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## FRAMEWORK PLAN FOR STRATEGIC DEVELOPMENT AREA 3 (SDA3)

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### 1. BACKGROUND

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#### 1.1. Study Brief

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During January 2007 the Polokwane Municipality commissioned the compilation of a Framework Plan for Strategic Development Area 3 (SDA 3) which comprises the expansion area of the eastern suburbs of Polokwane. The study brief motivated the need for the Framework Plan as follows:

The Polokwane SDF 2005 proposes a Framework Plan for the SDA 3 in order to guide development. However, lately a large number of Township Establishment applications have been lodged and approved in the area at an unprecedented rate. The rate of development in the area raised concerns that it was not being thoroughly monitored and controlled, creating the possible scenario of unsustainable suburbs.

Additionally, several of the township establishments experience problems regarding access and traffic impact. It became obvious that the area will have an enormous increase in traffic volume due to the amount of development, but that the number of problems regarding (un)approved access, (un)registered servitudes, reserve widths and general thoroughfare and traffic impact do not cater for it at the moment.

There are also limited concerns about the impact of the development on the environment. Although the developments obtain RODs from the Department of Economic Development, Environment and Tourism, it may be argued that the RODs look at applications in isolation, and that the possible impact of the scale of development on the natural environment and heritage should be investigated.

#### 1.2. Study Area

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The study area is graphically reflected on **Figure 1**. It is located along the eastern and south-eastern boundary of the Polokwane urban complex and comprises an area classified as a Strategic Development Area (SDA) in the Polokwane Spatial Development Framework.

During the compilation of Land Development Objectives (LDOs) in 1998 the area already experienced great interest for privately developed residential townships . especially the area around Koppiefontein.

The locality of the area in respect of amenities and general accessibility to the CBD created favourable development conditions in the late 1990s. These facts, and because much land is owned by private entities, were possibly some of the main reasons which lead to the identification of the area as one of the three SDAs in the 1998 LDOs.

It was therefore envisaged that development in this original SDA as indicated in green on **Figure 2** should mainly be done by the private sector and indeed turned out as such.

Due to the expansion of municipal borders after the new municipal dispensation in 2000, these SDAs were re-aligned and new ones added in areas such as Mankweng. Because of the existence of residential areas such as Broadlands Estate to the east of the original SDA, and a need for alternative land for development in the Tweefontein area, SDA 3 was expanded in order to cater for the long term expansion needs of the eastern neighbourhoods (see blue on Figure 2).

The entire green and blue area as illustrated in Figure 2 comprises the Study Area.

### **1.3. Study Objectives**

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As far as the objectives of the Framework Plan is concerned, the Terms of Reference to the study states the following:

As a point of departure, it should be understood that the objectives of the Spatial Development Framework Plan and the Integrated Development Plan of the Polokwane Municipality should be adhered to at all times - thus setting opportunities for development with strong emphasis on the urban design element and promotion of aesthetic quality of the area.

The proposed development should be consistent with the Municipality's Spatial Development Framework, without compromising the general principles of the Development Facilitation Act in any way.

Following from the above, the objectives of the project as defined in the study brief read as follows: to establish a Framework Plan for the area known as SDA 3 (see Figure 1). The Framework Plan should guide development in a sustainable and responsible manner. The Framework Plan will not only guide the Polokwane Municipality, Limpopo Development

Tribunal, and other bodies in their decision-making regarding development applications in the area, but also Town Planning Consultants, developers and other people involved in development+.

## 1.4. Methodology

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The project broadly comprised two phases:

- **Phase 1: Situational Analysis** which commenced with an assessment of the regional context of the study area, both physically and in terms of current development policies and guidelines applicable to the area. This was followed by a more extensive analysis of the natural environment, existing land uses and land use development trends, existing and proposed transportation network, engineering services, and a socio-economic/demographic evaluation of the area.

The Situational Analysis was concluded by the end of May 2007 by way of a summary of Development Opportunities and Constraints identified for the area.

- **Phase 2: Development Proposals** commenced in June 2007 and comprised the formulation of Development Objectives for the area; the design of a Spatial Development Framework for the area including proposals pertaining to a regional open space/conservation, land use, public amenities and a road (movement) network; the calculation of a capacity future population and associated public amenities required; the formulation of Development Guidelines; and an Implementation Programme.

Also part of this phase was a process of public consultation which included an open public meeting held at the Library Gardens Auditorium on 12 July 2007 (see Annexure B), whereafter all interested and affected parties had an opportunity to submit written inputs and comments on the draft document until Friday, 27 July 2007.

## 2. SITUATIONAL ANALYSIS

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### 2.1. Regional Context

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**Figure 3** reflects the study area within the context of the Polokwane Spatial Development Plan. It forms part of the Polokwane-Perskebult cluster which represents the central urban core of the municipal area and forms the eastern part thereof. The study area is one of three

Strategic Development Areas in the Polokwane-Perskebult cluster . the other two areas being located at the southern entrance to the town (SDA 2) and the western hinterland between Polokane CBD and Seshego (SDA 1), respectively.

The Polokwane Municipality's Spatial Development Framework (May 2005) describe SDA 3 as follows: "This SDA mainly comprises the eastern parts of the city which are predominantly residential in character (middle and high income), and for which most of the developments are private sector driven. However, the municipality also owns land and proclaimed erven in that area, e.g. Ster Park, Bendor and Pietersburg Extension 28 which comprises approximately 700 proclaimed residential 1+zoned erven which can easily be made available to be developed into a fine middle income area. It is suggested that these areas remain areas to accommodate the middle to higher income groups since the municipality will not in future be much involved in this sector. The area is being referred to as the eastern suburbs of Pietersburg."

**Figure 4** illustrates the study area within the context of the existing surrounding land uses in Polokwane. From this it is evident that it forms part of the future expansion area of the eastern residential suburbs of Polokwane and it comprises a combination of farms, farm portions and agricultural holdings. A few residential areas already exist in the area. To the west it borders onto established residential areas like Welgelegen, Ster Park, Fauna Park, Flora Park, Moregloed and Capricorn.

Other prominent features impacting on SDA 3 include the three radial routes which link the Polokwane CBD to Molepo, Mankweng-Tzaneen and Duiwelskloof respectively, and the proposed future N1 bypass route which will run through SDA 3 from south to north. The national railway line linking Polokwane to Gauteng Province to the south, and Musina to the north, runs along the northern border of the study area.

The Polokwane Civil Airport<sup>(1)</sup> is located on the south-western tip of this area with several other recreation facilities to the north and south thereof, but outside of the SDA.

The Peter Mokaba Stadium<sup>(2)</sup> and the Polokwane Edupark are located north of this tip with the extension of the new stadium for 2010 also located in this precinct to the north of the airfield.

To the south of the airfield lies another large piece of land used for outdoor recreational purposes ranging from 4x4 and moto-cross tracts, to the Polokwane Game Reserve<sup>(3)</sup>.

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## **2.2. Current Policy Guidelines**

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### **2.2.1. Background**

Since the establishment of this Strategic Development Area in 1998 no formal planning by way of a local Spatial Development Framework (SDF) has been done for the area . which is the primary reason why this study was initiated. As a result the Polokwane Spatial Development Framework is currently the principal guiding development framework for the area. The following section highlights some of the most important policy guidelines contained in the Polokwane SDF and supplementary documentation, and which are applicable to SDA 3.

### **2.2.2. Polokwane SDF**

The Polokwane Spatial Development Framework (May 2007) provides the following guidelines pertaining to development in the area.

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; and
- the active marketing of these areas.+

### **2.2.3. Hierarchy of Activity Nodes and Shopping Centres**

The Polokwane SDF states that, apart from the CBD which is the primary activity node especially for providing specialised and expensive goods and services in respect of retail and personal/professional services, perspective should not be lost of the need to allow the necessary secondary activity nodes (including shopping centres), which cater for the convenience goods needs of residents in the different areas of Polokwane.

Therefore, a hierarchic system in respect of the provision of shopping facilities, as indicated in Tables 1, 2, and 3 is included in the Polokwane SDF. The guidelines contained in these tables should thus be considered and implemented in all developments in Polokwane.



**TABLE 1: CLASSIFICATION OF THE HIERARCHIC SYSTEM IN RESPECT OF PROVISION OF SUBURBAN SHOPPING FACILITIES IN POLOKWANE**

Hierarchy Type of centre	Criteria				Compilation and function		
	Population	Area served	Gross leasable floor area, (GLFA) in m <sup>2</sup>	Location	Main functions	Number and type of shops	Compilation (conv. goods vs expensive goods etc: % GLA of total)
Corner shop (Spaza)	Up to 1000	Up to 0,4 km	Up to 200, but as determined in specific policy.	Accessible to target market	Only convenience goods.	1 Shop, comprising: a) Spaza shop+ or kiosk not exceeding 30m <sup>2</sup> ; or b) Convenience store (as in filling stations) not exceeding 200m <sup>2</sup> ; or c) Other specific policies.	100% convenience goods
Local shopping centre	1000-5000	0,5 km	400-2000	Access collector in residential area	Only convenience goods.	Up to 15 shops comprising: Café, vegetable shop, butchery, take aways etc.	80% convenience goods
Neighbourhood shopping centre	5000-30 000	1,5 km	2000-15 000	Crossing of access collector and main road	Convenience goods and personal services	Supermark complex with 15-40 shops comprising: Café, vegetable shop, butchery, hair salon, hardware, doctor consulting rooms etc.	At least 60% convenience goods
Community shopping centre	30 000-80 000	2,5 km	15 000-30 000	Close to main roads. (Traffic impact study may be required)	Conv. goods, personal services, expensive goods, and some-times specialized goods.	Larger shopping centre complex with 20-60 shops comprising: Large super market(s), retail stores, clothing shops, amusement places, restaurants, coffee bars, bars etc.	At least 40% convenience goods
Regional shopping centres	See Table 5B for separate classification						

Sources: Derived from:- Pietersburg/Polokwane IDP/LDO, July 1998. Vol. 1 p. 63 *et al*; Polokwane Municipality IIDP, 2001; *Die Beleid Rakende die Hierargie van Sakesentrums*; October 1982 Dept. Local Government, Transvaal; Viruly Consulting & Plan Associates Town & Regional Planners, August 2004 & SA Council of Shopping Centres.

**TABLE 2: SUB CLASSIFICATION OF REGIONAL SHOPPING CENTRES WITHIN THE HIERARCHIC SYSTEM IN RESPECT OF PROVISION OF SUBURBAN SHOPPING FACILITIES IN POLOKWANE**

Regional shopping centre sub-class	Population	Households	Area served	Travel time Minute	Gross leasable floor area, (GLFA) in m <sup>2</sup>	Location & *access	Main functions	Number and type of shops	Compilation (conv. goods vs expensive goods etc: % GLA of total)
Small Regional	80 000 . 125 000	23 000- 35 700	3 km	10	35 000- 50 000	On main road	Expensive & specialised goods.	Large supermarket, 1 or 2 large national clothing, restaurants, services	Up to 70% - 80% expensive and specialised goods
Regional	100 000 . 200 000	28 500 . 57 150	8 km	16	50 000- 100 000	On main road & access from national or provincial road	(Includes specialist traders, home improvement stores, value marts)	Large supermarket or hyper market, 2 or more clothing, small clothing boutiques, entertainment, restaurants, services and convenience	
Super Regional	200 000 . 400 000	57 150 . 114 300	10 km+	20	100 000+	On main road & access from national or provincial road		As regional but more emphasis on entertainment	
<i>Notes:</i>	<i>*Traffic impact study required in all categories of Regional centres</i>								

Sources: Derived from:- Polokwane Municipality IIDP, 2001; *Die Beleid Rakende die Hierargie van Sakesentrums*, October 1982 Dept. Local Government, Transvaal; Viruly Consulting & Plan Associates Town & Regional Planners, August 2004 & SA Council of Shopping Centres.

**TABLE 3: ASSESSMENT OF GROSS LEASABLE FLOOR AREA ACCORDING TO THE HIERARCHIC SYSTEM IN RESPECT OF PROVISION OF SUBURBAN SHOPPING FACILITIES IN POLOKWANE**

Type of centre	*glfa per capita of population within service area	Service radius	Other criteria
Local shopping centre	0,4m <sup>2</sup> /capita	Within 0,5km	Geographical factors; Population densities; Size of property; Slopes; Surrounding land uses; Street front -vehicle and pedestrian movement; Provision of parking; Economic and market trends; Healthy competition; Interests and well-being of total community. Sustainable communities.
Neighbourhood shopping centre	0,4m <sup>2</sup> /capita	0,5 - 1,0km	
	0,8m <sup>2</sup> /capita	Within 0,5km	
Community shopping centre	0,4m <sup>2</sup> /capita	1,5-2,5km	
	0,8m <sup>2</sup> /capita	0,5-1,5km	
	1,2m <sup>2</sup> /capita	Within 0,5km	
Small regional shopping centre	0,4m <sup>2</sup> /capita	2,5-3,0km	
	0,8m <sup>2</sup> /capita	1,5-2,5km	
	1,2m <sup>2</sup> /capita	0,5- 1,5km	
	1,6m <sup>2</sup> /capita	Within 0,5km	
Regional centre	**Detail market research required	3 - 10km	
Super regional centre			
<p><b>Notes:</b> * figures represent a 20% over-supply. This allows for market trends and expansions due to higher population densities etc. Flexibility allowed: if deviation occurs from these figures it must be accommodated by a **detail market study/research which can substantiate higher figures without any doubt and to proof that the community will be served best.</p>			

Source: Derived from: "Die Beleid Rakende die Hiërargie van Sakesentrums", October 1982 Dept. Local Government, Transvaal.

These secondary activity nodes are however 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. specialised, expensive goods), which are normally associated with the CBD as primary activity node.

The future development of these secondary nodes should be done and preferably be planned in advance, in accordance with the detailed Framework Plans and/or land use management policies in each of the areas and/or strategic development areas.

The hierarchic system is essentially based on the following criteria:

- Hierarchic levels;
- Locational Criteria;
- Service population, densities and thresholds;
- Service radius;
- Location in respect of access routes;

- Gross leasable floor areas; and
- Composition and function. (Note: % specialised centres+ such as value centres or theme centres are not treated separately and form part of the hierarchy set out in Tables 1 and 2).

The controlled or planned approach as reflected above is favoured by Polokwane Municipality for the following reasons:

- The controlled or planned approach is aimed towards the interests of the total community of Polokwane (issues of urban decay, underutilised resources are some issues of concern);
- Not only the aspects of need (demand) are considered, but also desirability in terms of aspects such as parking, aesthetics etc. The private market approach is mostly aimed at economical opportunities over a shorter period, and sometimes neglects to consider the well-being of the total community;
- The hierarchic approach is indeed based on a well founded system which developed over time, and which is a result of spontaneous development and addressing the needs of the consumer. Drastic deviation from this system may result in prejudice to consumers; and
- This approach also provides for healthy competition.

The controlled and hierarchic approach implies sustainable and co-ordinated development, and should not be seen as an obstruction for development. The following principles are applied in conjunction with the guidelines highlighted above:

- Control must also be flexible, but if deviation on accepted norms and standards are applied, it must be substantiated;
- Control must contribute towards healthy competition;
- Focus should not only be placed on the need, but also include the desirability aspects of an application;
- Changes in community needs and consumer patterns must also be recognised as aspects which may contribute towards a continuing process of amending this policy and standards; and
- The composition and function of a centre are also determined by economic factors which change over time.

## 2.2.4. Density Criteria

### a) Residential 1

In terms of the Pietersburg/Seshego Town Planning Scheme (1999), the maximum densification possible under Residential 1+zoned erven by means of consent use in terms of clauses 21 and 20 of the scheme, is 30 units per hectare, or 1 dwelling unit per 300m<sup>2</sup>.

However, the maximum densities permitted should be consistent with Table 4 as reflected on the next page. This means that although the town planning scheme provides for a maximum density of 30 units/ha, it should not be permitted should such density exceed the densities as set out in the municipality's policy as reflected for the various geographical areas referred to in Table 4.

**TABLE 4: TABLE OF PERMITTED DENSITIES AND MINIMUM ERF SIZES OF ERVEN IN TOWNSHIPS/AREAS UNDER CONTROL OF THE PIETERSBURG/SESHEGO 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)
Polokwane Bo-dorp+, Pietersburg x 4, 6. (excluding CBD)	20 units/ha 500m <sup>2</sup>	64 units/ha 500m <sup>2</sup>
Polokwane CBD	30 units/ha 300m <sup>2</sup>	>64 units/ha 300m <sup>2</sup>
Seshego all zones, Pietersburg x 65, (SDA 1)	30 units/ha 300m <sup>2</sup>	44 units/ha 300m <sup>2</sup>
Pietersburg x 40	30 units/ha 300m <sup>2</sup>	64 units/ha 300m <sup>2</sup>
Pietersburg x 44, new Pietersburg	30 units/ha 300m <sup>2</sup>	64 units/ha 300m <sup>2</sup>
Pietersburg x 11, Bendor, Bendor x 7, 8, 10, 11, 12 Welgelegen and extensions,	20 units/ha 500m <sup>2</sup>	44 units/ha 500m <sup>2</sup>
Bendor (north of De Wet Dr.) Pietersburg x 11 (Ster Park north of Orion Ave.)	14 units/ha 700m <sup>2</sup>	44 units/ha 700m <sup>2</sup>
Bendor new extensions SDA 3 (Koppiefontein) & Pietersburg x 28	25 units/ha 400m <sup>2</sup>	44 units/ha 400m <sup>2</sup>
Annadale	30 units/ha 300m <sup>2</sup>	>64 units/ha 300m <sup>2</sup>

Penina Park	25 units/ha	64 units/ha
	400m <sup>2</sup>	400m <sup>2</sup>
Penina Park x1	30 units/ha	64 units/ha
	300m <sup>2</sup>	300m <sup>2</sup>
Ivy Park	25 units/ha	44 units/ha
	400m <sup>2</sup>	400m <sup>2</sup>
Ivy Park extensions (SDA2)	30 units/ha	64 units/ha
	300m <sup>2</sup>	300m <sup>2</sup>
Nirvana and extensions	20 units/ha	44 units/ha
	500m <sup>2</sup>	500m <sup>2</sup>
Westenburg and extensions	30 units/ha	64 units/ha
	300m <sup>2</sup>	300m <sup>2</sup>

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 even be subdivided.

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 against the backdrop of the following criteria as well:

- The amenities of the area;
- Health and safety of the area;
- The nature of other uses in the area;
- The need and desirability of the use concerned; and
- IDP and the SDF as well as any other policy guidelines contained therein.

#### b) Residential 2 & 3

In terms of the Pietersburg/Seshego Town Planning Scheme, 1999 the following densities can be considered under the higher density uses, namely:

- Residential 2+ zoned even the existing right (primary right) is 30 units per hectare and by means of consent use in terms of clause 20 of the scheme, a maximum density of 44 units per hectare is possible. The maximum densities permitted should be consistent with Table 4 in terms of the various geographic areas; and
- Residential 3+ zoned even the existing right (primary right) is 44 units per hectare and by means of consent use in terms of clause 20 of the scheme, a maximum density of 64 units per hectare is possible. Again, the maximum densities permitted should be consistent with Table 4 in terms of geographic location.

From Table 4 it is evident that densities in and around the Study Area vary between 20-44 units per hectare in Bendor and Welgelegen, 14-44 units in certain parts of Bendor and Ster Park, and 25-44 units in SDA 3 in general.

Apart from the criteria listed above, the following *\*additional criteria* should be applied/motivated which forms part of consideration in respect of the desirability and amenities of the area:

- Proximity of the proposed development in respect of Open Spaces (parks) and recreational facilities;
- Proximity of the proposed use in respect of schools;
- Proximity of the proposed use in respect of shopping facilities for convenience goods;
- Proximity of proposed use in respect of other community facilities and services such as medical facilities, community libraries, places of public worship etc.
- Proximity of the proposed use in respect of high order routes/bus routes and public transport facilities;
- The suitability of the property in respect of access to individual units as well as access to and from the adjoining public street system. Panhandle erven/entrances are not permitted with any density exceeding 44 units per hectare;
- The suitability of the property in respect of the shape of the property, taking site layout of individual units into consideration as well as taking possible negative impacts on adjacent property into consideration, with reference to the following:
  - Orientation;
  - Privacy; and
  - Convenience.
- The suitability of the property in respect of the size and street frontage.
  - densification exceeding 44 units/ha will not be permitted on property with an area smaller than 1 400m<sup>2</sup> and with a street front less than 18 meters;
  - densification exceeding 30 units/ha will not be permitted on property with an area smaller than 700m<sup>2</sup> and a street front less than 12 meters;
- The suitability of the property and individual dwelling units in respect of parking, including parking for visitors on the property.

#### **2.2.5. Policy on Gated Communities in Polokwane**

There is a major trend towards establishing security villages (gated communities) in most new residential development areas. Because of the adverse effects of some of these developments the Polokwane Municipality put in place the following policy guidelines and directives to manage the process in future:

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 5 below:

**TABLE 5: POLICY GUIDELINES AND GATED COMMUNITIES**

<b>Matrix: Category Model</b>	<b>Normal Accepted Practise</b>	<b>*Only Accepted in Exceptional Circumstances</b>	<b>Not accepted</b>
	<i>Column 1</i>	<i>Column 2</i>	<i>Column 3</i>
<b>Model 1</b> (Private complex)	<b>Category A &amp; B</b> Green fields & Conversion		
<b>Model 2</b> (Enclosed neighbourhood)		<b>Category B</b> Conversion	<b>Category A</b> Green fields
<b>Model 3</b> (Security Village)	<b>Category A</b> Green fields	<b>Category B</b> Conversion	
<b>Model 4</b> (Lifestyle Estate)	<b>Category A</b> Green fields		<b>Category B</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 in 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 affects 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 6 below:

**TABLE 6: ACCESS RESTRICTION GUIDELINES**

<b>Roads which must not be restricted</b>	<b>Roads where access restriction may be considered subject to traffic impact study</b>	<b>Roads where access restriction will normally be acceptable without traffic impact study</b>
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).		
Accesses 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 is an extract in this regard:

**TABLE 7: 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	6m (Lightly trafficked)
	Single vehicle	minimum of 7m	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	

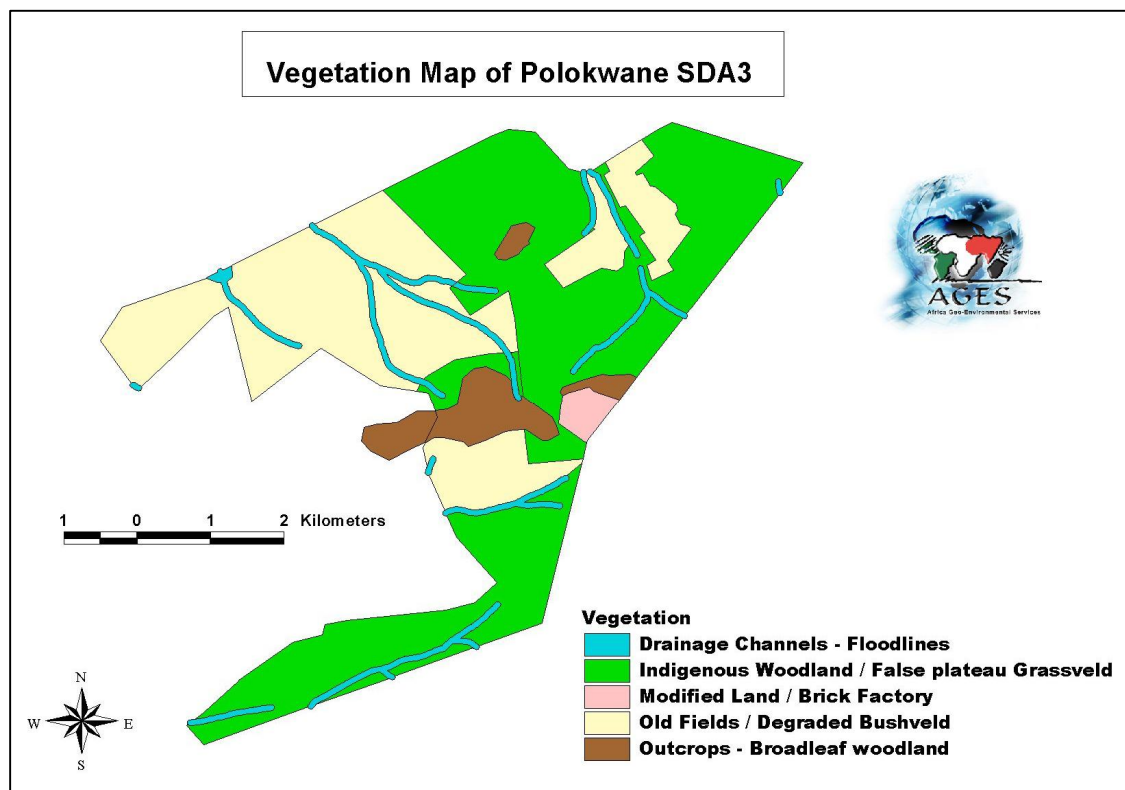
Source: Polokwane Municipality; 2005: Policy on Gated Communities in Polokwane, May 2005

## 2.3. Environmental Features

### 2.3.1. General

As part of this planning exercise a comprehensive environmental assessment was conducted. The main document is included in Annexure A of this document titled: **“Strategic Assessment of environmental issues and identification of environmentally sensitive areas in SDA 3, Polokwane Municipality”**. The following section highlights some of the most salient features identified from the environmental assessment.

**Figure 5** reflects the most prominent environmental formgiving elements identified in the study area and which should guide and direct all future development.



**Figure 5: Vegetation Map**

- Some rocky outcrops spanning from east to west through the central part of the study area and which forms a moderate ridge which also forms a major watershed between the northern and southern parts of the study area.
- Three main drainage systems (catchment areas); two of which drain in a northerly direction, and a southern one which drains in a westerly direction.

- A variety of vegetation types including Degraded Bushveld in the north-western part of the study area; and Indigenous Woodlands/False Plateau Grassland to the east and south.
- Two areas classified as Giant Bullfrog habitat.

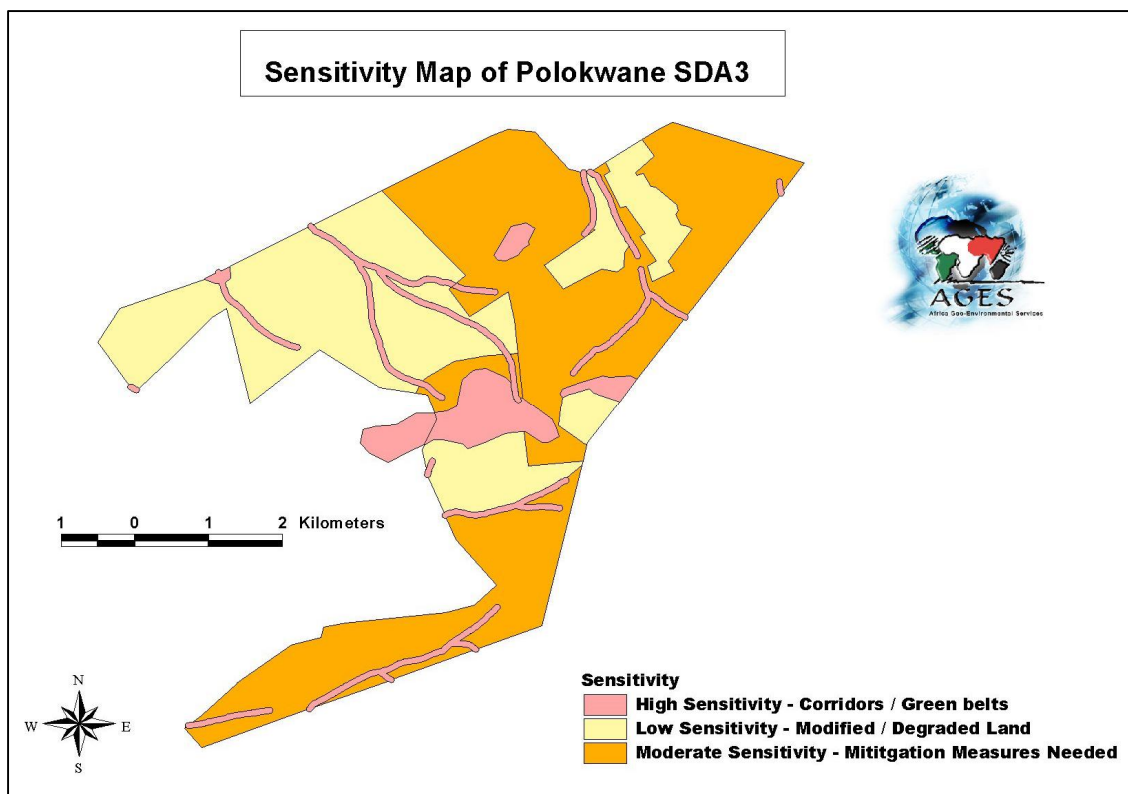
### 2.3.2. Sensitive Areas

"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.

Following the environmental sensitivity analysis the study area was classified into the following three categories as reflected in **Figure 6**:

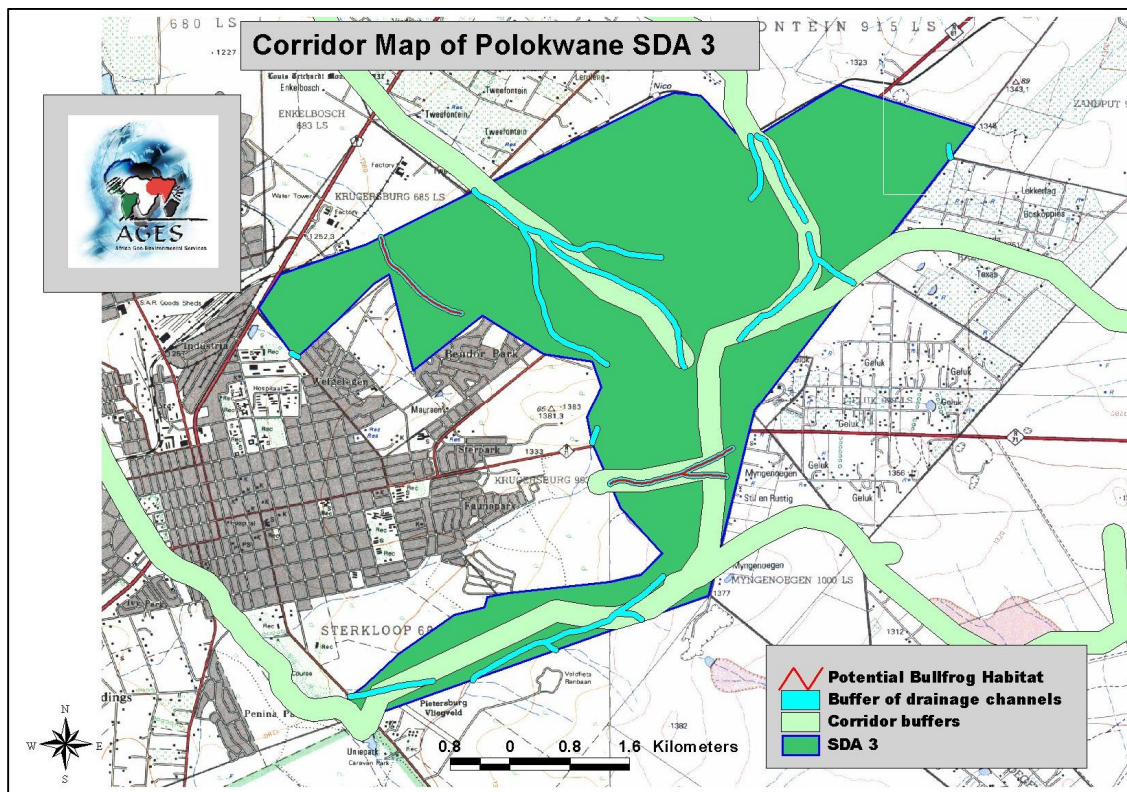


**Figure 6: Sensitivity Map**

- **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 floodlines and sensitive catchment areas;
  - Rare and endangered species habitats; and
  - 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; and
  - Use of a professional landscape designer to show the areas where the development will have the least impact.
  
- **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.

### **2.3.3. Corridors – Natural Drainage Channels and Vegetation**

In the development of a large area where future urbanisation will destroy or modify most of the natural habitat for plants and animals, it is important to link the conservation and sensitive areas by way of natural corridors to ensure a network of natural vegetation to provide for the movement of animals between these areas. Proposed corridors for SDA 3 are indicated on the sensitivity and corridor map (**Figure 7**) to link the existing Polokwane Game Reserve with most of the other identified sensitive areas to provide for the movement of birds, small mammals and herpetofauna. Other conservation areas of importance in the general area include the bird sanctuary and Kuschke Nature Reserve.



**Figure 7: Corridor Map**

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 remain to provide food and shelter, and barriers for smaller animals are minimized. The width of the corridors will vary but should be  $\pm 300$  m.

Areas in the Polokwane SDA3 area of particular importance as corridors (see Figure 7) include the following:

- Sensitive wetland and drainage areas where the rare and endangered Giant Bullfrog occur;
- 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 are indicated on the aerial photograph.

These corridors can also be exploited as tourism hiking trails. No development should occur within the zone of the corridors and surroundings, especially in limited development zones such as the area around the airfield in the southern section of the study area.

### 2.3.4. Conclusive Summary

**Figure 8** illustrates the main environmental formgiving elements derived from the environmental assessment. The most important environmental features to be taken into consideration in the future planning and development of SDA 3 include:

- the proposed environmental corridors which coincide with the three main drainage systems (rivers);
- the rocky outcrops in the central part of SDA 3 which also hold some red data plant species, and which could be converted into a conservation area/botanical garden; and
- the two areas identified as potential Bullfrog habitat.

## 2.4. Land Ownership

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Land ownership in the study area comprises either of privately owned land (land owned by individuals), or land owned by the municipality (public land).

**Figure 9** reflects the current situation pertaining to land ownership in and around the study area.

The areas in green represent farm portions owned by the municipality, while the yellow areas are townships or erven within townships still owned by the municipality. From Figure 9 it is evident that there are two large farm portions in the study area which represent Council owned land. The first is the farm Koppiefontein 686 LS to the north of SDA 3 between the Koppiefontein Agricultural Holdings and the railway line, while the second comprises the farm Krugersburg 993 and 687 LS which covers virtually the entire southern portion of the study area and which runs parallel to the proposed N1 bypass route.

Two vacant townships within the study area still belong to Council: Pietersburg X28 (Serala View) and Bendor. The township of Pietersburg Extension 28 (Serala View) has been/is in the process of being alienated to a private developer.

Although located outside the SDA, the area marked in brown to the south of SDA 3 also belongs to the municipality and the Polokwane Game Reserve is located on part of the land, while the remainder part is used and leased by various sport clubs for recreational purposes.

All other land in SDA 3 is in private ownership.



## 2.5. Land Use and Development Trends

The following section reflects on existing and proposed land uses in and around the study area, as well as the most prominent current development trends. It includes retail shopping centres, offices, medical and related uses, other uses, and residential development.

### 2.5.1. Retail Shopping Centres

**Figure 10** and Table 8 below illustrates the existing and proposed shopping centres in and around SDA 3. In the established residential areas to the west of SDA 3 there are eight existing shopping centres comprising one regional centre (Savannah Mall<sup>(1)</sup>), three neighbourhood centres at Bendor X68 (Cycad)<sup>(2)</sup>, Bendor<sup>(3)</sup> and Fauna Park<sup>(4)</sup> respectively, and four local shopping centres: Bendor X8 (Ancharlenes), Pietersburg X6 (Webster), Pietersburg X4 (Welgelegen), and Pietersburg X7 (Eduan Park).

To the east of SDA 3 there is another local shopping centre (Dalmada)<sup>(15)</sup> which serves the surrounding rural community.

In addition to the above, three local and one neighbourhood centre has been approved, but not yet developed. These are located at Ster Park<sup>(9)</sup>, Pietersburg X28<sup>(10)</sup>, Flora Park<sup>(11)</sup>, and Bendor X87<sup>(12)</sup>.

Apart from the existing shopping centre in Eduan Park<sup>(8)</sup> and the two approved, but not yet developed centres in Pietersburg X28<sup>(10)</sup> and Bendor X87<sup>(12)</sup>, SDA 3 also has two proposed shopping centres . a neighbourhood centre at Bendor X103<sup>(13)</sup> to the east, and a regional mall<sup>(14)</sup> of about 75 000m<sup>2</sup> adjacent to the N1 bypass route in the central part of SDA 3.

**TABLE 8: DECENTRALISED/SUBURBAN SHOPPING CENTRES/FACILITIES IN AND AROUND SDA 3**

Ref No.	Name/location	Classification of shopping centre i.t.o. Hierarchy	Status
1	Savannah Mall	Regional	Existing
2	Cycad Centre & Bendor X68	Neighbourhood	Existing
3	Bendor (De Wet Drive)	Neighbourhood	Existing
4	Fauna Park (Marshall St.)	Neighbourhood	Existing
5	Ancharlenes (Webster St.)	Local	Existing
6	Welgelen (Genl. Viljoen St.)	Local	Existing
7	Webster/Marshall St.	Local	Existing
8	Eduan Park	Local	Existing

9	Ster Park (Aries St.)	Local	Approved, not developed
10	Pietersburg Ext 28	Local	Approved, not developed
11	Flora Park (Boshoff St.)	Local	Approved, not developed
12	Bendor Ext 87	Neighbourhood	Approved, not developed
13	Bendor Ext 103	Neighbourhood	Proposed
14	Polokwane Mall (Bendor Ext 99)	Regional	Proposed
15	Dalmada	Local	Existing

### 2.5.2. Offices

Figure 10 and Table 9 reflect the existing, proposed, and approved but not yet developed offices in and around SDA 3. There are five existing offices/office nodes to the west of SDA 3 as reflected on Figure 10, while Eduan Park<sup>(4)</sup> and the proposed Broadlands Estate<sup>(8)</sup> offices are located within SDA 3. Two office sites are approved, but not developed (Ster Park<sup>(6)</sup> and Bendor X68<sup>(2)</sup>), while Broadlands Estate has one proposed office site.

**TABLE 9: EXISTING, PROPOSED AND APPROVED OFFICES IN AND AROUND SDA 3**

Ref No.	Name/location	Status	Comments
1	Hampton Court (Bendor Ext 30)	Existing	Low density office park
2	Bendor Ext 68	Approved, not developed	Low density office park
3	Welgelegen	Existing	Stand alone offices next to shopping centre
4	Eduan park	Existing	Part of shopping centre
5	Limpro	Existing	Stand along offices next to shopping centre
6	Ster Park	Approved, not developed	Proposed Government complex (Zoned: %Government+)
7	Fauna Park	Existing	Part of shopping centre
8	Broadlands Estate	Proposed	

### 2.5.3. Community Facilities

Several community facilities exist within and around SDA 3 (see **Figure 11**). These include one Provincial hospital<sup>(7)</sup>, two private hospitals <sup>(1)(6)</sup>, two clinics<sup>(2)(5)</sup> and two medical consulting rooms<sup>(3)(4)</sup> as reflected in Table 10 below.

There are also several primary and secondary schools in and around SDA 3 as reflected on Figure 11. Other prominent public facilities include Edupark<sup>(8)</sup> to the south-west; the local

civil airport<sup>(9)</sup>, Peter Mokaba Stadium<sup>(10)</sup>, and the nature reserve<sup>(11)</sup> to the south; and Bolivia Lodge<sup>(12)</sup> which is located in the central part of SDA 3.

**TABLE 10: MEDICAL AND RELATED USES**

Ref No.	Name/location	Status	Comments
1	Fauna Park Hospital	Approved, under construction	New private hospital next to Regional Centre
2	Rethabile Clinic (Potgieter Ave.)	Existing	Municipal clinic, step down facility
	Limpopo Blood Transfusion services (Potgieter Ave.)	Existing	
3	Pro Park (Bendor Drive)	Existing	Medical consulting rooms
4	Flora Med (Marshall St.)	Existing	Medical consulting rooms
5	Bendor Ext 103	Proposed	Clinic, step down facility
6	Limpopo Medi Clinic	Existing	Private Hospital, part of Regional Medical Node
7	Limpopo Provincial Hospital	Existing	Tertiary/Provincial referral Hospital

#### 2.5.4. Residential

Some facts which possibly played an important role in the quest for alternative land for development by the private sector, was the limited availability of land in the Koppiefontein area, the limited size of individual portions, and subsequent unrealistically high prices asked by owners for land in this area.

The area where much successful development in the form of private townships aimed at serving the higher income groups is currently underway, is the Tweefontein area. Most of these townships have been approved by the Limpopo Development Tribunal during the past 12 to 18 months. However, the same trend of high asking prices is now evident in the other areas as well, and this may result in continued development in the Koppiefontein area.

However, apart from successful development, these private townships are furthermore mostly gated communities and more specifically Models 3 (Security Village), or Model 4 (Lifestyle Estates) according to the policy on Gated Communities.

The existence of these gated communities per se is not rejected to be part of the urban environment, but indeed may impact on the long term urban spatial form and mobility within this SDA, of which the effects and negative outcomes are not yet evident and known.

**Figure 12** illustrates the spatial distribution and extent of residential uses and township applications in and around SDA 3. These can be summarised as follows:

### **1. Pietersburg X28**

- The township of Pietersburg Extension 28 (also known as Serala View) was already proclaimed in 1997, but even with a great demand for erven for the middle income, was never developed by the municipality because of certain considerations w.r.t. installation of engineering services. However, recently (2006) the land was made available to a private developer to install the services and develop.

### **2. Krugersburg 993 LS (X74)**

- In 2005/06 an attempt was also made by the Polokwane Municipality to establish a high income residential township on the northern part of the Ster Park koppie. The character of development in the Ster Park area proved to be favourable for development/expansion of a high income area with larger residential stands. However due to environmental constraints posed by occurrence of Red Data plant species on the koppie, the development/township establishment was temporarily put on hold.

### **3. Bendor X87**

- Bendor X87 (approved) is characterised by high density/high income security developments with access via Veldspaat Street, and is situated to the centre of SDA3.
- There is a need for access along the N1 throughway.
- A Shopping Centre development (10,200m<sup>2</sup>) on the western corner of the area with access via Veldspaat Street and Munnik Avenue has been approved, but not yet developed.
- Due to being located in close proximity to the copy, road construction may prove to be difficult.

### **4. Koppiefontein A.H. and Bendor X100**

- This area is characterised by small holdings that are incrementally being developed into medium to high density developments (Koppiefontein X109; X81; X88; X78), and is situated in the north-western extent of SDA3.
- These extensions have all been approved, except for X109.
- Access is primarily gained via De Wet Drive. No access is provided along Veldspaat Street.

### **5. Northern portion of Koppiefontein 686 LS**

- This area is characterised by municipal land, and is situated in the north-western extent of SDA3.
- The railway line adjoining the area forms part of the northern boundary of SDA3.
- The area is ideally suited to develop as an extension of existing developments on the southern portion of Koppiefontein 686 LS.
- A floodline runs through the central part of the area, and has been marked as an area containing Giant Bullfrogs.

<p><b>6. Broadlands Estate</b></p> <ul style="list-style-type: none"> <li>• This area is characterised by a security estate development similar to Mooikloof in Pretoria East, and is situated to the north-western part of SDA3, almost adjoining the N1.</li> <li>• A traffic light controlled intersection has been approved at the existing estate access on the R81 / Munnik Avenue.</li> <li>• Three floodlines traverse the area in an east-west alignment. No Red Data species were noted by the environmental scoping report.</li> </ul>
<p><b>7. Bendor X84 / Woodlands</b></p> <ul style="list-style-type: none"> <li>• Woodlandsq(approved) comprise of a security residential development, and is situated on the corner of Veldspaat Street and Munnik Avenue.</li> <li>• Access to Woodlandsqis gained via Veldspaat Street.</li> </ul>
<p><b>8. Municipal Land</b></p> <ul style="list-style-type: none"> <li>• The area consists of municipal land, and currently fulfils the function of a regional open space.</li> <li>• A number of potential developments are possible within this area and include the proclamation of ± 1000 erven and the establishment of a junior / high school.</li> <li>• The existing dam will have to be moved if a road is constructed within the road reserve, parallel to the railway line in the north.</li> <li>• A floodline runs through the middle of this area. No Red Data species were noted by the environmental scoping report.</li> </ul>
<p><b>9. Bendor X96 / The Aloes</b></p> <ul style="list-style-type: none"> <li>• The area is located on the northern boundary of SDA3, adjoining the railway line, and comprises of an approved township currently under construction.</li> <li>• The township has the potential to expand in a westerly direction.</li> <li>• Access to the township is gained via a registered servitude.</li> </ul>
<p><b>10. Bendor X97 / Caltech Meadows</b></p> <ul style="list-style-type: none"> <li>• The area is characterised by an approved medium density residential development, and is situated in the most northern extent of SDA3, adjoining the N1.</li> <li>• Due to access problems in this area, and SDA3 in general, the need has arisen for extra bridge spans.</li> </ul>
<p><b>11. Bendor X98 / Caltech Lodge</b></p> <ul style="list-style-type: none"> <li>• The area is characterised by an approved low density / eco-estate type development, and is situated in the most northern extent of SDA3, adjoining the N1.</li> </ul>
<p><b>12. Bendor X101 / Woodhill</b></p> <ul style="list-style-type: none"> <li>• The area is characterised by an approved mixture of Residential 1 &amp; 3 security developments, and is situated on the northern boundary of SDA3.</li> <li>• The township offers ± 1000 potential erven and has been approved, but is still under construction.</li> <li>• In addition to the residential component, a shopping centre has been approved (2000m<sup>2</sup>)</li> </ul>

<p>in the southern corner of the area.</p> <ul style="list-style-type: none"> <li>• A floodline traverses the northern portion of the area. No Red Data species were noted by the environmental scoping report.</li> </ul>
<p><b>13. Mitchell House Private School</b></p> <ul style="list-style-type: none"> <li>• The Mitchell House Private School (being extended to a middle school) is situated to the north, adjoining the N1.</li> <li>• An open area found to the west of the school, holds the potential to facilitate a road connection with the N1.</li> </ul>
<p><b>14. Regional Shopping Centre</b></p> <ul style="list-style-type: none"> <li>• A super regional shopping centre is being proposed between the N1 to the west and Munnik Avenue to the south.</li> <li>• The proposal was initially for 110 000m<sup>2</sup>, but has since been reduced to 75 000m<sup>2</sup>.</li> </ul>
<p><b>15. Portion of Tweefontein 915 LS</b></p> <ul style="list-style-type: none"> <li>• The area is situated in the north-eastern extent of SDA3, and holds the potential to function as an Activity Area.</li> <li>• Currently, the area features a pending filling station application in southern corner with adjacent private land.</li> <li>• Two floodlines traverse the area in a north . south alignment. No Red Data species were noted by the environmental scoping report.</li> </ul>
<p><b>16. Bendor X93</b></p> <ul style="list-style-type: none"> <li>• Bendor X93 comprises of Residential 1 &amp; 3 security developments (approved), and is situated in the north-eastern corner of SDA3.</li> <li>• There are development plans for Portions 173 and 175 to the west, but no layout plans as yet.</li> <li>• Access is gained via Munnik Avenue.</li> </ul>
<p><b>17. Bendor X106</b></p> <ul style="list-style-type: none"> <li>• Bendor x106 comprises of a residential mix consisting of a security development with 600m<sup>2</sup> erven, some flats, and a community centre (approved). The area is situated in the eastern extent of SDA3.</li> <li>• This area is unlikely to develop rapidly within the near future.</li> <li>• A possible regional open space is located to the east and south-east.</li> </ul>
<p><b>18. Bendor X103</b></p> <ul style="list-style-type: none"> <li>• Bendor X103, a proposed mixed land use development, has been approved. The area is situated in the eastern extent of SDA3.</li> <li>• An existing education facility is found on the southern portion of the area.</li> <li>• A neighbourhood shopping centre development is proposed to the west of the existing educational facility. Phase 1 will comprise 5000m<sup>2</sup> and phase 2 will comprise 15000m<sup>2</sup>. The development still needs to be approved.</li> </ul>

<p><b>19. Bendor X108</b></p> <ul style="list-style-type: none"> <li>• Bendor X108 is situated in the eastern extent of SDA3, and is an envisaged application for an open residential township (not a security development).</li> <li>• Two floodlines traverse the area in a north-south alignment. No Red Data species were noted by the environmental scoping report.</li> </ul>
<p><b>20. Bendor X94 / North View Gardens</b></p> <ul style="list-style-type: none"> <li>• The area is situated fairly central within SDA3, and consists of an approved Residential 1 &amp; 3 development.</li> <li>• Access to the development is gained from the west.</li> </ul>
<p><b>21. Bendor X112</b></p> <ul style="list-style-type: none"> <li>• Bendor X112 is situated between X102 and X94, and is an application that still needs to be submitted.</li> <li>• Access to the development is gained from the west.</li> </ul>
<p><b>22. Bendor X 102 / Baobab</b></p> <ul style="list-style-type: none"> <li>• Bendor/Baobab X102 is situated fairly central within SDA3, adjoining Munnik Avenue to the east. The township has been approved.</li> <li>• The access road of Bendor X102 is situated right-across the access road of X92 located to the south-west.</li> </ul>
<p><b>23. Bendor X92 / North View</b></p> <ul style="list-style-type: none"> <li>• Bendor X92 is situated fairly central within SDA3, adjoining Munnik Avenue to the east. The township takes the form of a security development, and has been approved.</li> <li>• The access road of Bendor X92 is situated right-across the access road of X102 located to the north-east.</li> </ul>
<p><b>24. Bolivia Lodge</b></p> <ul style="list-style-type: none"> <li>• Bolivia Lodge is situated to the east of the N1, and consists of recreation, entertainment, and conference activities.</li> </ul>
<p><b>25. Bendor X91 / Waterbury</b></p> <ul style="list-style-type: none"> <li>• Bendor X91 / Waterbury is located alongside the eastern boundary of the N1, and just below the point where the N1 and Munnik Avenue cross.</li> <li>• The area consists of a Residential 1 security development (approved), with access from the east.</li> </ul>
<p><b>26. Bendor X95 /Eagles Nest</b></p> <ul style="list-style-type: none"> <li>• Bendor X95 / Eagles Nest is characterised by Residential 1 &amp; 2 security developments (approved), and is located alongside the eastern boundary of the N1.</li> <li>• Access to the development is gained from the west.</li> </ul>
<p><b>27. Portion of Krugersburg 687 LS</b></p> <ul style="list-style-type: none"> <li>• The area is characterised by municipal land, and runs in a narrow band alongside the N1, forming the southern leg of SDA3. Polokwane's civil aerodrome is found to the south of this area.</li> </ul>

- The area has the potential to accommodate residential expansion from existing developments to the north (Pietersburg X11 and X28).
- The area forms part of the proposed environmental corridors and contains a number of floodlines. No Red Data species were noted by the environmental scoping report.

#### **28. Vacant Land**

- The area consists of the southern and eastern portions of the Farm Tweefontein 915 LS, and is characterised by vacant land.
- The area is bordered by the Farms Geluk 998 LS, Baskoppie 997 LS, and Zandput 916 LS to the east and south-east, and forms one of the boundaries of SDA3.
- The topography of the area will make development difficult and costly.

#### **29. Geluk 998 LS / Dalmada Agricultural Holdings**

- Although Geluk 998 LS/Dalmada Agricultural Holdings fall outside the boundaries of SDA3, the soil and geology is well-suited for development. Some technical constraints may be present e.g. the watershed and septic tanks.
- The area represents a typical zone of transition, and is characterised by some illegal land uses in the form of flats.

Table 11 below summarises the current approved towns in SDA 3, the number of Res 1 and Res 2 and 3 units catered for in these developments, and the associated potential population to be accommodated in these townships.

From Table 11 it is evident that SDA 3 already holds some 5 231 single residential stands, and makes provision for about 5 319 medium to higher density residential units. This brings the total number of approved stands in the area to 10 550. At an average size of 3,4 people per household (census average for medium to high income), the current approved townships in the area can already hold a population of about 35 964 people.

Apart from the above approved townships, the remaining vacant areas in SDA 3 comprise five functional areas as reflected on **Figure 13** and Table 12.

At a ratio of 80% of developable land developing at 20 units per hectare (Res 1), and 20% of developable land at 44 units per hectare (Res 3 and 3) the vacant areas can accommodate about 11 832 single residential units, and 6 507 medium and higher density units which brings the total additional units in the area to about 18 339 with an estimated population of about 62 516 people.

This brings the total development capacity of the area to 17 063 single residential units, and 11 826 medium and high density, which totals to 28 889 residential units in SDA 3 with a potential population of 98 480 people (Table 13).



<b>TABLE 11: APPROVED TOWNSHIPS IN SDA 3</b>				
<b>TOWN</b>	<b>RES 1</b>	<b>RES 2 &amp; 3</b>	<b>TOTAL</b>	<b>POPULATION</b>
Bendor X 35	64		64	218
Bendor X 38	240		240	818
Bendor X 45	7	22	29	99
Bendor X 51	45	66	111	378
Bendor X 52	61	50	111	378
Bendor X 62	15	48	63	215
Bendor X 63	24		24	82
Bendor X 64	44		44	150
Bendor X 70	44		44	150
Bendor X 75	103		103	351
Bendor X76	20		20	68
Bendor X 77	39		39	133
Bendor X 78		206	206	702
Bendor X 80	124	114	238	811
Bendor X 81	113		113	385
Bendor X 82	44	84	128	436
Bendor X 83	5		5	17
Bendor X 84	113	204	317	1081
Bendor X 85	59	78	137	467
Bendor X 87	175	738	913	3112
Bendor X 89	255		255	869
Bendor X 91	123	131	254	866
Bendor X 92	136	235	371	1265
PIETERSBURG x 28	727	540	1267	4319
Broadlands	128		128	436
Bendor X 94	177	143	320	1091
Bendor X 95	144	137	281	958
Bendor X 97	130	29	159	542
Bendor X 98	96		96	327
Bendor X 100	133	185	318	1084
Bendor X 93	219	174	393	1340
Bendor X 96	485	386	871	2969
Bendor X 101	450	850	1300	4432
Bendor X 102	147		147	501
Bendor X 103	414	377	791	2696
Bendor X 104		300	300	1023
Bendor X 106	128	222	350	1193
<b>TOTAL</b>	<b>5231</b>	<b>5319</b>	<b>10550</b>	<b>35964</b>

<b>TABLE 12: POTENTIAL NO OF ERVEN ON VACANT LAND</b>				
<b>AREA</b>	<b>RES 1</b>	<b>RES 2 &amp; 3</b>	<b>TOTAL</b>	<b>POPULATION</b>
1	1461	804	2265	7721
2	918	505	1423	4852
3	1181	650	1831	6241
4	5125	2819	7944	27081
5	3146	1730	4876	16622
<b>TOTAL</b>	<b>11832</b>	<b>6507</b>	<b>18339</b>	<b>62516</b>

<b>TABLE 13: SDA 3 TOTAL POTENTIAL</b>				
<b>AREA</b>	<b>RES 1</b>	<b>RES 2 &amp; 3</b>	<b>TOTAL</b>	<b>POPULATION</b>
APPROVED	5231	5319	10550	35964
VACANT	11832	6507	18339	62516
<b>TOTAL</b>	<b>17063</b>	<b>11826</b>	<b>28889</b>	<b>98480</b>

## **2.6. Road Infrastructure**

SDA 3 is characterised by two radial roads and one throughway / national distributor (see Figure 12). The N1 passes through the central portion of SDA 3 in a north-south alignment, and links Polokwane to Zimbabwe and Gauteng in the north and south respectively. Grobler Street (R71) and Munnik Avenue (R81) are the two prominent radial / main roads traversing SDA 3, and function as the urban district distributors. Grobler Street runs in an east-west alignment and connects the CBD with SDA3, eventually becoming a rural regional distributor leading to Tzaneen. Munnik Avenue runs in a north-easterly alignment and connects the farthest extents of SDA3 with the CBD to the south-west, and eventually becomes a rural regional distributor leading to Modjadjieskloof in the north-east. Although sufficiently linking Polokwane to the region at large, these roads are currently not providing local traffic with sufficient access to the east and west of the proposed N1 throughway. Consequently, to ensure an effective and functioning urban environment throughout SDA3, a need exists to cross the proposed N1 via the establishment of additional local crossings, and the construction of parallel roads.

Veldspaat Street and De Wet Drive are important 3<sup>rd</sup> order roads / existing urban collectors traversing SDA3 in a northwest-southeast alignment. Furthermore, Die Meer Street, Outspan Drive and Bendor Drive are important urban collectors traversing SDA3 in a northeast-southwest alignment. These roads facilitate movement between the well established residential components (Bendor, Pietersburg, Hilside, etc.) to the west of SDA3 and the new township establishments within SDA3. Although falling outside of SDA3, Marshall Street constitutes a prominent urban collector traversing the well-established townships of Pietersburg X6 and X11 to the south.

## **2.7. Engineering Services**

**Figure 14** conceptually reflects the bulk engineering services in SDA 3. The entire area feeds from the reservoirs located on the koppie to the south of Pietersburg X74. These reservoirs have sufficient capacity to meet the demand associated with the current rate of development in the area.

Bulk sanitation is also in place as reflected on Figure 14. The entire system gravitates towards a point adjacent to the east of the Pietersburg X12 industrial area from where it is pumped westwards to link up with the sewer mains serving the eastern suburbs of Polokwane.

It is important to note that the areas to the south of the ridge (predominantly the Council owned land on the farm Krugersburg 687 LS) fall in a different catchment area which drains towards the west-south west, and which would require significant bulk upgrading.

The areas across the ridge immediately to the east of SDA 3 (Geluk, Mijngenoegen, Boskoppie etc.) are situated in a third catchment area which drains in an easterly direction away from the existing bulk infrastructure and treatment works. Development of these areas would require significant capital investment towards bulk infrastructure or extensive pump stations with the associated increased operational costs.

As far as electricity is concerned the western part of SDA 3 is served by the Polokwane Municipality while Eskom is the license holder in the eastern part. There are currently two substations in the area and discussions with local stakeholders revealed that there is spare capacity of about 11 mVA.

In general the study area is thus well-served with bulk infrastructure, but certain portions of SDA 3 are more suited to short term development than others from a services point of view.

## **2.8. Socio Economic Profile**

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The data used in compiling the brief overview of Polokwane's socio-economic profile has primarily been extracted from a market research survey recently conducted by Urban-Econ: Development Economists (2006). The rationale being that this study contains the most up to date demographic data.

The Municipality's population is estimated at 508 277, an increase of 19.60% if compared to the 1996 census data. Polokwane's annual turnover is estimated at R7.8 billion (2004). The economy of Polokwane is fairly specialised with four tertiary sectors driving the economy. These include inter alia, financial services, trade sector, government services, and transportation. For the period 1996 to 2004, Polokwane experienced an annual economic growth rate of 5.1% per annum . higher than the provincial average of 3.9%. In 2006, an estimated 234 824 people or 69 354 households resided within the primary trading area of Polokwane, giving an estimated household size of 3.7 members. At the prevailing rate of growth, this is estimated to increase to 86 427 households by 2011 and 107 704 households

by 2016. Thus, the expected annual increment in households for the period 2006 to 2011, and 2011 to 2016 is 3415 and 4255 per annum respectively.

The largest segment (10.8%) of the population falls within the age group 25 to 29 years. This segment is followed by the age groups 30 to 34 years (10.1%), 10 to 14 years, and 15 to 19 years at 9.4% respectively. Polokwane's population is therefore characterised by a large segment of more mature individuals, supported by a young and upcoming segment.

A large segment, approximately 71% of the population, forms part of the economically active population, with only 28.8% of the population not forming part of the economically active segment . i.e. younger than 15, older than 65 years of age, or disabled. The primary trading area of Polokwane is characterised by relatively low unemployment levels, with only 14% of the population being unemployed. The dominant occupations include elementary occupations (17.3%), clerks (15.9%), and professionals (14.3%). These occupations are supported by technicians and associate professionals (13.3%), legislators, senior officials, managers (11.6%), and service workers; shop and market sales workers (10.7%).

A large segment (34.6%) of the population residing within the primary trading area of Polokwane has at least obtained Matric, with 25.4% of the population having achieved a higher level of education. Furthermore, some 24.9% of the population has some secondary level education, 3.3% has completed primary education, and 6.3% has some primary level education. Only 5.5% of the population has no level of schooling. The relatively high levels of education could possibly explain why such a large segment of the population is employed in middle to high wage occupations.

The dominant segment of the population (17%) earns annual household incomes ranging between R76 801 to R153 600 per annum; 13.6% earn between R4 801 and R9 600 per annum; 12.9% of the households earn incomes between R38 401 and R76 800 per annum; and 2.3% earn incomes in excess of R614 400 per annum. Notably, 13.2% earn no income at all, and 38.2% of households earn incomes below R38 400. Considering the above given data, the population residing within the primary trading area of Polokwane reflects household income levels ranging from low, to middle, to high. More specifically, 53% of households fall into the low income category, 25% into the middle, and 22% into the high income category (Census 2001).

## **2.9. Conclusive Summary**

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- Private developers have long fancied SDA 3 for township developments, and the lack of a local SDF resulted in a situation where townships have, and are being approved, at an unprecedented rate without giving proper thought to issues such as access, traffic

impact, servitudes, reserve widths, and traffic movement. Consequently, SDA 3 runs the risk of becoming an area characterised by unsustainable suburbs.

- A culture of limited concern about the impact of development on the environment, and a process of considering applications in isolation has manifested itself. Hence, there is a need for a coherent and holistic approach to environmental management within SDA 3.
- SDA 3 is characterised by a number of prominent environmental form-giving elements and features, and include inter alia the three main drainage systems; the rocky outcrops in the central part; and the areas identified as environmentally sensitive. These elements and features should guide and direct all future development to ensure environmental and urban sustainability.
- A number of man-made physical features shape the development environment of SDA 3. These include the radial routes traversing SDA 3; the proposed future N1 bypass route; the national railway line running along the northern border of SDA 3; the extension of the Peter Mokaba Stadium for 2010; and the Polokwane Edupark.
- SDA 3 is well-served by a number of shopping centres of different orders, office facilities, and community facilities. The majority of these are however located to the west of SDA 3. The proposed regional mall within SDA 3 adjacent to the N1 bypass route is currently the most prominent retail development within the area.
- The quest for alternative land for development within SDA 3 is driven by the limited availability of land, limited size of individual portions, and unrealistic high prices of land in the Koppiefontein area.
- Most of the new private township developments within SDA 3 are gated communities. These hold a number of spatial implications and long term effects on the urban form. One of the most immediate impacts is on traffic movement and mobility (accessibility) due to the lack of finer grain of residential access roads in such security estates.
- The latent development potential of SDA 3 amounts to a total of 18339 additional units (11 832 single residential units and 6 507 medium and higher density units). Hence, SDA 3 has the potential to more or less three times its existing number of residential units.
- Although SDA 3 is served by two prominent radials, and a number of urban collectors, local traffic is not provided with sufficient access to the east and west of the proposed

N1 bypass. A need exists to cross the proposed N1 via the provision of additional local crossings and parallel roads.

- SDA 3 is generally well-served with bulk infrastructure and the reservoirs in particular have sufficient capacity to meet the demand associated with the current rate of development in the area. Certain areas of SDA 3 are however more suited to development in the short-term, whilst other areas will require significant capital investment towards bulk infrastructure. As far as electricity is concerned the spare capacity is estimated at 11mVA.
- The predicted annual increment in households up to 2011 is high, and more than 50% of households within Polokwane's primary trading area fall into the low income category. This should be kept in mind so as to ensure that new residential developments within SDA 3 promote equitable access to housing.

### **3. DEVELOPMENT FRAMEWORK**

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#### **3.1. Development Objectives**

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The purpose of the Development Framework for the study area is to guide and direct development in line with the Vision of the Spatial Development Framework of the Polokwane Municipality.

The objectives of the Development Framework are aimed at achieving the following:

- To conserve and manage the natural environment and establish a functional regional open space system;
- To strengthen the spatial structure and legibility of the area by clearly defining a regional road network and hierarchy of activity nodes and within the constraints defined by the regional open space system;
- To establish a proper, functional road network serving local and regional movement needs;
- To identify areas for the growth and expansion of residential uses as well as social and economic activities, based on existing and projected development needs;
- To determine appropriate residential densities and viable development options;
- To provide development principles and guidelines for land use management and urban design; and

- To formulate proposals regarding a phased Implementation Programme in accordance with the capacity of engineering infrastructure and the road network in the area, as well as the financial capacity of the Polokwane municipality.

## **3.2. Spatial Development Framework**

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Figure 15 represents the proposed Spatial Development Framework for SDA 3.

### **3.2.1. Regional Open Space**

The proposed regional open space corridors are reflected on **Figure 15**. These corridors are interconnected and linked to the environmentally sensitive areas around the koppie to provide optimum connectivity in order to allow continuity in movement of fauna and flora throughout the study area. Section 4.1 of this document provides more detailed guidelines towards the management of the natural environment in SDA 3.

### **3.2.2. Regional Transportation Network**

The proposed regional transportation network for SDA 3 as reflected on Figure 15 comprises the following main features:

- The N1 eastern bypass route traversing SDA 3 with three access interchanges, respectively at the intersections with the following three second order routes:
  - Church Street which could be converted into a combined access interchange with Dorp Street to the south;
  - Grobler-Mbeki Street extension (R71) running towards Mankweng/Tzaneen; and
  - Munnik Street extension (R81) running towards Duiwelskloof.
- Three local crossings of third order routes across/underneath the N1 freeway along:
  - De Wet Drive which will serve the future developments to the south of the freeway and which will be linked to the CBD and other areas via Suid Street, Marshall Street, Grobler-Mbeki Street, and Potgieter Avenue.
  - Veldspaat Street which will be extended to serve as a local east-west crossing between the two access interchanges (Grobler-Mbeki and Munnik Street), and which will link up with main east-west routes to the west of the N1 freeway like Bendor Avenue, Outspan Drive and the proposed extension of De Meer Street.

To the east of the freeway the Veldspaat Street extension will unlock the development potential and serve the area parallel to, and to the south of the Duiwelskloof Road.

- De Meer Street extension which is proposed to run parallel to the south of the railway line and which will serve and unlock developments between the Duiwelskloof Road and the railway line. It will share a bridge structure with the railway line where it crosses the N1 freeway.
- The remainder part of the third order road network proposed for the area comprises a series of north-south routes to the east and parallel to the N1 freeway which will give access to the properties adjacent to the freeway, and which will link De Meer Street, Duiwelskloof Road, and Mankweng Road to one another, and optimally utilise the access spacings permitted along the aforementioned routes.

It is suggested that the third order road network should have a road reserve between 20 to 25 metres wide which is in line with the national Road Access Management Guidelines.

- A few fourth order routes with the primary function to give access to individual properties which are not accessible via the proposed third order network. These include two routes to the east of the N1 freeway respectively parallel to the north and south of the Duiwelskloof Road, and one to the north of Broadlands Estate.

Although a bit ~~to~~ forced in certain areas due to existing approved townships and the general layout pattern of the former agricultural holdings and farmland which the study area comprises of, the proposed road network sufficiently provides for east-west and north-south movement, and it optimally utilises opportunities for access onto the regional road network which comprises the first and second order routes.

There is, however, a concern about the building lines and access spacings applicable along the Duiwelskloof (R81) and Mankweng (R71) Roads, and during the consultation process it was suggested that the Polokwane Municipality should apply for the sections of these two roads which fall within SDA 3 to be deproclaimed as national roads, and be transferred to the local authority. As a next step the preliminary and detail design of these route sections and the associated access points should then be conducted.

The National Roads Agency did raise a concern about the fact that only two crossings of the railway line are provided for . the local crossing at Veldspaat Street, and the regional crossing along the N1 freeway which has no access interchange to serve the areas



immediately to the north of the railway line, and which may result in enormous pressure of local traffic on Veldspaat Street.

### **3.2.3. Residential Development**

#### **Koppiefontein & Eduan Park**

The Koppiesfontein area which is located directly adjacent to existing developed areas of Bendor and Welgelegen, is ideal to undertake infill developments in this SDA which can link into existing bulk services and road infrastructure.

Together with this area, the land located north-east of Eduan Park and adjacent to Koppiefontein is owned by the municipality and create an excellent opportunity for infill development to complete the urban fabric of residential erven in this part of the SDA and city. However, there are some environmental constraints in respect of the area because of the occurrence of Giant Bullfrogs in certain parts.

#### **Ster Park and land south of Eastern by-pass**

The area east of Ster Park (Pieterburg Extension 11) and east of Pietersburg Extension 28 and the Tzaneen eastern by-pass also provide an excellent opportunity to be developed.

The area north of the Ster Park Koppie - which was the subject of an intended township establishment (Polokwane Ext 74) - is one of the last remaining pieces of land to be earmarked for high income development and expansion of the Ster Park neighbourhood. Combined with the recreational and conservation potential of the Koppie itself, a prestige development can be undertaken. However, due to some environmental characteristics/constraints, this development may not continue. Alternatively, if the land can not be used for residential or related purposes, the development and planning of this area may focus on an alternative land use such as Nature Conservation Area/Botanical Garden, or recreational area.

The remainder of this area is located south of the eastern by-pass. Although development may at this stage be difficult due to limited availability of engineering services and crossing of the by-pass road, it nevertheless provide opportunity to be developed in future, especially considering its relative close proximity to the CBD and other areas.

There are also indications that development pressure exists for densification of dwelling units (rural occupation) in areas such as Damalada Agricultural Holdings and Mijngenoegen, located directly to the east of this SDA. Combined with the potential of municipal land, the

Mijngenoegen area and Weltevreden farm specifically possess some development potential over the medium to long term.

### **Tweefontein area**

This area is located in the furthest extent east of the Polokwane/Perskebult Provincial Growth Point or urban cluster of Polokwane.

There are currently many township establishments with development underway, yet large pieces of privately owned land are still potentially available for development. However, before considering other possible constraints with reference to engineering services and environmental factors, the biggest constraint of the area east of the proposed new eastern by-pass (N1 Road), is local accessibility and the N1 road itself.

#### **3.2.4. Economic Activity and Multi Purpose Community Centres/Nodes**

Figure 15 also illustrates the proposed spatial distribution of economic activity and Multi Purpose Community Centres in SDA 3. There are existing business rights on Tweefontein X87 and applications for business rights are currently being considered on X97 and X99. From the land use budget as reflected in section 3.2.5 it was determined that the future potential population for the area could sustain about 177 000m<sup>2</sup> of retail space.

The land parcels immediately around the two future access interchanges on the eastern bypass (N1) obviously pose opportunities to accommodate a large percentage of the retail capacity of the study area. This includes the area of Bendor X99 in the north-eastern quadrant of the N1-Munnik Street (R81) interchange as well as the north-western, north-eastern and south-eastern quadrants of the N1-Grobler-Mbeki (R71) interchange.

Apart from these two obvious high potential activity nodes, economic activity in the form of local retail facilities focusing on convenience goods should be provided for throughout the remainder part of the study area.

It is however proposed that local retail facilities be combined with community facilities (public or private) in the form of Multi Purpose Community Centres.

One of the negative side effects of extensive security neighbourhood development as occurs in SDA 3 is the fact that whatever community facilities are being provided in such security estate are not accessible to the broader community. To expect of each individual development to cater for all public facilities on site is also unpractical and will lead to unnecessary duplication.

Instead, it is suggested that certain strategic locations be identified in the study area where community facilities can be developed collectively to serve the broader community. Although many of these facilities and services are provided by the public sector (e.g. education, sports and recreation, health, and welfare) there are also opportunities to provide such services and facilities as public-private partnerships. It is, however, of utmost importance that the location of these areas be determined pre-actively and that the land be timeously reserved/acquired for such purposes.

Because of the collective nature of community facilities and services, Council could consider collecting an additional financial contribution on each township application in the area, rather than requiring each development to set aside a portion of land for such purposes. The funding collected by Council in this way should then be used to buy the land parcels earmarked for future Multi Purpose Community Centres. This land can then in future be made available to line function departments such as Health, Education and Welfare to build schools, clinics, pension pay points, municipal pay points etc.

Such concentration of community facilities and the associated concentration of traffic and people can also provide opportunities for retail/business activities to be established in the same precinct. There is thus an opportunity to develop such Multi Purpose Community Centre as a public-private partnership with the centre/node providing social and economic facilities and services.

The most important prerequisite is however that these land parcels be identified and obtained in advance.

As indicated on Figure 15 it is proposed that five Multi Purpose Community Centres be developed in SDA 3. It should be noted that each of these nodes/centres are earmarked to serve a specific functional part of the study area, they are all highly accessible, and/or these centres coincide with existing concentrations of community and/or business activities/rights.

One centre is earmarked to serve the future community to the south of Pietersburg X28 around De Wet Drive; the second to serve the Koppiefontein precinct around the De Meer-Veldspaat intersection on the land belonging to Council and part of which has already been earmarked for a new school; a third in the vicinity of Bendor X99/101, the existing school, and the approved clinic. This precinct already comprises various community facilities and business rights and would be ideal to serve the area to the east of the N1 freeway and north of Munnik Street/Duiwelskloof Road (R81).

The fourth and fifth Multi Purpose Community Centres/Nodes are located in the precinct to the south of the Duiwelskloof Road (R81) and to the east of the N1 freeway. The first is proposed in the vicinity of X103 where there is already a concentration of education, health

and business rights/interest, and the second is proposed to the west in the vicinity of Bolivia Lodge.

It is important to note that a Multi Purpose Community Centre/Node could comprise a single building or a combination of various specific land uses in close proximity to each other in a certain area.

### **3.2.5. Land Use Budget**

Table 14 below represents a land use budget for SDA 3 based on the development capacity for the area as determined in Tables 11, 12 and 13.

The study area has a total development capacity of about 28 889 households which could accommodate about 98 000 people. This would justify the following number of community facilities in terms of current national standards:

- 13 Primary schools
- 5 Secondary schools
- 27 Churches
- 10 Clinics
- a Hospital comprising about 394 beds
- 9 Postal outlets
- 4 Police centres
- 2 Community centres

Experience during the past two decades has shown that these standards are seldomly achieved in new developments in the South African urban environment, and therefore it is important that whenever such facilities are eventually constructed, these should be located in/around the earmarked Multi Purpose Community Centres/Nodes in order to ensure that such facilities are accessible to as many as possible people, and that these facilities form part of a broader functional activity node.

A population of this size ( $\pm$  100 000 people), with middle to high income levels could sustain about 39 000m<sup>2</sup> of retail space in the form of Local Centres, 59 000m<sup>2</sup> of Neighbourhood Centres ( $\pm$  4), and one Regional Centre of about 78 784m<sup>2</sup>.

It is estimated that the area will develop at a rate of about 2 000 households per annum which implies that SDA 3 would take about 10 years to develop to its full capacity ( $\pm$  2018).

**TABLE 14: POLOKWANE SDA3: LAND USE BUDGET**

LAND USE	VACANT AREAS 1 - 5										APPROVED TOWNS & OTHER NON - RESIDENTIAL USES		TOTAL		
	1		2		3		4		5		6		no	ha	%
	no	ha	no	ha	no	ha	no	ha	no	ha	no	ha	no	ha	%
<b>BASE DATA</b>															
Residential ha		76.0		48.4		62.2		269.9		165.7		686.0		1308.2	49.9
Density du/ha (net)	30		29		29		29		29		15				
Dwelling Units	2265		1423		1831		7944		4876		10550			28889	
Population	7721		4852		6241		27081		16622		35964			98480	
<b>Education</b>															
Primary	1.0	2.8	0.6	1.8	0.8	2.3	3.5	9.9	2.2	6.1	4.7	13.1	13	35.8	1.4
Secondary	0.4	1.7	0.2	1.1	0.3	1.4	1.3	6.1	0.8	3.7	1.7	8.1	5	22.1	0.8
<b>Business</b>															
Local retail centre (floor area in m <sup>2</sup> )	3088	1.0	1941	0.6	2496	0.8	10832	3.6	6649	2.2	14386	4.8	39392	13.1	0.5
Neighbourhood retail centre (floor area in m <sup>2</sup> )	4632	1.5	2911	1.0	3744	1.2	16249	5.4	9973	3.3	21578	7.2	59088	19.7	0.8
Community, small regional retail centre (floor area in m <sup>2</sup> )	6176	2.1	3882	1.3	4992	1.7	21665	7.2	13298	4.4	28771	9.6	78784	26.3	1.0
<b>Offices (floor area in m<sup>2</sup>)</b>	1390	0.5	873	0.3	1123	0.4	4875	1.6	2992	1.0	6473	2.2	17726	5.9	0.2
<b>Community Facilities</b>															
Religious places	2.1	0.3	1.3	0.2	1.7	0.3	7.5	1.1	4.6	0.7	10.0	1.5	27	4.1	0.2
Clinic	0.8	0.1	0.5	0.0	0.6	0.1	2.7	0.3	1.7	0.2	3.6	0.4	10	1.0	0.0
Hospital	31	0.6	19	0.4	25	0.5	108	2.2	66	1.3	144	2.9	394	7.9	0.3
Post Office	0.7	0.1	0.4	0.0	0.6	0.1	2.5	0.2	1.5	0.2	3.3	0.3	9	0.9	0.0
Police	0.3	0.0	0.2	0.0	0.2	0.0	1.1	0.1	0.7	0.1	1.4	0.1	4	0.4	0.0
Community Centre / Library	0.2	0.1	0.1	0.0	0.1	0.1	0.5	0.3	0.3	0.2	0.7	0.4	2	1.0	0.0
<b>Open Space</b>															
Active		3.5		2.2		2.9		12.4		7.6		16.5		45.2	1.7
Passive												325.0		325.0	12.4
<b>Other Uses</b>															
Polokwane Airport												191.5		191.5	7.3
Quarry												62.0		62.0	2.4
<b>Street</b>		24.3		15.3		19.6		85.2		52.3		353.5		550.1	21.0
<b>TOTAL</b>		114.7		72.7		93.4		405.5		248.9		1684.9		2620.0	100.0
%		4		3		4		15		9		64		100	

## 4. DEVELOPMENT GUIDELINES

The following is a set of guidelines to inform the future development of the Study Area, and comprises both environmental and urban design guidelines.

### 4.1. Environmental Management

The continuity of the proposed natural open space system must be maintained at all cost. In this regard it is also essential that the areas around the corridors be utilised as far as possible as continuous public open space. It is also essential that provision be made for linear, continuous open spaces along the rivers in order to accommodate walking trails, bird watching etc. The koppie should also be formalised as an open space, and could possibly be developed into a Botanical Garden.

The different sensitivity classes referred to in section 2.3.2 and reflected on Figure 7 play 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. Specific provision 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 Table 15 below.

Sensitivity Classes	Management Principles for Development in different Sensitivity Classes	Guidelines for Sensitivity Classes
<b>High Sensitivity</b>	<ul style="list-style-type: none"> <li>• Perennial rivers and main non-perennial streams               <ul style="list-style-type: none"> <li>○ No clearance of riparian vegetation should be allowed within the demarcated 40 m each side of the river or stream or existing riparian vegetation line.</li> <li>○ No development should be allowed within the 1:100 year flood line.</li> <li>○ An impact assessment needs to be conducted prior to the construction of any new weirs or dams.</li> <li>○ No exotic vegetation should be planted and the encroachment of exotic vegetation must be prevented and existing exotic plants should be eradicated.</li> <li>○ Erosion should be prevented and existing erosion should be monitored and controlled.</li> </ul> </li> <li>• Hills and koppies               <ul style="list-style-type: none"> <li>○ Development within the demarcated areas should be minimized and restricted to environmentally friendly development. The impacts of any proposed development should be assessed prior to construction and mitigation measures must be adopted.</li> <li>○ Occurrence of sensitive, rare and endangered plant and animal species should be determined and alternatives or mitigation measures to prevent any damage to them adopted.</li> <li>○ No exotic vegetation should be planted and the encroachment of exotic vegetation must be prevented.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• 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.</li> <li>• An independent, suitably qualified individual must act as environmental control officer and do a site visit.</li> <li>• Maps to be included in the report should be as follows:               <ul style="list-style-type: none"> <li>• Vegetation Map</li> <li>• Sensitivity Map (including a description of sensitivity mapping rules)</li> <li>• Buffer zone map for red data species</li> <li>• Photographic guide of the site and vegetation characteristics</li> </ul> </li> </ul>
<b>Moderate Sensitivity</b>	<ul style="list-style-type: none"> <li>• Areas with natural vegetation and minimum modification               <ul style="list-style-type: none"> <li>○ Development within the demarcated areas should be restricted to</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• A <b>site visit</b> by a qualified botanist (at least BSc (hons) in plant ecology or botany) and preferably a qualified environmental officer which would indicate the following:               <ul style="list-style-type: none"> <li>• Photographs of the site and its related vegetation communities</li> </ul> </li> </ul>

Sensitivity Classes	Management Principles for Development in different Sensitivity Classes	Guidelines for Sensitivity Classes
	<p>environmentally compatible development. The impacts of any proposed development should be assessed prior to construction and mitigation measures must be adopted.</p> <ul style="list-style-type: none"> <li>○ The clearing of these areas for large-scale residential development, monoculture crops, mining or commercial developments should be prevented.</li> <li>○ No exotic vegetation should be planted and the encroachment of exotic vegetation must be prevented.</li> </ul> <ul style="list-style-type: none"> <li>● Areas sensitive for erosion                             <ul style="list-style-type: none"> <li>○ 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.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>● A plant species list indicating the degraded state of the vegetation (indicator species)</li> <li>● 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.</li> <li>● Rehabilitation plan for the site, would it be deemed necessary, after site inspection.</li> <li>● If any protected plant species occur on site, such as marula, they should be preserved, while all exotics should be eradicated.</li> <li>● Floodline determination of drainage areas, with mitigation measures</li> </ul>
<b>Low Sensitivity</b>	<ul style="list-style-type: none"> <li>● 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.</li> </ul>	<p>Unlimited development can be supported provided that an officer from Department of environmental affairs does a site visit with the consultant.</p>



## **4.2. Environmental Goals**

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- Consolidate and improve the environmental quality of the built environment.
- Improve the visual quality of all public spaces, including street space.
- Public Open Space:
  - public open space areas must be protected from urban decay;
  - areas, specifically the water courses must be properly managed;
  - a proper management plan must be implemented to protect, monitor and utilise the area;
  - if development takes place in these areas, strict rules and regulations must be put in place to protect the river course; and
  - these restrictions could be determined by an Environmental Impact Assessment.
- Maintain and extend an appropriate landscaping of the open space system especially the lining of streets with trees. Priority areas in this regard would be the proposed third order road network.
- Ring fence the Parks Contributions paid by developers in the area, and ensure that these funds are utilised towards the development of the open space and pedestrian routes around the open space corridors and the proposed Botanical Garden.
- Elicit the most appropriate pattern and quality of private development, particularly in prominent locations.
- Incorporate environmental considerations in the planning and management of the urban environment.

## **4.3. Movement**

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### **4.3.1. Role of Third Order Road Network (Urban Collectors)**

Functionally, the third order routes are the most important routes in the Study Area . especially because the nature of the surrounding developments (security villages) does not allow for a finer network (fourth and fifth order routes and movement). Private vehicles, public transport, pedestrians, and cyclists are thus forced to share the proposed third order network in SDA 3 as their primary means of movement. The first two order roads are predominantly focussed on regional accessibility and associated high levels of mobility. The primary functions of the third order routes would be to provide access to land uses in the area, and to serve as public spaces which accommodates walking, cycling, public and private transport - with special emphasis on public transport.

Public transport facilities should be provided at about 500 meter intervals along the third order road network and should include at least a left-in and left-out on-off load area, a pedestrian crossing at the facility, and a physical shelter. The third order network will thus serve as a public transport collector-distributor system which will link with the regional

network so as to functionally link and integrate the study area with the other parts and communities of the municipality as well.

**Figure 16** illustrates the components that should be provided for on a third order road. It comprises a single carriageway of 3,7 meters, a cycle lane of minimum width 1,5 meter, an engineering service reserve of 4 meters, a 3,9 meter landscaping reserve and a 1,5 meter pedestrian walkway (total minimum width  $11,6 \times 2 = 23,2\text{m}$ ). The engineering service reserve need not be provided on both sides of the road, and therefore the minimum reserve for a third order route could even be reduced further.

#### 4.3.2. Movement Goals

- Focus on minimizing dependence on private cars, and provide multi-functional streets in which the ease, safety and comfort of movement on foot is paramount;
- Maximise the accessibility of the study area by upgrading public transport from all surrounding areas, with special emphases on areas to the north;
- Promote pedestrianism as the essence of the movement system, supplemented by a co-ordinated and integrated public transport system in the study area;
- Extensively upgrade forms of public transport to promote it as the desired means of transport for the majority;
- All road upgrading projects should focus on minimising dependence on cars, with an emphasis on the provision of more multi-functional streets;
- Acknowledge and reinforce streets as the foundation of community life+ and not only movement arteries for vehicles;
- Encourage improvement in image and level of service of public transport;
- Pay particular attention to the requirements of disabled people in the upgrading of all public transport facilities; and
- Ensure that Pedestrians/Cyclists can move freely along the earmarked priority pedestrian/cyclist routes in the area, by providing proper sidewalk facilities, lighting, pedestrian crossings, and public transport shelters along these routes.

#### 4.4. Local Activity/Community Nodes

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As far as the structure and composition of these nodes are concerned, it is important to note that the basic principle behind these centres is that these should act as multi-purpose service centres to the local community. **Figure 17** graphically illustrates this concept. A local community centre could comprise of lower order retail facilities (convenience shops) as indicated above, but should also comprise of a combination of community facilities and services, eg. clinic, post office, library, community hall, a range of churches, as well as educational facilities.

In addition to the above there could also be a residential component associated with such a local activity/community node. The objective of a local community node is to provide a one-stop service to the surrounding community.

The intension is not to have these community facilities isolated within individual pockets of private development (security estates), but to have these local centres developed as part of the public space. This way it will be accessible to the broader community, both those living within the area, and the people from outside. It is important to note that these nodes should reflect the character of the surrounding community in terms of the range of facilities and services provided, and the architecture and design of the facility.

#### **4.5. General Man-made interface**

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Preliminary principles and general guidelines concerning the interface in the man-made environment between community facilities, the road network, and the residential development is given below:

- Supportive land uses, such as schools, clinics, libraries, churches and other community facilities should not form part of residential estates or complexes, but should be provided in central locations to serve the larger community. These facilities should be located on public transport routes.
- Residential development along minor roads and within the vicinity of nodes should focus on creating opportunities for social interaction. Appropriate typologies would include clustered courtyard buildings, semi-detached, and row housing.
- Residential development along major roads should have a strong edge with the road. Perimeter block courtyard buildings as well as linear buildings along the edge would be appropriate.
- Provision should be made for safe pedestrian and cyclist movement along all roads.
- Safety and security should be promoted through the following measures:
  - the placement of windows on the façade of buildings must allow for surveillance from the building onto the street;
  - spaces around buildings should be designed to relate to the built form, so that residents can take ownership of the space;
  - sufficient and adequate lighting should be provided in public spaces;
  - property enclosures should be permeable to allow for visual surveillance onto the street and from the street. Enclosures erected within residential estates and complexes should as far as possible be permeable to avoid dead street fronts;
  - landscaping should not detract from lines of vision, nor should hiding places be created. Bushes and shrubs should be avoided and trees should be raised when planted to raise branches above eye level.

#### **4.6. Overall Guidelines for Residential Development**

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- The focus of residential development should be to create secure neighbourhood areas with an identifiable neighbourhood character through the layout, architecture, street furniture, landscaping and design features.
- Residential estates and complexes should be developed around a specific design feature, such as a golf course, equestrian trails etc. Non-residential uses within estates should be limited to clubhouses and recreational facilities forming part of the design feature.
- Residential estates and complexes should be of human scale and proportion.
- Residential development should preferably be constructed utilising low maintenance materials. Open spaces around residential buildings should be landscaped. Signage (particularly advertising and property sale boards) should be controlled.
- Energy efficient measures should be put in place to reduce energy requirements and costs. This includes allowing for effective functioning of the natural open space system, orientating the longer façade of buildings northwards, optimal glazing and cross-ventilation, adequate insulation and greening.
- The proposed medium density living in the study area should not be equated with compromised and inferior environmental quality, over-crowding and separation from natural environments. A high quality living environment can be achieved within a high density residential environment.
- Provision must be made for a mix of housing-types, which takes into account affordability constraints and life-cycle considerations.
- Although the emphasis of future residential development will be for middle and higher income people, a balanced urban environment requires that entry level bonded housing income groups also be accommodated, e.g. young people who start working.
- Focus on higher density urban development between 30 and 60 units per hectare with a mix of residential densities, and where possible, concentrations of the highest density developments at points and lines of high accessibility, e.g. along the public transport routes. Low density development ranging between 15 and 30 units per hectare could be considered in the areas further away from the public transport routes.
- Restore, rehabilitate and develop a wide diversity of accommodation and supportive community services for all ages, income, ethnic and social groups.
- A range of housing options must be generated to provide accommodation for young, entry level, as well as older and higher income groups.
- Promote an urban pattern of development which is predominantly low rise (generally not more than 3 floors) to enable the provision of walk-up apartments which are more economical to construct and less hostile to the human scale.
- Establish a positive attitude to the principle of much greater numbers of people living in close proximity to the main public transport routes in the area.

- Withstand the continued invasion of incompatible non-residential activities into sensitive residential areas which are not only reducing the residential fabric, but also impacting negatively on the remaining residential activities.

#### **4.7. Development Control Measures**

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- Parking should preferably not be placed in front of buildings, but to the sides and backs. Open parking areas should be appropriately landscaped. Sharing of parking facilities could be considered to avoid duplication. Parking areas should be arranged in smaller entities.
- Street facades should reflect a restrained and dignified architectural character.
- Signage should be restrained and care should be taken not to disrupt coherence by over-sized and/or too bold signage.
- Building lines adjoining any core residential areas must be 10 meters. This restriction will create a buffer area and enhance privacy for the residential component. This buffer area must be landscaped in order to reduce noise levels, visual impacts of the new buildings and enhance the privacy of the residents.
- As far as possible, non-residential development should incorporate a significant residential component on upper floors as part of the mixed use philosophy.
- New activities should not negatively affect the existing residential component.
- No blank walls on street frontages of large-scale developments (commercial and residential) should be allowed.
- Particular care should be taken to achieve appropriate semi-private spaces (interface) between the fronts of buildings and the street to afford a measure of privacy for residential development.
- Landscaping is a better option than a solid wall which has a negative effect although safety concerns are recognised.
- Architectural design of new and refurbished houses must be in line with the present designs and character of the neighbourhood.
- Home undertakings that are non-noxious, non-noisy and non-disrupting can be promoted in the residential area.
- Home-based cottage industries should be encouraged, but particular care should be taken that the residential activity remains predominant.
- 2.5 meter walls on all non-residential erf boundaries next to residential uses.
- Promote the usage of covered colonnades along street frontages . it imparts a human scale to multi-storied buildings, and adds protection for pedestrians from the elements and vehicles.
- Open parking areas such as the parking lots of business centres are to be landscaped with trees to soften the area.

#### **4.8. Economic Development**

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- Reinforce complementary mixed land usage, developed at varying levels of intensity and complexity.

#### **4.9. Maintain and enhance the attractiveness and “Genius Loci”/Sense of Place of the Study Area**

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- Establish a positive attitude towards the protection and maintenance of both man-made and natural elements which contribute to the uniqueness of the study area.

### **5. IMPLEMENTATION PRIORITIES**

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The following represent the priority actions/projects to be initiated in SDA 3:

- Finalise detail design of the N1 freeway including the configuration of the various systems and access interchanges, as well as determining how the three proposed crossings of third order routes will be achieved.
- Conduct detail design of the sections of the Duiwelskloof Road (R81) and Mankweng Road (R71) which fall within SDA 3 and determine whether it is viable for these sections to be deproclaimed as national routes and be incorporated into the municipal road network.
- Polokwane Municipality to obtain a license from Eskom (in line with an existing agreement) to provide electricity in the entire SDA 3.
- Initiate the design of a Stormwater Master Plan for the entire area in order to efficiently manage projected increased stormwater flow in the area as it becomes urbanised.
- Conduct detailed planning for each of the six proposed Multi Purpose Community Centres and formulate a policy with regards to collective contributions by all developments/developers towards the future provision of community facilities.