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<table>
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<tr>
<th>Acronym</th>
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<tr>
<td>AIDS</td>
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<td>ASGISA</td>
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<td>BCP</td>
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<td>Good Governance and Capacitation</td>
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<td>South African Railways</td>
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CHAPTER 1: INTRODUCTION

1.1. THE NEED FOR A SPATIAL DEVELOPMENT FRAMEWORK

The major impetus (apart from addressing the distortions created by apartheid) for the first round of SDFs completed, was to comply with the legislative requirements presented by the Municipal Systems Act, as mentioned above. Yet, to ensure that development does in actual fact take place in an integrated and sustainable manner, the Integrated Development Plans (IDPs) and Spatial Development Frameworks (SDFs) of local authorities have to be aligned with the goals and directives provided by the various existing and new guiding documents. This implies that IDPs and SDFs need to be reviewed on a continual basis to ensure synergy between the three spheres of government – i.e. what happens on local level needs to “fit-in” and “contribute” to both provincial and national development goals and priorities.

Consequently, the Nkangala District Municipality (NDM) launched a pilot project to review not only the District’s existing SDF, but also to review each of the District’s six local municipalities SDFs in light of new policies directives presented by documents such as the National Spatial Development Perspective (NSDP) and the Mpumalanga Provincial Growth and Development Strategy (MPGDS). This document then, represents the revised SDF for the Steve Tshwete Local Municipality (see Figure 1) as a component of the Municipality’s IDP, and is prepared and submitted in fulfilment of the Local Government: Municipality Systems Act (32 of 2000) and the Local Government: Municipal Planning and Performance Management Regulations, 2000.

As previously, the primary aim of the Spatial Development Framework is to formulate spatially based policy guidelines whereby changes, needs and growth in the region can be managed to the benefit of the whole community. The Spatial Development Framework further guides and informs all decisions of the Municipality relating to use, development and planning of land. This will have to be balanced with the need to provide adequately for both the social and
economic needs of the growing population. In particular, it will identify opportunities for future development and conservation and make recommendations as to where and how development or conservation should take place. In doing so, the framework will not make detailed proposals for specific land portions, but will rather provide broad spatial guidelines to assist decision making with regard to land use/spatial planning.

The Spatial Development Framework for the Steve Tshwete Local Municipality will thus at least indicate and inform the following:

- Objectives, strategies and policies with respect to desired spatial form;
- Directions of growth;
- Guidelines for Land Use Management;
- Conservation of both the built and natural environment;
- Areas in which particular types of land use should be encouraged and others discouraged;
- Delineate the urban edge areas; and
- Where strategic intervention is required.

To sum-up, the original need for the preparation of a Spatial Development Framework for the Steve Tshwete Local Municipality was identified as a result of a number of imperatives:

- **The Spatial Development Framework forms a legally binding component of the Steve Tshwete Integrated Development Plan**

  This Spatial Development Framework is a refinement of the broad spatial framework guidelines as contained in the Steve Tshwete IDP. In terms of the IDP a two layered approached should be followed namely:

  - Regional Spatial Development Framework dealing with the rural areas; and
  - Local detailed Spatial Development Framework for the various functional areas/service centres(towns/villages).

- **The need to formulate and implement spatial planning guidelines and policies**

  Proper land use planning guidelines and policies in the rural areas and smaller towns and villages are lacking and in some cases outdated. The absence of proper planning
guidelines therefore necessitates the preparation of a detailed Spatial Development Framework for the area to manage future land use.

- **Legislative requirements**


- **Increasing pressure for development**

The demand for development of rural settlements is pressurising existing scarce resources. Conflict between high potential agriculture and mining poses a threat to the environment.

- **The imperative to implement and maintain sustainability**

Sustainability of the natural and man-made environment is of critical importance for long term land use management and effective development.

**1.1.1. Terms of Reference**

The terms of reference (as determined by the Steve Tshwete Municipality) for the initial SDF, sited the following areas for specific attention:

- The Spatial Development Plan (SDF) should adhere to the relevant legal requirements for the preparation of SDF’s;
- Existing development and land use profile;
- Infrastructure and services;
- Socio-economic characteristics;
- Natural environment;
- Urban development;
- Eco-tourism development;
- Desired spatial form;
- Spatial strategies and policies; and
Inclusion of nodal areas such as Rietkuil, Pullen’s Hope, Komati/Blinkpan/Koornfontein, Doornkop, Kwa-Makalane, Thokoza Village, Rockdale (Ext.24 Phase 2), Naledi, Lesedi, Presidentsrus and Kranspoort.

With the above as background, the objectives of this study can be summarised as ensuring that the SDF for the Steve Tshwete municipal area:

- Address the contents of an Integrated Development Plan as required in terms of Government Gazette No. 22605;
- Adhere to the Land Development Principles as stipulated in Chapter 1 of the Development Facilitation Act; and
- Incorporates, adheres to, and is aligned with, the strategic goals, development directives, and guidelines provided by the:
  - National Spatial Development Perspective (NSDP);
  - TheMpumalanga Growth and Development Strategy (MPGDS);
  - TheMpumalanga Rural Development Programme (MRDP); and
  - The Municipality’s Integrated Development Plan (IDP).

1.2. LEGISLATIVE CONTEXT

The Spatial Development Framework is drafted within specific legislative guidelines. This legislative guidelines and context determine the status of the document as well as linkages with other strategic planning exercises. The legislative context with respect to legislative requirements, IDP linkages, current planning, SDF legal status and alignment are briefly addressed.

1.2.1. Legislative Requirements

A large number of planning guidelines, Acts, Regulations and Policies are relevant to the preparation of a Spatial Development Framework for the Steve Tshwete Municipality area of jurisdiction. These planning guidelines will be analysed in more detail as part of the SDF analysis phase (refer to Chapter 2). The Spatial Development Framework is prepared, approved and implemented within the legislative context of the Local Government: Municipal Systems Act, 2000 (Act 32 of 2000)(MSA) and the subsequent Local Government: Municipal Planning and Performance Management Regulations, 2001 promulgated under Section 120 of the Local Government: Municipal Systems Act.
The following sections of the MSA and its regulations are applicable to the SDF and outline the legislative requirements with respect to context, approval and content.

- **Context (Municipal Systems Act)**

  26(e) “an Integrated Development Plan must reflect a Spatial Development Framework which must include the provision of basic guidelines for a Land Use Management System for the Municipality”

- **Approval (Municipal Systems Act)**

  28(1) “each Municipal Council, within the prescribed period after the start of each elected term must adopt the process set out in writing to guide the planning, drafting, adoption and review of its Integrated Development Plan”

- **Content (Municipal Systems Act Regulations)**

  (4) “A spatial development framework reflected in a municipality’s integrated development plan must –

  (a) give effect to the principles contained in Chapter 1 of the Development Facilitation Act ’1995 (Act No. 67 of 1995);

  (b) set out objectives that reflect the desired spatial form of the municipality;

  (c) contain strategies and policies regarding the manner in which to achieve the objectives referred to in paragraph (b), which strategies and policies must –

  (i) indicated desired patterns of land use within the municipality;

  (ii) address the spatial reconstruction of the municipality; and

  (iii) provide strategic guidance in respect of the location and nature of development within the municipality;

  (d) set out basic guidelines for a land use management system in the municipality;
(e) set out a capital investment framework for the municipality’s development programs;
(f) contain a strategic assessment of the environmental impact of the spatial development framework;
(g) identify programs and projects for the development of land within the municipality;
(h) be aligned with the spatial development frameworks reflected in the integrated development plans of neighbouring municipalities; and
(i) provide a visual representation of the desired spatial form of the municipality, which representation:

(i) must indicate where public and private land development and infrastructure investment should take place;
(ii) must indicate desired or undesired utilisation of space in a particular area;
(iii) may delineate the urban edge;
(iv) must identify areas where strategic intervention is required; and
(v) must indicate areas where priority spending is required.”

1.2.2. IDP Linkage

The Spatial Development Framework for the Steve Tshwete Municipality area forms part of the Steve Tshwete Integrated Development Plan. The SDF as one of the operational strategies of the IDP, is closely linked and should function with the other operational strategies, i.e. Water Services Plan, LED Programme, Environmental Programme, Disaster Management Plan, etc.

The Spatial Development Framework further gives effect to Council’s vision for development and Council’s objectives and strategies with respect to Land Development and Land Use Management.

1.2.3. Current Planning

Current planning on a localised level is limited to the Spatial Development Framework strategies and proposals made in the Steve Tshwete Integrated Development Plan as revised in 2003. The preparation and prioritisation of a Spatial Development Framework have been
necessitated as a result of the absence of clear land use management guidelines and forward planning for the smaller towns and villages.

The Municipal area comprise of a vast area including Rietkuil, Pullen’s Hope, Komati/ Blinkpan/ Koomfontein, Doomkop, Kwa-Makalane, Thokoza Village, Rockdale(Ext.24 Phase 2), Naledi, Lesedi, Presidentsrus and Kranspoort.

Based on the diverse character and spatial form of the area, Council decided to focus on the area in terms of the rural area and on the localised functional areas of towns and villages. These Spatial Development Frameworks of the various planning areas will all form part of the Steve Tshwete Spatial Development Framework. Once completed, these frameworks will then serve as guidelines towards the compilation of the detailed Land Use Management Plan which will be utilised in the day to day management of land use applications.

1.2.4. SDF Status

The Spatial Development Framework, being part of the Steve Tshwete Integrated Development Plan, has the same status as the IDP and should be implemented in the same manner. It is again noted that the Spatial Development Framework is an extension of the IDP and forms part of its operational strategies.

The Municipal Systems Act makes provision for revision of the IDP, including the Spatial Development Framework, on an annual basis. The SDF should be regarded as a pro-active and dynamic tool outlining land use management and land development proposals.

Although annual revision of the SDF are not mandatory, it is recommended that the plan be monitored and approved on an ongoing basis.

It should be noted that the Steve Tshwete Spatial Development Framework will not infringe upon any existing Land Use Rights. Further to this, no guideline contained in this framework plan or any proposal regarding land uses which may arise from it, creates any rights or exempts it from obligation under any other law. Specific reference is made to the procedure for change in land use (re-zonings), sub-division, township establishment and Council’s Special Consent. The normal procedure with respect to Land Use Management as outlined in the Town Planning and Townships Ordinance,1986 (Ordinance 15 of 1986)and other Land Use Management Legislation would still apply.
1.2.5. Alignment

Preparation, implementation and approval of the Spatial Development Frameworks do not take place in isolation. Alignment with Local and District initiatives are of critical importance and are specifically stipulated in the Local Government: Municipal Systems Act. The alignment of the Spatial Development Framework on a Cross Sectoral and Inter-governmental basis should be established to ensure the alignment of the following strategic planning exercises and initiatives:

- Steve Tshwete Integrated Development Plan vision, priorities, objectives, strategies and projects;
- Operational strategies of the Steve Tshwete Municipality with respect to Integrated Sector Plans and Programmes, i.e. Water Services Plan, Local Economic Development Plan, Environmental Programme, etc.;
- Steve Tshwete Municipality spatial planning initiatives with specific reference to the Spatial Development Framework and existing broad Regional Spatial Development Framework strategies (part of IDP);
- Spatial Development Framework initiatives by surrounding Local Authorities;
- Provincial and National Government initiatives, policies and development strategies with specific reference to the Development Facilitation Act; and
- District Municipality Spatial Development Framework process.

Alignment of the Spatial Development Framework should be a two-way process between the Municipality and other role players with specific reference to line Departments, the District Municipality and adjacent Local Authorities.

1.3. Planning area

The planning area in relation to its environs is depicted in figure 1. The study area is generally known as the Steve Tshwete Municipality, with Middelburg and Hendrina functioning as the Primary and Secondary nodes. A number of smaller settlements are dispersed throughout the municipal area, mainly south of the N4 towards Hendrina.
Whilst Middelburg is situated almost central in terms of a north – south orientation within the Municipality, Hendrina is situated on the south-western border of the municipality. The boundaries of the study area are based on the area of jurisdiction as depicted in terms of the Demarcation Board’s proposal for MP 313. The southern boundary is just south of Hendrina; the northern boundary bisects Loskop Dam; and the eastern boundary runs slightly to the east of Rietkuil.

The study area is characterised by the Coal mining industry, operating mainly in the southern part of the study area, south of the N4 national road. The N4 traverses the study area in an east – west alignment. Conflictingly, the southern area is also the area in which the highest agricultural potential is found, comprising of arable land under irrigation. The north western region is characterized by mountainous terrain with lower agricultural potential, which largely accommodates game farms.

The study area comprises approximately 3 993km² and is situated in a radius of approximately 50km around Middelburg.

1.4. PLANNING PROCESS AND REPORT STRUCTURE

Preparation of the Steve Tshwete SDF is guided mainly by the MSA and its regulations; the IDP which identifies the relevant concerns, problems, issues and opportunities through a multi-sectoral approach; and new policies documents such as the NSDP, MPGDS, and the MRDP. Hence, the process is aimed at identifying the opportunities inherent to the area, and to make recommendations as to how these can be utilised and expanded to address the areas’ weaknesses. The Spatial Development Framework is a spatial component of this multi-sectoral process. Planning and the planning process should be viewed as fundamentally a cyclical process and not a single act. In order to achieve an efficient product (Spatial framework and policy), it is critical that the ongoing cyclical nature of the planning process is reflected in the approach, process and methodology.

In the light of this, this planning initiative for the study area should be viewed as the commencement of an ongoing planning process, which will guide the management of the spatial implications of growth and change into the future.
1.4.1. Approach

In order to achieve an effective implementation of the planning process, it is critical that the planning approach ensures that the product, policies and plans are:

- Focussed on strategic issues;
- Action orientated;
- Integrated with other aspects of administration and environment management;
- Capable of implementation;
- Reflects the need and opinions of stakeholders;
- Uphold the interest of the community as a whole;
- Sustainable;
- Integrated with other operational strategies;
- Equitable and transparent; and
- Reflects the needs and context of the study area.

To achieve an effective planning work method, it is critical that the planning process consist of two fundamentally interlinked processes: A technical planning process (information collection and synthesis); and participatory/consulting process.

1.4.2. The Process and Methodology

Diagram 1 provides a basic outline of the Spatial Development Framework process and methodology followed for the Steve Tshwete SDF.
ANALYSIS (CHAPTER 2)

Spatial
Socio Economic
Infrastructure
Environmental

VISION AND PLANNING PRINCIPLES (CHAPTER 3)

Vision
Objectives
Principles
Desired Spatial Form

LAND USE MANAGEMENT GUIDELINES (CHAPTER 4)

Strategies
Policies
Guidelines
Land Use Components

SPATIAL DEVELOPMENT STRATEGY (CHAPTER 5)

Urban Nodes
Rural areas
Areas for Key Intervention
IDP Linkage

IMPLEMENTATION

Action Plan
IDP Budget change
The Spatial Development Framework process and methodology is based on a strategic planning exercise as established through the Integrated Development Plan mechanisms and methodology.

- **Analysis (Chapter 2)**

  The existing level of development and understanding of the nature, dynamics and causes of the status quo will be assessed. The analysis is based on spatial, socio-economic, infrastructure, environmental, legislative and policy analysis sub-groups.

  The analysis phase will pave the way for confirming a vision and establishing planning principles for the Spatial Development Framework and the study area.

- **Vision and Planning Principles (Chapter 3)**

  The vision for the Steve Tshwete Municipality, as per revised IDP, and broad planning principles and strategies are adopted. The vision and planning principle phase will establish Spatial Development Framework objectives and principles, and ultimately provide guidelines with respect to the desired spatial form of the study area.

- **Spatial Development Strategy (Chapter 4)**

  Based on the vision, planning principles and land use management guidelines, spatial development strategies are formulated for each of the urban nodes, rural areas and possible areas for key intervention. The spatial development strategies will provide specific guidance with respect to future land uses, urban edge and possible areas for extension.

- **Land Use Management (Policies & Guidelines) (Chapter 5)**

  The land use management guidelines includes strategies, policies and guidelines for each of the land use components, i.e. residential, rural development, business etc. These land use management guidelines are based on the vision and planning principles and will provide a policy framework for land use management decisions.
Implementation

Implementation of the Spatial Development Framework is closely linked and interacts with IDP and budget implementation processes. Implementation of the Spatial Development Framework is captured as an action plan for prioritisation.

Public and Stakeholder Input/Technical Input

Each of the SDF phases, i.e. analysis, vision and planning principles, land use management guidelines, spatial development strategies and implementation are based on public and stakeholder input with a strong technical basis. The Spatial Development Framework forms part of the Integrated Development Plan as one of its operational strategies. The vision, priorities, objectives and strategies as identified as part of the IDP process will be incorporated into the SDF. The Steve Tshwete IDP and Steve Tshwete Revised IDP (2007) have been based on an extensive public and stakeholder input process. Importantly, the purpose of the SDF is not to regenerate these objectives and strategies, but rather to enhance and expand on the spatial aspects thereof. Similarly, the SDF will feed into the 2007/08 IDP review process.

Monitoring and Review

Monitoring and review of the Spatial Development Framework should be done on an ongoing basis. However, the SDF review process can coincide with the IDP review process.
CHAPTER 2: ANALYSIS

2.1 INTRODUCTION

2.1.1 Background

Analysis of the current situation or status quo within the study area forms an integral and important part of the strategic planning exercise. Analysing the study area from a spatial development perspective ensure that decisions and recommendations are based on knowledge of availability and accessibility of resources, mechanisms and trends that influence development and actions within the region, as well as priorities as identified by the communities of the area.

The analysis further forms a basis for informing vision and planning principle formulation, formulating land use policies and guidelines and ultimately to make recommendations with respect to the future spatial development strategies that should be applied within the study area.

The analysis phase deals with a large spectrum of issues and development sectors. It is therefore not possible to analyse all developmental aspects within the area in detail, however the analysis are end product driven and based on relevant information and input needed to adequately formulate the relevant development policies and strategies.

Analysis of the status quo aims to produce the following output:

- Assessment of the existing level of development;
- Priority issues/problems;
- Understanding of nature/dynamics/causes of these issues;
- Knowledge of available resources and potentials; and
- Legislative framework and external guiding factors.

The status quo analysis for the Steve Tshwete Spatial Development Framework will address the following:
• Spatial Analysis

Settlement dynamics, land uses and trends.

• Socio economic Analysis

Analyse demographic, employment, income and economic profiles.

• Infrastructure Analysis

Analyse infrastructure availability and the current level of services.

• Environmental Analysis

Analyse topography, drainage, vegetation, geology and soils, recreation and tourism, as well as conservation initiatives.

• Legislative and Policy Analysis

Analyse existing legislative and policy guidelines that influence spatial development planning in the study area.

2.1.2 The Historical Background

• Middelburg

The Lydenburg “Volksraad” resolved on 25 October 1859 to establish a town, halfway between Pretoria and Lydenburg, on the farms Klipfontein and Keerom. The farmers in the vicinity did not approve of the abovementioned locality, and consequently the Dutch Reformed Congregation purchased the adjoining farm Sterkfontein on 28 January 1864. Following this, Middelburg was established in 1866 as a “Church” town, known as Nazareth. Nazareth means “root from dry land”. At establishment “Nazareth” consisted of 409 stands. Until 1874 both names where used namely “Nazareth” by the Dutch Reformed Church and Middelburg by the government of the Z A R.
At the beginning of the previous century Middelburg was surveyed and consisted of approximately 880 erven. At the time, Middelburg acted mainly as a service centre for the surrounding agricultural community. Yet, over the years this focus has changed to not only catering for the agricultural sector, but also for the growing mining and electricity generation sectors.

- **Hendrina**

During 1910 the agricultural development of maize production drastically improved, and in conjunction with cattle and sheep farming necessitated the formalization of the then existing community at present day Hendrina. Furthermore, the long distances with ox wagon and horse cart between Middelburg, Ermelo, Bethal and Carolina acted as imputes for establishing a service centre. At the time, the major reasons for establishing a town were threefold, namely:

- An own town as commercial point;
- An own church; and
- An own school based on Christian norms and values.

Hence, on 24 March 1914 a group of people lead by Mr. Jacob de Clerq decide to establish a town on the farm Grasfontein 570 of Mr. Gert Beukes. Mr. W.G. Joubert purchased the abovementioned land on which Hendrina was established. The town was named after Hendrina Beukes and proclaimed on 5 June 1916. A portion of land was also donated to the Dutch Reformed Church to erect a church.

### 2.1.3 Cultural Historic sites

Due to the presence of culturally and historically import sites and areas within the local municipalities of the Nkangala District (as demonstrated above), BKS Consulting Engineers and Cultmatrix was contracted to provide an assessment of these.

What follows are direct extracts from the document entitled “*Formalisation of Cultural and Historic Sites in the Nkangala District, 2004*”, and highlights important features found within the municipal area, currently protected by the National Heritage Resources Act (Act no 25 of 1999):

The Middelburg municipal area is traversed by the historic Pretoria-Maputo railway line, which played an important role during the Anglo-Boer
War. The northern part of the municipal area consists of Bushveld and Bankenveld with level ridges. The heritage of this area is characterised as mostly agricultural, with historic farmsteads and a few small villages such as Selonsrivier.

This particular region has a long history of human habitation dating back to the Middle Stone Age (120 000 years ago) and there are some major Iron Age settlement sites, notably the Little and Great Olifants River valleys, including the Loskop Dam Nature Reserve. It is also associated with major forced removals involving the Botshabelo, Doornkop and Groenfontein communities. Near Siyabuswa, the tradition of a female ‘king’ of women was stated at Doornkop near Middelburg and the inauguration of the Village Women Leader is still practiced at Phathisizwe.

The southern part of the municipal area is typical Highveld, with pans and grassy downs. It is rich in coal deposits and many collieries operate here. The coal deposits were also responsible for the erection of some of Eskom’s power stations that dominate the landscape today. The region is more heavily populated and there are a number of villages associated with the mines and power stations.

Priority sites identified in the rural areas include:
- Zulu royal graves, Farm Rietfontein, west of Middelburg;
- Pan railway station, 1894; and
- Arnot railway station precinct.

Figures 2a and b indicate the Cultural Historic Sites in the municipal area as well as in Middelburg and Botshabelo. This includes elements of military history, cemeteries, industries, royal tribal and architectural/engineering. The Middelburg area has a large collection of heritage resources, but the town itself lacks urban legibility – the result is that it appears as if there is no coherent strategy to showcase these, even if there is. The two main axes of the town and its related places and elements must be strengthened through good urban design, and heritage related information transfer installed along it.
The Anglo Boer War Route in Middelburg includes the English Bridge, old canon blockhouse and cemetery, concentration camp cemetery, the Drift, a Canal and the Lane of the English Garrison. During the war, almost a thousand children died in the area and more than 1 300 women and children died in the Concentration Camp from May 1900 to 1902. The Anglo Boer War history of the town should be more aggressively marketed and sites must be better signposted. It is advised that a central heritage information centre be established at the historical core of the town near the NG Church with a map of Anglo Boer War sites and directions.

The Middelburg Colliery is the largest opencast mine strip in the world situated at approximately 20 km south of Middelburg. The mine came about as a result of the merger between Duvha Opencast Services and Middelburg Mine in 1995.

Integration with the initiatives to conserve the NZASM Oosterlijn and its related centres from Pretoria to Maputo along the Maputo Corridor as a possible World Heritage Site, has to be included in development thinking in Middelburg.

The township of Mhluzi is located across the ridge on the north-western side towards Botshabelo. The black history of Middelburg is however not visible to the visitor or inhabitant. Signage and information transfer at all the sites identified in the asset register is advised.

Botshabelo (meaning “place of shelter” or “sanctuary” was the name of the farm that was bought from the Berlin Mission Society by two young missionaries. These missionaries, Alexander Merensky and Heinrich Grutzner arrived in Natal to spread the Word and settled in Botshabelo in 1865. The church and parsonage of 1865 have been conserved in Botshabelo.

Botshabelo is the premier site of Middelburg and probably the whole of Nkangala – it has the potential to explain the Missionary venture in South
Africa, and also the colonising mindset and experience of the colonised – this site also has the potential to be a World Heritage Site. Deterioration of structures and the lack of an integrated development strategy, which includes current heritage conservation philosophy, must get immediate attention. A complete Heritage Impact Assessment is required for any future development.

Priority sites identified include:

- NZASM Middelburg Station, 1890’s;
- NZASM Railway houses;
- Kanonkop Concentration Camp;
- Old Magistrate Office (currently SA Police Detective HQ), 1908;
- Fort Wilhelm (Merensky) at Botshabelo, (1865+);
- Berlin Mission complex at Botshabelo, (1865+);
- Corrugated sheet metal ex-military house – turn of 19th century;
- Middelburg old cemetery (war graves);
- First house in Mhluze (Hermaans Street); and
- First church in Mhluze.

Figures 3a and 3b indicate the multitude of Cultural Historic Sites in and around Hendrina, which include historic houses, shops, mining areas and graves. The town of Hendrina has a low residential density and sparse vegetation, with a few important heritage assets. The town is however economically depressed due to its location far from major cities. The town has potential to be a good living environment, but requires integrated space planning. The town should market its historic spatial qualities and heritage assets more aggressively in the district’s tourism initiatives – the town has an excellent tourism map, which is a good basis for further action.
2.2 Spatial analysis

2.2.1 Introduction

Based on the regional and local context of the study area, the spatial analysis provides a brief overview of the settlement dynamics (urban and rural) and the overall land use patterns.

2.2.2 Settlement Dynamics

A description of the study area has already been outlined. The land use profile and settlement dynamics within the study area are important indicators reflecting the status quo and possible future land uses and growth patterns. Given the nature of the study area, conflict exists between high potential agricultural land and coal mining. Conflict also exists between mining and the mountainous natural area mainly utilised for eco-tourism towards the northwest of the study area.

Given the unique nature of the study area, two distinctive homogenous areas are identified:

- **The area to the south of the N-4 National road** is mainly associated with high potential agricultural crop production. This is also the area which experience pressure from open cast coal mining. Upon rehabilitation the land again becomes available for farming. However, the agricultural potential is detrimentally been affected, as the land can normally only be utilized for grazing.

- **The northern part** of the study area is known as an area subject to cultivation in the east which tends to decrease in agricultural potential in a westerly direction to a point where the terrain restricts farming potential to grazing only. This is also the area accommodating game farms focussing on the eco-tourism industry.

Urban areas

The residential component of the study areas is mainly concentrated in the urban areas. The study area comprises the following urban nodes:
2.2.3 Land Use (Urban)

- Middelburg

Middelburg functions as the largest commercial centre in the study area. The town fulfils a central place function with the largest residential and commercial component (see Figure 4).

- Residential

A large portion of the town's residential erven is used for high-density, low-income purposes. Specific reference is made to the residential areas of Mhluzi and Nasaret. A total of 18,459 single residential units have been planned of which 1329 is vacant.

A housing shortage of approximately 6883 units is recorded in Mhluzi primarily known as the low-income residential area. Lower density, high income residential sites are mostly situated in Aerorand with 1200 of vacant erven still available. Various middle and high income housing developments are currently in the process of development, e.g. Middelburg Waterfront and Roberts Retirement Resort to name but a few.

- Business

Business is mainly concentrated in the town centre and along Jan van Riebeeck Street, which mainly accommodates the Motor Town. Most of the residential areas depend on the town centre for day-to-day shopping needs, although certain areas
have access to neighbourhood centres and corner shops. However, a number of house shops, informal traders and spaza shops are located in the Mhluzi and Nasaret.

- **Community and Education Facilities**

The basic community and education facilities developed in Middelburg are outlined in the Table1.

**Table 1: Community & Education Facilities**

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Facilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Library</td>
<td>3</td>
</tr>
<tr>
<td>Community hall</td>
<td>3</td>
</tr>
<tr>
<td>Sport stadium</td>
<td>4</td>
</tr>
<tr>
<td>Golf Course</td>
<td>1</td>
</tr>
<tr>
<td>Police Station</td>
<td>2</td>
</tr>
<tr>
<td>Clinic</td>
<td>8</td>
</tr>
<tr>
<td>Post Office</td>
<td>1</td>
</tr>
<tr>
<td>Crèche</td>
<td>3</td>
</tr>
<tr>
<td>Primary School</td>
<td>17</td>
</tr>
<tr>
<td>Secondary School</td>
<td>7</td>
</tr>
<tr>
<td>Technical college</td>
<td>1</td>
</tr>
<tr>
<td>Cemetery</td>
<td>8</td>
</tr>
</tbody>
</table>

The provision of community facilities in Middelburg is fairly well distributed. Some of the vacant school sites in Mhluzi have been informally utilised for soccer fields.

**IDP Priorities applicable on Middelburg**

The Steve Tshwete IDP identified the following development priorities:

- Proclamation of Newtown;
- RDP houses, also closer to town;
- Police station in Nasaret/ Eastdene/ Mhluzi Extensions;
- Church sites;
Sports fields/facilities: Swimming pool Eastdene & Nasaret, Cricket/netball/tennis/volley ball courts in Nasaret, & Eastdene various sports facilities in Newtown;
Post office;
Opened passage ways;
Trading stalls;
Availability of erven;
Bus & taxi shelters;
Park development;
Satellite pension pay point;
Rural villages as per rural study;
Decentralized shopping facilities;
Home for the disabled;
Library in Mhluzi;
Ambulance & Fire station;
Public toilets at netball grounds;
Primary school in Newtown;
Establish ABET centre;
School of industry for children with deviant behaviour;
Skills training centre;
Technical school in Nasaret;
Build crèches;
Extend Ndebele village;
Finalize Botshabelo land claim;
Old age home;
HIV/AIDS Care centre;
Youth centre & gymnasium;
Building an orphanage;
Pension pay points;
Enlarge residential erven in Mhluzi;
Manage undeveloped town lands;
Environmental and land use management systems to be developed;
Relocate small farmers and kraals further from Mhluzi;
Building of information centre;
Provide local shopping facilities; and
Build community hall Newtown/Tokologo;
Hendrina

Hendrina, the second biggest town in the study area is situated approximately 50km south east of Middelburg along the N-11. The town is significantly smaller than Middelburg with 5078 planned single residential stands of which 968 is vacant (see Figure 5).

- **Residential**

A total of 1304 stands exist in Hendrina of which 956 have been serviced. Kwazamokhule consist of 3774 stands of which 3154 have been serviced. The housing shortage experienced by the mainly backyard lodgers amounts to approximately 500 low income residential units, according information obtained from the Housing Department of Council.

- **Business**

Business/commercial activities are mainly concentrated along the main street and the main route through town. Major businesses and industrial activity include the OTK Co-operation and Joy Manufacturing which are the largest suppliers of employment. The business node in Hendrina is fairly unstructured.

Limited business activities in Kwazamokhule force local residents to travel to Hendrina for goods and services. Informal traders, Spaza shops and a few general dealers provide daily goods and services.

- **Community and Education Facilities**

Community and education facilities in Hendrina and Kwazamokuhle are limited.

Table 2: Community & Education Facilities

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Facilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Library</td>
<td>2</td>
</tr>
<tr>
<td>Community hall</td>
<td>1</td>
</tr>
<tr>
<td>Sport stadium</td>
<td>2</td>
</tr>
</tbody>
</table>
The Steve Tshwete IDP identified the following developmental priorities with respect to Hendrina/Kwazamokhule:

- Availability of erven;
- RDP houses;
- Develop parks;
- Opened passage ways;
- Trading stalls;
- ABET centre;
- Ambulance/Fire station in Kwazamokhule;
- Upgrade cemetery;
- Build Taxi rank in Kwazamokhule;
- Build Technikon/College in Kwazamokhule;
- Primary school;
- Clinic;
- Hospital;
- Sport facilities (all sports);
- Develop Hendrina dam resort;
- Build a gymnasium;
- Home for the disabled;
- Build an orphanage;
- Provide church sites;
- Provide local shopping facilities;
- Build Job Training Centre; and
- Municipal pay point in Kwazamokhule.
• **Rietkuil**

Rietkuil is situated ±35 km. east south east of Middelburg, being the third largest settlement in the study area (see Figure 6).

- **Residential**

Rietkuil consists of 860 single residential middle income stands. These stands were developed by Eskom to accommodate personnel employed at Amot Power Station.

- **Business**

Business activity in Rietkuil is limited to a neighbourhood centre, providing in day to day needs of the community.

- **Community and Education Facilities**

Community and education facilities are limited to the following:

**Table 3: Community & Education Facilities**

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Facilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Library</td>
<td>1</td>
</tr>
<tr>
<td>Community hall</td>
<td>1</td>
</tr>
<tr>
<td>Sport stadium</td>
<td>1</td>
</tr>
<tr>
<td>Golf Course</td>
<td>1</td>
</tr>
<tr>
<td>Police Station</td>
<td>-</td>
</tr>
<tr>
<td>Clinic</td>
<td>1</td>
</tr>
<tr>
<td>Post Office</td>
<td>1</td>
</tr>
<tr>
<td>Crèche</td>
<td>1</td>
</tr>
<tr>
<td>Primary School</td>
<td>1</td>
</tr>
<tr>
<td>Secondary School</td>
<td>-</td>
</tr>
<tr>
<td>Cemetery</td>
<td>-</td>
</tr>
</tbody>
</table>
- **IDP Priorities**

The Steve Tshwete IDP identified the following development priorities with respect to Rietkuil:

- RDP houses;
- Church sites;
- Sports facilities;
- Opened passage ways;
- Trading stalls;
- Park development;
- Banking facilities;
- Shopping facilities;
- Cemetery;
- Small scale farming;
- ABET classes;
- High school;
- Library;
- Pre-school;
- Hospital/ clinic;
- Police station; and
- Municipal pay points.

- **Pullen’s Hope**

The village of Pullen’s Hope is situated ±30km. south of Middelburg and is the fourth largest settlement (see **Figure 7**).

- **Residential**

Pullen’s Hope consists of 850 single residential middle income stands. These stands were developed by Eskom to accommodate personnel employed at Hendrina Power Station.
- **Business**

Business activity in Pullen’s Hope is limited to a neighbourhood centre, providing in day to day needs of the community

- **Community and Education Facilities**

Community and education facilities are limited to the following:

**Table 4: Community & Education Facilities**

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Facilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Library</td>
<td></td>
</tr>
<tr>
<td>Community hall</td>
<td>1</td>
</tr>
<tr>
<td>Sport stadium</td>
<td>1</td>
</tr>
<tr>
<td>Golf Course</td>
<td>1</td>
</tr>
<tr>
<td>Police Station</td>
<td>1</td>
</tr>
<tr>
<td>Clinic</td>
<td>1</td>
</tr>
<tr>
<td>Post Office</td>
<td>1</td>
</tr>
<tr>
<td>Crèche</td>
<td>2</td>
</tr>
<tr>
<td>Primary School</td>
<td>1</td>
</tr>
<tr>
<td>Secondary School</td>
<td>-</td>
</tr>
<tr>
<td>Cemetery</td>
<td>-</td>
</tr>
</tbody>
</table>

- **IDP Priorities**

The Steve Tshwete IDP identified the following development priorities with respect to Pullen’s Hope:

- Church sites;
- RDP houses;
- Sport facilities;
- Opened passages;
- Primary school;
- Trading stalls;
- Park development;
o Secondary school;
o Banking facilities;
o Cemetery;
o Pre-school/crièche;
o Technical school;
o ABET classes;
o Municipal offices;
o Library; and
o A Clinic.

- **Komati**

Komati is situated approximately 45km. south of Middelburg. The village is the smallest of the former three Eskom villages. Council will manage Komati village with Blinkpan/Koornfontein village. This cluster will be the fifth largest settlement in the study area. Blinkpan and Koornfontein were developed as mining villages accommodating mine employees (see Figure 8).

- **Residential**

Komati consists of 434 single residential middle income stands, whilst Blinkpan/Koornfontein consists of 170 residential stands totalling 604 for the cluster.

- **Business**

Business activities in Komati/Blinkpan/Koornfontein are limited to a neighbourhood centre, providing in day to day needs of the community.

- **Community and Education Facilities**

Community and education facilities are limited to the following:

**Table 5: Community & Education Facilities**

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Facilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Library</td>
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<tr>
<td>Community hall</td>
<td>1</td>
</tr>
<tr>
<td>Service</td>
<td>Quantity</td>
</tr>
<tr>
<td>------------------</td>
<td>----------</td>
</tr>
<tr>
<td>Sport stadium</td>
<td>-</td>
</tr>
<tr>
<td>Golf Course</td>
<td>1</td>
</tr>
<tr>
<td>Police Station</td>
<td>1</td>
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- **IDP Priorities**

The Steve Tshwete IDP identified the following development priorities with respect to Komati/Blinkpan/Koornfontein:

- RDP houses;
- Church sites;
- Sport facilities;
- Opened passages;
- Trading stalls;
- Park development;
- Satellite pension pay point;
- Shopping centre;
- Small scale farming; and
- ABET classes.

- **Doornkop**

Doornkop is situated west of the Middelburg/Groblersdal road and ±17km. from Middelburg (see Figure 9).

- **Residential**

A total of 426 stands have been planned as part of the Land Restitution claim that was successful. The formalization of tenure rights are still in process. A number of squatters moved onto a portion of the Doornkop land. These squatters will be re-
settled on Doornkop Phase 2. The Doornkop Township will consist of 456 residential stands. No formal business or community facilities are presently available in either of these developments.

- **IDP Priorities**

The Steve Tshwete IDP identified the following development priorities with respect to Doornkop:

- RDP houses;
- Church sites;
- Sports facilities;
- Trading stalls;
- Satellite pension pay point;
- Shopping facilities;
- Cemetery;
- Small scale farming;
- ABET classes;
- Post office;
- Pension pay point; and
- Community hall.

- **Presidentsrus**

Presidentsrus is situated ±15km. west of Middelburg. This township was developed as a holiday destination. A total of 242 residential stands were developed of which ±92% are still vacant (see Figure 10).

- **Kranspoort**

Kranspoort is a private township proclaimed as a “Vakansiedorp”. All services are rendered by the governing body. Council only assist with the approval of building plans (see Figure 11).
- **Residential / Housing Summary**

Kranspoort consists of 505 residential even of which ± 87, 5% are still vacant.

Based on the land use analysis, the residential/housing status quo and needs can be summarised as follows:

- **Existing and Proposed Housing Projects**

The following projects with respect to the provision of low-income housing are relevant to the study area:

**Tale 6: Housing Projects (approved in principle)**

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<tr>
<th>Town</th>
<th>Existing Projects</th>
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<tbody>
<tr>
<td>Middelburg</td>
<td>Tokologo 1010 erven</td>
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<td>Middelburg x 24 659 erven</td>
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<td></td>
<td>Doornkop (Phase 1) 426 erven</td>
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<tr>
<td></td>
<td>Doornkop 456 erven</td>
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<tr>
<td>Hendrina</td>
<td>Kwazamokuhle x 7 600 erven</td>
</tr>
<tr>
<td>Rietkuil</td>
<td>Initial phase 200 erven plus mine houses</td>
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<tr>
<td>Kwa-Makalane</td>
<td>Initial phase 350 erven</td>
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<tr>
<td>Thokoza</td>
<td>Initial phase 150 plus 160 existing houses</td>
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2.2.4 **Land Claims**

**Figure 12** reflects the spatial distribution of land claims submitted in the Steve Tshwete municipal area. It is evident that virtually the entire northern part of the municipal area has been claimed for restitution purposes. Fairly large concentrations have also been claimed towards the south-east and south-west.

According to **Table 7** a total of 270 claims have been lodged and registered in the Steve Tshwete local municipality. These claims are located on 61 individual properties in the municipal area. A large number of the claims are located on property number 7 which is the farm Doornkop 246 JS located to the north of Middelburg town.
Apart from the farm Doornkop, there are also smaller concentrations of claims on the farms Lemoenfontein 436 JS (8), Kleinfontein 432 JS (17), Hartbeesthoek 393 JS (24), Bankplaats 329 JS (25) and Mooiwater 247 JS (35). It is also evident from Table 7 that a large number of claims are located on small individual properties within the urban area of Middelburg town itself.
Table 7: Land and Restitution Progress Report 06/2006: Steve Tshwete

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<th>Project Officer</th>
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<th>P2: Screening &amp; Categorisation</th>
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Date: January 2008

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<td>1 0</td>
<td>X</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>45</td>
<td>Zevenfontein 415JS</td>
<td>1 0</td>
<td>X</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>46</td>
<td>Zevenfontein 415JS</td>
<td>1 0</td>
<td>X</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>47</td>
<td>Zevenfontein 415JS</td>
<td>1 0</td>
<td>X</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>48</td>
<td>Zevenfontein 415JS</td>
<td>1 0</td>
<td>X</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>49</td>
<td>Zevenfontein 415JS</td>
<td>1 0</td>
<td>X</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>50</td>
<td>Zevenfontein 415JS</td>
<td>1 0</td>
<td>X</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>51</td>
<td>Zevenfontein 415JS</td>
<td>1 0</td>
<td>X</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>52</td>
<td>Zevenfontein 415JS</td>
<td>1 0</td>
<td>X</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>53</td>
<td>Zevenfontein 415JS</td>
<td>1 0</td>
<td>X</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>54</td>
<td>Zevenfontein 415JS</td>
<td>1 0</td>
<td>X</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Steve Tshwete LM SDF
January 2008
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2.2.5 Sport and Recreational Facilities

The Regional Sport and Recreation Master Plan provide an assessment of the type of facilities currently in the municipal area (e.g. soccer, netball, athletics etc.), location (town) and condition. The existing facilities are divided into four categories, namely regional, major, secondary and tertiary or informal facilities, and are summarised in the table below:

Table 8: Sport and Recreational Facilities in the Middelburg Municipality

<table>
<thead>
<tr>
<th>NAME</th>
<th>CLASSIFICATION</th>
<th>CONDITION</th>
<th>FACILITIES OFFERED</th>
</tr>
</thead>
</table>
| Kees Taljaard Stadium, Middelburg | Regional Facility | Very good. Main playing field | Rugby club with very good facilities and

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January 2008
C:\Ria\222379\SDF 2007\Steve Tshwete\STEWETE TSHWETE LM SDF (Final Draft).doc
<table>
<thead>
<tr>
<th>Location</th>
<th>Facility Type</th>
<th>Condition</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multipurpose Sport Complex</td>
<td>Regional Facility</td>
<td>Very good</td>
<td>Olympic standard swimming pool.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Wrestling hall.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Three badminton courts.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Two squash courts.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Two gymnastics halls.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Exercise facility for the elderly.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Tennis courts.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Four netball courts.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Basketball courts with floodlights.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Two bowls pitches.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Jukskei courts.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Cricket field, clubhouse and change rooms.</td>
</tr>
<tr>
<td>Nazaret Stadium, Middelburg</td>
<td>Could be upgraded to Secondary Facility</td>
<td>Good</td>
<td>Grass athletics tracks.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Soccer field.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Two tennis courts.</td>
</tr>
<tr>
<td>Hlalamandi, Middelburg</td>
<td>Informal Facility</td>
<td>Poor</td>
<td>Soccer field.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>No grass.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Close proximity to existing housing.</td>
</tr>
<tr>
<td>Eastdene Sport Complex, Middelburg</td>
<td>Major Facility</td>
<td>Good</td>
<td>Two soccer fields.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Three open temporary pavilions.</td>
</tr>
</tbody>
</table>

should be remarked to be closer to the pavilion.

Adequate pavilions. B-field and two soccer fields with weak floodlights.
<table>
<thead>
<tr>
<th>Location</th>
<th>Facility Type</th>
<th>Condition</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mhluzi Stadium</td>
<td>Major Facility</td>
<td>Very good</td>
<td>Soccer field. Nets of soccer posts require maintenance.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Athletics track. Floodlights. Two B-field practice soccer fields.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Two tennis courts. Three basketball courts.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Two practice courts: one for tennis and one for cricket.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Two volleyball courts.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Two netball courts. Pavilion and ablution facilities.</td>
</tr>
<tr>
<td>Greater Mhluzi</td>
<td>Informal</td>
<td>Poor</td>
<td>Eight soccer fields used for practice and informal games.</td>
</tr>
</tbody>
</table>
According to the Nkangala SDF (2008) the Kees Taljaard Stadium in Middelburg and the Multi-Purpose Sports Complex in Mhluzi should be developed into the two main Regional Facilities.

2.3 Socio-Economic Analysis

2.3.1 Introduction

The socio-economic analysis is specifically aimed at spatial related matters, i.e. demographics, employment and income and economic profile.

The 2001 Census figures were used and comparisons were made with the Demarcation Board Data. The latter is based on the 1996 Census data which has been statistically manipulated to co-inside with the newly demarcated study area.

2.3.2 Demographics

Table 9: Household Dwelling Type

<table>
<thead>
<tr>
<th>Dwelling type</th>
<th>2001</th>
<th>%</th>
<th>1996</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formal</td>
<td>26 776</td>
<td>73.9</td>
<td>24 762</td>
<td>74.3</td>
</tr>
<tr>
<td>Informal</td>
<td>5 863</td>
<td>16.2</td>
<td>5 171</td>
<td>15.5</td>
</tr>
<tr>
<td>Traditional</td>
<td>3 516</td>
<td>9.7</td>
<td>3 169</td>
<td>9.5</td>
</tr>
<tr>
<td>Other</td>
<td>74</td>
<td>0.2</td>
<td>241</td>
<td>0.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>36 229</strong></td>
<td><strong>100</strong></td>
<td><strong>33 343</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Source: 2001 Census data

The above mentioned table indicates that 73.9% of the 2001 population reside in formal dwellings. This is slightly less than the 1996 figure of 74.3%.

The population residing informally has increased from 15.5% to 16.2%, whilst the traditional settlements increased slightly from 9.5% to 9.7%.
Households increased from 33 343 in 1996 to 36 229 in 2001. This represents an increase of 8,65% over 5 years or 1,73% per annum.

### Table 10: Population Groups

<table>
<thead>
<tr>
<th></th>
<th>2001</th>
<th>%</th>
<th>1996</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>African</td>
<td>114 371</td>
<td>80,1</td>
<td>91 224</td>
<td>67,4</td>
</tr>
<tr>
<td>Coloured</td>
<td>3 547</td>
<td>2,5</td>
<td>3 530</td>
<td>2,6</td>
</tr>
<tr>
<td>Indian</td>
<td>1 313</td>
<td>0,9</td>
<td>1 900</td>
<td>1,4</td>
</tr>
<tr>
<td>White</td>
<td>23 541</td>
<td>16,5</td>
<td>37 747</td>
<td>27,9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>142 772</strong></td>
<td><strong>100</strong></td>
<td><strong>135 412</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Source: 2001 Census data

Table 10 indicates that the African population increased from 67,4% to 80,1% of the total population in the study area. Housing subsidy projects that were initiated in the study area played a significant role, as well as the fact that expansion at the mines and major industries took place during the same time. A lack of job opportunities in the former homelands also resulted that entire households moved to the area where the breadwinners were employed.

A large decrease also took place in terms of the White population from 27,9% in 1996 to 16,5% in 2001. Nevertheless, Steve Tshwete still hosts the largest percentage of White people within the Nkangala District. Skilled labour tends to move to the metropoles and larger cities as better and more jobs are available.

### Table 11: Population Growth

<table>
<thead>
<tr>
<th></th>
<th>2001</th>
<th>1996</th>
<th>% Growth</th>
<th>% Average Annual Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>African</td>
<td>114 371</td>
<td>91 224</td>
<td>25,4</td>
<td>5,1</td>
</tr>
<tr>
<td>Coloured</td>
<td>3 547</td>
<td>3 530</td>
<td>0,5</td>
<td>0,1</td>
</tr>
<tr>
<td>Indian</td>
<td>1 313</td>
<td>1 900</td>
<td>-31,0</td>
<td>-6,2</td>
</tr>
<tr>
<td>White</td>
<td>23 541</td>
<td>37 747</td>
<td>-38,0</td>
<td>-7,6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>142 772</strong></td>
<td><strong>135 412</strong></td>
<td><strong>5,4</strong></td>
<td><strong>1,08</strong></td>
</tr>
</tbody>
</table>

Source: 2001 Census data

The African population increased by 25,4% over 5 years or 5,1% on average annually.

The Indian and White population decreased by 31% and 38% respectively over the 5 years or 6, 2% and 7,6% on average annually.

Therefore, the need for housing in the lower income brackets, mainly subsidy linked housing has increased and will tend to increase over time.
• **Population Estimates**
  Population estimates for Steve Tshwete Municipality are reflected in **Table 12** and includes the total number of people.

**Table 12: Population Estimates 2001**

<table>
<thead>
<tr>
<th>Area</th>
<th>Population</th>
<th>Households</th>
<th>Average Household Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Middelburg</td>
<td>142 769</td>
<td>36 229</td>
<td>3,9</td>
</tr>
</tbody>
</table>

Source: 2001 Census data

**Table 13: Number and Percentage by Gender**

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
<th>Male %</th>
<th>Female %</th>
<th>Total %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steve Tshwete</td>
<td>70 596</td>
<td>72 184</td>
<td>142 772</td>
<td>49,4</td>
<td>50,6</td>
<td>100</td>
</tr>
<tr>
<td>Nkangala</td>
<td>491 225</td>
<td>529 363</td>
<td>1 020 590</td>
<td>48,1</td>
<td>51,9</td>
<td>100</td>
</tr>
<tr>
<td>Mpumalanga</td>
<td>1 497 325</td>
<td>1 625 985</td>
<td>3 122 985</td>
<td>47,9</td>
<td>52,1</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: 2001 Census data

The study area has an advantage in terms of its male population compared to that of the Nkangala District and Mpumalanga. This can mainly be attributed to more job opportunities created by the mining and industrial sectors.

• **Age and Gender Profile**

**Table 14: Age Profile 2001**

<table>
<thead>
<tr>
<th></th>
<th>Steve Tshwete/ Male</th>
<th>Steve Tshwete/ Female</th>
<th>Nkangala/ Male</th>
<th>Nkangala/ Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 – 4 years</td>
<td>6 866</td>
<td>6 894</td>
<td>53 561</td>
<td>54 533</td>
</tr>
<tr>
<td>5 – 14 years</td>
<td>14 102</td>
<td>14 423</td>
<td>115 276</td>
<td>117 363</td>
</tr>
<tr>
<td>15 – 34 years</td>
<td>26 589</td>
<td>27 969</td>
<td>181 762</td>
<td>196 895</td>
</tr>
<tr>
<td>35 – 64 years</td>
<td>21 159</td>
<td>20 004</td>
<td>124 132</td>
<td>132 381</td>
</tr>
<tr>
<td>65+ years</td>
<td>1 878</td>
<td>2 889</td>
<td>16 490</td>
<td>28 175</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>70 594</strong></td>
<td><strong>72 179</strong></td>
<td><strong>491 221</strong></td>
<td><strong>529 347</strong></td>
</tr>
</tbody>
</table>

Source: 2001 Census data

• **Level of Education**
  The level of education for the population in the study area is reflected in **Table 15** format with specific reference to number of people with primary, secondary and tertiary qualifications.
Table 15: Level of Education

<table>
<thead>
<tr>
<th>Persons</th>
<th>2001</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>15 769</td>
<td>27,8</td>
</tr>
<tr>
<td>Pre School</td>
<td>2 063</td>
<td>3,6</td>
</tr>
<tr>
<td>School</td>
<td>37 243</td>
<td>65,6</td>
</tr>
<tr>
<td>College</td>
<td>958</td>
<td>1,7</td>
</tr>
<tr>
<td>Technikon</td>
<td>319</td>
<td>0,6</td>
</tr>
<tr>
<td>University</td>
<td>226</td>
<td>0,4</td>
</tr>
<tr>
<td>Adult Education Centre</td>
<td>48</td>
<td>0,1</td>
</tr>
<tr>
<td>Other</td>
<td>132</td>
<td>0,2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>56 758</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: 2001 Census data

- Only 3% of the population has a tertiary or higher qualification.
- 27.8% of the population have no qualification. It is noted that infants and children less than 5 years are excluded from this figure.
- Access to farm schools and the availability of schools for specially the rural population have been highlighted as part of the IDP prioritisation process. The high levels of illiteracy reflect the need for education facilities and after school learning.

- **Population Growth Estimates**

It should be noted that population growth statistics should only be used as a guideline for future planning. These figures must be reviewed and adjusted on an ongoing basis with the availability of more relevant and specific data. Specific reference is made to the latest Census figures.

The population growth estimates are reflected for the time period 1996 to 2001 and the time period 2001 to 2006. However, the latest Census figures are disputed by Council. It was therefore suggested that the following assumptions are made for the short term as the next cycle in the Census data capturing will commence early in 2006. Any changes in the tendencies relating to population trends will then be captured.

The growth rates will be as follows for the period 2001 to 2006, namely:

- Middelburg: 3,3%
- Mhluzi: 0,0%
- Hendrina: 0,0%
- Kwazamokhule: 2,0%
- Middelburg NU: 2,3%
Table 16: Population Growth Rate 1996 – 2006

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Middelburg</td>
<td>1,1</td>
<td>3,3</td>
<td>42 296</td>
<td>49 750</td>
</tr>
<tr>
<td>Mhluzi</td>
<td>10,6</td>
<td>-1,7</td>
<td>46 011</td>
<td>46 011</td>
</tr>
<tr>
<td>Hendrina</td>
<td>1,5</td>
<td>-8,9</td>
<td>885</td>
<td>885</td>
</tr>
<tr>
<td>Kwazamokhule</td>
<td>17,9</td>
<td>2,0</td>
<td>12 843</td>
<td>14 180</td>
</tr>
<tr>
<td>Middelburg NU</td>
<td>-12,0</td>
<td>2,3</td>
<td>40 737</td>
<td>45 642</td>
</tr>
<tr>
<td>Middelburg (MP 313)</td>
<td>-0,7</td>
<td>1,1</td>
<td>142 772</td>
<td>156 468</td>
</tr>
</tbody>
</table>

Source: Census 2001

- The proposed population growth implies that an additional 13 696 people will reside in the study area. At a household size of approximately 3,94 people, this represents an additional 3 476 households.
- The increase in population and number of households has a significant influence on service delivery, provision of affordable housing, education, health facilities and infrastructure.
- The need for additional housing are outlined as part of the spatial analysis (refer to Chapter 2).
- A relatively high population growth rate is predicted for the urban areas with specific reference to Middelburg and Kwazamokhule. The current estimated backlog of 6 883 stands consist of 2 308 stands in Newtown accommodating 9 289 residents, whilst approximately 4 575 backyard families are residing in Mhluzi (Waste disposal survey: October 2000). In Middelburg an additional 1 500 units should be developed annually from 2001 to 2006 to address the expected growth. The bulk of the residential units will be required to accommodate the homeless, mainly relying on government housing subsidies.
- A backlog of approximately 350 stands is present in Kwazamokhule. The development of Kwazamokhule X7 consisting of 600 residential stands will, once servicing has taken place, address the backlog sufficiently.

- Land Requirements

Table 17: Housing/Residential Needs as per the current backlog

<table>
<thead>
<tr>
<th>Land Use</th>
<th>Population</th>
<th>Stands</th>
<th>Current Land Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Middelburg/Mhluzi</td>
<td>27 119</td>
<td>6 883</td>
<td>490 ha</td>
</tr>
<tr>
<td>Hendrina/Kwazamokhule</td>
<td>2 167</td>
<td>550</td>
<td>Provided in Kwaza</td>
</tr>
</tbody>
</table>
The current land and housing needs are based on the backlog in towns as well as the anticipated number of units required per rural node as identified in the rural study. It should be noted that these figures are guidelines and should be revised on an annual basis. These figures will further provide clear guidance to the Spatial Development Framework on land needs and existing shortages.

It should further be noted that some of the land with respect to the current and future land needs have already been identified and are in the process of being planned or developed.

2.3.3 Employment and Income

The analysis of employment and income levels in the study area are reflected as informal, formal and unemployed workforce, and average income per capita.

Table 18: Informal, Formal and Unemployed Workforce 2001

<table>
<thead>
<tr>
<th>Area</th>
<th>1996</th>
<th>%</th>
<th>2001</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employed</td>
<td>47 423</td>
<td>80,4</td>
<td>41 678</td>
<td>64,6</td>
</tr>
<tr>
<td>Unemployment</td>
<td>11 574</td>
<td>19,6</td>
<td>22 798</td>
<td>35,4</td>
</tr>
<tr>
<td>Not economically active</td>
<td>-</td>
<td>-</td>
<td>31 619</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total labour force</strong></td>
<td><strong>58 997</strong></td>
<td><strong>100</strong></td>
<td><strong>64 476</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Source: 2001 Census data

- The economic active population decreased by approximately 15,8% from 1996 to 2001.
- The total labour force increased by 9,3%.

- **Income**
  - The per capita income for the study area is provided for 1996 and 2001.
Table 19: Individual Monthly Income

<table>
<thead>
<tr>
<th>Persons</th>
<th>2001</th>
<th>%</th>
<th>1996</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>91 608</td>
<td>64,2</td>
<td>54 806</td>
<td>53,7</td>
</tr>
<tr>
<td>R1-400</td>
<td>6 258</td>
<td>4,4</td>
<td>3 586</td>
<td>3,5</td>
</tr>
<tr>
<td>R401-800</td>
<td>13 100</td>
<td>9,2</td>
<td>17 642</td>
<td>17,3</td>
</tr>
<tr>
<td>R801-1 600</td>
<td>9 897</td>
<td>6,9</td>
<td>6 257</td>
<td>6,1</td>
</tr>
<tr>
<td>R1 601-3 200</td>
<td>9 888</td>
<td>6,9</td>
<td>6 057</td>
<td>6,0</td>
</tr>
<tr>
<td>R3 201-6 400</td>
<td>6 723</td>
<td>4,7</td>
<td>9 666</td>
<td>9,5</td>
</tr>
<tr>
<td>R6 401-12 800</td>
<td>3 593</td>
<td>2,5</td>
<td>2 957</td>
<td>2,9</td>
</tr>
<tr>
<td>R12 801-25 600</td>
<td>1 177</td>
<td>0,8</td>
<td>624</td>
<td>0,6</td>
</tr>
<tr>
<td>R25 600-51 200</td>
<td>278</td>
<td>0,2</td>
<td>285</td>
<td>0,3</td>
</tr>
<tr>
<td>R51 201-102 400</td>
<td>135</td>
<td>0,1</td>
<td>93</td>
<td>0,1</td>
</tr>
<tr>
<td>R102 401-204 800</td>
<td>90</td>
<td>0,08</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Over R204 801</td>
<td>25</td>
<td>0,02</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>142 772</td>
<td>100</td>
<td>101 973</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: 2001 Census data

Table 19 indicates that the percentage of people with no income increased from 53,7% to 64,2% as percentage of the total in the respective census. However, the increase over the 5 years is 67%, or 13,42% on average annually.

People earning between R1 and R1 600 totals 29 255 compared to 27 485 during 1996. This represents an increase of 6,4% between 1996 and 2001, or 1,2% on average annually.

In total 84% of the inhabitants of Steve Tshwete Local Municipality falls within the lower income bracket.

Table 20: Annual Household Income

<table>
<thead>
<tr>
<th>Household</th>
<th>2001</th>
<th>%</th>
<th>1996</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>5 578</td>
<td>15,1</td>
<td>1 691</td>
<td>7,1</td>
</tr>
<tr>
<td>R1-4 800</td>
<td>2 163</td>
<td>5,8</td>
<td>929</td>
<td>3,9</td>
</tr>
<tr>
<td>R4 800-9 600</td>
<td>5 068</td>
<td>13,7</td>
<td>3 122</td>
<td>13,1</td>
</tr>
<tr>
<td>R19 601-19 200</td>
<td>6 397</td>
<td>17,3</td>
<td>5 417</td>
<td>22,8</td>
</tr>
<tr>
<td>R19 201-38 400</td>
<td>6 705</td>
<td>18,1</td>
<td>4 740</td>
<td>19,9</td>
</tr>
<tr>
<td>R38 401-76 800</td>
<td>5 008</td>
<td>13,5</td>
<td>3 269</td>
<td>13,7</td>
</tr>
<tr>
<td>R76 801-153 600</td>
<td>3 604</td>
<td>9,7</td>
<td>2 947</td>
<td>12,4</td>
</tr>
<tr>
<td>R153 601-307 200</td>
<td>1 784</td>
<td>4,8</td>
<td>1 563</td>
<td>6,6</td>
</tr>
</tbody>
</table>
From the above mentioned Table 20 it is clear that 51,8% of the households earn less than R19 200 per year. This reflects on monthly household income of less than R1 600. This figure has increased from 46,9% during 1996 to 51,8% during 2001. Therefore, it is clear that more low income households within the lower bracket of the Government's Housing Subsidy Scheme are moving to the study area. The pressure on limited financial resources will increase which will negatively impact on service delivery.

If R3 200/month or R38 400 per annum is used as the cut off point for people qualifying for Government subsidies, the percentage increase to an alarming 69,9% of the total number of households, compared to 66,8% during 1996. Household with no annual income increase from 7,1% to 15,1% from 1996 to 2001.

### 2.3.4 Economic Profile

The economic profile of the study area is indicated by certain economic factors, i.e. GGP, employment per economic sector, minimum living level, and dependency ratios.

- **Employment and GGP Contribution to the Local Economy**

  The Steve Tshwete Local Municipality is situated in the centre of the Nkangala District Municipality. The economic structure of the Steve Tshwete economy is presented graphically in Graph 1.
Manufacturing dominates the local economy. This is followed by the mining, electricity and community services sectors. As a result of growth in the remaining sectors, the relative importance of the manufacturing sector decreased during 1996-1999 but during 1999-2002 the relative contribution of the manufacturing sector increased to levels higher than in 1996. Conversely, the mining sectors proportional contribution increased during 1996-1999 and decreased to levels lower than in 1996.

The agriculture and community services sectors' proportional contribution decreased during the medium term (1996-2002) while the transport and finance sectors contribution increased during the same period.

The growth rates achieved by the various sectors are presented in Table 21.

**Table 21: Growth rates 1996-2002**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>-0.2</td>
<td>3.4</td>
<td>1.6</td>
</tr>
<tr>
<td>Mining</td>
<td>7.5</td>
<td>-2.0</td>
<td>2.6</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>2.7</td>
<td>7.3</td>
<td>5.0</td>
</tr>
<tr>
<td>Electricity</td>
<td>2.9</td>
<td>7.8</td>
<td>5.3</td>
</tr>
<tr>
<td>Construction</td>
<td>6.9</td>
<td>-2.1</td>
<td>2.3</td>
</tr>
<tr>
<td>Trade</td>
<td>3.8</td>
<td>4.1</td>
<td>3.9</td>
</tr>
<tr>
<td>Transport</td>
<td>12.6</td>
<td>9.0</td>
<td>10.8</td>
</tr>
<tr>
<td>Finance</td>
<td>12.4</td>
<td>7.0</td>
<td>9.7</td>
</tr>
</tbody>
</table>

The aggregate Steve Tshwete economy recorded a relatively high growth rate for all the periods under observation. This economy grew at the second highest growth rate when compared to the other local municipalities in the Nkangala District.

The above economic analysis presents the following implications for Steve Tshwete:

- Middelburg constitutes one of Nkangala’s two key industrial areas. Hence, the strong growth in the manufacturing sector should be stimulated and maintained. This implies that the growth should be stimulated in specific sub-sectors to facilitate a diversification of the manufacturing base.
- The agriculture sector should be included in the development initiatives in a manner that exploits the opportunities associated with the Maputo Corridor.
- The high growth of the transport sector indicates that opportunities exist for the establishment of transport related initiatives, as well as the formation of a transport hub that serves as a link between the remainder of Mpumalanga and Gauteng.

Apart from the above mentioned implications, various initiatives should be formulated and implemented to ensure that Steve Tshwete’s sectoral advantages (agriculture, mining, manufacturing, and finance) are leveraged/exploited.

### 2.3.5 LED Strategy

In 2006 the Local Economic Development Plan (LED) for Steve Tshwete Local Municipality was completed. The formulation of the plan was based on the existing NDM LED Plan to ensure the alignment of Local Municipal LED projects, whilst facilitating a shared and common LED approach in the District as a whole.

Consequently, the Steve Tshwete LED plan proposes similar economic development strategies and projects to those identified by the NDM LED plan. The seven strategic pillars identified are:
• Good governance and capacitation;
• Human resource and community development;
• Industrial and big business development;
• SMME development and support;
• Agricultural development; and
• Tourism development.

Development needs and implications arising from a synthesis between the 2006 Steve Tshwete LED strategy and the preceding section (Section 2.3.4. Economic Profile) include *inter alia*:

- **Manufacturing and industrial activities** - The strong growth in manufacturing should be stimulated and maintained. Hence, specific actions should be undertaken to ensure that the current rate of expansion is sustained. Prominent industries and capacity that should be used as a growth lever include mining activities, Columbus Steel and Eskom power plants;
- **Agro-processing** - agricultural development has been identified as an important dimension in stimulating development in the Steve Tshwete area. Hence, the agriculture sector must be included in development initiatives in a manner that exploits the opportunities associated with the Maputo Corridor;
- **Transport** – opportunities exist for the establishment of transport related activities, such as the establishment of a transportation hub that serves as a link between the remainder of Mpumalanga and Gauteng; and
- **Tourism development** - the development of icons such as gateways, nodes, precincts and routes offer an opportunity to focus product development and marketing resources.

Furthermore, a key part of the NDM’s LED Strategy is the development of Multi-Purpose Community Centres (MPCCs). MPCCs have been identified by national government as the primary approach for the implementation of development communication and information platforms, as these offer a wide range of services that communities can use for their own empowerment. The following guidelines have been provided, and are applicable:

- Identification and prioritisation of three centres per local municipality;
- Forging of public-private partnerships in the establishment of MPCCs; and
- Increase the number of MPCCs over time as funding becomes available.

Importantly, the Steve Tshwete LED plan highlights a number of “strengths” and “weaknesses” that should be used to inform both the IDP and SDF of Steve Tshwete. In other words, these “strengths” and “weaknesses” should be integrated, exploited, and mitigated by both the IDP and SDF of Delmas. *Table 22* provides a summary of these.
### Table 22: Strengths and Weaknesses Identified.

<table>
<thead>
<tr>
<th>STRENGTH:</th>
<th>WEAKNESS:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maputo Corridor traverses municipal area (N4)</td>
<td>Deteriorating rural infrastructure</td>
</tr>
<tr>
<td>Existing steel cluster</td>
<td>Spatial inequalities</td>
</tr>
<tr>
<td>Manufacturing opportunities</td>
<td>Undeveloped sectoral opportunities</td>
</tr>
<tr>
<td>Close location of Gauteng Markets</td>
<td>Unemployment and poverty</td>
</tr>
<tr>
<td>Export and transportation opportunities</td>
<td></td>
</tr>
<tr>
<td>Tourism development opportunities</td>
<td></td>
</tr>
<tr>
<td>Agricultural development opportunities</td>
<td></td>
</tr>
</tbody>
</table>

#### 2.4 INFRASTRUCTURE ANALYSIS

Analysis with respect to infrastructure services, i.e. water, sanitation, roads and storm water, and electricity are briefly outlined as part of the analysis phase.

##### 2.4.1 Water

General water supply to Middelburg is from Rondebosch-, Pienaars- and Kruger Dam. Hendrina and all the former mining and Eskom villages obtain water from the Eskom Network. The existing water supply infrastructure comprises of pipelines, reservoirs and treatment works. Doornkop obtains water from boreholes.

- **Middelburg & Mhluzi**

  Water is provided from Middelburg dam, Pienaars Dam and Kruger Dam. A pipeline is also in place to provide water from Witbank Dam when the existing sources are not sufficient. The water is purified at the Vaalbank and Kruger Dam water purification works. Networks provide water to households except at the informal settlement of Newtown where communal taps are available.

- **Hendrina / Kwazamokhule**

  Raw water is purchased from the Department of Water Affairs and supplied from the Nooitgedacht Dam. The water is purified at the water treatment works, and networks provide water to the households in Hendrina and Kwazamokhule.
The networks need upgrading and communal standpipes will be replaced by metered connections to stands. Certain capital works have already been performed to upgrade the networks.

- **Rietkuil**

  Bulk water is supplied by Eskom. The network is being upgraded where after it will be transferred to Council, whom will be responsible for maintenance.

- **Pullen’s Hope**

  Bulk water is supplied by Eskom. The network is being upgraded where after it will be transferred to Council, whom will be responsible for maintenance.

- **Komati**

  Bulk water is supplied by Eskom. The network is being upgraded where after it will be transferred to Council, whom will be responsible for maintenance.

- **Presidentsrus**

  The water purification works is operated by the Municipality.

- **Doornkop**

  A borehole at the school provides water to the residents. This is not sufficient to provide in all the needs and water must be transported over long distances.

- **Rural area in general**

  Data captured during the compilation of the rural study is indicated per Ward in Table 23.
Table 23: Type of Water Provision

<table>
<thead>
<tr>
<th>Ward</th>
<th>Borehole</th>
<th>Dam</th>
<th>Tank</th>
<th>Piped / House</th>
<th>Stand Pipes</th>
<th>River / Stream</th>
<th>Water / Tanker</th>
<th>None</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ward 10</td>
<td>82</td>
<td>2</td>
<td>56</td>
<td>12</td>
<td>29</td>
<td>10</td>
<td>7</td>
<td>-</td>
</tr>
<tr>
<td>Ward 17</td>
<td>61</td>
<td>8</td>
<td>19</td>
<td>10</td>
<td>23</td>
<td>5</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>Ward 20</td>
<td>135</td>
<td>15</td>
<td>60</td>
<td>9</td>
<td>17</td>
<td>11</td>
<td>-</td>
<td>7</td>
</tr>
<tr>
<td>Ward 21</td>
<td>148</td>
<td>7</td>
<td>37</td>
<td>17</td>
<td>64</td>
<td>35</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>Ward 22</td>
<td>21</td>
<td>-</td>
<td>14</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>Ward 23</td>
<td>120</td>
<td>11</td>
<td>71</td>
<td>41</td>
<td>58</td>
<td>61</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Ward 24</td>
<td>38</td>
<td>3</td>
<td>12</td>
<td>8</td>
<td>10</td>
<td>-</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>605</td>
<td>46</td>
<td>269</td>
<td>102</td>
<td>205</td>
<td>127</td>
<td>19</td>
<td>23</td>
</tr>
</tbody>
</table>

Source: Rural Study

According to the information in Table 23 a total of 70% of the settlements obtain water from boreholes. In various cases these boreholes are fitted with either hand pumps or electric or diesel pumps. Dams and tanks are normally used as storage facility. In cases where piped water or stand pipes are available the network is fed from a dam or tank.

A total of 16, 5% of the settlements only obtain water from rivers / streams including springs. These water sources are normally shared with cattle.

This results in a water source not necessary fit for human consumption. With the drought certain of the rivers and streams dried up leaving residents with no water.

Water tankers are supplying water to 2, 5% of the settlements. Three percent of villages have no water available on the specific property and residents need to obtain water from neighbouring farms.

The IDP identified the following prioritised water related projects:

...
### Table 24 Type of water source in the rural area (WATER)

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type of water source</strong></td>
<td><strong>MHLUZI / MIDDELBURG</strong></td>
<td><strong>KWAZAMOKUHLE / HENDRINA</strong></td>
<td><strong>ESKOM &amp; MINE VILLAGES</strong></td>
<td><strong>RURAL AREA</strong></td>
<td><strong>INPUTS BY THE ADMINISTRATION</strong></td>
</tr>
<tr>
<td>Affordable rates ‘rent’ for municipal services</td>
<td>Upgrading of water network (Pressure &amp; Breakages)</td>
<td>Well developed water reservoir (Rietkuil)</td>
<td>Water in particular (KwaMakalane)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Completion of water supply project where pipes were laid earlier (Newtown)</td>
<td>Provision of water in the informal settlement (Kwazamokuhle)</td>
<td>Water and sanitation (farms – Naledi area)</td>
<td>Water and sanitation (Farms – Sulinyembezi area)</td>
<td>Replace water networks, purification plants and bulk infrastructure</td>
<td></td>
</tr>
<tr>
<td>Supply of drinking water (taps) to each family (Newtown)</td>
<td></td>
<td>Purification of water (SIS area)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>An improved and satisfactory system of reading water meters that involves residents</td>
<td></td>
<td>Construct new networks for new developments and ensure the availability of potable water in rural area (2003)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provision of each family with its own tap</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction of new networks for new developments</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Replace, improve and extend water networks, purification plants and bulk infrastructure</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maintenance and general repairs to water networks, purification plants and</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
2.4.2 Sanitation

- **Middelburg & Mhluzi**

  Full waterborne sewerage networks are available except in Newtown where biological toilets are provided. The ratio is one toilet per four stands. Sewerage is purified at the Boskrans sewerage purification works which has sufficient capacity.

- **Hendrina / Kwazamokhule**

  A new sewerage purification works was recently commissioned and has sufficient capacity. As money becomes available the existing septic tanks will be phased out and where no service is available, it must be provided as a matter of urgency.

- **Rietkuil**

  Sewerage purification is done by Eskom and Council is only responsible for the opening of blockages.

- **Pullen's Hope**

  Sewerage purification is done by Eskom and Council is only responsible for the opening of blockages.

- **Komati**

  Sewerage purification is done by Eskom and Council is only responsible for the opening of blockages.

- **Presidentsrus**

  Owners must provide their own septic tanks.
Doornkop

No sewerage purification system is in place. Geo-hydrological surveys must be done to ensure that underground water is not contaminated. A health hazard will be created if this situation is not treated correct. Doornkop Phase 2 will have VIP-toilets installed.

Sanitation systems throughout the study area differ substantially. Services vary between house connections (water borne system), septic tanks, pit latrines, VIP-toilets, biological toilets and none.

Table 25 indicates the type of sanitation being available in the rural area. The data has been obtained through fieldwork conducted during the compilation of the rural study.
Table 25: Type of sanitation in the Rural area

<table>
<thead>
<tr>
<th>WARD</th>
<th>PIT LATRINE</th>
<th>%</th>
<th>VIP TOILETS</th>
<th>%</th>
<th>SEPTIC TANKS</th>
<th>%</th>
<th>WATERBONE</th>
<th>%</th>
<th>NONE</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ward 10</td>
<td>76</td>
<td>78%</td>
<td>-</td>
<td>-</td>
<td>10</td>
<td>10%</td>
<td>3</td>
<td>3%</td>
<td>8</td>
<td>9%</td>
</tr>
<tr>
<td>Ward 17</td>
<td>38</td>
<td>41%</td>
<td>1</td>
<td>1%</td>
<td>12</td>
<td>15%</td>
<td>6</td>
<td>7%</td>
<td>24</td>
<td>30%</td>
</tr>
<tr>
<td>Ward 20</td>
<td>124</td>
<td>82%</td>
<td>-</td>
<td>-</td>
<td>3</td>
<td>2%</td>
<td>3</td>
<td>2%</td>
<td>21</td>
<td>14%</td>
</tr>
<tr>
<td>Ward 21</td>
<td>119</td>
<td>61%</td>
<td>1</td>
<td>0,5%</td>
<td>12</td>
<td>6%</td>
<td>16</td>
<td>8%</td>
<td>47</td>
<td>24%</td>
</tr>
<tr>
<td>Ward 22</td>
<td>25</td>
<td>89%</td>
<td>1</td>
<td>4%</td>
<td>2</td>
<td>7%</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Ward 23</td>
<td>85</td>
<td>46%</td>
<td>6</td>
<td>3%</td>
<td>40</td>
<td>22%</td>
<td>6</td>
<td>3%</td>
<td>49</td>
<td>26%</td>
</tr>
<tr>
<td>Ward 24</td>
<td>36</td>
<td>80%</td>
<td>-</td>
<td>-</td>
<td>5</td>
<td>11%</td>
<td>1</td>
<td>2%</td>
<td>3</td>
<td>7%</td>
</tr>
<tr>
<td>Total</td>
<td>503</td>
<td>64%</td>
<td>9</td>
<td>1%</td>
<td>84</td>
<td>11%</td>
<td>35</td>
<td>4%</td>
<td>152</td>
<td>20%</td>
</tr>
</tbody>
</table>

Source: Rural Study
A total of 64% of all settlements have access to pit latrines, compared to only 1% that has access to VIP toilets, the latter being more environmentally friendly.

Furthermore 11% of settlements have access to septic tanks and 4% access to a water borne system. Twenty present of settlements have no form of sanitation and residents utilize the surrounding area as a toilet, thereby polluting the environment. In one instance a stream has been utilized by the community as a toilet.

Ward 17 being the ward with the largest number of households, namely 1229 is also the ward with the highest percentage (30%) of settlements without any sanitation. Ward 21 and 23 are the wards in which 24% and 26% of the settlements do not have any sanitation.

This is alarming as these are the wards adjoining Middelburg and also being in the catchments area of Rondebosch and Loskop Dam which poses a real threat towards the environment.

The IDP identified the following prioritised sanitation related projects:
Table 26: Sanitation

<table>
<thead>
<tr>
<th>A</th>
<th>MHLUZI / MIDDELBURG</th>
<th>B</th>
<th>KWAZAMOKUHLE / HENDRINA</th>
<th>C</th>
<th>ESKOM &amp; MINE VILLAGES</th>
<th>D</th>
<th>RURAL AREA</th>
<th>E</th>
<th>INPUTS BY THE ADMINISTRATION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Affordable rates ‘rent’ for municipal services</strong></td>
<td>Linkage of certain stands to the sewer system</td>
<td>Water and sanitation (Farms – Naledi area)</td>
<td>Sewerage / Toilets (SIS area)</td>
<td>General repairs to sewer networks and bulk infrastructure</td>
<td></td>
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</tr>
<tr>
<td><strong>Solution to the ‘sinking ground’ where the sewerage pipes run in Ext.8</strong></td>
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<tr>
<td><strong>Permanent elimination of bad smell emanating from the sewerage line along the backside of the Eastdene school</strong></td>
<td></td>
<td></td>
<td>Replace, improve and extend sewer network and bulk infrastructure with particular attention to farm workers (2003)</td>
<td>Construct new sewer networks for new developments and rural areas</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td><strong>Supply of each family with its own toilets (Newtown)</strong></td>
<td></td>
<td></td>
<td></td>
<td>Ensure proper operation and management of refuse removal, street cleaning services and the operation of the landfill site</td>
<td></td>
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<tr>
<td><strong>Building of more public toilets</strong></td>
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<tr>
<td>Description</td>
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<tr>
<td>Removal of concrete wall attached to toilets (Newtown)</td>
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</tr>
<tr>
<td>Completion of the building of toilets with all supplies required (Newtown)</td>
<td></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Replace, improve and extend sewer networks and bulk infrastructure</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Solution to the bad smell from the Klein Olifants River</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General maintenance and repairs to Sewer networks and bulk infrastructure</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Provision of toilet facilities for each family at Tokologo</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Assumption of responsibility of every blocked sewerage pipe at site 8036 by the Municipality</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provision of drains in the yards at Tokologo</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
2.4.3 Roads and Stormwater

A variety of National, Provincial and Local roads and streets traverse the area of jurisdiction of Steve Tshwete Local Municipality.

The most prominent of these are the N4, crossing the area from east to west. The responsibility of this road falls under the jurisdiction of the Department of Transport, but forms part of the agreement between TRAC – a private consortium and the Department of Transport. In terms of this agreement, TRAC has the right to develop the road to a toll road. Another National route traversing the area is the N11, traversing the area from north to south. The Provincial roads are as follow:

P154 Middelburg to Witbank and Wonderfontein;
P127 Middelburg to Van Dyksdrift;
P180 Witbank to Van Dyksdrift;
P182 Hendrina to Van Dyksdrift;
P30 Middelburg to Bethal; and
P52 Hendrina to Bethal and Carolina.

These roads as well as a number of district roads fall under the jurisdiction of the Mpumalanga Department of Public Works, Roads and Transport. The Middelburg Roads Branch is the responsible office for the maintenance of these roads.

Table 27: Type of link roads in the rural area

<table>
<thead>
<tr>
<th>Ward</th>
<th>Graded</th>
<th>%</th>
<th>Gravel</th>
<th>%</th>
<th>Tar</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ward 10</td>
<td>75</td>
<td>83%</td>
<td>15</td>
<td>17%</td>
<td>-</td>
<td>-%</td>
</tr>
<tr>
<td>Ward 17</td>
<td>40</td>
<td>52%</td>
<td>36</td>
<td>47%</td>
<td>1</td>
<td>2%</td>
</tr>
<tr>
<td>Ward 20</td>
<td>113</td>
<td>75%</td>
<td>38</td>
<td>25%</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Ward 21</td>
<td>50</td>
<td>27%</td>
<td>132</td>
<td>71%</td>
<td>3</td>
<td>2%</td>
</tr>
<tr>
<td>Ward 22</td>
<td>24</td>
<td>83%</td>
<td>5</td>
<td>17%</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Ward 23</td>
<td>121</td>
<td>70%</td>
<td>47</td>
<td>27%</td>
<td>4</td>
<td>3%</td>
</tr>
<tr>
<td>Ward 24</td>
<td>30</td>
<td>73%</td>
<td>11</td>
<td>27%</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>453</td>
<td>61%</td>
<td>284</td>
<td>38%</td>
<td>8</td>
<td>1%</td>
</tr>
</tbody>
</table>

Source: Rural Study
A total of 35% of villages obtain access via a graded link road and 46% via a gravel link road. Only 19% obtain access via a tar road.

In term of the information gathered for the rural study the following level of roads provide access to the rural communities.

**Table 28: Type of internal roads in rural settlements**

<table>
<thead>
<tr>
<th>Ward</th>
<th>Graded</th>
<th>%</th>
<th>Gravel</th>
<th>%</th>
<th>Tar</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ward 10</td>
<td>29</td>
<td>25%</td>
<td>69</td>
<td>60%</td>
<td>17</td>
<td>15%</td>
</tr>
<tr>
<td>Ward 17</td>
<td>22</td>
<td>29%</td>
<td>40</td>
<td>53%</td>
<td>14</td>
<td>18%</td>
</tr>
<tr>
<td>Ward 20</td>
<td>53</td>
<td>35%</td>
<td>55</td>
<td>36%</td>
<td>43</td>
<td>29%</td>
</tr>
<tr>
<td>Ward 21</td>
<td>35</td>
<td>19%</td>
<td>119</td>
<td>64%</td>
<td>32</td>
<td>17%</td>
</tr>
<tr>
<td>Ward 22</td>
<td>13</td>
<td>45%</td>
<td>10</td>
<td>34%</td>
<td>6</td>
<td>21%</td>
</tr>
<tr>
<td>Ward 23</td>
<td>96</td>
<td>56%</td>
<td>51</td>
<td>30%</td>
<td>25</td>
<td>14%</td>
</tr>
<tr>
<td>Ward 24</td>
<td>22</td>
<td>54%</td>
<td>13</td>
<td>32%</td>
<td>6</td>
<td>14%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>270</strong></td>
<td><strong>35%</strong></td>
<td><strong>357</strong></td>
<td><strong>46%</strong></td>
<td><strong>143</strong></td>
<td><strong>19%</strong></td>
</tr>
</tbody>
</table>

Source: Rural Study

Internal roads consist mainly of graded roads (61%) whilst 38% have gravel roads and only 1% has tar roads.

- **Middelburg & Mhluzi**

  The majority of the roads are tarred and provided with storm water drainage. Upgrading of the storm water system in Mhluzi is being undertaken according to a storm water plan prepared by consultants.

- **Hendrina / Kwazamokhule**

  Relatively few roads are tarred and provided with storm water drainage. Attention will have to be given to address the backlogs as the maintenance cost of gravel roads is high.
Rietkuil

The internal roads are tarred and Council is responsible for the maintenance of the roads. Roads are in a fairly good condition.

Pullen’s Hope

The internal roads are tarred and Council is responsible for the maintenance of the roads. Roads are in a fairly good condition.

Komati

The internal roads are tarred and Council is responsible for the maintenance of the roads. Roads are in a fairly good condition.

Blinkpan & Koornfontein

These towns now known as Blinkpan village has been proclaimed, and was recently taken over by Council who renders all municipal services. The mine has made funds available to council to do some maintenance work including patching and resealing of certain streets.

Doornkop

No formal roads or storm water systems are in place.

Presidentsrus

Only gravel roads are available. The low water bridge was upgraded which reduces the possibility of flooding. The access road (P20) is in a bad condition due to the large number of heavy vehicle from the brickworks that make use of it.
Kranspoort

This is a private township proclaimed as “Vakansiedorp” and all services are rendered by the governing body. They approached the Municipality with the request to assist with building inspections only.

The IDP identified the following prioritised roads and stormwater related projects:
<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MHLUZI / MIDDELBURG</td>
<td>KWAZAMOKUHLE / HENDRINA</td>
<td>ESKOM &amp; MINE VILLAGES</td>
<td>RURAL AREA</td>
<td>INPUTS BY THE ADMINISTRATION</td>
</tr>
<tr>
<td></td>
<td>Provision of a stormwater drainage system in all areas of Mhluzi (2003)</td>
<td>Tarring of all streets in Kwazamokuhle</td>
<td>Marking of roads (Rietkuil)</td>
<td>Tarred roads (KwaMakalane)</td>
<td>Replace road networks (roads, kerbs, storm water and paving)</td>
</tr>
<tr>
<td></td>
<td>Erection of a border wall/fence along the main road in the South of Reabota</td>
<td>Storm water problems</td>
<td>Roads tarred (farm) (Naledi area)</td>
<td>Roads repairs (Sulinyembezi area)</td>
<td>Construct new roads networks for new developments and rural areas</td>
</tr>
<tr>
<td></td>
<td>Erection of speed humps especially in Tembisa (2003)</td>
<td>Maintain/repair existing tarred roads</td>
<td></td>
<td>Road maintenance (SIS area)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Erection speed humps where necessary in Nasareth (2003)</td>
<td>Resolving the problem of damming water (a health hazard) in Ext.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Project Description</td>
<td>Year Description</td>
<td></td>
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<td>-----------------------------------------------------------------------------------</td>
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</tr>
<tr>
<td>Construction of an access bridge between Reabota and Matailene</td>
<td>Provision of a storm water drainage system (Kwazamokuhle)</td>
<td></td>
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<tr>
<td>Provision of paving along Koets Street and the parking near the Eastdene school</td>
<td>Erection of road sign at all important positions</td>
<td></td>
<td></td>
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<tr>
<td>Construction of a pedestrian bridge over the rivulet between phase 3 &amp; 4</td>
<td>Construction of speed humps (2003)</td>
<td></td>
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<tr>
<td>Redesigning of the Eastedne bridge so that it is higher than it is</td>
<td></td>
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<tr>
<td>Construction of a connecting road from Ext. 7 to the main road</td>
<td></td>
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<tr>
<td>Provision of a storm water drainage system between Nasareth and Midway Hotel and in Jan van</td>
<td></td>
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<tr>
<td>Riebeeck Street between Bonker and Verdoorn Streets</td>
<td></td>
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<tr>
<td>Tarring of all remaining Streets in the</td>
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<tr>
<td>Extensions</td>
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<td>---------------------------------------------------------------------------</td>
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<tr>
<td>Regular clearing and cleaning of existing storm water drainage system</td>
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<tr>
<td>Construction of new networks, Which includes roads and their naming, kerbs storm water drainage, pedestrian and cycle passages and bridges as well as paving</td>
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<tr>
<td>Replace, improve and extend existing road networks</td>
<td></td>
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<tr>
<td>Extension of Oliver Tambo Street through to Ext. 2</td>
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<tr>
<td>Display of Street names in every street</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Maintain and repair existing road networks</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Creation of passages for pedestrians where possible</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Tarring of streets: Tokologo, Ext. 5, 6 and 7</td>
<td></td>
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<tr>
<td>Elimination of existing canals replacing them with underground pipes</td>
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<tr>
<td>Project Description</td>
<td>Status</td>
<td>Remarks</td>
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<tr>
<td>Resealing of worn out streets</td>
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<tr>
<td>Widening of all narrow streets</td>
<td></td>
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</tr>
<tr>
<td>Extension of Ikageng Street to link up with the main road to town</td>
<td></td>
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</tr>
<tr>
<td>Linkage of Ikageng and Masemola streets</td>
<td></td>
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<tr>
<td>Reduction of traffic congestion in the mornings (2003)</td>
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</tr>
<tr>
<td>Improving traffic calming in Taflberg street (2003)</td>
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</tbody>
</table>
2.4.4 Electricity

- **Middelburg / Mhluzi**
  Electricity is purchased from Eskom and distributed to all formal households. The informal settlement of Newtown has also been provided with electricity. Underground cables as well as overhead lines and bundle conductors are used in the distribution network. Streetlights and/or high mast lights are provided in all the extensions.

- **Hendrina / Kwazamokhule**
  Electricity is purchased from Eskom and distributed to all the extensions of Hendrina and Kwazamokhule. In Kwazamokhule Ext. 2 (Mafred) electricity is distributed by Eskom. The networks are old and extensive upgrading is presently being conducted to reduce the number of interruptions of supply.

- **Rietkuil**
  The distribution of electricity is done by Eskom. The network is being upgraded at the moment.

- **Pullen’s Hope**
  The distribution of electricity is done by Eskom. The network is being upgraded at the moment.

- **Komati**
  The distribution of electricity is done by Eskom. The network is being upgraded at the moment.

- **Presidentsrus**
  Only the hotel and 12 other stands have electricity supplied by Eskom. The unavailability of electricity creates a problem for prospective owners in obtaining finance from financial institutions.
• **Doornkop**

Except for the supply to the borehole no other distribution is done by Eskom in whose supply area Doornkop is situated. Council will apply for the distribution licence as township establishment has been done by Council.

**Table 30: Availability of Electricity in the Rural Area**

<table>
<thead>
<tr>
<th>WARD</th>
<th>Settlements with Electricity</th>
<th>%</th>
<th>Settlements without Electricity</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ward 10</td>
<td>29</td>
<td>32%</td>
<td>62</td>
<td>68%</td>
</tr>
<tr>
<td>Ward 17</td>
<td>25</td>
<td>33%</td>
<td>51</td>
<td>67%</td>
</tr>
<tr>
<td>Ward 20</td>
<td>23</td>
<td>155</td>
<td>128</td>
<td>85%</td>
</tr>
<tr>
<td>Ward 21</td>
<td>48</td>
<td>26%</td>
<td>136</td>
<td>74%</td>
</tr>
<tr>
<td>Ward 22</td>
<td>10</td>
<td>34%</td>
<td>18</td>
<td>66%</td>
</tr>
<tr>
<td>Ward 23</td>
<td>53</td>
<td>31%</td>
<td>119</td>
<td>69%</td>
</tr>
<tr>
<td>Ward 24</td>
<td>16</td>
<td>39%</td>
<td>25</td>
<td>61%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>204</strong></td>
<td><strong>27%</strong></td>
<td><strong>539</strong></td>
<td><strong>73%</strong></td>
</tr>
</tbody>
</table>

On average only 27% of the settlements have access to electricity, thereby leaving 73% of the settlements having to rely on other sources of energy such as wood, coal, gas and paraffin. Ward 24 is the ward with the highest percentage of households with electricity namely 39%, whilst only 15% of the settlements in Ward 20 have access to electricity.

**Table 31** indicates the needs as identified by the community during the public participation process.
### Table 31: Needs Identified i. t. o. the IDP process (ELECTRICITY)

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MHLUZI/ MIDDLEBURG</td>
<td>KWAZAMOKUHLE/ HENDRINA</td>
<td>ESKOM &amp; MINE VILLAGES</td>
<td>RURAL AREA</td>
<td>INPUTS BY THE ADMINISTRATION</td>
</tr>
<tr>
<td></td>
<td>Affordable rates ‘rent’ for municipal services</td>
<td>Upgrade electricity network (New equipment) to reduce supply interruptions</td>
<td>Pre-paid electricity (coupons) (Rietkuil)</td>
<td>Electricity (Pan / Arnot)</td>
<td>Maintenance of existing physical infrastructure provides for general repairs of equipment, buildings and networks to sustain reliable services to consumers, streetlights and traffic lights. Provision is made to audit electricity meters to ensure correct revenue collection</td>
</tr>
<tr>
<td></td>
<td>Erection of streetlights in one street in Modderfontein</td>
<td>Erection of streetlights (Kwazamokhule) (2003)</td>
<td>Electricity (Farms)(Naledi area)</td>
<td>Electricity (Doornkop – 2003)</td>
<td>Upgrading of existing physical infrastructure is to renew, reinforce and replace equipment and networks that do not comply with legal requirements or unable to supply electricity to the consumers due to age or growing demand</td>
</tr>
<tr>
<td></td>
<td>Installation of streetlights in all streets and in passages used by pedestrians</td>
<td>Provide streetlights</td>
<td>Water and electricity for farm people (Pullenshope area)</td>
<td>Provision of new physical infrastructure to electrify new developments in townships and rural areas which includes house connections and street lighting</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Provision of new physical infrastructure to electrify new developments in</td>
<td>Electrification of all houses (Kwazamokuhle)</td>
<td>Electricity (Sulinyembezi area)</td>
<td>Implement free basic electricity</td>
<td></td>
</tr>
<tr>
<td>-townships and in rural areas which includes house connections and street lighting (2003)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>:---</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supply of electricity in the homes (New Town) Provision of a certain amount of free electricity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provision of streetlights (New Town)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Erection of street lights where this has not happened (Old area)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Erection of a high mast light at the extreme end of Mathailene and street lights in all other streets without them</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrification of houses (Ext. 5 and 6) and Tokologo</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provision of street lights (Ext. 5 and 6) and Tokologo</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Street lights (Thushanang school area)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High mast lighting (Thushanang school area)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
2.4.5 Waste Management

- **Middelburg / Mhulzi**

  Household refuse is removed from all households and the dumping site is licensed by the Department of Water Affairs and Forestry. Garden refuse is removed by private contractors. Waste removal takes place once per week in Middelburg and twice per week in Mhluzi.

- **Hendrina / Kwazamokhule**

  Refuse is removed once per week from all households and dumped at the dumping site situated on the Remaining extent of portion 6 of the farm Grasfontein 199 Is. The site does not comply with the legal requirements and a permit has not been issued. A feasibility study whether to try and legalise the site or to rather close it down, must be done. Dumping of ash and other waste is taking place in Kwazamokhule and must receive attention.

- **Rietkuil**

  Waste collection takes place once per week and refuse is dumped at the Middelburg dumping site.

- **Pullen's Hope**

  Waste collection takes place once per week and refuse is dumped at the Middelburg dumping site.

- **Komati**

  Waste collection takes place once per week and refuse is dumped at the Middelburg dumping site.

- **Presidentsrus**

  Refuse is collected once per week by the Municipality.
- **Doornkop**

  No service is provided.

  The IDP identified the following waste disposal related projects:
### Table 32: Waste Management

<table>
<thead>
<tr>
<th>A</th>
<th>MHLUZI / MIDDELBURG</th>
<th>B</th>
<th>KWAZAMOKUHLE / HENDRINA</th>
<th>C</th>
<th>ESKOM &amp; MINE VILLAGES</th>
<th>D</th>
<th>RURAL AREA</th>
<th>E</th>
<th>INPUTS BY THE ADMINISTRATION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Provision of collection points / containers for garden refuse at strategic points</strong></td>
<td><strong>Provision of bins at strategic points for garden refuse and rubble</strong></td>
<td><strong>Removal of garden garbage (Rietkuil)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Provision of garbage bind for all residential sites</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Clearing and cleaning of the border area adjoining the railway line along Arafat street in Eastdene</strong></td>
<td><strong>Supply of refuse bins to all residential sites</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Clearing and cleaning of rubble (which has become a hideout for criminals) in Ext. 4 where shacks were demolished</strong></td>
<td><strong>Implement new refuse removal system</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Clearing of the area near and around the Middelburg railway line station</strong></td>
<td><strong>Addressing the problem of littering in the street</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>No additional payment to the Municipality for additional rooms on residents properties</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Ensure proper operation and management of refuse removal, street cleaning services and the operation of the landfill site</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Clearing and cleansing of the outer area in Matalene (old Crossroads)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Steve Tshwete LM SDF
January 2008
C:\Ria\222379\SDF 2007\Steve Tshwete\STEVE TSHWETE LM SDF (Final Draft).doc
2.5 Environmental Analysis

2.5.1 Introduction

The environmental analysis provides a concise summary and background on the environmental aspects within the study area. The analysis is not aimed to be all inclusive and individual development and development proposals should still be subject to detailed case by case environmental studies. The purpose of this analysis is to provide a background for strategy, policy and guideline formulation.

2.5.2 Climate

- Middelburg

  - Temperature

    - The temperature of Middelburg is in general the same as the temperatures occurring on the Highveld with the lowest temperature registered as -11,7°C in July with a known maximum as 36,1°C in January. The average annual winter temperature can be taken as 15,5°C and the average summer temperature as 27,2°C.
    - The average known daily temperature difference varies from a minimum of 13,5°C in January to a maximum of 20,6°C in August.
    - It is interesting that temperatures of less than 0°C have already occurred from April to October and that over a period of 27 years frost has been registered from as early as 24 April until as late as 22 September.
Table 33: Average monthly maximum and minimum temperatures (Witbank Weather Station no. 0515412)

<table>
<thead>
<tr>
<th>Month</th>
<th>Average daily temperatures</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Maximum (ºC)</td>
<td>Minimum (ºC)</td>
<td>Mean (ºC)</td>
<td></td>
</tr>
<tr>
<td>January</td>
<td>26.0</td>
<td>15.1</td>
<td>20.55</td>
<td></td>
</tr>
<tr>
<td>February</td>
<td>27.5</td>
<td>14.7</td>
<td>21.1</td>
<td></td>
</tr>
<tr>
<td>March</td>
<td>26.9</td>
<td>14.0</td>
<td>20.45</td>
<td></td>
</tr>
<tr>
<td>April</td>
<td>24.6</td>
<td>11.0</td>
<td>17.8</td>
<td></td>
</tr>
<tr>
<td>May</td>
<td>20.4</td>
<td>8.0</td>
<td>14.2</td>
<td></td>
</tr>
<tr>
<td>June</td>
<td>19.4</td>
<td>5.0</td>
<td>12.2</td>
<td></td>
</tr>
<tr>
<td>July</td>
<td>18.6</td>
<td>5.6</td>
<td>12.1</td>
<td></td>
</tr>
<tr>
<td>August</td>
<td>21.3</td>
<td>6.0</td>
<td>13.65</td>
<td></td>
</tr>
<tr>
<td>September</td>
<td>22.7</td>
<td>8.6</td>
<td>15.65</td>
<td></td>
</tr>
<tr>
<td>October</td>
<td>24.7</td>
<td>10.2</td>
<td>17.45</td>
<td></td>
</tr>
<tr>
<td>November</td>
<td>25.7</td>
<td>14.3</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>December</td>
<td>25.2</td>
<td>14.8</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Year</td>
<td>23.6</td>
<td>10.6</td>
<td>17.1</td>
<td></td>
</tr>
</tbody>
</table>

- Wind
  - Mean monthly wind direction and speed

Table 34 provides an indication of the wind data obtained from the CSIR station in Middelburg. Records have been kept for the period 1 April 1979 to 31 March 1984 regarding direction, frequency and velocity for each of the sixteen main wind directions.

In general, the wind is light to moderate for most of the time, ranging from 1.0 to 5.4 m/s for 51% of the year. Strong winds are associated with pressure gradient forces in winter and with thunderstorm activity in summer. Winds with a velocity > 8m/s (29km/h) occur on average 5% of the time (18 days per year). Calm conditions prevail on average 34% of the time (124 days per year).
During the autumn months (March to May), an easterly wind is more dominant, which in turn comes from the southern section during the winter months.

Table 34: The mean monthly wind speeds for each wind direction (CSIR station, Middelburg)

<table>
<thead>
<tr>
<th>Month</th>
<th>N</th>
<th>NE</th>
<th>E</th>
<th>SE</th>
<th>S</th>
<th>SW</th>
<th>W</th>
<th>NW</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>161</td>
<td>3.0</td>
<td>287</td>
<td>3.2</td>
<td>44</td>
<td>3.1</td>
<td>92</td>
<td>3.3</td>
</tr>
<tr>
<td>February</td>
<td>142</td>
<td>2.9</td>
<td>295</td>
<td>3.2</td>
<td>44</td>
<td>3.1</td>
<td>74</td>
<td>3.4</td>
</tr>
<tr>
<td>March</td>
<td>152</td>
<td>2.8</td>
<td>304</td>
<td>3.3</td>
<td>36</td>
<td>3.1</td>
<td>54</td>
<td>3.1</td>
</tr>
<tr>
<td>April</td>
<td>170</td>
<td>2.7</td>
<td>211</td>
<td>3.3</td>
<td>47</td>
<td>3.2</td>
<td>95</td>
<td>3.4</td>
</tr>
<tr>
<td>May</td>
<td>172</td>
<td>2.6</td>
<td>166</td>
<td>2.9</td>
<td>59</td>
<td>3.4</td>
<td>89</td>
<td>3.7</td>
</tr>
<tr>
<td>June</td>
<td>146</td>
<td>2.5</td>
<td>149</td>
<td>3.0</td>
<td>54</td>
<td>3.6</td>
<td>117</td>
<td>3.0</td>
</tr>
<tr>
<td>July</td>
<td>162</td>
<td>2.5</td>
<td>184</td>
<td>2.9</td>
<td>51</td>
<td>3.9</td>
<td>99</td>
<td>3.9</td>
</tr>
<tr>
<td>August</td>
<td>174</td>
<td>5.4</td>
<td>180</td>
<td>3.4</td>
<td>40</td>
<td>3.5</td>
<td>86</td>
<td>4.1</td>
</tr>
<tr>
<td>September</td>
<td>197</td>
<td>3.2</td>
<td>223</td>
<td>3.8</td>
<td>27</td>
<td>3.5</td>
<td>70</td>
<td>3.9</td>
</tr>
<tr>
<td>October</td>
<td>190</td>
<td>3.4</td>
<td>243</td>
<td>3.7</td>
<td>33</td>
<td>3.6</td>
<td>71</td>
<td>3.6</td>
</tr>
<tr>
<td>November</td>
<td>174</td>
<td>3.2</td>
<td>225</td>
<td>3.6</td>
<td>28</td>
<td>3.1</td>
<td>68</td>
<td>3.1</td>
</tr>
<tr>
<td>December</td>
<td>180</td>
<td>3.1</td>
<td>254</td>
<td>3.4</td>
<td>34</td>
<td>3.0</td>
<td>69</td>
<td>3.3</td>
</tr>
<tr>
<td>Year</td>
<td>188</td>
<td>2.0</td>
<td>227</td>
<td>3.3</td>
<td>41</td>
<td>3.3</td>
<td>82</td>
<td>3.8</td>
</tr>
</tbody>
</table>

- Incidence of extreme weather conditions

Rainfall occurs mainly as thunderstorms during the summer months. These are accompanied by lightning and usually hail. These storms are localised and rainfall can vary markedly within a short distance. On average, hail occurs six times per year.

Frost is common in the winter months (May to September), with an average occurrence of 58 frost days per year. Of these frost days, a maximum monthly average of nine days occurs in July.

Snow is not a significant contributor to precipitation.
- Rainfall

- It is noticeable that there appears to be a similarity between the altitude above sea level and the average annual rainfall in the area, because the rainfall figures vary from 750mm to 775mm in the vicinity of Middelburg Dam, 725mm to 750mm in Middelburg, the southern (Aerorand) and eastern (Vaalbank) area, while in the north-east (Kanonkop) and north (Botshabelo) the rainfall varies from 700mm to 725mm per year.

- From available information a maximum rainfall figure of 1 048mm was registered in 1909, while during the well-known flooding of the Klein Olifants River in 1955, only 977mm of rain were measured. On the other hand only 430mm were registered in 1965 and during the intense drought of the thirties a quantity of 537mm was measured.

- The average annual rainfall for Middelburg has been determined at 740mm and the figures vary from average 119mm in January to 9mm in the winter months. The annual rainfall probability is 18, 4% or 67 days per year.

- The most intensive downpours are experienced during the summer months of November, December, January and February, with an average occurrence probability of 31,4%, while the highest rainfall intensity during the past number of years reached a figure of 32mm per hour, but in the light of historical events this figure most probably comes to 90mm per hour in isolated areas.

- Hail storms occur on average 4 to 7 times per year.

- Mean monthly and annual rainfall

The average number of days per month having rainfall depths in excess of 0,1 mm, together with the maximum number of rainfall days, are given in Table 35.

Table 35: Average monthly rainfall depths (mm) and days having a rainfall of >0,1mm (Middelburg weather station)

<table>
<thead>
<tr>
<th>Month</th>
<th>Average Depth (mm)</th>
<th>Average days</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>132</td>
<td>13,8</td>
</tr>
<tr>
<td>February</td>
<td>103</td>
<td>11,2</td>
</tr>
</tbody>
</table>
Hendrina, Rietkuil, Pullen's Hope and Komati

For the purpose of Komati, Rietkuil and Pullen’s Hope the following data is obtained from the National Weather Bureau (Weather Station Hendrina Municipality (1949 - 1997), climn 0479369 was used. The annual average precipitation for the above-mentioned towns is 707.4 mm. The towns are situated in the cool summer rainfall area of the inland Highveld Plateau of Southern Africa. Summers are moderately hot with cold winters. Frost has a high frequency occurrence. Summer months are characterized by thunderstorms, often associated with strong wind and floods.

Rainfall intensity in terms of maximum rain within a period of 24 hours varies between 19.0 mm and 132 mm. The annual average temperatures for the towns were not available and for this reason, data from Carolina was used. This indicated that the average annual temperature for the region is in the order of 21.0°C, with June being the coldest month varying around 16.0°C and January the hottest month with temperatures varying around 24.0°C.

Presidentsrus

The lowest temperature registered was during July name – 11.7°C and the maximum 36.1°C during January, whilst the average annual winter temperature is 15.5°C and the average summer temperature 27.7°C. The average rainfall per year in the area as measured at the Loskop station over a period of 46 years is 612.9mm. The

<table>
<thead>
<tr>
<th>Month</th>
<th>Rainfall (mm)</th>
<th>Temperature (°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>March</td>
<td>88</td>
<td>9.5</td>
</tr>
<tr>
<td>April</td>
<td>42</td>
<td>6.5</td>
</tr>
<tr>
<td>May</td>
<td>19</td>
<td>2.9</td>
</tr>
<tr>
<td>June</td>
<td>7</td>
<td>1.5</td>
</tr>
<tr>
<td>July</td>
<td>9</td>
<td>1.7</td>
</tr>
<tr>
<td>August</td>
<td>8</td>
<td>0.9</td>
</tr>
<tr>
<td>September</td>
<td>22</td>
<td>3.7</td>
</tr>
<tr>
<td>October</td>
<td>63</td>
<td>8.3</td>
</tr>
<tr>
<td>November</td>
<td>124</td>
<td>13.0</td>
</tr>
<tr>
<td>December</td>
<td>118</td>
<td>13.1</td>
</tr>
<tr>
<td>Total</td>
<td>735</td>
<td>86.1</td>
</tr>
</tbody>
</table>
temperature of the area varies from a minimum of 13.5°C to 27.9°C. The general wind
direction is north-west.

- **Kranspoort**

Kranspoort is situated in the Loskop Valley. Climate varies much from the rest of the
area of jurisdiction. Temperatures are generally 3-5°C warmer than what is
experienced on the Highveld.

### 2.5.3 Topography and Drainage

- **Middelburg**

Middelburg is characterised by the typical undulating Highveld topography in the south
at a height of ± 1600m above sea level. A number of prominent hills and steep inclines
are located towards the north-west of the Greater Middelburg at a height of 1400m
where the Klein Olifants River leaves the northern boundary.

- **Hendrina / Kwazamokhule**

The town is situated ± 1650m above mean sea level, in moderately undulating plains,
typical of the Southern Mpumalanga Highveld region. The town in general, slopes
towards the catchment area of the Klein Olifants River. The topography as such may
not seriously hamper development other than the tributary separating Kwazamokhule
and Hendrina, which will not be suitable for development, as it is utilized for
recreational purposes.

- **Rietkuil**

Rietkuil is situated in the Southern Mpumalanga Highveld region between 1660 and
1700 meters above sea level. The slope is predominantly south and south-west.
Pullen's Hope

Pullen's Hope is situated in the Southern Mpumalanga Highveld Region, between 1600 and 1620 m above sea level. The town has a predominantly western slope towards a north / south running stream.

Komati

Komati is situated in the Southern Mpumalanga Highveld region, between 1525 and 1670 meters above sea level. The town has a moderate slope in a predominantly northern direction towards the Koringspruit.

Doornkop

Doornkop is situated west of the Middelburg / Groblersdal road approximately 15 km north of Middelburg. The village is situated between 1525 meters and 1560 meters above sea level on a moderate flat slope.

Presidentsrus

Presidentsrus is situated in the Central Mpumalanga Highveld adjacent to the Olifants River. The town is situated between 1470 and 1525 m above sea level. The town has a moderate slope towards the Olifants River that bisects the town.

Kranspoort

Kranspoort is situated in the Loskop valley. The topography is typical of the mountainous nature of the southern point of the valley. The slope varies from low to steep in places and draws into all the various direction.
2.5.4 Drainage

- Catchments

Drainage occurs in a northerly to north westerly direction in the southern part of the area, and south to southwest in the northern part of the area, towards the Klein Olifants River, which in turn flows west towards the Olifants River, which drains into the Loskop Dam.

The Loskop Dam wall was built in the 1930’s across a nearby gorge. In the 1970’s, the dam wall was raised, flooding more of the valley. The dam is approximately 30km long and supplies water to a vast irrigation scheme in the areas of Loskop, Groblersdal and Marble Hall.

The Middelburg Dam catchment covers an area of 1 576km², but a significant portion of it drains to pans. These pans act as small isolated catchments which reduces the effective total catchment area draining to Middelburg Dam to 1 401 km². The Klein Olifants River is the most significant river in the Middelburg Dam catchment. The mean annual runoff for the Middelburg Dam catchment is 37,1 million m³/annum.

The Middelburg Dam is one of five sub-catchments in the upper Olifants River basin, upstream of Loskop Dam. The Klein-Olifants River, which drains to the Middelburg Dam, forms part of the B100 drainage region. It is an important catchment, not only in context of water supply to the greater Middelburg area, but also in terms of the flow and pollution load contributions to Loskop Dam.

As indicated in Figure 1, the catchment is impacted on by various land uses including towns and related settlements, coal mining, power generation, agriculture, feedlots and other industrial activities.

There are two major power stations in the Middelburg Dam catchment. Hendrina Power Station (2 000 MW) and Amot Power Station (2 100 MW) are supplied with coal from Optimum Colliery and Amot Colliery.

Extensive coal mining for the foreign and domestic market is taking place in the Middelburg Dam catchment. Approximately 9% (15 million tonnes / annum) of South
Africa’s annual coal production originates from this catchment. Coal is mined and beneficiated for use in the power stations as well as for the metallurgical industry.

Urban development in the Middelburg catchment is limited to mostly rural settlements and residential villages at the power stations and collieries.

- **Surface water quality**

  An intensive monitoring program was undertaken in this catchment during 1995 / 1996 by Wates, Meiring and Bamard for the Department of Water Affairs and Forestry (Report No. WQM B100/00/0197). The monitoring indicated the following:

  - Water quality downstream from the coal mining and power generation facilities are highly seasonal. The seasonal character is reflected in high TDS concentrations during winter base flow periods in summer. The bulk of the salinity load is transported to the Middelburg Dam during summer.

  - The sulphate and the TDS concentrations in the headwaters of the catchment are low. As the streams pass through the coal mining areas, substantial increase in salinity levels is observed. The streams most heavily impacted are the Woestalleen East Spruit, the Zevenfontein Spruit and the Bosman Spruit. All of these streams have low base flows that increase the impact of mining related pollutions of these streams.

  - The eastern Woestalleen Spruit and the Zevenfontein Spruit have the highest calcium and magnesium concentrations in the catchment. This high concentration of cationic constituents in the Woestalleen Spruit is due to mining activities and natural weathering of geological formations.

  - An effective buffering system occurred in the Woestalleen Spruit, which decreased the effect that AMD had on the Stream. The buffering does not occur in the Bosman Spruit and Zevenfontein Spruit.

  - Although high heavy metal concentrations are periodically observed in the Zevenfontein Spruit and Bosman Spruit, the eastern Woestalleen Spruit indicated low heavy metal concentrations.

  - The most serious water quality issue of concern in the Middelburg Dam remains the high concentrations of TDS and specifically sulphate. The dam is mesotrophic for most of the time, but tends towards a eutrophic state during the winter period.
**Surface water use**

Water in the Middelburg Dam and Loskop Dams catchments is used according to the following user categories as specified in the South African Water Quality Guidelines (1996):

- Domestic;
- Livestock watering;
- Irrigation;
- Industrial; and
- Aquatic environment.

Table 36 provides an indication of affected water users in the Middelburg Dam catchment.

**Table 36: Affected water users in the Middelburg Dam Catchment (taken from Clean Stream Environmental Services, May 2002)**

<table>
<thead>
<tr>
<th>Segment</th>
<th>User</th>
<th>Domestic</th>
<th>Livestock watering</th>
<th>Irrigation</th>
<th>Industrial</th>
<th>Aquatic environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Klein-Olifants River</td>
<td>Alzu Farming</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Ede Farming</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Gert van Eden</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>C.J. Bothma</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Johan Uys</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Middelburg Dam</td>
<td>Steve Tshwete Local Municipality</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Columbus Stainless Steel</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>
Water from the Klein-Olifants River is used extensively for irrigation and livestock watering purposes. Irrigation use is mainly for the growth of maize and potatoes.

Livestock watering is mainly for free-roaming cattle and sheep but river water is also used in two extensive piggeries along the Klein-Olifants River. The surface owners next to the Klein-Olifants River do not use water for domestic purposes.

Loskop Dam supplies water to a vast irrigation scheme in the areas of Loskop, Groblersdal and Marble Hall.

### 2.5.5 Vegetation

#### 2.5.5.1 General vegetation of the area

*General vegetation of the area*

The Steve Tshwete Local Municipality Area falls within the Grassland Biome. Within the said municipal area, two grassland types (Low and Rebelo, 1998) occur, namely:

- The Rocky Highveld Grassland (Acocks veld type 34) and
- The Moist Sandy Highveld Grassland (Acocks veld type 37).

Closer to Loskop Dam, the area borders onto the transition between Rocky Highveld Grassland (veld type 34) of the Grassland Biome and the Mixed Bushveld (veld type 18) of the Savannah Biome (Low and Rebelo, 1998).

According to Lotter and Emery (2003), the Acocks Veld Types represent the variation in vegetation in Mpumalanga better than that of Low and Rebelo (1996). Accordingly, the vegetation of the area would be described as of Bankenveld (veld type 61). Closer to Loskop Dam, Sourish Mixed Bushveld (veld type 19) and Mixed Bushveld (veld type 18) would be represented. North-eastern sandy Highveld vegetation could be present in the southern eastern portion.
Rocky Highveld Grassland (Acocks veld type 34)

The Rocky Highveld Grassland veld type was previously referred to as the Bankenveld (Acocks veld type 61); Moist Cool Temperate Grassland, *Rhus leptodictya – Acacia caffra* Mountain Bushveld and *Loudetia simplex – Trachypogon spicatus* Grassland.

It is a transitional type of vegetation between typical grasslands of the high inland plateau and the bushveld of the lower inland plateau. The habitat of this vegetation type includes rocky mountains, hills, ridges and plains of quartzie, conglomerate, shale, dolomite and sometimes andesitic lava (low and Rebelo, 1996)

This vegetation type is characterized by grass species such as Giant Speargrass (*Trachypogon spicatus*), Broadleaf Bluestem (*Diheteropogon amplectens*) and Red Autumngrass (*Schizachyrium sanguineum*). Many dicotyledonous forbs occur in this vegetation type e.g. Wild Sweetpea (*Sphenostylis angustifolia*) and Rough-hair Sae (*Acrotome hispida*).

This vegetation type is poorly (1.38%) conserved in South Africa, of which approximately 65% has been transformed.

Moist Sandy Highveld Grassland (Acocks veld type 38)

The Moist Dandy Highveld Grassland veld type was previously referred to as the North-Eastern Sandy Highveld (Acocks veld type 57) and the Eastern Bankenveld (Acocks veld type 61c).

Moist Sandy Highveld Grassland is characterised by an environment in which high rainfall and cold, frosty winters occur and the distribution of the vegetation is controlled by the occurrence of sandy soils.

This grassland is dominated by Fan Lovegrass (*Eragrostis plana*), Weeping Lovegrass (*E. curvula*), Speargrass (*Heteropogon contortus*) many species occur in the area.

This vegetation type is very poorly (0.67%) conserved and is now largely ploughed. Natural vegetation is restricted to patchy remnants, which are often heavily grazed.
Mixed Bushveld (Acocks veld type 19)

The Mixed Bushveld veld type was previously referred to as Sourish Mixed Bushveld (Acocks veld type 19) and Broad-orthophyll Plains Bushveld.

This vegetation type varies from a dense, short bushveld to a rather open tree savannah. The vegetation is characterised by trees and shrubs such as the Red Bushwillow (Combretum apiculatum), Common Hook-thorn (Acacia caffra), Sicklebush (dichrostachys cinerea) and various Grewia species.

The herbaceous layer is dominated by grasses such as Fingergrass (Digitaria eriantha), Kalahari Sand Quick (Schmidtia pappophoroides), Wool Grass (Antephora pubescens) and various Eragrostis species.

On shallow soils, the Red Bushwillow (Combretum apiculatum) is dominant. On deeper and sandier soils, the Silver Clusterleaf (Terminalia sericea) becomes dominant.

2.5.5.2 Remaining natural vegetation

Figure 13 provides an indication of where natural vegetation still exists within the Steve Tshwete Local Municipal area.

Table 37 provides an indication of the extent of the remaining natural vegetation within the Steve Tshwete Local Municipal Area.

Table 37: Remaining natural vegetation within the Steve Tshwete Local Municipal Area (adapted from Steenekamp, 2004)

<table>
<thead>
<tr>
<th>Description of Land Cover (Figure 2)</th>
<th>Derived Vegetation type</th>
<th>Area (ha)</th>
<th>Area (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unimproved grassland</td>
<td>Rocky and Moist Sandy Highveld Grassland</td>
<td>180 430.1</td>
<td>45.36</td>
</tr>
<tr>
<td>Forest and Woodland</td>
<td>Rocky Highveld Grassland / Mixed Bushveld</td>
<td>14 201.1</td>
<td>3.57</td>
</tr>
<tr>
<td>Thicket and bushland (etc)</td>
<td>Rocky Highveld Grassland / mixed</td>
<td>14 972.00</td>
<td>3.76</td>
</tr>
</tbody>
</table>
The majority of the remaining vegetation is indicated as unimproved grassland (figure 14), which would correspond to the Rocky Highveld Grassland (Acocks veld type 34) and Moist Sandy Highveld Grassland (Acocks veld type 38). It is also evident that vast amounts of this vegetation type have been transformed by agricultural activities (cultivate lands), forest plantations, mines and quarries, urban (commercial, industrial / transport / residential) developments (figure 13).

Closer to Loskop dam, thicket / bushland and forest and woodland were identified (Figure 13), which would correspond to the Mixed Bushveld vegetable type.

Wetlands constitute an important and restricted habitat type for a variety of plants and animals. The wetland vegetation throughout the Highveld region of Mpumalanga is under great threat from factors such as alien invasive plant species (Henderson and Musil, 1987), altered hydrological patterns, reduced water quality, ploughing and overgrazing. Any remaining area of untransformed wetland must therefore be regarded as of elevated conservation importance.

The type, distribution and conservation status of wetlands within the said area needs to be verified.

2.5.5.3 Biodiversity

Steve Tshwete Local municipality is a very important area for threatened species (see Figure 14). In total Steve Tshwete supports 79 threatened species, 18 of those being Red Data Flora species. The Giant Bull Frog (*Pyxicephalus Adspersus*) is the only Red Data frog species to have been recorded in the Nkangala District Municipality and is found within the municipal boundaries of Steve Tshwete. The most critical areas in respect of biodiversity and environmental sensitivity are:
The Loskop Dam Nature Reserve (mammals, birds, reptiles);
The grasslands between Middleburg and Loskop Dam NR (Flora); and
The ecological corridor traversing the western boundary in a north – south alignment towards Vandyksdrif.

Apart from the Fauna and Flora, a number of Floodplain wetlands, seepage wetlands, and endorheic pans occur in Steve Tshwete which should be seen as priority conservation.

2.5.5.4 SOER: Environmental Concerns

State of Environment Reporting (SoER) provides information on the current state of the environment, what is causing environmental change and what is being done about it. The aim is to improve understanding of environmental issues and to give guidelines for sound environmental management. The following environmental concerns (applicable for a Development Framework) have been identified and extracted from the Nkangala District State of the Environment Report (May 2006):

A) Land
   - The Grasslands is in a very poor condition as more than half have been lost and ecosystem functioning has been compromised.

B) Water Resources
   - The Steve Tshwete Local Municipality has the highest percentage of rivers (89%) in the Critically Endangered class;
   - The fitness-of-use of the water for drinking purposes improved since 1999 to 2005. There is however a cause for concern at the increase in the number of faecal coliform bacteria in the water. This is an indication of contamination by faecal waste from human or animal origin. Poor operation of treatment works, poor sanitation practices/services, and informal settlements located too close to the water resources may be sources of the increase in faecal pollution in the water resources; and
   - Aquatic ecosystem toxicity levels increased from 1999 to 2005. The presence of higher concentrations of heavy metals such as Aluminium, Cadmium, Copper, Lead and Zinc in the treated water are of concern. The presence of these metals and the recorded changes in pH render the water unsuitable to sustain aquatic life.
C) Conservation

- Steve Tshwete is very inadequately protected.

D) Vulnerability

- The installation of proper sanitation systems in un-serviced areas is of great importance.

2.5.5.5 Provincial Environmental Guidelines

Appropriate management action that addresses habitat loss, environmental degradation and fragmentation of landscapes and their root causes, are necessary to reduce the threat of species extinction. Consequently, the Mpumalanga Biodiversity Conservation Plan provides the following guidelines for un-transformed land with natural vegetation cover (see Table 38 in conjunction with Figure 14).

<table>
<thead>
<tr>
<th>Table 38: Land Use Suitability per Biodiversity Category</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BIODIVERSITY FRIENDLY LAND USES</strong></td>
</tr>
<tr>
<td>1. Conservation Management</td>
</tr>
<tr>
<td>2. Game Farming</td>
</tr>
<tr>
<td>3. Extensive Livestock Production</td>
</tr>
<tr>
<td>4. Rural Recreational Dev.</td>
</tr>
<tr>
<td><strong>HIGH IMPACT RURAL LAND USES</strong></td>
</tr>
<tr>
<td>5. Rural (Communal) Settlement</td>
</tr>
</tbody>
</table>
In addition to the Mpumalanga Biodiversity Conservation Plan, the Highveld was declared a priority area in respect of air pollution in November 2007, in terms of Section 18(1) of the National Environmental Management: Air Quality Act, 2004 (Act No 39 of 2004). This implies that the ambient air quality within the Highveld Priority Area exceeds or may exceed ambient air quality standards, alternatively, that a situation exists within the Highveld Priority Area, which is causing or may cause a significant negative impact on air quality in the area, and

Y = Yes (Permitted / encouraged activity)
N = No (Not permitted / actively discouraged activity)
R = Restricted (By compulsory site-specific conditions and controls when unavoidable. Not usually permitted)
that the area requires specific air quality management action to rectify the situation. The area declared as such includes the entire Steve Tshwete.

2.5.6 Geology

According to the 1:250 000 geological map (2528 Pretoria), the geology of the area south and southeast of Middelburg is mainly underlain by sediments of the Ecca Formation of the Karoo Supergroup. The lithology of the Ecca Formation consists of shale, shaly sandstone, grit, sandstone, conglomerate, coal (in places near base and top).

The area located south of Middelburg falls within the so-called Springs-Witbank Coalfield, which extends over a distance of some 180km from the Brakpan and Springs areas in the west, to Belfast in the east and about 40km in a north-south direction.

The irregular northern margin of the coalfield is defined by the sub-outcrop of the Vryheid Formation against the Pre-Karoo rocks of the Transvaal sequence, the Waterberg Group and volcanics associated with the Bushveld Igneous Complex.

North of this margin there are few coal-bearing outliers of Karoo sediments. The southern margin of the coalfield is clearly defined over the central portion of the area by pre-Karoo granite and felsite hills, which separate the Witbank Coalfield from the Highveld Coalfield.

To the east and the west of the central portion, the southern boundary is poorly defined and the demarcation in the vicinity of Delmas, Leslie and Hendrina is rather arbitrary.

Figure 15 provides an indication of the location of various open cast coal mines within the Steve Tshwete Local Municipal Area. Mines include Woestalleen Colliery, Optimum Colliery, Arnot Colliery, Black Wattle Colliery, Graspan Colliery, Polmaise Colliery, etc.

The Selons River Formation of the Rooiberg Group, Transvaal Supergroup, is indicated to be present within the area south and southeast of Middelburg. It consists of a bed of sandstone or quartzite at the base as well as massive, red rhyolite of which the top shows flow bedding. It contains a few intercalations of sandstone, tuff, black rhyolite and breccia. A bed of dark, fine-grained mudstone is present approximately in the middle of the sequence.
The geology of the area from Middelburg towards Loskop Dam is characterised by the Loskop and the Wilge River Formations of the Waterberg Group.

There is a distinct angular unconformity between the Loskop Formation and the Wilge River Formation, Waterberg Group of Mokolian age. This Formation is composed essentially of reddish brown to purple, medium- to coarse-grained sandstone, grit and quartzitic sandstone, with intercalations of conglomerate and shale. A bed of conglomerate is usually present at the base. A number of diabase dykes and sills intrude the above-mentioned rocks.

Resting on this formation is the Loskop Formation, Transvaal Supergroup. The presence of lava flows in the Loskop Formation indicates a gradual transition between this formation and the Rooiberg Group. The Loskop Formation crops out practically without interruption all along the north-eastern rim of the Middelburg basin, in the Loskop Dam-Middelburg area. Lithologically, it is composed of a well-developed basal conglomerate, in which pebbles of acid lava are set in a matrix of volcanic material. This is followed by shale, siltstone, sandstone, feldspathic sandstone, quartzite, breccia, pyroclastic rocks and various types of lava.

The Dwyka Group of the Karoo Supergroup is also indicated to be present in the area north of Middelburg. It is composed mainly of rudaceous rocks, i.e. diamictite with subordinate varved shale, and mudstone containing striated and faceted pebbles, fluvo-glacial gravel and conglomerate, all presumably of glacial origin.

The youngest geological deposits are represented by unconsolidated alluvium (soil transported by water), which is confined to the drainage channels throughout the area, colluvium (soil transported mainly through gravity) and ferricrete, all of Quaternary age.

2.5.6.1 Soils

Six broad soil types occur within the municipal area namely: Ba, Bb, Bc, Ea, Fa and Ib (Steenekamp, 2004). Figure 16 provides an indication of the distribution of the various soil types within this area.

Table 39 provides a description of the broad soil type as well as the area and percentage comprised by each broad soil type.
Table 39: Broad Soils Types within the Steve Tshwete Local Municipal Area (Steenekamp, 2004)

<table>
<thead>
<tr>
<th>Broad Soil Type</th>
<th>Description of Broad Soil Types</th>
<th>Area (ha)</th>
<th>Area (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ba</td>
<td>Plinthic soils (with subsurface accumulation of iron and manganese oxides due to fluctuating water table) with low to intermediate base status. Red soils are widespread. Upland duplex and black clay soils are rare.</td>
<td>229874.1</td>
<td>57.79</td>
</tr>
<tr>
<td>Bb</td>
<td>Plinthic soils (with subsurface accumulation of iron and manganese oxides due to fluctuating water table) with low to intermediate base status. Red soils are not widespread. Upland duplex and black clay soils are rare.</td>
<td>127980.1</td>
<td>32.18</td>
</tr>
<tr>
<td>Bc</td>
<td>Plinthic soils (with subsurface accumulation of iron and manganese oxides due to fluctuating water table) with high base status. Red soils are widespread. Upland duplex and black clay soils are rare.</td>
<td>4026.3</td>
<td>1.01</td>
</tr>
<tr>
<td>Ea</td>
<td>Black structured swelling and non-swelling clay soils and red structured clay soils.</td>
<td>1094.7</td>
<td>0.28</td>
</tr>
<tr>
<td>Fa</td>
<td>Commonly shallow soils on hard rock, fractured rock or weathering rock materials. Other soils may occur. Lime is rare or absent in the landscape.</td>
<td>1229.0</td>
<td>0.31</td>
</tr>
<tr>
<td>Ib</td>
<td>Rocky areas (&gt;60% exposed surface rock) with miscellaneous soils.</td>
<td>33554.5</td>
<td>8.44</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>397 758.7</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Soil and terrain data of each Land Type unit within the Broad Soil Types was interpreted by means of an algorithm and classified into soil potential classes. **Table 40** indicates the percentage occurrence of the different soil potential classes in each Land Type unit. An average soil potential class for the total Land Type unit was also calculated. The area and percentage comprised by each land Type unit is also shown. The Land Type units are shown in Figure 16.
Table 40: Agricultural Potential of Land Type Units Derived from Land Type Soil and Terrain Inventories

<table>
<thead>
<tr>
<th>Land Type</th>
<th>Broad Soil Type</th>
<th>Average Agricultural Potential Class</th>
<th>Percentages of Agricultural Potential classes per Land Type</th>
<th>Area (ha)</th>
<th>Area (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>High</td>
<td>Moderate to High</td>
<td>Moderate</td>
</tr>
<tr>
<td>Ba14</td>
<td>Ba</td>
<td>Moderate to high</td>
<td>73</td>
<td>7.5</td>
<td>2.5</td>
</tr>
<tr>
<td>Ba15</td>
<td>Ba</td>
<td>Low to moderate</td>
<td>34.25</td>
<td>30.5</td>
<td>35.25</td>
</tr>
<tr>
<td>Ba17</td>
<td>Ba</td>
<td>Moderate to high</td>
<td>60.25</td>
<td>39.75</td>
<td>283.6</td>
</tr>
<tr>
<td>Ba18</td>
<td>Ba</td>
<td>Low to moderate</td>
<td>42.25</td>
<td>20</td>
<td>2</td>
</tr>
<tr>
<td>Ba19</td>
<td>Ba</td>
<td>Moderate to high</td>
<td>62.25</td>
<td>7</td>
<td>30.75</td>
</tr>
<tr>
<td>Ba20</td>
<td>Ba</td>
<td>Moderate to high</td>
<td>52.75</td>
<td>16</td>
<td>7</td>
</tr>
<tr>
<td>Ba22</td>
<td>Ba</td>
<td>Moderate to high</td>
<td>46</td>
<td>17.25</td>
<td>36.75</td>
</tr>
<tr>
<td>Ba33</td>
<td>Ba</td>
<td>High</td>
<td>89</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>Ba37</td>
<td>Ba</td>
<td>Moderate to high</td>
<td>71.25</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Ba4</td>
<td>Ba</td>
<td>Moderate to high</td>
<td>55.5</td>
<td>6.5</td>
<td>9.5</td>
</tr>
<tr>
<td>Bb11</td>
<td>Bb</td>
<td>Moderate to high</td>
<td>37</td>
<td>13.3</td>
<td>30.2</td>
</tr>
<tr>
<td>Bb12</td>
<td>Bb</td>
<td>Moderate to high</td>
<td>37</td>
<td>13.3</td>
<td>30.2</td>
</tr>
<tr>
<td>Bb14</td>
<td>Bb</td>
<td>Low to moderate</td>
<td>21</td>
<td>14</td>
<td>11</td>
</tr>
<tr>
<td>Bb16</td>
<td>Bb</td>
<td>Low to moderate</td>
<td>9.75</td>
<td>4.75</td>
<td>31.25</td>
</tr>
<tr>
<td>Bb17</td>
<td>Bb</td>
<td>Low to moderate</td>
<td>9.75</td>
<td>4.75</td>
<td>31.25</td>
</tr>
<tr>
<td>Bb4</td>
<td>Bb</td>
<td>Moderate to high</td>
<td>63</td>
<td>5</td>
<td>32</td>
</tr>
</tbody>
</table>
- **Middelburg**

  The Greater Middelburg is underlain by granite lava in the south, better known as Rooiberg felsite. The south-western section of the study area is characterised by the rich coal deposits on the farms Uitkyk and Rietfontein forming part of the Ecca and Dwyka series of the Karoo system.

  It is estimated that ± 40 million tons of exploitable coal can be found on 560 ha of land in the Uitkyk vicinity and 60 million tons on 460 ha of the farm Rietfontein, west of Federale Stene.

  Clay deposits suitable for brick making, are located on the farm Rietfontein and was made available to Federale Stene by Council.

- **Hendrina / Kwazamokhule**

  The Greater Hendrina area, which was investigated, is underlain by sediments of the Vryheid Formation, Ecca Group and Karoo Sequence.

  The sedimentary bedrock comprising of mainly ivory coloured massively bedded sandstone is sequentially overlain by a partial to well developed honeycomb hardpan ferricrete layer overlain by a transported layer of beige-brown silty sand with an average
thickness of 0.8m, but varying between 0.5m and 1.0m. Except for collapsible soils and a high water table, no detrimental soil conditions exist that will pose any high risk factor such as dolomite.

The area falls mainly within the BA soil type. Although various soil types are present some of the most common are Ba4, Ba19, Ba33, Ba37, Bb4 and Bb14. The soil is mainly red, yellow and gray with a clay percentage that varies between 15% and 30%, with a depth of between 450mm to 750mm.

2.5.7 Agriculture and Forestry

2.5.7.1 Agriculture

Figure 13 provides an indication of the land use within the Steve Tshwete Municipal Area. As indicated, thirteen (13) land-cover units were identified for this area (Steenekamp, 2004).

Table 41 provides a description of the type of land-cover, derived agricultural activities as well as the area and percentage comprised by each land-cover unit.

Table 41: Agricultural Activities in the Steve Tshwete Local Municipal Area (Steenekamp, 2004)

<table>
<thead>
<tr>
<th>Description of Land Cover</th>
<th>Derived Agricultural Activities, Land Uses and Features</th>
<th>Area (ha)</th>
<th>Area (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cultivated: temporary - commercial dryland</td>
<td>Agronomic cash crops – maize, soybeans, dry beans, potatoes, grazing after harvesting - cattle.</td>
<td>143044.8</td>
<td>35.96</td>
</tr>
<tr>
<td>Cultivated: temporary - commercial irrigated</td>
<td>Centre pivots, intensive farming – Maize, soybeans, potatoes, wheat.</td>
<td>1064.3</td>
<td>0.27</td>
</tr>
<tr>
<td>Forest plantations</td>
<td>Forestry</td>
<td>15275.2</td>
<td>3.84</td>
</tr>
<tr>
<td>Forest and Woodland</td>
<td>Grazing – Cattle and sheep</td>
<td>14201.1</td>
<td>3.57</td>
</tr>
<tr>
<td>Unimproved grassland</td>
<td>Grazing – Cattle and sheep</td>
<td>180430.1</td>
<td>45.36</td>
</tr>
<tr>
<td>Improved grassland</td>
<td>Pastures – harvesting and grazing</td>
<td>1073.9</td>
<td>0.27</td>
</tr>
</tbody>
</table>
2.5.7.2 Forestry

Figure 13 provides an indication of the location of forestry activities within the Steve Tshwete Municipal Area.

As indicated in Table 41, forest plantations (i.e. forestry) occupy 15275.2 hectares (i.e. 3.84%) of the Steve Tshwete Municipal Area.

2.5.7.3 Conservation Initiatives

- Provincial Reserves

The Steve Tshwete Local Municipality borders onto the Loskop Dam Nature Reserve, of which a portion falls within this municipal area (see Figure 1).

The Loskop Dam Nature Reserve is a proclaimed nature reserve, which is owned by the Mpumalanga Parks Board (MPB). The extent of this reserve is 23174.9 ha, of which 2350 ha is water surface.

Originally, a small reserve was proclaimed around the Loskop Dam in the 1950’s. The size of the reserve was increased through acquisition of neighbouring farms.

Within the reserve, geology appears to be the strongest factor influencing the distribution of 1014 recorded plant species on the reserve.
Many habitats for a variety of large and small mammals can be found due to the mountainous type of terrain. Approximately 70 species are present of which three of these are members of the Big Five: White Rhino, Buffalo and Leopard.

Many reptile species are also found in the reserve with the most obvious being the crocodiles. Smaller species that are regularly seen include snakes, lizards (9 species), tortoises, skinks (7 species), leguaans (2 species), geckos (4 species) and one species of chameleon.

- **Conservancies**

Within the Steve Tshwete Local Municipality area, only one conservancy is indicated namely, the Olifants Gorge Conservancy (see Figure 1). **Table 42** provides an indication of the members of the Olifants Gorge Conservancy.

**Table 42: Members of the Olifants Gorge Conservancy**

<table>
<thead>
<tr>
<th>FARM NAME</th>
<th>FARM OWNER</th>
<th>HECTARES (ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doornfontein 98 JS</td>
<td>Loskop Nature Reserve (Mpumalanga Parks Board)</td>
<td>?</td>
</tr>
<tr>
<td>Loskop Dam Nature Reserve</td>
<td>Mpumalanga Nature Reserve</td>
<td>23,000</td>
</tr>
<tr>
<td>Remainder of Groenvallei 233 JS</td>
<td>Loskop Nature Reserve (Mpumalanga Parks Board)</td>
<td>541</td>
</tr>
<tr>
<td>Hondekraal 234 JS</td>
<td>Loskop Nature Reserve (Mpumalanga Parks Board)</td>
<td>2,632.4293</td>
</tr>
<tr>
<td>Vogelstruisplaat (East) 232 JS</td>
<td>J &amp; S Celliers</td>
<td>1,126.8050</td>
</tr>
<tr>
<td>Vogelstruisplaat (West) 232 JS</td>
<td>Wilton Albert Administrators (50%) Wilton Barry Gordon (50%)</td>
<td>994.0717</td>
</tr>
<tr>
<td>Waterval 230 JS</td>
<td>Waterval Boerdery (Pty) Ltd. R. Sakota/L van der Merwe</td>
<td>1,790.9055</td>
</tr>
<tr>
<td>Portion 2 (a portion of portion 1) of Mooikopje 237 JS</td>
<td>C. van Deventer</td>
<td>513.9192</td>
</tr>
<tr>
<td>Portion 2 of the remaining Mooikopje</td>
<td>Sebaka Inv (Pty) Ltd Safety Trust</td>
<td>1,092.6622</td>
</tr>
</tbody>
</table>
The municipal area borders onto the Bankenveld Conservancy and the Bakoondkrans Conservancy (899.8 ha). The status of the Bankenveld Conservancy is presently uncertain.

2.5.7.4 Environmental Sensitive/Problem Areas

The following issues are considered key to ensuring sustainability in Mpumalanga (Mpumalanga State of Environment Report, 2003), and could also be seen as environmental sensitive/problem areas within the province. These issues would have to be addressed for the Steve Tshwete Municipal Area in order to ensure sustainable development.

<table>
<thead>
<tr>
<th>WATER</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Intensity of water use per sector</td>
</tr>
<tr>
<td>- Pesticides and herbicides</td>
</tr>
<tr>
<td>- Wetland destruction</td>
</tr>
<tr>
<td>- Alien fish species</td>
</tr>
<tr>
<td>- Agricultural pollution</td>
</tr>
<tr>
<td>- Abandoned mines</td>
</tr>
<tr>
<td>- Alien plant species</td>
</tr>
<tr>
<td>- Water consumption by forestry</td>
</tr>
<tr>
<td>- Sulphates</td>
</tr>
<tr>
<td>- Stream piracy</td>
</tr>
<tr>
<td>- Heavy metals</td>
</tr>
<tr>
<td>- Cross-boundary water transfer</td>
</tr>
</tbody>
</table>
- Sand mining in rivers
- Biological pollution
- Payment of water
- Water quality
- Water consumption
- Acid mine drainage
- Access to water
- PH
- Sanitation

### WASTE MANAGEMENT

- Permitting of landfills
- Inadequate land for landfills
- Private waste sites
- Landfill site suitability
- People living near waste sites
- Control of CH4 emissions from landfills
- Contamination of water points
- Illegal dumping
- Hazardous waste transport
- Waste generation
- Hazardous waste
- Sewage facilities
- Waste separation at collection
- Waste minimisation
- Adequate waste collection services

### AIR QUALITY

- Greenhouse gases
- Air pollution
- Visibility (saw dust, fires, burning)
- Pollen
- Vehicle emissions
- Dirt roads
- Domestic coal use
- Reliance on coal for electricity generation
Respiratory health problems
- Odours
- Ambient particulate concentration
- Asbestos
- Coal dumps
- Abandoned mines
- Industrial and other emissions

LAND
- Afforestation
- Increasing industrialisation
- Encroachment of agriculture onto natural land
- Land invasions
- Conflicts over land use
- Degradation of natural resources
- Overgrazing
- Degradation of soil resources
- Soil erosion
- Soil quality

BIODIVERSITY
- Riparian destruction
- Habitat fragmentation
- Bio-prospecting
- Wetland destruction
- Deforestation
- Resource value of protected areas
- Reduction of resource base
- Decreasing natural vegetation
- Curio trade
- Impacts of tourism on natural resources
- Encroachment of agriculture onto natural land
- Muti trade
- Loss of biodiversity
- Spread of alien species
### ENVIRONMENTAL MANAGEMENT

- Uncoordinated conservation and land use planning
- Overlapping roles of national, provincial and local government departments
- Private sector support for environmental management
- Uncoordinated approach to the EIA process
- Control of illegal activities
- Government capacity to fulfil their monitoring role
- Government capacity to control activities
- Government capacity for implementation of policies, plans and programs

### POVERTY AND VULNERABILITY

- Economic development and growth
- Education
- Unemployment
- Literacy rate
- Health care provision/access
- HIV/Aids
- Typhoid
- Malaria
- Cholera
- Human settlements
- Provision of services and infrastructure
- Health
- Poverty
- Human Development Index

The applicability of these indicators to the Steve Tshwete Local Municipal Area will have to be determined.
2.6 Legislative and Policy Analysis

2.6.1 Introduction

A wide range of planning guidelines and policy documents apply to the study area. It is important to illustrate the relationship between the various documents as well as the main aim of the various National and Provincial policies.

A wide range of policy documents, acts and guidelines are applicable these include:

- The Local Government: Municipal Structures Act;
- The Local Government: Municipal Systems Act;
- The Local Government: Municipal Demarcation Act;
- The Development Facilitation Act;
- The Urban Development Strategy for the Government of National Unity;
- The Rural Development Strategy of the Government of National Unity;
- The Land Use Planning Bill;
- The Environmental Conservation Act;
- The National Environmental Management Bill;
- The Bio-Diversity Bill;
- The Water Management Act; and

In addition to these policies, acts and guidelines, a number of local plans and ordinances are applicable. These include:

- The Town planning and Townships Ordinance 1986,( Ord. 15 of 1986);
- Relevant Scheme Regulations Promulgated in terms of The Town Planning and Townships Ordinance;
- Black Communities Development Act and its Regulations; and
- District and Local IDP and Spatial Development Frameworks.

For the purpose of the SDF analysis and to provide policy background with respect to urban form and spatial management, the core principles of the Development Facilitation Act, the Nkangala District Municipality Integrated Development Plan have been taken cognisance off.
These policy directives and development principles provide a clear baseline for the formulation of objectives with respect to desired urban form.

2.6.2 Development Facilitation Act (DFA)

The DFA was passed to achieve three key objectives:

- To provide a coherent policy framework for land development, land registration and planning in South Africa according to the "general principles for land development" in Chapter 1 of the Act;
- To speed up and facilitate the approval of land development applications; and
- To provide for a beginning to the overhaul of the existing planning and land development framework.

The general principles for land development are contained in Chapter 1 of the DFA. These are:

- Development in formal and informal, existing and new settlements;
- Discourage the illegal occupation of land; and
- Efficient and Integrated Land Development by:
  - Promoting the integration of the social, economic, institutional and physical aspects of land development;
  - Promoting integrated land development in rural and urban areas in support of each other;
  - Promoting the availability of residential and employment opportunities in close proximity to or integrated with each other;
  - Optimizing the use of existing resources including such resources relating to agriculture, land, minerals, bulk infrastructure, roads, transportation and social facilities;
  - Promoting a diverse combination of land uses, also at the level of individual erven or sub-divisions of land;
  - Discouraging the phenomenon of "urban sprawl" in urban areas and contribute to the development of more compact towns and cities;
- Contributing to the correction of the historically distorted spatial patterns of settlement in the Republic and to the optimum use of existing infrastructure in excess of current needs; and
- Encourage environmentally sustainable land development practices and processes.

° Public Participation
° Capacity Building
° Facilitating developer interaction with government
° Clear laws, procedures and administrative practice
° Sustainable land development which:

- Promote land development that is within the fiscal, institutional and administrative means of the Republic;
- Promote the establishment of viable communities;
- Promote sustained protection of the environment;
- Meet the basic needs of all citizens in an affordable way; and
- Ensure the safe utilization of land by taking into consideration factors such as geological formations and hazardous undermined areas.

° Speedy land development
° No one land use us more important than any others
° Security of tenure
° Co-ordination of land development
° Promotion of open markets and competition.

These principles guide all subsequent planning policies including the entire planning hierarchy. All land use amendments in South Africa have to adhere to these basic principles.

2.6.3 Nkangala District Municipality Spatial Development Framework (2008)

Figure 17 reflects the Nkangala District Spatial Development Framework. The SDF was originally formulated in 2004, and revised in 2007/8 in accordance with the National and Provincial policy perspective. The section below highlights the salient features of the SDF, applicable to Steve Tshwete.
Currently, there are two projects of national significance in the Nkangala District Municipality, namely the **Moloto Corridor Rail Project** and the **Maputo Development Corridor**. These projects are promoted from national level in support of the NSDP and ASGISA.

The Nkangala Spatial Development Framework emphasises the importance of these two projects, as indicted in Figure 17. The SDF promotes intensification of uses and growth of settlements towards these corridors. It furthermore promotes a network of nodes and activity spines in support of the corridors.

Activities capitalising on the economic opportunities associated with the **Maputo Development Corridor** should be encouraged to locate adjacent to the corridor. This could include intensive agriculture, agri-processing and hospitality uses. The significance of the railway lines in the District in terms of export opportunities to the Maputo and Richards Bay harbours should also be promoted. (The Tshwane-Maputo railway line runs parallel to the N4 freeway, and is functionally part of the Maputo Corridor).

The specific section of the R555 between Witbank and Middelburg poses the opportunity for consolidation and enhancement of the economic opportunities in the form of a Local Development Corridor. Desirable land uses along the corridor would include agri-processing, service industries for the agricultural sector, manufacturing, warehouses, wholesale trade, clean industries and hospitality uses.

Furthermore, the SDF promotes the development of a hierarchy of settlements in the District. In line with the principles of the NSDP, these settlements should be strengthened and encouraged to grow towards areas of opportunity, specifically the development corridors. Infrastructure investment should be focused on these settlements to allow them to grow and increase their economic sustainability.

The following hierarchy of settlements is put forward in the District:

- **Primary Service Centres**: Witbank and Middelburg – offering the highest order of goods and services.
- **Secondary Service Centres**: Belfast and Delmas (existing), Siyabuswa and KwaMhlanga (evolving – growth should be stimulated).
- **Third Order Service Centres**: Dullstroom, Machadodorp, Hendrina, Kriel and Waterval-Boven. These centres mainly serve the farming and mining communities in the rural
areas. Service maintenance and local economic development initiatives are essential to ensure that the local economy and functionality of these centres are sustained.

- **Fourth Order Service Centres**: proposed Multi Purpose Service Delivery Centres. The development of these centres is proposed throughout the District, to ensure equitable access to community facilities for all communities, especially the marginalised communities in the rural areas. These centres should be a one stop service centre for basic services required on a regular basis, such as clinics, satellite municipal offices, post offices etc. These centres should also provide for retail, informal trade, residential uses, municipal commonage, and LED project centres to stimulate local economic activities.

As far as **nature conservation and tourism** is concerned, the State of the Environment Report conducted for the NDM, as well as the Provincial Conservation Potential Plan emphasise the sensitive nature of the natural environment and the threats currently posed by tourism, agriculture and mining activities. A fine balance needs to be struck between the necessities of conservation vs. development. This requires the strict adherence to Provincial Environmental Guidelines and principles of sustainable development.

The NDM Spatial Framework makes a number of proposals to enhance the natural assets of the Districts. The extension of the Loskop Dam Nature Reserve and the SS Skosana Nature Reserve is proposed. This system could eventually also be linked to the Mkombo Nature Reserve and Madala Nature Reserve. If properly developed, this belt of conservation areas could serve as a core area around which to develop a future eco-tourism and recreational precinct. Figure 17 illustrates the proposed **tourism or cultural nodes** to be promoted throughout the District.

In principle, tourism facilities should be promoted within this belt, but in terms of the following guidelines:

- Protection of prime agricultural land;
- Ability to provide adequate infrastructure services to the developments;
- Environmental protection; and
- Protection of the rural character and scenic qualities of the area.

The assessment entitled “**Formalisation of Cultural and Historic Sites in the Nkangala District, 2004**” identified an abundance of **sites of cultural historic importance** in the
Nkangala District Municipality, which need to be conserved. These elements should be incorporated into the Spatial Development Frameworks of the Local Municipalities. Conservation Strategies and Guidelines are required per Municipality. In the interim, the Spatial Development Framework should highlight these important features, which are protected by the National Heritage Resources Act, Act no 25 of 1999 to ensure strict enforcement of the Act and protection of these elements.

The agriculture sector is an important economic activity in the Nkangala District which should be protected and promoted through the development of supplementary activities, such as agri-processing.

In the southern regions of the District extensive farming, specifically in the form of crop farming is promoted. Extensive farming is also promoted in the northern regions, for cattle and game farming. Intensive agriculture is promoted along the N4 Maputo Corridor, to capitalise on the access to markets at local and regional level. Eco-tourism, agriculture and forestry are promoted in the eastern regions of the District, in support of the tourism sector.

The north western regions of the District are characterised by subsistence farming and rural residential uses. The initiation of community farming projects is necessary to enhance the agricultural sector in this area and to address the high poverty levels. The mining activities in the south of the region should be enhanced, to contribute to job creation for poor, unskilled workers. The regeneration of power stations would also contribute to the stimulation of the local economy.

As a priority the informal settlements in the District should be formalised and upgraded to ensure that communities have security of tenure and access to basic services in a safe and sustainable living environment. The highest concentrations of informal dwellings are situated in the northwest of the District, in the Thembisile and Dr. JS Moroka Municipalities. There are also large informal settlements situated adjacent to Witbank, Middelburg and Delmas.

The occurrence of business activities in the District is closely related to the hierarchy of settlements. The business activities developed as a result of the demand for goods and services at service centres, such as Middelburg, Witbank, Delmas, Belfast and the smaller villages in the District. The stimulation of business centres in the dormitory residential areas in the north west of the District is however necessary to enable the development of
local economies. This requires strategic intervention in the form of service upgrading and investment programmes.

Despite the fact that the CBDs of both Middelburg and Witbank are well-developed, and represent the two highest order activity nodes in the District, both areas are experiencing rapid decline and require some strategic intervention such as development incentives or restructuring initiatives to be implemented.

As far as industrial activity is concerned, the existing industrial areas in Steve Tshwete (Columbus Steel) and eMalahleni (Highveld Steel) should be maintained and enhanced through service maintenance and upgrading programmes. These industrial areas should be the main focus areas for heavy industries and manufacturing.

The implementation of uniform land use management systems in the various towns and villages through the District is of high priority to manage land uses. This however necessitates a more detailed level of spatial planning for the individual municipalities and specifically the urban areas, than the overall Spatial Development Framework.

2.6.4 Land Use Management Policies and Guidelines

Development in South Africa is broadly guided and directed by a wide range of legislation. Some legislation is discipline specific e.g. housing, transport and environment, while others are more generic in nature, focusing on planning processes, alignment of planning processes and proposals, and the legal requirements pertaining to plans to be compiled.

In addition to existing legislation, a range of national, provincial and local development policies and plans exist to further guide and direct development in South Africa. Three of these, namely the National Spatial Development Perspective (NSDP), the Mpumalanga Provincial Growth and Development Strategy (MPGDS), and the Mpumalanga Rural Development Programme (MRDP) are of particular importance in developing a Development Framework for the Steve Tshwete Local Municipality.

The following section briefly deals with each, and highlights the most important guidelines presented.
2.6.5 NSDP

The National Spatial Development Perspective was initiated in 1999 with the aim of not only providing a strategic assessment of the spatial distribution and socio-economic characteristics of the South African population, but gaining an understanding of the distribution of economic activity and potential across the South African landscape. Based on the research conducted, and with key trends and issues identified, the NSDP currently delineates a number of guidelines for infrastructure investment in South Africa.

The rationale behind the guidelines is rooted in the argument of rather than investing in physical infrastructure to improve the quality of life of people living in low productivity areas, government should rather invest in people. The logic of the latter argument is that investing in people is a more efficient use of government resources. Investing in people potentially results in increased opportunity and choice to relocate to high growth areas. Investing in places can leave people trapped in low growth areas without any guarantee that this will attract new investment into the area.

Hence, in essence, the NSDP argues that government’s social objectives will be best achieved through infrastructure investment in economically sustainable areas with proven development potential. Therefore, areas displaying little or no potential for growth should only be provided with the constitutionally mandated minimum levels of services, and the focus of government spending should rather be on the people, i.e. social development spending. Social development spending may involve developing labour market intelligence, human resource development, and health and social transfers. Crucially, this kind of “development spending” is specifically aimed at enabling the South African youth located in areas in which they have no hope of finding employment, to gradually gravitate to areas with high economic potential.

Consistent with this philosophy, and given the need to reach and sustain an annual economic growth rate of 6% each year, the NSDP argues that resources and collaborative government action should be concentrated on maintaining and growing the economy in the 26 locations currently contributing 83% of the national GVA (see Figure 18). This strategy is supported by the belief that through investing in these areas, the bulk of those living in poverty in South Africa will also be reached (see Figure 19). Currently, Steve Tshwete plays host to one of the 21 functional urban areas with the biggest contribution to the national economy, namely Middelburg.
In this spirit the NDSDP proposes four sets of actions that the various spheres of government should partake in to reach its key economic and social inclusion targets. These are: (1) a set of generic actions such as more robust economic analysis, “proper” spatial development planning and improved monitoring and review; (2) actions aimed at diversifying, strengthening and sustaining the economy and improving the integration between spaces of need and economic activity in the areas of significant economic activity, high concentrations of people and high levels of poverty; (3) focused economic development actions in the areas with low levels of economic activity, high concentrations of people, and high levels of poverty; and (4) supportive actions to be undertaken by each of the spheres of government to give effect to the objectives of the State.

Following from the broad philosophy and actions put forward by the NSDP, various principles to guide development decisions have also been formulated. A brief summary of these principles is given below:

- Economic growth is a prerequisite for the achievement of other policy objectives, key among which would be poverty alleviation.
- Government spending on fixed investment, beyond the constitutional obligation to provide basic services to all citizens (such as water, electricity as well as health and educational facilities), would therefore be focused on localities of economic growth and/or economic potential in order to attract private-sector investment, stimulate sustainable economic activities and/or create long-term employment opportunities.
- Efforts to address past and current social inequalities should focus on people, not places. In localities where there are both high levels of poverty and development potential, this could include fixed capital investment beyond basic services to exploit the potential of those localities.
- In localities with low development potential, government spending, beyond basic services, should focus on providing social transfers, human resource development and labour market intelligence. This will enable people to become more mobile and migrate, if they choose to, to localities that are more likely to provide sustainable employment or other economic opportunities.
- In order to overcome the spatial distortions of apartheid, future settlement and economic development opportunities should be channelled into activity corridors and nodes that are adjacent to or link the main growth centres. Infrastructure investment and development spending should primarily support localities that will become major
growth nodes in South Africa and the Southern African Development Community region to create regional gateways to the global economy.

By applying and contextualising the NSDP in the Province, the following spatial construct emerges for the Nkangala District Municipality and Steve Tshwete Local Municipality from the Mpumalanga Growth and development Strategy (2007) in terms of variations in social need (poverty), economic activity (potential) and environmental sensitivity (See Figure 20, and Tables 43 and 44). (The Mpumalanga Provincial Growth and Development Strategy is dealt with in greater detail in section 2.6.6 below).

Table 43: NSDP Classification for selected Municipalities in Nkangala

<table>
<thead>
<tr>
<th>NSDP Classification</th>
<th>Meso-Zone No</th>
<th>% of DM</th>
<th>% of Province</th>
<th>Municipal Code</th>
<th>Municipal Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>(A) High Levels of Economic Activity (Potential)</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>MP311</td>
<td>Delmas LM</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td></td>
<td></td>
<td>MP312</td>
<td>Emalahleni LM</td>
</tr>
<tr>
<td></td>
<td>11</td>
<td></td>
<td></td>
<td>MP312</td>
<td>Emalahleni LM</td>
</tr>
<tr>
<td></td>
<td>11</td>
<td></td>
<td></td>
<td>MP313</td>
<td>Steve Tshwete LM</td>
</tr>
<tr>
<td>(B) High Levels of Poverty Concentrations</td>
<td>1</td>
<td>16</td>
<td>44</td>
<td>MP316</td>
<td>Dr JS Moroka LM</td>
</tr>
<tr>
<td></td>
<td>16</td>
<td></td>
<td>42</td>
<td>MP313</td>
<td>Steve Tshwete LM</td>
</tr>
<tr>
<td></td>
<td>16</td>
<td></td>
<td>14</td>
<td>MP314</td>
<td>Emakhazeni LM</td>
</tr>
<tr>
<td></td>
<td>44</td>
<td></td>
<td></td>
<td>MP314</td>
<td>Emakhazeni LM</td>
</tr>
<tr>
<td></td>
<td>42</td>
<td></td>
<td></td>
<td>MP312</td>
<td>Emalahleni LM</td>
</tr>
<tr>
<td></td>
<td>14</td>
<td></td>
<td></td>
<td>MP312</td>
<td>Emalahleni LM</td>
</tr>
<tr>
<td>(C) Area of Combined Poverty and Economic Activity</td>
<td>15</td>
<td>15</td>
<td>41</td>
<td>MP312</td>
<td>Emalahleni LM</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td></td>
<td>41</td>
<td>MP313</td>
<td>Steve Tshwete LM</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td></td>
<td>41</td>
<td>MP316</td>
<td>Dr JS Moroka LM</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td></td>
<td>4</td>
<td>MP315</td>
<td>Thembisile LM</td>
</tr>
<tr>
<td></td>
<td>41</td>
<td></td>
<td>4</td>
<td>MP315</td>
<td>Delmas LM</td>
</tr>
<tr>
<td></td>
<td>46</td>
<td></td>
<td>4</td>
<td>MP312</td>
<td>Thembisile LM</td>
</tr>
<tr>
<td>(D) Environmentally Sensitive/Irreplaceable</td>
<td>N/A</td>
<td></td>
<td></td>
<td>MP314</td>
<td>Emakhazeni LM</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>MP313</td>
<td>Steve Tshwete LM</td>
</tr>
</tbody>
</table>

Table 44: Business Function Index in the Nkangala Area

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Human Settlements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human Settlements with a Business Function Index of more than 1:</td>
<td>Witbank; Middelburg; Delmas; and Belfast</td>
</tr>
<tr>
<td>High Levels of Formal Local Economic Activity; High Dependence on surrounding Area for resource inputs;</td>
<td></td>
</tr>
</tbody>
</table>
Constitutes the first & second order/primary & secondary economic activity nodes

| Human Settlements with a Business Function Index of less than 1: | Siyabuswa  
Ga-Rankuwa  
Belfast  
Dullstroom  
Kriel  
Ogies  
Kwamhlanga  
Hendrina  
Sundra  
Machadodorp  
Marapyane  
Coalville  
Vandyksdrif  
Rietkuil  
Verena  
Balmoral  
Bamokgoko  
Stoffberg |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Levels of Formal Local Economic Activity;</td>
<td></td>
</tr>
<tr>
<td>High Dependence on higher order Settlements for specialised goods and services;</td>
<td></td>
</tr>
<tr>
<td>High Levels of Public Sector Investment</td>
<td></td>
</tr>
</tbody>
</table>
• Large-scale urban informal settlements are found in Witbank and Middelburg and their growth rate is increasing due to the rate of economic growth experienced in this area.

2.6.6 Mpumalanga PGDS

Another important government initiative implemented during the past few years is the Provincial Growth and Development Strategy programme. The Provincial Growth and Development Strategies were compiled within the parameters set by the National Spatial Development Perspective, as well as the Integrated Sustainable Rural Development Strategy as defined by national government.

A PGDS is a “strategic and integrated provincial development plan that provides direction and scope for province-wide development programmes and projects, within the context of a long-term perspective and taking into consideration resources available and constraints.” Furthermore, a PGDS provides “a spatially referenced framework for both public and private sector investment, indicating areas of opportunity and development priorities and enabling intergovernmental alignment.” In essence then, the Provincial Growth and Development Strategies are aimed at providing strategic directives to District and Local Municipalities in formulating their more detailed Integrated Development Plans (IDPs), and Spatial Development Frameworks (SDF). It is thus essential that the issues and directives emanating from PGDSs’ be compatible with the vision, priority areas, and guidelines of SDFs.

In light of the above, the following trends, challenge, areas of opportunity, and development directives as identified by the Mpumalanga PGDS (2\textsuperscript{nd} Edition, September 2007, p.60-61) are applicable to the Steve Tshwete Local Municipality, and should be taken into consideration.

2.6.6.1 Trends

- Significant portion (29%) of the province’s population is concentrated in the District, specifically areas such as Middleburg.
- Significant concentrations of people living under the Minimum Living Level (MLL) occur within the District, and tend to coincide with the old apartheid proclaimed TBVC states. Steve Tshwete is no exception, and specific areas of concentration include Middelburg, and Hendrina.
The most significant concentrations of economic activity and growth are found in Emalahleni and Steve Tshwete Local Municipalities. Specific areas of concentration and growth within Steve Tshwete include Middelburg, Clewer, Hendrina and Rietkuil-Arnott.

Mining and manufacturing are the main contributors to the province’s gross value added, with the prominent areas being Emalahleni (Witbank) and Steve Tshwete (Middelburg).

2.6.6.2 Challenges and Opportunities

Most of the challenges stem from the severe poverty faced by many in the Province, and the high inequality between the rural poor, under-serviced townships and informal settlements and well-serviced urban centres. The growth and development opportunities and challenges faced by the Nkangala District can be summarized in a few distinct, but interrelated categories, and include inter alia:

Table 45: Challenges and Opportunities

<table>
<thead>
<tr>
<th>Opportunities</th>
<th>Challenges</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Strong industrial, mining and agricultural</td>
<td>• Growing land surface degradation, ground water and air pollution due to</td>
</tr>
<tr>
<td>economic base.</td>
<td>coal mining related activities (electricity generation, manufacturing,</td>
</tr>
<tr>
<td></td>
<td>steel and petro-chemical).</td>
</tr>
<tr>
<td>• Extensive road and rail networks.</td>
<td>• Serious lack of access to land, by government, for low income residential</td>
</tr>
<tr>
<td></td>
<td>development.</td>
</tr>
<tr>
<td>• Strategic location of Middelburg and Witbank</td>
<td>• Mining activity destroying valuable agricultural land.</td>
</tr>
<tr>
<td>adjacent to the N4 Maputo Development Corridor.</td>
<td></td>
</tr>
<tr>
<td>• Extensive coal and chrome mineral deposits.</td>
<td>• Dangerous state and lack of provincial and local road maintenance due to</td>
</tr>
<tr>
<td></td>
<td>Coal Haulage – poses a serious road safety risk.</td>
</tr>
<tr>
<td>• Location and proximity to Gauteng market.</td>
<td>• Slow pace of Land Claims (Reform), that hinders development across the</td>
</tr>
<tr>
<td></td>
<td>entire district on areas earmarked for development.</td>
</tr>
<tr>
<td>• Growing transport and logistics sector.</td>
<td>• Rapid growth of informal settlement formation around formal urban areas.</td>
</tr>
<tr>
<td></td>
<td>• Dangerous state and increased traffic volumes on the Moloto Road, linking</td>
</tr>
<tr>
<td></td>
<td>the broader Kwamlanga Area with Tshwane in Gauteng (residents rely on</td>
</tr>
<tr>
<td></td>
<td>economic opportunities – mostly in Tshwane).</td>
</tr>
<tr>
<td></td>
<td>• Slow pace of transfer of land and home ownership – especially in the</td>
</tr>
<tr>
<td></td>
<td>former.</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Bantustan areas of Ndebele (i.e. Dr JS Moroka and Thembisile).</strong></td>
<td><strong>High levels of unemployment, mainly due to a shortage of appropriate skills.</strong></td>
</tr>
<tr>
<td><strong>Especially towards the northwest – dispersed settlement patterns, raising the costs of service delivery and infrastructure provision.</strong></td>
<td><strong>Migration of people from rural areas to Steve Tshwete and Emalahleni in search of employment.</strong></td>
</tr>
<tr>
<td><strong>Availability of regional water, waste management and landfill sites.</strong></td>
<td><strong>Housing backlogs: approximately 89 500 units.</strong></td>
</tr>
</tbody>
</table>

### 2.6.6.3 Provincial Development Directives

Flowing out of a thorough SWOT analysis and identified trends, the Province has identified **six priority areas of intervention** as part of the PGDS, namely:

- **Economic Development** (i.e. investment, job creation, business and tourism development and SMME development);
- **Infrastructure Development** (i.e. urban/rural infrastructure, housing and land reform);
- **Human Resource Development** (i.e. adequate education opportunities for all);
- **Social Infrastructure** (i.e. access to full social infrastructure);
- **Environmental Development** (i.e. protection of the environment and sustainable development); and
- **Good Governance** (i.e. effective and efficient public sector management and service delivery).

Supplementary to the above, the PGDS also formulated the following provincial specific principles:

- **Broadening the Economic Base.** The province will continue to promote economic growth by keeping the unnecessary costs of doing business in the province as low as possible. But it will also work to change structural dynamics in the space economy that prevent all residents from enjoying the fruits of economic growth. In future, ‘accelerating economic growth’ and ‘ensuring that the benefits of growth are shared more broadly’ will not be separate priorities: instead the rate of economic growth will itself be driven by a process of spreading the benefits of growth;
- The recognition of the presence of strong east-west but weak north-south linkages;
• The recognition of an interdependent network of settlements, of varying sizes and functions; and
• Harnessing and protecting irreplaceable and highly significant environmental areas.

Five provincial flagship projects were also identified. These include:

- Heritage, Greening and Tourism Promotion.
- Water for All.
- Maputo Corridor.
- Moloto Corridor.
- Capacity Building.

The Heritage, Greening and Tourism Promotion initiative is specifically applicable to the northern parts of the District which hold some prominent tourism precincts. The Water for All initiative applies to all disadvantaged communities within Nkangala who do not have access to water in line with their Constitutional rights. Both the Maputo and Moloto Corridors run through the Nkangala District and the District has a critical role to play towards the successful implementation of both of these.

Capacity Building and Human Resource Development is of paramount importance throughout Mpumalanga Province, and even more so in the Nkangala District given its high levels of unemployment and service backlogs.

In line with strengthening the intergovernmental planning system and to ensure that there is sustainable growth and development in the province, the PGDS has adopted the following as guiding posts:

• Internationally, the United Nation’s Millennium Development Goals (MDGs) (see Table 46); and
• Nationally, the Accelerated and Shared Growth Initiative for South Africa (ASGISA) and the National Spatial Development Perspective (NSDP) of South Africa.

**Table 46: The UN Millennium Development Goals**

<table>
<thead>
<tr>
<th>Goal</th>
<th>Targets</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Eradicate extreme poverty and hunger</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Achieve universal primary education</td>
</tr>
</tbody>
</table>
3 Promote gender equality and empower woman

4 Reduce child mortality

5 Improve Maternal Health

6 Combat HIV/AIDS, Malaria, and other diseases

7 Ensure Environmental Sustainability

8 Develop a Global Partnership for development

9 Integrated the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources

10 Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation

11 Have achieved by 2020 a significant improvement in the lives of the least 100 million slum dwellers

12-18 For comprehensive set of targets, please refer to the Millennium Development Goals of the United Nations

The **Accelerated and Shared Growth Initiative for South Africa (ASGISA)** has identified a series of decisive interventions to ensure that South Africa achieves the set growth rate (6%) needed to meet its social objectives. The interventions have been classified into six categories:

- Infrastructure programmes;
- Sector investment (or industrial) strategies;
- Skills and education initiatives;
- Second economy interventions;
- Macro-economic issues; and
- Public administration issues.

Nationally significant provincial infrastructure projects in Mpumalanga with relevance to the Nkangala District Municipality include:

- The Moloto Corridor Rail Project; and
- The Maputo Development Corridor
Furthermore, the following infrastructure projects and “Programmes of Action” are applicable to the Province in general, and include inter alia:

- Upgrading of the Further Education and Training colleges;
- Improving the availability and reliability of infrastructure services such as provincial and local roads, bulk water infrastructure and water supply networks, energy distribution, housing, schools and clinics, business centres, and sports and recreation facilities;
- The development and implementation of multi-purpose government service centres, including police stations, courts and correctional facilities;
- Maximum exploitation of agricultural potential and opportunities;
- Promotion of the arts and culture industry;
- Tourism growth promotion and the preservation and development of heritage sites;
- Export promotion;
- SMME development;
- Extended Public Works Programme (EPWP);
- Local Economic Development (LED);
- Urban and Rural Development Programme; and
- Environmental management.

2.6.7Mpumalanga Rural Development Programme (MRDP)

The Mpumalanga Rural Development Programme (MRDP) was established in 2001, coordinated by the office of the Premier and technically supported by the German Technical Cooperation (GTZ) and the German Development Service (DED). The main objective of the Programme is to contribute towards an “improvement of the social and economic situation of the rural poor.” The programme focuses on the creation of income and employment in rural areas.

The key concepts of the programme include:

- Self reliance/empowerment: strengthen the self-help capabilities of the communities and emphasise development planning;
- Economic growth: encourage local economic development, employment and income generation through the promotion of small and micro-sized rural enterprises and the participation of the private sector;
- Sustainability: improve viable and sustainable natural resource utilisation;
Outreach: upgrade and broaden the facilitation of government services to the impoverished;
Capacity building: strengthen, advise and train service providers;
Innovation: develop innovative concepts for public service delivery;
Mainstream: get innovations on track;
Coping with HIV/Aids: plan, design and implement relevant strategies in order to cope with HIV/Aids; and
Stakeholder participation: ensuring participation by all concerned.

It is important for Steve Tshwete to incorporate the concepts and principles of this plan into a Development Framework for the municipal area.

2.6.8 Conclusive Summary

Essentially, the objective of the NSDP, MPGDS, MRDP, and ASGISA is to guide development spending within the municipality so as to ensure alignment with national and provincial objectives. Thus, the policies and principles advocated by these documents endeavour to set in place a framework for equitable socio-economic development throughout the country. Such an approach is aimed at ensuring that South Africa's key growth points are optimally leveraged via the correct “type” of development spending taking place in the “right” areas.

Hence, from a local perspective, the above mentioned documents aim to guide growth within Steve Tshwete in a manner that will leverage provincial assets and “hot-spots” to the benefit of national goals and objectives. Whilst setting a common vision for national growth via generic principles and objectives, the NSDP, MPGDS, and MRDP moves away from “blueprint” physical planning to “normative” development planning. Applying the philosophy and generic principles of these documents to the Steve Tshwete LM, two key guiding principles emerge:

1) Urban growth and development should strive to amend the apartheid-space-economy. This entails spatially linking and improving the integration between spaces of “need” and spaces of “economic activity” into a functional whole within Steve Tshwete via:
a. **Consolidating** “well-located” existing urban areas / informal settlements (e.g. Thembisa) through service upgrading into a network of linked primary and secondary nodes;

b. **Channelling new growth** towards and alongside the N4 Maputo Development Corridor, and other functionally import roads in the LM (e.g. N11, R55, R35, and the R38);

c. **The incremental growth of existing urban areas**, rather than new greenfield developments that are far removed from existing infrastructure and economic activity;

d. **Focusing infrastructure spending in economically sustainable areas** with high grow potential, i.e. in and around primary and secondary activity nodes such as Middelburg, Hendrina, Clewer, and Rietkuil-Arnott; and

e. **Only providing the constitutionally mandated minimum levels of services** in areas displaying little or no potential for growth. Hence, focus should rather be on social development spending, i.e. providing education, health and social services and facilities within the Municipalities under-serviced townships and informal settlements. Investing in people potentially results in increased opportunity and choice to relocate to high growth areas as economically contributing individuals and not as urban poor.

f. **Focusing infrastructure spending on:**
   - Key provincial and local roads;
   - Energy distribution;
   - Bulk water infrastructure and water supply networks;
   - Housing;
   - Education and Health facilities;
   - Sport and Recreation Facilities;
   - Business Centres;
   - Multi-purpose government centres; and
   - Electronic communications.

2) Local, provincial, and national assets falling within the municipal area of Steve Tshwete should be leveraged and exploited, whilst still maintaining a diversified economy to lessen Steve Tshwete’s susceptibility to macro-economic influences via:
a. **Utilizing the spatial attributes** offered by the N4 Maputo Development Corridor to stimulate economic growth and development of manufacturing and transportation activities to reduce reliance on a declining mining sector;

b. **Focused development spending and infrastructure investment** in and around areas housing major industrial, manufacturing, and electricity generating concerns such as Columbus Steel and Eskom power plants. These represent not only Steve Tshwete’s competitive advantage, but that of the District and the Province;

c. **Protecting valuable agricultural land** located northwards of the N4 for commercial farming and agri-processing purposes;

d. **Preventing environmental and natural resource degradation** by:
   i. Not allowing current development pressures to take preference over long term sustainability;
   ii. Exploiting tourism potential in and around existing nature reserve areas such as Botshabelo and Loskop Dam; and

e. **Improved monitoring and review** of Steve Tshwete’s IDP, SDF, and LED Strategy to ensure alignment with provincial and national goals and objectives.

In essence, development spending should gravitate towards, and along the N4 Maputo Development Corridor, and other prominent roads within the Municipality towards the core functional urban area – Middelburg.

**CHAPTER 3: VISION & PLANNING PRINCIPLES**

### 3.1 Introduction

**Chapters 1 and 2** of the report outline the legislative content and planning process as well as the analysis, constraints and opportunity of the study area. In order to address these constraints, development objectives should be formulated based on the development vision for the study area. These development objectives give effect to the desired spatial form of the study area and provide overall guidance to the Municipality, land owners and developers.
The general policy direction for development for the Steve Tshwete Local Municipal area has been formulated in broad terms as part of the Integrated Development Plan Process. This IDP process includes prioritisation, vision formulation and strategies and objectives to achieve the vision. The municipality is regarded as development orientated, facilitating and dynamic. Therefore, for the purpose of the Spatial Development Framework for Steve Tshwete Municipality, the municipal vision is used as a basis for formulating spatial development objectives. Using the existing vision, which is based on an extensive prioritisation process, will provide synergy and coherence to the planning process and its results.

Chapter 3 of the SDF outlines the municipal and SDF vision for the study area, principles for a desired spatial form on a macro level and objectives to give effect to the desired spatial form.

3.2 Vision and Mission

The vision and mission for the Steve Tshwete Municipality as adopted as part of its IDP revision process (2003) are as follows:

**Vision for the Steve Tshwete Municipality**
To remain the Masakhane leaders of South Africa.
Simply the best in service delivery.

**Mission**
To consolidate and build on the achievements since 1994 in improving the delivery of services to all our communities irrespective of where they are situated and focus on working in partnership with our stakeholders to ensure affordable, efficient, accessible and quality services to the majority of the community.

3.3 Desired Spatial Form

The Spatial Development Framework Process should adopt a strategic approach towards land use management, and in particular the future desired spatial form. This strategic approach relates directly to the management of spatial development, which forms an integral part of the Municipality’s Integrated Development Planning process.
The spatial form, strategic approach and objectives that give effect to the desired spatial form are guided by a number of policy directions, and national legislative initiatives. The most important with respect to the desired spatial form are the Nkangala District Municipality Spatial Development Plan and the General principles as contained in Chapter 1 of the Development Facilitation Act.

The general policy direction for the study area should include the principles of:

- Sustainable land use;
- Improved environmental management;
- Integrated development; and
- Efficient land development.

Towards this end, the desired spatial form for the study area is based on the following principles:

- The need to conceptualise the hierarchy, importance and sustainability of settlements in the region;
- The need to focus on what is achievable in development terms and how this relates to spatial development proposals;
- The need to direct investment towards areas of highest impact and return and to distinguish between different levels of investment;
- To accept the need for cost effective investment on all levels;
- To accommodate urban development and population growth in the most cost effective and sustainable way possible;
- To adequately prioritise investment of scarce resources;
- Stimulate and focus on developing nodes and corridors where economic opportunities and resources exist;
- Link, integrate and co-ordinate investment to maximise benefit and achieve a co-ordinate effort; and
- To link spatial expenditure (basic infrastructure) with spin-offs from economic development wherever possible.
3.4 Objectives

Based on the findings of the legislative and policy analysis and directives with respect to desired spatial form and realising the municipal vision, the following broad development objectives for spatial development and land use management in the municipal area are outlined. These objectives should be read in conjunction with the spatial development strategies (Chapter 4) and the land use policies and guidelines (Chapter 5).

3.4.1 Efficient and Integrated Land Development

Policy, administrative practise and town planning regulations should promote efficient and integrated land development by:

- Promoting the integration of the social, economic, institutional and physical aspects of land development;
- Promoting integrated land development in rural and urban areas in support of each other;
- Promoting the availability of residential and employment opportunities in close proximity to or integrated with each other;
- Optimising the use of existing resources including such resources relating to agriculture, land, minerals, bulk infrastructure, roads, transportation and social facilities;
- Promoting a diverse combination of land uses, also at the level of individual erven or sub-divisions of land;
- Discouraging the phenomenon of “urban sprawl” in urban areas and contribute to the development of more compact towns and cities;
- Contributing to the correction of the historically distorted spatial patterns of settlement in the Republic, and to the optimum use of existing infrastructure in excess of current needs, and
- Encourage environmentally sustainable land development practices and processes.

3.4.2 Sustainable Development

The municipality should ensure that development or land use plans meet the needs of the current population. Planning should ensure that development does not cause irretrievable loss
to significant natural, historical, cultural and archaeological resources or other important environmental assets.

The municipality should further ensure that its planning does not prejudice the ability of future generations to meet their needs or enjoy a quality of life at least equivalent to that available to people today.

Where the demand for development will breach the principles of sustainable development it should not be approved. Where there is uncertainty about the impacts of a development the precautionary principle should be applied.

The precautionary principle means that if there is uncertainty about potential environmental constraints, a more cautious position is adopted.

This may result in more onerous conditions being placed on the development. Where knowledge gaps exist, these are noted and where appropriate, recommendations made for further studies. The precautionary approach means avoiding risk through a cautious approach to development and environmental management.

In implementing this guideline the municipality should ensure that policy, administrative practice and town planning regulations promote sustainable development at the required scale in that they should:

- Promote land development which is within the fiscal, institutional and administrative means of the Municipality;
- Promote the establishment of viable communities;
- Promote sustained protection of the environment;
- Meet the basic needs of all citizens in an affordable way; and
- Ensure the safe utilization of land by taking into consideration factors such as geological formations, mining land and areas susceptible to flooding.
3.4.3 Protection and Enhancement of the Environment

Sustainable Development Strategy

In order to ensure sustainable development within the Steve Tshwete Local Municipal Area, a Biodiversity Management Plan should be developed.

The main objective of this project would be to gather sufficient site-specific data on the ecosystems associated with the said area. Aspects such as soil, vegetation, fauna (reptiles, amphibians, birds, and small mammals), water quality or invertebrates could be assessed jointly along with existing or new developments.

Information on the relevant aspects can then be presented in a suitable format that allows an overlay between aspects to facilitate integrated decision-making.

The Steve Tshwete Local Municipality should then be able to identify the potential direct impacts of their activities on biodiversity, assess the risks, and take action to minimize negative and maximize positive effects, through the implementation of a Biodiversity Management Plan.

The project could be divided into the following deliverables:

- **Deliverable 1**: Determine current biodiversity/Present Ecological Status (Ecosystem approach).
- **Deliverable 2**: Compile a biodiversity management plan.
- **Deliverable 3**: Ecosystem/Biodiversity monitoring (feedback and compliance to management plan as developed in Deliverable 2).

**DELIVERABLE 1: Current Biodiversity Status (CBS)/Present Ecological Status (PES)**

The following aspects should be assessed:
An ecosystem approach should be followed, thus assessing the organisms and their environment (interactions towards each other, their habitats and humans). This should be done for all important components of the ecosystem e.g.:

<table>
<thead>
<tr>
<th>Soil</th>
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<tbody>
<tr>
<td>Vegetation (grass, herbs, shrubs, trees, alien plants, wetland and riverine vegetation)</td>
</tr>
<tr>
<td>Invertebrates (terrestrial and aquatic)</td>
</tr>
<tr>
<td>Vertebrates (Ichthyofauna/fish, Amphibians, Reptiles, Birds, Mammals)</td>
</tr>
</tbody>
</table>

**DELIVERABLE 2: Biodiversity Management Plan/Bioregional Plan**

A management plan concerning the biodiversity within the said area along with any development proposals and human impacts should be compiled.

The following aspects should be included in this plan:

| Best land practise (low erosion, limit habitat destruction). |
| Bio-prospecting possibilities. |
| Sustainable use of resources (grass-thatching, wood-fuel/building material). |
| Habitat requirements of biota. |
| Water quality requirements of biota. |
| Air pollution, noise pollution and other human effects on biota. |
| Aliens/invasive spp. eradication/prevention practices (use by local communities). |
| Legal aspects. |

In addition, an information handling and presentation system, with which the various components of the ecosystem could be assessed along with the development plan(s), should also be developed as part of this management plan.
DELIVERABLE 3: Ecosystem/Biodiversity Monitoring

Ecosystem/biodiversity monitoring is of great importance to feedback into the Biodiversity Management Plan/Bioregional Plan:

A long-term biodiversity-monitoring programme should be developed utilising the baseline data as a reference condition to monitor future changes in biodiversity/ecological integrity.

Biotic indices (such as the Index of Biotic Integrity (IBI)) for the different biological components should be developed and used to enable quantification of changes. This would provide feedback on the compliance with management objectives as set in the management plan.

In this way, the Steve Tshwete Local Municipality could monitor sustainability (due to development and utilization) of resources, biodiversity/ecological status, species with high conservation status and areas of national/international importance.

The Biodiversity Management Plan/Bioregional Plan would provide valuable information required by the authorities in support of water licence applications, Environmental Impact Assessments (EIA’s), etc.

Development should not be permitted if it will:

- Damage or degrade valuable natural resources and/or sensitive eco-systems such as wetlands, rivers and streams, special plant communities and habitats of threatened species of fauna and flora;
- Cause unacceptable visual damage;
- Cause unacceptable pollution of air, water or land, or nuisance by way of smell, noise or light;
- Cause or increase danger, from flooding, erosion or road traffic;
- Destroy, sterilize or prejudice the use or enjoyment of an important resource, such as the best agricultural land, water, landscape, townscape, wildlife, cultural or historic sites and objects, recreational assets or potential, or tranquility-, or
- Be inefficient in the use of water or other natural resources, or impose an unacceptable load on existing or potential water supplies and other natural resources.
The Municipality should carry out measures to enhance the urban and rural environment, and must encourage developers to implement policies, which enhance the local environments adjacent to their development. Environmental Management Regulations should form part of all application for all major development as stipulated by legislation.

3.4.4 Discourage Illegal Land Use

The Steve Tshwete Local Municipality should discourage the illegal use of land. Illegal land use results in a fragmented land use pattern, creates conflict and infringe on land use rights.

As people are protected from being illegally evicted, the Municipality should focus on ways to prevent illegal land use practices. Sound planning guidelines and speedy land developments are key mechanisms to prevent illegal land use practices.

3.4.5 Efficient Public Participation and Capacity Building

The objective requires that the Municipality should introduce mechanisms to ensure that the public, and in particular communities affected by land development, have opportunities to influence planning decisions.

The objective furthermore suggests that there are opportunities for the development of skills among community members of disadvantaged groups. These opportunities should be exploited.

3.4.6 Facilitating Developer Interaction with the Municipality

This objective is to ensure that the full resources of the region are utilized in facilitating land development. The underlying idea is a public-private sector partnership because neither sector on its own has the skills or capacity to do the job on their own.

3.4.7 Clear Guidance, Procedures and Administrative Practice

Guidelines, procedures and administrative practice relating to land development should:

- Be clear and generally available to those likely to be affected thereby;
In addition to serving as regulatory measures, also provide guidance and information to those affected thereby;

- Be calculated to promote trust and acceptance on the part of those likely to be affected thereby; and
- Give further content to the fundamental rights set out in the Constitution.

The purpose of this objective is to encourage a positive and constructive relationship between the public authority and those outside of government who are involved in land development. Rather than public authorities just acting as regulators, the objective requires them to prepare legislation and procedures and adopt administrative approaches in a way that helps others who are involved in land development.

This requires user-friendly information that facilitates development, not sets of rules that indicate all the things that cannot be done. Also, the reasons for decisions should be made available to the public in a way that is easy to understand.

### 3.4.8 Speedy Land Development

All policies, administrative practices and regulations for land development written by the Municipality should focus on ways of making planning and development processes quick. The slow processes of the past discouraged the private and non-government sectors from participating in land development. Slow processes make the costs of development projects much higher.

### 3.4.9 No one land use is more important than any others

Each proposed land development area should be judged on its own merits and no particular use of land, such as residential, commercial, conservational, industrial, community facility, mining, agricultural or public use, should in advance or in general be regarded as being less important, or desirable than any other use of land.

This guideline states that no one land use is more important than any other, so no land use should be favored above any others. Decisions about land uses must be based on sound planning where a number of different factors, such as population projections, economic growth strategies, the environment and other factors are taken into account. The reason for this guideline is that in the past it was assumed that mining, conservation or agricultural land
uses were the most important for the country. This resulted in enormous constraints to developing land for other uses. This guideline recognizes that not all necessary activities are protected by the mechanism of the land market. It therefore requires the Municipality to consider a full range of possible activities and the suitability of the land when they draw up plans.

3.4.10 Security of Tenure

This objective requires that the tenure that is provided through the land development process must meet certain criteria. Firstly, it should be secure. This means it must be possible to register the title to the land. Secondly, there should be a range of choices about the type of tenure to include options for communal or group tenure. Sometimes the upgrading of informal settlements might mean that people who have settled informally may have to move. The third criterion says that in informal settlement upgrading schemes where people are deprived of the land on which they have settled, they should be offered an alternative such as other accommodation or financial compensation.

3.4.11 Co-ordination of Land Development

The objective is to clarify that it is the Municipality's responsibility to co-ordinate the interests of different sectors, interest groups and stakeholders in land development. The Municipality must also ensure that the outcomes of land development processes benefit the public at large, rather than one particular sector or interest group. In doing so they must also make sure that any public resources that are committed benefit the public at large. For example, the decision to build a new road may not just benefit a few people. More than anything else, it calls for the Municipality to engage in strategic planning.

The Municipality must take a lead in resolving or conflicts that arise between the different sectors and interest groups around land development projects.

3.4.12 Promotion of Open Markets and Competition

This objective recognizes that to encourage and facilitate the Municipality's involvement in land development, it should not interfere in the normal operations of the market. For example, it would not be appropriate to make laws about prices for developed land. So any
regulations, policy positions and frameworks prepared by the Municipality should recognize market principles.

However, unless there is true competition, the market will be dominated by a small number of businesses which will be able to set high prices. The policies and development frameworks which are formulated by municipal officials must try to prevent price-fixing and other forms of monopolistic control of the market and always encourage competition.

Council should also not interfere with the free market by subsidizing the development of land thereby competing unfairly with private developers. Therefore, serviced stands should e.g. be sold at market related prices so as to ensure that Council will be in a position to replace the stands sold. Furthermore, Council should rather focus on Public Private Partnerships, thereby optimizing the inputs from the private sector developing the spatial environment jointly.

CHAPTER 4: SPATIAL DEVELOPMENT STRATEGIES

4.1 Introduction

The formulation of a spatial development strategy for the Steve Tshwete Spatial Development Framework forms a prominent part of the abovementioned study and should:

- Indicate future areas for expansion of residential, community facilities, industrial, business, resort development and other activities;
- Indicate the urban edge; and
- Provide guidance with respect to areas of highest impact and priority projects.

4.1.1 Guiding Principles

The purpose of the spatial development framework is to give direction to future planning and development in the Steve Tshwete Local Council. This framework thus has to integrate the spatial manifestation of the various components of the urban structure. The spatial development framework also has to conform to the general principles for spatial development outlined in the Development Facilitation Act. These principles are:
(i) Promote the integration of the social, economic, institutional and physical aspects of land development;

(ii) Promote integrated land development in rural and urban areas in support of each other;

(iii) Promote the availability of residential and employment opportunities in close proximity to or integrated with each other;

(iv) Optimise the use of existing resources including such resources relating to agriculture, and minerals, bulk infrastructure, roads, transportation and social facilities;

(v) Promote a diverse combination of land uses, also at the level of individual erven or sub-divisions of land;

(vi) Contribute to the correction of the historically distorted spatial patterns of settlement in the Republic and to the optimum use of existing infrastructure; and

(vii) Encourage environmentally sustainable land development practices and processes.

4.1.2 Towards Integration: The Semi-Lattice Urban Development Concept

A concept of urban form, which is currently regarded as most conducive to increasing urban performance in both local and international planning circles, is the semi-lattice concept. It can be regarded as a combination of the nodal and the development axis concepts, since it proposes the creation of a structuring framework (or backbone) for urban development consisting of different order nodes being interconnected by development axis. This axis or so called development spines are focus areas for dense mixed land use development.

The rationale behind implementing a semi-lattice system consisting of activity corridors (and activity spines) and interconnecting nodes of different order is as follows:

- **To create a structuring framework for urban development**, whereby ad-hoc decision-making which distracts from logical urban form and legibility can be kerbed. Since urban sprawl is partly manifested by the haphazard location of major traffic generators such as shopping centres, office industries and housing a pro-active corridor development will promote a more concentrated and spatially ordered development philosophy with a clear indication of higher and lower intensity development areas.

- **To create an urban structure conducive to the implementation of an unsubsidized effective and efficient public transportation system** that serve all citizens (rich and poor) conveniently. The location of mostly higher order land uses, as well as high
density residential development alongside specific routes. These routes now serve as channels for different types of public transportation modes since a high degree of people and activities are focused on these routes.

- Urban development in this fashion also **enables different public transportation modes to support each other** more logically than is currently the case. Current planning practices result in environments that cannot for the most part be serviced by public transport effectively. Densities are too low, and higher order land uses are spread in an illogical fashion throughout the urban structure.

- **To create opportunities for small and medium enterprise** to be visible and accessible to passing traffic. Currently, most shopping facilities are concentrated in nodes, situated at the intersections of major transportation routes. These spaces are monopolized to a great extent since few small businesses can afford rent in these locations. Furthermore informal trading on these premises is usually unwanted. This situation makes it difficult for small and medium enterprises to get exposure to the market that they need for survival. By allowing direct access and a mixture of land uses on the transportation routes between nodes, smaller businesses obtain exposure to exposed or otherwise impenetrable trade markets.

- **To effectively integrate sectors.** The essence of activity corridors is their linear form, which enables integration to a greater and more practical extent than any other urban form. (A single point creates an access problem to places further away from it, while a line allows more places to focus alongside it). Current planning practices such as zoning result in mono-functional urban environments. This separation between land uses makes the public reliant on vehicular transportation and furthermore accelerates the aspect of congested traffic arterials.

A semi-lattice urban development system consists of the following interrelated components:

- **Parallel limited-access rights of way (mobility spine)** for both fast-moving private transport (e.g. a freeway) and public transport (e.g. a railway and/or bus-way) with frequent connections to the activity spine or main road;

- An **activity spine** is the route within a development corridor on which all development is focused. Activity spines will be major carriers of all modes of transport and will enable
direct access to a range of high intensity land-uses such as retail, cultural, residential and employment;

- **Activity streets** are smaller versions of activity spines, although the same principles namely linearly, accessibility, land use diversity and intensity apply. In activity streets however there are much lower levels of opportunity, e.g. there may be no freeways or metropolitan scale land uses in proximity; and

- **Nodes** (e.g. shopping centres, stadiums, hospitals, and commercial /employment areas) need to be located alongside the activity spines and streets, to serve as magnets and assist in facilitating movement along these spines.

### 4.1.3 Existing Urban Structure and Proposed Spatial Framework

The proposed spatial framework for Middelburg, Hendrina and the rural area are indicated on **Figures 21 to 23** and reflects the following components:

- A Hierarchy of Roads
  - Mobility Spines/fast moving access ways
  - Activity Spines
  - Activity Streets
- Activity Nodes/Areas
- Mixed Land Use
- Open Space System
- Residential Development
  - Infill Development
  - Densification
- Social Infrastructure
- Industrial Development
- Mining
- Future Urban Extension
- Extensive Land Use/Agriculture
- Urban Edge
4.1.4 Hierarchy of Roads

Mobility Spines/Fast moving access ways

The N4 Freeway (Maputo Development Corridor), situated to the south of Middelburg, is currently the only route that functions as a mobility spine/fast moving access way. The proposed P220-1 and P228-1 would in future function as mobility spines. The primary purpose of these fast moving mobility spines is to provide mobility for high volumes of traffic linking in with the broader region with limited access allowed onto these routes. Land uses which benefit from high levels of visibility and regional accessibility would locate along mobility spines.

Hendrina is situated on the intersection of three Provincial and one National Road. These roads act as main transport corridors from east to west and north to south and vice-versa. The National/Provincial roads traversing Hendrina are as follows:

- N11 - Hendrina/Ermelo;
- P52-1 - Bethal/Carolina;
- D1398 - Amot/Hendrina; and
- D1287 - Hendrina/Davel.

A number of National and Provincial roads traverse the area of jurisdiction of Steve Tshwete Local Municipality.

The most prominent of these are the N4 National route crossing the area from east to west and the N11, traversing the area from north to south. Furthermore a number of Provincial Roads traverse the area. These include the following:

- P154 Middelburg to Witbank and Wonderfontein;
- P127 Middelburg to Van Dyksdrift;
- P180 Witbank to Van Dyksdrift;
- P182 Hendrina to Van Dyksdrift;
- P30 Middelburg to Bethal;
- P52 Hendrina to Bethal and Carolina;
- P51 Groblersdal to Stoffberg and Middelburg;
- P62 Stoffberg to Belfast; and
- P169 Stoffberg to Roossenekal.
These provincial roads are important communication routes along which the majority of activities at a local scale and movement are concentrated. The provision of social and other facilities along these routes will improve accessibility of the surrounding rural areas to these type of facilities.

4.1.4.1 Activity Spines

Local access needs to be provided to development areas along activity spines. Activity spines are closely connected to the fast moving access ways (mobility spines), and provides areas in which densification and development should be focused.

These activity spines are characterised by conflicting traffic movements, on street parking and signalised intersections. The activity spines contain various modes of transportation and will give direct access to a range of high intensity land uses, including retail, cultural, residential, employment and recreational facilities. The proposed activity spines within the Steve Tshwete local Municipality area are described below:

• **Middelburg**

**East-West Activity Spines**

**President Kruger/Ikageng Streets**

This proposed east-west activity spine is situated to the north and parallel to the N4 mobility spine. This spine would in future serve as a link road facilitating movement between two of the proposed north-south stretching activity spines (the P220-1 and P51-2) and between the proposed Mhluzi Activity Node and the existing Middelburg Central Business District.

**P154-4**

This proposed activity spine serves as a link road facilitating movement between all the proposed north south stretching activity spines and between the following activity nodes/areas:
* Middelburg Central Business District;
* Twin City Secondary Activity Node;
* Eastdene Secondary Activity Node;
* High density residential areas (proposed densification); and
* Industrial areas (employment areas).

It is proposed that this activity spine be extended eastwards as future urban development expands in an easterly direction.

North-South Activity Spines

P127-2

This activity spine would serve as a link road between the two proposed east-west activity spines and would facilitate movement between the Middelburg Central Business District and the urban areas to the north and south.

Keiskamma / Coetzee Street and the P30-1

These activity spines would facilitate movement between the southern urban areas and the Middelburg Central Business District.

P51-2

The P51-2 activity spine would form a connection between the two east-west activity spines and would link the urban areas to the north of the P154-4 with the Twin City Secondary node.

P49-1

This activity spine provides a linkage between the south easterly urban areas and the areas of employment (Industrial), and though its connection with the proposed P154-4 activity spine, with the Eastdene and Twin City Secondary Nodes and the Middelburg Central Business District.
• Hendrina

N11-8

The N11-8 being the National road traversing Hendrina, from north to south acts as the most prominent activity spine in Hendrina.

P52-1

This route forms the secondary activity spine in Hendrina as it intersects with the N11-8 thereby creating the hub of the Hendrina CBD.

D1398

This district route acts as an additional activity spine as it links Hendrina to Kwazamokhule past the industrial area.

4.1.4.2 Activity Streets

The primary functions of activity streets are providing access and connection between the different activity spines. Activity streets are thus regarded as streets of more local nature and importance, providing access to activity spines and nodes as well as to inter-modal transfer facilities.

The areas along these streets are characterised by lower levels of current development including most of the smaller development nodes (neighbourhood nodes) within the study area. Streets that have been identified to fulfil an activity street function include the following:

• Middelburg:

  - Ring Road: Tswelopele, Tafelberg and Kilo streets
  - Protea Street
  - Samekoms Road
  - Van Riebeeck Street
  - H.F. Verwoerd Street
- Sipres Street
- Renoster Road
- Hendrik Potgieter Street
- Long Street
- Zuid Street
- Verdoom Street
- Orange Street
- Hex River Road
- Philodia Street

4.1.4.3 Activity Nodes/Areas

The hierarchy of Activity Nodes/Areas within the Steve Tshwete Local Municipality area can be described as follows:

- **Primary Node**

  The Middelburg Central Business District is the primary activity node of Middelburg. Retail development, offices, government buildings and municipal offices are located here. The Hendrina CBD acts as the primary activity node in the greater Hendrina.

- **Secondary Nodes**

  Secondary Activity nodes consist of two existing and two proposed nodes namely:

  * **Existing nodes:**
    The Twin City and Eastdene nodes in Jan van Riebeeck Street to the east of the CBD.
  * **Proposed nodes:**
    The Middelburg Mall development in Aerorand to the south of Tafelberg Drive and west of the Fontein street extension.
    The Ngwako node in Mhluzi.
• **Neighbourhood nodes**

Local neighbourhood nodes compliment the primary and secondary nodes and should be located in such a way as to serve all suburbs. There are currently ten nodes of neighbourhood importance throughout the Steve Tshwete Local Municipality area. Future development of these nodes should be promoted in order to realise their full potential. Only one new neighbourhood node is proposed.

* **Existing neighbourhood nodes:**
  
  - Dennesig
  - Kanonkop
  - Tosca
  - Merino
  - Ermbee
  - Middelburg Extension 18
  - Aerorand
  - Middelburg Extension 22
  - Nasaret
  - Mhluzi
  - Kwazamokuhle

* **Proposed neighbourhood node:**

  A neighbourhood node is proposed in Mhluzi on the south western corner of the Ikageng Street and Ring Road crossing. This area was previously earmarked as the Mhluzi CBD.

4.1.4.4 **Mixed Land Use**

A mixed land use zone is proposed along those sections of the identified activity spines where a tendency towards mixed land uses, i.e. parks, schools, residential, retail etc., already occur. These mixed land use zones should be limited to various densities residential, retail, entertainment, offices and other uses deemed compatible with the adjacent areas, i.e. residential, open space or industrial.
The location of mixed land uses and higher residential development adjacent to activity spines would promote a clear logic in terms of urban structure and a decreased separation of employment and place of residence.

4.1.4.5 Open Space System

- **Middelburg:**

  The open space system consists of the following elements:

  - Rivers, streams and flood plains;
  - The Kruger, Athlone and Middelburg dams;
  - Ridges;
  - The Botshabelo Nature Reserve; and
  - Active and passive recreation facilities.

  The open space system is an important structuring element of both the existing and future urban structure, and should form an integrated part of the overall spatial framework. Middelburg’s open space system is of importance in terms of its tourism and recreational potential and its overall visual aesthetically impact. The conservation of the open space system should therefore be regarded as a priority.

- **Hendrina:**

  Hendrina open space system consists of the tributary separating Kwazamokhule and Hendrina, the pans, dam and holiday resort.

  The open space system is an important structuring element of both the existing and future urban structure, and should form an integrated part of the overall spatial framework.

  The open space system is of importance in terms of its tourism and recreational potential and its overall visual-aesthetically impact. The conservation of the open space system should therefore be regarded as a priority.
The Kosmospark municipal Caravan Park is situated to the west of the dam and consists of 20 developed sites. Adequate underdeveloped space is available and renders the opportunity to further develop the caravan park into a holiday resort.

4.1.4.6 Residential Development

- **Middelburg:**

  The spatial structure of Middelburg still portrays some elements of development facilities of a previous dispensation. Eastdene and Nasaret are closely situated on the eastern perimeter of Middelburg. Mhluzi accommodates the bulk of low-income group citizens and is situated on the north western sector of town, thus the furthest away from the major employment nodes.

  The density in Mhluzi is also considerably higher than the rest of the town, followed by Nasaret and Eastdene.

  Areas for infill development and densification have been identified in order to promote integration and the optimal utilization of existing urban infrastructure (i.e. engineering services and social facilities) in the short to medium term.

- **Hendrina:**

  Hendrina portrays the results of previous polices as separate towns developed over the years. Kwazamokhule resulted in a dormitory town with limited facilities and basically no employment opportunities.

  The predominant land use in the Greater Hendrina is residential with an average density of 10 units/ha in Hendrina and 30 units/ha in Kwazamokhule (Refer to Figure 22). From the aforementioned it is clear that Kwazamokhule has considerably higher densities than Hendrina with its large “burger erwe”.

  There are currently a number of vacant residential erven in Hendrina whilst a large demand for erven exists in Kwazamokhule. Homeless people from Kwazamokhule do however not take up the vacant erven in Hendrina, mainly due to affordability.
Currently Hendrina LC experiences a large demand for low cost/low income residential housing. There are currently approximately 2000 informal backyard lodgers residing in Kwazamokhule. The constant influx of unemployed and/or low-income people from mainly farms contributes to this demand.

The need for low to high income residential erven should be addressed in such a way as to promote the integration of the separate towns to prevent urban sprawl and to enable the optimal utilization of existing social and engineering infrastructure. This can be achieved through the identification of existing vacant erven and farmland for infill and densification purposes.

4.1.4.7 Urban Residential Infill Development

Residential infill areas proposed include the following:

- **Middelburg:**
  - Middelburg Extension 23 is situated between Protea Street and the proposed P127-2 mobility spine. It is proposed that this development cater for the high low income residential category, i.e R60 000 to R80 000.
  - The Aerorand secondary school erf with proposed erf sizes of approximately a 1000 – 1200m².
  - The vacant area to the east of the hotel up to the proposed P228-1 mobility spine is proposed for low income residential purposes, i.e. R30 000 – R60 000.
  - The vacant area to the east of the Dennesig and Kanonkop suburbs up to the proposed urban edge should be used for infill purposes. Proposed erf varies between 650 to 1000m².

- **Hendrina:**
  - **Kwazamokhule Extension 6 – Short Term**

    The Hendrina Council is currently in the process of developing 620 low-income residential erven Kwazamokhule Extension 6. This extension will be developed in two phases. The planned Kwazamokhule Extension 6 can be seen as a step to link Hendrina Kwazamokhule.
- **Future Extension 7 – Short to Medium Term**

  Approximately 600 erven  
  Residential erf sizes of 250-350 m²

- **Future Extension 8 – Short to Medium Term**

  Approximately 150 erven  
  Residential erf sizes of 400 – 500m²

- **Future Extension 9 – Short to medium Term**

  Approximately 700 erven  
  Residential erf sizes of 400 – 500m²

**4.1.4.8 Densification**

Areas proposed for densification purposes include the following:

- **Middelburg:**

  - A re-layout of Aerorand west with erf sizes varying between 650 to 800m². The planning was completed during 1999/2000.
  - A re-layout of Middelburg Extension 18 with an average erf size of 400m² has been done.
  - Densification through sub-division (850m²) and/or rezoning in order to subdivide should be promoted in Middelburg Extension1, Groenkol, Middelburg South and Middelburg Proper (“ou-dorp”).
  - Rezoning of general residential erven and subsequent sub-division – average erf size 350m².
Hendrina:

- The south eastern sector of Hendrina

  The Council has recently densified certain underdeveloped “burger erven” in Hendrina to erf sizes varying between approximately 400 to 500m²

- The south western sector of Hendrina

  Sub-divisions up to approximately 900m² should be allowed in this area.

4.1.4.9 Social infrastructure

In terms of the Key Leverage Areas and Objectives no specific reference will be made to specific social facilities in the spatial development framework. It is envisaged that future social facilities will be accommodated in Multi-Purpose Service Delivery Centres to ensure equitable access to community facilities for all communities. These centres should be one stop service centres providing basic services required on a regular basis and include inter alia:

- Shops;
- Pay points for water, electricity and telephone bills;
- Satellite post office
- Welfare offices (Pensions pay-out points, social work services);
- Clinics / Community Health Centres;
- Police Stations;
- Adult Basic Education and Training Facilities;
- Small business hives/job creation programmes;
- Recreational and sport facilities, and libraries/information centres;
- Offices of civil society structures (Civic Organisation, Community/Local Development Forums, etc.);
  - Housing Information Centres;
  - Planning Zone Forums; and
  - Arts and Cultural Facilities.

The proposed distribution of these centres throughout the Municipality is indicated on Figure 24.
4.1.4.10 Industrial Development

The existing industrial areas are situated south-east of Middelburg. The land directly south of the existing industrial areas should be maintained for the future expansion of the industrial area.

Sufficient vacant industrial zoned properties are available in Hendrina to accommodate short to medium term needs.

4.1.4.11 Mining

The south-western section of the study area accommodates rich coal deposits on the farms Uitkyk and Rietfontein which forms part of the Ecca and Dwyka series of the Karoo system. It is estimated that ±40 million tons of exploitable coal can be found on 560 ha of land in the Uitkyk vicinity and 60 million tons on 460 ha on the farm Rietfontein, west of “Federale Stene”.

It is therefore important to preserve this area for future mining purposes. Mining activities within the Steve Tshwete Local Municipality are predominantly located in the area south of the N4.

The current activities as well as future mining activities will play an important role in the economic development and employment creation within the region and province.

The potential conflict between mining activity and agricultural activities will need to be addressed through proper environmental impact assessment.

4.1.4.12 Future Urban Extension

- Middelburg

Vast areas of vacant, accessible land suitable for future urban development is situated south and south east of the existing urban areas. On the longer term the areas east of Middelburg Extension 22, 24 and Nasaret should be used for affordable housing as this area will be closest to the industrial area, being a major employment node.
- **Hendrina**

  The land to the south of Road P52-1 and to the east of Hendrina is suitable for future urban development in the long term, once all the infill and densification areas are fully developed. The existing graded airstrip, which is rarely utilized, is situated on this land.

4.1.4.13 **Extensive Land Use/Agriculture**

The areas towards the north of Greater Middelburg and west of Mhluzi encounters poor soil conditions and/or steep slopes and are not suitable for urban development. These areas would however be suitable for extensive land uses/agricultural purposes.

4.1.4.14 **Urban Edge**

In the formulation of the proposed spatial development framework an urban edge has been identified. This urban edge should be implemented as a planning tool in order to promote the principles and guidelines underpinning this spatial development framework.

4.1.4.15 **Municipal Solid Waste Site**

- **Middelburg**

  A municipal solid waste disposal site is operational to the west of Middelburg on land previously being mined for coal and construction material.

- **Hendrina**

  The municipal solid waste site is situated directly east of the integrated open space system and to the north of Road P52-1. This solid waste site has adequate space for at least 20 years.
4.1.4.16 Settlement Development

- Existing Urban Settlement

Three types of urban settlements mark the former Representative Council area. The first type of village or settlement is "holiday" towns frequented by people for leisure purposes. These towns are Presidentsrus and Kranspoort. Development in these towns is strictly controlled to maintain a specific character.

The second category of towns is the towns associated with the mines and power stations in the Middelburg district. These towns have been developed by Eskom namely Rietkuil, Pullen’s Hope and Komati. Mining villages namely Blinkpan/ Koomfontein, Naledi and Lesedi were developed to accommodate mine employees. Kanhym as farming company developed Tokhoza and Eikeboom village. Social services and amenities are usually better developed in the abovementioned settlements.

The last settlement type represented is Doornkop that can be regarded as an “agri-village” that is the result of land restitution project. The above-mentioned villages are situated on the major transport routes and serve as nodes where future provision of services should be concentrated to consolidate development in the area.

4.1.4.17 Poor Rural Urban Linkages

The three types of villages mentioned above should serve as focus for development, providing input and output markets, mechanical and other workshops, financial services, and social services such as schools and clinics which will be of benefit to people in the surrounding area.

For historical reasons, these functions and links to the rural hinterland often do not exist or are poorly developed. Inter-district transport routes serve migrant labour routes, not the needs of intra-regional trade. Output from the large farms passes through co-operatives to distant markets without serving the needs of small towns. Stores and supermarkets bring in food products over distances rather than attempting to establish local suppliers. There is a need to integrate economic activity in order to generate income from added value at a local level.
4.1.4.18 Economic growth of small towns

The initiatives necessary for stimulating the economy of small towns and their hinterlands include the following:

- Promote diversification for the local market and training in skills that will add value to farm and forest products and tourism;
- Ensure that existing social services facilities are widely and efficiently used;
- House people closer to their employment, rather than sustaining them in distant “apartheid” settlements which necessitate costly daily transport and subsidies; and
- Link small towns into regional economies by periodic markets, thus building total production and cash circulation and a more competitive position in the wider economy.

4.1.4.19 Rural Development Framework of Land Affairs

This rural development framework describes how government, working with rural people, aims to achieve a rapid and sustained reduction in absolute rural poverty.

- **Specific development aspects to be addressed** include the following:
  - Institutional development: assisting rural people to set the priorities in their own communities, through effective and democratic bodies, by providing the local capacity and access to funds for them to plan and implement local economic development;
  - Investment in basic infrastructure and social services: the provision of physical infrastructure (e.g. housing, water and power supplied, transport) and social services (e.g. basic health care and schools);
  - Improvising income and employment opportunities and by broadening access to natural resources (e.g. arable and grazing land, irrigation water, woodland and forests); and
  - Restoration of basic economic rights to marginalised rural areas by establishing periodic markets as the organizing spatial and temporal framework for development.

To meet the backlog in infrastructure in rural areas, government is committed to subsidize the capital for a basic level of service with the following programmes:
- School and clinic building programme, through the national and provincial departments, fully funded by government, with telephones and electricity;
- The DWAF Community Water and Sanitation Programme provides the platform for the implementation of internal bulk and connector water and sanitation projects;
- The Department of Constitutional Development’s Consolidated Municipal Infrastructure Programme (MIP): up to R3000 per household for the installation and rehabilitation of internal bulk and connector services, i.e. water and roads;
- The Department of Housing’s National Housing Subsidy up to R 23100 per qualifying person for the land, on-site infrastructure, as well as top structure; and
- The Department of Land Affairs Settlement/Land Acquisition Grant: up to R23100 per qualifying person to acquire land and effect homestead and land improvements, through the provision of basic infrastructure as part of the Land Reform Programme.

The potential for local economic development initiatives and job creation in sectors such as commerce: small, medium and micro enterprises: agriculture, forestry, tourism, and labour-intensive public works should be promoted. The prime importance of broadening access to land resources, the establishment of partnerships between local government and the private sector and NGO’s for the promotions of a wide range of enterprises is recognized. These should be built upon to utilized the local natural resource base and of the potential for trading links within an area. These should be strengthened through the establishment of rings of markets for locally and regionally produced goods and services, linking small towns into regional economies, building total production and cash circulation and more competitive position in the wider economy.

Target service levels for different types of rural areas cannot be laid down specifically. Key factors influencing the level of service provision area: speed of economic growth in the locality; how widely the benefits of that growth are distributed; the capacity of institutions responsible for delivering municipals services; and the individual and collective choices of consumers.
The contrast in expected levels of service provision between urban and rural areas reflects the relatively high cost of installation in the latter and the fact that rural people can afford only the lowest level for recurrent costs.

4.1.4.20 Tourism and Recreational Development

Tourism can play an important role in the economic development of the Steve Tshwete Local Municipality. The area located to the north of Steve Tshwete Local Municipality is regarded as having major development potential for tourism and related activities. This area should be managed with due regard to any potential issues emerging from an environmental sensitive viewpoint. Appropriate environmental impact of development in this area should be investigated. Land uses that have a potential negative environmental impact should not be allowed.

The above mentioned area could form part of an eco-tourism belt between the Loskop valley in the west to the Kruger national Park in the east. The Loskop Nature Reserve should be linked with the Mkombo and Madala Nature Reserves in Thembisile and Dr. JS Maroka Municipal areas.

An eco-tourism centre exists in Roossenekal, Kraanspoort, Aventura Loskop and a number of other private game parks and reservations could combine to establish a very successful eco-tourism area.

Presidentsrus was initially developed as a tourist/holiday town. If the necessary infrastructure could be provided and the nature reserve developed, the area could attain its optimal potential.

In many cases, the most suitable form of tourism in rural areas is eco-tourism which aims to balance the needs of people with the need to protect the environment. It is low-impact tourism, which means that it aims to disturb the environment as little as possible.

Eco-tourism has the following advantages:

- Eco-tourism projects are more likely to be sustainable because the natural environment is protected; and
- Eco-tourism projects are on a smaller scale than other forms of tourism, which makes it easier for rural communities to participate.
4.1.4.21 Agricultural / Small-Scale Farming Development

Areas with high and medium agricultural potential are located in the central and southern area in the Steve Tshwete Local Municipality.

These areas should be preserved for primary agricultural purposes, which are an important contributor to economic development and employment creation. Although there are mining activities located in these zones, the areas not utilized for mining and mining infrastructure should be considered and promoted for agricultural purposes where feasible.

Labour intensive agricultural enterprises (small-scale farming) should be promoted and supported in order to increase rural employment, production and income. Small-scale farming could provide productions for the immediate local market and for the local industry.

Typical obstacles to the growth and development of the small-scale farming sector include the following:

- There is inadequate access to land for farming;
- There is an unwillingness of financial institutions to lend for purchase of basic requirements such as implements and seed;
- Due to decades of discrimination and repression, there is a lack of skills and knowledge;
- In many areas, there is a lack of basic infrastructure such as access to water, electricity, and roads, for transporting goods to market;
- There is a lack of markets at which small farm produce can be exchanged locally, be processed and be bought at low cost for export to regional and national markets; and
- There is a lack of information, which would enable small-scale producers to operate profitably.

CHAPTER 5: LAND USE MANAGEMENT (POLICIES & GUIDELINES)

5.1 Introduction

Land Use Management policies and guidelines form an integral part of the Spatial Development Framework. These policies and guidelines outline the procedures, norms and
standards as well as evaluation criteria for the Municipality on assessing land use development applications and proposals. A Land Use Management System is critical in dealing with land use changes and day-to-day land use activities.

The Land Use Management policies and guidelines as outlined in the Steve Tshwete SDF deals with the following land use sectors:

- Development Patterns
  - Settlement hierarchy
  - Nodal development and densification
  - Urban edge

- Conservation
  - General environmental conservation
  - Landscapes

- Tourism and Recreation
  - Tourism, Resort development and recreation

- Agriculture and Rural Land use
  - Sub-division of agricultural land
  - Prime and unique agricultural soils
  - Small scale farming
  - Rural non-agricultural land use

- Urban land Use
  - Housing/residential
  - Community facilities
  - Business
  - Industrial

In general, and in view of the Land Development Principles as stated in the Development Facilitation Act, the National Spatial Development Perspective, and the Provincial Growth and Development Strategy, it is proposed that the future development of Steve Tshwete should be based on the following:
• Capitalising on the strategic location and linkages of the Municipality;
• Integrating and consolidating settlements;
• Establishing a hierarchy of service centres to ensure equitable access to social infrastructure and the development of economic activities;
• Utilizing the natural resources of the municipal area to promote eco-tourism, and identifying and developing the local cultural historical heritage;
• Consolidating economic activities along the major corridors/around the major nodes in the municipality, with specific focus on the N4 and the R555 between Witbank and Middelburg;
• Improving living conditions through the formalization and upgrading of informal settlements and the provision of basic services;
• Actively managing the natural environment in order to ensure a sustainable equilibrium between the mining, agriculture, and tourism industries;
• Protecting natural resources from degradation and pollution; and
• Enhancing biodiversity conservation through environmentally sustainable development.

5.2 Development Pattern Land Use Policy

5.2.1 Background

Development pattern refers to distribution of urban nodes and settlements throughout the study area and their local characteristics. The characteristics of the existing development pattern within the Steve Tshwete Municipal area has been dealt with as part of Chapter 2 and Chapter 3 of this SDF report.

• Development consists of two main categories, namely urban nodes (primary and secondary nodes) and rural settlements.
• Urban nodes are located throughout the area and co-insides largely with the settlement pattern as described by the German geographer Christaller in his Central Place Theory.
• Rural settlements are located along the major transport routes and also co-inside with the abovementioned Central Place Theory. (Refer to Figure 25).
Development patterns within the study area should be guided by a number of considerations and planning policies. These include and refer to:

- The settlement hierarchy;
- Nodal development and densification; and
- Establishment of an urban edge.

5.2.2 Objectives: Development Pattern

- To establish a co-ordinated pattern of urban and rural nodes/settlements on a regional and local level to ensure the equitable and deficient distribution of resources between nodes;
- To allocate functions and investment towards the urban nodes that is consistent with the identified hierarchy of a node;
- To reinforce transportation linkages between existing nodes;
- To plan for an efficient and integrated urban rural structure; and
- To identify and establish urban edges where applicable.

5.2.3 Settlement Hierarchy

The Steve Tshwete Municipal SDF is subject to and should be aligned to the principles and guidelines contained in the Nkangala District Municipality SDF.

The concept of a settlement hierarchy, in principle, reflects levels of investment based on the hierarchy level of specific nodes and settlements. Middelburg is classified as a Level 1 settlement and Hendrina as a Level 2 settlement. These settlements are defined as follows:

- **Level 1**
  These towns offer the full spectrum of activities and services, including business, commercial, industrial uses, as well as social and residential uses.

- **Level 2**
  In terms of the Nkangala district, Hendrina is rated as a third level town. However, in terms of the study area Hendrina is classified as a second level town. This town renders mainly services on a local level.
• **Level 3**  
Villages such as Rietkuil, Pullen’s Hope, Komati/ Blinkpan/ Koornfontein etc. are third level towns providing housing for Eskom and mining employees. Other un-proclaimed villages such as Bank, Naledi and Lesedi provide accommodation to mine employees. Thokoza and Eikeboom village at Kanhyr provide housing to farmworkers.

It should be noted that many of the above mentioned towns and villages have also been identified to host Multi Purpose Service/Community Centres as proposed by the Nkangala SDF (2008) (refer to Figure 24).

### 5.2.3.1 Policy

- To accept and acknowledge the principle of settlement hierarchy as contained in the Nkangala District Municipal SDF; and
- To integrate the settlement hierarchy model and recommendations with respect to localised nodal development, densification and urban edge strategies and policies.

### 5.2.3.2 Guidelines

- The principle to fulfil in the basic human rights and the provision of basic services should be adhered at all settlement hierarchy levels.
- Market forces and general human movement and settlement patterns should provide a strong foundation and guideline for the provision of basic services and capital investment.
- Given the unique nature of the study area, investment (private or public) should be based on needs and economic potential of the area.
- The investment levels and hierarchy of settlements as per the Nkangala District Municipal Spatial Development Framework should not be seen as a strict and rigid guide with respect to investment. Human needs, economic trends and influences should be incorporated into the investment prioritisation process.

### 5.2.4 Nodal Development and Densification

Nodal development refers to development of more compact urban areas and is an attempt to direct development pressures towards opportunities for urban intensification within existing built up areas. This intensification occurs over time through infilling, dwelling conversions, re-development of degraded areas, land use changes, density increases and development of open land. Existing built up areas should therefore be used in the most efficient way to
accommodate society’s needs for further development, before consideration is given to the release of Greenfield or new urban areas. This emphasis is consistent with the other aspects of sustainable development, including the efficient use of resources and reducing the need to travel.

Un co-ordinated development within the area may have detrimental impacts on the sensitive environment, as well as on concentration of people and land uses within nodes and settlements for their sustainable functioning. The positive effects of a well-managed development pattern are varied and include, amongst others:

- To ensure well balanced development pattern and to promote economies of scale;
- To guide decision making for the equitable distribution of development to sustainability of needs and settlements;
- To increase employment by maximising development opportunities;
- To protect sensitive environmental areas, prime and unique agricultural land and thereby broadening the municipalities economic base; and
- To reduce overlapping and co-dependency of community facilities, and services, including service duplication.

5.2.4.1 Policy

- The existing pattern of development should be maintained and the establishment of new nodes or settlements should not be permitted.
- Proposed development within existing urban areas should be carefully monitored and should enhance the character and urban form of the existing nodes.
- Retain the rural hinterland as homogeneous agricultural areas and untransformed natural area through the concentration of development within existing nodes and settlements.
- To improve the level of sustainability of nodes and settlements, development should be guided to locate within nodes and settlements where comparative advantage for specific land use already exist and which complements the function of the node or settlement.
- Where the need has been identified for development in the rural areas for the purposes of accommodating agri-villages, small scale farming, agri-industries, resorts, tourist facilities, tourist accommodation or any other non-agricultural uses, these should be
placed and established as per the relevant policies outlined in the Spatial Development Framework.

- In exceptional cases when new rural development nodes are established, detailed feasibility, economic viability and impact studies should be conducted on all required levels.

### 5.2.4.2 Guidelines

- Existing built areas should be used to accommodate new developments by the:
  - Integration of previously segregated areas;
  - Utilisation of currently serviced areas;
  - Recycling of vacant, degraded and underutilized ground to accommodate new development;
  - Re-use of land that is no longer appropriate for its existing use for alternative land uses;
  - Use and promotion of higher densities where compatible with the character of the surrounding area; and
  - Implementation of the urban edge.

- As a general principle, a balanced approach towards growth and development within a node should be followed, to ensure that one or more nodes are not developed at the expense of other nodes.

- To implement this balanced approach, a strategic growth and local economic development plan should be compiled for these nodes, focusing on selected projects that will strengthen the comparative advantages of nodes.

- Prior to establishment of new rural nodes, rural development areas should be thoroughly investigated and reported with respect to development feasibility.

### 5.2.5 Urban Edge

The demarcation of an urban edged for the urban areas in the Steve Tshwete Municipality is important for the achievement of the Spatial Development Framework principles regarding the containment of urban sprawl, the intensification of development and the integration of urban areas. The urban edge is a line that forms the boundary between urban development and rural/agricultural areas. The urban edge is essential for the protection of valuable agricultural...
land, natural and cultural resources, and will establish limits beyond which urban development will not be permitted. In essence then, an urban edge:

- Limits the sprawl of towns and rural nodes;
- Safeguards natural areas from encroachment; and
- Encourages densification and infill development.

5.2.5.1 Policy

- To contain and manage urban sprawl and to improve urban efficiency, urban development should be contained within the urban area/edge.
- Densification and intensification of urban areas should be promoted.

5.2.5.2 Guidelines

- The following general guidelines should be used for the alignment of the urban edge
  - The existing planning policy.
  - Existing zoning and land uses.
  - Natural environmental informants, i.e. natural water courses, 1:100 year flood lines, wetlands, slopes steeper than 1:4, ridge lines, unstable geology, sensitive vegetation, protected natural environments, mineral deposits/ mining land etc.
  - Agricultural potential of land.
  - Build environment, i.e. cultural heritage structures, scenic routes and vehicular accessibility.
  - Legal, planning and land ownership status.

- Development outside the urban edge as outlined in the agriculture and rural land use policy should be permitted within the policy guidelines.
- Certain developments can take place in order to reinforce the urban edge. These development should be carefully considered based on the following:
  - Development necessary to maintain essential rural economic activity;
  - The development of outdoor recreational facilities;
  - Passive recreation facilities, golf courses and cemeteries;
- Golfing estates, nature reserves and the majority of development is dedicated to open space; and

- These developments adjoining or reinforcing the urban edge should maintain a general openness of the area and be of appropriate scale and design. These developments should further provide a transitional zone between high-density urban areas and agriculture land.

5.3 Conservation Land Use Policy

5.3.1 Background

Environmental conservation is prioritised on a National, Provincial and Local level. Sustainability of the natural environment can only be achieved when adequate environmental protection and conservation measures, policies and strategies are in place. The role of environmental management, linked to tourism, job creation and economic growth and development cannot be over emphasised. These sectors are playing a more important role as development through the study area is diversified and the role and contribution of agriculture and mining towards a GGP decreases.

The influence of mining on the environment still remains high. The rehabilitation of mining areas, and the general mining procedures and processes followed by small individual mines are sometimes not executed properly, which results in the degradation of the environment.

5.3.2 Objectives: Conservation

- To conserve the environment and prevent and restore degradation where possible by enforcing legislation and provision of financial and capacity support by Council within institutional limits.
- To ensure that all actions and projects take cognisance of the environment and limit the impact on the environment.
- To strictly enforce the National Environmental Conservation Regulations.
5.3.3 General Environmental Conservation

General and over-arching policies and guidelines with respect to environmental conservation are essential in meeting the environmental conservation objectives as confirmed in the Steve Tshwete Municipality Integrated Development Plan and which forms part of the Nkangala District Municipality SDF.

5.3.3.1 Policy

- Apply the “precautionary” principles in cases where uncertainty surrounds the full impact of proposed development. This implies that if the impact of a proposed development is not fully known and cannot be established, the development should be put on hold until further clarity and decisions have been obtained from the relevant Department of Environmental Affairs.
- Strictly enforce the environmental conservation regulations with respect to listed activities and EIA procedures.
- Habitats and/or natural features deemed to be of importance or significant should be protected from inappropriate development, conserved and enhanced.
- As a general rule, development should make a positive contribution towards environmental conservation and management. Development in sensitive areas should therefore only be granted on the basis that environmental management and conservation are promoted and enhanced for the long term sustainability of the area. This applies to urban and rural developments.

5.3.3.2 Guidelines

- All applications for development, urban and rural, should be assessed on the following principles:
  - Currently not vulnerable area.
  - Vulnerable area.
  - Endangered area.
  - Critically endangered area.
  - Municipal services/nature reserves/natural parks.
  - Impacted area.
• Development that may have an adverse effect, directly or indirectly, on a site of conservation importance should not be permitted unless the need for the development clearly outweighs the local, regional, and national nature conservation importance of the site. Given that the importance of the development can be demonstrated that such development should be subjected to the environmental impact assessment procedures. An environmental management plan should be compiled to ensure the minimisation of adverse environmental impacts.

• Developers and/or land owners should demonstrate that they have the ability and means to implement and adhered to the necessary environmental management procedures.

• Habitats and natural features of local and regional value including important urban open spaces, and pockets of indigenous vegetations should be protected from significant adverse effects unless it can be demonstrated that the reason for the proposed development outweighs the need to conserve the conservation value of the site.

• In meeting the Municipalities obligations towards the National Environmental Management Act as well as Integrated Development Plan Guidelines, environmental conservation plans should be compiled. These plans and their recommendations should form part of this Spatial Development Framework and expand on the objectives, policies and guidelines of the environmental conservation land use policy.

• The Municipality should identify and designate areas worthy of protection. These areas should be conserved and dealt with appropriately, e.g. the north western part of the study area in close proximity of Loskop dam and along the Olifants- and Klein Olifants rivers.

• Degraded land should not be considered as an obvious site for development. Many of the degraded areas in the region, e.g. rehabilitated mining land can be restored to a natural state and will enhance the overall landscape. Development should not be permitted in the sensitive landscape area unless it is compatible with the conserving and the enhancing of the areas landscape character.

• Proposed developments located outside and in close proximity to conservation concerns and areas should be carefully considered not to detract from the conservation worthiness and visual impacts with respect to existing conservation areas.
5.3.4 Landscapes

The study area comprises of a variety of landscape types, which each have a unique character and conservation worthiness. These include:

- River valleys
- Hinterland
  - Agricultural land
    - Cultivation
    - Grazing
  - Mining land
  - Nature reserve/ Game farms/ Eco-tourism
- The urban areas

5.3.4.1 Policy

- River Valleys
  - New developments, as a general rule, should not be permitted below the 1 in 100 year flood line. In exceptional cases where development do take place, permanent structure should not be erected.
  - New developments along the river should be limited to existing development and/or recreation nodes.
  - All new developments along the river should be subject to a detailed environmental impact assessment with specific input from the Department of Water Affairs and Forestry.

- Hinterland
  - General conservation principles and conservation legislation should apply to all developments.
  - Conservation of prime and unique agricultural soils policy should be implemented in all places.
  - Tourism and resort developments within the rural area and hinterland should always have a positive spin off towards environmental conservation.
- Conflict between high potential cultivation and open cast coal mining should be monitored and evaluated in terms of the long term sustainability and spin off generated.

• Urban areas

- Protect existing open space and conservation worth areas within all urban settlements.
- New urban development should as a minimum requirement adhere to the principles of the “Red book” (Guidelines for Human Settlement Planning and Design) with respect to the provision of open space.
- Environmental and visual impact of all urban development should be carefully considered and evaluated against impact on the surrounding area and character.

5.3.4.2 Guidelines

• Development should not normally be permitted on areas at risk from flooding.
• The Municipality and other agencies, i.e. Government Departments and District Municipality, which have a responsibility in the study area, should co-ordinate that planning, management activities and development initiatives to ensure that the environment is managed in an integrated manner so as to enhance its natural value and to benefit environmental conservation.
• High priorities should be given to maintaining and enhancing landscapes including river valleys and mountains.
• Development outside the urban areas and outside the urban edges should in general be restricted to degraded areas and impacted areas.
• The pollution of the entire study area, with specific reference to river systems and natural areas should be carefully monitored and controlled by the Municipality. This includes pollution emanating from informal settlement, industrial and mining activities.
• The Municipality should ensure that effective measures are in place to retain and manage indigenous vegetation.
• Consideration should be given to introduce incentives and controls regarding the planting of indigenous vegetation especially along the river valleys and the eradication of invader plants.
5.4 Tourism and Recreation Land Use Policy

5.4.1 Background

The Steve Tshwete municipal area has tremendous tourism and recreational potential with emphasis on the largely under developed north western area which is ideal for conservation related and eco-tourism land uses. In line with the National and International trend, tourism and recreation is becoming an increasingly important component of the regional economy, including job creation, economic sustainability and development in general. Growth and development of the tourism industry should be dealt with as a separate sectoral planning initiative. However, the Spatial Development Framework for Nkangala District Municipality addresses tourism and recreation with respect to its spatial implications. The influence of trout fishing in the Dullstroom/ Machadodorp area is mentioned, as well as the nature reserves in Dr. JS Moroka and Thembisile Municipalities. Little mention is made of the Loskop dam nature reserve and the private lodges and game farms in the north western corner of the study area. The abovementioned facilities can act as a link between the nature reserves of Dr. JS Moroka and Thembisile and the north eastern trout sector in Belfast, Dullstroom, Machadodorp and Waterval Boven.

Policy with respect to tourism and recreational development are interlinked with the other land use policies outlined in this chapter and it should be read in conjunction with all development related policies and guidelines.

5.4.2 Objectives: Tourism and Recreation

- To promote appropriate and sustainable recreation and tourism opportunities and facilities.
- To support private initiatives and developments within the context of environmental conservation and the general spatial development guidelines.
- To ensure public access to main recreation, historical and natural resources.
- To implement the principle of sustainability on all levels of tourism and recreation development.
5.4.3 Policies and Guidelines

5.4.3.1 Policy

- Tourism and recreation facilities should be accessible to the general public.
- Recreation facilities and assets should be developed and properly managed by the Municipality or in terms of as a public-private partnership initiative.
- Tourism development in the rural areas should adhere to the policies outlined in this SDF.
- The strategies as per the tourism development initiatives and plans for the study area should be consulted as part of the SDF policy framework.

5.4.3.2 Guidelines

- The development of the tourism potential in the study area should be encouraged and supported by the Municipality, within the parameters of policy and legislative guidelines.
- Development of tourism and recreational facilities should be co-ordinated on a regional (Mpumalanga) and district (Nkangala District Municipal) level.
- Access to and linkages with possible sources of funding and development initiatives should be exploited wherever possible.
- Facilities with tourism potential should be identified and prioritised for development.

5.5 Sub-division of Agricultural Land

The agricultural sector in the study area is responsible for the employment of approximately 8.6% of the workforce. Although it is only the sixth largest GGP generator, agriculture and the subsequent management of the rural areas, play a major role in the economy and social well-being of the region. The agricultural sector’s proportional contribution has decreased over the medium term (1996-2002). According to the Global Insight 2003, the manufacturing sector dominates the local economy, followed by mining, electricity and the community services sector.
Farming activities vary from irrigation- and dry land crop production to diary, cattle, sheep, pig, poultry and game farming. Large portions of the southern and eastern part of the study area are under irrigation and subject to intensive commercial farming.

The change of land use from agriculture to other non-agricultural uses may have significant impact, not only on environmental processes and eco-systems, but also on the character of the area, the existing settlement pattern, provision of services and the protection of scarce agricultural land. The decline of the agricultural sectors GGP contribution is a clear indication of the shift and pressure towards more diversified rural and agricultural land uses.

In order to protect and ensure sustained rural and agricultural use of the area, it is necessary to formulate certain land use management guidelines and policies with respect to rural agricultural land use.

With respect to agricultural and rural land use, the following policies and guidelines are provided:

- Sub-division of agricultural land.
- Prime and unique agricultural soils.
- Agri-villages (Rural settlements) and small scale farming.
- Rural non-agricultural land use.
- Tourism and resort development.

5.5.1 Objectives: Agricultural and Rural

- To protect prime and unique agricultural areas and agricultural land.
- To implement guidelines to protect the rural character of the area.
- To provide guidelines that will assist the local authority during the assessment of land use applications outside urban areas.
- To protect and ensure viability of scarce agricultural land.
- To accommodate land use diversification in the rural areas to ensure economic sustainability.
- The optimisation of agricultural potential, within an ecologically sustainable framework.
5.5.2 Sub-division of Agricultural Land

The sub-division of sustainable agricultural units into non-sustainable units reduces the agricultural potential of farming units. Other implications are the loss of rural character, the creation of new rural nodes and problems relating to service provision. In order to maintain agricultural sustainability and feasibility, sub-division of sustainable agricultural units should be subject to certain policy requirements.

5.5.2.1 Policy

- Sub-division on all agricultural land should be subject to the stipulations and requirements of the Sub-division of Agricultural Land Act, 1970, (Act 70 of 1970).
- Sub-division of agricultural land should be prohibited except where it is supported by the Department of Agriculture and Land Affairs in terms of relevant legislation.
- Prime and unique agricultural land should be protected, including land identified by the Department of Agriculture as having high agricultural potential.
- Agricultural land may only be considered for sub-division on the basis of proof that the sustainability of sub-divided units into economic sustainable productive units.

5.5.2.2 Guidelines

- Applications for sub-division of agricultural land should generally be accompanied and supported by a report addressing issues of sustainability and soil quality.
- The Department of Agriculture should make available a map indicating all land of high agricultural value which would exclude sub-division.
- General guidelines for sub-division boundaries should include tree lines, fence lines, sensitive areas, rivers, roads, rail, service servitudes or canals.
- Where sub-division is supported, cognisance should be given to land uses, conservation value, availability of bulk infrastructure and natural vegetation.
- Environmentally sensitive areas which are not accommodating sustainable productive units should preferably be rezoned for conservation purposes (i.e. Open Space/Special for conservation purposes).
- Consolidation of sub-divided land units with other units should be promoted.
5.5.3 Prime and Unique Agricultural Soils

The maize producing southern and eastern part of the study area is well known for its high agricultural yield. The area is therefore unique and its potential and assets should be protected. Unfortunately, this is also the area experiencing conflict with mining activity.

The identification and mapping of prime and unique agricultural areas will ensure that stringent measures and policies can be implemented to protect valuable agricultural production areas. As no such a classification currently exist, special provision should be made as an interim measure for areas classified as high primary production areas. The Department of Agriculture will play a major and important role with respect to classification and identification of prime and unique agricultural areas. These provisions include that land use management guidelines should be compiled to protect the top soils, undesirable sub-divisions, restrictions against non-agricultural land use development and measures to promote optimal utilisation of agricultural land and available water resources.

5.5.3.1 Policy

- High agricultural production areas as identified and confirmed by the Department of Agriculture and Land Affairs should be protected against non-agricultural development and degradation.
- Sustainable use of agricultural land and resources should be promoted. The agricultural sector should employ the principles of “land care” as endorsed by the Department of Agriculture.
- Doubt and/or uncertainty on behalf of the Municipality with respect to soil potential and production potential should be referred to the Department of Agriculture for confirmation and/or policy directives.

5.5.3.2 Guidelines

- The Department of Agriculture should be requested to make available data and mapping with respect to soil potential. These guidelines should include development guidelines and conditions.
- High production potential areas should be retained exclusively for agriculture purposes.
• In adherence to the principles of land care, natural resources for agricultural production purposes should be used in a sustainable manner with special reference to water usage, grazing and cultivation.

• Sub-division and/or rezoning of land portions should be assessed once positive feedback has been obtained with respect to agricultural sustainability from the Department of Agriculture.

• The eradication of alien vegetation on prime and unique agricultural land should be promoted and propagated.

• Guidelines for the placement of non-agricultural land uses in higher agricultural production areas, should this be unavoidable, are:
  
  - Next to access roads and road intersection.
  - Un-developable pockets of land.
  - At locations where the static impact is minimal.
  - At locations with minimum disturbance of agricultural character and agricultural land use activities.
  - Isolated portions of land with limited agricultural development potential.

5.5.4 Agri-Villages and Small Scale Farming

The economic advantages and prospects of establishing agri-villages/rural settlements and/or small scaling farming projects should be emphasised. Development of agri-villages and small scale farming projects will make a significant contribution to local economic development for rural communities together with creating opportunities for prospective farmers. An agricultural holding policy should therefore seek to spatially guide the development of agricultural enterprises that will contribute to sustainable small-scale agricultural development.

Agri-villages or small scale farming activities can generally be defined as planned farming activities on a relatively small scale and can include traditional small holdings, a residential component that forms part of a large and communal farming operation and larger communal farming operations without the residential component. These activities would be normally associated with emerging farmers and new farmer development.
5.5.4.1 Policy

- Small scale farming should only be established on land which will support the sustainable utilisation of the agricultural resources.
- Small scale farming should be developed to enable the previously disadvantaged or emerging farmer access to land for agricultural purposes and contribute to the strengthening of the agricultural sector, including job creation and employment.
- The establishment of small scale farming or agri-villages on municipal “commonages” should be carefully weighed up against land availability for more dens and higher impact development such as residential and community facilities.
- The development of agri-villages and small scale farming projects should be subject to normal planning guidelines and input from the relevant line departments.
- Agri-villages with a residential component should not be established where such a settlement will only create a new residential node, but rather the extension of an existing node and thereby providing a mixed land use character.
- The creation and establishment of agri-villages should adhere to the approach that optimum use must be made of existing public investments in established towns.
- Agri-villages should be well planned with support from the relevant line departments and availability of adequate implementation plans and strategies.
- In the exceptional case of establishing agri-villages, consideration with respect to service availability, future development, access, social services and environmental impact should be taken.
- The development of housing related to agri-villages and small-scale farming should adhere to the normal building regulations and minimum infrastructure requirements.
- Agri-villages and small scale farming projects should support the sustainable utilisation of agricultural resources.

5.5.4.2 Guidelines

- Small scale farming projects and agri-villages should be developed for agricultural purposes. These settlements can also benefit from supplying labour to the surrounding farming community, thereby enhancing the economic viability of such a settlement.
- Small-scale farming projects are normally associated with private/public ownership under the management of a communal property association.
- Residents in agri-villages and small scale farming projects should merely be involved with the main activity of these areas, i.e. agriculture.
Agri-villages and small scale farming projects should be economically viable units. This should be supported by the Department of Agriculture with relevant supporting documentation.

Sub-division of these areas should only be permitted with support from the Department of Agriculture within the criteria of sustainable agricultural land units.

Housing and infrastructure development should adhere to normal planning principles and housing units in these settlements should be grouped together on land with the lowest agriculture potential.

5.5.5 Rural Non-Agricultural Land Use

The unique nature of farming in the study area increase pressure for higher impact rural development, necessitating land use management guidelines with respect to development of rural non-agricultural land uses. These land uses are normally associated with demands in the rural area for non-agricultural or service related industries. The high rural population and shift towards tourism and eco-related activities, further necessitates clear policy guidelines with respect to non-agricultural uses in the rural area.

Rural non-agricultural land uses specifically, but not exclusively refer to the following activities:

- Farm Schools;
- Agri-Industries;
- Engineering Services;
- Service Trades and Farm Shops;
- Warehousing and Packing sheds; and
- Nurseries, Kennels and Riding Schools.

It should be noted that the policy for rural non-agricultural land uses exclude tourism and resort related activities. These uses will be dealt with under a separate policy.

5.5.5.1 Policy

Only non-agricultural land uses that compliments the rural and agricultural communities should be permitted. These uses should be restricted to existing rural settlements and development nodes and only in exceptional circumstances should non-agricultural uses be permitted outside these existing development nodes.
• Non-agricultural land uses should be directly aimed at service provision of the immediate surrounding agricultural area.
• Non-agricultural land uses, with specific reference to agri-industries, warehousing and business uses should be located within existing nodes, settlements and towns. However, these uses can be considered for development outside these existing nodes, settlements and towns on the basis that adequate proof and motivation have been provided that alternative options have been investigated and this specific location will benefit the farming community in general.

5.5.5.2 Guidelines

• The general restrictions, policy and guidelines with respect to sub-division of agricultural land would apply. This includes involvement of the Department of Agriculture and other line departments.
• Only in exceptional circumstances should the sub-division for non-agricultural purposes of land designated for agricultural purpose be permitted. Non-agricultural land uses should be restricted only to those that support the sustainable production of the surrounding farming community.
• The policy and guidelines with respect to agri-villages, small scale farming, prime and unique agricultural soils and sub-division of agricultural land should apply.
• Non-agricultural land uses should be sensitively sited and buildings should be clustered where ever possible.
• Industrial buildings with specific reference to packing sheds and warehousing should not be placed close to scenic routes.
• Building plan approval and location of non-agricultural uses should take cognisance of the visual and environmental impact.
• Site development plans for all rural non-agricultural land uses should be prepared and approved by Council.

5.5.6 Tourism and Resort Development

The importance of tourism in the study area and in the district as a whole should not be underestimated. This industry has shown tremendous growth and is a major contributor to the areas local economy and job creation. The sustainability of tourism and related resort developments are based on sound, land use management guidelines with respect to placing of these units within the urban and agricultural environment.
As a result of the location of tourism related uses, often close to natural areas, along scenic routes and intensive agricultural productive areas, their development may lead to negative impact on the character of the rural and agricultural areas or the release of productive agricultural land. Given the economic benefits from tourism related development, their development and use should be managed to the advantage of retaining natural environments and without destroying agricultural resources.

Tourism development in the rural area should be closely linked and interact with environmental and agricultural conservation.

Tourism related uses/attractions in the rural areas include:

- Tourism facilities: restaurants, gift shops, farm stalls, farm stores and recreation facilities.
- Tourist accommodation facilities: guesthouses, guest farms and bed in breakfast enterprises.
- Tourist residential facilities: resorts, camping, hotels and game or eco-tourism farms.

5.5.6.1 Policy

- Tourist facilities
  - As a general principle, tourist facilities should be carefully placed to mitigate their potential impacts
  - Tourists facilities should generally be of a limited scale and form that is consistent with the character of the rural environment
  - Tourist facilities should adhere to general aesthetic guidelines and enhance the surrounding environment.

- Tourist accommodation
  - Tourist accommodation, as defined, should represent smaller scale tourism accommodation facilities on farming enterprises.
  - Bed and Breakfast, guest farms and guest houses should be of a scale and built form that is consistence with the character of the rural environment
- Sub-division of agricultural units to accommodate tourist accommodation should not be permitted.

- Tourist residential facilities

- Tourism residential facilities should only be permitted on non-economically viable agricultural land uses
- Tourism residential facilities, especially resorts, should in general not be subdivided into smaller portions.
- Resort development should only be permitted based on the resource orientated approach.
- Resort development supported by Council should, as a spin-off, enhance conservation with adequate environmental management strategies and plans in place.

5.5.6.2 Guidelines

- Tourist facilities

- Tourist facilities would normally be situated along popular tourist routes.
- Tourist facilities should be generally concentrated in specific areas and minimise the creation of additional access roads along major routes.
- Access, setback and building lines should be obtained from the relevant transport authority.
- Visual impact should be minimised and be subject to a site development plan approval process.
- For signage and road site advertising boards should be approved by the District Roads Engineer.

- Tourist accommodation

- Tourist accommodation (guest farms, guest houses and bed & breakfast enterprises) can be supported on farms and the rural area provided that sub-division will not be permitted.
- The dominant use on the land unit will remain agriculture and accommodation.
- The dominant use shall remain for short-term living accommodation purposes for tourists.
- Building plans should be submitted for all tourist accommodation facilities.
- Tourist accommodation facilities should not exceed ten rooms and facilities exceeding this requirement should be regarded as a resort, which will require rezoning.
- A site development plan should be submitted for the entire development.
- The location of new units should be clustered and accessible to main roads and existing access points. Architectural design, visibility and signage should be carefully monitored and should adhere to all regulations and legislative requirements.

**Resort developments (rural)**

- The main objective of resort developments in the rural area should be to promote tourist and holiday facilities in areas with special environmental or created attributes and to encourage access to these facilities by the general public. At the same time care is needed to minimise potential negative impact of development on fragile environments.
- The guiding principles should be that the resort must not detract from the amenity that attached the holiday facility in the first place, nor should it cause public nuisance for other people living and working in the facility.
- Resort developments could include auxiliary services normally associated and reasonably related to a resort, i.e. lecture rooms, restaurants, tourist facilities, conference facilities, spa/hydro/wellness centre and other uses.
- Development should be resource orientated. Resource referring to areas with unique characteristics such as rivers, springs, waterfalls etc.
- Visibility and visual impact of the developments should be minimised and compliment the surrounding natural areas.
- Availability of engineering infrastructure with reference to waste removal, access, electricity, water provision, sanitation etc. should be adequately managed within the environment and its surroundings. The size of the development/number of units/density shall be determined by contextual informants such as environmental sensitivity, views, carrying capacity for the environment, service provision and shall be based on merit according to desirability criteria.
- All resort developments will be subject to a detailed site development plan, including development aesthetics, service provision, vehicular movement, conservation strategies and plans as well as development management.
- Council shall stipulate development parameters with regard to density, height, coverage, layout, building design, landscaping, parking, access, and land uses.
- Clustering should be promoted and linier or dispersed development and placing of units should be discouraged.

5.6 Urban Development Land Use Policy

5.6.1 Background

The demographic projections indicate that there will be sustained pressure for urban development in core urban areas, especially Middelburg / Mhluzi, Hendrina / Kwazamokhule and Doornkop. It is expected that the future population growth will increase the pressure for greenfield development, densification of land uses, demands for services and infrastructure, etc. The management of land uses will therefore require careful consideration if sustainability is to be achieved and in retaining the character of certain urban nodes. In addition to this, urban growth and development should be subject to “good planning” which implies that proper planning principles and procedure should be followed in all urban development aspects.

This section of the Spatial Development Framework sets out policy recommendations and guidelines for the ongoing management of the designated core urban areas within Steve Tshwete Municipality.

Urban land use policies for the purpose of this report refer to the following main categories:

- Housing/Residential
- Community facilities
- Business facilities
- Industrial

5.6.2 Objectives: Urban Development

- To proactively implement a realistic policy framework for future urban development;
To promote equal access to services, facilities and opportunities;
To promote guidelines for land use management and development of urban areas;
To plan for an efficient and integrated urban structure; and
To apply planning standards with respect to land use provision and management.

5.6.3 Housing / Residential

The provision of adequate housing facilities for the population of the study area is one of the key principles and priorities embedded in the constitution. The development of residential areas and creation of liveable environments is of critical importance for social sustainability and upliftment of the people residing within the study area.

5.6.3.1 Policy

- Maintain and improve residential character by building liveable and socially acceptable residential areas;
- Addressing the current housing backlog mainly in the public housing category, should be prioritised;
- A balanced and co-ordinated approach should be followed throughout the study area, to address the housing need and the public housing category linked to the housing subsidy programme;
- Residential areas and future expansion should be proactively identified, planned and surveyed;
- Involvement of public and beneficiary communities in all housing and related development should be prioritised;
- Residential/housing development should take place within the urban edge;
- All housing developments should be subject to town planning approval procedures and building plan approval; and
- Strive to minimise or eradicate informal housing and/or shacks.

5.6.3.2 Guidelines

- Address the current housing backlog through the Government Subsidy Scheme;
- Compile a housing plan to accommodate the current backlog and implementation strategy;
- Pro-actively identify land;
Continually monitoring and updating housing waiting list;

While the majority of housing backlog is in the low-income category, middle and high income housing areas should also be made available as part of an integrated strategy to attract people with high skill levels, increase the rates base, promote local economic development and to ensure a variety of housing types. This will include group housing, semi-detached, row houses, walk-up apartments, flats and mix used areas. These uses and higher density residential development should be promoted within economic constraints;

Housing development should be developed and promoted in areas with the lowest impact on Municipal service delivery costs. Public housing should not be developed on slopes steeper than 1 to 10 and environmentally sensitive areas should be avoided;

Densities higher than 18 units per hectare should be avoided with minimum erf sizes of 250m² in low-income subsidised residential areas.

5.6.4 Community Facilities

Community facilities provide an essential collective support system for the urban population. With proper planning the provision of community facilities can create liveable urban environments and contribute towards social upliftment of the relevant communities.

5.6.4.1 Policy

The range and number of basic social services and community facilities that meet the needs of poorer communities should be provided;

As a general principle, communities should have equitable access to primary health care, education and social services. The multiple use of community facilities should be encouraged;

Ensure that there is sufficient capacity within social facilities to serve the relevant communities; and

The provision of community facilities to rural communities should be carefully planned and assessed with respect to accessibility and economic viability.

5.6.4.2 Guidelines

Encourage multiple use of community facilities, i.e. adult education, health care, indoor sports, community centre, etc.;
• Avoid duplication and the provision of fragmented community facilities and sites;
• Location of community facilities should be done in close co-operation and consultation with the relevant communities and the (Redbook guidelines for Human Settlement Planning and Design);
• The location of community facilities should be used to create liveable and structured urban environments;
• Existing community facilities should be developed and strengthened to avoid duplication and should function as integrating factors for the relevant communities and urban areas;
• The following standards for provision of community facilities should as a general rule be applied to low-income residential areas (Redbook guidelines for Human Settlement Planning and Design):
  - Crèche nursery school, 1 per 5 000 people, minimum size 1300m².
  - Primary school, 1 school per 3 to 4 000 people, minimum size 2, 4 hectares.
  - Secondary school, 1 school per 6 to 10 000, minimum size 4, 6 hectares.
  - Clinic, 1 clinic per 5 000 people, minimum size 1 000m².
  - Community centres, 1 per 10 000 people, minimum size 5 000m².
  - Churches, 1 per 2 000 people, minimum size 1500m².

• Public open space should be provided at approximately 10% of the gross area as functional open space.

5.6.5 Business

Central Business Districts, secondary business nodes and informal business activity are one of the most important formative agents within the urban structure given the past segregated planning policies. A number of the urban areas and business nodes are separated and unstructured. The placing, development and expansion of future business areas can play a major role in assisting the restructuring of the urban form.

Specific reference to fragmented urban areas and business centres can be observed in Middelburg CBD through Motortown and Twin City up to Eastdene. The same applies to the Hendrina CBD. The development of Mhluzi, Eastdene and Nasaret, as well as Kwazamokhule further fragmented the townscape of Middelburg and Hendrina respectively. Typically, the largest portion of the population is geographically removed from the main business areas and
business centres. Other smaller villages and settlements in the study area represent limited business activity with no formal structure.

The provision of new business sites and strategies with respect to central business area development can play an important role in strengthening the urban character and urban form of the urban nodes in the study area.

5.6.5.1 Policy

- Business/commercial related land use should be confined to the core urban areas (central business district) and secondary/lower order nodes;
- The provision and locality of Regional centres should be done in such a fashion that the rural / regional market is captured effectively, thereby benefiting business in general and enhancing the economic viability of the town as a service centre;
- The infiltration of business/commercial uses into a residential area or the periphery of the CBD should not be permitted (this excludes small house shops and regional centres);
- To address the spatial imbalances and inner quality of access to opportunities for previously disadvantaged communities, neighbourhood nodes should be identified at places of collection near movement routes linked to the CBD via activity streets;
- Neighbourhood nodes and the CBD should become the activity areas of business/commercial and other public infrastructure services, ultimately to become a cluster of activities and service/multi-purpose centres;
- In order to attract investment, the provision of land for business purposes with the associated infrastructure should be provided on a pro-active basis;
- The development of SMME should be encouraged in selected locations in or near business nodes and the CBD; and
- House enterprises and house shops should be permitted in residential areas, provided that the uses will not impact on the well-being of the residents in the neighbourhood and impacting on the character of the area.

5.6.5.2 Guidelines

- Neighbourhood nodes and the expansion thereof should be identified;
- The central business district should be demarcated;
Restrictions on business development within demarcated nodes and areas should be carefully weighed up against economic viability and investment potential. Ensuring, that the restrictions should not act as a deterrent for possible investors and developers; and

Close linkages between business development and the local economic development plan and strategies should be implemented and co-ordinated on a sub-regional and district level.

5.6.6 Industrial

The economy of Steve Tshwete Municipality is largely based on manufacturing followed by mining, electricity and community services activities. In order to maximise the comparative economic advantages of the study area, industrial development in the area should focus on the existing urban nodes and centres. The aesthetic impact of industrial development, including warehousing in general, should be carefully assessed and restricted to the urban centres to maintain the existing rural character and tourism potential of the area.

5.6.6.1 Policy

The establishment of industries, warehousing and manufacturing trades should be encouraged in urban nodes with good accessibility to the existing road and rail network;

An industrial land release strategy should be planned before industrial land is alienated on an ad-hoc basis;

The establishment of industrial nodes in the rural area should not be permitted as a general rule; and

Establishment of industries outside the urban edge should in exceptional cases be carefully considered with respect to the rural character, visual impact and traffic generation.

5.6.6.2 Guidelines

Industries should be established within the urban edge;

Avoid locations in close proximity to existing ecological areas and areas with high visual impact;

Industrial development should be clustered; and
Service provision, design and environmental impact (noxious uses, pollution and noise pollution, should be carefully monitored and assessed in terms of the relevant legislation).

CHAPTER 6: DEVELOPMENT APPROACH

6.1 Municipal Development Character

Figure 26 graphically reflects the most salient spatial features of the Steve Tshwete Municipality. Middelburg Town represents the Primary Node of economic and social activity in the municipal area. Apart from being centrally located in the municipal area, it is also located directly adjacent to the N4 corridor which runs to the south of the town. The Regional Industrial Node which has the Columbus Stainless Steel plant as the major industry is also part of Middelburg Town. This industrial area represents one of the identified strategic nodes identified along the Maputo-Walvis Bay subcontinental corridor (N4) and thus has an important contribution to make towards the successful development of this corridor.

The Secondary Activity Node to the Steve Tshwete Municipality is Hendrina-Kwazamokuhle which is significantly smaller than Middelburg Town.

The remaining urbanized areas in the municipal area mainly comprise rural residential towns around the three power stations (Komati, Hendrina and Arnot); the various coal mines in the municipality; the Kranspoort and Presidentsrus holiday towns/resorts; and Doornkop which could also be considered as a potential agri-village.

The holiday towns/resorts all form part of the Eco Tourism precinct of the municipality which functionally evolves around the Loskop Dam and Nature Reserve as the central core. The mines and power stations are all located in the southern portion of the municipality with the main locational factor being the coal deposits/reserves present in this part of the municipal area.

Intensive crop farming co-exists/competes with mining activities in the southern portion of Steve Tshwete municipality, while the northern parts are characterised by predominantly cattle and game farming.
6.2 Local Development Approach

General

Middelburg Town within the Steve Tshwete municipality is by far the most dominant activity node and accommodates the largest concentration of people in the municipality. Figure 27 graphically reflects the main formgiving elements impacting on the spatial structure of the town, and highlights the Strategic Development Areas (A-L) available to accommodate future urban growth (economic and residential).

From this figure it is evident that the scope for urban expansion to the west and north is fairly limited. To the west the recent mining activities (especially around the old Middelburg-Witbank road) limits the expansion opportunities, while topographical constraints (steep gradients and sensitive ecological features) limit expansion potential towards the north. These areas are also furthest removed from the core of economic activity and job opportunities, which centres around the CBD and the industrial area.

With the CBD and industrial area viewed as the centre of gravity of the town, it is evident that the areas to the east and south are well-located, and relatively undeveloped. These areas are not only well-located relative to the existing economic activity and job opportunities, but also to the N4-corridor adjacent to the south.

In terms of NSDP principles it would thus make sense to use these areas to expand on the existing footprint of the town rather than creating new, isolated urban settlements elsewhere in the municipal area. It would also make economic sense to use land adjacent to the N4 corridor/freeway to promote economic activity and to strengthen the corridor. The visual exposure and regional accessibility offered by the freeway should be optimally utilized as was done in the case of Midrand around the Ben Schoeman freeway.

Strategic Development Areas (SDAs)

In view of the above the future role and relative importance of the various Strategic Development Areas in Middelburg Town can be summarised as follows:
Future urban growth (economic and residential) could foremost be accommodated within the **area(s) earmarked for densification** by subdividing and densifying the large “Burger Erwe”, and redeveloping the old houses. This could consolidate the function of the CBD as the primary activity node in, and around, the town of Middelburg, as well as the Steve Tshwete Municipality. Hence, following a policy of densification within the identified areas will ensure the sustainability of the Middelburg CBD by preventing decentralisation of economic and residential activities.

- **Areas A, B and C** could be utilised to consolidate, and round-off the urban structure of Middelburg to the north. More specifically, **Area A** could possibly be utilised for subsidised housing by the Municipality in the form of Breaking New Ground (BNG) and/or Public-Private Partnership (APP) over the next 5-10 years. Large portions belong to Council and could serve to link Mhluzi to Dennesig, especially the southern portion. **Areas B and C** could be utilised to accommodate private sector driven development needs over time. Hence, Council should not pro-actively support applications in the short to medium term. As reflected in section 3.1.4.13 of this report, the development potential of these areas are also limited by steep slopes and poor soil conditions.

- **Areas D, E, F, G₁, and G₂** are well located to accommodate future residential growth, and expansion of Middelburg. Hence, Council should obtain portions of the land, and initiate developments in terms of the BNG principles comprising a mixture of low, middle and high income developments catering for subsidised and bonded housing, and providing rental stock and full ownership. This could be done over the next 15 years in an incremental manner.

- **Area I** should be utilised to accommodate private sector driven residential development. The northeastern corner of this area borders onto a new shopping centre development which will be strengthened by the delineation of Area H₁ (see below).

- **Area H₁** constitutes a narrow strip of land on the western side of Fountain Street to accommodate commercial and clean-industrial development applications on both sides of the road, and essentially strives to create a local activity spine along Fountain Street. The development of such an activity spine will serve to channel and link the development opportunities offered along the on- and off-ramp with the N4 towards the new shopping centre and Middelburg CBD.

- **Area H₂** is currently being developed. Indications are that this development will cater for a range of commercial and clean-industrial uses in a strip-like development, as well
as a medium to high density residential component comprising town-houses and two to three storey walk-ups.

- **Areas J and K** should be utilised for industrial development. More specifically, **Area J** should be utilised for “Council initiated” industrial development to relieve the existing shortages in industrial land, and to ensure that there is more than one supplier of industrial land in the market. Congruently, **Area K** should be developed by the private sector in the short term by:

  i) Promoting the establishment of an industrial office node on the portion of land adjoining the northeastern quadrant of the N4 on-ramp; and

  ii) Promoting incremental industrial development eastwards towards the Hendrina off-ramp, with developers contributing towards the establishment of a parallel access road as illustrated on Figure 27.

- **Area L** should only be developed in a 15-20 year period once areas H₁, H₂, J and K are fully developed, and the proposed parallel access road has been constructed between the two access interchanges.

Some sense of the magnitude/extent of the SDAs identified can be gained by using the current land requirement of 490 ha to accommodate the existing housing shortage of approximately 6,883 units in Mhluzi/Middelburg as a scale (refer to Table 17). An area of this size (490 ha), which is sufficient to accommodate the entire housing backlog of Mhluzi/Middelburg, is approximately the size of SDA D.

**Urban Edge**

Given the need to protect the resources (agriculture, nature reserves, and mineral deposits) offered by the areas surrounding Middelburg, and to reduce infrastructural costs, the urban structure needs to be consolidated. Hence, a number of SDAs (discussed above) have been identified within which to accommodate urban growth in an incremental manner. To ensure that urban growth takes place within the identified SDAs and not outside of these, an urban edge is proposed.

More specifically, the proposed urban edge consists of a primary and secondary edge respectively (refer to Figure 27). The primary edge indicates within which area urban development may, and may not, take place over the next 15 years, whilst the secondary
edge indicates areas where the primary edge should be extended to after 15 years, once all areas offering development potential within the primary edge has been utilised.

The spatial location of the proposed edge was determined by taking the following into consideration:

- Development(s) north of Dennesig will present service provision cost implications due to differing drainage areas;
- Although the N4 to the south presents a strategic asset, it also presents a barrier to the functional integration of developments on the southern side of the freeway with the town of Middelburg;
- The mining area(s) to the west of Middelburg presents a sterilised strip of land not suitable for residential developments etc.;
- Parts of area G2 falls within a different drainage area, which presents service provision cost implications; and
- It is believed that the SDAs as depicted in Figure 27 offers sufficient development opportunities in, and around, the existing fabric.

Essentially the urban edge should start to direct growth towards the east and south-east. As a principle the following land uses could be allowed outside of the edge in areas earmarked as Extensive Agriculture:

a) Extensive agriculture;
b) Conservation Areas/Nature Reserves;
c) Tourism and related activities e.g. curio markets;
d) Recreational facilities e.g. hiking trails/hotels/game lodges;
e) Farm stalls and home industries;
f) Rural residential uses/agricultural holdings in specific areas;
g) Any other related development/service provided that the proposed development/service:
   - Services primarily the local market; and/or
   - Is resource based; and/or
   - Is located at a defined and approved service delivery centre.

Council should be aware though, that the introduction of an urban edge will have an impact on the property market. Due to limiting the area of land available for development, the cost of land available for development will increase. Consequently, council should ensure that they secure an adequate amount of land for development purposes at the lowest possible cost.
Middelburg-Witbank Local Activity Spine

The potential to develop a continuous strip of economic activities along the old Witbank-Middelburg road is functionally difficult due to the mining activities within the mining strip as illustrated by Figure 27. Locational factors are also not as favourable when compared to the proposed developments along the N4 freeway. Large scale developments would also generate additional heavy-duty vehicle traffic along the road, and through the central areas of Emalahleni and Steve Tshwete, which is not desirable.

Consequently, the concept of a continuous development corridor between the two towns (which is functionally and visually removed from the N4 corridor) should be reconsidered. It is proposed that the road should rather be developed to support the local initiatives of adjacent landowners.
STEVE TSHWETE
STUDY AREA ACCORDING TO
CHRISTALLER’S CENTRAL PLACE
THEORY (TRANSPORTATION MODEL)
Broad Soil Types and Land Types of the Steve Tswhete Municipal Area

Agricultural Potential of Land Type Units Derived from Land Type Soil and Terrain Inventories

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<th>Average Agricultural Pot. Class</th>
<th>% High</th>
<th>% Moderate to High</th>
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<th>Low to Moderate</th>
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<th>Area (%)</th>
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Total: 397758.7 100.0

Broad Soil Type | Description of Broad Soil Types (See Table above) | Area (ha) | Area (%)
--- | ----------------------------------------------- | --------- | ---------
Ba | Plinthic soils (with subsurface accumulation of iron and manganese oxides due to fluctuating water table) with low to intermediate base status. Red soils are widespread. Upland duplex and black clay soils are rare. | 229874.1 | 57.79 |
Bb | Plinthic soils (with subsurface accumulation of iron and manganese oxides due to fluctuating water table) with low to intermediate base status. Red soils are not widespread. Upland duplex and black clay soils are rare. | 127980.1 | 32.18 |
Bc | Plinthic soils (with subsurface accumulation of iron and manganese oxides due to fluctuating water table) with high base status. Red soils are widespread. Upland duplex and black clay soils are rare. | 4026.3 | 1.01 |
Ea | Black structured swelling and non-swelling clay soils and red structured clay soils. | 1094.7 | 0.28 |
Fa | Commonly shallow soils on hard rock, fractured rock or weathering rock materials. Other soils may occur. Lime is rare or absent in the landscape. | 1229.0 | 0.31 |
Ib | Rocky areas (>60% exposed surface rock) with miscellaneous soils. | 33554.5 | 8.44 |
Total: 397758.7 100.0
THE 26 FUNCTIONAL URBAN AREAS AS IDENTIFIED BY THE NSDP
DISTRICT MUNICIPALITY
PROPOSED REGIONAL MULTI PURPOSE COMMUNITY CENTRES
STEVE TSHWETE
LOCAL MUNICIPALITY
MIDDELBURG TOWN
SPATIAL DEVELOPMENT FRAMEWORK

Legend
- Residential
- Open Space
- Mining
- CBD
- Industrial
- Expansion Areas
- Light Industrial / Commercial
- Densification
- STW
- river line
- Railway
- Roads
- Road
- N4
- Urban Edge (next 15 years)
- Urban Edge (15 year +)