Framework Plan for Strategic Development Area (SDA) 2

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Prepared for:

Polokwane Local Municipality
Civic Centre, Landros Mare Street
Polokwane

Prepared by:

Davel

PROJECT TEAM

Lead Consultants:

Davel Consulting Planners CC
Town & Regional Planners
Office Suite 2, Quattro Plaza
13 Watermelon Street
Platinum Park
Bendor
POLOKWANE

Other consultants:

Plan Associates Town & Regional Planners
339 Hilda Street
Hatfield
TSHWANE

North Plan Town & Regional Planners
19B Hans van Rensburg Street
POLOKWANE

Africa Geo-Environmental Services (Pty) Ltd. Limpopo
120 Marshall Street
POLOKWANE

S&W Limpopo Consulting Civil and Structural Engineers
21A Hans van Rensburg Street
POLOKWANE

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FRAMEWORK PLAN FOR STRATEGIC DEVELOPMENT AREA (SDA) 2

1. BACKGROUND

1.1 Study objectives

The main objective of the study is to provide a Framework Plan for the area known as Strategic Development Area (SDA) 2.

The study area (SDA 2) is more clearly described in paragraph 1.2 below, but it basically includes the area which lies along the city's main entrance from Gauteng Province and includes the residential area of Ivy Park/Ivydale. The SDA is also positioned along two functional development areas or development corridors, namely the Southern Gateway Development Corridor (DC1) and the Burgersfort/Chuenespoort Development Corridor (DC2).

The Framework Plan should guide development over the medium to long term in a sustainable and integrated manner. It should give guidance to all planning decision making bodies such as the Land Use Management Committee and Limpopo Development Tribunal, involved in development and land use planning decisions.

It should further not only create opportunities for development initiatives, but also create investor confidence with developers and members of the general public in respect of future development scenarios for the SDA.

Although the municipality's Council adopted a Framework Plan for SDA 2 somewhere in September 2000, it is outdated after 10 years and revision is necessary in order to address the phenomenal urban growth experienced over the past few years in this area and the city.

The plan is therefore being revised, but the major or original "theme" of the SDA including the Southern Gateway Development Corridor as identified in the Polokwane Municipality's Spatial Development Framework (SDF), will not be changed dramatically.

It is more important to incorporate new trends in development and planning policy in order to address developmental needs of the community with due consideration of new development directives and government incentives.

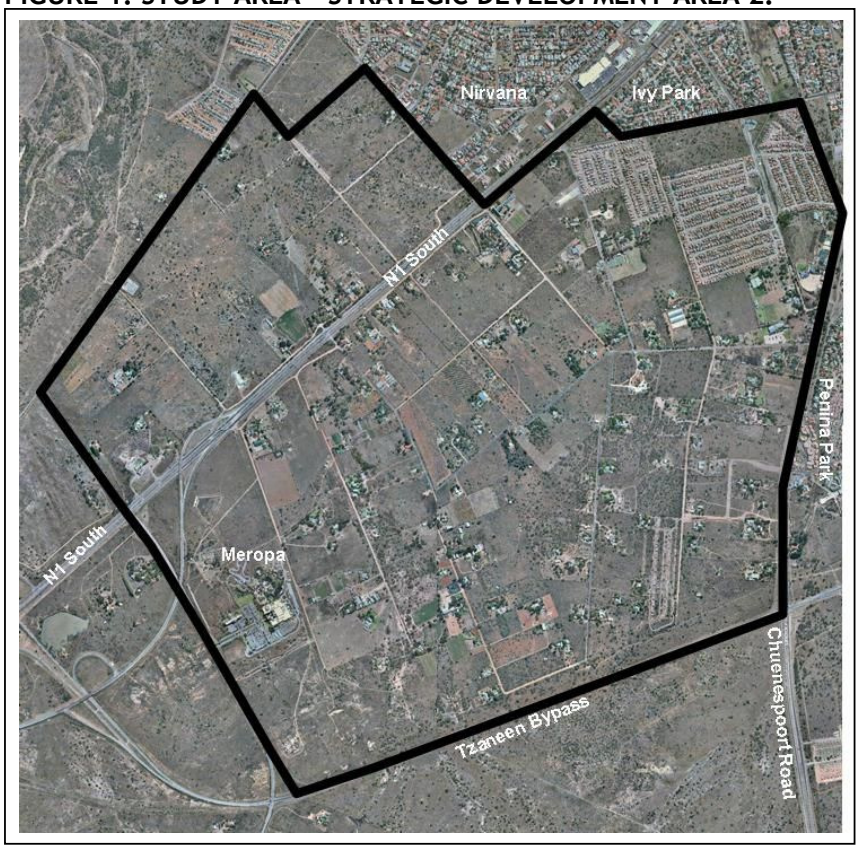
The plan should therefore guide the municipality, provincial government and development tribunals, developers, members of the public as well as planning consultants in all spatial development and land use issues in the Ivydale area (SDA 2) and Southern Gateway in order to regulate land use and ensure sustainable urban development.

1.2 Study area

The Primary Study Area, or SDA 2, is shown in ***Figure 1*** below and can be described as the area including the Ivydale Agricultural Holdings, Ivy Park township extensions, Southern Gateway township and extensions, as well as portions of the Sterkloop farm 688 LS, situated along the N1-route from Gauteng as one enters the city from a south western direction, bordered by the Burgersfort/Chuenespoort road in the south east and railway line and industrial area to its north.

The total area of the SDA, including roads and open space is **878ha.**

FIGURE 1: STUDY AREA – STRATEGIC DEVELOPMENT AREA 2.



Secondary thereto, the areas directly adjacent to the Primary Study area can be regarded as the secondary study area. This also includes a further portion of the Southern Gateway Development Corridor to the north-east of this SDA, e.g. uses such as the Polokwane Motor City, as well as uses in the CBD.

1.3 Methodology

The study essentially comprises two distinctive parts, namely:

- An assessment or analysis phase; and
- A compilation phase.

The assessment phase basically deals with a situational analysis or status quo report of local and national issues relevant to spatial planning. This phase was conducted over a period of approximately 10 weeks.

The local issues includes environmental and geotechnical analysis, assessment of engineering services including transport, analysis of the demographical and socio-economic profile of residents, as well as evaluation of land use and current planning policies.

On regional level National and Provincial Governmental policies which are relevant to the Framework Plan are appraised, which includes important new trends such as the Breaking New Grounds policy.

The compilation phase includes a synthesis whereby a development philosophy and objectives are formulated, adoption of a design concept/s and Framework Plan, and lastly where certain broad policy guidelines are set out as well as implementation strategies. This phase was conducted over a period of 8 weeks.

Before final adoption of this plan by Council, a process of public participation should take place.

2. SITUATIONAL ANALYSIS

2.1 National & Provincial policy guidelines

The future development of SDA 2 should take place in a manner which is consistent with current policy guidelines and development directives as published by the various spheres of government.

Although SDA 2 only represents a very small portion of land within the context of South Africa, Limpopo Province, and even the Polokwane Local Municipality, care needs to be taken that it develops in line with development guidelines on the broader national and provincial level.

The following are important development policies which have to be considered in the compilation of the SDA 2 Development Framework, namely:

- Breaking New Ground Policy;
- Inclusionary Housing Policy;
- National Spatial Development Perspective (NSDP); and
- Limpopo Provincial Growth and Development Strategy.

Subsequently:

2.1.1 Breaking New Ground Policy

The policy document, ***Breaking New Ground: A Comprehensive Plan for the Development of Sustainable Human Settlement***, which was published by the National Department of Housing, provides the following guidelines towards future residential development in South Africa:

- Residents should live in a safe and secure environment, and have **adequate access** to economic opportunities, a mix of safe and secure housing, and tenure types, reliable and affordable basic services, educational, entertainment and cultural activities, and health, welfare and police services.
- Ensure the development of **compact, mixed land use**, diverse, life-enhancing environments with maximum possibilities for **pedestrian movement and transit** via safe and efficient public transport in cases where motorised means of movement is imperative.
- Ensure that low-income housing is provided in **close proximity to areas of opportunity**.
- Integrate previously excluded groups into the city, and the benefits it offers, and to ensure the development of more **integrated, functional and environmentally sustainable** human settlements, towns and cities. The latter includes densification.
- Encourage **Social (Medium-Density) Housing** – Social Housing is generally medium-density, and this housing intervention may make a strong contribution to urban renewal and integration.
- There is a need to move away from a housing-only approach to a more **holistic development of human settlements**, including the provision of social and economic infrastructure.
- **Multi-purpose cluster concept** will be applied to incorporate the provision of primary municipal facilities, such as parks, playgrounds, sports fields, crèches, community halls, taxi ranks, satellite police stations, municipal clinics, and informal trading facilities.
- More **appropriate settlement designs and housing** products, and more acceptable housing quality.
- Enhancing settlement design by including design professionals at planning and project design stages, and developing **design guidelines**.
- There is a need to focus on changing the face of the stereotypical RDP houses, and settlements, through the promotion of **alternative technology and design**.
- Social housing must be understood to accommodate a **range of housing product** designs to meet spatial and affordability requirements. Social housing products may include:
- Multi-level flat, or apartment options, for higher income groups, incorporating beneficiary mixes to support the principle of integration and cross-subsidisation;
- Co-operative group housing;
- Transitional housing for destitute households; and
- Communal housing with a combination of family and single-room accommodation with shared facilities and hostels.
- **Funding support** will shift away from the current emphasis on uniform individual subsidies towards equity support for social institutions, determined as a percentage of the total capital cost of the project, including medium-density housing, communal housing, hostels and transitional housing.

2.1.2 Inclusionary Housing Policy

Following from the national "Breaking New Ground Policy" as described in the section above and which is mainly focused on previously disadvantaged

areas, Government also formulated an Inclusionary Housing Policy which is focused towards the development approach of the private sector, and which is briefly summarised as follow:

The purpose of the policy is:

- To ensure an integrated human settlement.
- Creation of mixed income, diverse, integrated communities.
- To lessen the concentration of poverty within certain communities, and create greater access to education and job opportunities in the larger region.
- To ensure that lower income individuals, whose housing needs are not met by the market, can live in a community where they live and work.
- To enable developers to build more densely through the provision of density bonuses.
- To increase the supply of affordable bonded housing.

Most of the housing constructed or the current supply of housing is not affordable to lower middle-income households (the "Gap-market"). This group still suffers from the lack of ownership in housing due to the fact that both the government and property market have failed to address its housing needs.

Commercially-driven residential developers and financial institutions have been focusing on the housing needs of middle and high income groups while the government and social housing institutions have been focusing on the low income groups. The government has now realised that in order to address the housing needs of all the South Africans it will need to also start focusing on the housing needs of the lower middle-income sector.

Furthermore, the government as part of the Financial Service Charter, signed the Memorandum of Understanding (MoU) with the Banking Council of South Africa. Through this MoU, the banks have pledged to invest a target of R42 billion by 2008 in the form of various options of housing finances for the lower middle income sector.

2.1.3 National Spatial Development Perspective (NSDP)

In terms of the NSDP, the following normative principles are put forward as guide for all spheres of government when making decisions on infrastructure investment and development spending:

- *Economic growth* is a prerequisite for the achievement of other policy objectives, key among which would be poverty alleviation.
- *Government spending on fixed investment*, beyond the constitutional obligation to provide basic services to all citizens, *should therefore be focused on localities of economic growth* and/or economic potential in order to attract private sector investment, stimulate sustainable economic activities and/or create long-term employment opportunities.
- Efforts to address past and current social *inequalities* should *focus on people, not places*.
- In order to overcome the spatial distortions of apartheid, future settlement and economic development opportunities should be *channelled into activity corridors and nodes that are adjacent to, or linked to the main*

growth centres. Infrastructure investment and development spending should thus primarily support localities that will become major growth nodes in South Africa and the Southern African Development community region to create regional gateways to the global economy.

The NSDP thus seeks to focus the bulk of fixed investment of government on those areas with the potential for sustainable economic development, as it is in these areas where government's objectives of promoting economic growth and alleviating poverty will best be achieved.

Polokwane Municipality, like other spheres of government, should therefore have at the core of its development strategies and resource allocation the following spatial development vision captured in its Municipal and Local Spatial Development Frameworks:

- by focusing economic growth and employment creation in areas where this is most effective and sustainable;
- by supporting restructuring where feasible to ensure greater competitiveness;
- by fostering development on the basis of local potential; and
- by ensuring that development institutions are able to provide basic needs throughout the country.

2.1.4 Limpopo Provincial Growth and Development Strategy

(i) Introduction

In line with the broader national growth strategy, the Limpopo Provincial Government has adopted a Provincial Growth and Development Strategy.

The strategy hinges upon the following five development objectives:

- Objective 1:The need to improve the quality of life of the population of Limpopo,
- Objective 2: Growing the economy of the Province,
- Objective 3: Attain regional integration,
- Objective 4: Enhance innovation and competitiveness, and
- Objective 5: Improve the institutional efficiency and effectiveness of government.

(ii) Objectives

The future development of SDA 2 is specifically relevant with regard to Objectives 1 and 2, each of which is briefly summarised in ***Tables 1*** and ***2*** in the section below:

Objective 1: Improving Quality of Life

TABLE 1: OBJECTIVES CONTAINED IN PROVINCIAL GROWTH AND DEVELOPMENT STRATEGY AND MUNICIPALITY'S ROLE IN IMPROVING QUALITY OF LIFE.

Objective	Municipality's Role
Develop the human resource potential of the province (HRM)	• Provide services like water, sewerage, and roads to schools. • Make/ensure provision for educational facilities in developments (both municipal or privately facilitated developments).
Improve health and social status of population	• Ensure uninterrupted supply of basic services to clinics and other health care facilities. • HIV/AIDS awareness campaign. • Provision of condoms in municipal properties and other community centres particularly rural areas to increase accessibility.
Reduce crime and corruption	• Develop and implement a local crime prevention strategy. • Strengthen relationship with SAPS and other law enforcement agencies. • Adopt and implement an anti-fraud and corruption strategy.
Meet the basic needs of the population	• Provide infrastructure for water, sanitation, electricity. • Implement free basic services policy. • Improve security of tenure particularly for households in former R293 towns. • Make land available for housing provision.
Promote a safe and healthy environment	• Provision of various energy sources to households. • Adopt and implement an environmental management plan for the municipality. • Develop and implement a solid waste management plan. • Expand solid waste management to the entire municipal areas (including the rural areas). • Facilitate community awareness and education campaigns for waste management and management of natural resources.
Meet the needs of specific communities, women, elderly, youth, disabled and the marginalised	• Employment equity plan adopted and implemented. • Ensure that all council owned buildings and other public buildings are accessible to the disabled. • Policies, programmes and projects approved should empower women and the youth to improve their quality of life. • Municipality's SCM policy to give preference to the targeted groupings. • Develop targeted assistance to the targeted groupings.

Objective 2: Growing the Economy

This objective relates to the concept of local economic development as enumerated in legislation governing the municipality. This provision compels the municipality to implement initiatives that will promote the local economy and thereby creating the needed jobs and improving the health of people.

TABLE 2: OBJECTIVES CONTAINED IN PROVINCIAL GROWTH AND DEVELOPMENT STRATEGY AND MUNICIPALITY'S ROLE GROWING THE ECONOMY

Objective	Municipality's Role
Job creation	• Attract private investment. • Retention and expansion. • Incentives for investment promotion. • Marketing the municipality as an investment and a tourism destination. • Support to SMME's.
Increase investments	• Packaging and marketing of investment opportunities in the municipality. • Creation of a climate conducive for attracting investment through effective and efficient institutional arrangements.
Develop and improve economic infrastructure	• Urban renewal programme which develops new economic infrastructure and maintains the existing infrastructure.

(iii) Conclusion

Following from the above, it can be concluded that the future development of SDA 2 should be aimed at creating an inclusive and sustainable human settlement/area, catering for the full spectrum of social and economic needs of the community. This would require a development approach which integrates elements like the natural environment, various housing typologies, public amenities, engineering services and an appropriate movement network.

The SDF for SDA 2 should provide the necessary spatial vision and guidelines to achieve this.

2.2 Local policy guidelines

2.2.1 Assessment of current spatial planning policies/plans & land use management system

(i) Polokwane Municipality Spatial Development Framework, September 2007.

The current Spatial Development Framework (SDF) which forms an integral part of Polokwane Municipality's Integrated Development Plan (IDP), dates September 2007 and provides the following guidelines relevant to this study, namely:

- Macro spatial issues – the hierarchy of settlements;
- National and Provincial corridor routes and strategic development initiatives (SDI's);
- Guidelines governing spatial form and the development framework;

- Development Corridors – Southern Gateway & Burgersfort/Chuenespoort corridor;
- Strategic Development Areas;
- Hierarchy of Shopping Centres & other activity nodes;
- Densification & subdivision.

Subsequently:

(a) Macro spatial issues – the hierarchy of settlements

SDA 2 is located within the 1st order settlement and growth point known as the Polokwane Provincial Growth Point (PGP).

In terms of the SDF (2007:24) the growth points are *"….the major areas where future growth should be stimulated. In general it can be described as areas where the largest spectrum of specialized land uses and services in an area must be accommodated according to the subsequent ranking/classification."*

Subsequently, Provincial Growth Points, which derives its origin from the Limpopo Provincial Spatial Rationale, is the highest order in the hierarchy and the most important. It is therefore not only important on a municipal level or area, but even on a provincial level, the PGP's are considered as important.

The SDF (2207:26) goes further and highlight that: *"The identified growth points should be stimulated by amongst others, providing a higher level of service infrastructure which will ensure that appropriate services are available for potential business and service/light industrial concerns. The higher level of services, relative to other settlements in the district will also attract residential settlements to these growth points, with the implication that certain threshold values in population be reached, to provide for higher levels of social, physical, institutional and economic services.*

The future development within these areas, should be done in accordance with Local Spatial Development Plans and/or Land Use policies or framework plans for each of these areas." [own underlining].

It can therefore be concluded that the rationale or necessity of the framework plan, finds direct support from the SDF itself.

(b) National and Provincial corridor routes and strategic development initiatives (SDI's).

The SDI's are also issues dealt with under Macro Spatial Issues in the SDF. It is stated (2007:35) that these corridors *"…are also recognized in the macro spatial development framework, and in most instances interface with some of the municipality's identified Development Corridors and Functional Development Areas.*

The opportunity these SDI's create, could be utilized to the benefit of local circumstances and development.

However, any development along these national corridors must still comply with local circumstances and policies and could be considered on its own merits."

Hence, the SDF made provision for two development corridors known as DC1 and DC 2, of which both development corridors run through the study area. Proposals i.r.o. the Southern Gateway is more clearly described on pages 79 to 82 of the SDF. [Also see par. (d) below].

(c) Guidelines governing spatial form and the development framework

The following guidelines are provided (2007:19-23) and relevant to this study, namely:

- *"Increase and broaden the economy of Polokwane and the province by locating and **promoting economic activities** in those particular areas where they enjoy a **comparative advantage**;*
- *A clearly defined **Open Space System** (especially in the 1st and 2nd order settlements), should be developed and must be supported by land-uses;*
- *People should be encouraged to maintain/upgrade their residential areas' aesthetic quality through elements of urban design as well as by proper **land use management and improved land tenure**;*
- ***Higher densities of residential areas** should be promoted to achieve a more compact "urban" structure to ensure efficient threshold values in population to provide for higher levels of service;*
- ***Viable and sustainable communities** must be created;*
- *It should be ensured that housing subsidies be allocated to **areas/settlements with the potential to support long term sustainability**;*
- *Opportunities should be created for service providers to **provide social facilities and service infrastructure on a cost effective basis** to the maximum benefit to the community of Polokwane. Partnership between the municipality and the different stakeholders should be encouraged in order to speed up service provision;*
- ***Ad hoc investment and provision of services** and facilities in the area should be discouraged and ceased unless if such services are related to desperate relief programmes;*
- *The Polokwane **Central Business District** which contributes largely to the municipality's income should be the Primary Activity Node in the city and the region, serving the local and regional communities as well as the Provincial Legislature, and it should be managed in such a way that it retains such status*

*and viability in future. In this regard the **Urban Development Zone (UDZ)** initiatives of National Treasury should play a major role in the revitalization and urban renewal of the CBD;*

- *Apart from the CBD, a **hierarchy of Secondary Activity Nodes** can be developed throughout the municipal area and especially within 1st and 2nd order settlements, aimed at serving the different local communities according to their specific basic needs, and optimising the development opportunities as they occur in different parts of the municipal area. The development/expansion of secondary nodes should, however, not be allowed if the municipality is not convinced that these will not have a detrimental effect on the CBD (Primary Activity Node);*
- *Initiatives which will contribute to the **re-generation and development of the CBD** should be optimized and supported by the municipality as well as all other role players such as business sectors and provincial government, since Polokwane plays a major role in the economy of the Limpopo Province as well as South Africa;*
- *The **office function** pertaining to functions of regional and provincial importance, should be centralised as far as possible as this is the primary support base of the CBD. Lower order local office functions can, however, be provided throughout the area, but at a limited scale;*
- *The municipality should enhance the **radial road network** and nationally introduced **Strategic Development Initiatives** (SDI's) linking/giving access to the entire region and beyond;*
- *Proper **modal integration** in the city/area - utilizing the full potential of existing road, rail and air transport services, infrastructure should be provided in order to enhance modal integration;*
- *New residential development in the municipal area should be concentrated in specific and identified areas known as **Strategic Development Areas** and as further be delineated by **urban edges**. The municipality must facilitate/promote development in the Strategic Development Areas by means of providing the necessary engineering bulk infrastructure, technical and administrative support and other incentives to make these areas attractive for private developers;*
- ***Public land development and subsidized housings schemes** aimed at the lower and middle income groups must be strategically located, closer to activity nodes (e.g. CBD) and part of clusters where job opportunities (formal and informal) exist and in a manner to be fully integrated with the current urban structure. Such developments should also be aimed in those Strategic Development Areas specifically identified for this purpose;*
- ***Functional Development areas**, especially along prominent access routes, should be identified and possibly extended. The themes of the different Functional Development Areas identified in the area should be developed - each according to its unique characteristics and potential;*

- *The development potential emanating from the **planned toll road** bypass should be optimized;*
- *The major component of the economic development strategy should focus on the **economic concept of clusters**, which should give rise to further spatial development initiatives as a major component of this strategy;*
- *The establishment of the **Convention Centre** along the Southern Gateway should be supported on all levels since it will not only contribute towards the local economy of the city, but also contribute towards a positive image of Limpopo Province. The Convention Centre township establishment have already been approved, and construction will commence shortly. The Municipality and all other decision-making authorities should therefore ensure that future development along this Southern Gateway will ensure the long term sustainability of the convention centre and will not in any manner jeopardize these initiatives."*

(d) Development Corridors (Southern Gateway & Burgersfort/Chuenes-poort Corridor)

Two identified Development Corridors within the SDF runs through this SDA, namely:

- The Pretoria/Gauteng – Polokwane City – Mankweng – Tzaneen Development Corridor (DC1), where a specific Functional Development area known as Southern Gateway (F2), is further situated within the corridor; and
- The Burgersfort/Chuenespoort – Polokwane - Makahado Development Corridor (DC 2).

The SDF is clear (2007:79) in providing that: "*The opportunity that prominent routes create, should be utilized and be linked with land use planning to ensure optimal utilization of resources and infrastructure along these routes and/or routes which links nodes/clusters. By integrating land use planning and movement patterns of people, will therefore not only contribute to the optimal use of resources and infrastructure (e.g. roads), but explore economic opportunities at the same time."*

Furthermore it is stated (2007:80): "*The opportunities these corridor routes create should also be acknowledged in local planning initiatives i.e. framework plans and policies.*

It is proposed that Functional Development Areas are adopted in such a way that land use planning supports the interaction with economic opportunities on these routes, but without jeopardizing other development initiatives and land use management policies.

Aspects pertaining to these Functional Development Areas and Development Corridors should rather be captured in a Local Framework and/or land use policy plans of each of the areas."

The SDF however also indicates the following (2007:82) i.r.o. the Southern Gateway (F2), namely: *"This corridor is an excellent example of positive spin-offs from this type of forward planning of a development corridor if recent development is considered. However, <u>the continued consideration of appropriate land uses are essential for the long term sustainability of this corridor as well as not to jeopardize other initiatives in this SDF plan.</u> "* [own underlining].

In respect of the Burgersfort/Chuenespoort – Polokwane - Makahado Development Corridor (DC 2) and specifically the area along SDA 2, not too much recommendations are contained in the SDF.

(e) <u>Strategic Development Areas</u>

Generally referring to the principle of Strategic Development Areas, the SDF (2007:67-68) clearly states that: *"The SDA's should be the main focus areas for the future development/expansion of townships and especially residential areas. In the Strategic Development Areas located within the identified urban edge, the municipality must actively support, promote and facilitate development through:*

- *the provision of bulk infrastructure;*
- *the provision of incentive schemes like requiring no bulk service contributions from prospective developers;*
- *the provision of administrative support to developers through the streamlining of application procedures;*
- *the compilation of detailed local framework or land use plans and implementation programmes for each of these areas;*
- *the active marketing of these areas."*

With specific reference to SDA 2, it is evident that SDA 2 is of high importance since it is stated (2007:70) that *"This area lies around the city's main entrance from Gauteng Province (the N1 from Tshwane/Pretoria). It already experiences development pressure for a variety of land uses.*

The area directly adjacent to the N1 freeway is also known as the Southern Gateway. It can play an important role in the future marketing/promotion of the city as it could assist in creating positive first impressions of the city as traffic enters the town. The municipality recently approved applications in this area, including the Convention Centre.

It is envisaged that most of the area of the Ivydale holdings will develop for residential purposes - including low, medium and high density residential development with associated land uses like community facilities, parks and small businesses – local shopping centres. All development in this area should be in accordance with the municipality's policy and departmental guidelines."

(f) Hierarchy of Shopping Centres & other activity nodes

There is an important principle evident throughout the SDF, namely that the Polokwane CBD or inner city, is acknowledged to be of regional importance and is therefore properly planned and should be managed by the municipality and the private sector in order to retain that status.

However, keeping a proper balance the SDF (2007:56 – 59) also provides that *"Apart from the CBD, which is the primary activity node especially for providing specialized and expensive goods and services i.r.o. retail and personal/professional services, perspective should not be lost to allow the necessary secondary activity nodes which provides more in convenience goods to residents in the different areas of Polokwane.*

Therefore, regarding secondary activity nodes a hierarchic system with respect of the provision of shopping facilities, as indicated in Table 5 should be considered and implemented as a guideline where necessary to suit all the areas forming the new municipality. However these secondary activity nodes' main function is focused on services for the suburban residents (e.g. convenience goods) rather than to serve as a substitute, which duplicate services and goods (e.g. specialized, expensive goods), which is normally associated with the CBD as primary activity node and the region. "

Furthermore it is highlighted that *"The future development of these secondary nodes, should be done and preferably be planned in advance, in accordance with the detail Framework Plans and/or land use management policies in each of the areas and/or strategic development areas. "*

The relevant table from the SDF ("*Table 5*") i.r.o. the hierarchic system for provision of suburban shopping centers/secondary activity nodes is subsequently included herein as ***Figure 2***.

FIGURE 2: HIERARCHIC SYSTEM FOR PROVISION OF SUBURBAN SHOPPING CENTRES/SECONDARY ACTIVITY NODES.

TABLE 5: CLASSIFICATION OF THE HIERARCHIC SYSTEM IN RESPECT OF PROVISION OF SUBURBAN SHOPPING FACILITIES IN POLOKWANE (Sources: Derived from:- CLASSIFICATION STANDARDS FOR SOUTH AFRICAN COUNCIL OF SHOPPING CENTRES; 2006)

Type of Centre	Size of centre (m²)	Trade area	Access Requirements	No. of households	Population	Socio-economic groups	Average Radius (km)	Median Travel time (minutes)	Main tenants
CORE CLASSIFICATIONS									
Small free-standing centre	500 – 1 000 Less than 10 stores	Serves part of a suburbs	Suburban street	<2 000	<7 000	Mainly middle, middle low and low LSM 4-7	1	<2	• Café/Superette • few convenience stores • less than 10 stores
Local convenience centre	±1 000 - ±5 000 5-25 stores	One suburb or parts of suburt(s)	Minor collector road	700 - 3 600	2 500 - 12 520	All LSM 4-10	1,5	3	• supermarket • few convenience stores • 5 – 25 stores
Neighbourhood centre	±5 000-±12 000 25-50 stores	Strategically located for a group of suburbs	Major collector roads	2 400 –5 700	8 300 – 20 000	All LSM 4-10	2,0	4-9	• supermarket • convenience • some small specialised stores
Community Centre	±12 000-±25 000 50-100 stores	Strategically located to serve a suburban community.	Major arterial road	8 500 - 17 800	30 000 – 62 500	All LSM 4-10	3,0	6-14	• large supermarket • convenience • small national clothing • restaurants & takeaways • services
Small regional	±25 000-±50 000 75-150 stores	Specific sub-region of city (can be large self contained community (i.e. Chatsworth)	Major suburban arterial road linking to a provincial highway	17 800-35 700	62 500-125 000	All LSM 4-10	5,0	10-16	• large supermarket • 1 or 2 large clothing anchors • Strong national tenant comparison goods component • boutiques • restaurants • entertainment • services
Regional centre	±50 000-±100 000 150-250 stores	Large region of city/or whole city	Major arterial road usually a Provincial main road linking to a National road.	28 600 – 57 150	100 000-200 000	All LSM 4-10	8,0	14-20	• large supermarket/ hyper • 2 or more large clothing • small clothing and boutiques • entertainment restaurants • services • convenience
Super regional centre	>100 000 More than 250 stores	Large region in city and surrounding areas/Tourists	Major arterial road usually a Provincial main road, linking to a National road.	57 150- 114 300	200 000-400 000	Above average LSM 5-10	10+	16-28	• as at regional but more emphasis on entertainment and variety

Source: Polokwane Municipality SDF, September 2007

(g) Densification & subdivision

The SDF, 2007 provides specification of densification allowed in existing townships and new townships i.r.o. "Residential 1" (single residential erven) and "Residential 2, and 3" (multiple residential) zoned erven in specific areas within the Polokwane PGP, which includes SDA 2. Such application for densification is submitted in terms of the prevailing town planning scheme.

It is evident that the 2007 SDF-review document didn't take the new "Residential 4" zoning permitted in terms of the new Polokwane/Perskebult Town Planning Scheme, 2007 (as proclaimed in January 2009) into account yet, for obvious reasons.

However, the guidelines in the SDF provides a general reflection of:

- The permitted maximum densities in different areas/neighbourhoods;
- The permitted minimum erf sizes, should subdivision occur i.r.o. detachable units.

The ***Table 3*** below is an extract from the SDF in terms of the above mentioned and with specific reference to the study area.

TABLE 3: TABLE OF PERMITTED DENSITIES AND MINIMUM ERF SIZES OF ERVEN IN TOWNSHIPS/AREAS UNDER CONTROL OF THE TOWN PLANNING SCHEME, 1999.

Neighbourhood/ Area	**"Residential 1"**	**"Residential 2 & 3"**
	Max. densities permitted	**Max. densities permitted**
	***Min. erf size i.r.o. subdivided portion/s (detachable units)**	***Min. erf size i.r.o. subdivided portion/s (detachable units)**
Ivy Park	25 units/ha	44 units/ha
	400m²	400m²
Ivy Park extensions (SDA2)	30 units/ha	64 units/ha
	300m²	300m²

Notes: Refer to relevant Densification Maps for exact location and boundaries of areas/density zones identified in table.
* = Minimum erf sizes of subdivided portions is applicable should erven be subdivided.

The SDF further provides for criteria to consider when such densification applications are considered.

❖ Criteria i.r.o. densification & subdivision

The SDF provides that "*In terms of the Seshego Town Planning Scheme, 1999 the following densification is possible under the higher density uses, namely:*

- *"Residential 2" zoned erven the existing right (primary right) is 30 units per hectare and by means of consent use i.t.o. clause 20 of the scheme, a maximum density of 44 units per hectare is possible. However, it is obvious from sub-paragraph (a) above that the maximum densities permitted should be consistent with Table 6 and the densification map as contained in Figure 4;*
- *"Residential 3" zoned erven the existing right (primary right) is 44 units per hectare and by means of consent use i.t.o. clause 20 of the scheme, a maximum density of more than 64 units per hectare is possible. However, it is obvious from sub-paragraph (a) above, that the maximum densities permitted should be consistent with Table 6 and the densification map as contained in Figure 4.*

In terms of the criteria, clause 19.1 of the town planning scheme stipulates that the proposed use (densification) if a consent use application is lodged, should be considered by means of the following, namely:

- *The *amenities of the area;*
- *Health and safety of the area;*
- *The character of other uses in the area;*
- *The need and *desirability of the use concerned;*
- *IDP and for that matter, this SDF as well as any other policy guideline contained herein.*

*Apart from these criteria the following *additional criteria should be applied/motivated which forms part of consideration i.r.o. the desirability and amenities of the area.*

- *Proximity of the proposed development i.r.o. Open Spaces (parks) and recreational facilities;*
- *Proximity of the proposed use i.r.o. schools;*
- *Proximity of the proposed use i.r.o. shopping facilities for convenience goods;*
- *Proximity of proposed use i.r.o. other community facilities and services such as medical facilities, community libraries, places of public worship etc.*
- *Proximity of the proposed use i.r.o. high order routes/bus routes and public transport facilities;*
- *The suitability of the property i.r.o access to individual units as well as access to and from the adjoining public street system. Panhandle erven/entrances are not desirable with any density exceeding 44 units per hectare;*
- *The suitability of the property i.r.o. the shape of the property, taking site layout of individual units into consideration as well taking possible negative impacts*

on adjacent property into consideration, with reference to the following:
  - *Orientation;*
  - *Privacy; and*
  - *Convenience.*

  [Also see paragraph (d) below];
- *The suitability of the property i.r.o. the size and street frontage.*
  - *Densification from 45 units/ha and higher will not be permitted on property with an area smaller than 1400m² and with a street front less than 18meters;*
  - *Densification from 30 units/ha up to 44 units/ha will not be permitted on property with an area smaller than 700m² and a street front less than 12meters;*
  - *Densification of higher than 64 units per hectare, specifically in the area between the CBD (Biccard Street) and Burger Street, will not be permitted on erven smaller than 2855m², and*
- *The suitability of the property and individual dwelling units i.r.o. parking, including parking for visitors on the property. "*

The SDF further includes that although the table i.r.o. permitted densities provides for specific densities, *"it does not necessarily mean that the property will be subdivided. However, should the erf be subdivided into further portions, the table also provides for minimum erf sizes, both for the categories of "Residential 1" and "Residential 2 and 3". These minimum erf sizes are also applicable i.r.o. any new township establishment application in the affected area.*

For subdivision or layout of erven, the following criteria applies, namely:

- *Orientation:*
  Affording most sunlight to erven/units (north facing);
- *Privacy:*
  - *As density increases, the importance of design for privacy increases. With development or subdivision of any erf smaller than 500m² privacy should be clearly addressed;*
  - *Privacy can be created by barriers and design/style;*
  - *Balconies on double storey dwelling units erected/to be erected on smaller erven should not prejudice privacy of adjacent erven and vice-versa.*
- *Convenience:*

- *The degree of physical ease or lack of difficulty in progressing through daily activity and movement;*

- *Slopes:*
  - *Maximum gradient/slope to be allowed is 1:4;*
  - *Erven with steeper slopes, the erf size should be increased;*
  - *Slopes of panhandle erven shall not exceed 1:8;*
- *Borders and corners:*
  - *It is preferred that erven with 2 or more street fronts should be 20% larger than the ruling erf size in the area;*
  - *Erven with sharp corners should be avoided.*
- *Erf front:*
  - *The erf front of rectangular erven should not be less than 10m in the case of detached dwelling units and 5m in the case of semi-detached dwelling units;*
  - *The erf front for irregular shaped erven should not be less than 3m;*
- *Erf shape & proportion:*
  - *Erven should be properly shaped, especially if the erf is smaller than 500m².*
  - *The ideal proportion is: a=0,64b [where a=street front; b=depth]. Irregular shaped erven should normally be 20% larger than the ruling erf size*
  - *Irregular shaped erven should under no circumstances be smaller than 400m²;*
- *Erf size:*
  - *Minimum erf sizes of erven to be subdivided shall be in accordance with Table 6;*
  - *Apart from the above mentioned minimum erf sizes, the municipality may permit a 10% deviation of the minimum erf size in the case where semi-detachable dwelling units will be provided. (The necessary Site Development Plan should be submitted and conditions should be laid down in order to guarantee the development outcome);*
- *Panhandle erven:*
  - *Panhandles shall not be less than 3m wide in the case of a density of one dwelling unit per erf.*
  - *In order to accommodate 2-way traffic, panhandles shall not be less than 6m wide in the case of any density from 45 dwelling units per hectare and higher. These requirements may be relaxed in exceptional circumstances if a proper traffic impact study is submitted to proof the desirability thereof."*

(ii) Framework Plan for SDA 2, June 2000.

The current framework plan for the study area, titled "*Southern Gateway Development Plan and Framework Plan for Ivydale Agricultural Holdings*" dates back to June 1999 and was only adopted by the municipality in 2000.

This plan followed recommendations and strategies contained in the first Land Development Objectives (LDO's), which was adopted in 1998. These LDO's already earmarked the study area as Strategic Development Area.

This plan actually combined a development plan for the area (functional development area – development corridor) known as the Southern Gateway along the N1-route, as well as a framework to guide future township establishment and development in the area of Ivydale Agricultural Holdings.

The final spatial map of this Framework Plan is attached as ***Figure 3*** hereto.

In short, the Framework Plan entails:

- Road hierarchy whereby Class 1 to 5 roads are proposed;
- Development proposals along Southern Gateway;
- Guidance of land uses and community facilities (e.g. convenience retail) required in the SDA;
- Densification (for the interim) i.r.o. agricultural holdings whereby subdivision up to 1ha may be permitted.

With specific reference to the Southern Gateway the proposals contained the following, namely:

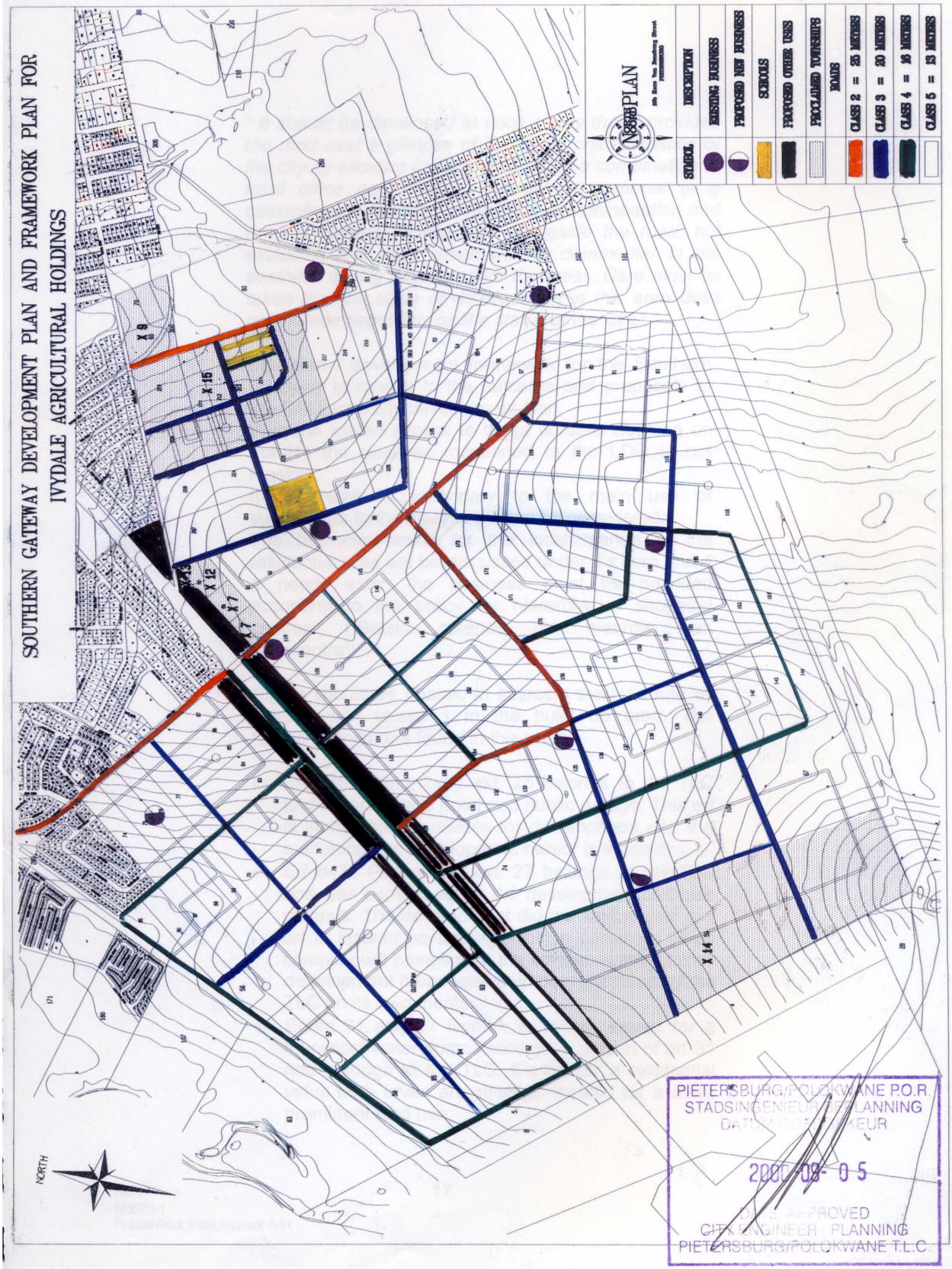
- Spontaneous development in phases adjacent to the N1, as follows:
  - Phase 1: From CBD up to Lawton Road and involves Erven 7859, Pietersburg X 25; Erf 6471, Pietersburg X 27, Holdings 31 and 32,
  - Phase 2: From Lawton Road up to Mc Gaffin and Orpen Roads and includes land next to Nirvana x 3; and
  - Phase 3: From Orpen Road up to the end of SDA.

(iii) Policy on Gated Communities in Polokwane, 2005.

Due to concerns with the spatial impact of gated communities on the urban form of the city, and because the municipality received requests for existing neigbhbourhoods to be enclosed or converted into gated areas, the municipality embarked on a process to introduce a policy in this regard.

In other SDA's (e.g. SDA 3) there is a major trend towards establishing security villages (gated communities) in most new residential development areas. Although, gated communities are currently not that much present in SDA 2, the policy should be perused because it should also guide proposals contained in this plan and development in SDA 2.

FIGURE 3


SOUTHERN GATEWAY DEVELOPMENT PLAN AND FRAMEWORK PLAN FOR
IVYDALE AGRICULTURAL HOLDINGS
NORTH
PLAN
DESCRIPTION
EXISTING BUSINESS
PROPOSED NEW BUSINESS
SCHOOLS
PROPOSED OTHER USES
PROPOSED WORKSHOPS
PARKS
CLASS 2 = 25 MINS
CLASS 3 = 20 MINS
CLASS 4 = 15 MINS
CLASS 5 = 10 MINS
PIETERSBURG/POLOKWANE P.O.R.
STADSINGENIEUR - PLANNING
2009 -09- 05
CITY ENGINEER - PLANNING
PIETERSBURG/POLOKWANE T.L.C.

The policy basically introduces Categories and Development Models (types) in respect of gated communities as well as how it can be introduced in an area.

The categories and models are set out in ***Table 4*** below:

TABLE 4: POLICY GUIDELINES AND GATED COMMUNITIES

MATRIX: CATEGORY MODEL	**NORMAL ACCEPTED PRACTISE**	***ONLY ACCEPTED IN EXCEPTIONAL CIRCUMSTANCES**	**NOT ACCEPTED**
	COLUMN 1	***COLUMN 2***	***COLUMN 3***
MODEL 1 (PRIVATE COMPLEX)	**CATEGORY A &** B GREEN FIELDS & CONVERSION		
MODEL 2 (ENCLOSED NEIGHBOURHOOD)		**CATEGORY B** CONVERSION	**CATEGORY A** GREEN FIELDS
MODEL 3 (SECURITY VILLAGE)	**CATEGORY A** GREEN FIELDS	**CATEGORY B** CONVERSION	
MODEL 4 (LIFESTYLE ESTATE)	**CATEGORY A** GREEN FIELDS		**CATEGORY B** CONVERSION

Source: Polokwane Municipality; 2005: Policy on Gated Communities in Polokwane, May 2005

The major element of this policy is the level of access or access restriction and status of the roads (i.e. private or public), which differs according to the different models.

The policy therefore provides for the following levels of access and connection with different models, namely:

"Level 1: Full restricted access: (Applied to Model 1; Private complex)

Access is limited to the residents/occupants in the gated area and their guests only.

Level 2: Partially restricted access: (Applied to Models 3 and 4; Semi-private complex)

Access is limited to the residents/occupants in the gated area, their guests and emergency services, the local municipality and the post and telecommunication services.

Level 3: Passive access control: (Applied to Model 2; Public complex)

The passive monitoring of movement of pedestrians and vehicles through an access point(s) in such a way that which shall not cause restriction of free movement of pedestrians or vehicles to a public road or a street and/or across any other portion of land or erf leading to a public road or street that are normally used by members of the public to gain access to such an area."

The policy subsequently deals with evaluation criteria which specifically refer to spatial implications and long term effects on the urban form. The following is provided in the policy, namely:

"All the applications or proposed developments pertaining to Models No. 2 to 4 of this policy must at least address and be motivated according to the following criteria:

- ***Spatial implications***
  - *Urban form;*
  - *Legibility and accessibility of entire city;*
  - *Urban sustainability and socio-economic impacts;*
  - *Urban fragmentation and integration;*
  - *Land uses;*
  - *Impact on traffic flow and transport patterns;*
  - *Sense of community.*

- ***Safety and security***
  - *Long term vs short term approach towards crime prevention;*
  - *Built environment and combination approach towards crime prevention;*
  - *Displacement of crime and false sense of security;*
  - *Alternative methods of crime prevention:*
  - *Surveillance;*
  - *Environmental design;*
  - *Use of space;*
  - *Involving policing forums and city police force;*
  - *Assisting in local economic development.*

- ***Lifestyle living*** *(if applicable)*
  - *Security and privacy;*
  - *Conditions ensuring a specific character and standard of buildings and property;*
  - *Communal facilities;*
  - *Information technology (internet connections); and*
  - *Landscaping and open space.*

- ***Management aspects***
  - *Maintenance of roads and services;*
  - *Managing bodies and compliance with conditions;*
  - *Public functions;*
  - *Section 21 Company (Registration, title conditions of erven, articles of association).*

- ***Technical aspects***
  - *Classification of roads in area/affected;*
  - *Traffic impact study;*
  - *Land uses affected by closure/development;*
  - *Long term spatial planning;*
  - *Generic requirements.*

- ***Legal implications***
  - *Procedure in legislation;*
  - *Public liability;*
  - *Access Control (Controlled Access and Partially Restricted Access);*
  - *Interference with normal traffic and pedestrian movement;*

- *Constitution of South Africa;*
- *Liability of Section 21 company.*

❖ ***Public participation/role players***

- *100% owner directly affected by conversion and to form Section 21 Company (where applicable);*
- *67% of owners in adjacent area indirectly affected;*
- *SAPS;*
- *City Police (Community safety);*
- *Traffic police;*
- *Fire Brigade;*
- *Local/Ward Councillor;*
- *Taxi associations/forums (where applicable)".*

Lastly the policy deals with the important aspect of traffic movement and mobility (accessibility), and provides the guidelines as reflected in ***Table 5*** below:

TABLE 5: ACCESS RESTRICTION GUIDELINES

ROADS WHICH MUST NOT BE RESTRICTED	ROADS WHERE ACCESS RESTRICTION MAY BE CONSIDERED SUBJECT TO TRAFFIC IMPACT STUDY	ROADS WHERE ACCESS RESTRICTION WILL NORMALLY BE ACCEPTABLE WITHOUT TRAFFIC IMPACT STUDY
Primary routes (Class 1)	Local distributors (Class 4) that carry low volumes and which have close alternative routes	Cul-de-sacs shorter than 100m
Major arterials (Class 2)	Accesses to offices and other businesses, not dependant on passing traffic	Access streets (Class 5)
Minor arterials (Class 3)	Informal public transport routes	
Local distributor (Class 4) with no convenient alternative route	Cul-de-sacs longer than 100m	
Local distributor (Class 4) carrying high volumes (1000 vehicles/day or 100 vehicles/peak hour)		
Bus or other formal public transport routes		
Access to any public facility (e.g. schools, parks, hospital) or retail facilities or public office (e.g. shops, government offices).		
Access to services facilities (e.g. substations, reservoirs, sewer pumps, etc.)		

Source: Polokwane Municipality; 2005: Policy on Gated Communities in Polokwane, May 2005

The policy also provides for specific requirements/standards when access gates and access control facilities are introduced/planned. The following table (***Table 6***) is an extract in this regard:

TABLE 6: GUIDELINES PERTAINING TO ACCESS GATES AND ACCESS CONTROL FACILITIES

FACET/MEASURES		PREFERRED	REQUIRED MINIMUM
Set back of gates/booms from nearest through kerbline along public road	Vehicles (access control point)	20m	
	Maintenance vehicles gate	10m	
Minimum opening (width) gates/booms for vehicles (access control point)	Two-way traffic	The existing roadway or minimum of 7m	6m (Lightly trafficked)
	Single vehicle		3,5m (Lightly trafficked)
Minimum opening (width) of maintenance vehicle gates		4m	3,5m
Minimum vertical clearance of vehicle gates or any structures		5,1m	5,1m
Where access to gated area is from a busy through road, the following should be provided:	Turning lanes-:	25m long at 3m width	Other measures to cater for queuing vehicles
	Lay-bys-:	12m long at depth of 2,5	

Source: Polokwane Municipality; 2005: Policy on Gated Communities in Polokwane, May 2005

(iv) Other policies

Other policies which applied to land use management, but for purposes of this study not considered to impact directly on the proposals, is mentioned as follows:

- CBD Development Plan including recent revisions i.r.o. extension of the CBD south of Marshall Street;
- Policy for the erection and location of Telecommunication structures, masts and base transceiver stations in the Polokwane Municipal area of jurisdiction;
- Policy on Medical and Related Land Uses in the area of jurisdiction of the Polokwane Municipality, including the (reviewed) Policy on the Regional Medical Node;
- Policy on Spazas and Taverns.

(v) Polokwane/Perskebult Town Planning Scheme, 2007.

The town planning scheme and land use management system in operation in the study area, is the Polokwane/Perskebult Town Planning Scheme, 2007.

The town planning scheme is not a policy document as those discussed in subparagraphs (i) to (iv) above. Forward planning guides decision making, whilst the scheme provides for a legislative mechanism to assign land use rights to each individual piece of land. It provides in final development

controls and determine the type and extent of buildings and land uses on a specific portion of land.

Considering the scope of this project and main focus of the SDA, it is only regarded essential to peruse the aspects i.r.o. the residential component, with specific reference to permitted densities of dwelling units.

The scheme provides in the following residential use zones and densities as can be seen in ***Table 7*** below, namely

TABLE 7: EXTRACTS FROM RESIDENTIAL USE ZONES CONTAINED IN POLOKWANE/PERSKEBULT TOWN PLANNING SCHEME, 2007

Use Zone	Uses permitted	Primary right or density of dwelling unit/s permitted	Maximum density of dwelling units permitted with consent use (secondary right)
"Residential 1"	Single Family Residence.	1 detached d.u./erf	30 detached or semi-detached d.u./ha
"Residential 2"	Single Family Residence.	31 detached or semi-detached d.u./ha	44 detached or semi-detached d.u./ha
"Residential 3"	Single Family Residence;	44 attached, detached or semi-detached d.u./ha	74 attached, detached or semi-detached d.u./ha
	Retirement Village.		
"Residential 4"	Single Family Residence;	1 detached or semi-detached d.u./erf	75 attached, detached or semi-detached d.u./ha
	Two-family Residence;	2 detached or semi-detached d.u./erf	-

Source: Polokwane Municipality; 2009: "Polokwane/Perskebult Town Planning Scheme, 2007"

In order to understand the extent and meaning of the terms used in the table above, the following definitions are quoted from the relevant town planning scheme-in-operation.

- *"ATTACHED DWELLING UNIT or ATTACHED BUILDING - means a dwelling unit or building that abuts or shares two side walls with other buildings on adjoining erven on two boundaries on the sides, other than the boundary with the street."*

- *"DETACHED DWELLING UNIT or BUILDING - means a freestanding dwelling unit or building on an erf or property which does not abut or shares any wall with other buildings on adjoining erven or property and where all sides of the dwelling unit or building are surrounded by open areas within the erf or street."*

- *"DWELLING UNIT - means an interconnected suite of rooms which may not include more than one kitchen, designed for occupation and use by a single household or single person or couple, including the usual ancillary outbuildings and which, when connected with another dwelling unit or dwelling units, constitute an apartment building (flats)."*

- *"SEMI-DETACHED DWELLING UNIT or SEMI-DETACHED BUILDING – means a dwelling unit or building on an erf that abuts or shares one side wall with another building on an adjoining erf, where the remaining sides of the building are surrounded by open areas or a street/s. "*

- *"SINGLE FAMILY RESIDENCE – means a building containing one (1) dwelling unit occupied by a single family or household. "*

- *"TWO FAMILY RESIDENCE – means a building containing two (2) dwelling units occupied by two families or two households."*

2.2.2 Demographic & socio-economic profile of the area

In terms of the 2001 Census population, SDA 2 constituted only a small part (2113 persons or 0.4%) of the total population of the Polokwane Municipality. (See ***Table 8)***

TABLE 8: SDA 2 POPULATION, 2001

Area	Population 2001	%
SDA 2: Ivydale AH	2,113	0.4%
Polokwane LM	**508,279**	**100.0%**

Source: 2001 Population Census

According to the 2007 Census the Polokwane population increased to about 561 172 people, but because the 2007 figures are only available per municipality (as the smallest unit), no comparative analysis could be made with regard to the population residing in SDA2 by 2007.

The Census 2001 information was thus also used to compile a demographic profile for the area, for the reason that it is still the most recent available statistics per sub place name level.

The following represents a brief summary of the most salient features of the SDA2 area's population based on the 2001 Census results:

(i) Economically Active Population

From ***Table 9*** it is evident that a large segment of the population in SDA2, approximately 75%, forms part of the economically active population (15 to 64 years), compared with 59% in Polokwane Municipality as a whole, and 55% in Limpopo Province. A relatively low percentage (25%) of the population in SDA2 is thus not economically active.

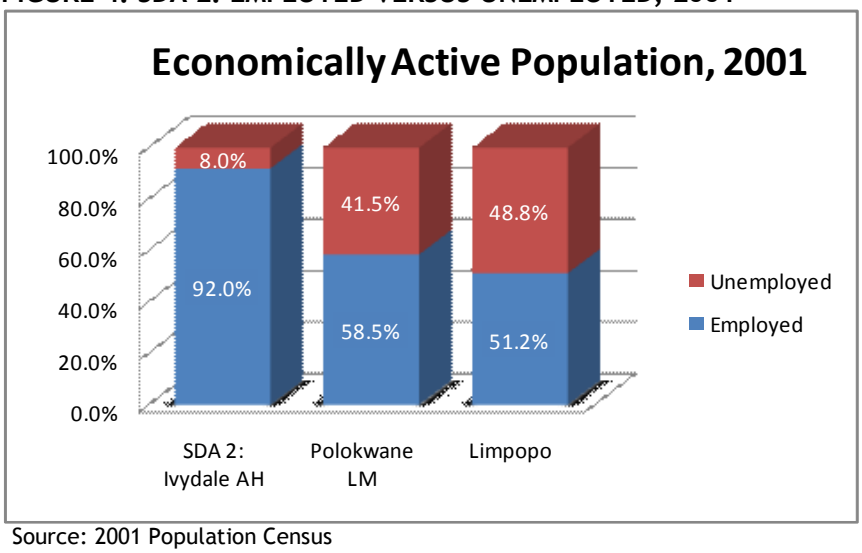
TABLE 9: SDA 2: AGE DISTRIBUTION, 2001

Area	0-4	5-9	10-14	15-19	20-24	25-64	65+	Total
SDA 2: Ivydale AH	8.9%	8.0%	4.9%	4.8%	12.1%	57.9%	3.5%	100.0%
Polokwane LM	**10.7%**	**12.4%**	**12.8%**	**12.1%**	**9.4%**	**37.7%**	**4.9%**	**100.0%**
Limpopo	**11.4%**	**13.7%**	**14.3%**	**13.2%**	**9.0%**	**32.8%**	**5.6%**	**100.0%**

Source: 2001 Population Census

From ***Figure 4*** below it would appear that most of the economically active population is employed as only an 8% unemployment rate was recorded, which is low compared to 42% in Polokwane and 49% in Limpopo.

FIGURE 4: SDA 2: EMPLOYED VERSUS UNEMPLOYED, 2001

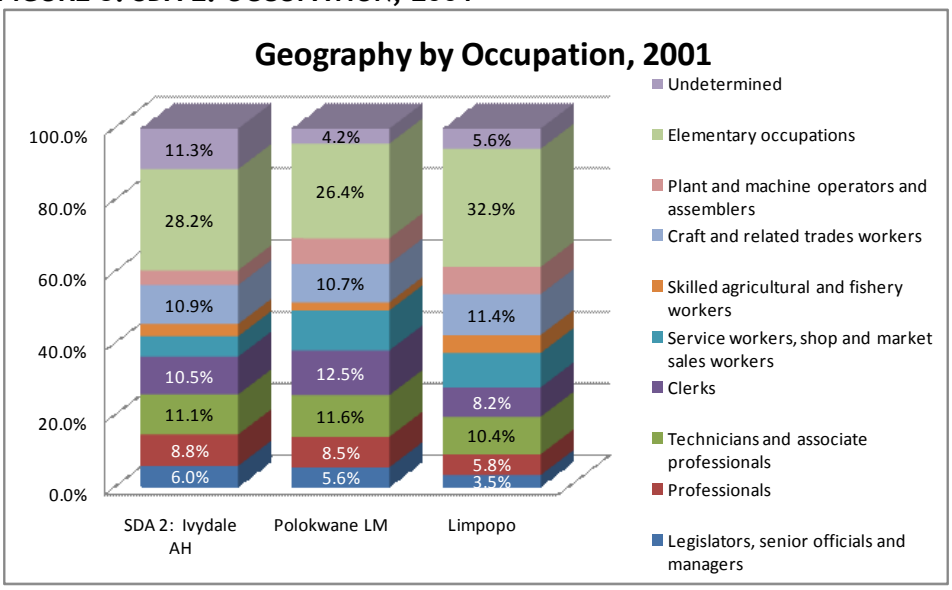


Source: 2001 Population Census

(ii) Occupation

The dominant occupations of people residing in the area include elementary occupations (28,2%), technicians (11,1%), and craft and related trade workers (10,9%). These occupations are supported by clerks (10,5%), professionals (8,8%) and managers (6,0%). (See ***Figure 5)***

FIGURE 5: SDA 2: OCCUPATION, 2001

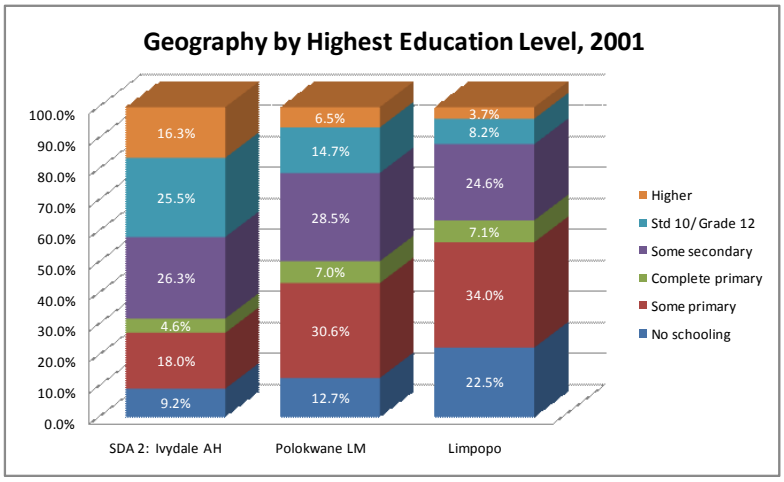


Source: 2001 Population Census

(iii) Highest Level of Education

Figure 6 depicts the level of education in SDA 2 compared with Polokwane and Limpopo Province. It seems that the population residing in SDA 2 obtained a relatively higher level of education compared with Polokwane and Limpopo; 25.5% obtained a Grade 12 qualification and 16.3% of the population achieved a higher education. The comparative percentages were 14.7% and 6.5% respectively in Polokwane and 8.2% and 3.7% in Limpopo.

FIGURE 6: SDA 2: HIGHEST LEVEL OF EDUCATION, 2001



Source: 2001 Population Census

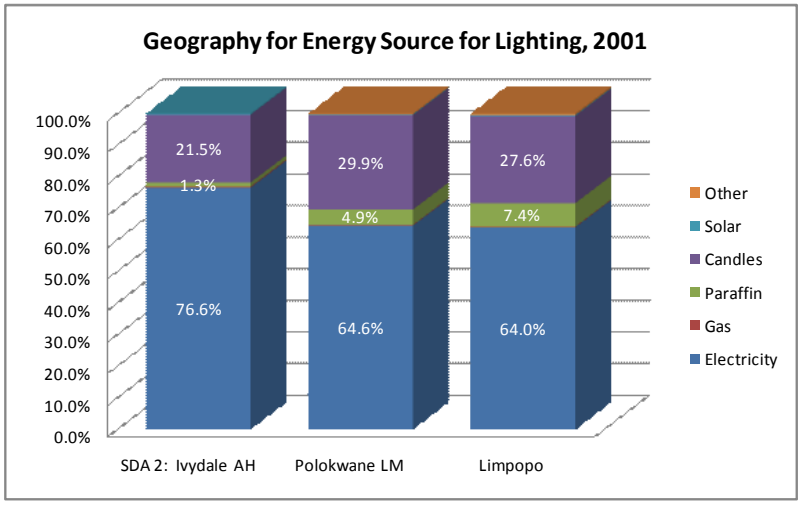
(iv) Access to Services

Access to social and economic services enables people to participate fully in the economy and their communities. When services such as water, energy and transport are available to people, they can spend more time doing profitable work, while communication establishes a vital link between people and the outside world. Service delivery in SDA 2 is in general good as illustrated by the following graphs:

(a) Lighting

77% of all households in SDA 2 used electricity as their source of lighting, compared to 65% in Polokwane and 64% in Limpopo. (See ***Figure 7***)

FIGURE 7: SDA 2: ENERGY SOURCE FOR LIGHTING, 2001

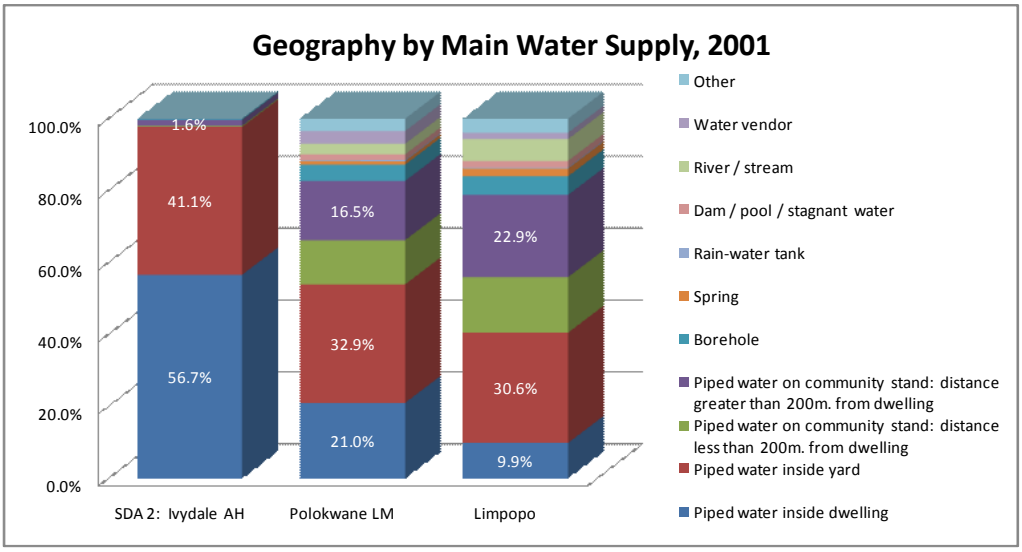


Source: 2001 Population Census

(b) Water

57% of all households in SDA 2 recorded the use of piped water inside their dwelling, compared to 21% in Polokwane and 10% in Limpopo. (See ***Figure 8***)

FIGURE 8: SDA 2: MAIN WATER SUPPLY, 2001



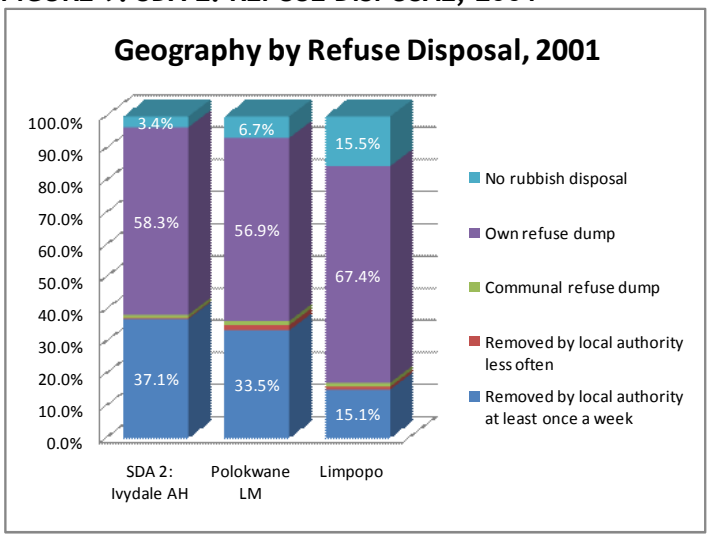
Source: 2001 Population Census

(c) Refuse Disposal

The majority (58%) of the households in SDA 2 make use of their own refuse dump, followed by 37% of households whose refuse are removed by the local authority. The situation is very similar in Polokwane LM. In Limpopo Province, only 15% of all households

reported regular refuse removal services from the local authority. (See ***Figure 9***)

FIGURE 9: SDA 2: REFUSE DISPOSAL, 2001

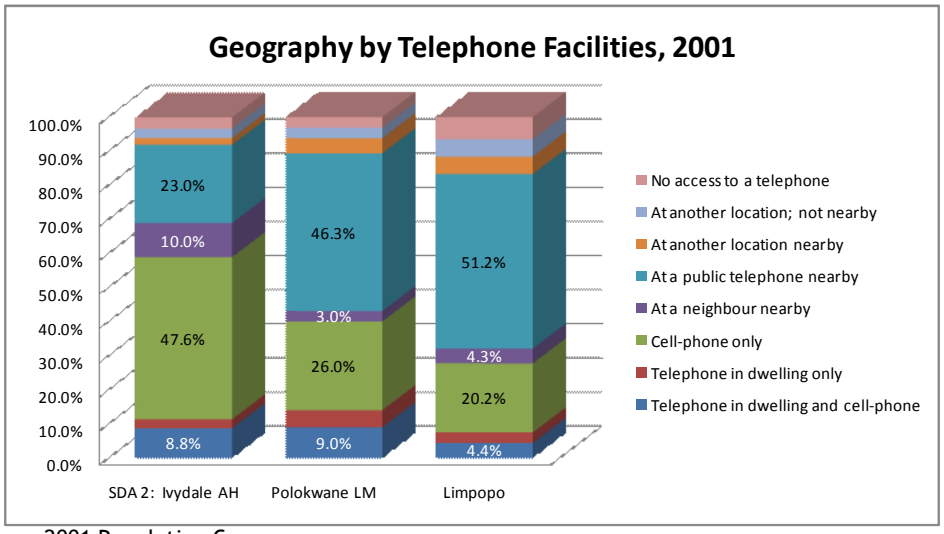


Source: 2001 Population Census

(d) Telephone

From Figure 7 it is evident that land line telephone services seem to be a problem in the SDA 2 area, as only 9% of the households reported to have telephone services available in the house, opposed to 48% having access through cell phones. (See ***Figure 10***)

FIGURE 10: TELEPHONE FACILITIES, 2001

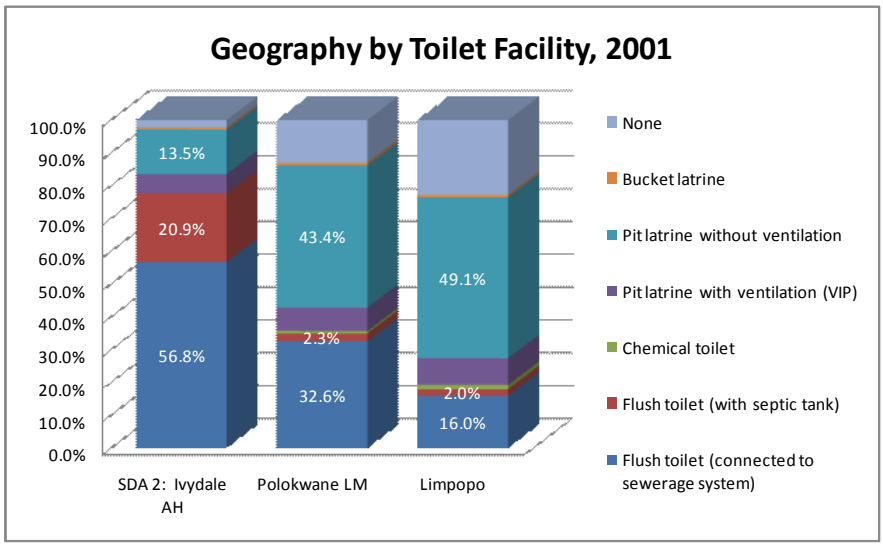


Source: 2001 Population Census

(e) Toilet Facilities

SDA 2 is relatively well served in terms of flush toilets connected to a sewerage system (57%), compared to 33% in Polokwane and 16% in Limpopo Province. (See ***Figure 11***)

FIGURE 11: TOILET FACILITIES, 2001



Source: 2001 Population Census

(v) Conclusive Summary:

The information included above reflects on the demographic profile of the community that resided in the SDA 2 area during 2001. In general, it was a small community, comprising middle and higher income families with relative high levels of skills and employment, and residing in a rural-residential environment.

It should however be noted that the development capacity of the area (SDA 2) is significantly higher (should it be urbanized), and it will thus in future be populated by a predominantly new community moving into the area.

The demographic profile of the future community will be determined by the composition and typologies of new developments to be established in the area. Current development trends in the area seem to indicate that it will be predominantly middle to middle-higher income residents.

2.2.3 Environmental analysis

Attached hereto as ***Annexure A*** is a complete report by Africa Geo-Environmental Services (AGES) i.r.o. the assessment of environmental issues for purposes of this study.

The subsequent paragraphs include a brief summary and quotes of the most important aspects from the report.

(i) Introduction

South African and international experience show that new trends are emerging in the accepted practice of Environmental Impact Assessment (EIA). The new trend is to address environmental issues earlier in planning and policy making processes by the use of Strategic Environmental Assessment (SEA).

The need for SEA has arisen from the project-specific nature of EIA and an awareness that environmental issues must be addressed in the process of policy and plan making. These issues have been recognised internationally and are not unique to South Africa. Whilst the Integrated Environmental Management procedure (IEM) has become accepted good practice, SEA has the potential to better integrate the principles of IEM with proposed plans and policies. The rationale for SEA can therefore be summarised as:

- To ensure that environmental issues are addressed in a pro-active way in policies and plans;
- To improve the assessment of cumulative environmental impacts from secondary and downstream development associated with large projects; and
- To focus on sustainable development.

SEA is an issues-driven and participative approach to the environmental assessment of plans and policies. Sustainable development is promoted by assessing the strengths, weaknesses and environmental resources which can support development. Whereas EIA focuses on the effects of development on the environment, SEA looks at the effect of the environment on development opportunities. SEA therefore has considerable potential as a tool for planning and policy-making.

The goals of SEA are not new and many existing tools for environmental management can be utilised in an SEA process. An appropriate approach to an SEA would depend on the expressed needs and priorities of developers, Authorities and community groups. Since it is these needs and priorities which define the approach to a strategic assessment, SEA can improve the efficiency and effectiveness of policies and plans whilst focusing attention on sustainable development.

(ii) Ecological Fatal Flaw Analysis

The assessment of ecological fatal flaws requires a significant departure from the quantifiable mode of analysis according to which the technical, financial and economic aspects associated with a proposed development are considered. The assessment of ecological impacts tends to be an imprecise task and contains a high level of predictive uncertainty. This uncertainty tends to increase in the screening process as attempts are made to reduce the inherent complexity of ecosystems in order to make a rapid preliminary evaluation of possible ecological fatal flaws which would influence whether or not the proposal requires assessment, and the level of assessment required.

Taking cognizance of these uncertainties, the focus of an ecological fatal flaw analysis should be directed at identifying and describing the ecological assets of the target area - in particular those that are recognized to be of regional significance - and predicting the consequences of a proposal that will manifest as irreversible/irreparable impacts on these assets. For example, irreversible or irreparable impacts may include the extinction of species, and the elimination of threatened habitat, which presents high levels of risk to the functional integrity of the ecosystem extending beyond the immediate area in which a proposal would be implemented.

Impact predictions that are made in the course of ecological fatal flaw analysis generally involve a comparison between an anticipated impacted state and a reference standard (e.g. the existing background state). A comparison can also be made between an anticipated impacted state and thresholds at which species or ecosystem functioning is expected to be jeopardized. The precautionary principle should be adopted where there is uncertainty regarding the impact of a proposal on ecosystems.

Pre-application screening thus aims to establish whether a proposed development is flawed in terms of anticipated environmental impacts and whether or not the proposal needs to be authorized by the lead authority. Pre-application screening could therefore:

- Eliminate the need for further environmental assessment, because the proposal has been abandoned on the basis of the fatal flaw analysis.
- Eliminate the need for further environmental assessment, because there is certainty that the proposal will not require environmental authorization to proceed.
- Require adjustments to be made to the proposal prior to submission of the application to the authorities to authorize the activity.

If there are no flaws that militate against advancing to the next phase of the environmental assessment process, which is typically mandatory screening, pre-application screening will have provided a good foundation upon which mandatory screening and, possibly, environmental assessment, can then proceed.

(iii) Strategic Environmental Assessment

Ecological sensitivity analysis

"Ecological sensitivity" refers to a system's ability to resist disturbance and its capability to recover from disturbance once it has occurred. Any area for which a sensitivity analysis is performed can be divided into two main zones namely:

- Natural habitats
- Modified habitats

Natural habitats are still in its natural state, and the degree of influence either by humans or animals are minimal. Modified habitats are habitats that have been significantly altered either by humans or animals. The natural or modified state is evaluated by a quick analysis of the following:

- Previous land use (old cultivated fields or ploughed lands)
- State of habitat (vegetation; water resources; soil surface; disturbance)

Ecological importance and sensitivity assessment of a development is done thereafter using certain criteria, as more clearly described in ***Annexure A*** hereto. Each of the criteria is analyzed according to the development type and the potential impact the development will have on the specific vegetation type over the longer term.

- High sensitivity areas (High Impact Zone) - Conservation priority areas are identified according to the following criteria and no development can be supported in these areas
    - 50 – 100 year flood lines and sensitive catchment areas
    - Rare and endangered species habitats
    - Rocky slopes

- Moderate sensitivity (High impact zone) – Specific mitigation measures needed for development as follows:
    - Erosion prevention during road construction or construction of residences/ other buildings
    - Large trees / protected species should be preserved as part of the development. This includes the natural woodland areas.
    - Many exotic species should be eradicated
    - Use of a professional landscape designer to show the areas where the development will have the least impact

- Moderate-Low Sensitivity (Low impact zone) – widespread indigenous woodland that have become degraded as a result of human influences, although some elements of the natural vegetation have been preserved. Specific mitigation measures as stated for moderately sensitive areas should be implemented, although not at large scale.

- Low Sensitivity (Low impact zone). The development won't have any significant impact on the natural environment. These areas are not as sensitive and can be divided into two specific areas according to the following:
    - Disturbed areas which have been significantly modified for example old cultivated fields, encroached areas. No limitations exist in these areas and the development can be supported

High sensitivity environmental areas

High sensitivity areas within SDA 2 are considered no development zones due to a combination of factors that were identified during the analysis and mapping of the specific classes. Subsequently these areas will not be available for development and actions described in the matrix should be strictly followed for the specific environmental sensitivity class.

Areas with a high sensitivity inside development nodes where a definite policy regarding development zones have been adapted can be developed provided that the actions stipulated inside the matrix are followed. These areas include the major drainage channels. They form part of the floodline and form an important corridor for fauna in the area. No development can be supported in this area.

Moderate - high sensitivity environmental areas

Moderate – high sensitivity areas represent areas on the site where strict mitigation would be needed for development to be supported. These areas are not as sensitive as high sensitivity areas, although certain environmental characteristics occur on site and causing serious concern with regards to development in these areas. Sodic areas on site represent moderate – high sensitive areas. Development should preferably not occur in these areas if alternatives occur on site, while the importance of a geotechnical survey in these areas should indicate specific mitigation measures.

Moderate sensitivity environmental areas

Moderate sensitivity should be preferred areas for development compared to high sensitivity areas inside nodes. The actions described in the matrix should however be strictly followed. High density developments can be supported in moderately sensitive areas, although provision should be made for the following:

- Public open spaces or parks should be created to enhance the aesthetical value of areas. Such areas include natural indigenous woodland, drainage areas, wetlands or outcrops

- Indigenous tree species in the area should be preserved as part of the gardens of the residences, and indigenous trees and plants should be used for landscaping.

Moderate - low sensitivity environmental areas

Moderate-low sensitivity areas can be developed with only limited mitigation measures and should be preferred areas for development compared to high and moderate sensitivity areas inside nodes. Although no specific actions are described in the matrix, the same principles apply for moderate sensitivity areas, although only where applicable. The actions described in the matrix should still be strictly followed. High density developments can be supported in these moderate-low sensitivity areas.

Low sensitivity environmental areas

These areas should be considered as preferred development areas inside the area compared to moderate / high sensitivity classes. Unlimited development can be supported in the area. These areas have often been extensively degraded by previous agricultural activities, dumping of building rubble, garden refuse and litter. These areas need to be identified and rehabilitated.

Matrix for sensitivity classes

The different sensitivity classes referred to above plays an important role in determining whether specific areas will be more or less suitable for sustainable development. A matrix was therefore created to act as a facilitator in the development process. This matrix will be presented in paragraph 4.2.4 below.

Specific reference was made for developers, consultants and other role-players in the development process to follow specific guidelines. Furthermore, management principles also need to be implemented to ensure that the development is sustainable in terms of the natural environment. These guidelines and management principles are presented in the said matrix and forms an integral part of the fatal flaw analysis for future studies.

Sensitive areas of particular importance identified in the Polokwane SDA2 area

Specific areas of importance occur within the area as a result of specific value these features bring to the general area. Ecological aspects, uniqueness, recreational and aesthetical value are all factors contributing to the specific features being of recreational value to the area. To promote such areas would not only benefit and promote Polokwane within the Limpopo Province as a tourist attraction, but will most definitely create conservation areas of benefit to the fauna and flora of the area. Such areas

in the area include the main tributaries of the Sand River and natural woodland.

Corridors – Natural Drainage Channels and Pristine Vegetation:

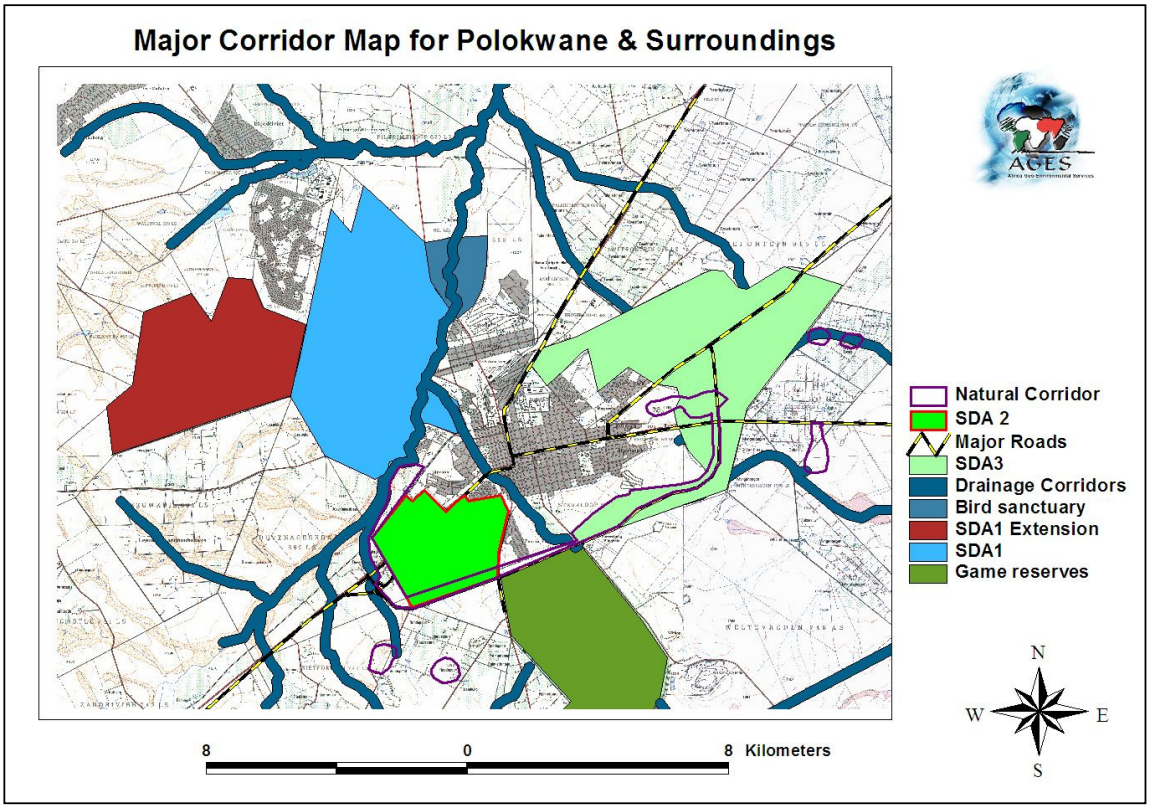
In the development of a large town planning scheme where future residential and town development will destroy or modify most of the natural habitat for plants and animals it is important to link the conservation and sensitive areas with natural corridors to ensure a network of natural vegetation to provide for the movement of animals between these areas. Proposed corridors are indicated on the corridor map (see ***Figure 12*** below) and sensitivity map (See ***Figures 13 & 14***) to link the conservation areas (e.g. Polokwane bird sanctuary, Polokwane Game Reserve) with most of the other identified sensitive areas to provide for the movement of birds, small mammals and herpetofauna.

These corridors will traverse fences, roads and existing developments. Most of the corridors are proposed as part of rivers or drainage lines that should be protected to maintain the drainage system and ecological integrity of the area. The idea is not to preserve these areas as no-go areas for development but certain compatible developments can be allowed outside the river and drainage line buffers in these corridors as long as corridors of natural vegetation remains to provide food and shelter and barriers for smaller animals are minimized. The width of the corridors will vary but should be ± 100 m.

Areas in the SDA 2 area of particular importance as corridors include the following:

- Sensitive wetland, dams and drainage areas where the rare and endangered giant bullfrog occur (see corridor map)
- Natural woodland areas considered to be pristine Polokwane Plateau Bushveld. The importance to conserve these areas as corridors cannot be underestimated, especially considering the degraded and modified state of this unique vegetation type. Areas of particular importance occur in the western section of the study area and are indicated on the vegetation map.

FIGURE 12: CORRIDOR MAP



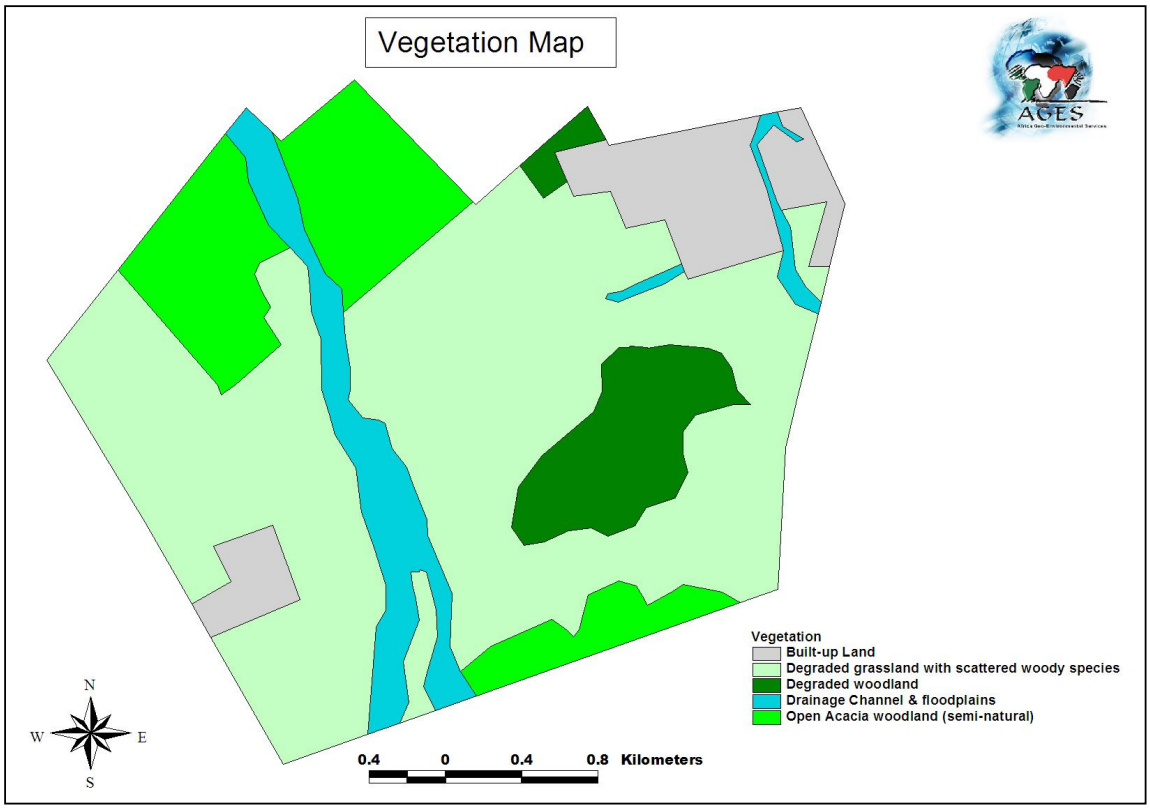
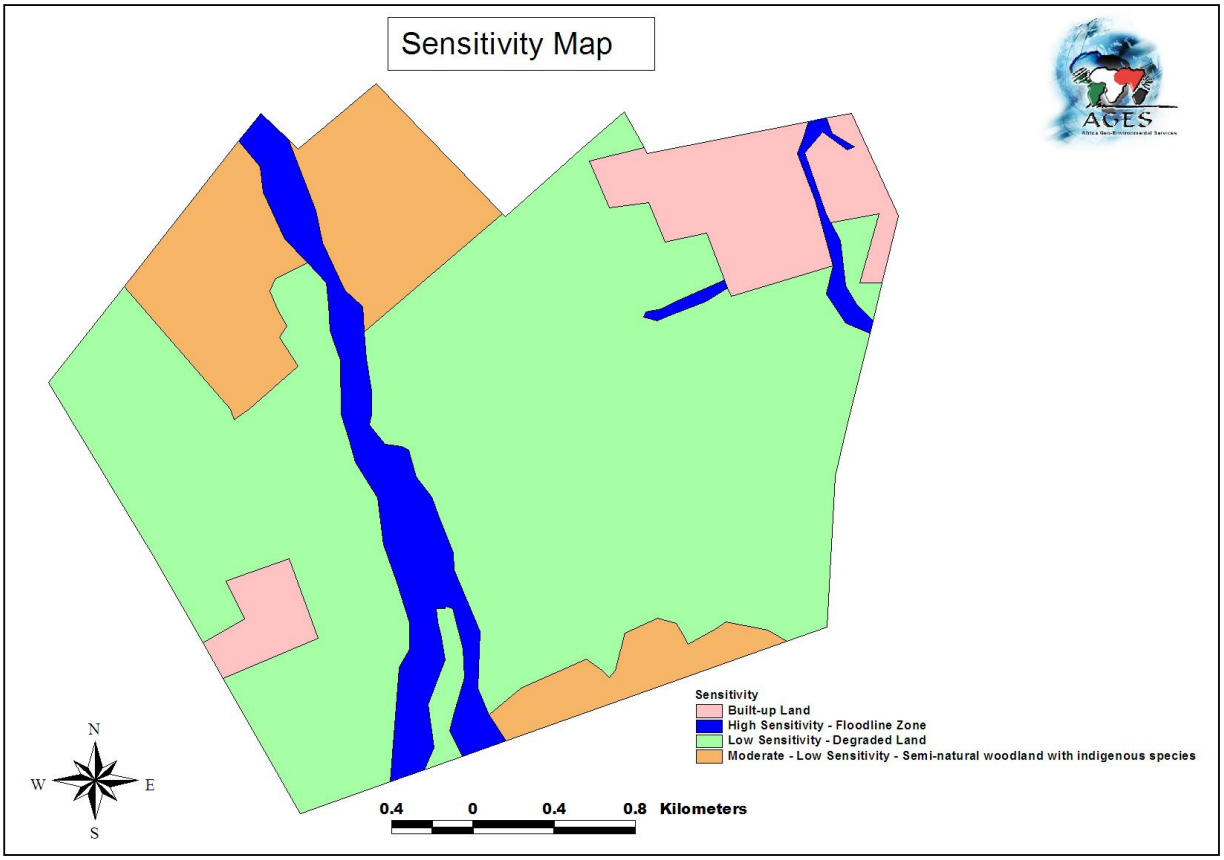


FIGURE 13: VEGETATION MAP

FIGURE 14: SENSITIVITY MAP



2.2.4 Desk top geotechnical assessment

Attached hereto as ***Annexure A*** is a complete report i.r.o. the assessment of geotechnical issues for purposes of this study.

(i) Regional stratography

The site does not reflect any risk for the formation of sinkholes or subsidences caused by the presence of water-soluble rocks (dolomite or limestone), and no evidence of mining activity beneath the study area has been revealed. The landtype map illustrates the regional geological setting of the study area.

(ii) Geological structures

The available geological information indicates the presence of several roughly northeast-southwestwardly striking **dolerite dyke** intrusions throughout the area in which the site is located. These dykes may be visible at surface as thin, roughly linear, discontinuous bands of rounded dolerite boulders.

An east-west trending, discontinuous linear feature deemed to represent a **shear zone** along which crustal displacement has taken place occurs to the south of the site. It is possible that this feature may have altered the rock material underlying the study area to a degree (e.g.: re-melting and re-crystallization of the strata, deformation of the rock layers, etc.).

(iii) Soil profile

Land form distribution

In the light of the available physiographic information, the study area can be divided into the following land forms (i.e.: areas with similar topography, climate- and drainage regime, geology and geohydrological character) according to the systems devised by the National Data Bank for Roads of the Council for Scientific and Industrial Research (CSIR), namely:

Hill crest:	A localized hill crest occurs in the south-eastern and south-western portion of the study area
Pediment slope:	A large portion of the study area can be defined as a very gently sloping pediment slope covered by transported material, and is underlain by weathered gneiss and granite
Gully:	The well-defined gully of a non-perennial stream cuts through the central portion of the study area from central-south to northwest.

Land type distribution, geology and soils

A land type unit is a unique combination of soil pattern, terrain and macroclimate, the classification of which is used to determine the potential agricultural value of soils in an area. The study area classifies mainly as Land Types Ia132 (isolated northwestern and western areas), Ae225 (northern areas) and Ae229 (covers 80% of site). The land types are typified by the presence of only slightly leached, predominantly red-coloured, freely drained soil with a thickness varying between rocky and shallow to in excess of 0.3 m.

The land type, soil and geological formation of the area as classified by the Environmental Potential Atlas, South Africa (ENPAT, 2000) are presented in ***Table 10***. However, it must be noted that soil types are mostly determined by position on the landscape. A land type map (see ***Figure 15***) indicates the location of the land types in the area.

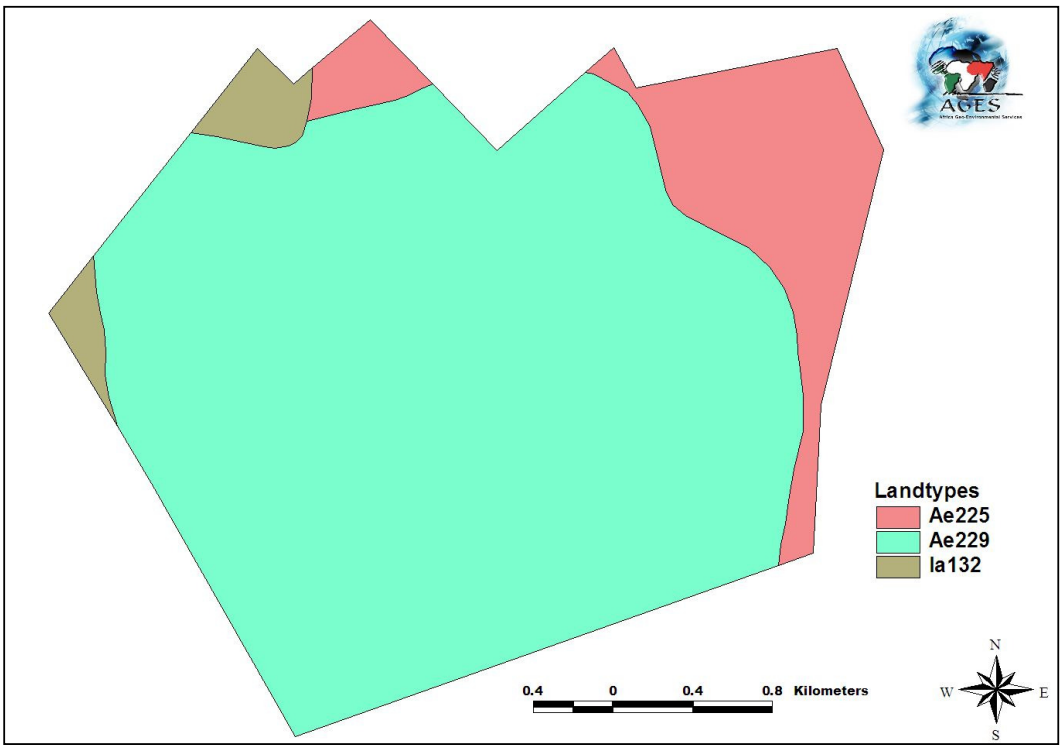
Table 10. Land types, soils and geology of the study area

Land type	Soils	Geology
Ia132	Miscellaneous land classes, undifferentiated deep deposits	Leucocratic migmatite and gneiss, grey and pink hornblende-biotite gneiss, grey biotite gneiss; minor muscovite -bearing granite, pegmatite and gneiss of the Hout River Gneiss. Also alluvium and calcrete of the Quaternary System
Ae225	Red-yellow apedal, freely drained soils; red, high base status, > 300 mm deep (no dunes)	Biotite granite-gneiss, migmatite, pegmatite, lava and pyroclasts
Ae229	Red-yellow apedal, freely drained soils; red, high base status, > 300 mm deep (no dunes)	Turfloop Granite; fine- to medium-grained grey and pink biotite granite with relics of migmatite and banded biotite granite-gneiss, sometimes porphyritic and pegmatitic. Pietersburg Group; acid to intermediate lava and pyroclasts

Recommendations with regards to geology and soils of the proposed study site

- The area does not reflect any risk for the formation of sinkholes or subsidences caused by the presence of water-soluble rocks (dolomite or limestone), and no evidence of mining activity beneath the study area has been revealed. A desktop geotechnical study is still recommended for each proposed development area.
- A plan should be implemented to prevent further erosion and rehabilitate eroded areas present on site.

FIGURE 15: LAND TYPE MAP FOR STUDY AREA



2.2.5 Transportation assessment

Figures 22 and ***28*** illustrate the existing transportation network in and around SDA 2. The following is a brief summary of the most salient characteristics of the Study Area in this regard:

- Towards the north-west the study area is bordered by the alignment of a railway line which is part of the national railway line linking Beitbridge in the north to Cape Town in the south. This railway line is the parallel route to the N1 freeway which performs the same function at national level.
- To the east of the railway station is the N1 route which currently passes through the central part of the Study Area and which bisects it into two halves. This route is the main entrance to Polokwane from the south.
- At present there are five access points on the N1 route from which access can be gained to the study area. These access points are at Campbell Street to the north, followed by Marshall Street; then at Lawton Street; at Megaffin Street in the central part of the Study Area; and then at the road leading to the Roodepoort Agricultural Holdings in the southern part of the study area.
- The N1 bypass or the so-called Tzaneen bypass forms the south-eastern border of the study area and serves as a high order mobility route intended to deviate regional traffic around Polokwane town. There are no direct accesses from the Study Area onto the Tzaneen bypass, apart from

the R37 (Church Street) intersection at the eastern end of the study area. Once the N1 bypass route is fully upgraded this four-legged intersection will be replaced with an access interchange between the two routes.

- The eastern border of the study area is defined by the third prominent road serving the area which is route R37 or Church Street Extension. This road leads from the Polokwane CBD southwards where it links to Chuenespoort and areas like Lebowakgomo and surrounds further towards the south.
- At present there are four accesses onto route R37 from the study area. These include from north to south the Marshall and Suid Street intersections close to the CBD; Limpopo Avenue further towards the south; the Kidds Road intersection in the central part; and the Timbavati Street intersection further towards the south.
- These three routes (N1, N1 bypass and route R37) thus represent the higher order network serving the study area with the N1 bypass which will become a first order/Class 1 road, and the current N1 and R37 being Class 2/Primary Distributor Routes.
- The remainder part of the study area is served by third and further order routes of which the configuration is typically that of an area comprising agricultural holdings. The routes are generally of a low design standard and were originally designed to serve a relatively limited amount of traffic due to the low residential density and intensity of activities associated with agricultural holdings.
- The road network resembles a fairly distorted spatial pattern with limited connectivity between the various parts of the Study Area.
- Due to the size of the agricultural holdings there are also several large blocks of properties in the study area which is not suitable should the area become urbanised.
- The most prominent routes in this area include Kidds/Lawton Road which provides a direct link between the N1 and route R37, and Megaffin/Orpen Road which intersects with the N1, but not with route R37.
- The other shorter link roads in the area include Ridge Road, Smuts Road, Swan Road, Trevor Road, Cross Road, Lukin Road and Fairley Road.
- There is a possibility that the intersection between Cross Road and the N1 may be re-instated again in future as part of the initiative by Council to establish a convention centre between Cross and Lawton Roads to the north of the N1.
- The north-western section of the study area between N1 and the railway line also comprises a very limited road network which was primarily designed to serve the local agricultural holdings.
- The existing network include Cross and Noname Streets which serve as direct links between the N1 and the railway line, and then Jericho, Calcutta and Dawson Streets which link the north-western part of this area to extensions of Nirvana.
- At present there is no formal public transport service to and from SDA 2.

Conclusion

Although there is an existing road network within the study area, it will have to be revised and expanded in future in order to be able to carry the increased traffic volumes associated with the projected development/urbanisation in the study area.

It would thus be necessary as part of this exercise to both refine the network in order to be able to serve a higher density residential environment, and to review the cross sections/road reserves of the routes in order to ensure that these have the necessary capacity to serve the anticipated increased traffic volumes.

2.2.6 State of engineering services

(i) Water supply

Inputs i.r.o. water supply was obtained from S&W Limpopo Consulting Engineers (S&W) who was also appointed by the municipality to undertake certain studies for Polokwane i.r.o. future water needs of the city/study area.

These inputs are subsequently discussed i.r.o:

- Bulk water supply;
- Reservoir capacity;
- Network analysis.

(a) Bulk water supply

The SDA2 area falls within the existing Palmietfontein Reservoir Zone, as shown on ***Figures 16, 17*** and ***18***). *[S&W drwg. no's 0721/SDA2/01, 02 & 03.*]

This reservoir zone receives bulk water from the Ebenezer-, Dap Naude- and Olifants/Sand Transfer Schemes. During emergency situations this reservoir zone can also be supplied with water from the Sand River North borehole field. Several single boreholes in Marshall Street and next to Peninapark also pump water into the network.

(b) Reservoir capacity

Currently the Palmietfontein Reservoir Zone is supplied from the Potgieter Avenue- and Palmietfontein reservoirs.

The Palmietfontein reservoir belongs to Lepelle Northern Water and can therefore not serve as storing capacity for Palmietfontein Reservoir Zone (SDA2).

The capacity of Potgieter Avenue reservoir complex is 25 Mega liter. These reservoirs are supposed to supply the Potgieter Avenue Reservoir Zone with water, but currently they also supply Palmietfontein Reservoir Zone (SDA2) with water.

All three transfer schemes are pumping schemes, therefore the storing capacity for reservoirs are determined for 48 hour duration. The monthly peak amounts to 1,2. The current yearly average daily demand of the Potgieter Avenue Reservoir Zone amounts to 8,575

Ml/24 hr. Therefore the 48 hour monthly peak storage capacity needed amounts to 20,580 Ml.

From the discussion above it can be seen that there is virtually no reservoir capacity available for the Palmietfontein Reservoir Zone (SDA2). The proposed future Roodepoort reservoir complex as shown on ***Figure 18***. [*S&W drwg. no. 0721/SDA2/03*], must therefore be developed as a matter of urgency.

(c) Network analysis

The full supply level of the Potgieter Avenue reservoirs is 1 311 metres Average Mean Sea Level (AMSL). The minimum and maximum design pressures in a network are 20 metres and 90 metres respectively.

If 10 metres friction loss is allowed, then all the areas above the 1 280 metres contour in the Palmietfontein Reservoir Zone, i.e. the southern part of Peninapark and the central part of the Ivypark smallholdings, as shown on ***Figure 17*** [*S&W drwg. No. 0721/SDA2/02*], will have pressures lower than 20 metres or no pressure at all during peak flow conditions.

This issue can be temporary resolved by supplying these areas directly from the Olifants/Sand Transfer Pipeline by means of pressure reducing valves. The long term solution will be to develop the Roodepoort Reservoir Complex as soon as possible.

(d) Conclusion

From the report the following is evident, namely:

- There is not sufficient reservoir capacity for SDA 2;
- The proposed Roodepoort reservoir is a priority in order to ensure sufficient water supply and reservoir capacity to SDA 2;
- Currently the central parts of SDA 2 will experience pressure problems, but temporary measures can resolve the situation.

Insert Fig 16

Insert Fig 17

Insert Fig. 18

(ii) Sanitation services

The sewer from existing townships located in Block 2, south of Marshall Street and east of the watershed along Lawton Road, is drained to a bulk sewer line (± 500mm) running along Marshall/South Street. (See ***Figure 19)***. The Marshall Street line drains to the Pietersburg Sewer Treatment Works located just north of the city.

In respect of the current as well as future needs i.r.o sanitation/sewer for townships in this catchment area (Block 2), the Marshall Street line is regarded as adequate.

The area west of the watershed, i.e. Blocks 1, 3 and 4, can also be drained to the Pietersburg Sewer Works *via* the 250 mm Meropa line which connects in its turn to a 450mm line where it enters the township of Westenburg (in the vicinity where Cross Road intersects with the railway line).

However, the delivery of sufficient sanitation is subject to installation of additional 250mm lines as indicated on ***Figure 19***.

In respect of future needs i.r.o sanitation/sewer for townships in this catchment area, namely Blocks 1, 3 and 4, and subject to installation of two additional 250mm lines, the Meropa/Westenburg line is regarded as adequate.

Despite the above mentioned situation the following should be noted. All effluent from areas in Polokwane (Pietersburg), is currently released into the Pietersburg Sewer Treatment Works. Considering the development scenario depicted in this report, as well as the situation/scenarios in respect of SDA 3 as well as certain parts of SDA 1, the current sewer works will not be adequate to handle all the sanitation needs of the city. It is currently operated at full capacity.

In order to meet future demands for treatment of sewer in the greater Polokwane area, the municipality is currently embarking on the establishment/construction of new regional sewer treatment works, located further north in the Soetdorings area. These treatment works will be established at an estimated cost of ±R 300 million, but the date of completion is not yet known. Currently the municipality is still laying bulk sewer lines which will be used for this purpose.

Great care should therefore be taken not to permit development in SDA 2 over the short to medium term, beyond the capacity of the current sewer treatment works and/or if the date of completion of the new regional sewer treatment works are not yet known and be aligned with development programmes of the SDA.

Insert Fig. 19

Insert Fig 20

(iii) Electrical services

The situation pertaining to electrical services are indicated on ***Figure 20*** hereto.

In general, the capacity of providing bulk electrical service over the medium to long term from Beta substation to the areas in Development Blocks 2, 3 and 4 located south of the N1 road, is regarded sufficient, subject to certain improvements over the short to medium term.

Currently, the existing townships south of Marshall Street, and specifically the area marked Block 2a on ***Figure 20***, located south of Marshall and north of Kidds Drive and east of Lawton Road, is served with electricity (66KV to 11 KV) directly from the *Beta* substation, located on the corner of Marshall and Church Streets.

The capacity to serve this area as well as the remaining vacant portions in the area marked as Block 2a, is regarded as sufficient.

However, direct feed of electrical services and Beta substation will not be sufficient to serve the area located in the southern parts of Block 2 and south of Kidds Drive, marked Block 2b. It will be possible to service the latter area should new supply lines be installed and/or mini substation be erected to the west thereof.

Although the 66KV Beta substation will have sufficient capacity to serve Blocks 2, 3 and 4 over the long term, the provision of electrical services with direct feed to future townships in these areas, will be very difficult and expensive due to distance. Another problem is that future expansion of Beta substation is limited. The provision of a 11KV mini substation in the vicinity of the current Orpen Road as indicated on ***Figure 20***, which on its turn is fed from the Beta substation, will make provision of electrical services for township establishment possible in Blocks 3 and 4 as well as Block 2b.

The provision of bulk electrical services in Block 1 is however, more challenging. The area north of the N1 road can't be fed from Beta substation.

Although there exist an 11KV mini substation in Superbia (Tagore & Graniet Street), the latter is used to its maximum capacity and can't be used to serve Block 1. However, it is possible to serve Block 1 from the 66KV Epsalom substation located on the corner of Nelson Mandela Drive and Rissik Street, some 2km away from SDA 2.

Like in the instance with Beta substation, the provision of electrical services with direct feed from Epsalom substation to future townships in Block 1, will be very difficult and expensive considering the distance. It also requires the establishment of an 11KV mini substation in the vicinity indicated on ***Figure 20***. From this 11KV mini substation it will be possible to serve future

townships in Block 1 as well as parts of Blocks 3 and 4 located directly adjacent and south of the N1.

The requirements for the proposed mini substations are as follows:

- Land required for mini substation: ± 200m²;
- Building: 80m²;
- Estimated cost for each substation: ±R 10 million.

2.2.7 Spatial development trends & spatial patterns

(i) Land Ownership

As in the case with SDA 3 to the east of the city, one of the major aspects which gives "form" to urban development and land use patterns in this SDA, is land ownership.

Table 11 below provides a brief summary of the land ownership situation in the study area. The table only includes land (holdings & farm portions) where township establishment was not undertaken yet and thus potentially available for future township development and/or township establishment.

[For more information on land owned by public bodies (e.g. the municipality) please refer to ***Annexures B, C*** & ***E*** for complete tables].

TABLE 11: DISTRIBUTION OF LAND OWNERSHIP IN SDA 2

LAND OWNER-SHIP	TOTAL AREA OF LAND	PERCEN-TAGE OF TOTAL LAND OWNED	LAND WITH DEVELOP-MENT POTENTIAL OWNED BY PUBLIC INSTITUTIONS	LAND WITH DEVELOPMENT POTENTIAL OWNED BY MUNICIPALITY
Public	49,9521 ha	9,1%	20,5989 ha	19,5579 ha
Private	495,1800 ha	90,8%	-	-
TOTAL	**545,1360 ha**		**20,5989 ha**	**19,5579 ha**

It is clear from the above table that land in public ownership is only 9,1% or 49,9521 ha of which only 20,5989 ha holds development potential.

It is also clear that land in private ownership of land dominates the ownership patterns in this SDA, with a total percentage of 90,8% or 495,1800ha owned privately.

The land owned by public institutions (government and municipality) are indicated on ***Figure 21*** below.

The holdings and farm portions within the study area where township establishment/development already occurs, is discussed below.

Insert Fig. 21

Insert Fig. 22

Insert Fig. 23

(ii) Development trends – land uses patterns & township development

A complete zoning map is attached hereto as ***Figure 22***. (Also see ***Annexure C*** for detail i.r.o holdings and farm portions)

Figure 22 includes zoning of all land including agricultural holdings, farm portions and erven within proclaimed townships.

For easier reference, the status of holdings and farm portions within the study area where townships have been established or where it is currently being developed, is indicated on ***Figure 23***. This includes recently approved rights (past two years) where only proclamation may be still outstanding.

Land where applications for township establishment or land development areas have been submitted recently but still under consideration, are indicated as well. Furthermore, land where applications for townships have been approved more than two years ago but may have lapsed, are also included. The latter mentioned categories are marked differently on the map.

Table 12 below provides a summary of townships and status thereof in the study area.

TABLE 12: SUMMARY OF TOWNSHIPS IN SDA2 & DEVELOPMENT STATUS

Township	Description of main purpose	Township/ Proclamation status	Township developm.status
Ivy Park x 7	Residential	Proclaimed	Developed
Ivy Park x 9	Residential, including business (retail)	Proclaimed	Developed
Ivy Park x 11	Snake park & residential	Proclaimed	One part developed.
Ivy Park x 12	Residential	Application lapsed	Undeveloped
Ivy Park x 13	Residential	Application lapsed	Undeveloped
Ivy Park x 14	Casino & Hotel	Proclaimed	Developed
Ivy Park x 17	Residential	Proclaimed	Developed
Ivy Park x 18	Business (Garden centre & nursery)	Proclaimed	Developed
Ivy Park x 19	Residential	Proclaimed	Developed
Ivy Park x 20	Residential	Proclaimed	Developed
Ivy Park x 21	Residential	Proclaimed	Developed
Ivy Park x 22	Residential	Proclaimed	Developed
Ivy Park x 26	Residential, including business (retail)	Approved, awaiting proclamation	Undeveloped
Ivy Park x 27	Residential	Approved, awaiting proclamation	Undeveloped
Ivy Park x 28	Residential	Approved, awaiting proclamation	Undeveloped
Ivy Park x 29	Residential	Approved, awaiting proclamation	Undeveloped
Ivy Park x 30	Place of instruction, Place of public worship	Approved, awaiting proclamation	Developed
Ivy Park x 32	Residential, including commercial (retail)	Approved, awaiting proclamation	Under construction

Ivy Park x 34	Residential	Approved, awaiting proclamation	
Ivy Park x 35	Residential, including business (retail)	Approved, awaiting proclamation	
Ivy Park x 36	Residential	Approved, awaiting proclamation	
Ivy Park x 37	Residential	Approved, awaiting proclamation	
Ivy Park x 41	Business (retail) & residential	Approved, awaiting proclamation	Undeveloped
Ivy Park x 42	Residential	Approved, awaiting proclamation	-
Ivy Park x 43	Residential	Approved, awaiting proclamation	
Ivy Park x 44	Residential	Approved, awaiting proclamation	
Ivy Park x 49	Business (offices)	Application pending	-
Southern Gateway	Business (truck-inn)	Proclaimed	Developed
Southern Gateway x 1	Convention Centre & Hotel	Approved, awaiting proclamation	Undeveloped
Southern Gateway x 3	Residential	Proclaimed	Undeveloped
Nirvana x 4	Residential	Approved, awaiting proclamation	

If the current development trend of private township development is however analyzed, the following is evident.

The dominant land uses contained in township development is Residential in nature and mainly includes “Residential 1” and “Residential 2” use zones, with limited provision for associated community facilities such as schools, convenience stores and open space.

The density of single residential erven (“Residential 1” zoned erven) range up to 30 dwelling units/ha for residential erven, with average erf sizes between 270m^2 to 350m^2. Higher density residential erven (“Residential 2 & 3” zoned erven) also occur throughout the area with an average density between 44 to 64 dwelling units/ha.

In respect of shopping facilities for convenience goods, facilities are basically limited to a small shopping centre in Nelson Mandela Drive/Campbell Street (*Food Zone*) and a corner shop opposite the Ivy Park Primary School. Some other commercial facilities for gardening goods and plants, including recreation facilities such as restaurants, occur along Church Street opposite Penina Park (*Garden Pavilion Centre*).

Along the N1-route some limited commercial activities occur, with a climax creating an aesthetically pleasing spot with the *Meropa Casino and Entertainment World* complex when the city is entered from the south-west.

Thus unique land uses including "Special" use zones are thus mainly concentrated in the area along the two important axles, namely the N1-route from Gauteng (Southern Gateway Development Corridor – DC1) and Church Street, towards Chuenespoort (DC2).

The prominent zonings and approved land use rights i.t.o. the prevailing town planning scheme other than residential and/or agricultural use zones, are indicated on ***Figure 24*** below. This includes land use rights i.r.o. retail, offices and other special rights.

Table 13 below provides more detail in this regard.

TABLE 13:ZONINGS & APPROVED LAND USE RIGHTS IN STUDY AREA OTHER THAN RESIDENTIAL & AGRICULTURE

Property description/township	Zoning and/or approved rights	Applicable land use	Est. GLFA	Hierarchic order; Notes
Erf 949 Ivy Park x 9	Business 2	Shops	500m²	Free standing centre
Erf 1999 Ivy Park x 32	Business 3	Shops	4 000m²	Local convenience centre
Ivy Park x 26	Business 3	Shops	4 000m²	Local convenience centre
Ivy Park x 44	Business 3	Shop	300m²	Free standing centre/shop
Ivy Park x 35	Business 3	Shops	5 000m²	Neighbourhood centre
Ivy Park x 36	Business 3	Shop	1 000m²	Free standing centre
Ivy Park x 41	Business 3	Shops	10 000m²	Neighbourhood centre
Southern Gateway x 3	Business 3	Shops	1 000m²	Free standing centre
Erf 949 Ivy Park x 9	Special	Filling Station	-	-
Southern Gateway x 1	Special	Convention centre & Hotel	-	-
Erven 941 & 942 Ivy Park x 14	Special	Casino & Hotel	-	Meropa Casino & Entert. World
Erven 1 & 2 Southern Gateway	Special	Truck-inn	-	
Erven 1171, 1172, 1173 Ivy Park x 18	Special	Garden centre. Nursery, restaurants, curio shops.	-	Sterkloop Garden Pavilion
Erf 953 Ivy Park x 11	Special	Reptile & snake park, with residential	-	Zannas
Portion 265 of Sterkloop 688 LS	Special	Garden centre, nursery	-	Retsini
Holding 98 Ivydale A.H.	Education	Place of Instruction	-	Ivy Park Primary School
Ivy Park x 30	Education	Place of Public Worship & Place of Instruction	-	-
Southern Gateway x 3	Education	Place of Instruction	-	-

Holding 128 Ivydale A.H.	Municipal	-	-	-
Holding 154 Ivydale A.H.	Municipal	-	-	-
Holdings 31 & 32 Ivydale A.H.	Municipal	-	-	-

To summarise the existing "business" components of secondary activity nodes in the study area, it can be concluded from ***Table 13*** above that ±26 800m² GLFA is provided in terms of retail or convenience shopping facilities.

These secondary activity nodes are indicated on ***Figure 25*** hereto.

Insert Fig. 24

Insert Fig. 25

Insert Fig. 26

2.2.8 Development capacity of SDA 2

(i) Development capacity considering residential development only.

Based on the contents of the foregoing paragraphs, and further assuming that the main objective of SDA 2 is to provide in housing or residential development to serve the city's needs, ***Tables 14*** to ***15*** below reflects the development potential/capacity and expected population within this strategic development area.

These figures/calculations will be used to determine the other required community facilities within the study area. (Refer to par. 4.2.2 below).

The existing land uses on holdings and/or farms are indicated on ***Figure 26***. It excludes existing townships. For purposes of easy reference henceforth, the study area has been divided into four blocks as can also be seen on ***Figure 26*** hereto.

Table 14 below deals with the number of dwelling units and estimated population based on residential erven i.r.o. townships already established, approved or in the process of approval.

Apart from the dwelling units based on the existing township establishment situation, the remaining available land (i.e. holdings and farm portions) was used to determine future development possibilities. ***Table 15*** below reflects the situation of the possible amount of erven or dwelling units as well as the subsequent population, which may result from future township establishment in the SDA.

In order to determine the available area for creation of erven, the total area (496,7608ha) of remaining holdings and farms not yet included in any township establishment, was used as reflected in the Annexures hereto.

A 25% of the area was subtracted from the total in order to make provision for public roads and open space. The available land for further township establishment or creation of erven, was finally calculated to be **372,5706ha.**

Assuming that 80% of the available land for township development will be used for "Residential 1" erven (single residential erven) and 20% for "Residential 2 and 3" zoned erven (multiple residential/townhouses), the following potential number of dwelling units as more clearly reflected in ***Table 15*** below, may become a reality in the area. This represents the development capacity of the remaining land (holdings & farm portions) divided into four blocks. (Also see ***Annexure D*** for more detail.

Table 16 below provides a summary of the total development capacity of SDA 2. It reflects the total estimated number of dwelling units and population for the study area.

TABLE 14: EXISTING AND APPROVED NUMBER OF DWELLING UNITS/RESIDENTIAL DEVELOPMENT IN SDA 2 IN VIEW OF TOWNSHIP ESTABLIHSMENT

Township in SDA 2, as per Block	Est. no. dwelling units i.r.o. "Res 1" erven	Est. no. dwelling units iro "Res 2 & 3" erven @ 44du/ha	Estimated total number of dwelling units (du)	Estimated total number of population
Block 1:				
Southern Gateway	0	0	0	
Southern Gateway x 1	0	0	0	
Southern Gateway x 3	195	374	569	
Ivy Park x 35	0	544	544	
Nirvana x 4	54	88	142	
Subtot Block 1:	***249***	***1 006***	***1 255***	***5 020***
Block 2:				
Ivy Park x 7	0	113	113	
Ivy Park x 9	90	9	99	
Ivy Park x 17	210	0	210	
Ivy Park x 18	0	48	48	
Ivy Park x 19	190	0	190	
Ivy Park x 20	183	0	183	
Ivy Park x 21	183	0	183	
Ivy Park x 22	244	0	244	
Ivy Park x 26	1	268	269	
Ivy Park x 27	0	112	112	
Ivy Park x 28	0	88	88	
Ivy Park x 29	0	47	47	
Ivy Park x 30	0	0	0	
Ivy Park x 32	99	132	231	
Ivy Park x 34	222	0	222	
Ivy Park x 37	72	48	120	
Ivy Park x 41	0	0	0	
Ivy Park x 42	0	319	319	
Ivy Park x 43	83	22	105	
Ivy Park x 44	55	31	86	
Ivy Park x 49	0	0	0	
Subtot Block 2:	***1 632***	***1 237***	***2 569***	***10 276***
Block 3:				
Ivy Park x 11	0	88	88	
Subtot Block 3:	***0***	***88***	***88***	***352***
Block 4:				
Ivy Park x 36	372	81	460	
Ivy Park x 14	0	0	0	0
Subtot Block 4:	***372***	***81***	***460***	***1 840***
TOTAL:	**2 253**	**2 412**	**4 373**	**17 488**

TABLE 15: POTENTIAL NUMBER OF DWELLING UNITS/RESIDENTIAL DEVELOPMENT ON POTENTIALLY AVAILABLE LAND FOR TOWNSHIP ESTABLISHMENT IN SDA 2.

Block no.	Total *area of block available (in ha)	Est. no. dwelling units i.r.o. "Res 1" erven @ 300m² erven	Est. no. dwelling units iro "Res 2 & 3" erven @ 44 du/ha	Estimated total number of dwelling units	Estimated total number of population @ 4 pers/hh
1	69,1019	1 842	608	2 450	9 800
2	91,9444	2 466	748	3 214	12 856
3	123,3874	3 300	1 056	4 356	17 424
4	88,1370	2 333	792	3 125	12 500
TOTAL:	**372,5706**	**9 941**	**3 204**	**13 143**	**52 580**

*Note: Total area excludes 25% assigned for roads & public open space

TABLE 16: SUMMARY OF DEVELOPMENT CAPACITY AND ESTIMATED NUMBER OF DWELLING UNITS IN SDA 2

Component	Est. no. dwelling units i.r.o. "Res 1" erven	Est. no. dwelling units iro "Res 2 & 3" erven	Est. total number of dwelling units	Est. total number of population
Existing & approved townships	2 253	2 412	4 373	17 488
Potential townships on available land	9 941	3 204	13 143	52 580
TOTAL:	**12 194**	**5 616**	**17 516**	**70 068**

(ii) Development capacity considering mixed land uses, including residential as well as other development along Southern Gateway Development Corridor.

Considering the potential of a mixed land use development along the Southern Gateway Development Corridor, and thus assuming that a part of SDA 2 would develop in land uses other than residential, ***Table 17*** below reflects an alternative approach/scenario to paragraph (i) above i.r.o the development potential/capacity within this strategic development area.

For purposes of the calculations, ***Figure 27*** hereto demarcates a potential area along the said corridor which may be used for purposes other than residential. It excludes land contained in existing or approved townships. The assumption was made that the land facing and directly bordering the N1, may be utilised for other purposes, whilst land facing inwards will still be used for residential purposes.

Insert Fig. 27

TABLE 17: POTENTIAL NUMBER OF DWELLING UNITS/RESIDENTIAL DEVELOPMENT ON POTENTIALLY AVAILABLE LAND FOR TOWNSHIP ESTABLISHMENT IN SDA 2, CONSIDERING OTHER DEVELOPMENT ALONG THE SOUTHERN GATEWAY DEVELOPMENT CORRIDOR.

Block no.	Area available for residential develop-ment	Area available for uses other than residential	Est. no. dwelling units i.r.o. "Res 1" erven @ 300m² erven	Est. no. dwelling units iro "Res 2 & 3" erven @ 44 du/ha	Estimated total number of dwelling units	Estimated total number of population @ 4 pers/hh
1	58,1413	10,9595	1 550	510	2 060	8 240
2	87,7720	4,1724	2 340	770	3 110	12 440
3	108,9380	14,4498	2 905	959	3 864	15 456
4	69,2927	18,8443	1 848	612	2 460	9 840
TOT:	**423,1440**	**48,4260**	**8 643**	**2 851**	**11 494**	**45 976**

*Note: Total area excludes 25% assigned for roads & public open space

Table 18 below provides a summary of the total development capacity of SDA 2, considering that other uses may develop along the development corridor, which means less land is available for residential uses.

The table reflects the total estimated number of dwelling units and population for the study area, should uses other than residential develop along the corridor.

TABLE 18: SUMMARY OF DEVELOPMENT CAPACITY AND ESTIMATED NUMBER OF DWELLING UNITS IN SDA 2, SHOULD OTHER USES ALSO DEVELOP ALONG THE SOUTHERN GATEWAY DEVELOPMENT CORRIDOR

Component	Est. no. dwelling units i.r.o. "Res 1" erven	Est. no. dwelling units iro "Res 2 & 3" erven	Est. total number of dwelling units	Est. total number of population
Existing & approved townships	2 253	2 412	4 373	17 488
Potential townships on available land	8 643	2 851	11 494	45 976
TOTAL:	**10 926**	**5 263**	**15 867**	**63 464**

(iii) Conclusion: Development capacity of SDA 2

The development capacity for SDA 2 can be summarized as follows:

The potential or scenario for development for the SDA assuming that the whole area will be developed for residential purposes, is estimated at **17 516 dwelling units** accommodating a population of **70 068 people.**

The alternative and more acceptable scenario, which makes provision for a mixture of residential development as well as other land uses along the Southern Gateway Development Corridor, is estimated at **15 867 dwelling units** accommodating a population of **63 464 people.**

The potentially available land/area for uses other than residential uses along the development corridor, is estimated at 48,4620ha. At an expected and most realistic assumption that the Floor Area Ratio (FAR) of buildings could range between 0,6 of 0,8, it can be calculated that an estimated building floor area between **290 772m²** to **387 696m² GLFA** could be assigned to the study area.

2.2.9 Formgiving elements

Figure 28 provides a conceptual map of the most important formgiving elements in the study area and can be summarized as follows:

- Existing townships – land already taken up by township development (approved and established) in the study area;
- Existing & approved land use rights;
- Land ownership distribution (Privately owned land = 91,5% vs. Public owned land = 8,5%);
- Two axles and Development Corridors –
    - DC 1 - the N1 route from Gauteng (Southern Gateway Development Corridor); and
    - DC 2 - Burgersfort/Chuenespoort corridor along Church Street towards Chuenspoort;
- The railway line – as northern boundary;
- The (planned) N1 by-pass – as southern boundary;
- Newly planned/constructed Marshall-South Street one-way pair and intersection with N1;
- Successful development of first phases of Southern Gateway, i.e. motor city, Builder's Warehouse and proposed Convention Centre;
- Exposure opportunities along important routes, including existing incentives along Southern Gateway Development Corridor;
- Intersections along prominent routes and streets;
- Existing tarred streets (in undeveloped area);
- Grid-iron pattern of existing roads/streets;
- Proximity to CBD as primary activity node and distance i.r.o. job opportunities and facilities;
- Proximity to industrial area and distance i.r.o job opportunities;
- Engineering services-:
    - Stormwater & sewerage drainage (watershed);
    - Provision of water;
    - Roads;
    - Electricity;
- Environmental aspects-:
    - Drainage channels;
    - No risk of the formation of sinkholes or subsidences caused by the presence of water-soluble rocks (dolomite or limestone);
    - No evidence of mining activity beneath the study area;
    - High borehole yield potential in the central and western part of study area;
    - Natural corridors to the west and south of the study area;

- Considerations to link conservation and sensitive areas with natural corridors to ensure a network of natural vegetation to provide for the movement of animals between these areas.

3. SYNTHESIS

3.1 Development scenario/s

3.1.1 Scenario iro residential development

In view of the information reflected in foregoing paragraphs it is recommended that the study area should be allowed to develop mainly as residential area/neighbourhood with required community facilities and amenities.

The facilities required to serve the neighbourhood/s should be developed and managed according to, and consistent with, the policies and strategies of the municipality. More detail for these facilities can be calculated beforehand.

In respect of residential development the current trend and market forces indicate that average erf sizes for single residential erven in the study area should be $\pm 300m^2$. This size is also consistent with the municipality's policy on density for this area. Densities for higher density erven could range between 44 to 64 dwelling units per hectare. Under special circumstances (e.g. social housing projects) the density may even be as high as 74 dwelling units/ha.

Considering moderate densities iro higher density erven and in the range of 44 dwelling units per hectare, it is possible to accommodate between 15 867 to 17 516 dwelling units (houses) with a total population between 63 464 to 70 068 people in SDA 2.

At this point in time it is not foreseen that the framework plan/development scenario for purposes of residential development need to indicate any direction for future growth/expansion of this SDA.

3.1.2 Scenario iro development along development corridors

Secondly to the main purpose of the SDA, the development potential along the two development axles (Southern Gateway Development Corridor and Burgersfort/Chuenespoort Development Corridor) should be permitted in order to compliment the diversity of the city and follow the philosophy as set out in the Polokwane SDF.

The Southern Gateway Development Corridor (DC1) along the N1 should receive more attention and developed more intense than DC2, due to its strategic location and being the city's main entrance from Gauteng. Furthermore, vast portions of vacant land are available in order to ensure proper planning. The "development theme" for this area should be focused

on “regional facilities” rather than providing lower order uses such as local convenience goods.

It is not foreseen that the Burgersfort/Chuenespoort corridor (DC2) along Church Street towards Chuenespoort should develop to the same extent and intensity as DC1. Because of the fact that it is also an important corridor from Burgersfort, land located close to major intersections may be utilized for uses other than residential. At this point in time many developments already occur or have been approved close to major intersection and at strategic points. The “development theme” along this axle should rather be focused on “local facilities” providing goods and services to residents of Polokwane and adjacent neighbourhoods.

Insert Fig. 28

4. DEVELOPMENT FRAMEWORK

4.1 Development philosophy & objectives

4.1.1 Development philosophy

The development philosophy for the study area should follow the provisions of the Land Use Management Bill, which contains a set of simplified principles obtained from the Development Facilitation Act, 1995.

The directive principles for development of the study area will therefore be the following, namely:

- **Equity** resulting in access and use of land in a manner that redress past imbalances;
- **Efficiency** to:
  - promote best use of resources;
  - promote balanced economic development;
  - promote compact sustainable human settlement;
  - discourage urban sprawl;
  - promote close proximity between residential and work places,
- **Integration** to promote efficiency and optimal functional and integrated settlement patterns;
- **Sustainability** to promote sustainable management and use of resources;
- **Fair and good governance** to promote land use measures that are taken timeously and in a democratic, participatory and lawful manner;
- **Public interest** to be of paramount concern.

4.1.2 Objectives

In order to reach the development philosophy for the study area, the following objectives are significant, namely:

(i) Main objective:

- Optimise the development capacity of the SDA in general by promoting the best use of resources (including land and infrastructure), in such an integrated manner that it promotes sustainable and compact human settlement with well balanced economic opportunities considering the following, namely:
  - Objectives and strategies applicable for the larger municipal area as *inter alia* contained in the municipality's Spatial Development Framework;
  - Policy directives of national government, with specific reference to:
    - Breaking new grounds policy;
    - Inclusionary Housing Policy; and
  - The larger public interest.

(ii) Objectives

- To promote and support residential development as primary component of the SDA, but not neglecting essential community facilities and services;
- Apart from the residential component and its associated and essential community facilities, to promote and strengthen development opportunities and appropriate land uses/activities along the SDA's two major axles and development corridors, namely the Southern Gateway Development Corridor (DC1) and Burgersfort/Chuenespoort Development Corridor (DC2) in due consideration of the principles set out in paragraph 4.1.1 above, and without prejudice of objectives and strategies contained in the municipality's SDF;
- To determine appropriate patterns and extent of land uses in order to serve the SDA as well as the city with due consideration of policy directives;
- To establish a proper hierarchic road network by utilization of existing road infrastructure wherever possible and add critical links where required;
- To increase mobility and access to the SDA by providing an internal movement network and hierarchy of roads which serves the entire community and which optimizes the linkages with surrounding movement networks;
- To adhere to and ensure sustainable environmental practice when development is undertaken in the SDA and to functionally incorporate natural environmental features in to the development framework;
- To identify areas of growth and possible extension of the SDA, if necessary/possible;
- To ensure access to essential community services and facilities by provision of private and public localized facilities, especially by means of promoting the multi-purpose cluster concept;
- To create a diverse range of housing typologies in order to not only ensure proper land tenure rights, but also to ensure the creation of mixed income, diverse and integrated communities where housing needs are catered also for the lower income groups;
- To enhance proper design guidelines for settlements;
- To encourage social housing which include co-operative group housing and communal housing;
- To provide development principles and guidelines for land use management as well as other land use policies;
- To consider the capacity of engineering services in the SDA in order to comply with development needs of the SDA;
- To recommend intervention measures required in order to ensure the outcome of the development philosophy – i.e. to comply with principles set out in paragraph 4.1.1 above.

4.2 Spatial Development Framework for Strategic Development Area 2

4.2.1 Design concept/s

The major aspects which guided the design concept is as follows:

The SDA is contained within specific and existing boundaries. The railway line in the north and the newly planned N1-Bypass in the south and west of the SDA, confine development with little opportunity for expansion. The possibility of expansion of the SDA and development into a western direction is further confined by the natural open space corridor as well as the N1-interchange. The most reasonable direction for expansion may be in a southern direction.

The design of the SDA is further based on the road pattern by taking the existing two axles as well as existing intersections into account. Furthermore, new proposals i.r.o. the internal road hierarchy should link with the existing network and larger network of the city/region.

Secondly, environmental restrictions pertaining to the lower lying stream land in the western parts of the SDA, as well as drainage corridors to the west of the SDA as identified by the municipality in other strategic assessments, should also dictate final guidelines for township development.

The existing pattern of land uses within the SDA, namely the existing township development of residential neighbourhoods as well as land uses along the two development corridors, dictated to the design concept. Apart from land uses within the SDA, adjacent land uses (e.g. the Southern CBD) and policies in this regard, guided new ideas.

Lastly, the capacity and location of engineering services were taken into account. In this regard, the watershed which divides the SDA into an eastern and western part, as well as the lower lying land and drainage possibilities in the western parts of the SDA, were some of the considerations.

Phasing of development within the SDA should therefore be done considering the constraints i.r.o. engineering services.

4.2.2 Framework Plan

Figure 29 represents the conceptual framework of desired spatial form for development of the SDA and land use patterns – i.e. the **Framework Plan for Strategic Development Area (SDA) 2**.

Other figures (e.g. *Figure 31*) and subsequent paragraphs in this section will address certain elements contained in above mentioned Framework Plan in much more detail.

The proposals are made with due consideration of all the aspects presented in this study including policy guidelines, environmental considerations,

transportation issues, engineering services, land use issues with specific reference to the development capacity and land use budget contained in paragraph 4.2.3 below.

The plan contains the following major components which will be discussed herein-after, namely:

- Connectivity of the natural environment with a larger open space and corridor system;
- Hierarchy of roads and transportation proposals;
- Residential development i.r.o. provision of housing;
- Required community facilities and services in order to serve the residential component;
- Development along the Southern Gateway Development Corridor and Burgersfort/Chuenespoort Development Corridor;
- Phasing of development/possibilities of expansion of SDA.

Subsequently:

(i) Connectivity of the natural environment with a larger open space and corridor system.

The proposed corridor whereby movement of animals between areas of natural vegetation is ensured in the larger Polokwane area, proceed west of the study area (see ***Figures 12*** and ***28***).

Apart from this city-wide corridor (***Figure 12***) the natural habitat for plants and animals in the SDA should further be linked to conservation and sensitive areas with a natural corridor or "green belt" passing through the lower lying central part of the study area as more clearly shown on ***Figure 29***. This will ensure a network of natural vegetation to provide for the movement of animals between conservation areas such as Polokwane Bird Sanctuary and Polokwane Game Reserve. These open spaces will provide for the movement of birds, small mammals and herpetofauna.

It is not necessary to preserve this "green belt" as no-go area for development, but certain compatible developments can be allowed outside the river and drainage line buffers in these corridors, as long as corridors of natural vegetation remains to provide food and shelter and barriers for smaller animals are minimized. The width of the corridors will vary but should be ± 100 meters. Nirvana Extension 4 provides a great example in this instance.

(ii) Hierarchy of roads – Transportation proposals.

The following classification of roads were used in the Framework Plan and this study as shown in ***Table 19*** below, namely:

TABLE 19 CLASSIFICATION AND FUNCTION OF ROADS IN SDA 2

Classifi -cation	Re-serve width	Function	Description & function
Class 1	-	Trunk road (National & Regional Distributors)	National & Provincial roads
Class 2	-	Primary Distributor (Major Arterial)	Primary network of urban area.
Class 3	30m to 25m	District Distributor (Minor Arterial & Major Collectors)	Distribute traffic between various residential, industrial and business areas. Link between primary network and roads within residential area/s.
Class 4	20m to 16m	Local Distributor (Minor Collectors)	Distribute traffic within communities and link Class 3 and 5 roads. Carry traffic between 400 to 1500 dwelling units
Class 5	*13m*	*Residential access roads*	*Provide access to individual erven. Vehicle access is not their only function, but also used by residents for walking and leasure activities*
Class 5a		*Residential access collector*	
Class 5b		*Residential access loop*	
Class 5c		*Access cul-de-sac*	

The lower order Class 5 (local access roads) are not indicated on the plan, but should form part of the lowest order in the hierarchy of the street pattern for the area. It should be considered at each stage when an application for township establishment is received.

Subsequently:

Figure 30 reflects the proposed future road network for Strategic Development Area 2. The basic point of departure was to utilise all existing road infrastructure in the study area and to add critical links as and where required in order to ensure proper future access to all parts of the area. Apart from unlocking the development potential of all pockets of land, this approach will also ensure an even distribution of traffic throughout the entire area once it is fully developed.

One of the first objectives of the proposed road network is to establish proper linkages between the access points along route N1 towards the west, and route R37 (Church Street/Chuenespoort Road) towards the east. The purpose of this is to allow for east-west traffic movement through the Study Area between these two higher order routes. Both route N1 (existing) and R37 are classified as Primary Distributor (second order) Routes serving the Study Area, and linking the Study Area to the national N1 route which forms part of the eastern bypass route of Polokwane, and which is classified as a Trunk Road (first order).

No land uses, apart from filling stations, are to gain direct access onto either the first or second order routes in the Study Area as described above.

As illustrated on ***Figure 30*** the Suid Street/Marshall Street accesses along route R37 are linked to the Whites Road access on the N1 to the west. In the central parts, the Limpopo Avenue access on route R37 is linked to the N1 via Campbell Street. Further towards the south the Kidds Road access onto route R37 is linked (via Lawton Road) to the N1 further towards the west; while the Timbavati Street intersection along the R37 is linked to the N1 via both Megaffin/Orpen Road and along Cross Road.

Discussions with the transportation engineers of the City of Polokwane revealed that there is a strong possibility of the Cross Road-N1 intersection being re-instated in future in order to serve the proposed Convention Centre located directly to the north of the intersection.

If the Cross Road-N1 intersection is re-instated, it could provide an opportunity for Timbavati-Cross Road to be developed as a District Distributor with a 30 metre wide road reserve which would link Penina Park to Nirvana to the north-west. This route does, however, not cross the railway line to provide a link to Westenburg further towards the north-west.

In this regard Megaffin Road is more appropriate to act as a District Distributor as it is currently planned to cross the railway line and link to SDA 1 to the north-west. It furthermore has an existing intersection on route N1, and it can be functionally linked with Timbavati Road as illustrated on ***Figure 30***.

The proposal is thus that Timbavati-Megaffin Road be developed as a 30 metre wide District Distributor Road serving the central parts of SDA 2, and linking SDA 2 to SDA 1.

It is furthermore proposed that the local road network in SDA 2 be extended towards the south to be linked up with the Roodepoort Road which runs along the southern border of the study area and which has a sufficient road reserve to act as a second 30 metre wide District Distributor in the study area, and specifically linking SDA 1 and SDA 2 to the areas south of the N1-bypass route (e.g. Roodepoort).

By linking the local road network to the Roodepoort Road to the south provides an additional, third option (apart from the existing N1 and R37) in terms of distributing traffic to surrounding areas, and it provides an additional road link from SDA 2 to the N1 to the north-west via the Roodepoort Road.

The current road network (and associated road reserves) in the northern parts of SDA 2 allows for three more District Distributor routes, although at a 25 metre road reserve (see ***Figure 30***). This category includes Kidds-Lawton Road, Campbell Street, and the Marshall-Suid Street one-way pair which links into route N1 as Whites Road.

The remainder parts of the proposed future road network for the area are classified as Local Distributor routes which will have road reserve widths ranging between 16 and 20 metres.

As illustrated on ***Figure 30*** there are also a few important new road links to be provided in the network aimed at improving future movement through SDA- 2.

The main proposals in this regard include the following:

- A link between the Timbavati Street access on R37 and Cross road further towards the west thereof in order to provide for continuous movement between Penina Park and the north-western parts of SDA 2;
- A link between Ridge Road and Orpen Road across Swan Road further towards the south;
- A link between Swan Road across Orpen and Fairley Roads and up to Roodepoort Road. Apart from providing access onto Roodepoort Road (a District Distributor) this link will also halve the block sizes of the agricultural holdings between plot numbers 140 to 160;
- An extension of Trevor Road to act as an additional link between Orpen Road Fairley Road.

Another important feature of the road network is the proposed access roads (Class 4) parallel to some sections of the existing N1 route. The primary objective of these routes is to act as service roads which will give access to properties fronting onto route N1 & R37 (the Development Corridors), and thus to optimise the development potential of these sites.

All the proposed access or service roads can be observed on ***Figure 30*** as well.

It should be noted that the service roads will link up with the third order network in the surrounding areas and will have no direct access onto route N1.

Public transport facilities and services will be predominantly concentrated around the District Distributor network (both the 25 metre and 30 metre roads).

(iii) Residential development i.r.o. provision of housing.

(a) Residential development

It has been concluded in paragraph 2.2.8 (iii) above that between 63 000 to 70 000 people may reside in SDA 2 once fully developed, which represents between 15 000 to 17 000 dwelling units.

The current township (developed and approved) represents 4000 dwelling units (27%) and another 11 000 new dwelling units (73%) can be expected.

The areas for development for new residential purposes are set out on ***Figure 29***.

However, due to temporary restrictions i.r.o. certain engineering services, it is proposed that development be phased as pointed out in paragraph (v) below.

(b) Social Housing - Breaking New Grounds in SDA 2

The lack of land ownership by government bodies in SDA 2 makes the provision of social and more affordable housing projects in this area somewhat more difficult, but not impossible. The objectives of government's policy can be met by:

- Social housing development on public owned land;
- Incentives and conditions to private developers to ensure that social housing is incorporated into other private developments.

The following example is submitted.

Social housing on public owned land:

The township establishment of Ivy Park Extension 35 is in the final processes and proclamation is expected soon. The government is involved in the development of this township and it can only be concluded that it is for the purposes of affordable housing – i.e. to meet the objective of breaking new ground policy.

Fortunately, Holdings 74 to 77 Ivydale located in Block 1 in the north-eastern parts of the SDA, is owned by Polokwane Municipality. It is understood that Holding 77 form integral part of the Convention Centre and thus not available for housing purposes.

Nevertheless, Holdings 74 to 76 is in total **13,3836ha** in size and makes ideal sense for inclusion of social housing for the lower end of the housing market (e.g. entrance level housing between R200 000 to R300 000) in the SDA and part of the city.

It meets the requirement that this target market should be located close to places of work. The subject property is relatively close to job opportunities such as the proposed convention centre, Builder's Warehouse and the motor city, not to mention possibilities of new commercial development along the Southern Gateway Development Corridor.

Although the use of land in the whole SDA does not exclude the possibility of social housing projects, the example of land/area which may be used for social housing by the municipality, is indicated on the Framework Plan, ***Figure 29*** hereto.

Subsequently:

Considering the mentioned property and reserving enough open space and land for streets etc. it would be possible to use ± 10 ha of that land for housing purposes. If a similar density of 74 dwelling units/ha is used as in the case with the social housing (rental stock) project in Annadale Extension 1, the area can accommodate almost **740 dwelling units**.

It may also be possible to undertake a mixed land development consisting of a mixture of housing types as well as to include land for other community facilities. In this instance it would be possible to accommodate 345 dwelling units. The prospects are indicated in ***Table 20*** below, namely:

TABLE 20: PROSPECTS FOR MIXED DEVELOPMENT ON MUNICIPAL LAND IN SDA 2 WHICH INCLUDE THE SOCIAL HOUSING COMPONENT

Land use	Area per land use	Area for housing	Development potential
Area available for development after areas for open space and roads were subtracted	10,00ha	-	-
Roads & open space	3,38ha	-	-
Area set aside for a primary school	3,50ha	-	-
Area set aside for local shopping centre	1,00ha	-	4 900m² GLFA
Total area available for social housing ("Res 4" at density of 75 d.u./ha)	5,50ha	5,50ha	413 dwelling units
Total no. dwelling units	**-**	**-**	**413 dwelling units**
Total area	**13,38ha**	**5,50ha**	

Incentives and conditions to private developers to ensure that social housing are incorporated into other private developments:

Currently the municipality's policy i.r.o. densities in SDA 2 determines that the maximum number of dwelling units shall not exceed 64 dwelling units per hectare (See par. 2.2.1(i)(g) above). Interpreting this policy guideline and relating it to the town planning scheme, it implies a "Residential 3" use zone with a further consent i.t.o. clause 22 to permit the said density.

Because of the newly added "Residential 4" use zone in the scheme, there are no guidelines to determine where the use of this use zone will be permitted, thus accepting that could not be permitted in SDA 2 at this stage.

The current reality in all types of developments in areas of Polokwane such as SDA 3 and the upper town, is that developers tend to exclude the possibilities of the lower and low-middle income group end of the market. It is accepted that developers normally cater for the higher end of income groups and the age groups between 25 to 64 years. Furthermore, cost of land contributes to higher prices of the end product.

Practically what happens is that "Residential 2 or 3" zoned erven are developed with relatively large town houses earmarked for families and including two or more bedrooms, which is still above the affordability of certain people. The age groups between 20 to 24 years and above 64 years are neglected. In SDA 2 the 20 to 24 years age group comprise

12% of the total population of the study area. [See Table 9 in par. 2.2.2(i)].

On the other end of the scale and especially where the municipality and government are directly involved, such as SDA 1, only the lower end of the market is addressed and subsidized housing schemes provided. There is generally speaking a lack of catering for certain housing types.

In order to encourage the inclusion of social housing or more affordable dwelling units in private developments in SDA 2, the municipality should accept the following approach/policy, namely:

- That private developers/development on privately owned land are free to develop land up to densities of 64 dwelling unit per hectare ("Residential 3" use zone with consent ito clause 22), including also "Residential 1" and "Residential 2" use zones;
- That densities higher as 64 and up to 75 dwelling units will be accepted under certain conditions, namely:
  - If it is a government driven project; or
  - If private developers/development on privately owned land is involved, it would be permitted under the following conditions, namely:
    - That at least 10% of all dwelling units on the erf/land be earmarked for small bachelor (1 bedroom) units – this is to ensure affordability, to cater for single people and to encourage possibilities of rental as a housing option;
  - That a Site Development Plan be submitted and approved together with the original request/application in order to convince the municipality that the development will include a variety of housing/unit types and specifically the more affordable units as pointed out above;
  - That the proposed land use rights include specific conditions by means of an annexure to the scheme which will express the specific composition of units permitted on the land in this regard.
- That should any proposed development comply with the above mentioned approach, a reduced engineering services contribution and contribution i.r.o. open space be applied in the case of any rezoning or consent use application, and/or reduced provision for open space i.r.o. new township establishment/land development area applications.

(c) Gated Communities

Although the possibilities of Gated Communities are not excluded for SDA 2, it is not predicted that a similar challenge will occur as in the case with SDA 3. Firstly, this Framework Plan is presented timeously to insure that spatial implications such as urban sustainability, urban fragmentation, urban form and accessibility are addressed, should any proposal be received in the area.

Secondly, it is predicted that the market trends in this area, being middle-income group driven, will dictate and therefore limiting the occurrence of gated communities.

It is not foreseen that the area will be "flooded" with proposals for gated communities. Nevertheless, should such proposals be received it can be evaluated according to the prescribed policy in this regard, which is regarded as sufficient to ensure sustainable human settlements for the area.

(d) Densities and erf sizes

In respect of higher density developments (i.e. Residential 2, 3 and 4" use zones) it is proposed that densities up to 64 dwelling units/ha be permitted in the study are with due consideration of the relevant criteria set out below.

It is further recommended that densities up to 75 dwelling units/ha be permitted under certain circumstances and subject to certain conditions as discussed in paragraph (iii)(b) above.

Although densities are properly managed in guidelines in the SDF, the following criteria should be strictly enforced and specifically proposed in this study as policy guideline due to the compact nature of development in this SDA and relatively small erven, namely:

- The suitability of the property i.r.o. the size and street frontage in cases where densification or high density development is considered ("Residential 2, 3 and 4" zonings):
    - Densification from 30 units/ha up to 44 units/ha will not be permitted on property with an area smaller than 700m² and a street front less than 12meters;
    - Densification from 45 units/ha and higher will not be permitted on property with an area smaller than 1400m² and with a street front less than 18meters;
    - Densification of higher than 64 units per hectare, will not be permitted on erven smaller than 2855m², and
    - Densification of higher than 64 dwelling units per hectare must be accompanied by a Site Development Plan.

- For subdivision or layout of erven (new layout plans during township establishment included), the following criteria further applies in SDA 2, namely:
    - "Residential 1" zoned erven should not be less than 300m² in size;
    - The municipality may permit a 10% deviation of the minimum erf size in the case where <u>semi-detachable dwelling units</u> will be provided. (e.g. "Residential 4" zoning). This is subject thereto that a Site Development Plan be submitted and conditions should be laid down in order to guarantee the development outcome;

- That erven with 2 or more street fronts should be 20% larger than the ruling erf size in the area (e.g. for a ruling erf size of 300m² in an area, a corner erf shall not be less than 360m²);
- Erven with sharp corners should be avoided, but if they occur they should be 20% larger than the minimum size of 300m², and not be smaller than 360m²;
- The erf front of rectangular erven should not be less than 10m in the case of detached dwelling units and 5m in the case of semi-detached dwelling units;
- The erf front for irregular shaped erven should not be less than 3m;
- Erven should be properly shaped, especially if the erf is smaller than 500m²;
  - The ideal proportion is: a=0,64b [where a=street front; b=depth]. Irregular shaped erven should normally be 20% larger than the ruling erf size
  - Irregular shaped erven should under no circumstances be smaller than 400m².

(iv) Required community facilities and services in order to serve the residential component.

Experience has shown that the standards and required facilities for new development as calculated according to the development capacity of an area, can hardly ever be achieved in South Africa.

Nevertheless, the following is proposed and the municipality and the developers should endeavor to ensure that the following community services and land uses be accommodated in SDA 2:

(a) Shopping facilities

Secondary activity nodes for shopping facilities proposed for the study area are indicated in more detail on ***Figure 31***.

Shopping facilities are divided into centres of local or neighbourhood nature and facilities or centres serving a larger area and even other adjacent suburbs.

The plan therefore provides for:

- Nine (9) local shopping centers spread out evenly throughout the area;
- Four (4) neighbourhood shopping centers spread out evenly throughout the area; and
- One (1) community shopping centre.

In respect of local or neighbourhood centers, the main focus of these centers are to supply services and daily convenience goods to residents of the immediate neighbourhoods/townships within 0,5 to 1,5km or between 3 to 9 minutes drive time. It also includes free-standing centers or corner shops.

The proposed centers as discussed below and reflected in ***Figure 29*** – the Framework Plan – and ***Figure 31*** **-** Secondary Activity Node plan **-** is based on the information set out in ***Table 21*** below. (Also see ***Annexure F***). This table took the total demand based on population size as well as existing and approved facilities into consideration, in order to determine the required facilities for future development.

TABLE 21: ESTIMATED REQUIRED NUMBER AND ORDER OF SECONDARY ACTIVITY NODES (SHOPPING CENTRES) IN SDA 2

Block	**Approved business (existing)**				**Est. total demand for SDA**				**Required demand (new)**			
	GLFA		Number		GLFA		Number		GLFA		Number	
	Loc	NH	Loc	NH	Loc	NH	Loc	NH	Loc	NH	Loc	NH
1	1000	5000	1	1	5928	11856	2	1	4900	0	1	0
2	8800	10000	2	1	9253	18506	3	2	500	12000	0	1
3	0	0	0	0	7110	14221	3	1	7100	12000	3	1
4	1000	0	1	0	5736	11472	2		4000		1	
	10800	**15000**	**4**	**2**	**28027**	**56054**	**10**	**4**	**16500**	**33500**	**5**	**2**

Notes: Loc= Local Centre; NH= Neighbourhood Centre;

Apart from local or neighbourhood centers, the community shopping centre's main focus is to provide a wider range of goods (including specialised, luxury goods) and services to residents of a larger area and adjacent suburbs. Since the study area as well as the suburbs of Nirvana, Westenburg and Penina Park lacks such a facility, the study area provides a great opportunity to cater in this need. Also considering the location of other similar centers, which is placed in the eastern suburbs of Polokwane, the establishment of a Community Centre in SDA 2 to serve residents in the western parts of the city, only makes good sense.

The centre proposed in this regard should therefore serve all the neighbourhoods/townships in SDA 2 as well as other neighbourhoods/suburbs adjacent this strategic development area.

The area served can range up to 2,5km or 14 minutes' driving time and include neighbourhoods/areas such as Penina Park, Nirvana and Westenburg. It may also provide facilities to residents in the western parts of the old town (between Bok to Dorp Street and Devenish to Suid Street).

Only one such centre is proposed for SDA 2 and also indicated on ***Figure 29*** **-** the Framework Plan.

The idea of this proposed Community Shopping Centre is also to create a node which can accommodate and serve as **multi-purpose cluster/centre.**

The multi-purpose cluster/centre should ensure that services, including municipal services/satellite offices, a clinic, police services, postal services, library etc. are accessible to as many people as possible. As

indicated above, these services/facilities should form part of the broader activity node and commercial facilities. Unfortunately the municipality has no land available in this area to initiate such a concept, but the municipality should enter into discussion with prospective developers of the Community Shopping Centre in order to address this issue.

The centre is positioned/proposed close to the development corridor (DC2), as well as along an important district distributor road/route running through the SDA, in order to serve residents of Westenburg up to Penina Park, as well as the vast rural areas to the south of the city, including the small holdings such as Roodepoort, Palmietfontein etc.

It is proposed that this center should be in the range of between 15 000m² to 20 000m² GLFA.

In conclusion, the secondary activity nodes contained in the Framework Plan is set out in ***Table 22*** below and should be read together with all the other guidelines/maps proposed in this study.

It is further recommended that the location of the Community Shopping Centre is important and location should relatively speaking, be "place bounded", whilst the location/placement of lower order centers becomes less important as one moves lower down the hierarchy. These centres are therefore less "place bounded" and should only be located in the area indicated in the table below and subject to criteria set out in the municipality's policy in this regard.

TABLE 22: SECONDARY ACTIVITY NODES OF SDA 2

Sec.Activity Node no.	Status	Shopping Centre order	Name/Location	Estimated GLFA
S 10	Proposed	Community Incl. multi purpose cluster/centre	Along DC2 and District Distributor raod in Block 2	20 000m²
S 11	Approved	Neighbourhood	Block 1 – Ivy Park x 35	5 000m²
S 12	Approved	Neighbourhood	Block 2 – Ivy Park x 41	10 000m²
S 13	Proposed	Neighbourhood	Block 2	12 000m²
S 14	Proposed	Neighbourhood	Block 3 or 4	12 000m²
S 15	Existing	Local	Block 2 - Ivy Park x 32 & Food Zone	4 500m² +5 00m²
S 16	Approved	Local	Block 2- Ivy Park x 26	4 000m²
S 17	Approved	Local	Block 1- Southern Gateway x 3	1 000m²
S 18	Proposed	Local	Block 2	2 300m²
S 19	Proposed	Local	Block 3	2 300m²
S 20	Proposed	Local	Block 3	2 300m²
S 21	Approved	Local	Block 4 – Ivy Park x 36	1 000m²
S 22	Proposed	Local	Block 4	4 000m²
S23	Proposed	Local	Block 1	4 900m²
TOTAL:				**85 800m²**

(b) Offices

Since the municipality's SDF makes provision for limited suburban offices/office parks, it is proposed that SDA 2 also accommodates such low density office park. Based on the population size and income group in the study area the estimated area for offices in this regard should not exceed between **20 000 to 30 000m² GLFA**.

However, this proposal is subject to all other policy guidelines of the municipality and the municipality must be convinced that such development/s will not prejudice the strategies for the CBD or any other area.

It is proposed that such an office park/node be accommodated directly adjacent one of the Development Corridors with sufficient provision of access from a Class 2 road (primary distributor route) *via* a Class 3 road, (District Distributor Route). Although not impossible, great care should be taken if such a node is positioned along a Class 4 road (Local Distributor route).

In order to serve the residents with certain personal services there is also opportunity for lower order offices (e.g. estate agents) to be accommodated in shopping centers at the proposed secondary activity nodes throughout the area.

(c) Educational facilities

For the total estimated population in SDA 2 there are 8 primary schools and an estimated area of 23ha of land required, and 3 secondary schools with a total estimated area of 14,5ha required to serve the educational needs of the community.

However, there are some existing schools. It is also known that in South Africa the ideal situation is never present and it can be assumed that the required standard will not be met. It can also be assumed that due to mobility of people, the required number may be reduced because many residents will make use of other schools in other areas or towns.

Subsequently ***Table 23*** below provides a summary of the situation and a practical solution of schools required for the SDA. The current schools in the area as well as the existing developments were considered. Thereafter an attempt was made to assign/propose schools to the different development blocks in a logical and practical manner.

TABLE 23: SCHOOLS REQUIRED IN SDA 2

Block	Primary Schools				Secondary Schools			
	Number			Area	Number			Secondary
	Std.	Prov	Req.		Std.	Prov.	Req.	
1	2	1	1	2,50ha	1	0	1	3,0ha
2	3	2	1	2,5ha	1	1	0	-
3	2	0	2	5,00ha	1	0	1	3,9ha
4	2	0	1	2,50ha	1	0	0	-
Total:	**9**	**3**	**4**	**12,50ha**	**4**	**1**	**2**	**6,00ha**

Thus required and relative location indicated on ***Figure 29*** as follows:

- School 1: It is proposed that a large enough site be set aside in Block 1 and most probably on municipal owned land, in order to accommodate a primary and secondary school where sport facilities may be shared. An area of ±3,5 to ±5,5ha should be allocated.
- School 2: It is proposed that a large enough site be set aside in Block 3 in order to accommodate a primary and secondary school where sport facilities may be shared. It is further proposed in an area where a "*green belt*" should run in the lower lying areas which provides the opportunity for sport fields. An area of ±3,5 to ±5,5ha should be allocated for this purpose.
- Schools 3 & 4: It is proposed that two sites/land be set aside in Block 3 in order to accommodate two separate primary schools with sport facilities. Each site should be ±2,5ha in size.
- School 5: Although Block 2 houses all the current schools in the study area, it is proposed that another site be set aside in the southern parts of this block in order to accommodate one additional primary school on ±2,5ha of land.

(d) Other community facilities

Table 24 below provides a summary of the situation i.r.o. all other required community facilities in SDA 2.

TABLE 24: OTHER COMMUNITY FACILITIES REQUIRED IN SDA 2

Facility	Area required	Number required
Places of public worship	2,60ha	17
Primary health clinic	0,65ha	6
Community Health Centre	0,26ha	1
Post Office/point	0,59ha	6
Police Service	0,26ha	3
Municipal	0,65ha	1
Community centre/Library	0,65ha	1
Active Open Space	29,68ha	-

(v) Phasing of development & expansion of SDA.

It has been pointed out in the study that there exist temporary restrictions with regard to provision of electrical services, sewerage drainage and provision of water in the study area.

It is therefore suggested that development of the SDA be phased as indicated on ***Figure 29***.

Without consideration of the current situation pertaining to engineering services and the economic recession, and with due consideration of the general growth rate in Polokwane and the area it can be roughly be calculated that the estimated additional number of ±12 000 dwelling units will take between **12 to 15 years** to develop, if not longer.

No other proposals are made at this point in time iro expansion of the SDA.

Subsequently:

(a) Phase 1: Development of Blocks 1 and 2

The development in Blocks 1 and 2 has progressed beyond the point of return and it seems that there are measures in place to deal with the situation for now. It is therefore suggested that development in these two blocks continue uninterrupted, but with caution. The development potential as pointed out in ***Table 17*** above in these two blocks, once fully developed will accommodate another ±20 680 people or **5 170 dwelling units**. The current approved/developed rights accommodates 15 296 people or 3 824 dwelling units.

Thus the total figures includes 35 976 people or 8 994 dwelling units.

It is estimated that this phase will take approximately **5 to 7 year**s to be fully developed.

(b) Phase 2: Development of Blocks 3 and 4

It is proposed that the development in Block 3 and thereafter Block 4 only proceed once all aspects of engineering services in SDA 2 has been addressed by, and to the satisfaction of, the municipality. These blocks will accommodate another 27 488 people or **6 872 dwelling units** in total once fully developed.

It is estimated that this phase will take approximately another **6 to 8 year**s to be fully developed.

(c) Related community services/facilities

It is obvious that other land uses which support the residential component is included in these proposals because it can be directly linked to the community which will reside in the area.

The phasing of development including community services in support thereof, is indicated on ***Figure 29***.

(vi) Development along the development corridors.

(a) Southern Gateway Development Corridor (DC-1):

The main theme of the Southern Gateway has been established initially with the first Land Development Objectives (LDO's) back in 1998. Later on development proposals in this area has been addressed more substantially in planning guidelines contained in the Spatial Development Framework (SDF) of the municipality as well as the 1999-Framework Plan for this functional development area.

Firstly, the theme and development contained in the subsequent proposals are subject to guidelines pointed out in the municipality's SDF, which may include the current 2007-version or revised version currently being conducted.

For purposes of this study it is recommended that the Southern Gateway and specific areas pointed out in ***Figure 29*** may include land uses to serve the larger region, since it is located adjacent one of the most important routes in the Limpopo Province.

This route is the city's main entrance from Gauteng and the appropriate land uses can reflect an image of a prosperous and caring municipality and of a community which enhance development.

Visitors and tourists are directly exposed to visual aspects along a route and aesthetically pleasant developments and a proper mixture of land uses, will surely attract other new developments to the city.

The main focus of development along this corridor should therefore be to provide in land uses/services with national and regional importance/function, still keeping other strategies in mind, (e.g. the CBD Development Plan), and above all, ensuring that development is of the highest architectural and aesthetical quality.

The developments along this corridor should create examples of the type of functions/land uses represented elsewhere in the city, with strong focus on aesthetics, architectural design and consideration of the natural environment.

Developments may include tourism related uses such as hotels and conference facilities, low density office and office parks, retail, warehousing and light industrial uses.

However the industrial type of development should be limited to high-tech type of industries, such as computer companies, *Hi-Fi* manufacturing and distribution, pharmaceutical companies, and other extensive type of uses as can be seen along the Ben Schoeman freeway in Midrand between Tshwane

and Johannesburg. Offices should be limited to office parks with vast areas of landscaping and care of the natural environment, especially in the lower lying areas and in the vicinity of the "green belt" discussed in paragraph 4.2.2.(i) above.

The municipality should take care not to permit a limited range of uses or too much duplication of uses. The objective and theme will not realise if only one of two types of development, e.g. only offices and retail are permitted. Secondly, to permit a limited number of a specific type or use will further ensure that no other strategy is being jeopardized. For example, if a limited number of office developments are permitted it will not oppose strategies for the CBD since it will not lead to a large outflow of office out of the CBD.

This corridor should include a wide range of different land uses reflecting a wide range of services.

Housing in the affected area should also be avoided, not only due to the exposure of noise created by the busy traffic, but also due to the fact that the municipality has less control over the aesthetic quality of housing/dwelling units of individual owners. Since developers transfer erven to individual owners it may not ensure buildings of such high quality as envisaged with this proposal. In any event, there is an approval for a residential township (Southern Gateway Ext. 3) along this route already. This can reflect the residential component. The municipality should however make sure through the process of Site Development Plans and during submission of buildings plans, that the buildings does not lack aesthetic quality.

Other great examples of land uses already contained along this corridor and which reflects a variety, is a private school, snake & reptile park and curio shop.

However, the existing fuel depot and truck-inn on the two erven in the Southern Gateway township, lacks elements of high aesthetic quality. It does not really reflect the quality of land uses envisaged in these proposals. It rather represent hard industrial uses. Although it is very difficult to ensure that such a use is "attractive", the municipality and owner should endeavour to ensure that the land use be changed to a use which enhance the theme, or that the current development be improved i.r.o. building quality and design. This township is actually the first development which a traveler sees along this route when he/she enters the town.

Although not part of SDA 2, care should be taken not to permit other developments outside the SDA and along the N1 from Gauteng, which will jeopardize the initiatives of the Southern Gateway as contained in these proposal. It is recommended that the SDF currently under revision, address this issue thoroughly.

The land indicated on ***Figures 27*** and ***29*** for purposes of development along the Southern Gateway, is estimated at ± 48,4620ha. As pointed out in

paragraph 2.2.8(iii) above it may include building floor area between **290 772m²** to **387 696m² GLFA,** considering a low FAR between 0,6 to 0,8**.**

With consideration of this projected building floor area in the range of 300 000m² GLFA, and the fact that the SDA is contained by the environmental corridor to its west, it is not foreseen that any proposals be made to expand the area earmarked for development along the Southern Gateway Development Corriodor (DC1) for now.

It is expected that the earmarked area should be sufficient to serve developmental needs and the objective of these study proposals for the next five to ten years.

It is rather recommended that the municipality should consider phasing of the development along this corridor. It can be linked with the residential component, or initial development should only be concentrated at important intersections at first – "string of beads" concept. In other words where Primary Distributor routes (Class 2 roads) intersects with District Distributor routes (Class 3) and Local Distributor routes (Class 4 roads) as pointed out on ***Figure 29***.

After earmarked areas/land next to important crossing (node) are saturated, development may move inwards/towards the other crossings (nodes), until all land between these nodes and along the earmarked area has been depleted.

Development along this corridor should also be linked to the availability and sustainability of engineering services. However, due to the expected nature of development, being commercially driven, the municipality may ensure that developers contribute towards upgrading of engineering and installation of link services. This may create a spark-off effect for residential development in the proximity. This may ensure that residential development or opening of the second phase as pointed out in paragraph 4.2.2. (v) above, realize sooner than anticipated. A great example in this regard is the *Meropa Casino and Entertainment World*, which installed certain services at their cost, which may be used by other developments. The municipality only contributed a certain percentage in order to ensure a greater carrying capacity to serve expected developments in the area.

(b) Burgersfort/Chuenespoort Development Corridor (DC-2):

Unlike the Southern Gateway which may serve the larger region, the main focus of development along this corridor should be to provide in land uses/services with a city wide function – or function to serve several neighourhoods.

It is proposed that development along this corridor should not reach the same extent and similar type of land uses as in the case with the Southern Gateway. The character of development is in a certain sense established with the existing Garden Pavilion garden centre and associated places of entertainment (e.g. restaurant). The latter development should not only

serve the areas of Ivy and Penina Park, but even the neighourhoods of Flora Park and Bendor. The type of uses should in a certain sense also be reconcilable with the residential character with low densities and floor area ratio (FAR).

Apart from secondary activity nodes discussed in paragraph (iv) above, it is proposed that development along DC-2 be concentrated at important intersections only. In other words where Primary (Class 2) and District Distributor routes (Class 3) intersects as pointed out on ***Figure 29***.

These developments could however obtain access from the Class 3 or 4 roads, but it should be concentrated as close as possible to the intersection and subject to the necessary traffic impact analysis. In order to ensure good hierarchic order and traffic flow, it is proposed that no development obtain direct access from the Class 2 road.

4.2.3 Policy guidelines

(i) Development principles and guidelines for land use management

The most of the policy directives i.r.o. land use management matters are enshrined in the foregoing paragraphs as well as indicated in ***Figure 29*** – the ***Framework Plan for SDA 2.***

However, ***Table25*** below provides a summary of those policy issues and/or other guidelines which should guide development decisions in SDA 2 on a technical level.

The importance of the following directive principles which should guide land use management decisions on a strategic level, are again highlighted as follows:

- **Equity** resulting in access and use of land in a manner that redress past imbalances;
- **Efficiency** to:
  - promote best use of resources;
  - promote balanced economic development;
  - promote compact sustainable human settlement;
  - discourage urban sprawl;
  - promote close proximity between residential and work places,
- **Integration** to promote efficiency and optimal functional and integrated settlement patterns;
- **Sustainability** to promote sustainable management and use of resources;
- **Fair and good governance** to promote land use measures that are taken timeously and in a democratic, participatory and lawful manner;
- **Public interest** to be of paramount concern.

(ii) Environmental management guidelines

As discussed in paragraph 2.2.3 above, the different sensitivity classes/areas as reflected on ***Figure 32*** below, will determine whether specific areas will be more or less suitable for sustainable development.

Guidelines and management principles are also presented in a matrix in ***Table 26*** below and forms an integral part of the fatal flaw analysis (***Figure 32*** above) for future studies: A matrix below provides guidelines to act as a facilitator in the process of future township development

FIGURE 32: SENSITIVITY CLASSES/AREAS

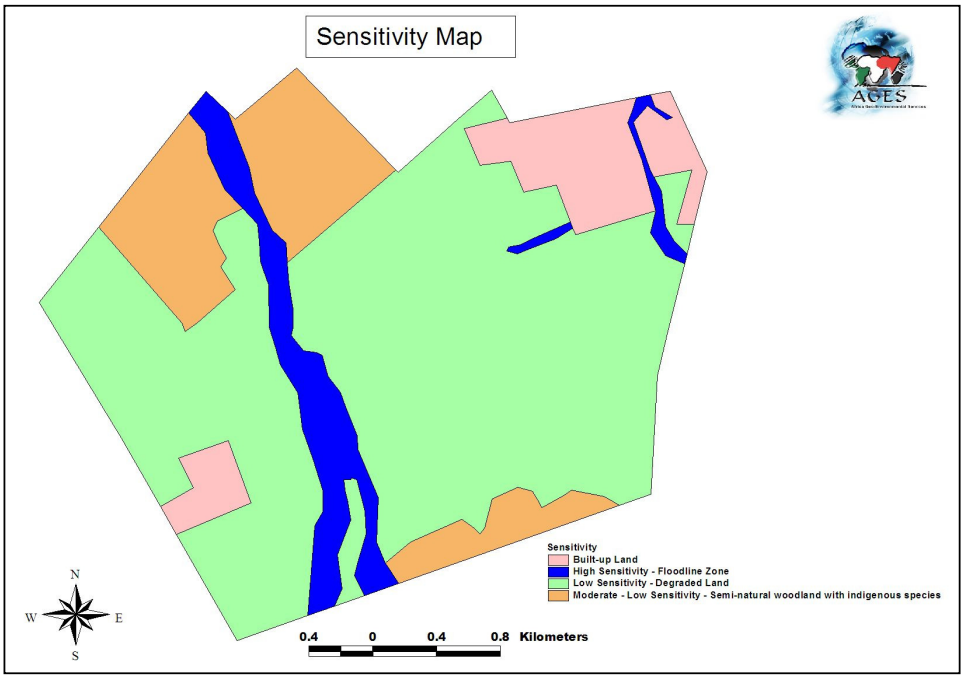


TABLE 25: DEVELOPMENT PRINCIPLES FOR SDA 2: SUMMARY OF POLICY ISSUES AND OTHER TECHNICAL GUIDELINES.

Component	Major policy issues	Detail policy guidelines	Technical guidelines and issues
Directive principles	The principles should guide all land use management decisions.	❑ Equity; ❑ Efficiency; ❑ Integration; ❑ Sustainability; ❑ Fair and good governance; ❑ Public interest.	-
Objective for development of SDA 2	Optimise the development capacity of the SDA in general by promoting the best use of resources in such an integrated manner that it promotes sustainable and compact human settlement with well-balanced economic opportunity.	❑ Promote/support residential development as primary component of SDA; ❑ Provide for community facilities in support of residential component; ❑ Promote and strengthen development opportunities along the two development corridors; ❑ Promote/establish a proper road hierarchy and network; ❑ Increase mobility and access to serve entire community; ❑ Ensure sustainable environmental practice; ❑ Ensure access to essential community services and facilities; ❑ Create a diverse range of housing types in order to ensure a diverse and integrated community; ❑ Enhance proper design guidelines for housing and settlements;	-

Component	Major policy issues	Detail policy guidelines	Technical guidelines and issues
		❑ Encourage social housing as housing type in SDA 2; ❑ Consider provisions of town planning scheme; ❑ Consider capacity of engineering services.	
Natural environment	Ensure that natural environment is connected with larger open space system	❑ Ensure connection with corridor system and larger open space by means of "green belt" through SDA; ❑ Observe environment sensitivity classes of areas in SDA.	○ See ***Table 26*** for detail; ○ See **Figure 32**; ○ High sensitivity areas – Conservation priority areas with areas of "no development" in • 50 – 100 year flood line; • Rare & endangered species habitats; • Rocky slopes; ○ Moderate sensitivity areas – Specific mitigation measures; ○ Moderate-low sensitivity areas – Specific mitigation measures; ○ Low sensitivity areas – Development won't have any significant impact.
Road network and road hierarchy	Ensure proper road hierarchy and network whereby mobility and access in increased in order to serve entire community by making use of all available resources	❑ Follow classification of roads in order to create a proper hierarchy and function of roads; ❑ Use existing road infrastructure and add critical links where required in order to create required hierarchy; ❑ Ensure high mobility and access. ❑ Ensure that land uses are located next to appropriate class of road.	○ See ***Table 19***; ○ See ***Figures 29*** & ***30***; ○ No direct access from 1st & 2nd order roads – except filling stations and further subject to submission of a traffic impact study; ○ No direct access from 2nd order roads – except a community shopping centre and further subject to submission of a traffic impact study; ○ Preferably, no direct access to individual residential erven should be permitted from Class 3 roads; ○ Class 4 & 5 roads should provide access to individual (residential) erven; ○ Class 3 roads should provide direct access to land

Component	Major policy issues	Detail policy guidelines	Technical guidelines and issues
			uses such as neighbourhood and local shopping centres, filling stations and offices/office parks, subject to submission of a traffic report; ○ Land uses along development corridors to obtain direct access from Class 4 (service) road or from Class 3 road; ○ Class 4 road to provide access to local shopping centres and Class 4 and 5 road to free-standing shops/centres; ○ Class 3 & 4 roads to provide access to schools, clinics & other public facilities, or at least such facility must be located very close to a bus-route.
Residential development	Residential component to form the primary component and predominant land use in SDA	❑ Ensure development of SDA in proposed phases and depending on availability of engineering services ❑ Promote compact development and higher densities with consideration to prescribed densities and minimum erf sizes for the area; ❑ Promote social housing development, especially on public owned land; ❑ Apply policy directives and guidelines in case of gated communities; ❑ Ensure that required community facilities/services are provided in support of residential component	○ See ***Figure 29***; ○ Phase development of SDA according to ***Fig. 29*** and par. 4.2.2(v); ○ See paragraph 2.2.1 ito specific criteria & conditions applicable to Gated Communities; ○ Min. erf size of "Res 1" erven in SDA is 300m²; ○ Densities up to 64 dwelling units/ha permitted; ○ Densities higher than 64 dwelling units up to 74 dwelling units/ha permitted subject to certain conditions [See par. 4.2.2(iii)(b)], such as: • Government driven projects; • 10% of land privately developed be earmarked for small units (social housing) – affordable & rental options; • SDP to be submitted; • Include specific conditions by means of annexure to town planning scheme; ○ Densities between 30 – 44 dwelling unit/ha only permitted on erven 700m² and larger with min. erf front of 12m.;

Component	Major policy issues	Detail policy guidelines	Technical guidelines and issues
			○ Densities of 45 dwelling unit/ha and higher only permitted on erven 1400m² and larger with min. erf front of 18m.; ○ Densities of 64 dwelling unit/ha and higher only permitted on erven 2855m² and larger; ○ Ensure proper shape and dimensions of erven – ideal proportion is a=0,64b; ○ Irregular shaped erven should be 20% larger than ruling/min. erf size; ○ See ***Tables 22 , 23*** and ***24*** iro required community facilities
Required community facilities and services to serve residential component	Ensure provision of community facilities and services in order to serve and support the residential component of SDA 2	❑ Ensure establishment of multi-purpose community cluster; ❑ Ensure provision of secondary activity nodes with a proper hierarchy and throughout the SDA to serve the entire community; ❑ Ensure provision of schools; ❑ Ensure provision of other community facilities, such as clinics, postal services etc.	○ See ***Figures 29***; ○ Permit secondary activity nodes (shopping centres) according to ***Table 22*** and ***Figure 31***; ○ Permit low density offices/office parks by offices not exceeding between 20 000 to 30 000m² GLFA; ○ Ensure that provision is made throughout the area for schools in each development block serving dwelling units according to ***Table 23;*** ○ Ensure proper & appropriate access to different levels of secondary activity nodes (See road network section above); ○ Ensure that provision of Secondary Activity nodes complies with policy/conditions of SDF set out in Figure 2 of par. 2.2.1(f), namely: • Size of Centre; • Trade area; • Access requirements; • Number of households & population served; • Average radius & median travel time; • Main tenants (function) ○ Ensure that provision is made throughout the area

Component	Major policy issues	Detail policy guidelines	Technical guidelines and issues
			for other community facilities according to ***Table 24***.
Southern Gateway Development Corridor (DC1)	Optimise development capacity of corridor by providing land uses/developments to serve the larger region with appropriate uses and mixture thereof to reflect the image of a prosperous and caring municipality.	❑ Comply with provisions and theme identified in SDF; ❑ Don't jeopardise other strategies/policies contained in SDF; ❑ Permit appropriate land uses which reflects an image of a prosperous & caring municipality and of a community which enhance development; ❑ Tourists & travellers along corridor must be exposed to aesthetically pleasing development; ❑ Development must be of highest architectural and aesthetical quality; ❑ The corridor should contain wide range of different types of land uses reflecting the success of the city and it range of services it offers; ❑ Prevent limited range of uses or duplication of land uses.	○ Place strong focus on aesthetics, architectural design and consideration of the natural environment and function; ○ Preferred types of development include tourism related uses, hotels, low density offices/office parks, retail, warehousing and light industrial uses; ○ Industrial type of development should be limited to high-tech type of industries, e.g. computer companies, Hi-Fi manufacturing/distributors, pharmaceutical companies; ○ Limit residential development directly along corridor (the land directly visually exposed to N1); ○ Consider phasing of development along corridor, starting at important intersections ("string of beads" concept) and moving inwards thereafter; ○ Link development with availability and sustainability of engineering services (see section on engineering services below)
Burgersfort/Chuenes-poort Development Corridor (DC2)	Optimise development capacity of corridor by providing land uses/developments with city wide function or function to serve several	❑ Land uses with city wide and more local function to be permitted – in contrast with DC1 which will provide in a regional function; ❑ Development not to reach the	○ Development be concentrated on important intersections only – on intersections of Class 2 and 3 roads; ○ Access to such land use from Class 3 and 4 roads however; ○ No development to obtain direct access from Class 2

Component	Major policy issues	Detail policy guidelines	Technical guidelines and issues
	neighbourhoods	same extent and similar type as in DC1; ❑ Uses should consider current character (garden centres & entertainment) and be reconcilable with residential development – with low density and FAR; ❑ Multi-purpose community cluster most probably to be included in this corridor.	road.
Engineering Services	Ensure provision of sufficient bulk engineering services for SDA	Development of townships can only proceed once the following bulk engineering services are available or has been addressed:	
		❑ Sufficient water reservoir capacity and pressure i.r.o. water	○ Construction of new Roodepoort reservoir in order to provide sufficient reservoir capacity and water supply to SDA 2; ○ Resolve temporary pressure problems.
		❑ Sufficient sanitation is available for medium to long term.	○ Ensure operation of new Soetdoring sewer treatment works before total development potential of SDA can be explored. (Phase 1 & 2 can be developed over short to medium term, but Phases 3 & 4 subject to construction of new sewer works – longer term); ○ Construct 250mm sewer lines for development blocks 1, 3 & 4.

Component	Major policy issues	Detail policy guidelines	Technical guidelines and issues
		❑ Sufficient electrical services for medium to long term	○ Provide new mini-substation in order to serve development blocks 2, 3 and 4; ○ Provide new mini-substation in order to serve development block 1 and Southern Gateway Development corridor. ○ Require land in new townships for construction of two mini-substations - 200m² of land for each. ○ See ***Figure 29***.
Macro-economic issues: PGDS strategy	Municipality should play its role in growing the economy through: Job creation; increase investment & development of infrastructure.	❑ Attract private investment in SDA 2 and the development corridors; ❑ Create incentives to promote development; ❑ To market the Southern Gateway as an investment & tourism destination the appropriate variety of land uses should be considered; ❑ Create a climate of an investor friendly community/ municipality conducive for investment through effective and efficient institutional arrangements; ❑ Consider a unique urban renewal programme for SDA 2 to develop new and maintain current infrastructure.	○ Ensure upgrading and construction of new road infrastructure iro of those roads proposed as Class 3 and 4 roads in ***Figure 30***; ○ Ensure upgrading of bulk engineering services over the medium to long term as part of an Urban renewal programme for SDA 2 – water reservoirs, sewerage treatment works, sewer lines, electrical mini-substations; ○ Consider new policy i.r.o. services contributions for specific uses and areas such as Southern Gateway; ○ In order to create investor friendly municipality and ensure efficient institutional arrangements, any application for township establishment or rezoning should be finalised within 3 to 4 months from date of submission.

TABLE 26. MATRIX OF GUIDELINES INDICATING THE ENVIRONMENTAL SENSITIVITY CLASSES

Sensitivity Classes	Management Principles for Development in different Sensitivity Classes	Guidelines for Sensitivity Classes
High Sensitivity	• Perennial rivers and main non-perennial streams o No clearance of riparian vegetation should be allowed within the demarcated 30 m each side of the river or stream or existing riparian vegetation line. o No development should be allowed within the 1:100 year flood line. o An impact assessment needs to be conducted prior to the construction of any new weirs or dams. o No exotic vegetation should be planted and the encroachment of exotic vegetation must be prevented and existing exotic plants should be eradicated. o Erosion should be prevented and existing erosion should be monitored and controlled.	• Detailed ecological surveys (including a flora and fauna survey and river health analysis by a specialist) by a registered qualified specialist on all aspects of the natural environment. The survey should preferably be conducted under summer survey conditions, although it depends on the general state of the site. Any red data species observed on site should be mapped and buffer zones should be provided to mitigate deleterious edge effects. Protected tree species should be preserved. Long-Term Monitoring programme should be implemented on site in such a case. • Maps to be included in the report should be as follows: • Vegetation Map • Sensitivity Map (including a description of sensitivity mapping rules) • Buffer zone map for red data species • Photographic guide of the site and vegetation characteristics
Moderate Sensitivity **Moderate - Low Sensitivity**	• Areas with natural vegetation and minimum modification o Development within the demarcated areas should be restricted to environmentally compatible development. The impacts of any proposed development should be assessed prior to construction and mitigation measures must be adopted. o The clearing of these areas for large-scale residential development, monoculture crops, mining or commercial developments should be prevented. o No exotic vegetation should be planted and the encroachment of exotic vegetation must be prevented. • Areas sensitive for erosion o These soils are sensitive for erosion and mitigation measures to prevent erosion are need for any new development. Rehabilitation and stabilization of existing erosion also need to be addressed.	• A **site visit** by a qualified botanist (at least BSc (Hons) in plant ecology or botany) and preferably a qualified environmental officer which would indicate the following: • Photographs of the site and its related vegetation communities • A plant species list indicating the state of the vegetation (indicator species) • A vegetation map of the site, if any natural vegetation is found on the site, a full survey of the area should be conducted. Such an area should receive high priority as a public open space. • Rehabilitation plan for the site, would it be deemed necessary, after site inspection. • If any protected plant species occur on site, such as marula, they should be preserved, while all exotics should be eradicated. • Floodline determination of drainage areas, with mitigation measures
Low Sensitivity	• Areas that have been completely modified or modified to such an extent that it would probably never return to its original state. Areas include encroached areas, old cultivated fields, quarries etc.	Unlimited development can be supported provided that an officer from Department of environmental affairs does a site visit with the consultant.

5. IMPLEMENTATION

5.1 Implementation strategies

The municipality and other tribunals involved in land use planning should be guided by the proposals set out in the Framework Plan and this document. However, it should not only be used as guideline when an application is received and needs to be evaluated, but should also be used to guide the municipality and developers to ensure the desired outcome over the next 12 years to come and initiate the necessary process to ensure that the outcome is reached.

The role players should therefore:

- Ensure that the SDA 2 be mainly developed as sustainable human settlement and residential neighourbourhood and permit the required community facilities such as schools, clinics and shopping facilities to be developed as integral part thereof;
- Promote development along the two development corridors without jeopardising other development strategies as contained in policy plans such as the SDF;
- Ensure proper provision of bulk infrastructure, including provision for the road network and proposed Class 3 and 4 roads; provision of water reservoirs and upgrading of sewer network/infrastructure; as well as provision of electrical mini-substations;
- Implement the development of the SDA and development corridors in the proposed phases and subject to availability of engineering services;
- Ensure that the natural environment is protected when applications for township establishment/land development area is received.

5.2 Intervention measures

The following intervention measures and actions are the most crucial issues which need timeous intervention in order to ensure the positive outcome of the development philosophy and the desired outcome of proposals as contained in this Framework Plan, namely:

- Permit development of townships only in first phase as indicated in Framework Plan including Blocks 1 and 2, until such time that bulk engineering services has been addressed satisfactorily. Intervene and do not approve any new applications for township development in other phases for the short term or until such time that bulk engineering services are available, especially water;
- Initiate processes to ensure urban renewal and upgrading of bulk engineering services in order to serve medium to long term requirements of SDA.
- Reservation of land for educational facilities (schools) should be discussed with role players such as the Department of Education and developers timeously in order to provide schools as indicated in the Framework Plan;

- Ensure reservation of land for purposes of the proposed road network, especially those critical (new) links identified. If needed, the municipality should ensure expropriation of land timeously;
- Initiate a social housing project in the SDA and further ensure that private developers are encouraged to include social housing in their projects as well;
- Apply new policy on densities in SDA 2 with specific reference to rights of 74 dwelling units/ha, where 10% of private development should be demarcated for social housing;
- Market the "development theme" and intention for development along the Southern Gateway Development Corridor intense;
- Investigate the development of a multi-purpose community cluster for development over the long term. Ensure timeously that the land is reserved for such purpose and initiate discussion with developers when necessary and when development is considered in the relevant area along DC2.

6. CONCLUSION

The ***Framework Plan for SDA 2*** should provide the necessary strategies and proposals to guide all land use planning decisions in the study area for the next 12 to 15 years.

ANNEXURE A

Environmental & geotechnical assessment

ANNEXURE B

Tables: Land ownership in SDA 2

ANNEXURE C

Tables: Information iro Agricultural Holdings & farm portions

ANNEXURE D

Tables: Township development potential on Holdings & farm portions

ANNEXURE E

Table: Information oin land owned by public bodies & development potential

ANNEXURE F

Required suburban shopping facilities for SDA 2