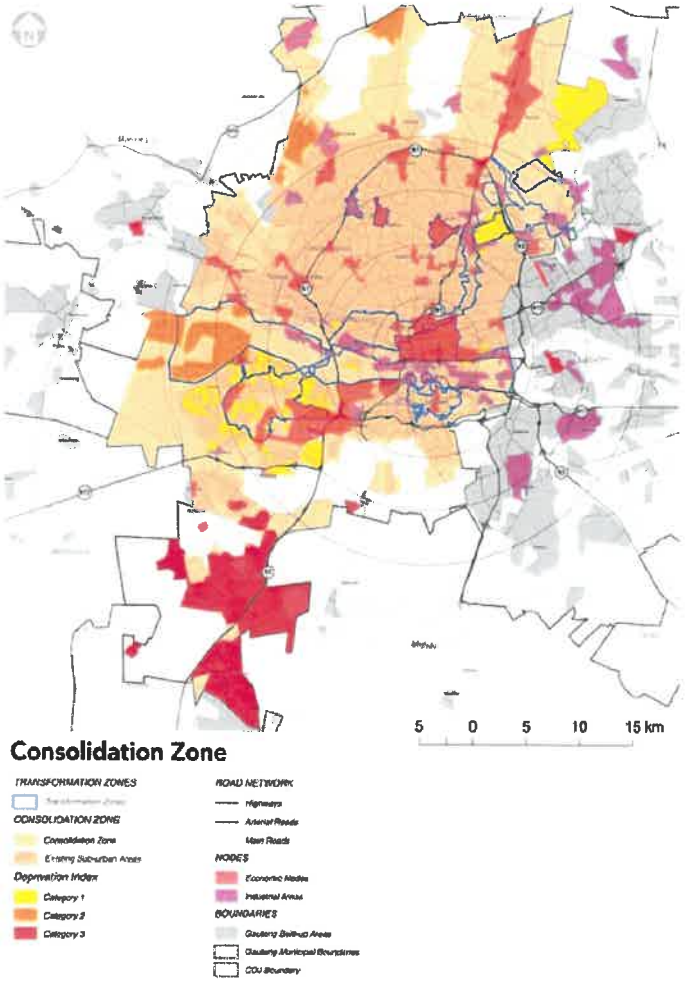


Figure 2: Consolidation zone (CoJ SDF, 2016).

2 POLICY FRAMEWORK

SOWETO EMERGING STRUCTURE

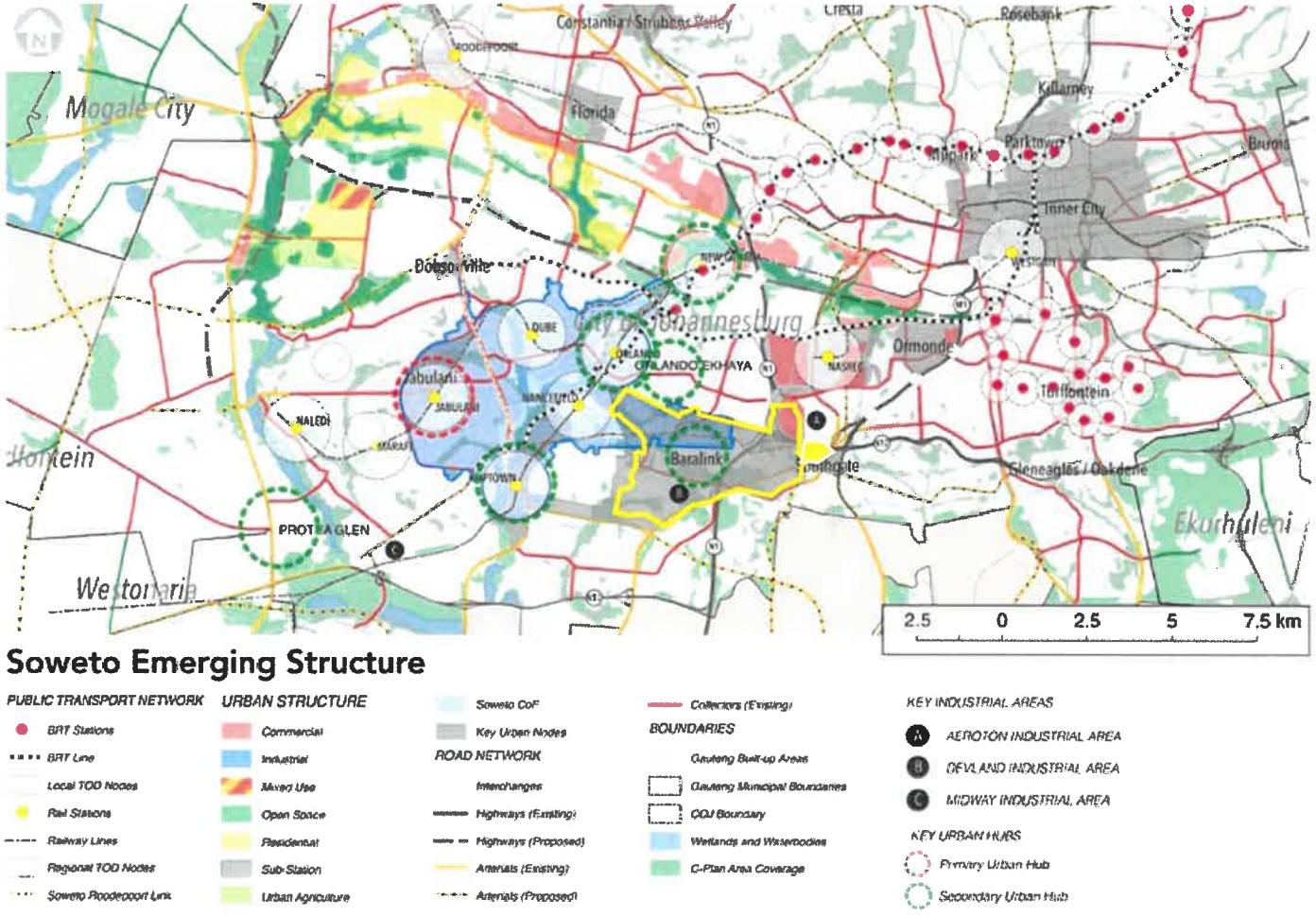


Figure 3: Soweto emerging structure (CoJ SDF, 2016).

3 CONTEXTUAL FRAMEWORK

The site has been assessed in the context of the current policy framework reflecting upon the development trajectory put forward in the Strategic Development Framework (SDF, 2016) regarding the role that Soweto plays in the Metropolitan context, highlighting the need for it to become a more diverse and economically integrated place.

As indicated in the SDF (2016), the City of Johannesburg aims at:

Unlocking Soweto as a True City District 7.2.3.
Transform Soweto into a liveable city district in its own right with access to jobs and the full array of urban amenities. Create a series of self-sufficient mixed-use nodes as growth points for jobs within the area. Develop mixed land uses (particularly economically productive ones) and social services, making use of a good street pattern and public transport.

Local Context

The site occupies a prominent position, situated next to Chris Hani Baragwanath Hospital and adjacent to a range of institutions and medical facilities serving the region. It is located south of Chris Hani Road and west of the N1. It is accessible from Chris Hani Road, with Collinder Road forming the western boundary. It has the potential to connect to the adjacent areas and facilities including the Baragwanath Public Transport hub, the existing residential areas and hostels to the north and Ellias Motsoaledi residential area, currently being developed to the south west of the site.

Furthermore, it sits between two important retail hubs, Southgate Mall. Regional Shopping centre to the east and Maponya Mall to the west and in walking distance to the 3rd largest training hospital in the world. Along Chris Hani Road several other institutional, municipal and educational facilities are located, making this area a prime zone to develop into a high intensity and mixed-use node to complement other nodes such as the Jabulani node attracting investment and new development into Soweto. See figure 4,5,6,7 and 8.

3 CONTEXTUAL FRAMEWORK

LOCALITY PLAN

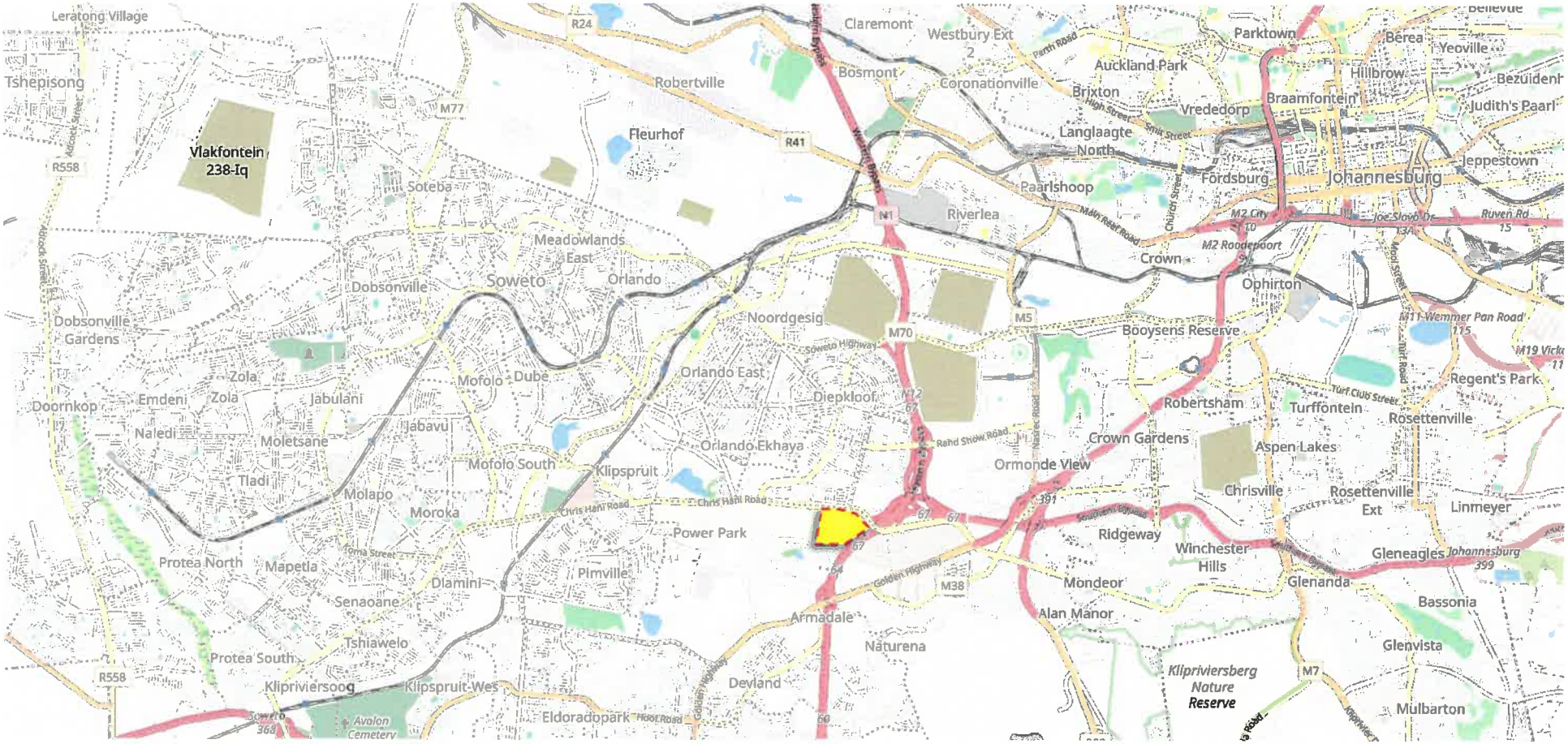


Figure 4: Study Site Locality Map.

3 CONTEXTUAL FRAMEWORK

SITE CONTEXTUALISATION
Places of Interest

Figure 5: The Development Site in Context.

3 CONTEXTUAL FRAMEWORK

LAND USE DISTRIBUTION

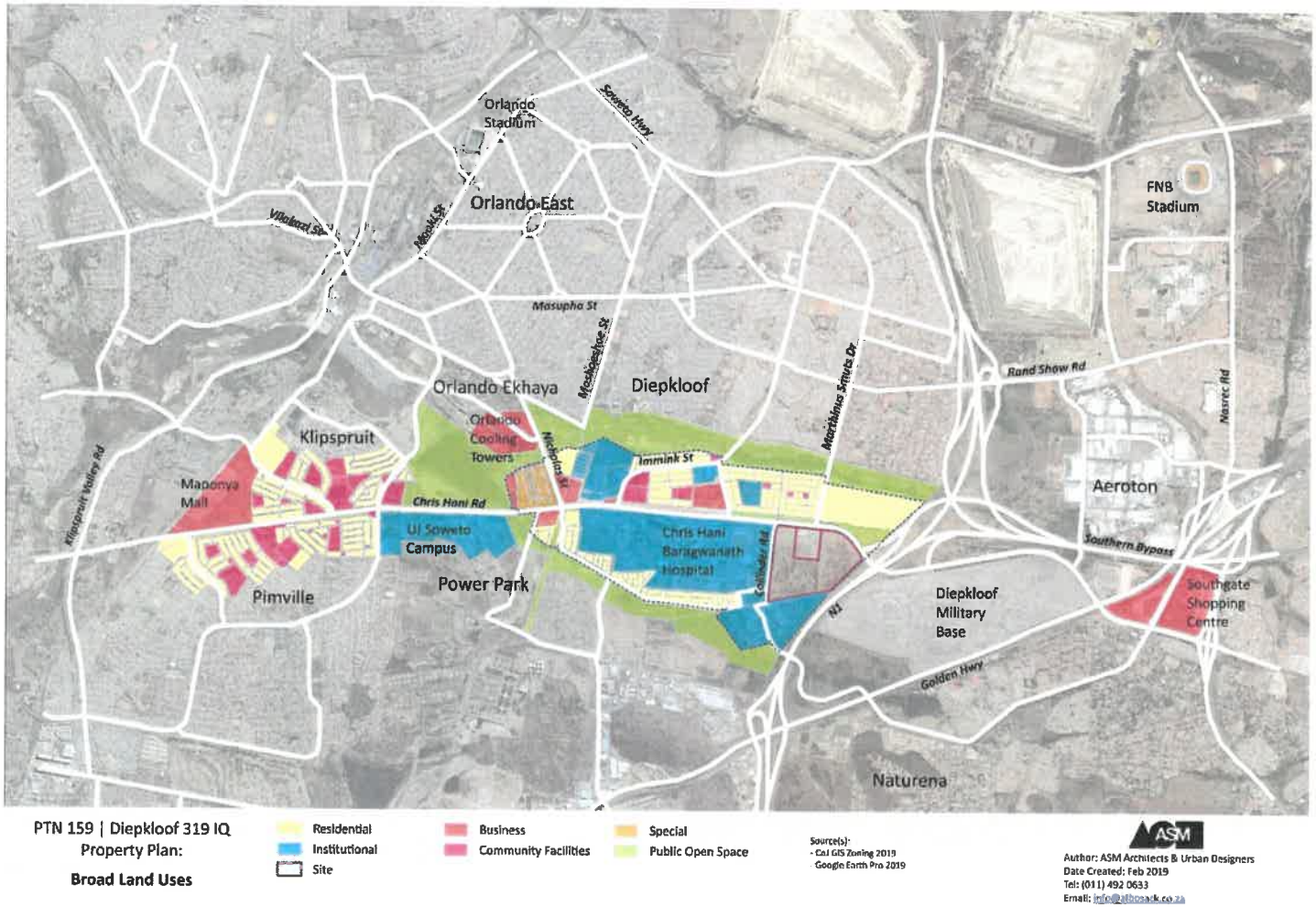


Figure 6: Chris Hani Corridor Land Use Map.

Figure 7: Composite images of Baragwanath Taxi Rank and surrounds, located approximately 800m to the main access of the Diepkloof 319-IQ site.

3 CONTEXTUAL FRAMEWORK

GATEWAY SITE
Iconic-Unique-Destination place

Figure 8: Views of the Site from Chris Hani Road.

3 CONTEXTUAL FRAMEWORK

BARALINK DEVELOPMENT FRAMEWORK
The implications of the BDF

Figure 9: The phasing strategy for the intensification of the Baralink area (Baralink Business Plan, 2006)

Previous Studies

The Baralink Development Framework formulated in 2006 is seminal to the conceptualisation of the development potential of this node and provides clear guidelines from which to develop a more integrated approach to the structuring of the site which follows the principles listed below.

The review of the Baralink Development Framework: (2006).

The vision and principles of the Baralink Node Development Framework will be adhered to:

- Making connections to integrate Baralink and Soweto in the urban fabric;
- Creating an interconnected or gridded network of streets;
- Promoting empowerment through urban form;
- Integrating and mixing land use;
- Improving safety and security through all development;
- Consolidating a regional social and economic centre; and
- Promoting sustainability in all development solutions.

4 THE SITE

The Site

The site occupies an area of 35ha and includes what is known as the Soweto Empowerment Zone (SEZ) and municipal offices. It is currently accessible from Chris Hani Road through a controlled access point into an internal boulevard type road providing the starting point for the future access and connectivity network to structure the development of the site.

The Soweto Empowerment Zone, supported by a Business Plan approved by CoJ in 2006 and highlighted in a CoJ report prepared in 2013 was established as a:

"...mixed use zone that mobilises and promotes Black Economic Empowerment and Small, Medium and Micro Enterprises and irrespectively of the investment made by the public sector..."

The site is currently underutilised and has not reached its optimal levels of investment following a public-sector led development approach. Figure 11 indicates existing services and figure 12 highlight larger sub-precincts that affected by rock outcrops , servitudes and excavations and existing vegetation.

Figure 10: The Site – Portion 159 of Farm Diepkloof 319 IQ.

4 THE SITE

SITE CONDITIONS
Existing Access and Services

Figure 11: Site conditions indicating existing services (Geometric Surveys, 2019).

Figure 12: Development Areas indicating the location of rock outcrops and vegetation (Atlega, 2019).

The Development Site

The Legal property description is Portion 159 of Farm Diepkloof 319 IQ, the development site excluding the SEZ consist of 30,5292ha, the current zoning is Mining. It is owned by the City of Johannesburg Metropolitan Municipality. Its development will be governed by the City of Johannesburg Land Use Scheme (2018). The title deed number T169982/07 contains the following restrictions:

Condition C 1.
(a) The transferee shall use the Properties solely for purposes of upgrading the Elias Motsoaledi Informal Settlement by the development of low-cost housing and related municipal infrastructure.

(b) Should the properties not be used for the purposes referred to in Clause (a) above, the properties shall revert to the Transferor. All costs giving effect to the reversion shall be for the account of the Transferee or its successors in title.
The above has been considered in preparing the development concept and in the allocation of potential rights for the different land parcels.

i. Environmental Study

From the preliminary environmental assessment there are no sensitive areas to be protected, rock outcrops are present on the eastern side of the undeveloped portions which will be incorporated into the development proposals. Further assessments and consultation are still to be conducted with relevant departments and agencies and will be reflected in the final report.

ii. Road Network and Transportation

The site is well located and adjacent to the main arterial connecting it to the rest of the Metro and Soweto. The surrounding road network has been compromised due to security control measures introduced to manage access into the different institutional and medical facilities resulting in the configuration of large blocks only accessible from designated access points.

This condition is also limiting the distribution of the existing public transport network and facilities which relies primarily on the services provided by the Baragwanath Taxi Rank and the BRT services along Immink Street.

iii. Land Use Zoning

The site is zoned "Mining" and the title deed contains the following restrictions:

Condition C 1.

(a) The transferee shall use the Properties solely for purposes of upgrading the Elias Motsoaledi informal Settlement by the development of low-cost housing and related municipal infrastructure.

(b) Should the properties not be used for the purposes referred to in Clause (a) above, the properties shall revert to the Transferor. All costs giving effect to the reversion shall be for the account of the Transferee or its successors in title.

iv. Services Infrastructure

The final assessment is still to be conducted which will determine the current and future capacity of services infrastructure through further consultation with relevant services providers and based on the approved land use rights for the different precincts within the site.

5 DEVELOPMENT CONCEPT

THE VISION:
SOWETO GATEWAY SITE

Transform Soweto into a liveable city district in its own right with access to jobs and the full array of urban amenities. Create a series of self-sufficient mixed-use nodes as growth points for jobs within the area.

Baralink: *Develop a Gateway Node with ...mixed land uses (particularly economically productive ones) and social services, making use of a good street pattern and public transport (CoJ SDF, 2016).*

Figure 13: (a) Vision for Soweto Gateway Node and (b-j) supporting precedents illustrating potential outcomes, drawn from various sources.

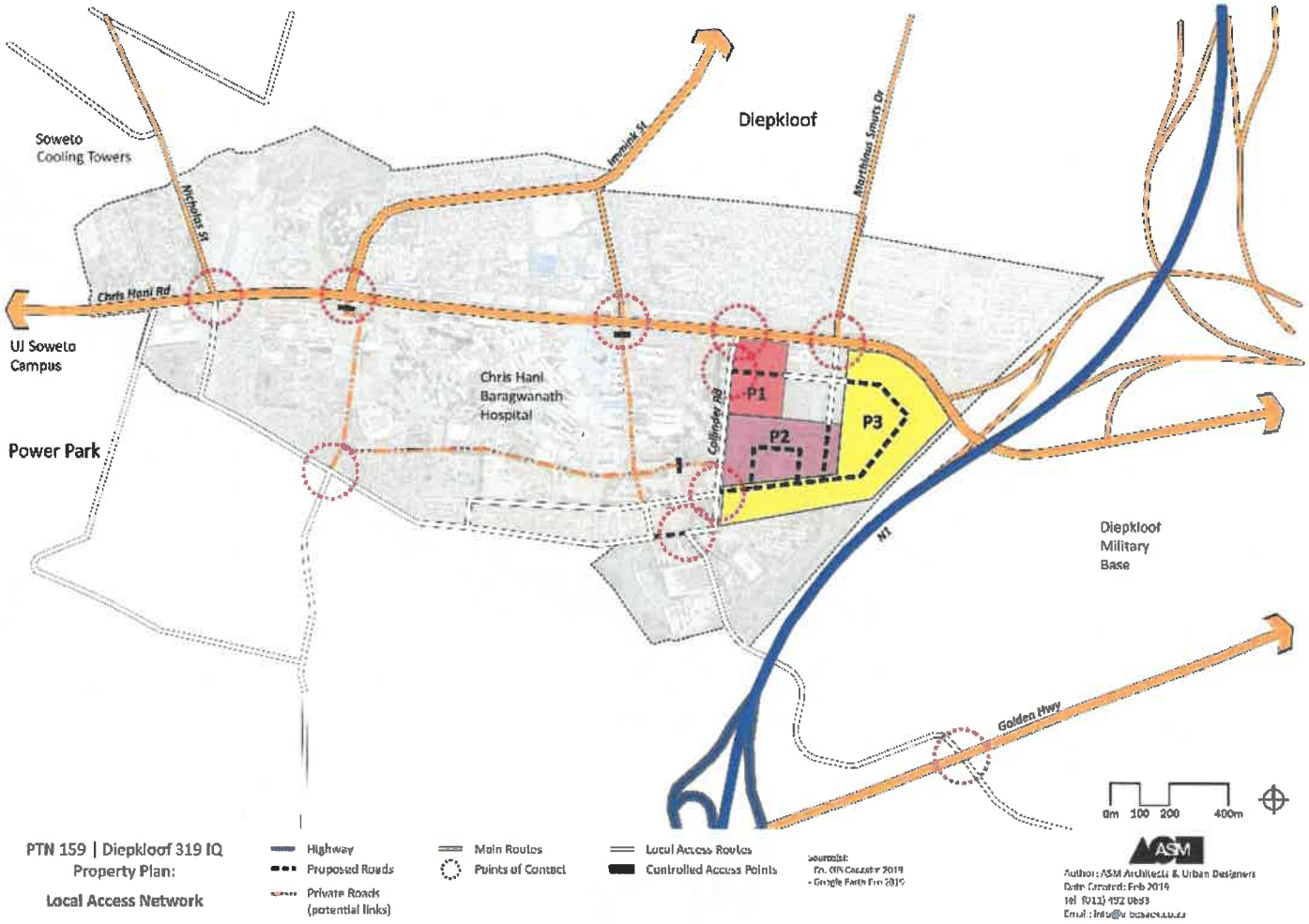


Figure 14: Structuring Elements of Soweto Gateway Site.

5 DEVELOPMENT CONCEPT

DEVELOPMENT OBJECTIVES AND PRINCIPLES

DEVELOPMENT CONCEPT

The development concept responds to the objectives and principles listed below. These design principles aim at informing and guiding the development of the different land parcels within the site to achieve a harmonious and mutually reinforcing interventions and developments. See Figure 15.16,17 and 18.

Development Objectives

Accommodate a mix of land uses taking advantage of the strategic location of the site within the Baralink Node, complementing and reinforcing surrounding uses and activities such as: Institutional, Educational, Commercial, high profile local manufacturing and training facilities. That is to be well supported by medium to high density mixed income residential, community facilities, recreation and public spaces within a balanced and sustainable urban structure, well connected and accessible to the rest of Soweto and the City.

Guiding principles

The following is promoted:

- A sustainable and integrated urban structure connected to the surrounding urban fabric.
- A structure of well-defined and interconnected precincts.
- A destination place for the local community and the city.
- Integrating and mixing land use to accommodate a range of opportunities and activities
- Application of green building principles in the design and management of all developments.
- Promoting innovation and sustainability in all development solutions.
- Build well integrated and sustainable urban communities.
- Fit to purpose management structure to enhance safety and security, inventor's confidence and community beneficiation.

5 DEVELOPMENT CONCEPT

SOWETO GATEWAY SITE
Concept Plan

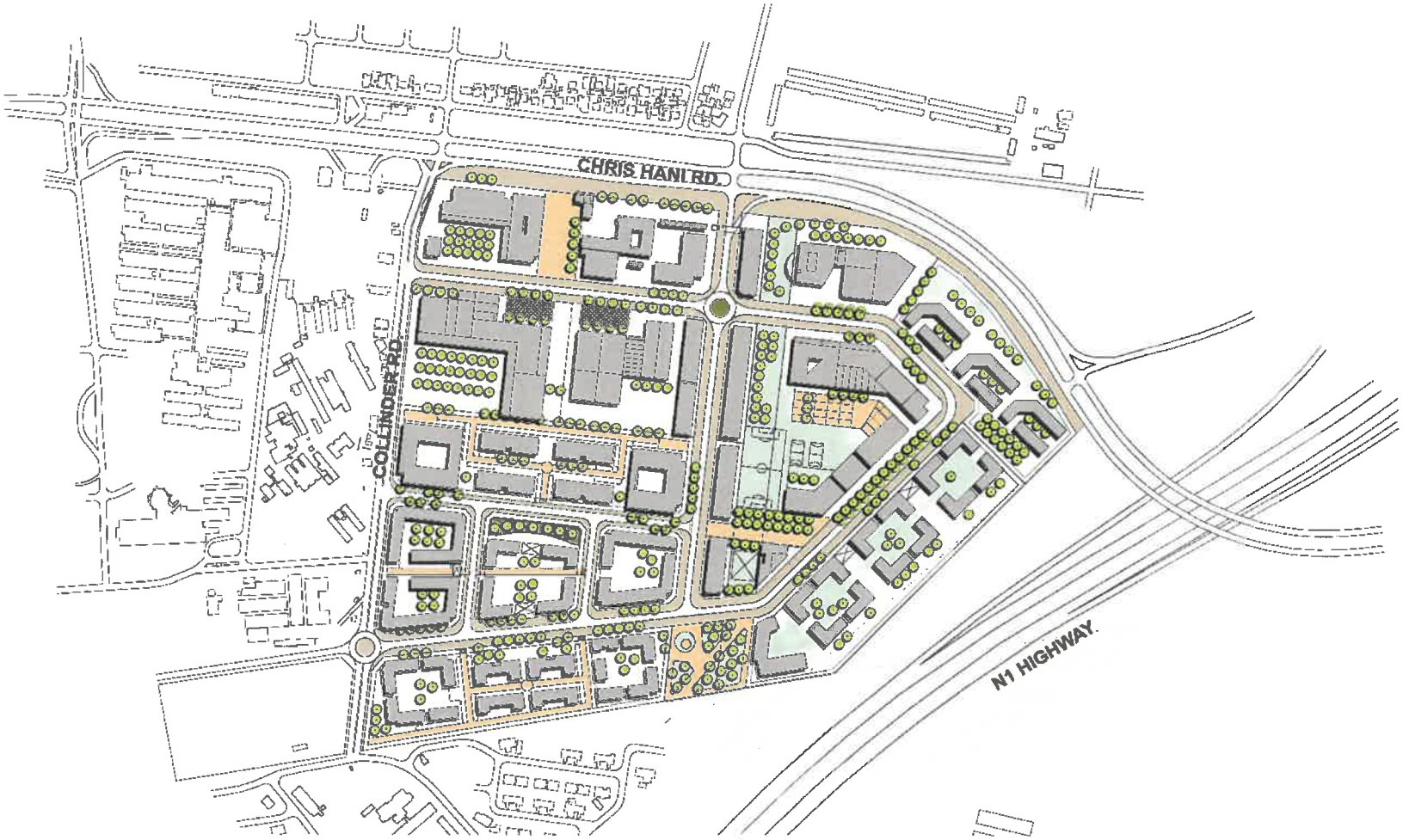
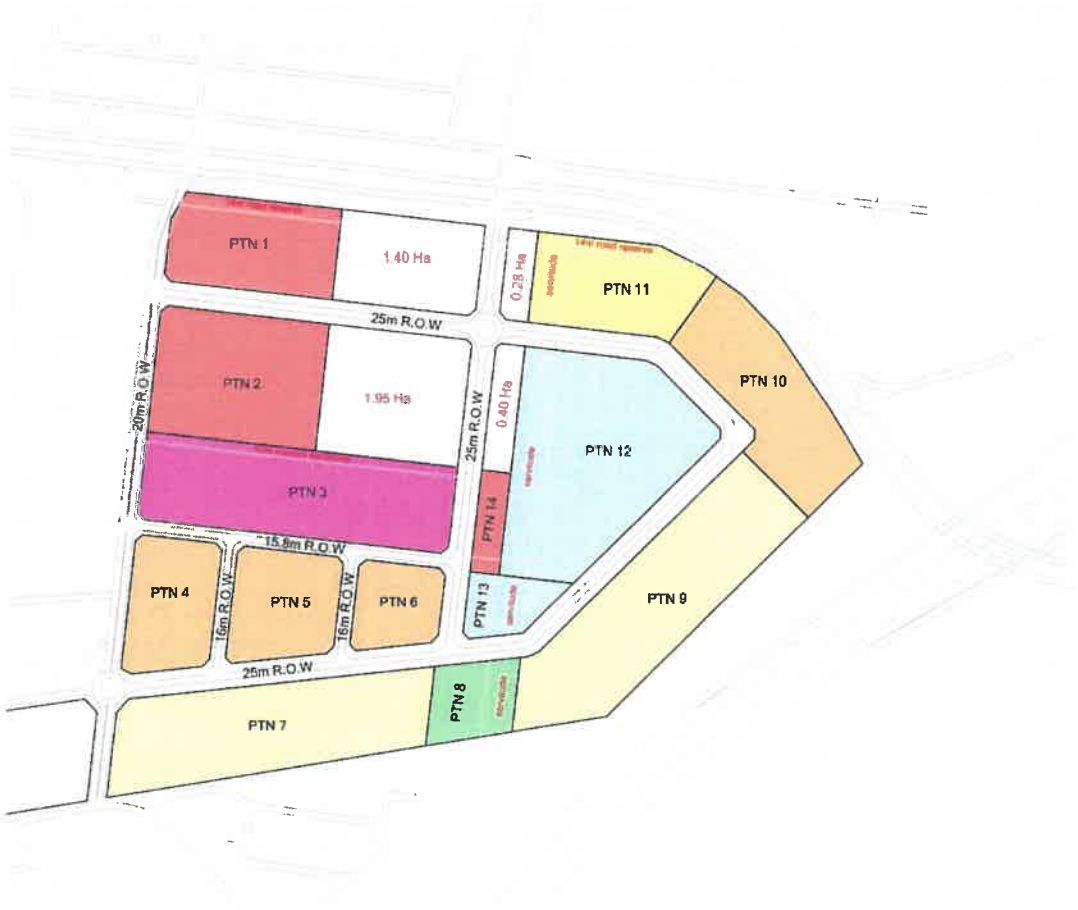


Figure 15: Overall Development Concept indicating proposed built form, including an interconnected public and semi-public open spaces.

5 DEVELOPMENT CONCEPT

SOWETO GATEWAY SITE
Proposed Land Subdivisions



PROPOSED SUBDIVISIONS:

PTN 1	Business 1 13,749 m2 (1.3749 Ha)
PTN 2	Business 1 23,111 m2 (2.3111 Ha)
PTN 3	Business 4 29,302 m2 (2.9302 Ha)
PTN 4	Residential 4: 250 du/ha 12,247 m2 (1.2247 Ha)
PTN 5	Residential 4: 250 du/ha 12,247 m2 (1.2247 Ha)
PTN 6	Residential 4: 250 du/ha 7,663 m2 (0.7663 Ha)
PTN 7	Residential 4: 150 du/ha 29,546 m2 (2.9546 Ha)
PTN 8	Public Open Space 6,944 m2 (0.6944 Ha)
PTN 9	Residential 4: 150 du/ha 33,086 m2 (3.3086 Ha)
PTN 10	Residential 4: 250 du/ha 20,751 m2 (2.0751 Ha)
PTN 11	Residential 4: Hotel 13,739 m2 (1.3739 Ha)
PTN 12	Educational 36,832 m2 (3.6832 Ha)
PTN 13	Educational 5,236 m2 (0.5236 Ha)
PTN 14	Business 1 3,194 m2 (0.3194 Ha)
SEZ	Municipal Offices Opportunity Centre Automotive Node 40,300 m2 (4.0300 Ha)
R.O.W	Public Roads & Walkways 57,593 m2 (5.7593 Ha)
TOTAL	345,540 m2 (34.5540 Ha)

Figure 16: Development Parcels (refer to Annexure C for detailed development controls).

5 DEVELOPMENT CONCEPT

SOWETO GATEWAY SITE
Detailed Land Uses

PTN 159 Diepkloof 319IQ | Detailed Proposed Land Uses | Option 2						
Site	Area (m2)	Area (Ha)	Proposed Land Uses	FAR	Bulk (m2)	No. of Dwelling Units
PTN 1	13749	1.3749	BUSINESS 1: Neighbourhood Convenience Retail Centre	1.8	24748	
PTN 2	23111	2.3111	BUSINESS 1: Retail Centre | Medical Consulting Rooms	1.8	41600	
PTN 3	29302	2.9302	BUSINESS 4: Private Day Clinic | Offices	1.8	52744	
PTN 4	12247	1.2247	RESIDENTIAL 4: 250 dwelling units per hectare			306
PTN 5	12247	1.2247	RESIDENTIAL 4: 250 dwelling units per hectare			306
PTN 6	7663	0.7663	RESIDENTIAL 4: 250 dwelling units per hectare			192
PTN 7	29546	2.9546	RESIDENTIAL 4: 150 dwelling units per hectare			443
PTN 8	6944	0.6944	PUBLIC OPEN SPACE			
PTN 9	33086	3.3086	RESIDENTIAL 4: 150 dwelling units per hectare			496
PTN 10	20751	2.0751	RESIDENTIAL 4: 250 dwelling units per hectare			519
PTN 11	13739	1.3739	RESIDENTIAL 4: Hotel | Conference Centre Upmarket Destination Restaurant	1.2	16487	
PTN 12	36832	3.6832	BUSINESS 1: Automotive Node	0.4	14733	
PTN 13	5236	0.5236	EDUCATIONAL: Multi-purpose Sports Centre | Community Hall | Private Primary School	0.3	1571	
PTN 14	3194	0.3194	EDUCATIONAL: Day Care Centre	0.3	958	
SEZ	40300	4.0300	SOWETO EMPOWERMENT ZONE: Municipal Offices | Opportunity Centre	0.6	24180	
RIGHT OF WAY	57593	5.7593	Roads | Walkways			
TOTAL	345540	34.5540			177020	2262

ROAD LENGTH	2926.63m

Table 1: Development Rights (refer to Annexure C for detailed development controls).

5 DEVELOPMENT CONCEPT

SOWETO GATEWAY SITE
Conceptual Massing

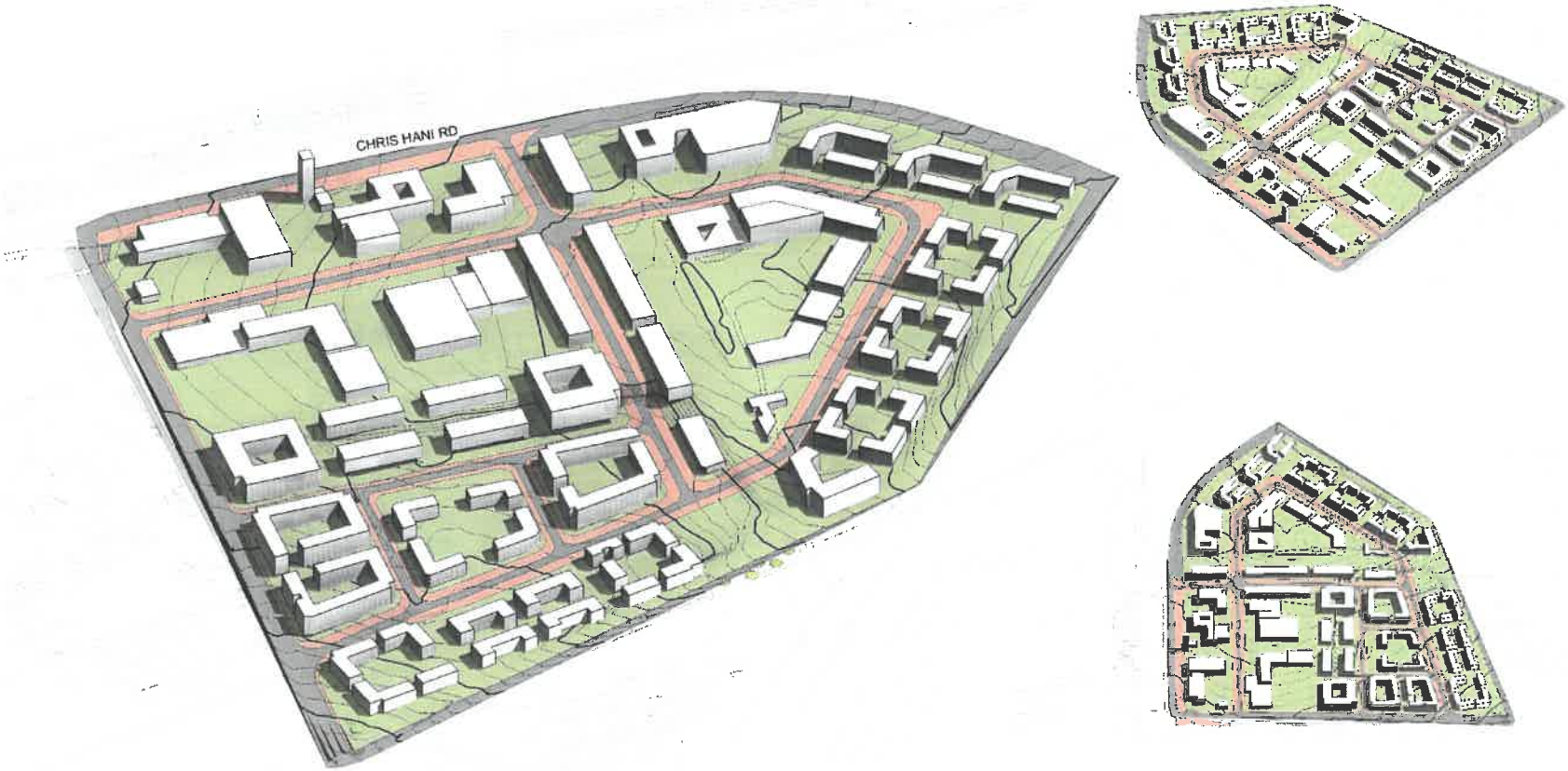
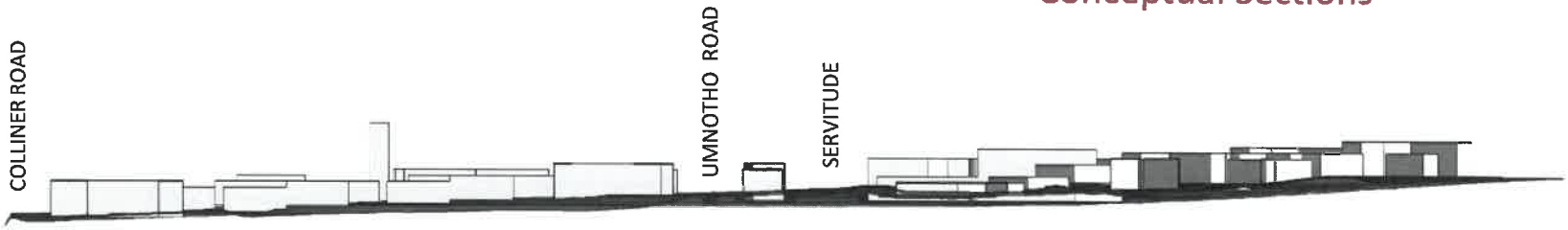
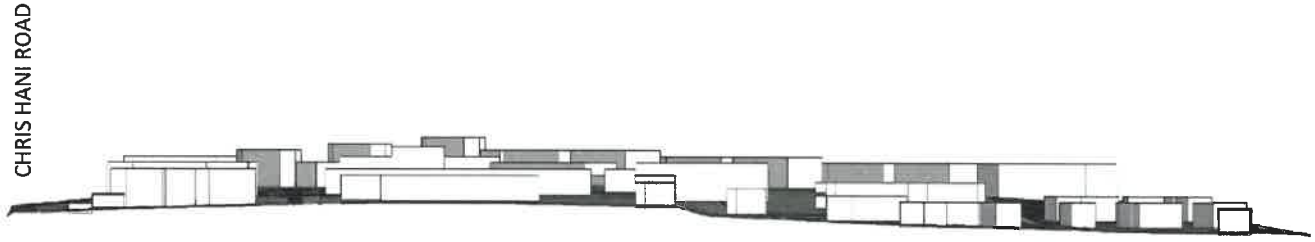


Figure 17: Views of Indicative Massing illustrating the overall development

SOWETO GATEWAY SITE
Conceptual Sections



Section 1



Section 2

Figure 18: Section 1 – Longitudinal section (E-W). Section 2 – Cross section (N-S).

5 DEVELOPMENT CONCEPT

RECOMMENDATIONS

Access Network

- Provide an interconnected system with a well-defined hierarchy of roads and pedestrian paths.
- Pedestrian system with 3-meter minimum width and landscaped sidewalks.
- Introduce a well-defined Non Motorised Transport (NMT) system connected to surrounding developments adhering to design standards for universal access.
- Introduce traffic calming measures at main intersections and within the residential Precincts.
- Introduce appropriate and robust urban fabric, locally produced and easy to maintain.
- All services and inspection outlets to be carefully designed so as not to obstruct pedestrian movement.

Land Use Distribution

- Medium to high intensity development taking advantage of the site's location.
- Flexible land use framework to encourage intensification over time.
- Business and Commercial hub to attract medical services and other complementary activities.
- Medium to high density residential products.
- Associated social and educational facilities bringing communities together.
- Attract higher order facilities such as hotels and conference facilities to stimulate local economic development and a create a local destination place for visitors and tourists.

5 DEVELOPMENT CONCEPT

Public Space Network

The structuring of public spaces within the site takes into consideration the recommendations contained in the SDF 2016/17

- *Public environment quality and community facilities*: A strong emphasis should remain on improving liveability in Soweto, including the creation of a good quality public environment. Designing spaces for social activities; focussing on streets as public space and enhancing public life through investment in social infrastructure mixed-use nodes are key strategies to transform Soweto into a liveable urban environment.

- *Strengthening the natural structure as a provider of ecological services:* A major component of Soweto's natural structuring system is its river and wetland system, which is of metropolitan significance as a Critical Biodiversity Area. The system's importance in forming ecological corridors and environmental infrastructure should be protected and enhanced.

RECOMMENDATIONS

- *Storm water management*: To protect the rivers and wetland system is not adequate and with the proposed intensification the river and wetland system will need to be restored and protected as a part of the storm water management solution.

- *Open space networks as a strong structuring element*: in – key nodes such as Kliptown, Jabulani and Bara Central which are all within walkable distance from major open space systems that should be integrated into the urban fabric.

5 DEVELOPMENT CONCEPT

RECOMMENDATIONS

Built Form Guidelines

This section provides general guidelines to prevent large sites becoming internalised and disconnected from the rest of the precinct.

The aim is to develop a rich and diverse environment with unique character that builds a vibrant environment encouraging local participation and investment.

Commercial and retail

- Activate edges providing a range of interactive spaces for economic activities and socialisation.
- Building edges to include arcades and overhangs to provide comfort and protection from weather to people moving through their spaces.
- Soft Landscaping to parking areas of no less than 25% of the surface area.
- Well defined and coordinated signage, advertising and wayfinding policy.
- Buildings and Precincts to be designed to high level energy efficiency and conservation principles and in compliance with statutory standards.
- Provide an Integrated precinct management system.
- Integrate open air markets and facilities for starter local business.
- Placemaking elements that builds a coherent identity for the node.

Residential

- Buildings presenting a positive interface with the street.
- Well defined building entrances.
- Articulated facades with windows and balconies opening towards the street edge.
- Well appointed playgrounds and social gathering spaces.
- All surface parking concealed from public viewing.

5 DEVELOPMENT CONCEPT

DETAILED LAND USES
Neighbourhood Retail Centre
Discount Centre

PTN 1	Business 1 13,749 m2 (1.3749 Ha)
PTN 2	Business 1 23,111 m2 (2.3111 Ha)

Figure 19: Neighbourhood retail and convenience centres – (a-c) proposed economic nodes (ASM Projects Portfolio, 2018).

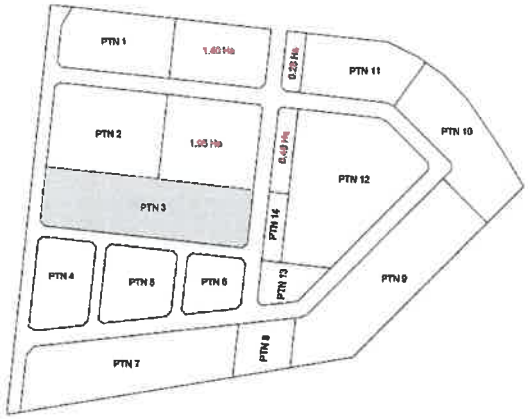
ASM

JOBURG PROPERTY COMPANY

Property Plan for Portion 159, Diepkloof 319-IQ
Albonico Sack Metacity

5 DEVELOPMENT CONCEPT

DETAILED LAND USES
Medical Facility

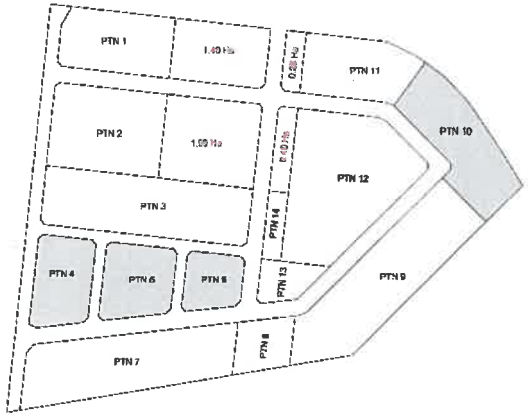


PTN 3	Business 4: Medical 29,302 m2 (2.9302 Ha)

Figure 20: Precedents of medical facilities – (a) Proposed medical healthcare facility (Geyser Hahn Architects & Boogertman + Partners, 2013); (b) Mercy Clinic Internal Medicine in Saint Louis, Missouri (PRWeb, 2012).

5 DEVELOPMENT CONCEPT

DETAILED LAND USES
Residential: 250 du/ha



PTN 4	Residential 4: 250 du/ha 12,247 m2 (1.2247 Ha)
PTN 5	Residential 4: 250 du/ha 12,247 m2 (1.2247 Ha)
PTN 6	Residential 4: 250 du/ha 7,663 m2 (0.7663 Ha)
PTN 10	Residential 4: 250 du/ha 20,751 m2 (2.0751 Ha)

Figure 21: High density residential typologies - (a) Sustainable housing developments in Freiburg, Germany (WeAreRestless, 2016); (b) Social housing in Caen, France (Density Architecture, 2014); (c) Proposed affordable housing in Hereford City, United Kingdom (BM3 Architects, 2019).

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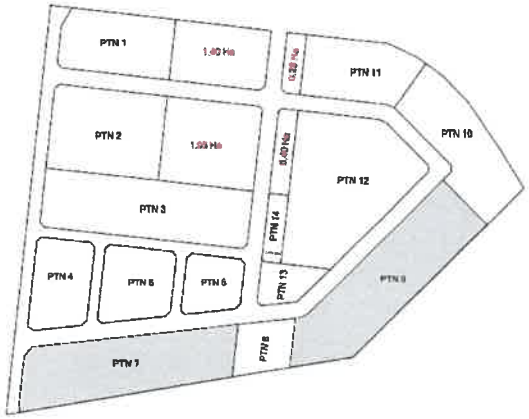
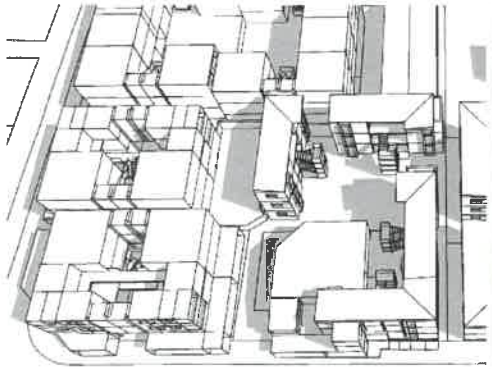
5 DEVELOPMENT CONCEPT

DETAILED LAND USES
Residential: 150 du/ha



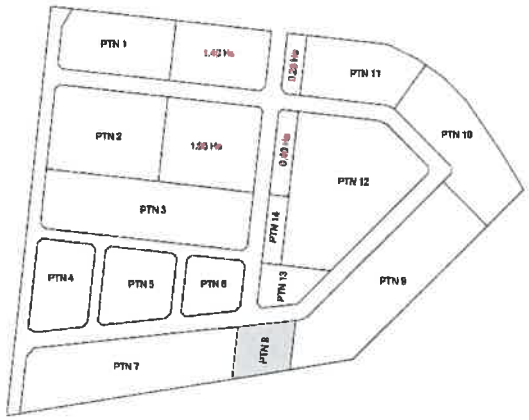


PTN 7	Residential 4: 150 du/ha 29,546 m2 (2.9546 Ha)
PTN 9	Residential 4: 150 du/ha 33,086 m2 (3.3086 Ha)

Figure 22: Medium density residential developments – (a) Proposed residential medium density residential typologies for a block in Alexandra township (ASM Projects Portfolio, 2018); (b-d) Johannesburg Housing Company residential developments (Brickfields, Legae Gardens and Tribunal Gardens) in Johannesburg (NASHO, 2017).

5 DEVELOPMENT CONCEPT

DETAILED LAND USES
Neighbourhood Park

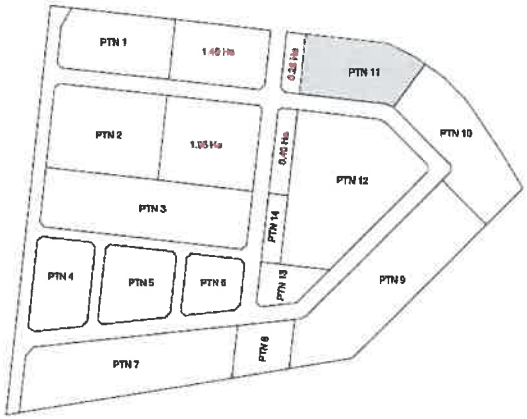


PTN 8	Public Open Space: Park 6,944 m2 (0.6944 Ha)

Figure 23: Precedents of neighbourhood parks – (a) Metro Park in Newtown (E-Prop, 2015); (b) A park in South Wales (All4Desktop, 2011).

5 DEVELOPMENT CONCEPT

DETAILED LAND USES
Hotel

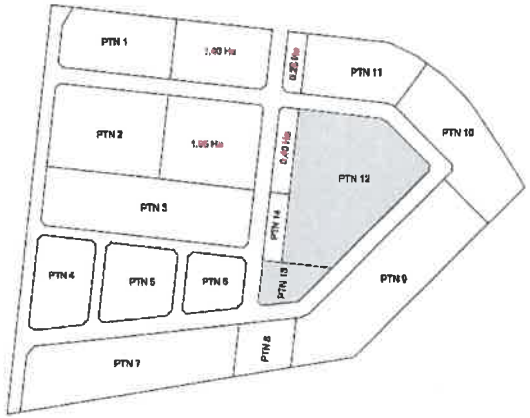


PTN 11	Residential 4: Hotel 13,739 m2 (1.3739 Ha)

Figure 24: Precedents of hotels -- (a) Treebo Club VNA Luxury Suites in Nagpur (Trip.com, 2019); (b) Hotel Arexa in Palma (HRS, 2019).

5 DEVELOPMENT CONCEPT

DETAILED LAND USES
Multi-purpose Centre Education Facility and Day Care Centre

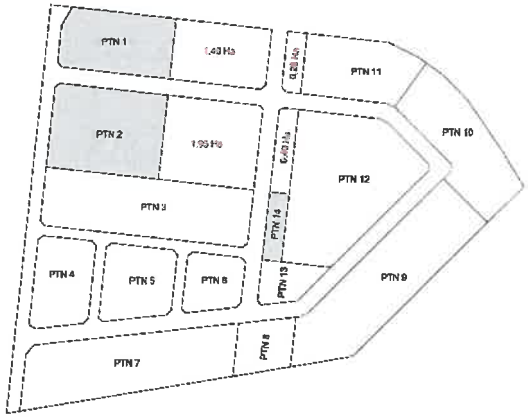


PTN 12	Educational 36,832 m2 (3.6832 Ha)
PTN 13	Educational 5,236 m2 (0.5236 Ha)

Figure 25: (a-c) Precedents of educational facilities (The Citizen, 2017) and (d &e) multipurpose centres – Westbrook Community Centre UBC, Vancouver (Robert Stefanowicz Photography, 2019).

5 DEVELOPMENT CONCEPT

DETAILED LAND USES
Automotive Showroom

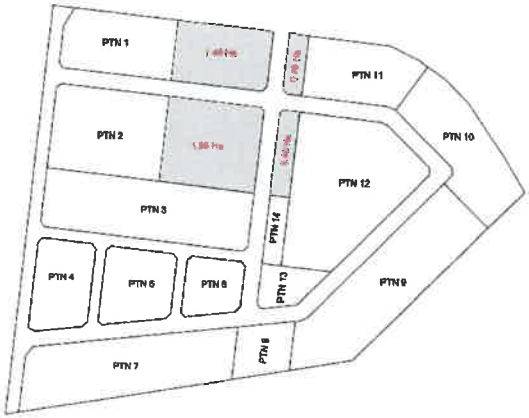


PTN 14	Business 4: Automotive 3,194 m2 (0.3194 Ha)

Figure 26: (a) Automotive showroom (URBAN REALM, 2010); (b & c) Creative hubs (The Box Shop Lifestyle, 2019).

5 DEVELOPMENT CONCEPT

DETAILED LAND USES
Municipal Offices
Opportunity Centre



SEZ	Municipal Offices Opportunity Centre 40,300 m2 (4.03 Ha)

Figure 27: (a) The upgrades of municipal offices – contemporary office design ideas (Incredible Furniture, 2018) and (b & c) opportunity centre for small businesses (ASHE, 2013).

5 DEVELOPMENT CONCEPT

Figure 28: The- The Soweto Gateway Development concept in the context of Diepkloof and Baragwanath Hospital.

6 CONCLUSION

As identified previously, this site presents an unique potential not only for Soweto but for the entire city. The packaging of the site needs to take into consideration the existing municipal site and SEZ site to ensure that investment is applied across the precincts. The aim is to develop an intense and diverse node that reflects the new economic trends which are turning Soweto into a desirable destination for new business working in close collaboration with local entrepreneurs. Equally important is to continue to stimulate economic growth and the contribution that Soweto makes to the Metro economy to create jobs and economic opportunities across the sectors.

Following international examples, the SEZ needs to be reinforced and redirected to incorporate the needs and abilities of the millennial population which are in the majority and provide skills that are relevant to a fluid and changing job market.

The node must be built as a dynamic and truly Sowetan space through the cooperation of all city agencies and local investors opening opportunities to improve and upgrade surrounding areas and the public environment.

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ANNEXURES

ANNEXURE A: PROPOSED TOWNSHIP (CADASTRE)

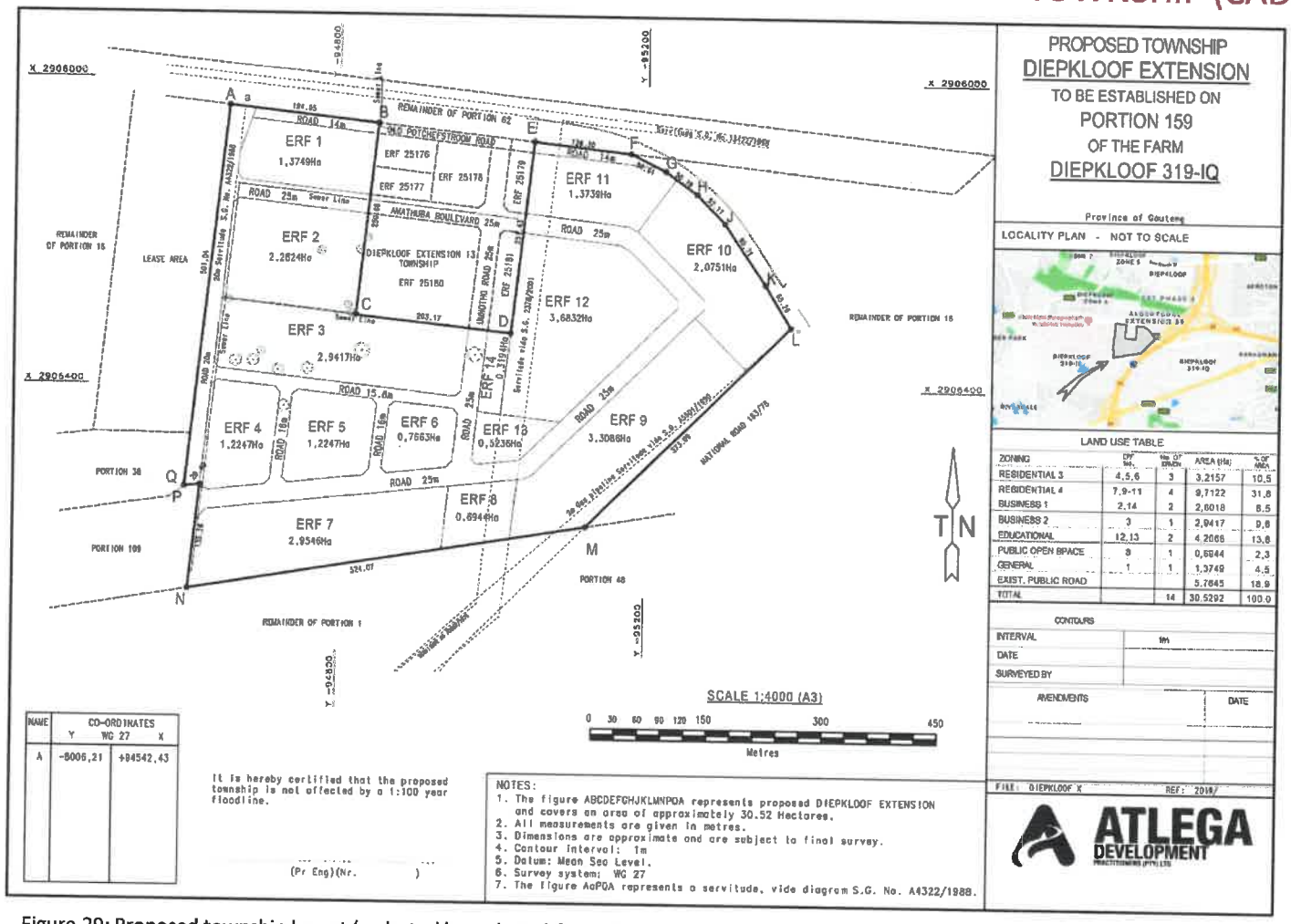

Figure 29: Proposed township layout (cadastral boundaries) for Portion 159 of Farm Diepkloof 319-IQ (Atlega, 2019).

ANNEXURES

ANNEXURE B: PROPOSED TOWNSHIP (CONTOURS)

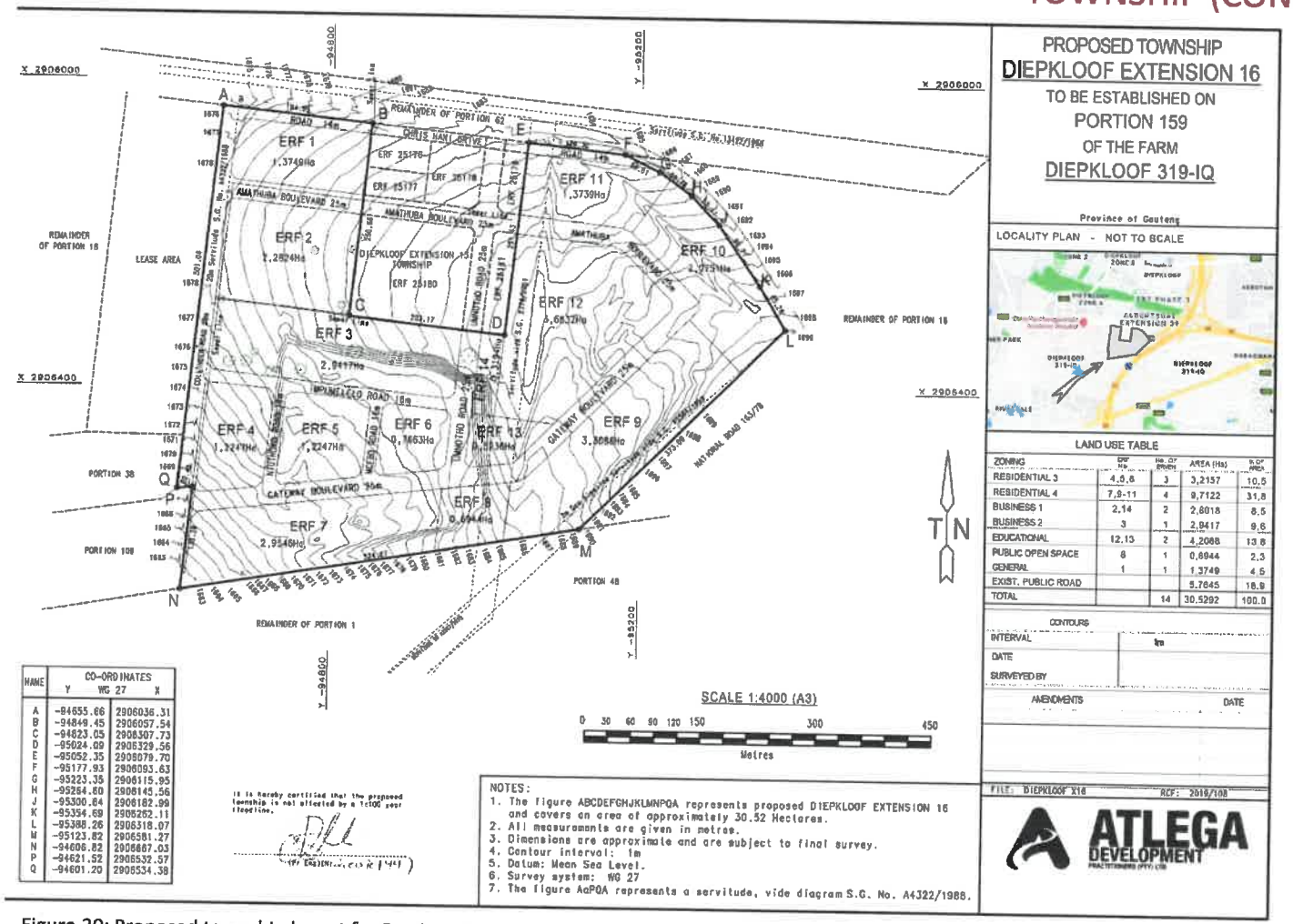

Figure 30: Proposed township layout for Portion 159 of Farm Diepkloof 319-IQ with contours (Atlega, 2019).

ANNEXURES

ANNEXURE C: DEVELOPMENT CONTROLS (PART 1)

PROPOSED ZONING AND DEVELOPMENT CONTROLS FOR THE TOWNSHIP ON PORTION 159 OF THE FARM DIEPKLOOF NO 319 IQ: DIEPKLOOF EXTENSION

ERF NO	TOWNSHIP NAME	SIZE (m^2)	ZONING	PRIMARY RIGHTS	FAR	FLOOR AREA (m^2)	HEIGHT	COVERAGE (%)	DENSITY (DU/HA)	DWELLING UNITS	UNIT SIZE (M^2)	PARKING	BUILDING LINES	COMMENTS
1	Diepkloof Ext ?	13749	Business 1	Business purposes, Shops, Restaurants, Offices, Car sales lot, Motor showrooms, Showrooms, Dwelling units, Residential buildings, Warehouses	1.8	24748	4	60	100	137	60	Shops: 3,0 bays per 100m^2, Offices: 2,0 bays per 100m^2, Restaurants: 3,0 bays per 100m^2, Motor showrooms: 3,0 bays per 100m^2, Showrooms: 1,5 bays per 100m^2, Warehouses: 1,0 bay per 100m^2, Dwelling units: 0,5 bays per dwelling unit plus 1,0 bay per 3 units for visitors, Residential buildings: 0,5 bays per room, Social / inclusionary housing: 0,5 bays per unit	3m on all street boundaries, except 5m along Chris Hani Drive	0,6 of FAR to be used for residential purposes
2	Diepkloof Ext ?	23111	Business 1	Business purposes, Shops, Restaurants, Offices, Car sales lot, Motor showrooms, Showrooms, Dwelling units, Residential buildings, Warehouses	1.8	41600	4	60	100	231	60	Shops: 3,0 bays per 100m^2, Offices: 2,0 bays per 100m^2, Restaurants: 3,0 bays per 100m^2, Motor showrooms: 3,0 bays per 100m^2, Showrooms: 1,5 bays per 100m^2, Warehouses: 1,0 bay per 100m^2, Dwelling units: 0,5 bays per dwelling unit plus 1,0 bay per 3 units for visitors, Residential buildings: 0,5 bays per room, Social / inclusionary housing: 0,5 bays per unit	3m on all street boundaries	0,6 of FAR to be used for residential purposes
3	Diepkloof Ext ?	29302	Business 2	Offices, Shops, Restaurants, Medical Consulting Rooms, Clinic, Place of instruction, Dwelling units, Residential buildings	1.8	52744	4	60	100	293	60	Offices: 2,0 bays per 100m^2, Medical consulting rooms: 3,0 bays per 100m^2, Clinic: 1,0 bay per bed, Dwelling units: 0,5 bays per dwelling unit plus 1,0 bay per 3 units for visitors, Residential buildings: 0,5 bays per room, Social / inclusionary housing: 0,5 bays per unit	3m on all street boundaries	0,6 of FAR to be used for residential purposes
4	Diepkloof Ext ?	12247	Residential 3	Dwelling units, Residential buildings	1.5	18371	4	60	150	184	100	Dwelling units: 0,5 bays per dwelling unit plus 1,0 bay per 3 units for visitors, Residential buildings: 0,5 bays per room, Social / inclusionary housing: 0,5 bays per unit	3m on all street boundaries	
5	Diepkloof Ext ?	12247	Residential 3	Dwelling units, Residential buildings	1.5	18371	4	60	150	184	100	Dwelling units: 0,5 bays per dwelling unit plus 1,0 bay per 3 units for visitors, Residential buildings: 0,5 bays per room, Social / inclusionary housing: 0,5 bays per unit	3m on all street boundaries	
6	Diepkloof Ext ?	7663	Residential 3	Dwelling units, Residential buildings	1.5	11495	4	60	150	115	100	Dwelling units: 0,5 bays per dwelling unit plus 1,0 bay per 3 units for visitors, Residential buildings: 0,5 bays per room, Social / inclusionary housing: 0,5 bays per unit	3m on all street boundaries	
7	Diepkloof Ext ?	29546	Residential 4	Dwelling units, Residential buildings	2	59092	4	70	250	739	80	Dwelling units: 0,5 bays per dwelling unit plus 1,0 bay per 3 units for visitors, Residential buildings: 0,5 bays per room, Social / inclusionary housing: 0,5 bays per unit	3m on all street boundaries	

ANNEXURE C: DEVELOPMENT CONTROLS (PART 2)

8	Diepkloof Ext ?	6944	Public Open Space	Public Open Space	0.2	1389	1	20	0	0	0	As per Scheme	3m on all street boundaries	
9	Diepkloof Ext ?	33086	Residential 4	Dwelling units, Residential buildings	2	66172	4	70	250	827	80	Dwelling units: 0,5 bays per dwelling unit plus 1,0 bay per 3 units for visitors, Residential buildings: 0,5 bays per room, Social / inclusionary housing: 0,5 bays per unit	3m on all street boundaries, except 20m along the N1 Highway	
10	Diepkloof Ext ?	20751	Residential 4	Dwelling units, Residential buildings	2	41502	4	70	250	519	80	Dwelling units: 0,5 bays per dwelling unit plus 1,0 bay per 3 units for visitors, Residential buildings: 0,5 bays per room, Social / inclusionary housing: 0,5 bays per unit	3m on all street boundaries, except 20m along the N1 Highway and 5m along Chris Hani Drive	
11	Diepkloof Ext ?	13739	Residential 4	Dwelling units, Residential buildings, Hotel, Conference Cetre, Restaurant	1.2	16487	6	60	100	137	120	Restaurant: 3,0 bays per 100m^2, Conference centre: 0,2 bays per seat, Residential buildings: 0,5 bays per room, Social / inclusionary housing: 0,5 bays per unit	3m on all street boundaries, except 5m along Chris Hani Drive	
12	Diepkloof Ext ?	36832	Educational	Place of instruction, Child care centre, Religious purposes, Institutions, Social halls, Sport and recreation clubs	0.4	14733	3	50	0	0	0	Primary school: 1,0 bay per classroom plus 0,1 bays per learner plus 1,0 bay per additional teacher / administrator or staff, Child care centre: 0,1 bays per child plus 1,0 bay per classroom, Religious purposes: 0,2 bays per seat	3m on all street boundaries	
13	Diepkloof Ext ?	5236	Educational	Place of instruction, Child care centre	0.4	2094	2	50	0	0	0	Primary school: 1,0 bay per classroom plus 0,1 bays per learner plus 1,0 bay per additional teacher / administrator or staff, Child care centre: 0,1 bays per child plus 1,0 bay per classroom	3m on all street boundaries	
14	Diepkloof Ext ?	3194	Business 1	Shops, Restaurants, Business purposes, Car sales lot, Motor showrooms, Showrooms	0.6	1916	2	70	0	0	0	Shops: 3,0 bays per 100m^2, Offices: 2,0 bays per 100m^2, Restaurants: 3,0 bays per 100m^2, Motor showrooms: 3,0 bays per 100m^2, Showrooms: 1,5 bays per 100m^2	3m on all street boundaries	
Roads	Diepkloof Ext ?	57593	Public Road	Public Roads	0	0	0	0	0	0	0			
		305240				370712				3366				

Table 2: Proposed detailed development controls for Portion 159 of Farm Diepkloof 319-IQ.

RECORD OF REVISIONS

Revisions	Date
1. Final Report including	October 2021
List of figures, tables and references	

Table 3: Record of changes made to the report.